FINAL

AIR QUALITY ANALYSIS

Mobile Source Air Toxics (MSATs) Update

I-5 North Coast Corridor Project

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Table of Contents

Table of Contents iii
CHAPTER 1.0 INTRODUCTION 5
1.1 Introduction 5
1.2 Summary 5
1.3 Project Description / Alternatives 8
CHAPTER 2.0 EXISTING CONDITIONS 11
2.1 Environmental Setting, Climate, and Meteorology 11
2.2 Regional and Local Air Quality 11
CHAPTER 3.0 Mobile Source Air Toxics (MSATs) 13
3.1 Background 13
3.2 Msat methodology 15
3.3 MSAT ANALYSIS 20
3.4 MSAT Results 22
3.5 Discussion of Results 28
INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS 28
3.6 Conclusion 30
CHAPTER 4.0 REFERENCES 33

List of Figures

Figure 1 Regional Location Map 6
Figure 2 Project Vicinity Map 7
Figure 3 National MSAT Emission Trends 1999 - 2050 for Vehicles Operating on Roadways 14
Figure 4 Changes in Acrolein Emissions 24
Figure 5 Changes in Benzene Emissions 24
Figure 6 Changes in 1,3 Butidiene Emissions 25
Figure 7 Changes in DEOG 25
Figure 8 Changes in Diesel PM 26
Figure 9 Changes in Formaldehyde 26
Figure 10 Changes in Naphthalene 27
Figure 11 Changes in POM 27

List of Tables

Table 1 Sensitive Receptors 17
Table 2 Land Uses within I-5 Segments 21
Table 3 2015 Changes (Δ) in Total Project MSAT Emission Rates 22
Table 4 2030 Changes (Δ) in Total Project MSAT Emission Rates 23

Appendices

Appendix A Calculations 1

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CHAPTER 1.0
INTRODUCTION

1.1 INTRODUCTION

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) propose improvements to maintain or improve the existing and future traffic operations on the existing Interstate 5 (I-5) freeway from La Jolla Village Drive in San Diego to Harbor Drive in Oceanside/Camp Pendleton, extending approximately 43.4 kilometers (km) (27 miles [mi]) from kilopost (KP) R45.7 to KP R89.1 (post mile [PM] R28.4 to PM R55.4) on I-5.

The, *I-5 North Coast Corridor Project (I-5 NCC),* sponsors include FHWA, Caltrans and the San Diego Association of Governments (SANDAG). The proposed project improvements include one or two High Occupancy Vehicle (HOV) Managed Lanes (ML) in each direction, auxiliary lanes where needed, and possibly one general-purpose lane in each direction. The HOV/Managed Lanes would be available for carpools, vanpools, busses at no cost and be available to single-occupant vehicles for a fee when there is sufficient capacity. The 8+4 build alternative will be analyzed, in this Air Quality Analysis for Mobile Source Air Toxics (MSATs), which has been completed pursuant to the National Environmental Policy Act (NEPA) and subsequent Federal Clean Air Act (CAA).

The purpose of this report is to update the MSAT Analysis dated June 2008 with the Federal Highway Administration's (FHWA) new Interim Guidance on Mobile Source Air Toxic Analysis in NEPA documents (MSAT Guidance), December 6, 2012. Please review the Air Quality Analysis, dated August 2007, for further analysis.

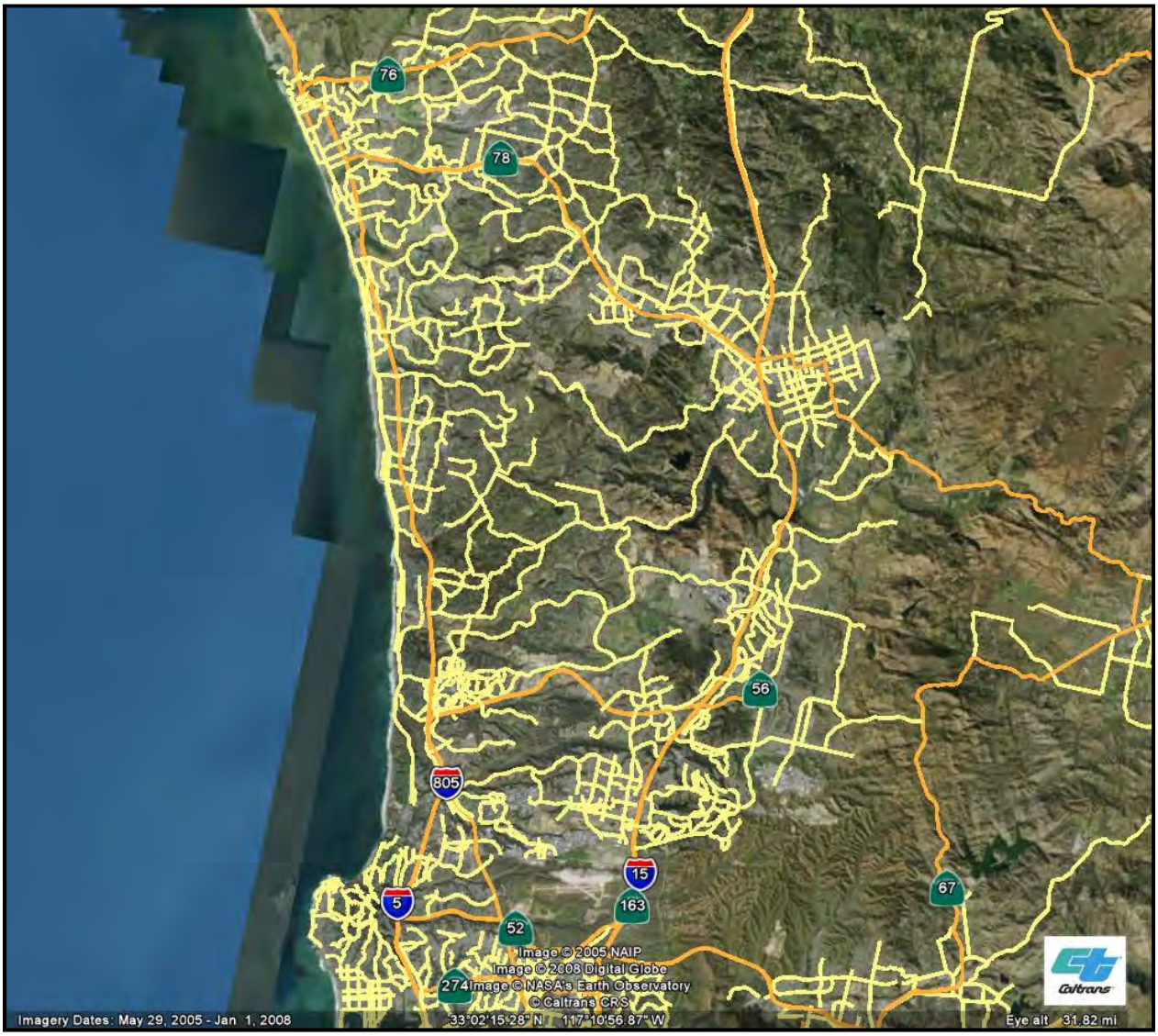
1.2 SUMMARY

The project site is located in the San Diego Air Basin (SDAB), which currently meets federal standards for all criteria air pollutants, except ozone (O_3). The SDAB has been designated as nonattainment/marginal for the 8-hour O_3 standard. The SDAB is designated as a federal maintenance area for carbon monoxide (CO) following its redesignation from nonattainment to a CO attainment area.

The updated MSAT Guidance included two new pollutants polycyclic organic matter (POM) and naphthalene, while removing acetaldehyde. The current priority MSATs; including acrolein, benzene, 1,3 butadiene, diesel particulate matter (DPM), diesel exhaust organic gases (DEOG), formaldehyde, naphthalene and polycyclic organic matter (POM) have been analyzed herein.

Figure 1 Regional Location Map

Figure 2 Project Vicinity Map



1.3 PROJECT DESCRIPTION / ALTERNATIVES

Four build alternatives and one no-build alternative are under consideration. Common features to all four build alternatives include the construction of DARs at Voigt Drive and Manchester Avenue. Auxiliary lanes would also be constructed in various locations along the corridor to facilitate traffic entering and exiting main travel lanes along the freeway. Freeway overcrossings and under crossings would be widened. Reconfiguration of various interchanges to improve vehicular, pedestrian, and bicycle circulation would also occur. Bridges would be widened across the lagoons, and several bridges would also be lengthened. Other features, such as sound walls, retaining walls, concrete barriers, guard rails/end treatments, crash cushions, bridge rails, drainage improvements, and signage, would also be installed at specific locations along the corridor. These alternatives are further described below.

10 + 4 Barrier

The 10 + 4 Barrier alternative would build one general-purpose lane in each direction on I-5 from south of Del Mar Heights Road in San Diego to SR-78 in Oceanside. Two HOV/Managed Lanes would be built in each direction from north of the I-805/I-5 freeway-to-freeway connector in San Diego to Harbor Drive/Vandegrift Boulevard in Oceanside.
This alternative would separate HOV/Managed Lanes from general-purpose lanes with a concrete barrier. This physical barrier would require standard 10-foot emergency shoulder widths on either side of it from north of Del Mar Heights Road to south of SR-78. A variable buffer of up to five feet in width identified by painted stripes would separate HOV/Managed Lanes from general-purpose lanes from Voigt Drive to Del Mar Heights Road and from SR-78 to Harbor Drive/Vandegrift Boulevard in Oceanside.

10 + 4 Buffer

The 10+4 Buffer alternative would add the same number of through lanes (one general purpose and two HOV/Managed in each direction) and function similarly to the 10+4 Barrier alternative, but would use a painted buffer with a width of up to five feet to separate HOV/Managed Lanes from general-purpose lanes for the entire length of the project. The projected cost (right-of-way, support and construction) for the alternative was estimated in the Draft EIR/EIS in 2010 dollars as approximately $3.5 billion.

8 + 4 Barrier

The 8+4 Barrier alternative would not add any general purpose lanes to the existing highway. Two HOV/Managed Lanes would be added in each direction, separated from general purpose lanes as described above for the 10+4 Barrier alternative. This physical barrier would require standard 10-foot emergency shoulder widths on either side of it from north of Del Mar Heights Road to south of SR-78. A variable buffer of up to five feet in width identified by painted stripes would separate HOV/Managed Lanes from general-purpose lanes from Voigt Drive to Del Mar Heights Road and from SR-78 to Harbor Drive/Vandegrift Boulevard. The projected cost (right-of-way, support, and construction) for this alternative was estimated in the Draft EIR/EIS in 2010 dollars as approximately $4.1 billion.

8 + 4 Buffer

The 8+4 Buffer alternative would not add any general purpose lanes to the existing highway. It would function similarly to the 8+4 Barrier alternative but would separate HOV/Managed Lanes from general-purpose lanes with a variable painted buffer (up to five feet in width) for the entire length of the project in lieu of the barrier. The projected cost (right-of-way, support, and construction) for this alternative was estimated in the Draft EIR/EIS in 2010 dollars as approximately $3.3 billion.

For the purposes of this analysis only the 8+4 option will be analyzed, which is the preferred option.

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CHAPTER 2.0
EXISTING CONDITIONS

2.1 ENVIRONMENTAL SETTING, CLIMATE, AND METEOROLOGY

The project is located in the SDAB, which is coincident with San Diego County. The climate of San Diego County is characterized by warm, dry summers and mild, wet winters. One of the main determinants of the climatology is a semipermanent high pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high pressure cell maintains clear skies for much of the year. When the Pacific High moves southward during the winter, this pattern changes, and low pressure storms are brought into the region, causing widespread precipitation. In San Diego County, the months of heaviest precipitation are November through April, averaging about 9 to 14 inches annually. The mean temperature is 62.2 degrees Fahrenheit (°F) and the mean maximum and mean minimum temperatures are 75.7°F and 48.5°F, respectively (WRCC 2006).

The Pacific High also influences the wind patterns of California. The predominant wind directions are westerly and west-southwesterly during all four seasons, and the average annual wind speed is 5.6 miles per hour (mph).

A common atmospheric condition known as a temperature inversion affects air quality in San Diego. During an inversion, air temperatures get warmer rather than cooler with increasing height. Subsidence inversions occur during the warmer months (May through October) as descending air associated with the Pacific High comes into contact with cooler marine air. The boundary between the layers of air represents a temperature inversion that traps pollutants below it. The inversion layer is approximately 2,000 feet above mean sea level (AMSL) during the months of May through October. However, during the remaining months (November through April), the temperature inversion is approximately 3,000 feet AMSL. Inversion layers are important elements of local air quality because they inhibit the dispersion of pollutants, thus resulting in a temporary degradation of air quality.

2.2 REGIONAL AND LOCAL AIR QUALITY

Specific geographic areas are classified as either “attainment” or “nonattainment” areas for each pollutant based on the comparison of measured data with federal and state standards. If an area

is redesignated from nonattainment to attainment, the federal CAA requires a revision to the SIP, called a maintenance plan, to demonstrate how the air quality standard will be maintained for at least 10 years. The Transportation Conformity Rule, 51 CFR 390-464, classifies an area required to develop a maintenance plan as a maintenance area.

The SDAB currently meets the federal standards for all criteria pollutants except O_3. San Diego County completed 3 years within the federal 1-hour O_3 standard on November 15, 2001, becoming eligible for redesignation as an attainment area. Formal redesignation by the USEPA as an O_3 attainment area occurred on July 28, 2003, and a maintenance plan was approved. On April 15, 2004, the USEPA issued the initial designations for the 8-hour O_3 standard, and the SDAB is classified as "basic" nonattainment. Basic is the least severe of the six degrees of O_3 nonattainment. The APCD must submit an air quality plan to the USEPA in 2007; the plan must demonstrate how the 8-hour O_3 standard will be attained by 2009 (APCD 2004)[1]. The SDAB currently falls under a federal "maintenance plan" for CO, following a 1998 redesignation as a CO attainment area.

[1] The SIP was approved by the California Air Resources Board on May 24, 2007 and is awaiting federal approval.

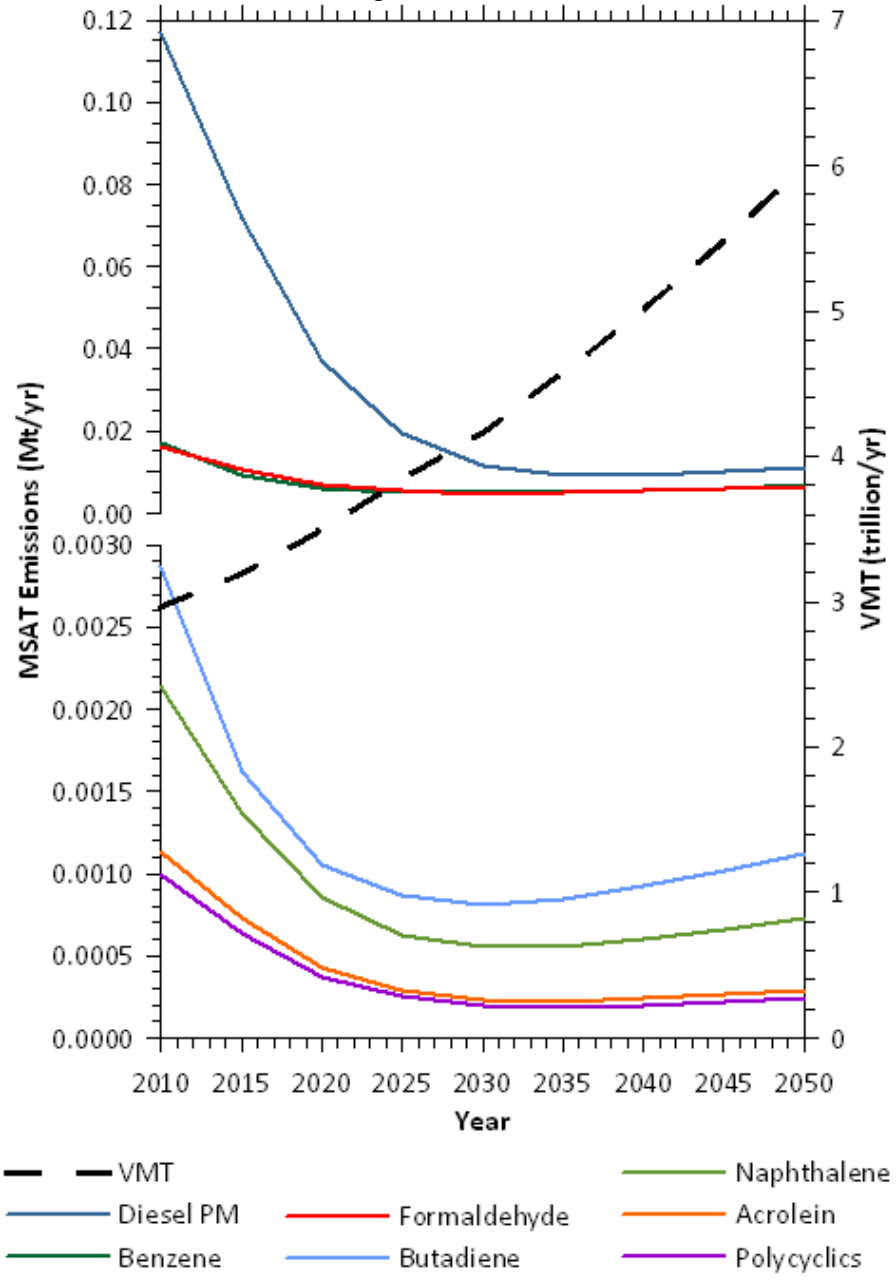
CHAPTER 3.0
Mobile Source Air Toxics (MSATs)

3.1 BACKGROUND

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Figure 3.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

Figure 3 National MSAT Emission Trends 1999 - 2050 for Vehicles Operating on Roadways Using EPA's MOVES 2010b Model



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors
Source: EPA MOVES2010b model runs conducted during May - June 2012 by FHWA.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

3.2 MSAT METHODOLOGY

For this Mobile Source Air Toxics (MSAT) analysis, the FHWA's Interim Guidance on Air Toxic Analysis for NEPA Documents (MSAT Guidance), December 6, 2012, was used, updated from the previous 2006 and 2009 guidance.

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

1. No analysis for projects with no potential for meaningful MSAT effects;
2. Qualitative analysis for projects with low potential MSAT effects; or
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

(1) Projects with No Meaningful Potential MSAT Effects, or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from conformity requirements under the Clean Air Act pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project

qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended. However, the project record should document the basis for the determination of "no meaningful potential impacts" with a brief description of the factors considered.

(2) Projects with Low Potential MSAT Effects

The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

We anticipate that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria in category (1) or category (3) below should be included in this category. Examples of these types of projects are minor widening projects; new interchanges, replacing a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including no-build, based on VMT, vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

(3) Projects with Higher Potential MSAT Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. We expect a limited number of projects to meet this two-pronged test. To fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year;

  And also

- Proposed to be located in proximity to populated areas.

The proposed project would add or create new significant capacity to the I-5 North Coast Corridor, which has an AADT level of greater than 150,000. Furthermore, the proposed project is located in proximity to populated areas and sensitive receptors, table 1. Consequently, as outlined in the MSAT guidance, a quantitative MSAT analysis is required.

Table 1 Sensitive Receptors

School	District	Street Address	City	Distance (Ft)
Preuss School UCSD	San Diego Unified	9500 Gilman Drive, Dept. 0536	La Jolla	1708
Laurel Elementary	Oceanside Unified	1410 Laurel Street	Oceanside	2131
Oceanside High	Oceanside Unified	1 Pirates Cove	Oceanside	1151
Palmquist Elementary	Oceanside Unified	1999 California Street	Oceanside	2280
South Oceanside Elementary	Oceanside Unified	1806 South Horne Street	Oceanside	1512
Buena Vista Elementary	Carlsbad Unified	1330 Buena Vista Way	Carlsbad	800
Jefferson Elementary	Carlsbad Unified	3743 Jefferson Street	Carlsbad	743
Pacific Rim Elementary	Carlsbad Unified	1100 Camino De Las Ondas	Carlsbad	2558
Capri Elementary	Encinitas Union Elementary	941 Capri Road	Encinitas	2025
Paul Ecke-Central Elementary	Encinitas Union Elementary	185 Union Street	Encinitas	1992
North Coast Alternative High	San Dieguito Union High	684 Requeza Street	Encinitas	2445
Sunset High (Continuation)	San Dieguito Union High	684 Requeza Street	Encinitas	2483
San Dieguito High Academy	San Dieguito Union High	800 Santa Fe Drive	Encinitas	1830
Solana Vista Elementary	Solana Beach Elementary	780 Santa Victoria Avenue	Solana Beach	2203
Skyline Elementary	Solana Beach Elementary	606 Lomas Santa Fe Drive	Solana Beach	1388
Earl Warren Middle	San Dieguito Union High	155 Stevens Street	Solana Beach	1931
Solana Highlands Elementary	Solana Beach Elementary	3520 Long Run Drive	San Diego	1462
Del Mar Hills Elementary	Del Mar Union Elementary	14085 Mango Drive	Del Mar	431
Del Mar Heights Elementary	Del Mar Union Elementary	13555 Boquita Drive	Del Mar	1826
Torrey Hills	Del Mar Union Elementary	10830 Calle Mar De Mariposa	San Diego	1481
Ada W. Harris Elementary	Cardiff Elementary	1508 Windsor Road	Cardiff-By-The-Sea	1066
Cardiff School District	Cardiff Elementary	1888 Montgomery Avenue	Cardiff-By-The-Sea	2435
Cardiff Elementary	Cardiff Elementary	1888 Montgomery Avenue	Cardiff-By-The-Sea	2592
Montessori Arts And Sciences Elementary	Carlsbad Unified	3016 Highland Drive	Carlsbad	1764
St. Patrick	Carlsbad Unified	3820 Pio Pico Drive	Carlsbad	187
Discovery Isle Child Development	Carlsbad Unified	6130 Paseo Del Norte	Carlsbad	556
Santa Fe Christian Schools	San Dieguito Union High	838 Academy Drive	Solana Beach	777
Santa Fe Montessori School	Solana Beach Elementary	1010 Solana Drive	Solana Beach	352
St. Mary Star Of The Sea Elementary	Oceanside Unified	515 Wisconsin Avenue	Oceanside	2613
Sanderling School	Cardiff Elementary	1401 Windsor Road	Cardiff-By-The-Sea	1673
Casa Montessori De Carlsbad	Carlsbad Unified	3470 Madison Street	Carlsbad	982
Cal Coast Academy	San Dieguito Union High	983 Lomas Santa Fe Drive, Suite F/G	Solana Beach	1173
Preschool	**Capacity**	**Street Address**	**City**	**Distance (Ft)**
A Brighter Future Preschool & Child Development Center	136	3422 Tripp Court	San Diego	577

A Children's Garden - Leucadia	30	1421 Burgundy Road	Encinitas	1618
Back To The Basics Preschool	48	1759 Oceanside Boulevard	Oceanside	887
Balderrama Child Development Center	84	709 San Diego Street	Oceanside	1491
Bright Horizons Family Solutions	151	3720 Arroyo Sorrento Road	San Diego	947
Carlsbad Children's Garden	38	2518 Jefferson Street	Carlsbad	848
Carlsbad Children's House	24	2606 Jefferson Street	Carlsbad	1130
Carlsbad Montessori School	71	740 Pine Avenue	Carlsbad	1197
Casa De Ninos Child Development Center	119	1718 Mission Avenue	Oceanside	1577
Casa Montessori De Carlsbad	49	3470 Madison Street	Carlsbad	1104
Childrens Learning Center	73	139 Canyon Drive	Oceanside	2633
Encinitas Migrant Cdc	52	1508 Windsor Road	Cardiff-By-The-Sea	1179
Family Recovery Center - Child Development Center	15	1100 Sportfisher Drive	Oceanside	332
Preschool	**Capacity**	**Street Address**	**City**	**Distance (Ft)**
Friendly Daycare & Preschool Center	30	1836 Dixie Street	Oceanside	1720
Great Beginnings Preschool	87	511 Encinitas Boulevard #110	Encinitas	1415
Immanuel Lutheran Children's Learning Center	35	1900 South Nevada Street	Oceanside	1937
International Cooperative Nursery School	24	9500 Gilman Drive, Dept. 18	La Jolla	2189
Little Bears Tender Care	75	1828 Oceanside Boulevard	Oceanside	1462
Maac Project Head Start North Coast	60	1501 Kelly Street	Oceanside	150
Maac Project Head Start Oceanside 3	18	509 Sports Fisher	Oceanside	1672
Magdalena Ecke YMCA	128	200 Saxony Road	Encinitas	635
Megastar Children's Christian Academy	27	3780 Pio Pico Drive	Carlsbad	98
Nha - Carlsbad Head Start	82	3368 Eureka Place	Carlsbad	216
Nha - Head Start By The Sea	80	777 Santa Fe Drive	Encinitas	1528
Nha Leucadia Head Start Center	60	616 Old Highway 101	Leucadia	2214
Nha St. Leo's Head Start Center	74	936 Genevieve Street	Solana Beach	226
Oceanside Child Development Center	136	Corner of Horne Street & Center Avenue	Oceanside	1610
OUSD Ditmar Elementary	26	1125 South Ditmar	Oceanside	2276
OUSD-Laurel Elementary	30	1410 Laurel Street	Oceanside	2050
San Dieguito United Methodist Pre-School	67	170 Calle Magdalena	Encinitas	759
Sanderling School	18	1401 Windsor Road	Cardiff	1518
Sandy Hill Nursery School	34	1036 Solana Drive	Solana Beach	835
Santa Fe Christian Preschool	64	845 Santa Fe Drive	Encinitas	1912
Santa Fe Montessori School	144	1010 Solana Drive	Solana Beach	420
Smart Start Preschool	75	240 Birmingham Drive	Cardiff	2269
Solana Beach Community Preschool	28	524 Stevens Avenue	Solana Beach	1600
Solana Beach Presbyterian Preschool	135	120 Stevens Avenue	Solana Beach	1778
Sorrento Valley Children's Center	84	4050-A Sorrento Valley Boulevard	San Diego	1424
Torrey Pines Montessori Center	12	2596 Carmel Valley Road	Del Mar	1919

Trump's Del Mar Hills Nursery School, Inc.	60	13692 Mango Drive	Del Mar	1259
Hospital	**Street Address**		**City**	**Distance (Ft)**
Thornton-Perlman Hospital	9300 Campus Point Drive		La Jolla	1105
Veterans Administration Hospital	3350 La Jolla Village Drive		San Diego	859
Scripps Memorial Hospital-La Jolla	9888 Genesee Avenue		La Jolla	858
Scripps Memorial Hospital-Encinitas	354 Santa Fe Drive		Encinitas	203
College/University	**Street Address**		**City**	**Distance (Ft)**
University Of California San Diego	La Jolla Village Drive & Gilman Drive		San Diego	895
National University-Carlsbad	705 Palomar Airport Road		Carlsbad	759
Park	**Park Type**		**City**	**Distance (Ft)**
Los Peñasquitos Canyon Preserve	Preserve		San Diego	949
Quail Botanical Gardens	Botanical Garden		Encinitas	1489
San Elijo Lagoon Ecological Reserve	Ecological Reserve		Solana Beach/ Encinitas	79
UCSD Park	Passive Open Space		San Diego	160
Los Peñasquitos Canyon Reserve Trail	Trail		San Diego	50
Torrey Hills Neighborhood Park	Community Park		San Diego	2110
Torrey Pines State Reserve	Open Space		San Diego	0-50
Solana Highlands Elementary School & Park	Community Park		San Diego	1160
San Dieguito River Park	Open Space Preserve		San Diego	0
Surf and Turf Recreation Park (aka Del Mar Golf Center)	Golf and Tennis		San Diego	50
La Colonia Park	Community Park		Solana Beach	960
Glen Park	Community Park		Encinitas	1890
George Berkich Park	Community Park		Encinitas	2490
Cardiff Sports Park	Sports Fields		Encinitas	2320
Hall Property Community Park	Community Park		Encinitas	0
Ada Harris Elementary School & Park	Community Park		Encinitas	740
Mildred MacPherson Park	Community Park		Encinitas	2020
Encinitas Viewpoint Park	Community Park		Encinitas	930
Cottonwood Creek Park	Community Park		Encinitas	20
Paul Ecke Sports Park	Sports Fields		Encinitas	0
Magdalena Ecke Family YMCA	Gym, Pool, Skate Park, and Indoor Soccer Fields		Encinitas	140
Orpheus Park	Community Park		Encinitas	1210
James MacPherson Park	Park		Encinitas	15
Batiquitos Lagoon	Open Space		Carlsbad	0
Aviara Trails	Trail		Carlsbad	720
South Carlsbad State Beach	Beach, Open Space		Carlsbad	1740
Poinsettia Park	Community Park		Carlsbad	1850
Car Country Park	Community Park		Carlsbad	50
Cannon Park	Community Park		Carlsbad	1690
Agua Hedionda Lagoon and CDFW Reserve	Open Space and Reserve		Carlsbad	0
Carlsbad State Beach	Beach and Open Space		Carlsbad	2110
Coastal Rail Trail - Carlsbad	Trail		Carlsbad	110

Chase Field and Pine Avenue Park	Sports Fields and Community Park		Carlsbad	360
Oak Park	Picnic Area		Carlsbad	50
Pio Pico Park	Picnic Area		Carlsbad	50
Holiday Park	Community Park		Carlsbad	0
Rotary Park	Community Park		Carlsbad	2530
Maxton Brown Park	Passive Recreation		Carlsbad	2320
Park	**Park Type**		**City**	**Distance (Ft)**
Hosp Grove Park	Community Park		Carlsbad	1930
Buena Vista Lagoon	Open Space		Carlsbad & Oceanside	0
South Oceanside Elementary School and Park	Community Park		Oceanside	840
Marshall Street Swim Center and Park	Community Park		Oceanside	1320
Center City Golf Course	Golf Course		Oceanside	0
Ron Ortega Recreation Park	Sports Fields		Oceanside	100
Joe Balderrama Park & Center	Community Park		Oceanside	790
San Luis Rey River Trail	Trail / Bike Path		Oceanside	0
Capistrano Park	Community Park		Oceanside	1110
Nursing Homes	**Capacity**	**Street Address**	**City**	**Distance (Ft)**
George G. Glenner Family Center-Encinitas	30	335 Saxony Road	Encinitas	961
Aviara Healthcare Center	119	944 Regal Road	Encinitas	130

3.3 MSAT ANALYSIS

There are no established regulatory concentration targets for the priority MSATs; including acrolein, benzene, 1,3 butadiene, diesel particulate matter (DPM), diesel exhaust organic gases (DEOG), formaldehyde, naphthalene and polycyclic organic matter (POM). Therefore, the impacts of these MSATs were assessed through a quantitative alternative analysis in which MSAT emissions are compared among proposed project scenarios for build alternatives in 2015 and 2030, No Build 2015 and 2030, and the existing conditions (2006) to determine if meaningful differences in the levels of MSAT emissions exist. Appropriate mitigation measures should be identified and considered if meaningful differences exist.

Twenty-two segments, table 2, of the corridor were determined and selected for the analyses. The segment boundaries do not change with the different scenarios. Each segment runs from the middle of each existing interchange to the next interchange and consists of all main lanes, connectors, and HOV lanes, included within the segment for each scenario. Northbound and southbound lanes are included together in each segment. The discrete traffic data for each link contained within a segment are summed up to obtain daily peak and off-peak totals for that segment.

Table 2 Land Uses within I-5 Segments

Segment No.	I-5 Segment	Principal Land Use Along Segment
1	La Jolla Village Drive to Genesee Avenue	Residential, Retail & Commercial
2	Genesee Avenue to Carmel Mountain Road	Residential, Retail & Commercial
3	Carmel Mountain Road to Carmel Valley Road	Residential, Retail & Commercial
4	Carmel Valley Road to Del Mar Heights Road	Residential, Retail & Commercial
5	Del Mar Heights Road to Vía de la Valle	Residential, Retail & Commercial
6	Vía de la Valle to Lomas Santa Fe Drive	Residential, Commercial, & Industrial
7	Lomas Santa Fe Drive to Manchester Drive	Residential, Commercial, & Industrial
8	Manchester Avenue to Birmingham Drive	Residential & Retail
9	Birmingham Drive to Santa Fe Drive	Residential & Retail
10	Santa Fe Drive to Encinitas Boulevard	Residential & Retail
11	Encinitas Boulevard to Leucadia Boulevard	Residential & Retail
12	Leucadia Boulevard to La Costa Avenue	Residential & Retail
13	La Costa Avenue to Poinsettia Lane	Residential & Retail
14	Poinsettia Lane to Palomar Airport Road	Residential & Commercial
15	Palomar Airport Road to Cannon Road	Residential & Commercial
16	Cannon Road to Tamarack Avenue	Residential & Commercial
17	Tamarack Avenue to Carlsbad Village Road	Residential & Commercial
18	Carlsbad Village Drive to Vista Way	Residential & Commercial
19	Vista Way to Oceanside Boulevard	Residential & Commercial
20	Oceanside Boulevard to Mission Avenue	Residential & Commercial
21	Mission Avenue to SR-76	Residential & Commercial
22	SR-76 to Wire Mountain Road	Residential & Commercial

In order to perform the quantitative emissions analysis CT-EMFAC, which is a California specific transportation project-level analysis tool, was used. This modeling software was designed to model criteria pollutants, MSATs, and carbon dioxide using the latest version of the California Mobile Source Emission Inventory and Emission Factors.

The Caltrans CT-EMFAC tool has been available for several years, with the existing version of CT-EMFAC (version 4.1) being based on data derived from EMFAC 2007. In 2011, CARB released a new version of EMFAC (EMFAC 2011) that includes updated emissions information and travel activity data for car and truck fleets (CARB 2011). Until an updated CT-EMFAC tool is available that incorporates EMFAC 2011 data, the Project-Level Emissions Estimation – Interim Template (Interim Tool) is being used. This Interim Tool combines the existing CT-EMFAC and CARB's EMFAC 2011 online databases to analyze the priority MSATs listed above.

Traffic activity data have been utilized in performing the MSAT analysis, with these data supplemented by available Caltrans data inventory systems for the base year values, as well as by

Caltrans forecast modeling of the corridor for future year values. Emission factors for the priority MSATs have been obtained for the SDAB portion of San Diego County using the Interim Tool.

3.4 MSAT RESULTS

The results of the MSAT analysis are tabulated in *Tables 3* and *4*.

Table 3 2015 Changes (Δ) in Total Project MSAT Emission Rates

Toxic Air Contaminant	Existing Emissions	No Build Alternative	8+4 Alternative (8 MF + 2 HOV/ML)			10+4 Alternative (10 MF + 2 HOV/ML)		
	(g/day)	(g/day)	(g/day)	Δ% from Existing	Δ % from No Build	(g/day)	Δ% from Existing	Δ% from No Build
Diesel PM	59,722	39,411	3,7481	-37	-5	32,925	-26	+14
Benzene	28,530	12,974	12,886	-55	-1	24,340	-42	+10
1,3-Butadiene	6,444	2,875	2,865	-56	0	4,234	-46	+17
DEOG	55,035	29,204	26,001	-53	-11	These constituents were not required documentation when the 10+4 MSAT analysis was performed.		
Naphthalene	29,050	31,481	30,199	+4	-4			
Polycyclic organic matter	4,050	4,429	4,314	+7	-3			
Acrolein	1,500	684	688	-54	+1	960	-46	+17
Formaldehyde	24,695	10,781	10,548	-57	-2	19,767		+14
Average Percent Change				**-38**	**-3**		**-40.5**	**+14**

MF = mixed-flow lane, ML = Managed Lane

Table 4 2030 Changes (Δ) in Total Project MSAT Emission Rates

Toxic Air Contaminant	Existing Emissions	No Build Alternative	8+4 Alternative (8 MF + 2 HOV)			10+4 Alternative (10 MF + 2 HOV)		
	(g/day)	(g/day)	(g/day)	Δ% from Existing	Δ% from No Build	(g/day)	Δ% from Existing	Δ% from No Build
Diesel PM	59,722	34,013	34,343	-42	+1	24,898	-44	+18
Benzene	28,530	6,626	7,286	-74	+10	17,105	-59	+17
1,3-Butadiene	6,444	1,450	1,603	-75	+11	3,001	-62	+25
DEOG	55,035	20,424	17,927	-67	-12	These constituents were not required documentation when the 10+4 MSAT analysis was performed.		
Naphthalene	29,050	30,907	32,109	+11	+4			
Polycyclic organic matter	4,050	4,362	4,523	+12	+4			
Acrolein	1,500	348	379	-75	+9	680	-62	+26
Formaldehyde	24,695	5,056	5,466	-78	+8	4,255	-61	+19
Average Percent Change				**-49**	**+4**			

Caltrans began air quality technical studies for the proposed project in 2006, basing those studies on the most current traffic projections then available, which were SANDAG's Series 10 projected traffic volumes for year 2030 for the 10+4 build alternatives. During the course of the project development process, SANDAG released both the Series 11 forecasts and model that were based upon the 8+4 build alternatives and are within one percent of the Series 10 forecasts. More recently, the Series 12 forecasts and model was released that included forecasts for years 2035 and 2050. Review of these different data sets indicated that the initial Series 10 2030 daily traffic volumes, which were used for the basis of the original traffic studies, were equivalent to the Series 12 2035 daily traffic demand volumes to within an average of 3.5 percent. These demand volumes differences are minimal and a revision at this time would not alter the results of the associated studies. Because the difference between Series 10 and Series 12 decreases to almost zero over time, it does not represent a substantial change and would not impact the alternatives studied or the impacts of those alternatives. Therefore, forecasts presented in this technical study are based on the Region's Series 10 model and that analysis is indicative of what is expected to occur in year 2035.

Figures 4-9 depict the changes in emissions for the MSAT pollutants, Acrolein, Benzene, 1,3 Butadiene, Diesel Exhaust Organic Gases (DEOG), Diesel PM, Formaldehyde, Naphthalene and Polycyclic Organic Matter (POM).

Figure 4 Changes in Acrolein Emissions

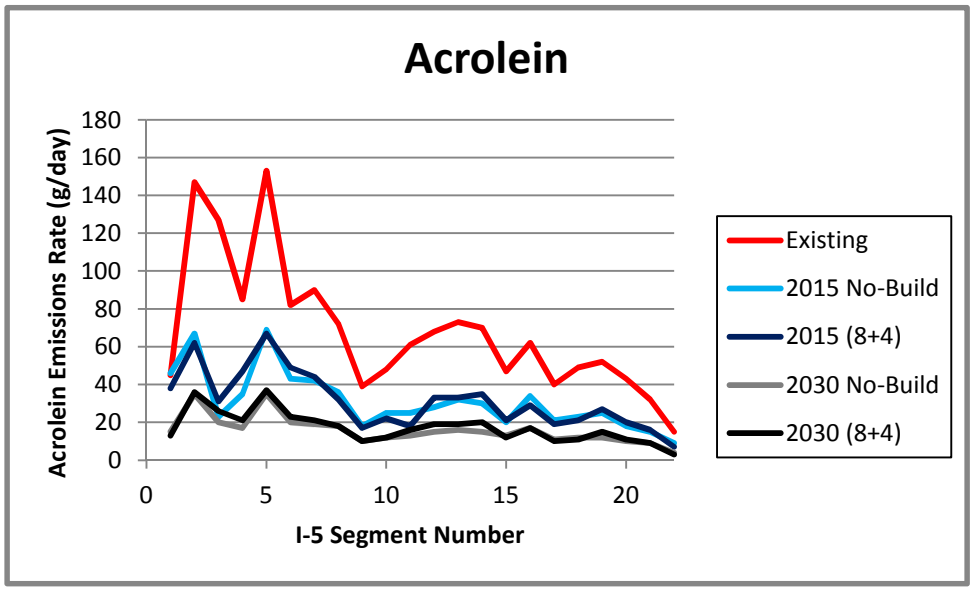


Figure 5 Changes in Benzene Emissions

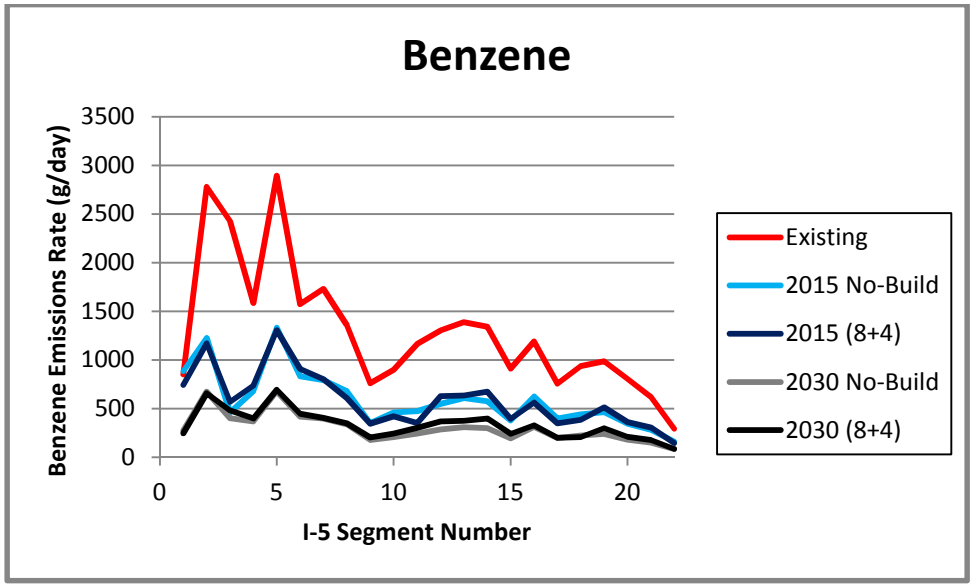


Figure 6 Changes in 1,3 Butidiene Emissions

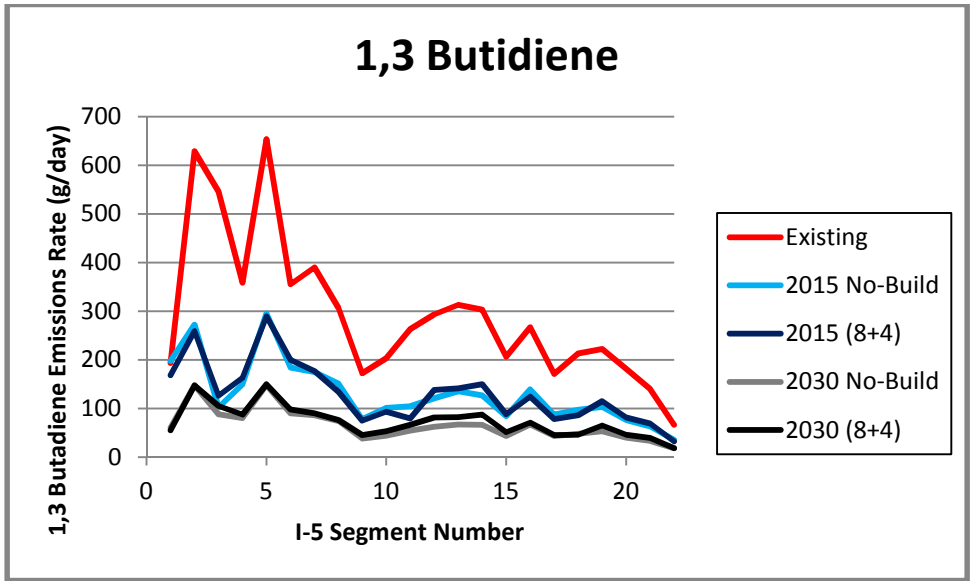


Figure 7 Changes in DEOG

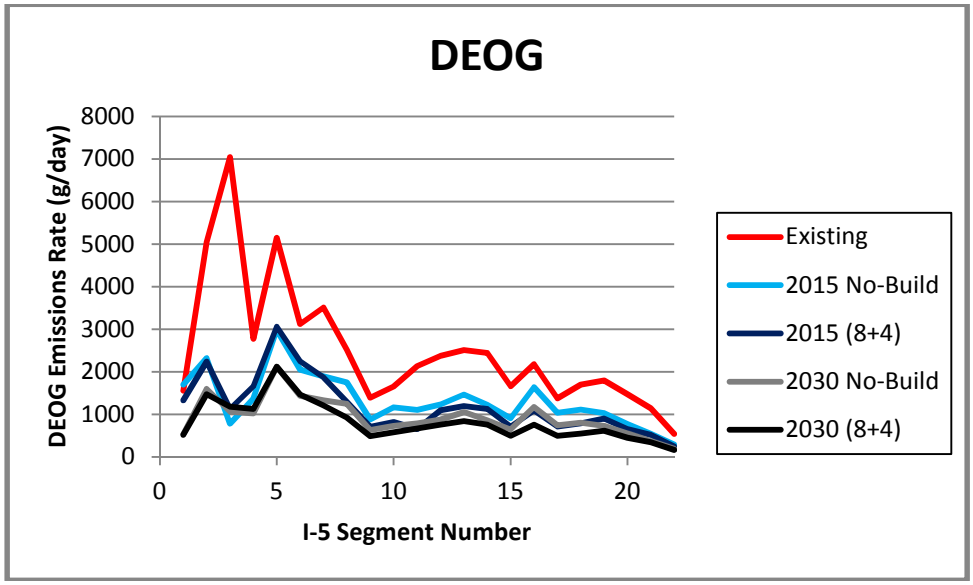


Figure 8 Changes in Diesel PM

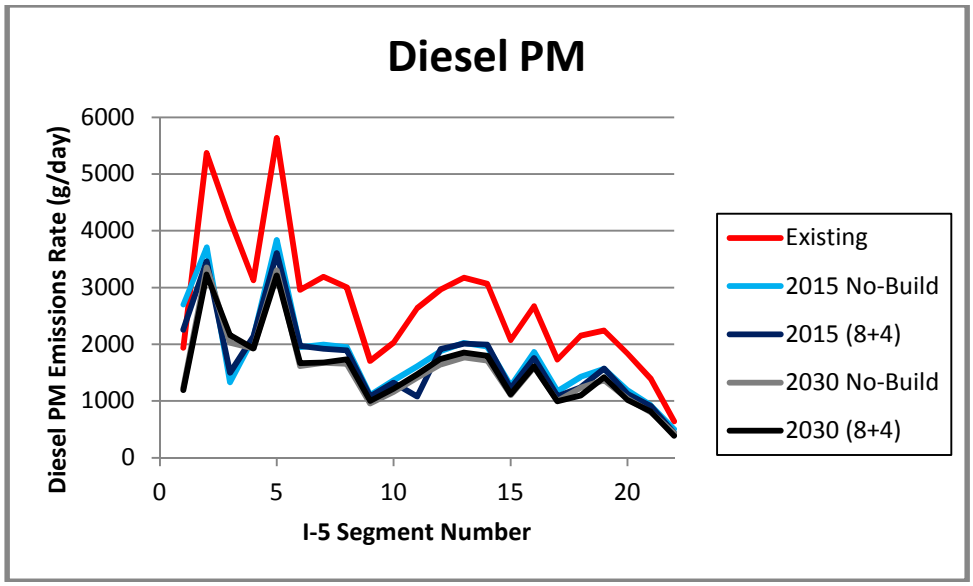


Figure 9 Changes in Formaldehyde

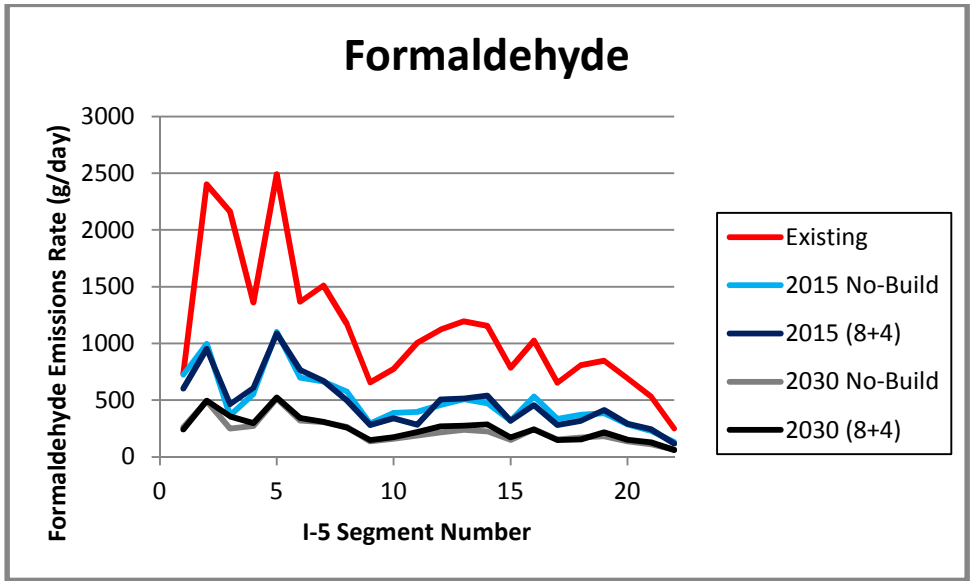


Figure 10 Changes in Naphthalene

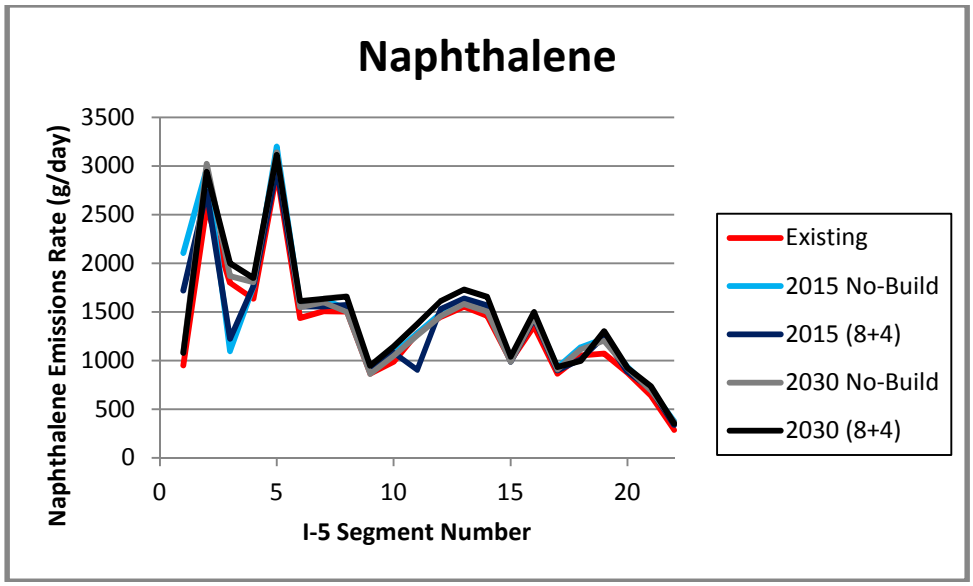
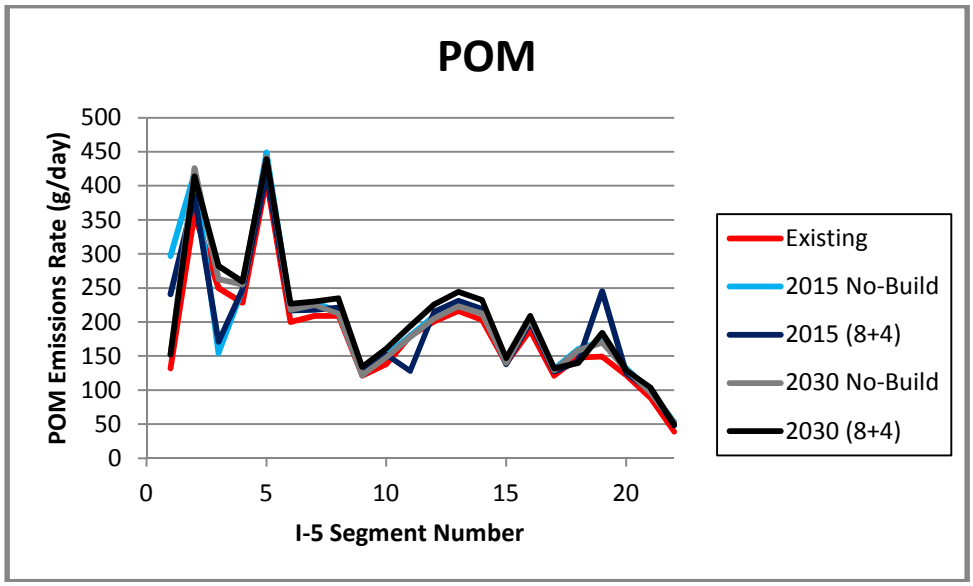


Figure 11 Changes in POM



3.5 DISCUSSION OF RESULTS

This analysis indicates that a substantial decrease in most of the MSAT emissions can be expected for the Preferred Alternative from the base year through future year levels. This decrease is consistent with the aforementioned USEPA study projections of a substantial reduction in on-highway emissions of benzene, formaldehyde, and 1,3-butadiene prior to 2020. Based on the analysis for this project as shown in *Table 4,* reductions in existing MSAT levels expected by 2030 are: 42 percent of DPM, 74 percent of benzene, 75 percent of 1,3-butadiene, 67 percent of DEOG, 75 percent of acrolein, and 78 percent of formaldehyde. Comparing the 2030 8+4 Preferred Alternative with the No Build Alternative shows that MSAT levels would incease by 11 percent, in the worst case, 1,3 Butadiene, and by only 1 percent for Diesel Particulate Matter (DPM), while the emissions for Diesel Exhaust Organic Gases (DEOG) will decrease by 12 percent. MSAT priority pollutant levels for the Preferred Alternative would also decrease by an average of 3 percent (2015) and increase by an average of 4 percent (2030) compared to the No Build alternative, with the 2030 increase due to the higher projected traffic volumes. It should be noted that the pollutants directly related to diesel trucks, DPM and DEOG, would experience almost no change and even a decrease in MSAT emissions, +1% and -12% respectively, when comparing the 2030 8+4 Preferred Alternative to the No Build Alternative. In addition, the 2030 8+4 Preferred alternative will experience reduced MSAT emissions levels when compared to the 2030 10+4 Alternative, with DPM being the largest at a 17% reduction.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the FCAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health

effects" (EPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts; with each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) MSAT assessments, particularly because assumptions have to be made regarding changes in travel patterns and vehicle technology (both of which affect emissions rates) over that time frame, and such information is generally unavailable. It is also particularly difficult to reliably forecast 70-year lifetime concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, with such information being similarly unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the USEPA as provided by the FCAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to

prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries.

The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than one in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than one in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits. These benefits include reducing traffic congestion, accident rates, and fatalities, as well as improved access for emergency response; each of which is better suited for quantitative analysis.

3.6 CONCLUSION

In conclusion, Caltrans has provided a quantitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that some alternatives may result in increased MSAT emissions in certain locations. However, no meaningful differences in MSAT emissions were observed amongst alternatives and thus no mitigation measures are required. In addition, due to the described uncertainties regarding concentrations and the duration of exposures, the health effects from these emissions have not been estimated.

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CHAPTER 4.0
REFERENCES

California Department of Transportation, *Interstate 5 Traffic Volumes*, 2007.

California Department of Transportation, *Air Quality Study, Mobile Source Air Toxics (MSATs) Analysis*, June 2008.

California Department of Transportation, *Air Quality Analysis*, August 2007.

Federal Highway Administration, *Interim Guidance Update on Mobile Source Air Toxic Analysis in National Environemental Policy Act (NEPA) Documents*, December 6, 2012.

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Appendix A Calculations

Existing 2006
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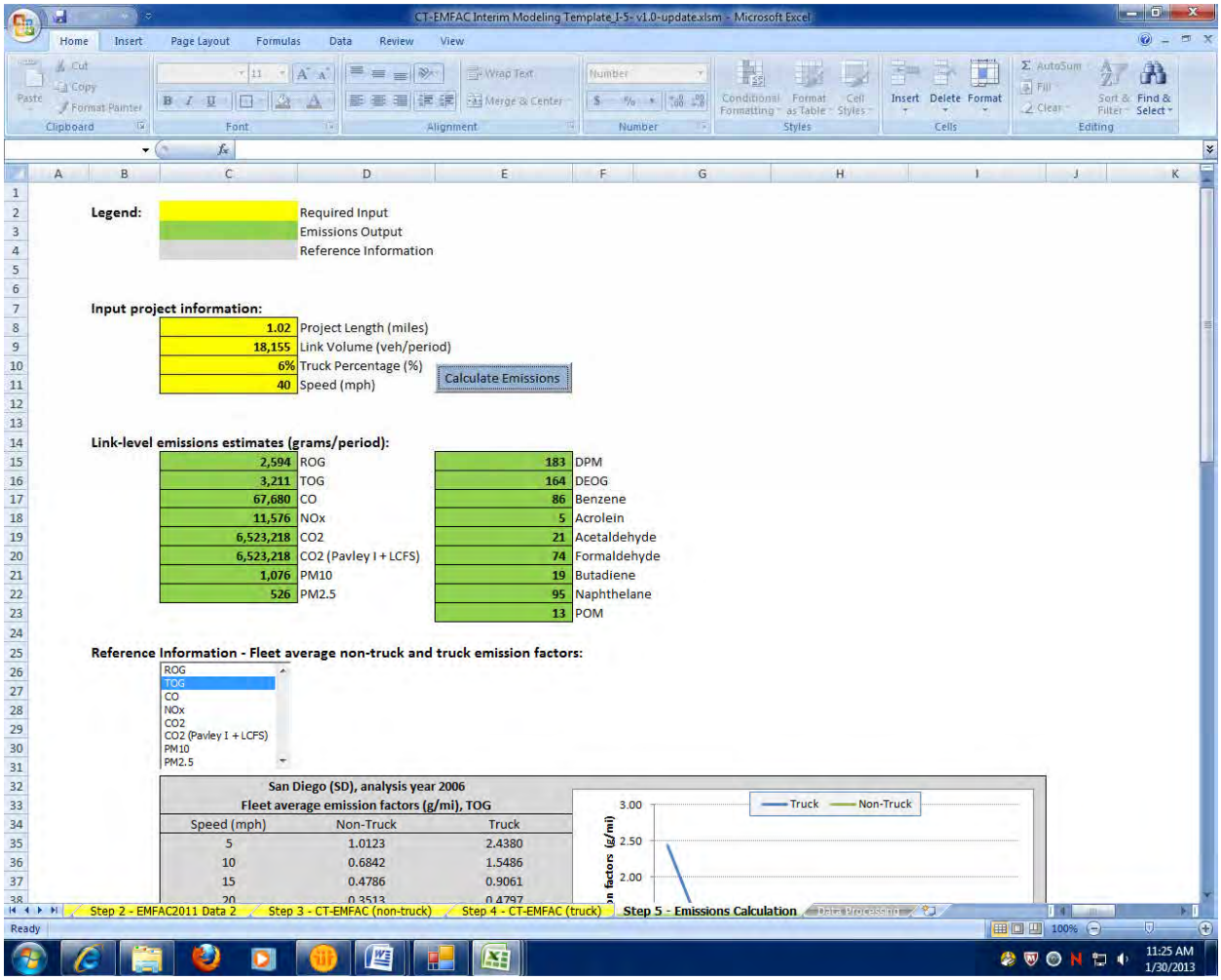
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.02	Project Length (miles)
18,155	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,594	ROG	183	DPM
3,211	TOG	164	DEOG
67,680	CO	86	Benzene
11,576	NOx	5	Acrolein
6,523,218	CO2	21	Acetaldehyde
6,523,218	CO2 (Pavley I + LCFS)	74	Formaldehyde
1,076	PM10	19	Butadiene
526	PM2.5	95	Naphthelane
		13	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
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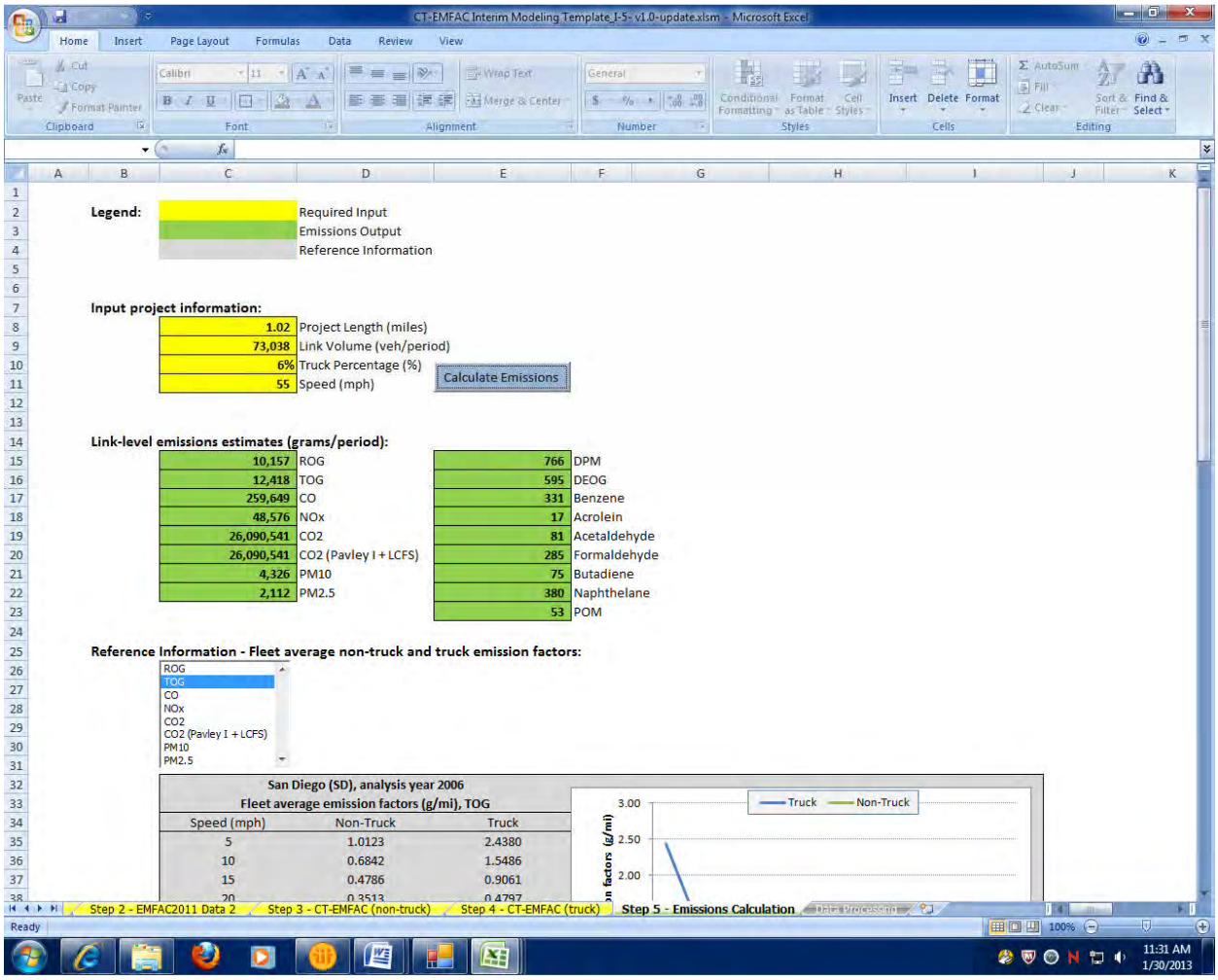
Off Peak



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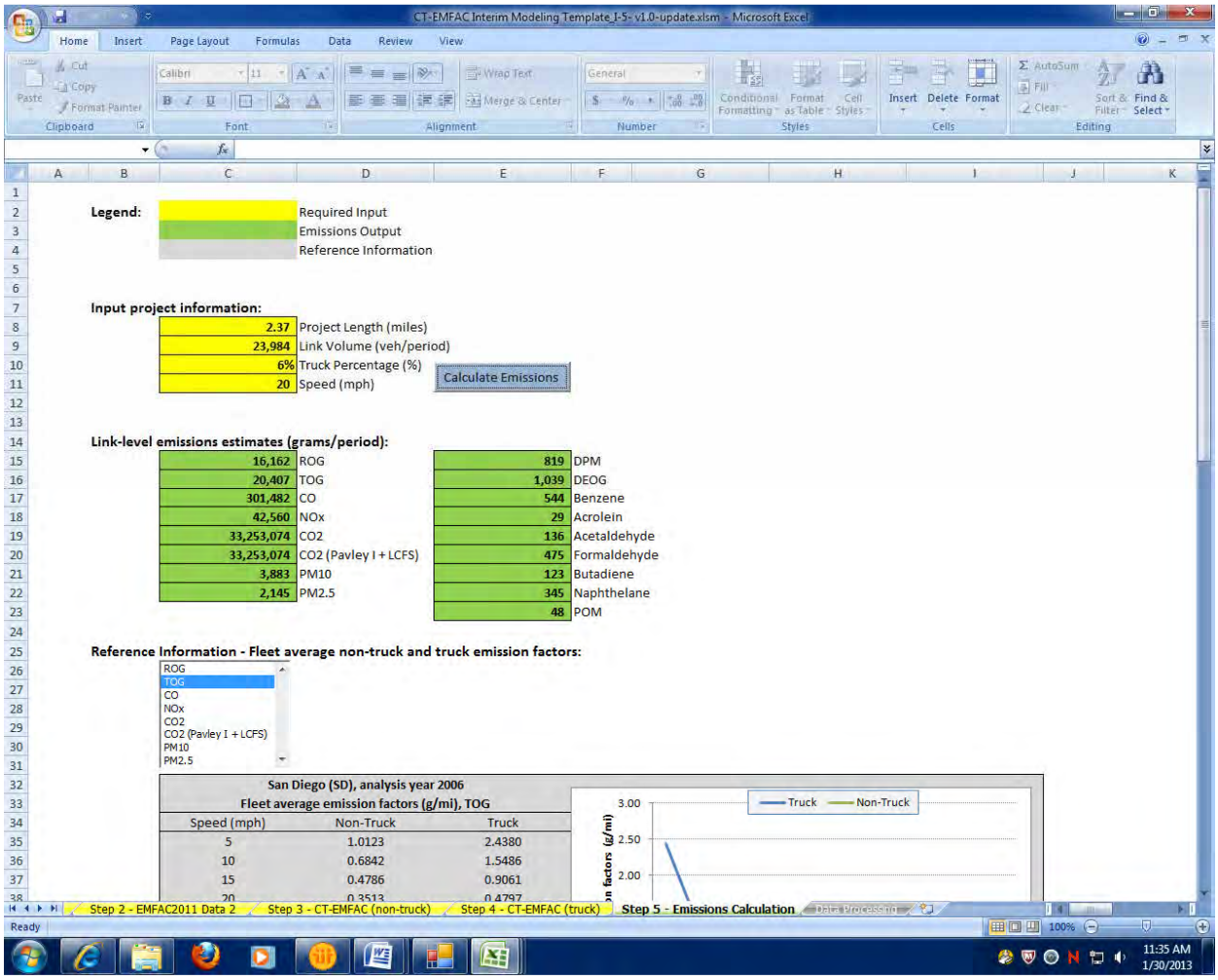

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	Emissions Output
	Reference Information

Input project information:

2.37	Project Length (miles)
23,984	Link Volume (veh/period)
6%	Truck Percentage (%)
20	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

16,162	ROG	819	DPM
20,407	TOG	1,039	DEOG
301,482	CO	544	Benzene
42,560	NOx	29	Acrolein
33,253,074	CO2	136	Acetaldehyde
33,253,074	CO2 (Pavley I + LCFS)	475	Formaldehyde
3,883	PM10	123	Butadiene
2,145	PM2.5	345	Naphthelane
		48	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
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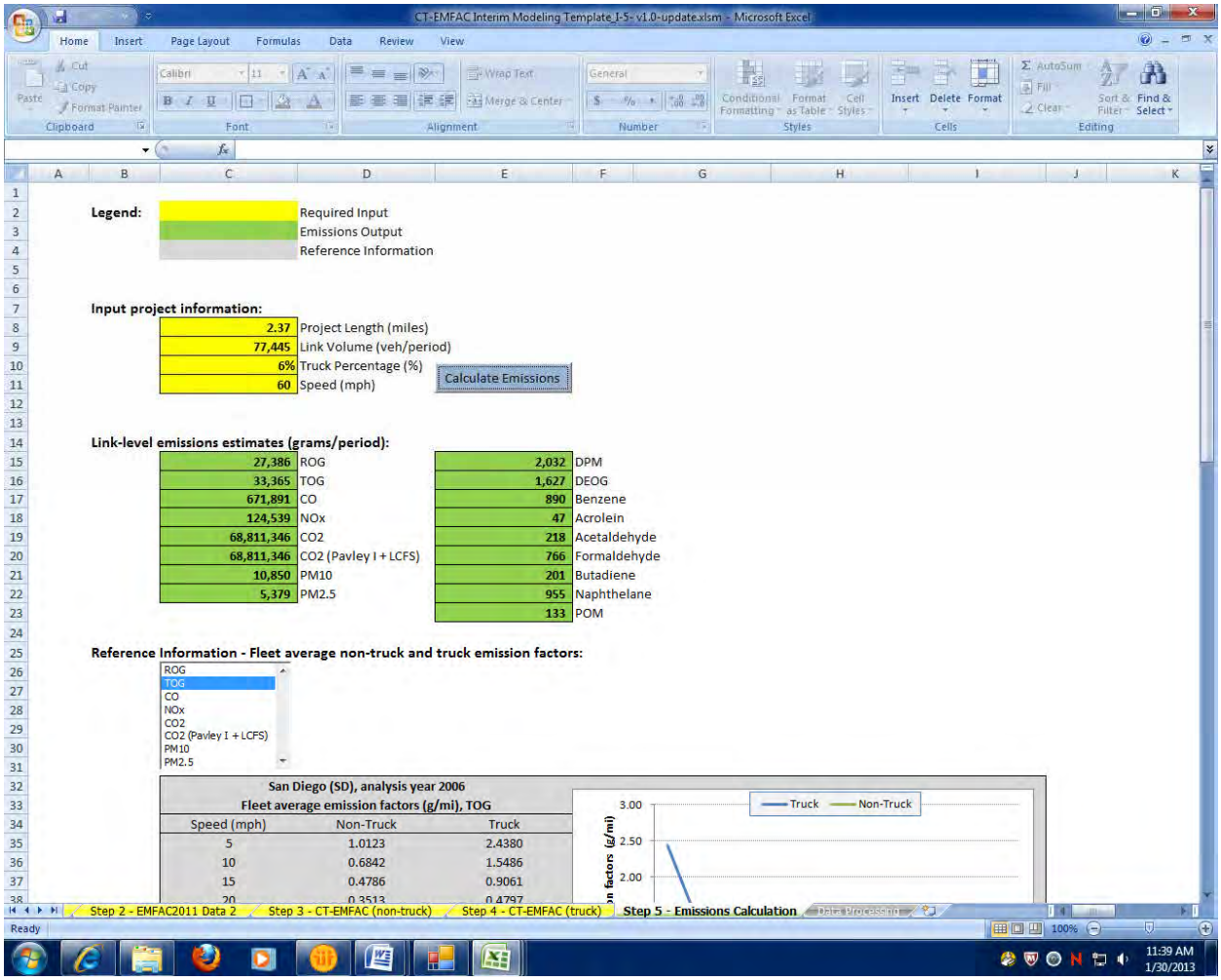

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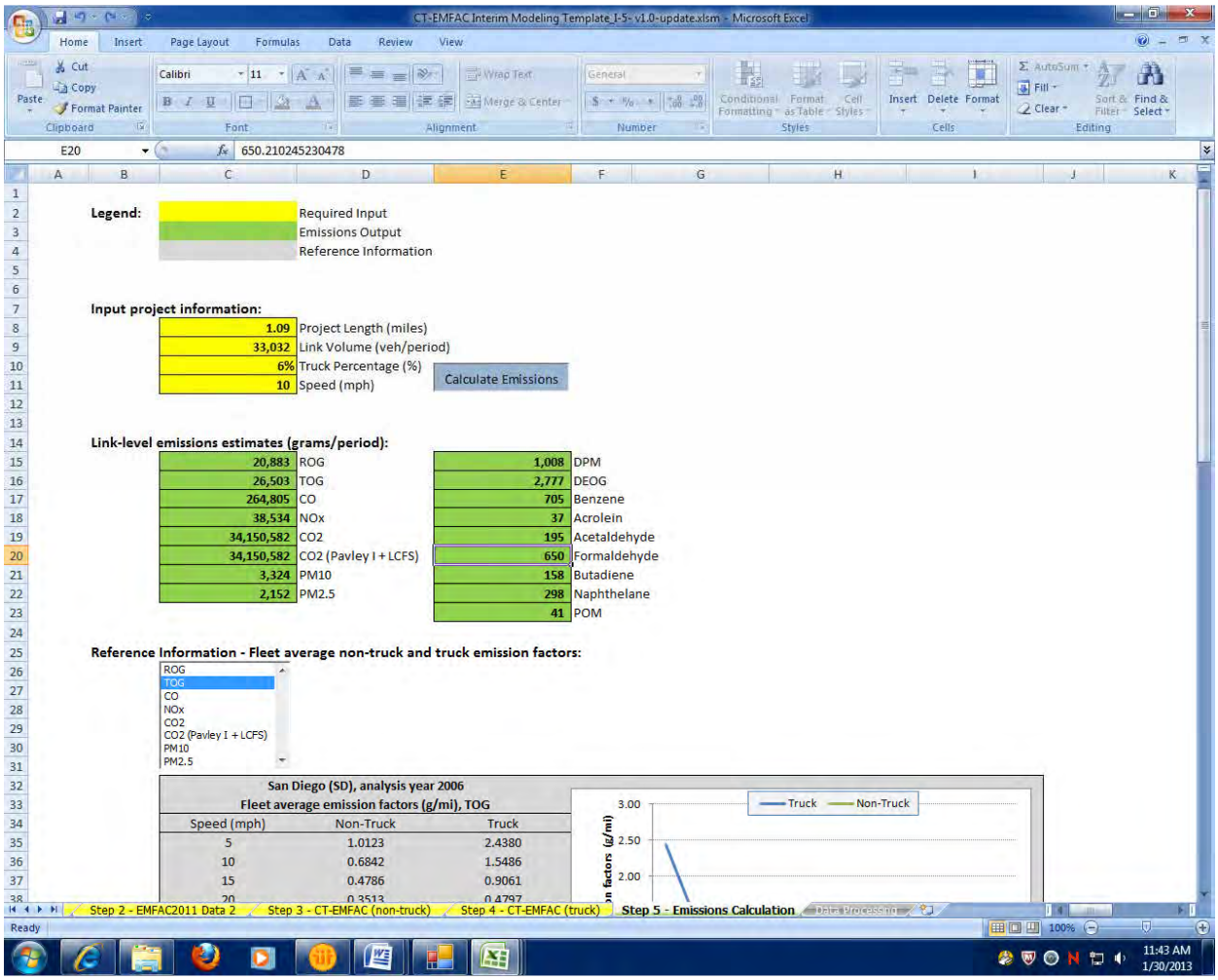

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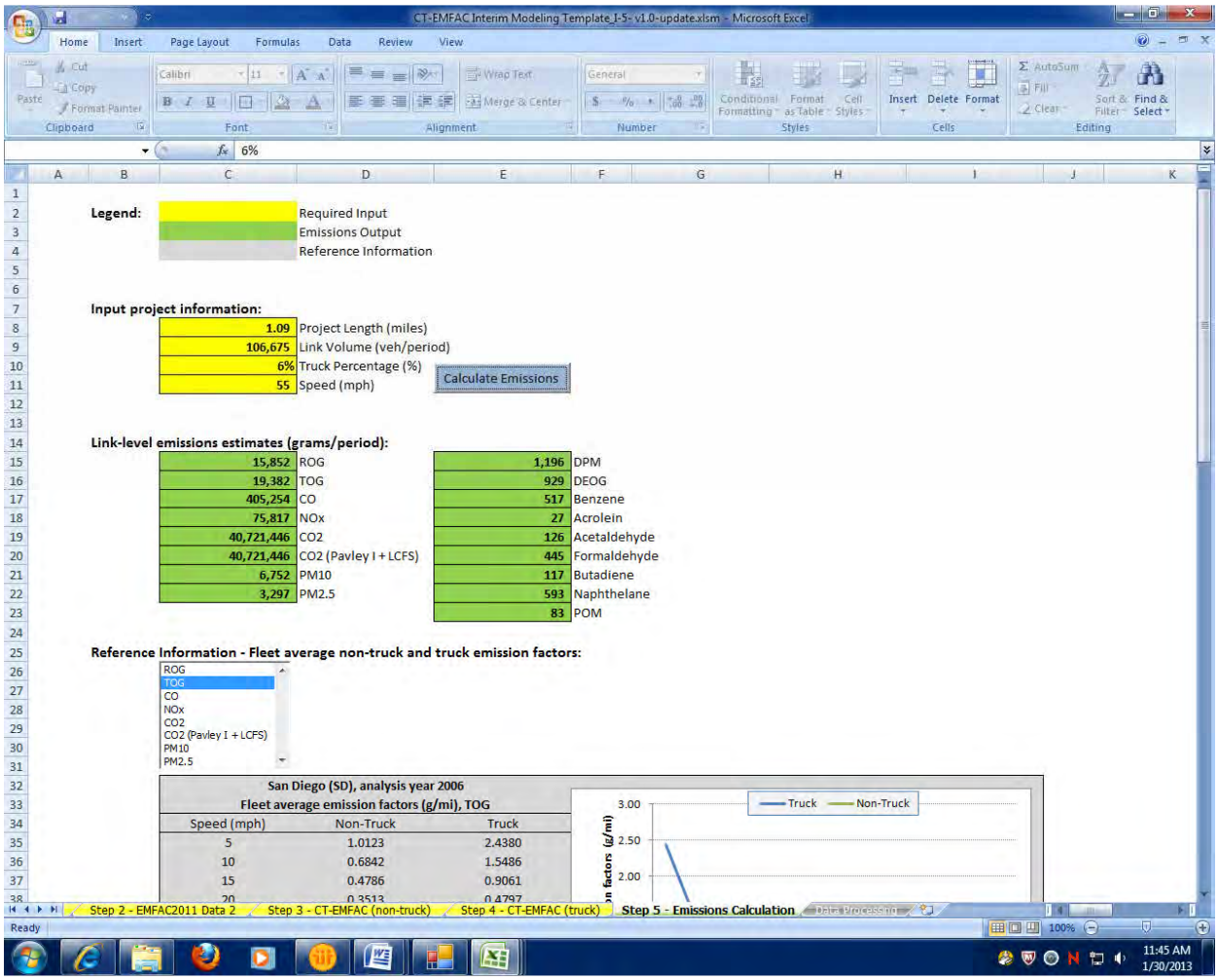

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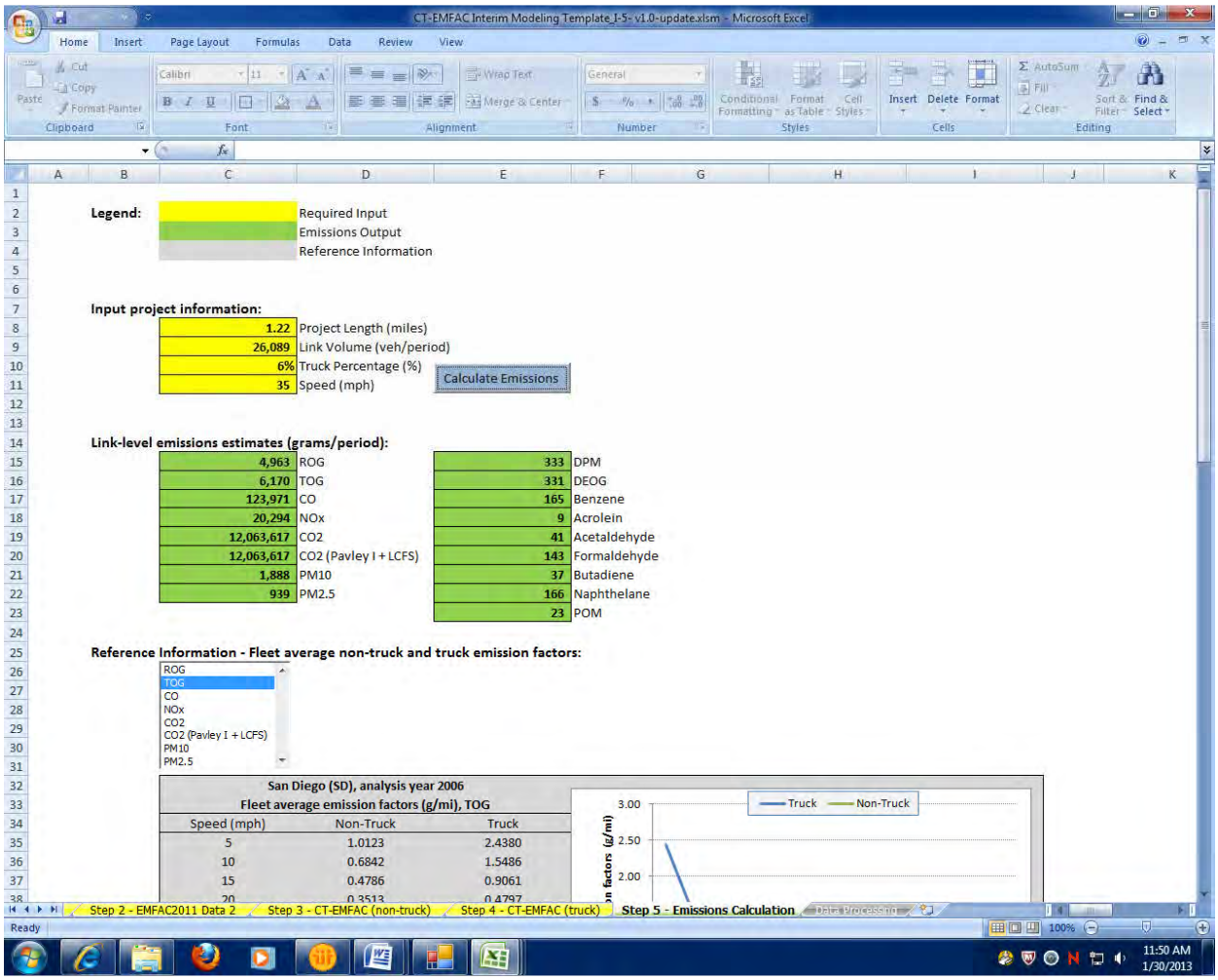

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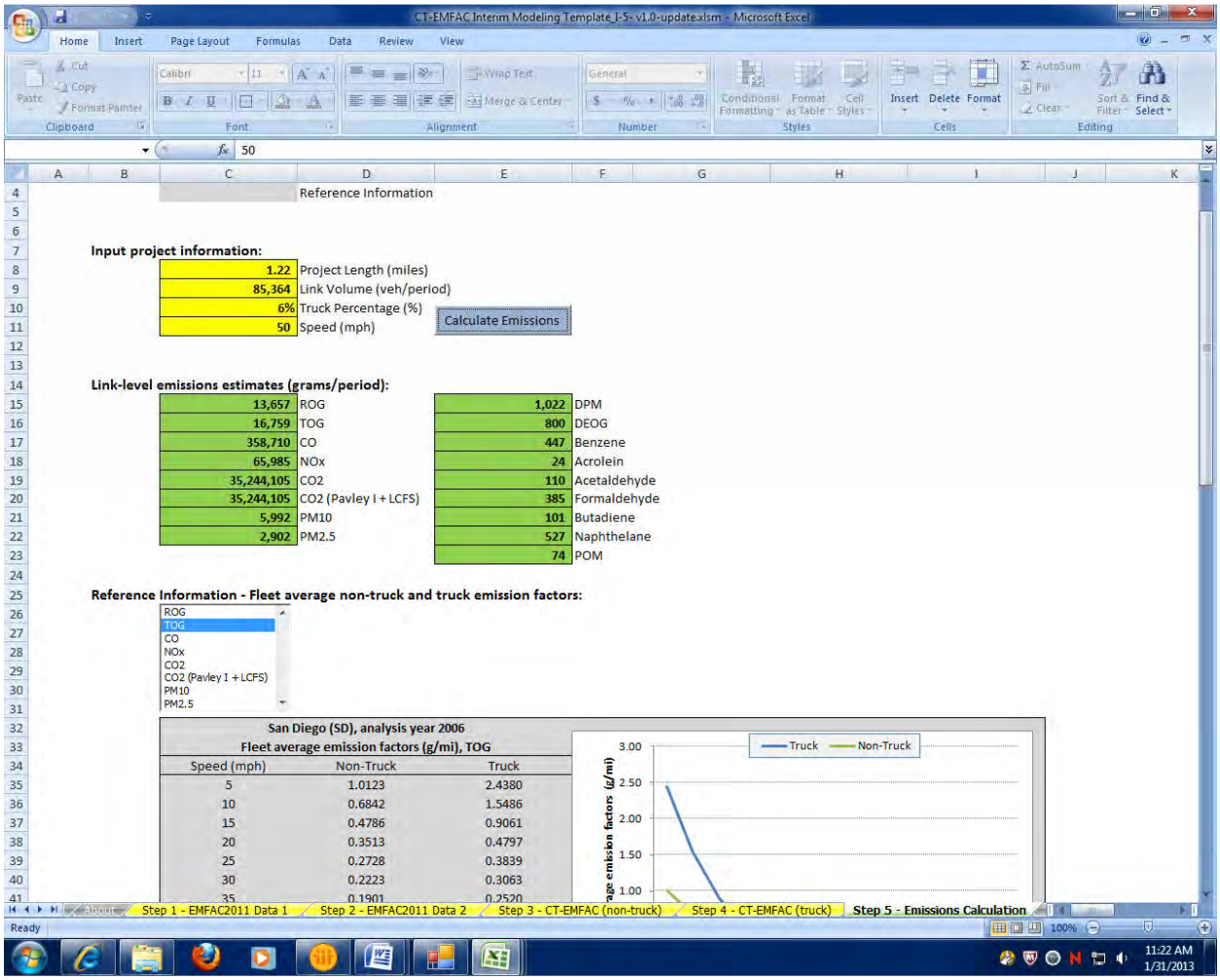

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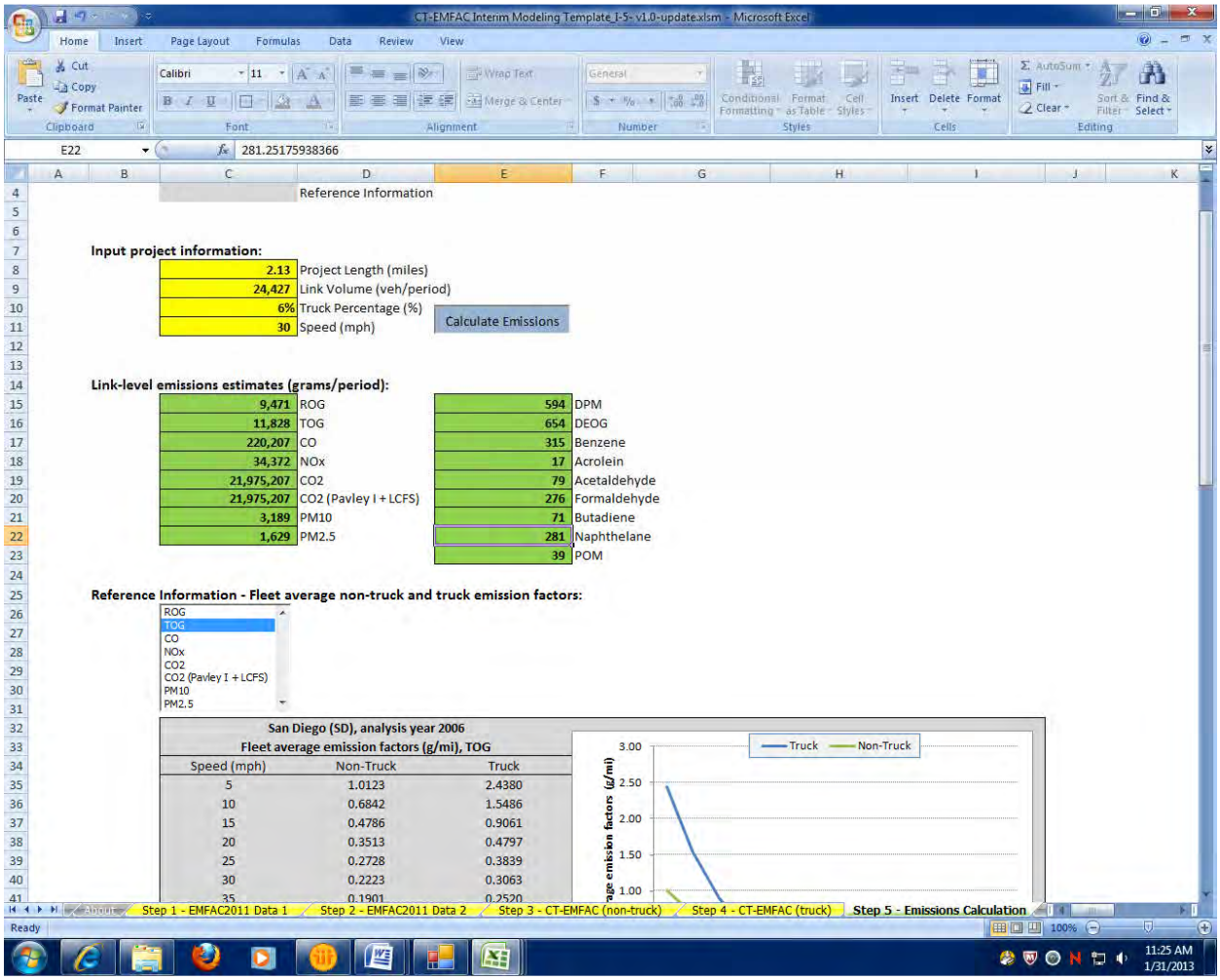

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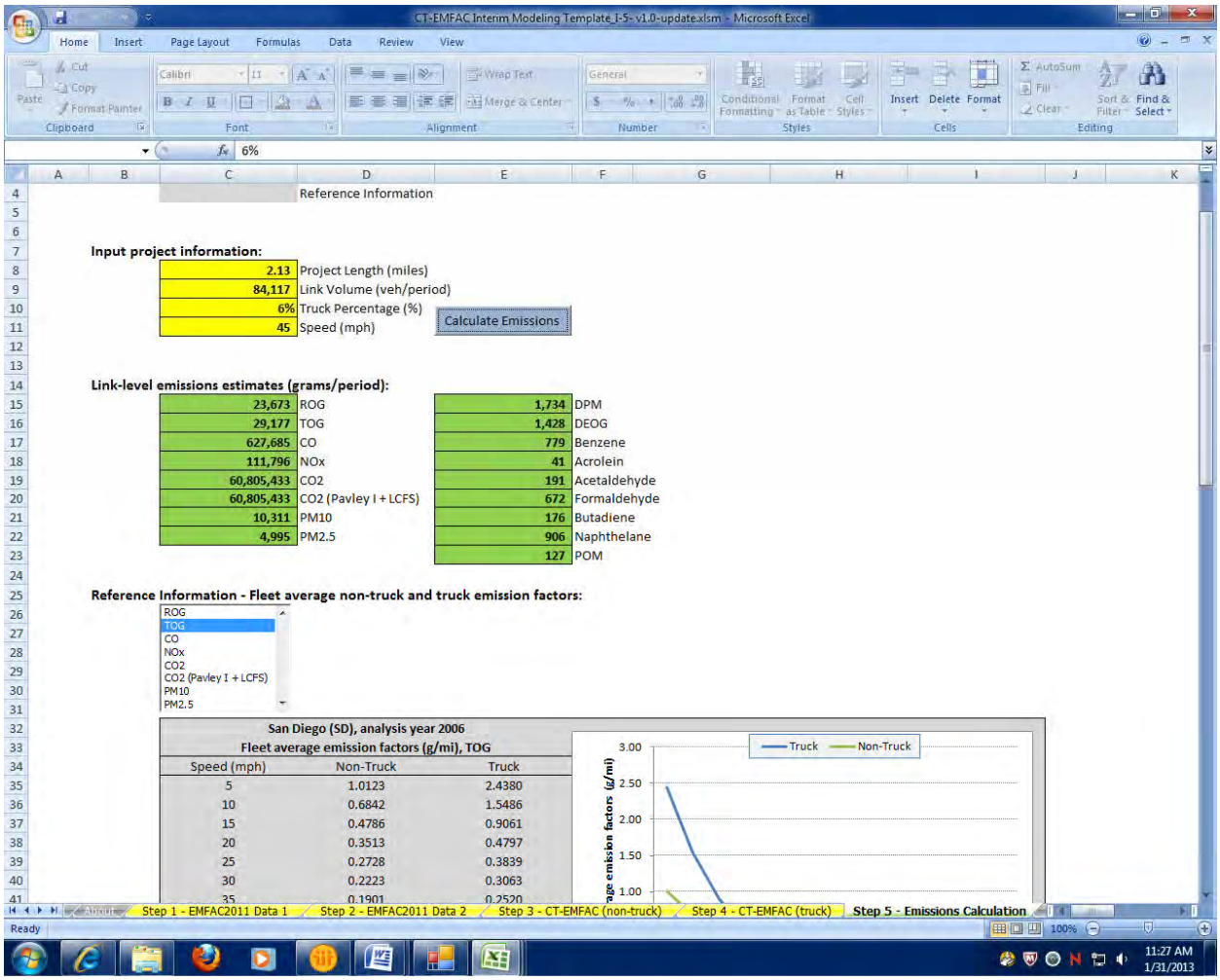

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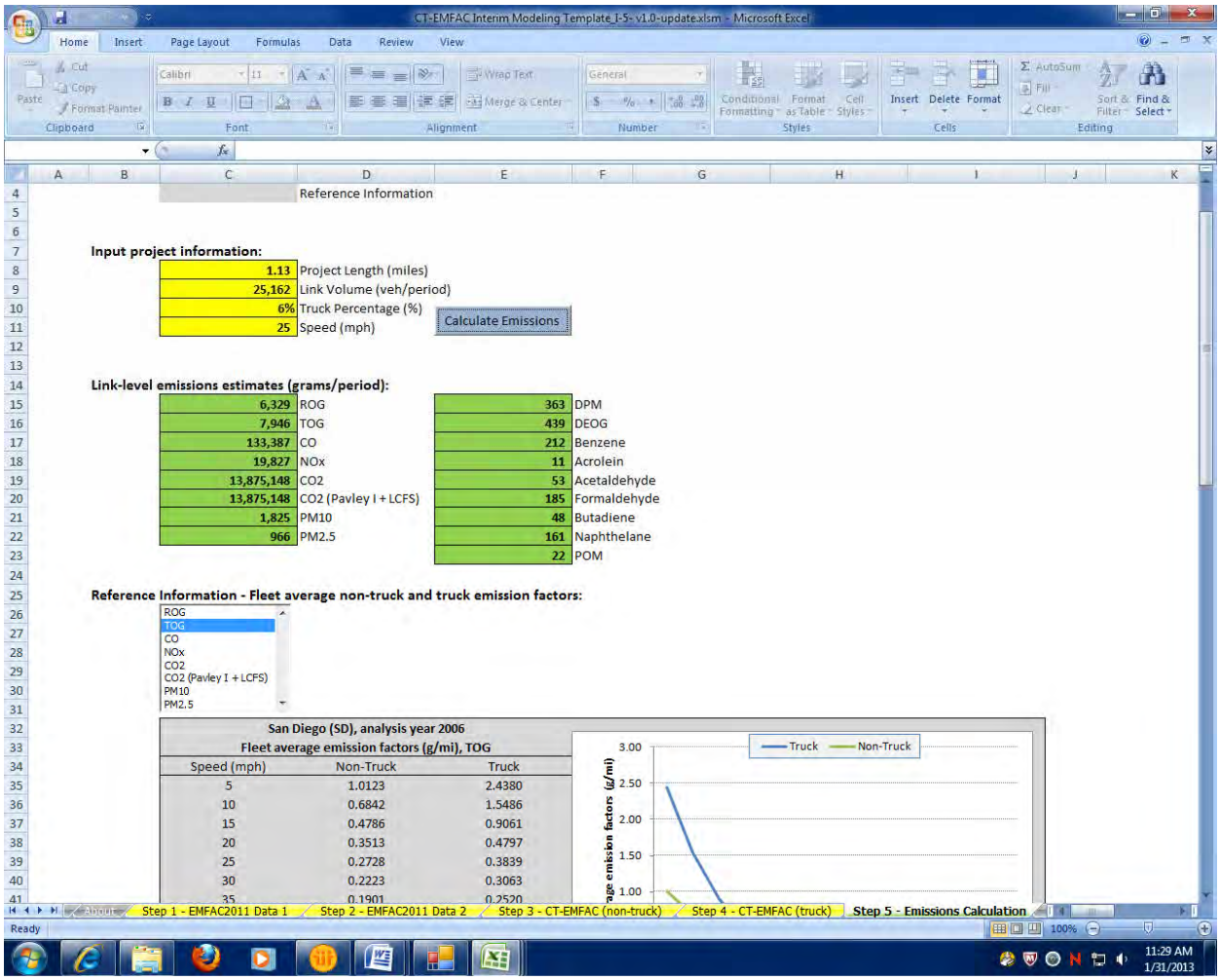

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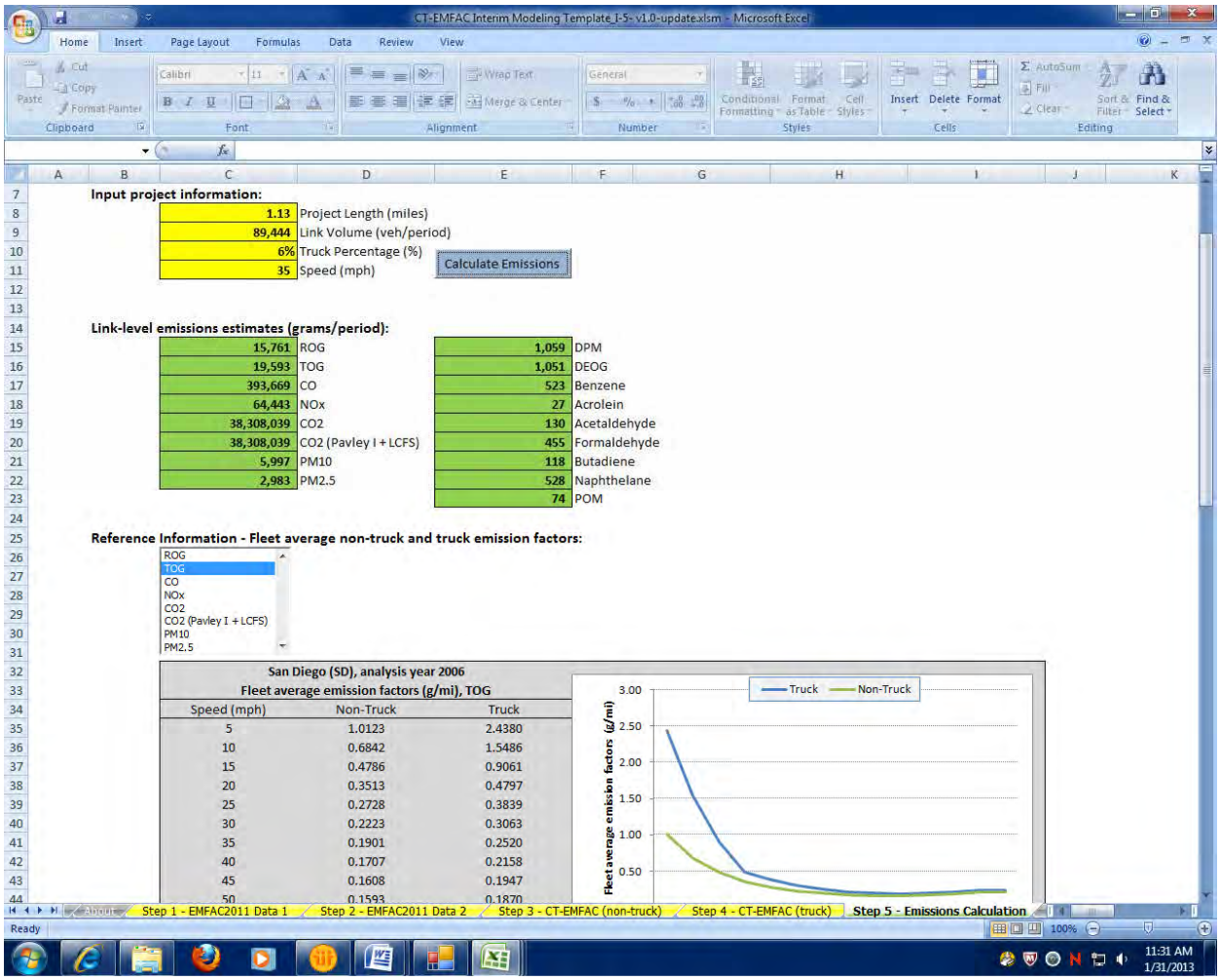


Input project information:

1.13	Project Length (miles)
89,444	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

15,761	ROG	1,059	DPM
19,593	TOG	1,051	DEOG
393,669	CO	523	Benzene
64,443	NOx	27	Acrolein
38,308,039	CO2	130	Acetaldehyde
38,308,039	CO2 (Pavley I + LCFS)	455	Formaldehyde
5,997	PM10	118	Butadiene
2,983	PM2.5	528	Naphthelane
		74	POM

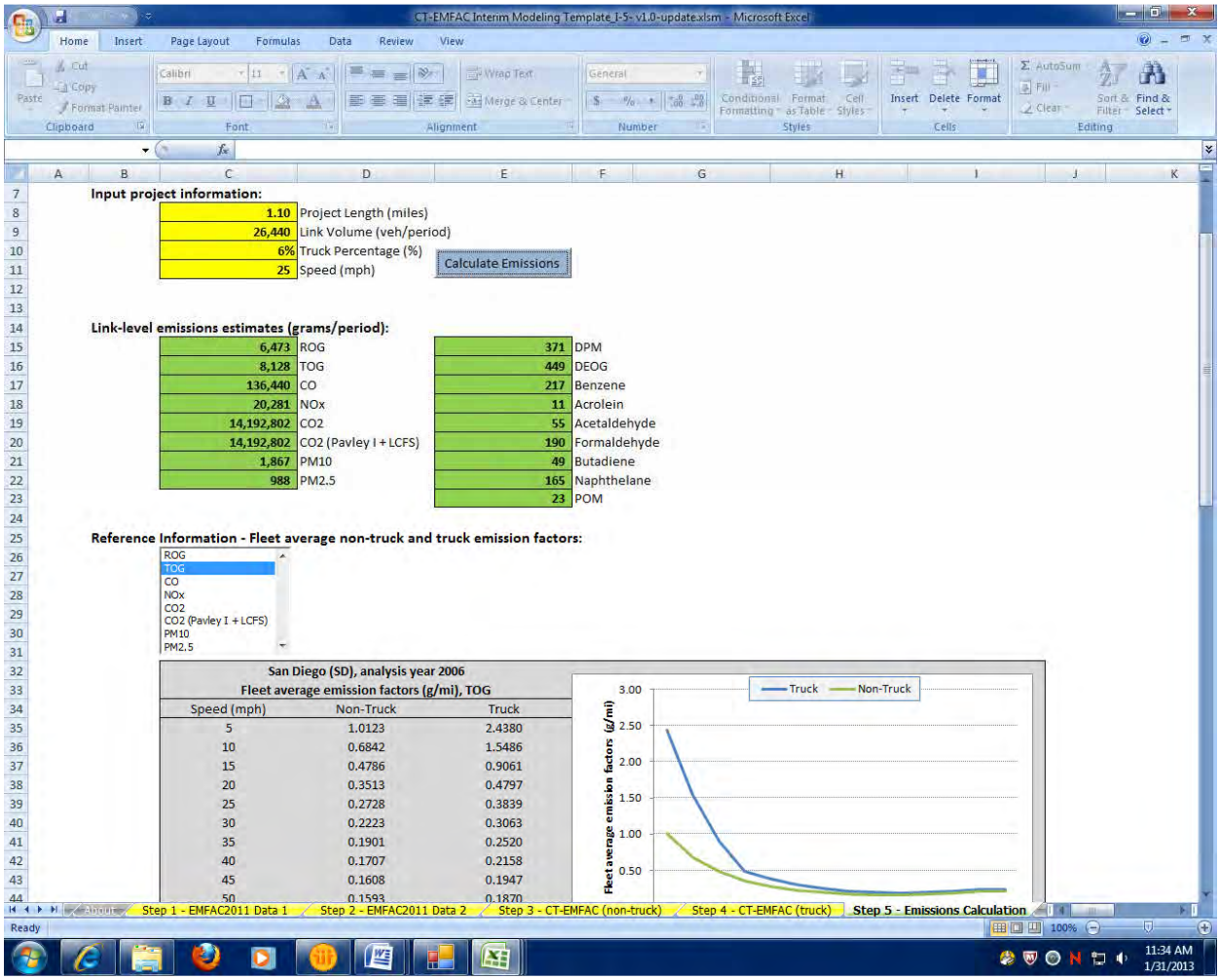
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797
25	0.2728	0.3839
30	0.2223	0.3063
35	0.1901	0.2520
40	0.1707	0.2158
45	0.1608	0.1947
50	0.1593	0.1870

Existing 2006
Link: 1 (NB GP)
Segment: 7
Peak



Input project information:

1.10	Project Length (miles)
26,440	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,473	ROG	371	DPM
8,128	TOG	449	DEOG
136,440	CO	217	Benzene
20,281	NOx	11	Acrolein
14,192,802	CO2	55	Acetaldehyde
14,192,802	CO2 (Pavley I + LCFS)	190	Formaldehyde
1,867	PM10	49	Butadiene
988	PM2.5	165	Naphthelane
		23	POM

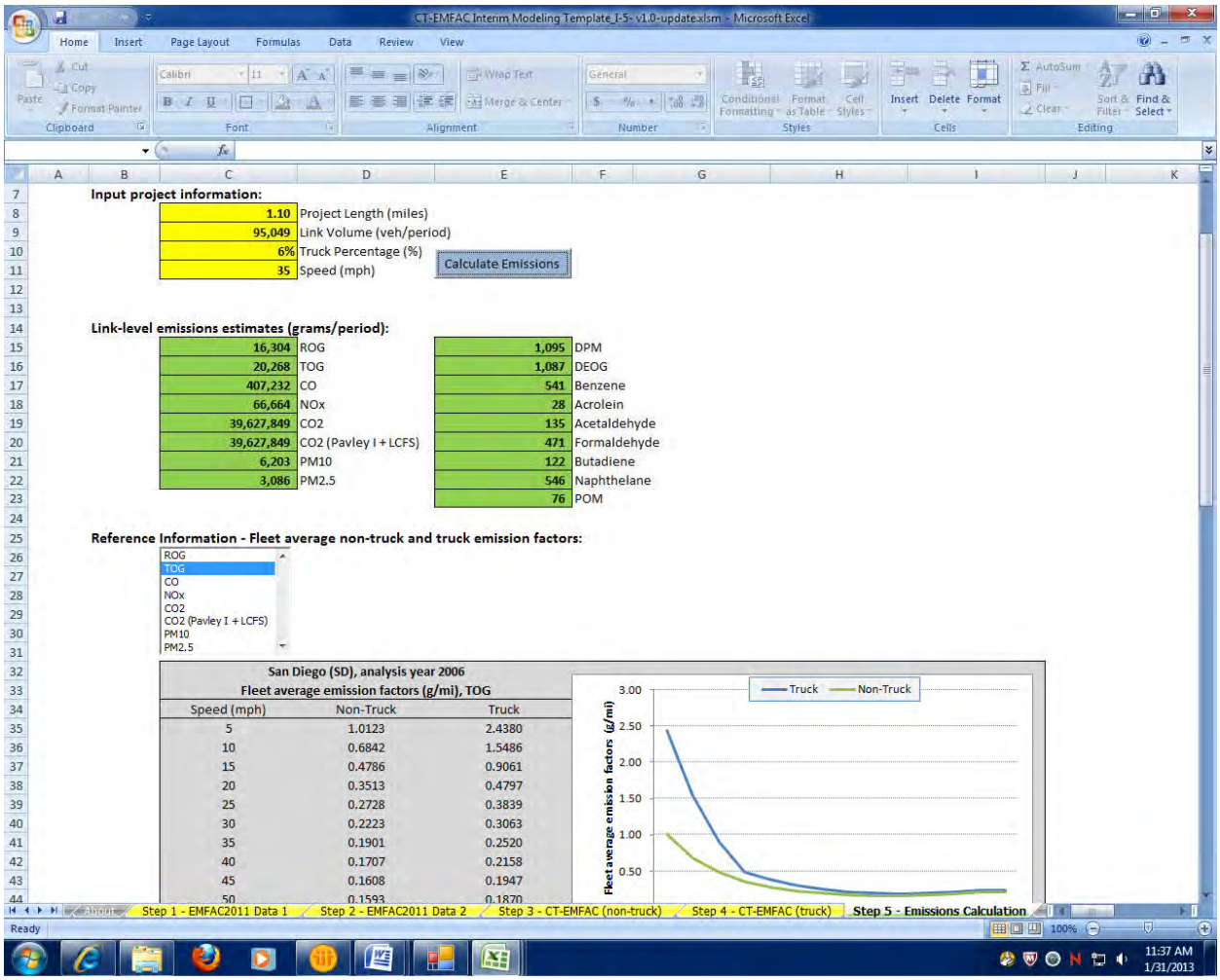
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797
25	0.2728	0.3839
30	0.2223	0.3063
35	0.1901	0.2520
40	0.1707	0.2158
45	0.1608	0.1947
50	0.1593	0.1870

Existing 2006
Link: 1 (NB GP)
Segment: 7
Off Peak



Input project information:

1.10	Project Length (miles)
95,049	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

16,304	ROG	1,095	DPM
20,268	TOG	1,087	DEOG
407,232	CO	541	Benzene
66,664	NOx	28	Acrolein
39,627,849	CO2	135	Acetaldehyde
39,627,849	CO2 (Pavley I + LCFS)	471	Formaldehyde
6,203	PM10	122	Butadiene
3,086	PM2.5	546	Naphthelane
		76	POM

Reference Information - Fleet average non-truck and truck emission factors:

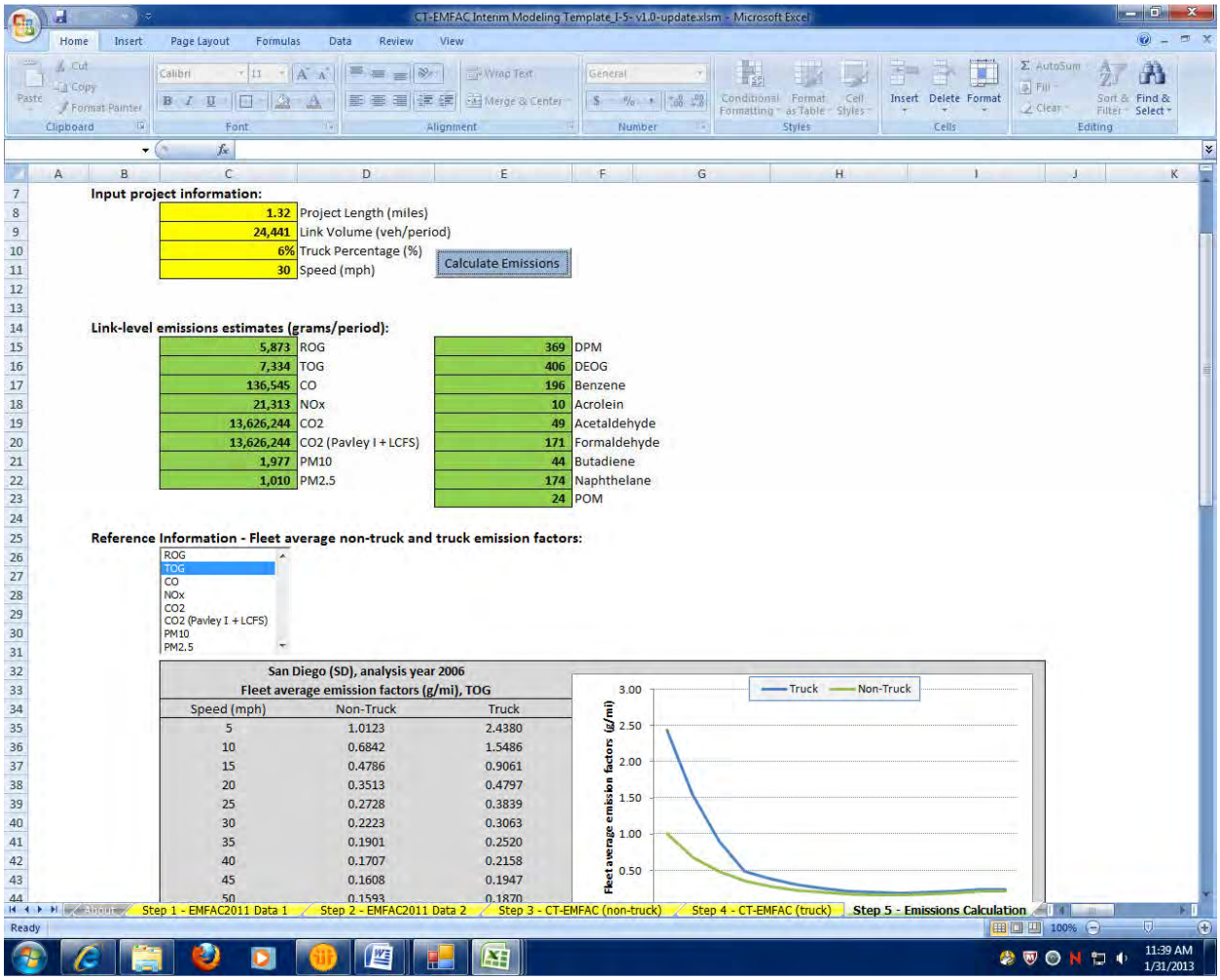
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

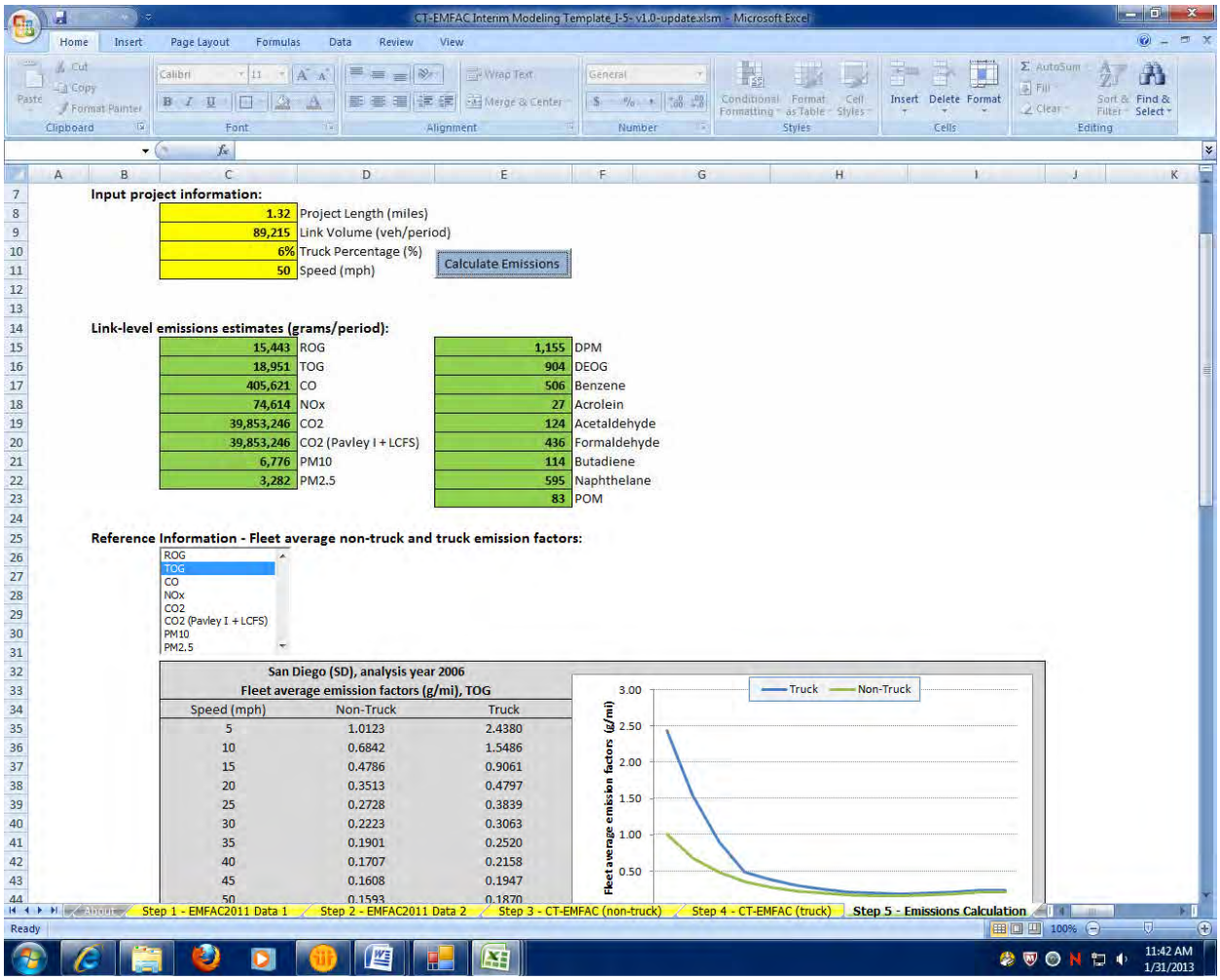
Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797
25	0.2728	0.3839
30	0.2223	0.3063
35	0.1901	0.2520
40	0.1707	0.2158
45	0.1608	0.1947
50	0.1593	0.1870

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Existing 2006
Link: 1 (NB GP)
Segment: 8
Peak



Existing 2006
Link: 1 (NB GP)
Segment: 8
Off Peak



Input project information:

1.32	Project Length (miles)
89,215	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

15,443	ROG	1,155	DPM
18,951	TOG	904	DEOG
405,621	CO	506	Benzene
74,614	NOx	27	Acrolein
39,853,246	CO2	124	Acetaldehyde
39,853,246	CO2 (Pavley I + LCFS)	436	Formaldehyde
6,776	PM10	114	Butadiene
3,282	PM2.5	595	Naphthelane
		83	POM

Reference Information - Fleet average non-truck and truck emission factors:

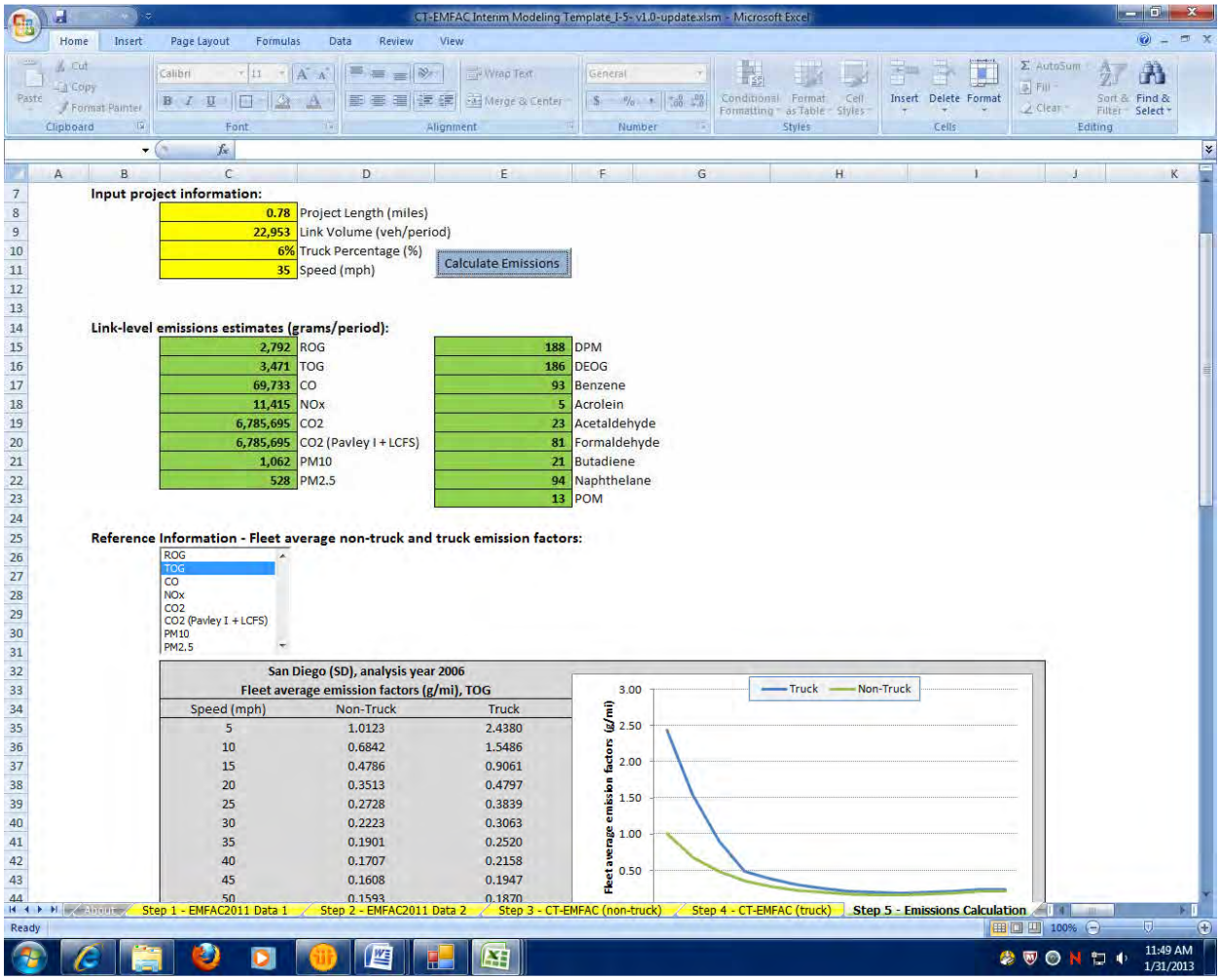
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

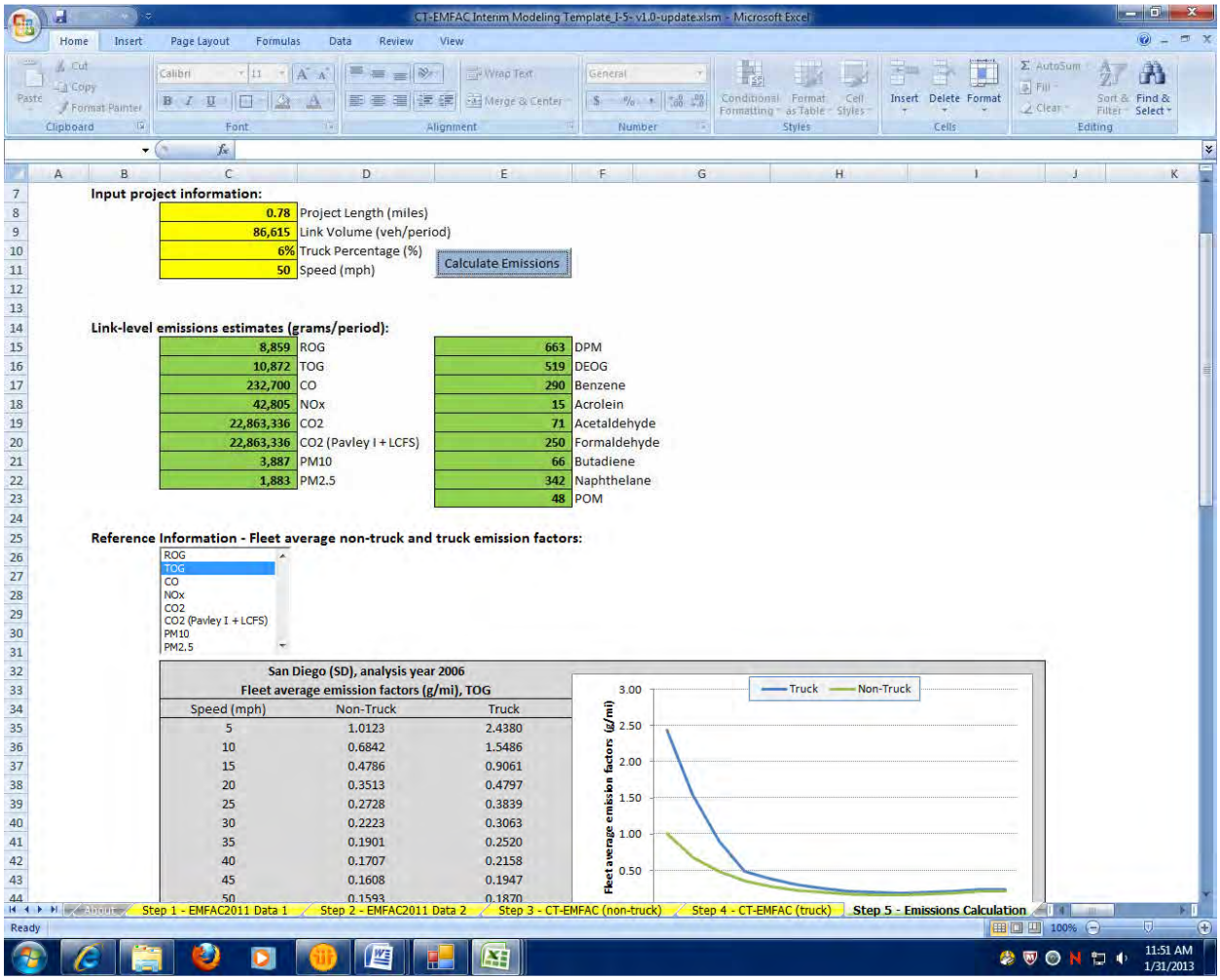
Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797
25	0.2728	0.3839
30	0.2223	0.3063
35	0.1901	0.2520
40	0.1707	0.2158
45	0.1608	0.1947
50	0.1593	0.1870

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Existing 2006
Link: 1 (NB GP)
Segment: 9
Peak



Existing 2006
Link: 1 (NB GP)
Segment: 9
Off Peak



Input project information:

0.78	Project Length (miles)
86,615	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,859	ROG	663	DPM
10,872	TOG	519	DEOG
232,700	CO	290	Benzene
42,805	NOx	15	Acrolein
22,863,336	CO2	71	Acetaldehyde
22,863,336	CO2 (Pavley I + LCFS)	250	Formaldehyde
3,887	PM10	66	Butadiene
1,883	PM2.5	342	Naphthelane
		48	POM

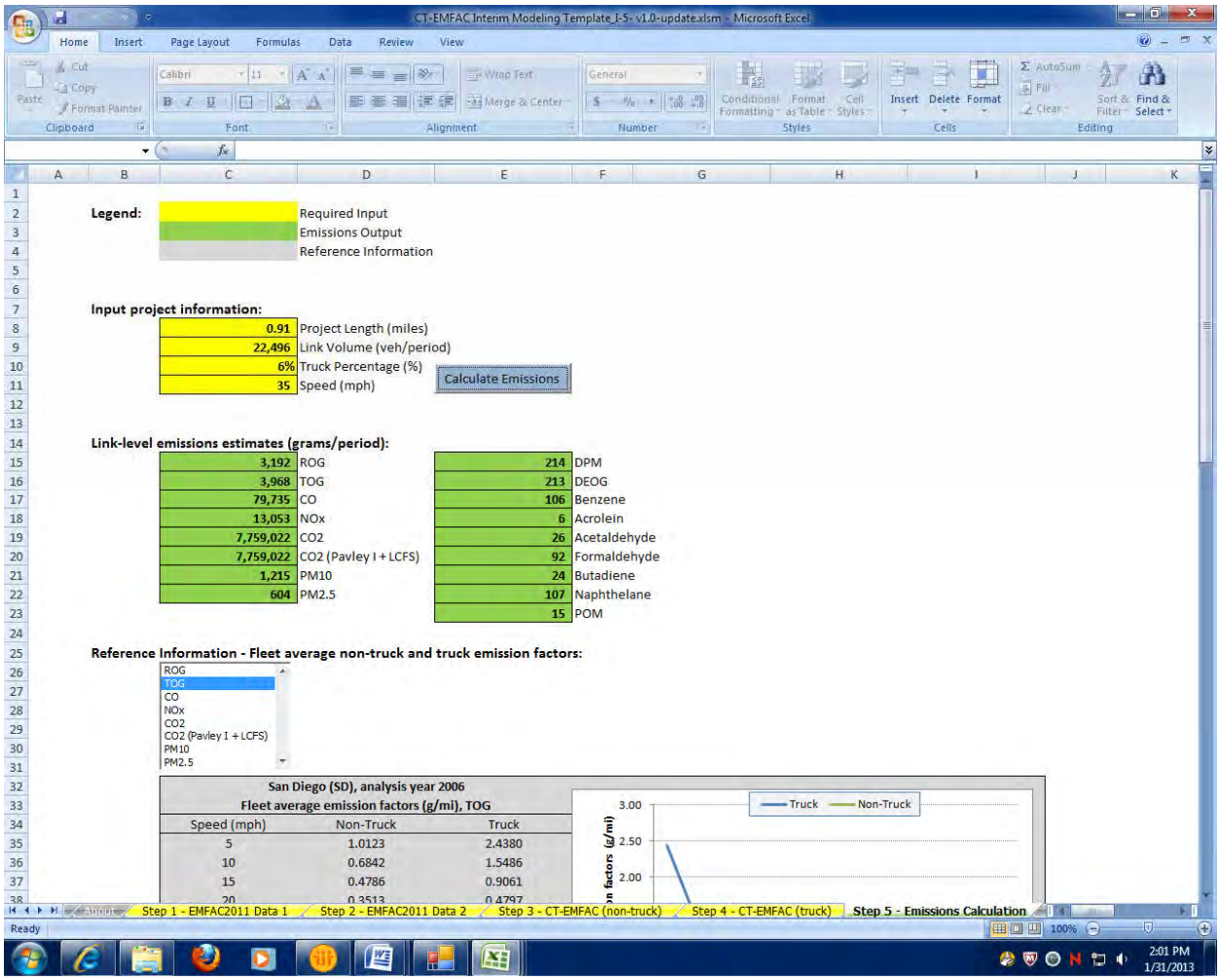
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

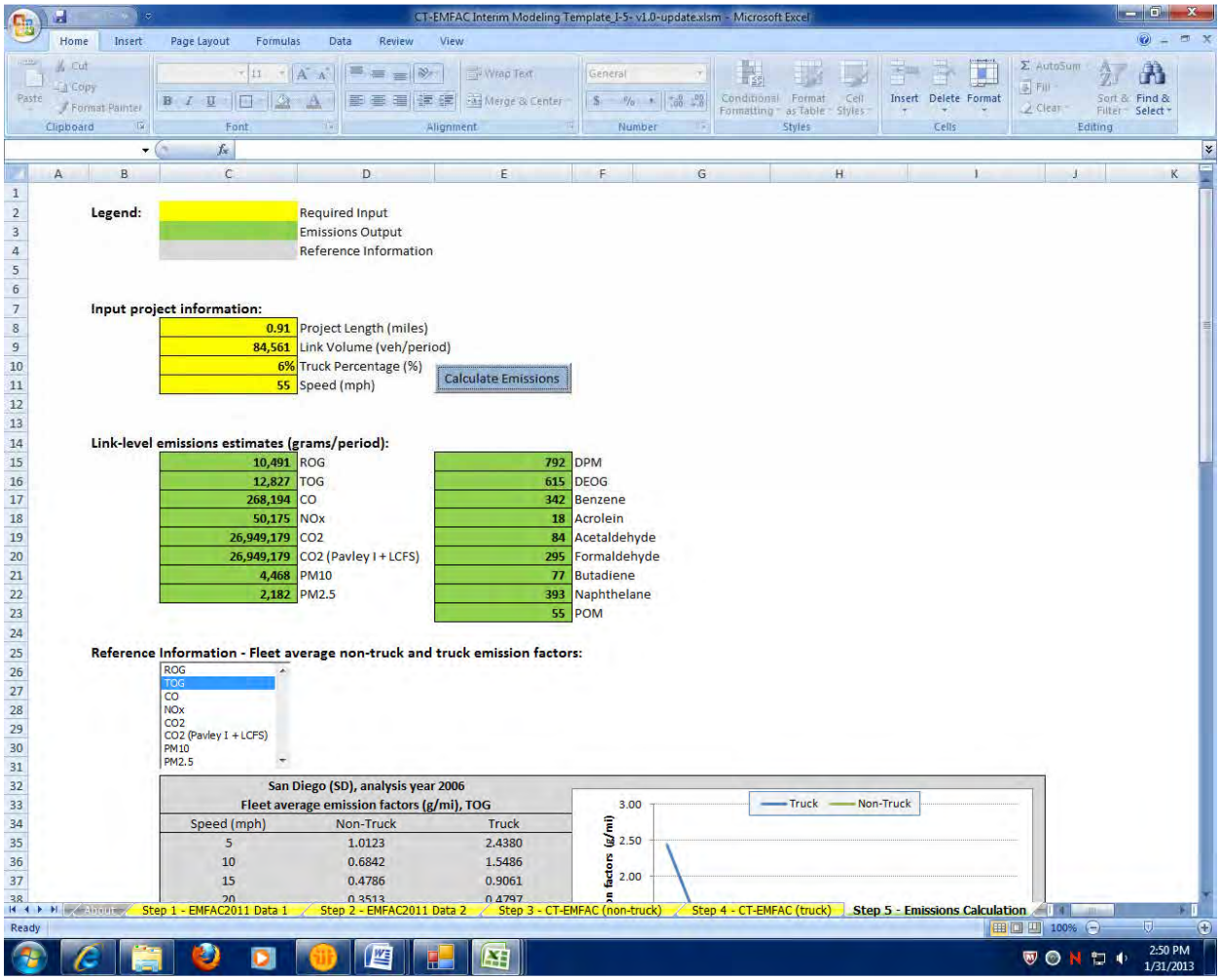
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797
25	0.2728	0.3839
30	0.2223	0.3063
35	0.1901	0.2520
40	0.1707	0.2158
45	0.1608	0.1947
50	0.1593	0.1870

Existing 2006
Link: 1 (NB GP)
Segment: 10
Peak



Existing 2006
Link: 1 (NB GP)
Segment: 10
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.91	Project Length (miles)
84,561	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

10,491	ROG	792	DPM
12,827	TOG	615	DEOG
268,194	CO	342	Benzene
50,175	NOx	18	Acrolein
26,949,179	CO2	84	Acetaldehyde
26,949,179	CO2 (Pavley I + LCFS)	295	Formaldehyde
4,468	PM10	77	Butadiene
2,182	PM2.5	393	Naphthelane
		55	POM

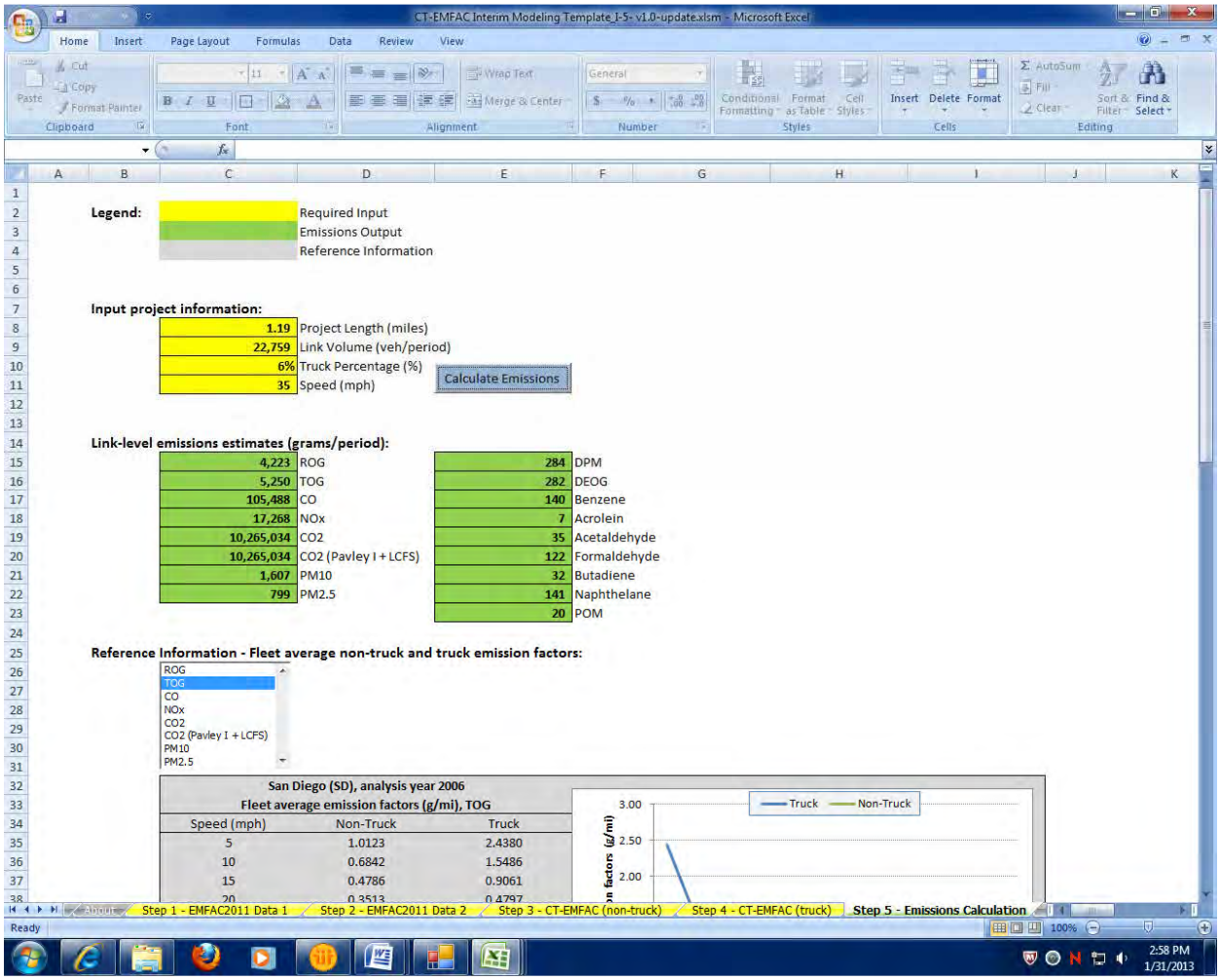
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
Link: 1 (NB GP)
Segment: 11
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.19	Project Length (miles)
22,759	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,223	ROG	284	DPM
5,250	TOG	282	DEOG
105,488	CO	140	Benzene
17,268	NOx	7	Acrolein
10,265,034	CO2	35	Acetaldehyde
10,265,034	CO2 (Pavley I + LCFS)	122	Formaldehyde
1,607	PM10	32	Butadiene
799	PM2.5	141	Naphthelane
		20	POM

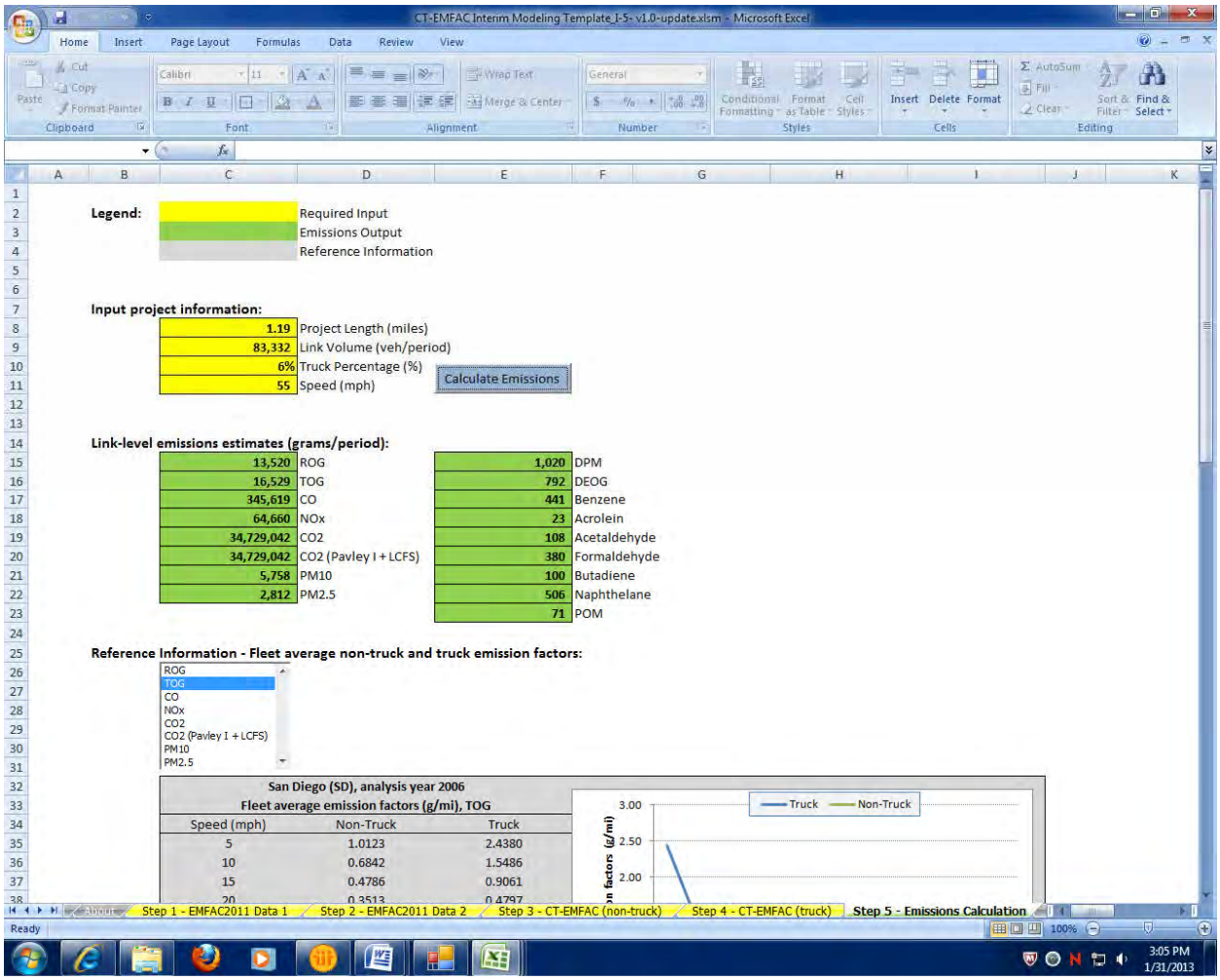
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

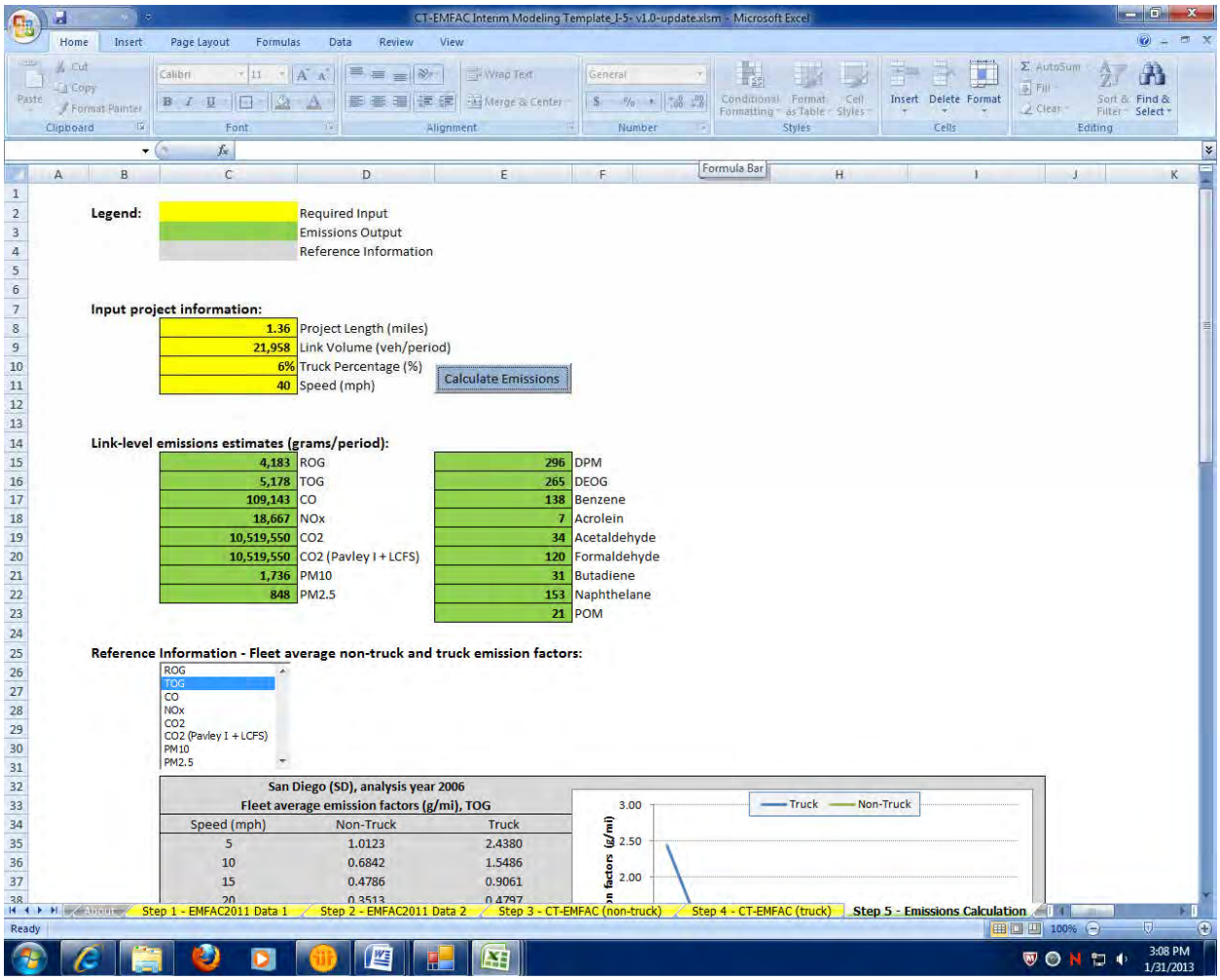
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

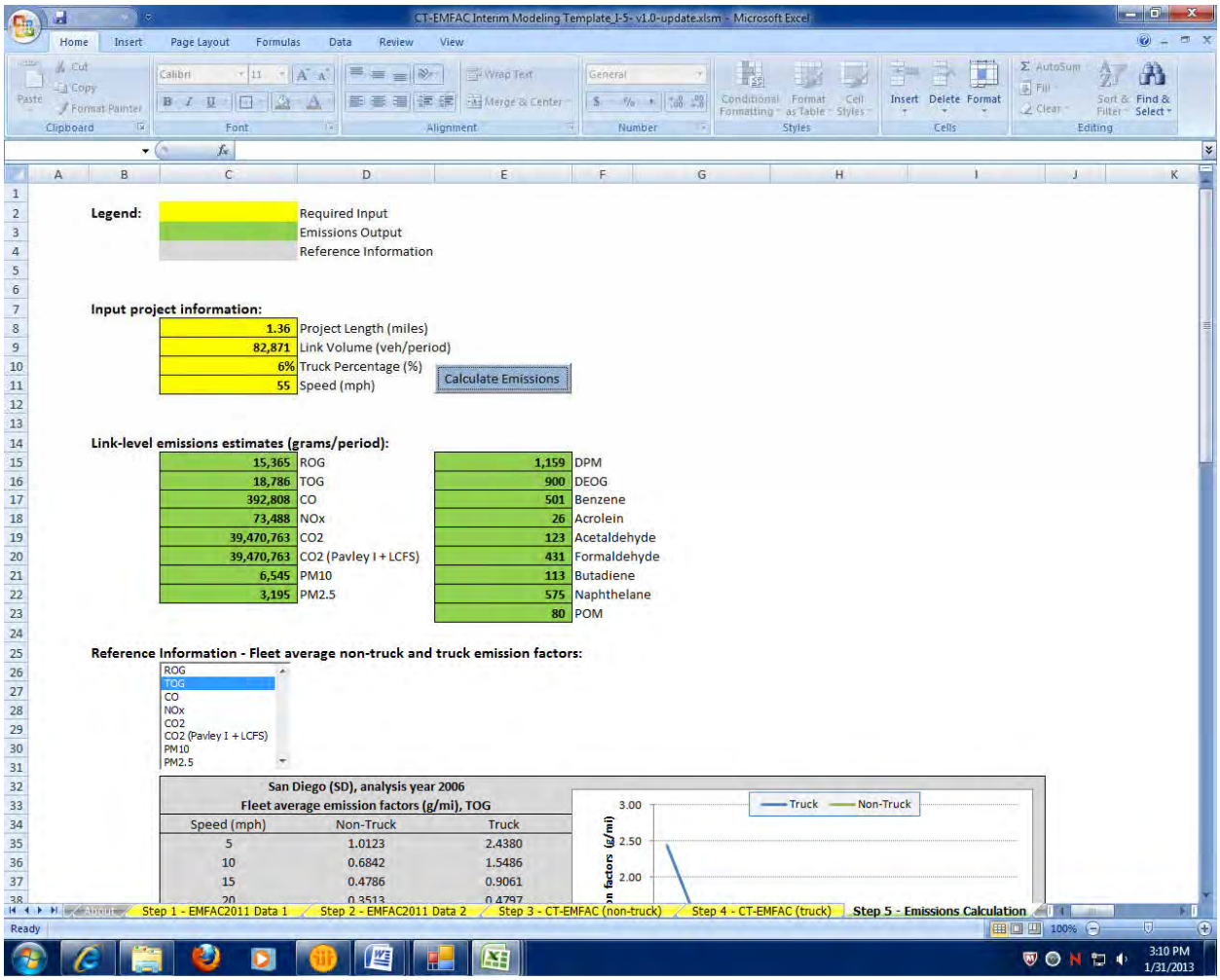
Existing 2006
Link: 1 (NB GP)
Segment: 11
Off Peak



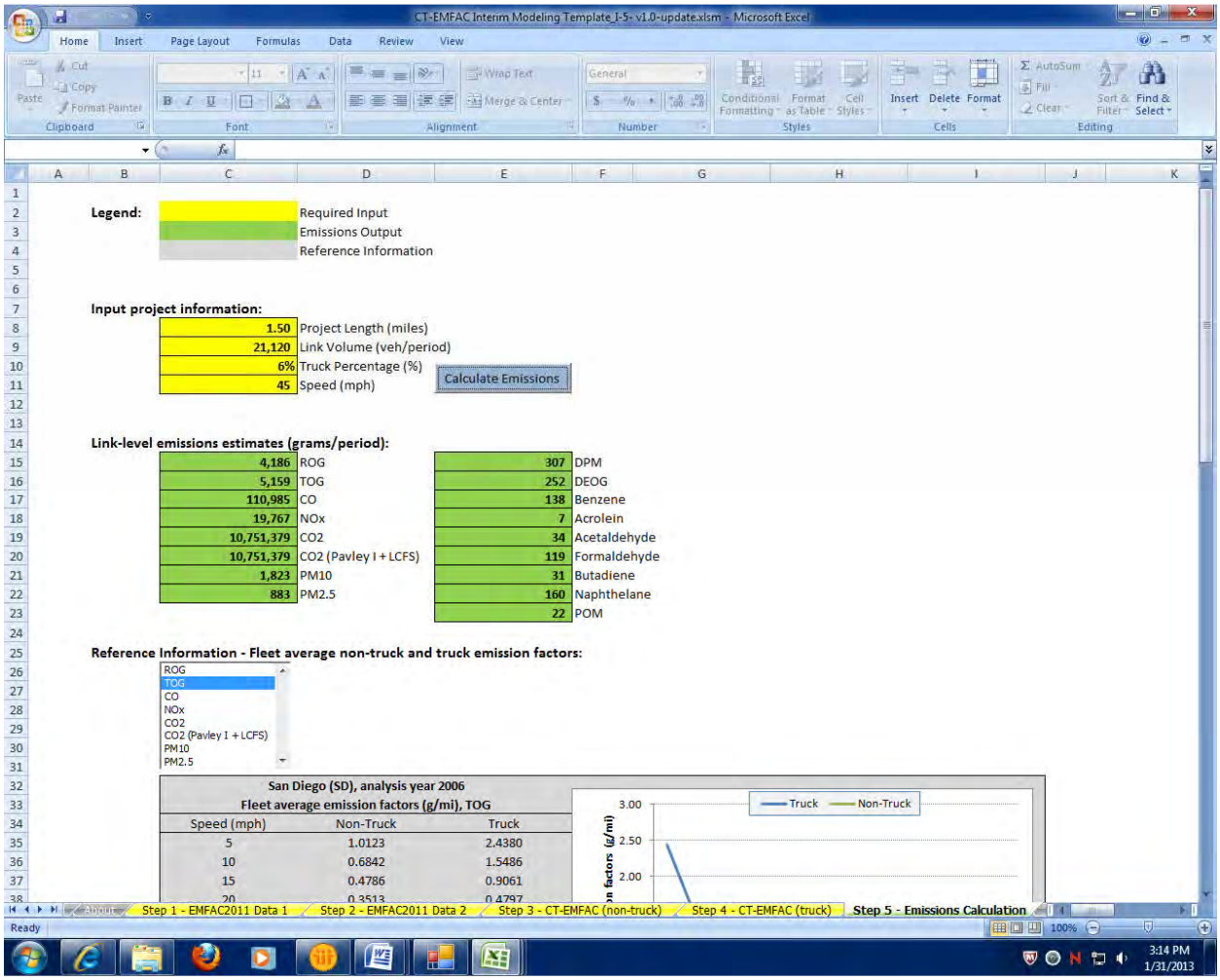
Existing 2006
Link: 1 (NB GP)
Segment: 12
Peak



Existing 2006
Link: 1 (NB GP)
Segment: 12
Off Peak



Existing 2006
Link: 1 (NB GP)
Segment: 13
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
21,120	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,186	ROG	307	DPM
5,159	TOG	252	DEOG
110,985	CO	138	Benzene
19,767	NOx	7	Acrolein
10,751,379	CO2	34	Acetaldehyde
10,751,379	CO2 (Pavley I + LCFS)	119	Formaldehyde
1,823	PM10	31	Butadiene
883	PM2.5	160	Naphthelane
		22	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

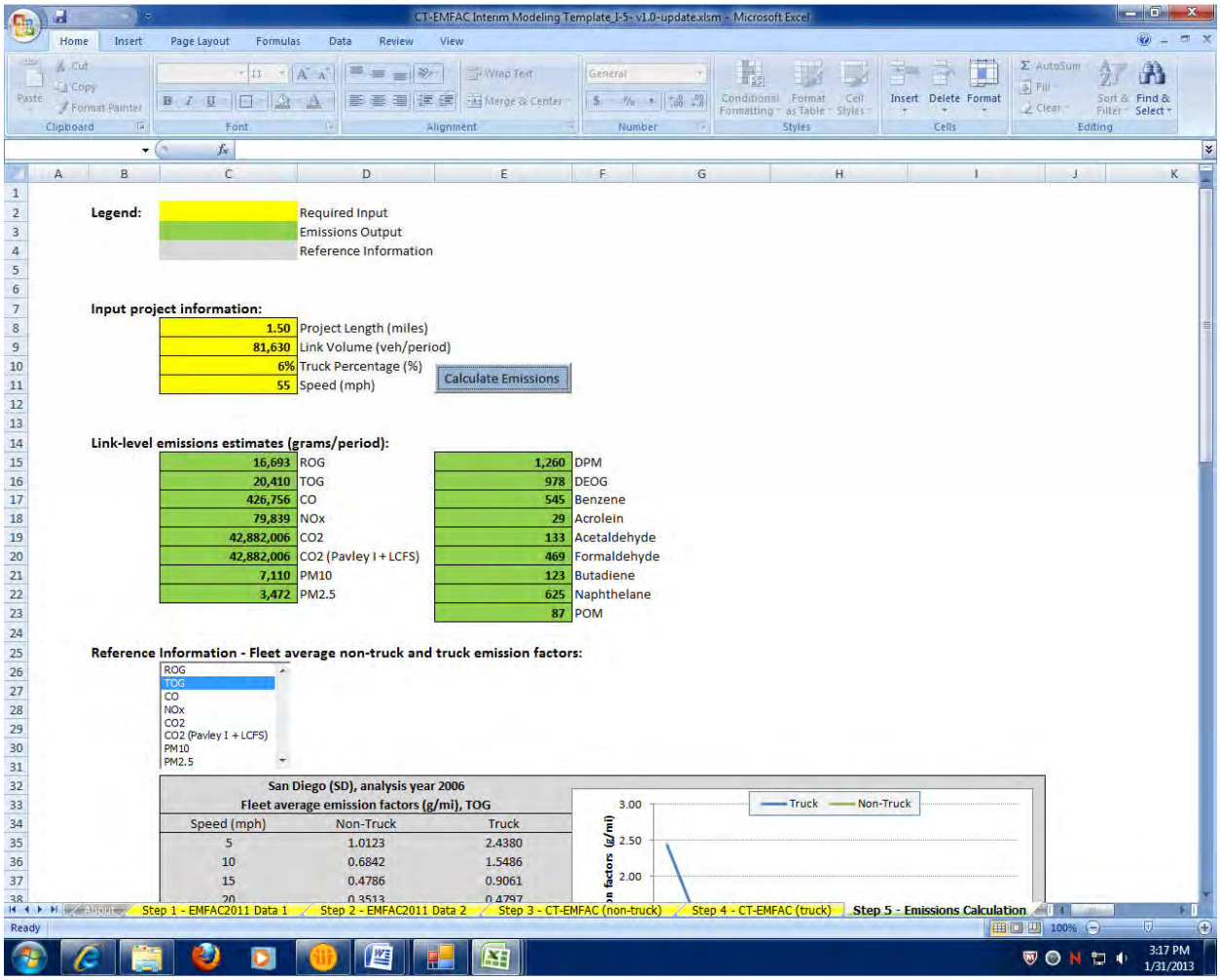
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready

Existing 2006
Link: 1 (NB GP)
Segment: 13
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
81,630	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

16,693	ROG	1,260	DPM
20,410	TOG	978	DEOG
426,756	CO	545	Benzene
79,839	NOx	29	Acrolein
42,882,006	CO2	133	Acetaldehyde
42,882,006	CO2 (Pavley I + LCFS)	469	Formaldehyde
7,110	PM10	123	Butadiene
3,472	PM2.5	625	Naphthelane
		87	POM

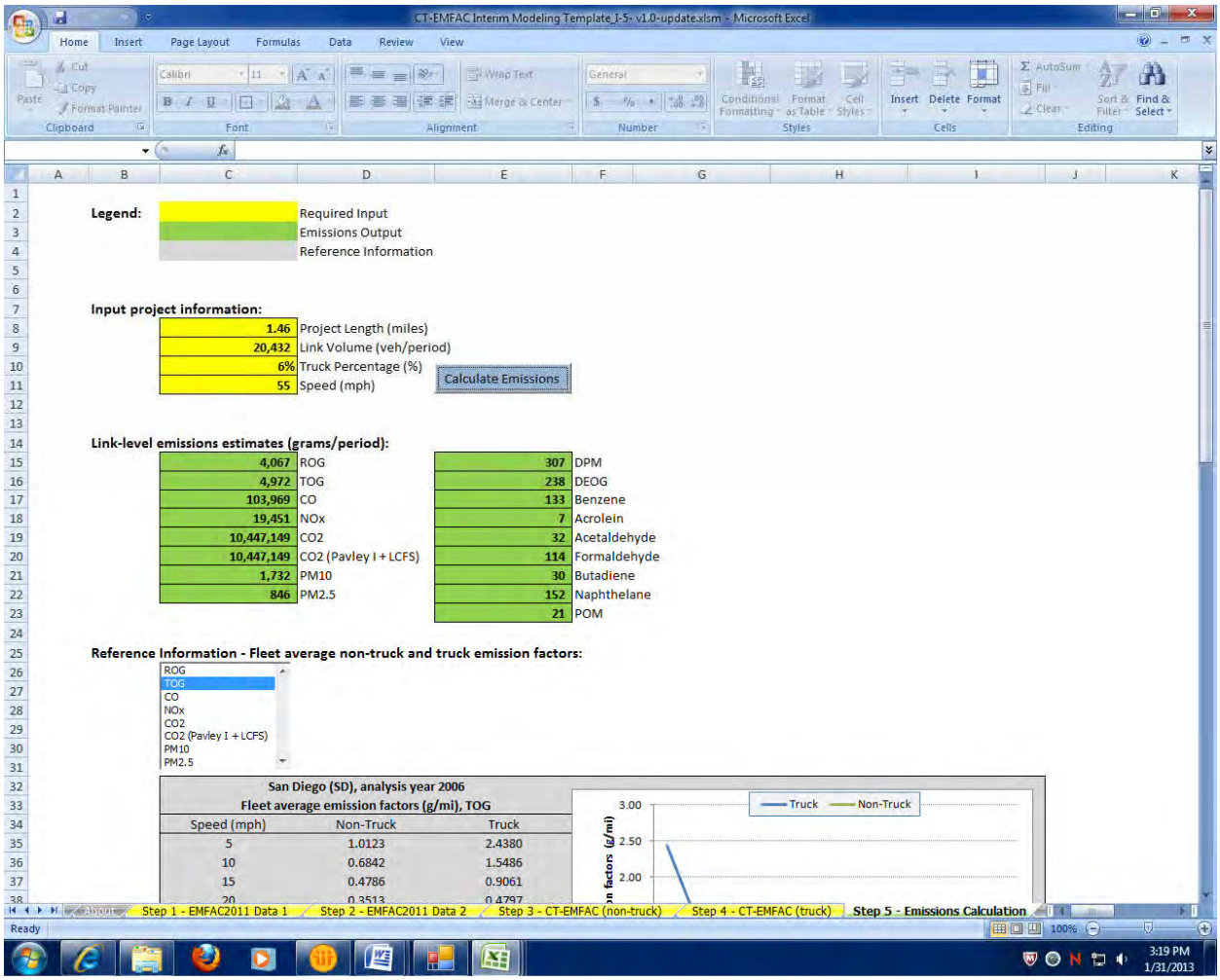
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

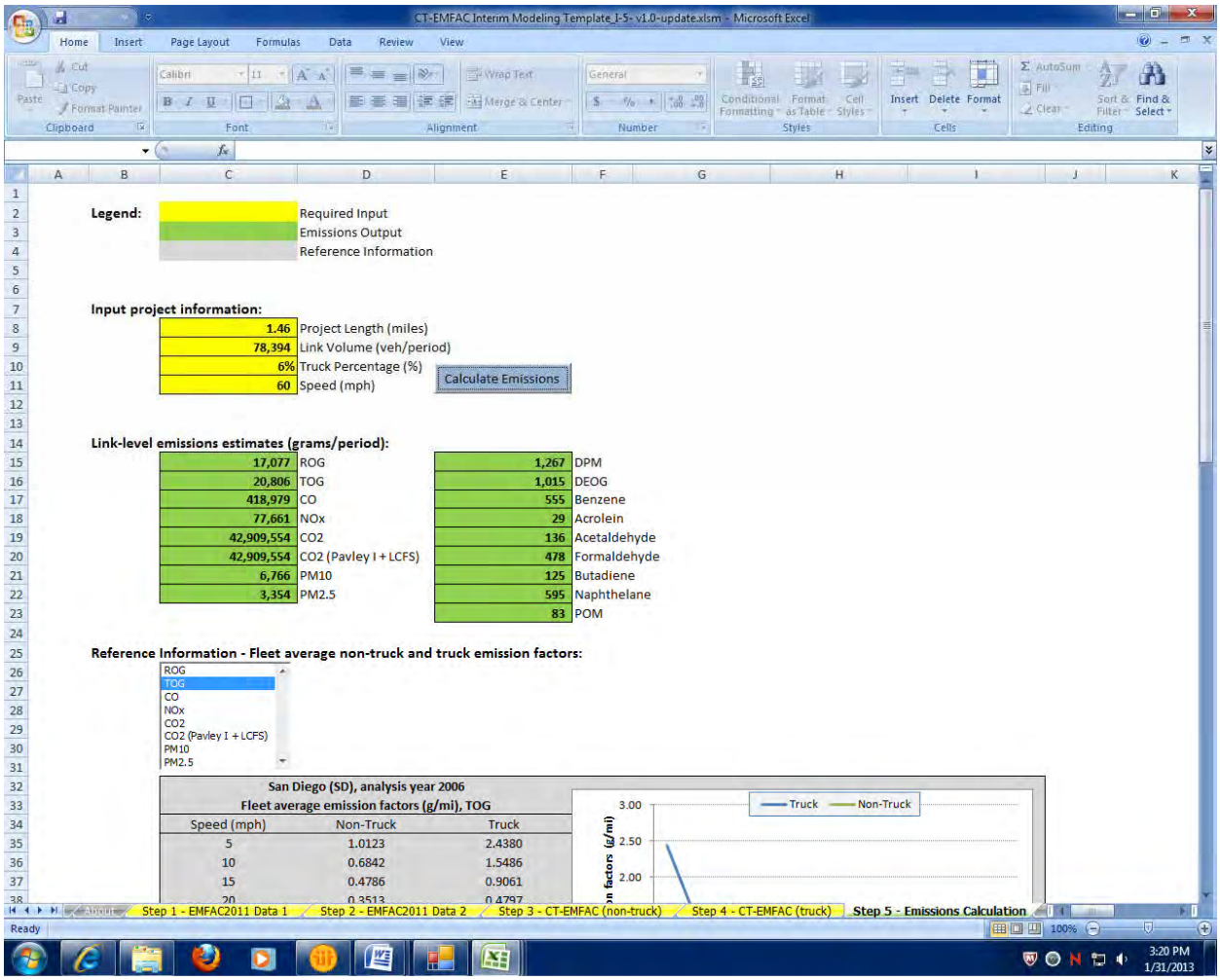
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

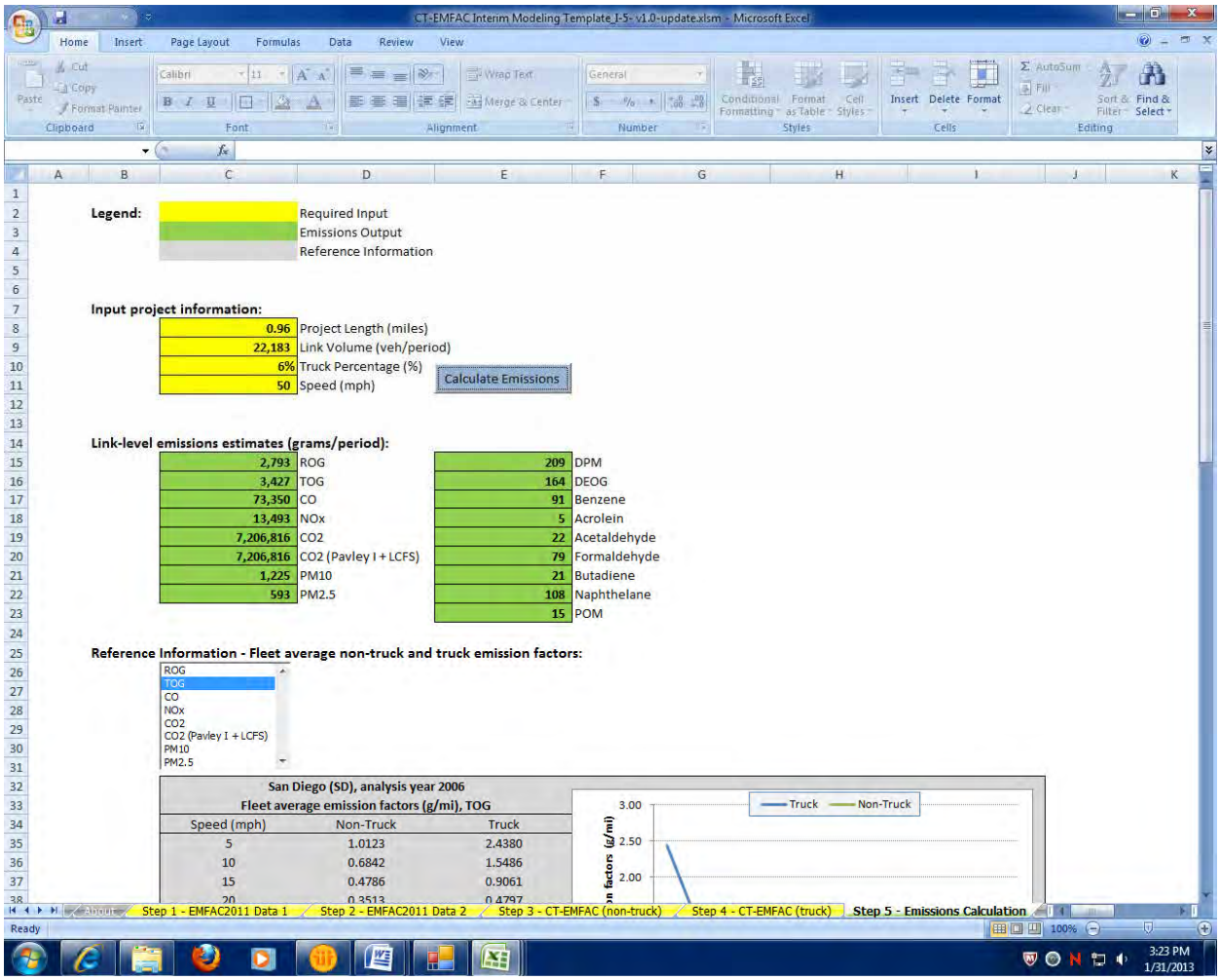
Existing 2006
Link: 1 (NB GP)
Segment: 14
Peak



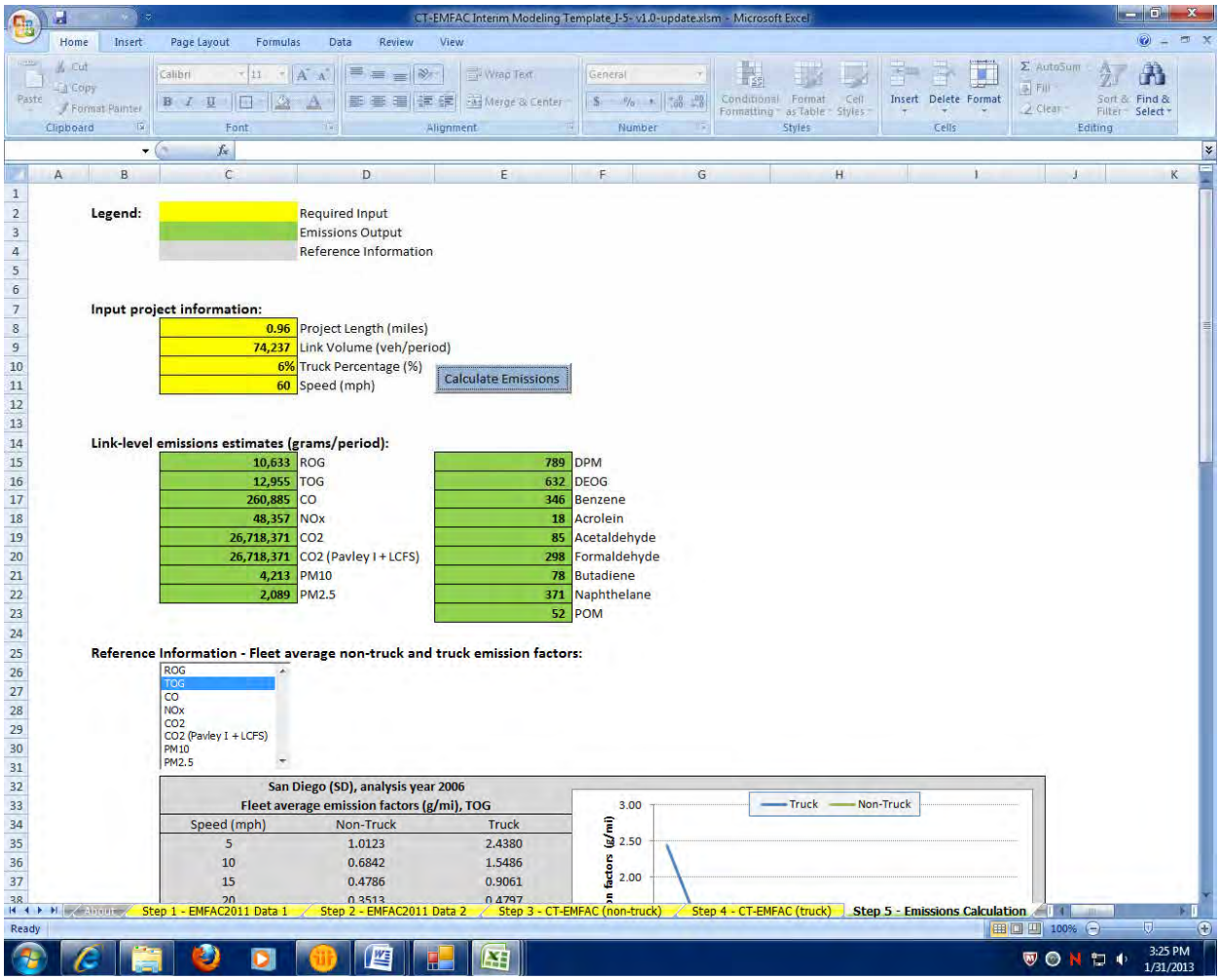
Existing 2006
Link: 1 (NB GP)
Segment: 14
Off Peak



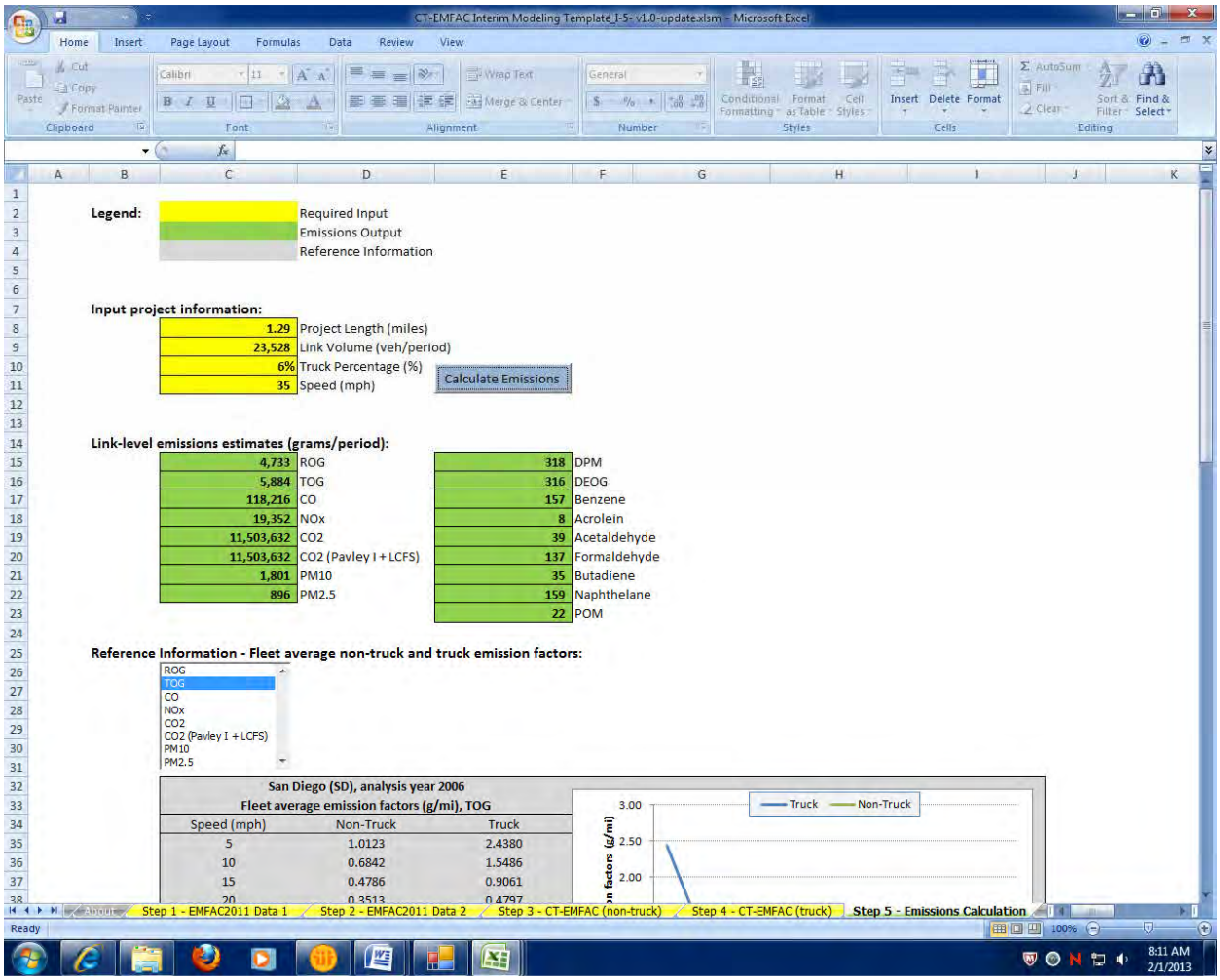
Existing 2006
Link: 1 (NB GP)
Segment: 15
Peak



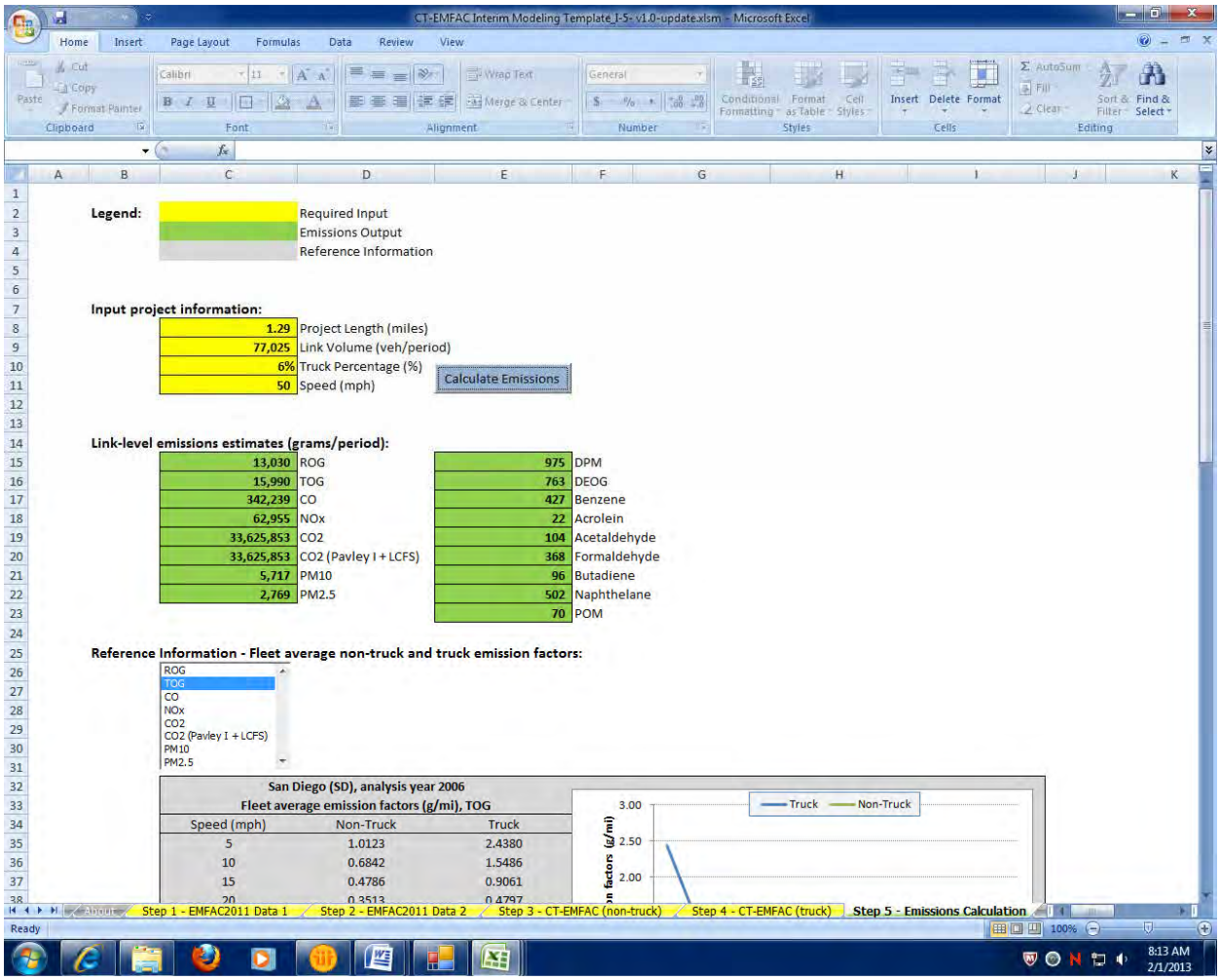
Existing 2006
Link: 1 (NB GP)
Segment: 15
Off Peak



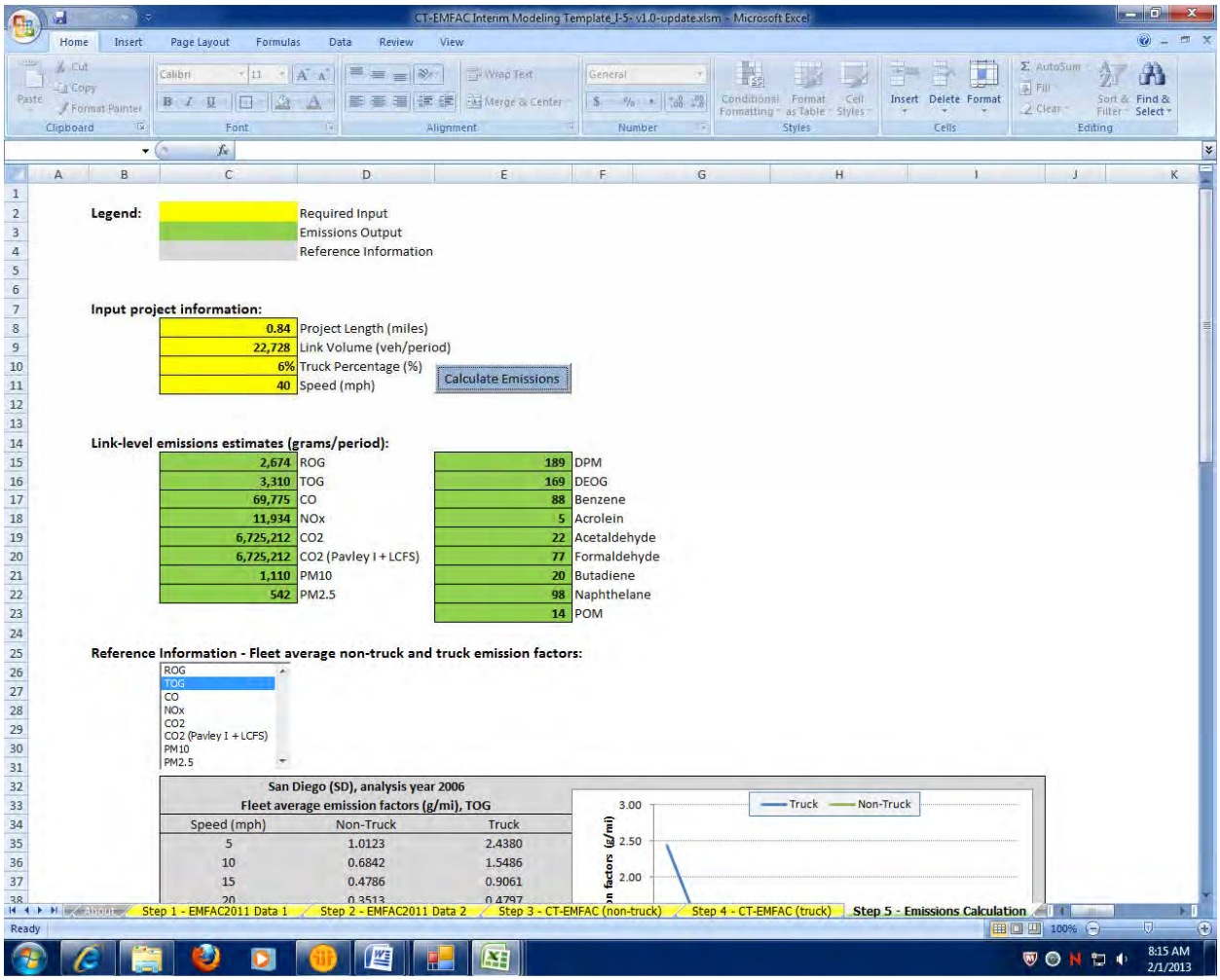
Existing 2006
Link: 1 (NB GP)
Segment: 16
Peak



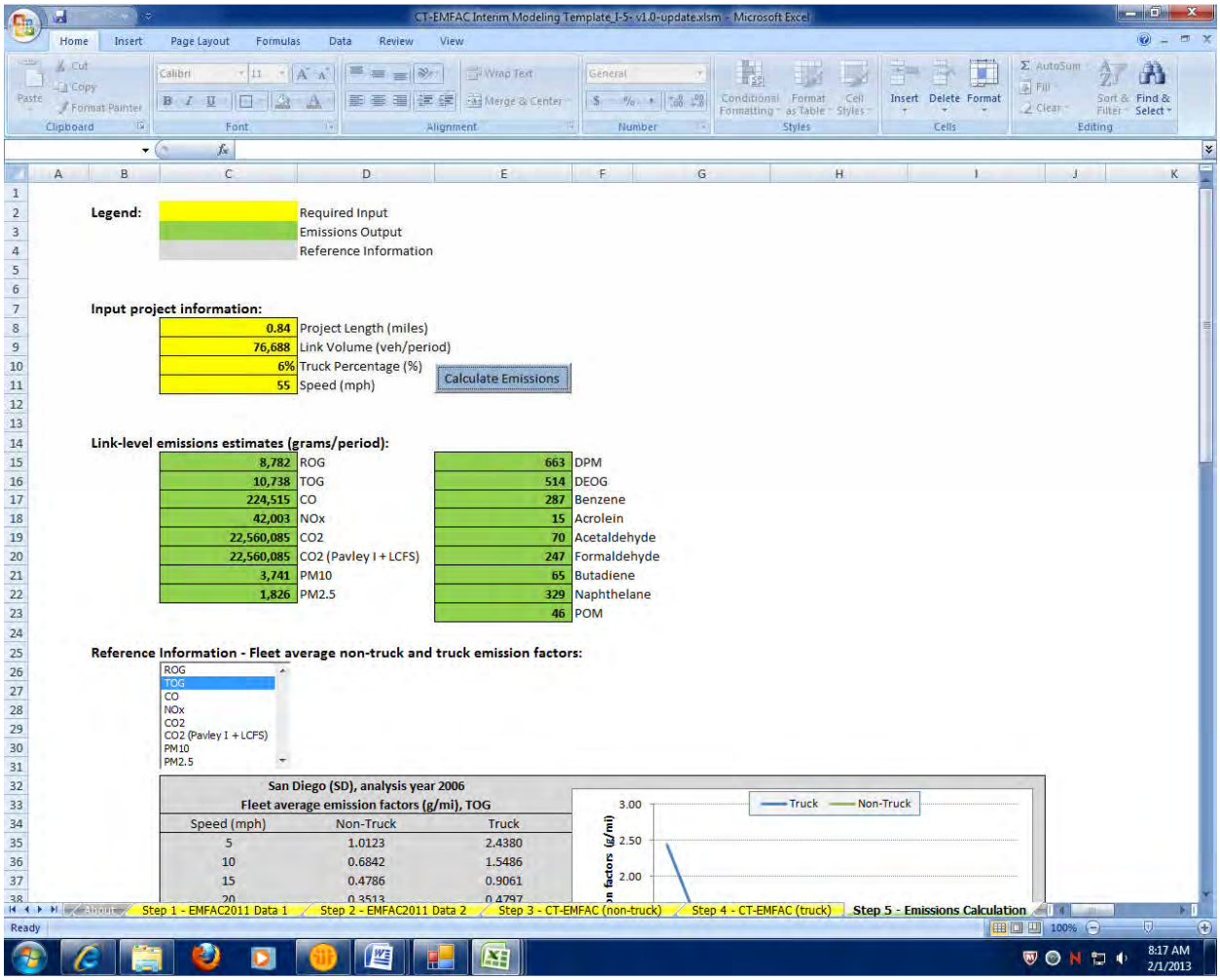
Existing 2006
Link: 1 (NB GP)
Segment: 16
Off Peak



Existing 2006
Link: 1 (NB GP)
Segment: 17
Peak



Existing 2006
Link: 1 (NB GP)
Segment: 17
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.84	Project Length (miles)
76,688	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,782	ROG	663	DPM
10,738	TOG	514	DEOG
224,515	CO	287	Benzene
42,003	NOx	15	Acrolein
22,560,085	CO2	70	Acetaldehyde
22,560,085	CO2 (Pavley I + LCFS)	247	Formaldehyde
3,741	PM10	65	Butadiene
1,826	PM2.5	329	Naphthelane
		46	POM

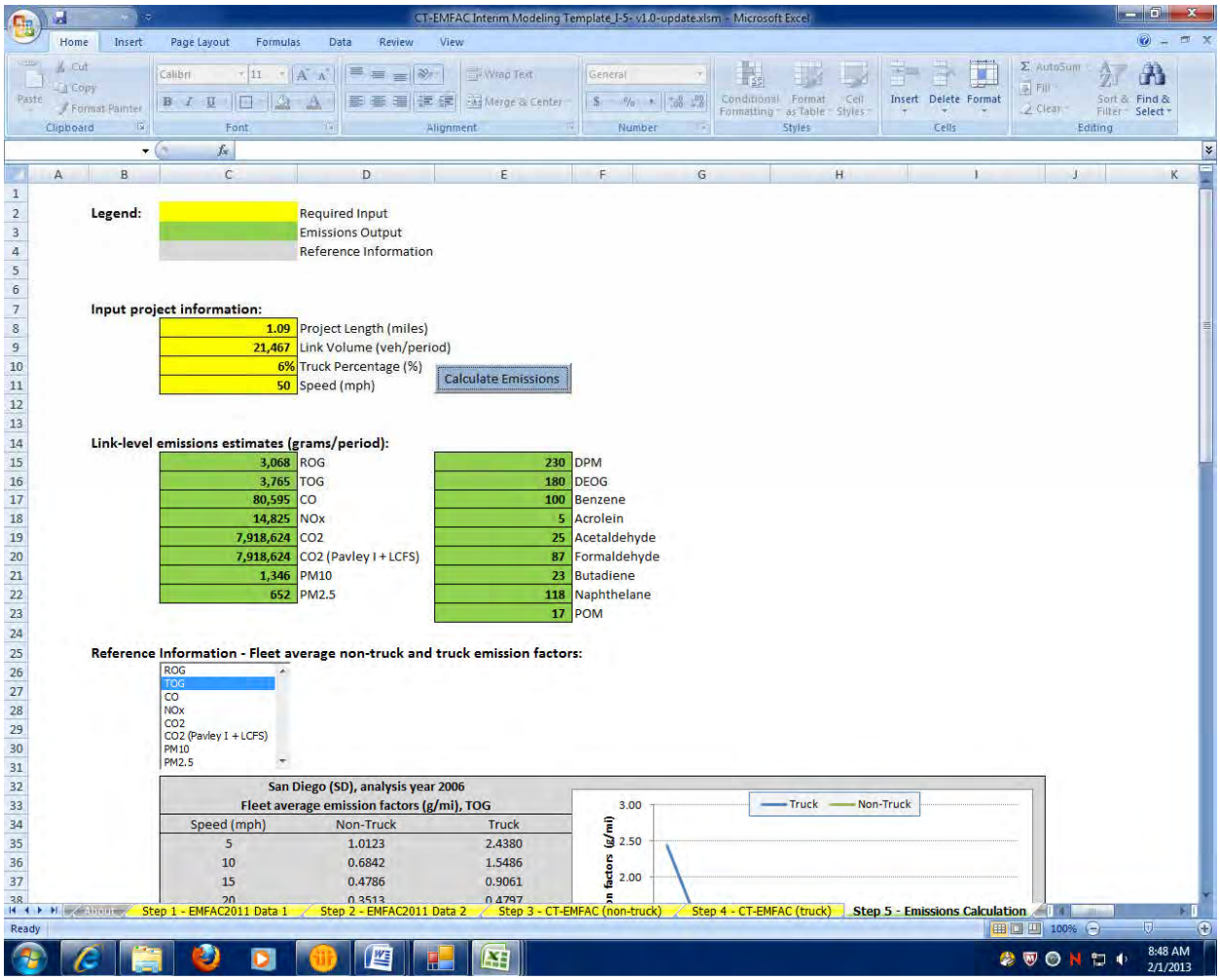
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

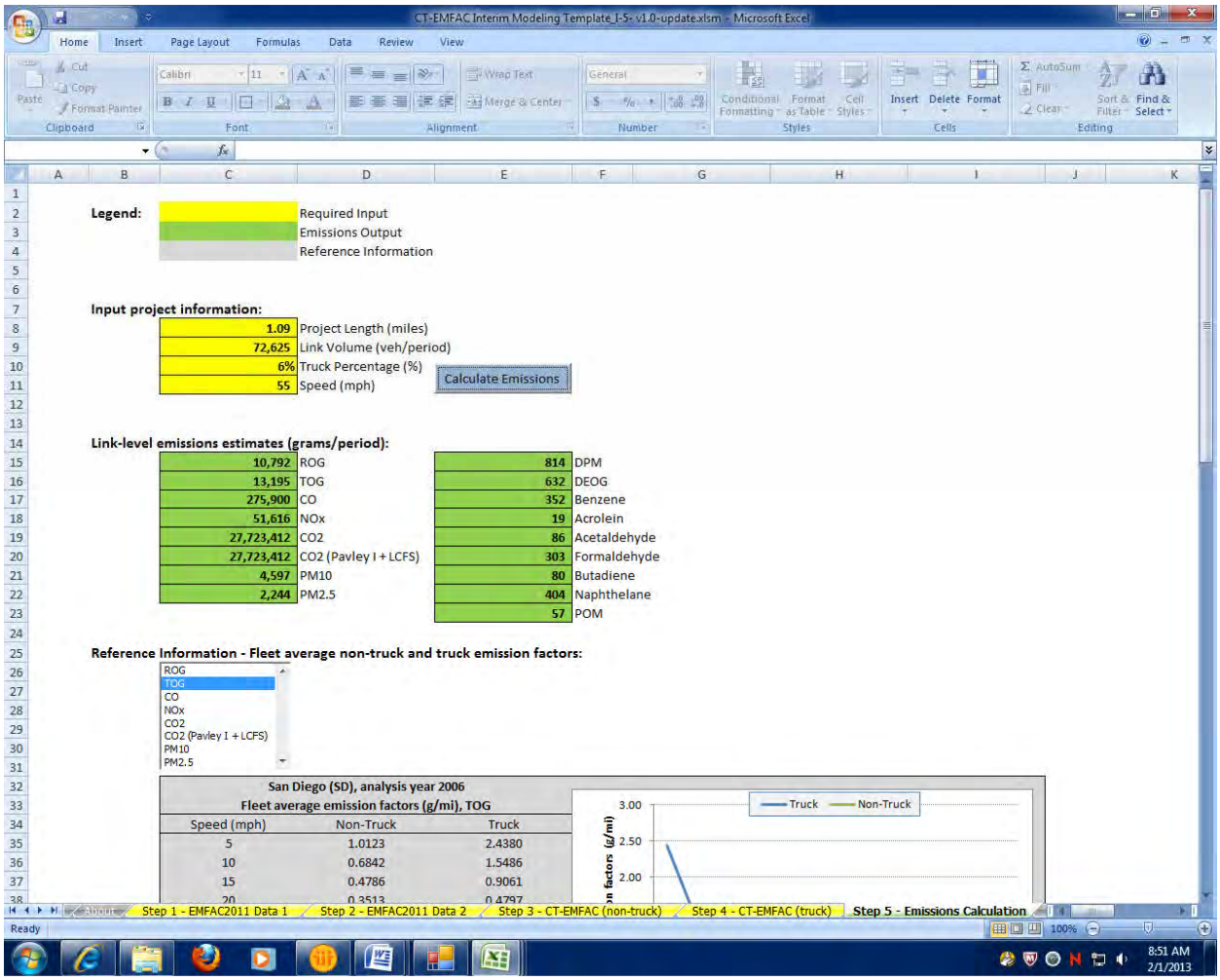
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

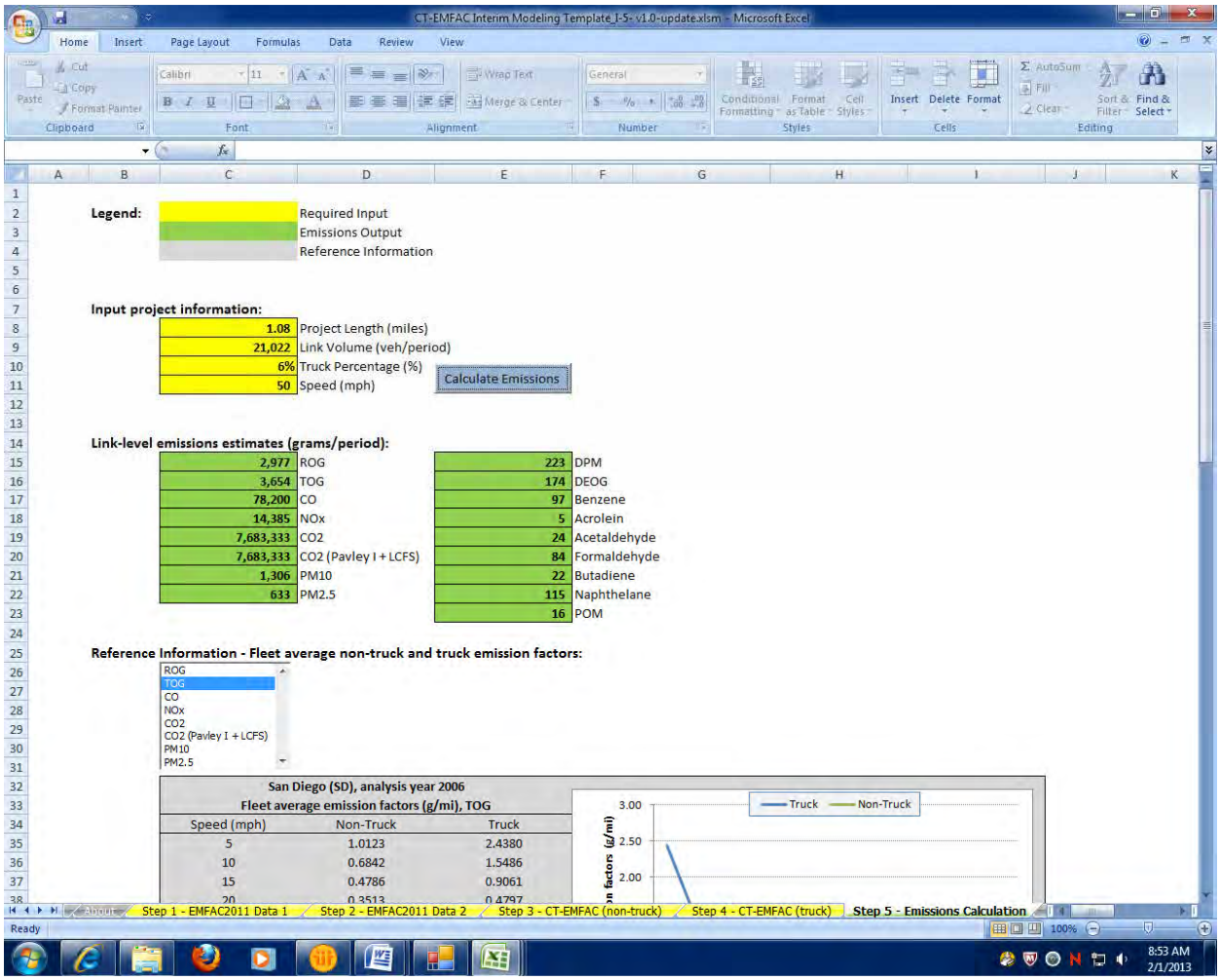
Existing 2006
Link: 1 (NB GP)
Segment: 18
Peak



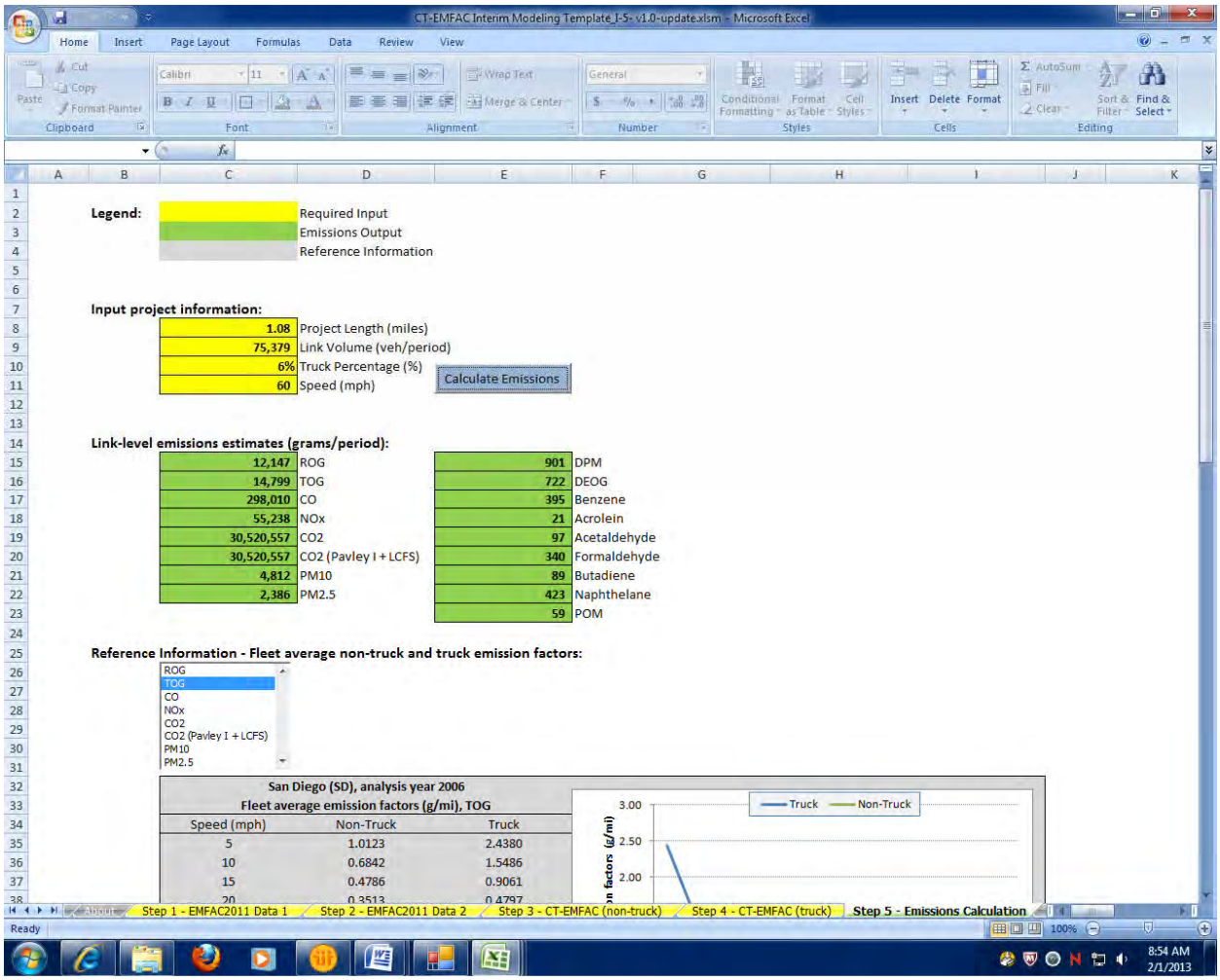
Existing 2006
Link: 1 (NB GP)
Segment: 18
Off Peak



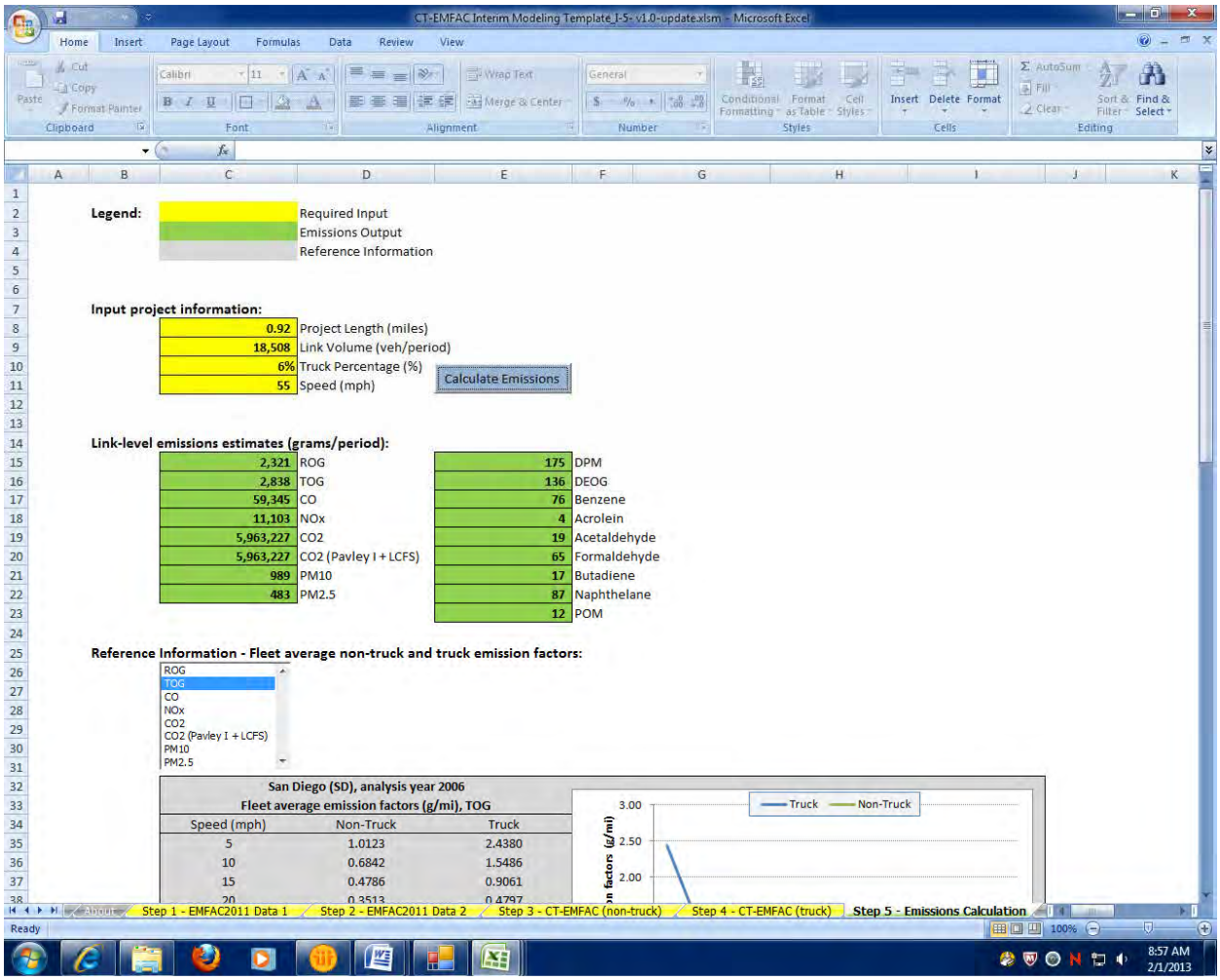
Existing 2006
Link: 1 (NB GP)
Segment: 19
Peak



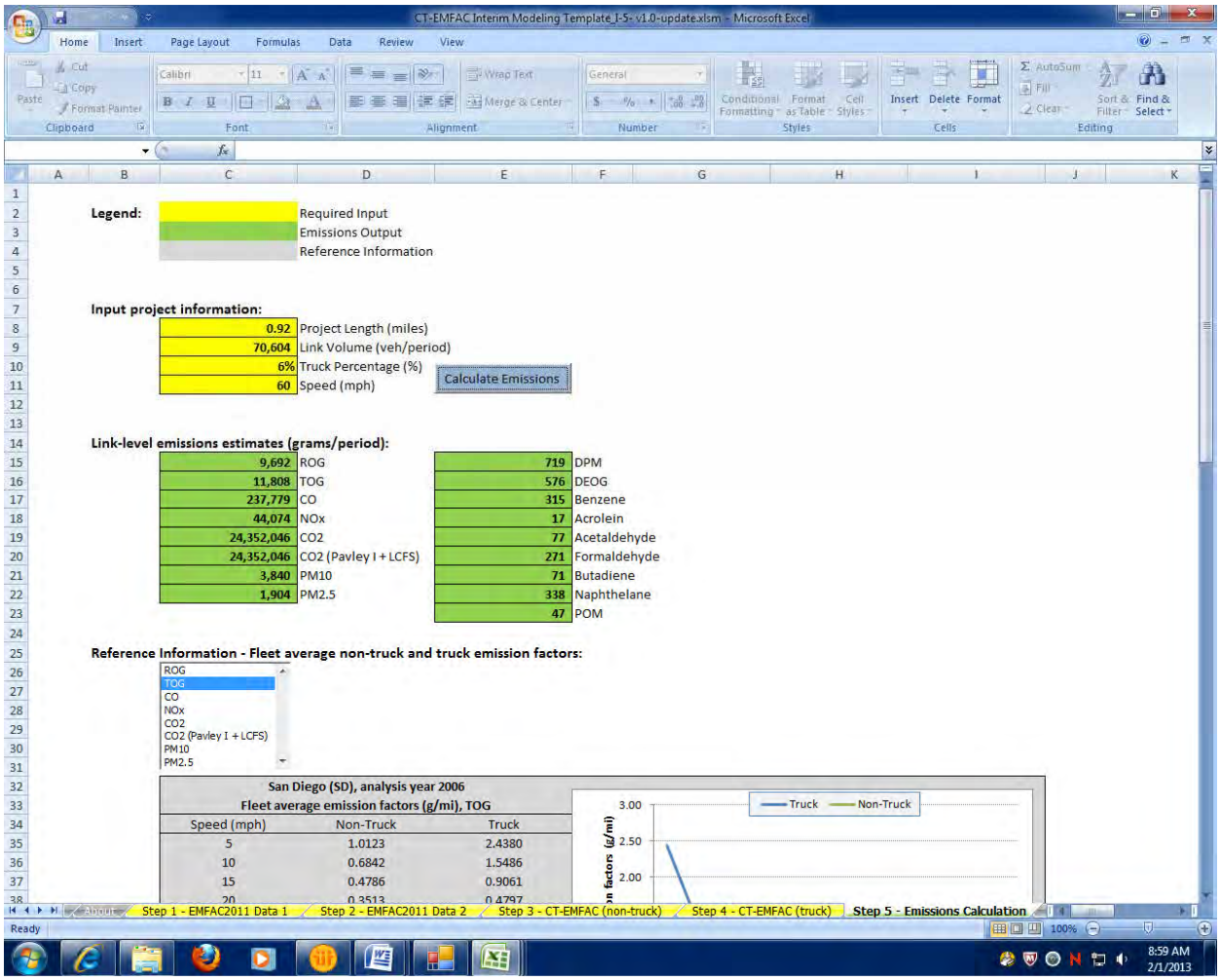
Existing 2006
Link: 1 (NB GP)
Segment: 19
Off Peak



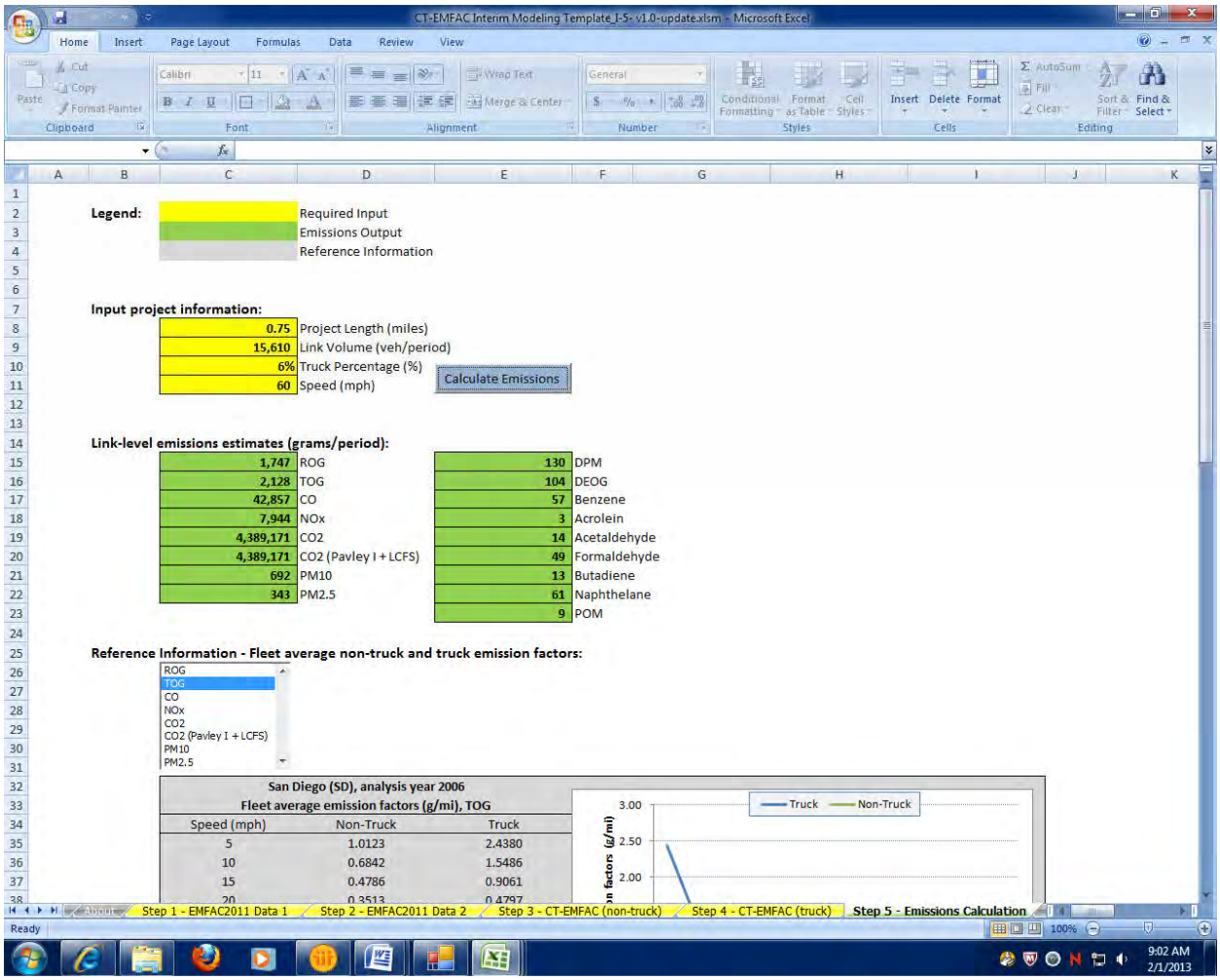
Existing 2006
Link: 1 (NB GP)
Segment: 20
Peak



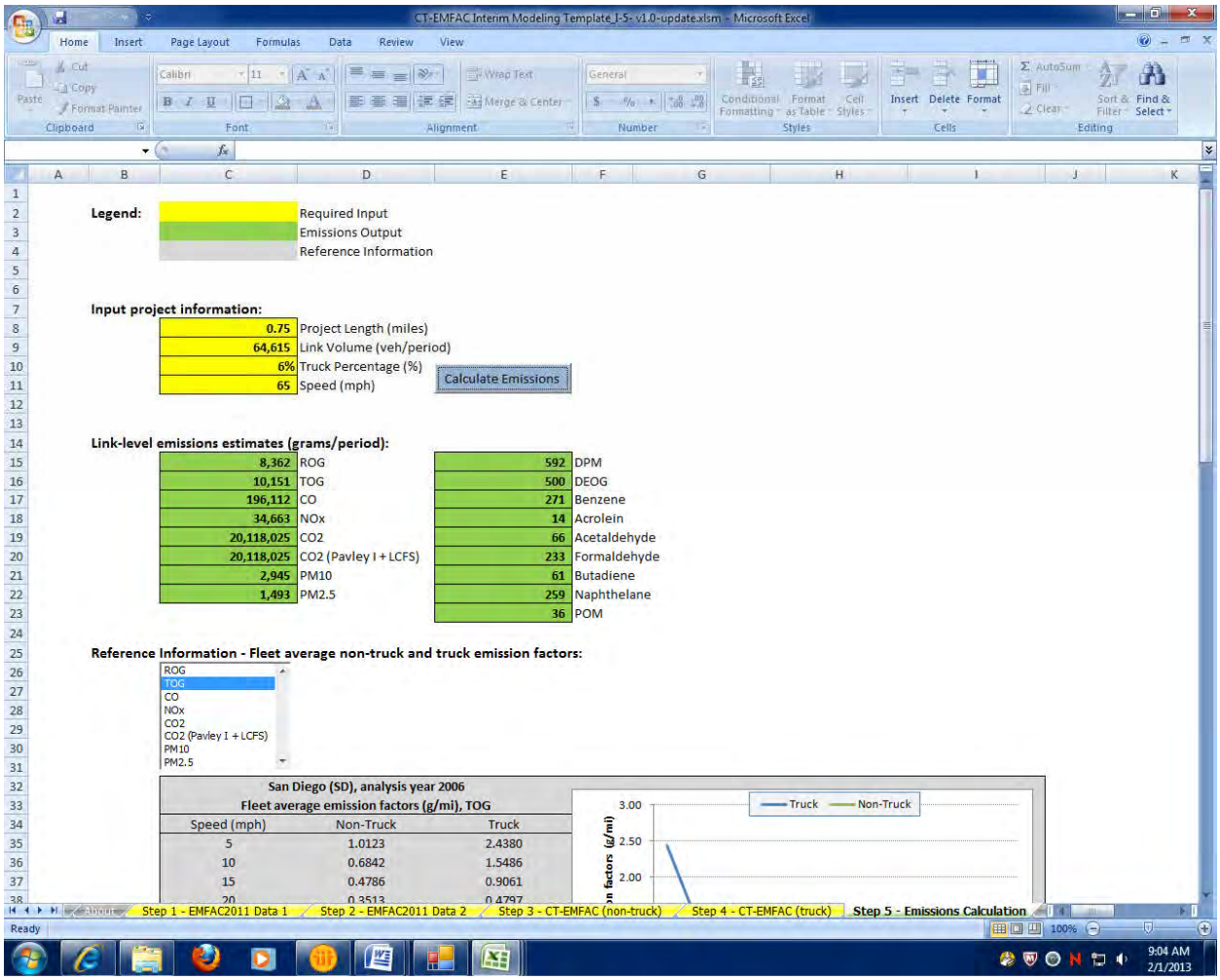
Existing 2006
Link: 1 (NB GP)
Segment: 20
Off Peak



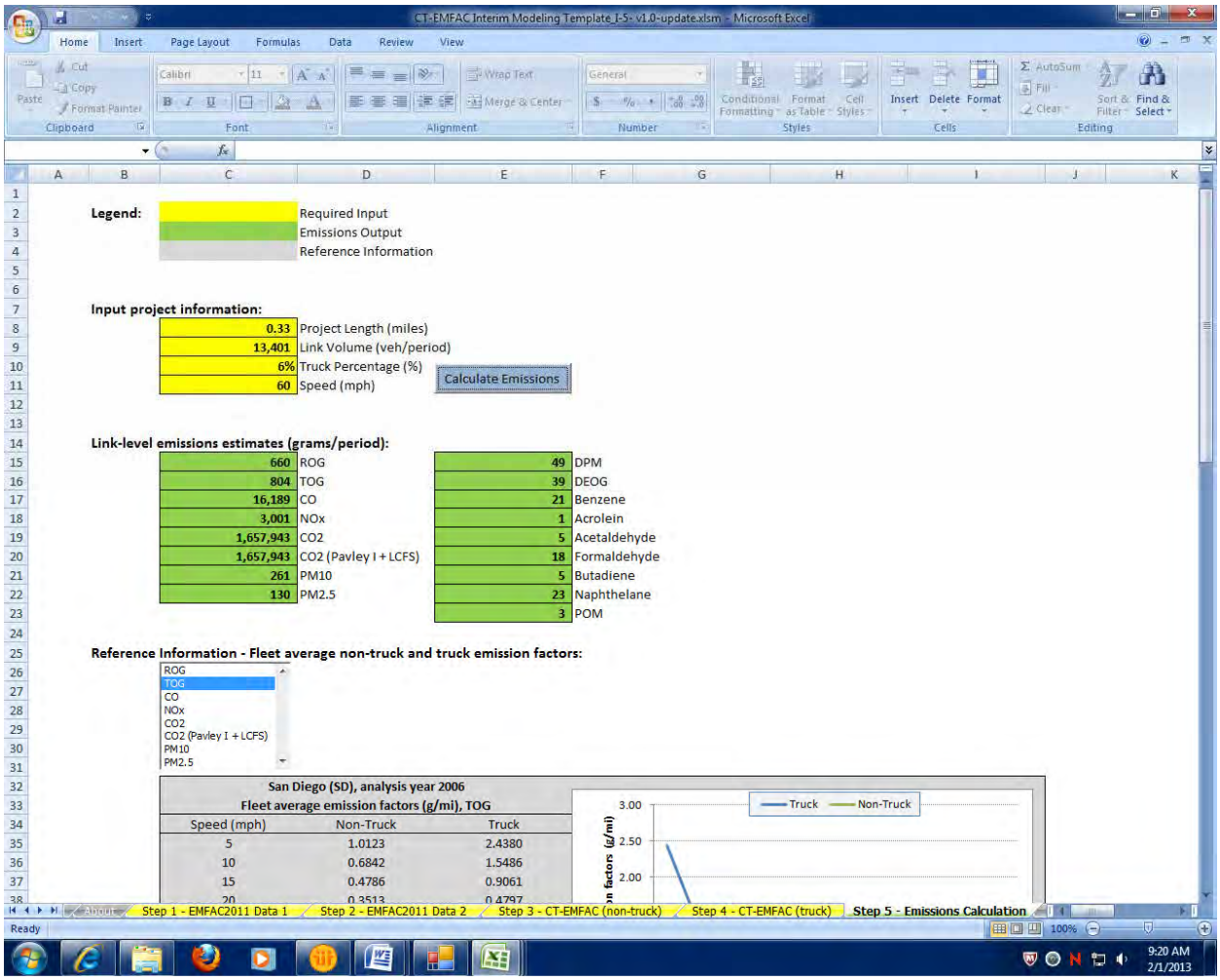
Existing 2006
Link: 1 (NB GP)
Segment: 21
Peak



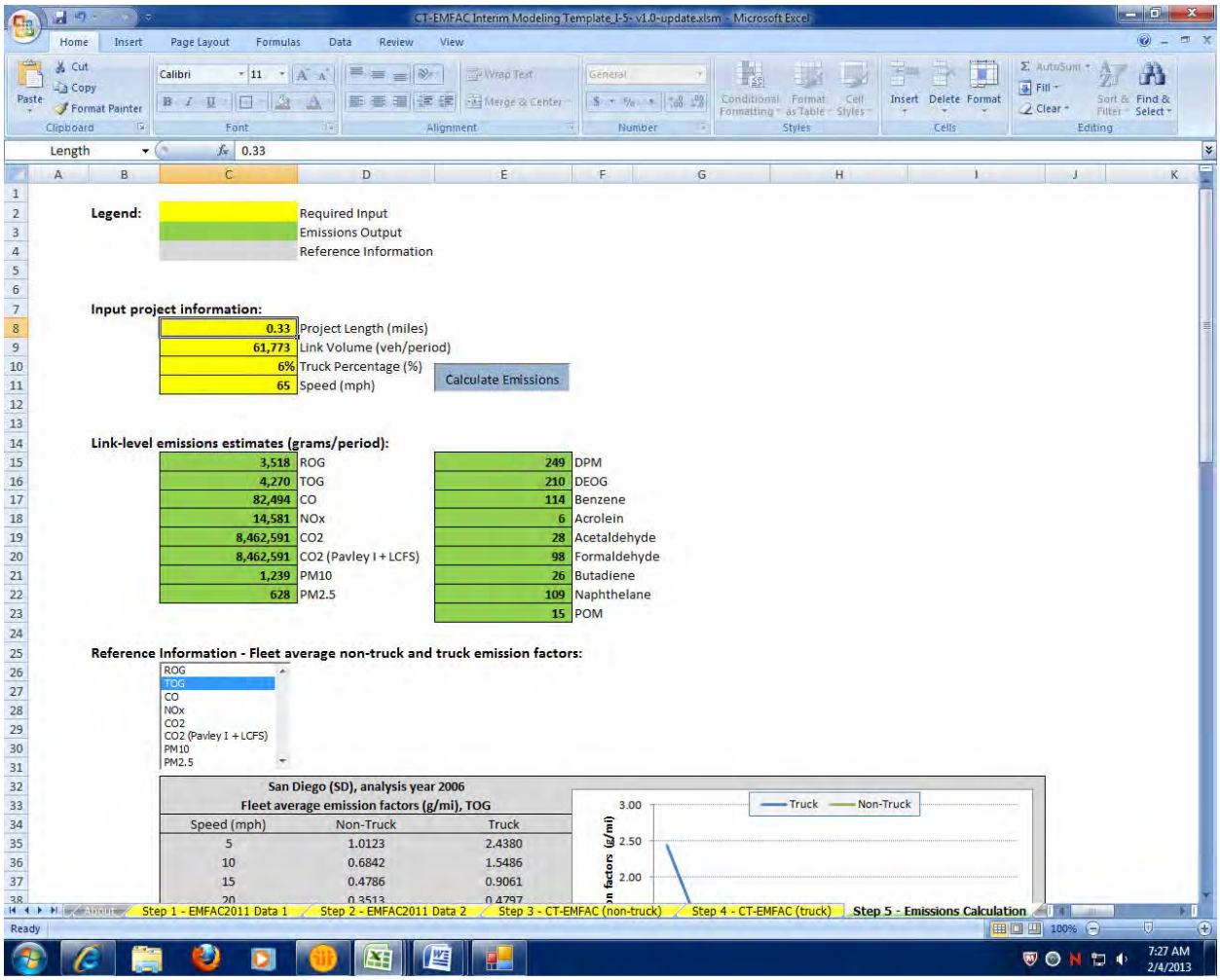
Existing 2006
Link: 1 (NB GP)
Segment: 21
Off Peak



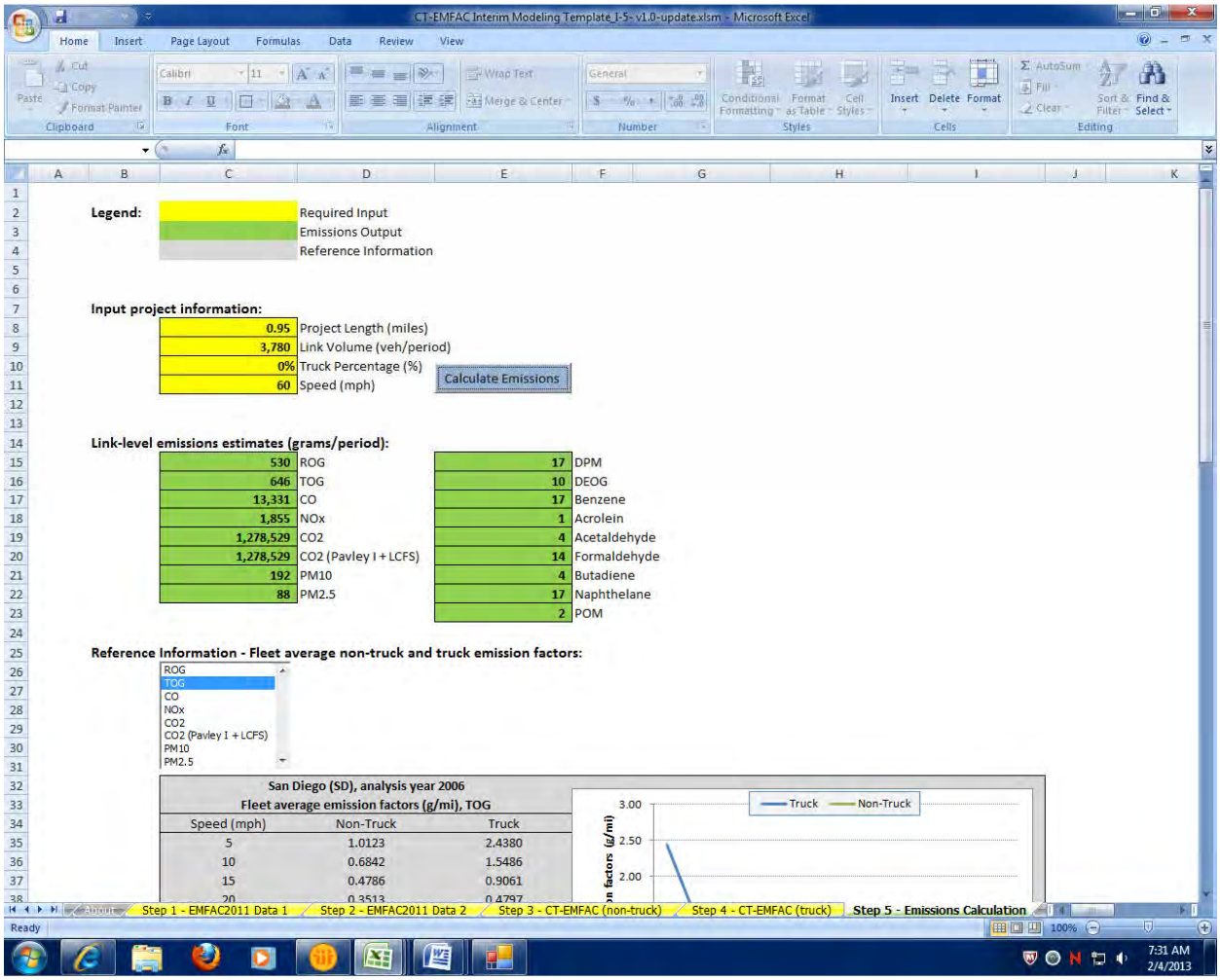
Existing 2006
Link: 1 (NB GP)
Segment: 22
Peak



Existing 2006
Link: 1 (NB GP)
Segment: 22
Off Peak



Existing 2006
Link: 2 (NB HOV)
Segment: 2
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
3,780	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

530	ROG	17	DPM
646	TOG	10	DEOG
13,331	CO	17	Benzene
1,855	NOx	1	Acrolein
1,278,529	CO2	4	Acetaldehyde
1,278,529	CO2 (Pavley I + LCFS)	14	Formaldehyde
192	PM10	4	Butadiene
88	PM2.5	17	Naphthelane
		2	POM

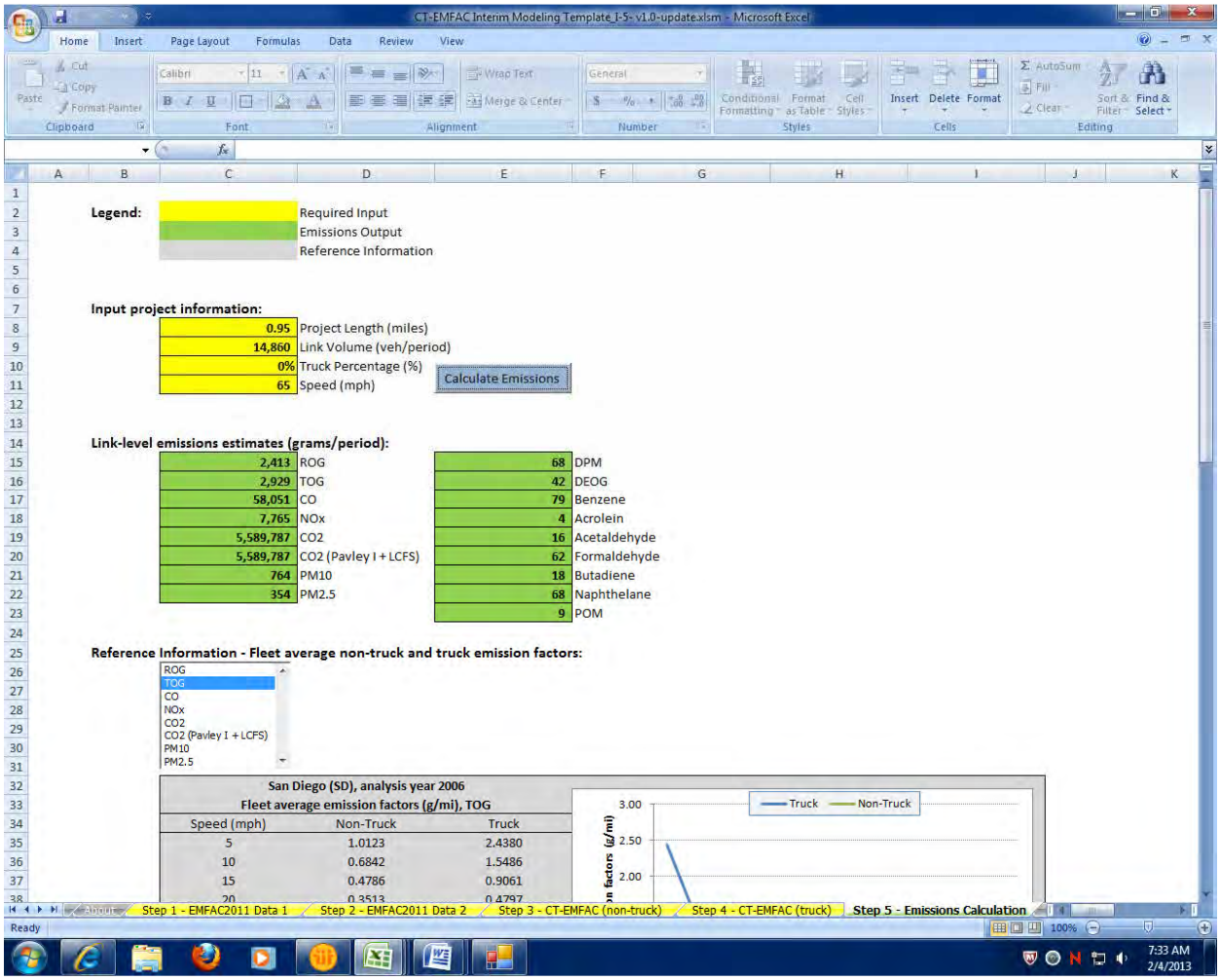
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
Link: 2 (NB HOV)
Segment: 2
Off Peak



CT-EMFAC Interim Modeling Template_j-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
14,860	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,413	ROG	68	DPM
2,929	TOG	42	DEOG
58,051	CO	79	Benzene
7,765	NOx	4	Acrolein
5,589,787	CO2	16	Acetaldehyde
5,589,787	CO2 (Pavley I + LCFS)	62	Formaldehyde
764	PM10	18	Butadiene
354	PM2.5	68	Naphthelane
		9	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

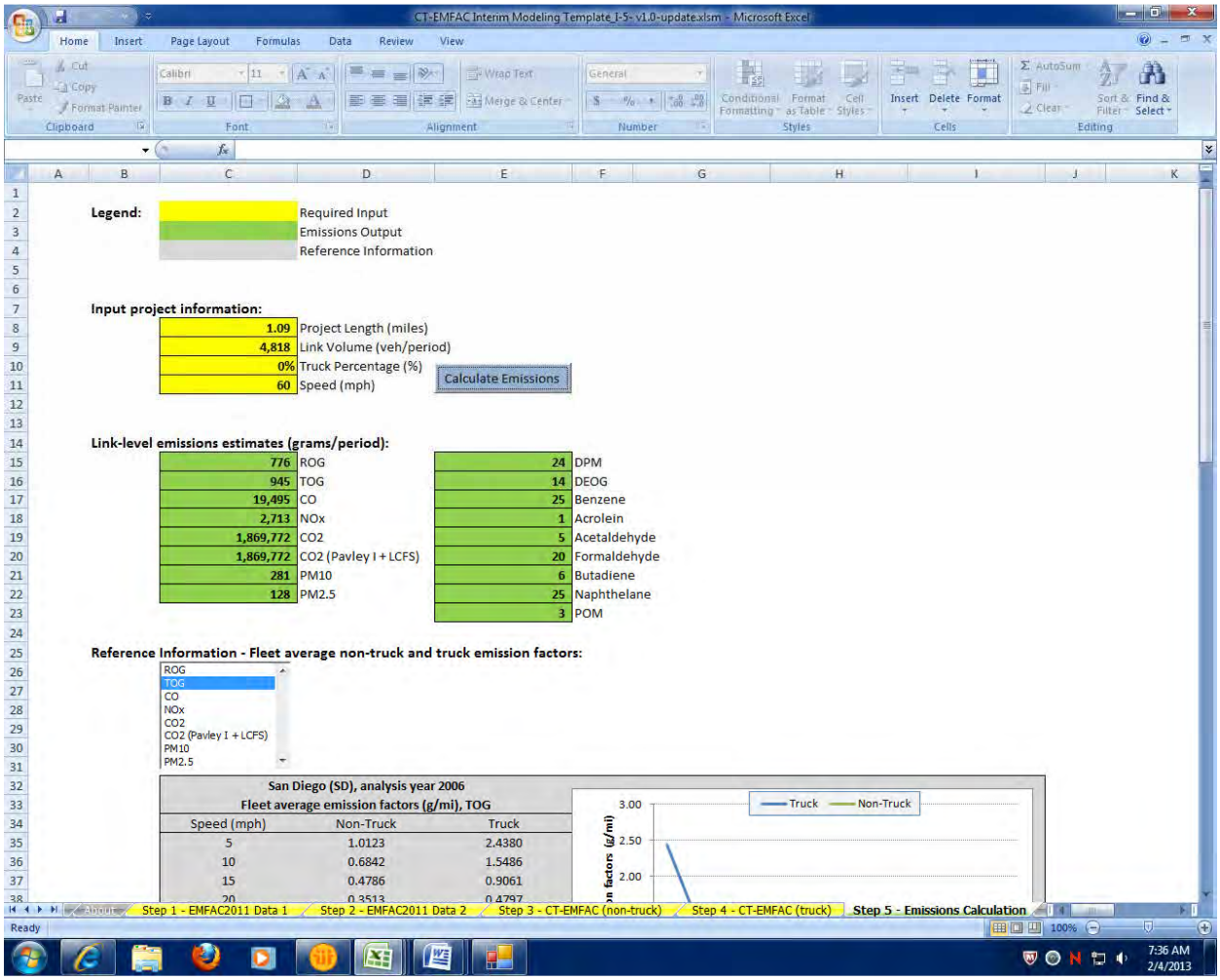
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

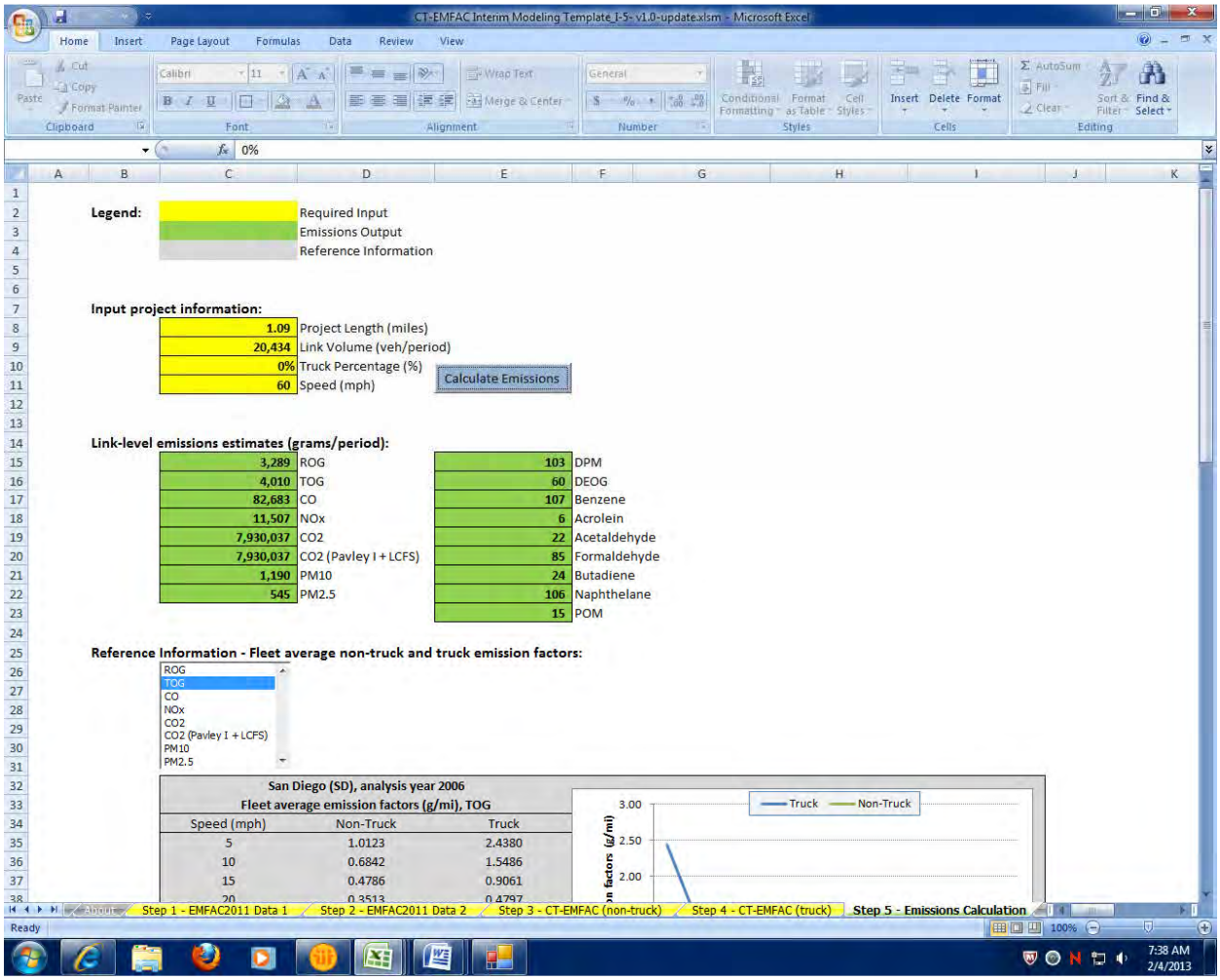
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready

Existing 2006
Link: 2 (NB HOV)
Segment: 3
Peak



Existing 2006
Link: 2 (NB HOV)
Segment: 3
Off Peak



CT-EMFAC Interim Modeling Template_j-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
20,434	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

3,289	ROG	103	DPM
4,010	TOG	60	DEOG
82,683	CO	107	Benzene
11,507	NOx	6	Acrolein
7,930,037	CO2	22	Acetaldehyde
7,930,037	CO2 (Pavley I + LCFS)	85	Formaldehyde
1,190	PM10	24	Butadiene
545	PM2.5	106	Naphthelane
		15	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

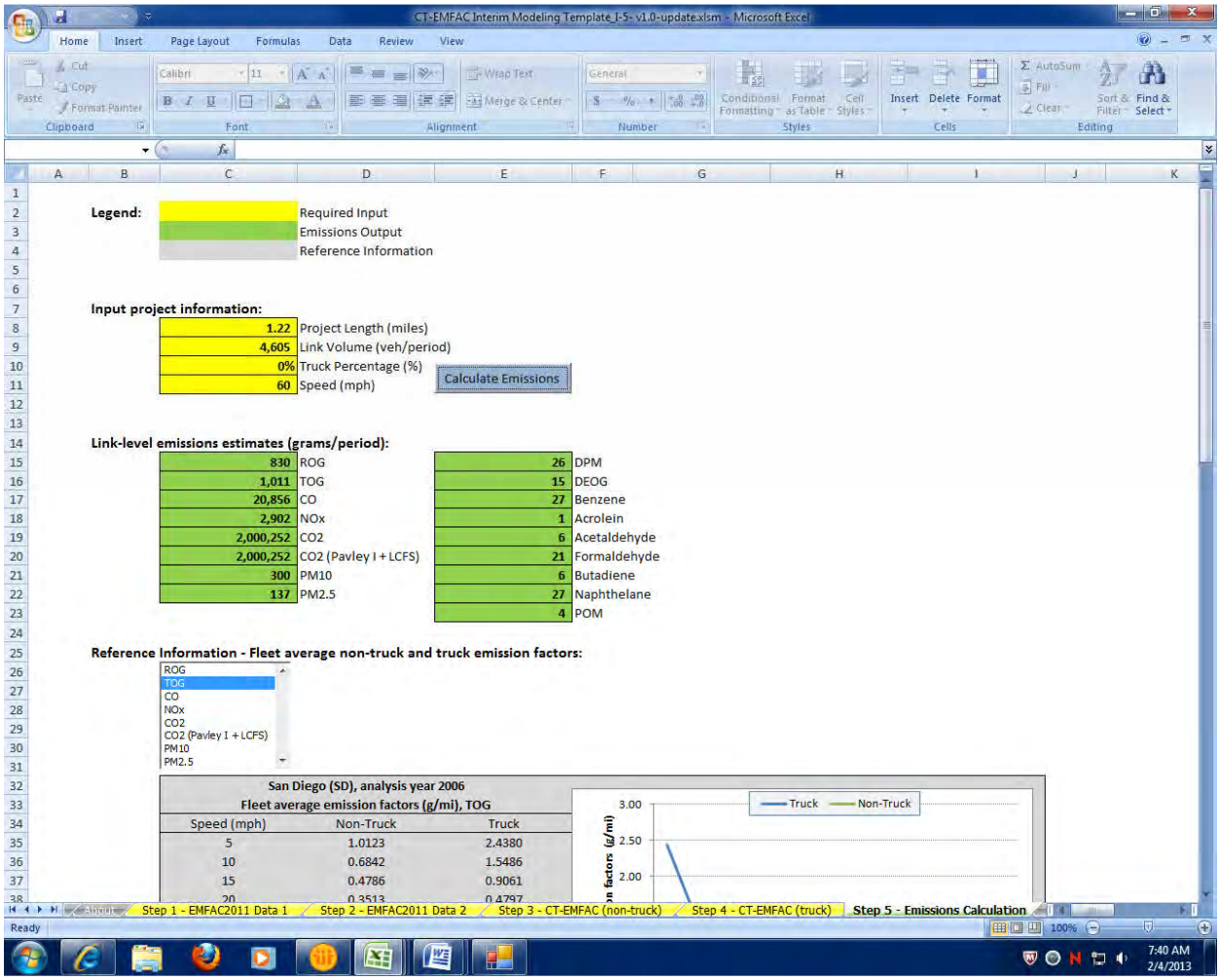
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

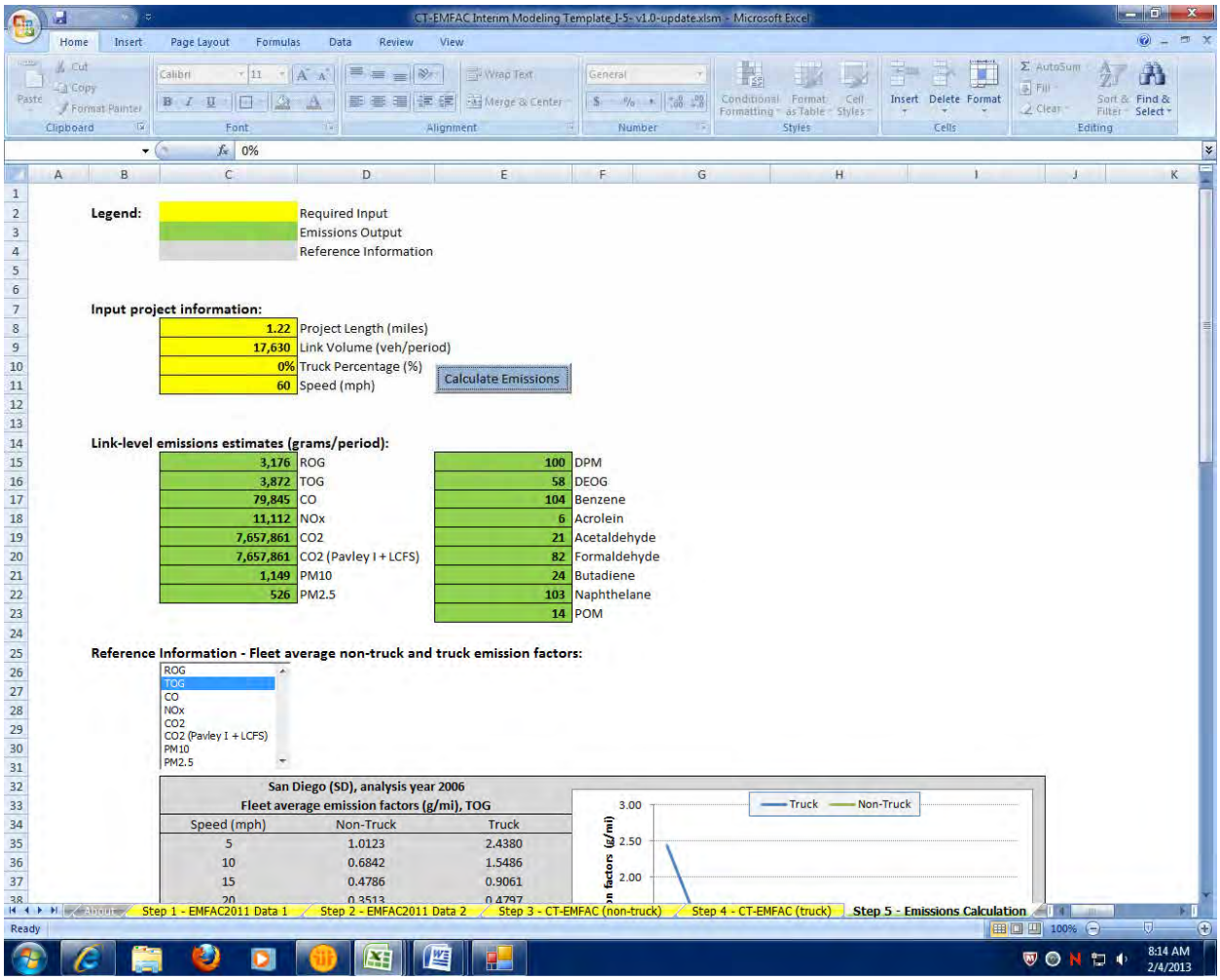
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready

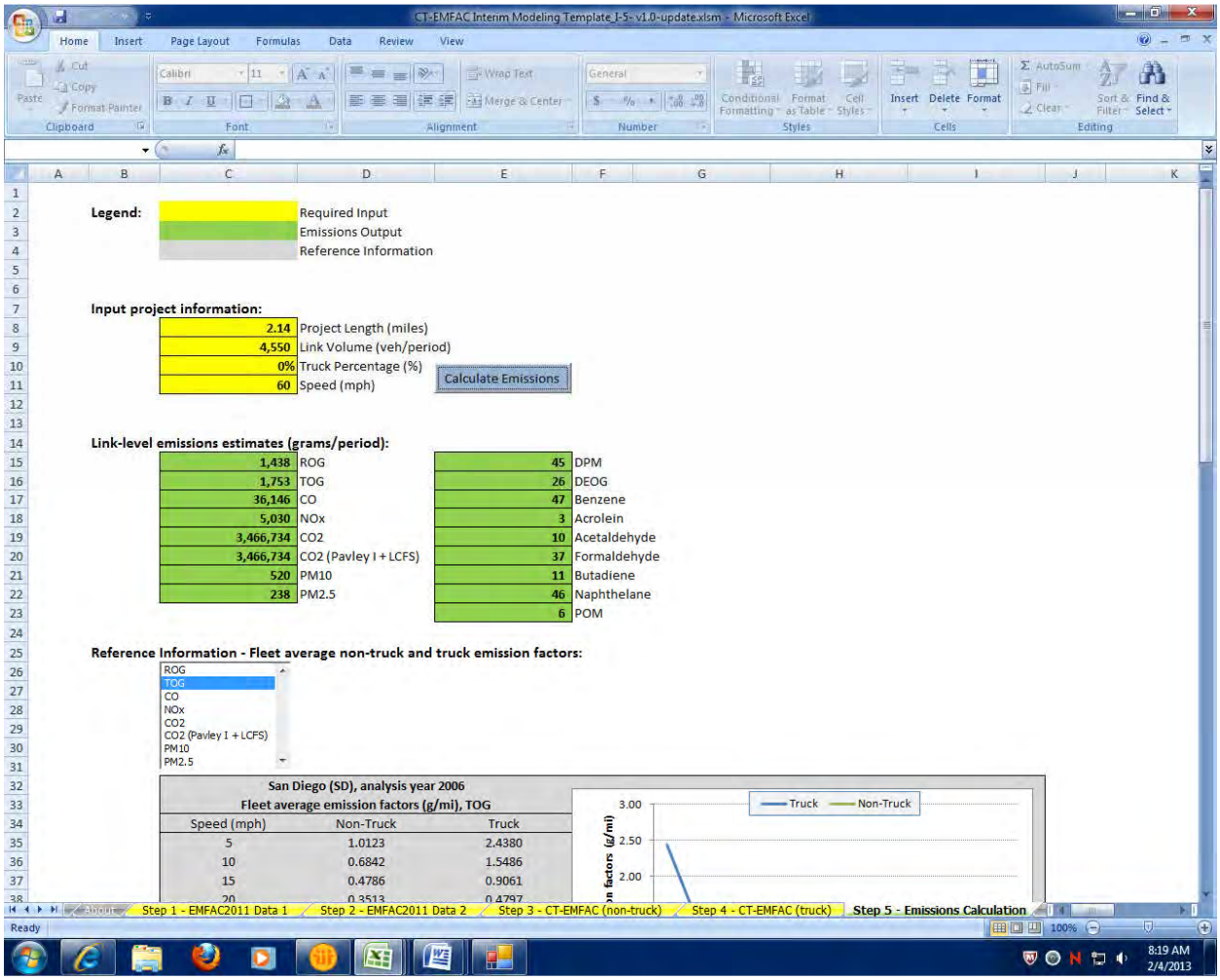
Existing 2006
Link: 2 (NB HOV)
Segment: 4
Peak



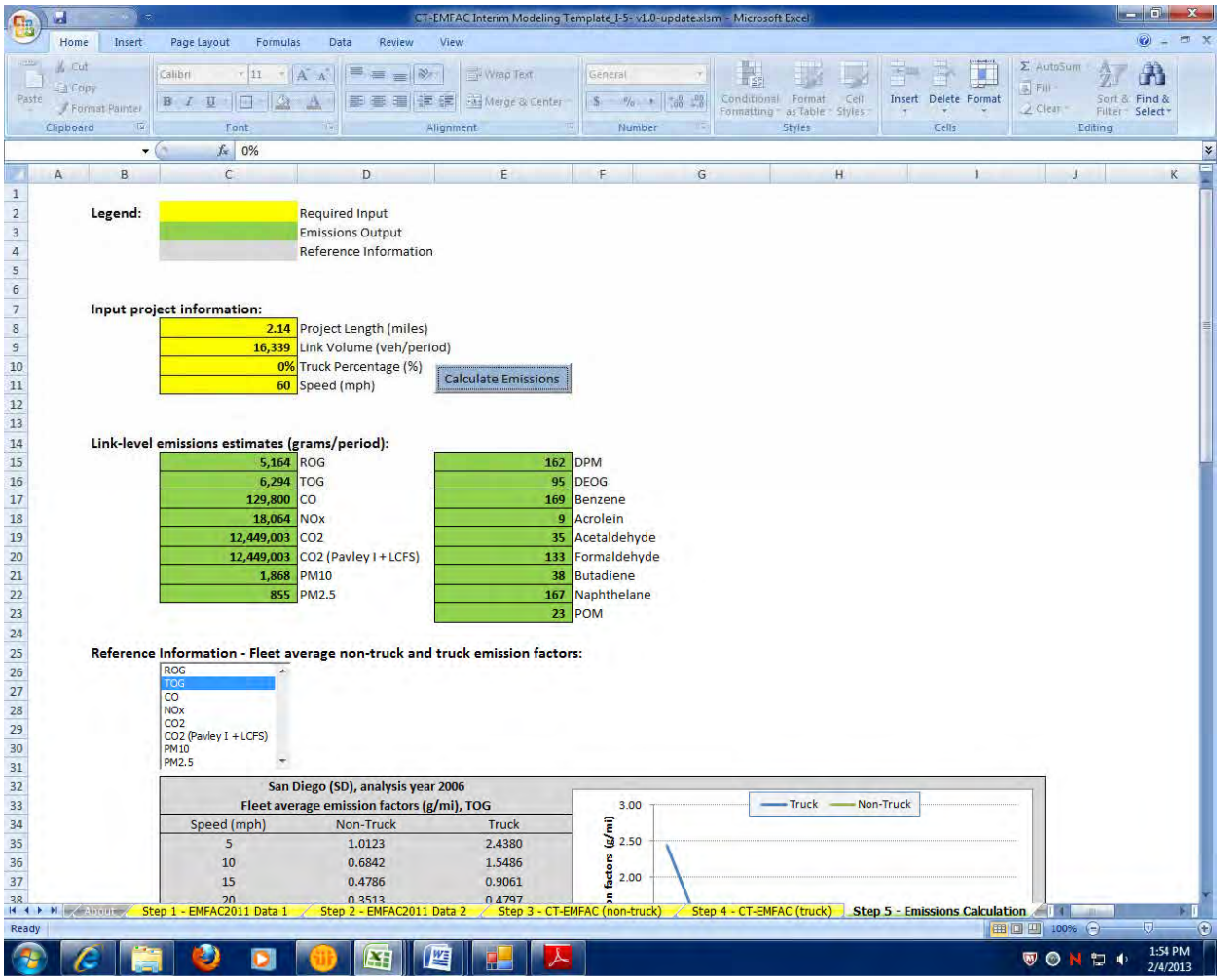
Existing 2006
Link: 2 (NB HOV)
Segment: 4
Off Peak



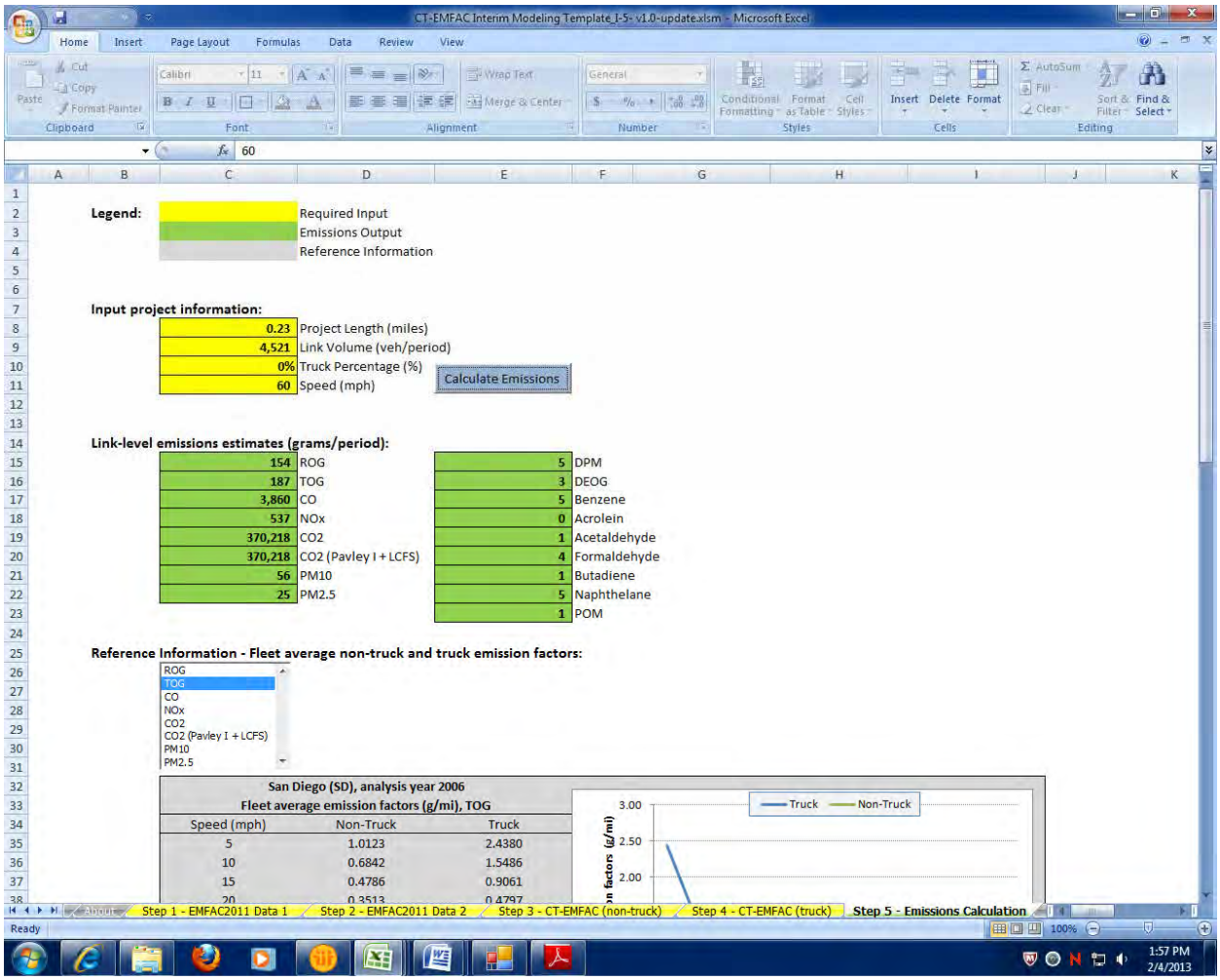
Existing 2006
Link: 2 (NB HOV)
Segment: 5
Peak



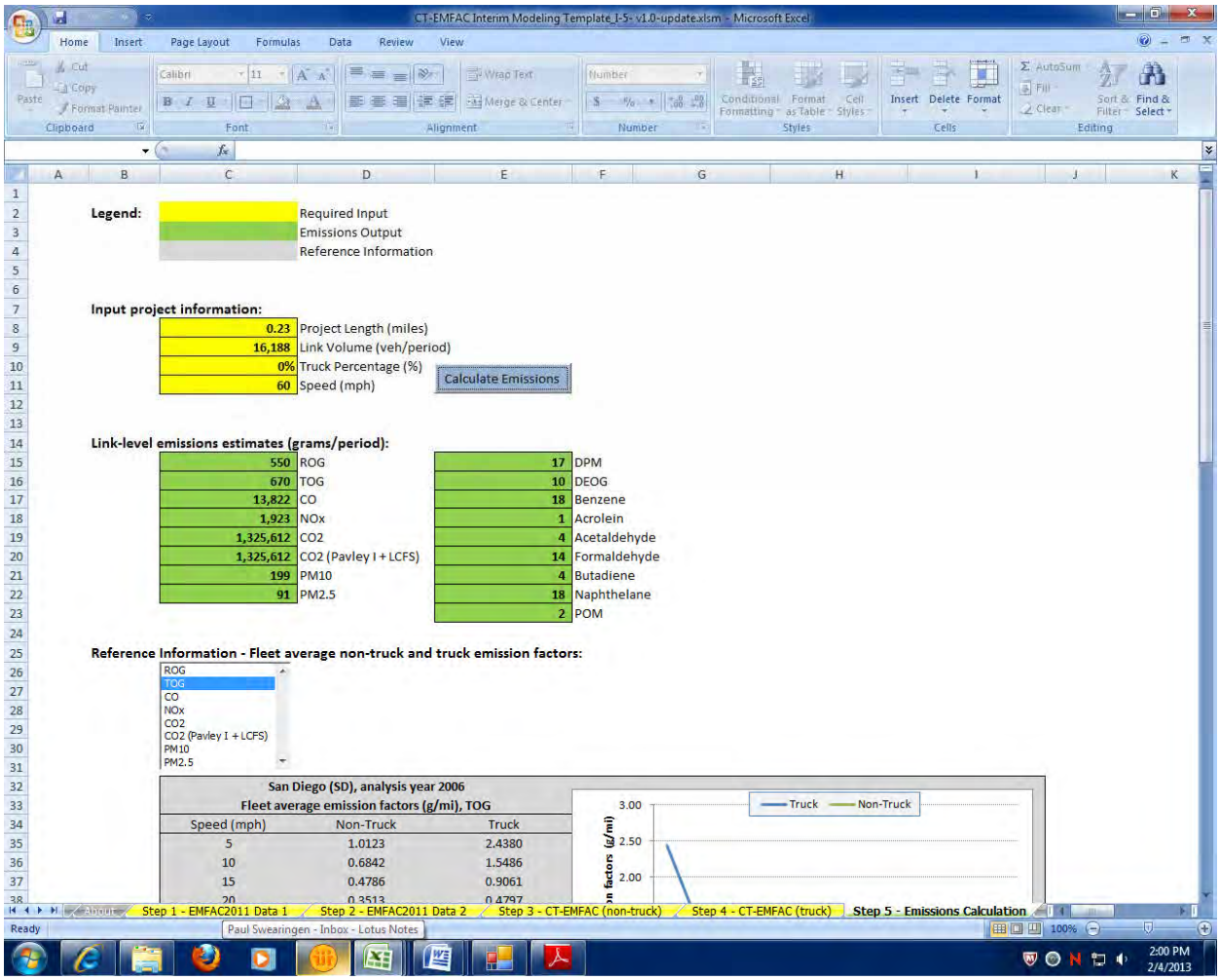
Existing 2006
Link: 2 (NB HOV)
Segment: 5
Off Peak



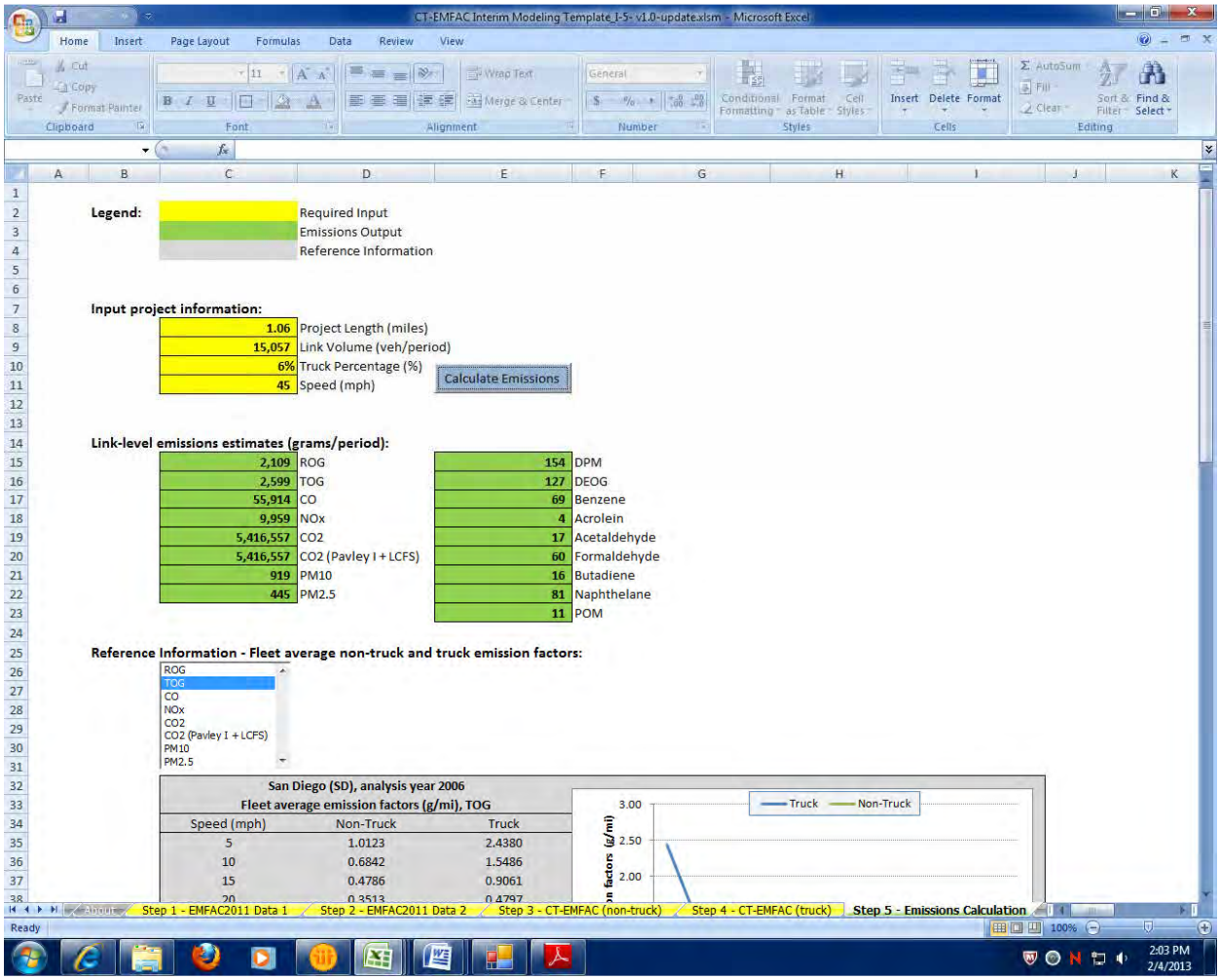
Existing 2006
Link: 2 (NB HOV)
Segment: 6
Peak



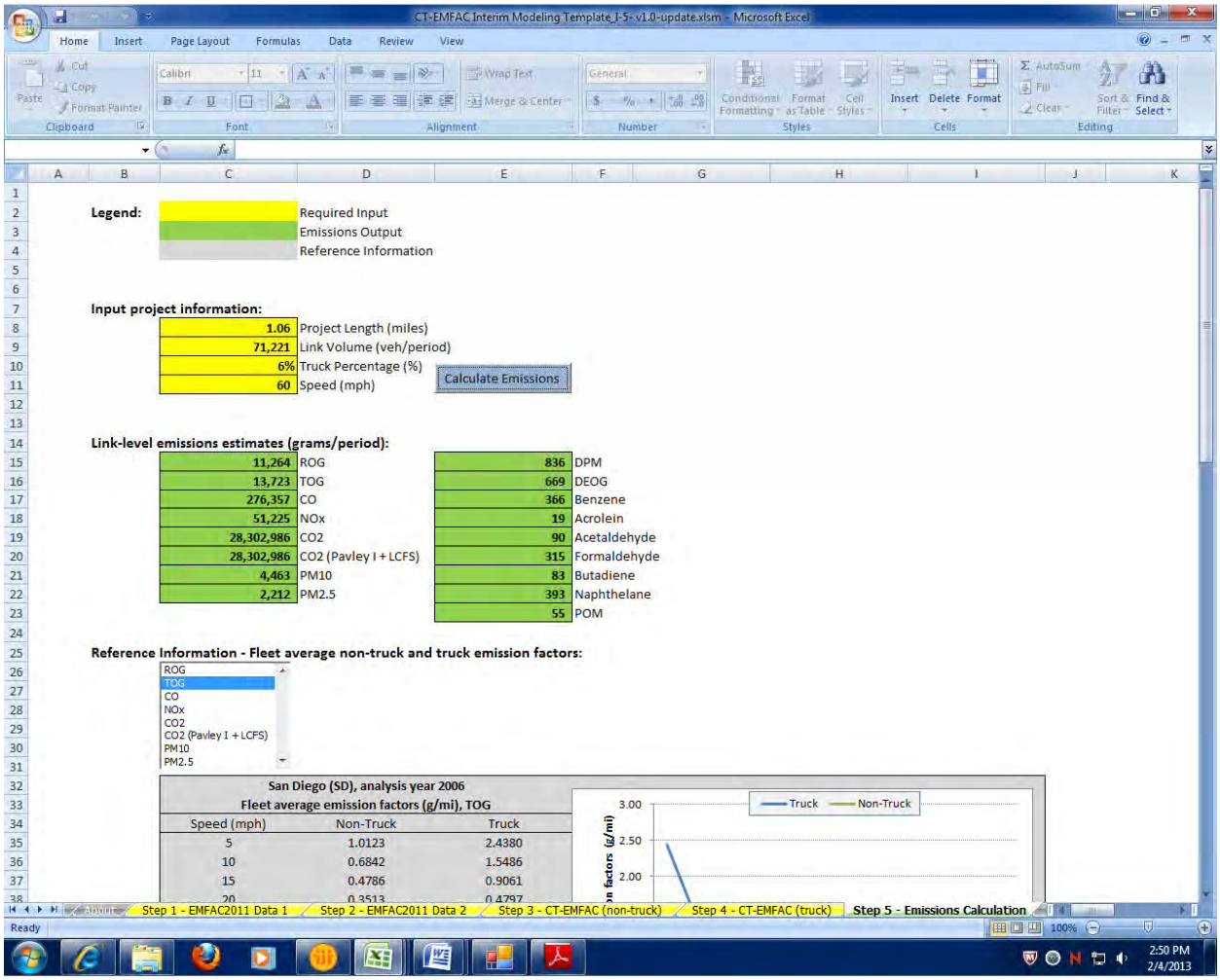
Existing 2006
Link: 2 (NB HOV)
Segment: 6
Off Peak



Existing 2006
Link: 3 (SB GP)
Segment: 1
Peak



Existing 2006
Link: 3 (SB GP)
Segment: 1
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.06	Project Length (miles)
71,221	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

11,264	ROG	836	DPM
13,723	TOG	669	DEOG
276,357	CO	366	Benzene
51,225	NOx	19	Acrolein
28,302,986	CO2	90	Acetaldehyde
28,302,986	CO2 (Pavley I + LCFS)	315	Formaldehyde
4,463	PM10	83	Butadiene
2,212	PM2.5	393	Naphthelane
		55	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

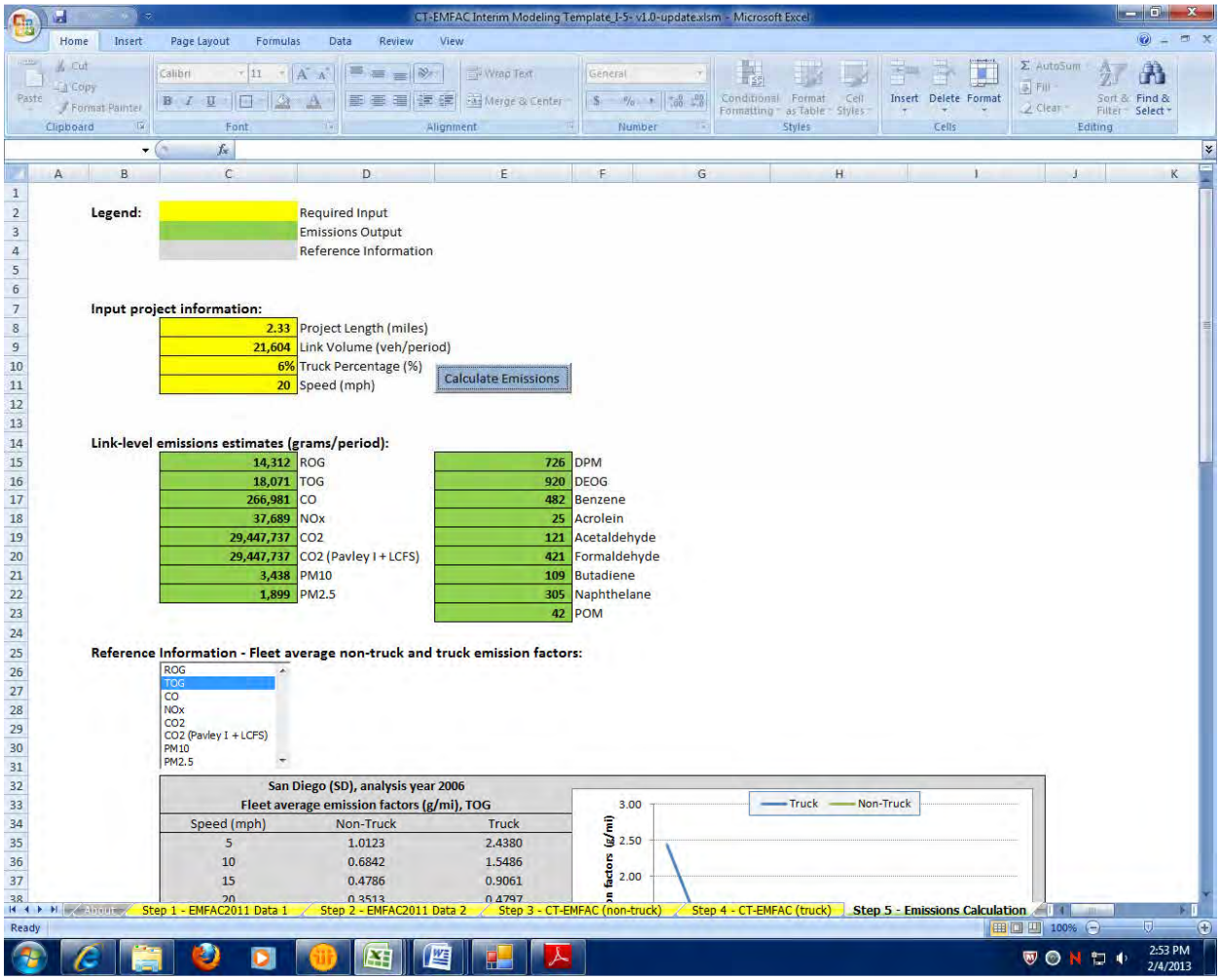
Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

About | Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100%

2:50 PM 2/4/2013

Existing 2006
Link: 3 (SB GP)
Segment: 2
Peak



CT-EMFAC Interim Modeling Template_I-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.33	Project Length (miles)
21,604	Link Volume (veh/period)
6%	Truck Percentage (%)
20	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

14,312	ROG	726	DPM
18,071	TOG	920	DEOG
266,981	CO	482	Benzene
37,689	NOx	25	Acrolein
29,447,737	CO2	121	Acetaldehyde
29,447,737	CO2 (Pavley I + LCFS)	421	Formaldehyde
3,438	PM10	109	Butadiene
1,899	PM2.5	305	Naphthelane
		42	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

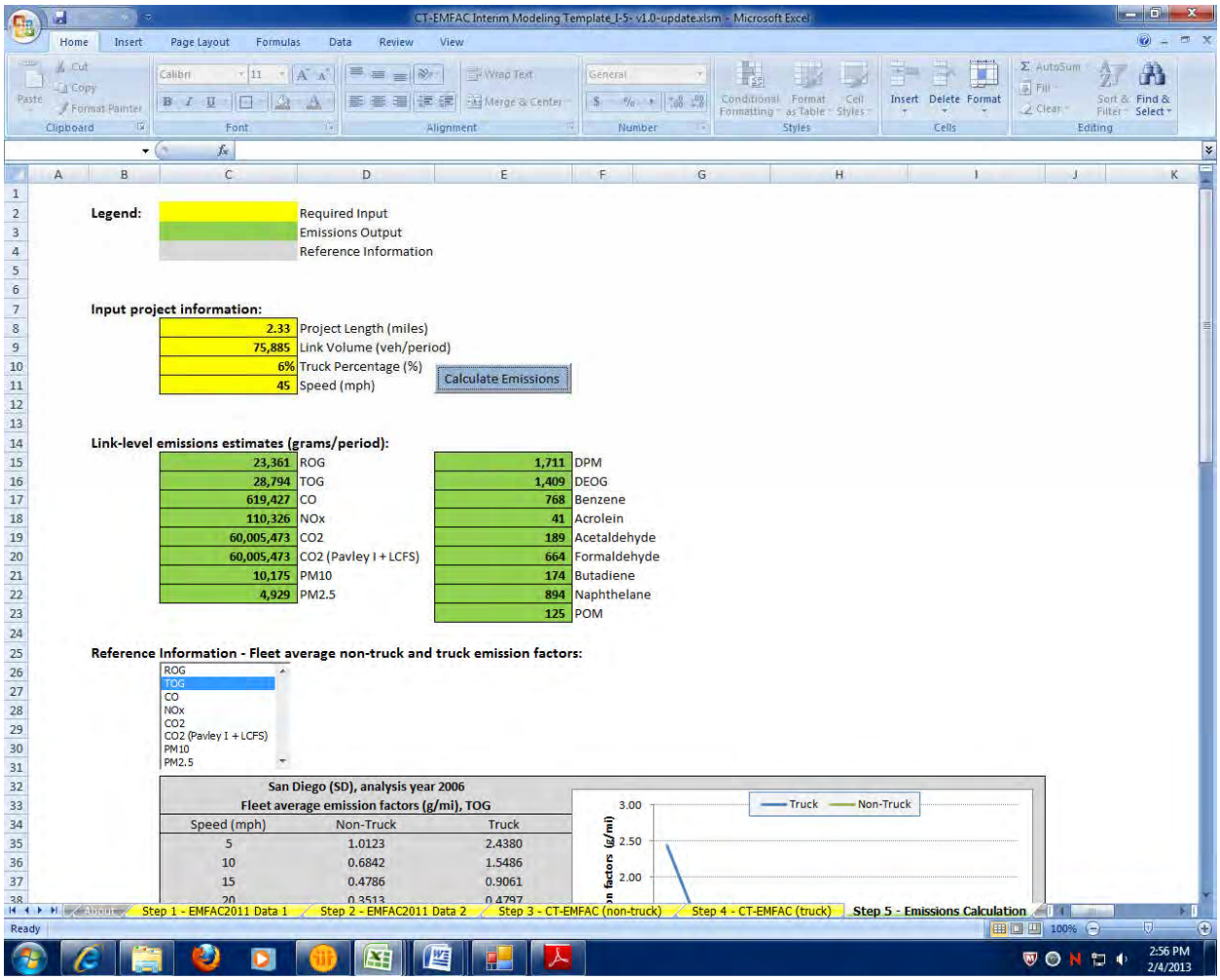
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

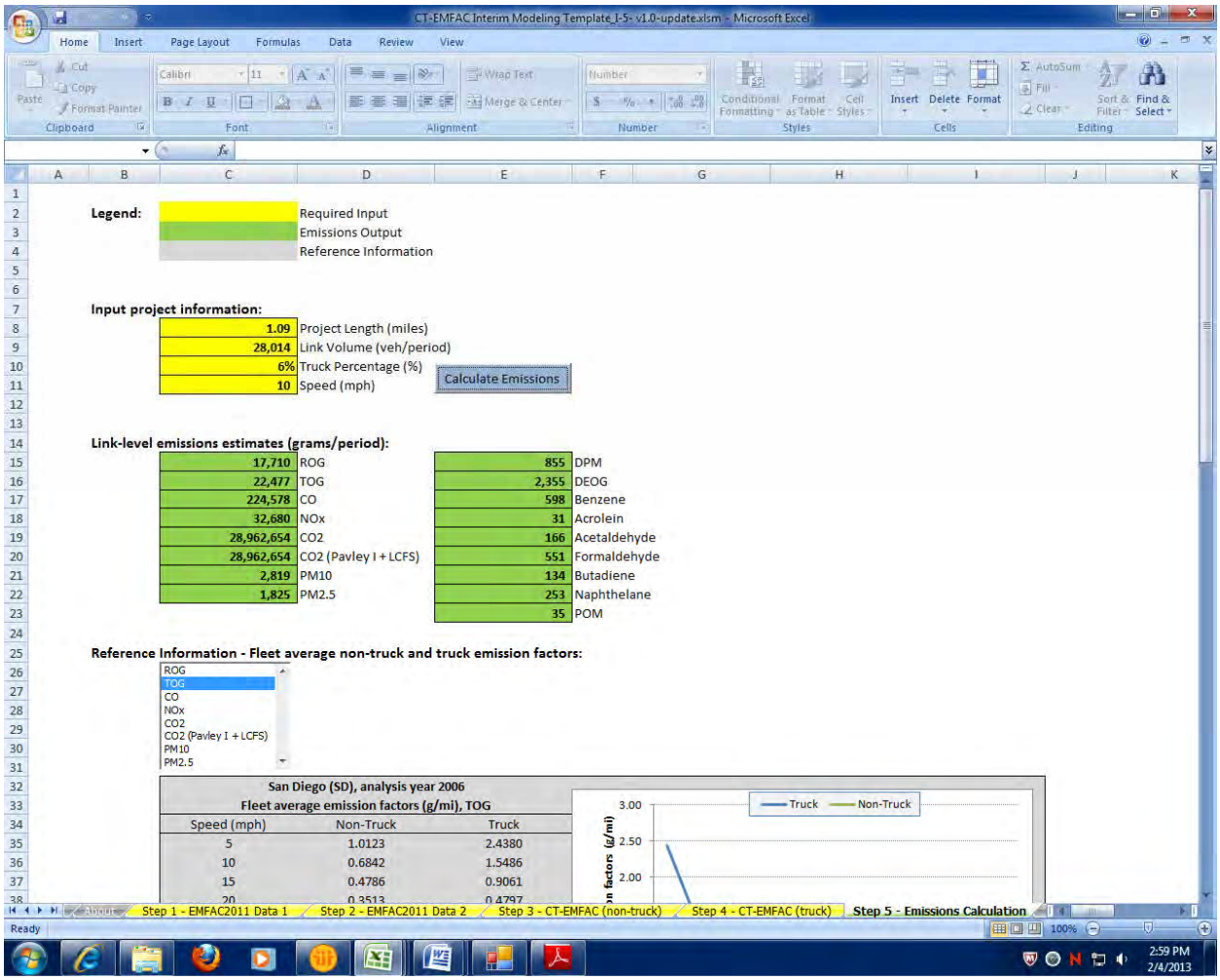
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready

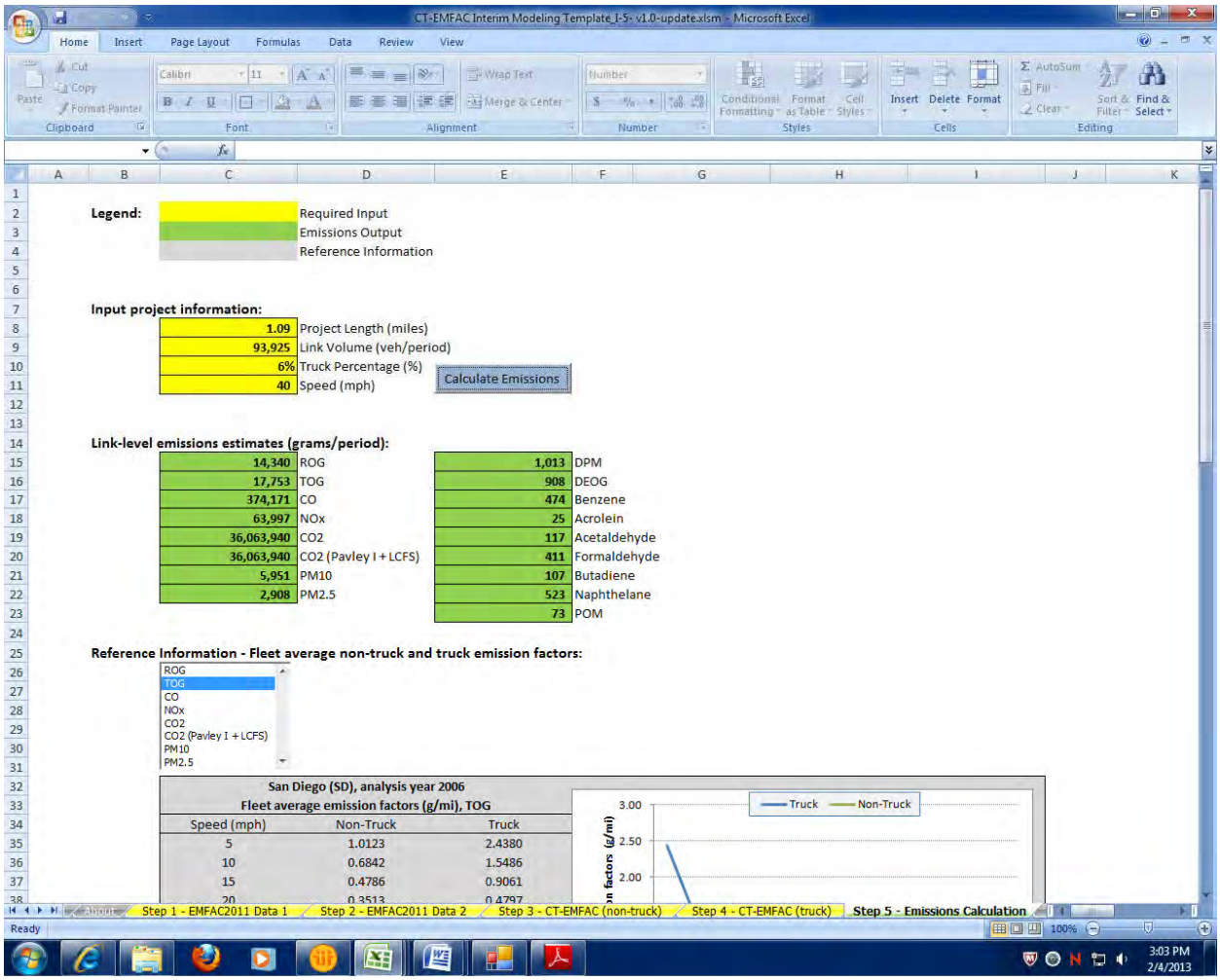
Existing 2006
Link: 3 (SB GP)
Segment: 2
Off Peak



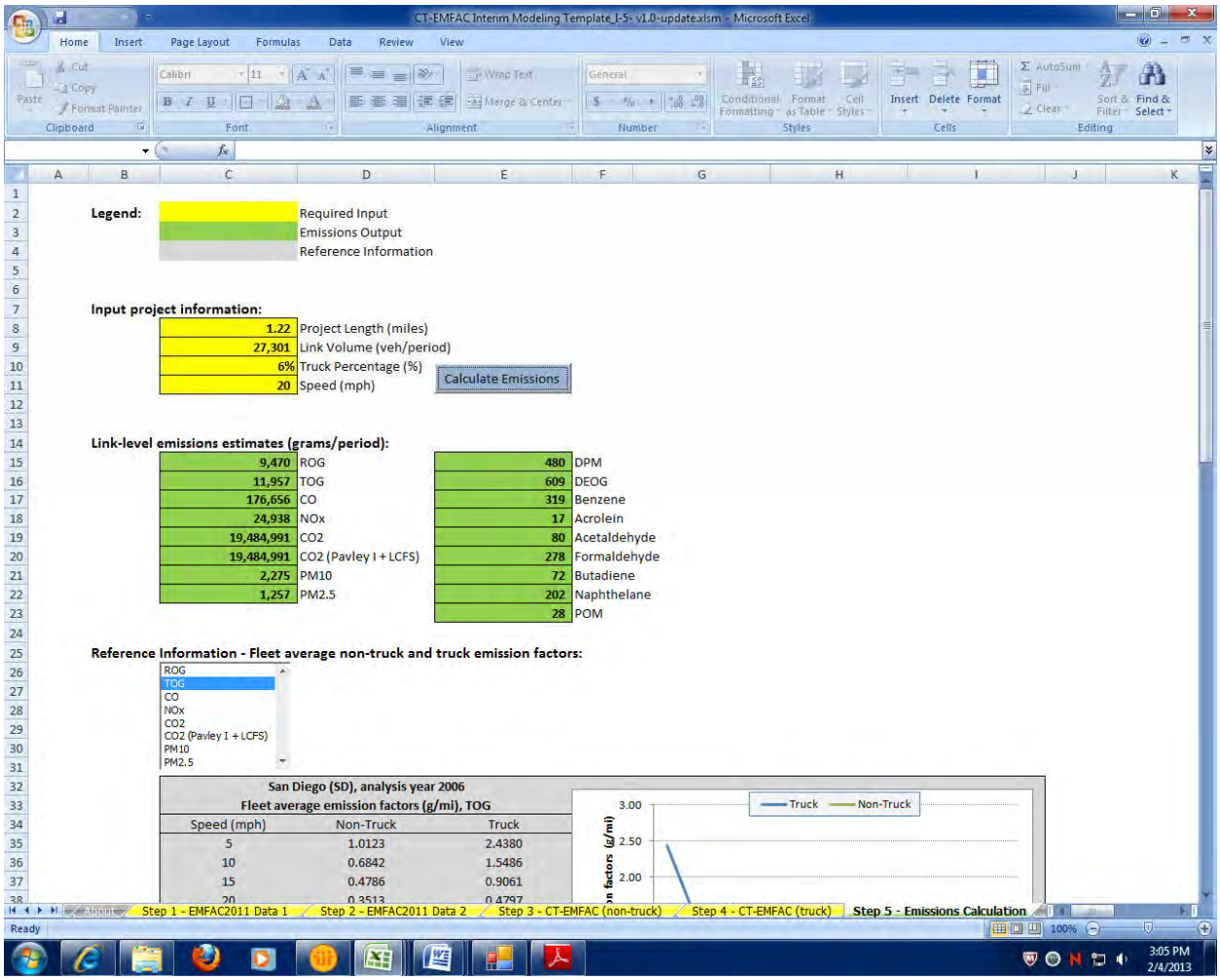
Existing 2006
Link: 3 (SB GP)
Segment: 3
Peak



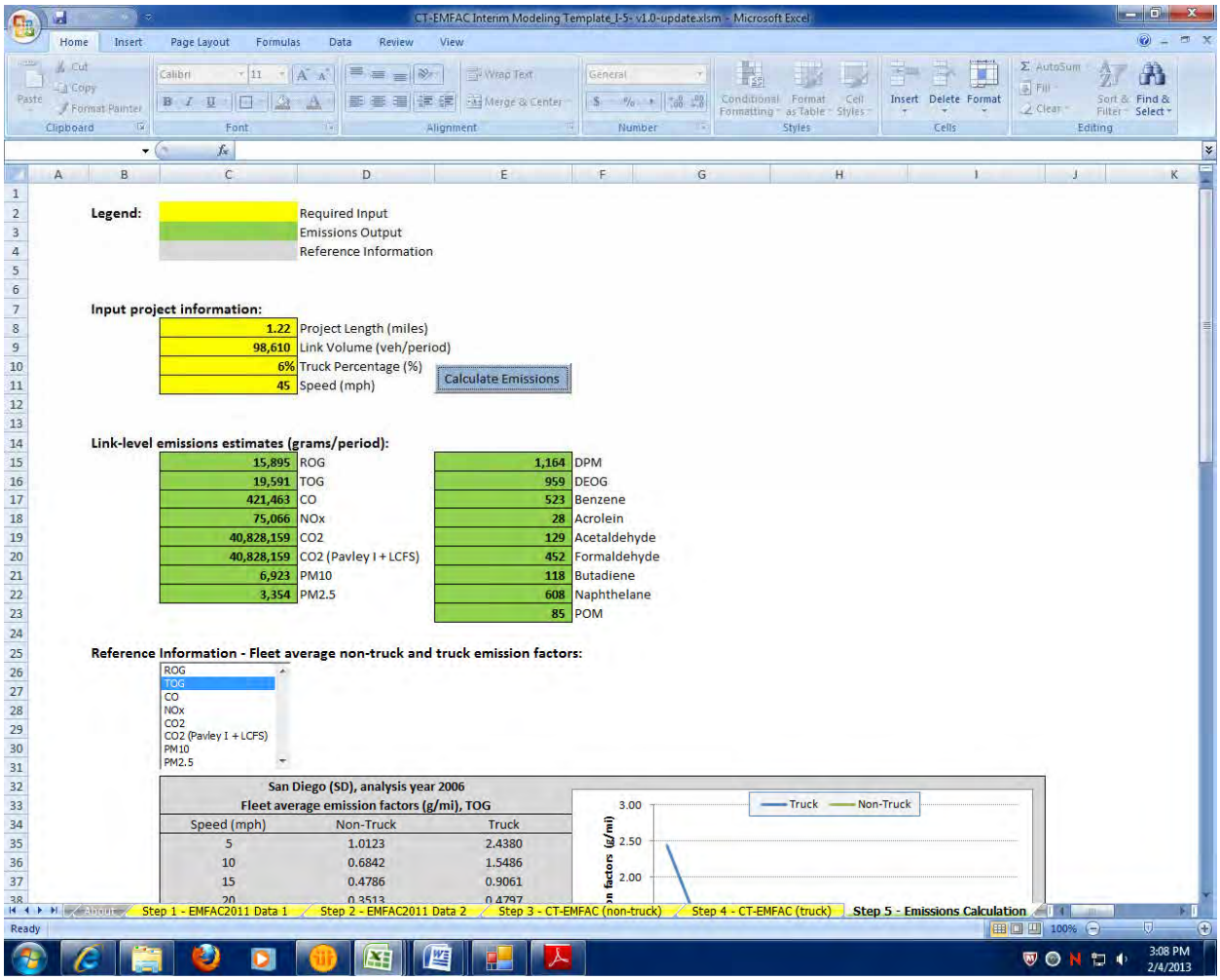
Existing 2006
Link: 3 (SB GP)
Segment: 3
Off Peak



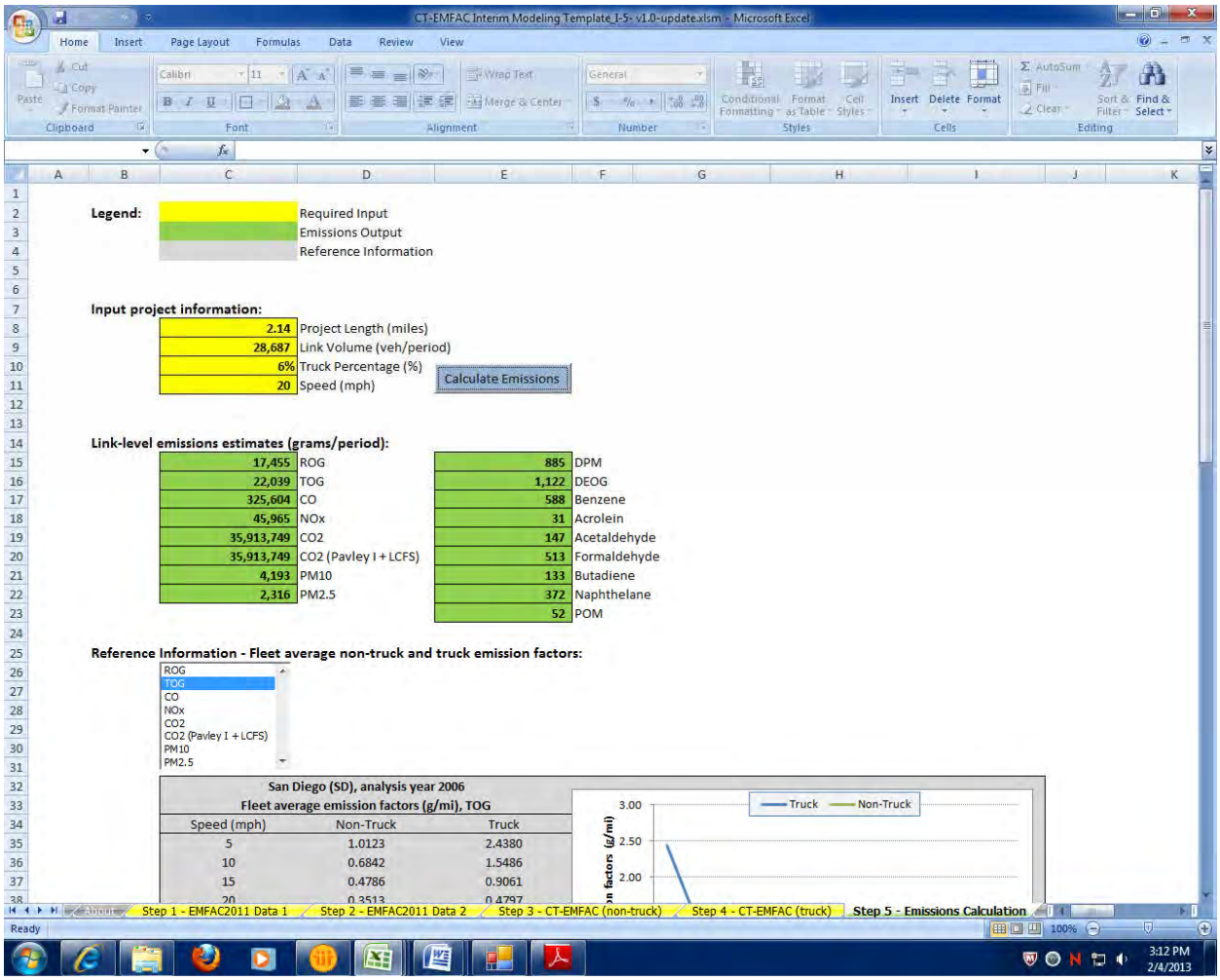
Existing 2006
Link: 3 (SB GP)
Segment: 4
Peak



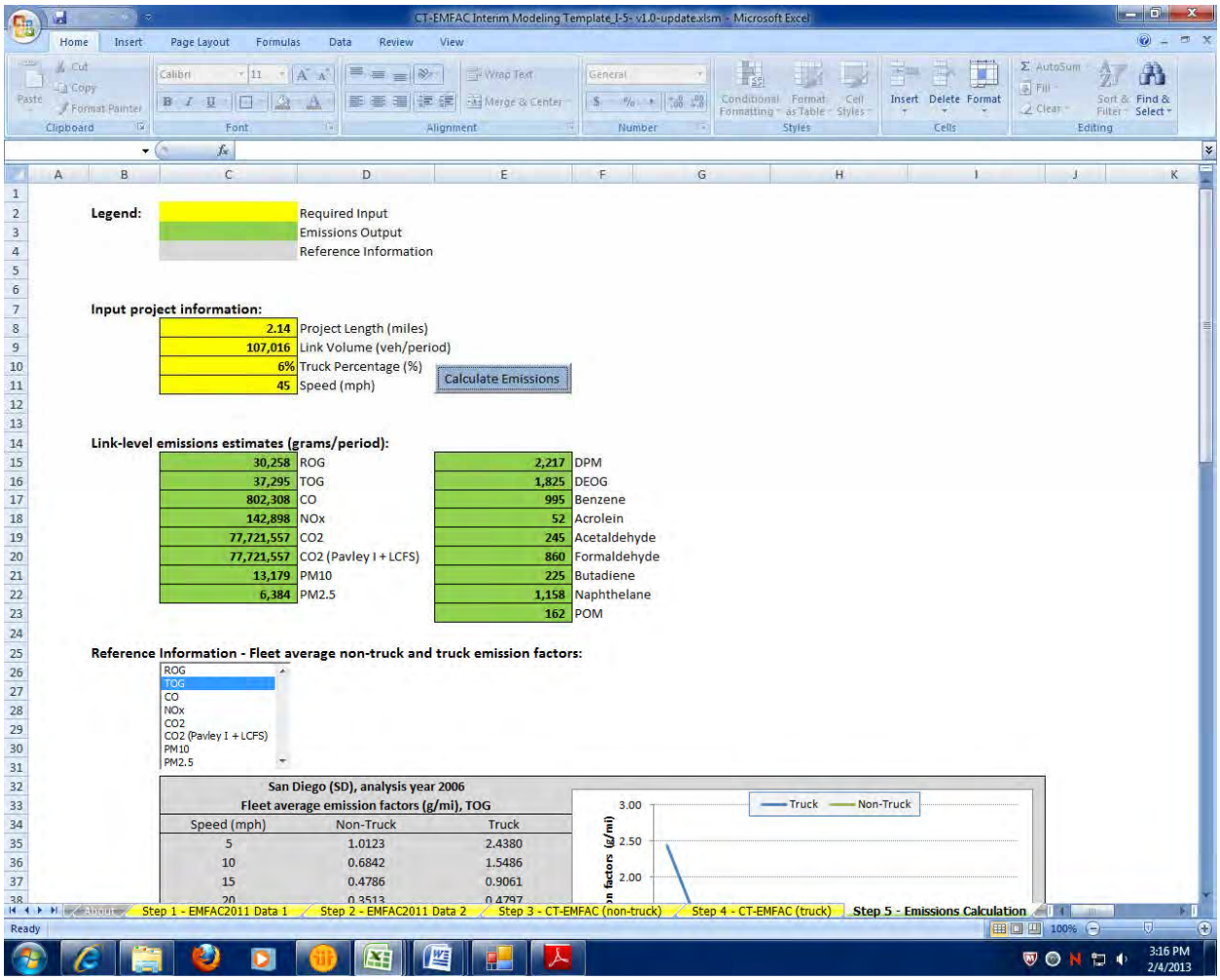
Existing 2006
Link: 3 (SB GP)
Segment: 4
Off Peak



Existing 2006
Link: 3 (SB GP)
Segment: 5
Peak



Existing 2006
Link: 3 (SB GP)
Segment: 5
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.14	Project Length (miles)
107,016	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

30,258	ROG	2,217	DPM
37,295	TOG	1,825	DEOG
802,308	CO	995	Benzene
142,898	NOx	52	Acrolein
77,721,557	CO2	245	Acetaldehyde
77,721,557	CO2 (Pavley I + LCFS)	860	Formaldehyde
13,179	PM10	225	Butadiene
6,384	PM2.5	1,158	Naphthelane
		162	POM

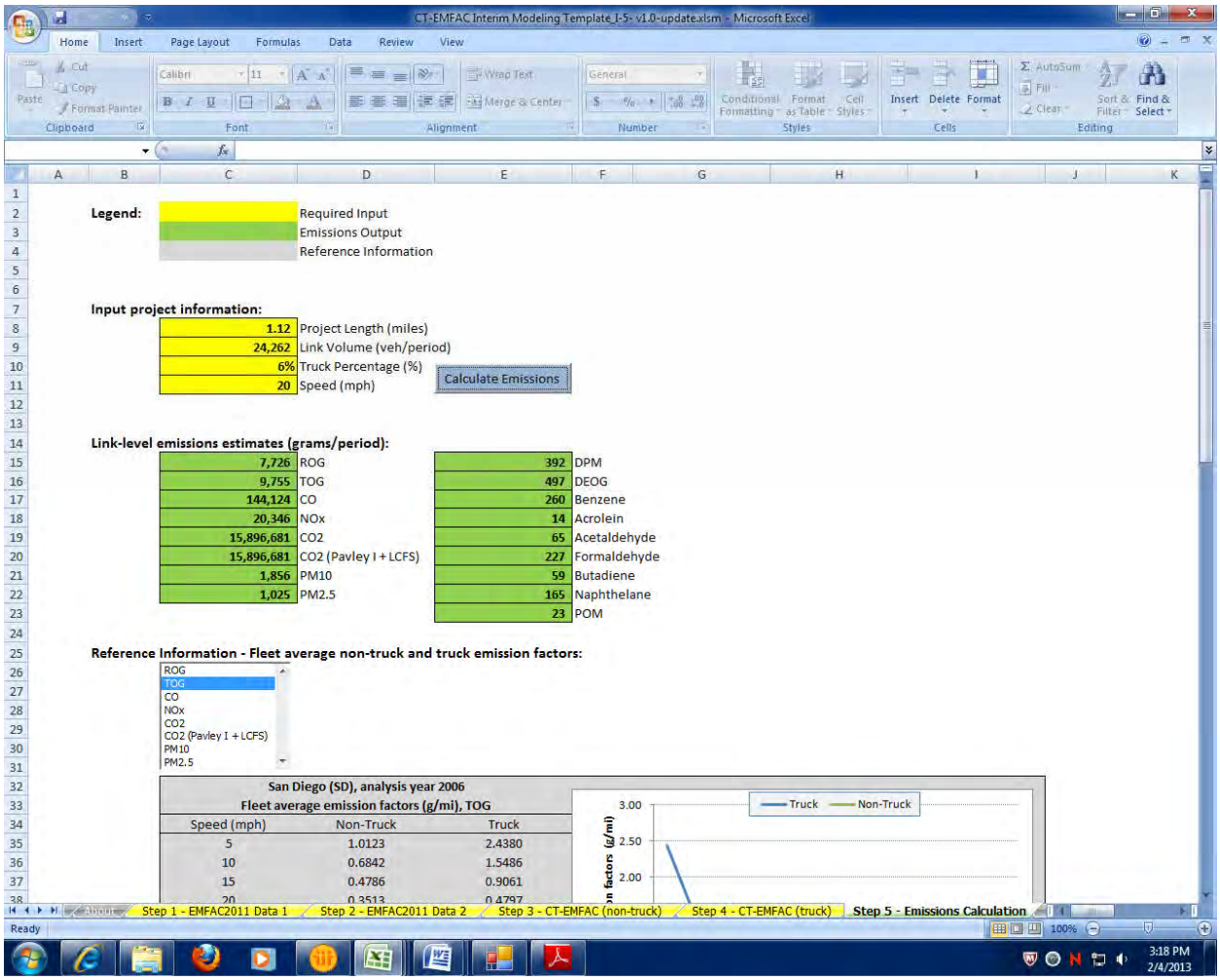
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

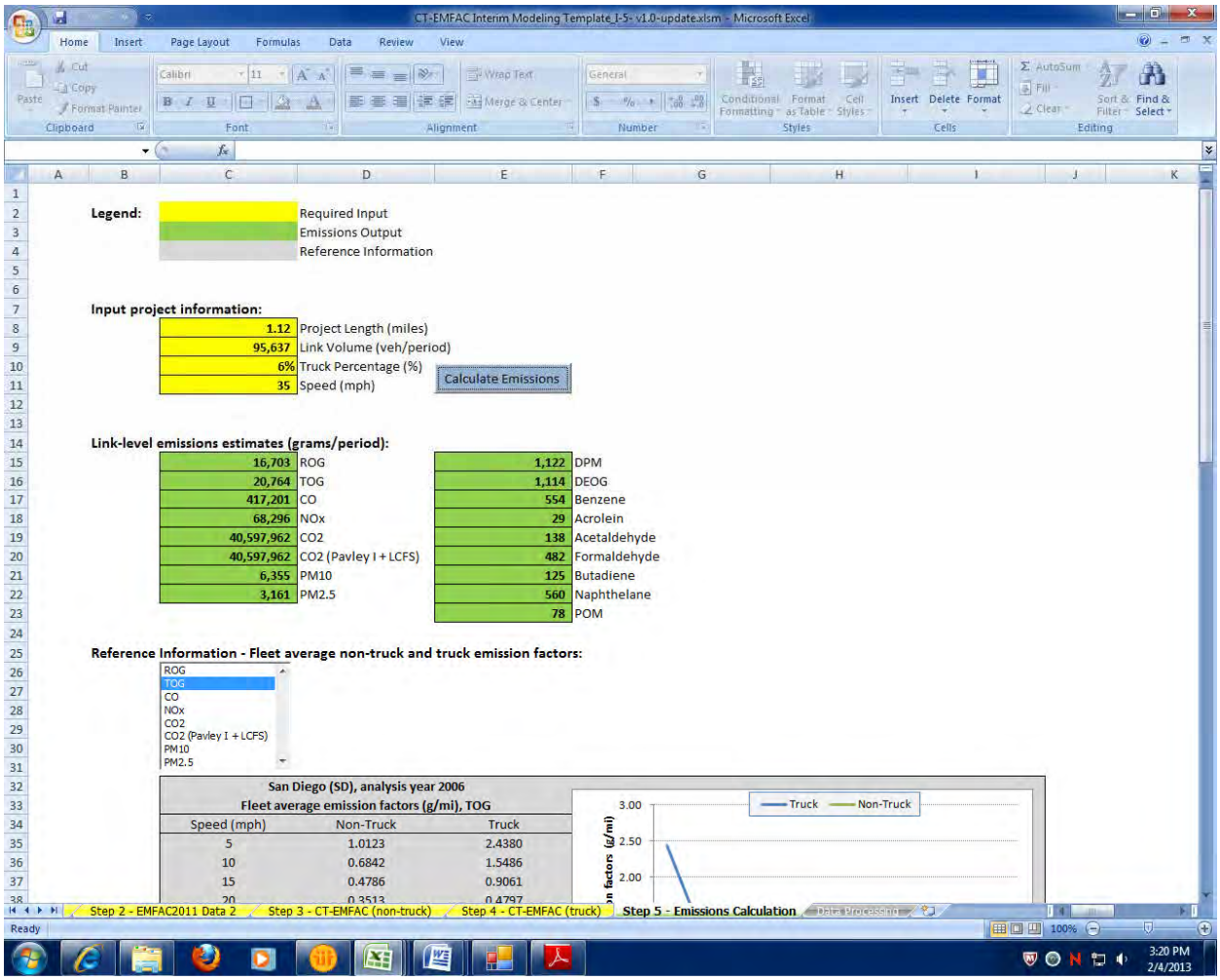
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

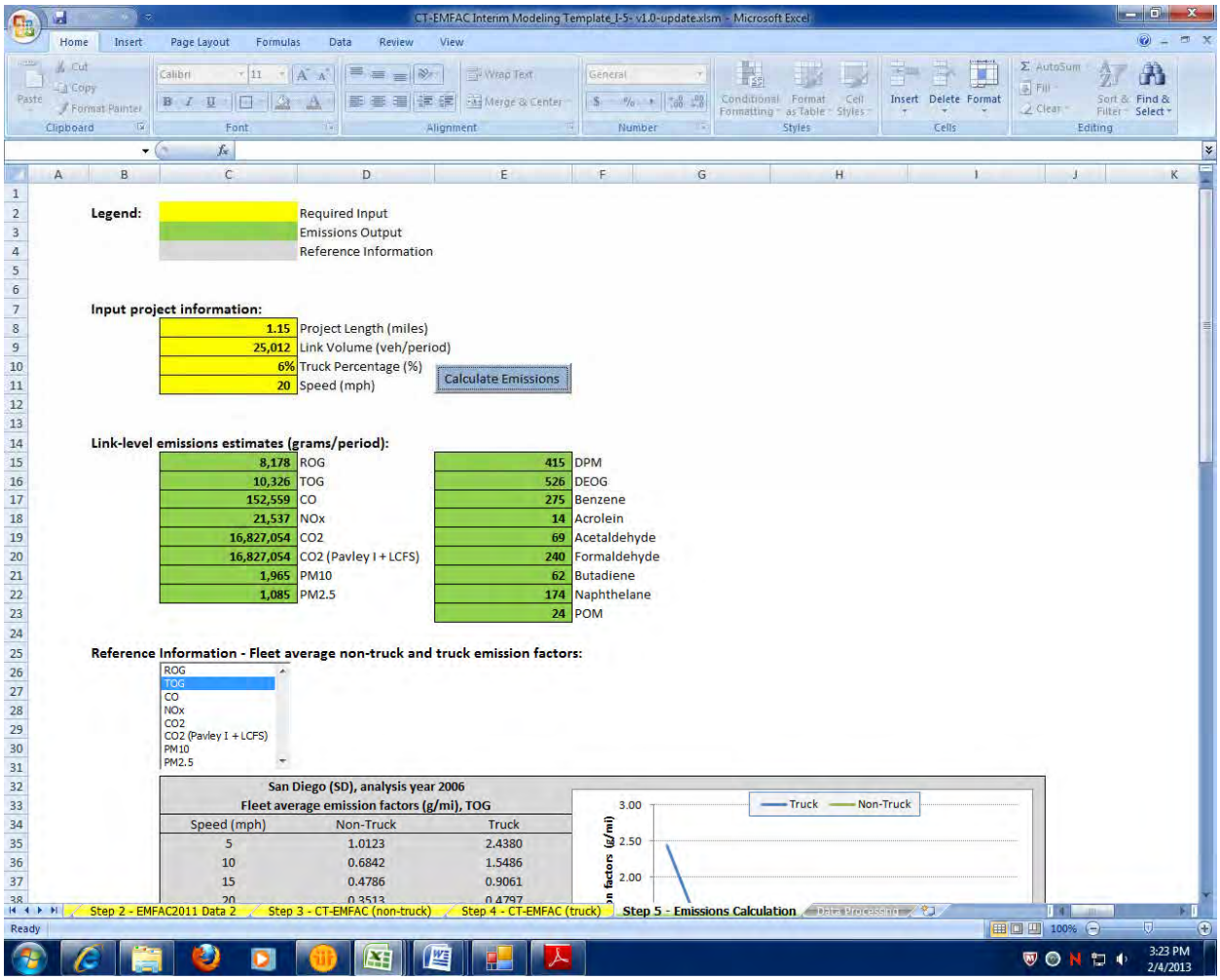
Existing 2006
Link: 3 (SB GP)
Segment: 6
Peak



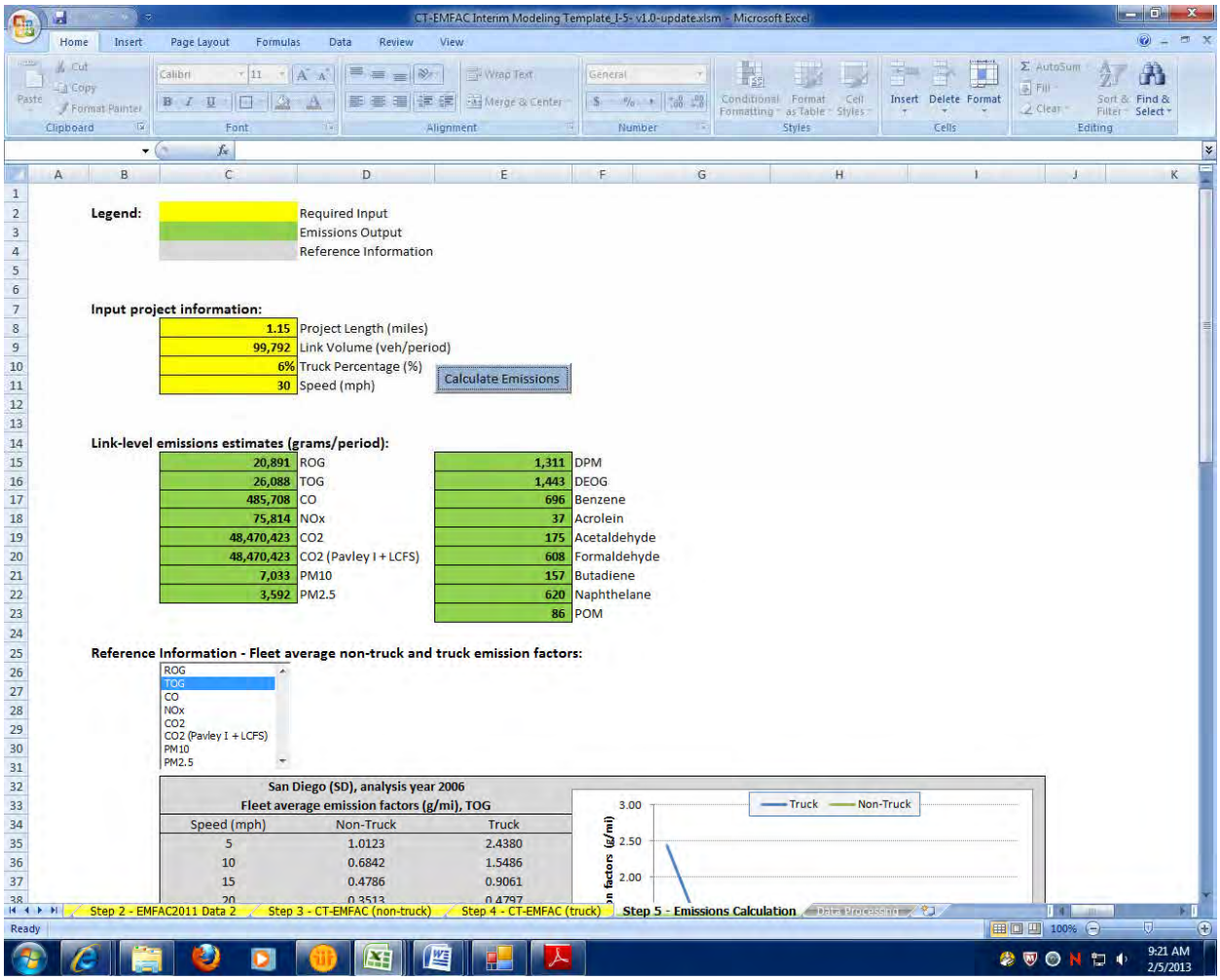
Existing 2006
Link: 3 (SB GP)
Segment: 6
Off Peak



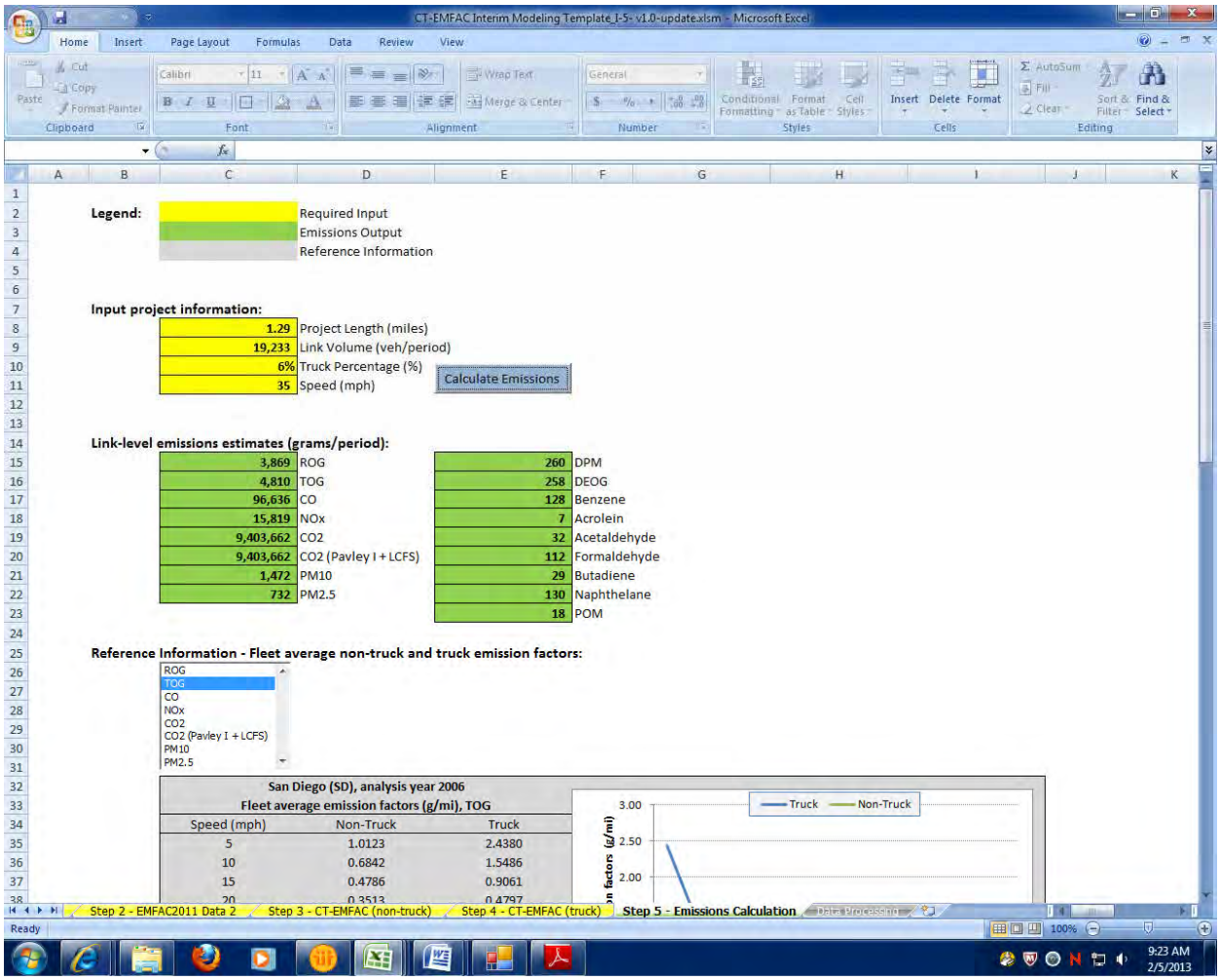
Existing 2006
Link: 3 (SB GP)
Segment: 7
Peak



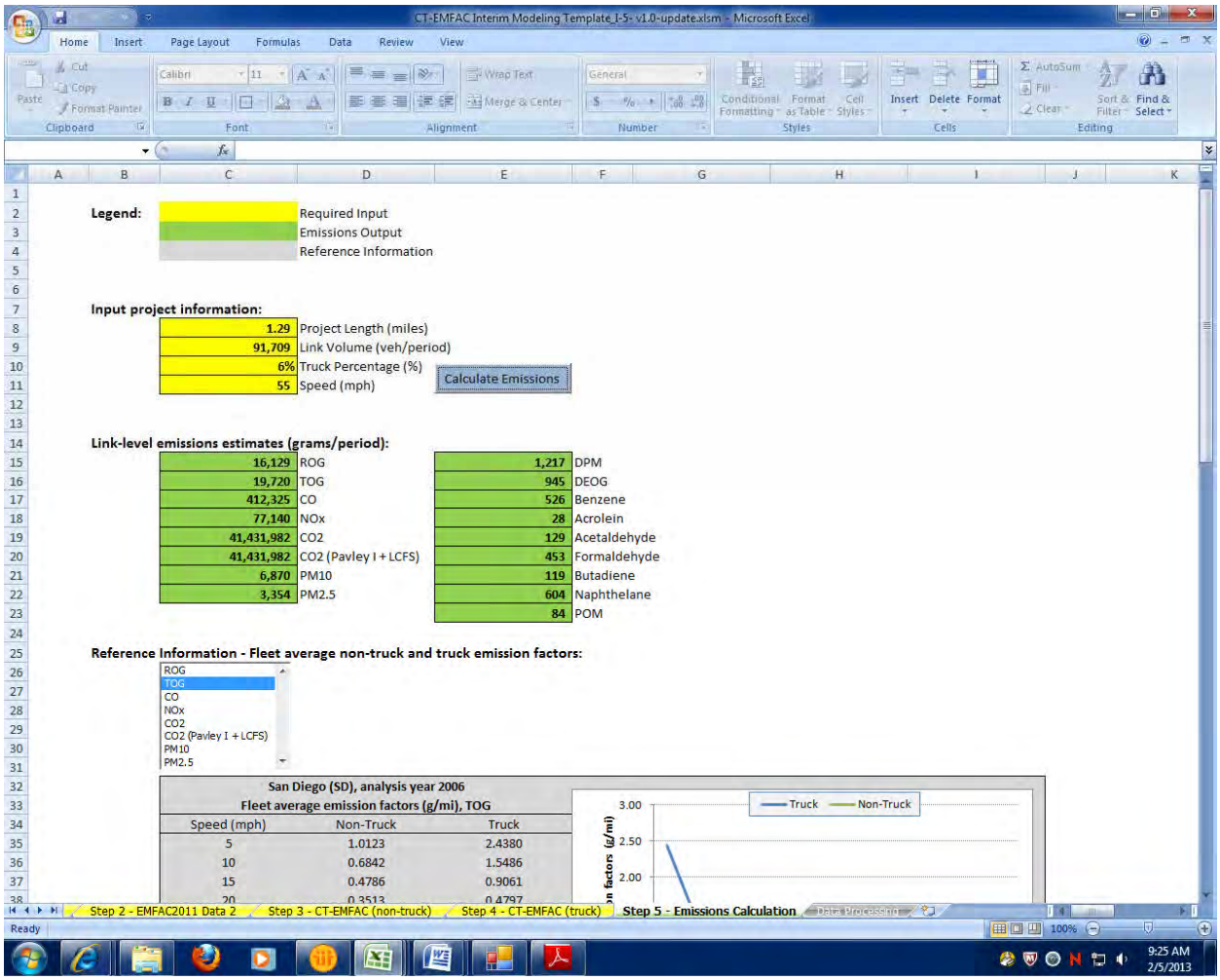
Existing 2006
Link: 3 (SB GP)
Segment: 7
Off Peak



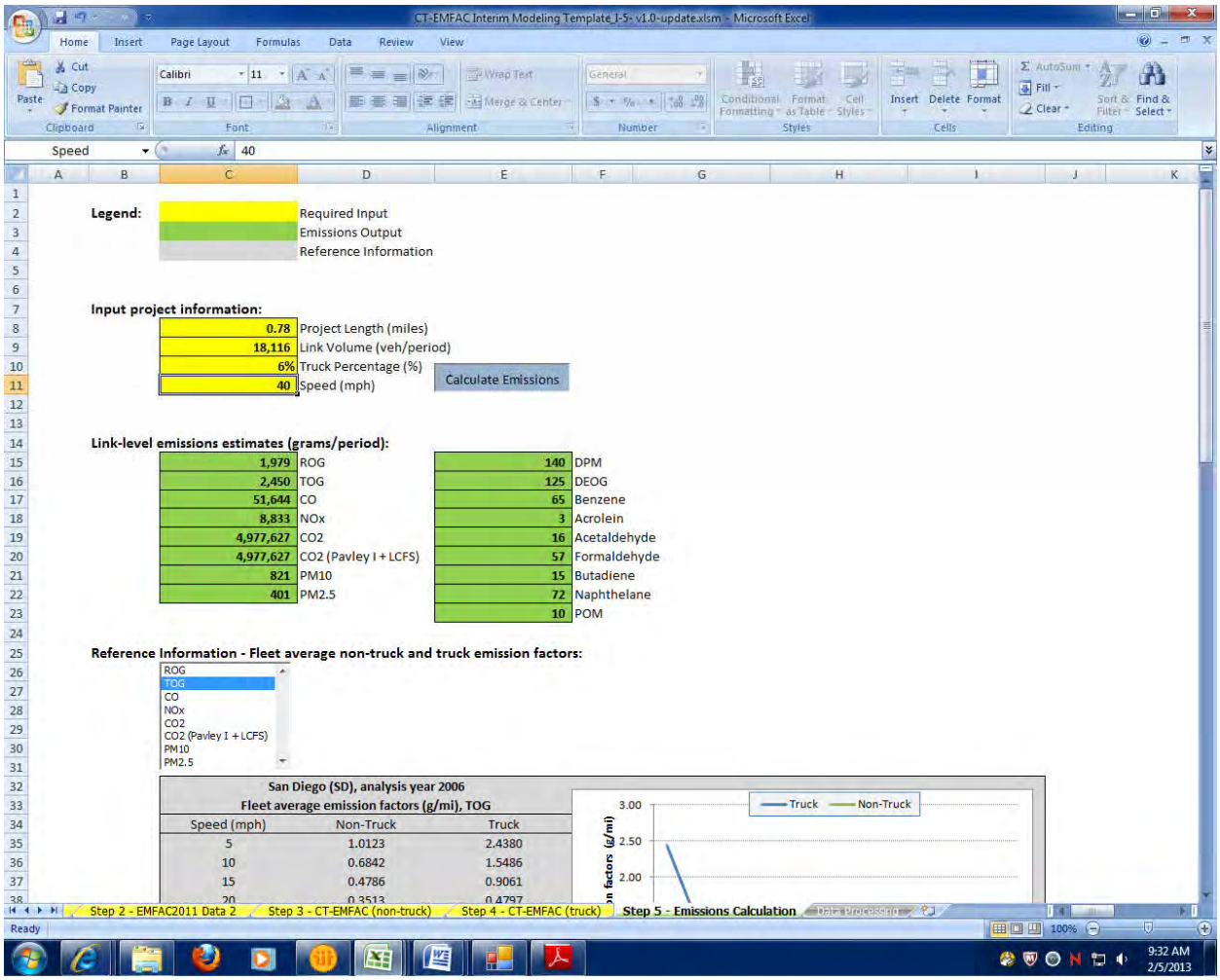
Existing 2006
Link: 3 (SB GP)
Segment: 8
Peak



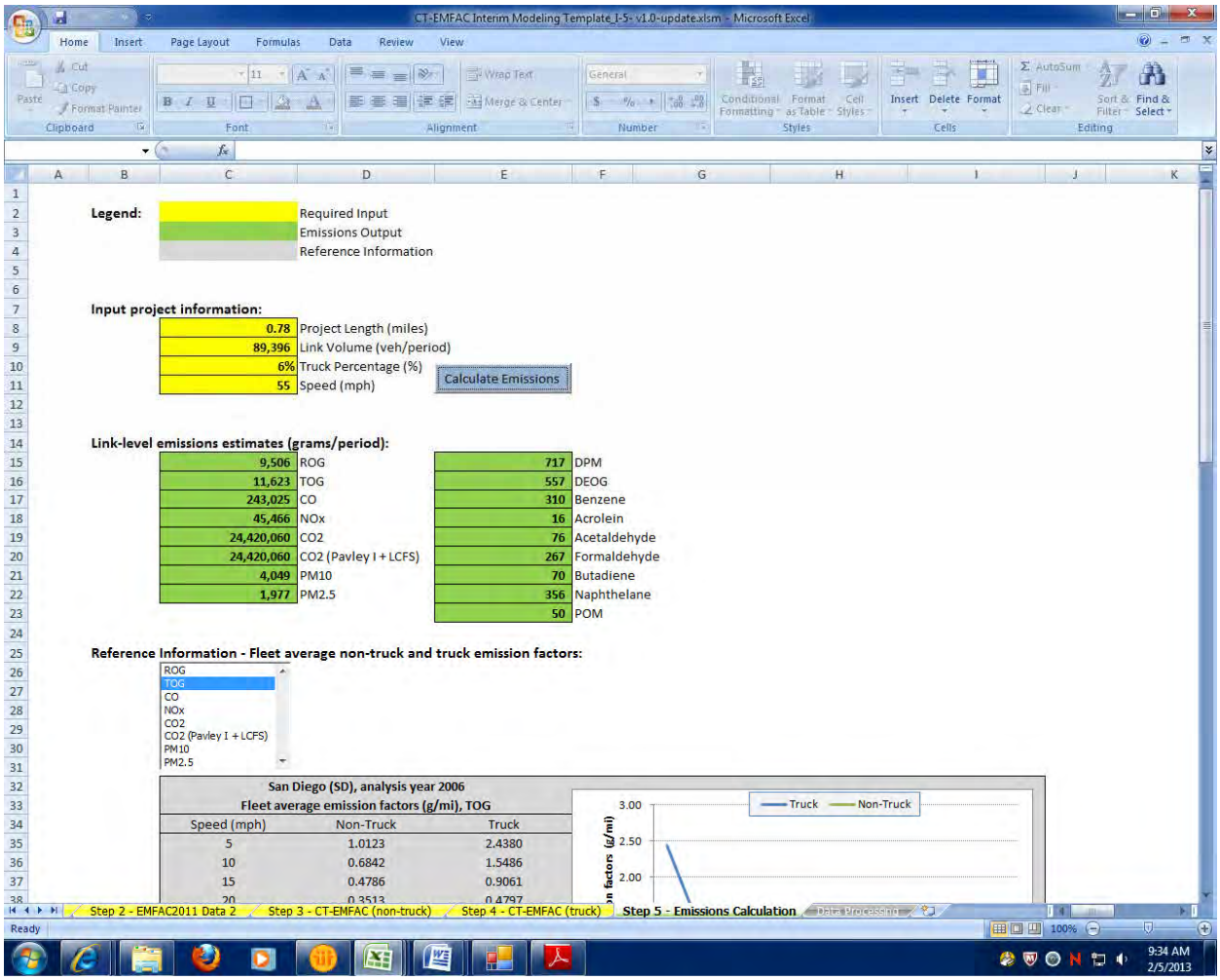
Existing 2006
Link: 3 (SB GP)
Segment: 8
Off Peak



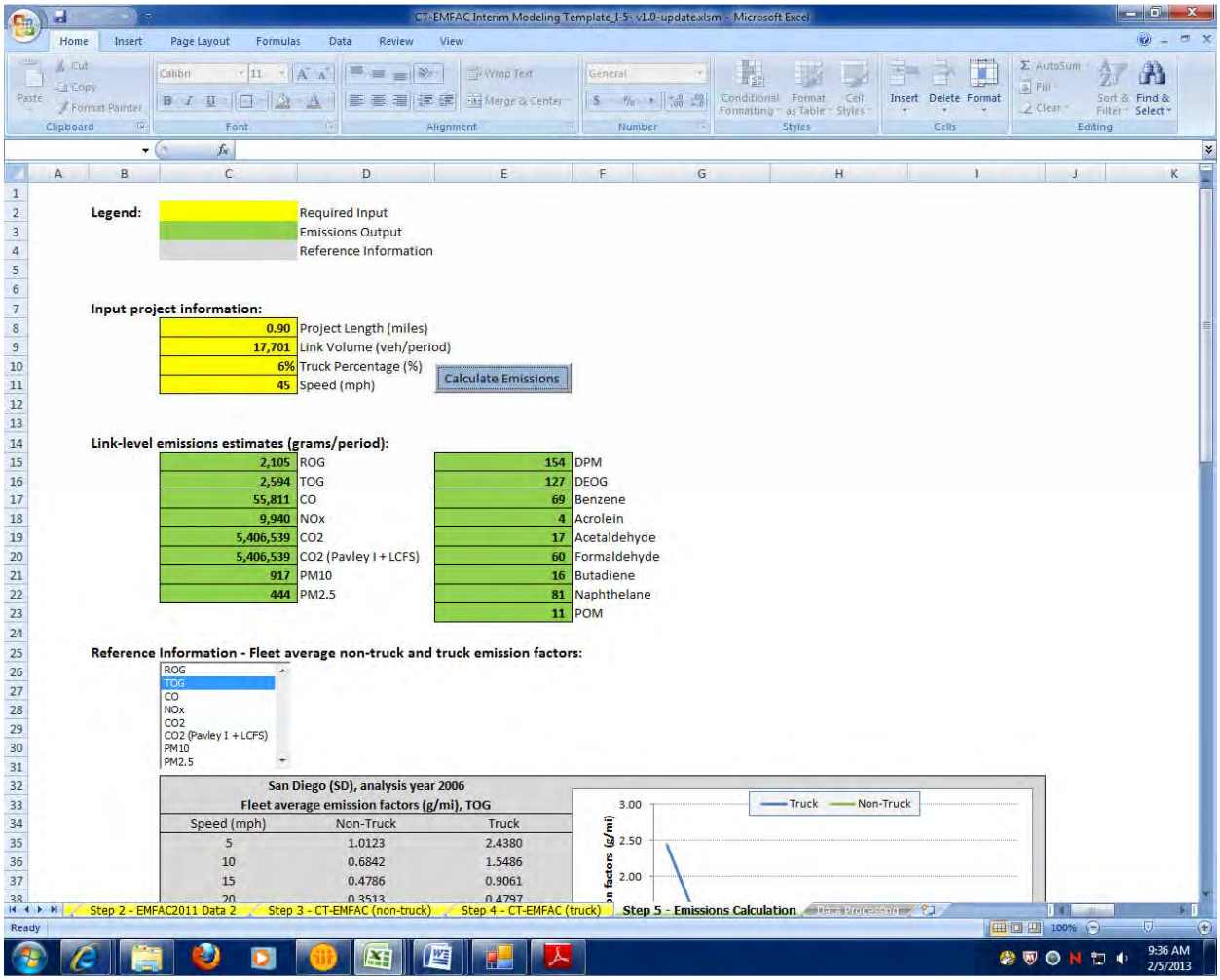
Existing 2006
Link: 3 (SB GP)
Segment: 9
Peak



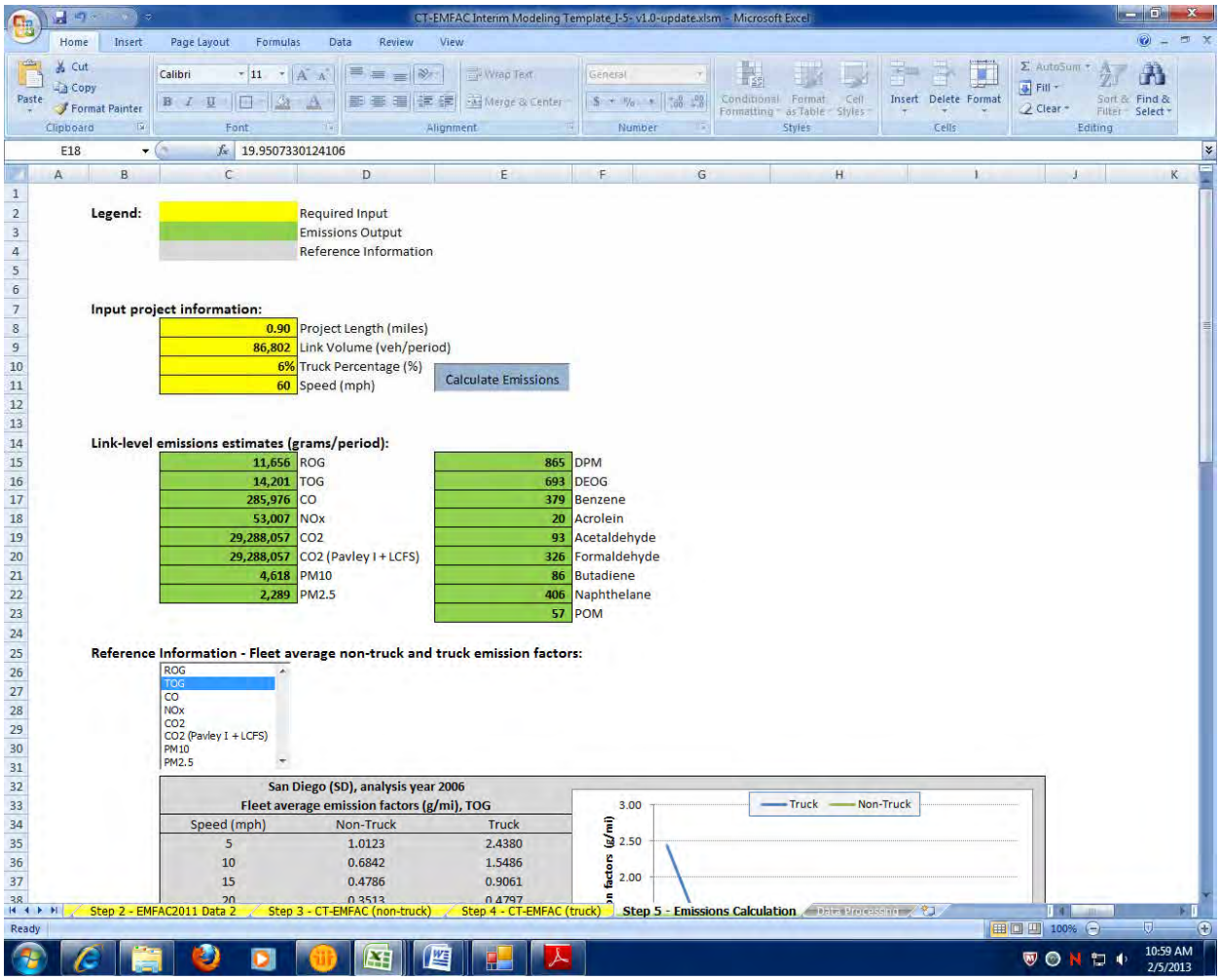
Existing 2006
Link: 3 (SB GP)
Segment: 9
Off Peak



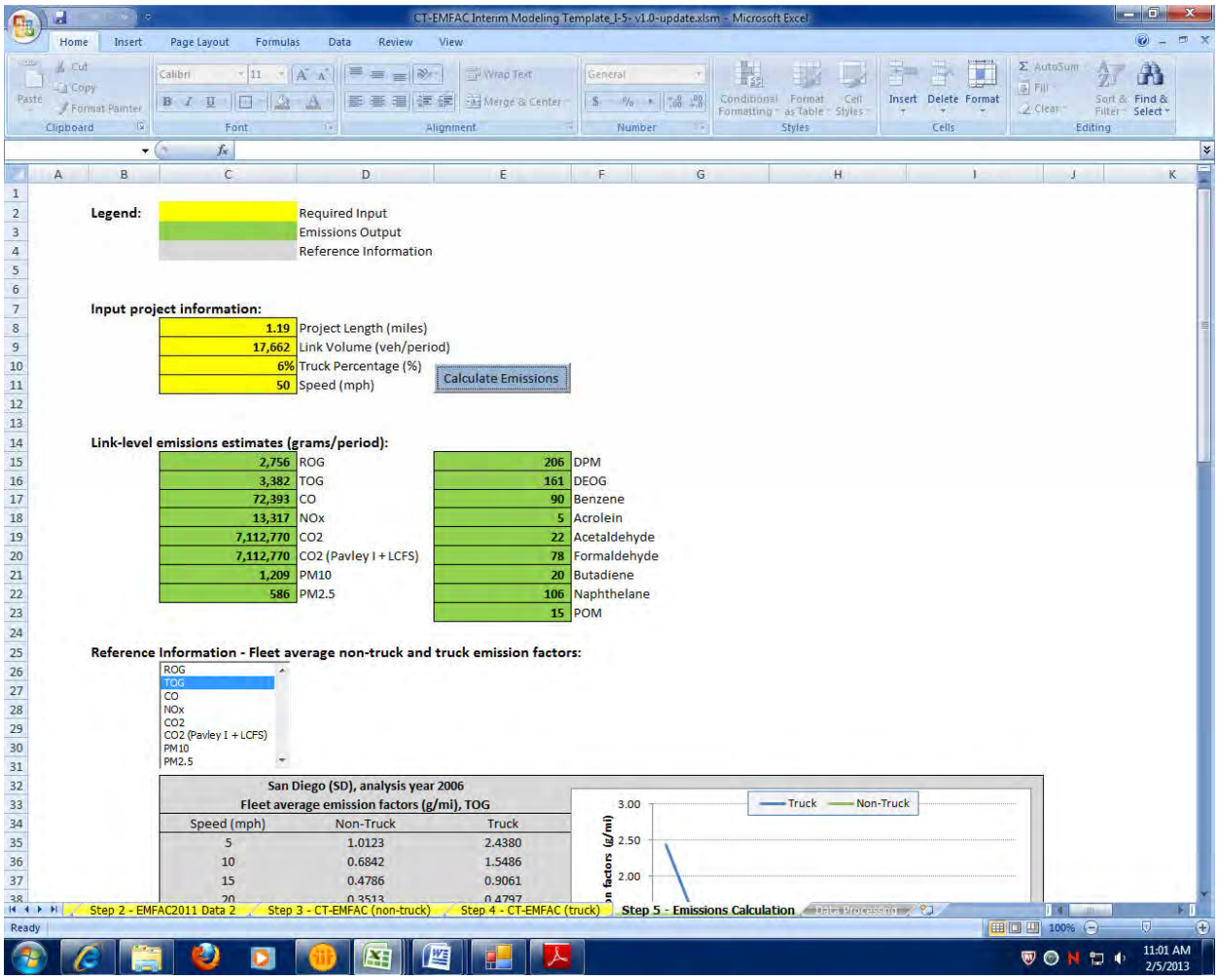
Existing 2006
Link: 3 (SB GP)
Segment: 10
Peak



Existing 2006
Link: 3 (SB GP)
Segment: 10
Off Peak



Existing 2006
Link: 3 (SB GP)
Segment: 11
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.19	Project Length (miles)
17,662	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,756	ROG	206	DPM
3,382	TOG	161	DEOG
72,393	CO	90	Benzene
13,317	NOx	5	Acrolein
7,112,770	CO2	22	Acetaldehyde
7,112,770	CO2 (Pavley I + LCFS)	78	Formaldehyde
1,209	PM10	20	Butadiene
586	PM2.5	106	Naphthelane
		15	POM

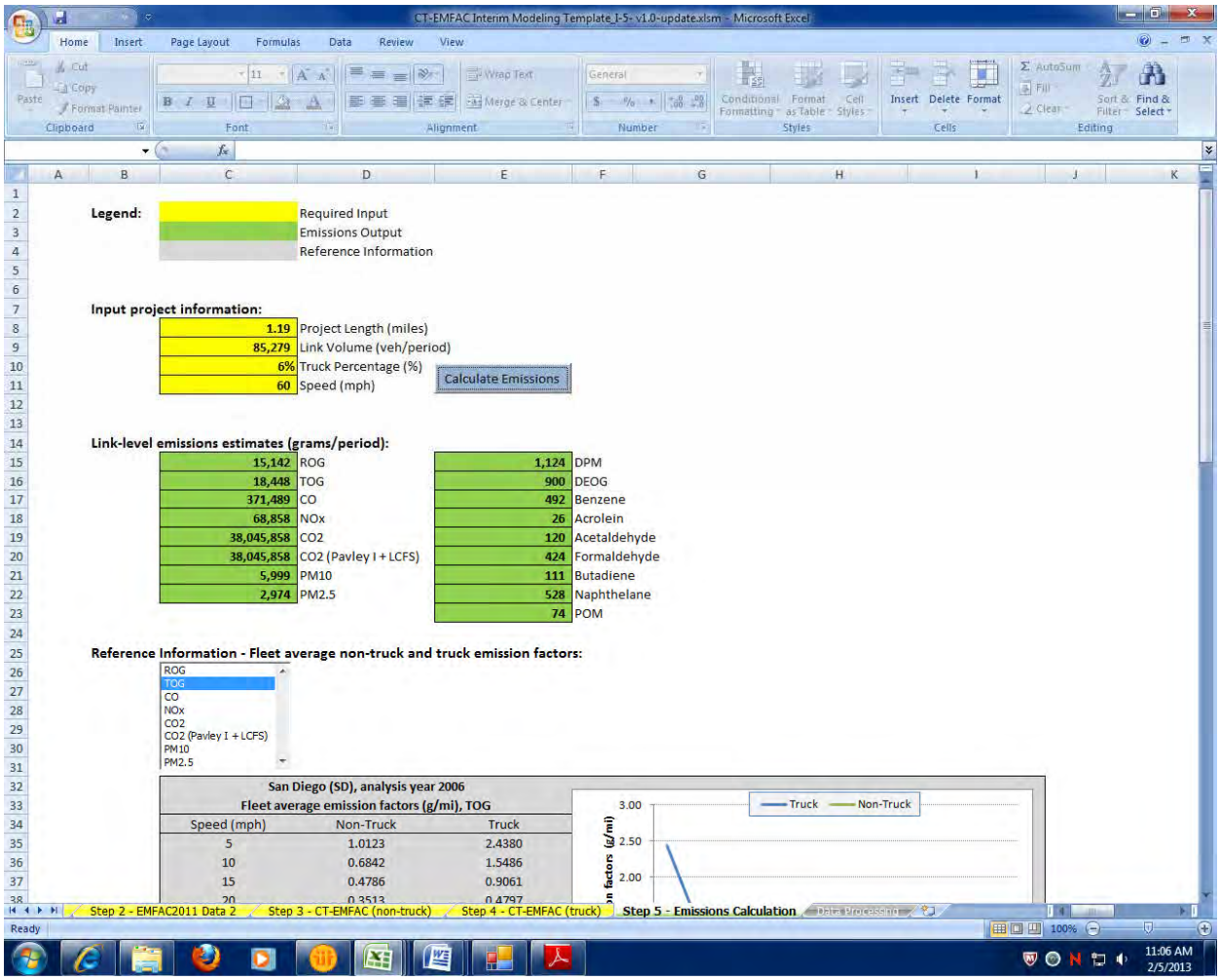
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
Link: 3 (SB GP)
Segment: 11
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.19	Project Length (miles)
85,279	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

15,142	ROG	1,124	DPM
18,448	TOG	900	DEOG
371,489	CO	492	Benzene
68,858	NOx	26	Acrolein
38,045,858	CO2	120	Acetaldehyde
38,045,858	CO2 (Pavley I + LCFS)	424	Formaldehyde
5,999	PM10	111	Butadiene
2,974	PM2.5	528	Naphthelane
		74	POM

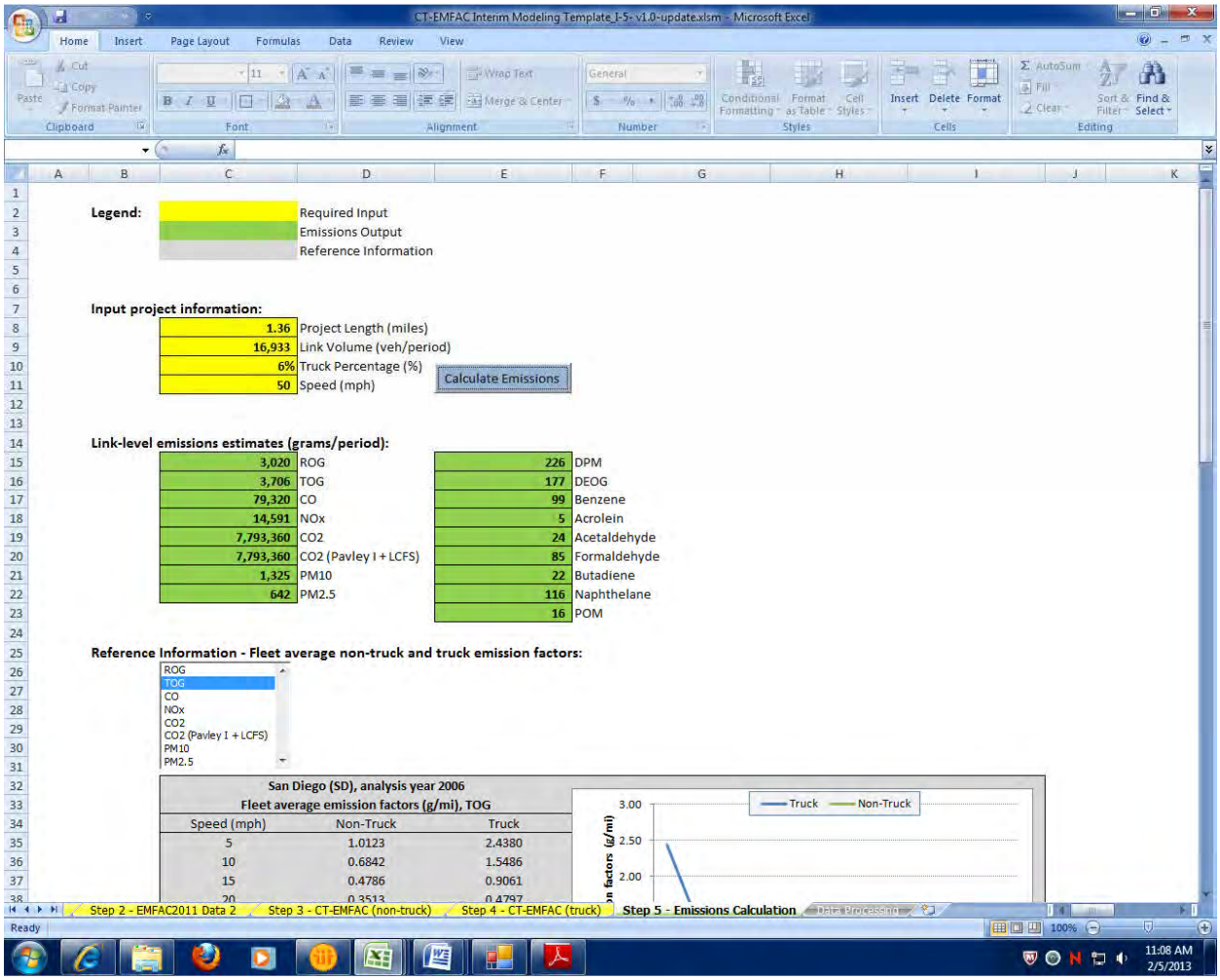
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

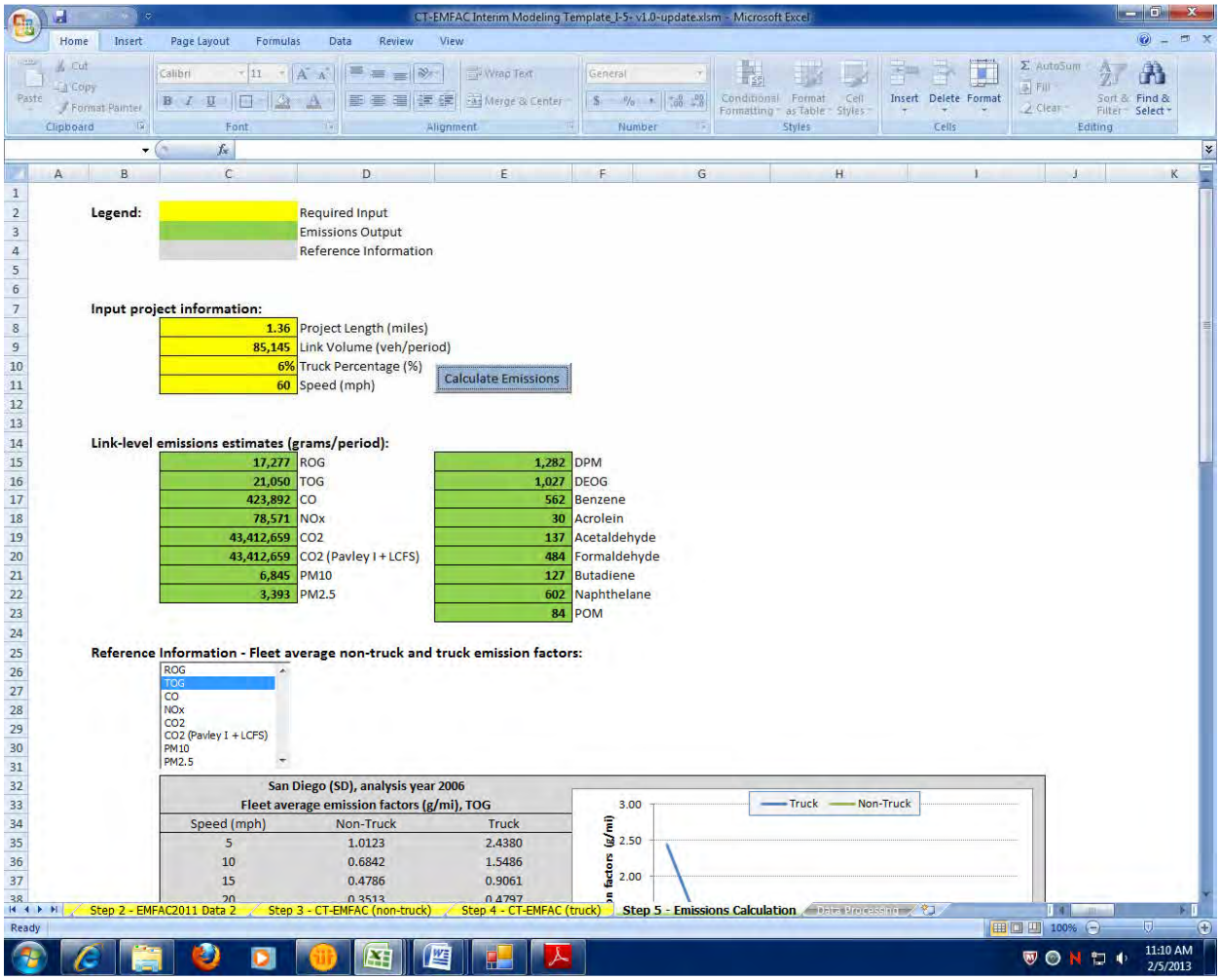
San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
Link: 3 (SB GP)
Segment: 12
Peak



Existing 2006
Link: 3 (SB GP)
Segment: 12
Off Peak



CT-EMFAC Interim Modeling Template_I-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.36	Project Length (miles)
85,145	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

17,277	ROG	1,282	DPM
21,050	TOG	1,027	DEOG
423,892	CO	562	Benzene
78,571	NOx	30	Acrolein
43,412,659	CO2	137	Acetaldehyde
43,412,659	CO2 (Pavley I + LCFS)	484	Formaldehyde
6,845	PM10	127	Butadiene
3,393	PM2.5	602	Naphthelane
		84	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

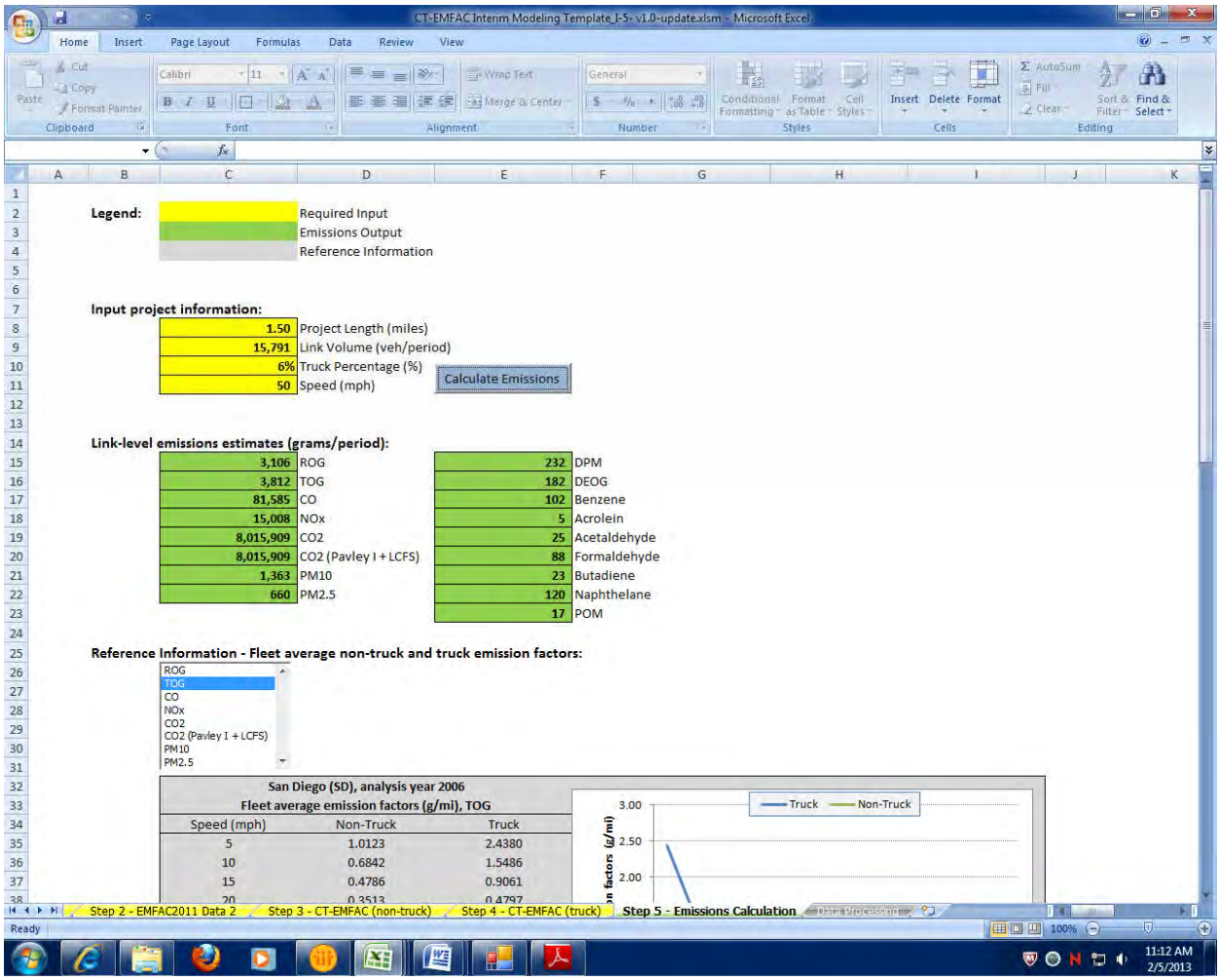
Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation | Data Processing

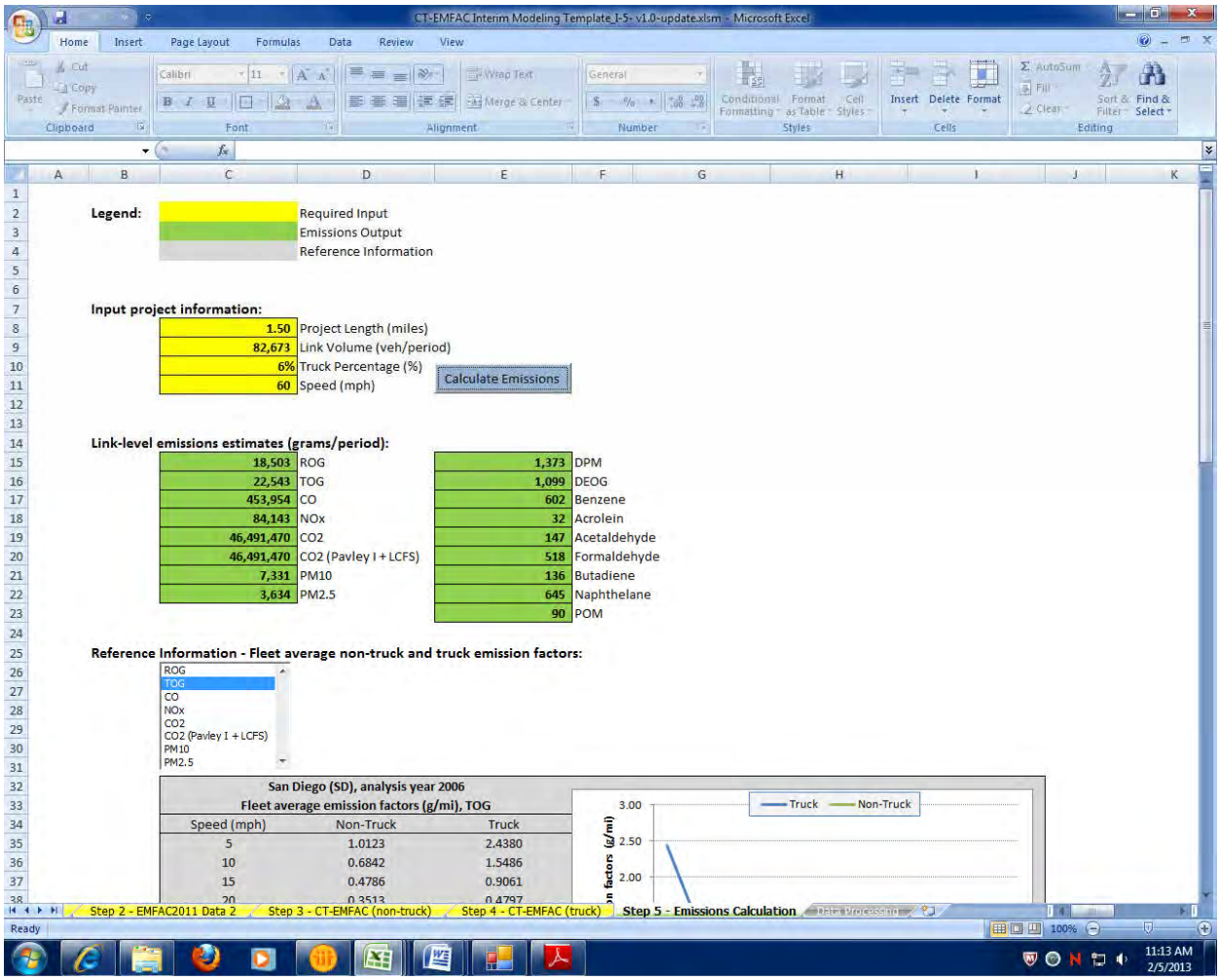
Ready 100%

11:10 AM 2/5/2013

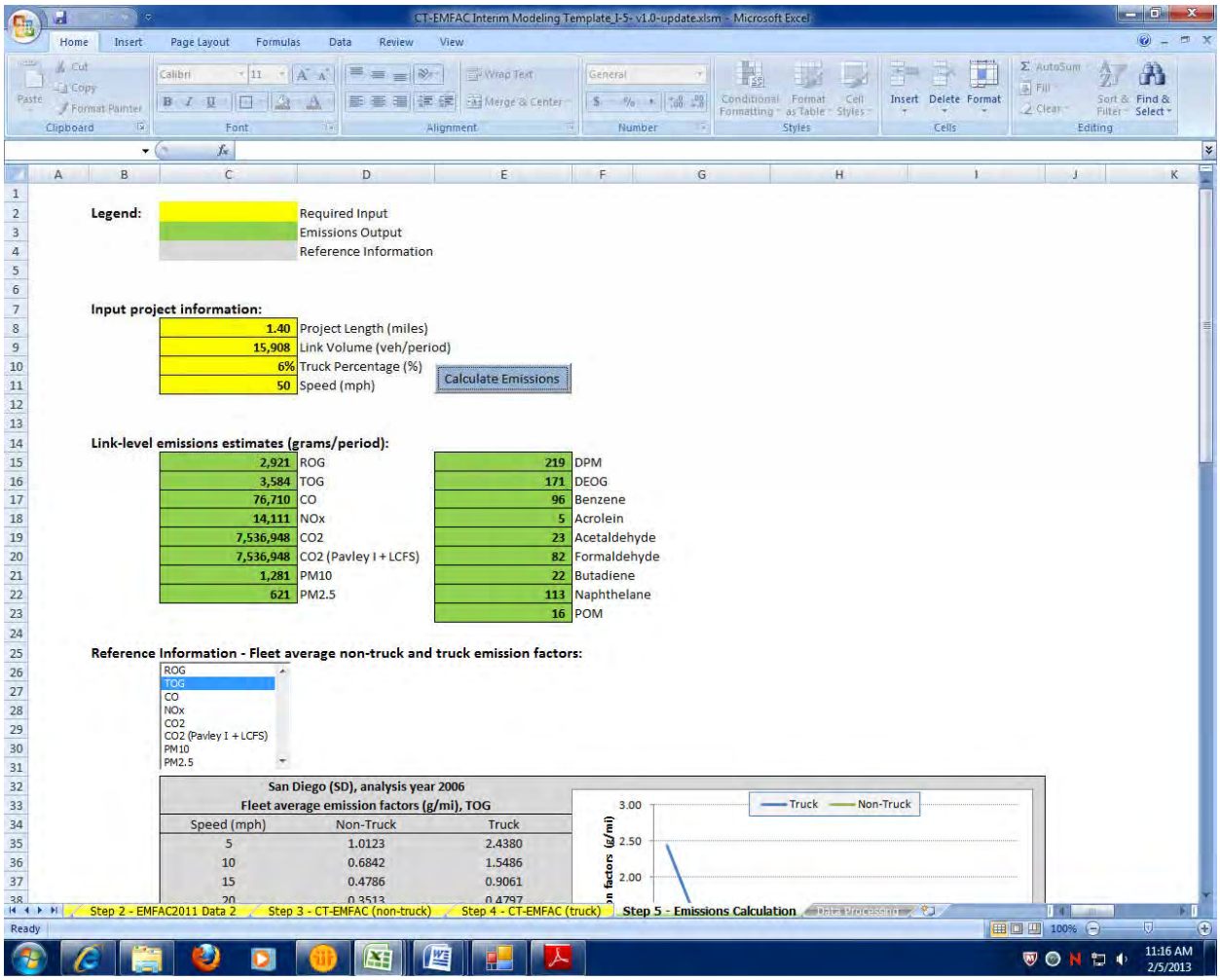
Existing 2006
Link: 3 (SB GP)
Segment: 13
Peak



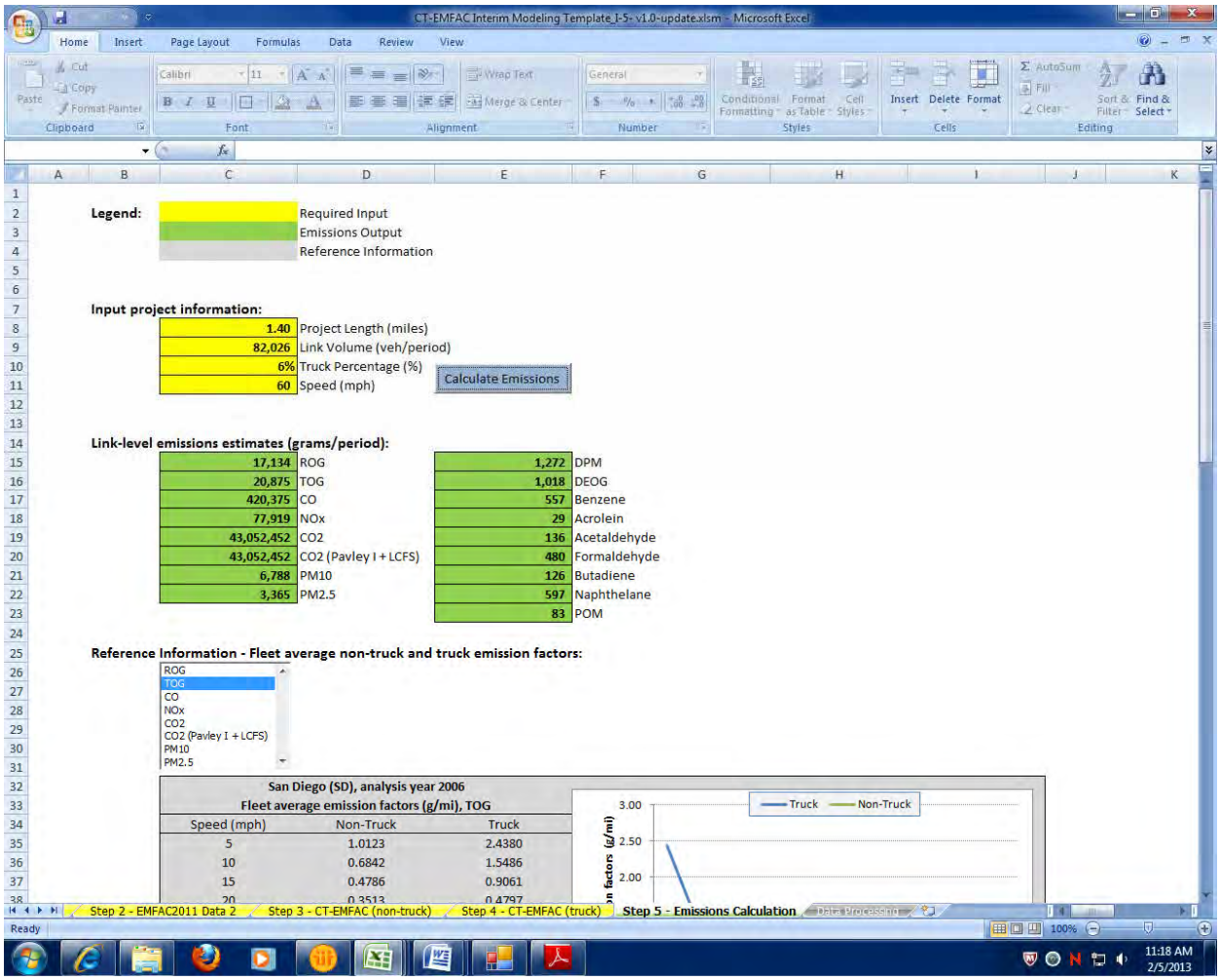
Existing 2006
Link: 3 (SB GP)
Segment: 13
Off Peak



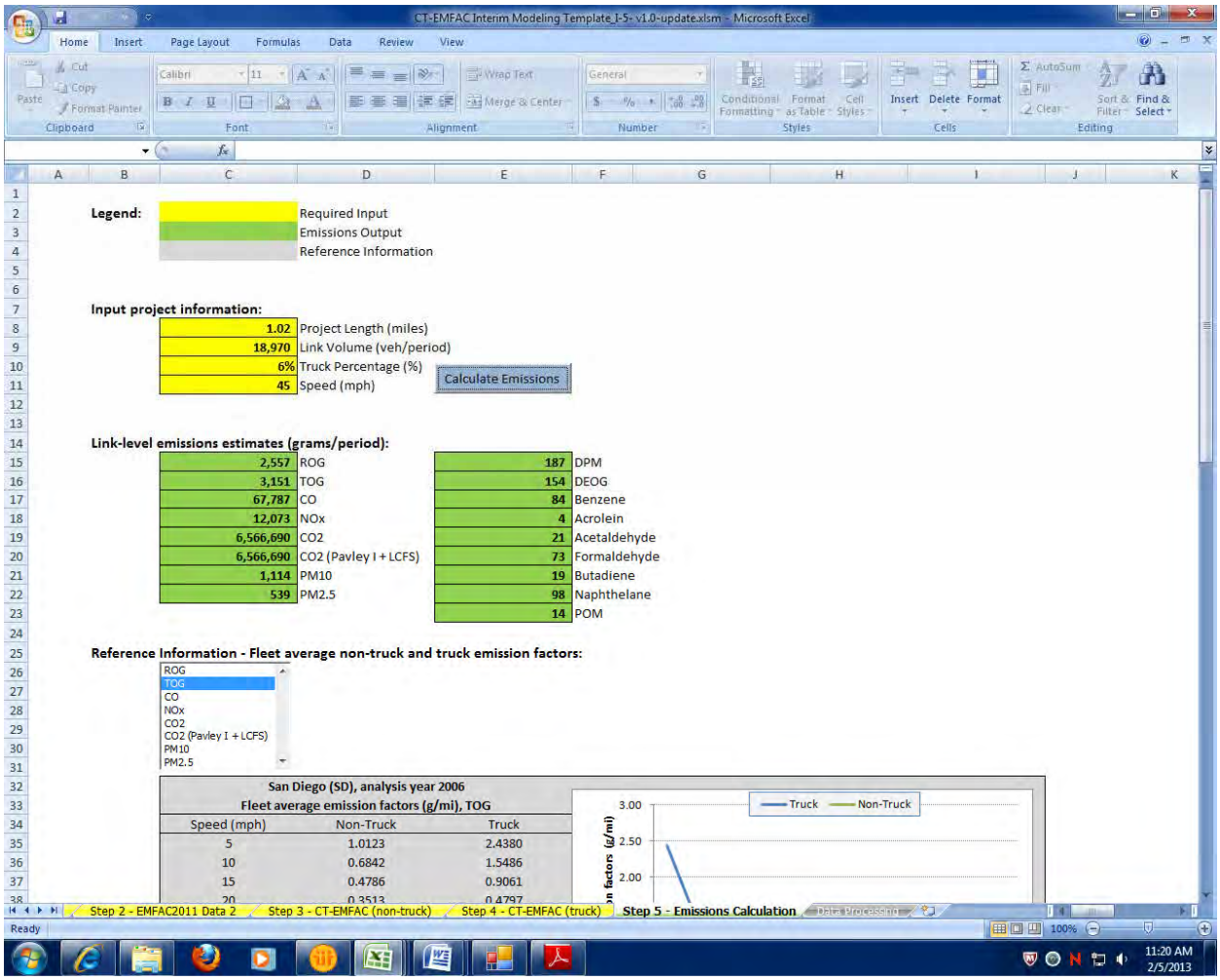
Existing 2006
Link: 3 (SB GP)
Segment: 14
Peak



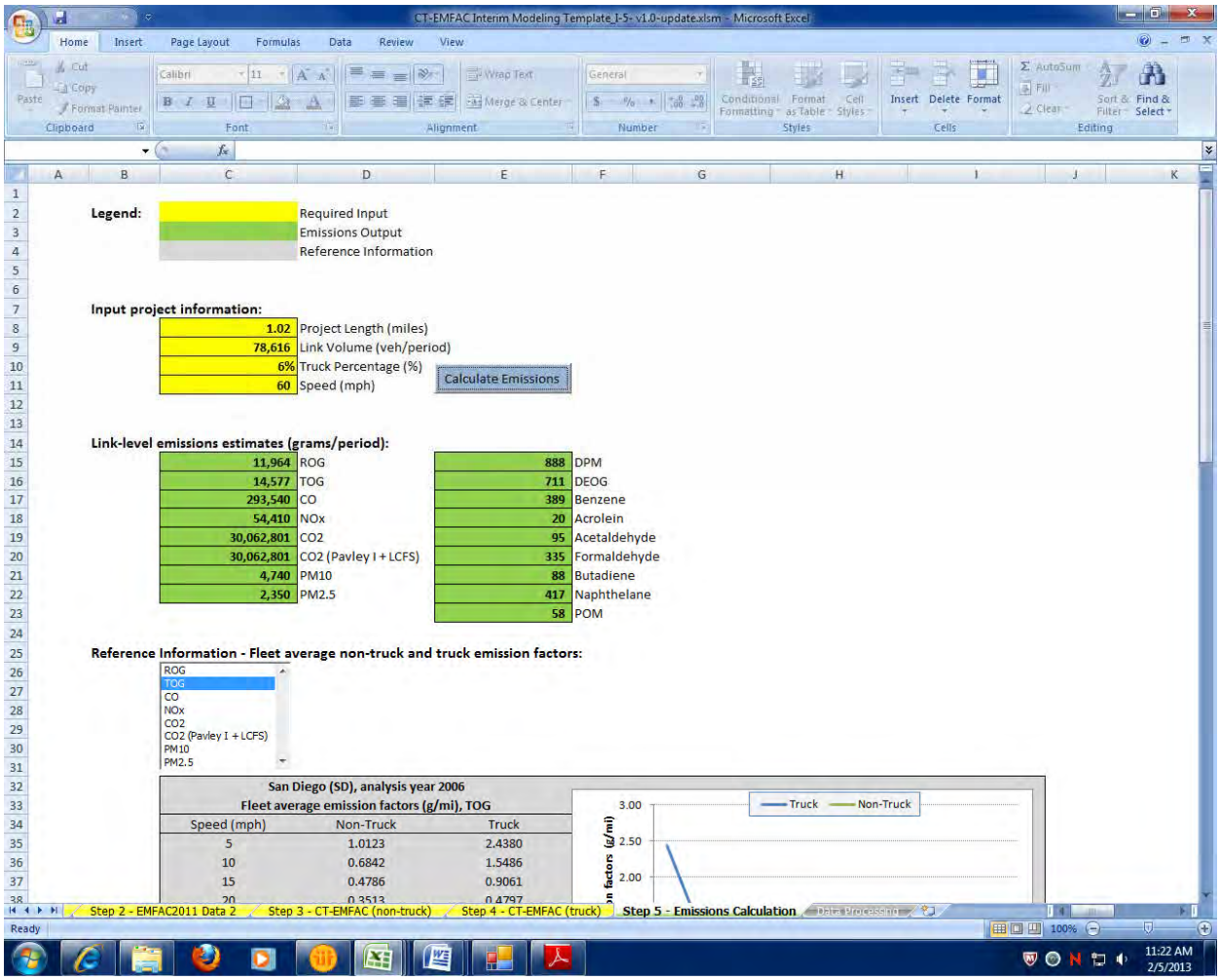
Existing 2006
Link: 3 (SB GP)
Segment: 14
Off Peak



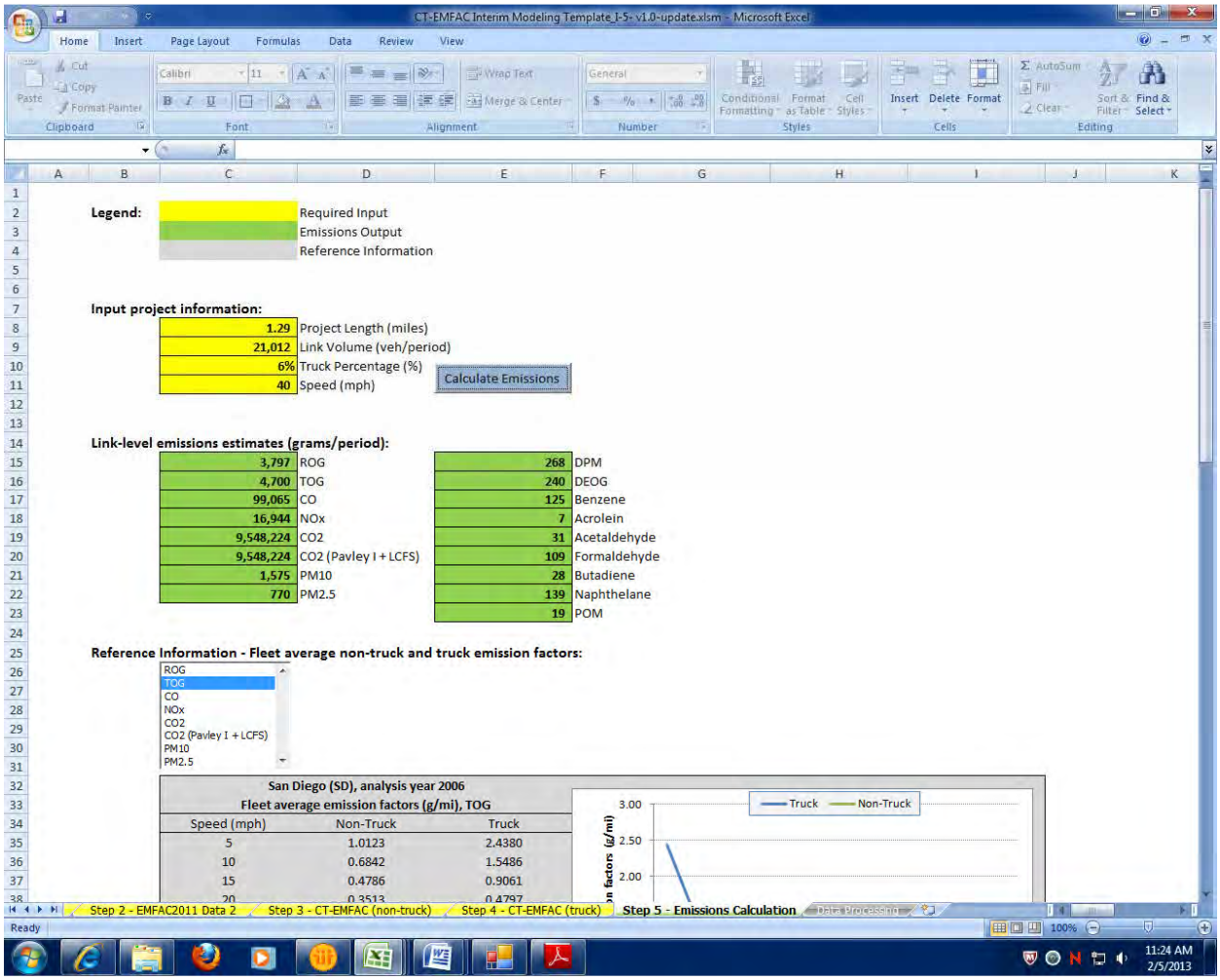
Existing 2006
Link: 3 (SB GP)
Segment: 15
Peak



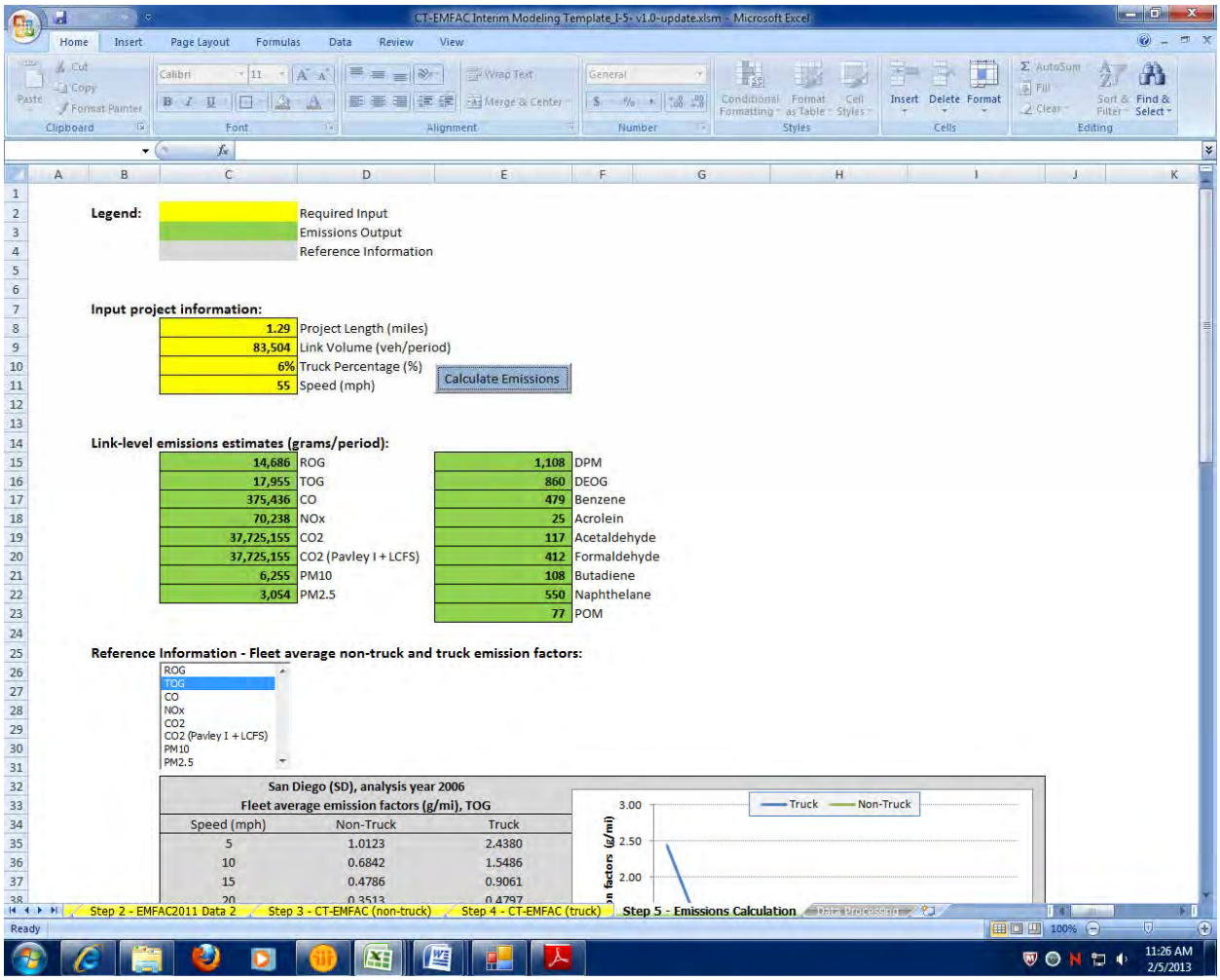
Existing 2006
Link: 3 (SB GP)
Segment: 15
Off Peak



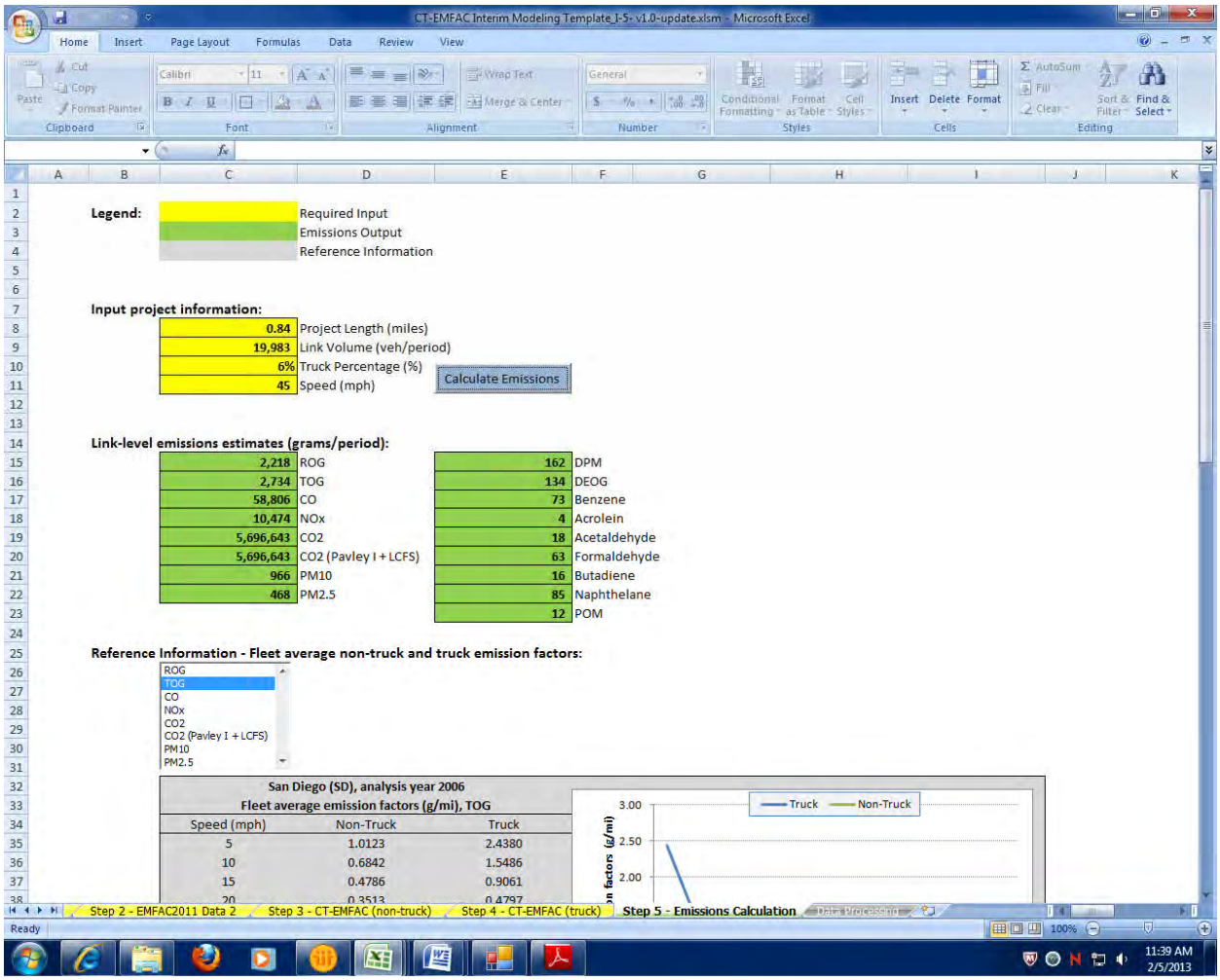
Existing 2006
Link: 3 (SB GP)
Segment: 16
Peak



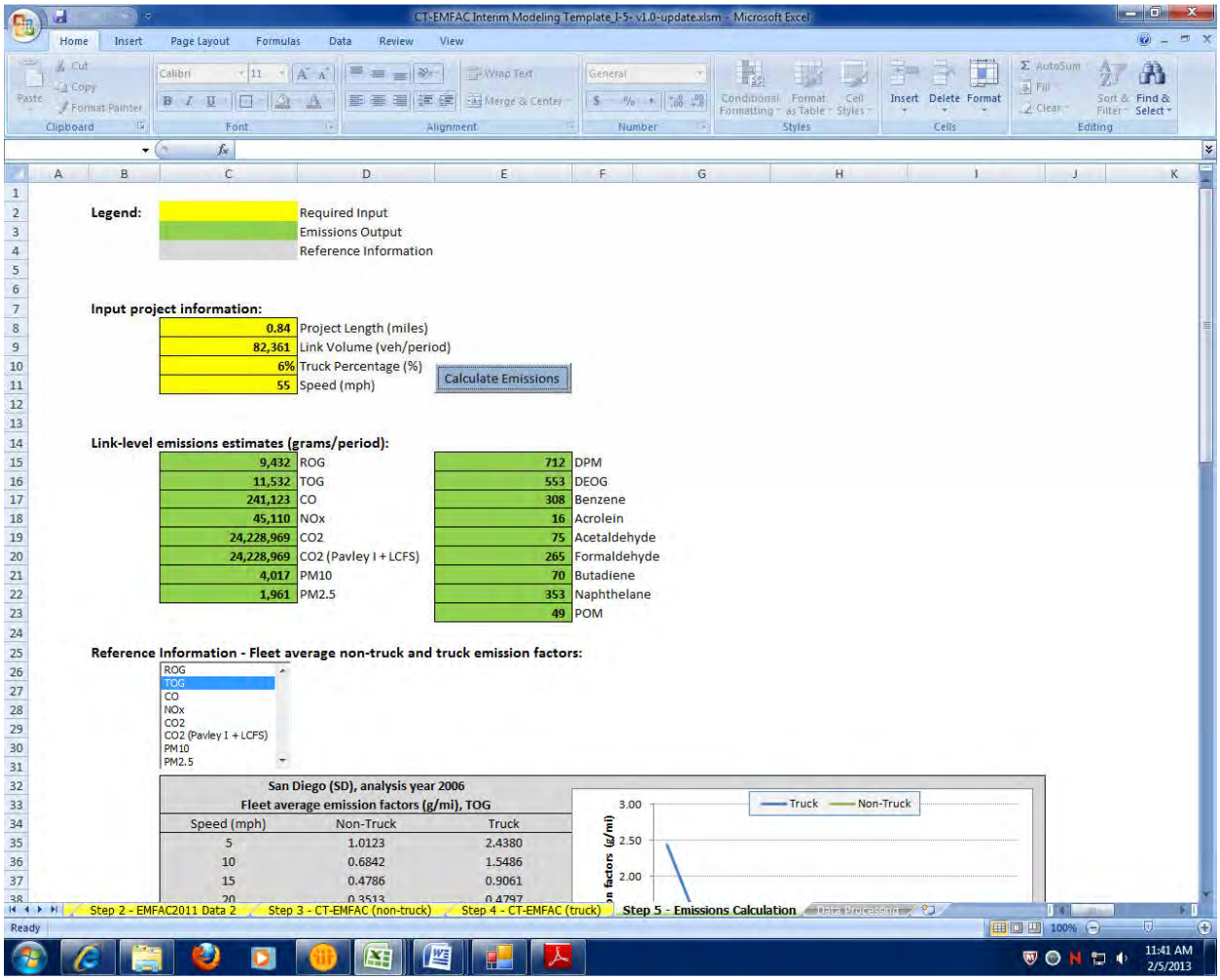
Existing 2006
Link: 3 (SB GP)
Segment: 16
Off Peak



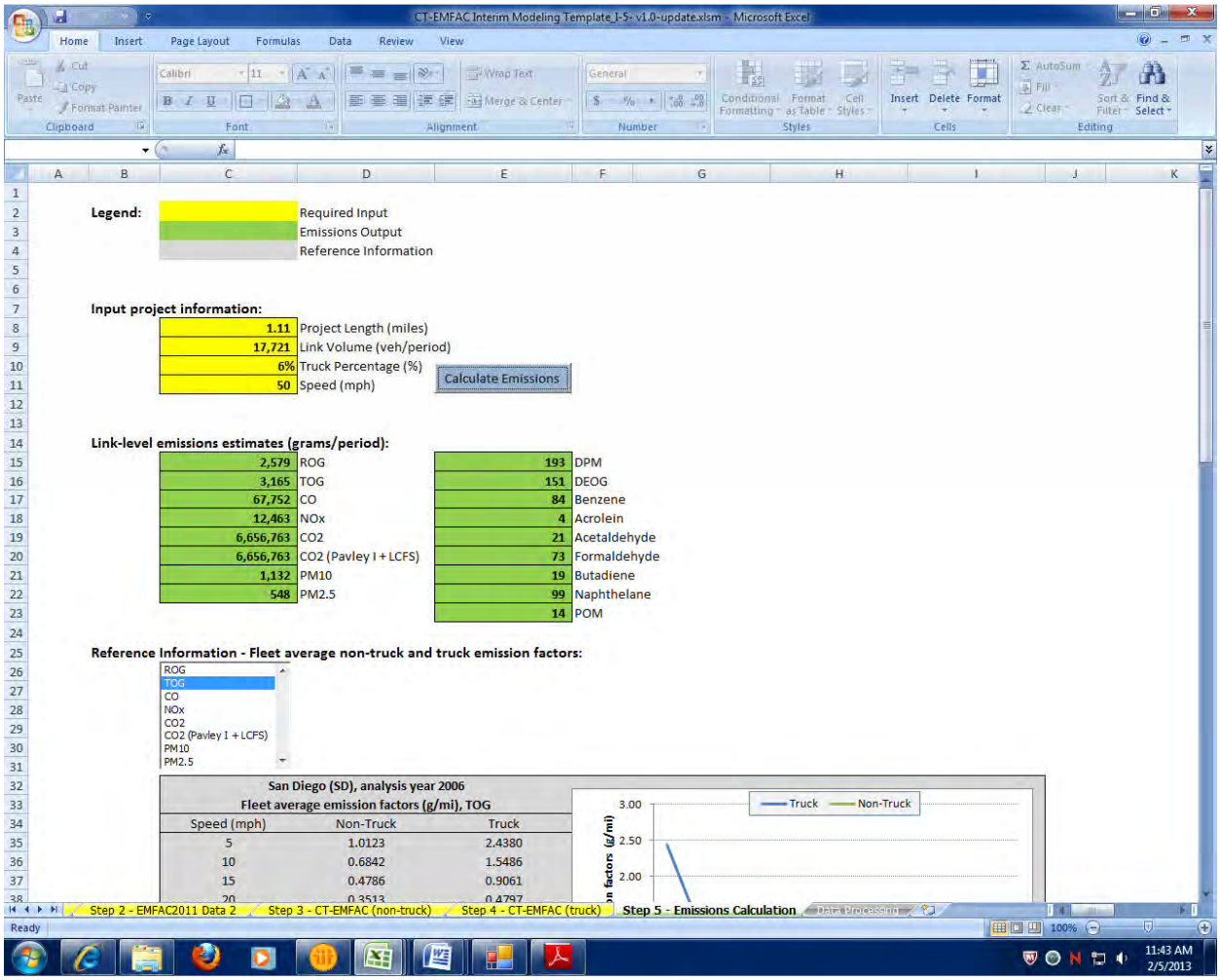
Existing 2006
Link: 3 (SB GP)
Segment: 17
Peak



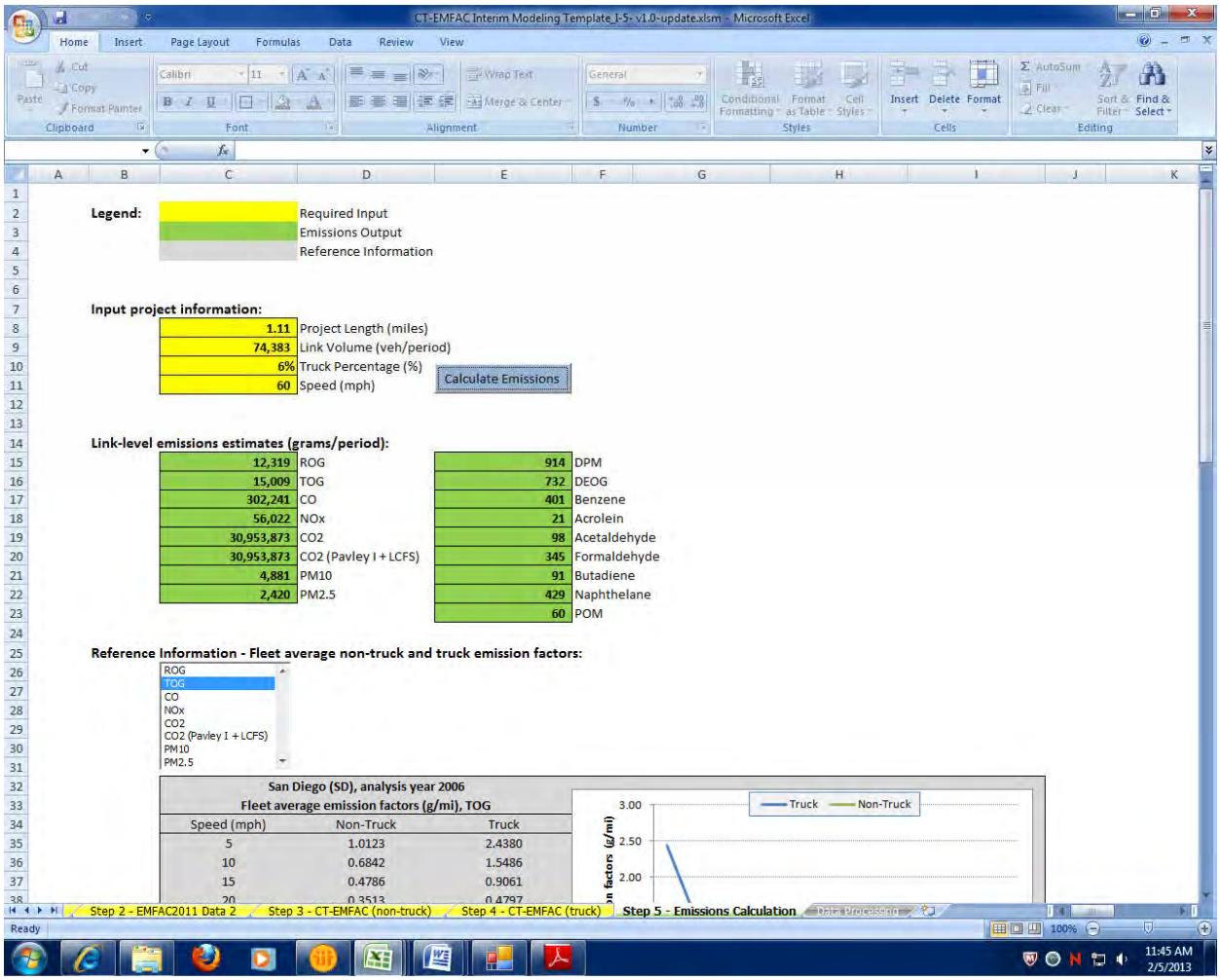
Existing 2006
Link: 3 (SB GP)
Segment: 17
Off Peak



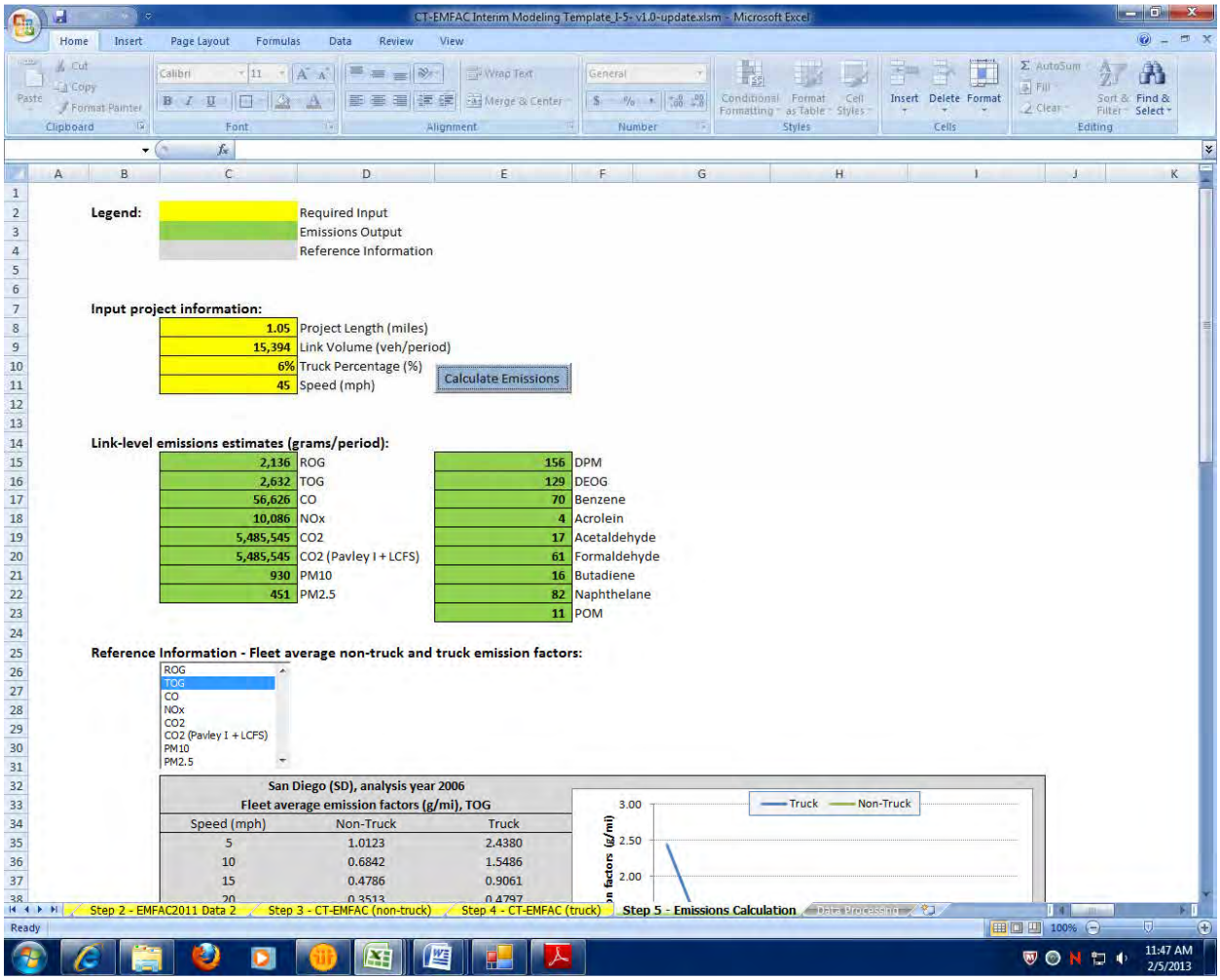
Existing 2006
Link: 3 (SB GP)
Segment: 18
Peak



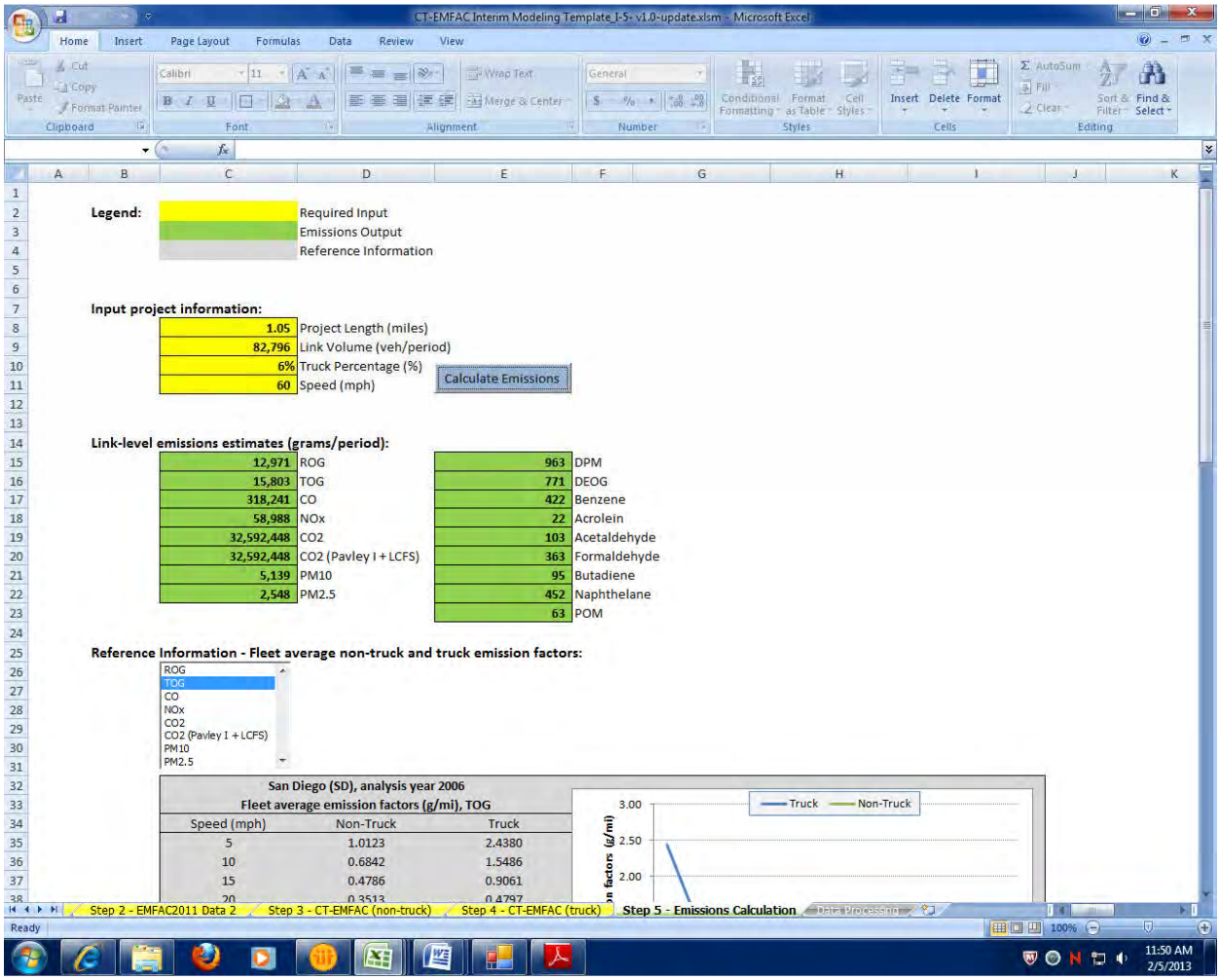
Existing 2006
Link: 3 (SB GP)
Segment: 18
Off Peak



Existing 2006
Link: 3 (SB GP)
Segment: 19
Peak



Existing 2006
Link: 3 (SB GP)
Segment: 19
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.05	Project Length (miles)
82,796	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

12,971	ROG	963	DPM
15,803	TOG	771	DEOG
318,241	CO	422	Benzene
58,988	NOx	22	Acrolein
32,592,448	CO2	103	Acetaldehyde
32,592,448	CO2 (Pavley I + LCFS)	363	Formaldehyde
5,139	PM10	95	Butadiene
2,548	PM2.5	452	Naphthelane
		63	POM

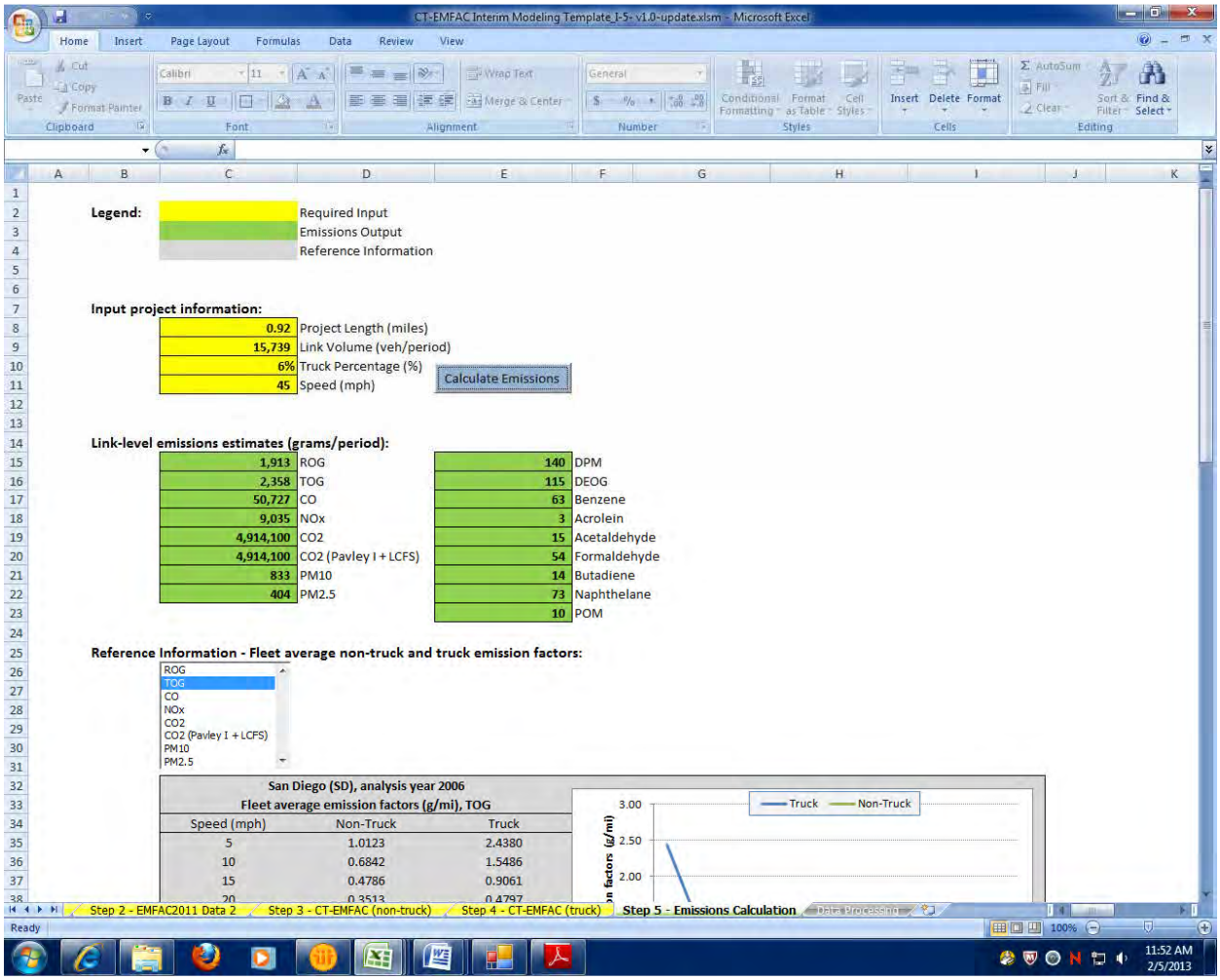
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Existing 2006
Link: 3 (SB GP)
Segment: 20
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.92	Project Length (miles)
15,739	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,913	ROG	140	DPM
2,358	TOG	115	DEOG
50,727	CO	63	Benzene
9,035	NOx	3	Acrolein
4,914,100	CO2	15	Acetaldehyde
4,914,100	CO2 (Pavley I + LCFS)	54	Formaldehyde
833	PM10	14	Butadiene
404	PM2.5	73	Naphthelane
		10	POM

Reference Information - Fleet average non-truck and truck emission factors:

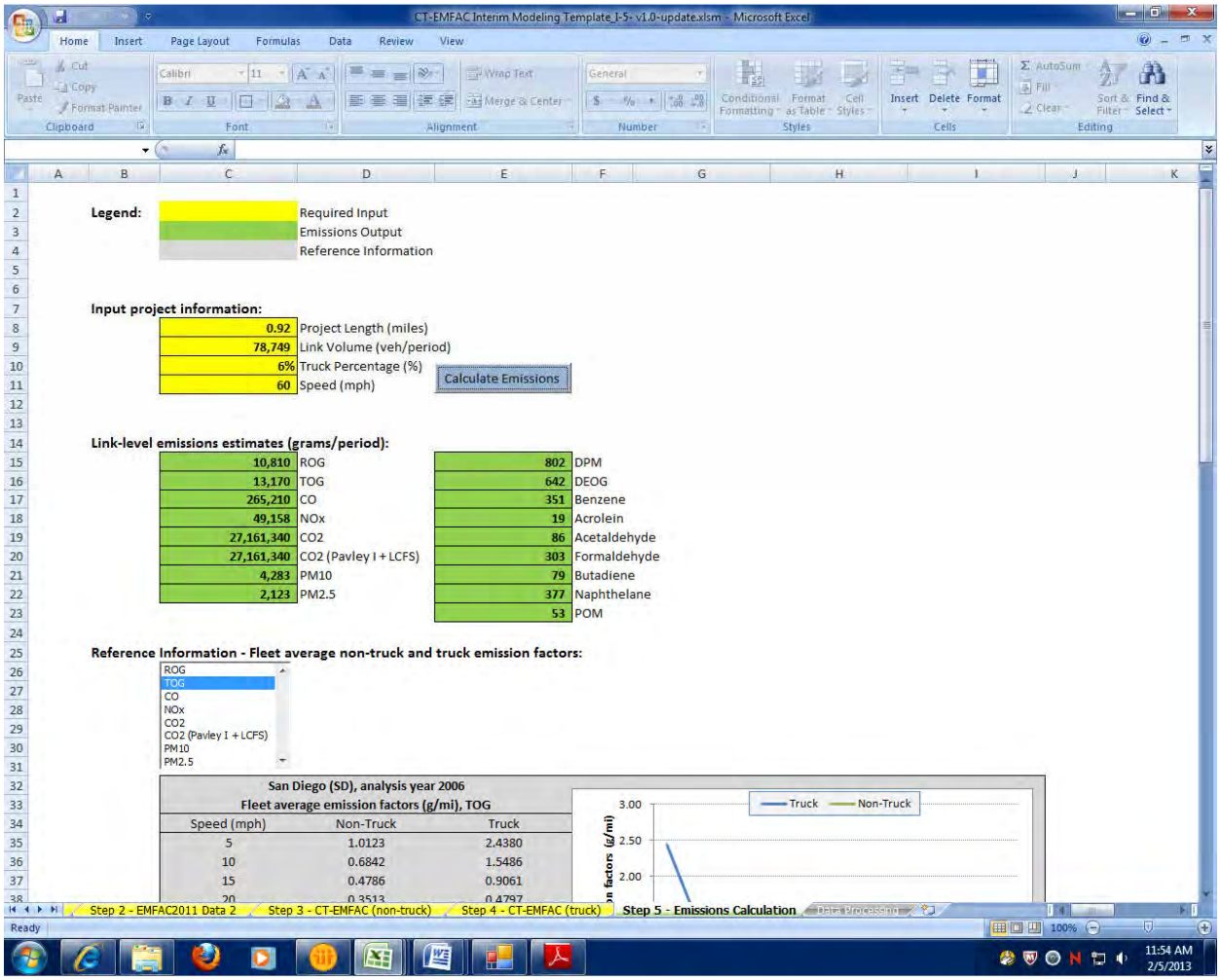
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

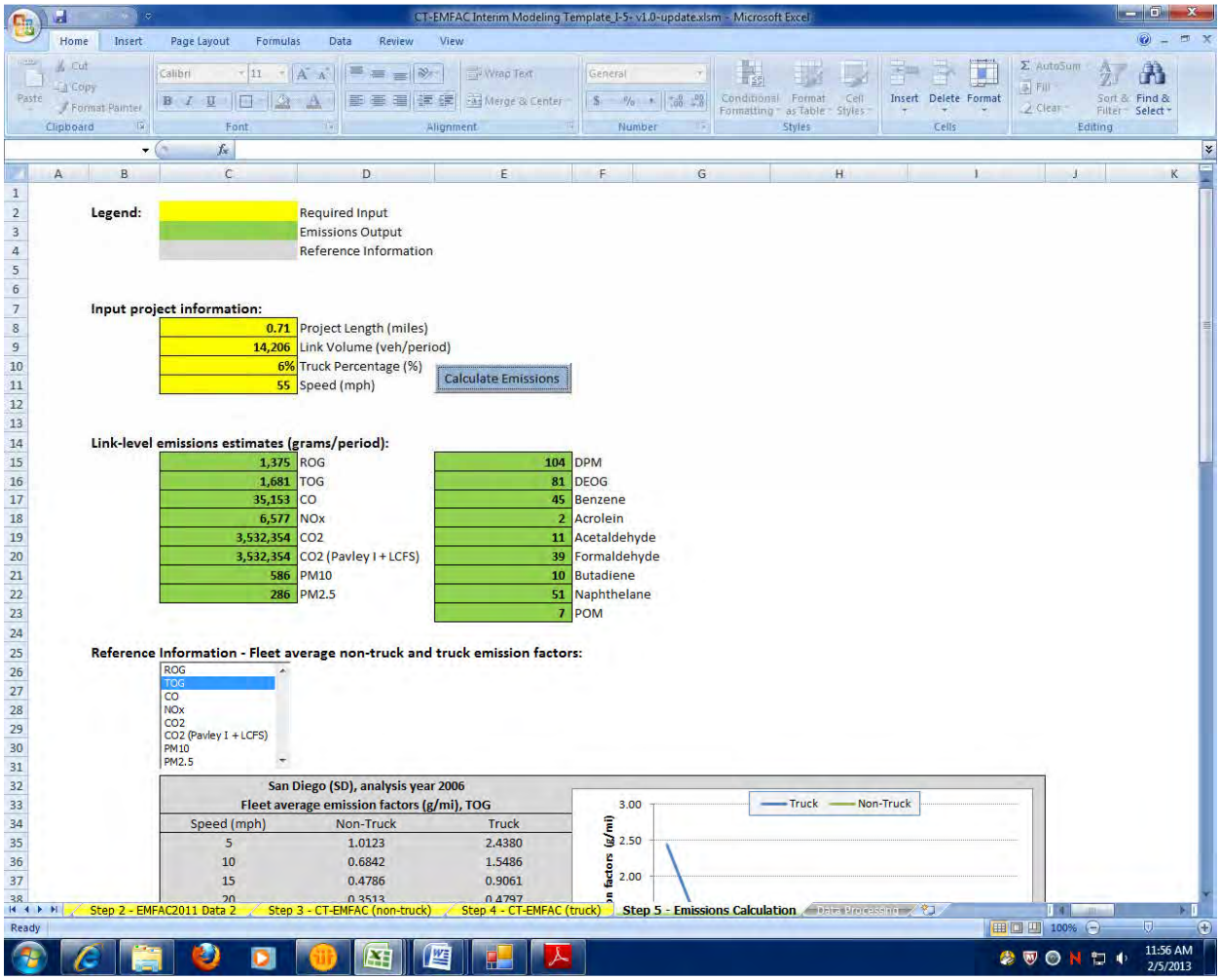
Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Existing 2006
Link: 3 (SB GP)
Segment: 20
Off Peak



Existing 2006
Link: 3 (SB GP)
Segment: 21
Peak



CT-EMFAC Interim Modeling Template_I-5- v1.0-update.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.71	Project Length (miles)
14,206	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,375	ROG	104	DPM
1,681	TOG	81	DEOG
35,153	CO	45	Benzene
6,577	NOx	2	Acrolein
3,532,354	CO2	11	Acetaldehyde
3,532,354	CO2 (Pavley I + LCFS)	39	Formaldehyde
586	PM10	10	Butadiene
286	PM2.5	51	Naphthelane
		7	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2006
Fleet average emission factors (g/mi), TOG

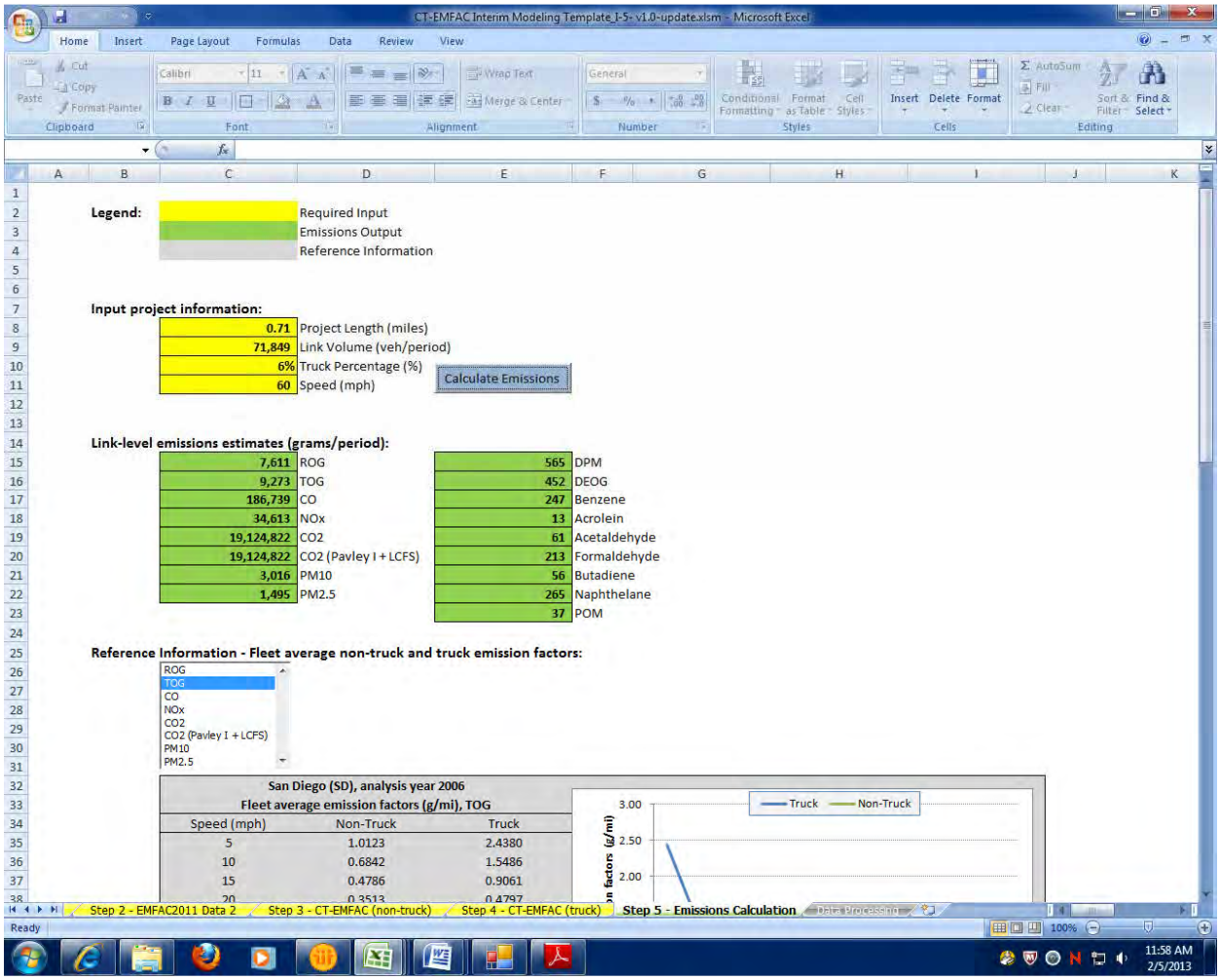
Speed (mph)	Non-Truck	Truck
5	1.0123	2.4380
10	0.6842	1.5486
15	0.4786	0.9061
20	0.3513	0.4797

Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation | Data Processing

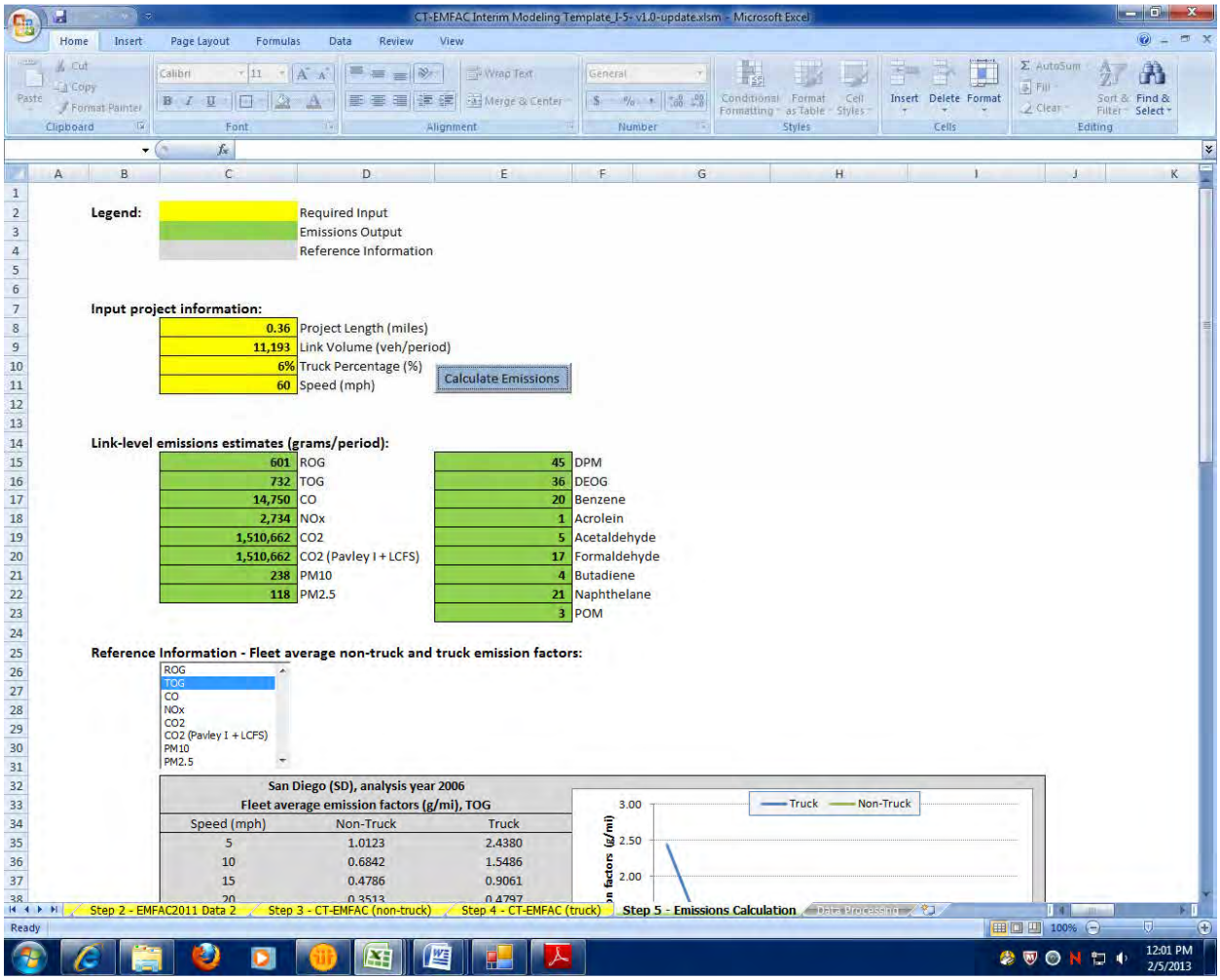
Ready 100%

11:56 AM 2/5/2013

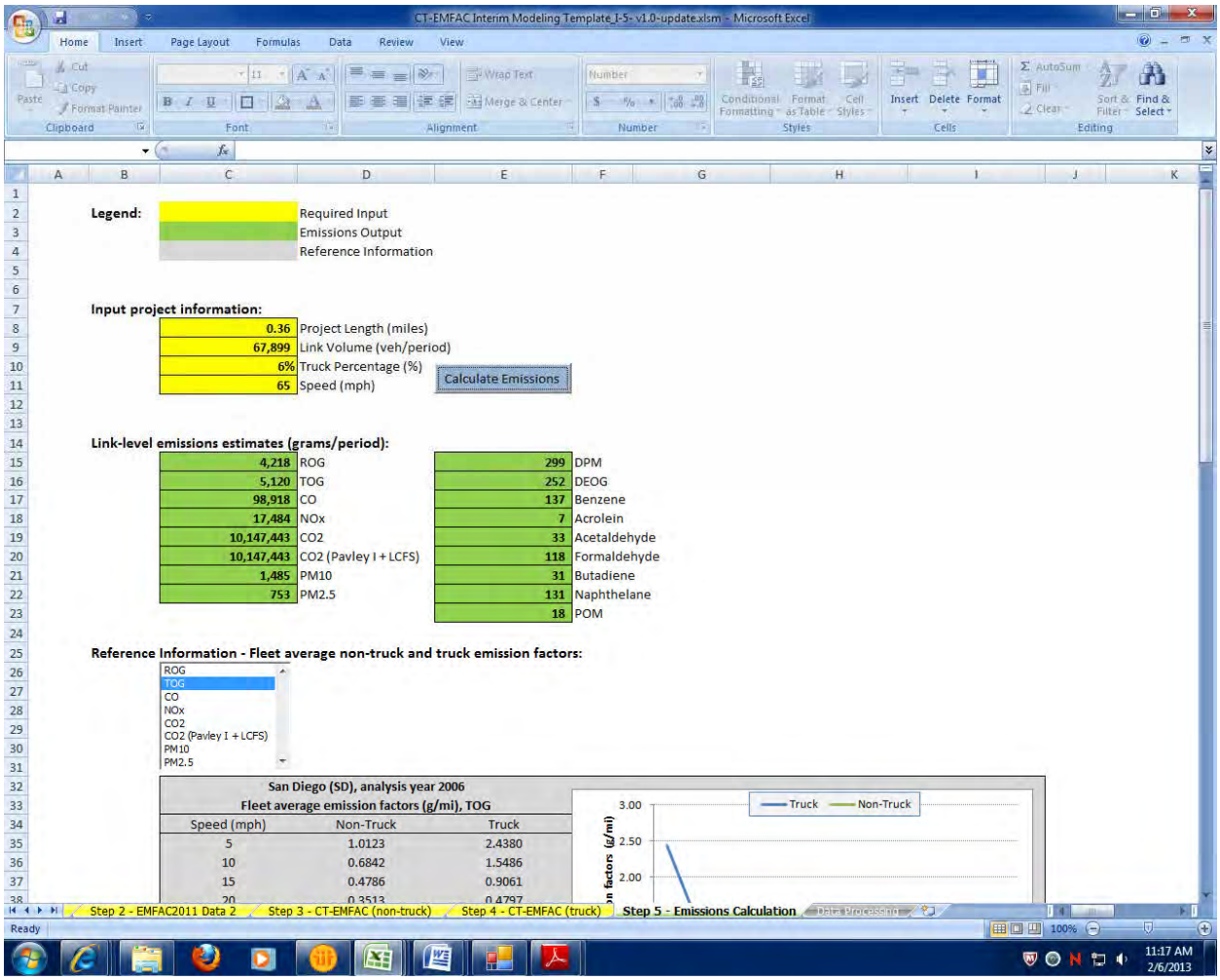
Existing 2006
Link: 3 (SB GP)
Segment: 21
Off Peak



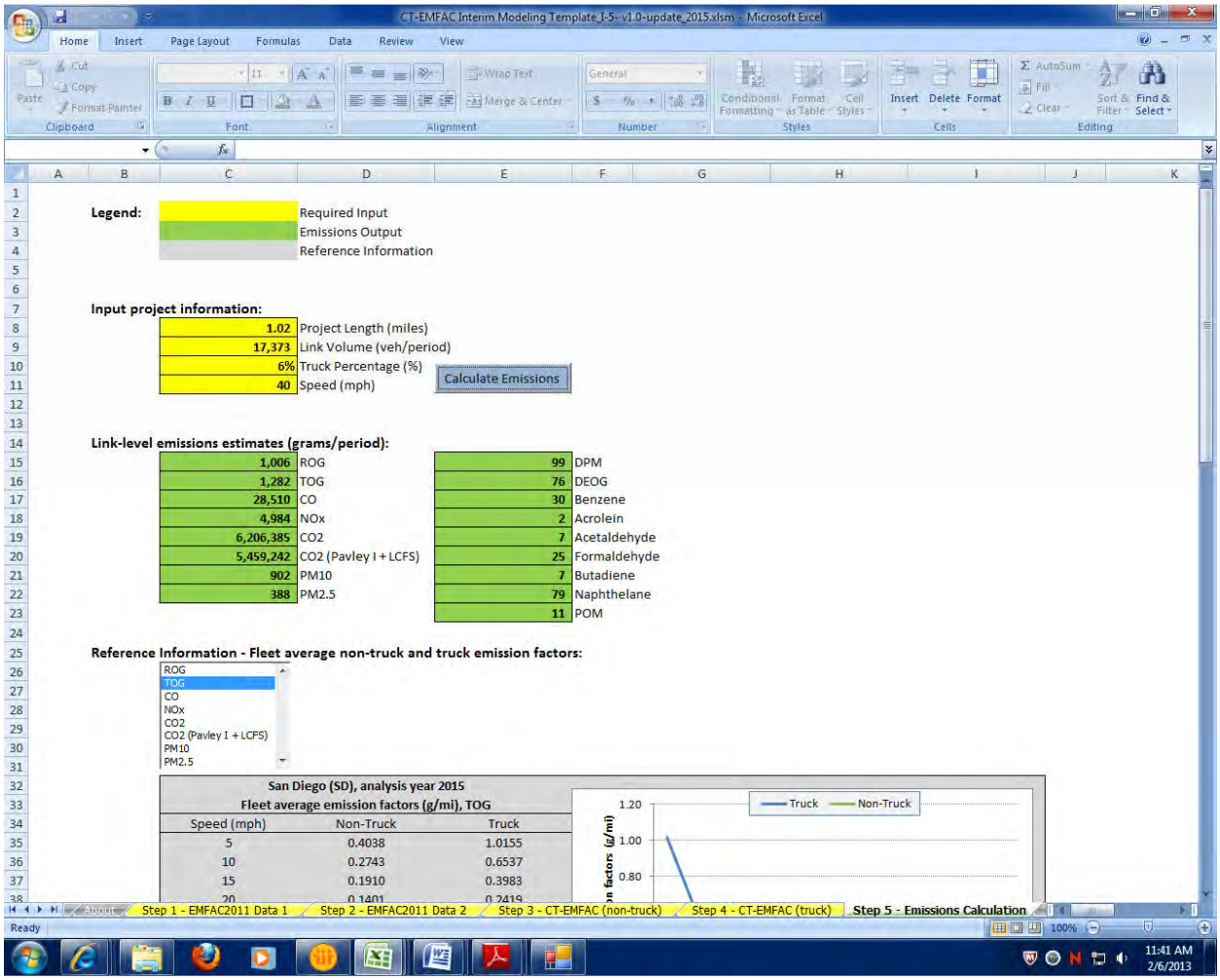
Existing 2006
Link: 3 (SB GP)
Segment: 22
Peak



Existing 2006
Link: 3 (SB GP)
Segment: 22
Off Peak



2015 No Build
Link: 1 (NB GP)
Segment: 1
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.02	Project Length (miles)
17,373	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,006	ROG	99	DPM
1,282	TOG	76	DEOG
28,510	CO	30	Benzene
4,984	NOx	2	Acrolein
6,206,385	CO2	7	Acetaldehyde
5,459,242	CO2 (Pavley I + LCFS)	25	Formaldehyde
902	PM10	7	Butadiene
388	PM2.5	79	Naphthelane
		11	POM

Reference Information - Fleet average non-truck and truck emission factors:

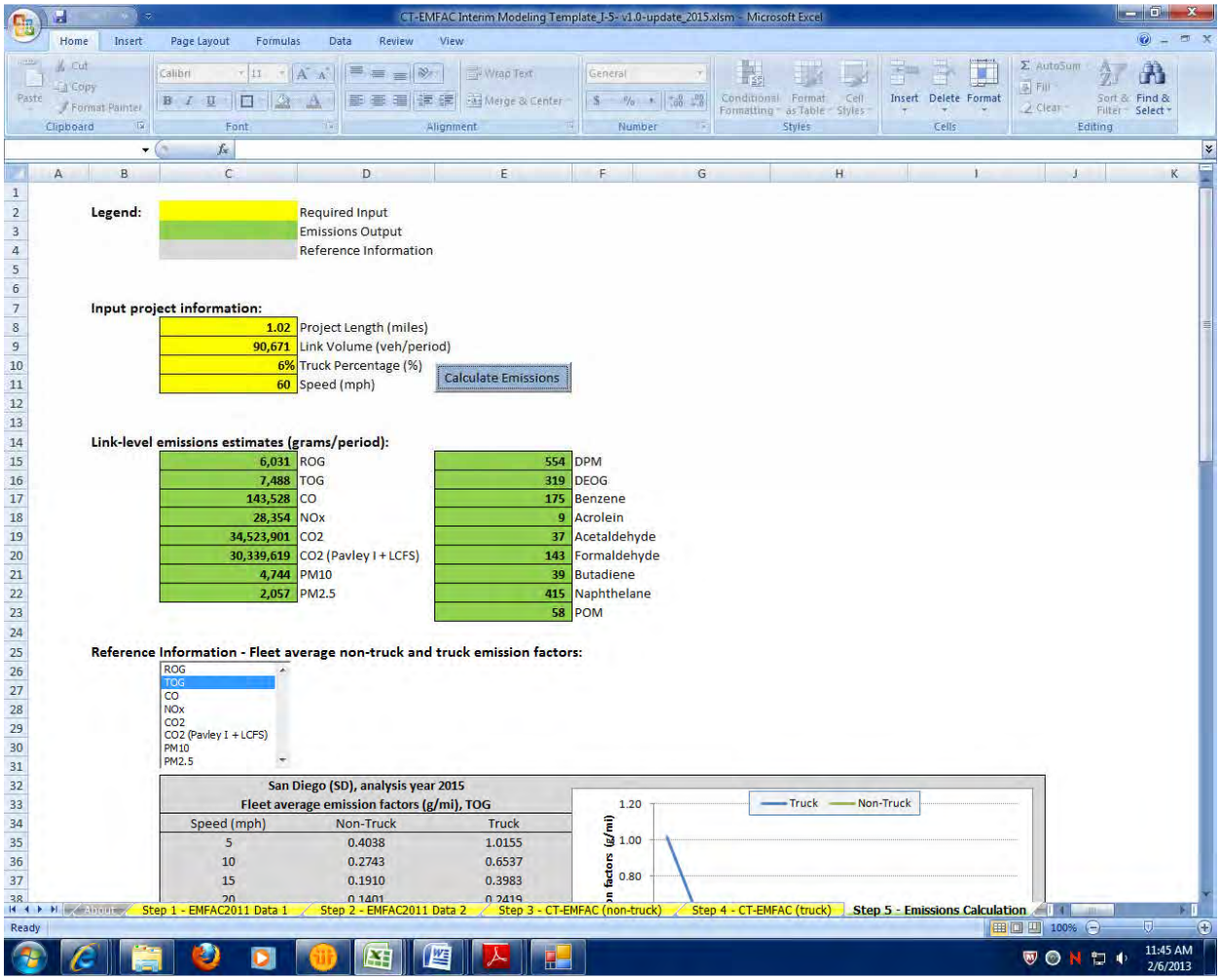
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 1 (NB GP)
Segment: 1
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.02	Project Length (miles)
90,671	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,031	ROG	554	DPM
7,488	TOG	319	DEOG
143,528	CO	175	Benzene
28,354	NOx	9	Acrolein
34,523,901	CO2	37	Acetaldehyde
30,339,619	CO2 (Pavley I + LCFS)	143	Formaldehyde
4,744	PM10	39	Butadiene
2,057	PM2.5	415	Naphthelane
		58	POM

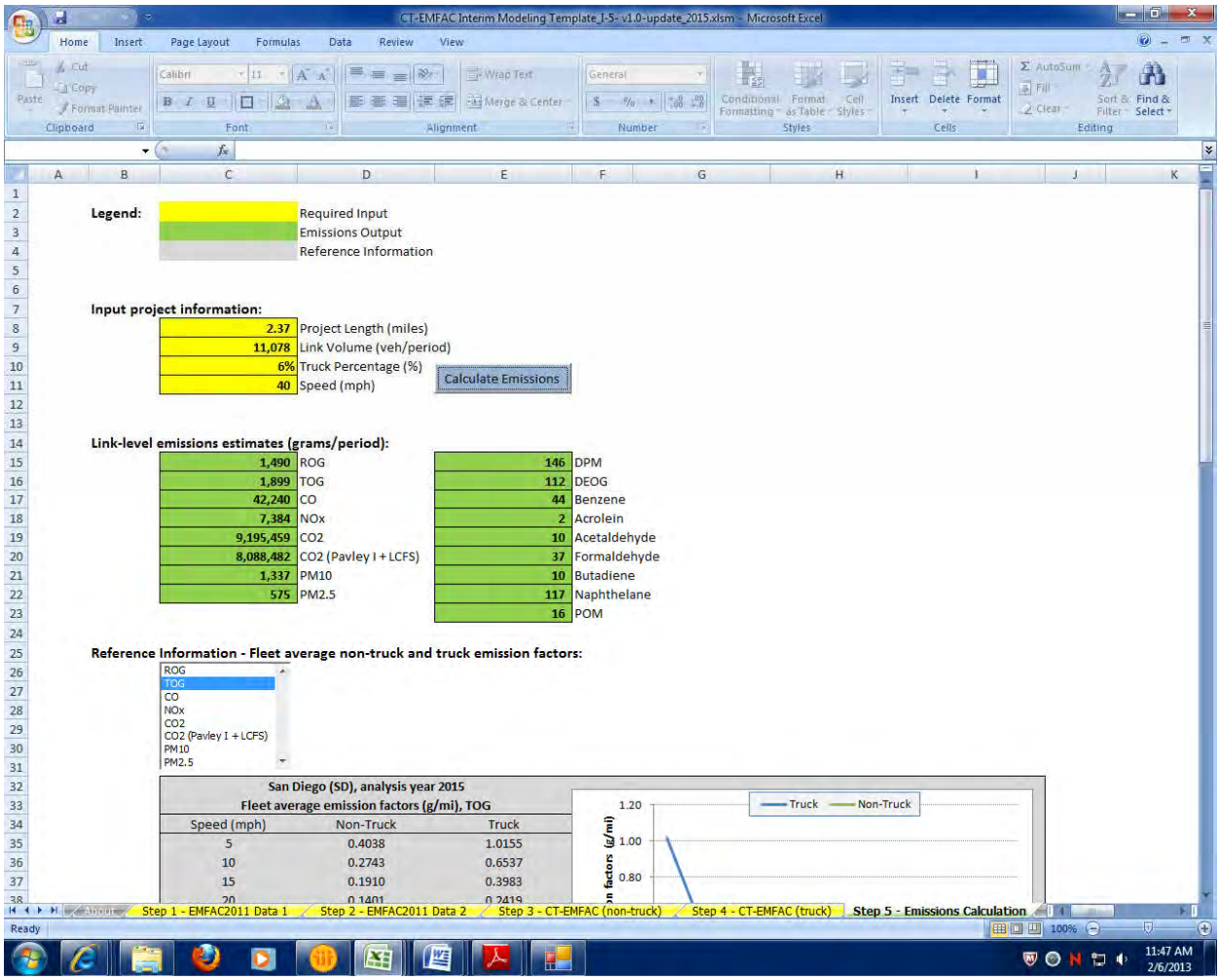
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

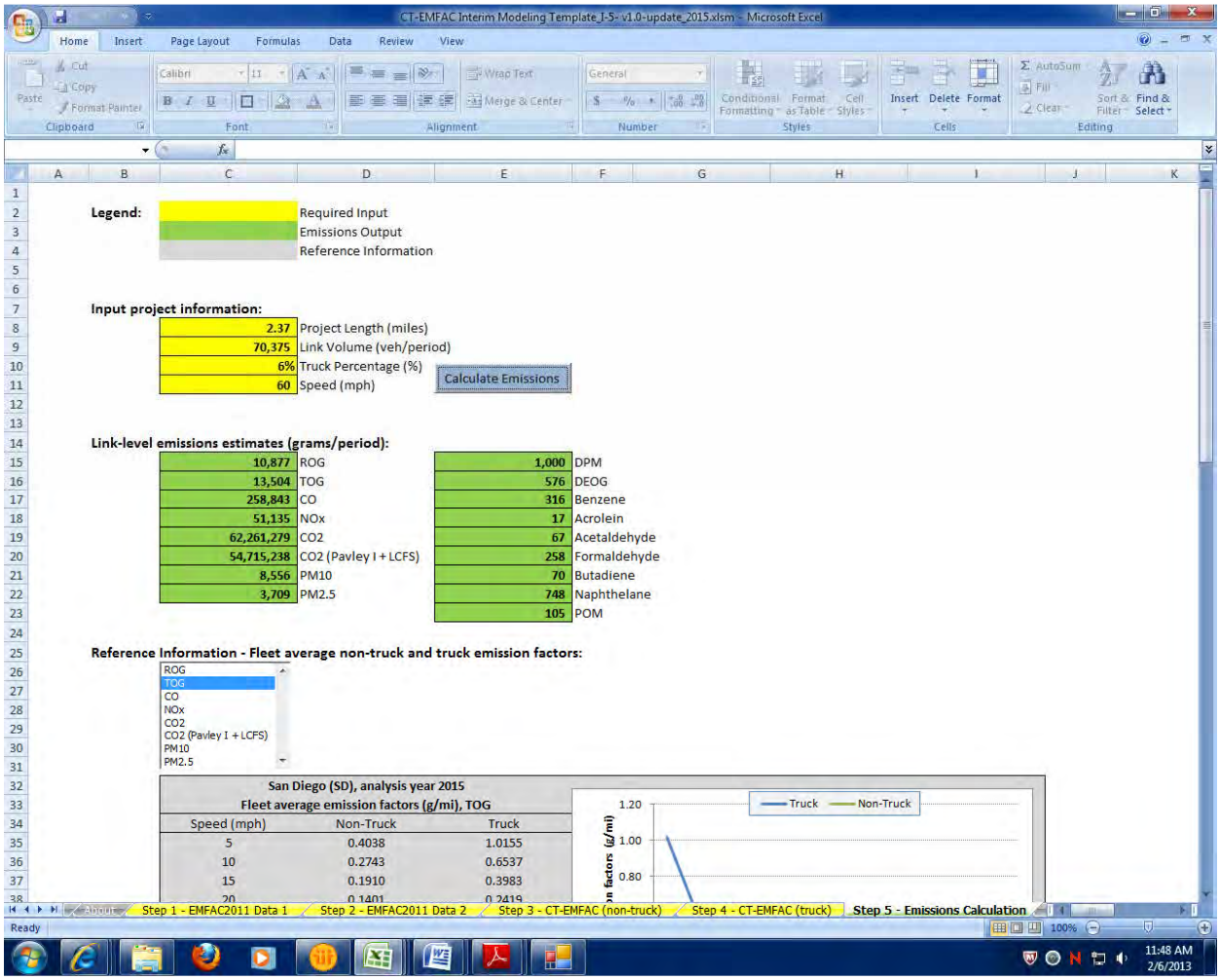
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 2
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.37	Project Length (miles)
70,375	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

10,877	ROG	1,000	DPM
13,504	TOG	576	DEOG
258,843	CO	316	Benzene
51,135	NOx	17	Acrolein
62,261,279	CO2	67	Acetaldehyde
54,715,238	CO2 (Pavley I + LCFS)	258	Formaldehyde
8,556	PM10	70	Butadiene
3,709	PM2.5	748	Naphthelane
		105	POM

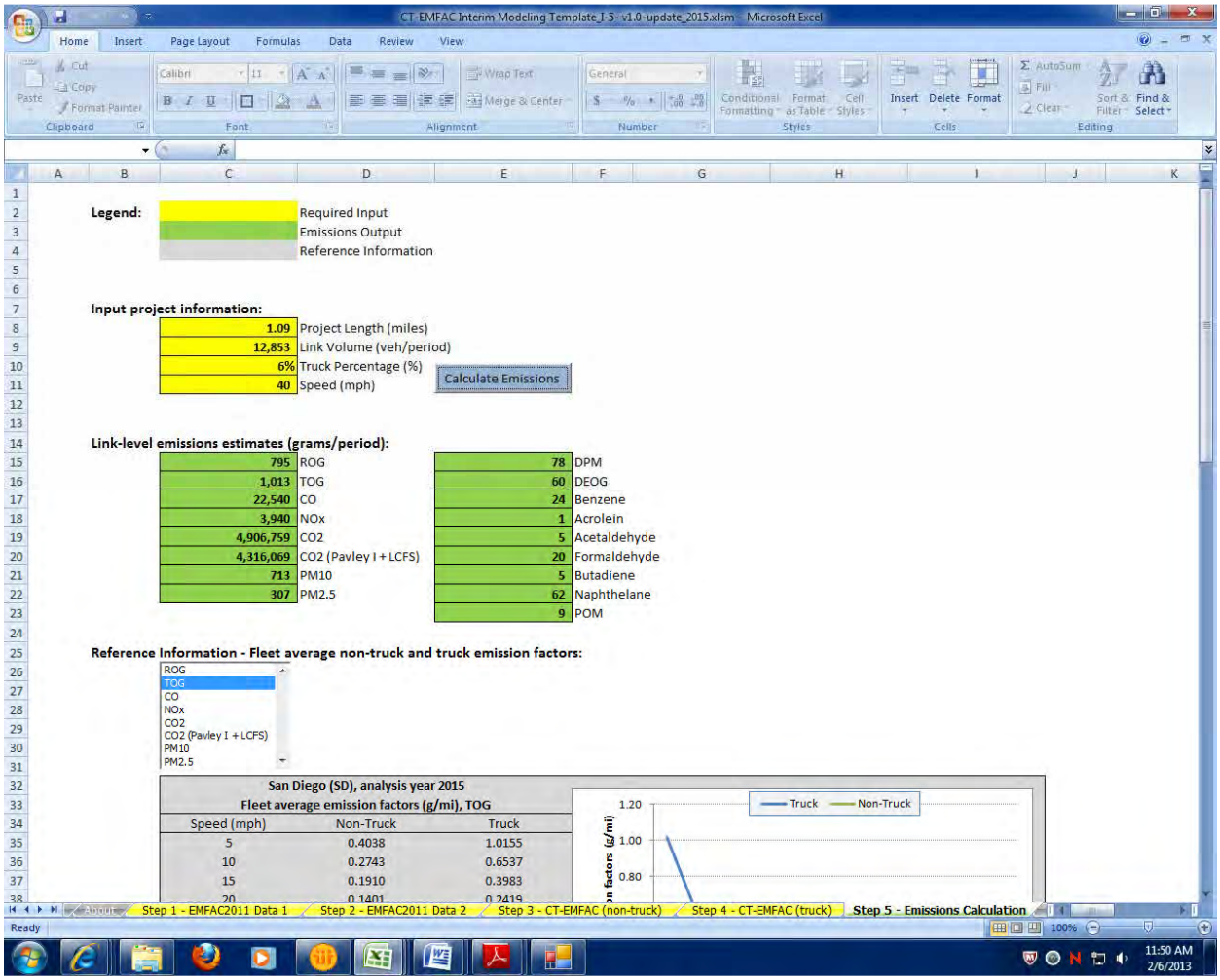
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 3
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
12,853	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

795	ROG	78	DPM
1,013	TOG	60	DEOG
22,540	CO	24	Benzene
3,940	NOx	1	Acrolein
4,906,759	CO2	5	Acetaldehyde
4,316,069	CO2 (Pavley I + LCFS)	20	Formaldehyde
713	PM10	5	Butadiene
307	PM2.5	62	Naphthelane
		9	POM

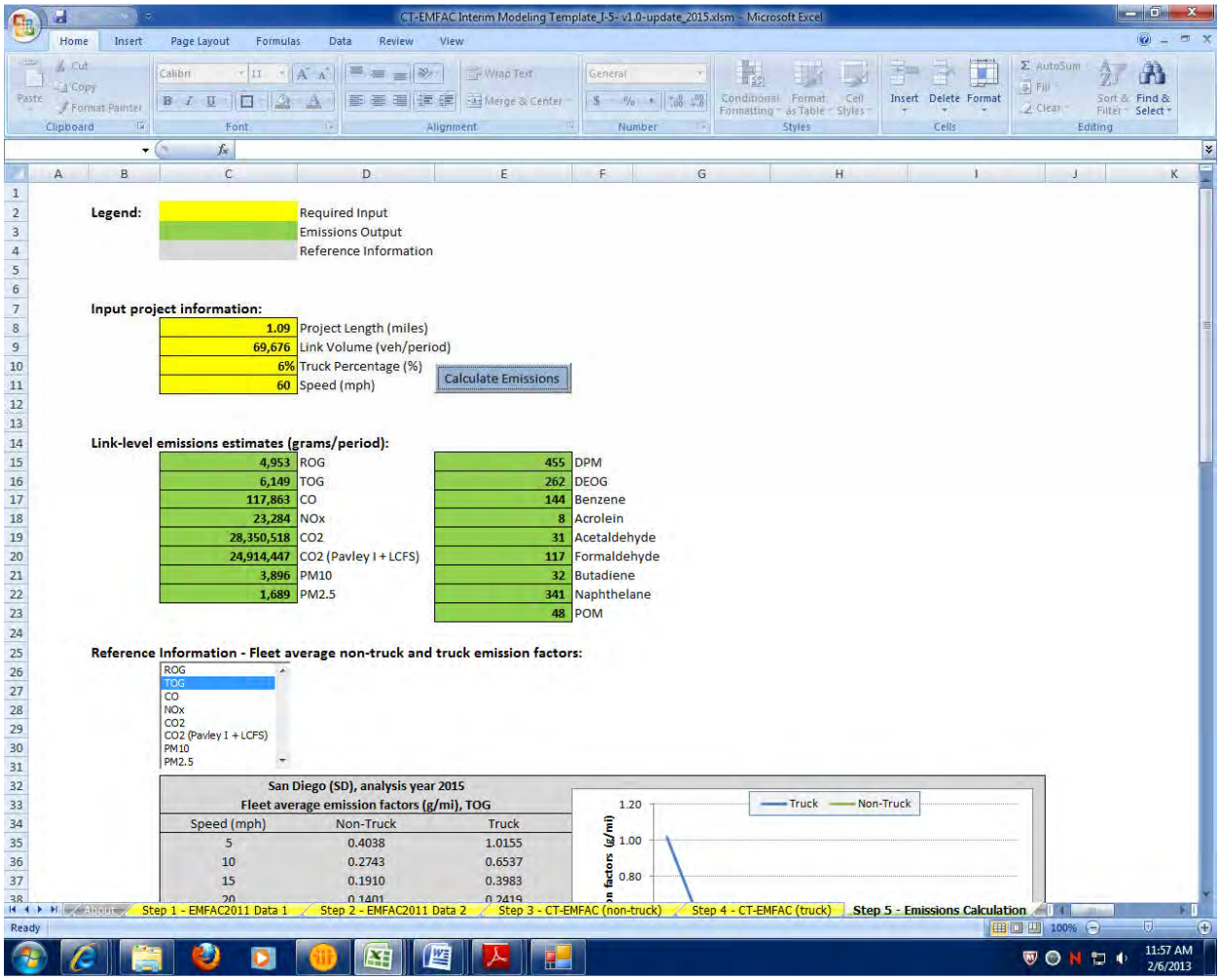
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 3
Off Peak



CT-EMFAC Interim Modeling Template_I-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
69,676	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,953	ROG	455	DPM
6,149	TOG	262	DEOG
117,863	CO	144	Benzene
23,284	NOx	8	Acrolein
28,350,518	CO2	31	Acetaldehyde
24,914,447	CO2 (Pavley I + LCFS)	117	Formaldehyde
3,896	PM10	32	Butadiene
1,689	PM2.5	341	Naphthelane
		48	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

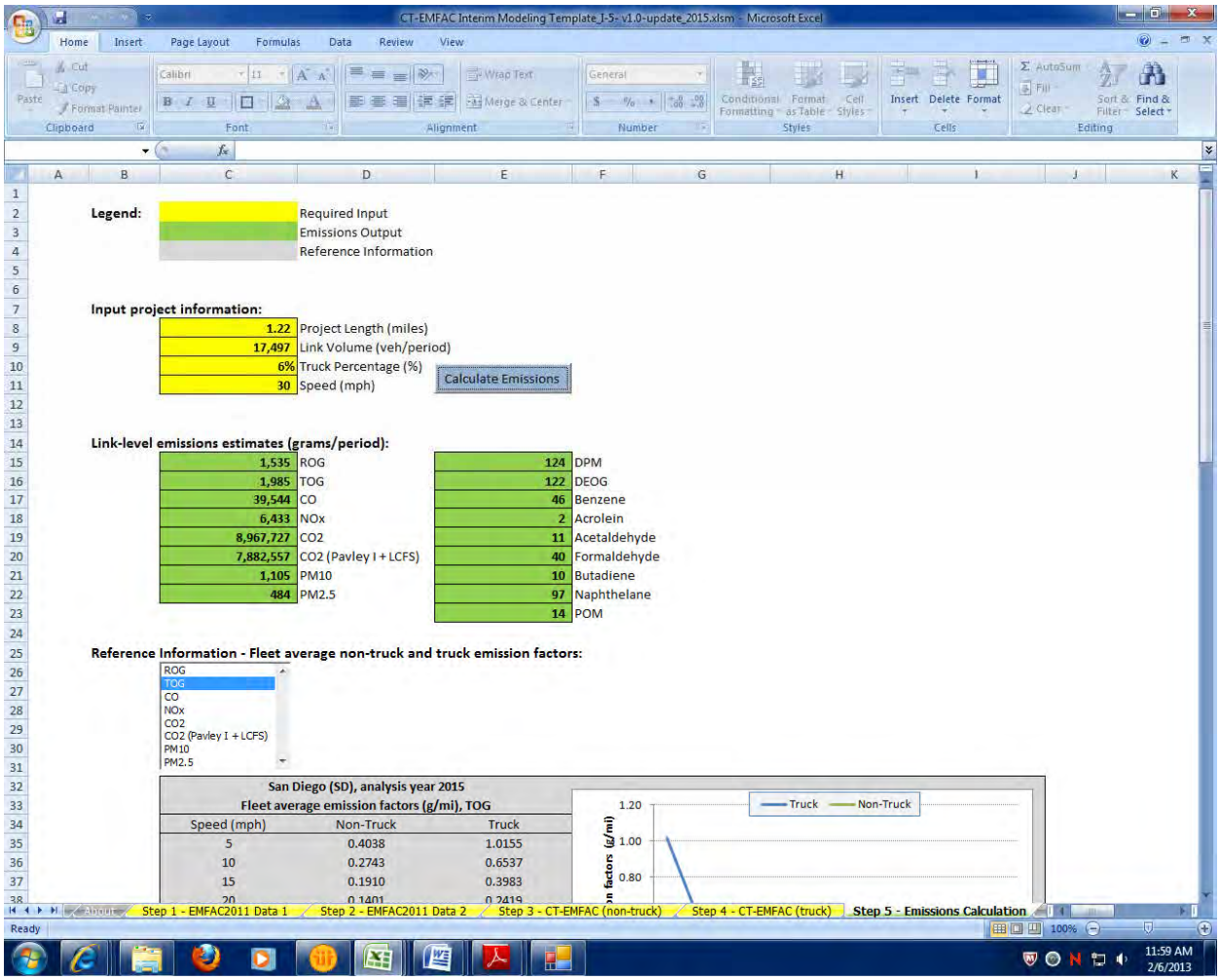
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

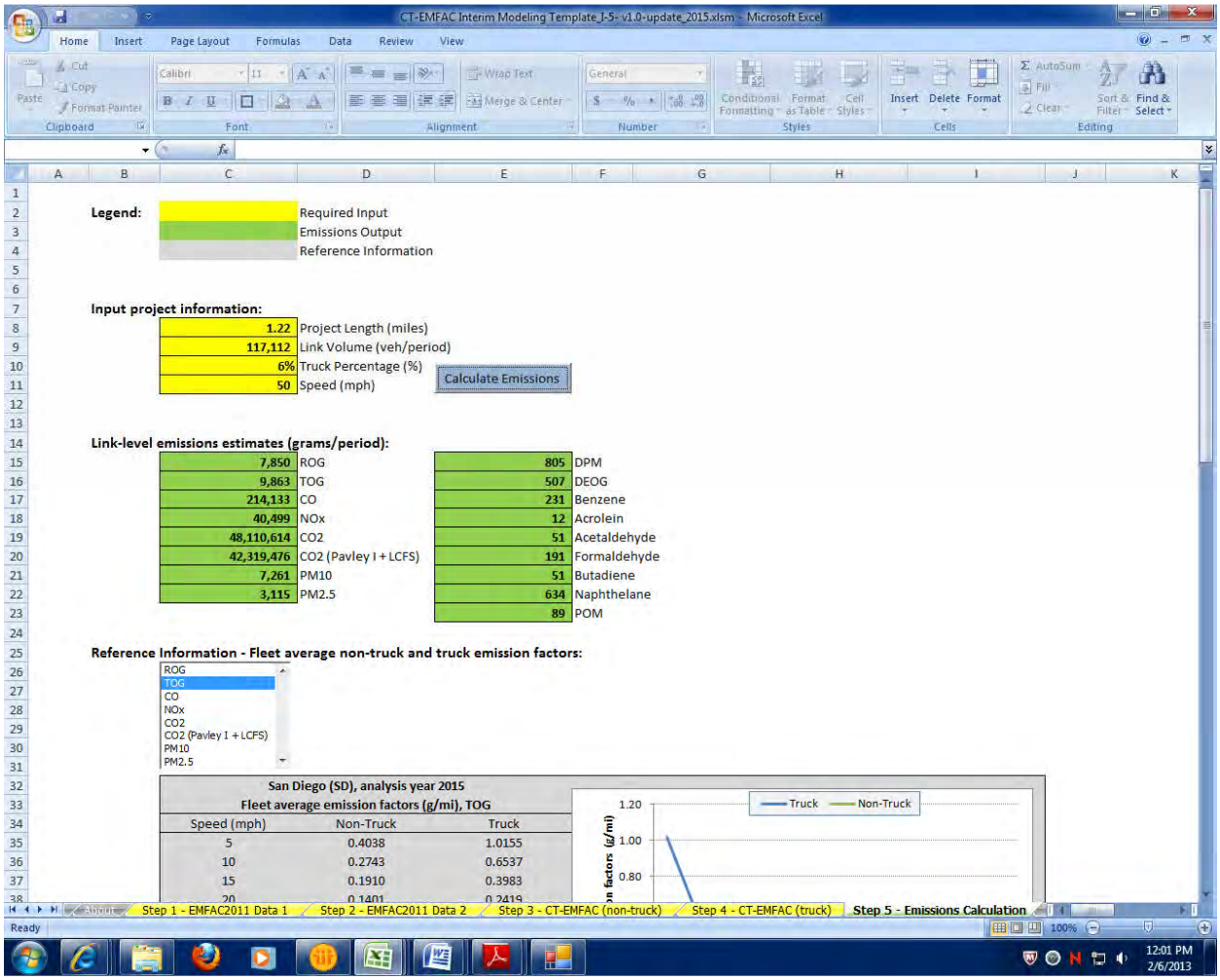
Ready 100%

11:57 AM
2/6/2013

2015 No Build
Link: 1 (NB GP)
Segment: 4
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 4
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.22	Project Length (miles)
117,112	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,850	ROG	805	DPM
9,863	TOG	507	DEOG
214,133	CO	231	Benzene
40,499	NOx	12	Acrolein
48,110,614	CO2	51	Acetaldehyde
42,319,476	CO2 (Pavley I + LCFS)	191	Formaldehyde
7,261	PM10	51	Butadiene
3,115	PM2.5	634	Naphthelane
		89	POM

Reference Information - Fleet average non-truck and truck emission factors:

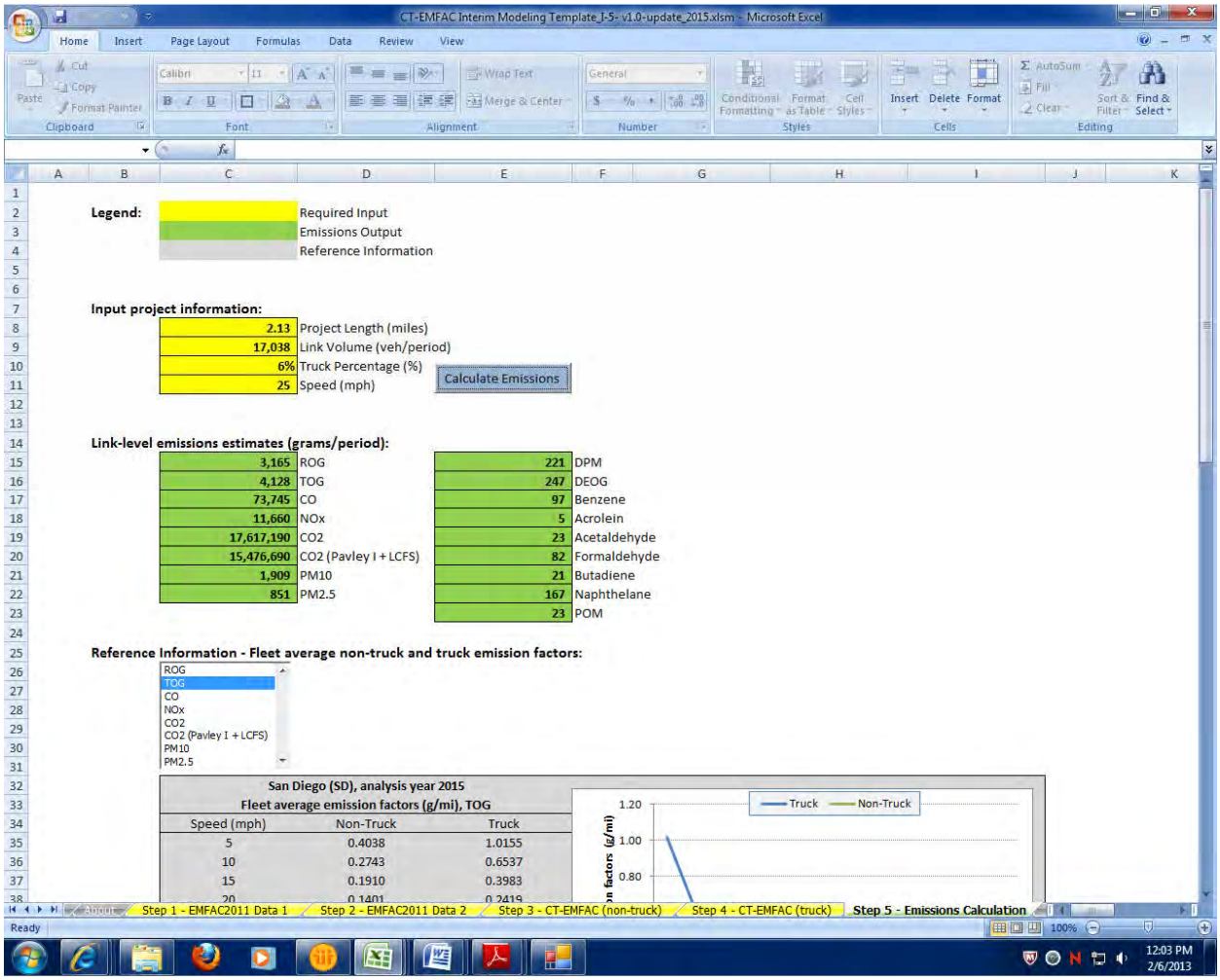
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

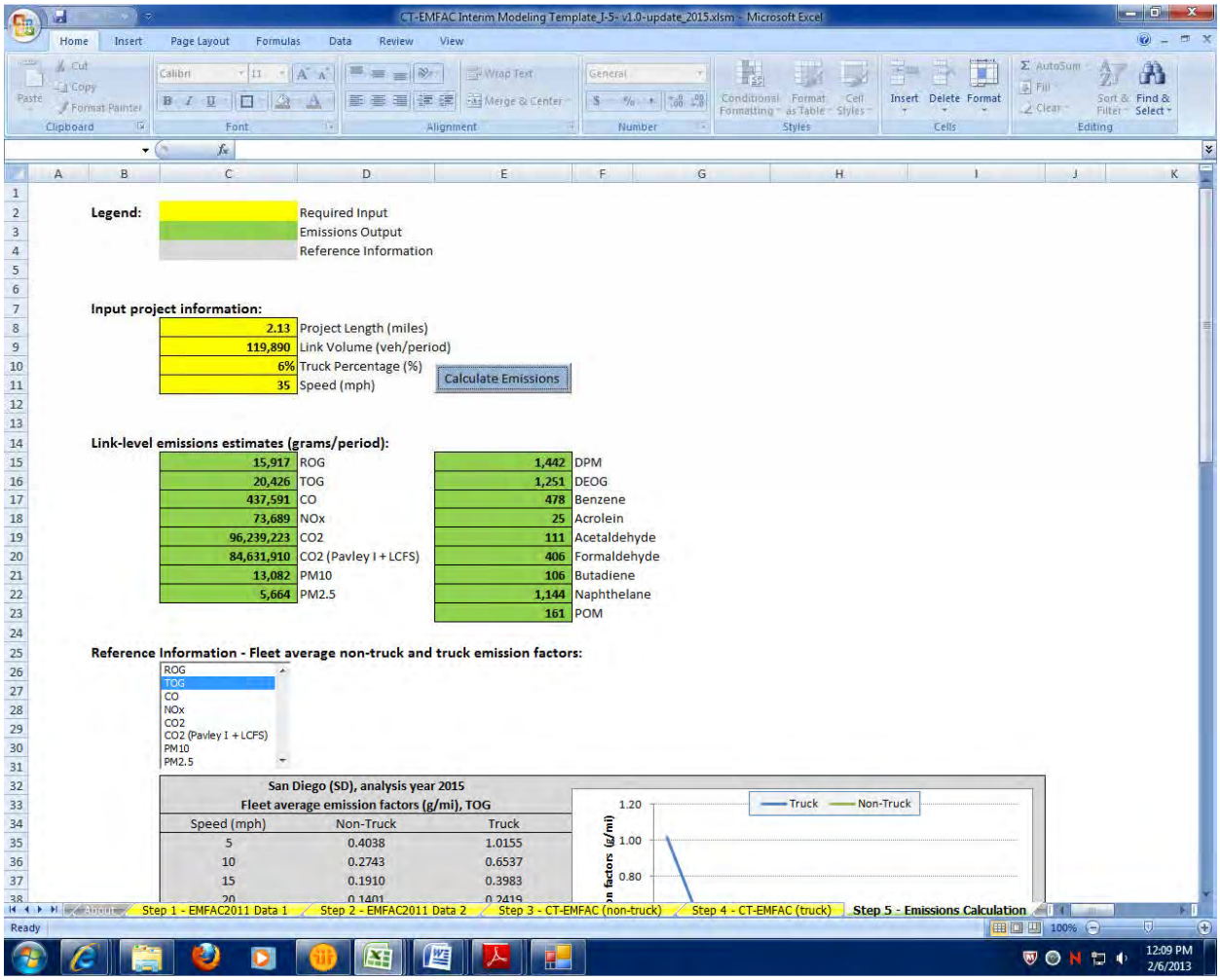
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 1 (NB GP)
Segment: 5
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 5
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.13	Project Length (miles)
119,890	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

15,917	ROG	1,442	DPM
20,426	TOG	1,251	DEOG
437,591	CO	478	Benzene
73,689	NOx	25	Acrolein
96,239,223	CO2	111	Acetaldehyde
84,631,910	CO2 (Pavley I + LCFS)	406	Formaldehyde
13,082	PM10	106	Butadiene
5,664	PM2.5	1,144	Naphthelane
		161	POM

Reference Information - Fleet average non-truck and truck emission factors:

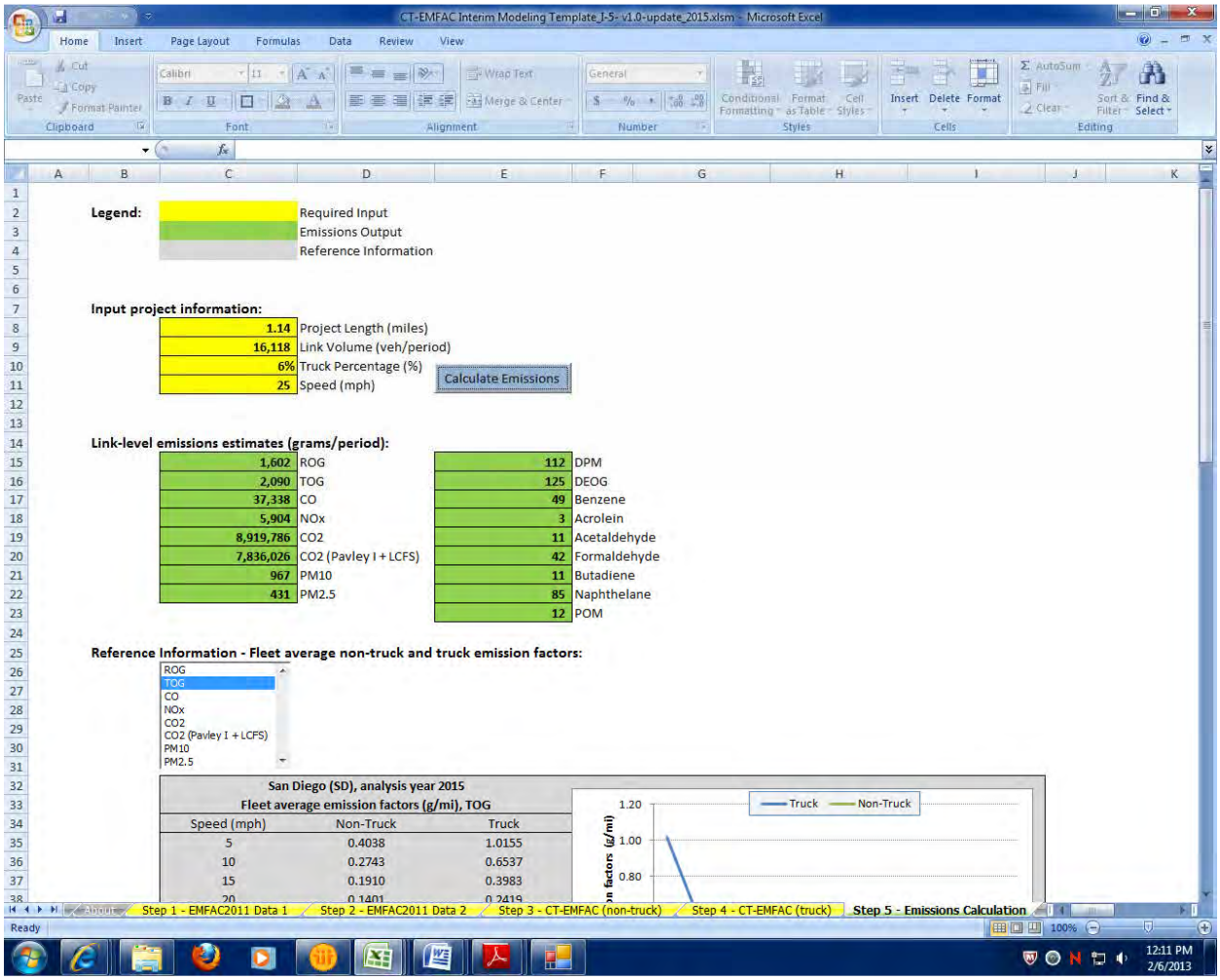
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 1 (NB GP)
Segment: 6
Peak



CT-EMFAC Interim Modeling Template_J-9- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.14	Project Length (miles)
16,118	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,602	ROG	112	DPM
2,090	TOG	125	DEOG
37,338	CO	49	Benzene
5,904	NOx	3	Acrolein
8,919,786	CO2	11	Acetaldehyde
7,836,026	CO2 (Pavley I + LCFS)	42	Formaldehyde
967	PM10	11	Butadiene
431	PM2.5	85	Naphthelane
		12	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

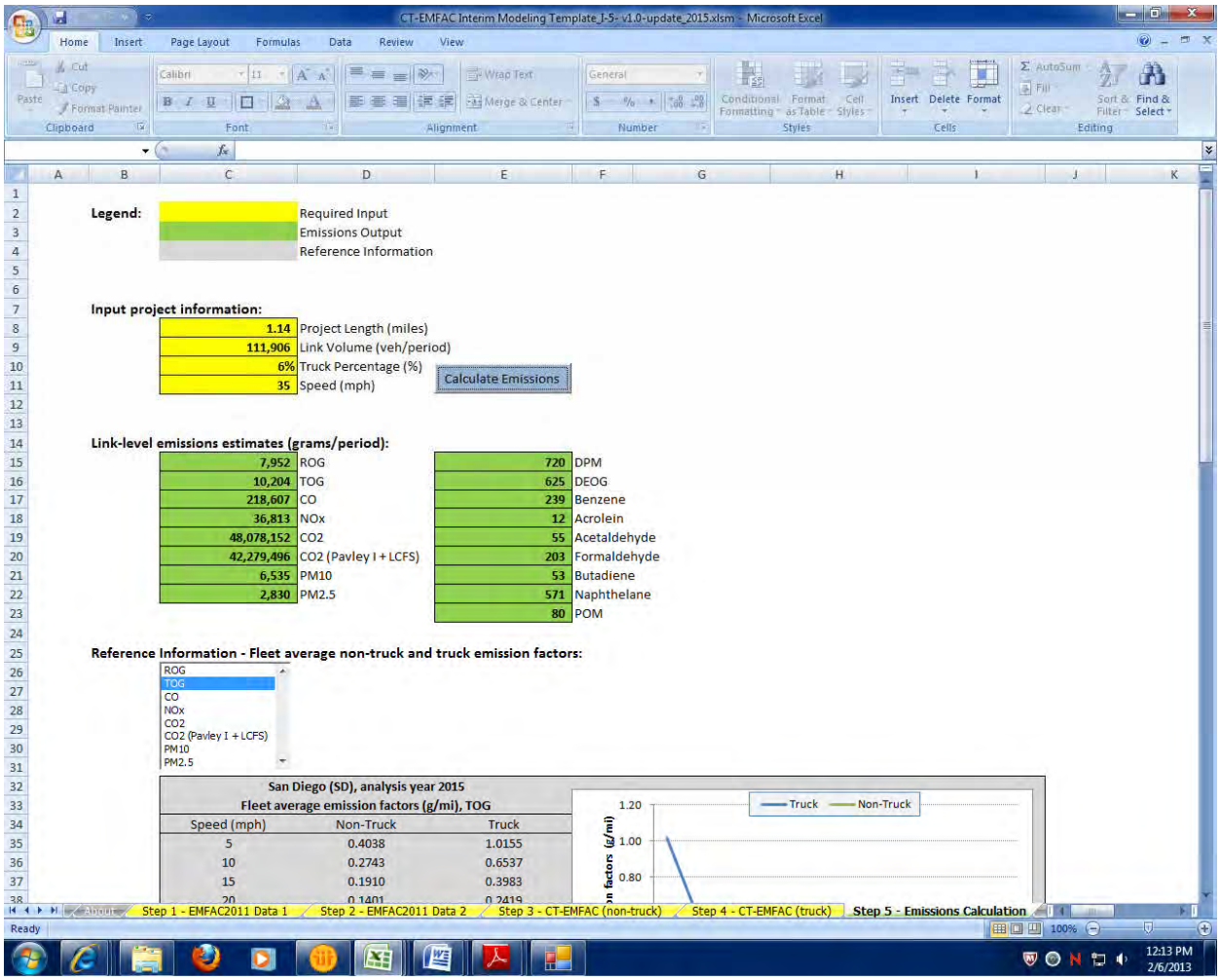
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100%

12:11 PM 2/6/2013

2015 No Build
Link: 1 (NB GP)
Segment: 6
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.14	Project Length (miles)
111,906	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,952	ROG	720	DPM
10,204	TOG	625	DEOG
218,607	CO	239	Benzene
36,813	NOx	12	Acrolein
48,078,152	CO2	55	Acetaldehyde
42,279,496	CO2 (Pavley I + LCFS)	203	Formaldehyde
6,535	PM10	53	Butadiene
2,830	PM2.5	571	Naphthelane
		80	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

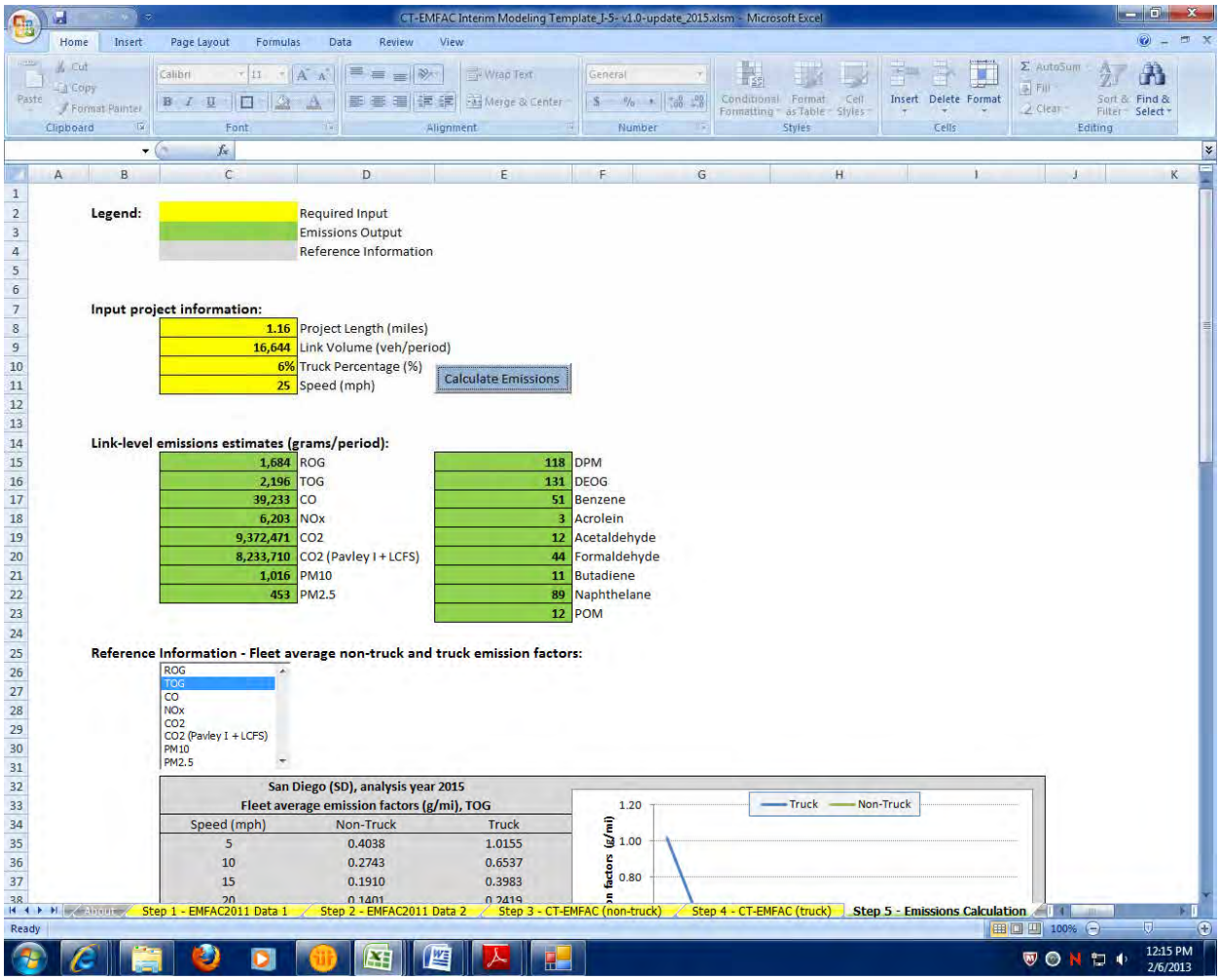
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100%

12:13 PM 2/6/2013

2015 No Build
Link: 1 (NB GP)
Segment: 7
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
16,644	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,684	ROG	118	DPM
2,196	TOG	131	DEOG
39,233	CO	51	Benzene
6,203	NOx	3	Acrolein
9,372,471	CO2	12	Acetaldehyde
8,233,710	CO2 (Pavley I + LCFS)	44	Formaldehyde
1,016	PM10	11	Butadiene
453	PM2.5	89	Naphthelane
		12	POM

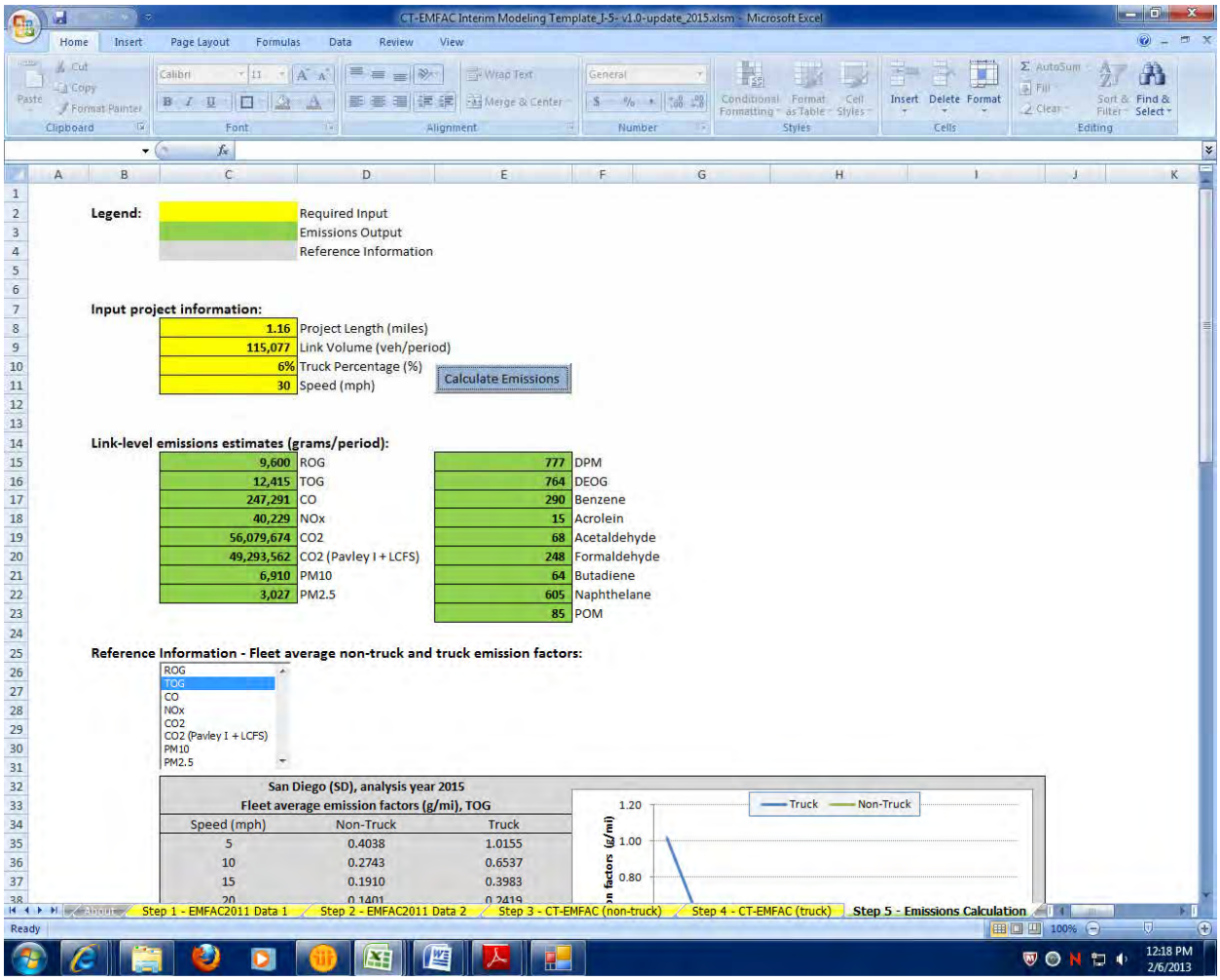
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 7
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
115,077	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

9,600	ROG	777	DPM
12,415	TOG	764	DEOG
247,291	CO	290	Benzene
40,229	NOx	15	Acrolein
56,079,674	CO2	68	Acetaldehyde
49,293,562	CO2 (Pavley I + LCFS)	248	Formaldehyde
6,910	PM10	64	Butadiene
3,027	PM2.5	605	Naphthelane
		85	POM

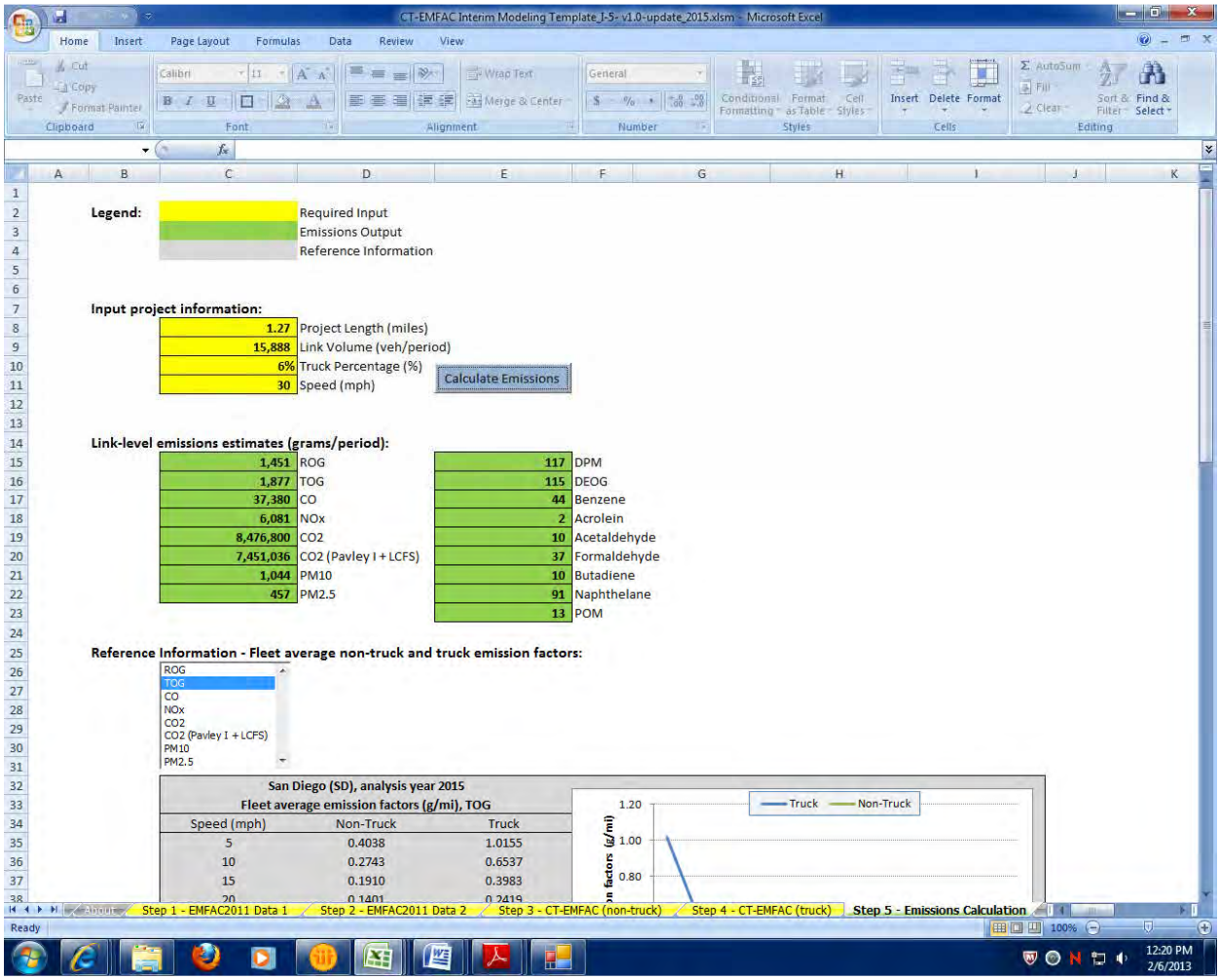
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 8
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.27	Project Length (miles)
15,888	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,451	ROG	117	DPM
1,877	TOG	115	DEOG
37,380	CO	44	Benzene
6,081	NOx	2	Acrolein
8,476,800	CO2	10	Acetaldehyde
7,451,036	CO2 (Pavley I + LCFS)	37	Formaldehyde
1,044	PM10	10	Butadiene
457	PM2.5	91	Naphthelane
		13	POM

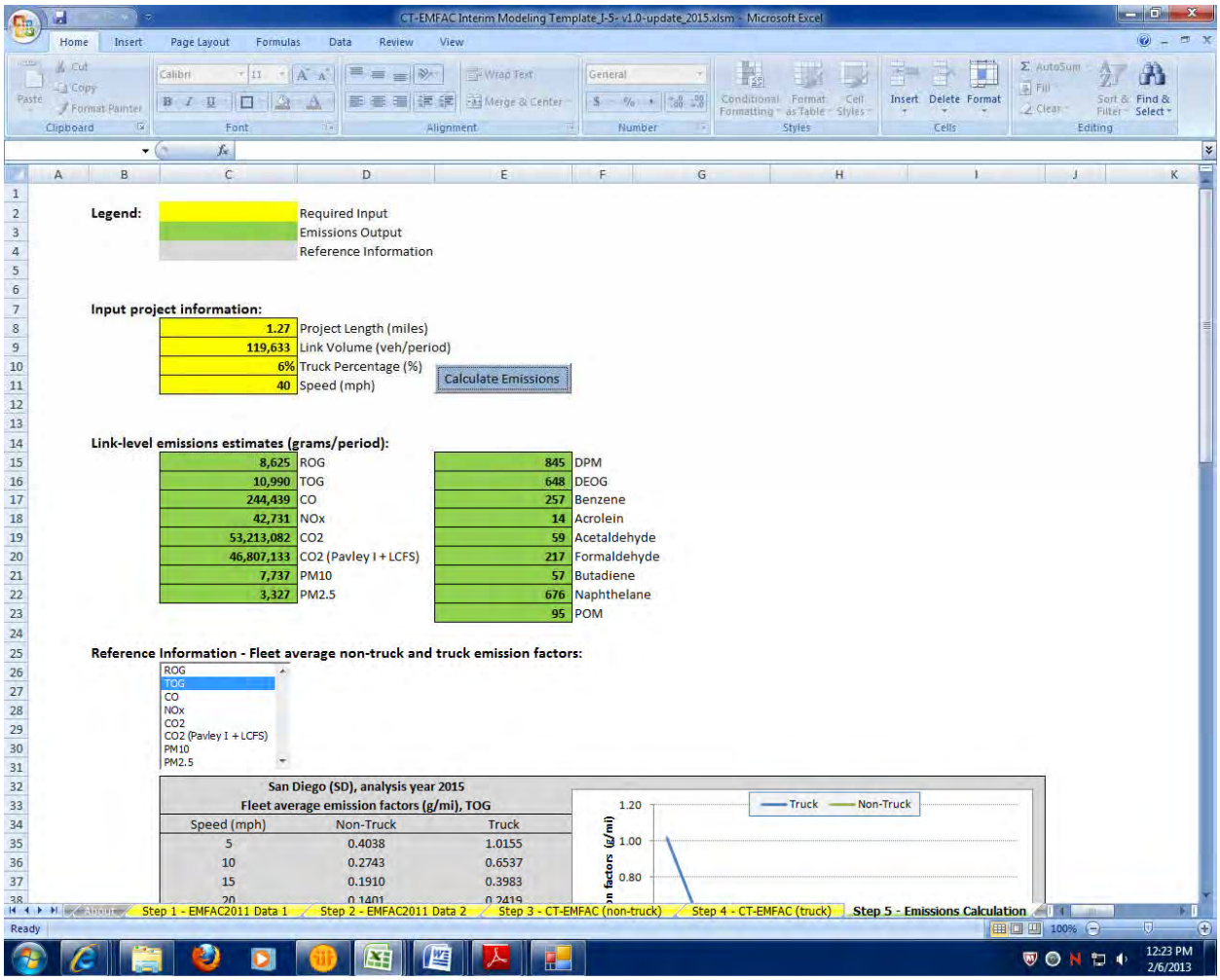
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

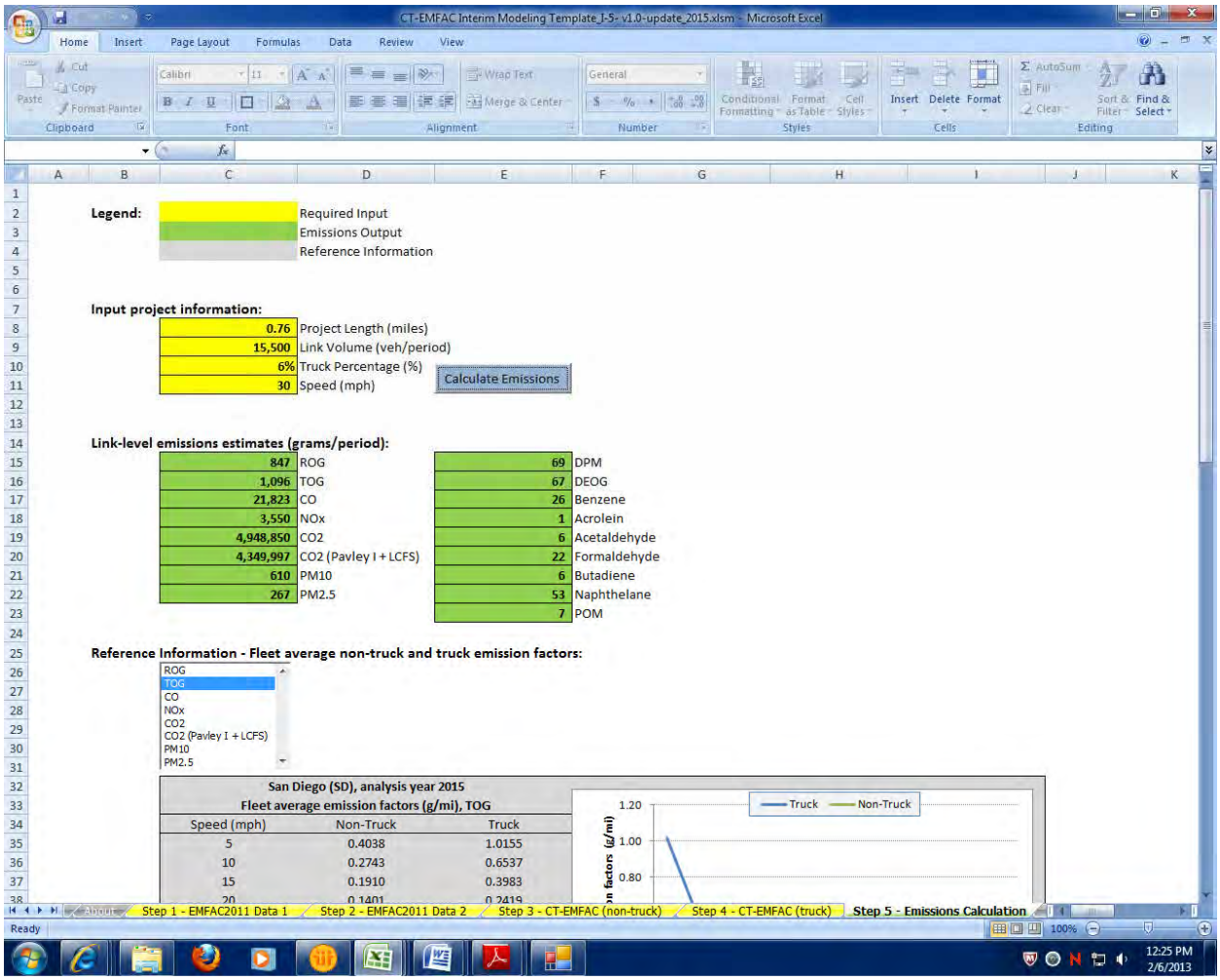
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

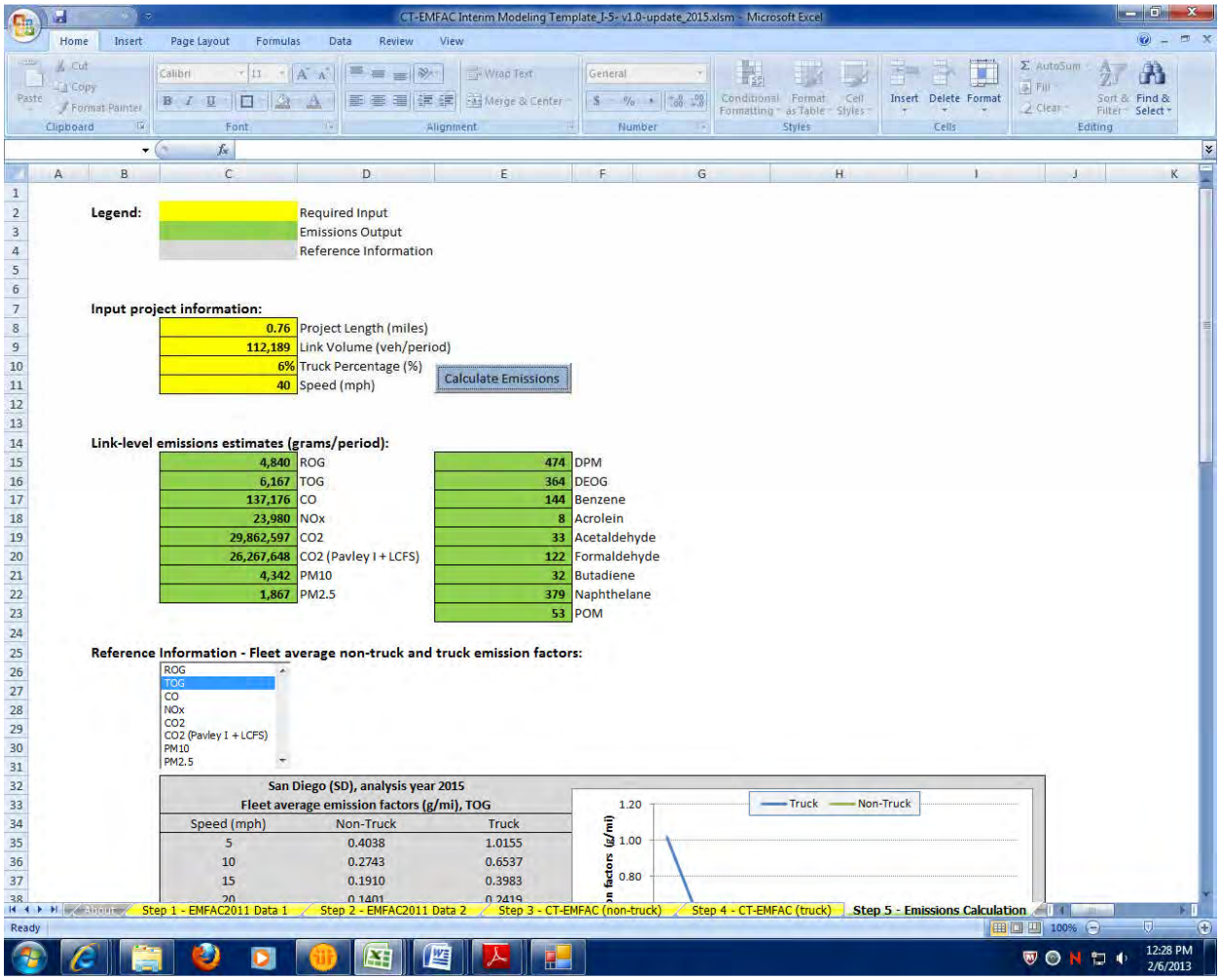
2015 No Build
Link: 1 (NB GP)
Segment: 8
Off Peak



2015 No Build
Link: 1 (NB GP)
Segment: 9
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 9
Off Peak



CT-EMFAC Interim Modeling Template_J-9- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.76	Project Length (miles)
112,189	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,840	ROG	474	DPM
6,167	TOG	364	DEOG
137,176	CO	144	Benzene
23,980	NOx	8	Acrolein
29,862,597	CO2	33	Acetaldehyde
26,267,648	CO2 (Pavley I + LCFS)	122	Formaldehyde
4,342	PM10	32	Butadiene
1,867	PM2.5	379	Naphthelane
		53	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

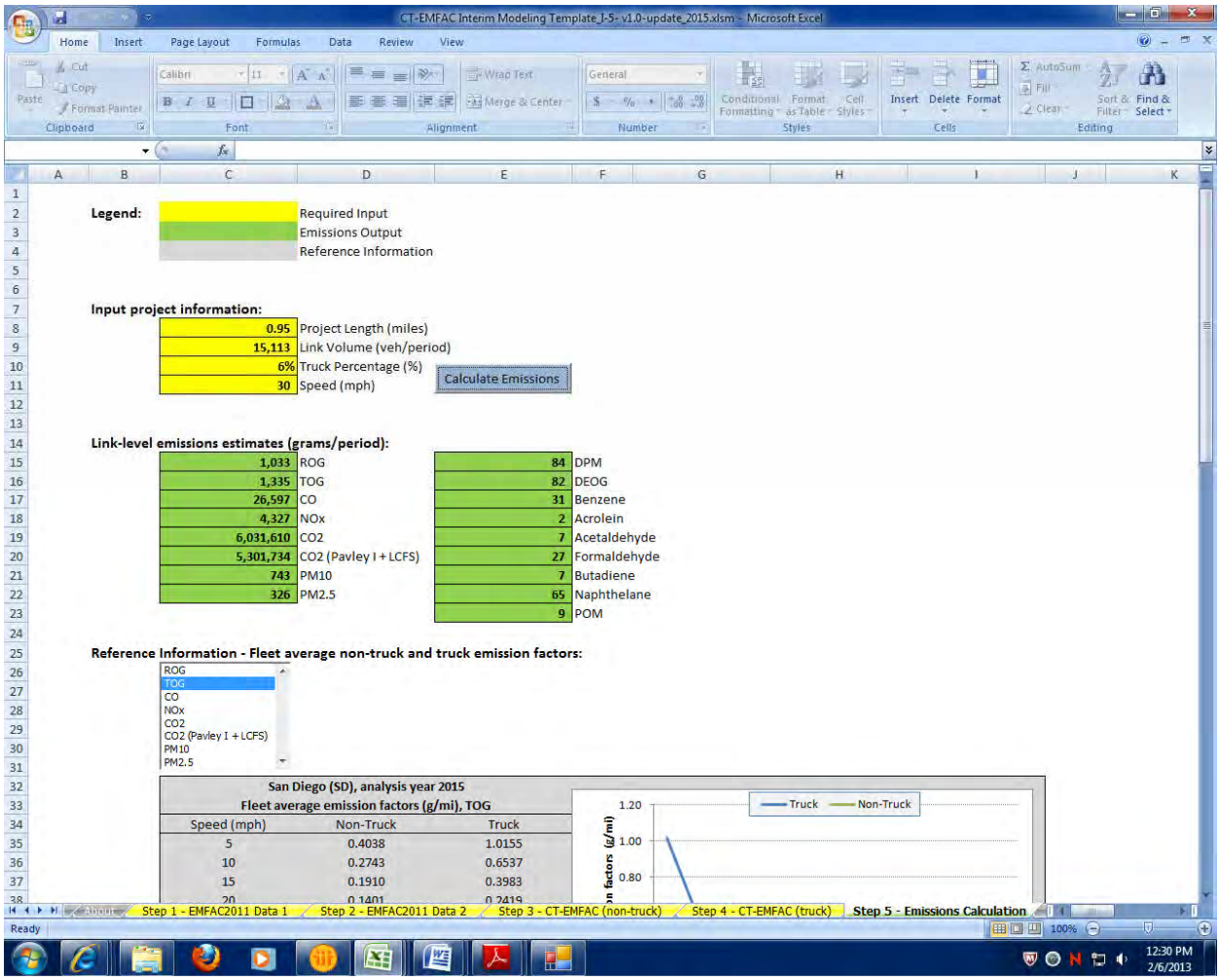
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

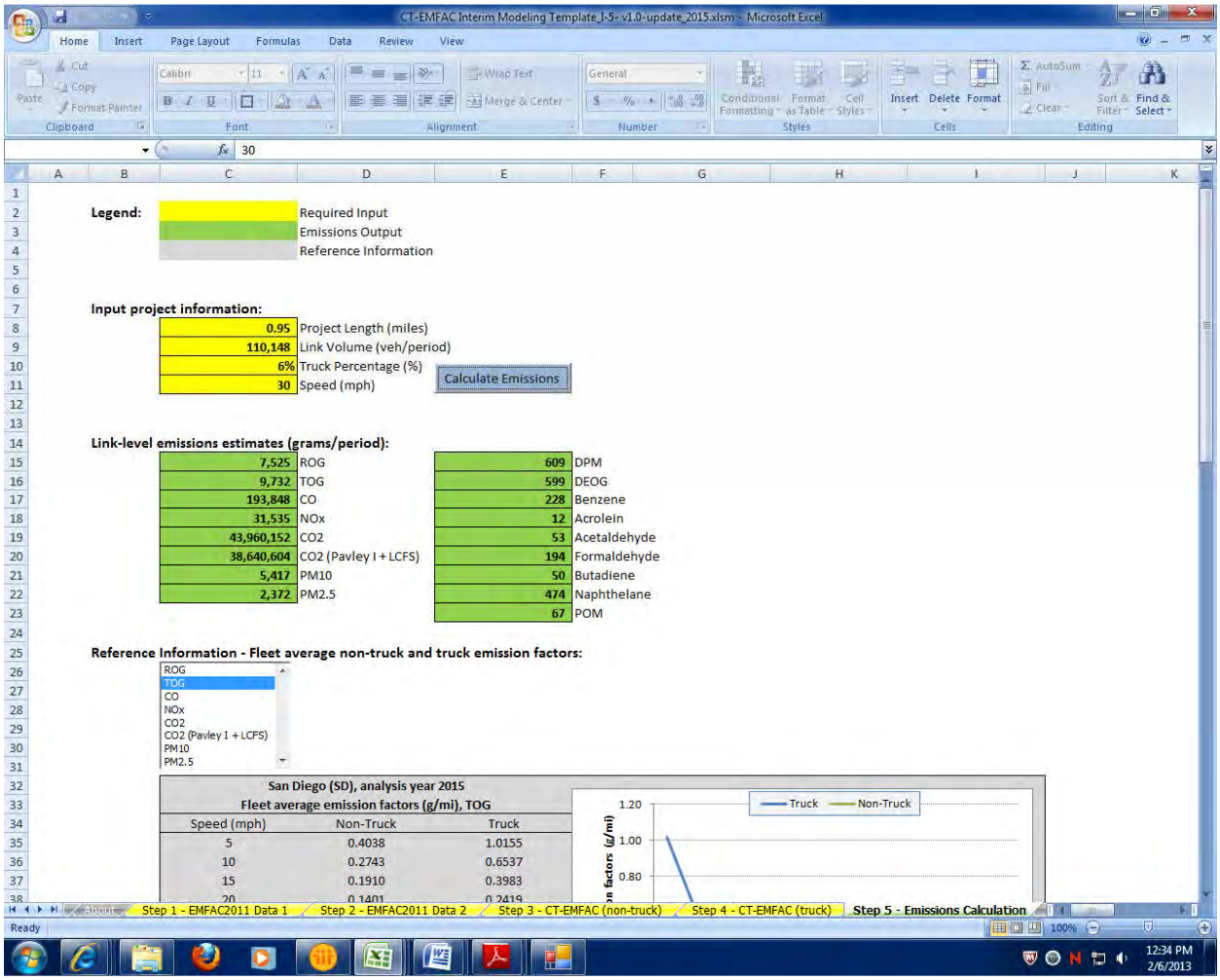
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready

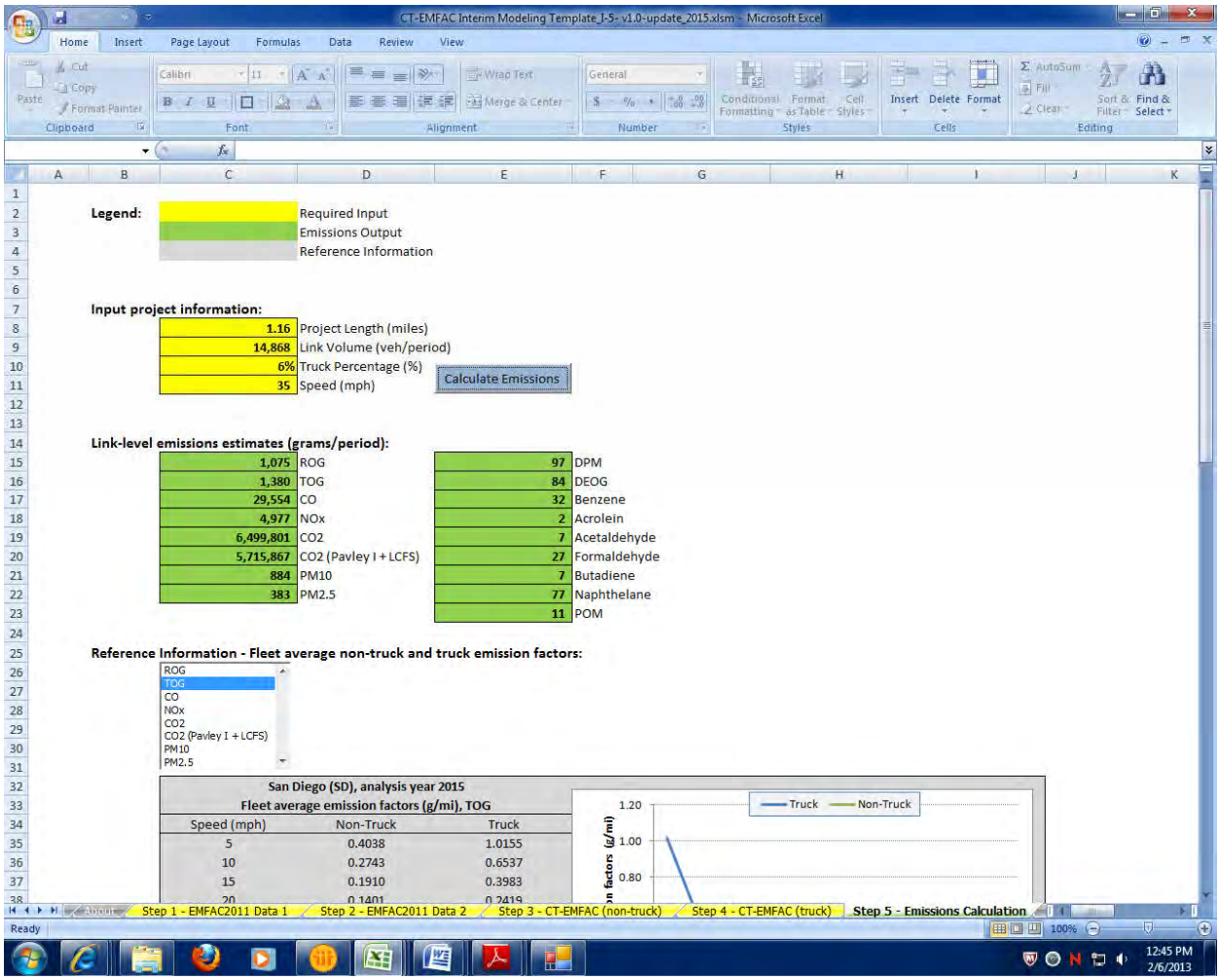
2015 No Build
Link: 1 (NB GP)
Segment: 10
Peak



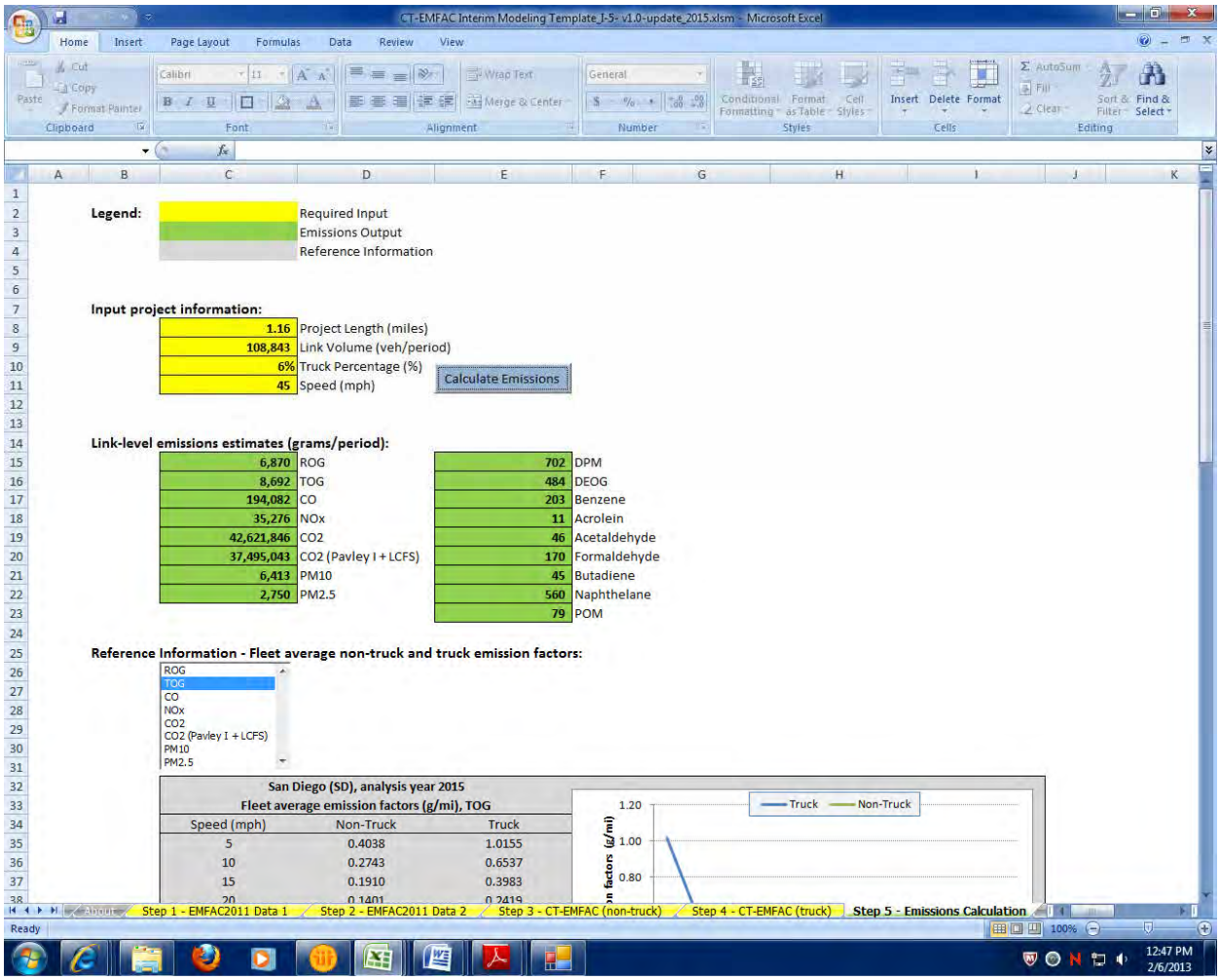
2015 No Build
Link: 1 (NB GP)
Segment: 10
Off Peak



2015 No Build
Link: 1 (NB GP)
Segment: 11
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 11
Off Peak



CT-EMFAC Interim Modeling Template_J-5+ v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
108,843	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,870	ROG	702	DPM
8,692	TOG	484	DEOG
194,082	CO	203	Benzene
35,276	NOx	11	Acrolein
42,621,846	CO2	46	Acetaldehyde
37,495,043	CO2 (Pavley I + LCFS)	170	Formaldehyde
6,413	PM10	45	Butadiene
2,750	PM2.5	560	Naphthelane
		79	POM

Reference Information - Fleet average non-truck and truck emission factors:

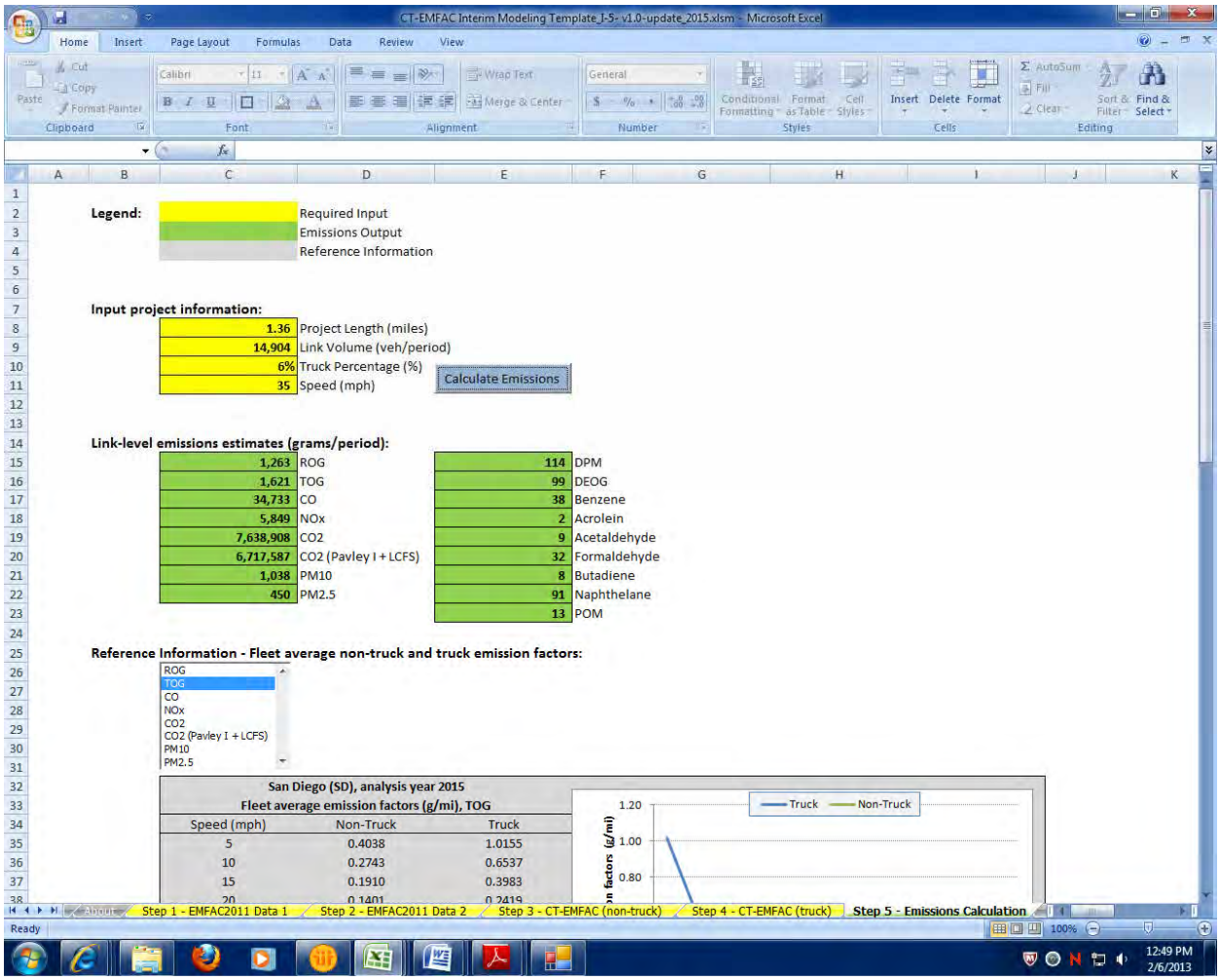
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

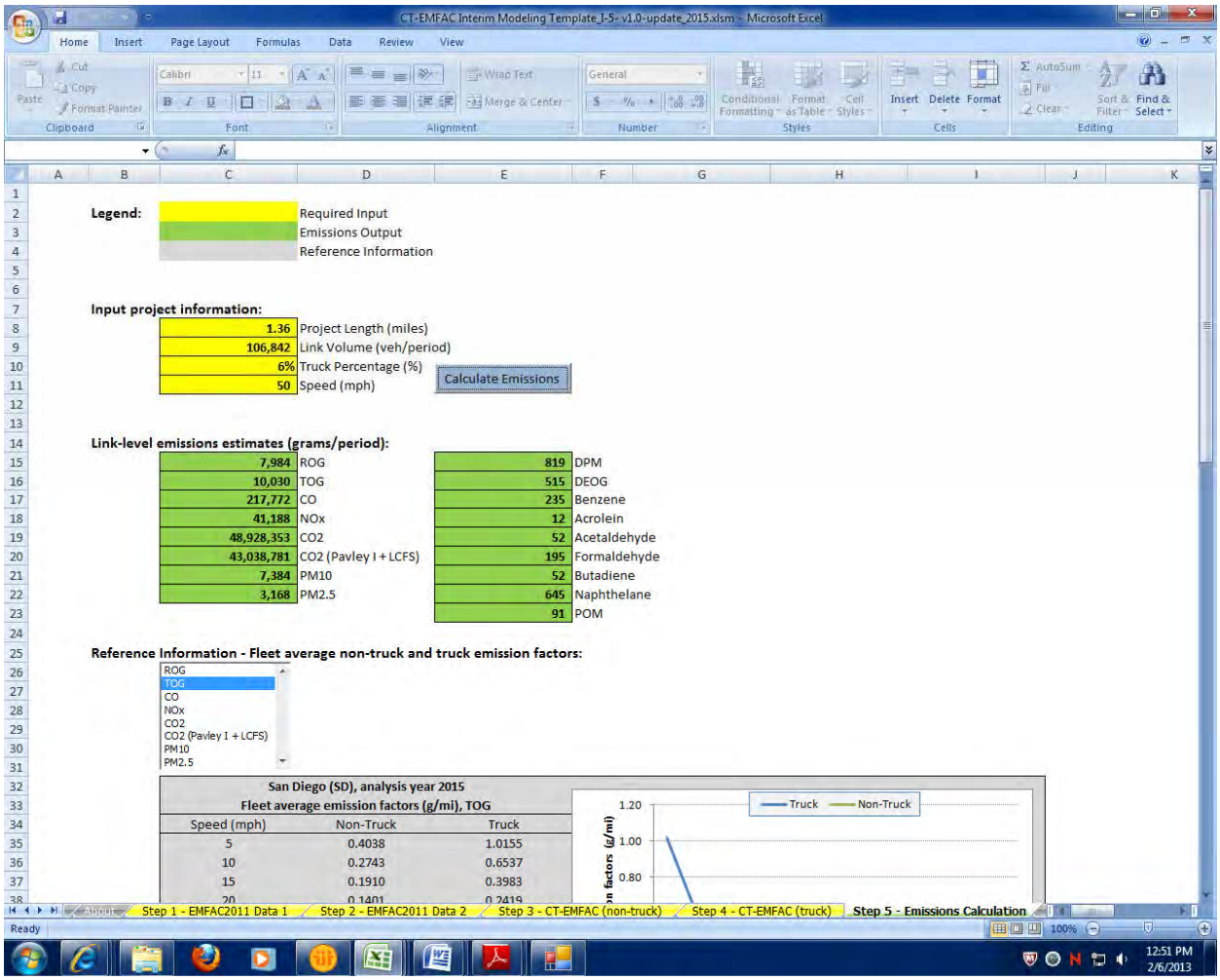
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

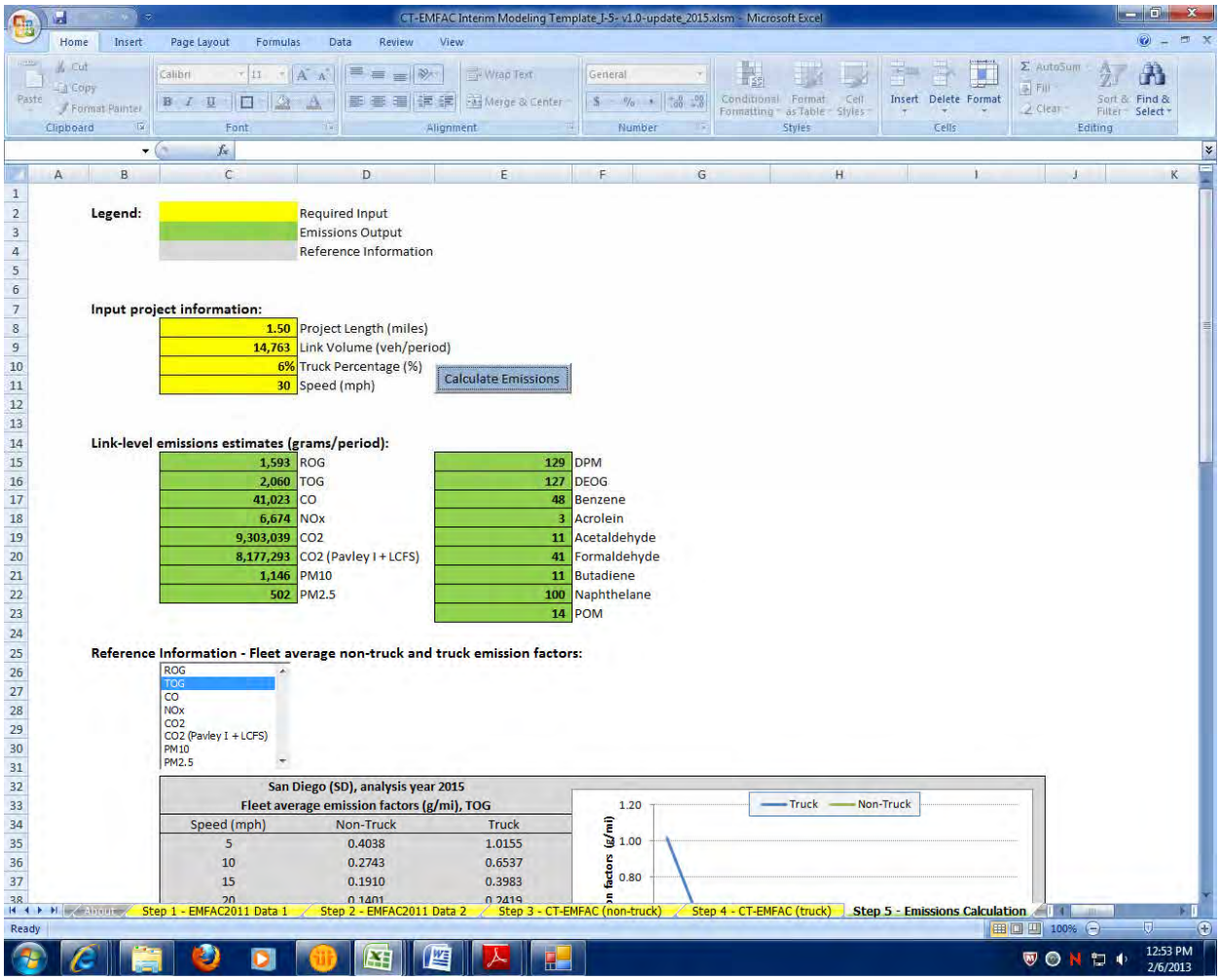
2015 No Build
Link: 1 (NB GP)
Segment: 12
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 12
Off Peak



2015 No Build
Link: 1 (NB GP)
Segment: 13
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
14,763	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,593	ROG	129	DPM
2,060	TOG	127	DEOG
41,023	CO	48	Benzene
6,674	NOx	3	Acrolein
9,303,039	CO2	11	Acetaldehyde
8,177,293	CO2 (Pavley I + LCFS)	41	Formaldehyde
1,146	PM10	11	Butadiene
502	PM2.5	100	Naphthelane
		14	POM

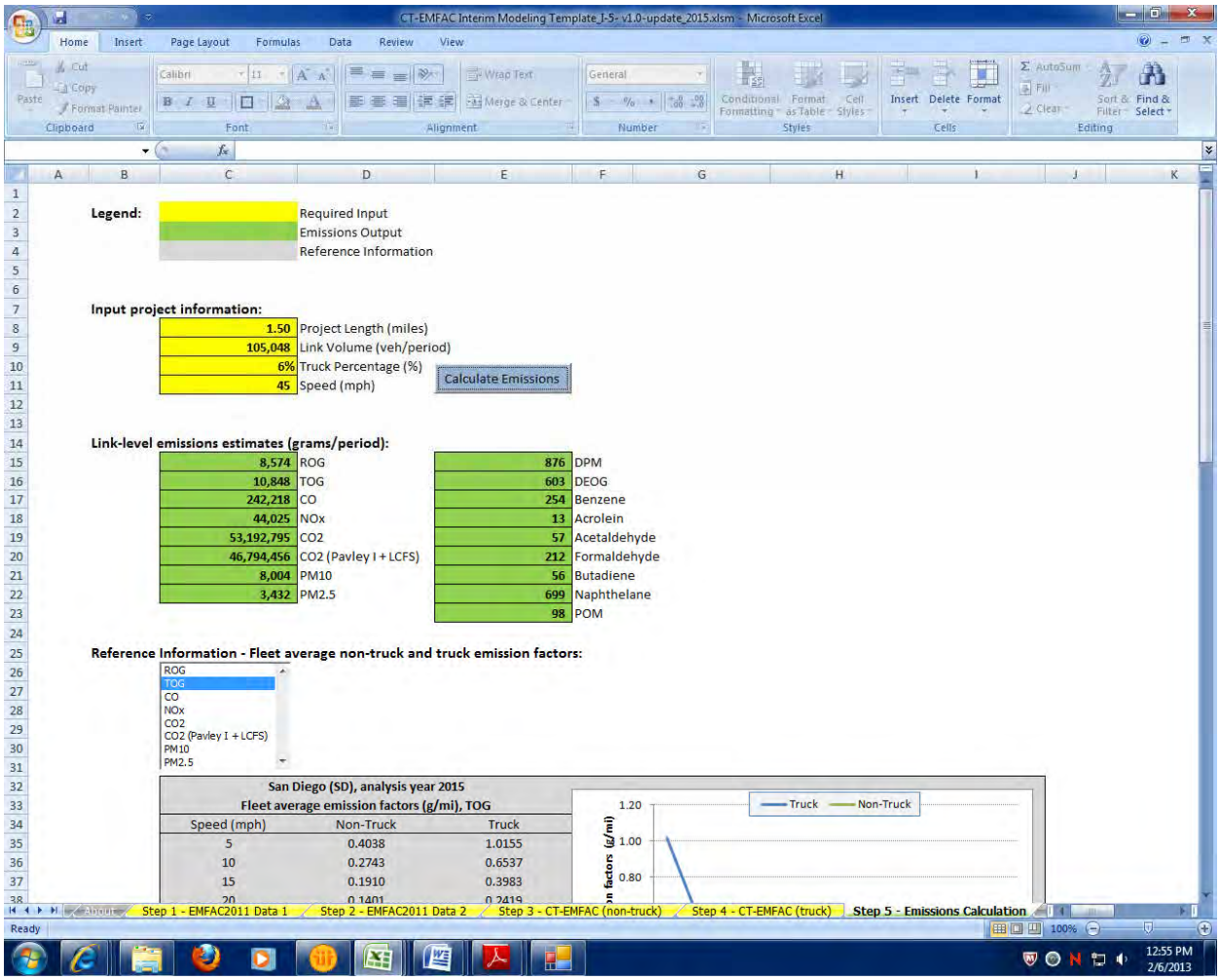
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 13
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
105,048	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,574	ROG	876	DPM
10,848	TOG	603	DEOG
242,218	CO	254	Benzene
44,025	NOx	13	Acrolein
53,192,795	CO2	57	Acetaldehyde
46,794,456	CO2 (Pavley I + LCFS)	212	Formaldehyde
8,004	PM10	56	Butadiene
3,432	PM2.5	699	Naphthelane
		98	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

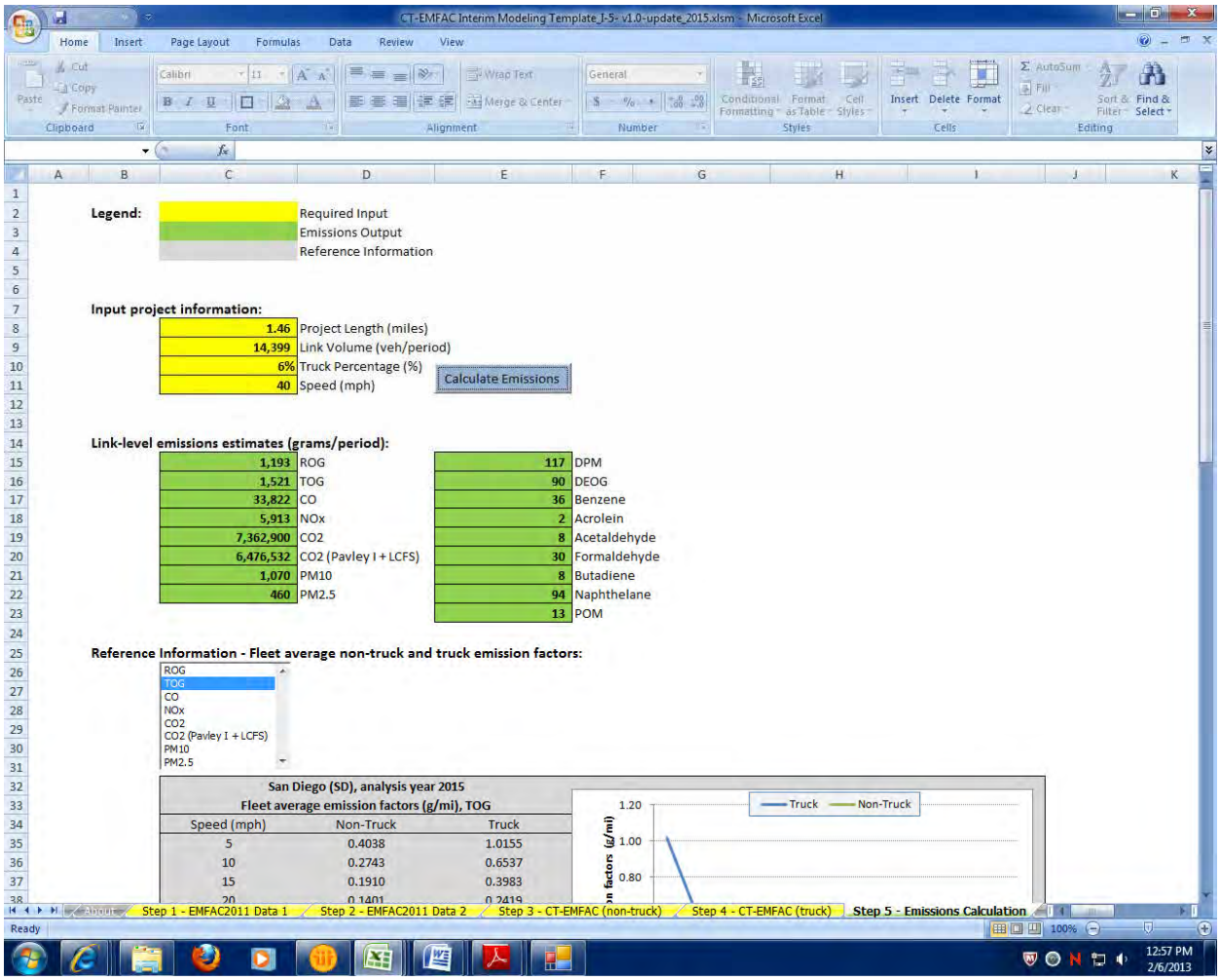
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

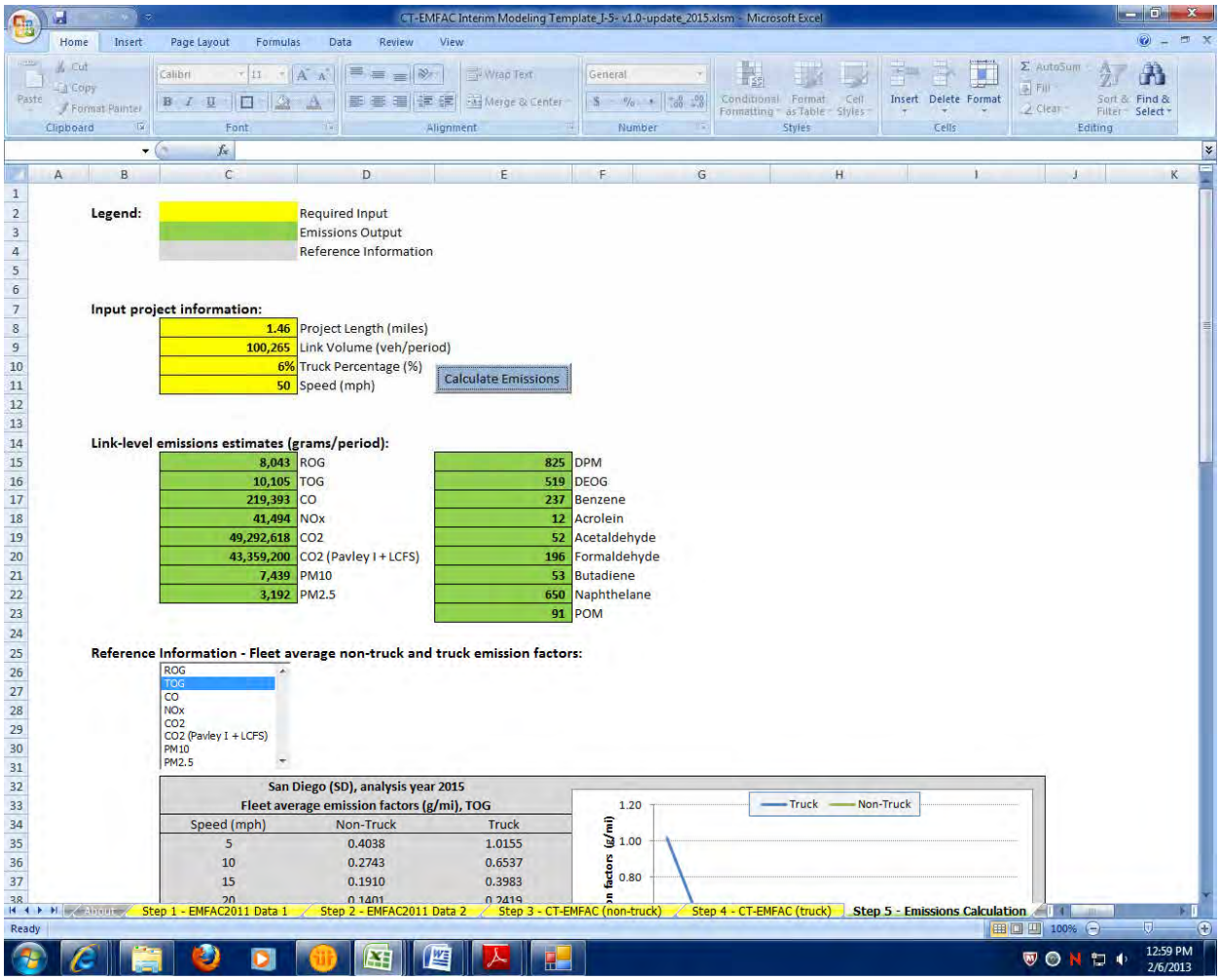
Ready 100%

12:55 PM 2/6/2013

2015 No Build
Link: 1 (NB GP)
Segment: 14
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 14
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.46	Project Length (miles)
100,265	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,043	ROG	825	DPM
10,105	TOG	519	DEOG
219,393	CO	237	Benzene
41,494	NOx	12	Acrolein
49,292,618	CO2	52	Acetaldehyde
43,359,200	CO2 (Pavley I + LCFS)	196	Formaldehyde
7,439	PM10	53	Butadiene
3,192	PM2.5	650	Naphthelane
		91	POM

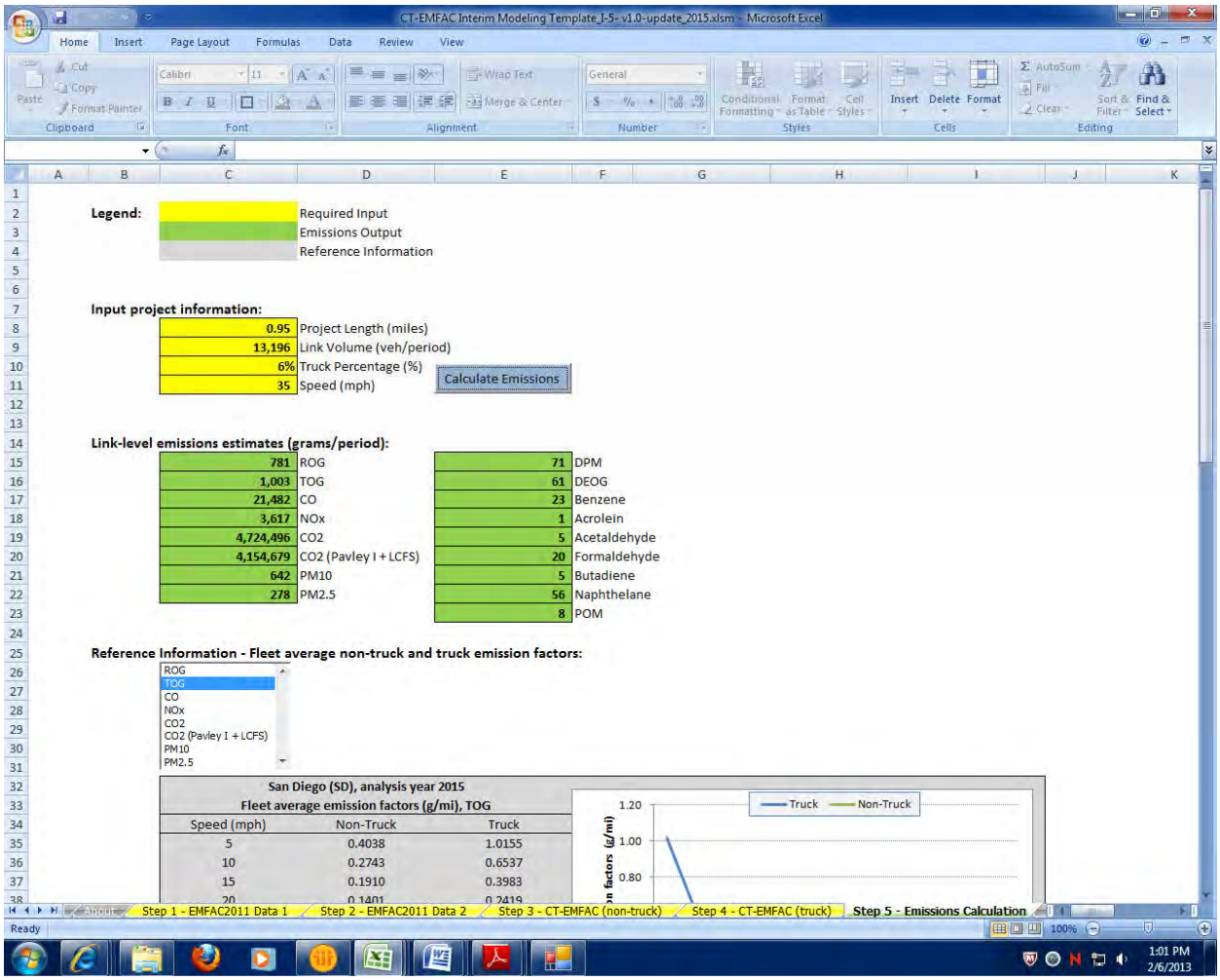
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

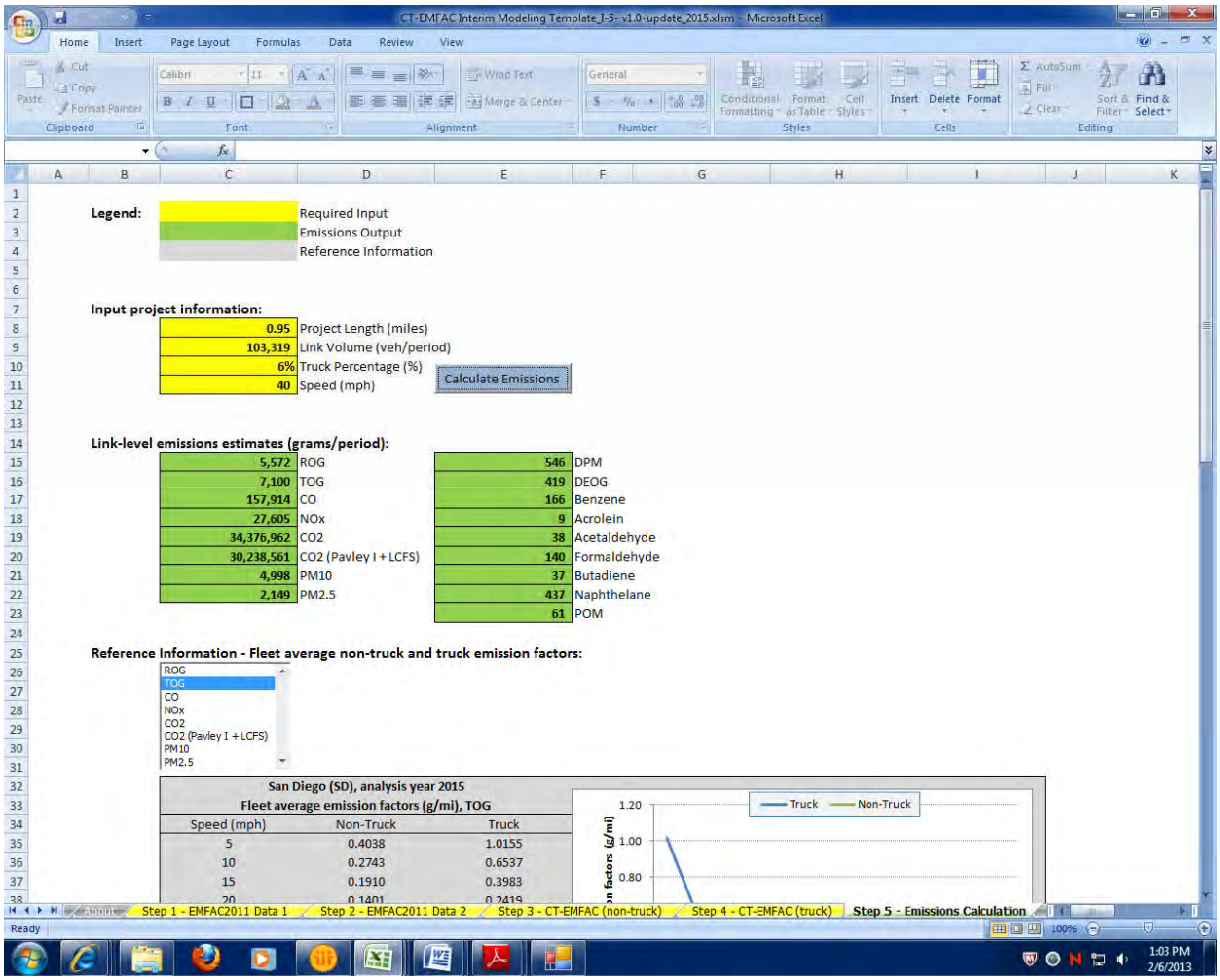
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 1 (NB GP)
Segment: 15
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 15
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
103,319	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,572	ROG	546	DPM
7,100	TOG	419	DEOG
157,914	CO	166	Benzene
27,605	NOx	9	Acrolein
34,376,962	CO2	38	Acetaldehyde
30,238,561	CO2 (Pavley I + LCFS)	140	Formaldehyde
4,998	PM10	37	Butadiene
2,149	PM2.5	437	Naphthelane
		61	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

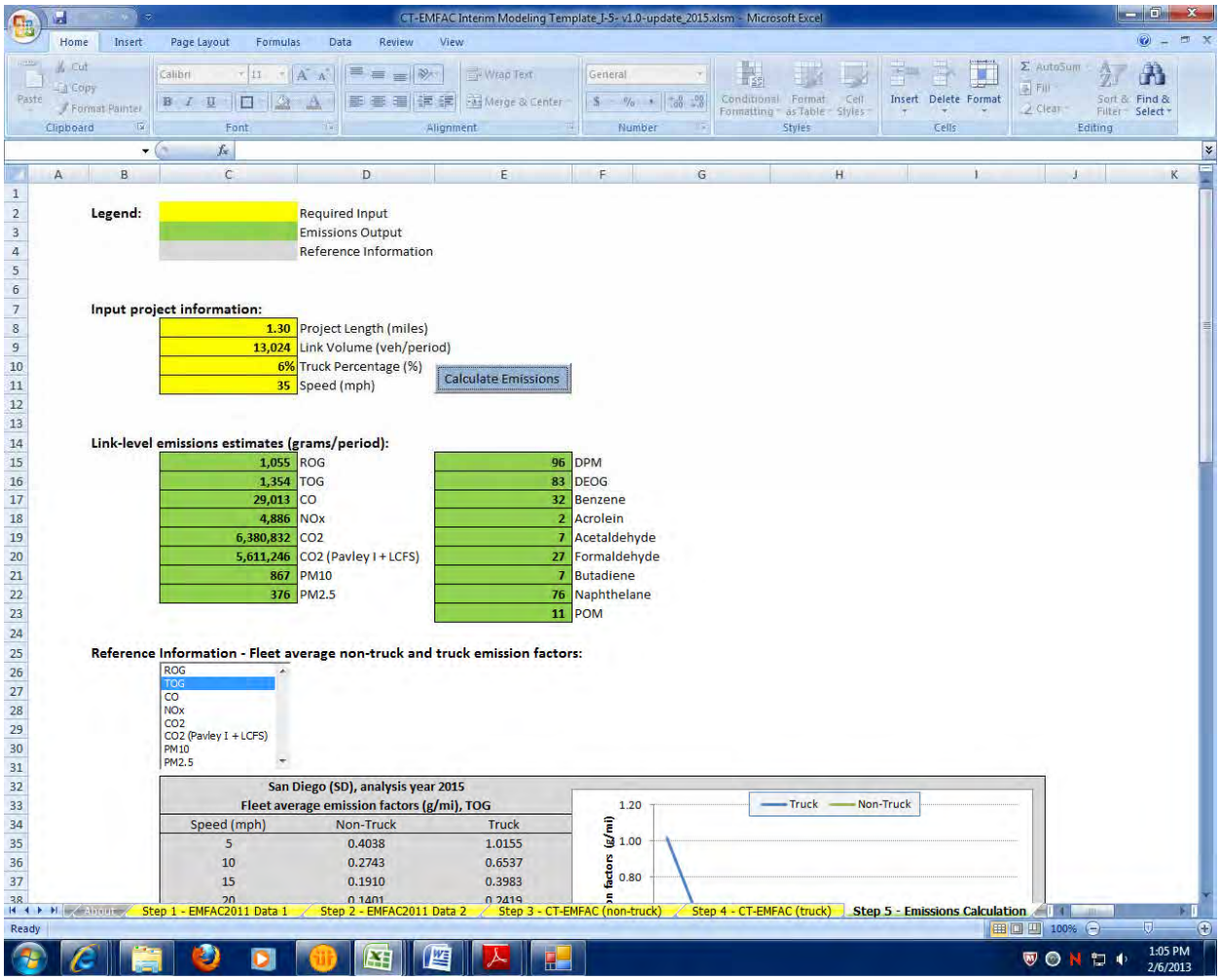
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

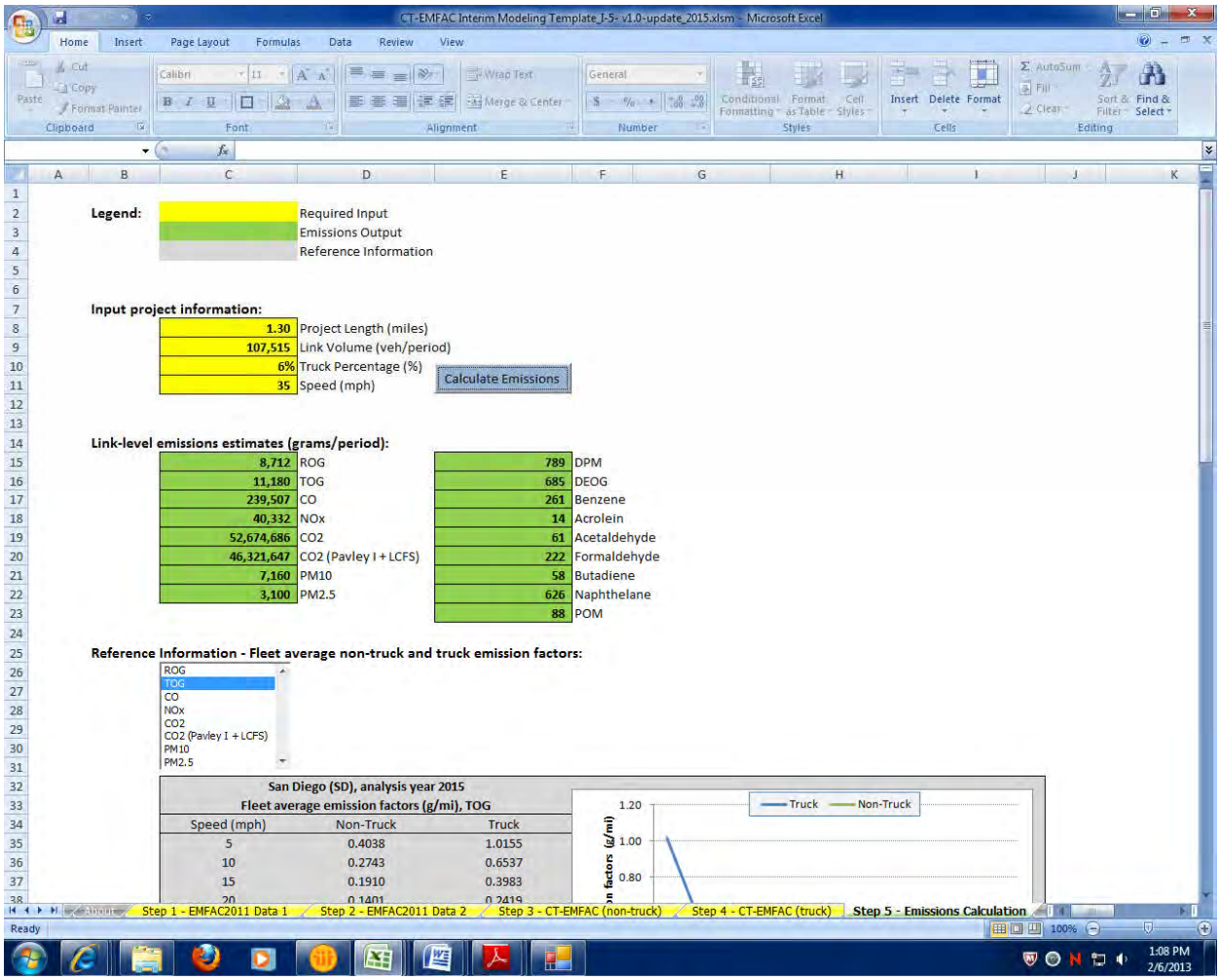
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100% 1:03 PM 2/6/2013

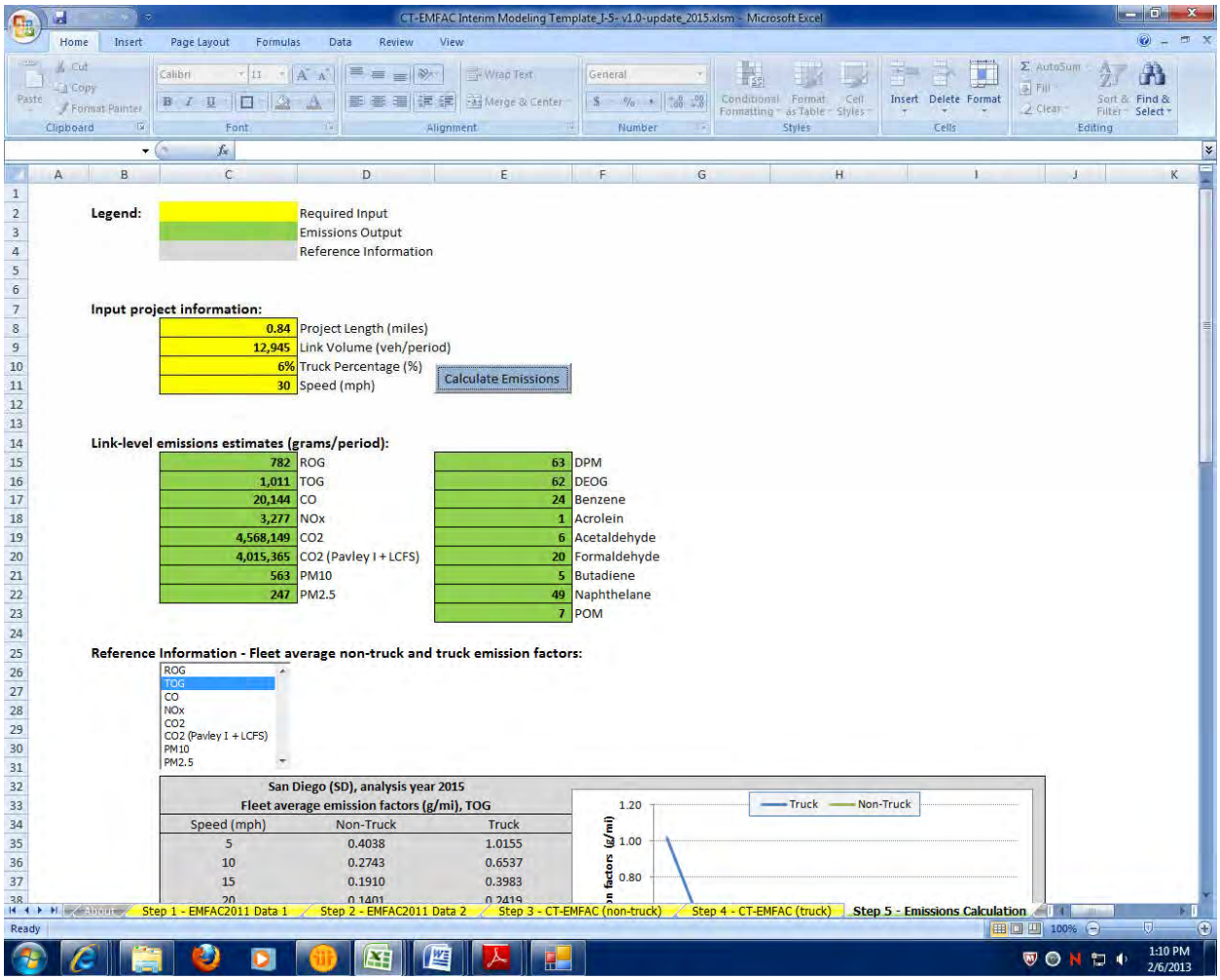
2015 No Build
Link: 1 (NB GP)
Segment: 16
Peak



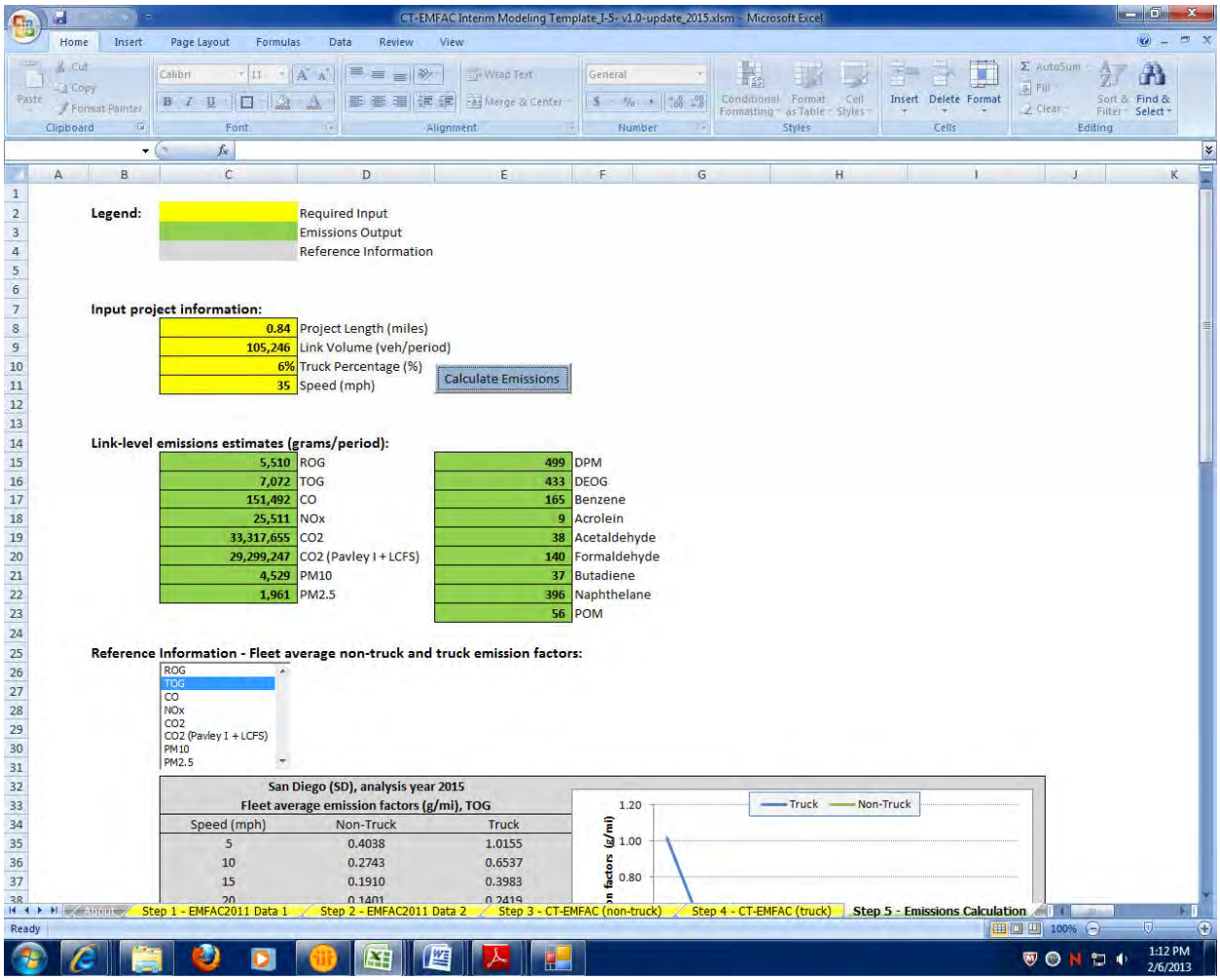
2015 No Build
Link: 1 (NB GP)
Segment: 16
Off Peak



2015 No Build
Link: 1 (NB GP)
Segment: 17
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 17
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.84	Project Length (miles)
105,246	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,510	ROG	499	DPM
7,072	TOG	433	DEOG
151,492	CO	165	Benzene
25,511	NOx	9	Acrolein
33,317,655	CO2	38	Acetaldehyde
29,299,247	CO2 (Pavley I + LCFS)	140	Formaldehyde
4,529	PM10	37	Butadiene
1,961	PM2.5	396	Naphthelane
		56	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

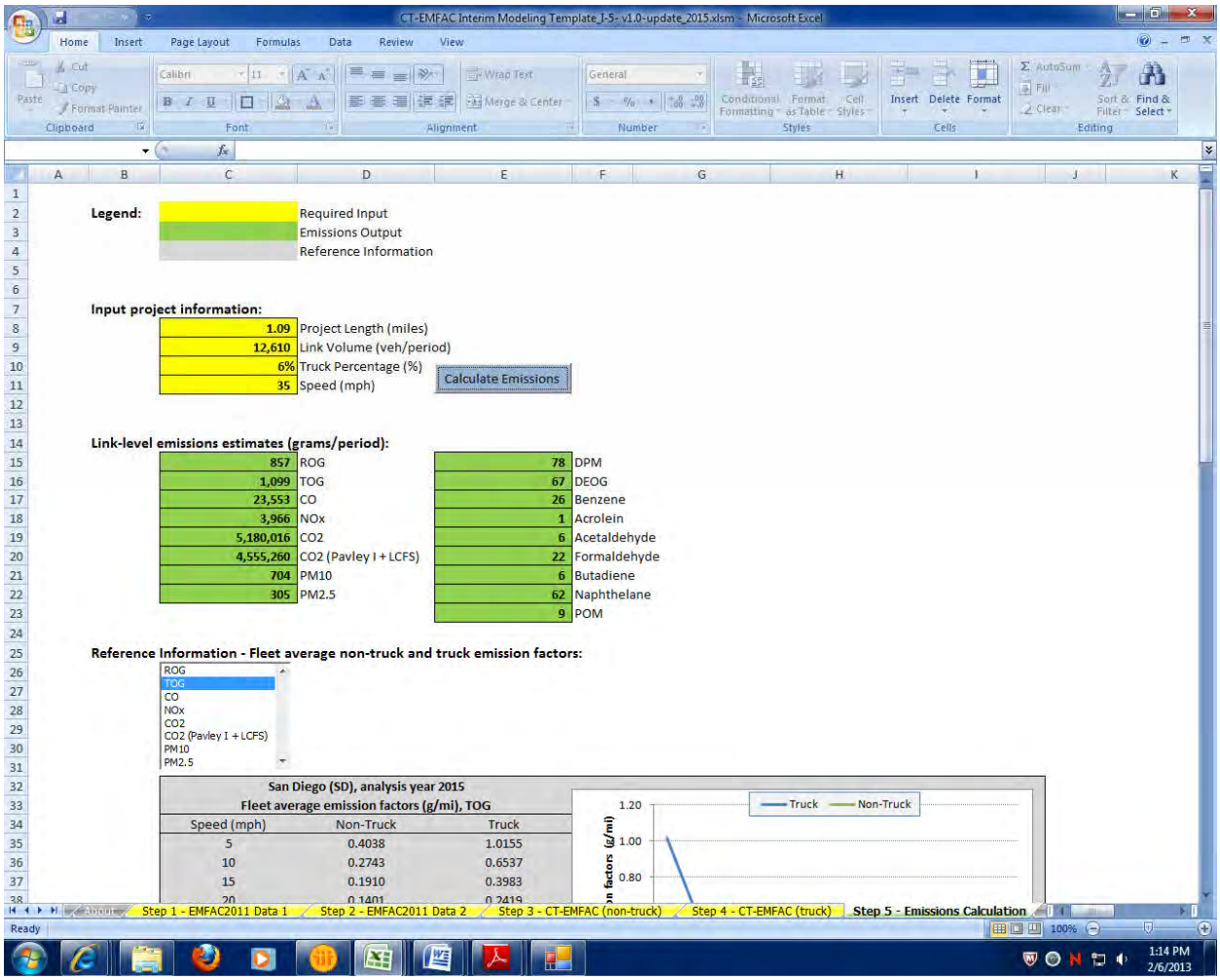
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

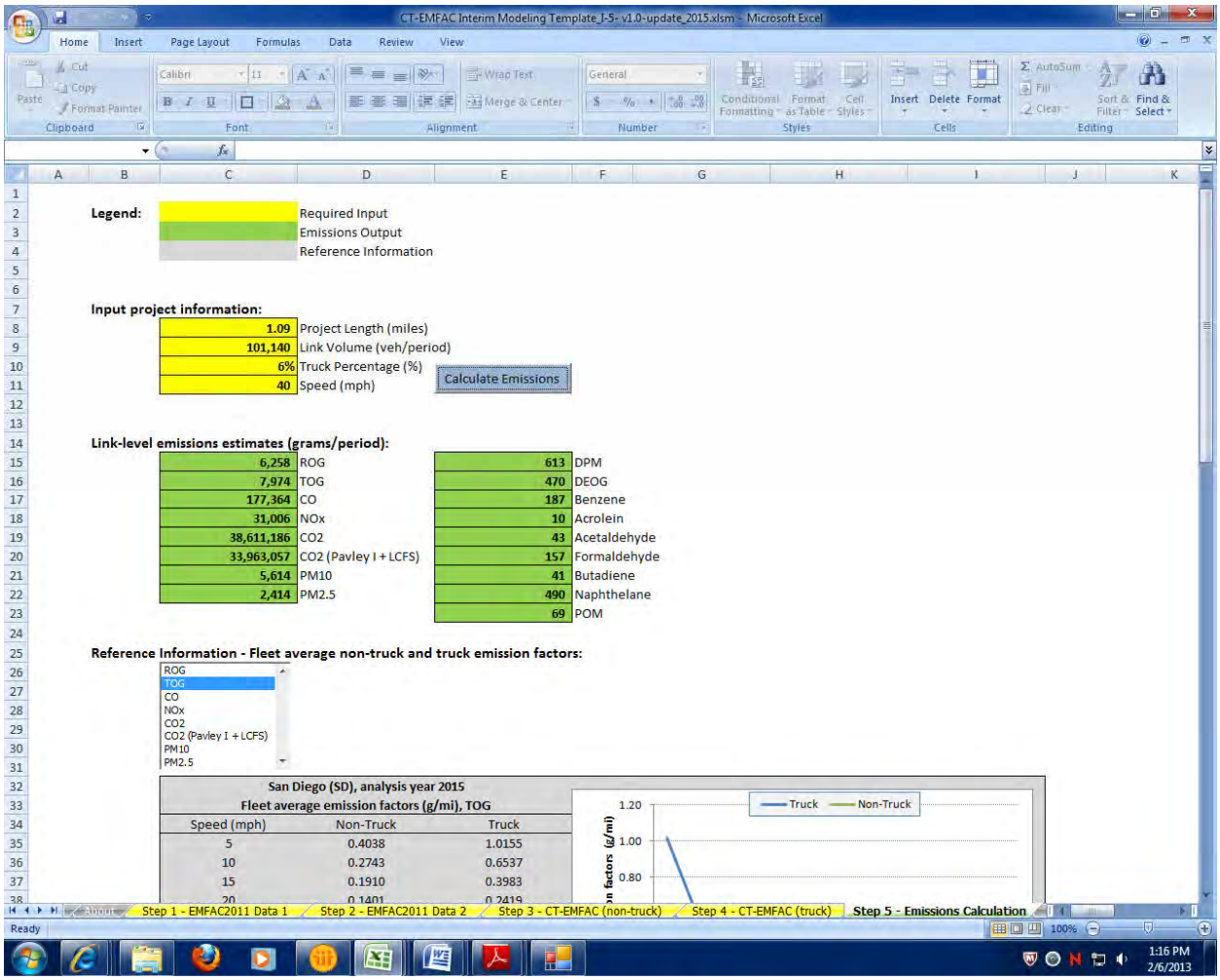
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100% 1:12 PM 2/6/2013

2015 No Build
Link: 1 (NB GP)
Segment: 18
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 18
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
101,140	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,258	ROG	613	DPM
7,974	TOG	470	DEOG
177,364	CO	187	Benzene
31,006	NOx	10	Acrolein
38,611,186	CO2	43	Acetaldehyde
33,963,057	CO2 (Pavley I + LCFS)	157	Formaldehyde
5,614	PM10	41	Butadiene
2,414	PM2.5	490	Naphthelane
		69	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

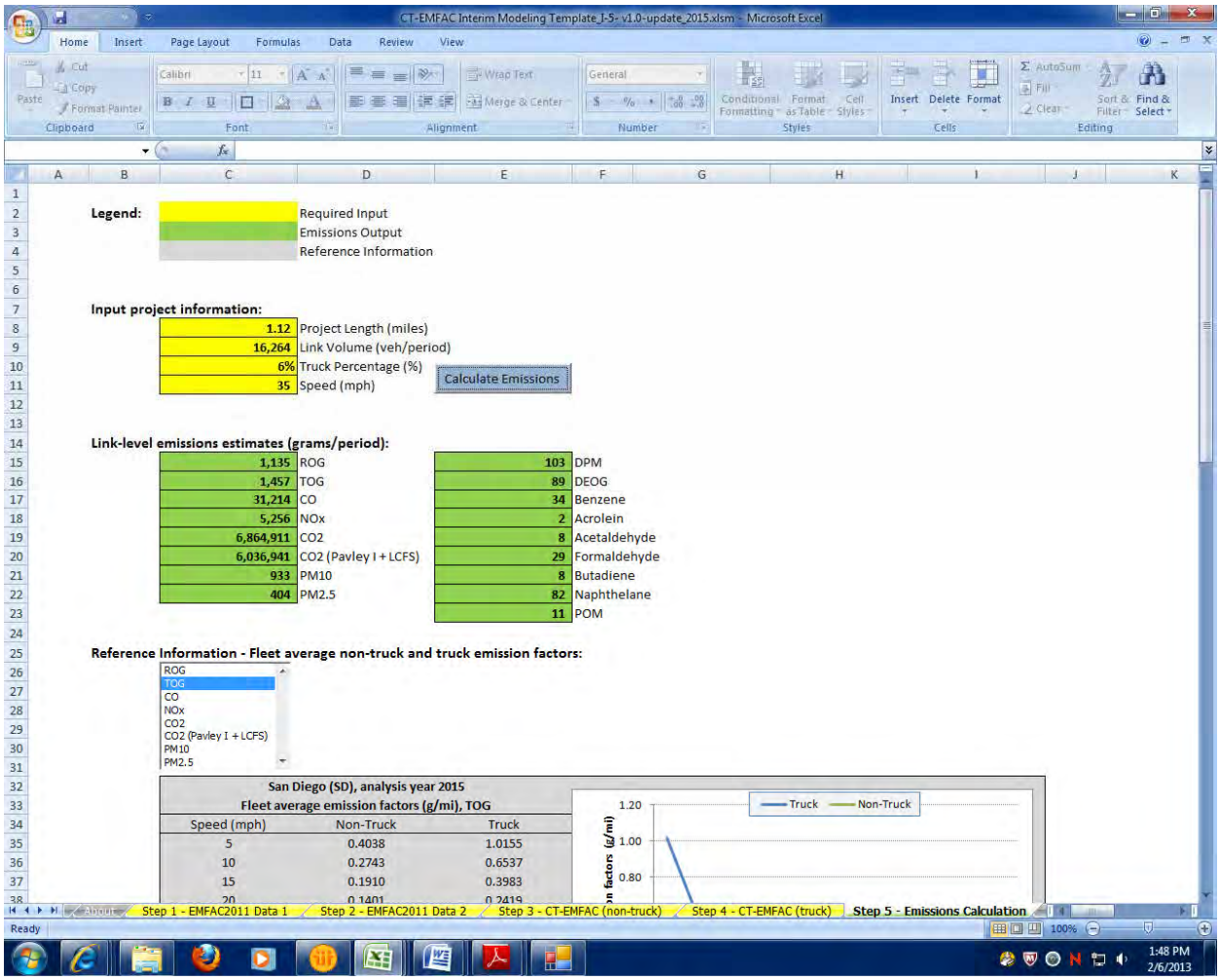
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

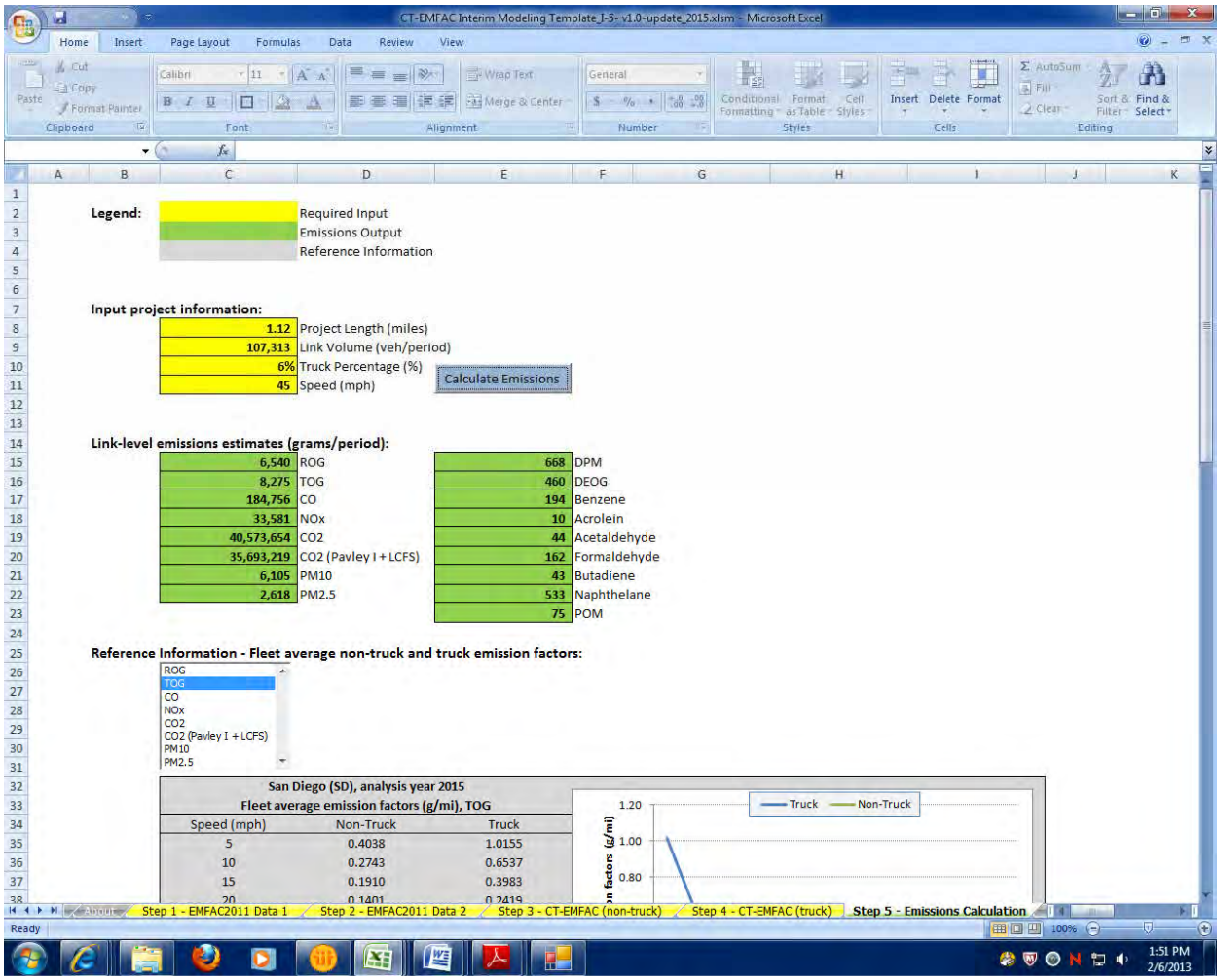
Ready 100%

1:16 PM 2/6/2013

2015 No Build
Link: 1 (NB GP)
Segment: 19
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 19
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.12	Project Length (miles)
107,313	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,540	ROG	668	DPM
8,275	TOG	460	DEOG
184,756	CO	194	Benzene
33,581	NOx	10	Acrolein
40,573,654	CO2	44	Acetaldehyde
35,693,219	CO2 (Pavley I + LCFS)	162	Formaldehyde
6,105	PM10	43	Butadiene
2,618	PM2.5	533	Naphthelane
		75	POM

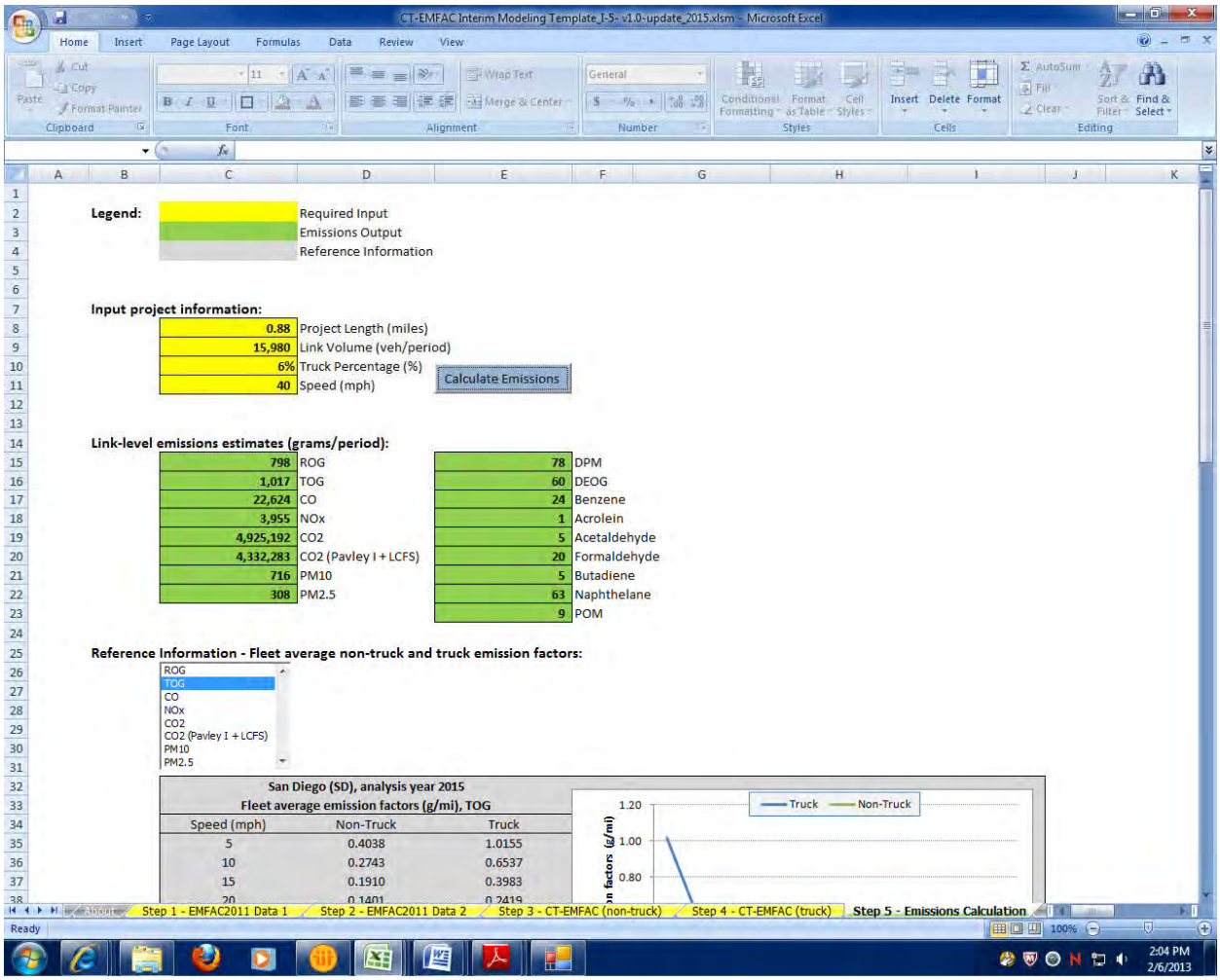
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

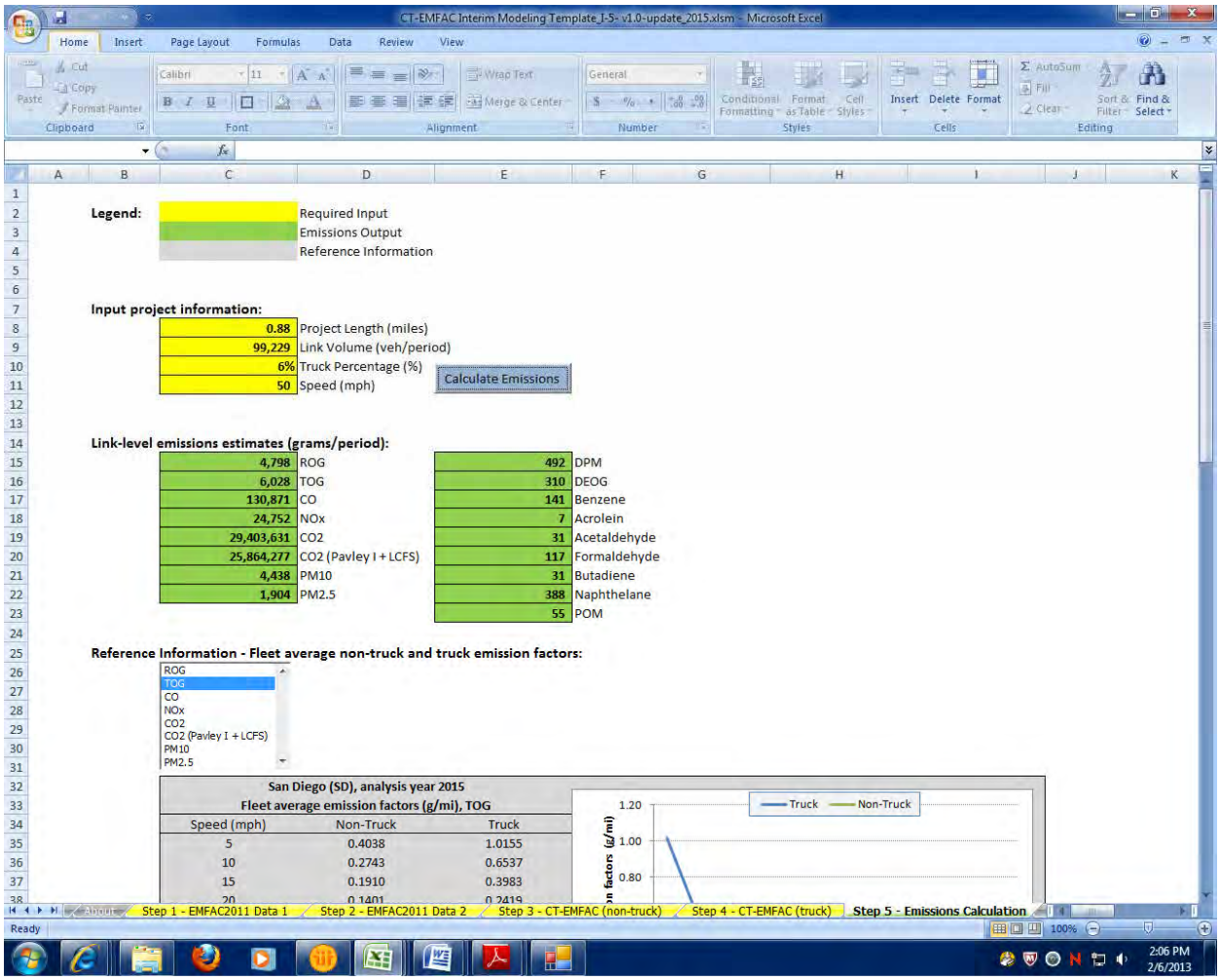
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

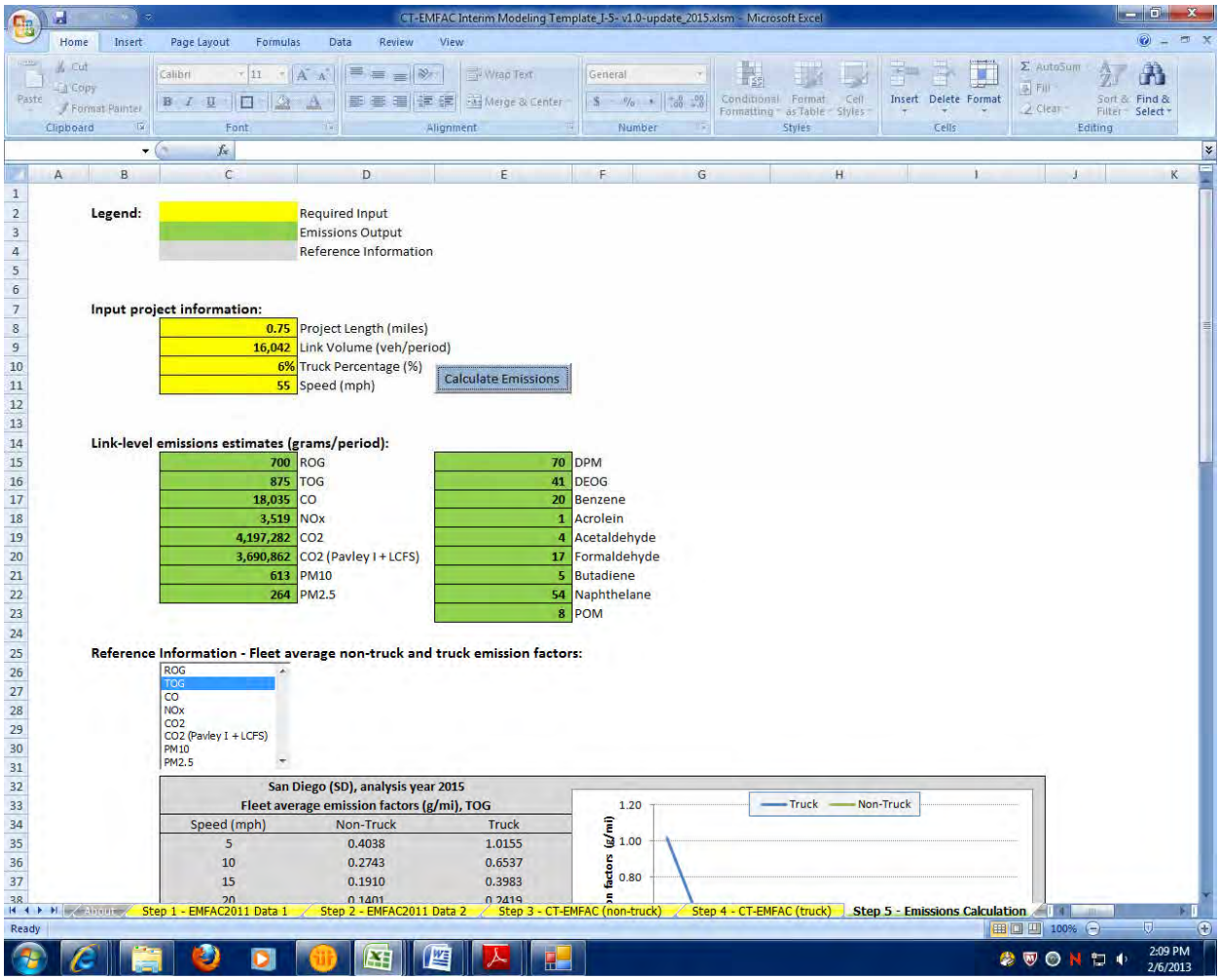
2015 No Build
Link: 1 (NB GP)
Segment: 20
Peak



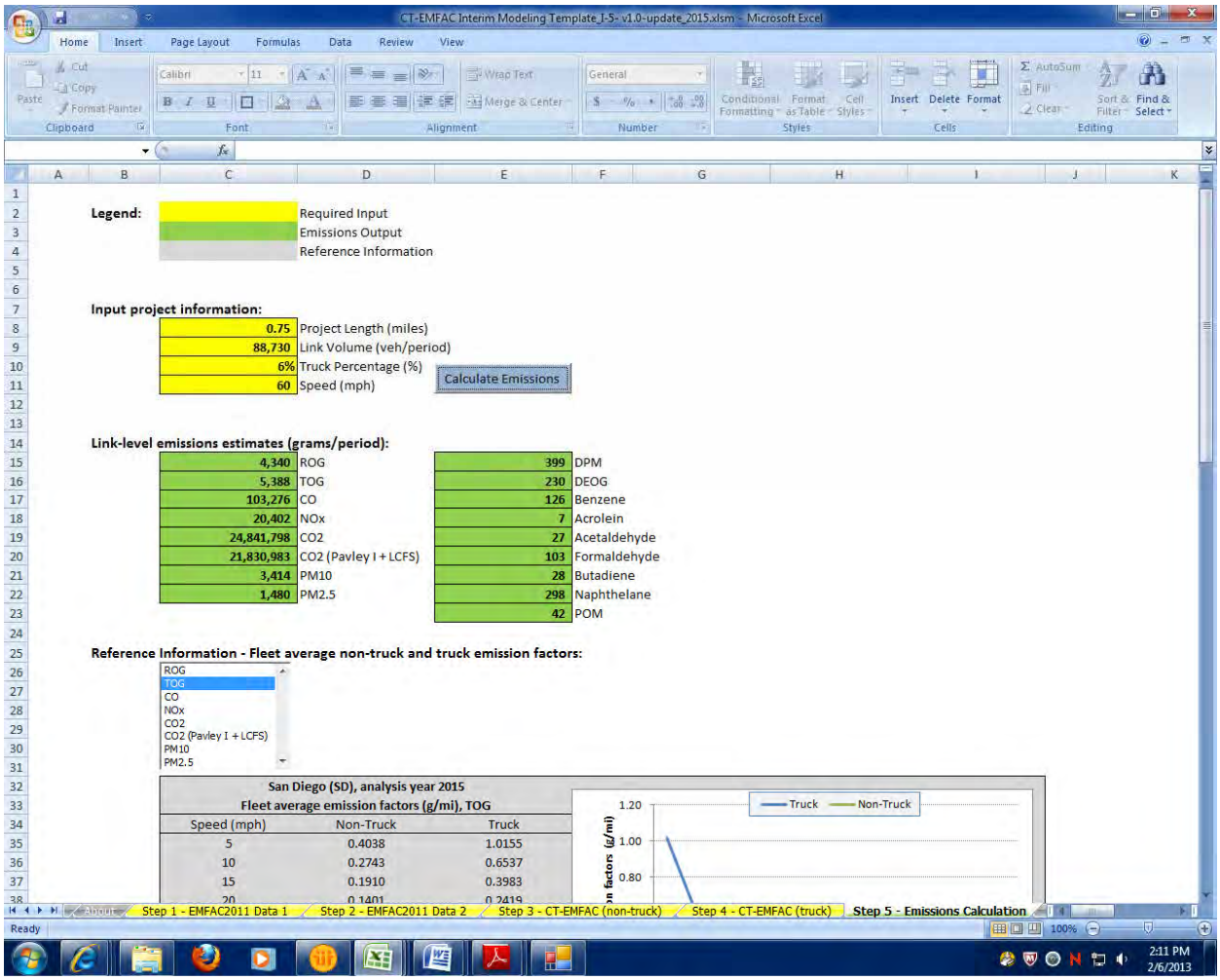
2015 No Build
Link: 1 (NB GP)
Segment: 20
Off Peak



2015 No Build
Link: 1 (NB GP)
Segment: 21
Peak



2015 No Build
Link: 1 (NB GP)
Segment: 21
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.75	Project Length (miles)
88,730	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,340	ROG	399	DPM
5,388	TOG	230	DEOG
103,276	CO	126	Benzene
20,402	NOx	7	Acrolein
24,841,798	CO2	27	Acetaldehyde
21,830,983	CO2 (Pavley I + LCFS)	103	Formaldehyde
3,414	PM10	28	Butadiene
1,480	PM2.5	298	Naphthelane
		42	POM

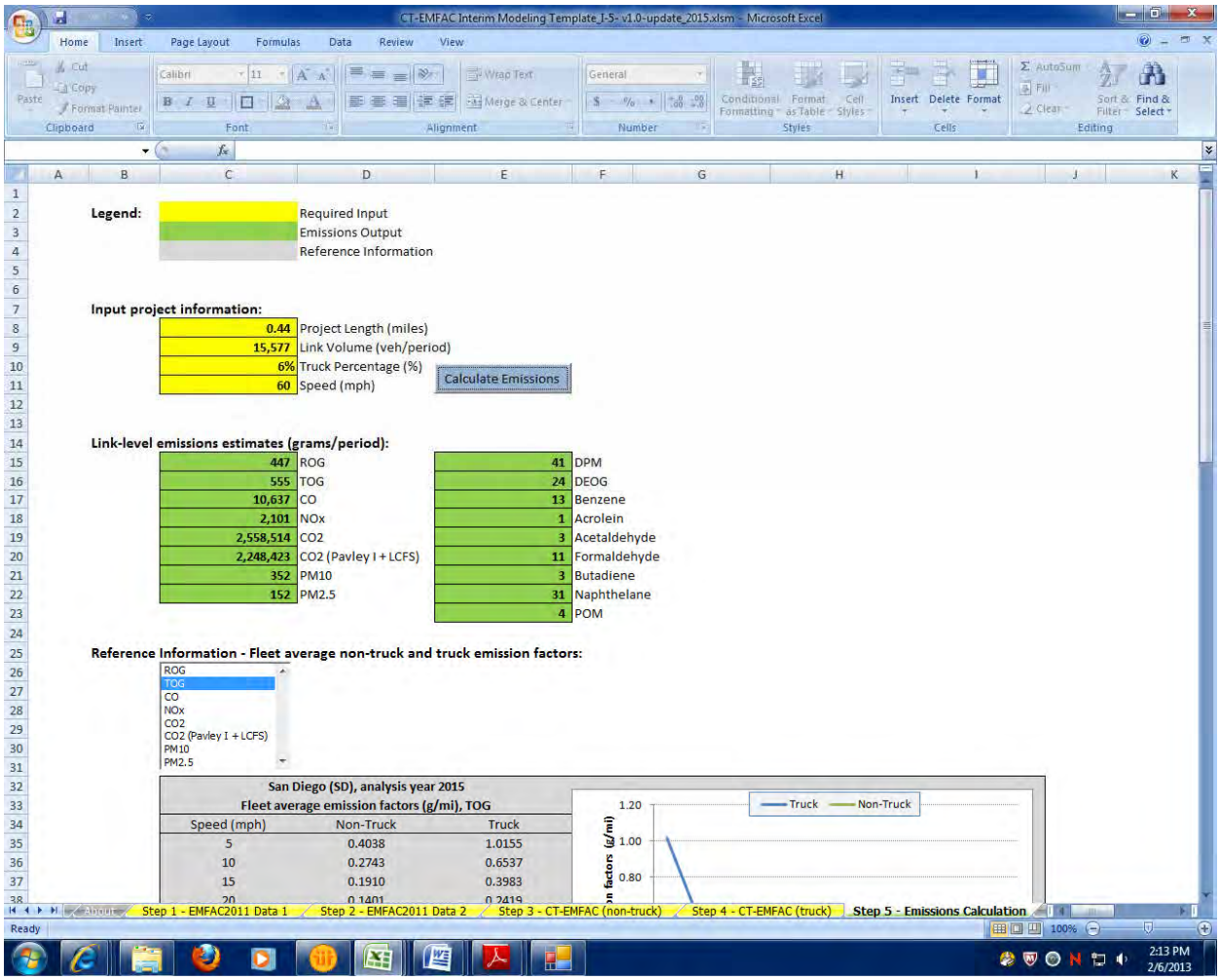
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

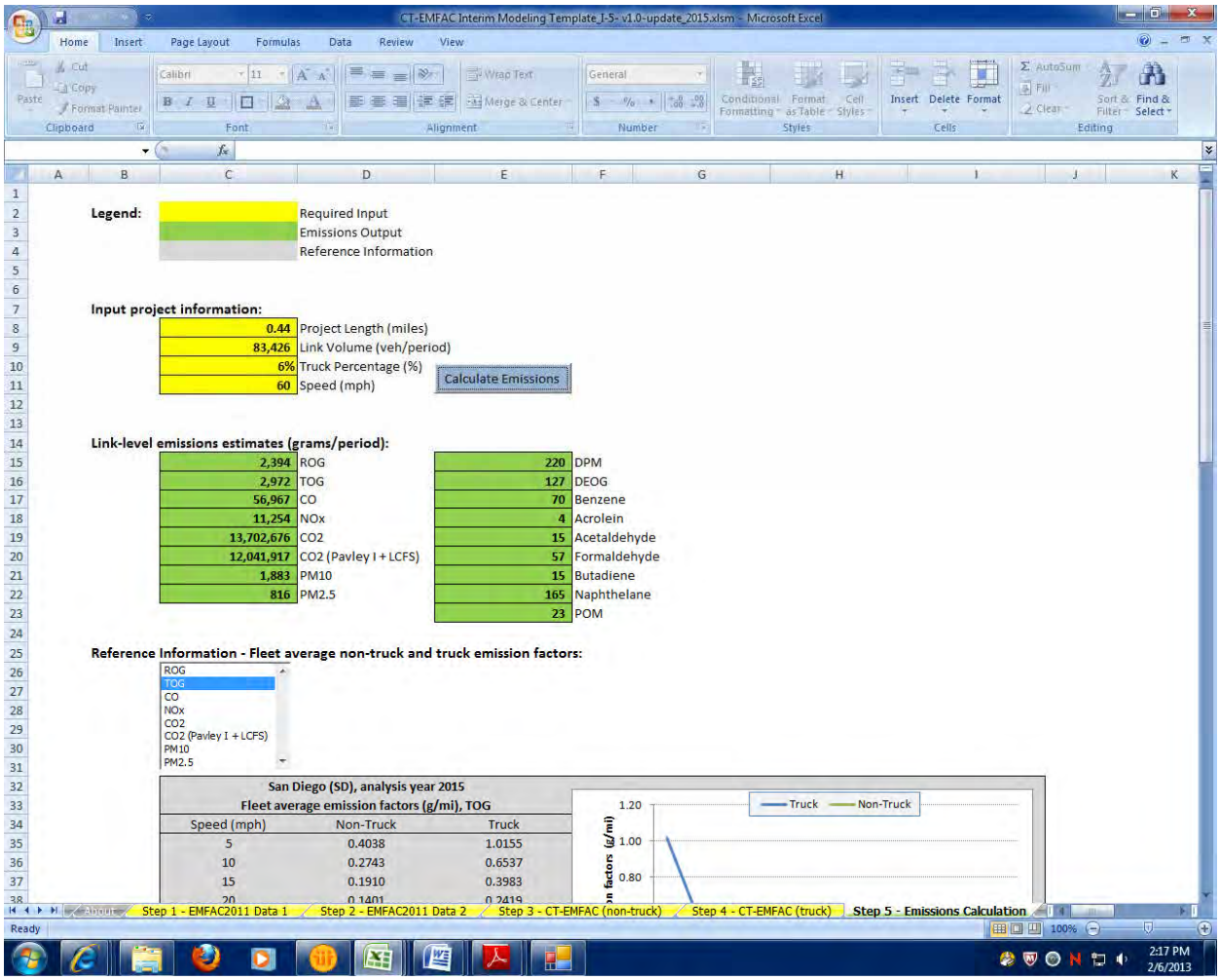
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

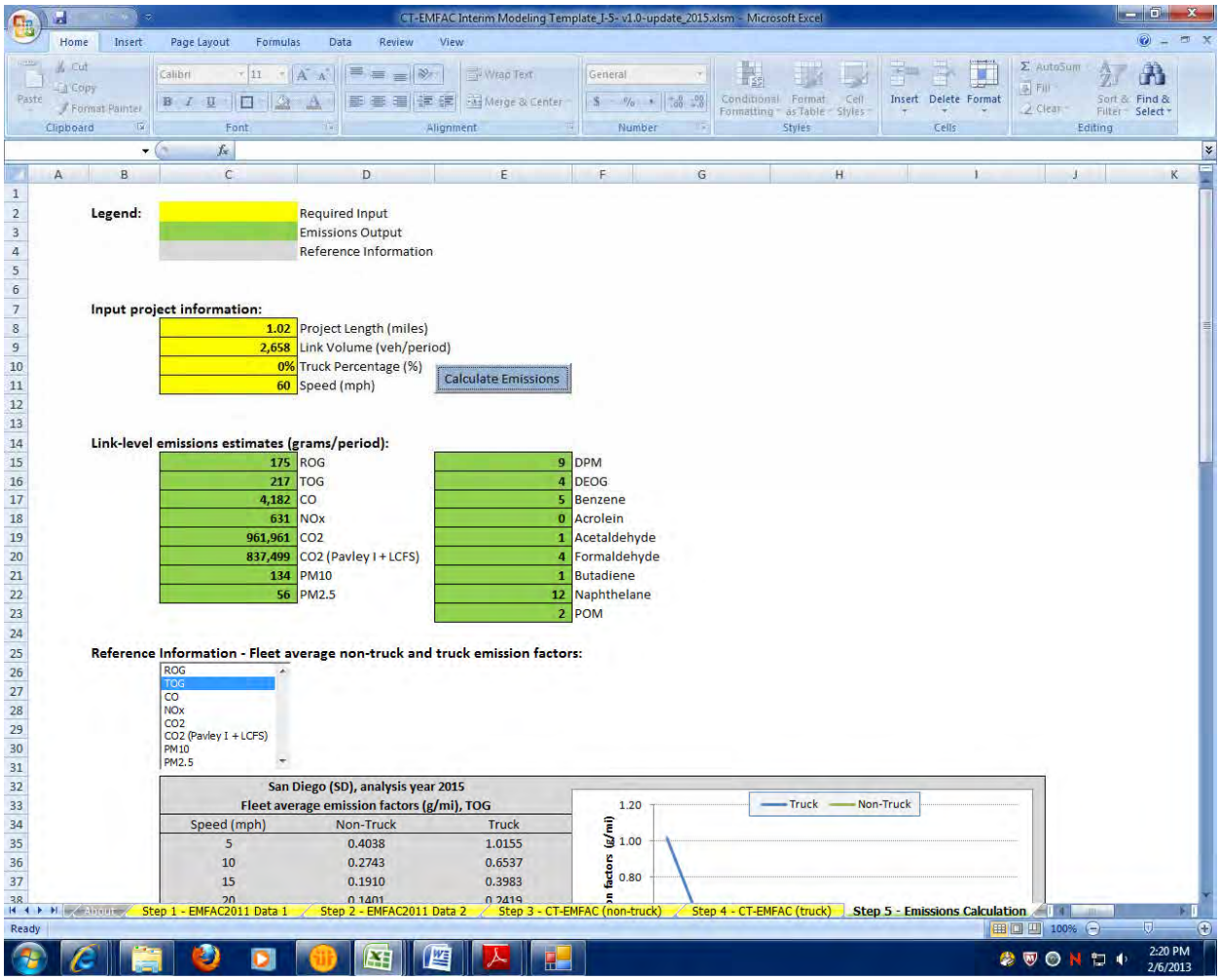
2015 No Build
Link: 1 (NB GP)
Segment: 22
Peak



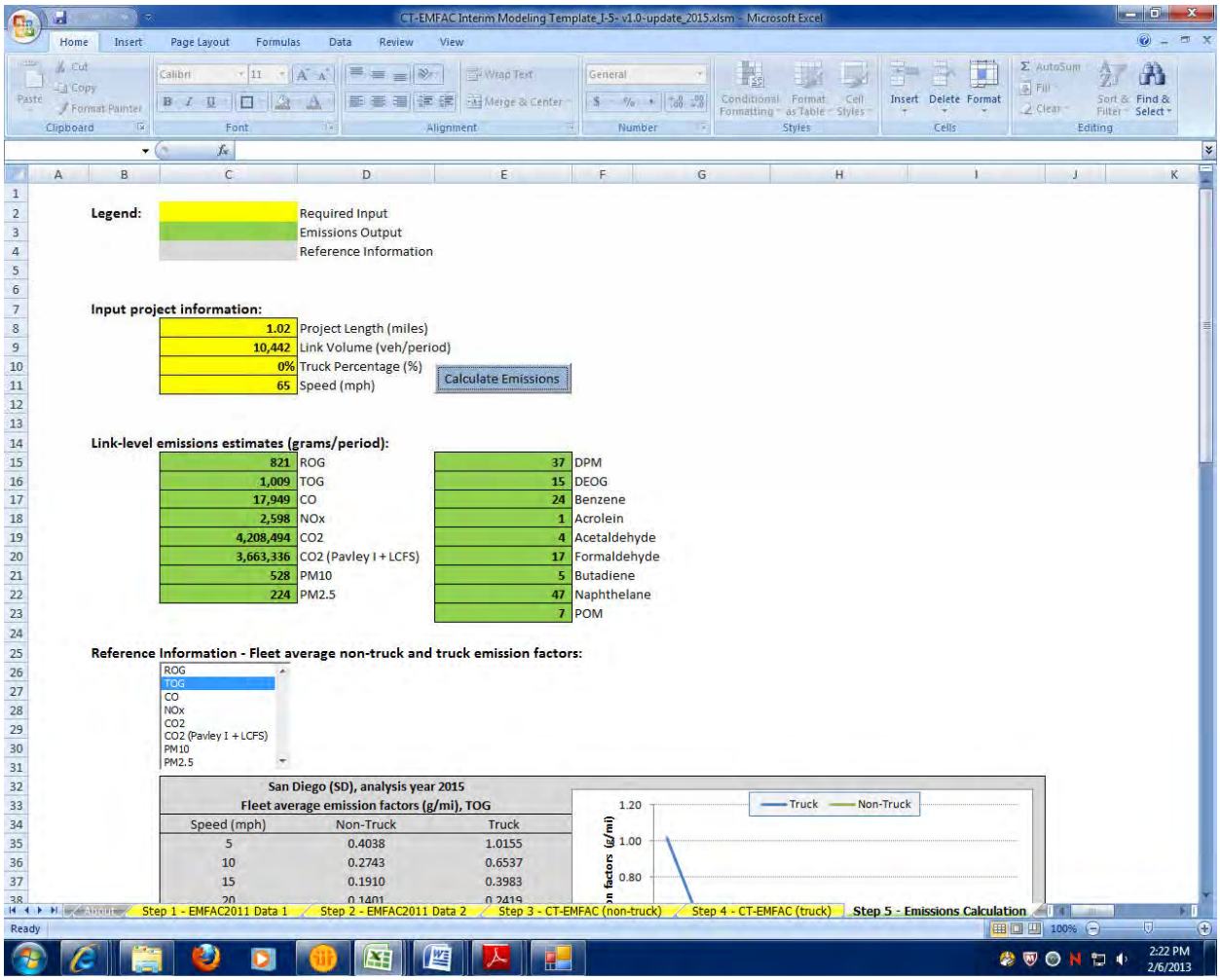
2015 No Build
Link: 1 (NB GP)
Segment: 22
Off Peak



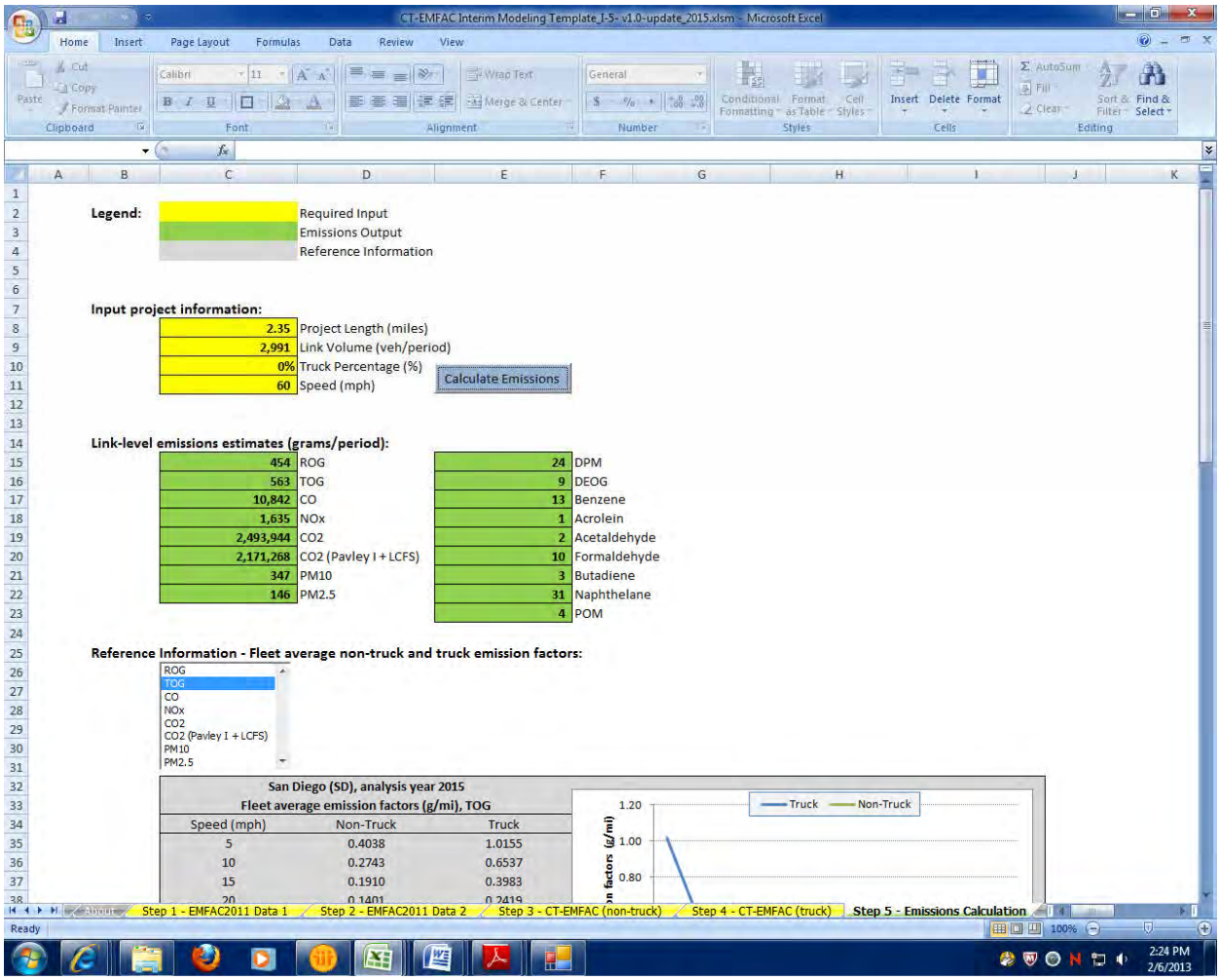
2015 No Build
Link: 2 (NB HOV)
Segment: 1
Peak



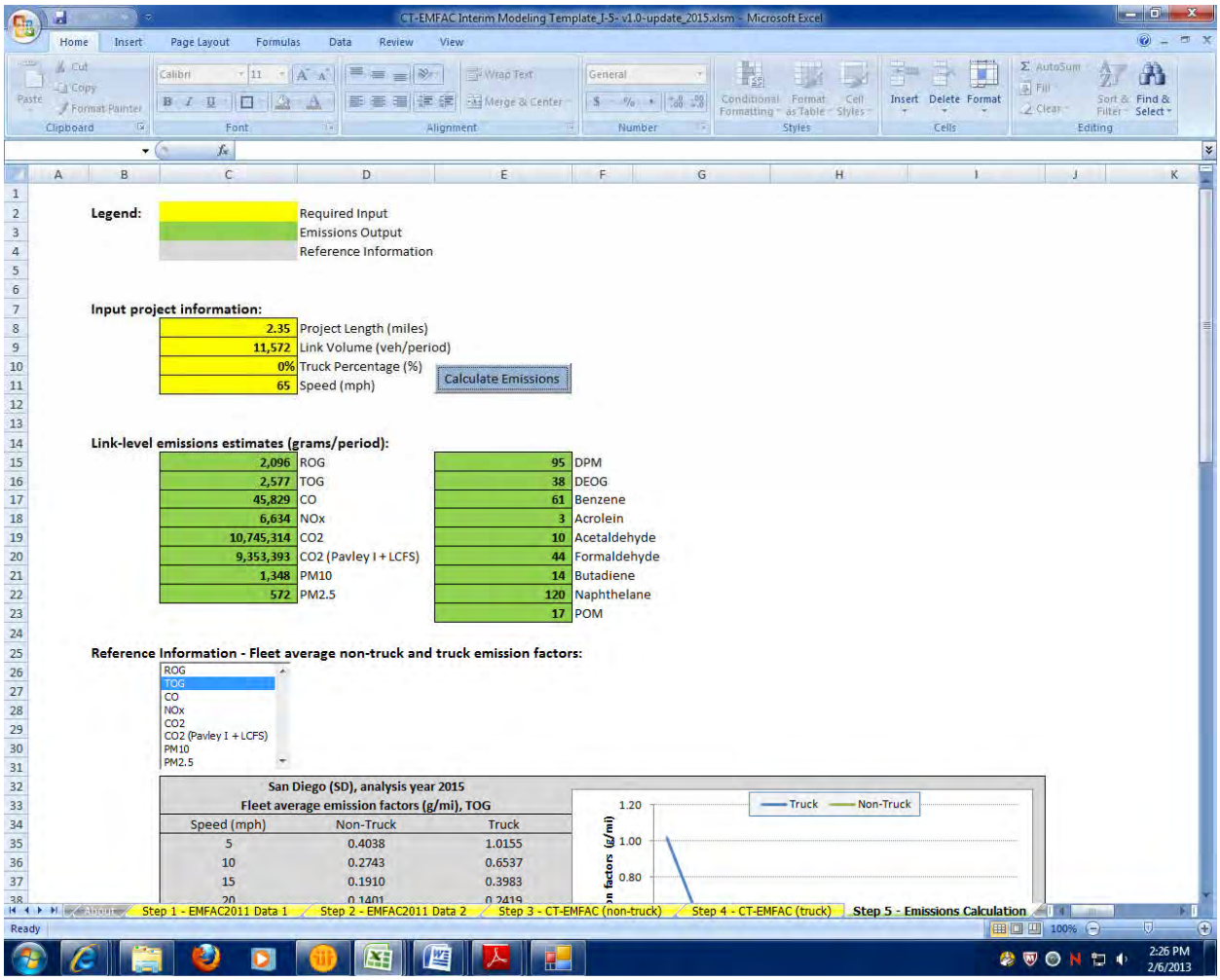
2015 No Build
Link: 2 (NB HOV)
Segment: 1
Off Peak



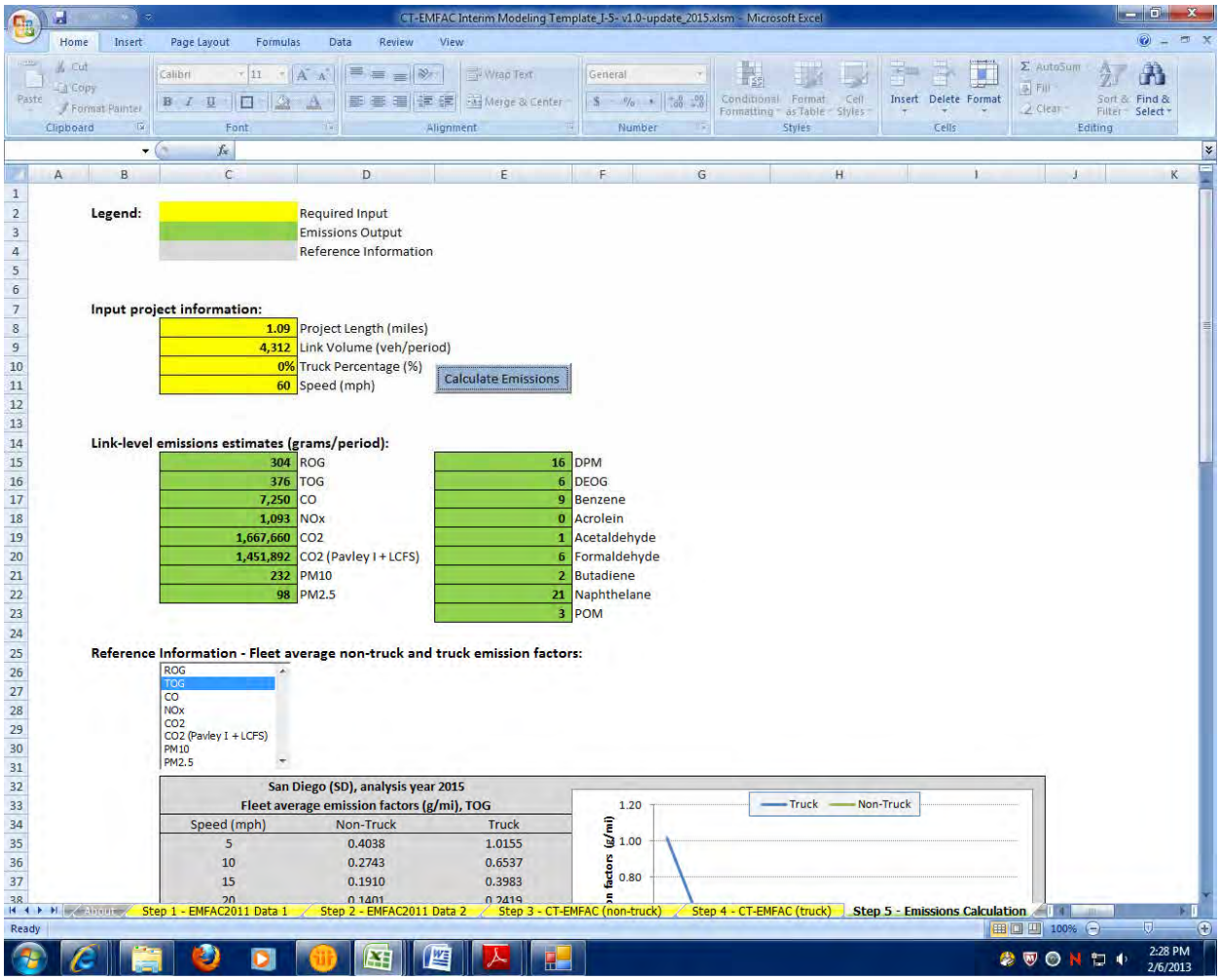
2015 No Build
Link: 2 (NB HOV)
Segment: 2
Peak



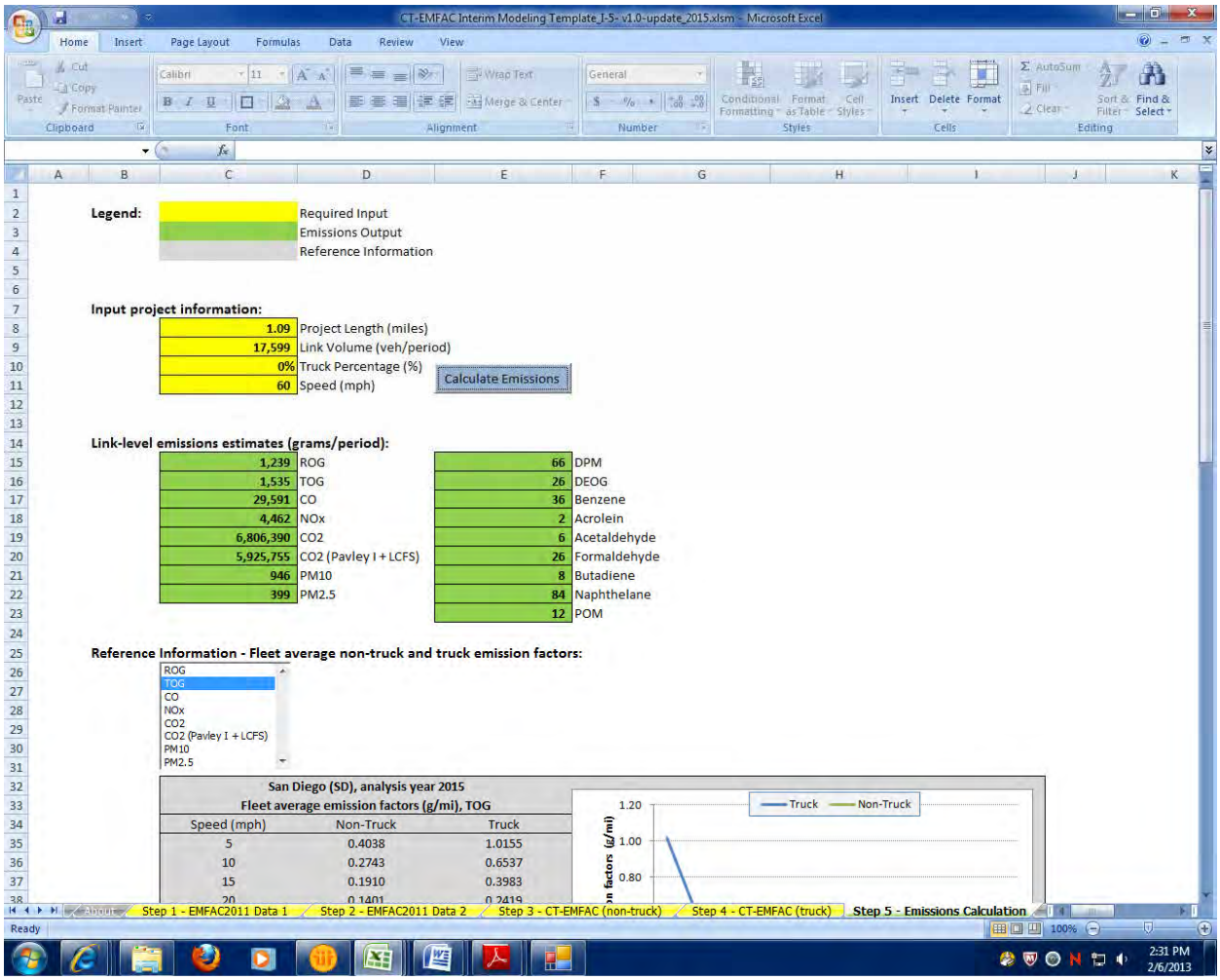
2015 No Build
Link: 2 (NB HOV)
Segment: 2
Off Peak



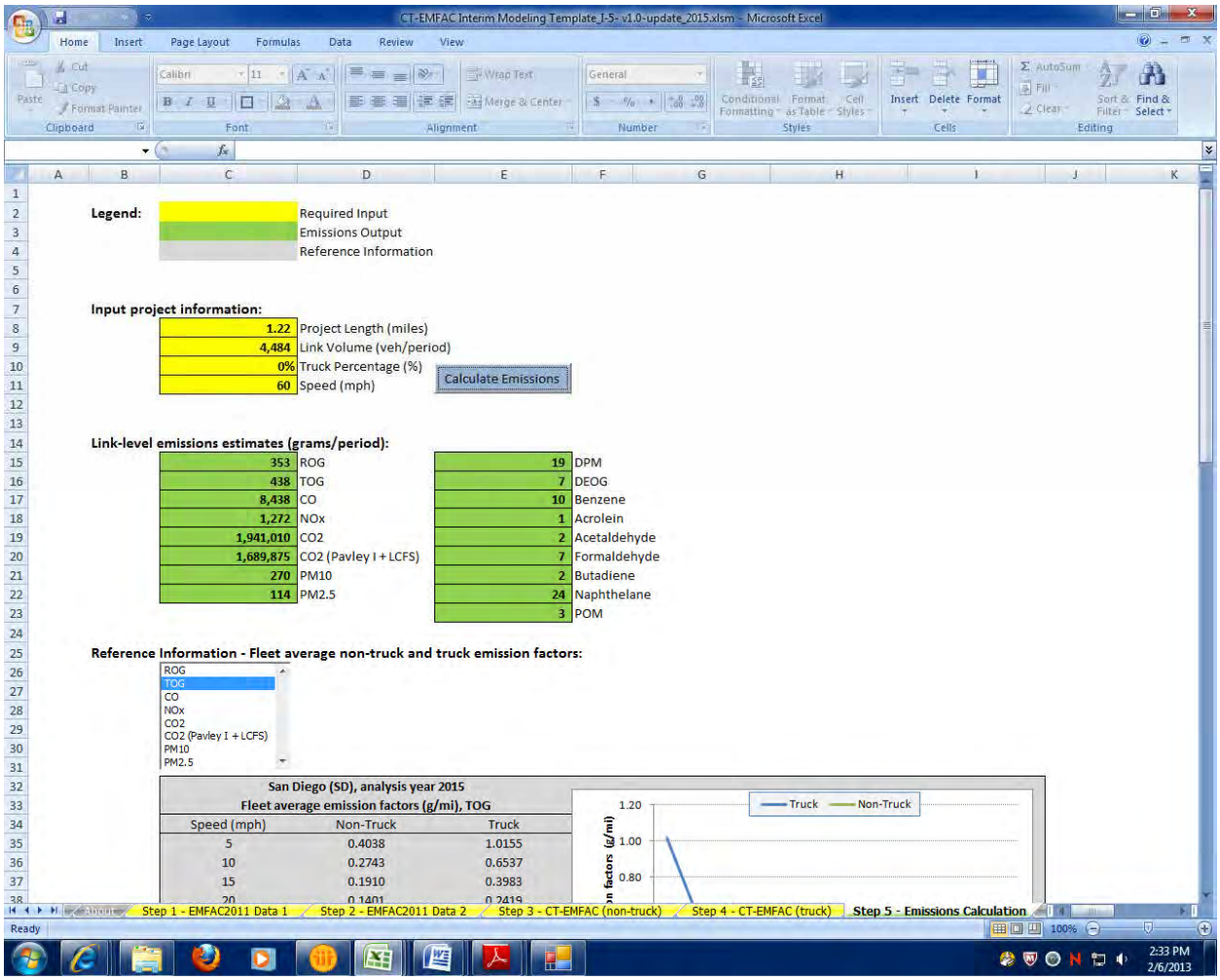
2015 No Build
Link: 2 (NB HOV)
Segment: 3
Peak



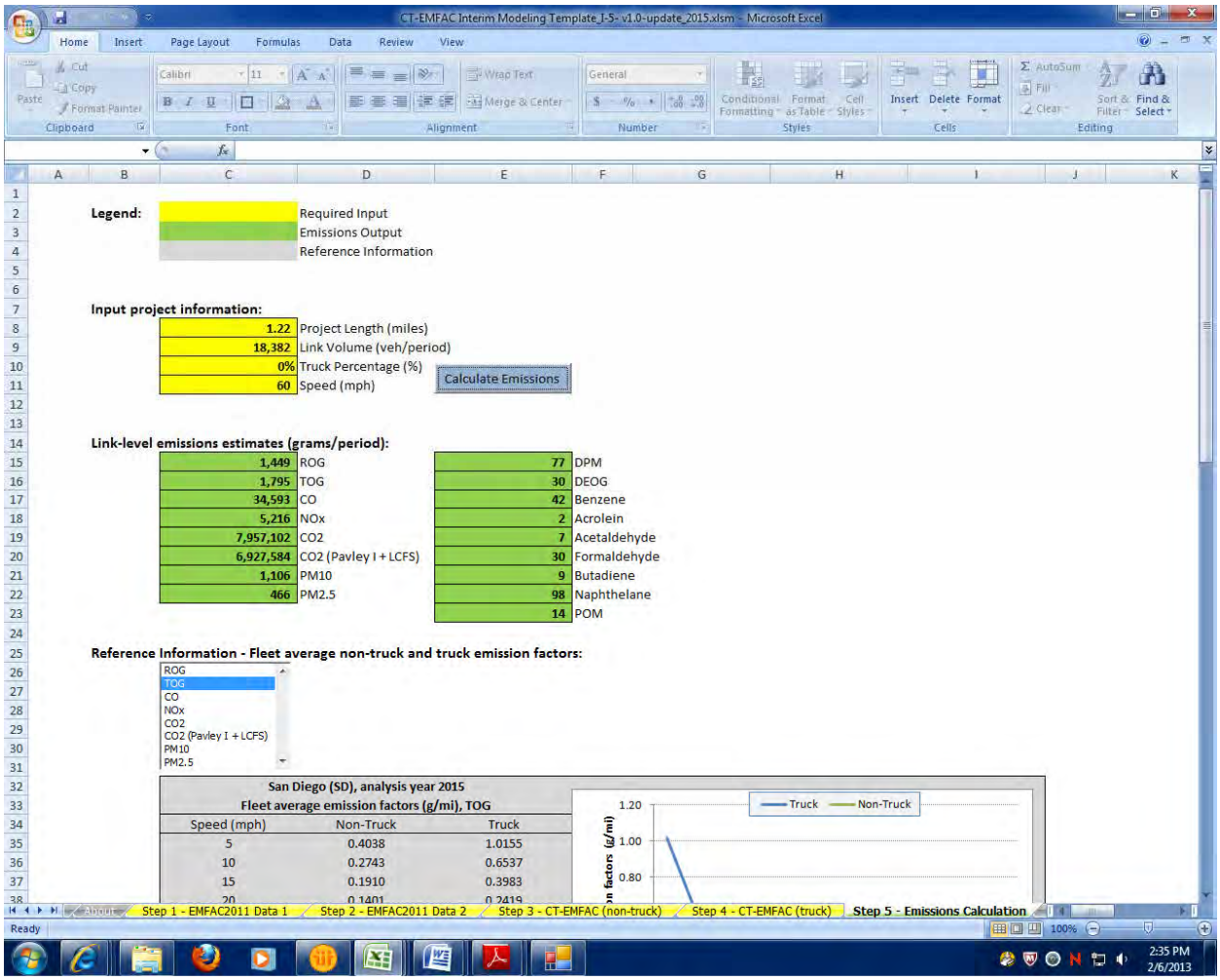
2015 No Build
Link: 2 (NB HOV)
Segment: 3
Off Peak



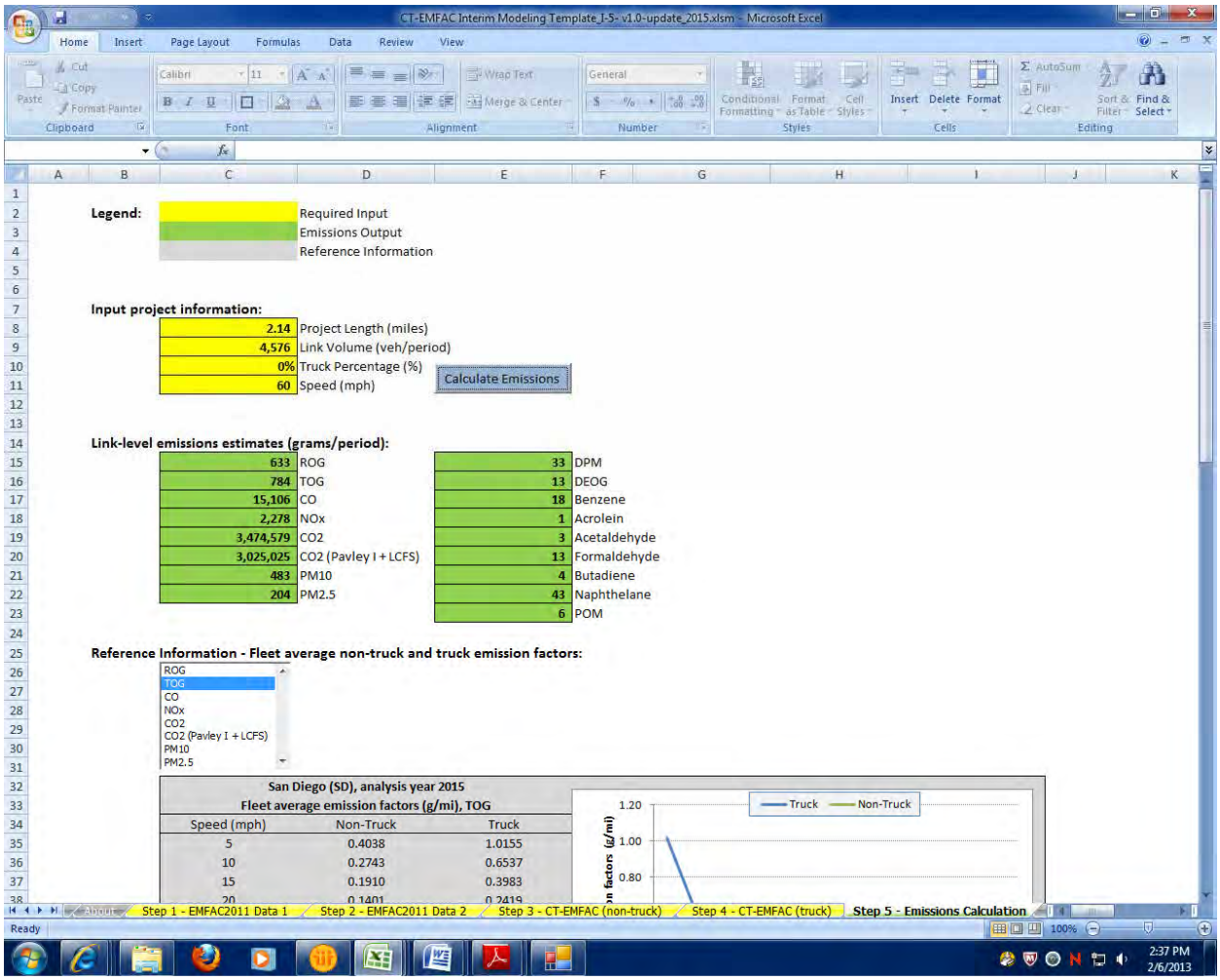
2015 No Build
Link: 2 (NB HOV)
Segment: 4
Peak



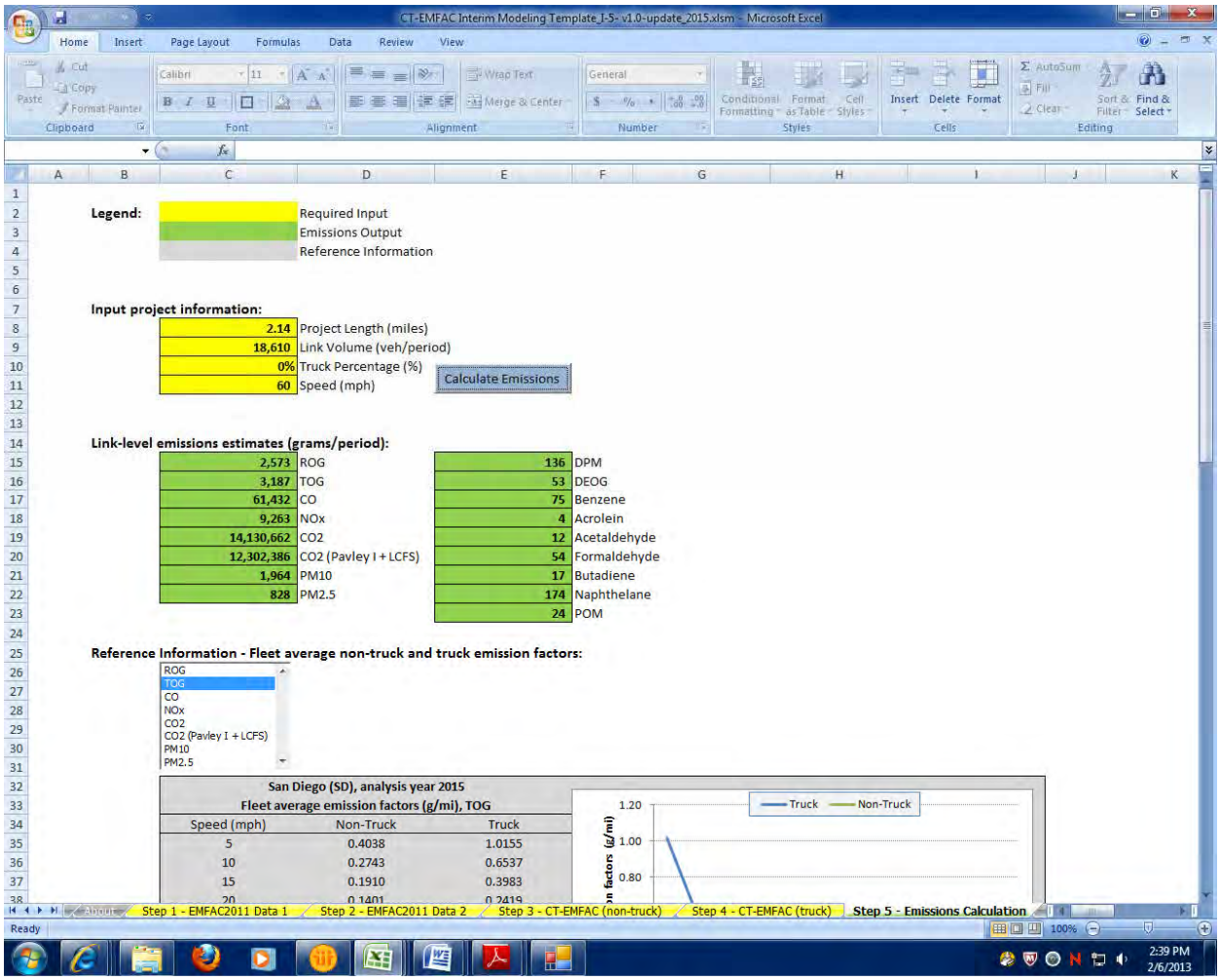
2015 No Build
Link: 2 (NB HOV)
Segment: 4
Off Peak



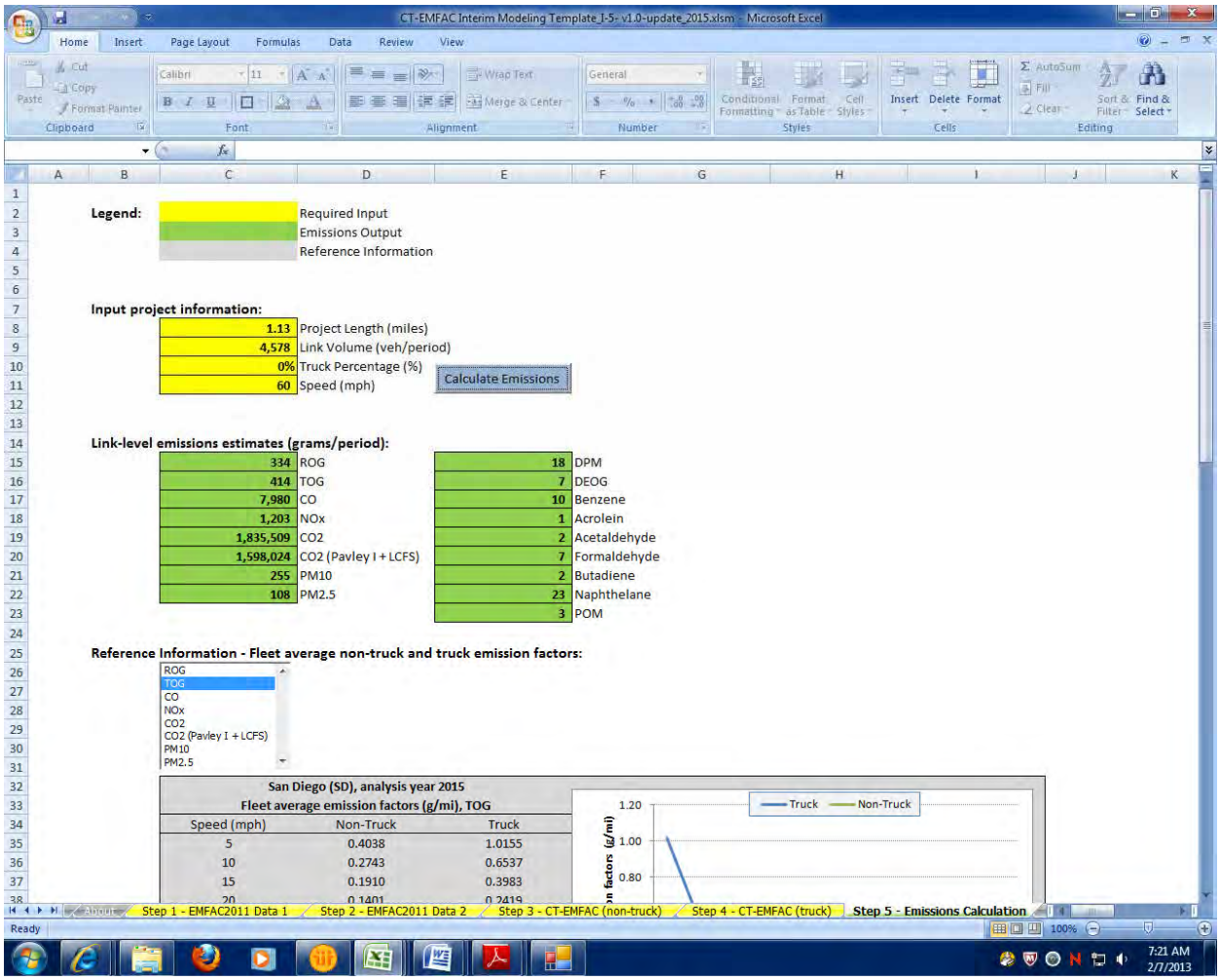
2015 No Build
Link: 2 (NB HOV)
Segment: 5
Peak



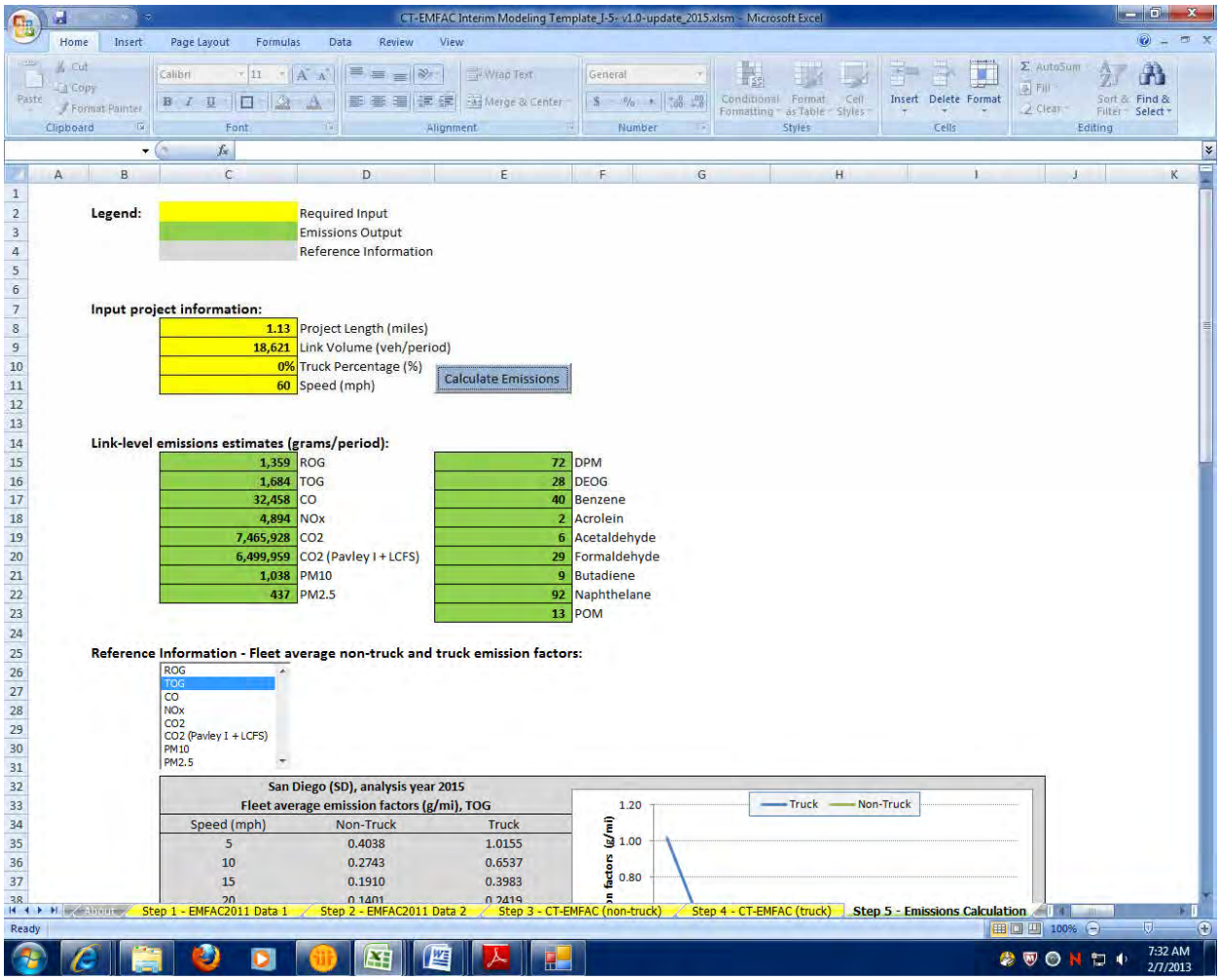
2015 No Build
Link: 2 (NB HOV)
Segment: 5
Off Peak



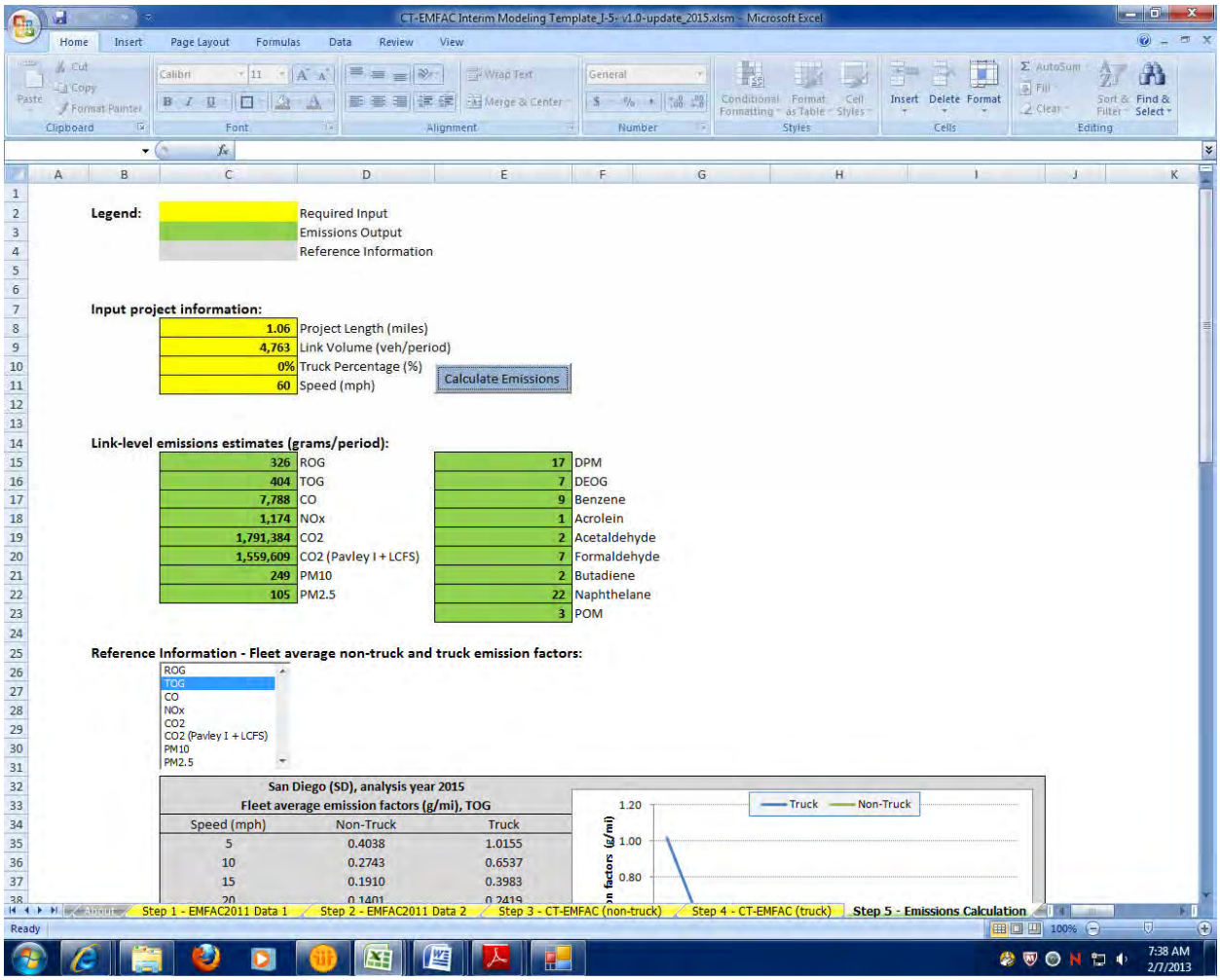
2015 No Build
Link: 2 (NB HOV)
Segment: 6
Peak



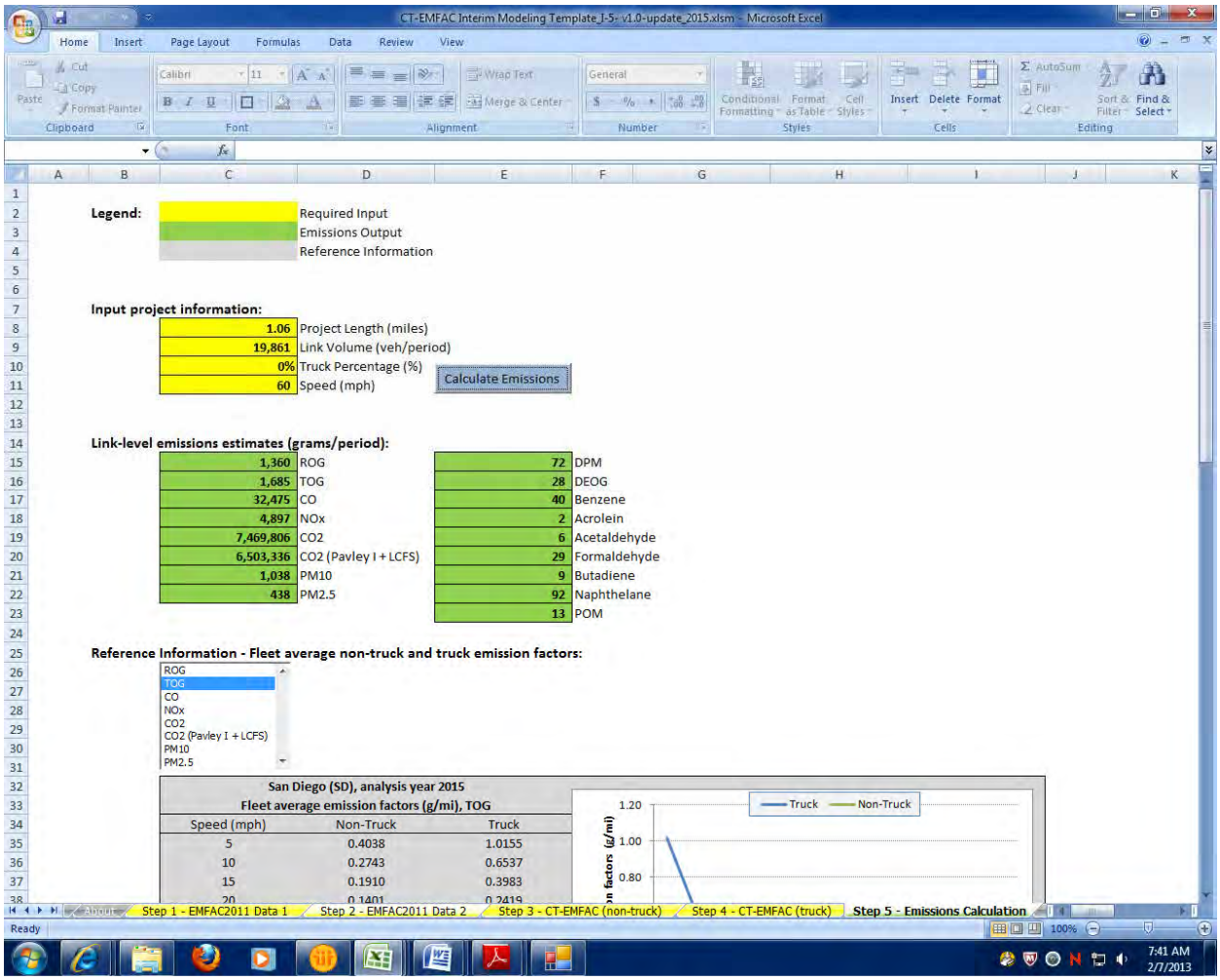
2015 No Build
Link: 2 (NB HOV)
Segment: 6
Off Peak



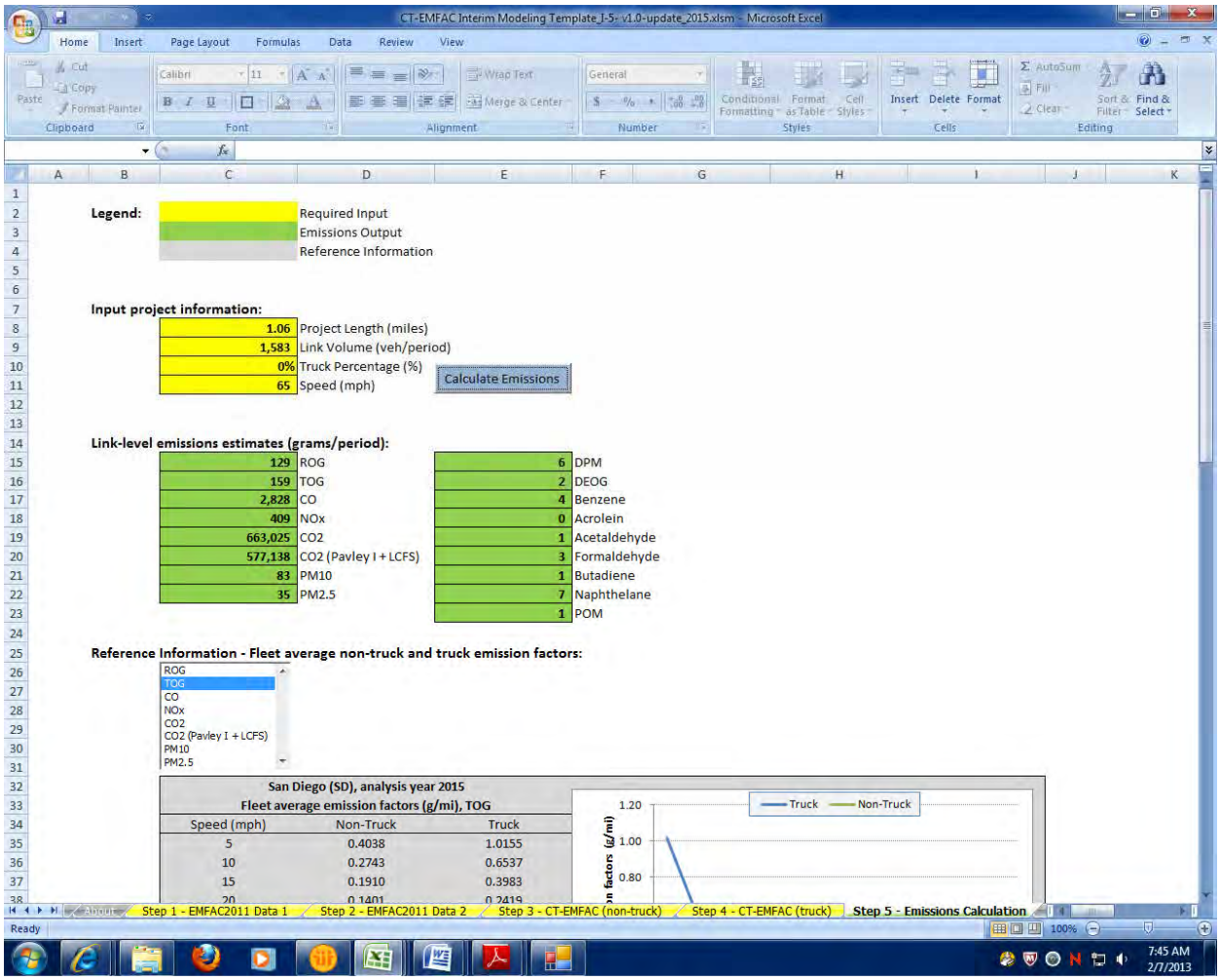
2015 No Build
Link: 2 (NB HOV)
Segment: 7
Peak



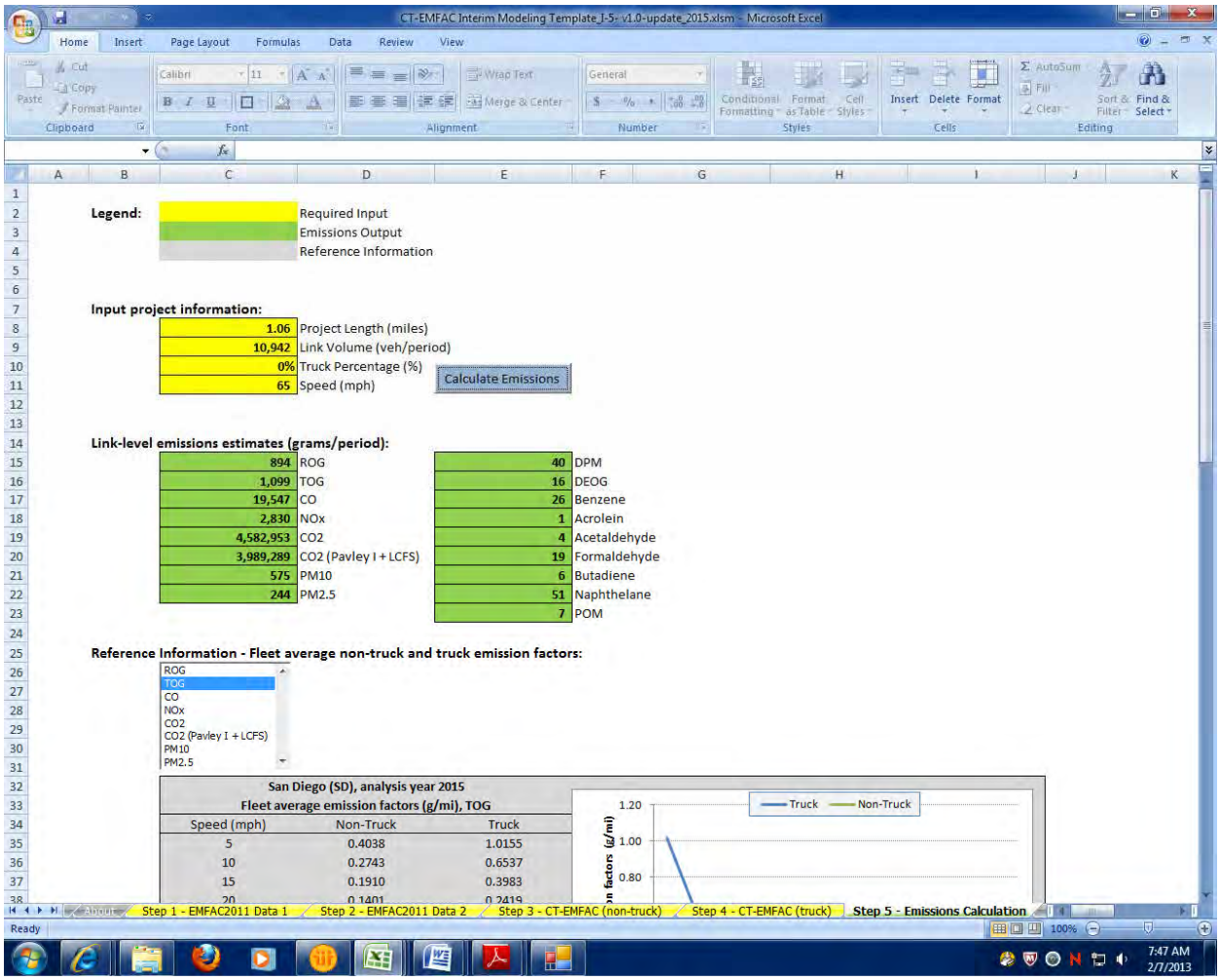
2015 No Build
Link: 2 (NB HOV)
Segment: 7
Off Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 1
Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 1
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.06	Project Length (miles)
10,942	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

894	ROG	40	DPM
1,099	TOG	16	DEOG
19,547	CO	26	Benzene
2,830	NOx	1	Acrolein
4,582,953	CO2	4	Acetaldehyde
3,989,289	CO2 (Pavley I + LCFS)	19	Formaldehyde
575	PM10	6	Butadiene
244	PM2.5	51	Naphthelane
		7	POM

Reference Information - Fleet average non-truck and truck emission factors:

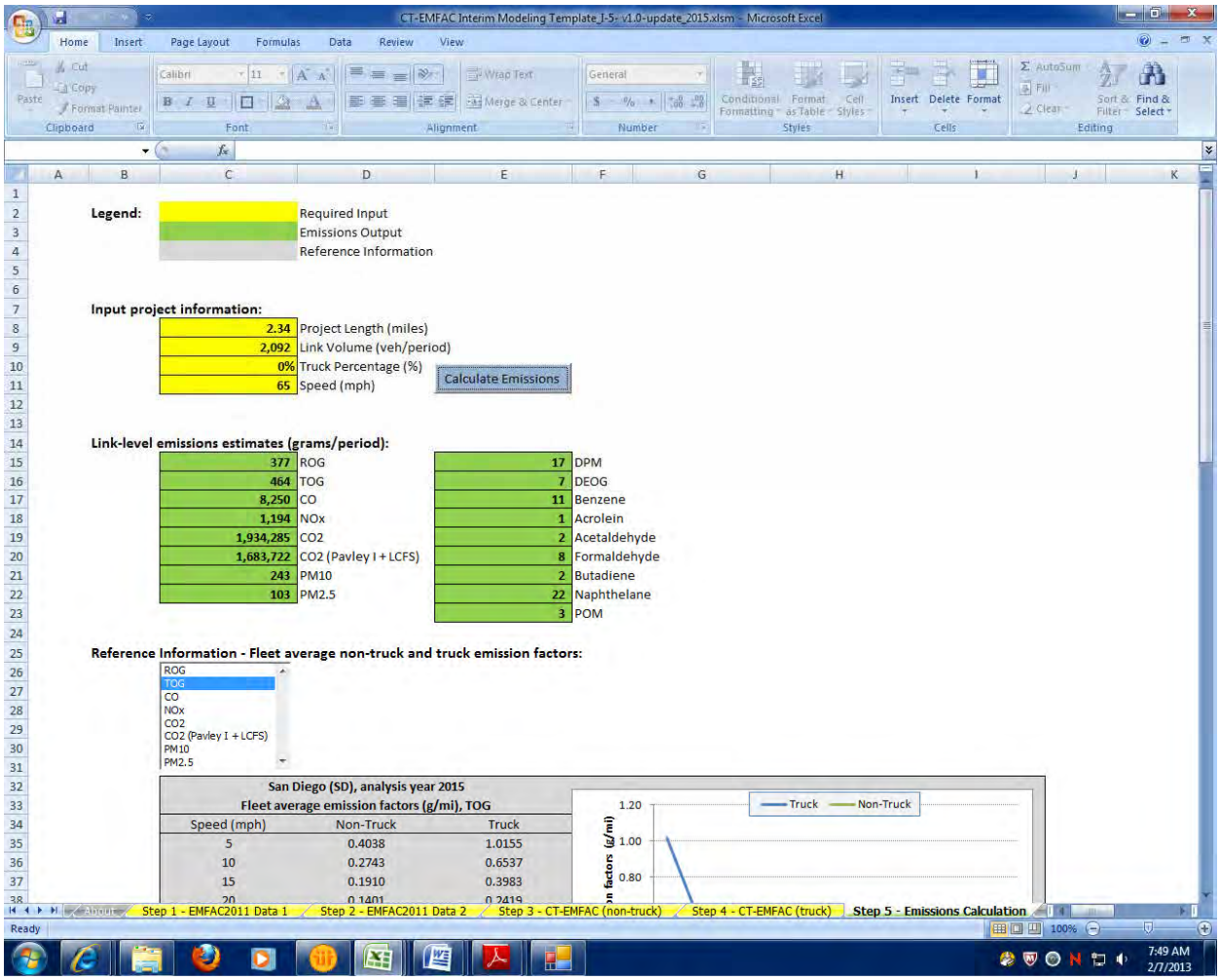
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

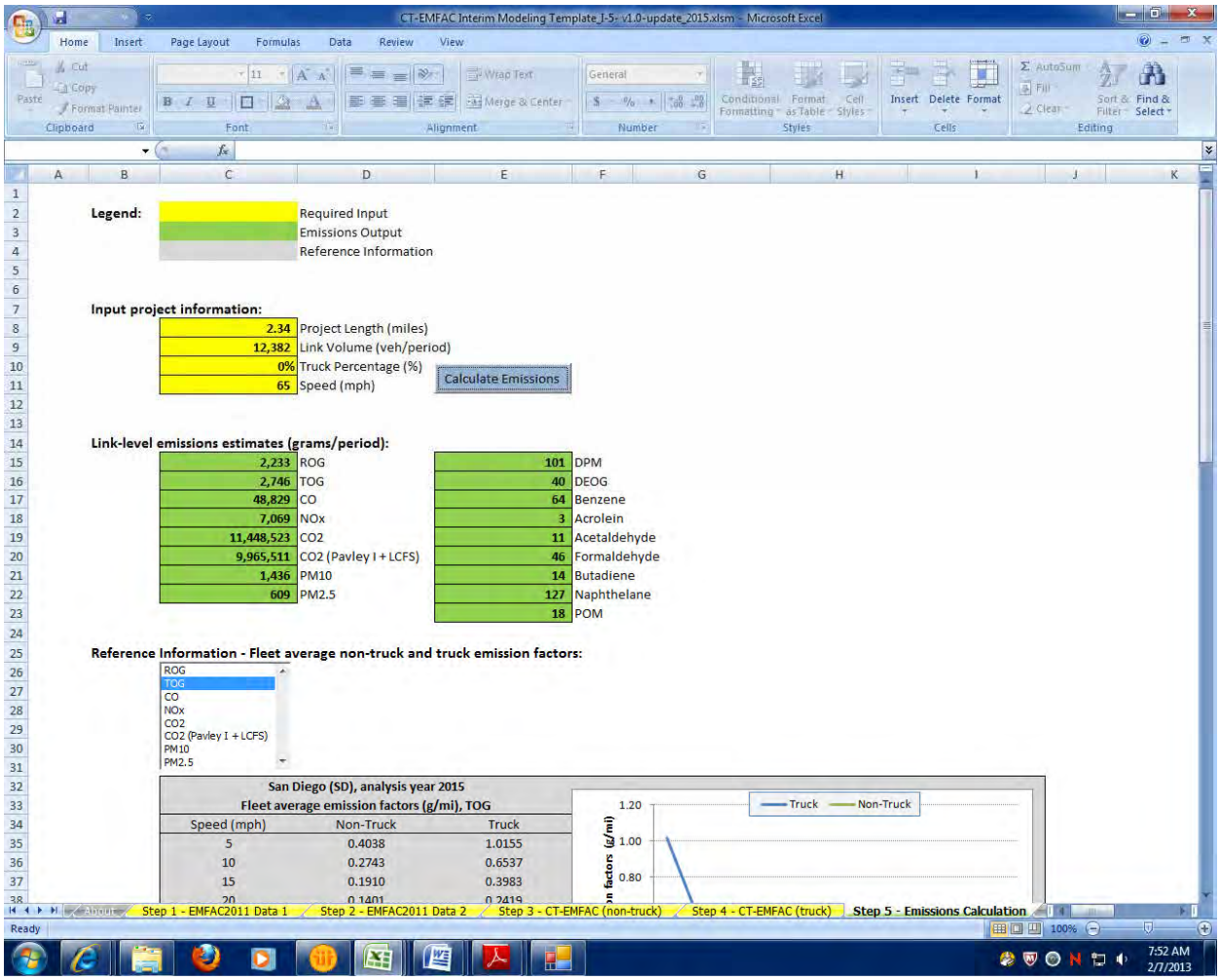
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 3 (SB HOV)
Segment: 2
Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 2
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.34	Project Length (miles)
12,382	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,233	ROG	101	DPM
2,746	TOG	40	DEOG
48,829	CO	64	Benzene
7,069	NOx	3	Acrolein
11,448,523	CO2	11	Acetaldehyde
9,965,511	CO2 (Pavley I + LCFS)	46	Formaldehyde
1,436	PM10	14	Butadiene
609	PM2.5	127	Naphthelane
		18	POM

Reference Information - Fleet average non-truck and truck emission factors:

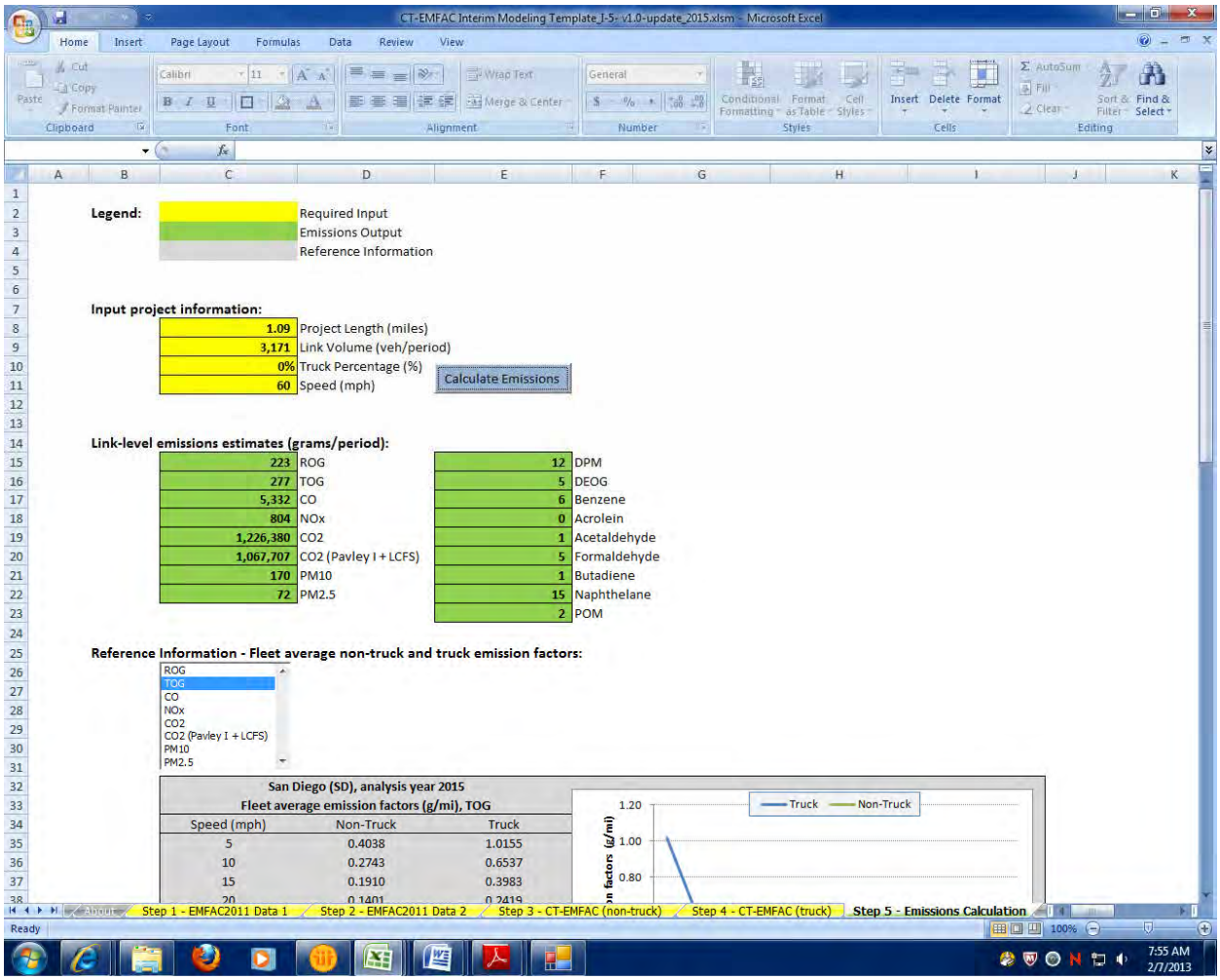
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

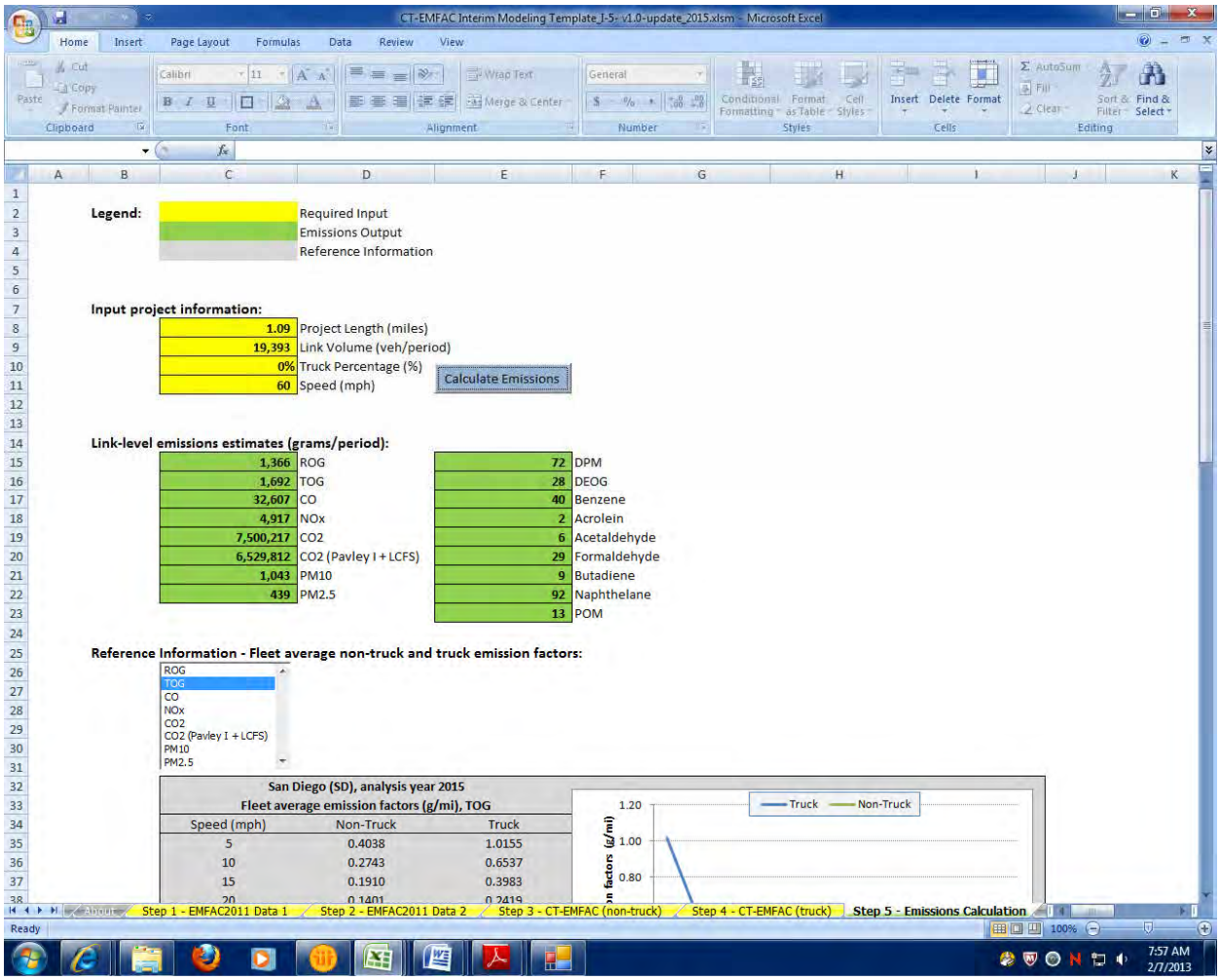
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 3 (SB HOV)
Segment: 3
Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 3
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
19,393	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,366	ROG	72	DPM
1,692	TOG	28	DEOG
32,607	CO	40	Benzene
4,917	NOx	2	Acrolein
7,500,217	CO2	6	Acetaldehyde
6,529,812	CO2 (Pavley I + LCFS)	29	Formaldehyde
1,043	PM10	9	Butadiene
439	PM2.5	92	Naphthelane
		13	POM

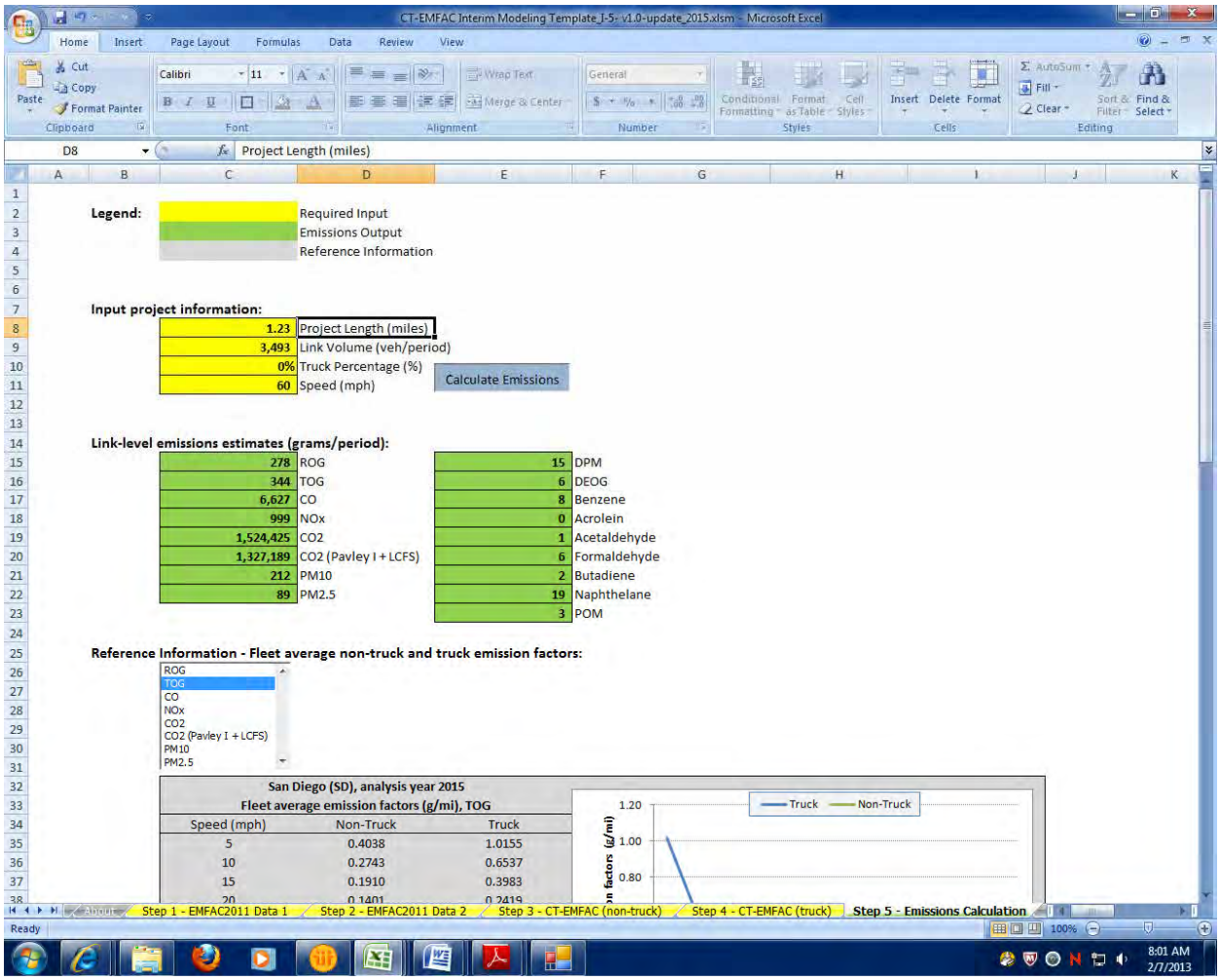
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

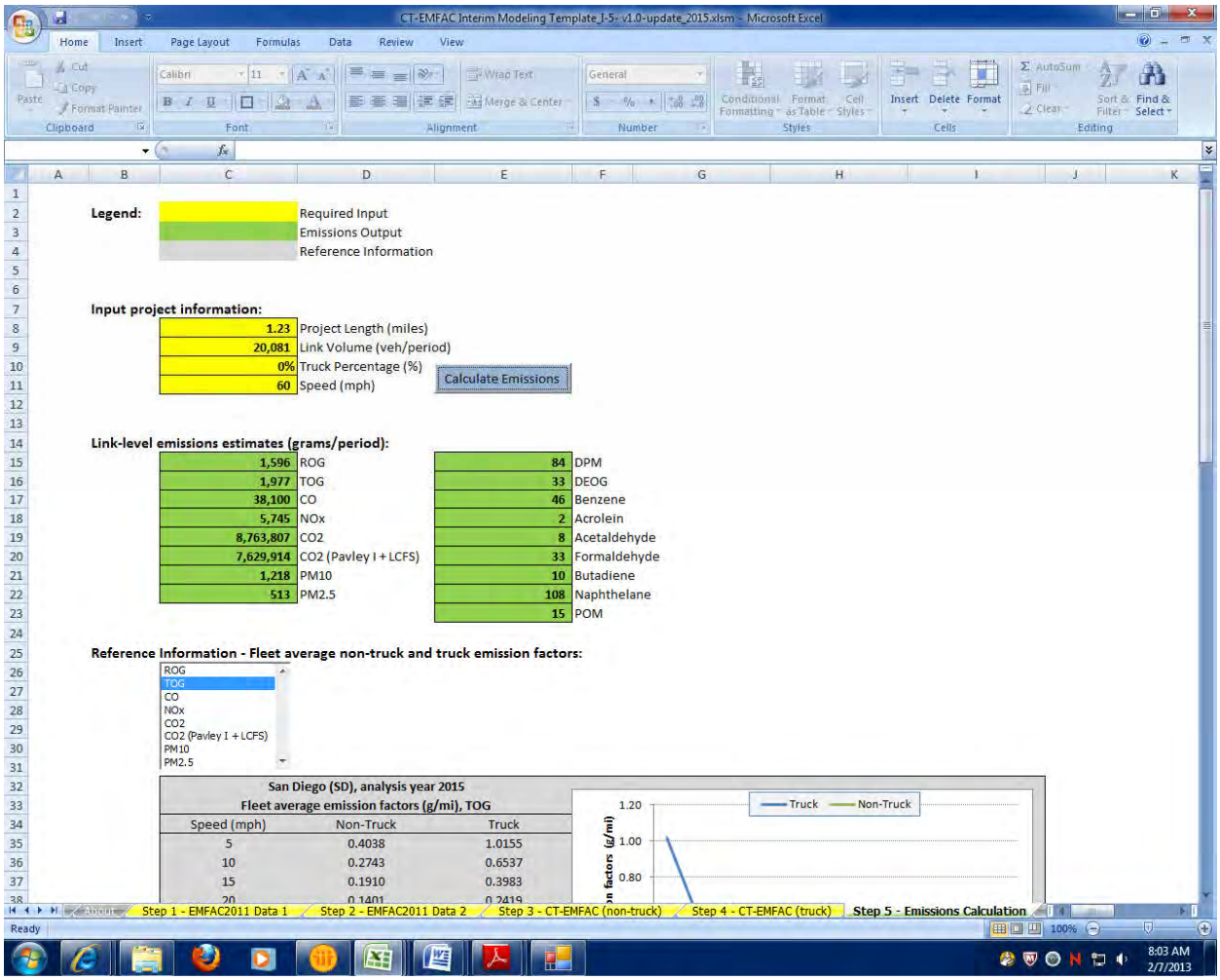
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

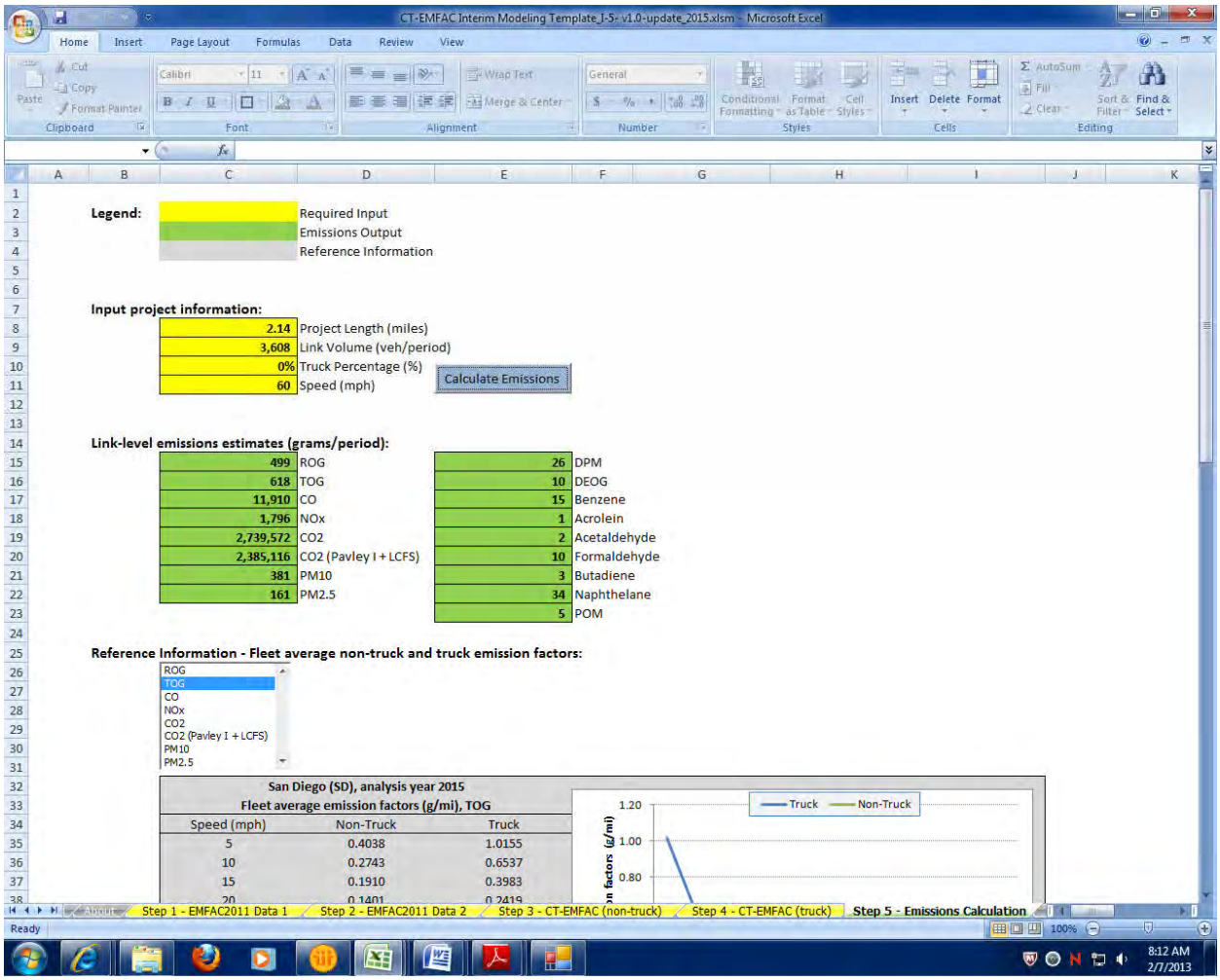
2015 No Build
Link: 3 (SB HOV)
Segment: 4
Peak



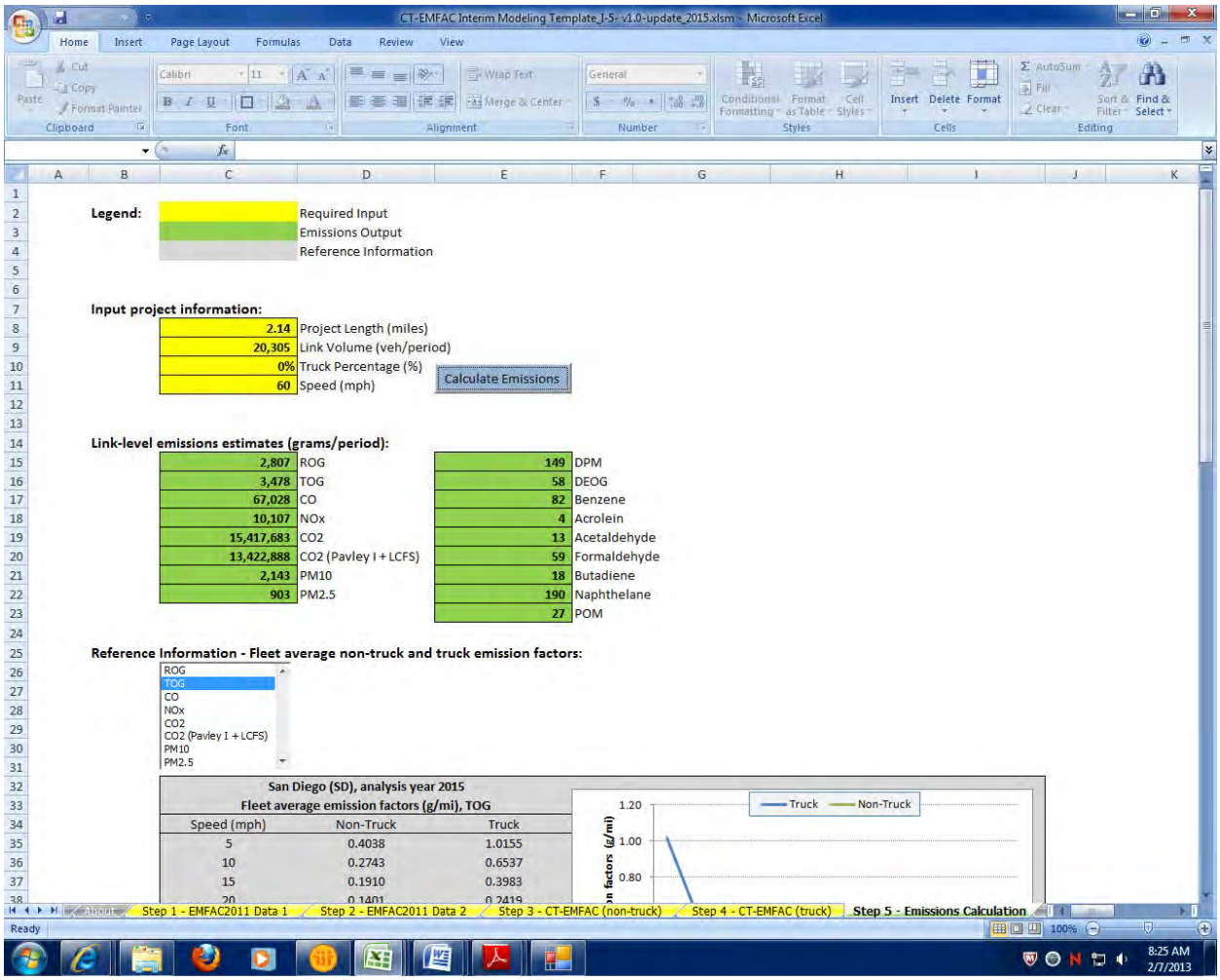
2015 No Build
Link: 3 (SB HOV)
Segment: 4
Off Peak



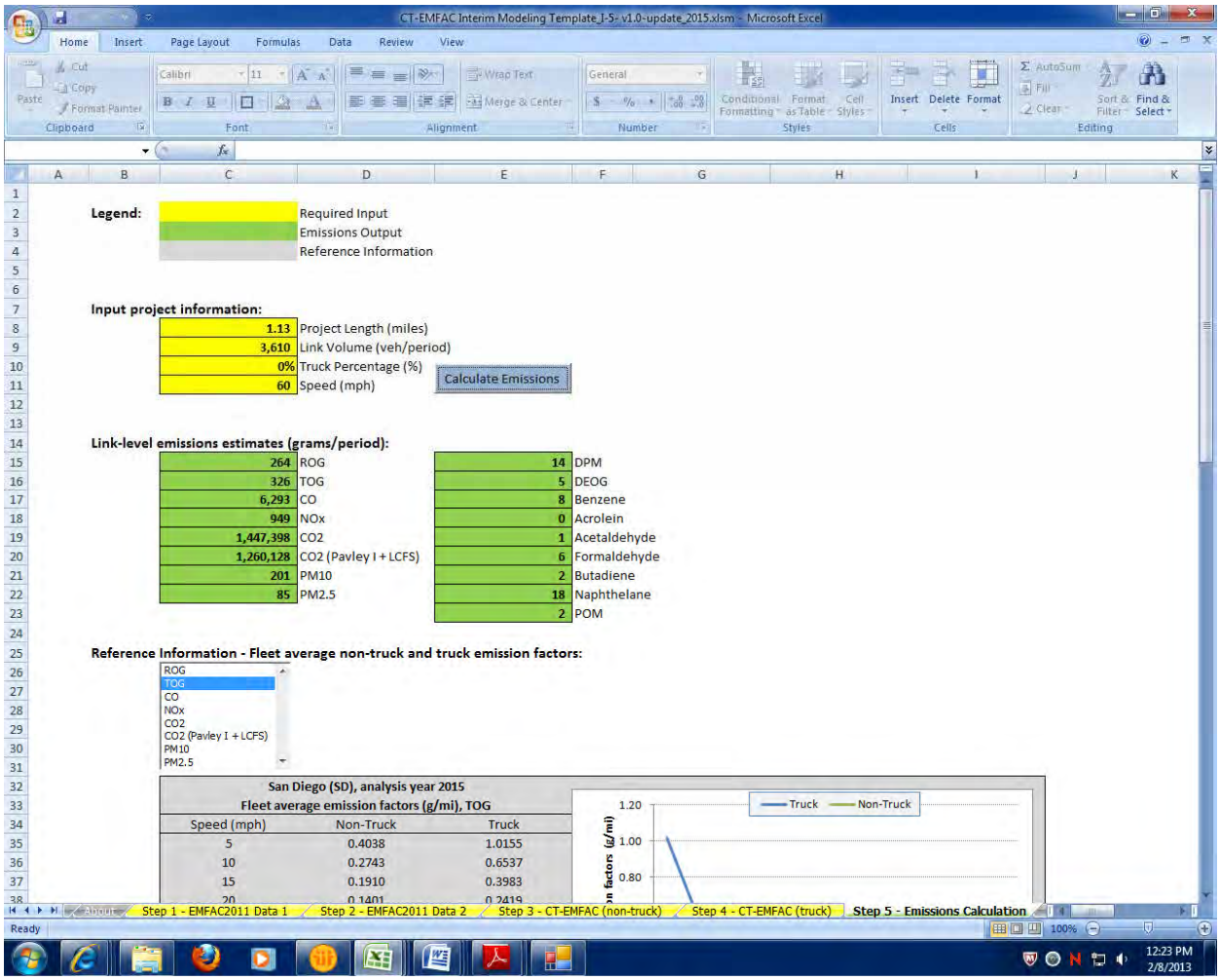
2015 No Build
Link: 3 (SB HOV)
Segment: 5
Peak



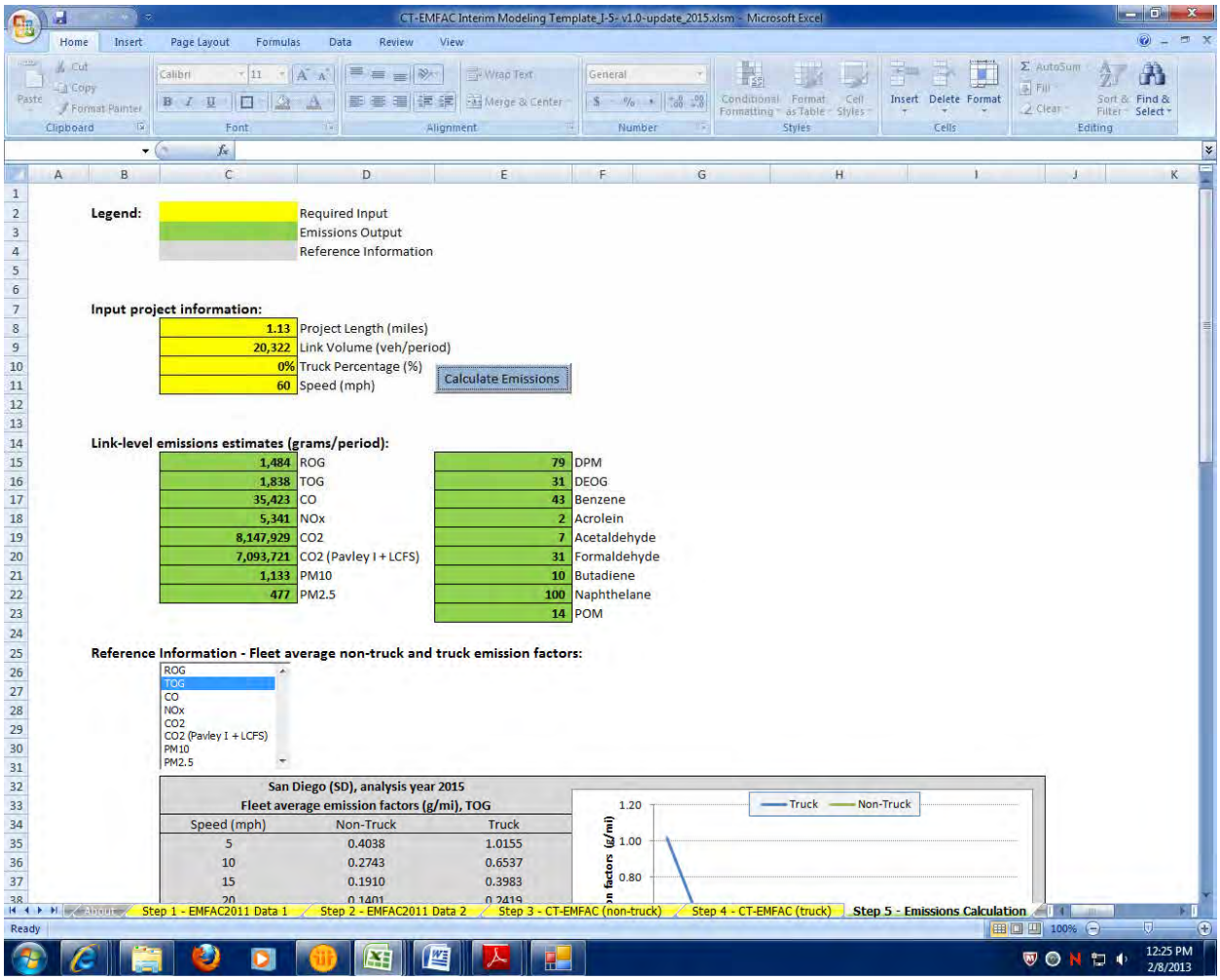
2015 No Build
Link: 3 (SB HOV)
Segment: 5
Off Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 6
Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 6
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.13	Project Length (miles)
20,322	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,484	ROG	79	DPM
1,838	TOG	31	DEOG
35,423	CO	43	Benzene
5,341	NOx	2	Acrolein
8,147,929	CO2	7	Acetaldehyde
7,093,721	CO2 (Pavley I + LCFS)	31	Formaldehyde
1,133	PM10	10	Butadiene
477	PM2.5	100	Naphthelane
		14	POM

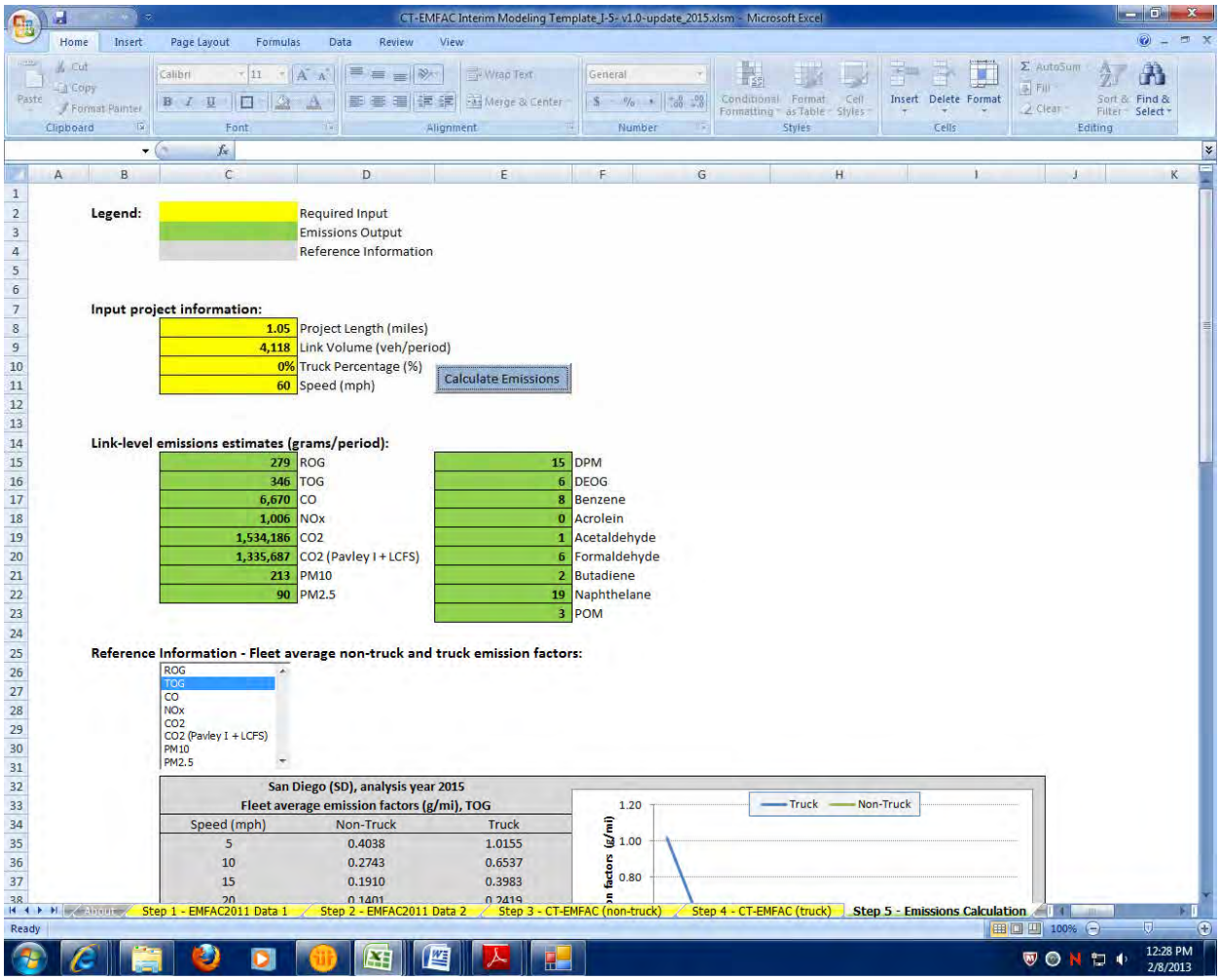
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

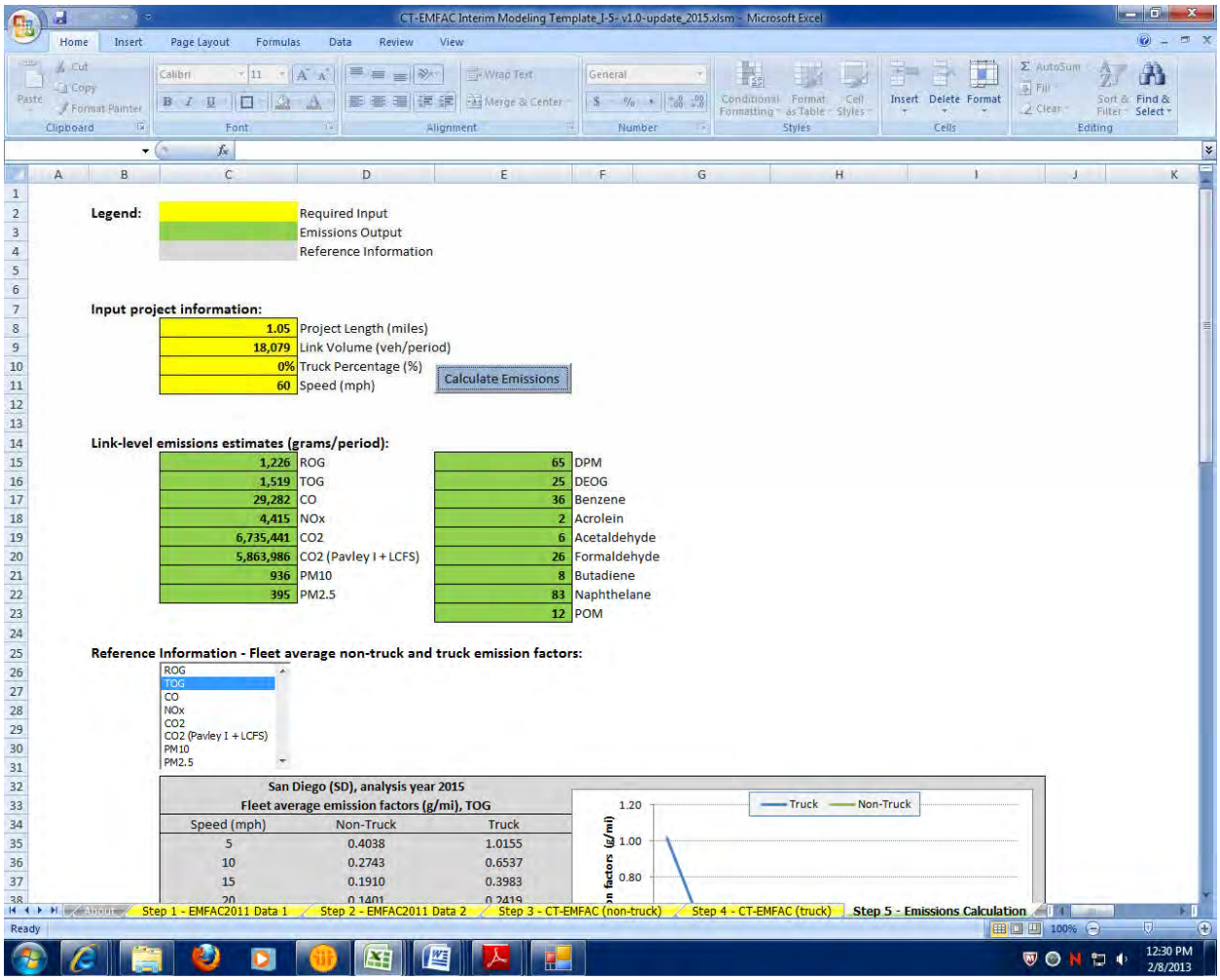
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 3 (SB HOV)
Segment: 7
Peak



2015 No Build
Link: 3 (SB HOV)
Segment: 7
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.05	Project Length (miles)
18,079	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,226	ROG	65	DPM
1,519	TOG	25	DEOG
29,282	CO	36	Benzene
4,415	NOx	2	Acrolein
6,735,441	CO2	6	Acetaldehyde
5,863,986	CO2 (Pavley I + LCFS)	26	Formaldehyde
936	PM10	8	Butadiene
395	PM2.5	83	Naphthelane
		12	POM

Reference Information - Fleet average non-truck and truck emission factors:

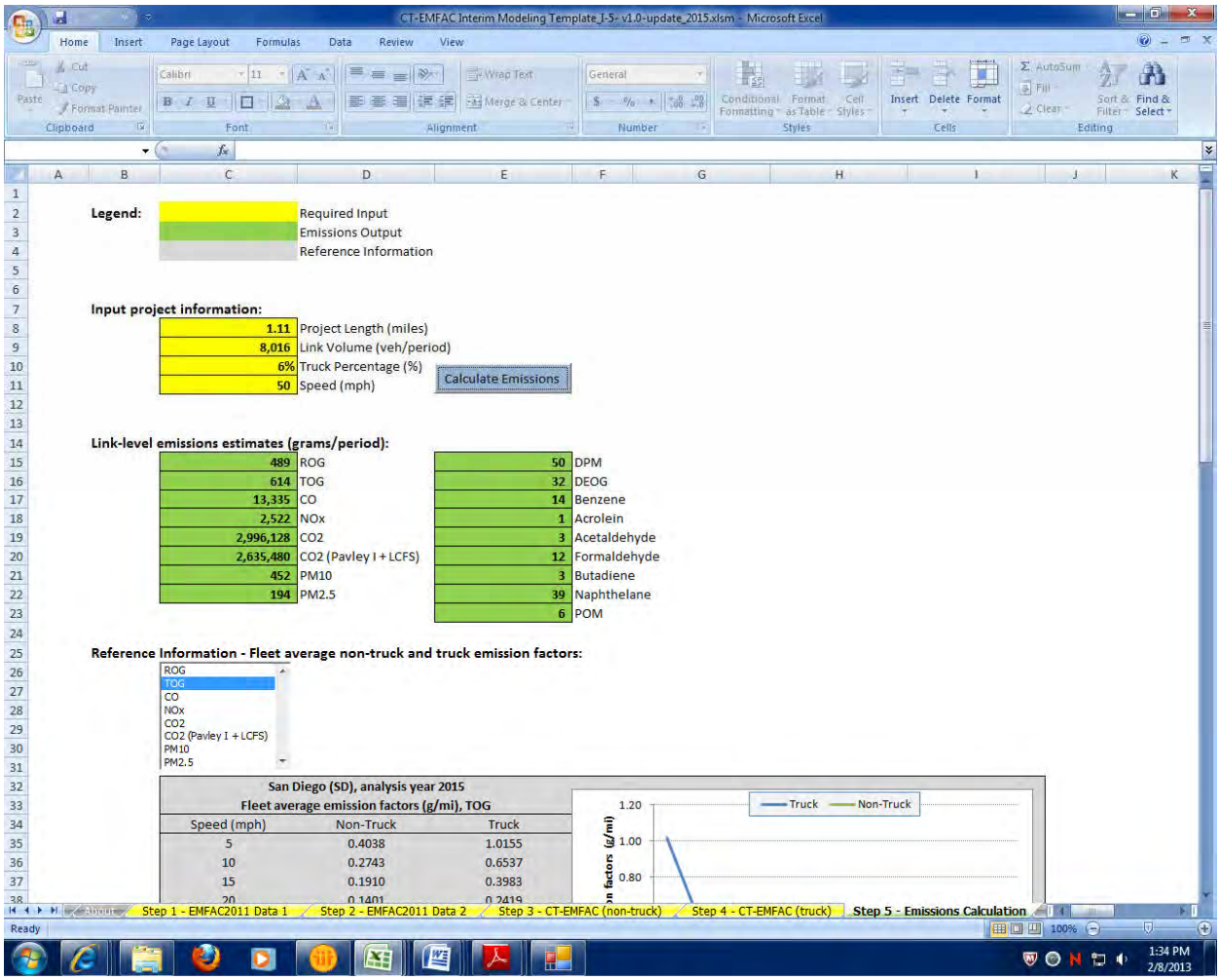
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

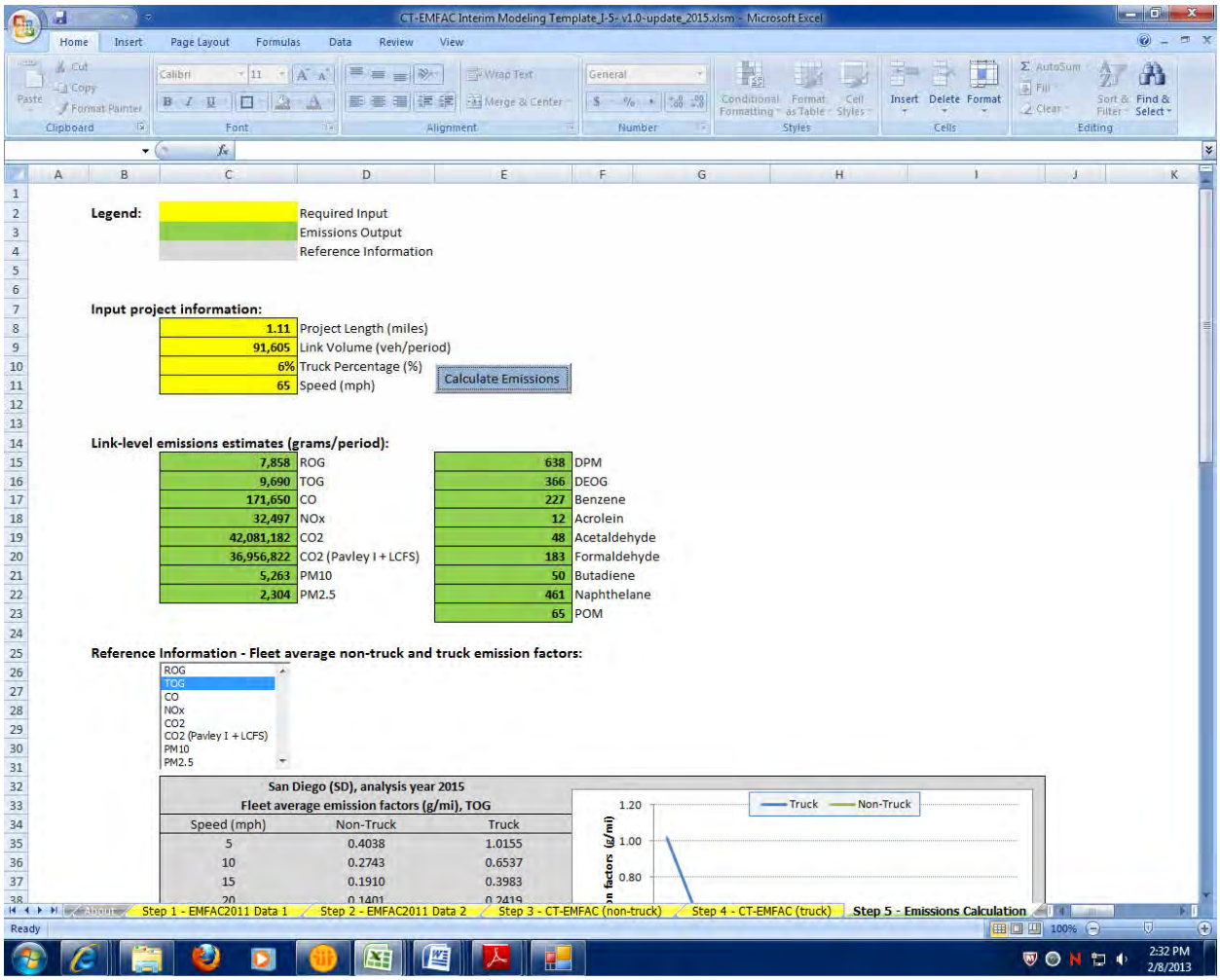
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 4 (SB GP)
Segment: 1
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 1
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.11	Project Length (miles)
91,605	Link Volume (veh/period)
6%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,858	ROG	638	DPM
9,690	TOG	366	DEOG
171,650	CO	227	Benzene
32,497	NOx	12	Acrolein
42,081,182	CO2	48	Acetaldehyde
36,956,822	CO2 (Pavley I + LCFS)	183	Formaldehyde
5,263	PM10	50	Butadiene
2,304	PM2.5	461	Naphthelane
		65	POM

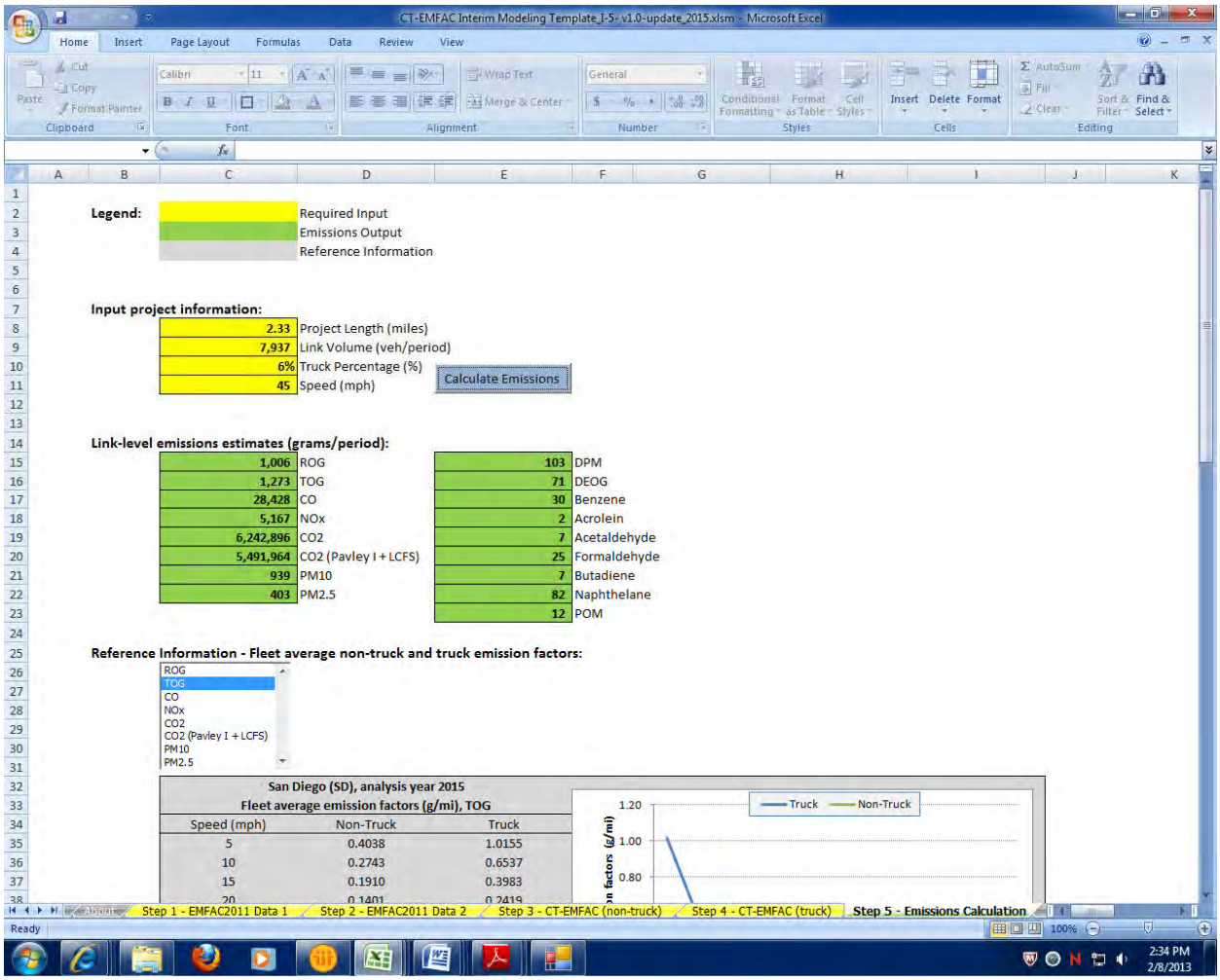
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

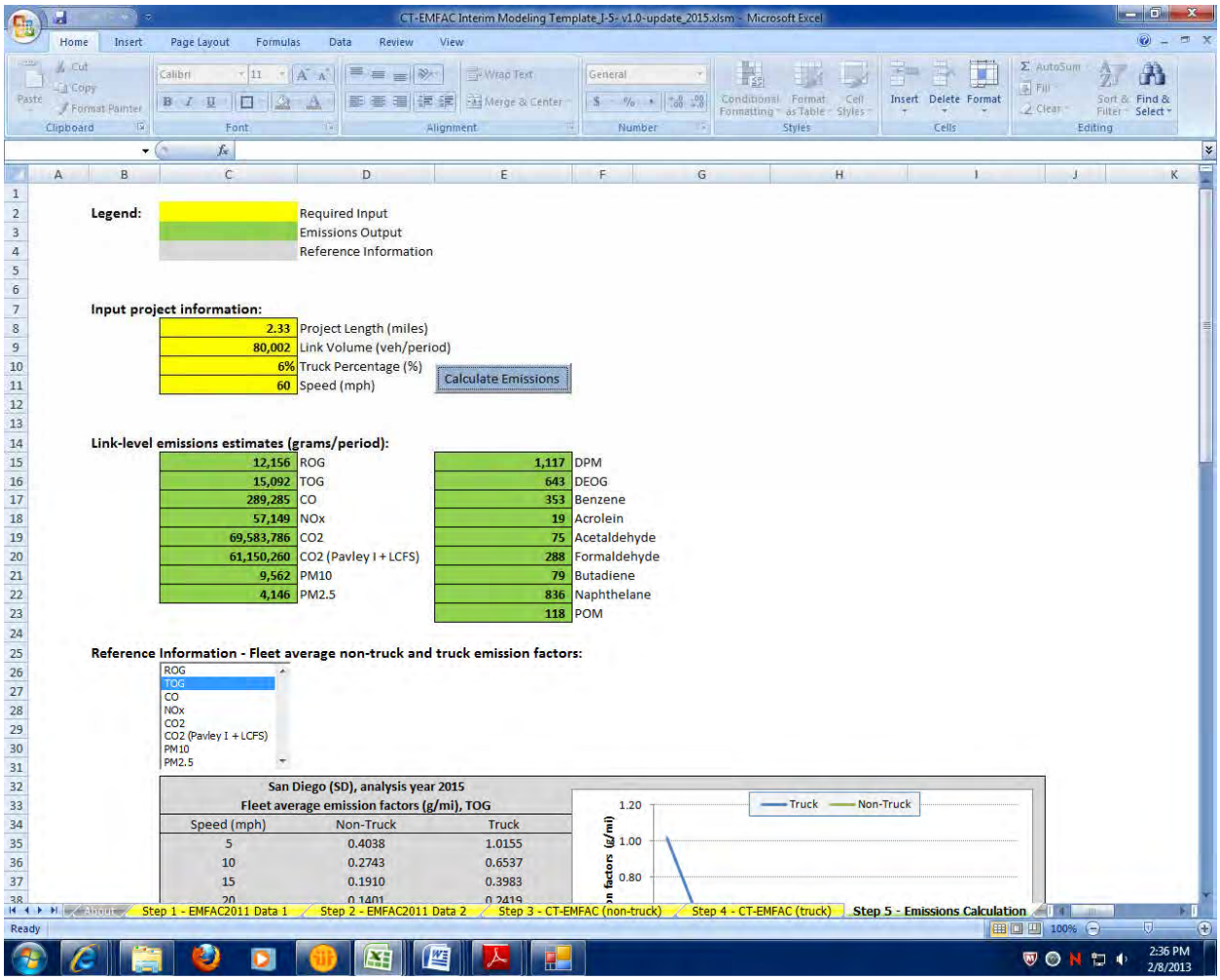
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 2
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.33	Project Length (miles)
80,002	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

12,156	ROG	1,117	DPM
15,092	TOG	643	DEOG
289,285	CO	353	Benzene
57,149	NOx	19	Acrolein
69,583,786	CO2	75	Acetaldehyde
61,150,260	CO2 (Pavley I + LCFS)	288	Formaldehyde
9,562	PM10	79	Butadiene
4,146	PM2.5	836	Naphthelane
		118	POM

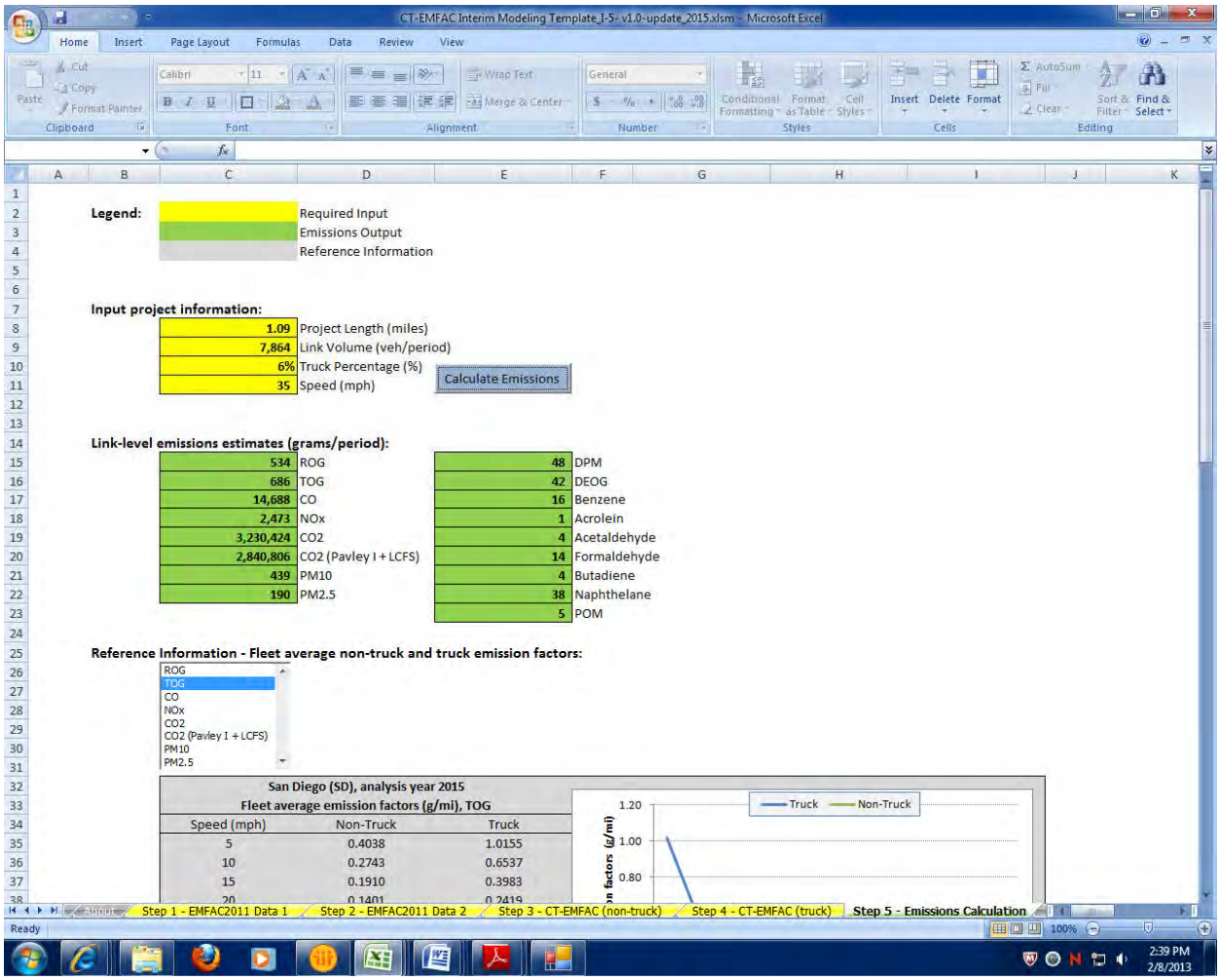
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

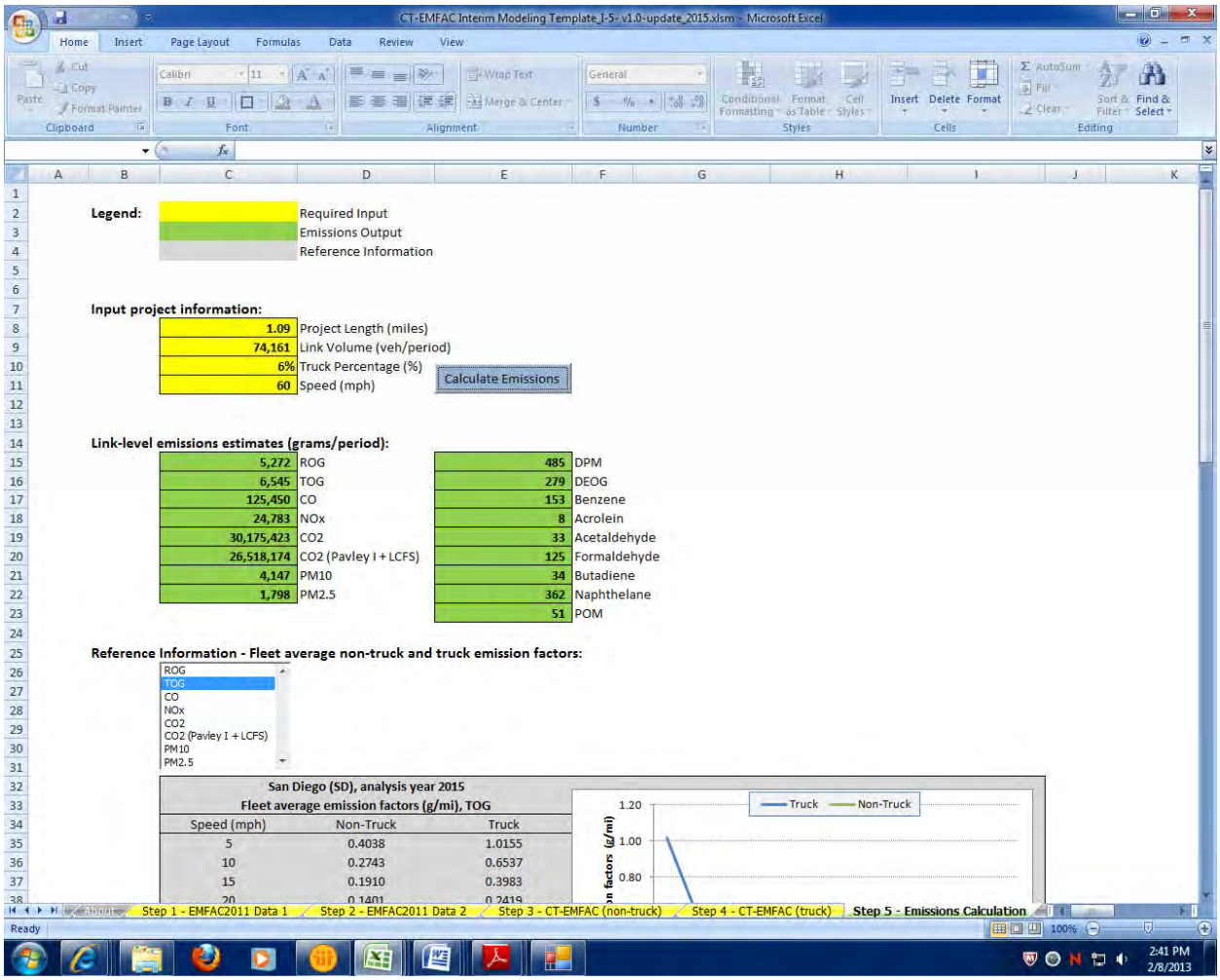
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 3
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 3
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
74,161	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,272	ROG	485	DPM
6,545	TOG	279	DEOG
125,450	CO	153	Benzene
24,783	NOx	8	Acrolein
30,175,423	CO2	33	Acetaldehyde
26,518,174	CO2 (Pavley I + LCFS)	125	Formaldehyde
4,147	PM10	34	Butadiene
1,798	PM2.5	362	Naphthelane
		51	POM

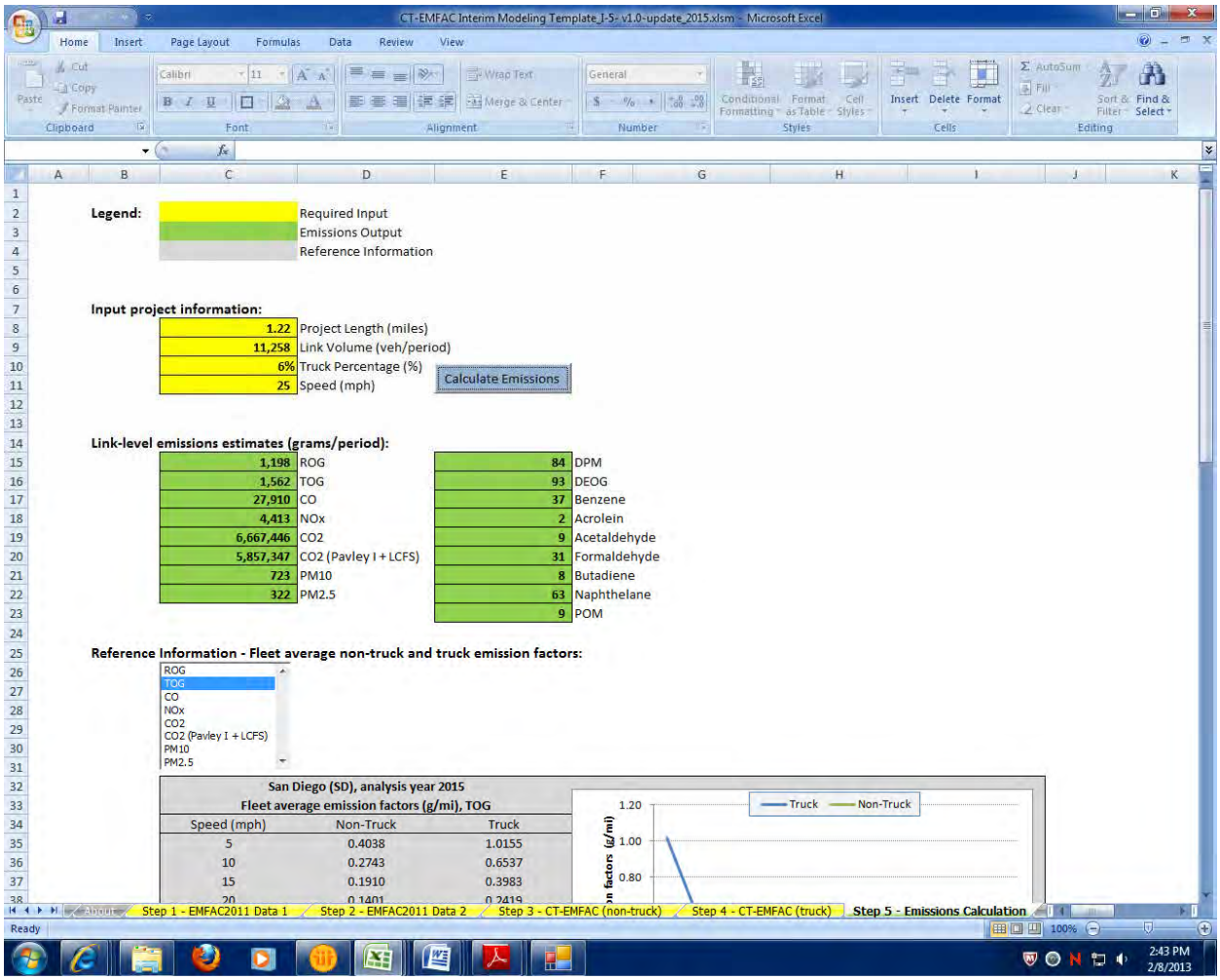
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

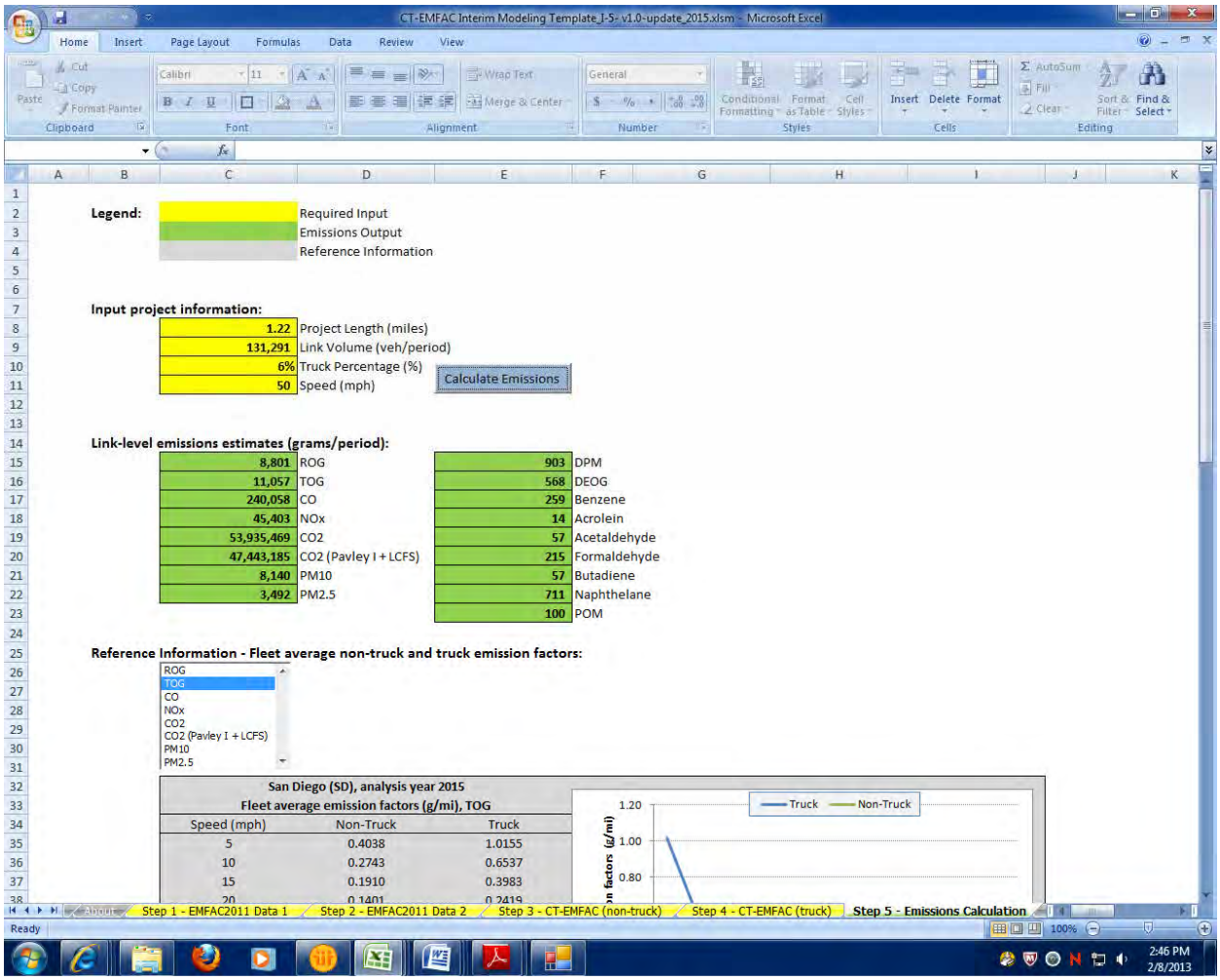
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 4
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 4
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.22	Project Length (miles)
131,291	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,801	ROG	903	DPM
11,057	TOG	568	DEOG
240,058	CO	259	Benzene
45,403	NOx	14	Acrolein
53,935,469	CO2	57	Acetaldehyde
47,443,185	CO2 (Pavley I + LCFS)	215	Formaldehyde
8,140	PM10	57	Butadiene
3,492	PM2.5	711	Naphthelane
		100	POM

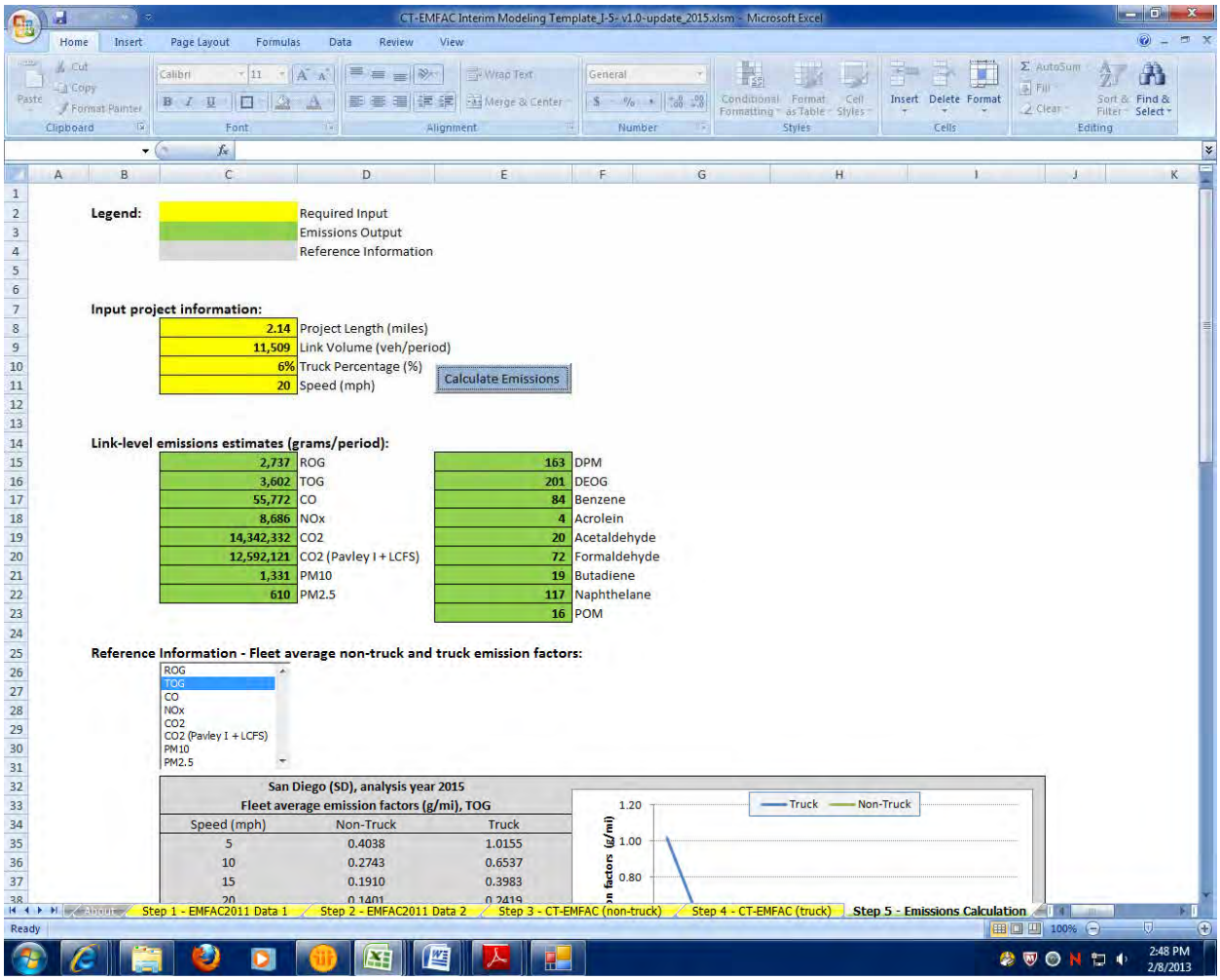
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

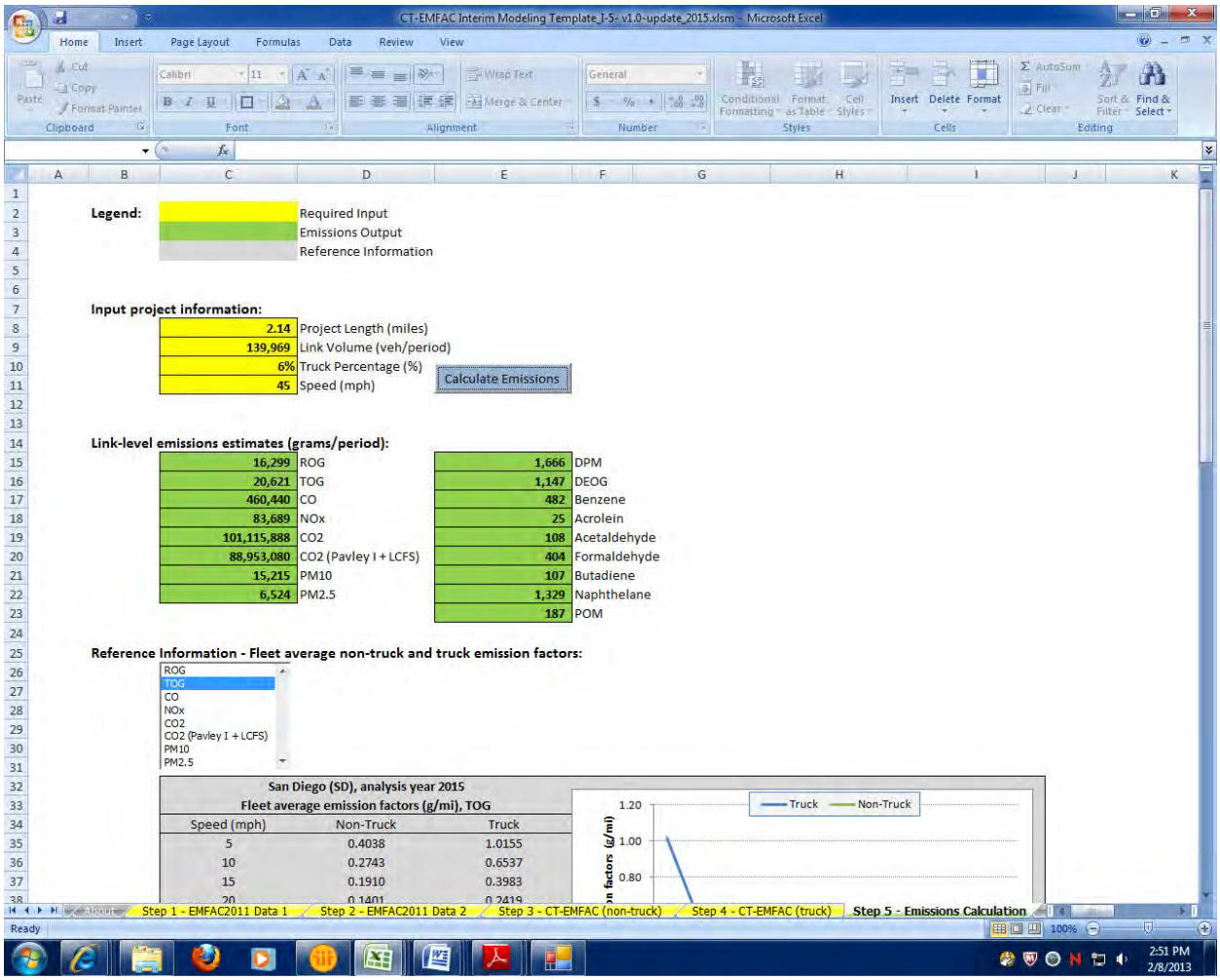
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 5
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 5
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.14	Project Length (miles)
139,969	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

16,299	ROG	1,666	DPM
20,621	TOG	1,147	DEOG
460,440	CO	482	Benzene
83,689	NOx	25	Acrolein
101,115,888	CO2	108	Acetaldehyde
88,953,080	CO2 (Pavley I + LCFS)	404	Formaldehyde
15,215	PM10	107	Butadiene
6,524	PM2.5	1,329	Naphthelane
		187	POM

Reference Information - Fleet average non-truck and truck emission factors:

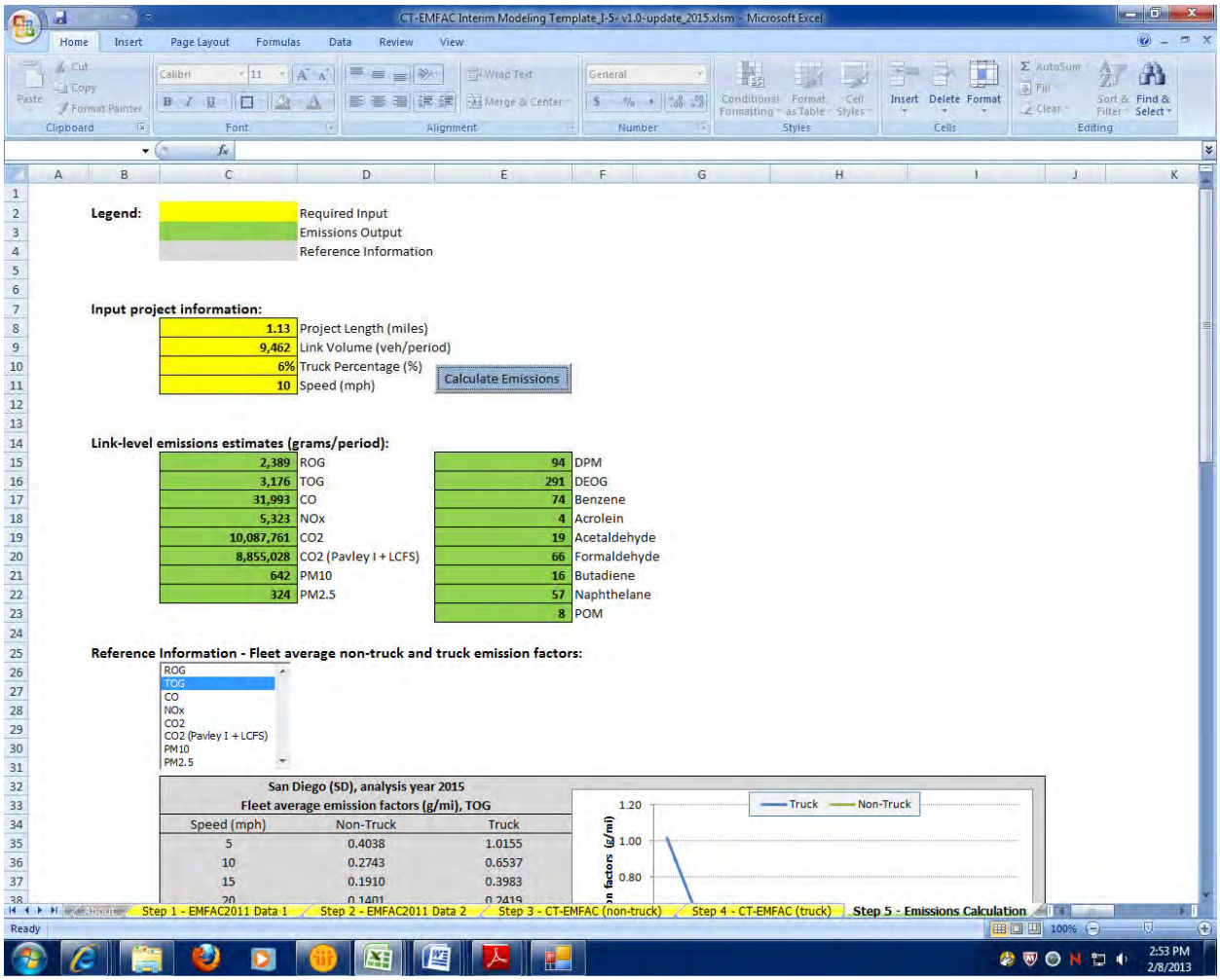
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

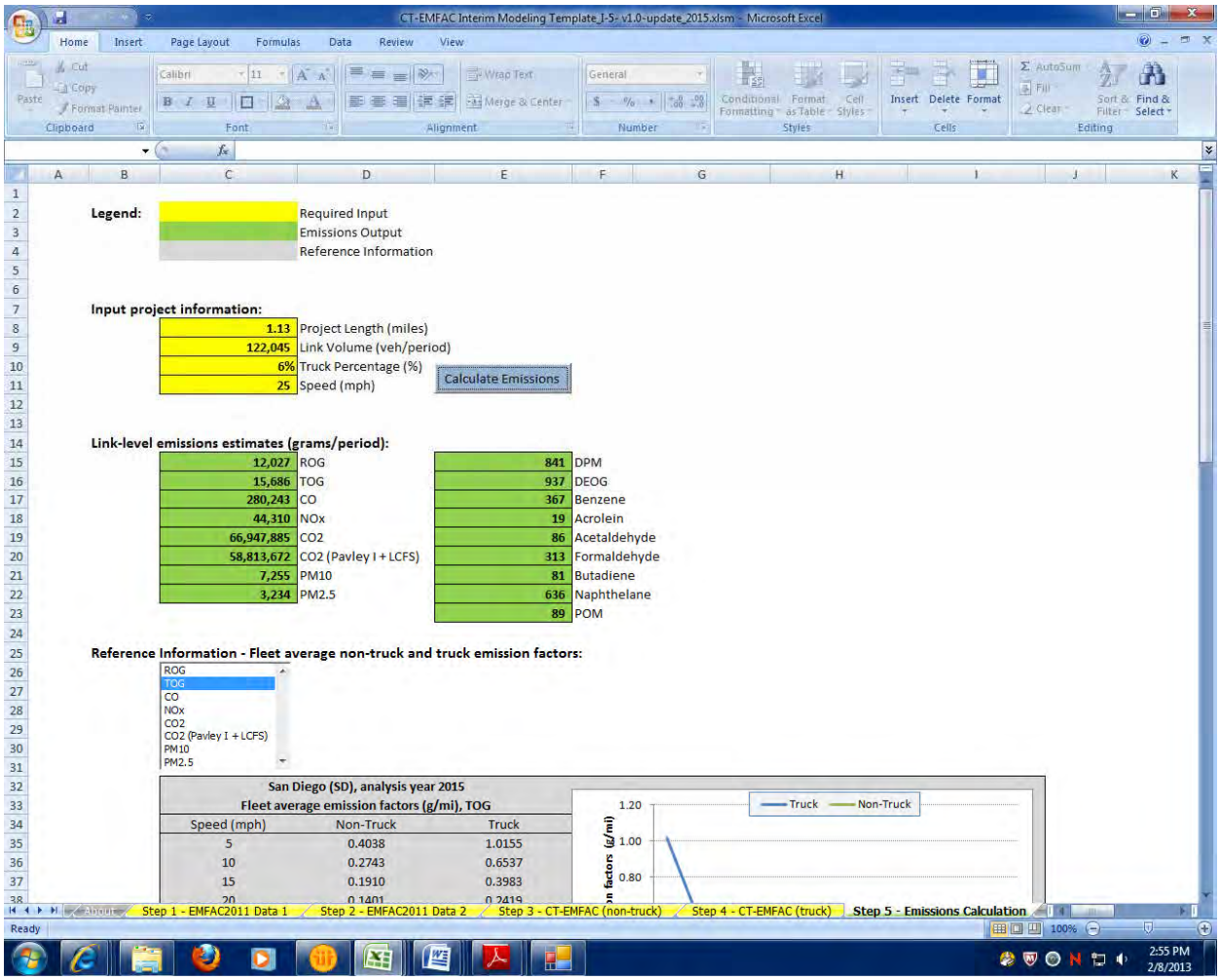
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 4 (SB GP)
Segment: 6
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 6
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.13	Project Length (miles)
122,045	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

12,027	ROG	841	DPM
15,686	TOG	937	DEOG
280,243	CO	367	Benzene
44,310	NOx	19	Acrolein
66,947,885	CO2	86	Acetaldehyde
58,813,672	CO2 (Pavley I + LCFS)	313	Formaldehyde
7,255	PM10	81	Butadiene
3,234	PM2.5	636	Naphthelane
		89	POM

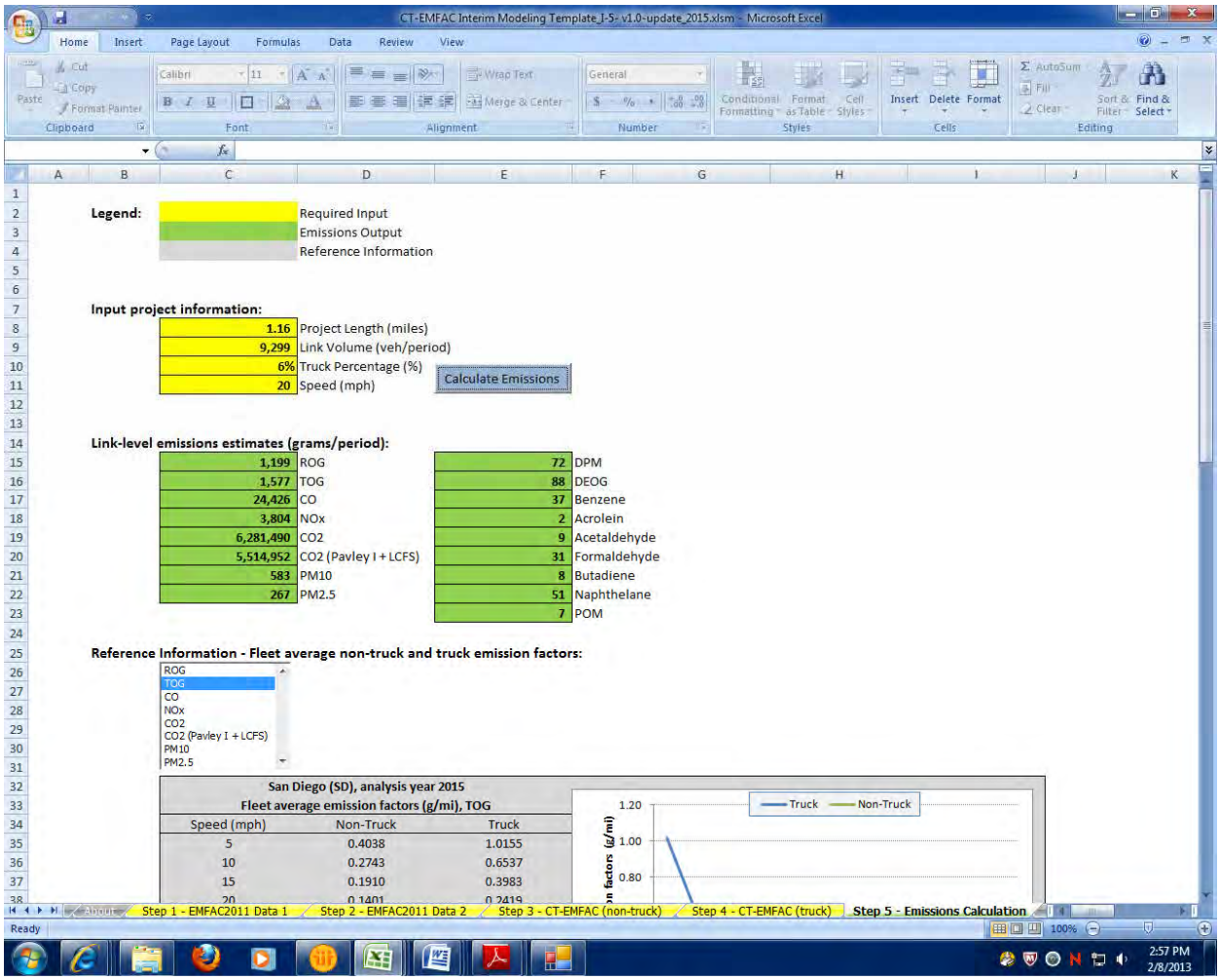
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

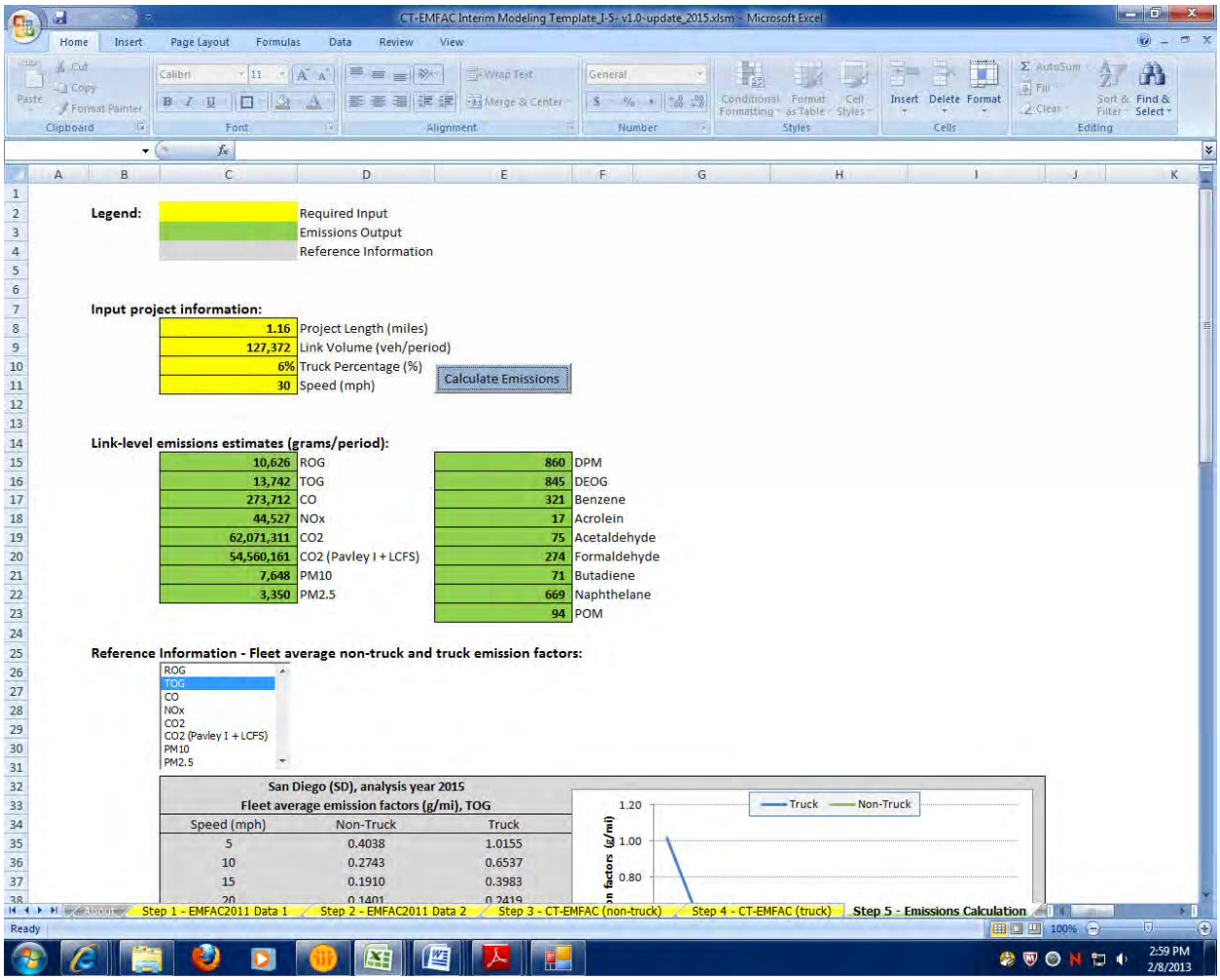
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 7
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 7
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
127,372	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

10,626	ROG	860	DPM
13,742	TOG	845	DEOG
273,712	CO	321	Benzene
44,527	NOx	17	Acrolein
62,071,311	CO2	75	Acetaldehyde
54,560,161	CO2 (Pavley I + LCFS)	274	Formaldehyde
7,648	PM10	71	Butadiene
3,350	PM2.5	669	Naphthelane
		94	POM

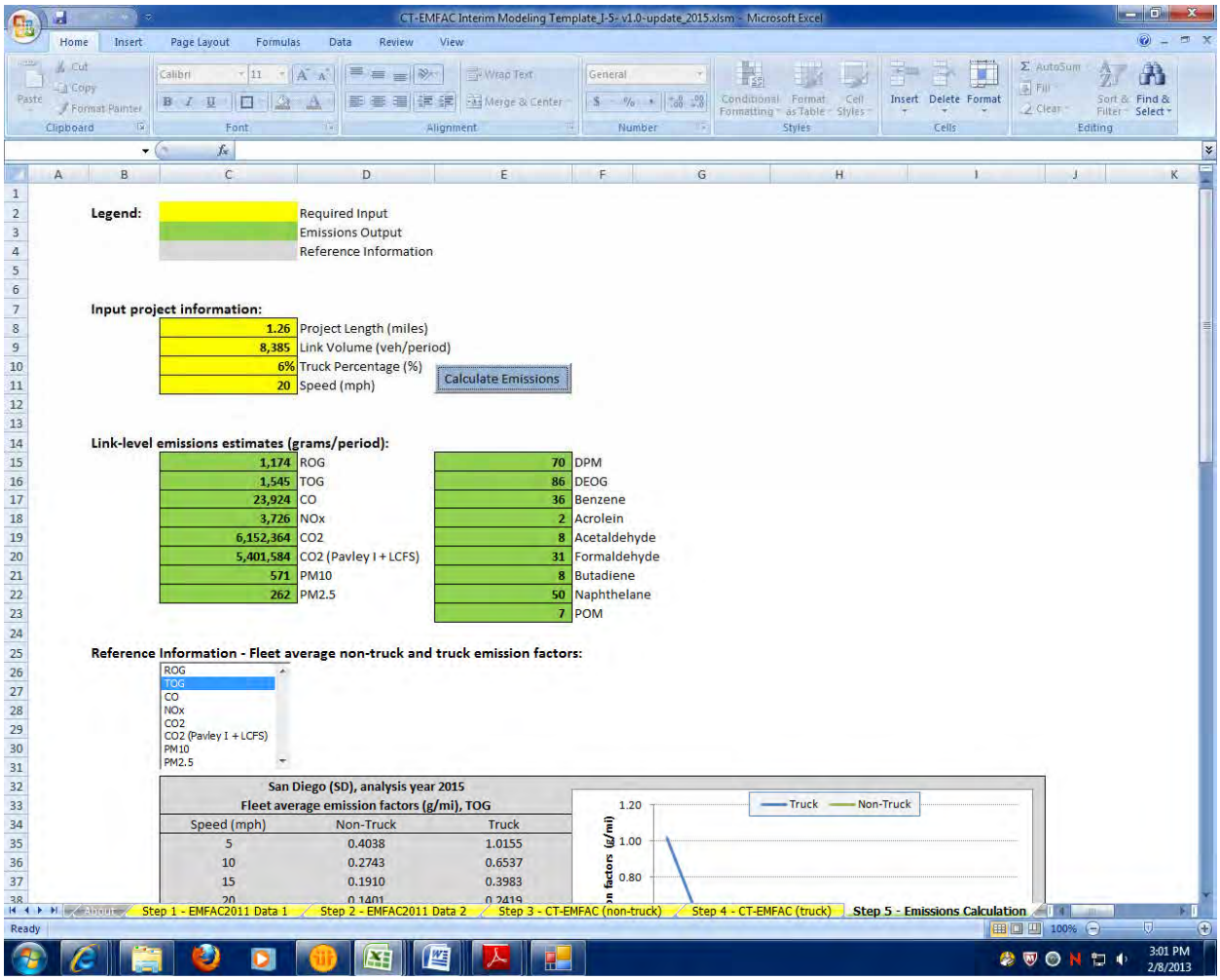
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

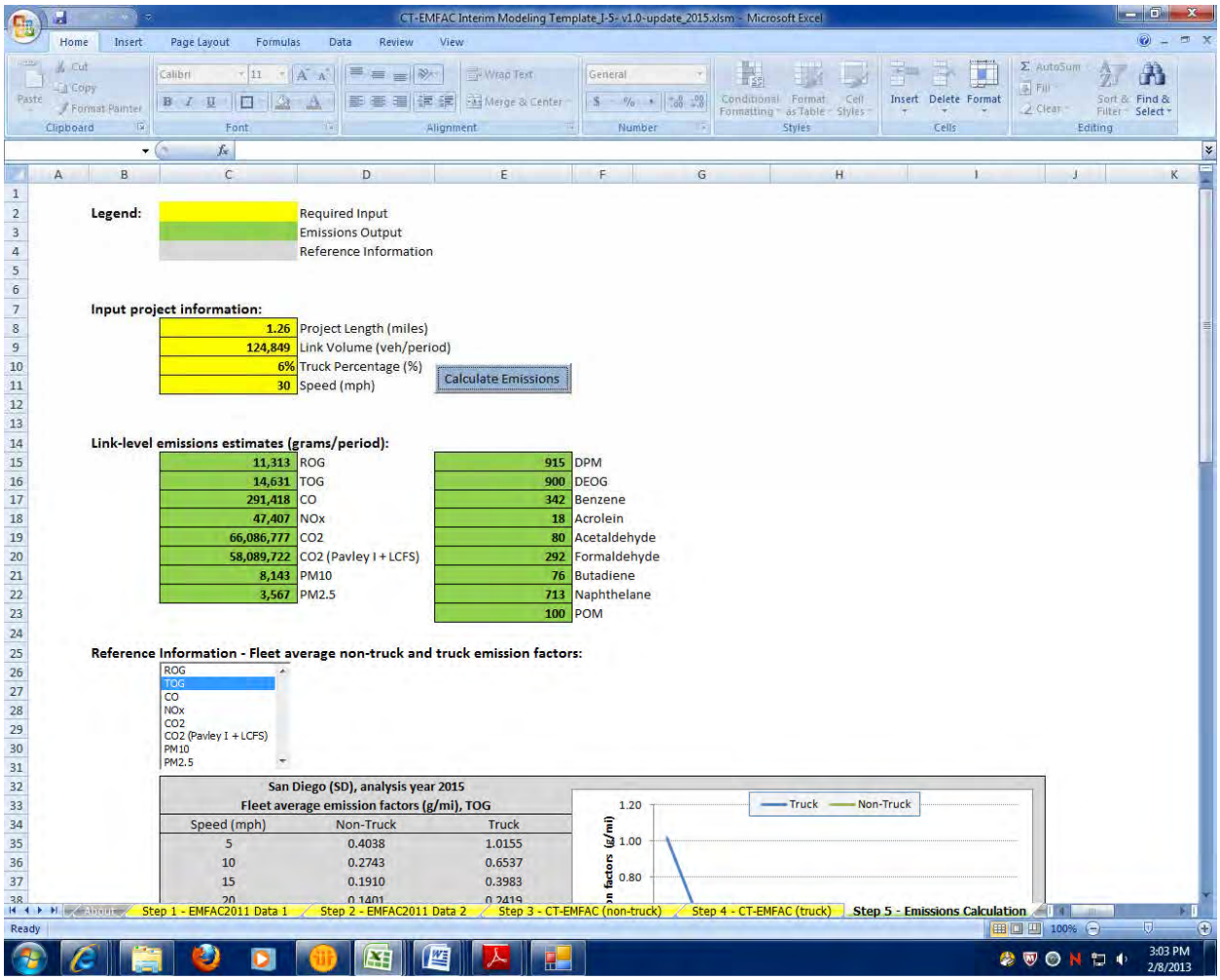
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 8
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 8
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.26	Project Length (miles)
124,849	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

11,313	ROG	915	DPM
14,631	TOG	900	DEOG
291,418	CO	342	Benzene
47,407	NOx	18	Acrolein
66,086,777	CO2	80	Acetaldehyde
58,089,722	CO2 (Pavley I + LCFS)	292	Formaldehyde
8,143	PM10	76	Butadiene
3,567	PM2.5	713	Naphthelane
		100	POM

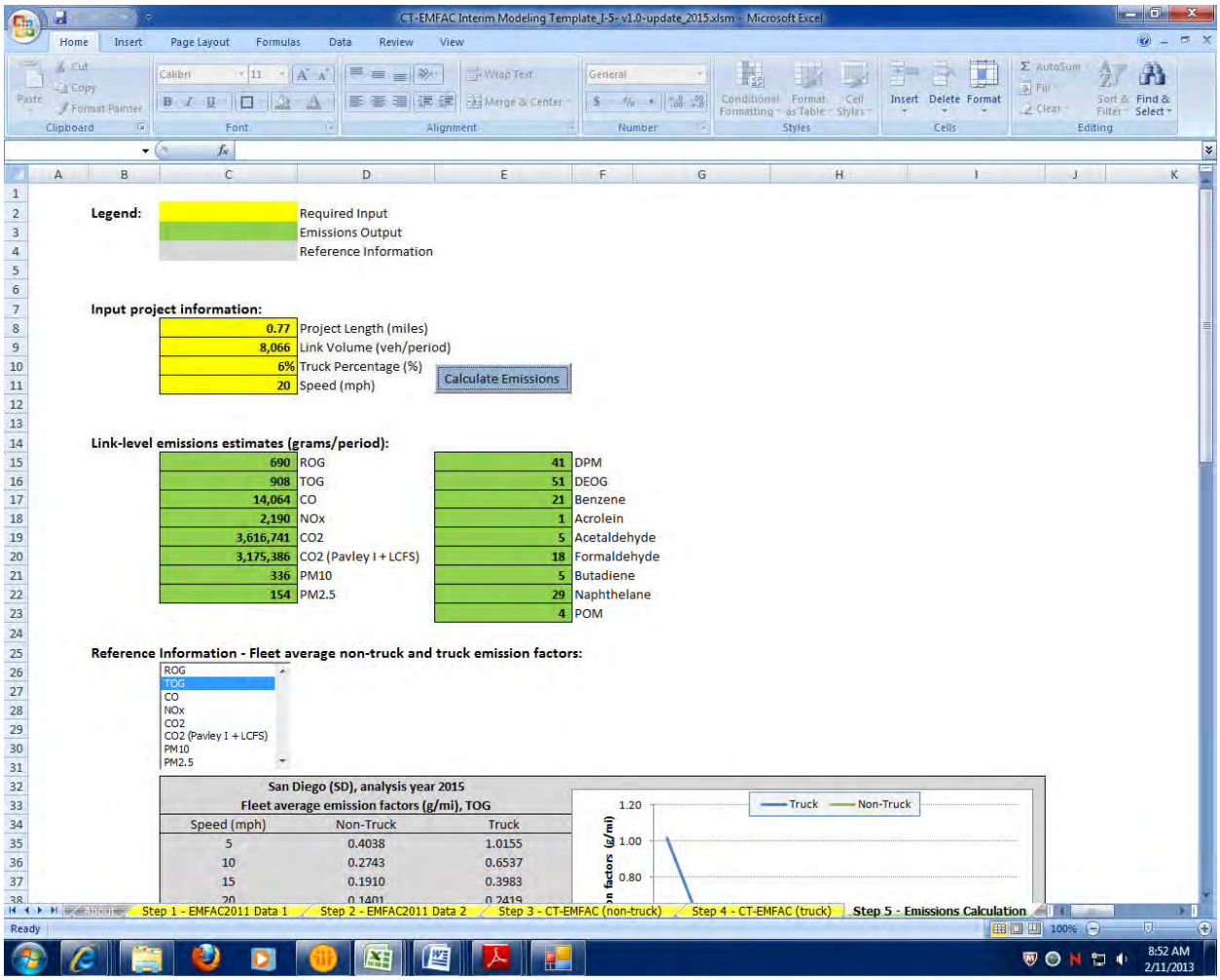
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 9
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
8,066	Link Volume (veh/period)
6%	Truck Percentage (%)
20	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

690	ROG	41	DPM
908	TOG	51	DEOG
14,064	CO	21	Benzene
2,190	NOx	1	Acrolein
3,616,741	CO2	5	Acetaldehyde
3,175,386	CO2 (Pavley I + LCFS)	18	Formaldehyde
336	PM10	5	Butadiene
154	PM2.5	29	Naphthelane
		4	POM

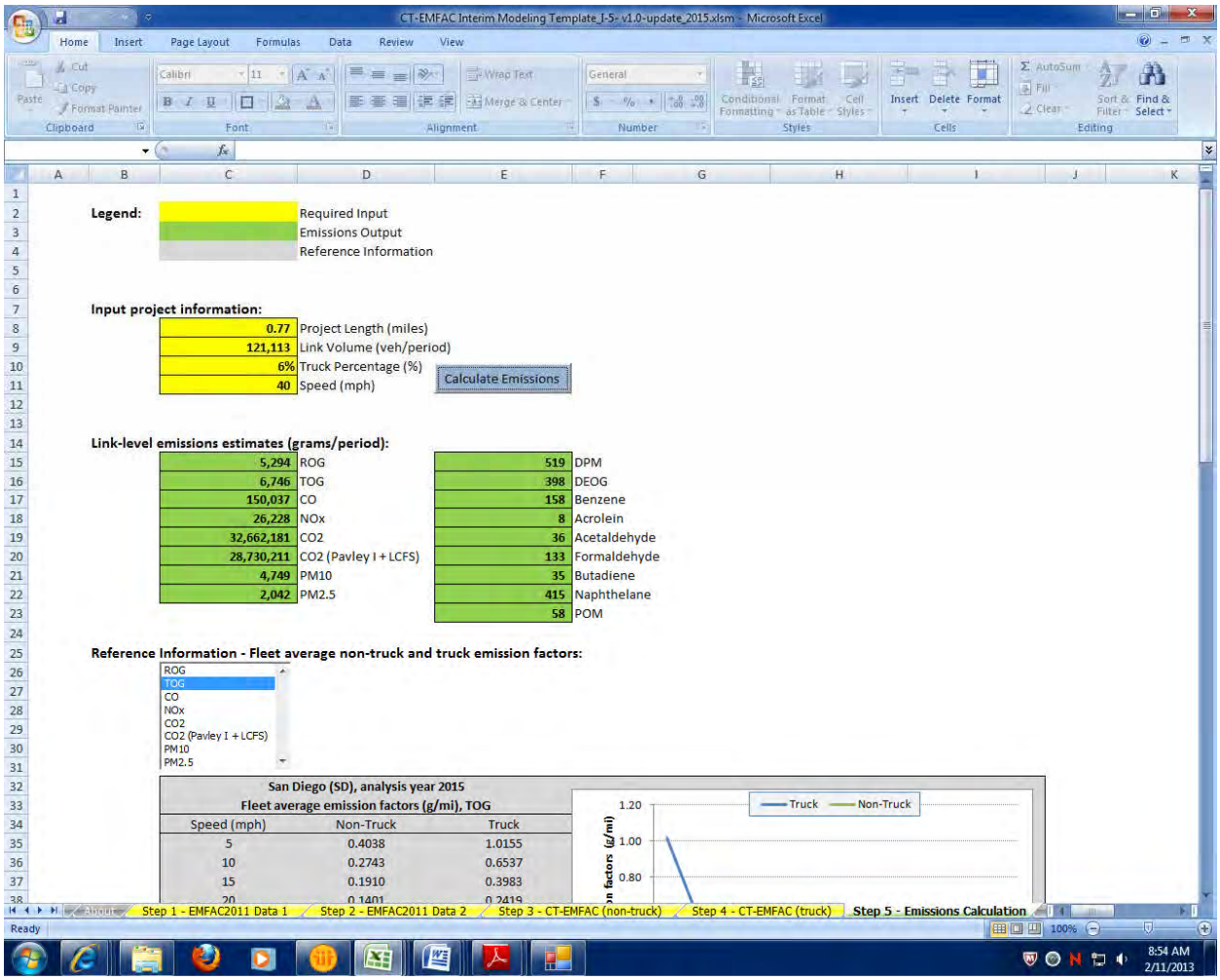
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 9
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
121,113	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,294	ROG	519	DPM
6,746	TOG	398	DEOG
150,037	CO	158	Benzene
26,228	NOx	8	Acrolein
32,662,181	CO2	36	Acetaldehyde
28,730,211	CO2 (Pavley I + LCFS)	133	Formaldehyde
4,749	PM10	35	Butadiene
2,042	PM2.5	415	Naphthelane
		58	POM

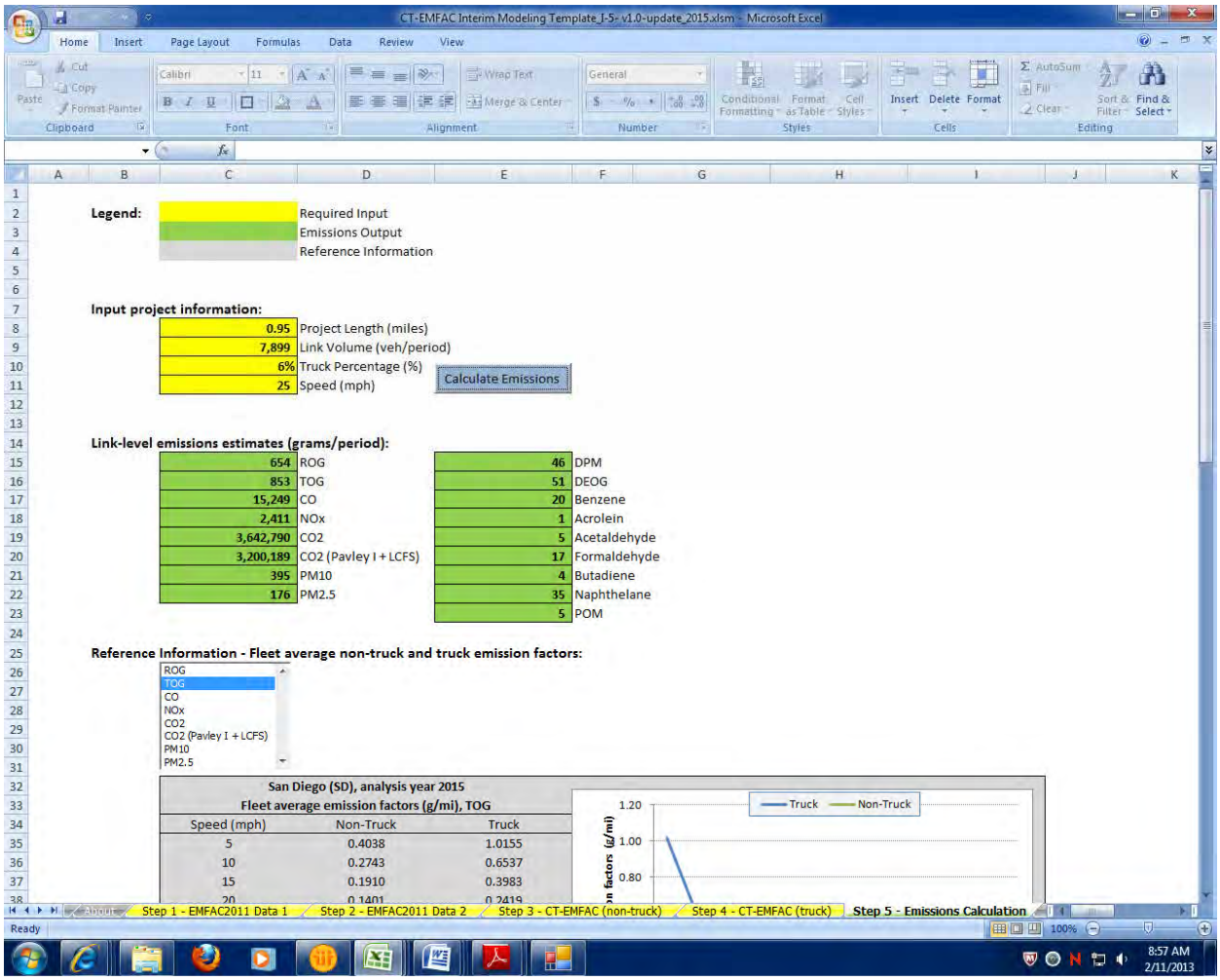
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

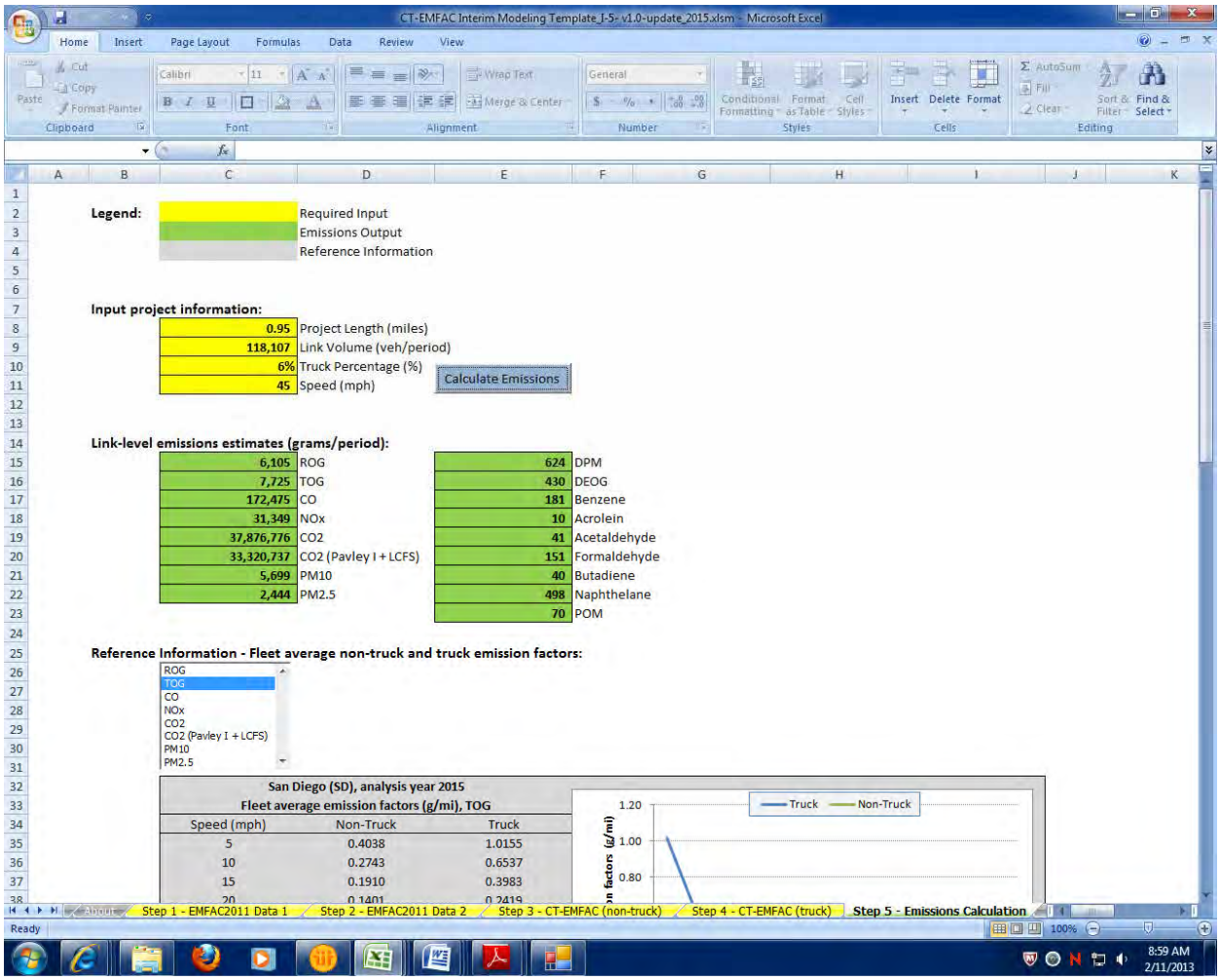
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 10
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 10
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
118,107	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,105	ROG	624	DPM
7,725	TOG	430	DEOG
172,475	CO	181	Benzene
31,349	NOx	10	Acrolein
37,876,776	CO2	41	Acetaldehyde
33,320,737	CO2 (Pavley I + LCFS)	151	Formaldehyde
5,699	PM10	40	Butadiene
2,444	PM2.5	498	Naphthelane
		70	POM

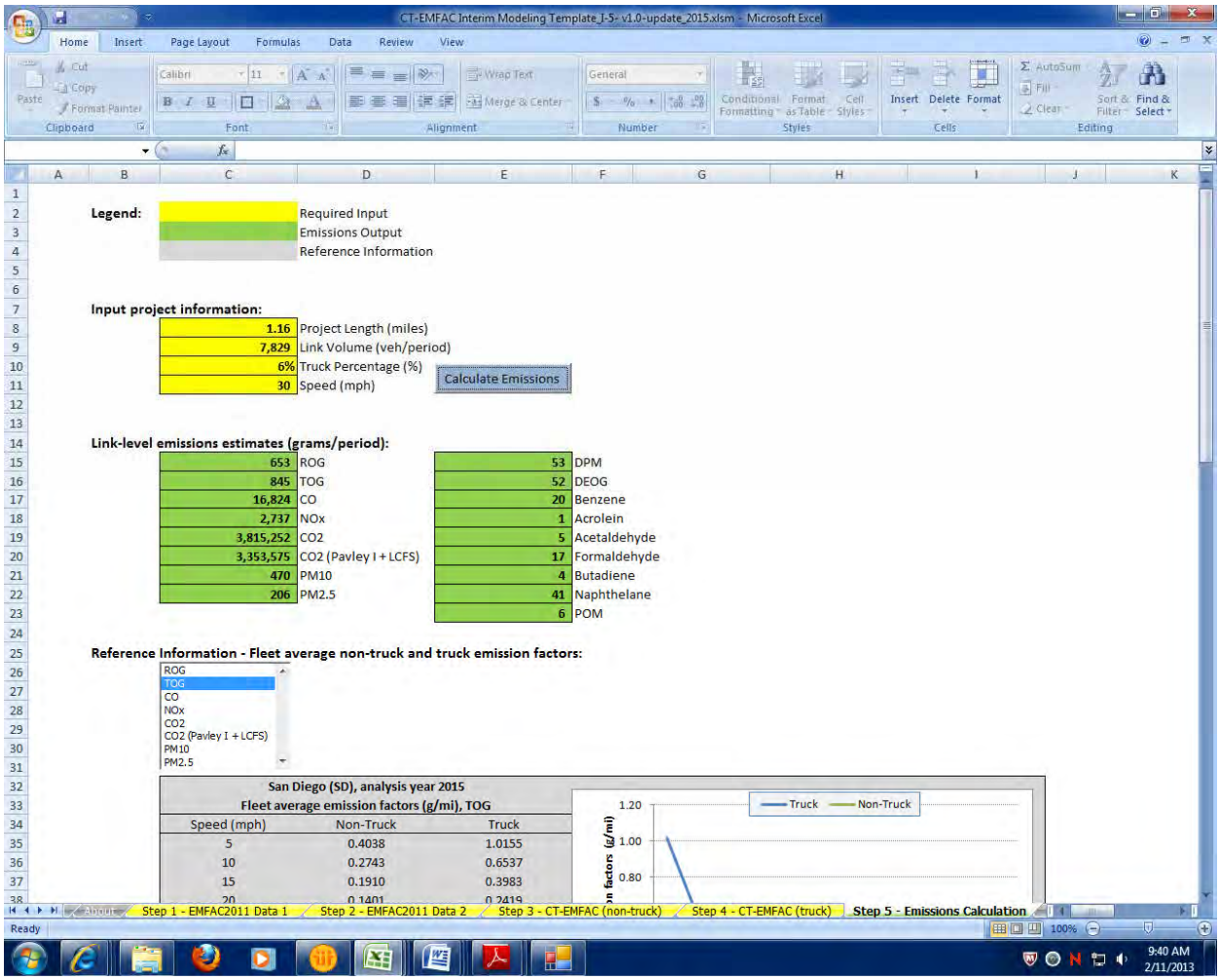
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

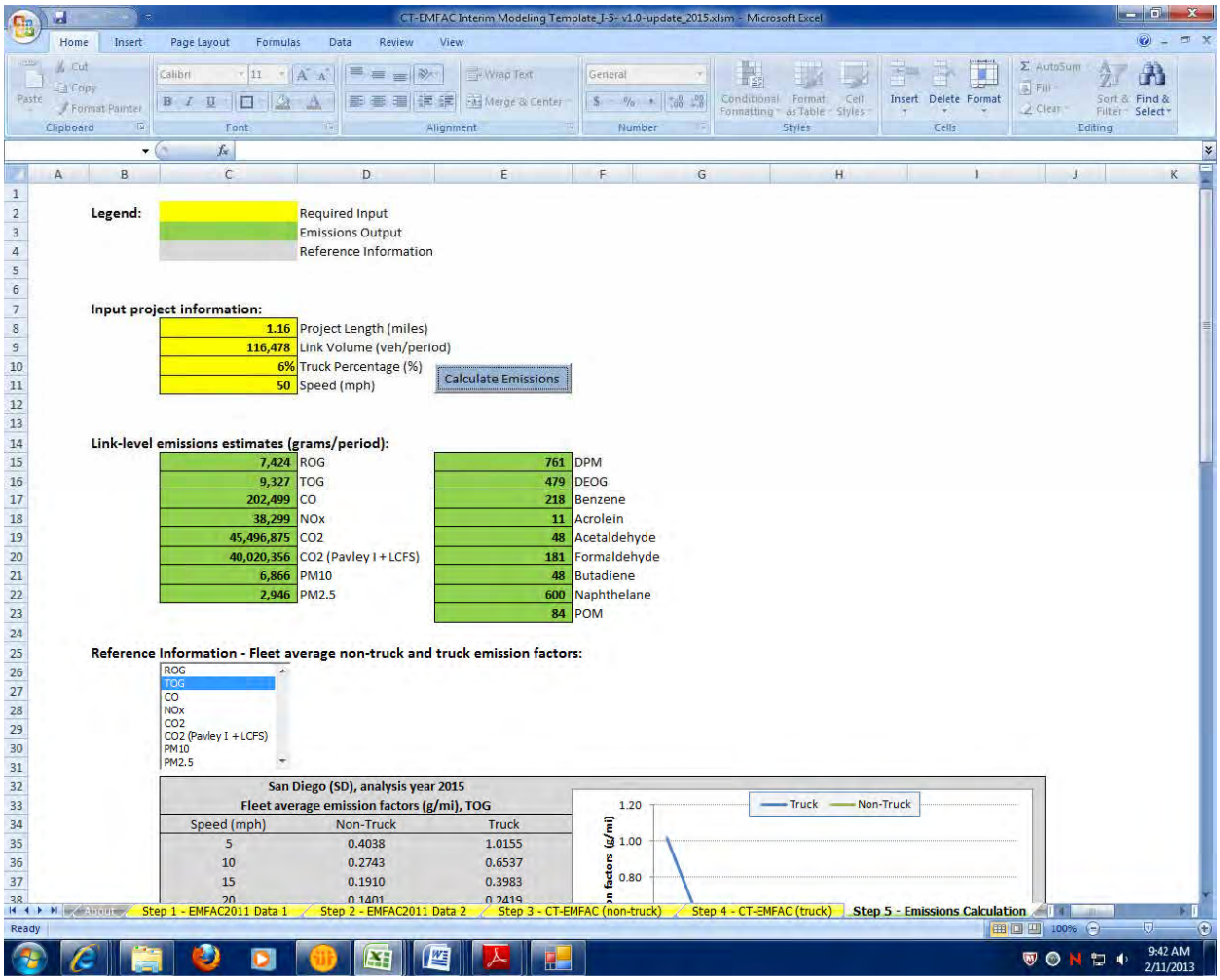
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

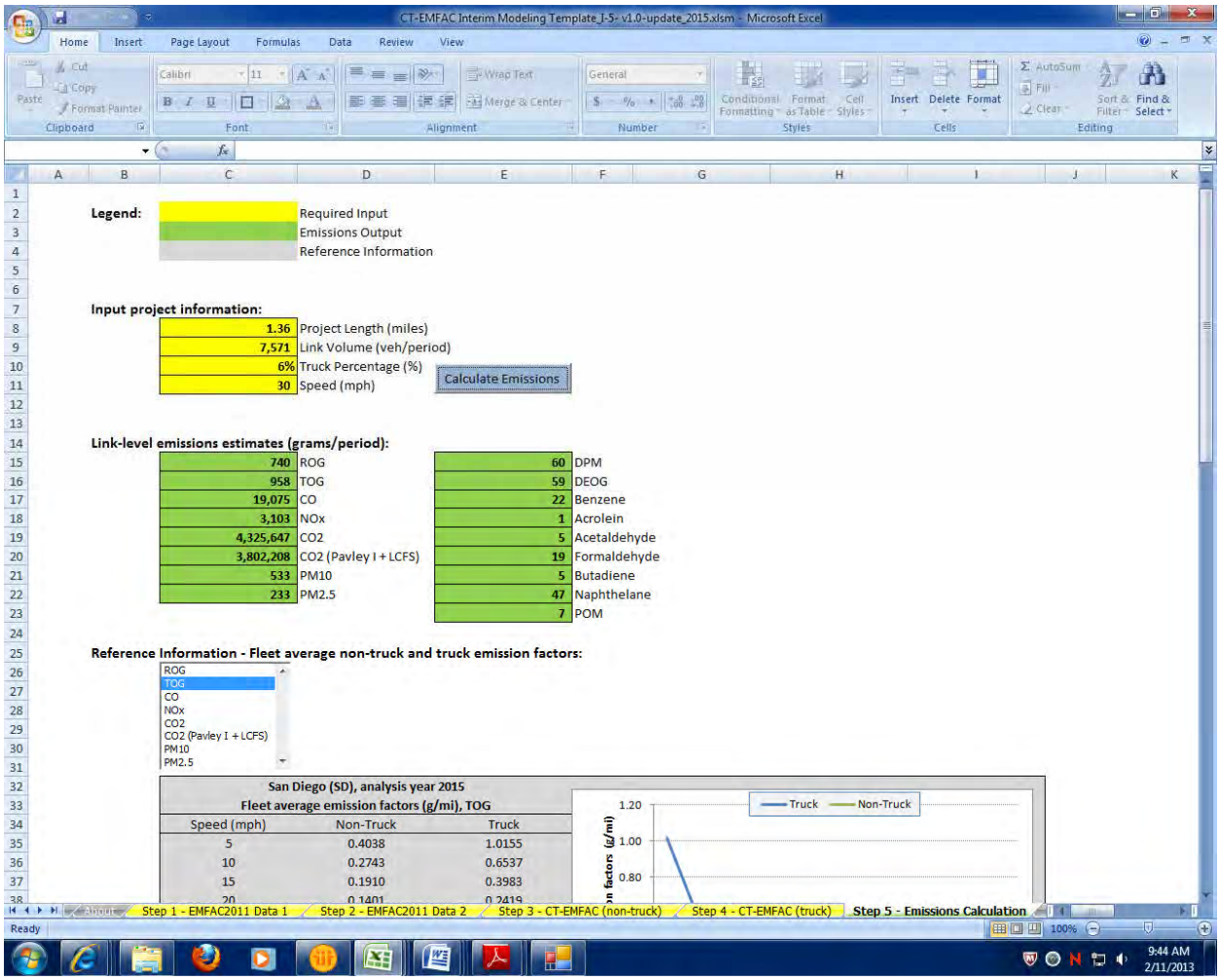
2015 No Build
Link: 4 (SB GP)
Segment: 11
Peak



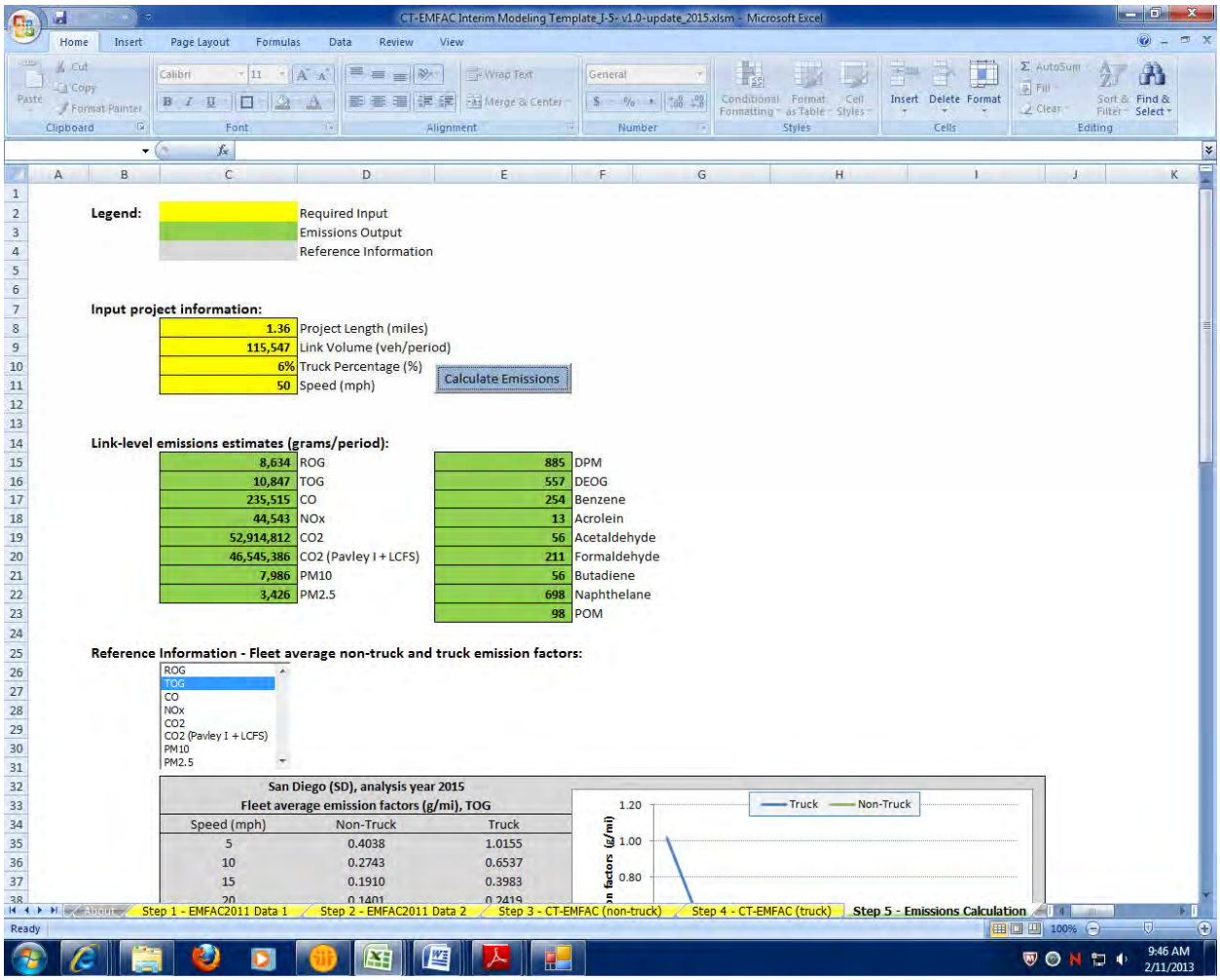
2015 No Build
Link: 4 (SB GP)
Segment: 11
Off Peak



2015 No Build
Link: 4 (SB GP)
Segment: 12
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 12
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.36	Project Length (miles)
115,547	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,634	ROG	885	DPM
10,847	TOG	557	DEOG
235,515	CO	254	Benzene
44,543	NOx	13	Acrolein
52,914,812	CO2	56	Acetaldehyde
46,545,386	CO2 (Pavley I + LCFS)	211	Formaldehyde
7,986	PM10	56	Butadiene
3,426	PM2.5	698	Naphthelane
		98	POM

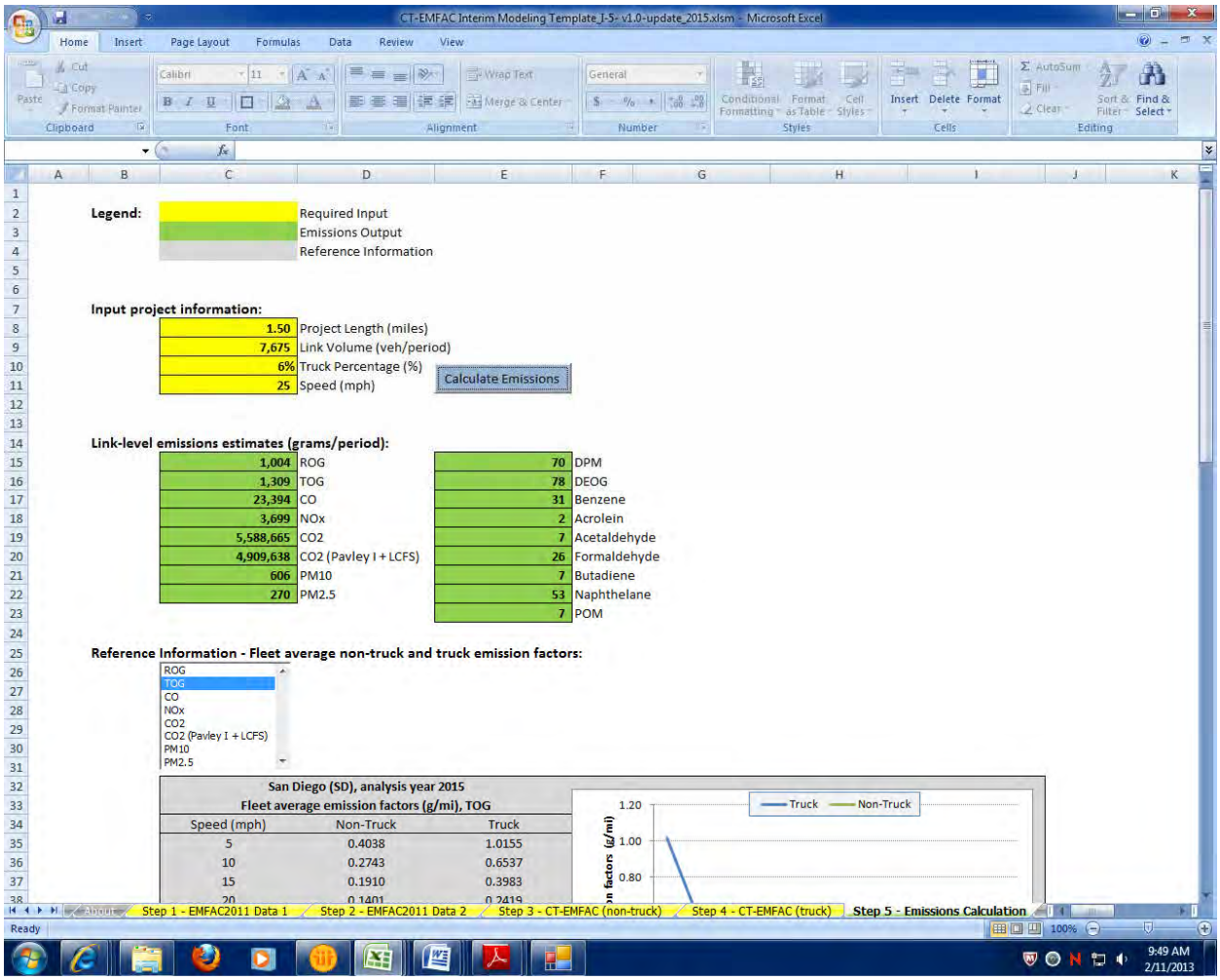
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

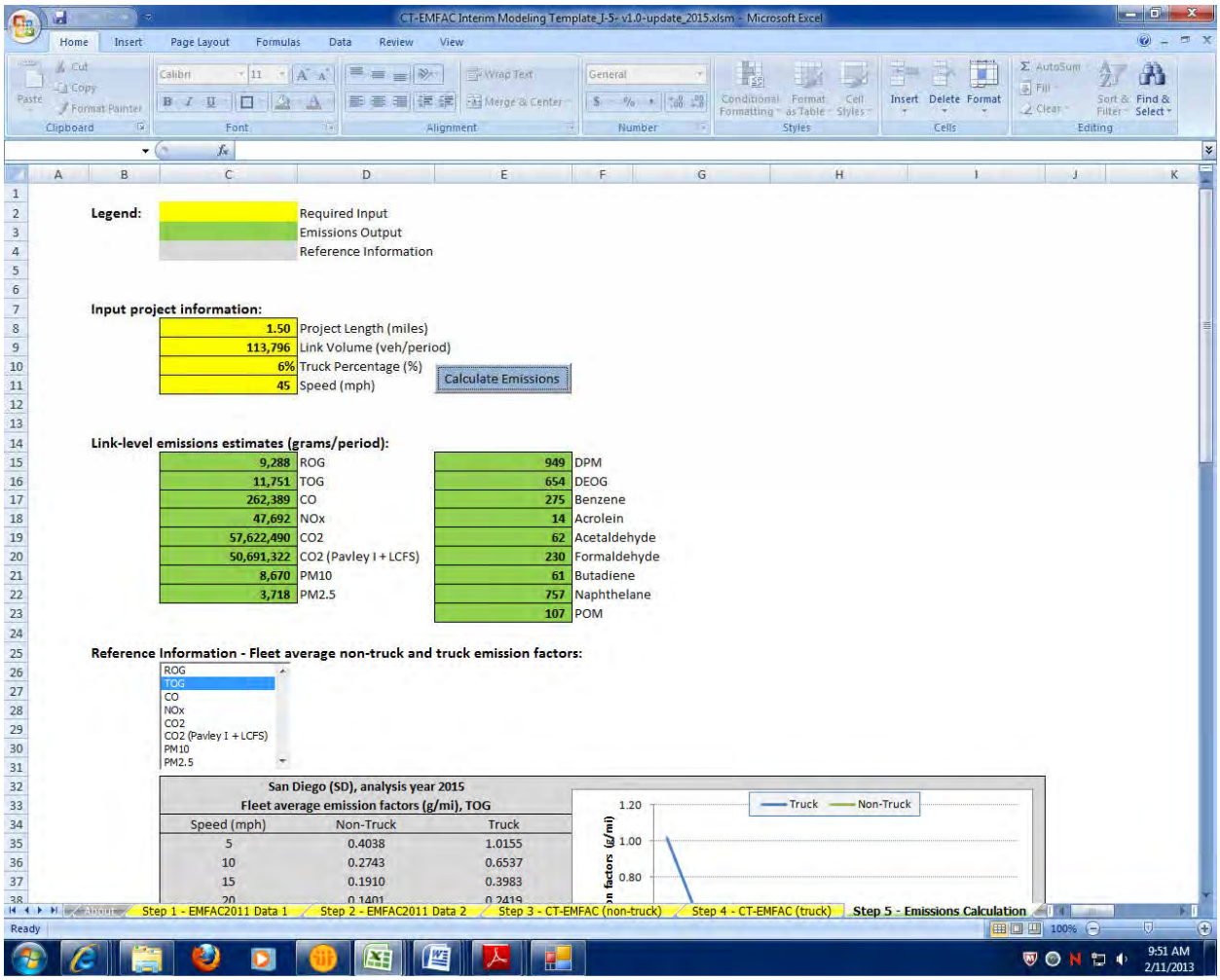
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 13
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 13
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
113,796	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

9,288	ROG	949	DPM
11,751	TOG	654	DEOG
262,389	CO	275	Benzene
47,692	NOx	14	Acrolein
57,622,490	CO2	62	Acetaldehyde
50,691,322	CO2 (Pavley I + LCFS)	230	Formaldehyde
8,670	PM10	61	Butadiene
3,718	PM2.5	757	Naphthelane
		107	POM

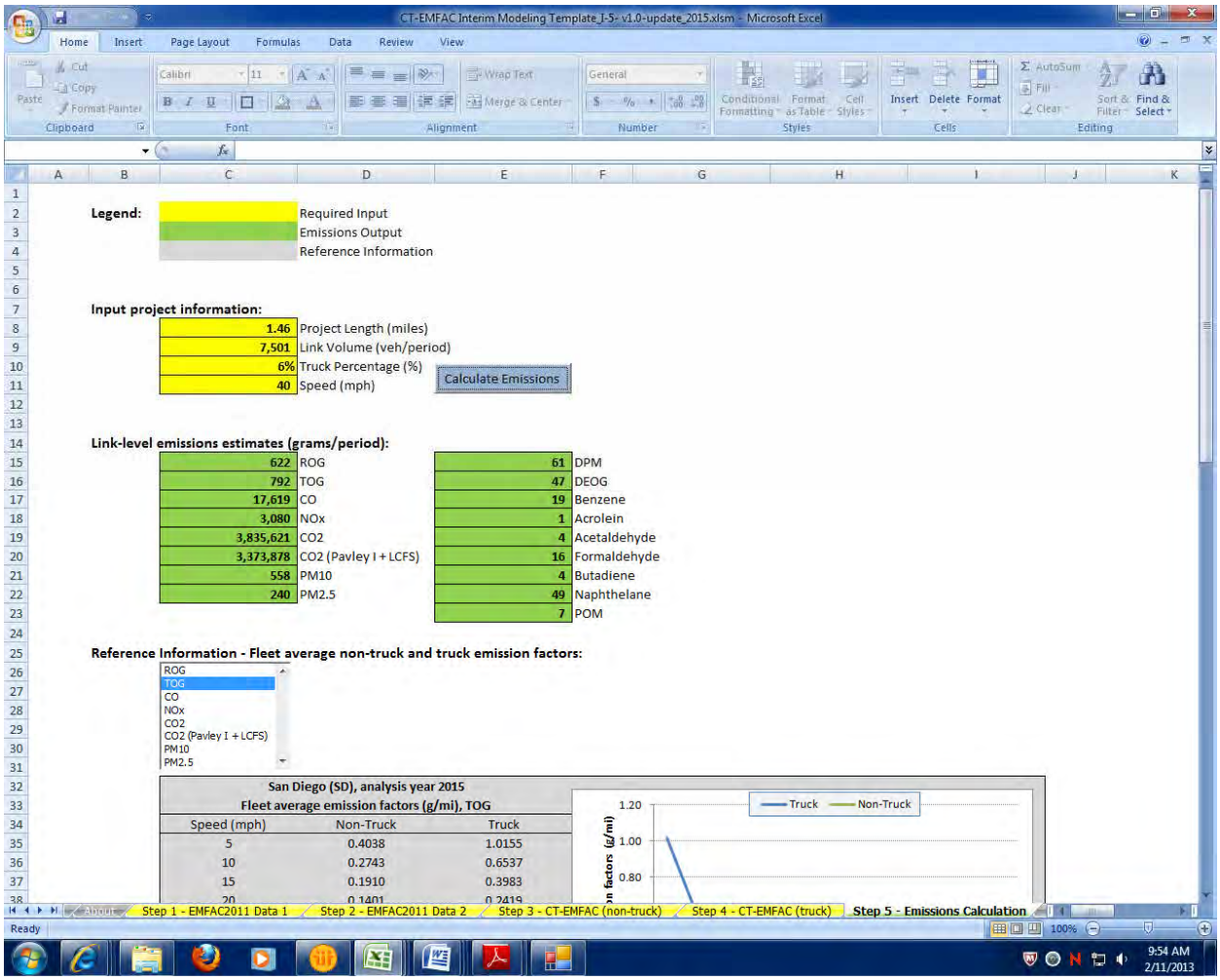
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

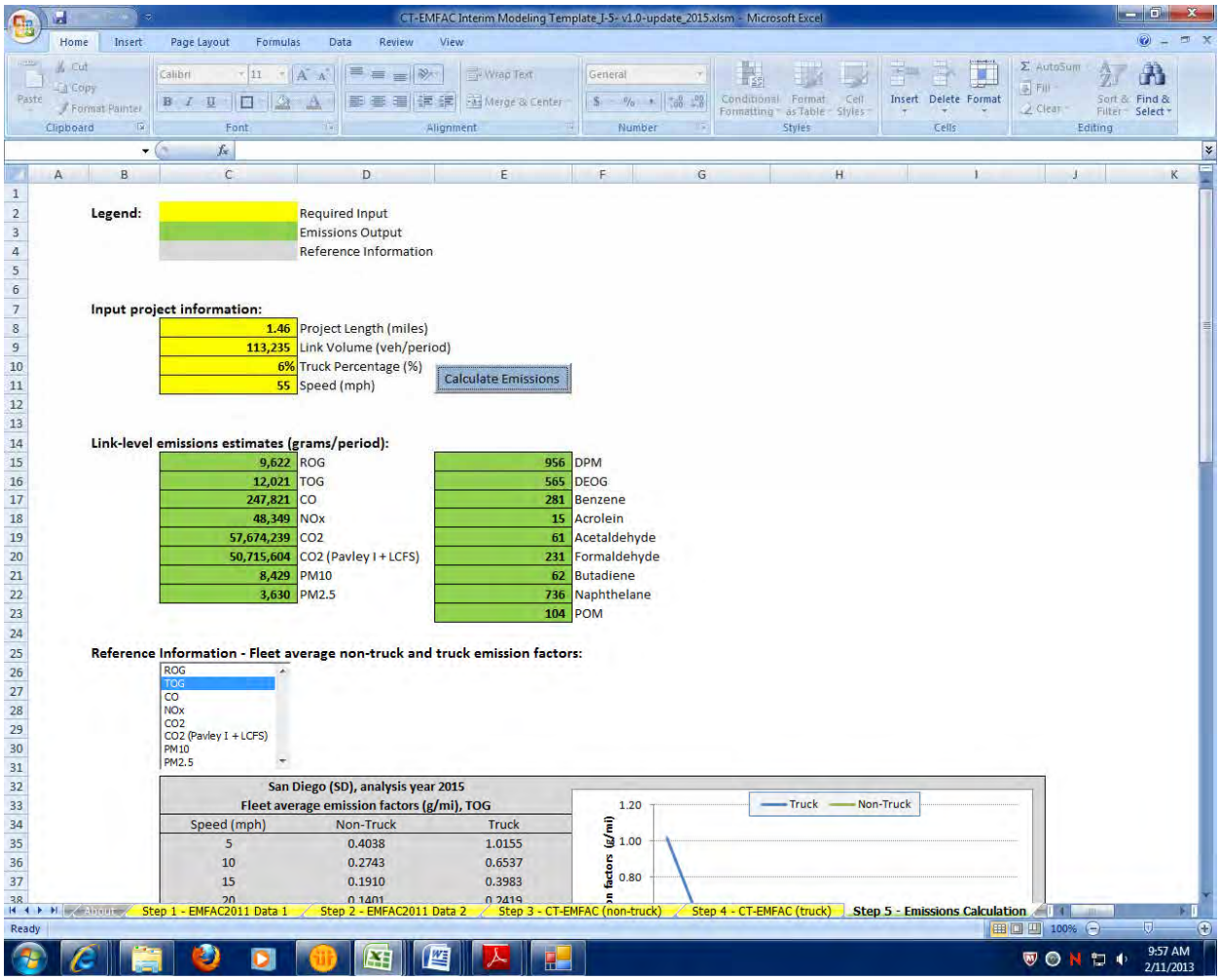
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 14
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 14
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.46	Project Length (miles)
113,235	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

9,622	ROG	956	DPM
12,021	TOG	565	DEOG
247,821	CO	281	Benzene
48,349	NOx	15	Acrolein
57,674,239	CO2	61	Acetaldehyde
50,715,604	CO2 (Pavley I + LCFS)	231	Formaldehyde
8,429	PM10	62	Butadiene
3,630	PM2.5	736	Naphthelane
		104	POM

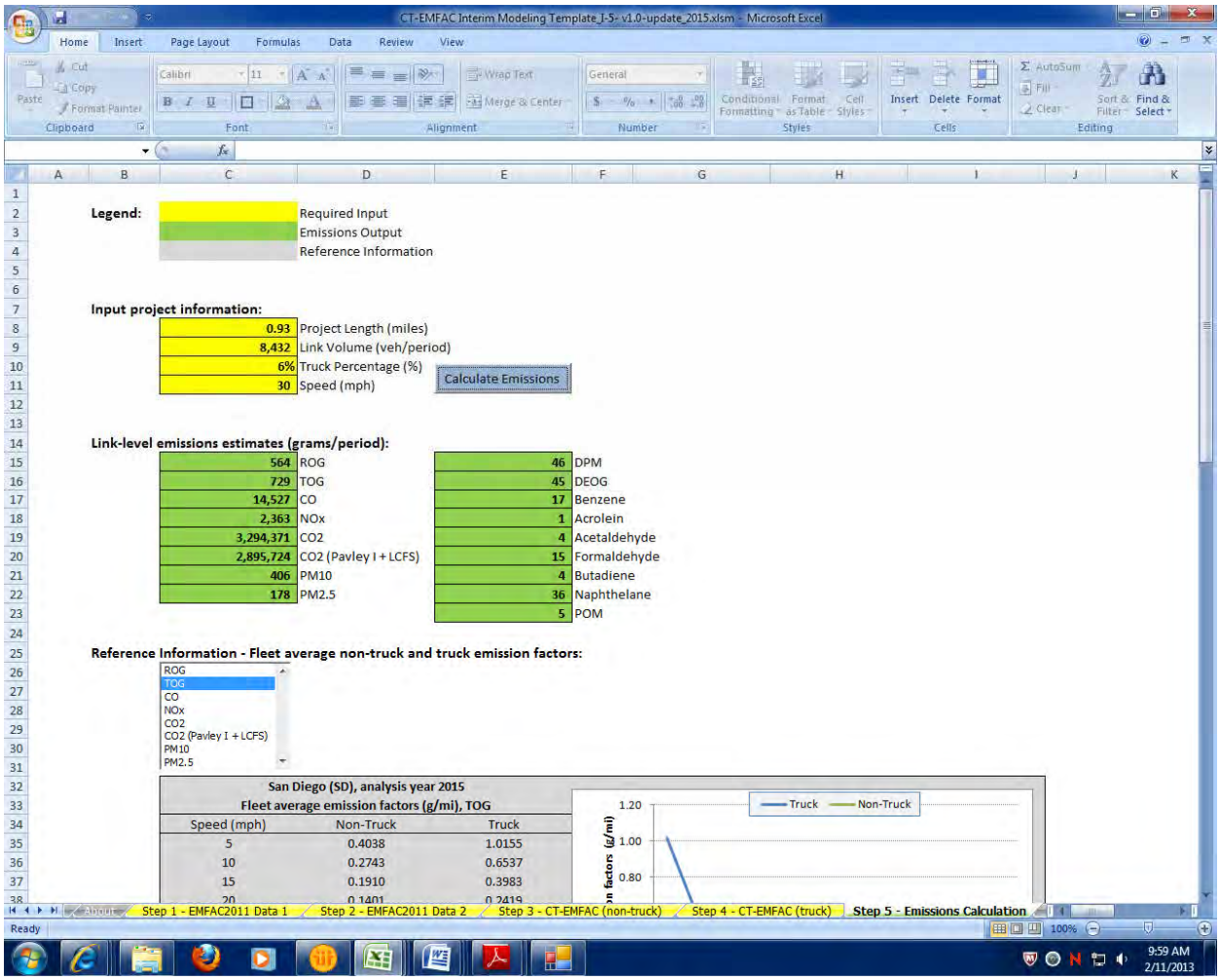
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

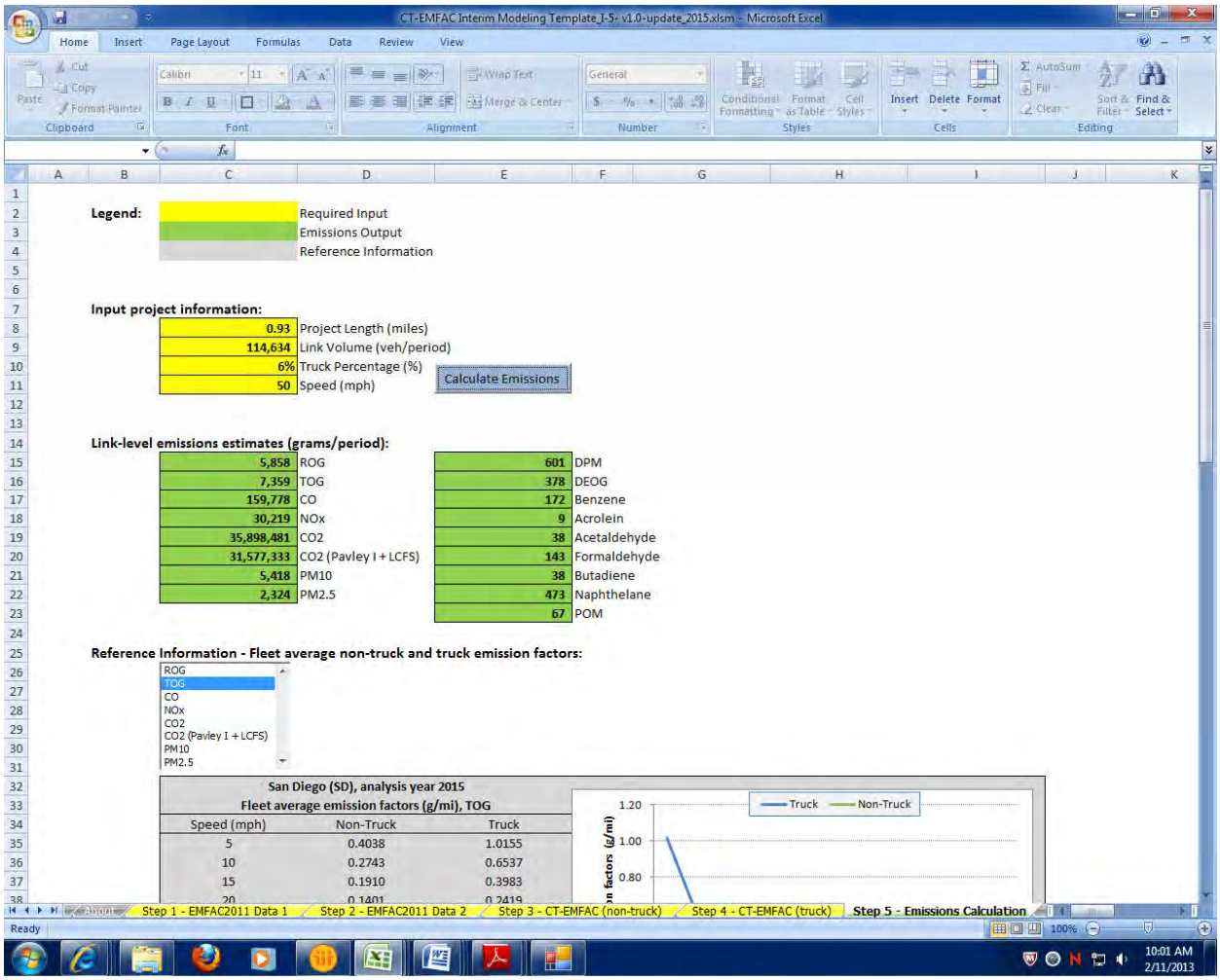
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

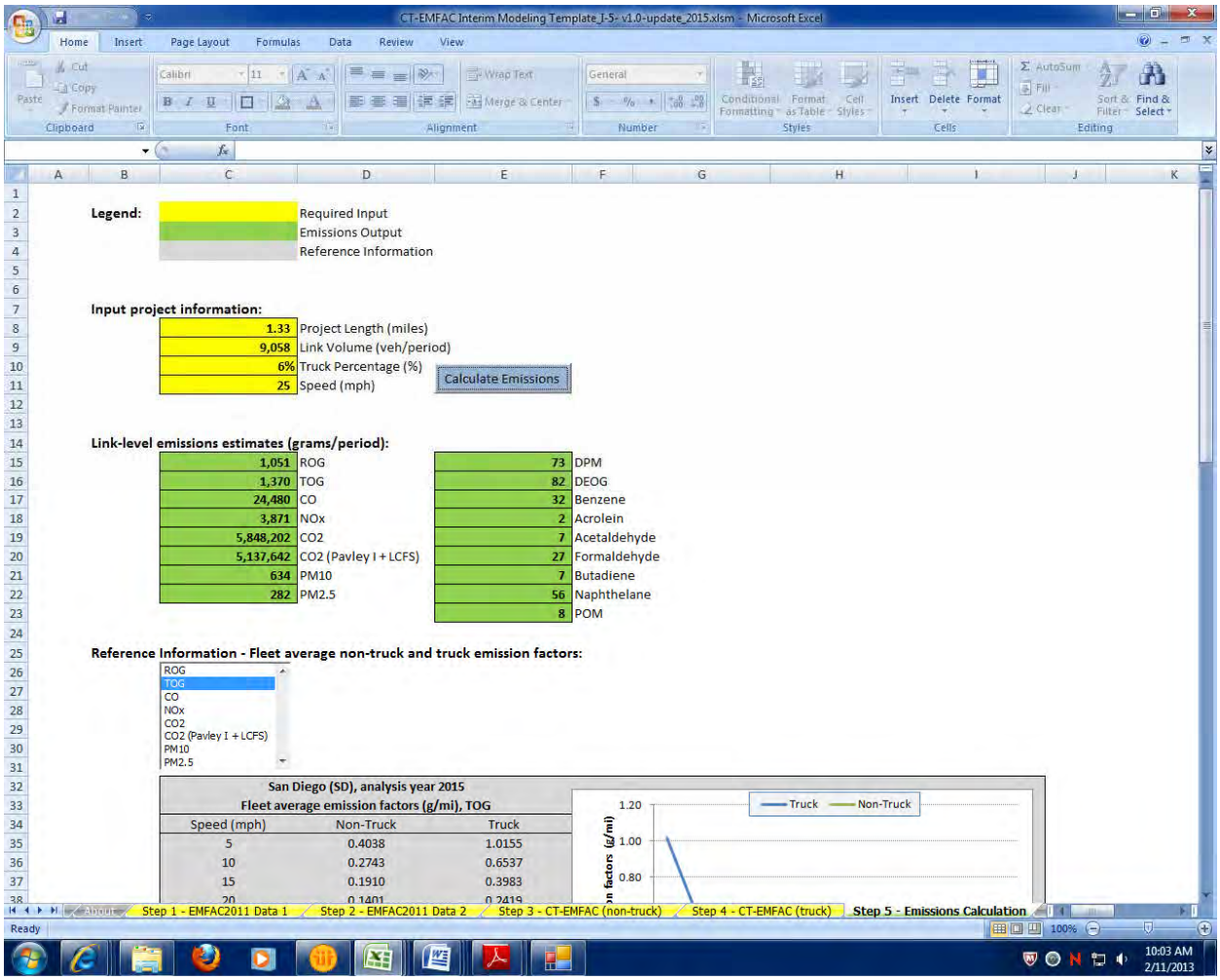
2015 No Build
Link: 4 (SB GP)
Segment: 15
Peak



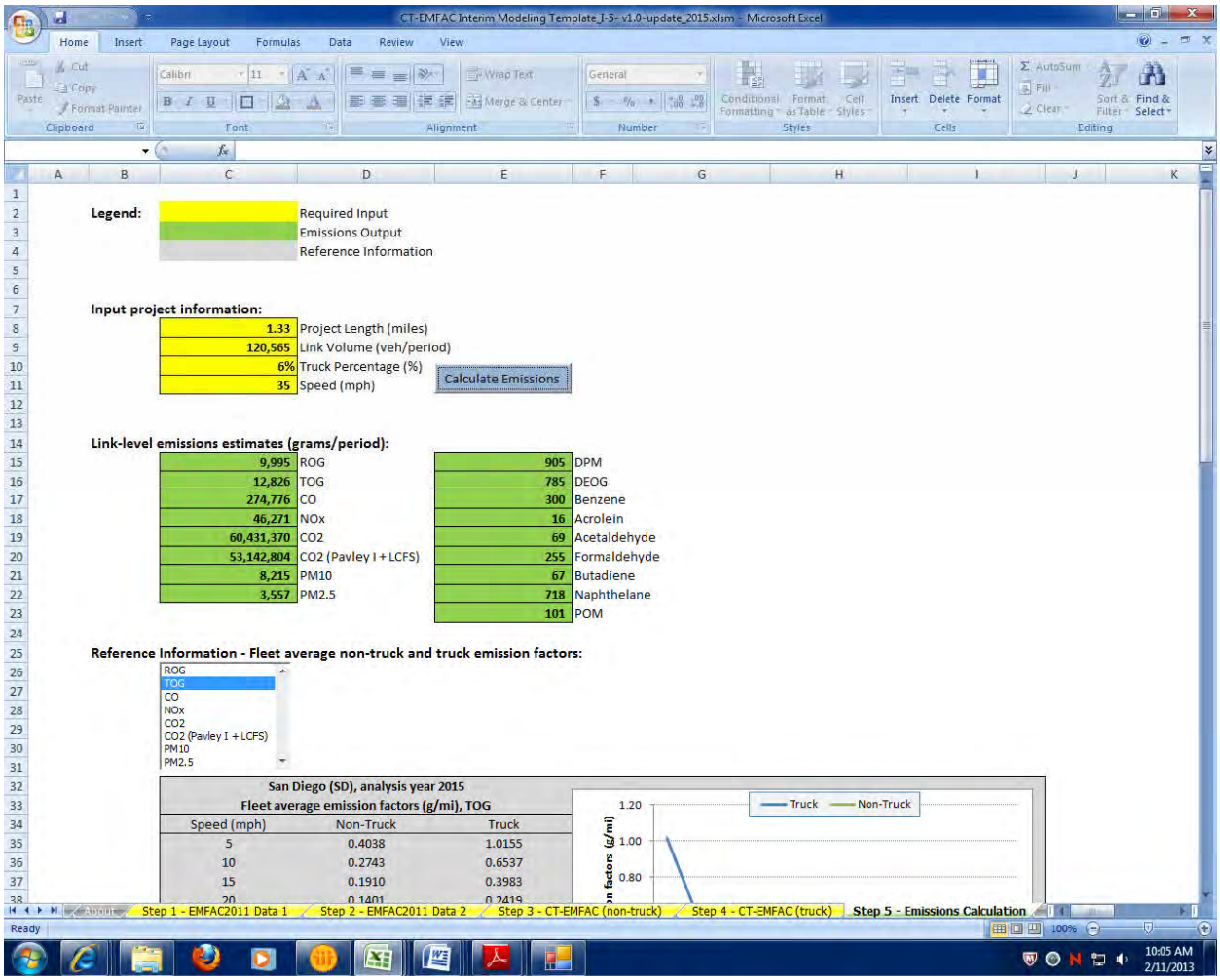
2015 No Build
Link: 4 (SB GP)
Segment: 15
Off Peak



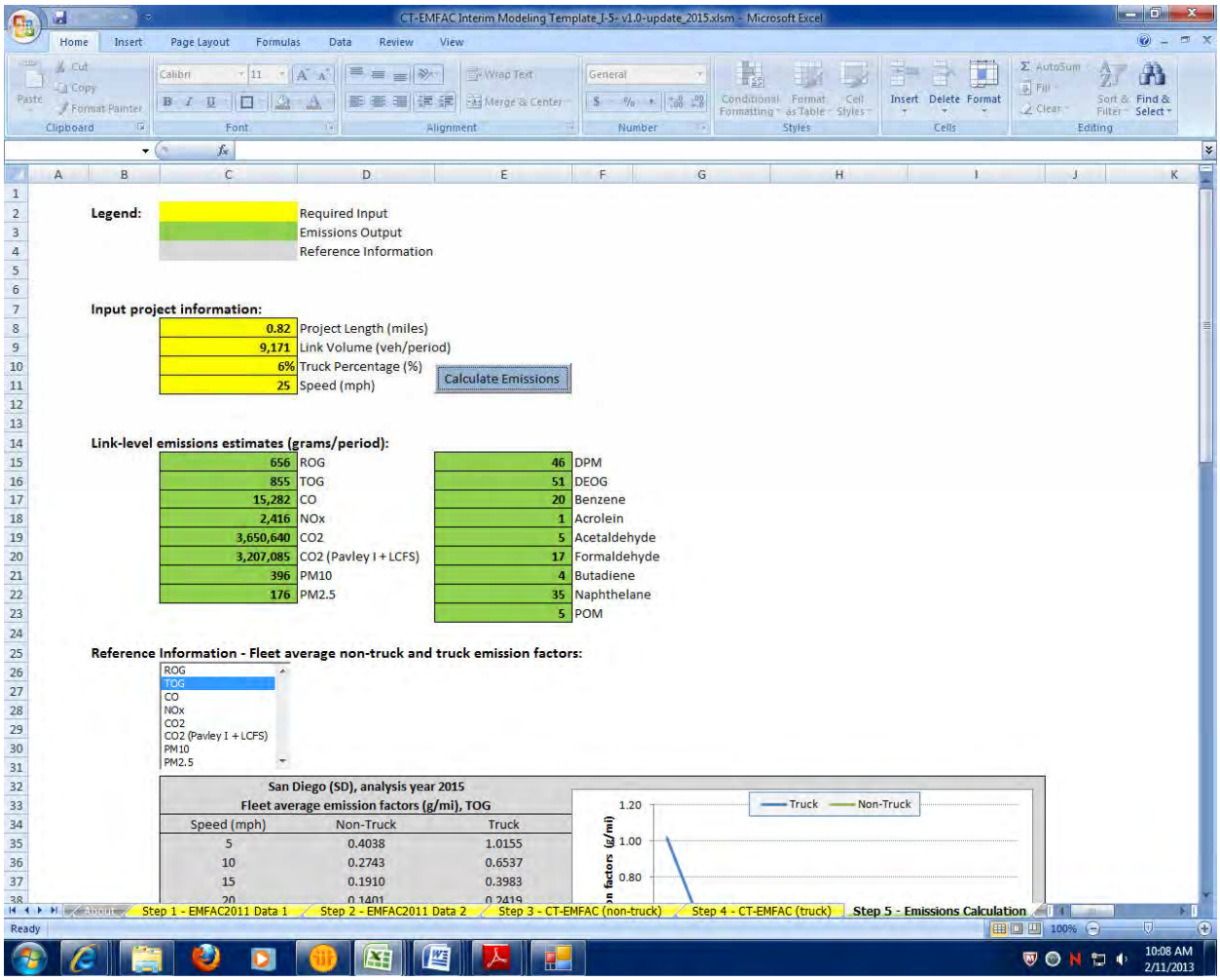
2015 No Build
Link: 4 (SB GP)
Segment: 16
Peak



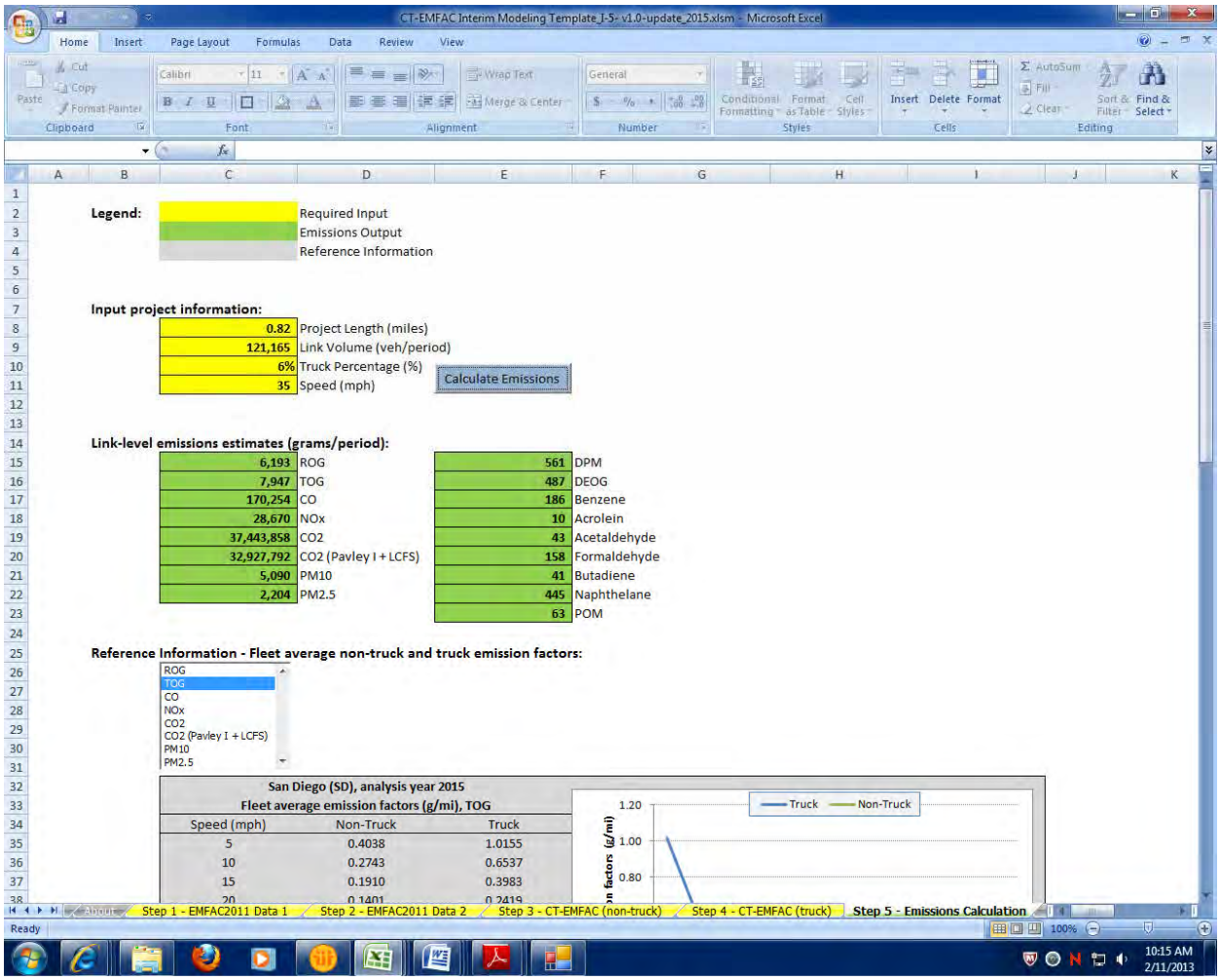
2015 No Build
Link: 4 (SB GP)
Segment: 16
Off Peak



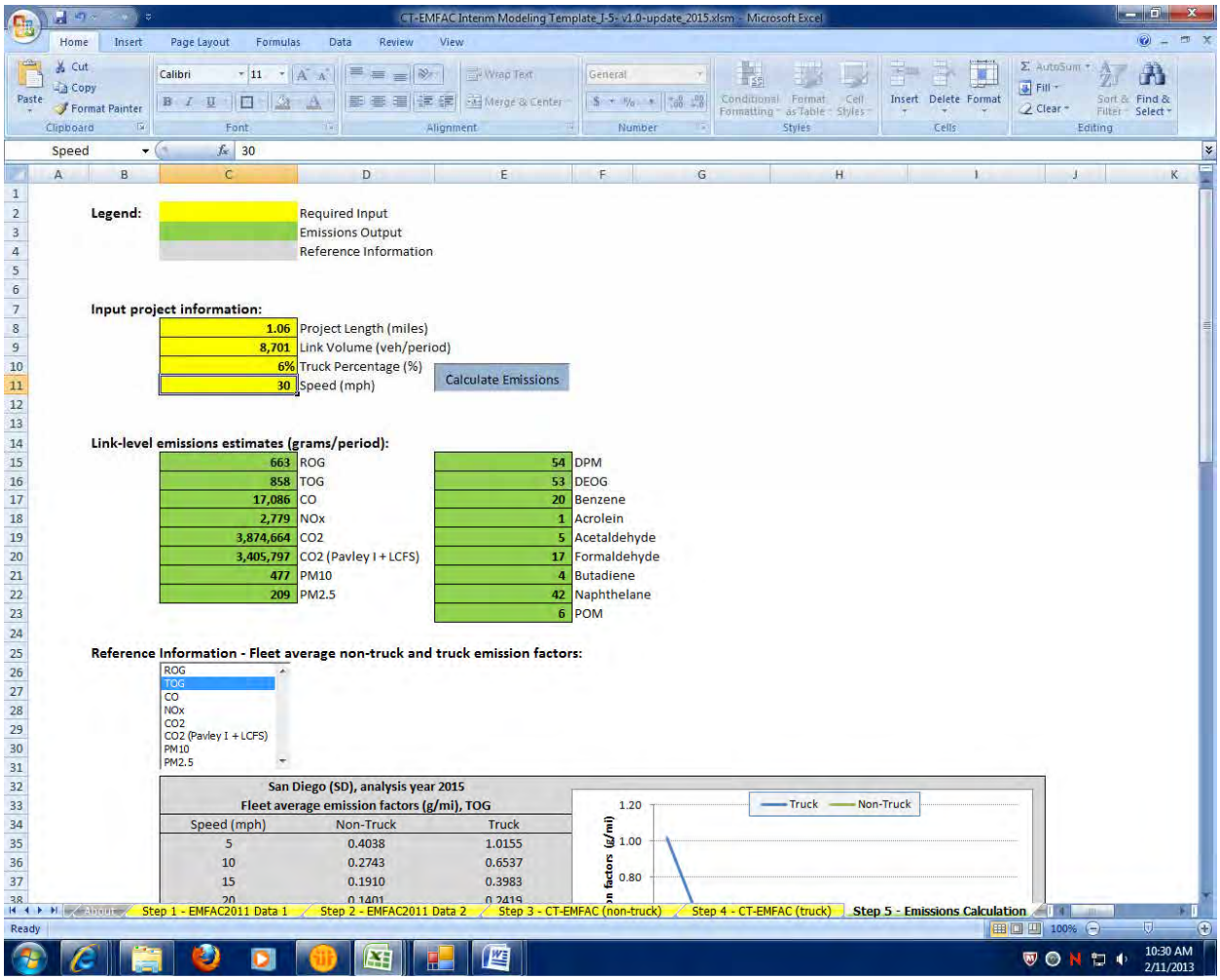
2015 No Build
Link: 4 (SB GP)
Segment: 17
Peak



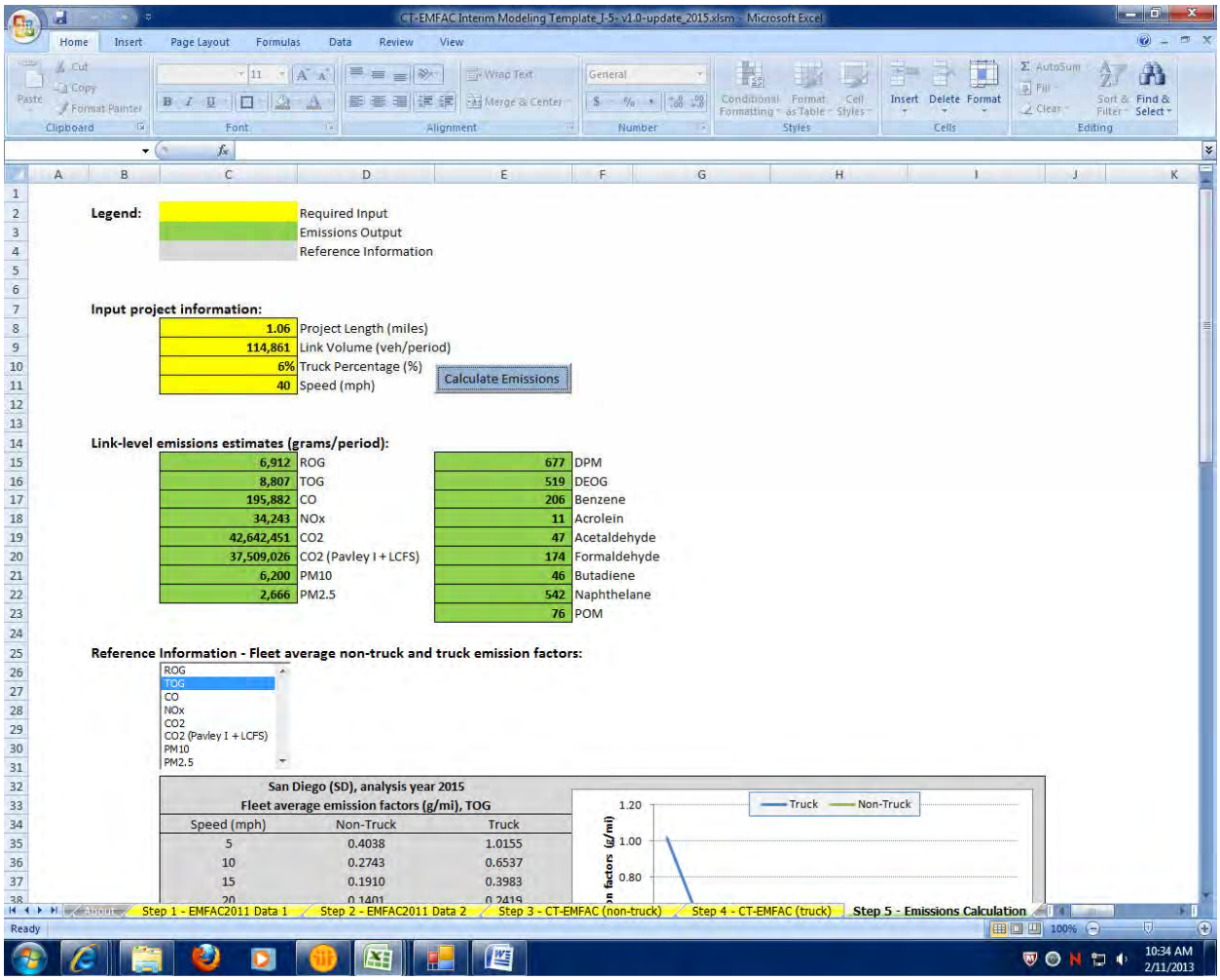
2015 No Build
Link: 4 (SB GP)
Segment: 17
Off Peak



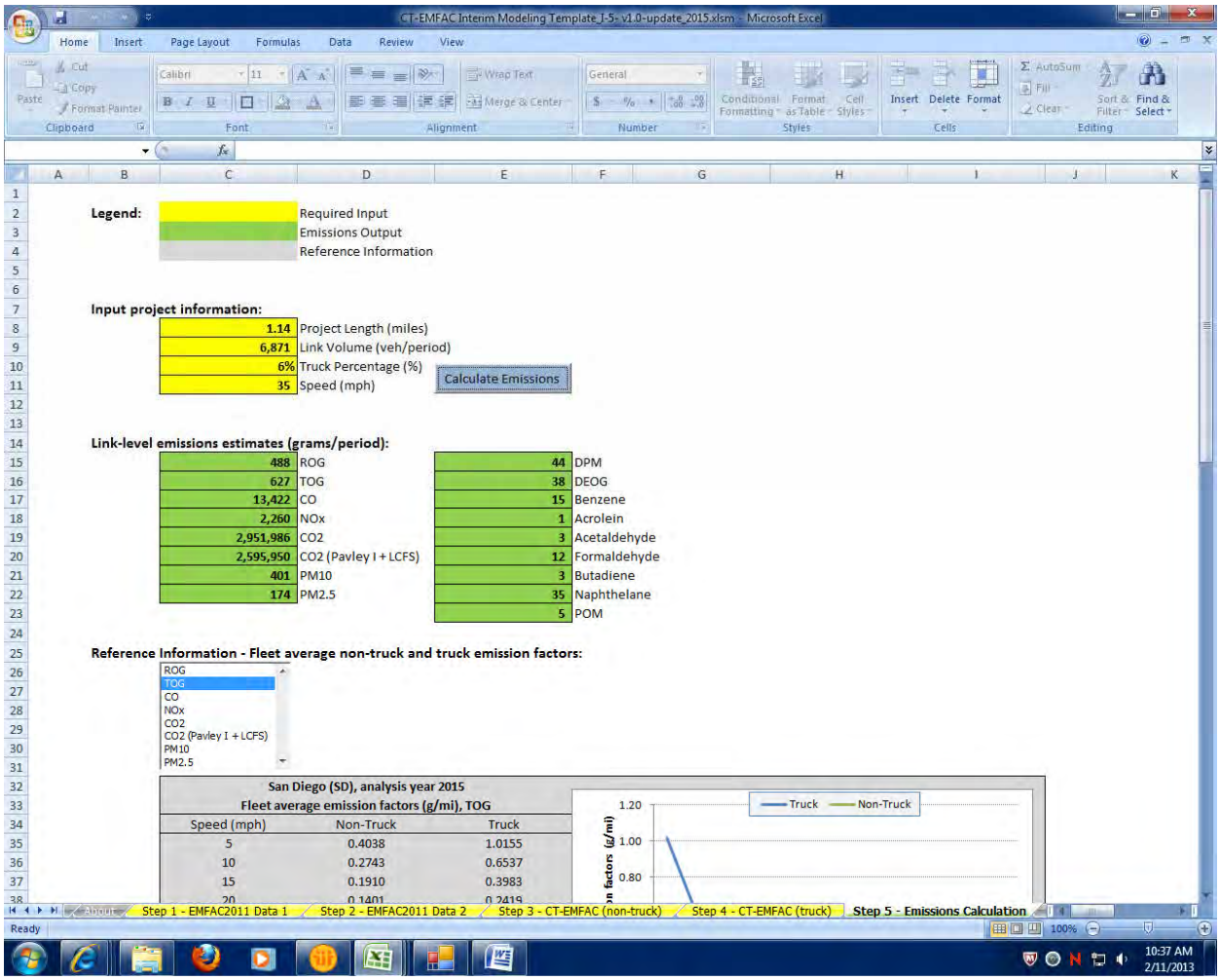
2015 No Build
Link: 4 (SB GP)
Segment: 18
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 18
Off Peak



2015 No Build
Link: 4 (SB GP)
Segment: 19
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.14	Project Length (miles)
6,871	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

488	ROG	44	DPM
627	TOG	38	DEOG
13,422	CO	15	Benzene
2,260	NOx	1	Acrolein
2,951,986	CO2	3	Acetaldehyde
2,595,950	CO2 (Pavley I + LCFS)	12	Formaldehyde
401	PM10	3	Butadiene
174	PM2.5	35	Naphthelane
		5	POM

Reference Information - Fleet average non-truck and truck emission factors:

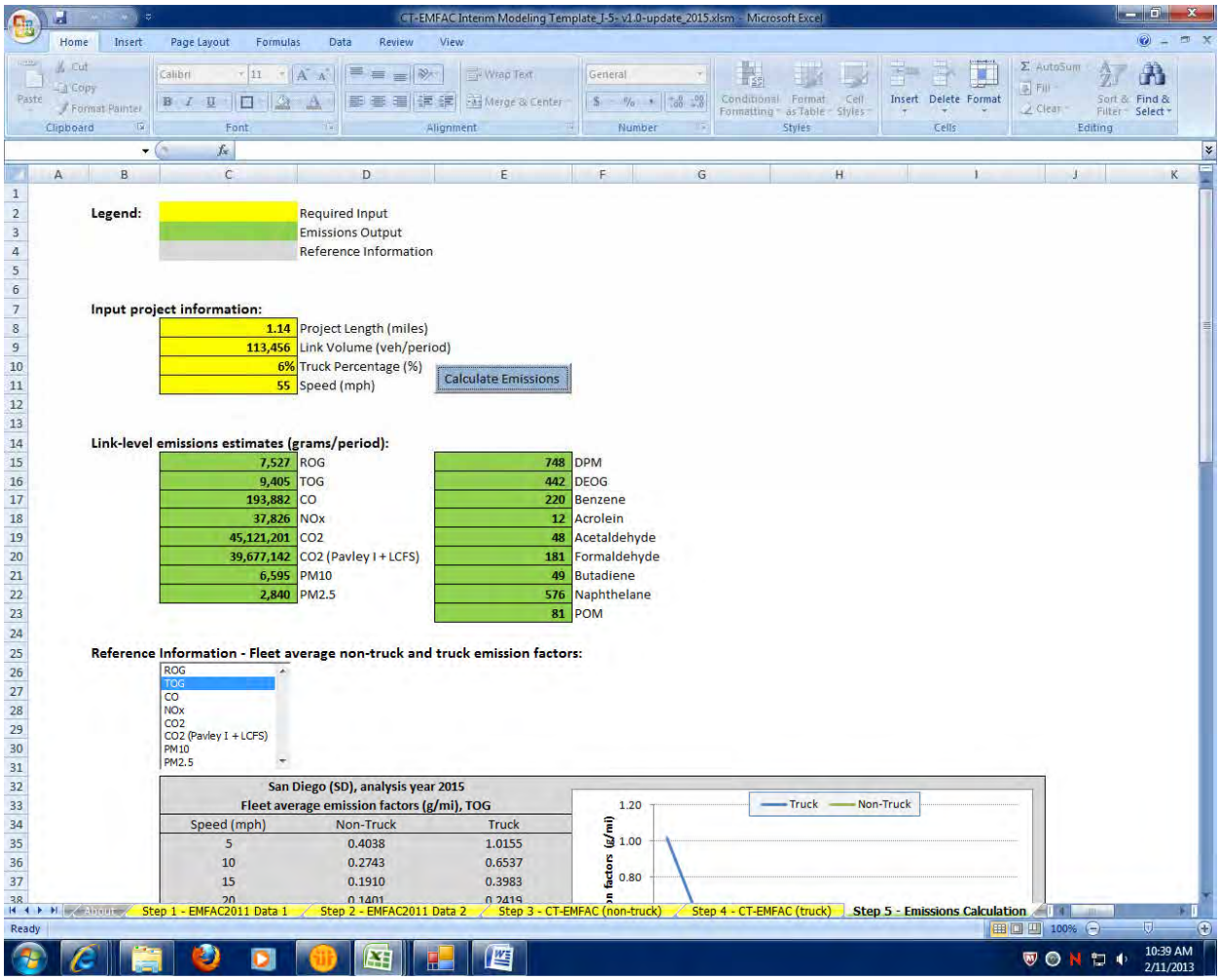
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 No Build
Link: 4 (SB GP)
Segment: 19
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.14	Project Length (miles)
113,456	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,527	ROG	748	DPM
9,405	TOG	442	DEOG
193,882	CO	220	Benzene
37,826	NOx	12	Acrolein
45,121,201	CO2	48	Acetaldehyde
39,677,142	CO2 (Pavley I + LCFS)	181	Formaldehyde
6,595	PM10	49	Butadiene
2,840	PM2.5	576	Naphthelane
		81	POM

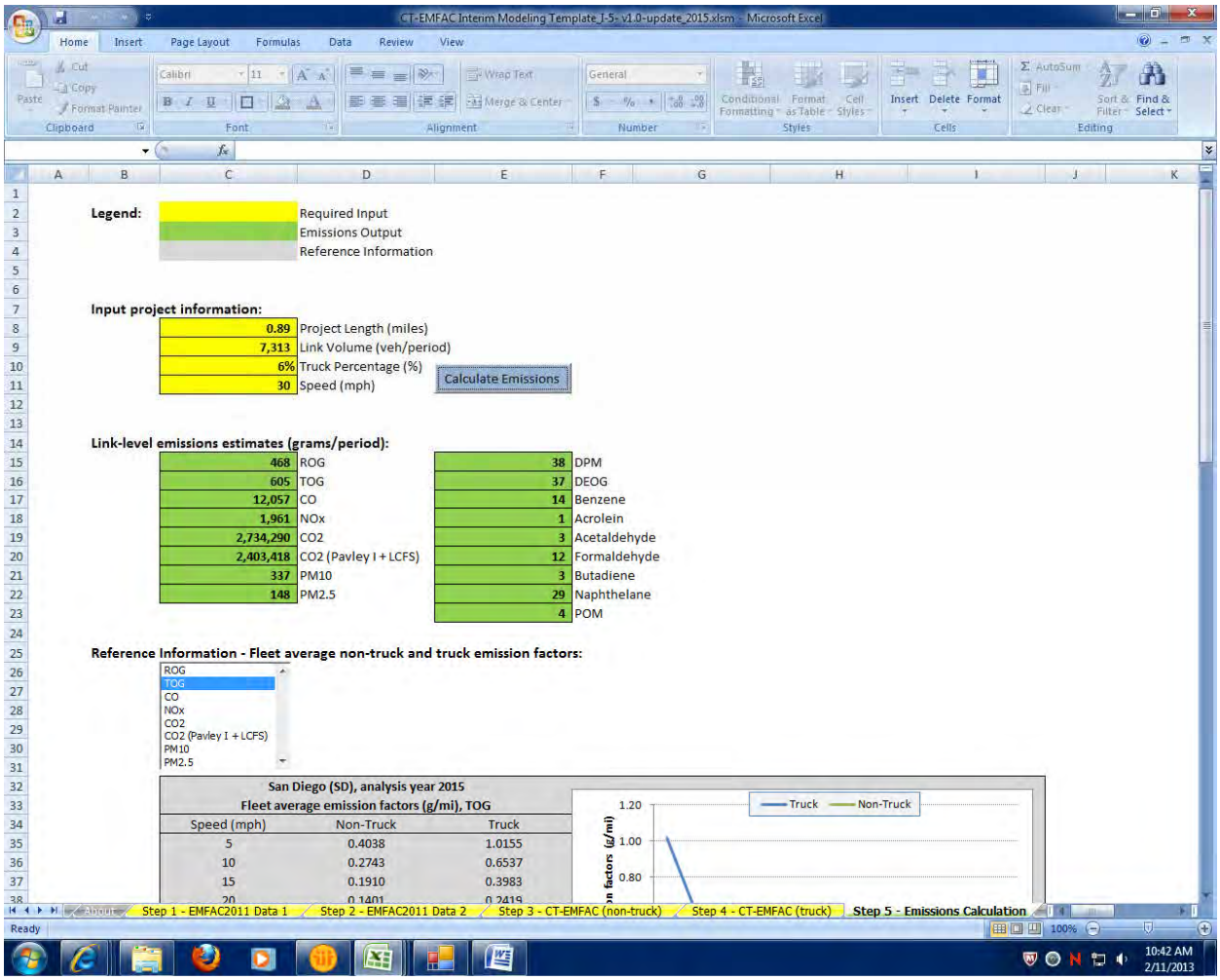
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 20
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
7,313	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

468	ROG	38	DPM
605	TOG	37	DEOG
12,057	CO	14	Benzene
1,961	NOx	1	Acrolein
2,734,290	CO2	3	Acetaldehyde
2,403,418	CO2 (Pavley I + LCFS)	12	Formaldehyde
337	PM10	3	Butadiene
148	PM2.5	29	Naphthelane
		4	POM

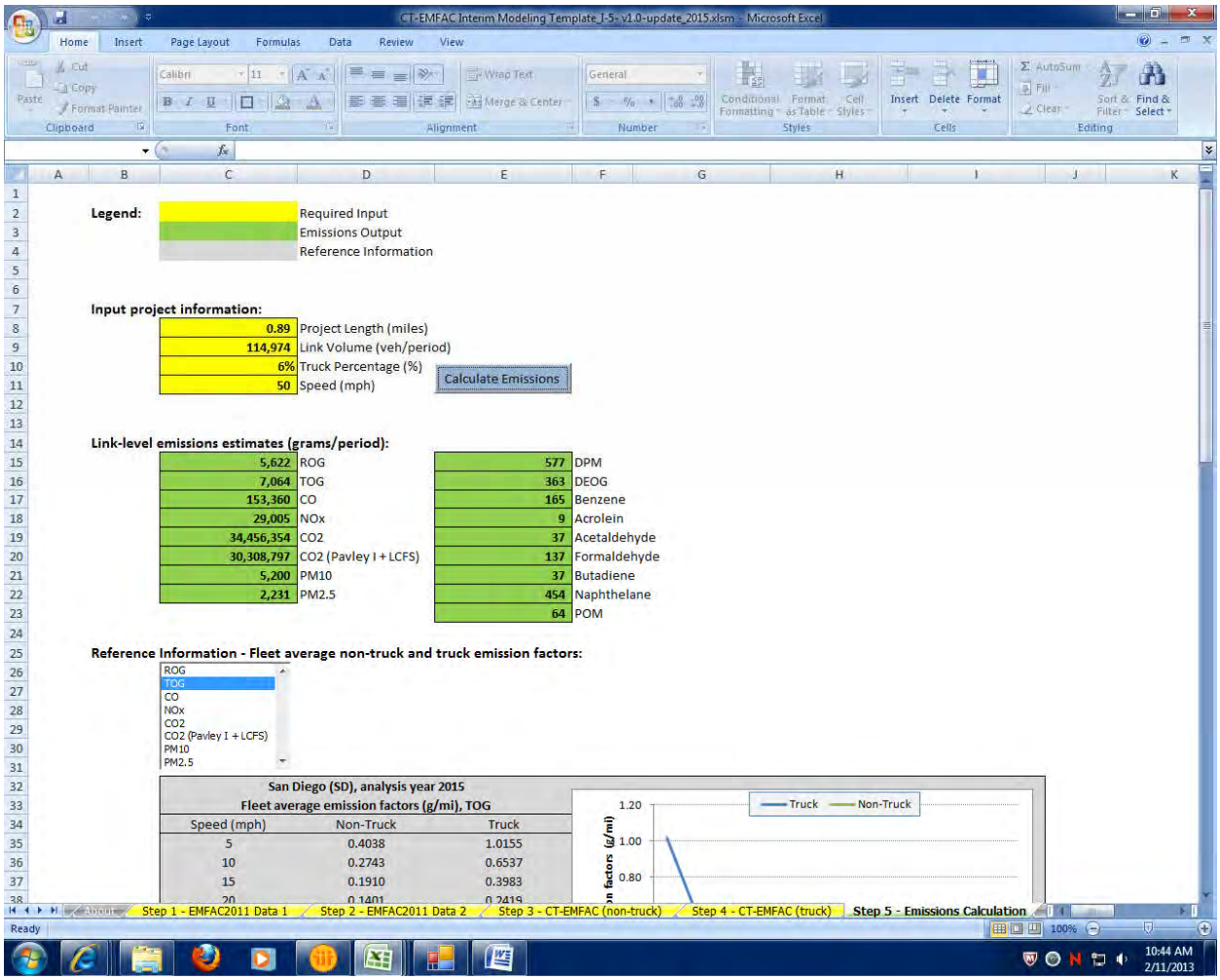
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 4 (SB GP)
Segment: 20
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
114,974	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,622	ROG	577	DPM
7,064	TOG	363	DEOG
153,360	CO	165	Benzene
29,005	NOx	9	Acrolein
34,456,354	CO2	37	Acetaldehyde
30,308,797	CO2 (Pavley I + LCFS)	137	Formaldehyde
5,200	PM10	37	Butadiene
2,231	PM2.5	454	Naphthelane
		64	POM

Reference Information - Fleet average non-truck and truck emission factors:

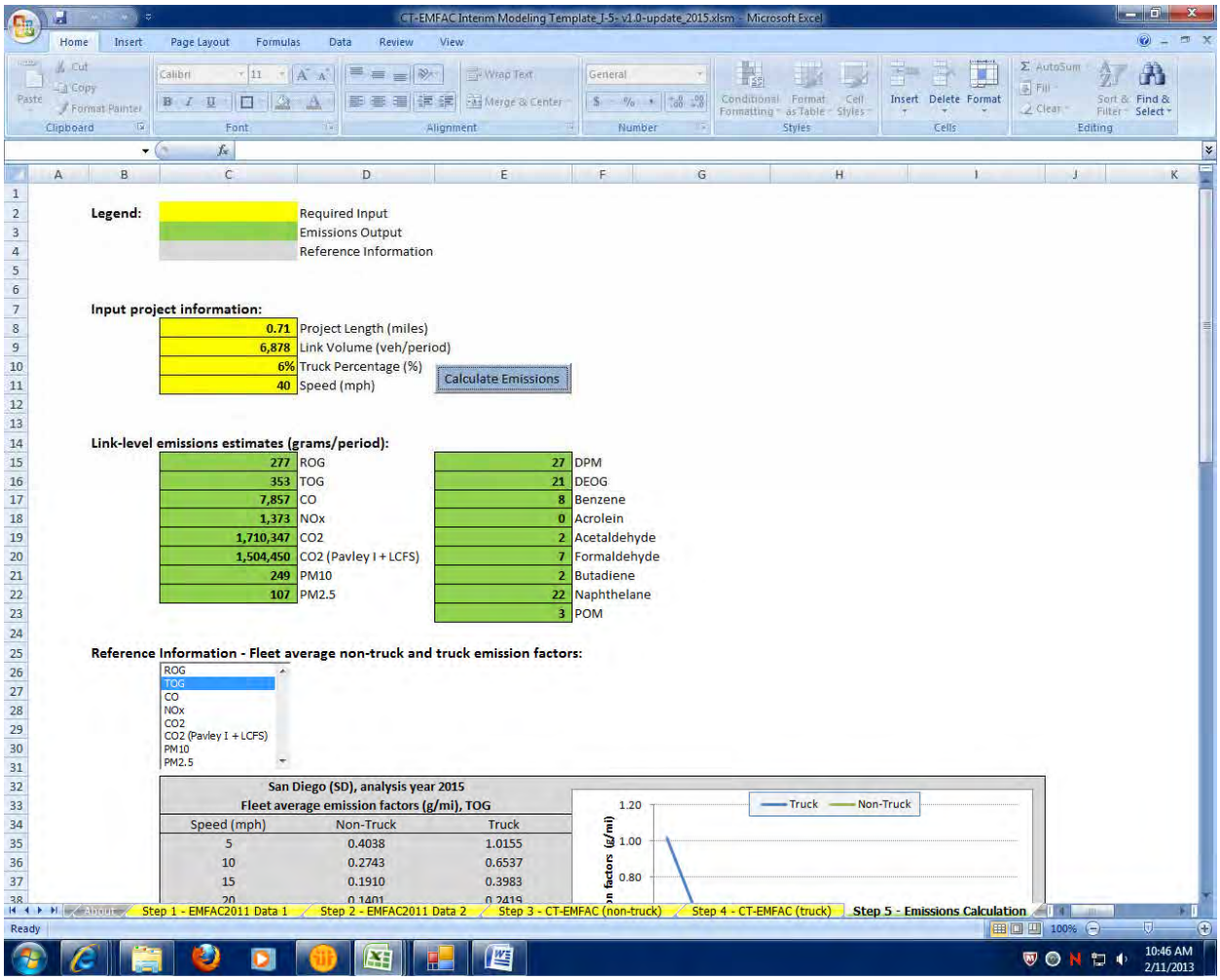
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

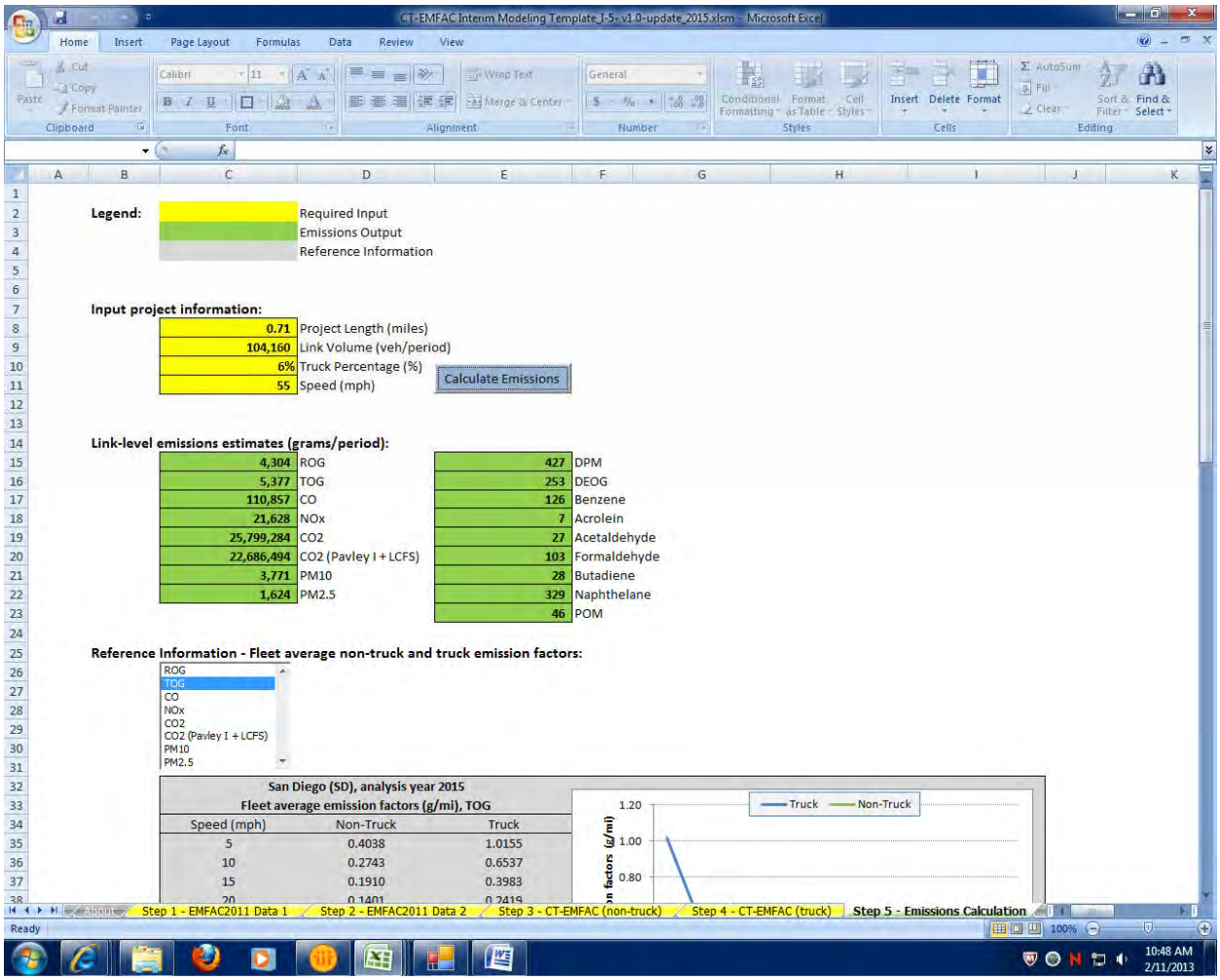
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

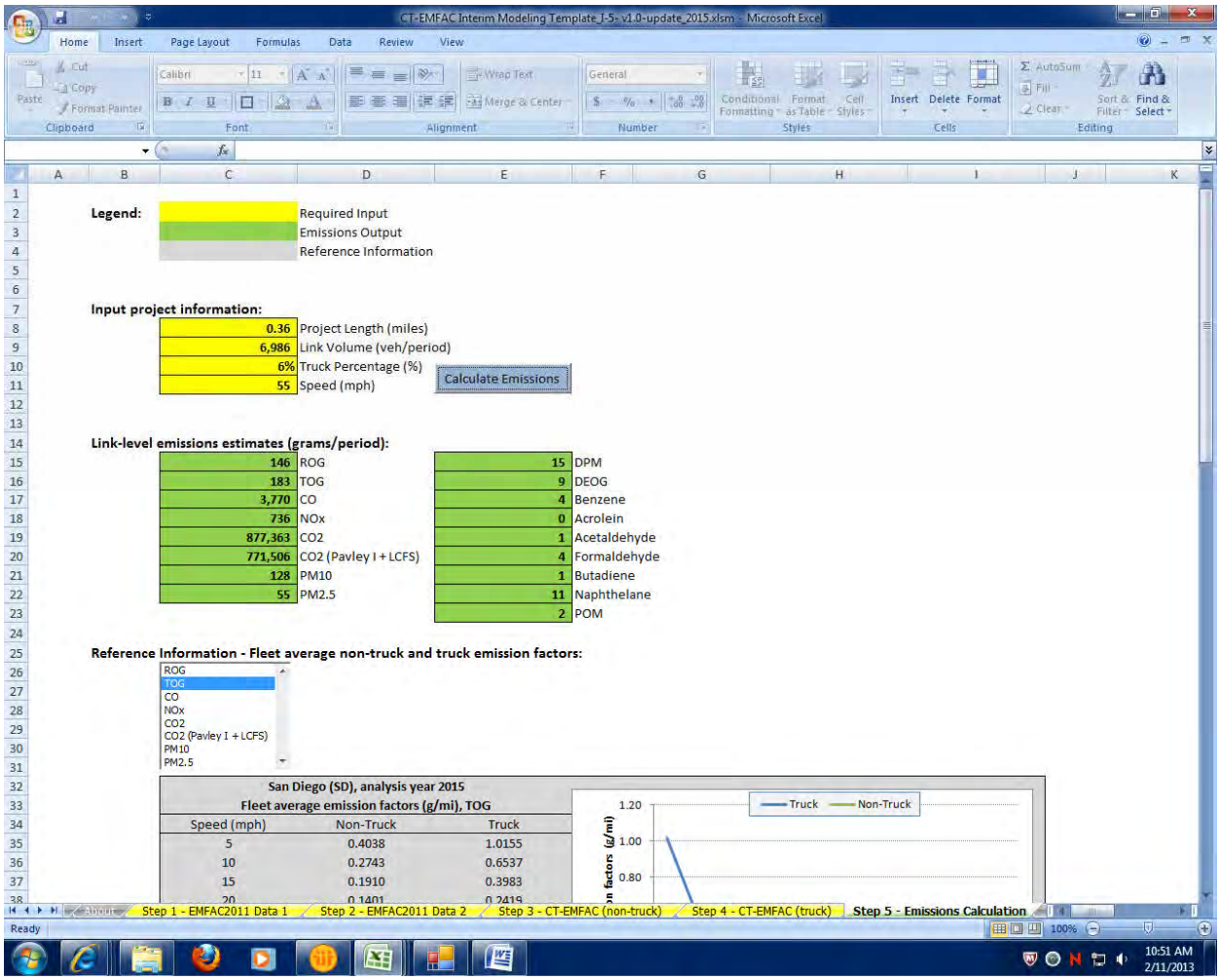
2015 No Build
Link: 4 (SB GP)
Segment: 21
Peak



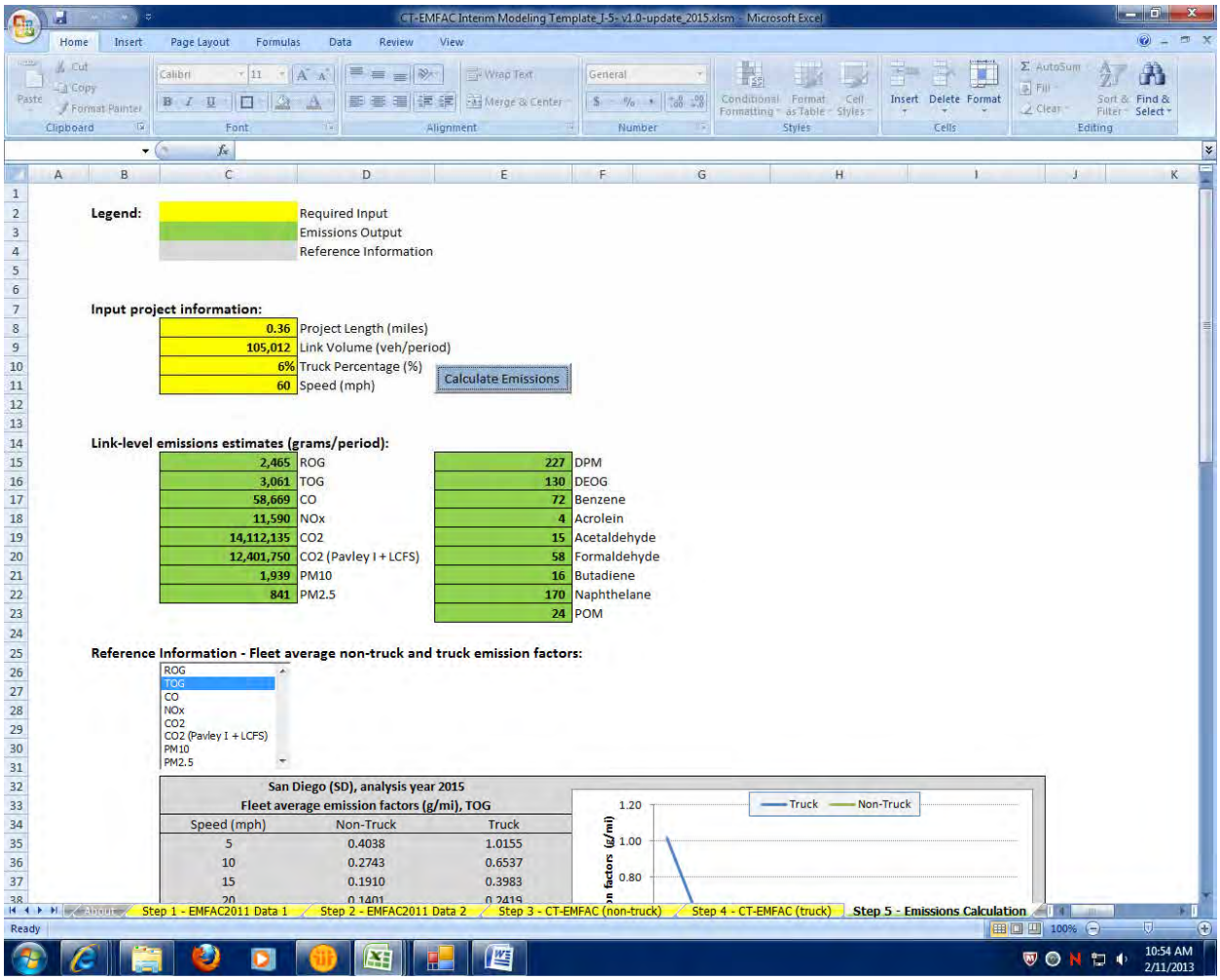
2015 No Build
Link: 4 (SB GP)
Segment: 21
Off Peak



2015 No Build
Link: 4 (SB GP)
Segment: 22
Peak



2015 No Build
Link: 4 (SB GP)
Segment: 22
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.36	Project Length (miles)
105,012	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,465	ROG	227	DPM
3,061	TOG	130	DEOG
58,669	CO	72	Benzene
11,590	NOx	4	Acrolein
14,112,135	CO2	15	Acetaldehyde
12,401,750	CO2 (Pavley I + LCFS)	58	Formaldehyde
1,939	PM10	16	Butadiene
841	PM2.5	170	Naphthelane
		24	POM

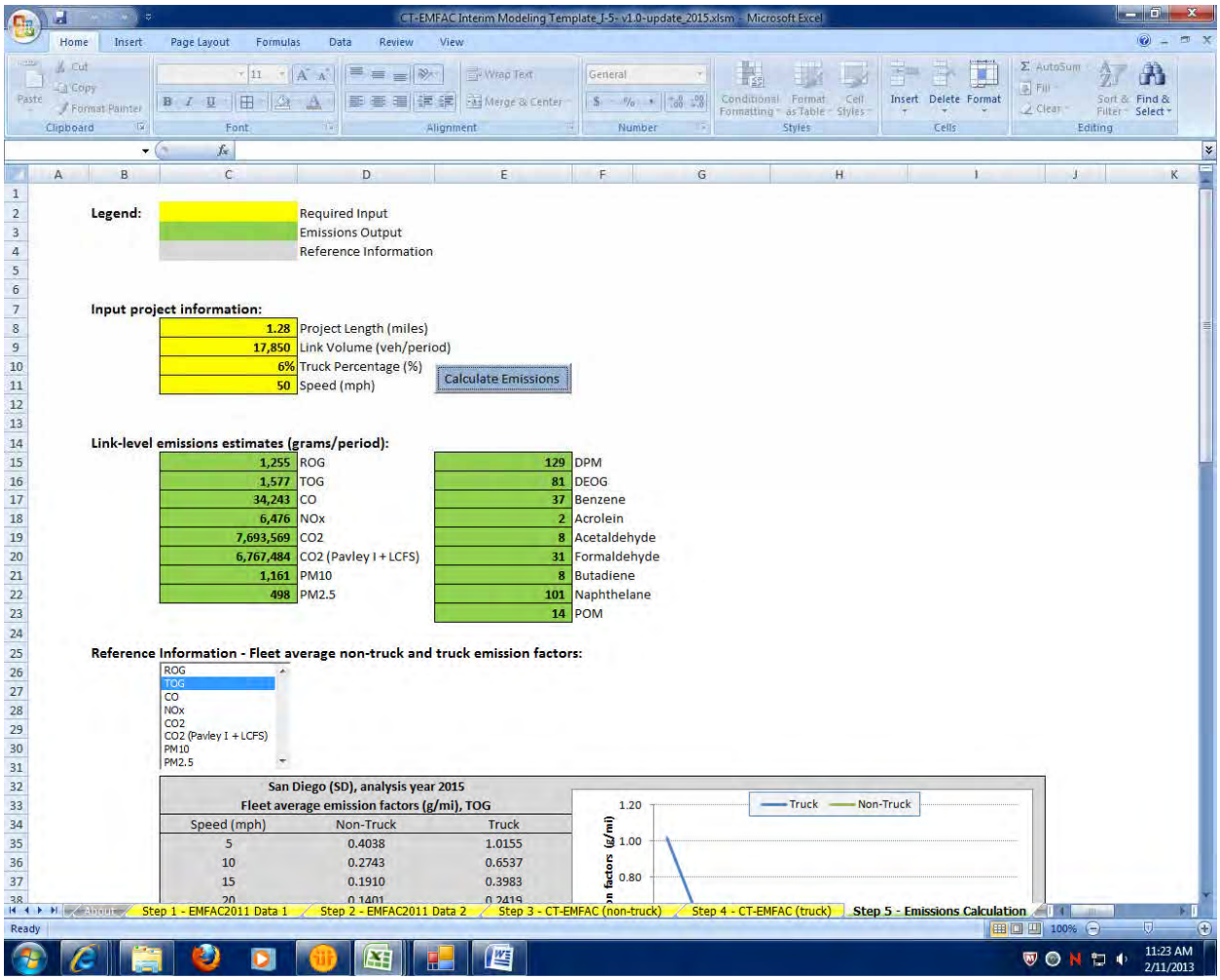
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

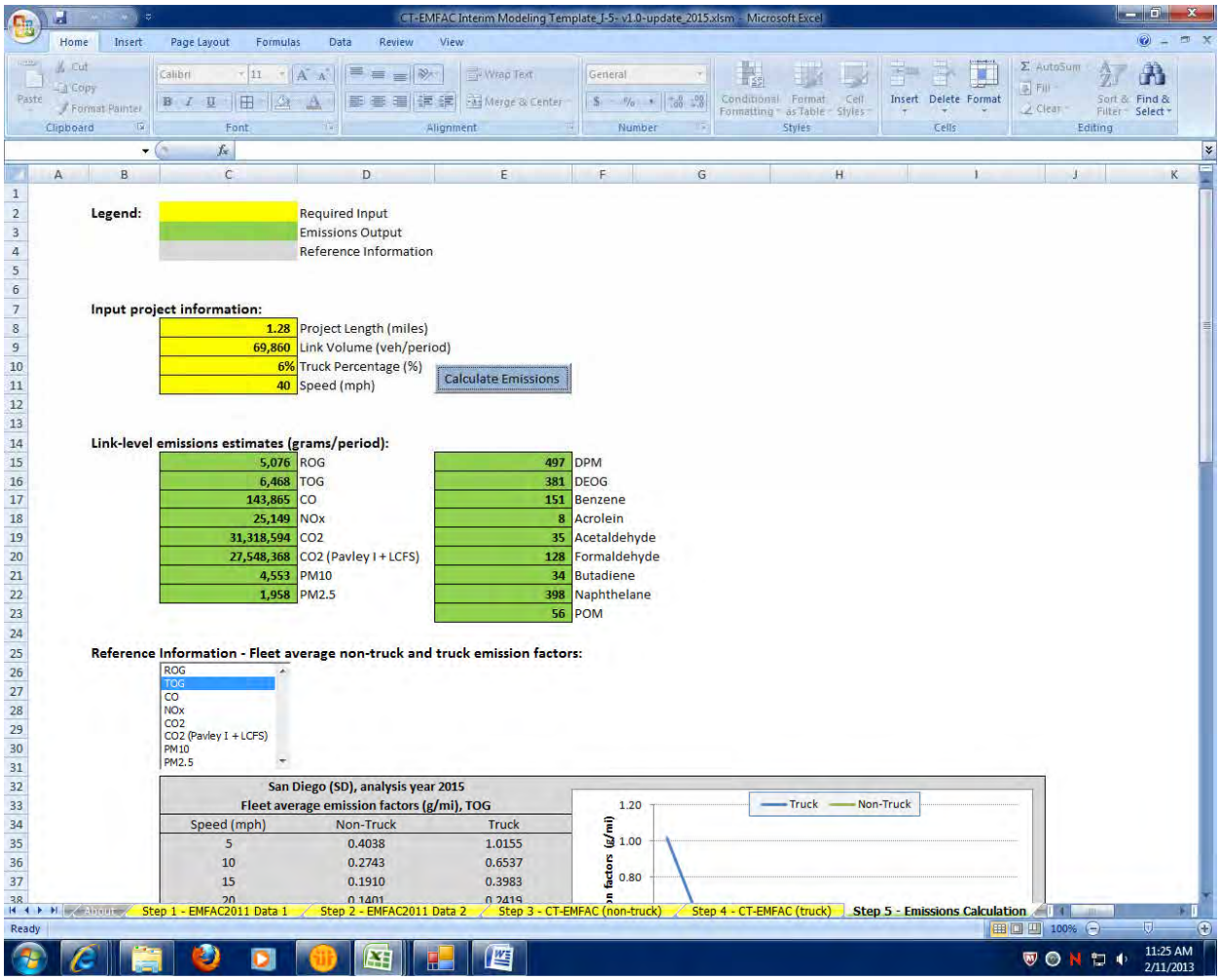
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 5 (NB BP)
Segment: 1
Peak



2015 No Build
Link: 5 (NB BP)
Segment: 1
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.28	Project Length (miles)
69,860	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,076	ROG	497	DPM
6,468	TOG	381	DEOG
143,865	CO	151	Benzene
25,149	NOx	8	Acrolein
31,318,594	CO2	35	Acetaldehyde
27,548,368	CO2 (Pavley I + LCFS)	128	Formaldehyde
4,553	PM10	34	Butadiene
1,958	PM2.5	398	Naphthelane
		56	POM

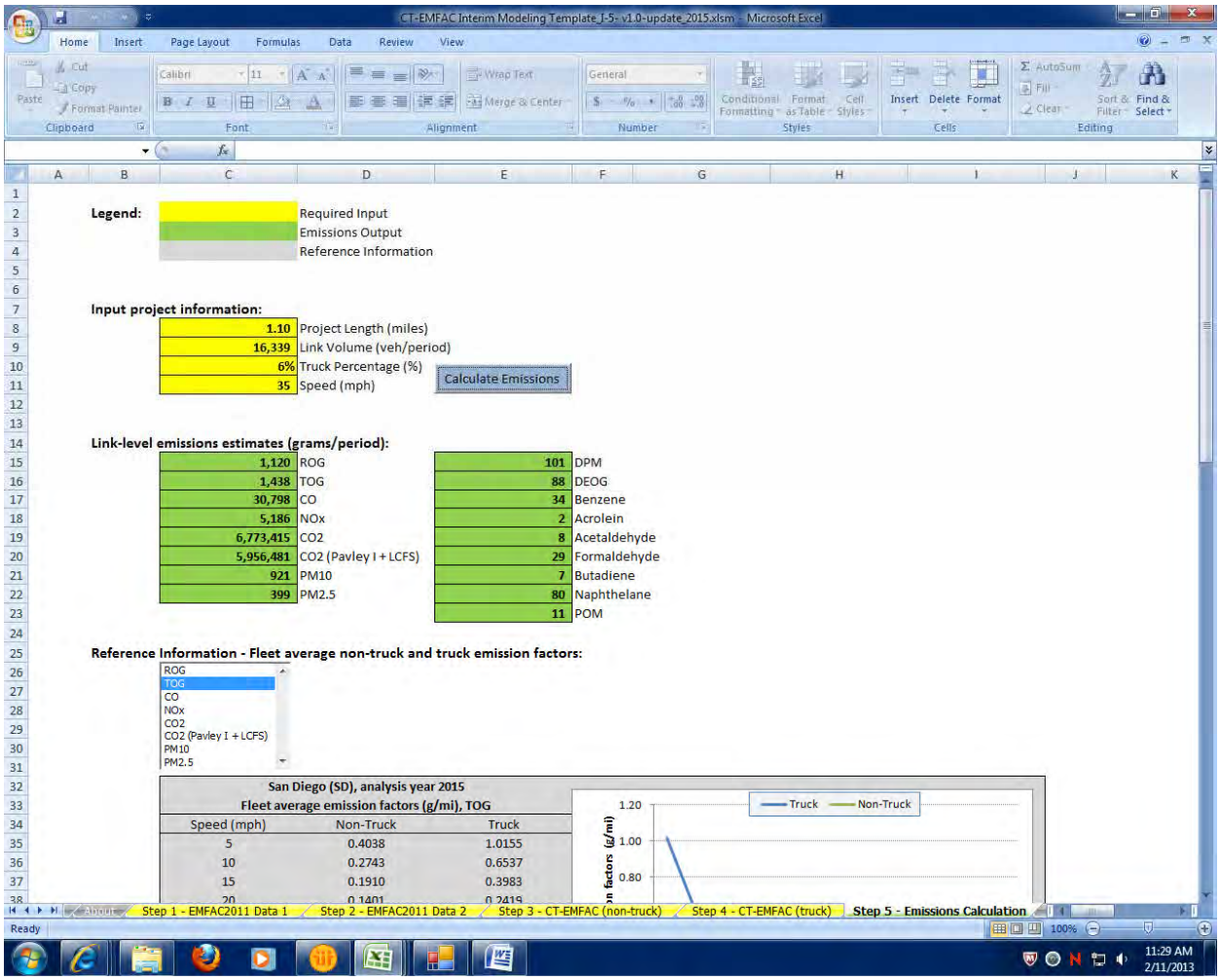
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 5 (NB BP)
Segment: 2
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.10	Project Length (miles)
16,339	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,120	ROG	101	DPM
1,438	TOG	88	DEOG
30,798	CO	34	Benzene
5,186	NOx	2	Acrolein
6,773,415	CO2	8	Acetaldehyde
5,956,481	CO2 (Pavley I + LCFS)	29	Formaldehyde
921	PM10	7	Butadiene
399	PM2.5	80	Naphthelane
		11	POM

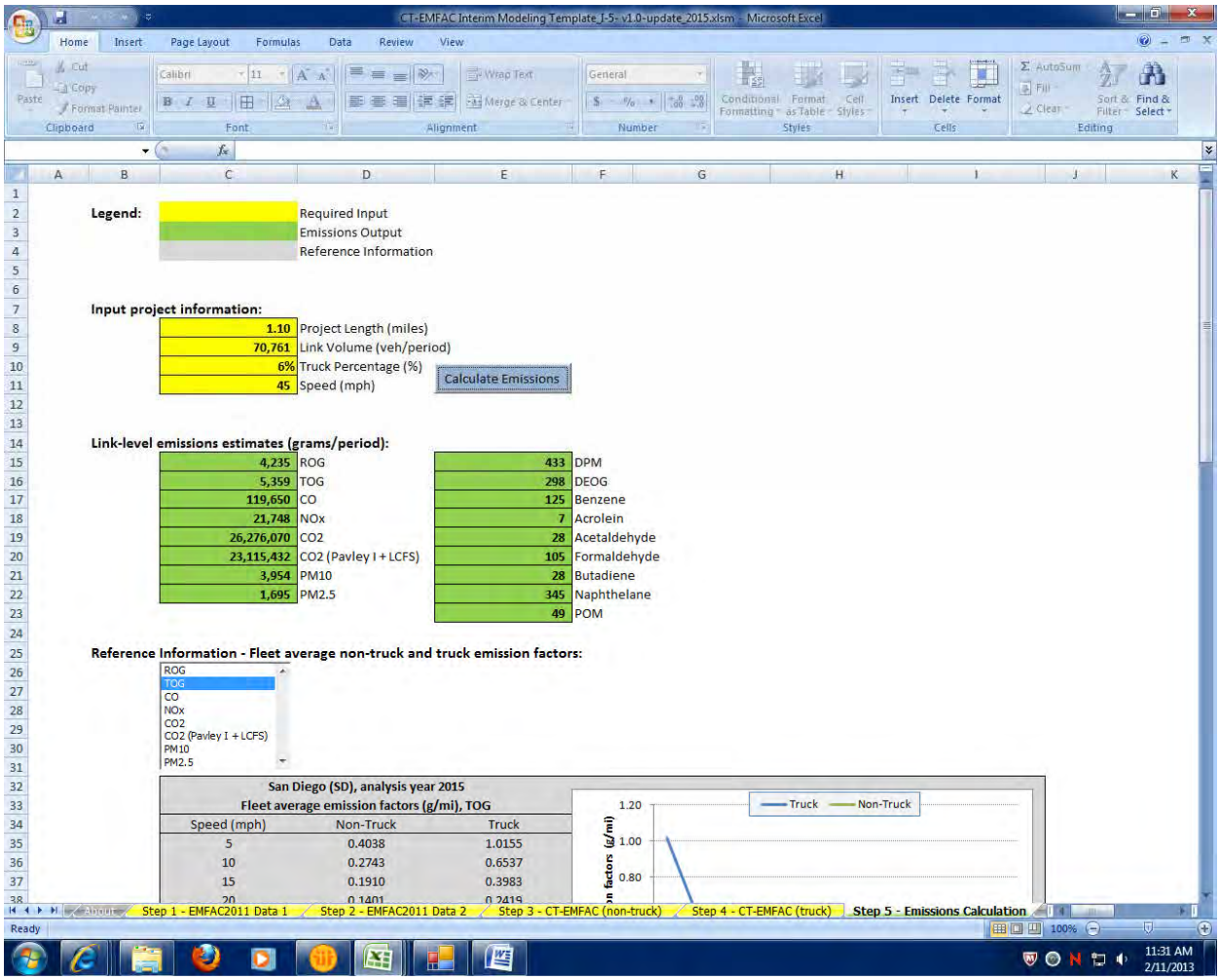
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 5 (NB BP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.10	Project Length (miles)
70,761	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,235	ROG	433	DPM
5,359	TOG	298	DEOG
119,650	CO	125	Benzene
21,748	NOx	7	Acrolein
26,276,070	CO2	28	Acetaldehyde
23,115,432	CO2 (Pavley I + LCFS)	105	Formaldehyde
3,954	PM10	28	Butadiene
1,695	PM2.5	345	Naphthelane
		49	POM

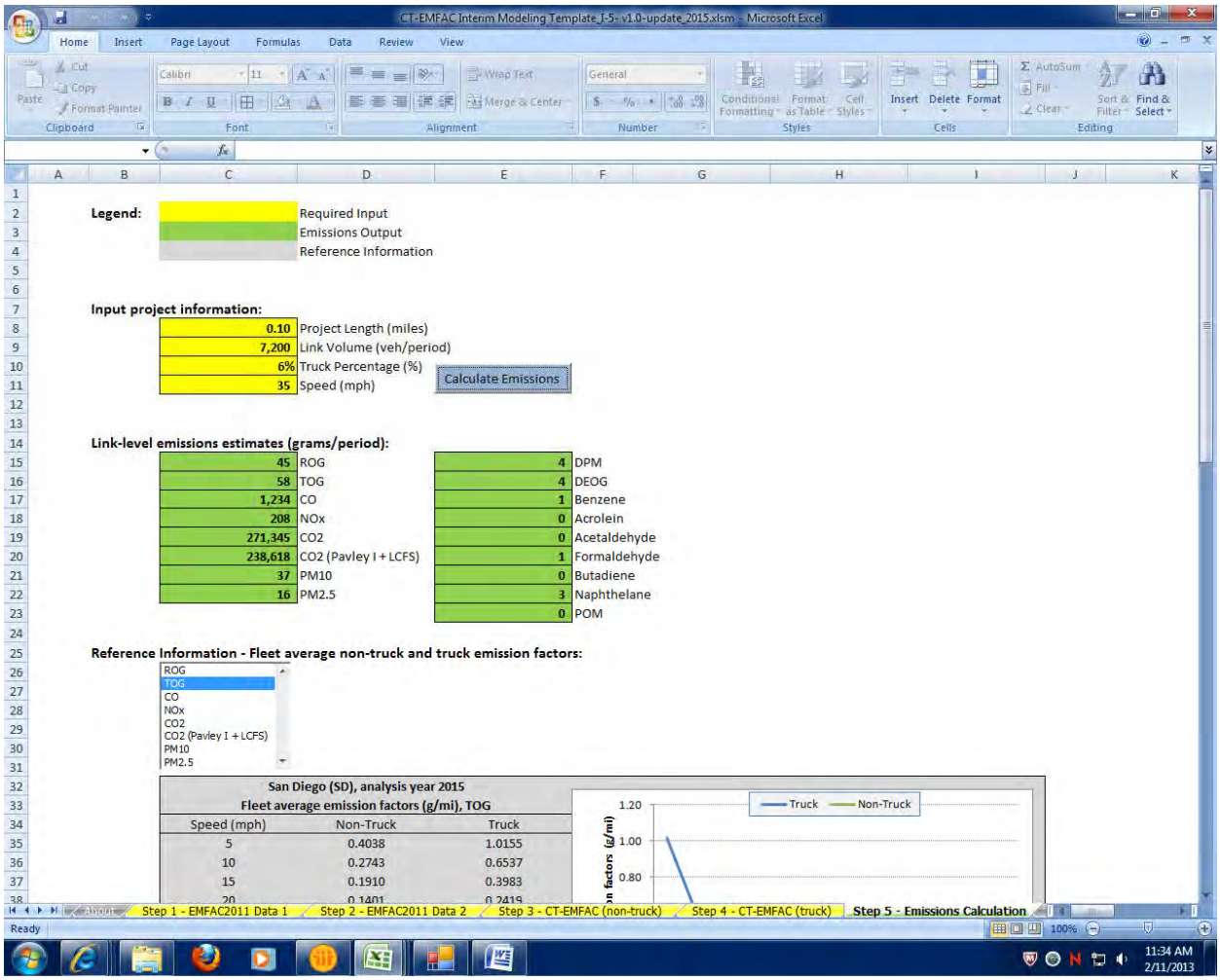
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

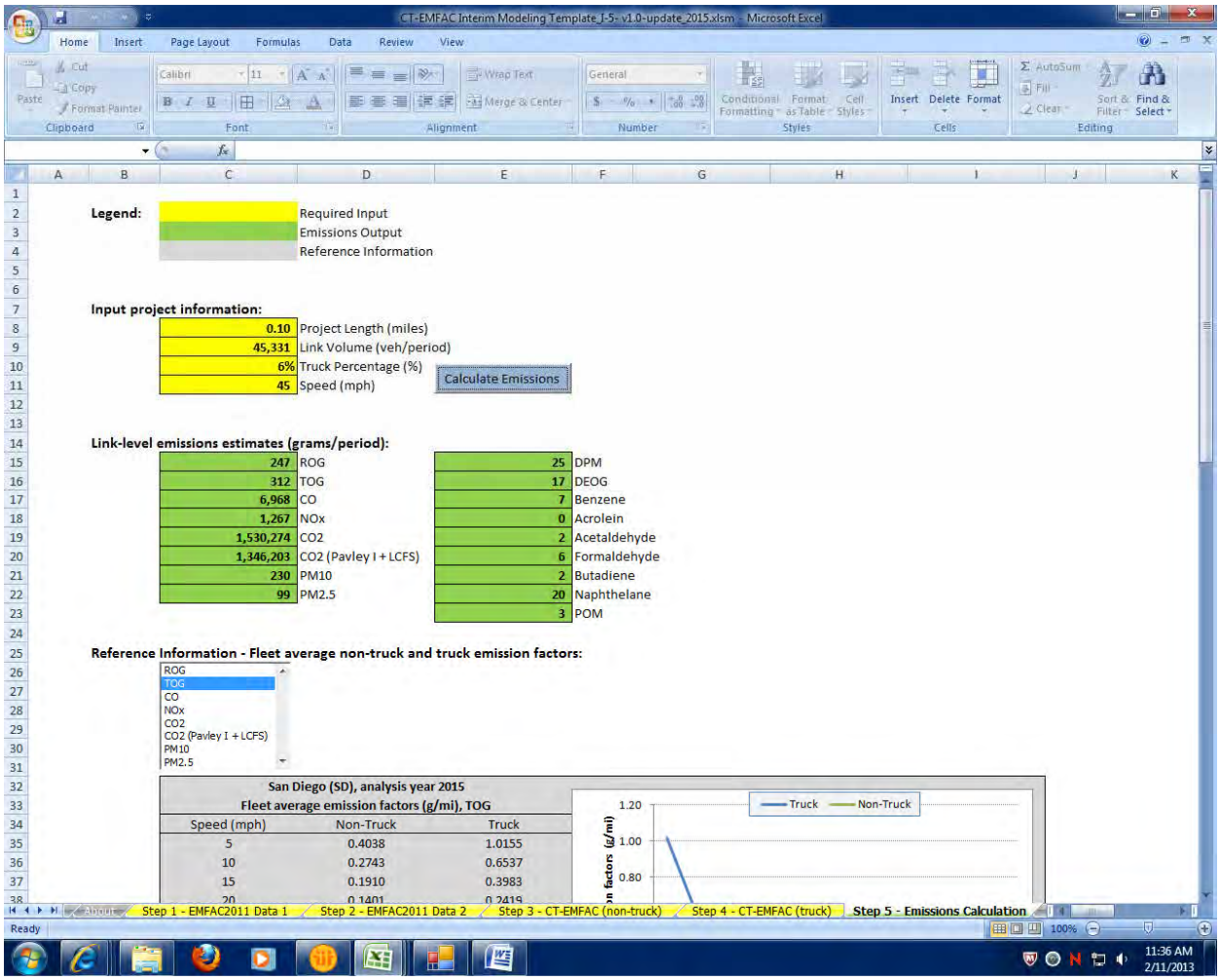
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 5 (NB BP)
Segment: 3
Peak



2015 No Build
Link: 5 (NB BP)
Segment: 3
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.10	Project Length (miles)
45,331	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

247	ROG	25	DPM
312	TOG	17	DEOG
6,968	CO	7	Benzene
1,267	NOx	0	Acrolein
1,530,274	CO2	2	Acetaldehyde
1,346,203	CO2 (Pavley I + LCFS)	6	Formaldehyde
230	PM10	2	Butadiene
99	PM2.5	20	Naphthelane
		3	POM

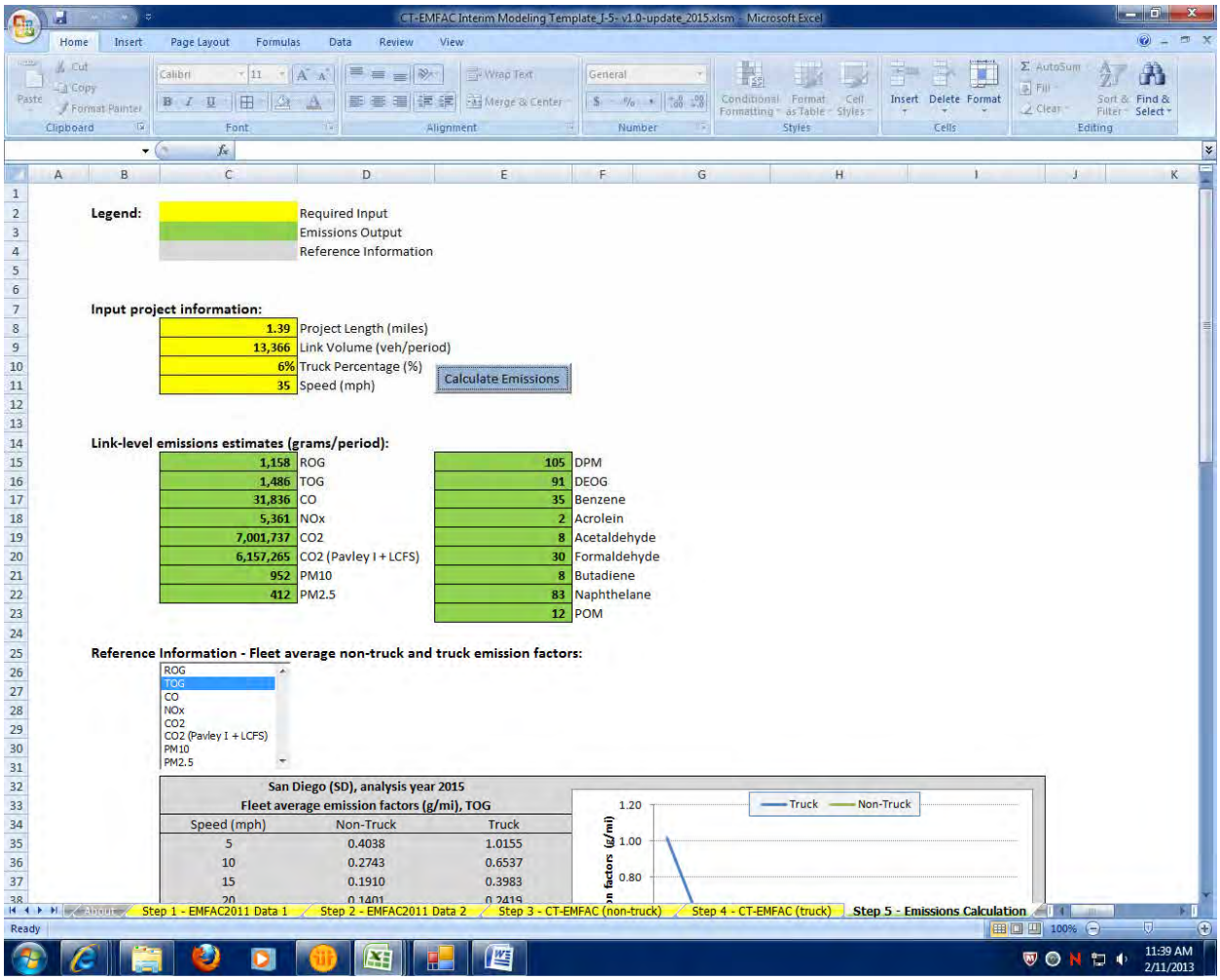
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 6 (SB BP)
Segment: 1
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.39	Project Length (miles)
13,366	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,158	ROG	105	DPM
1,486	TOG	91	DEOG
31,836	CO	35	Benzene
5,361	NOx	2	Acrolein
7,001,737	CO2	8	Acetaldehyde
6,157,265	CO2 (Pavley I + LCFS)	30	Formaldehyde
952	PM10	8	Butadiene
412	PM2.5	83	Naphthelane
		12	POM

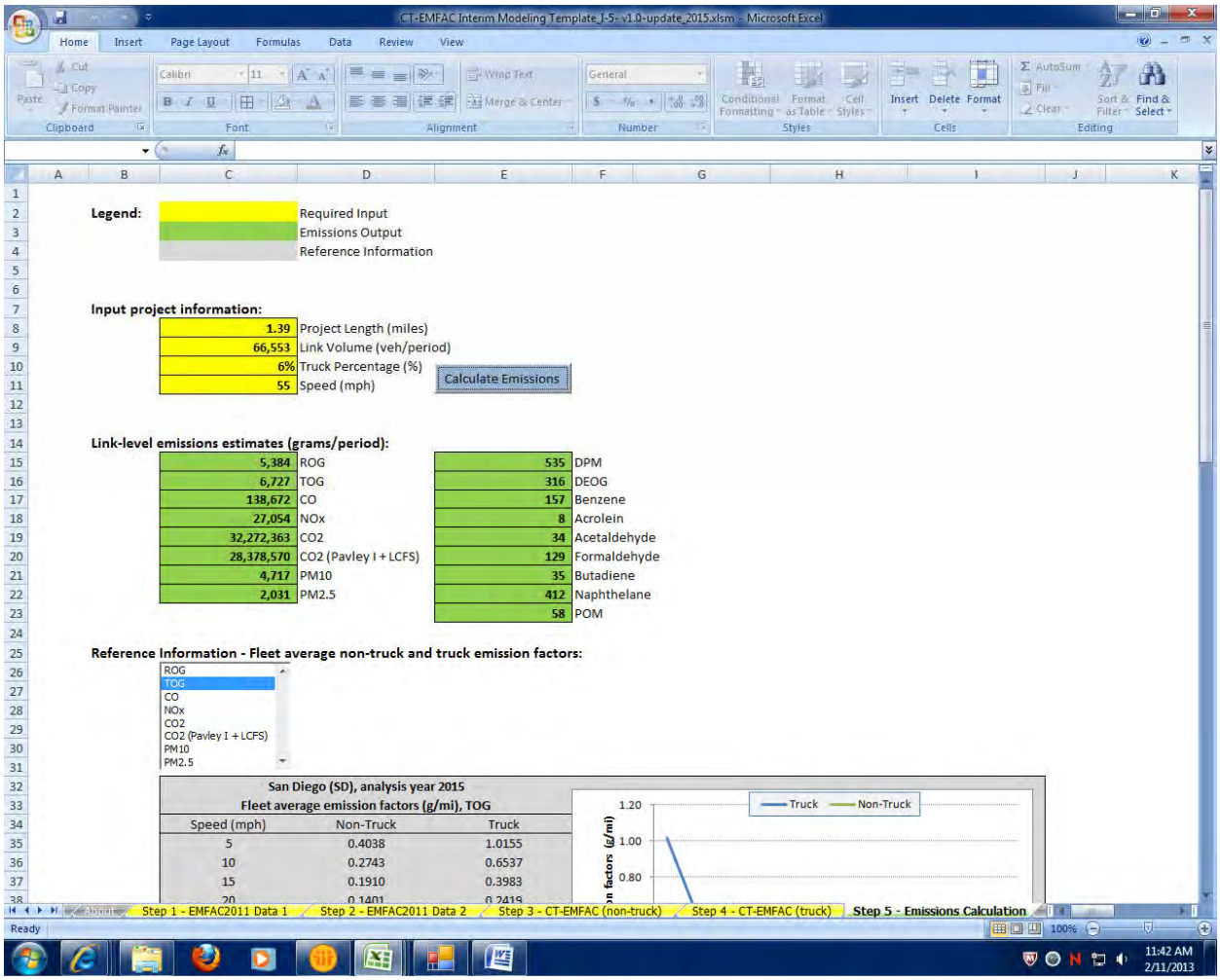
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

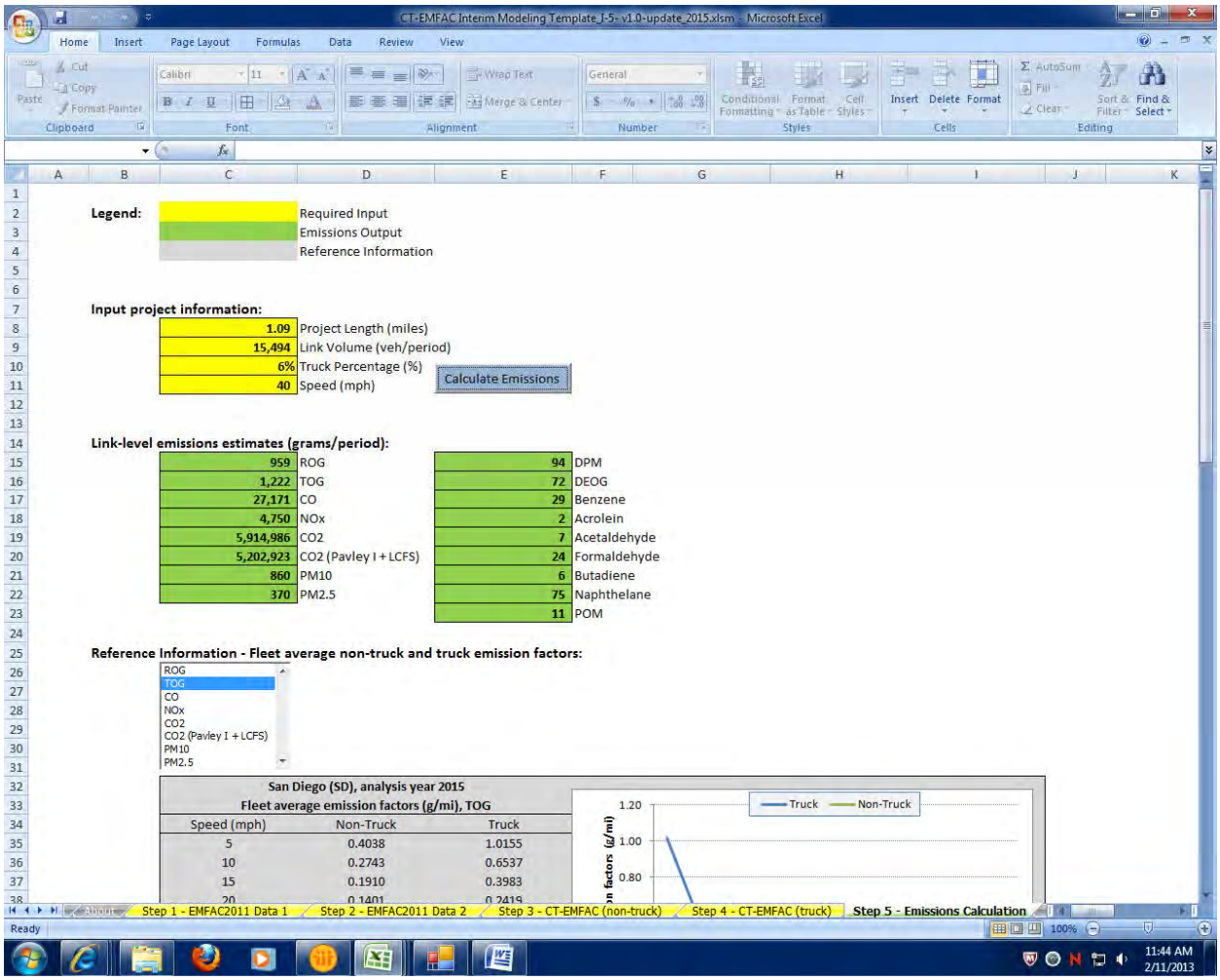
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

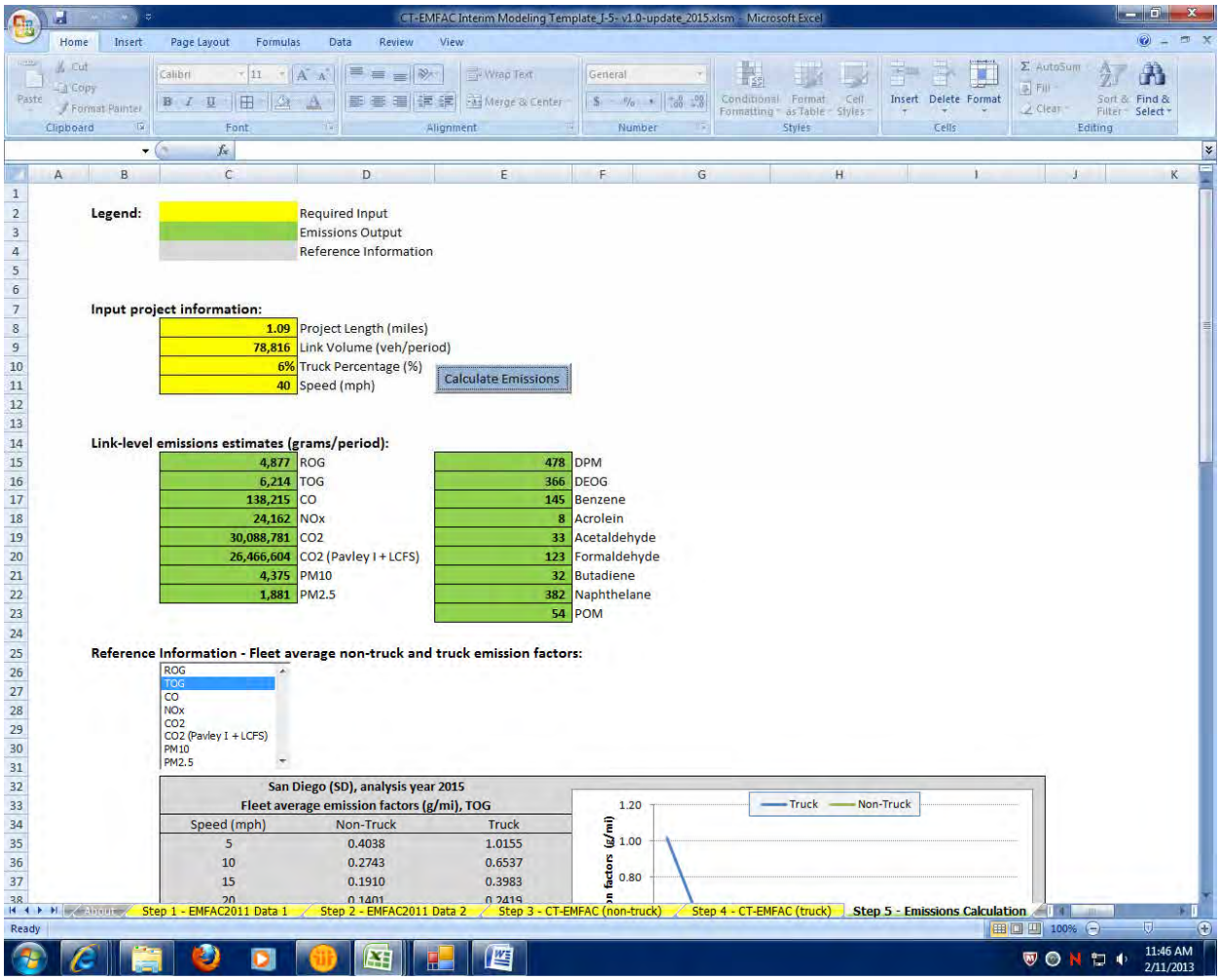
2015 No Build
Link: 6 (SB BP)
Segment: 1
Off Peak



2015 No Build
Link: 6 (SB BP)
Segment: 2
Peak



2015 No Build
Link: 6 (SB BP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
78,816	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,877	ROG	478	DPM
6,214	TOG	366	DEOG
138,215	CO	145	Benzene
24,162	NOx	8	Acrolein
30,088,781	CO2	33	Acetaldehyde
26,466,604	CO2 (Pavley I + LCFS)	123	Formaldehyde
4,375	PM10	32	Butadiene
1,881	PM2.5	382	Naphthelane
		54	POM

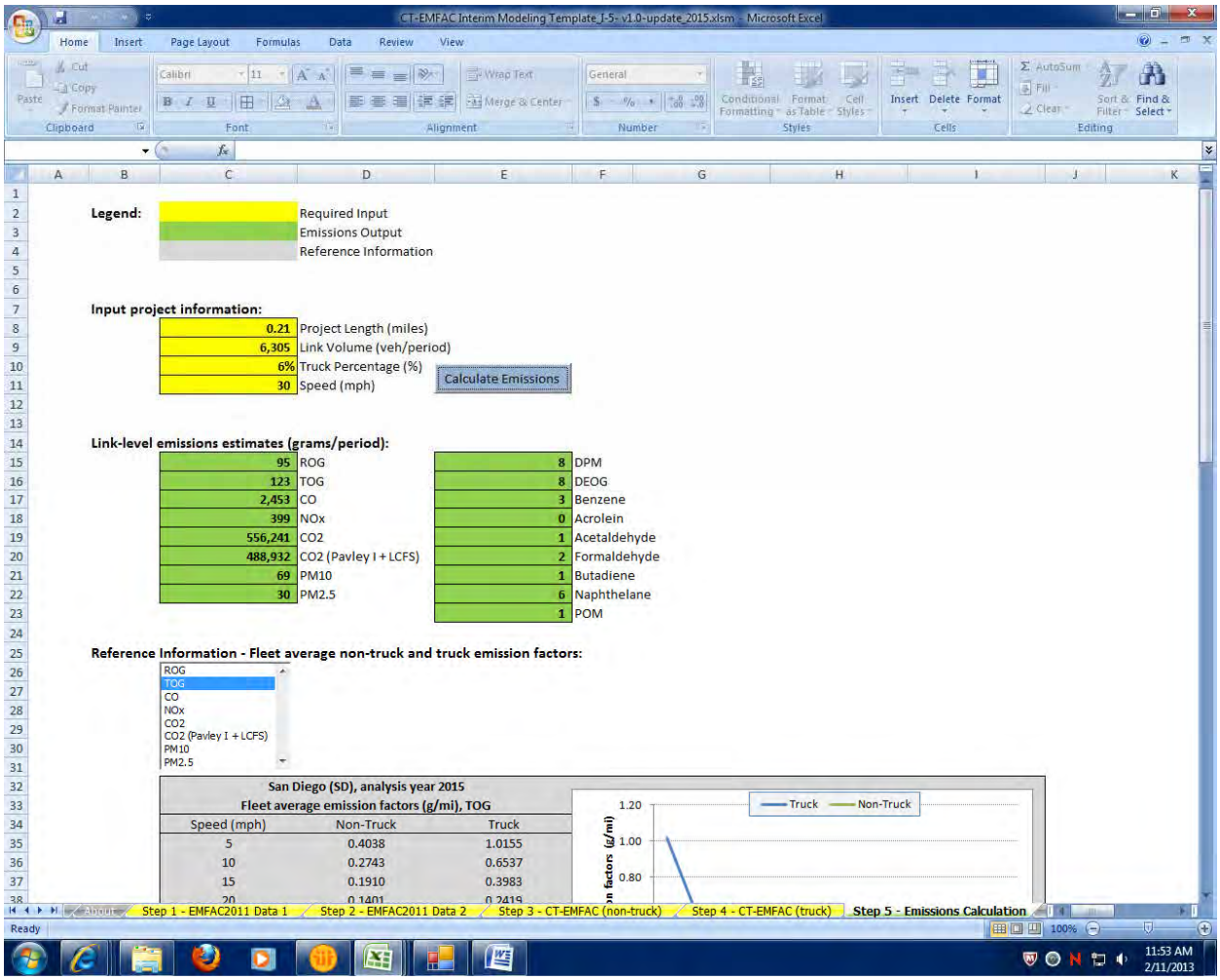
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

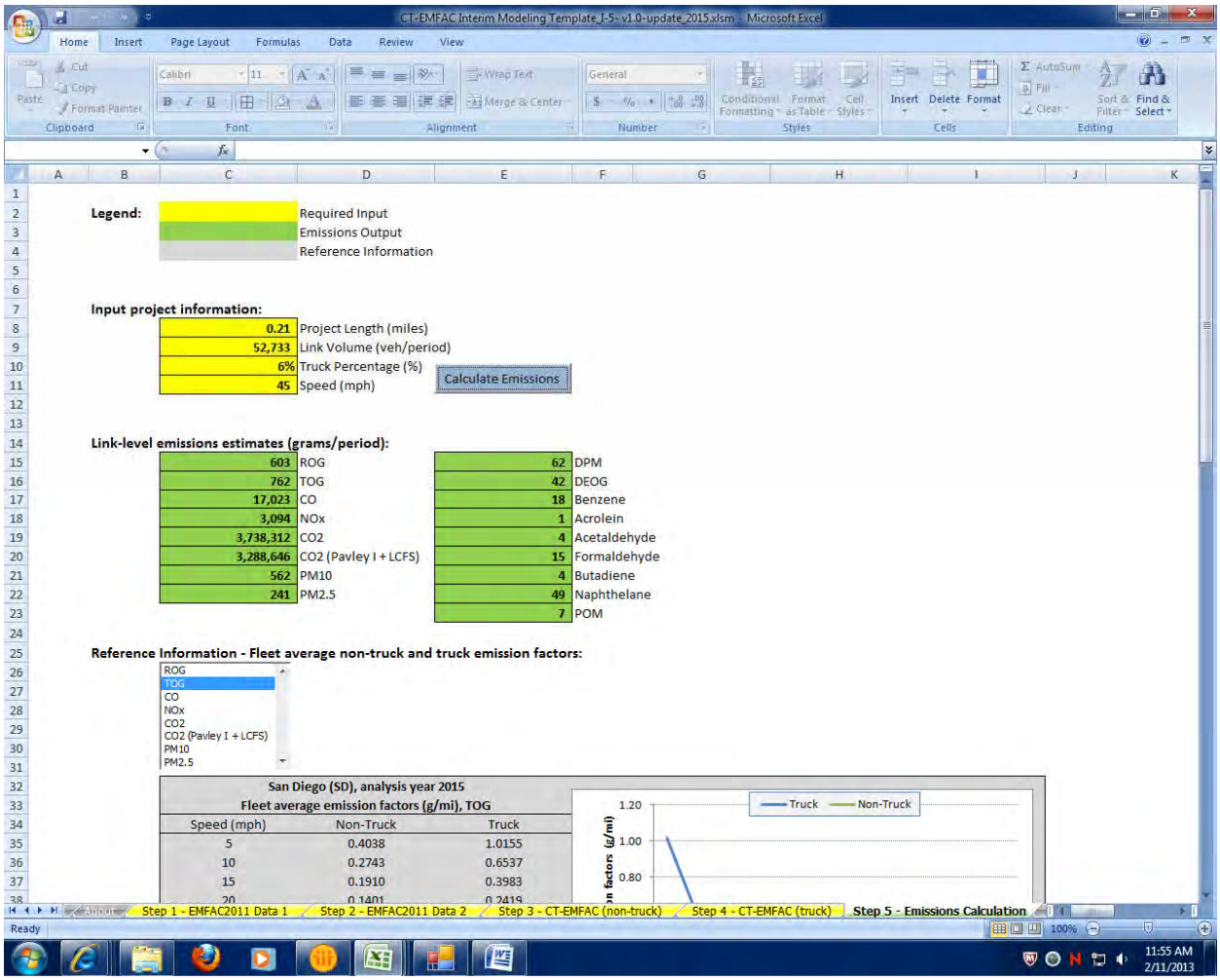
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 No Build
Link: 6 (SB BP)
Segment: 3
Peak



2015 No Build
Link: 6 (SB BP)
Segment: 3
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.21	Project Length (miles)
52,733	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

603	ROG	62	DPM
762	TOG	42	DEOG
17,023	CO	18	Benzene
3,094	NOx	1	Acrolein
3,738,312	CO2	4	Acetaldehyde
3,288,646	CO2 (Pavley I + LCFS)	15	Formaldehyde
562	PM10	4	Butadiene
241	PM2.5	49	Naphthelane
		7	POM

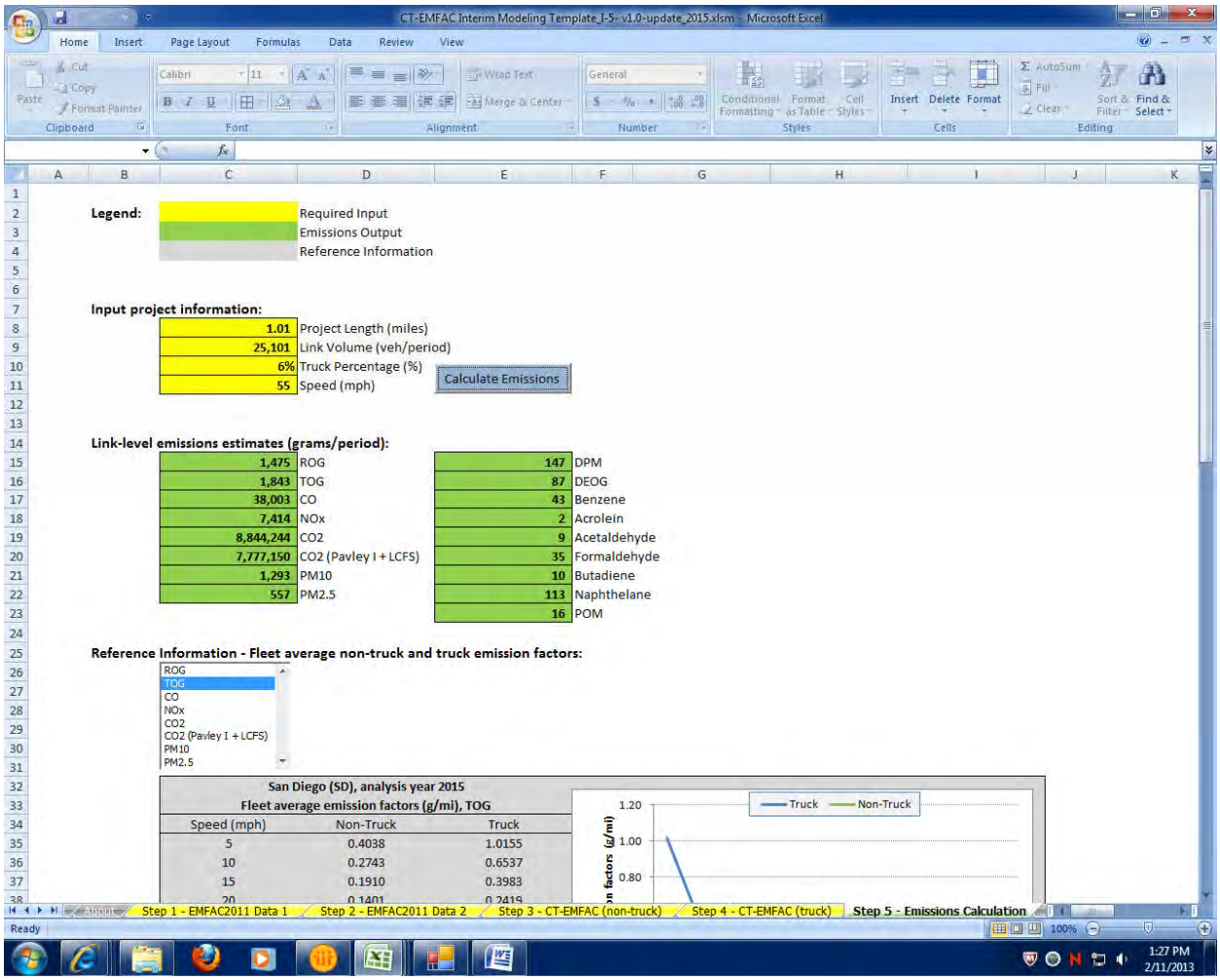
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

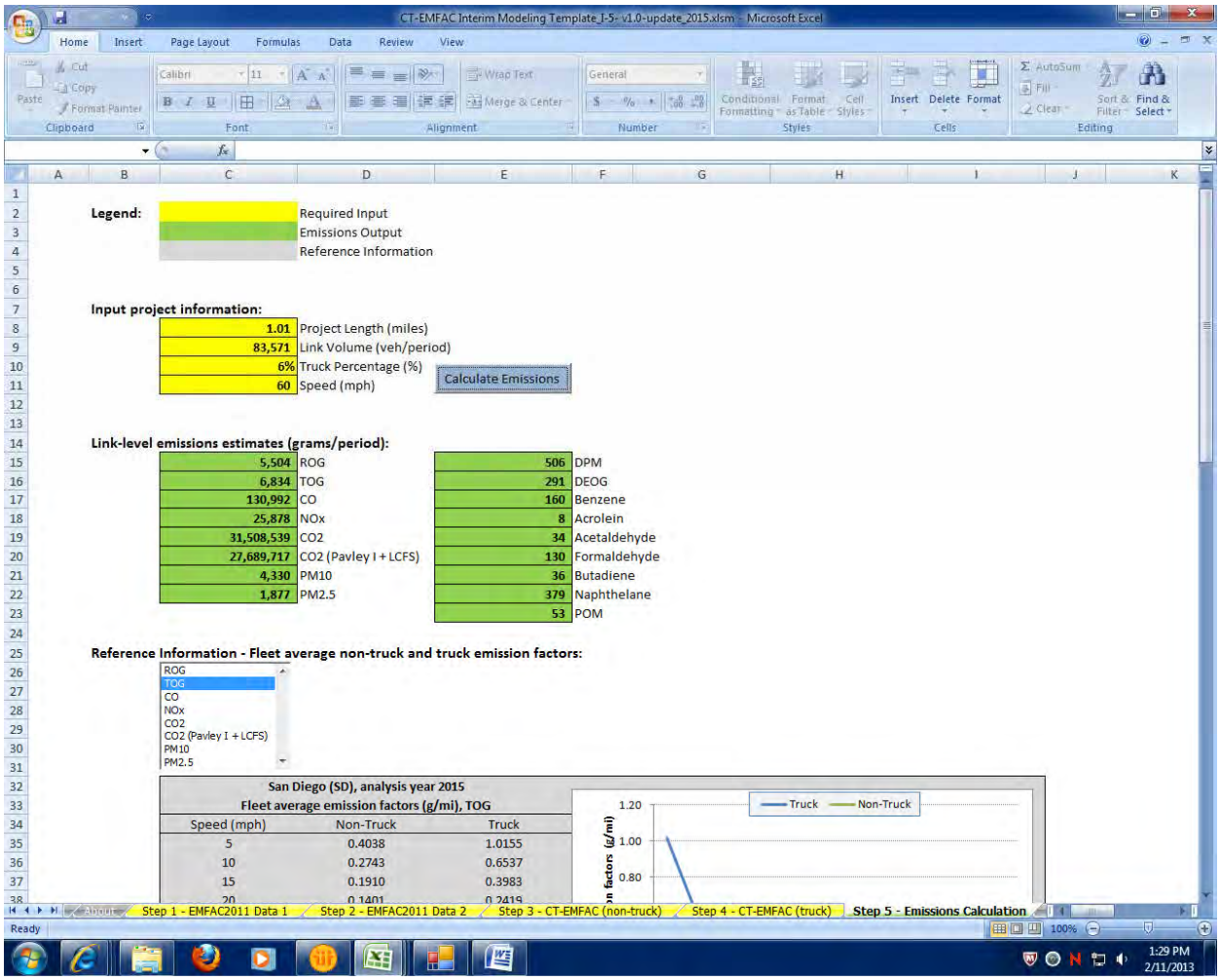
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

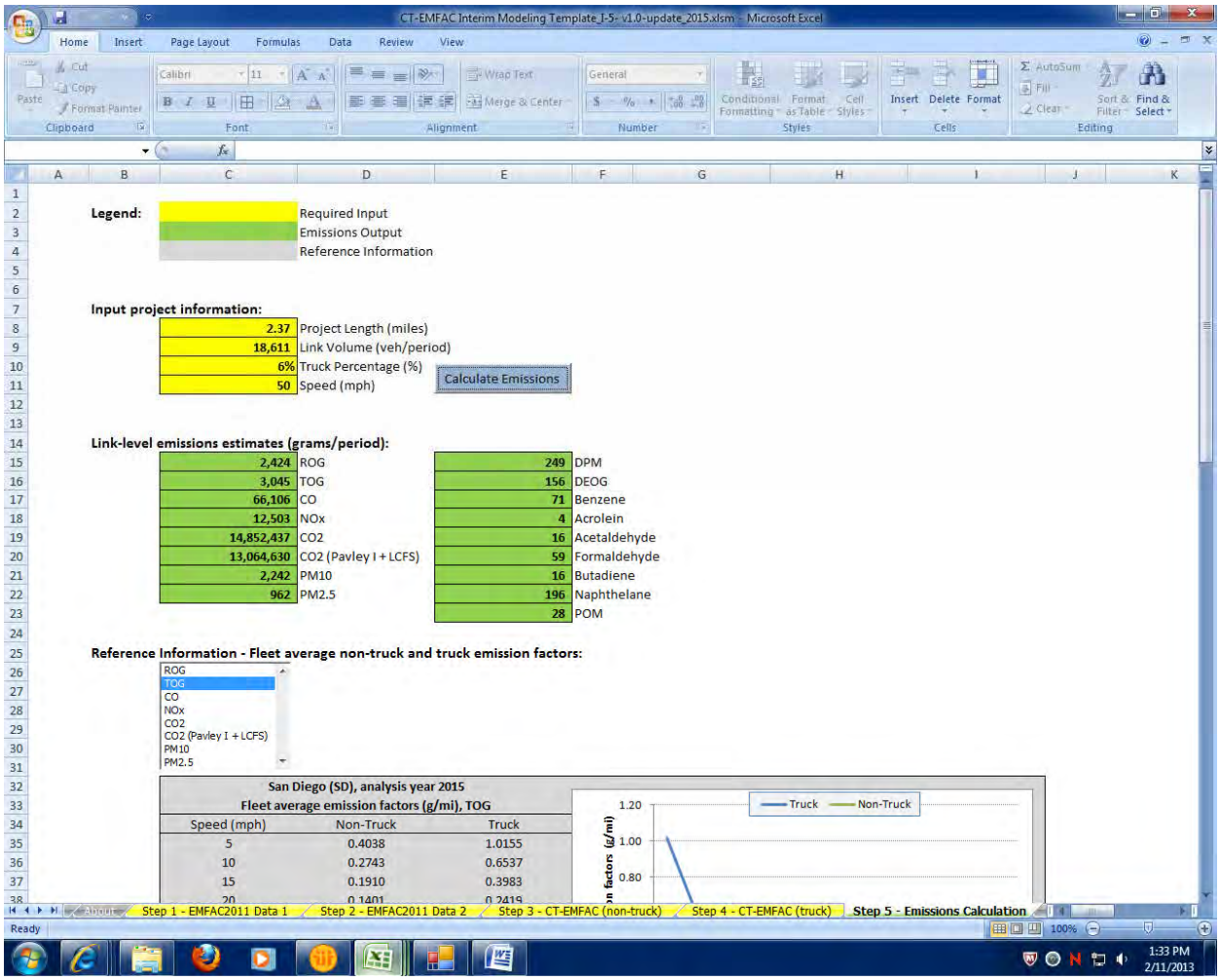
2015 8+4
Link: 1 (NB GP)
Segment: 1
Peak



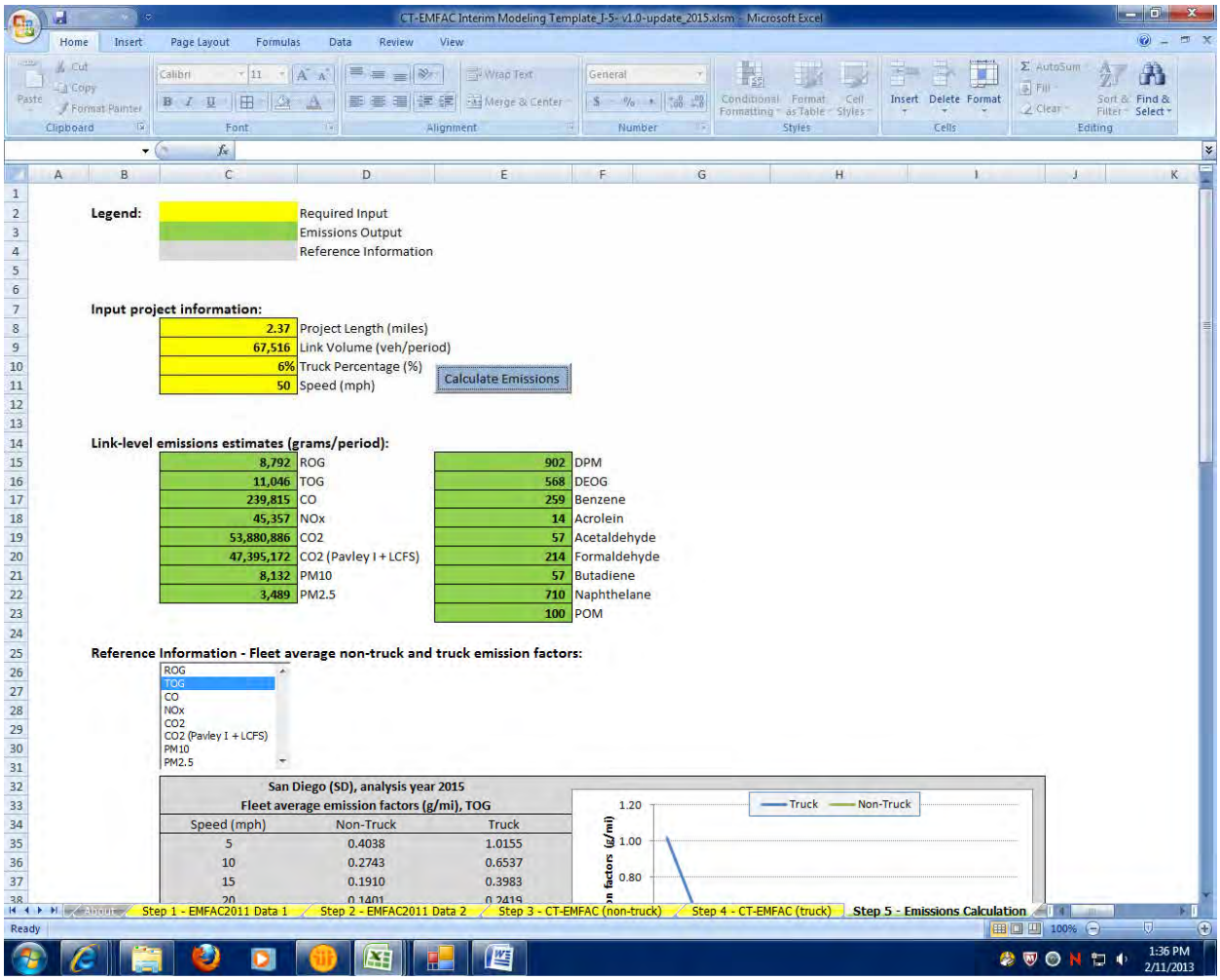
2015 8+4
Link: 1 (NB GP)
Segment: 1
Off Peak



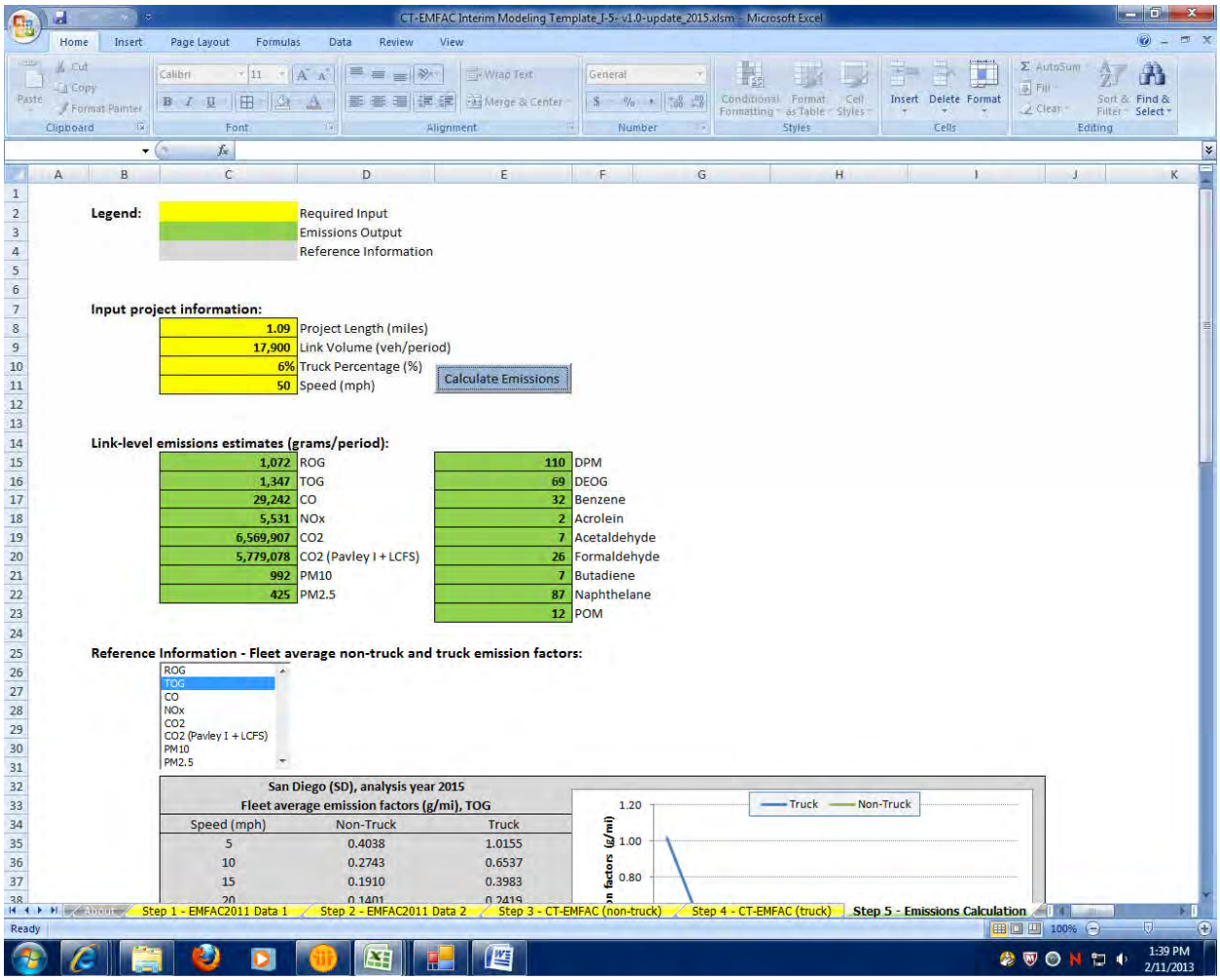
2015 8+4
Link: 1 (NB GP)
Segment: 2
Peak



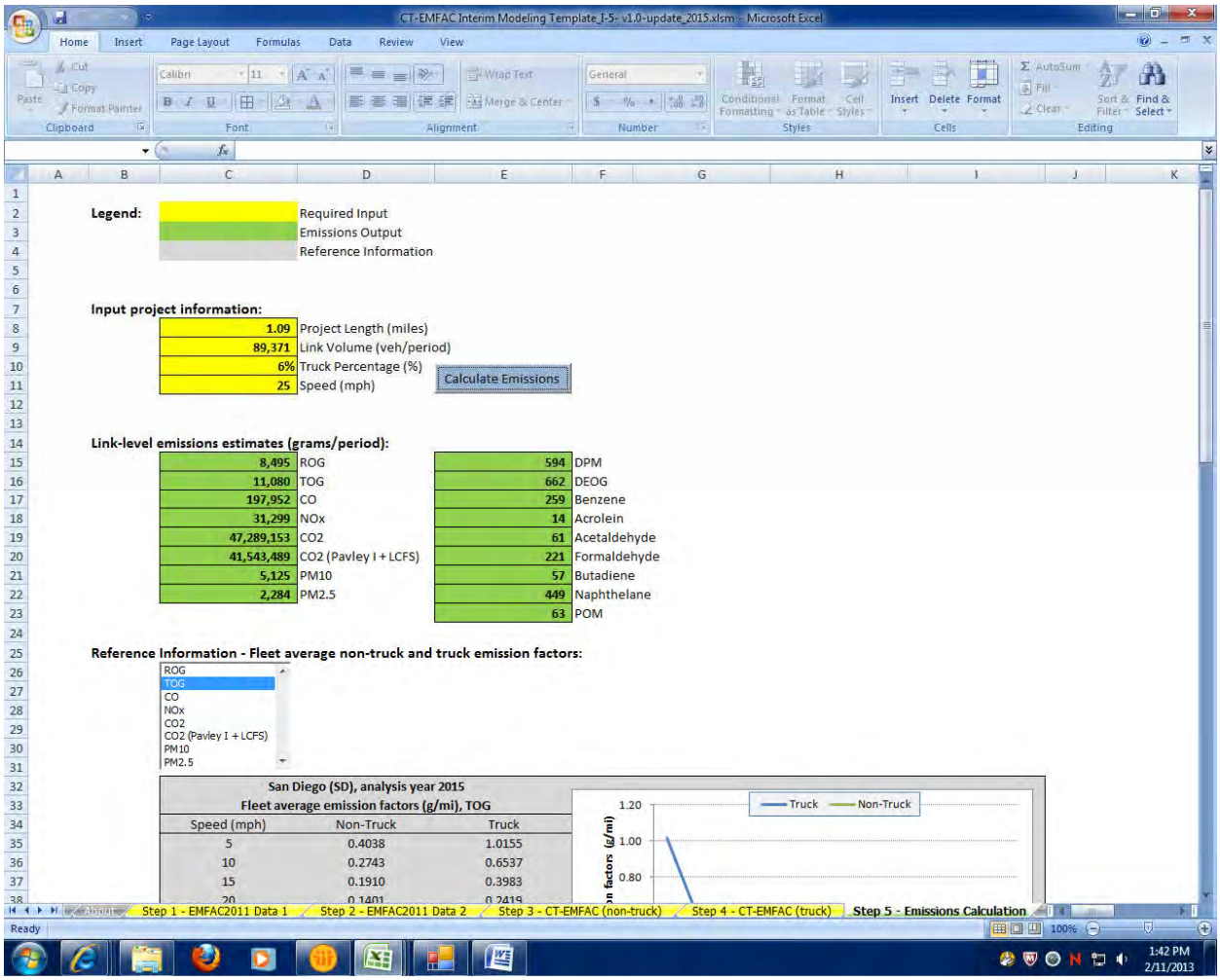
2015 8+4
Link: 1 (NB GP)
Segment: 2
Off Peak



2015 8+4
Link: 1 (NB GP)
Segment: 3
Peak



2015 8+4
Link: 1 (NB GP)
Segment: 3
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
89,371	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,495	ROG	594	DPM
11,080	TOG	662	DEOG
197,952	CO	259	Benzene
31,299	NOx	14	Acrolein
47,289,153	CO2	61	Acetaldehyde
41,543,489	CO2 (Pavley I + LCFS)	221	Formaldehyde
5,125	PM10	57	Butadiene
2,284	PM2.5	449	Naphthelane
		63	POM

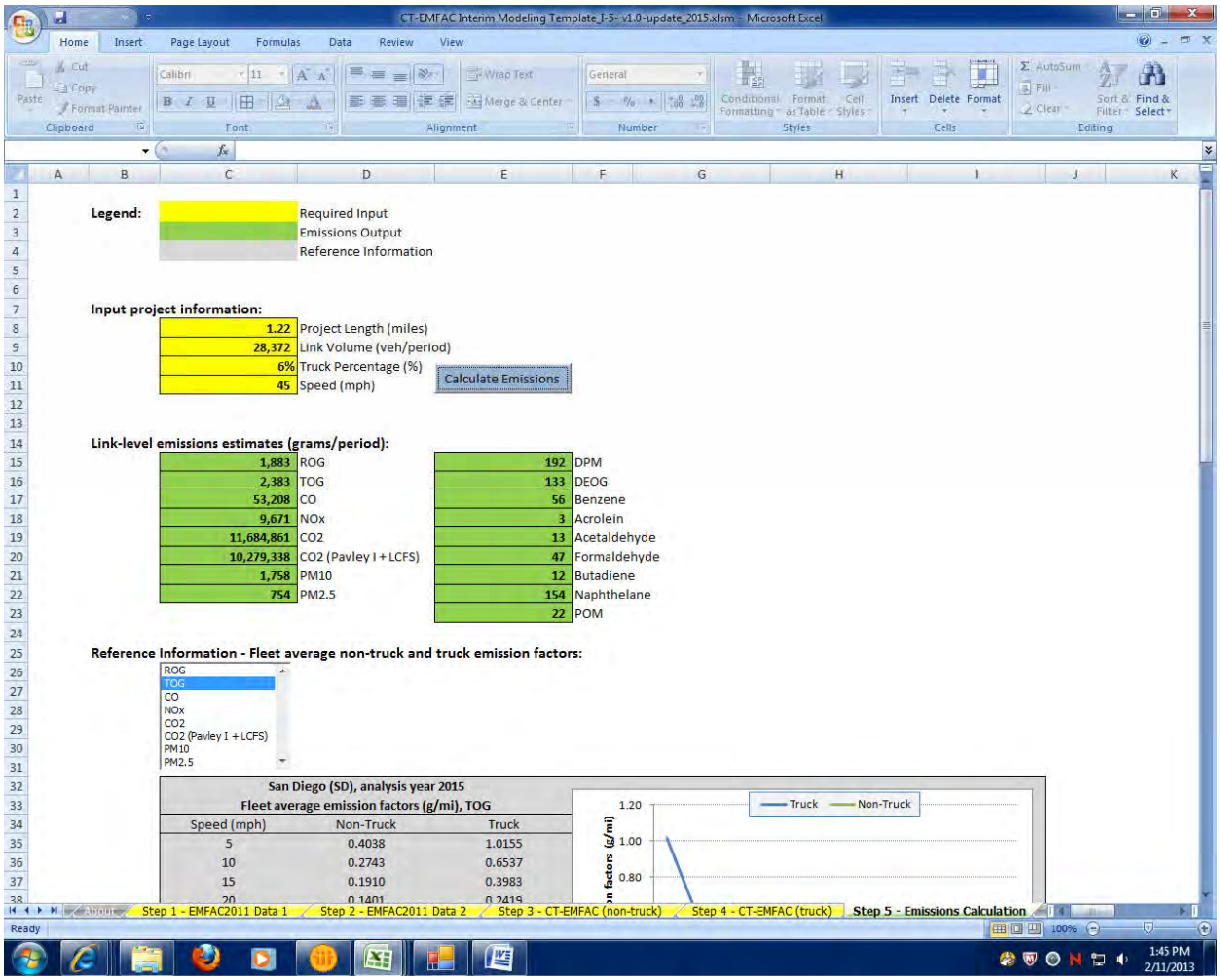
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

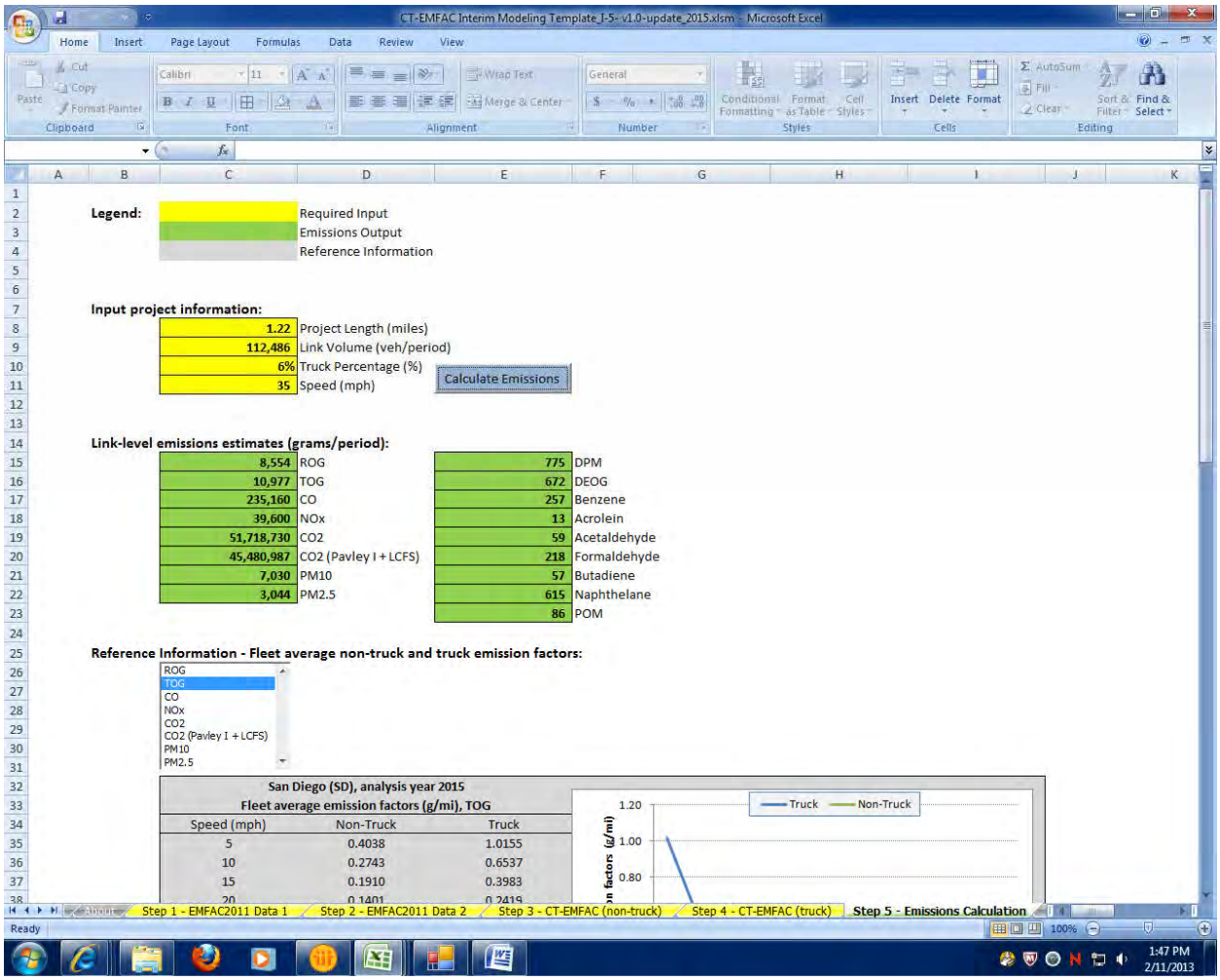
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

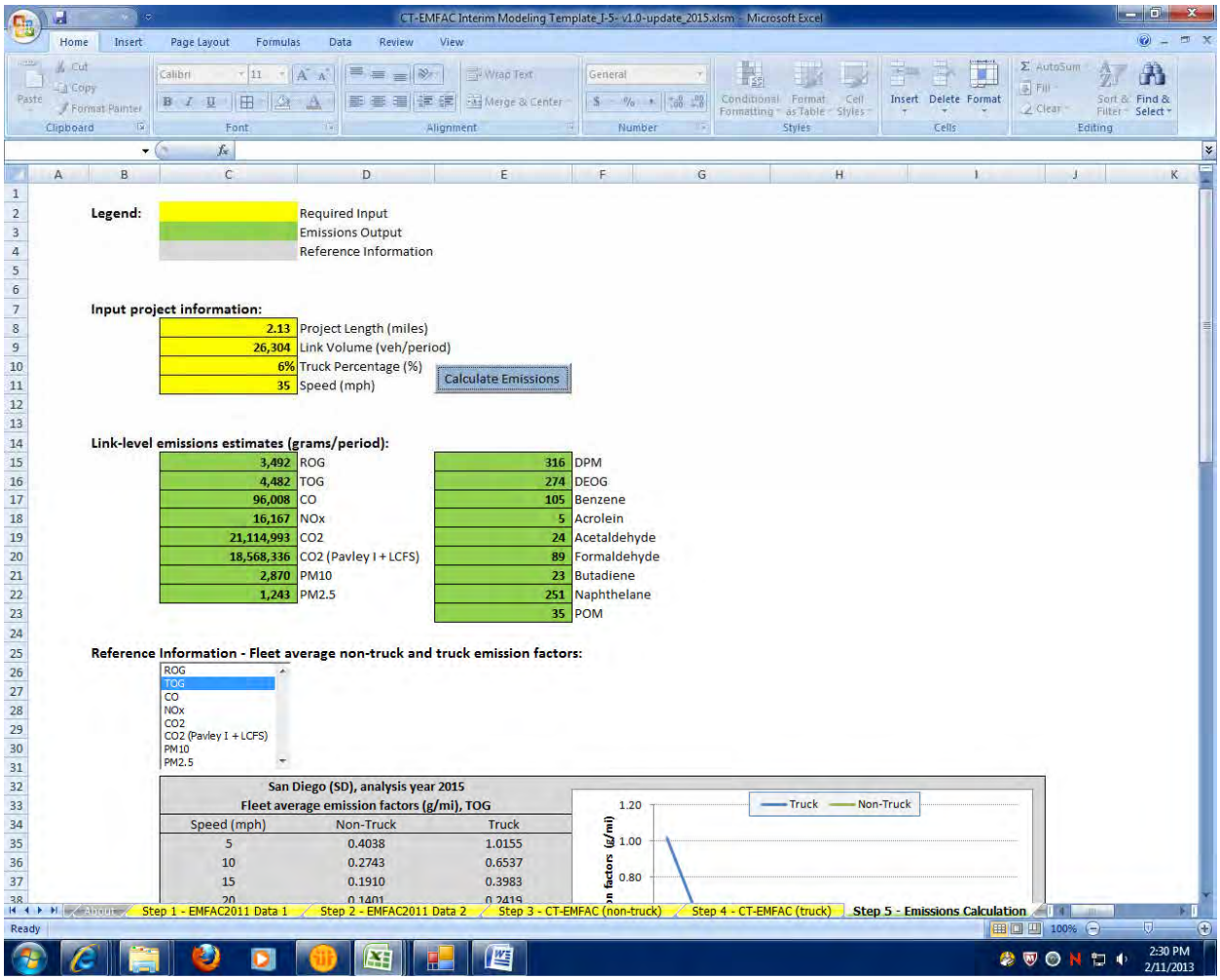
2015 8+4
Link: 1 (NB GP)
Segment: 4
Peak



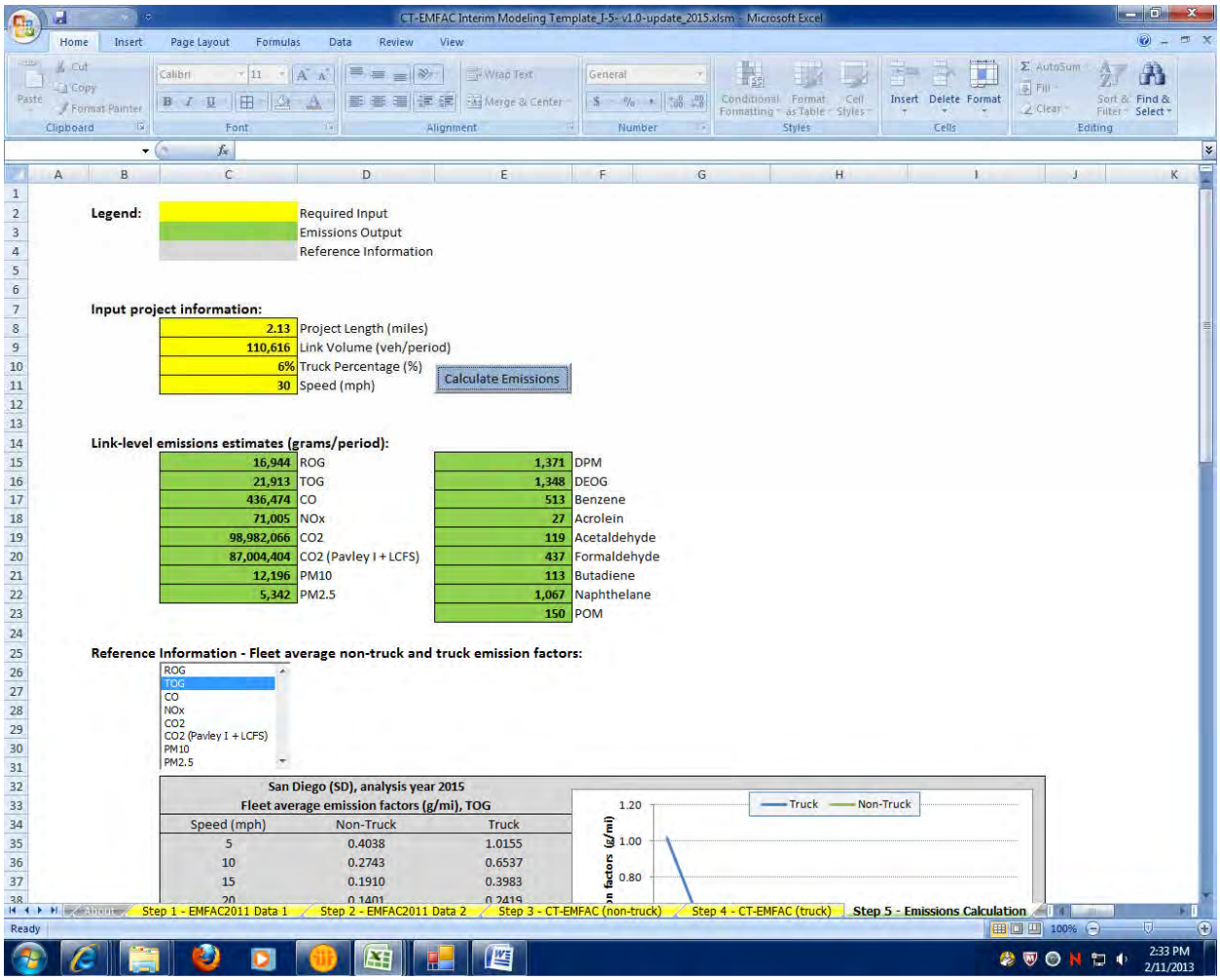
2015 8+4
Link: 1 (NB GP)
Segment: 4
Off Peak



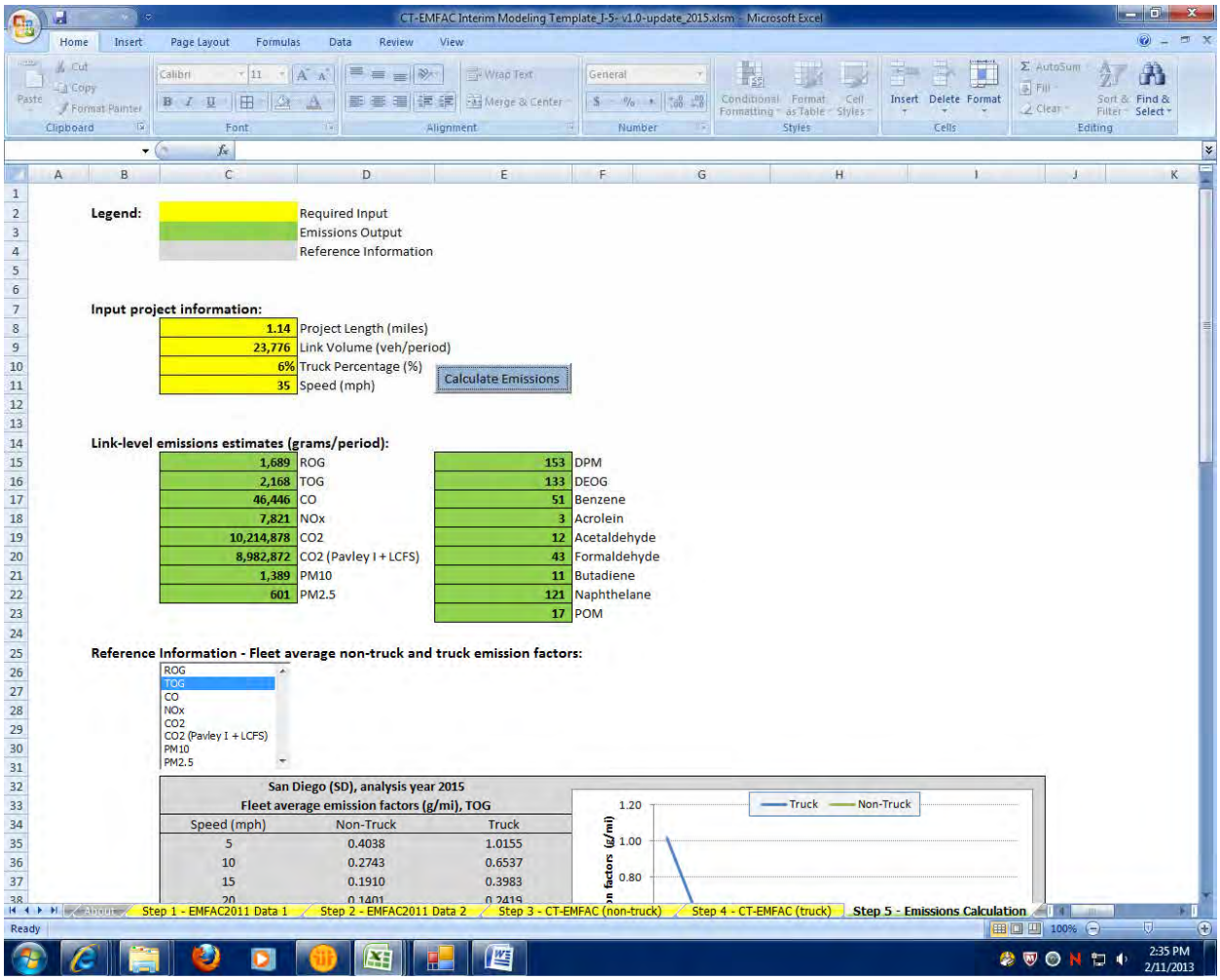
2015 8+4
Link: 1 (NB GP)
Segment: 5
Peak



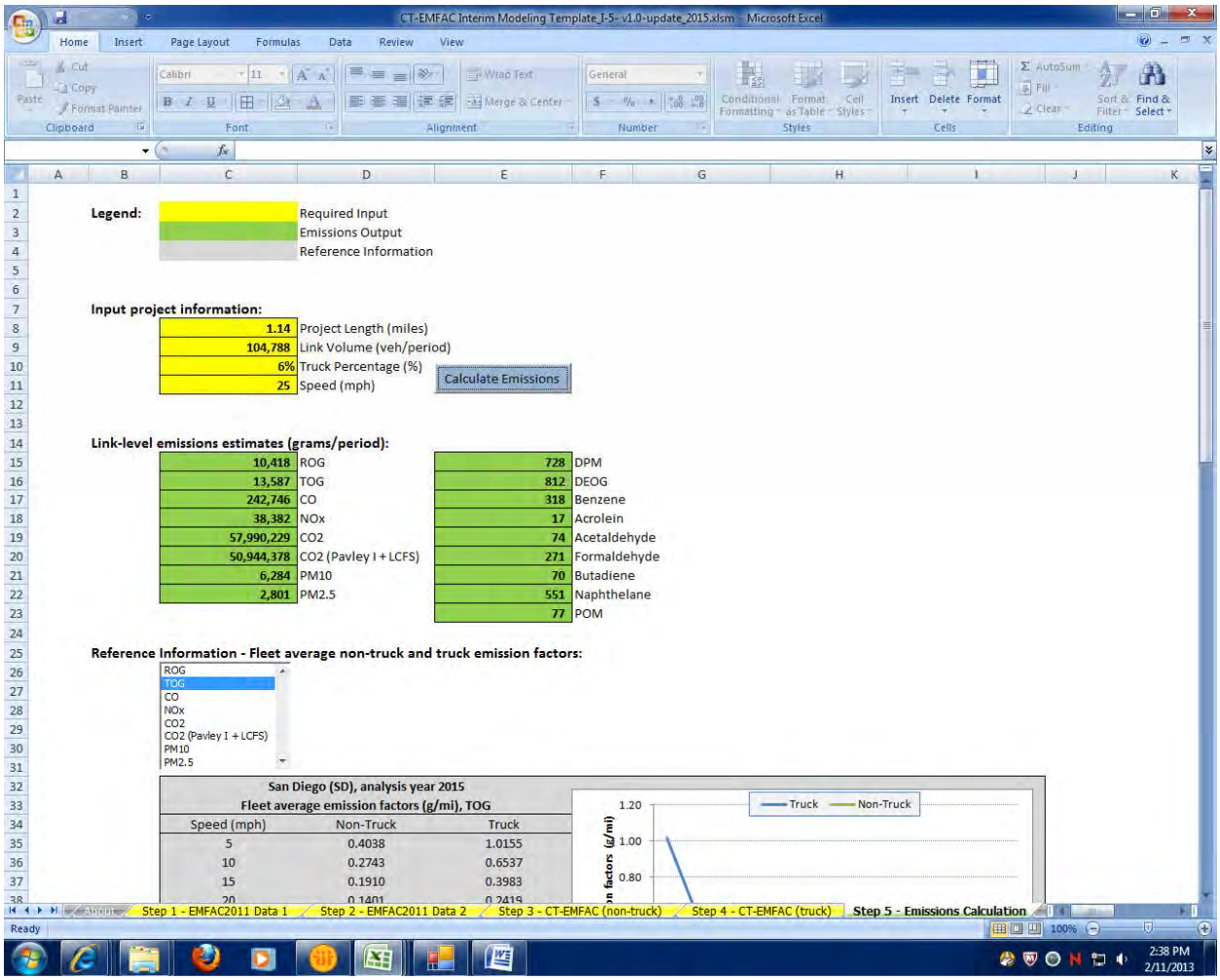
2015 8+4
Link: 1 (NB GP)
Segment: 5
Off Peak



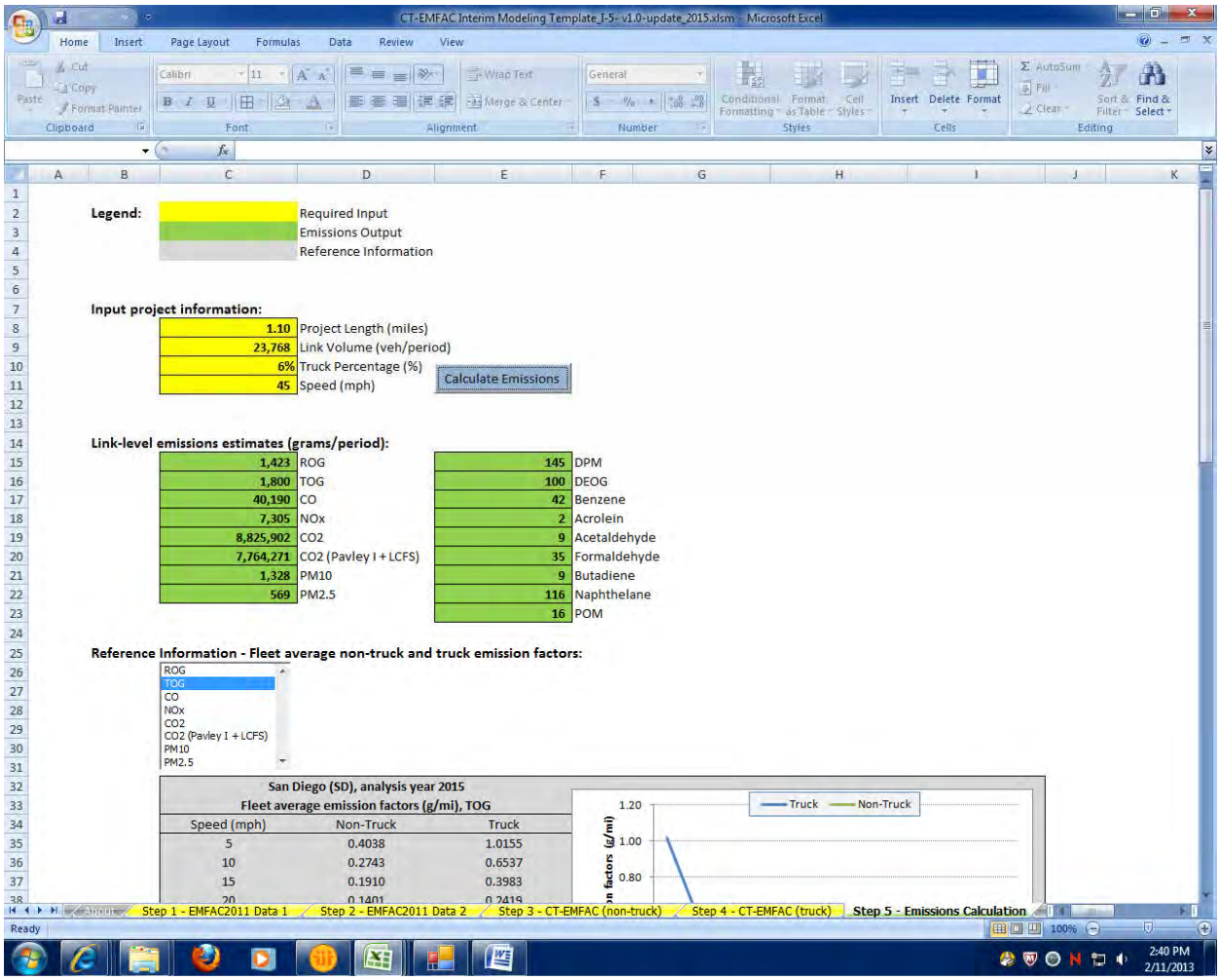
2015 8+4
Link: 1 (NB GP)
Segment: 6
Peak



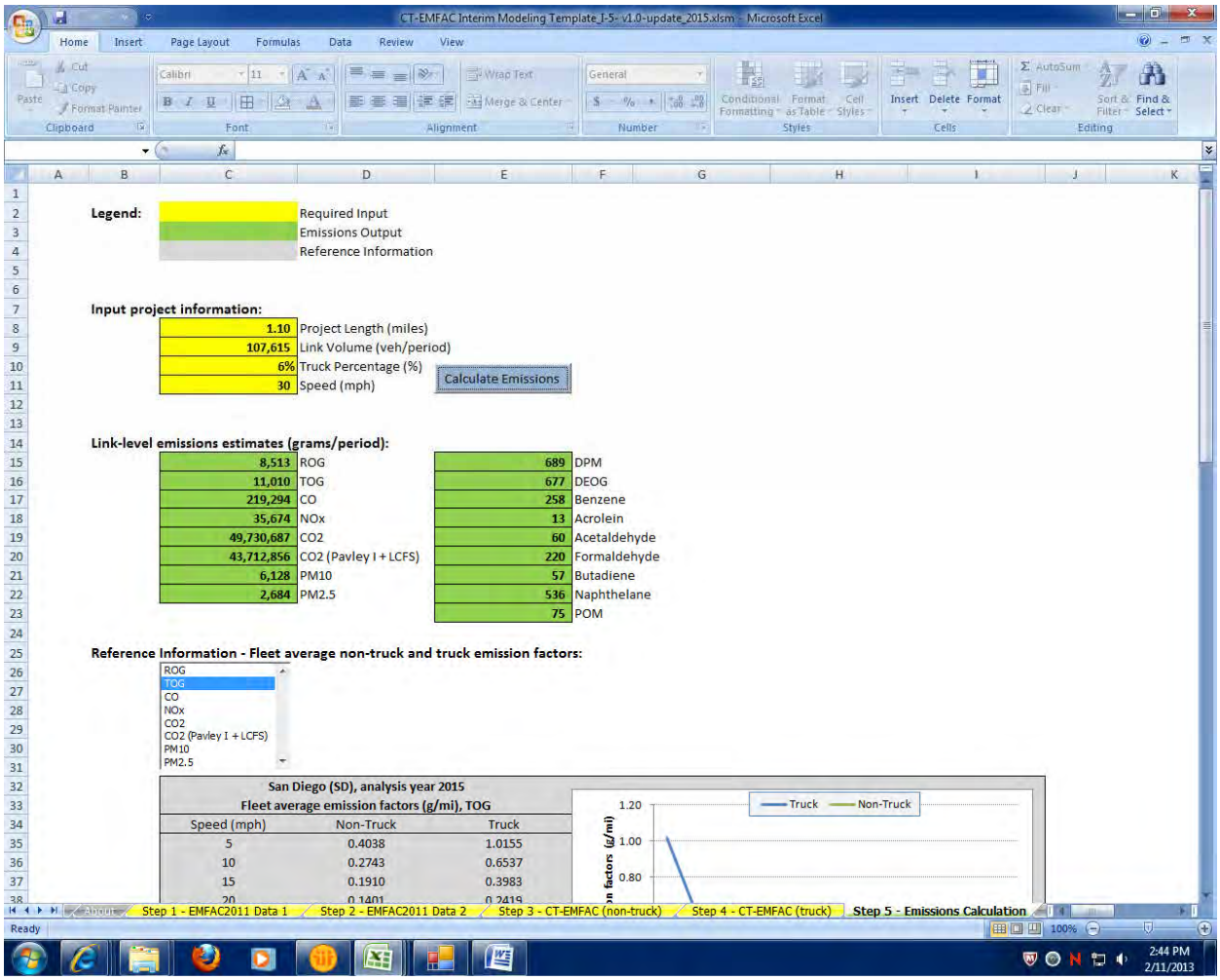
2015 8+4
Link: 1 (NB GP)
Segment: 6
Off Peak



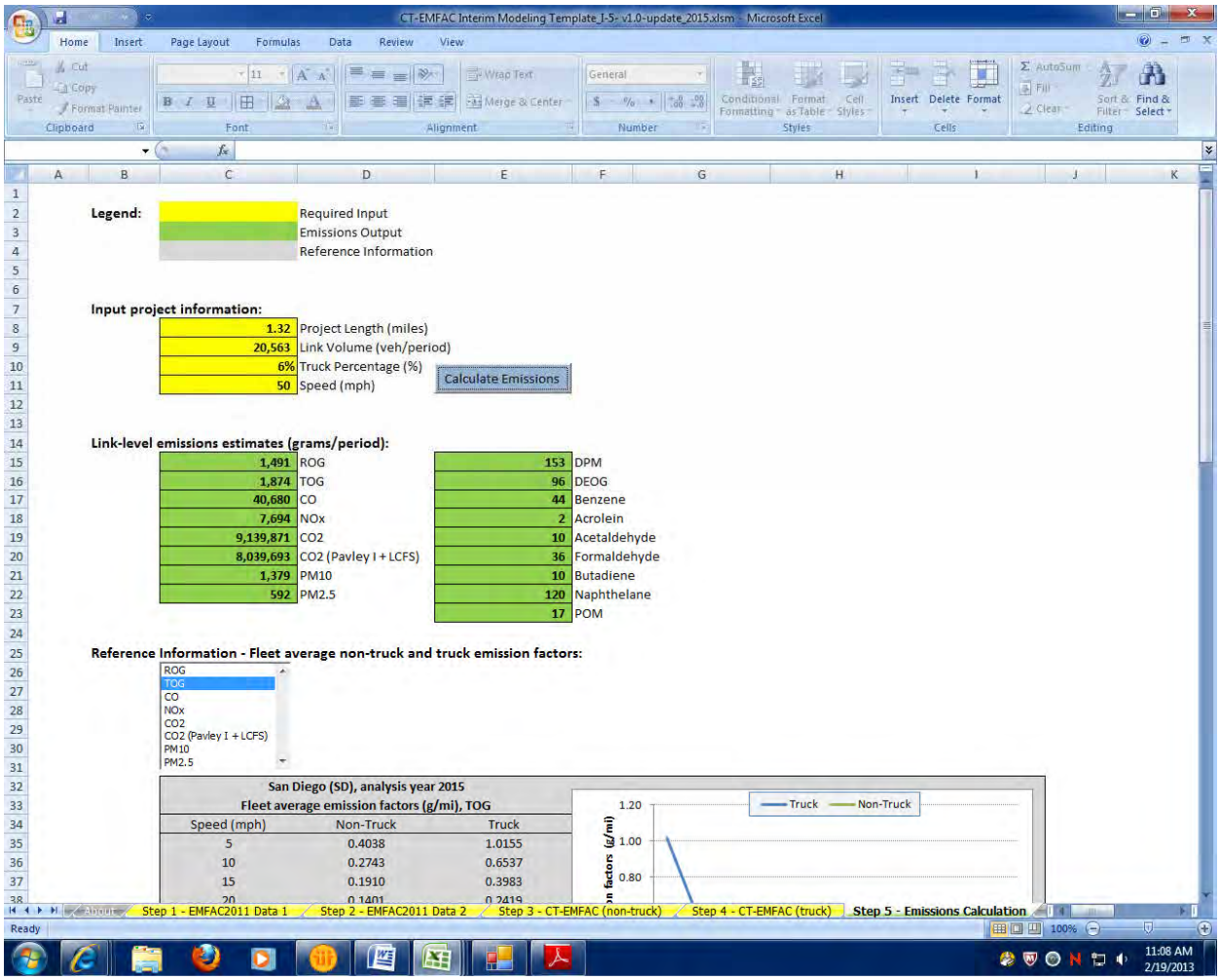
2015 8+4
Link: 1 (NB GP)
Segment: 7
Peak



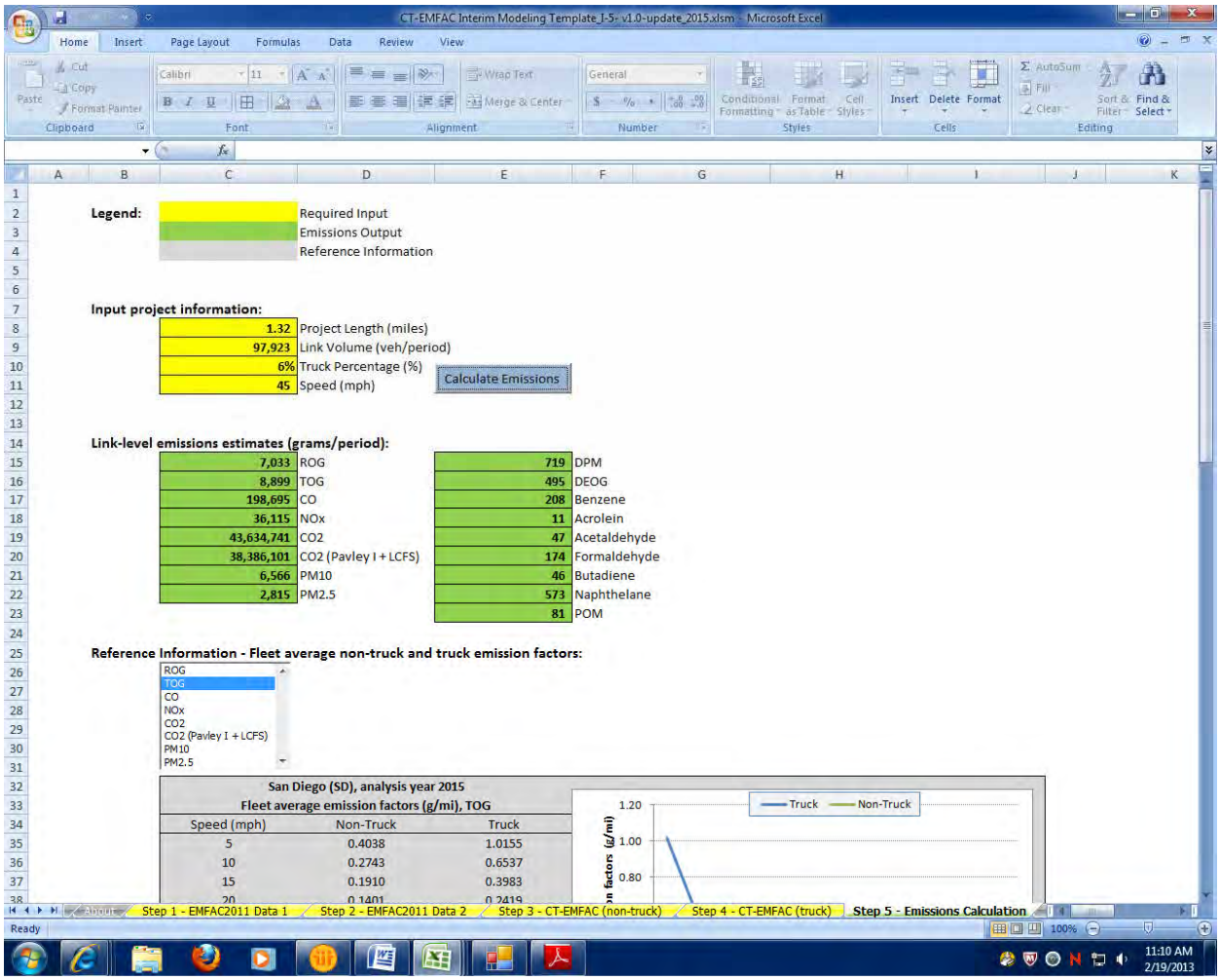
2015 8+4
Link: 1 (NB GP)
Segment: 7
Off Peak



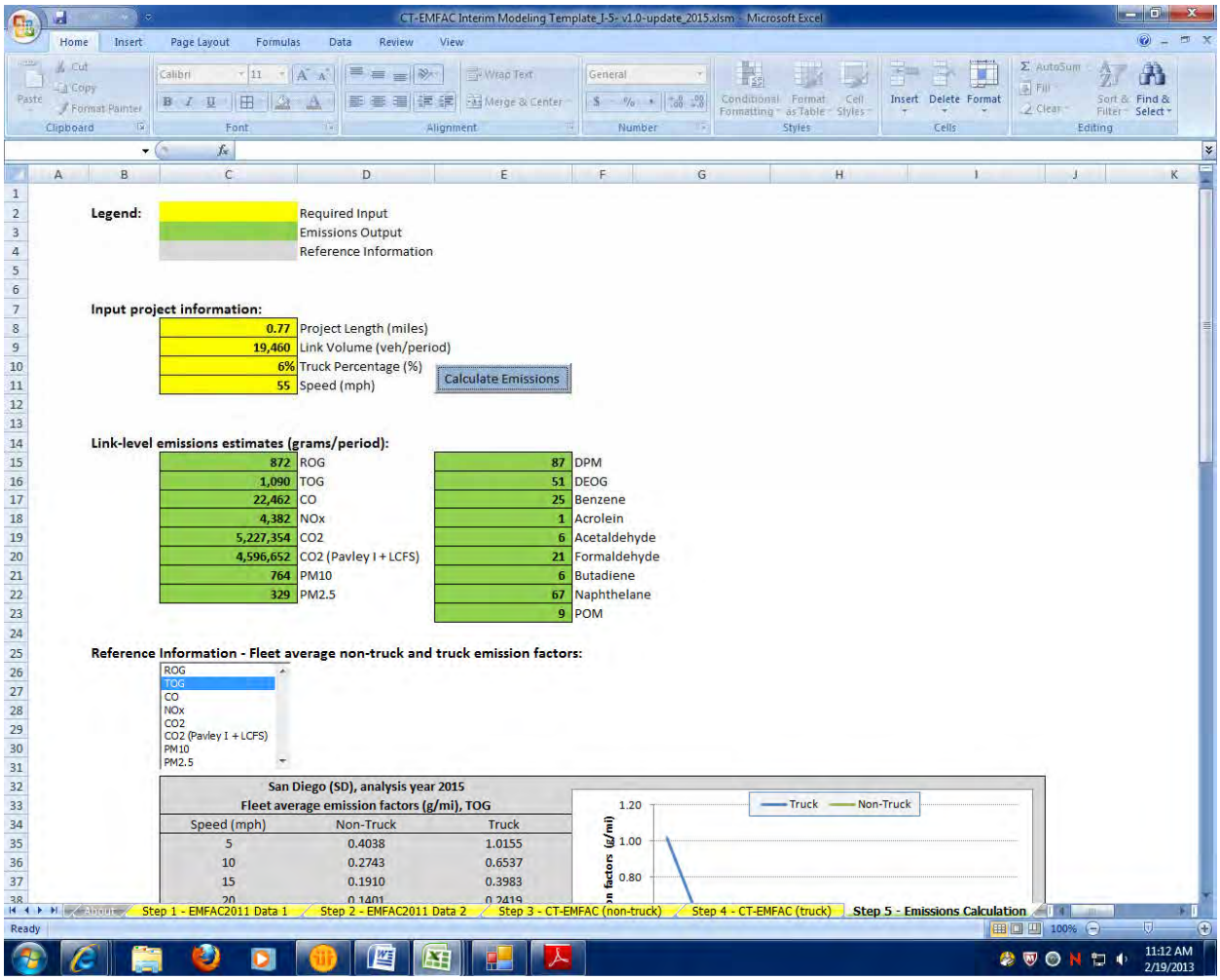
2015 8+4
Link: 1 (NB GP)
Segment: 8
Peak



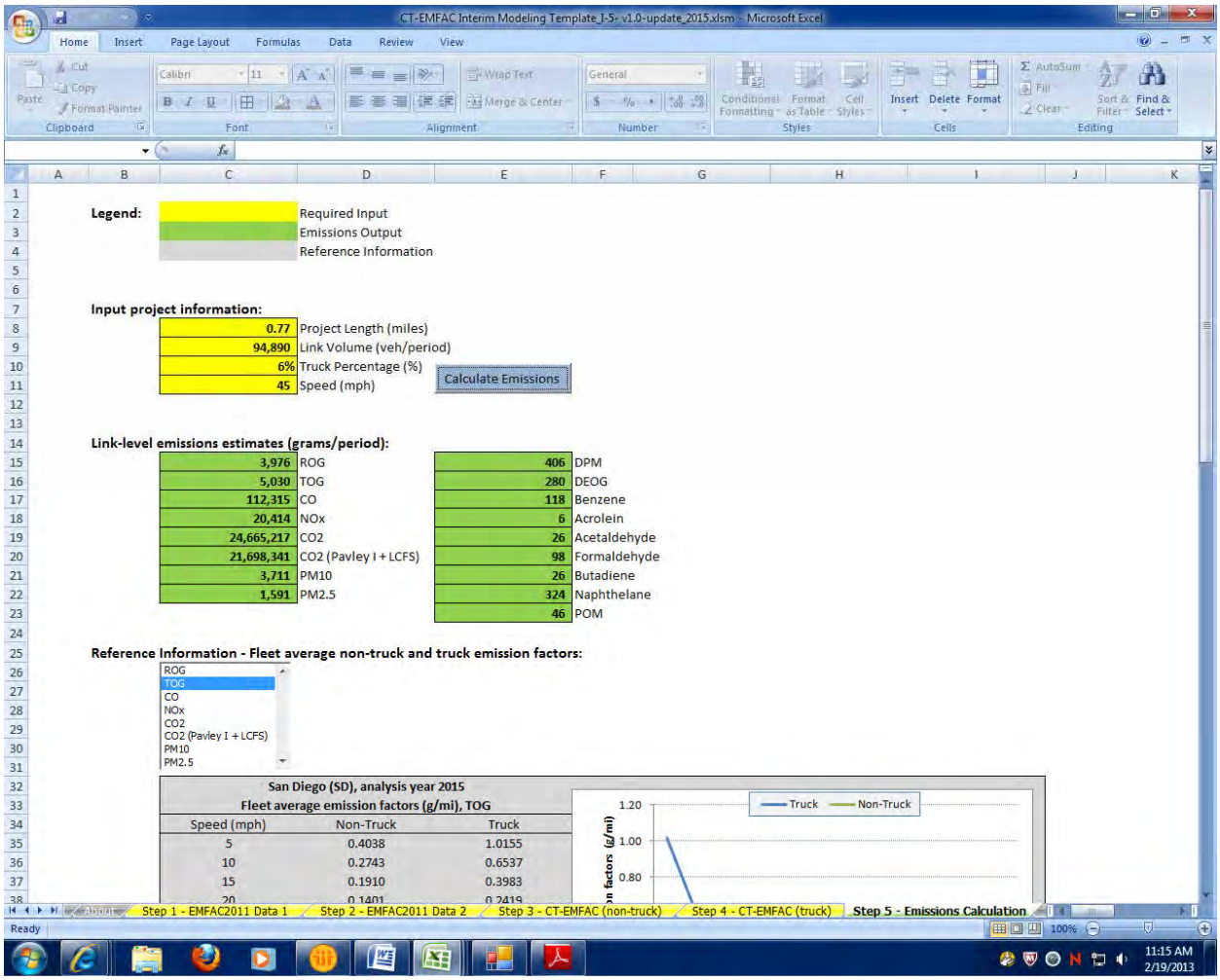
2015 8+4
Link: 1 (NB GP)
Segment: 8
Off Peak



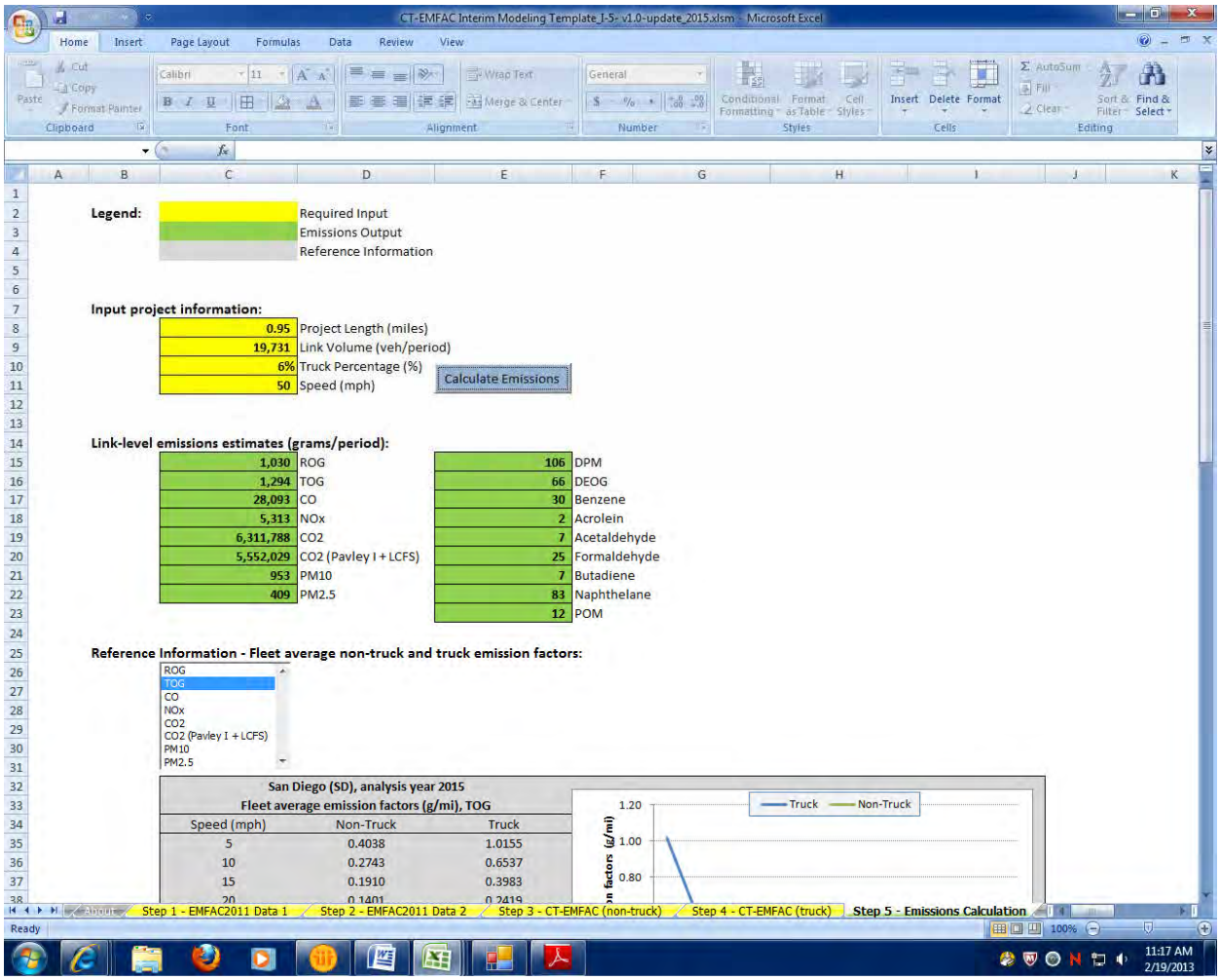
2015 8+4
Link: 1 (NB GP)
Segment: 9
Peak



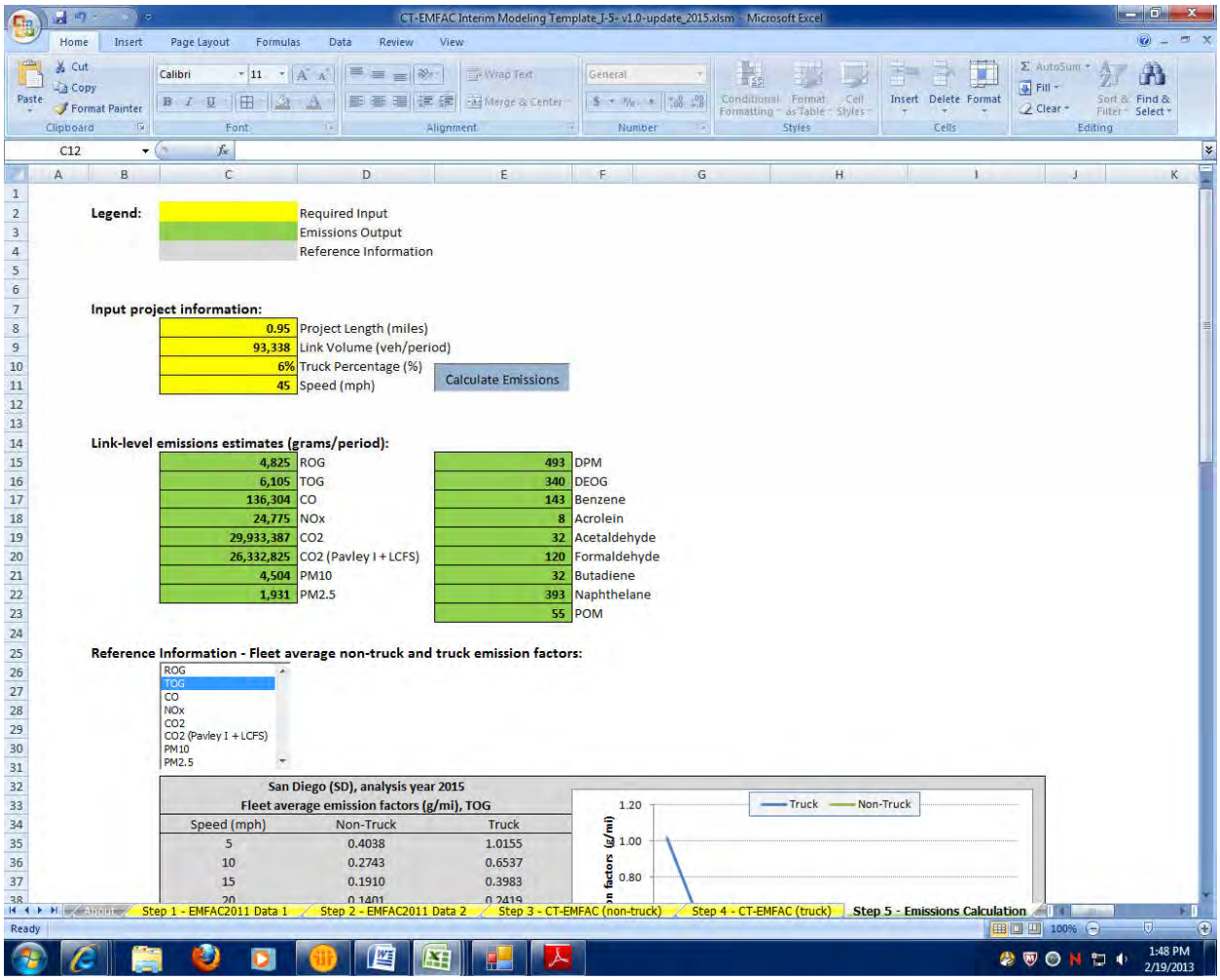
2015 8+4
Link: 1 (NB GP)
Segment: 9
Off Peak



2015 8+4
Link: 1 (NB GP)
Segment: 10
Peak



2015 8+4
Link: 1 (NB GP)
Segment: 10
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
93,338	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,825	ROG	493	DPM
6,105	TOG	340	DEOG
136,304	CO	143	Benzene
24,775	NOx	8	Acrolein
29,933,387	CO2	32	Acetaldehyde
26,332,825	CO2 (Pavley I + LCFS)	120	Formaldehyde
4,504	PM10	32	Butadiene
1,931	PM2.5	393	Naphthelane
		55	POM

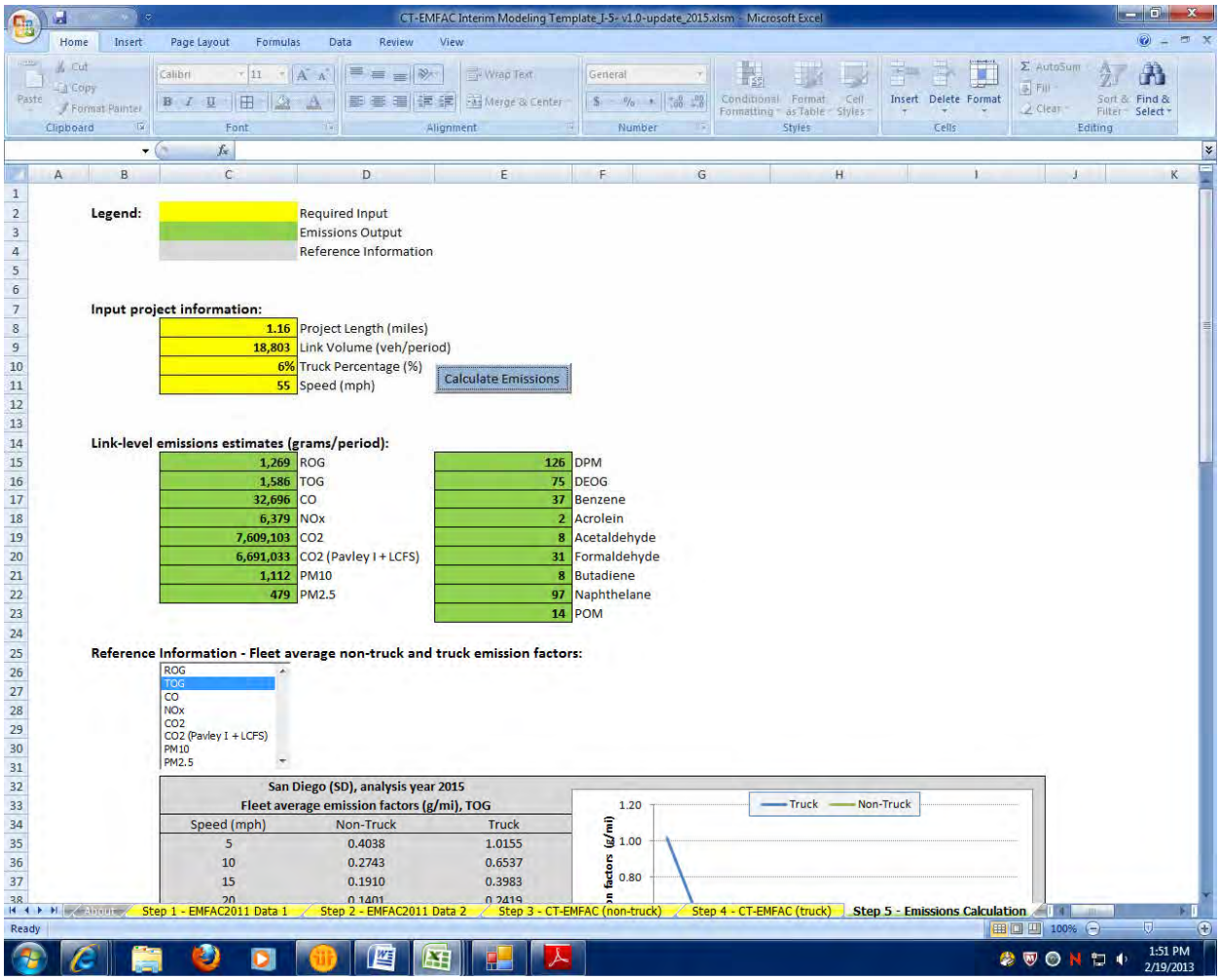
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

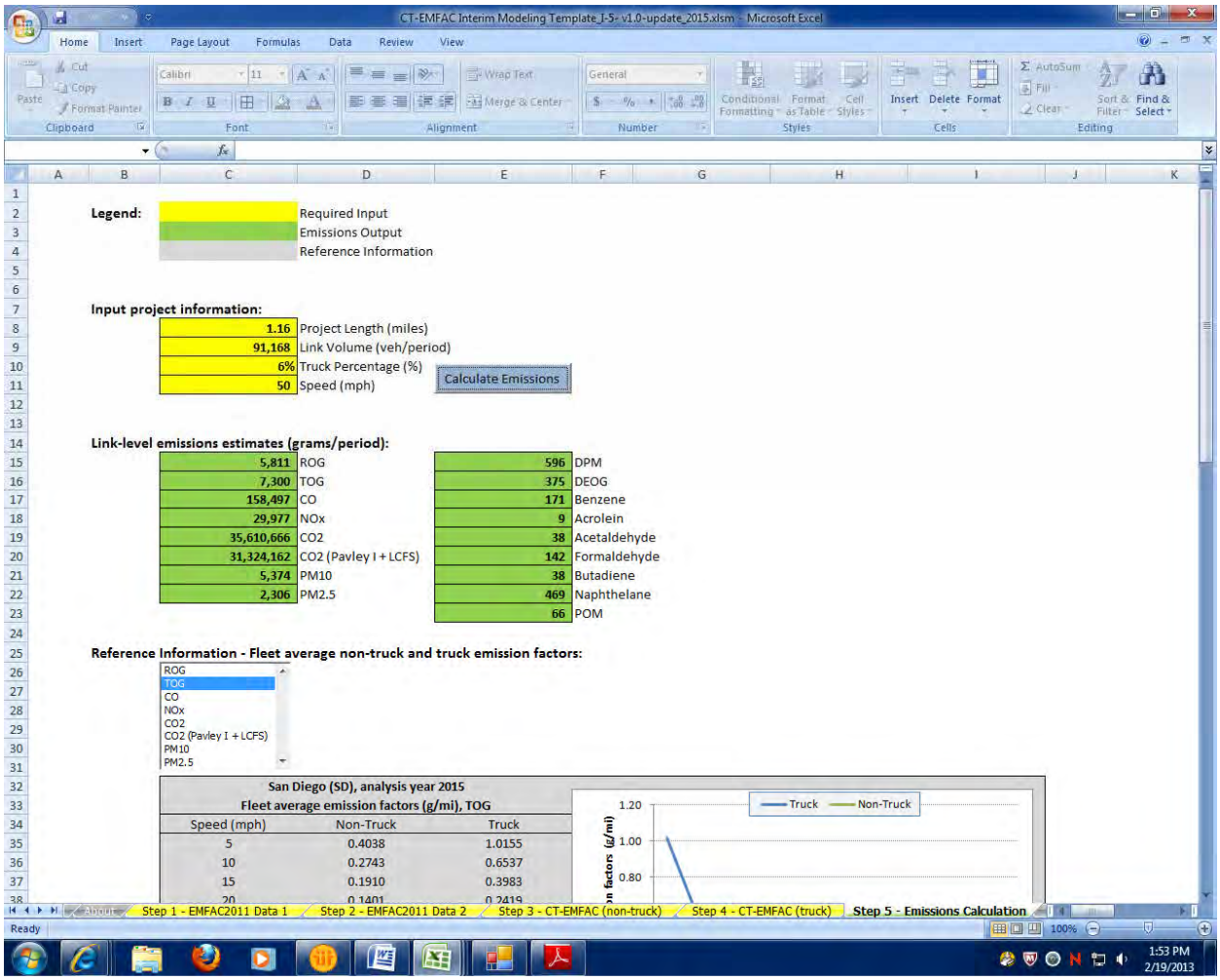
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 1 (NB GP)
Segment: 11
Peak



2015 8+4
Link: 1 (NB GP)
Segment: 11
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
91,168	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

5,811	ROG	596	DPM
7,300	TOG	375	DEOG
158,497	CO	171	Benzene
29,977	NOx	9	Acrolein
35,610,666	CO2	38	Acetaldehyde
31,324,162	CO2 (Pavley I + LCFS)	142	Formaldehyde
5,374	PM10	38	Butadiene
2,306	PM2.5	469	Naphthelane
		66	POM

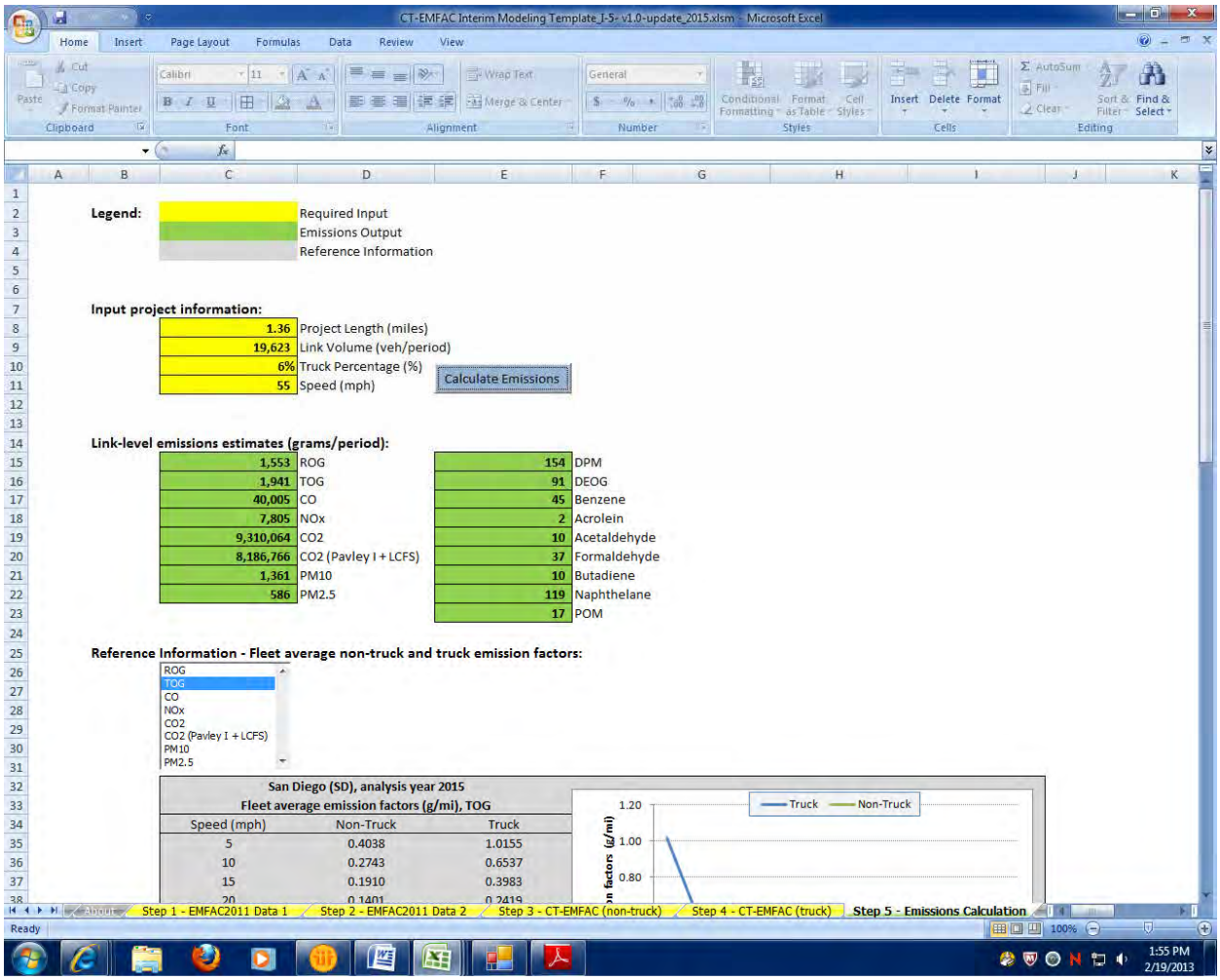
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

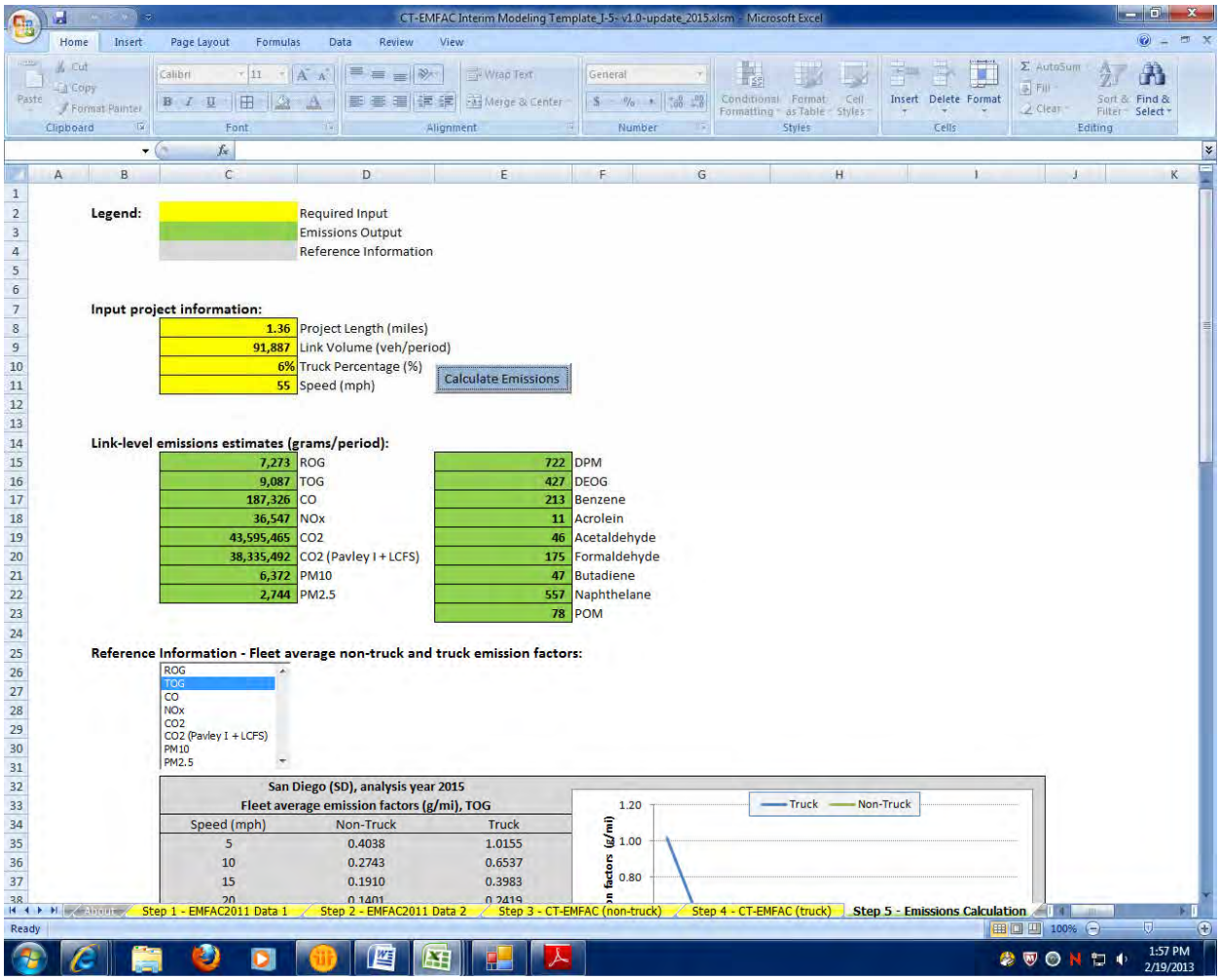
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

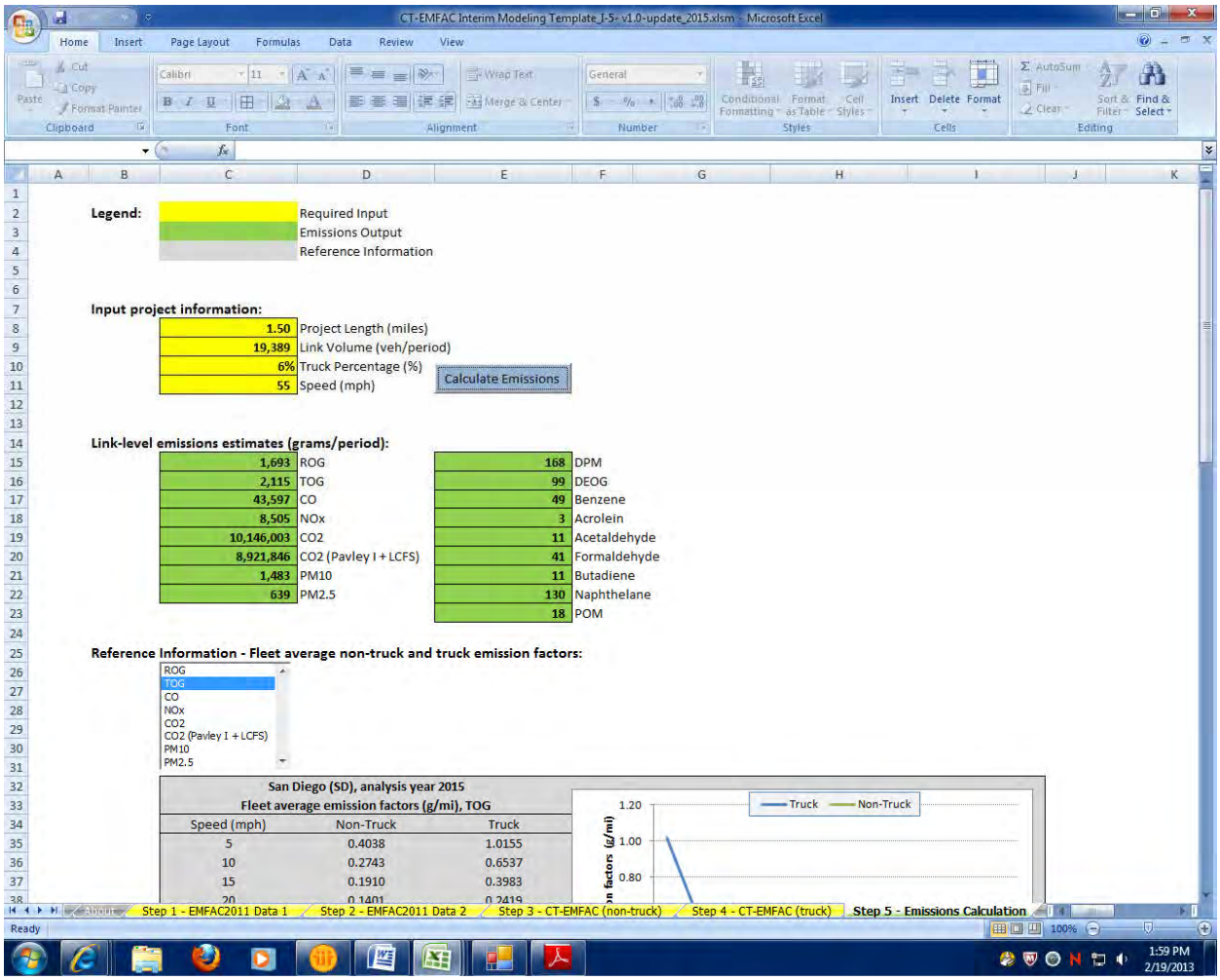
2015 8+4
Link: 1 (NB GP)
Segment: 12
Peak



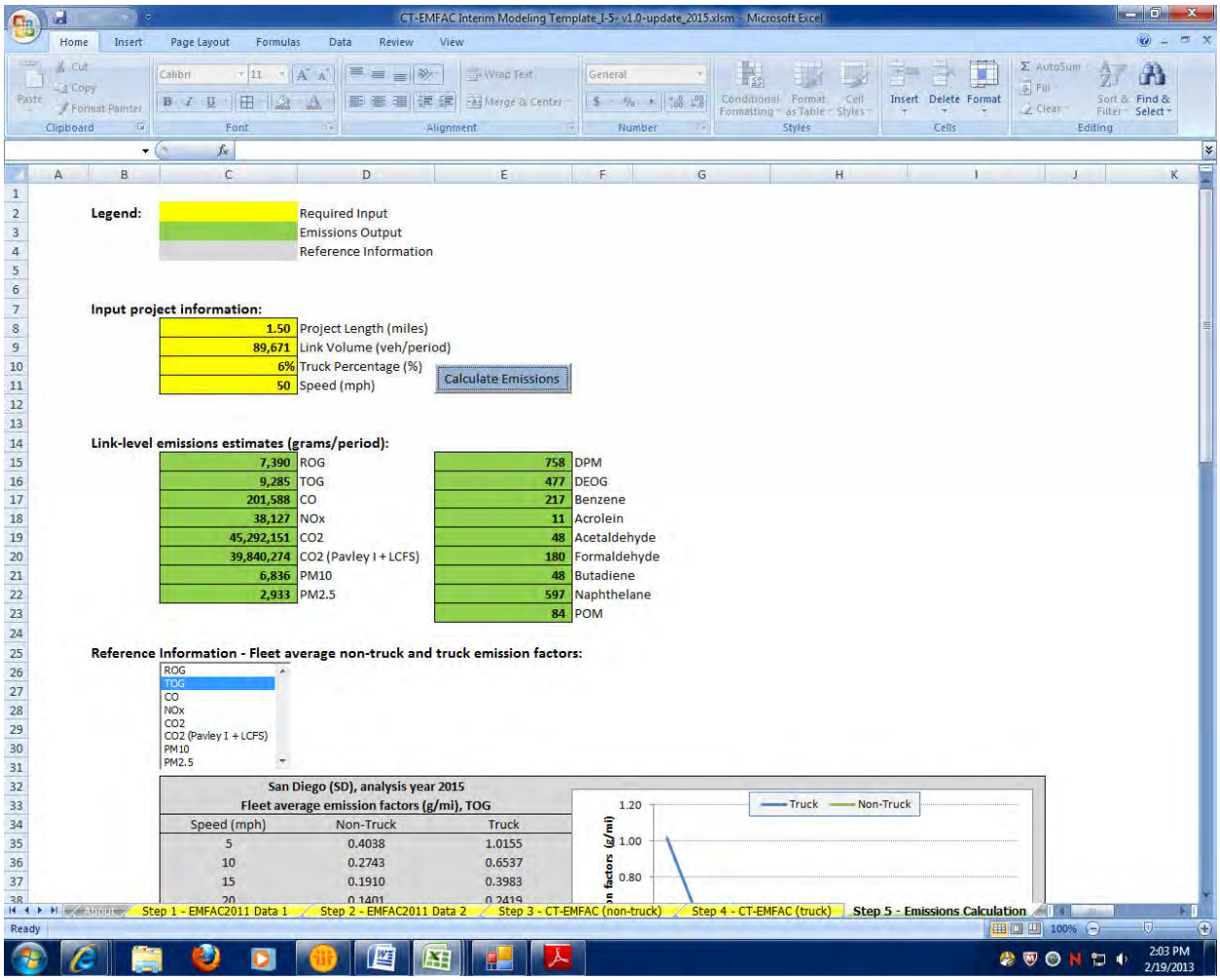
2015 8+4
Link: 1 (NB GP)
Segment: 12
Off Peak



2015 8+4
Link: 1 (NB GP)
Segment: 13
Peak



2015 8+4
Link: 1 (NB GP)
Segment: 13
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
89,671	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,390	ROG	758	DPM
9,285	TOG	477	DEOG
201,588	CO	217	Benzene
38,127	NOx	11	Acrolein
45,292,151	CO2	48	Acetaldehyde
39,840,274	CO2 (Pavley I + LCFS)	180	Formaldehyde
6,836	PM10	48	Butadiene
2,933	PM2.5	597	Naphthelane
		84	POM

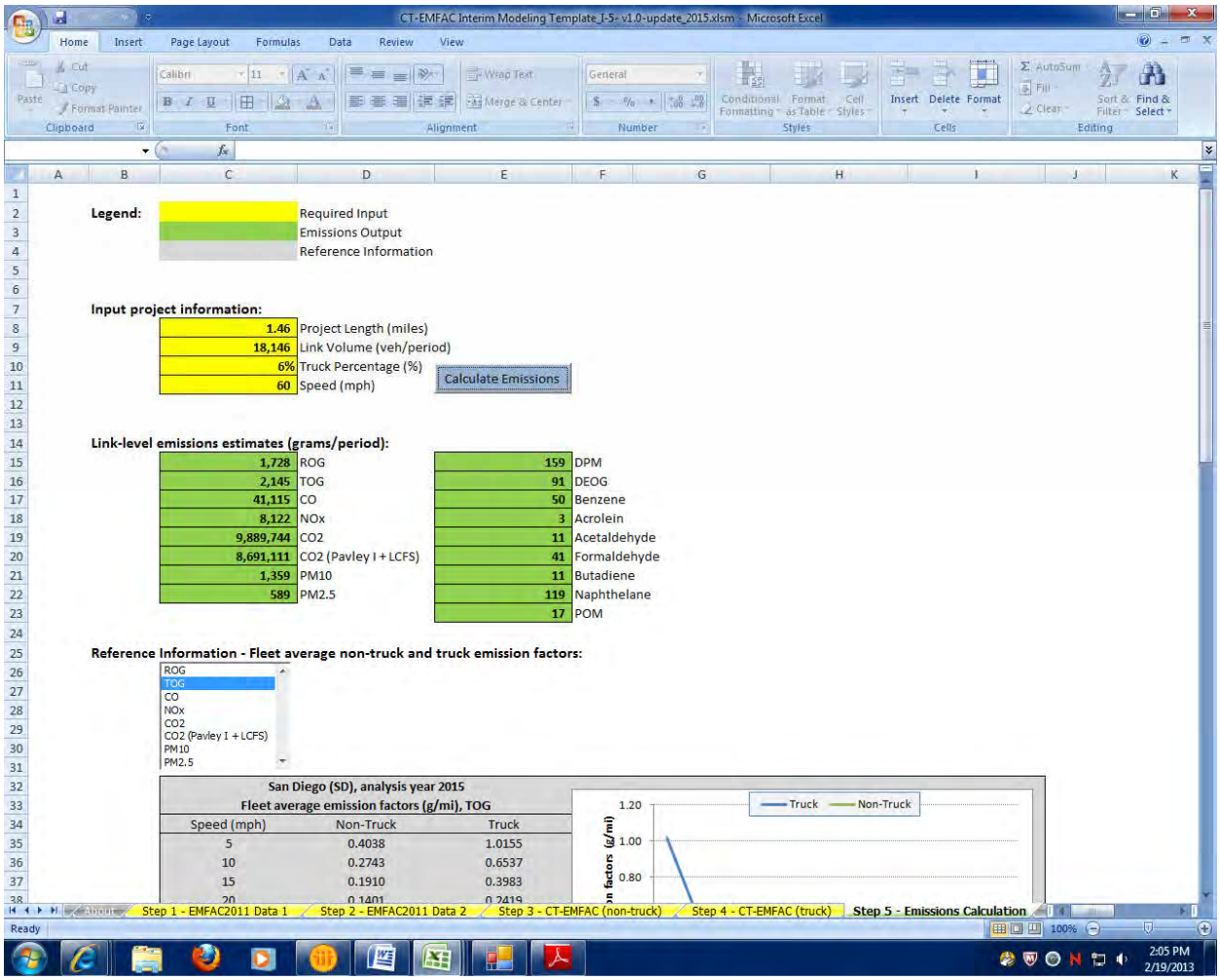
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

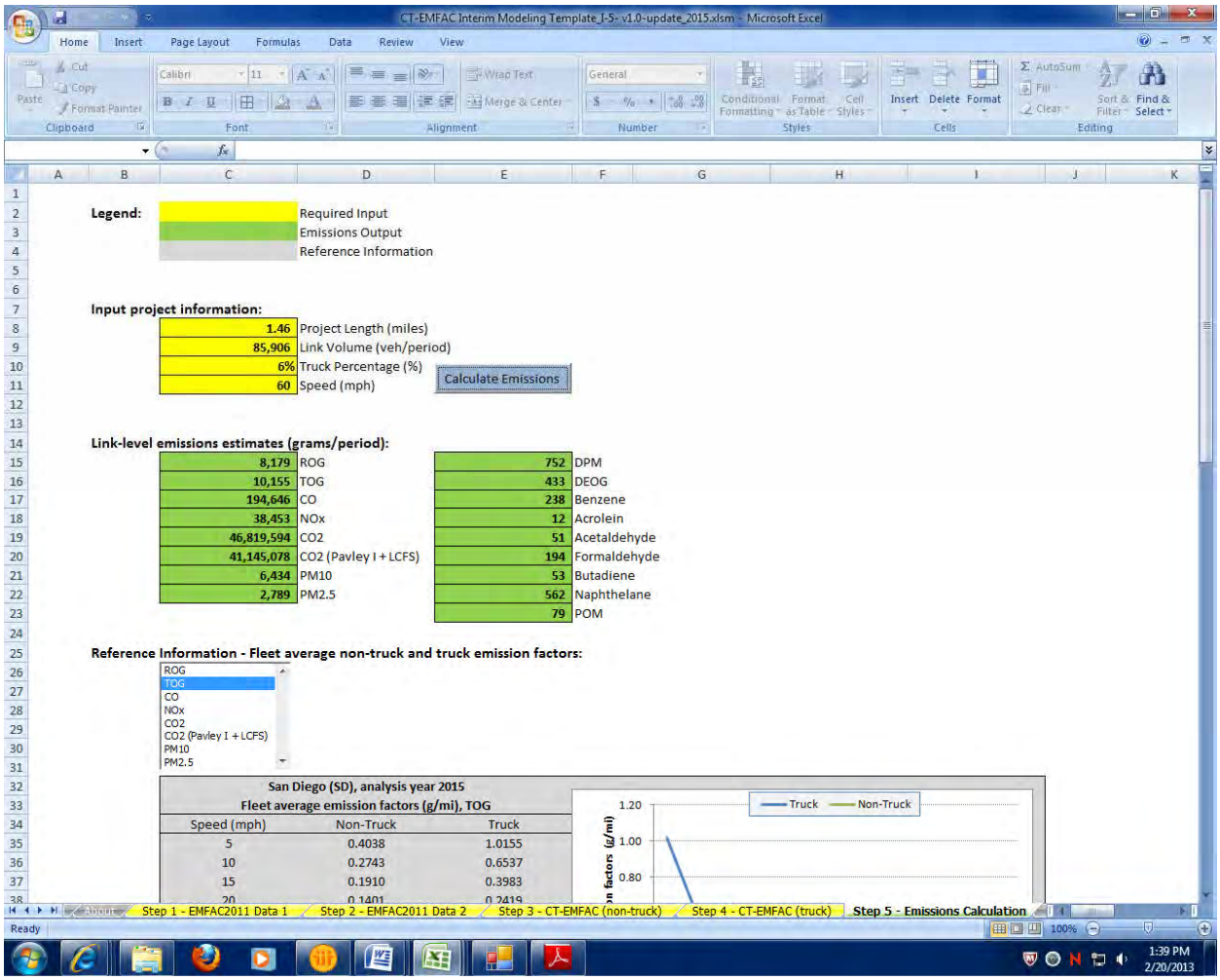
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

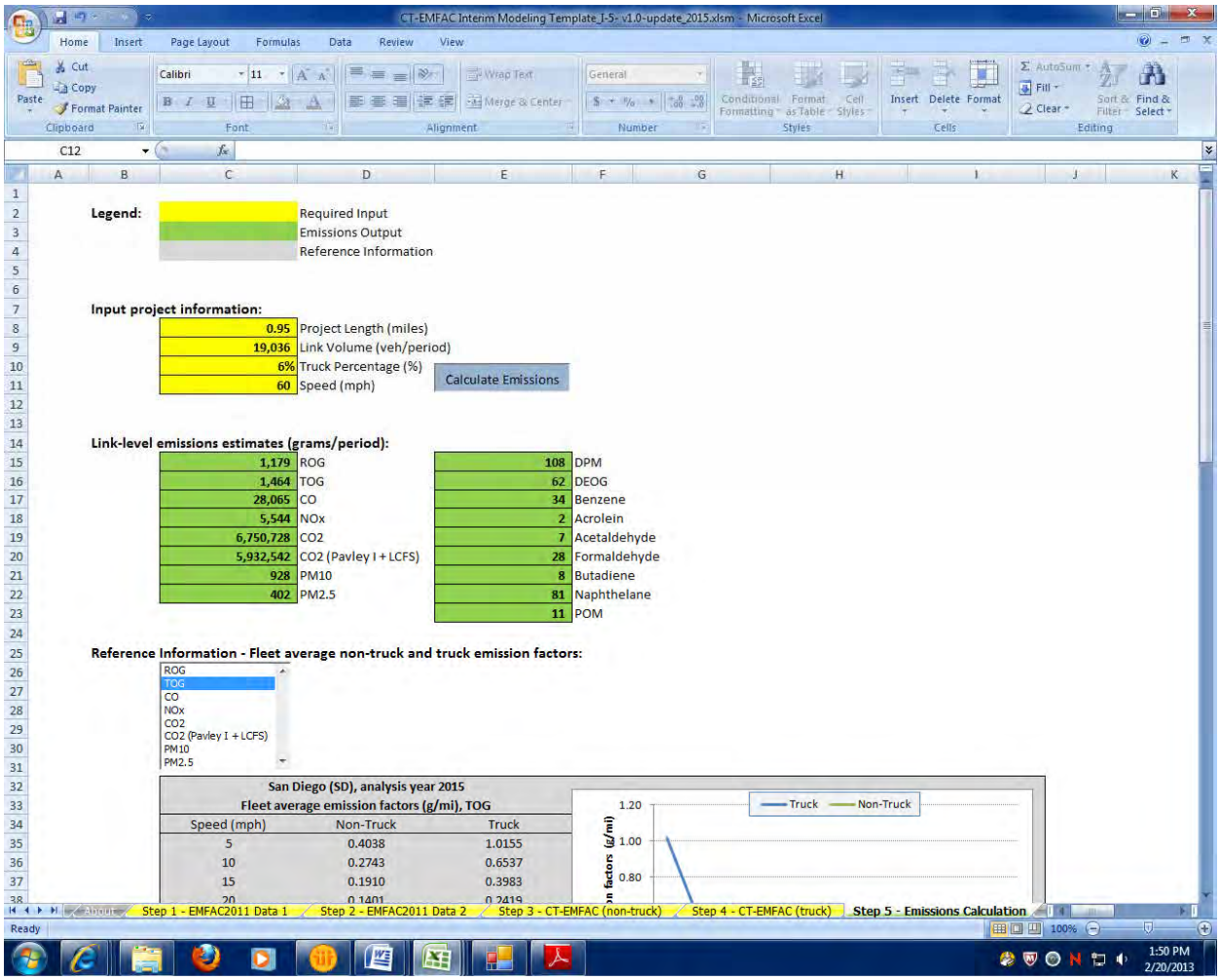
2015 8+4
Link: 1 (NB GP)
Segment: 14
Peak



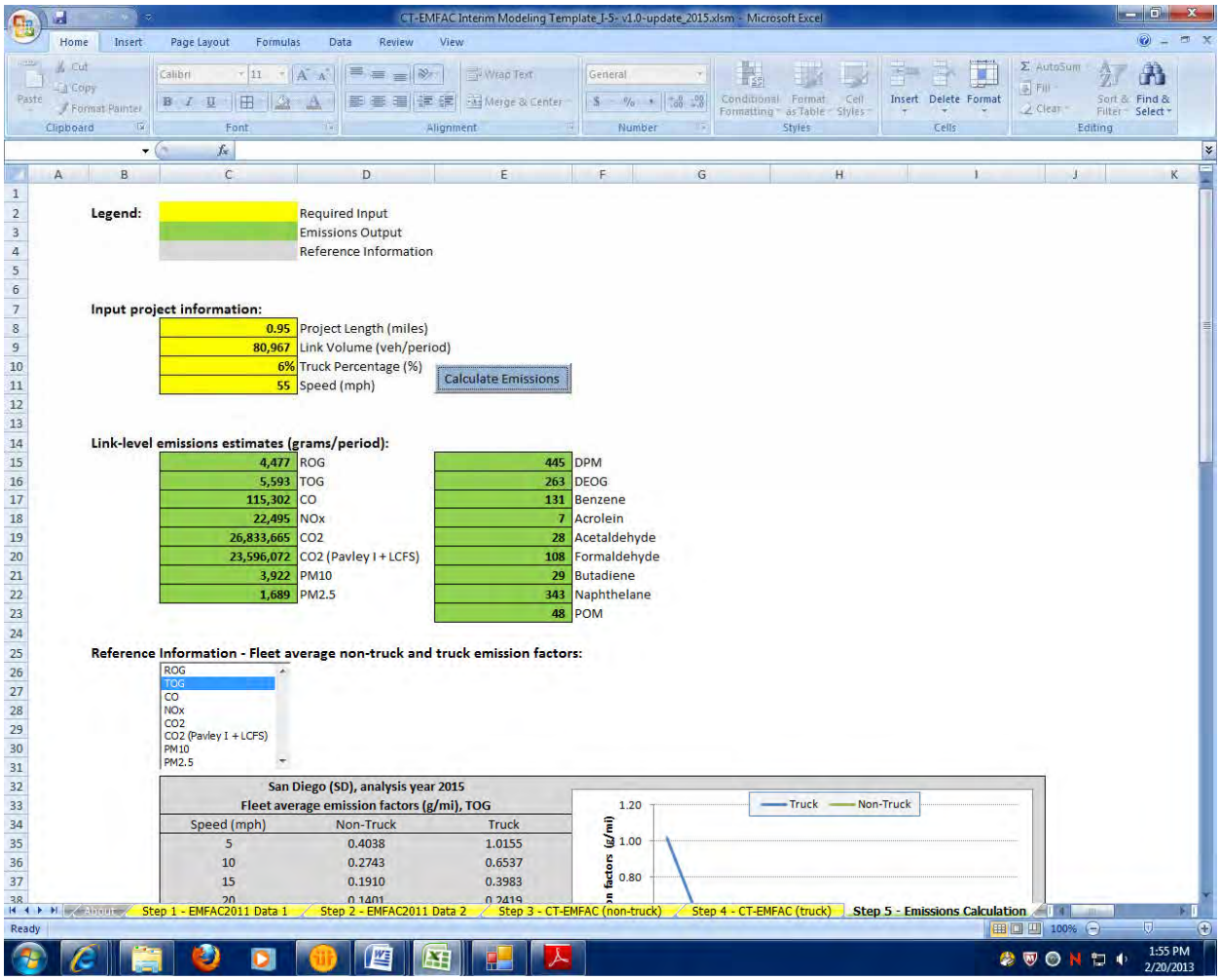
2015 8+4
Link: 1 (NB GP)
Segment: 14
Off Peak



2015 8+4
Link: 1 (NB GP)
Segment: 15
Peak



2015 8+4
Link: 1 (NB GP)
Segment: 15
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
80,967	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,477	ROG	445	DPM
5,593	TOG	263	DEOG
115,302	CO	131	Benzene
22,495	NOx	7	Acrolein
26,833,665	CO2	28	Acetaldehyde
23,596,072	CO2 (Pavley I + LCFS)	108	Formaldehyde
3,922	PM10	29	Butadiene
1,689	PM2.5	343	Naphthelane
		48	POM

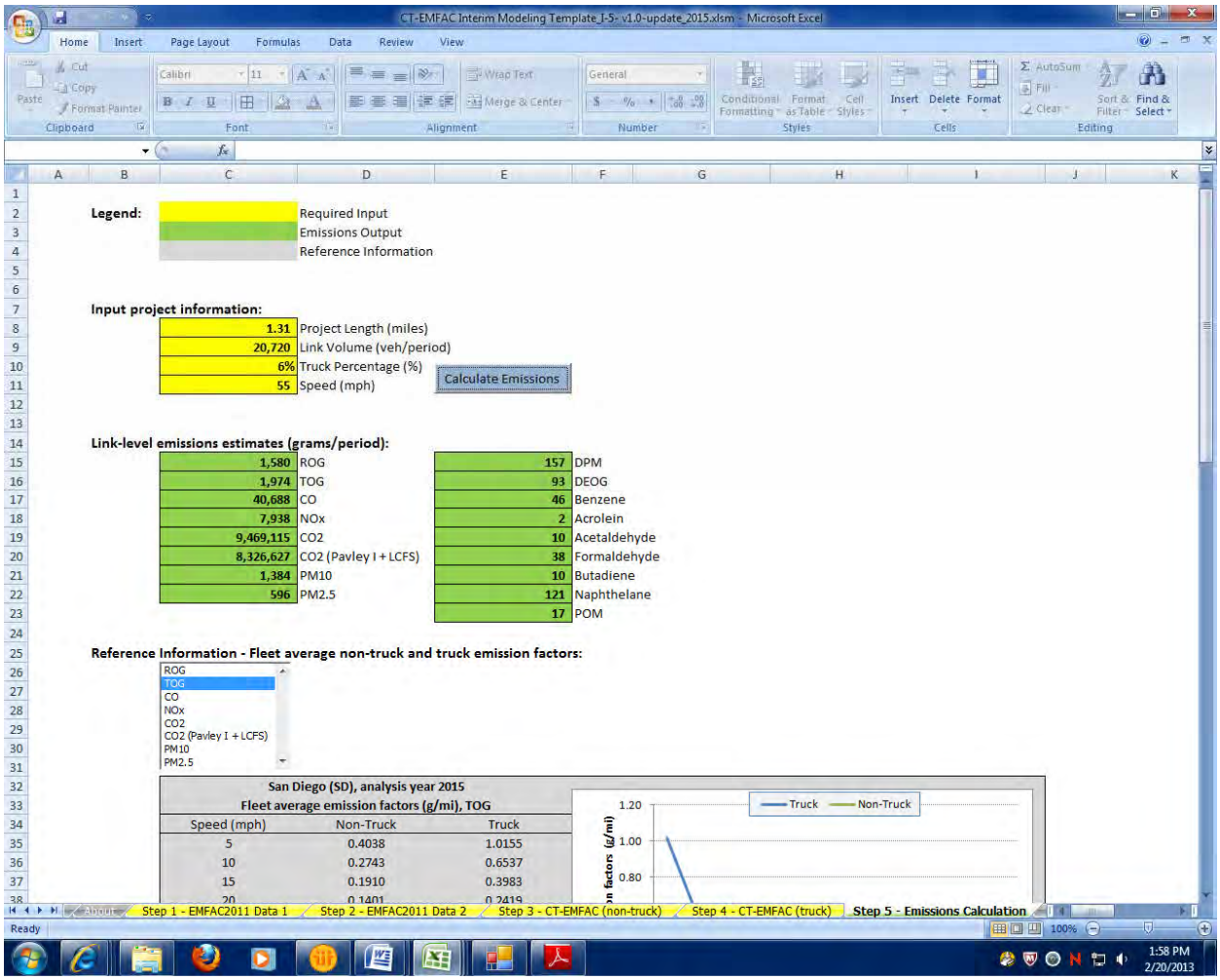
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

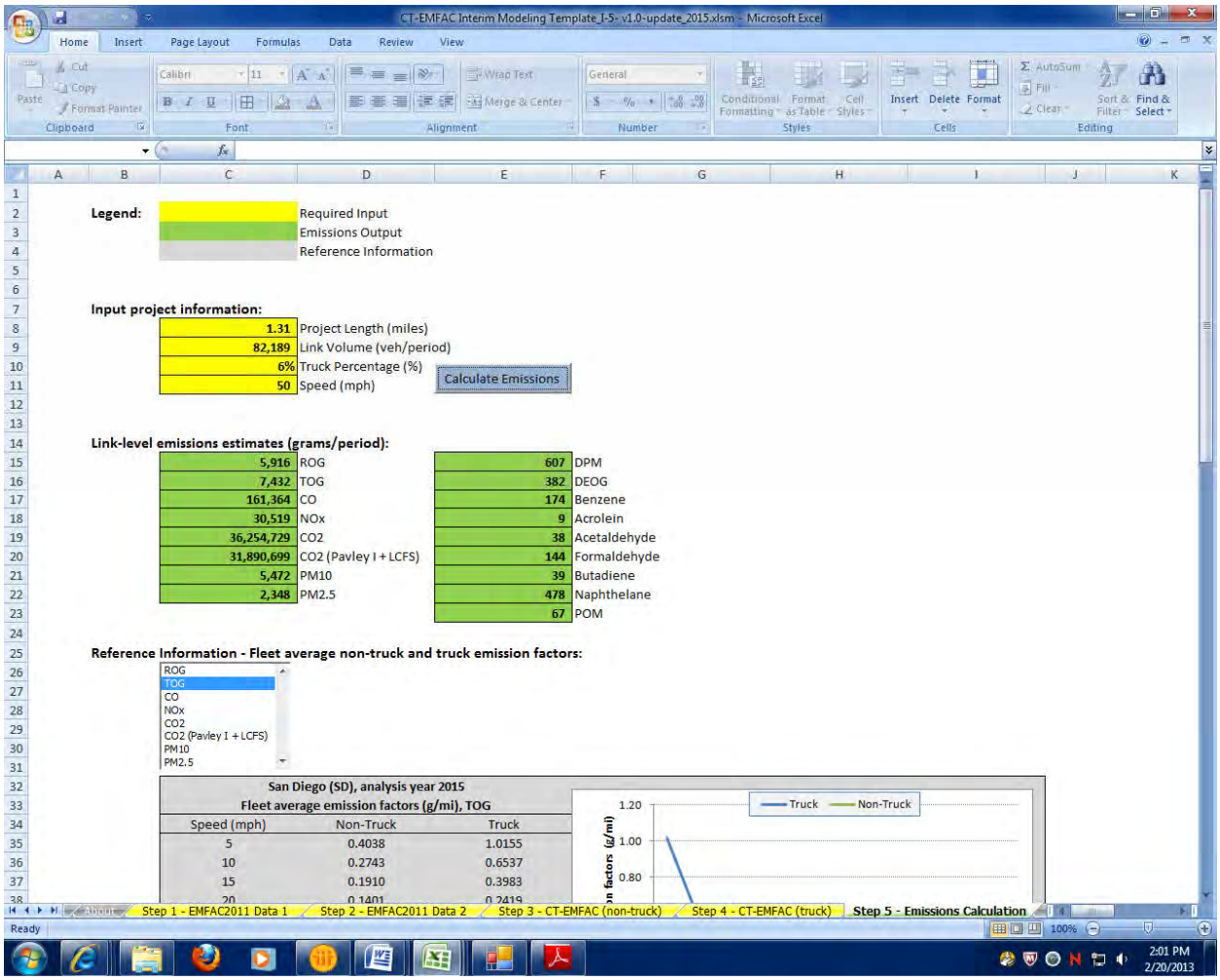
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

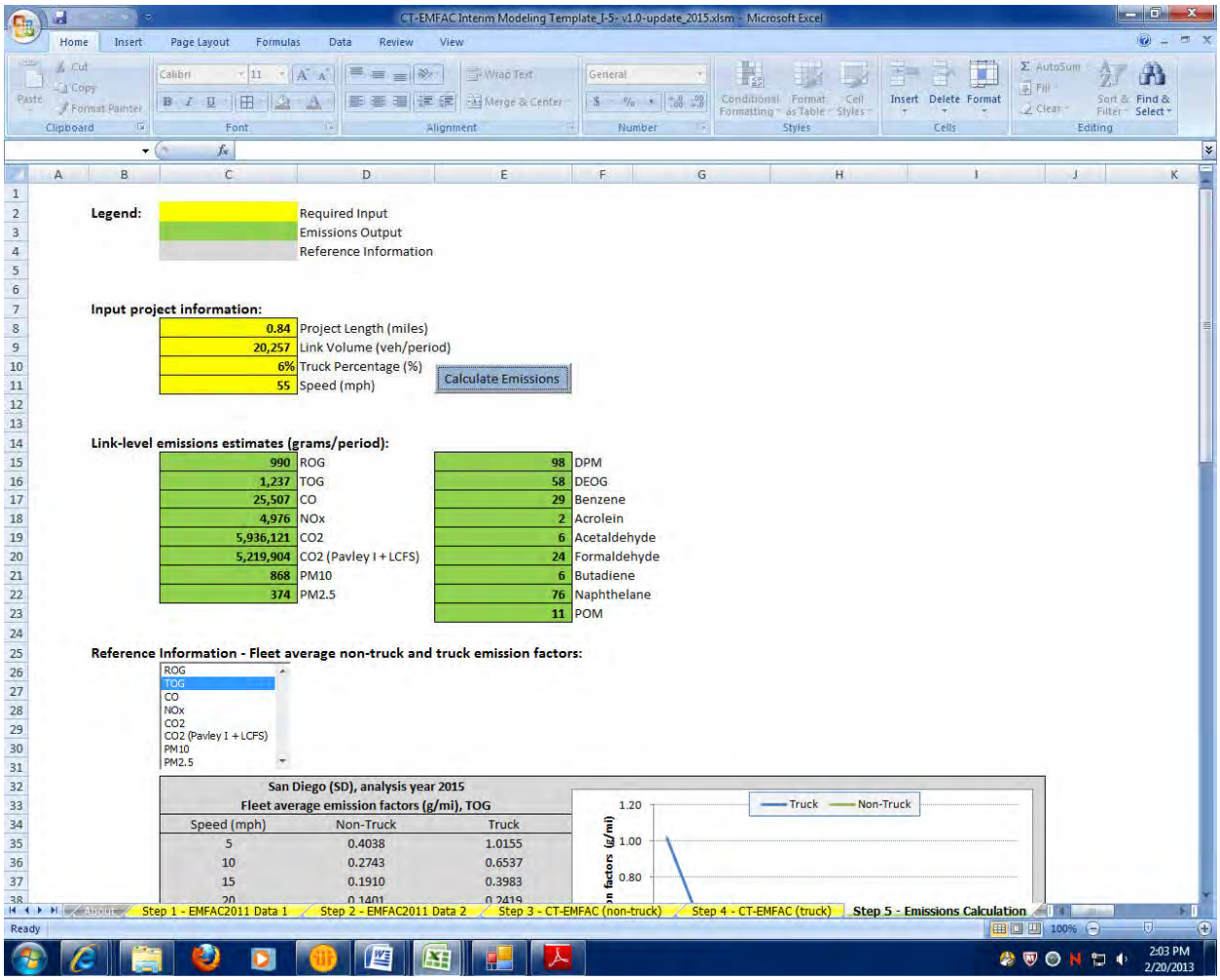
2015 8+4
Link: 1 (NB GP)
Segment: 16
Peak



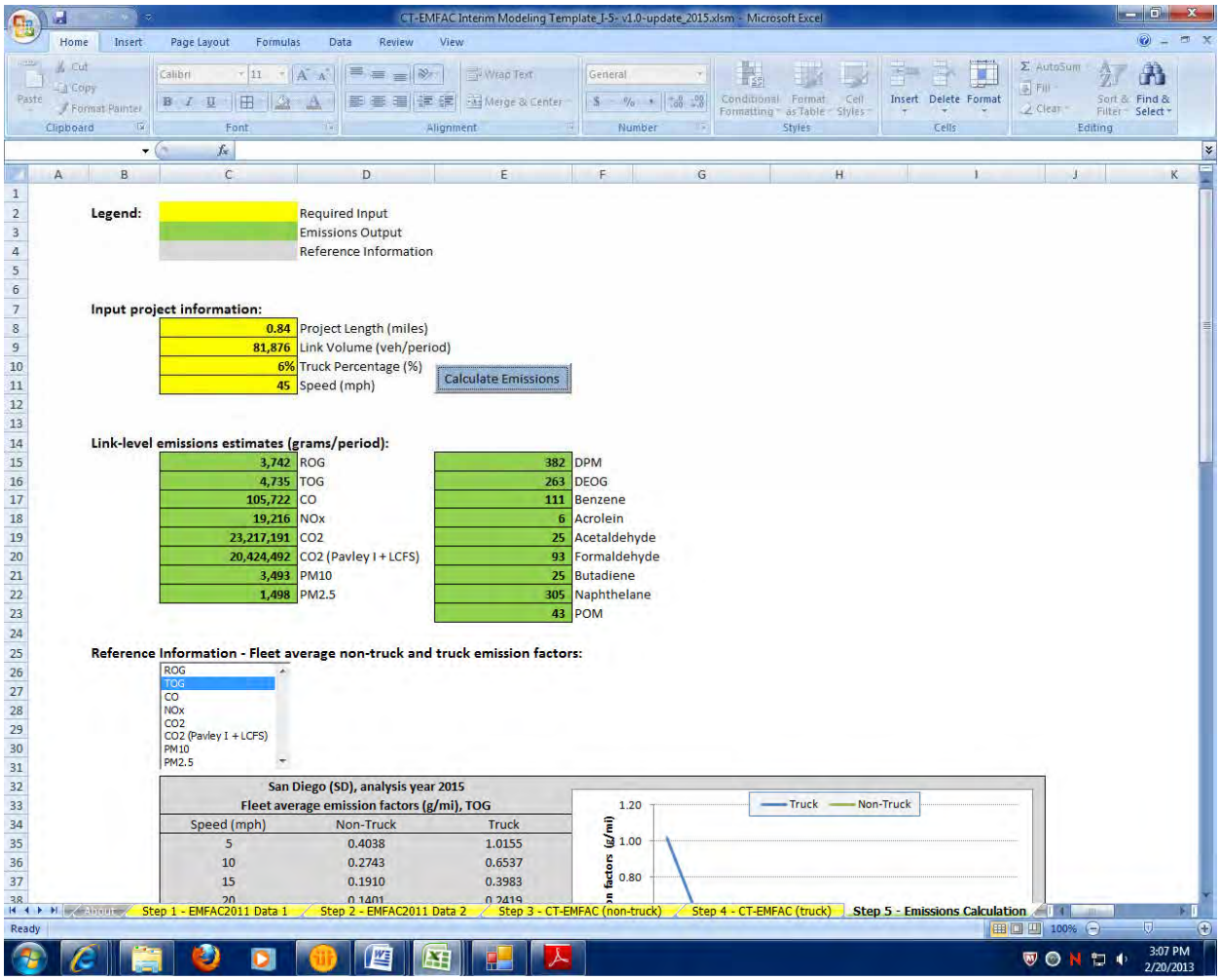
2015 8+4
Link: 1 (NB GP)
Segment: 16
Off Peak



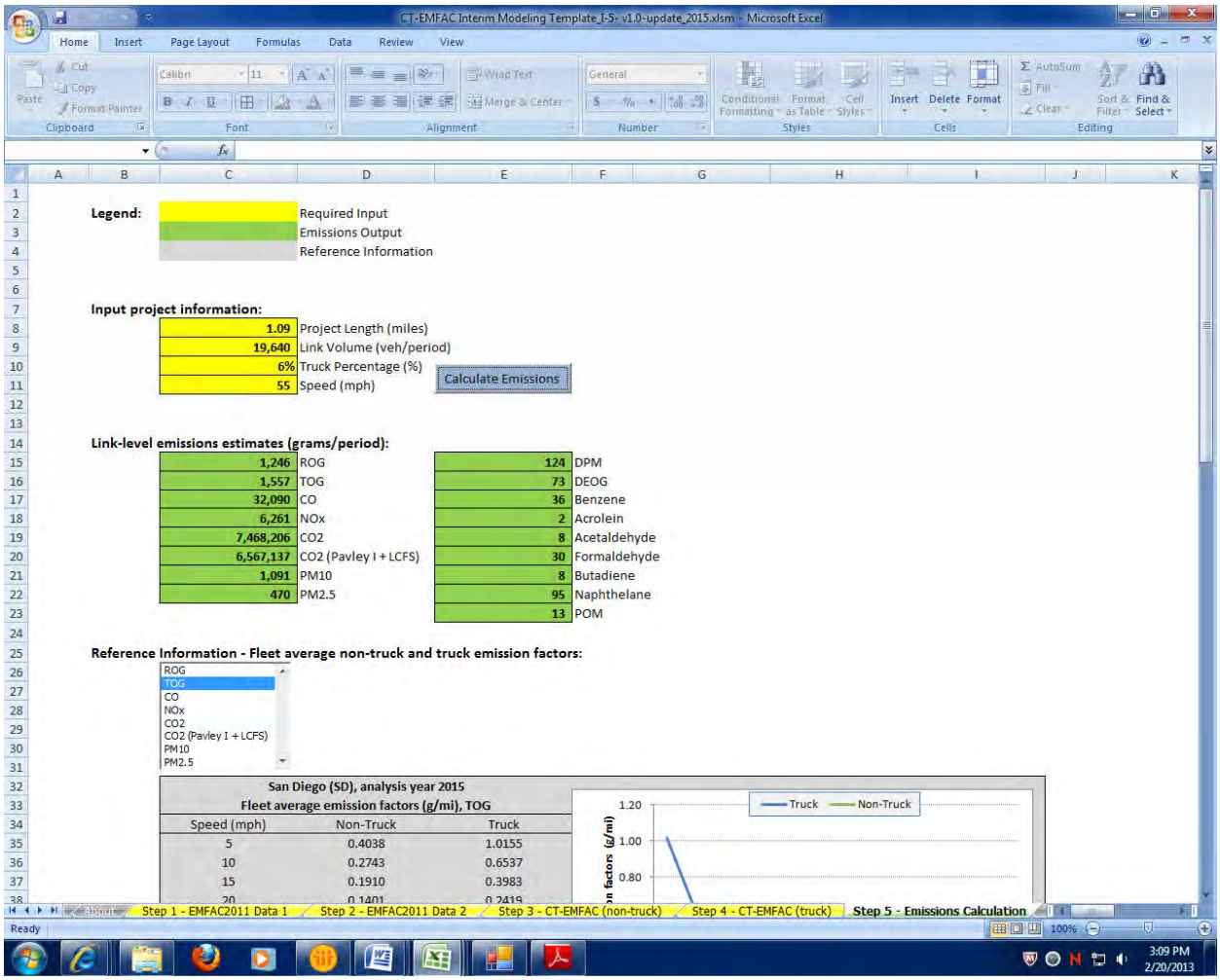
2015 8+4
Link: 1 (NB GP)
Segment: 17
Peak



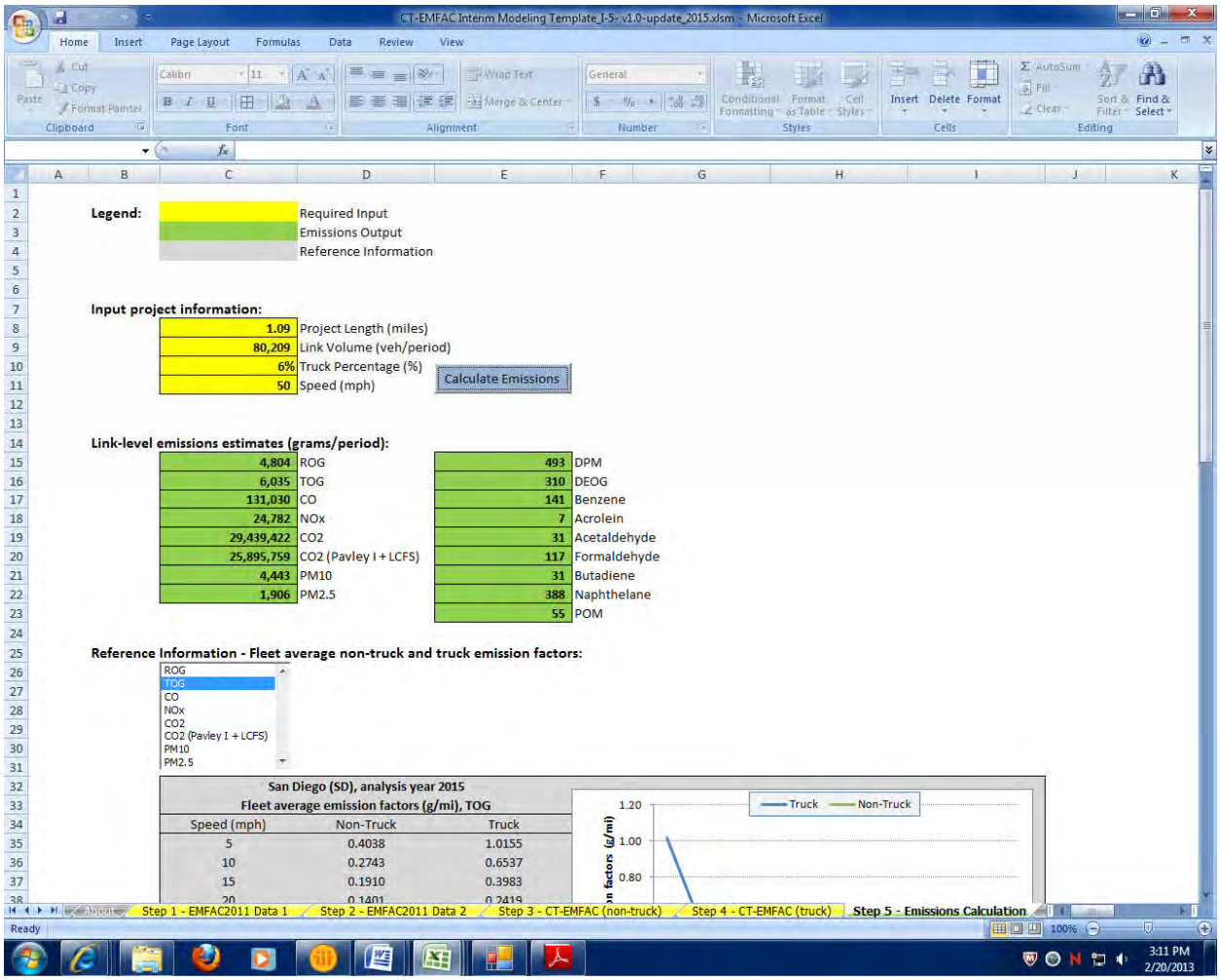
2015 8+4
Link: 1 (NB GP)
Segment: 17
Off Peak



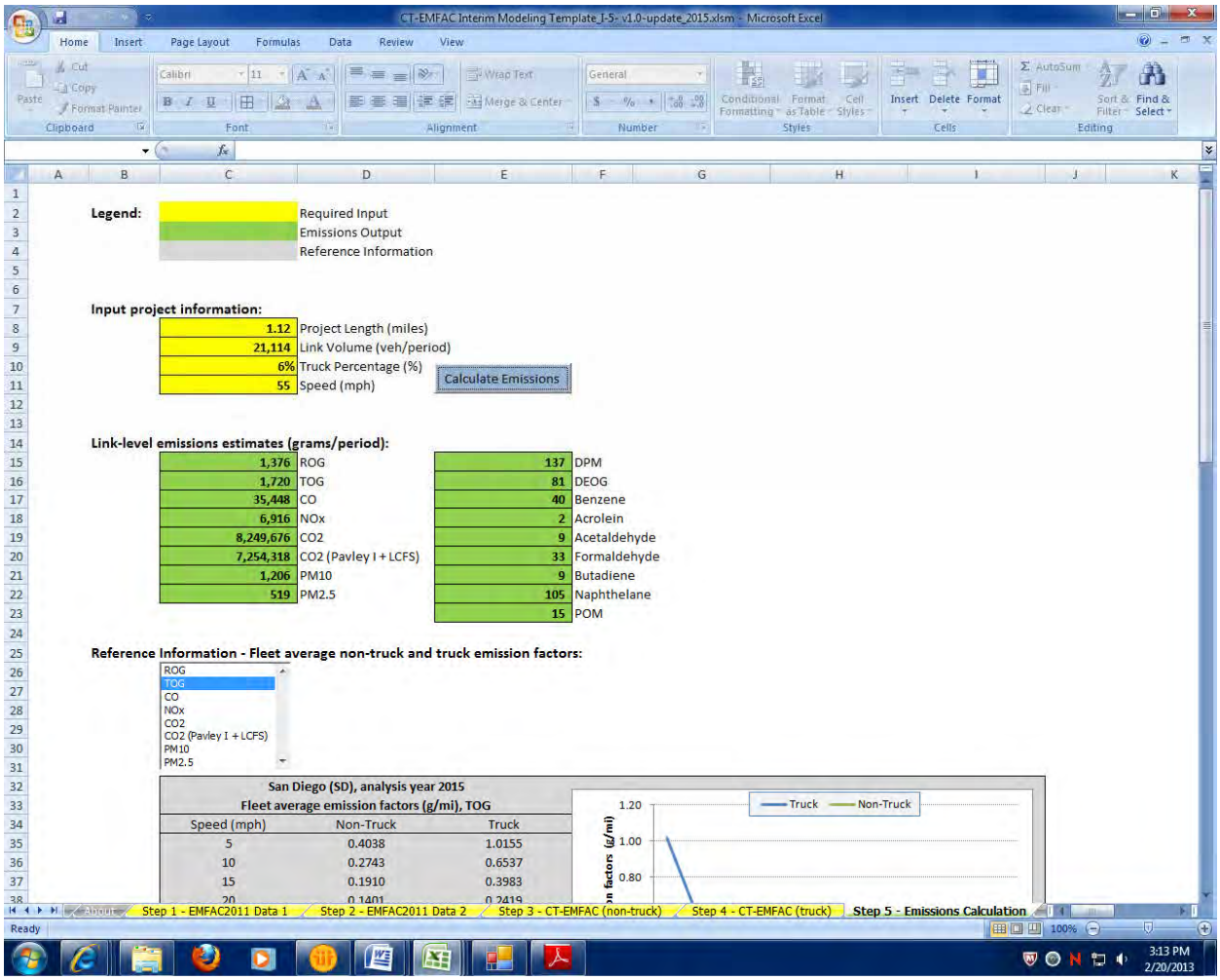
2015 8+4
Link: 1 (NB GP)
Segment: 18
Peak



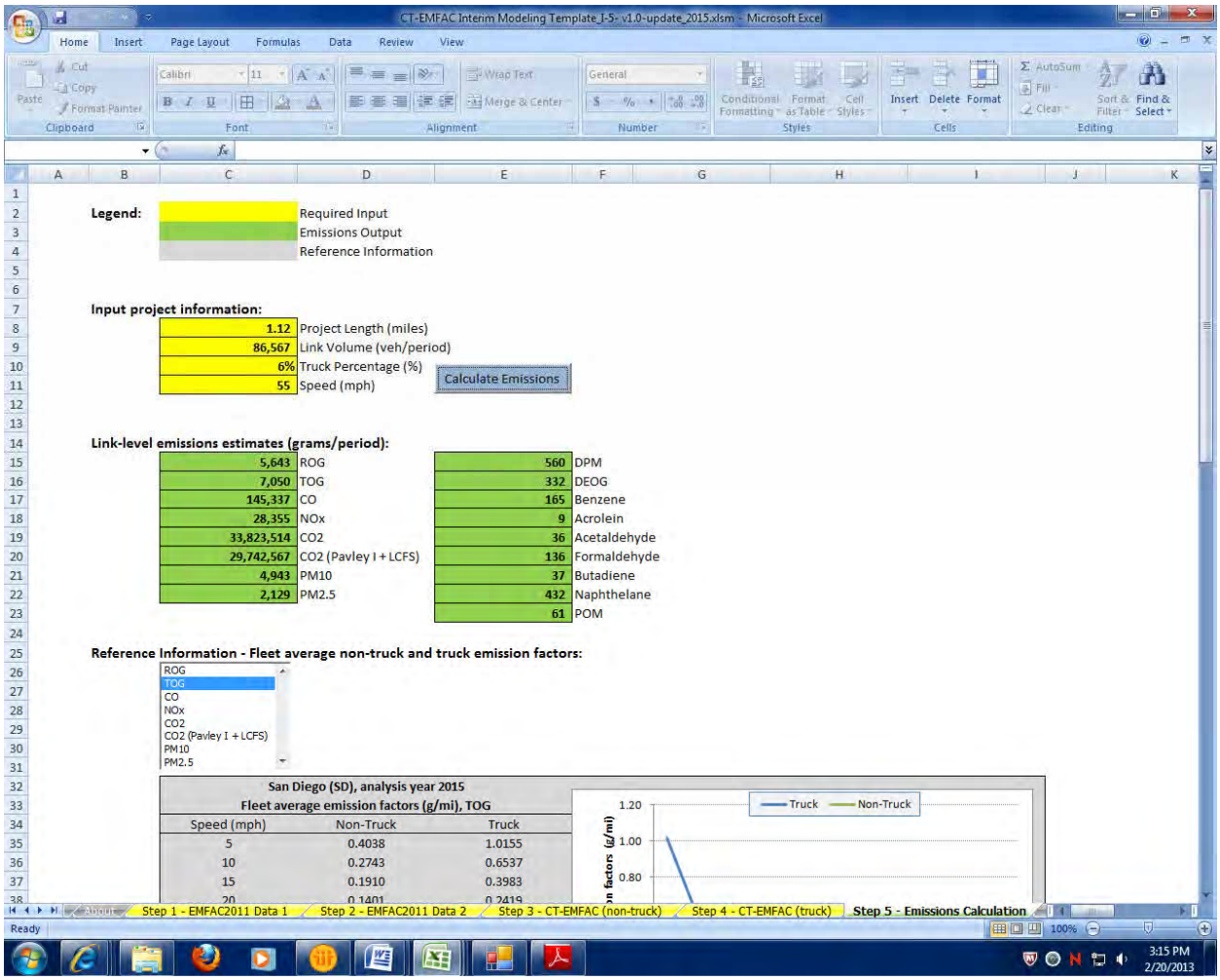
2015 8+4
Link: 1 (NB GP)
Segment: 18
Off Peak



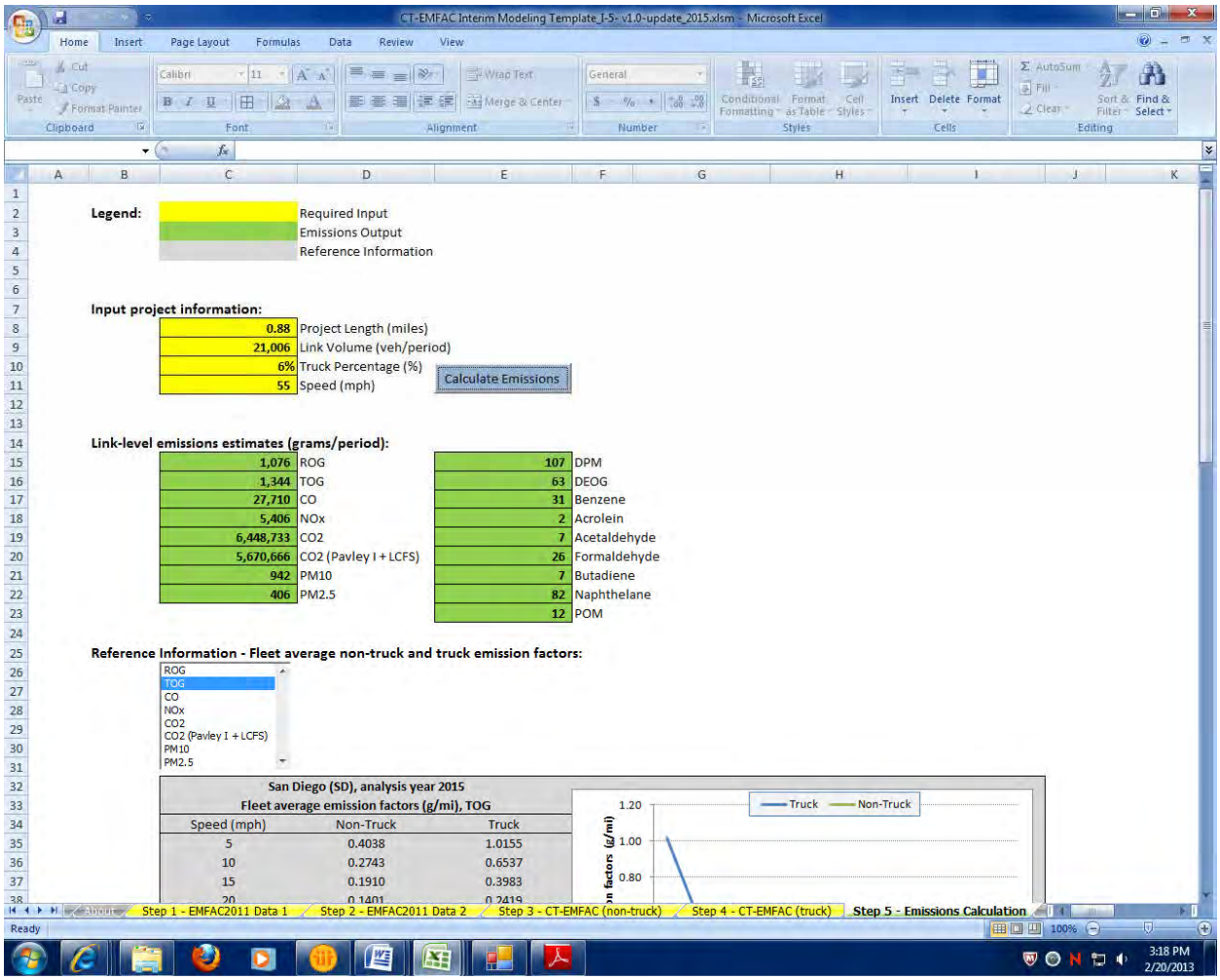
2015 8+4
Link: 1 (NB GP)
Segment: 19
Peak



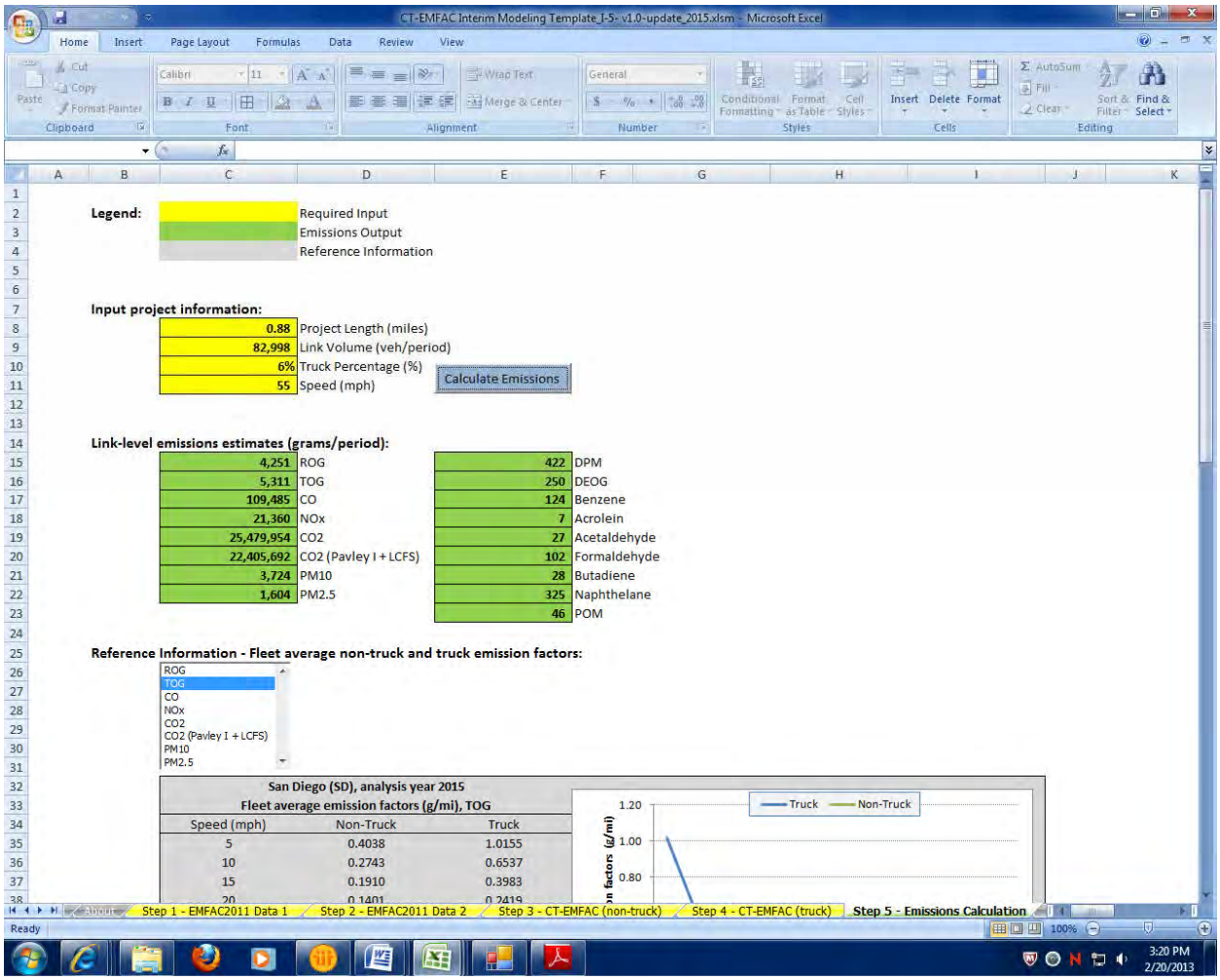
2015 8+4
Link: 1 (NB GP)
Segment: 19
Off Peak



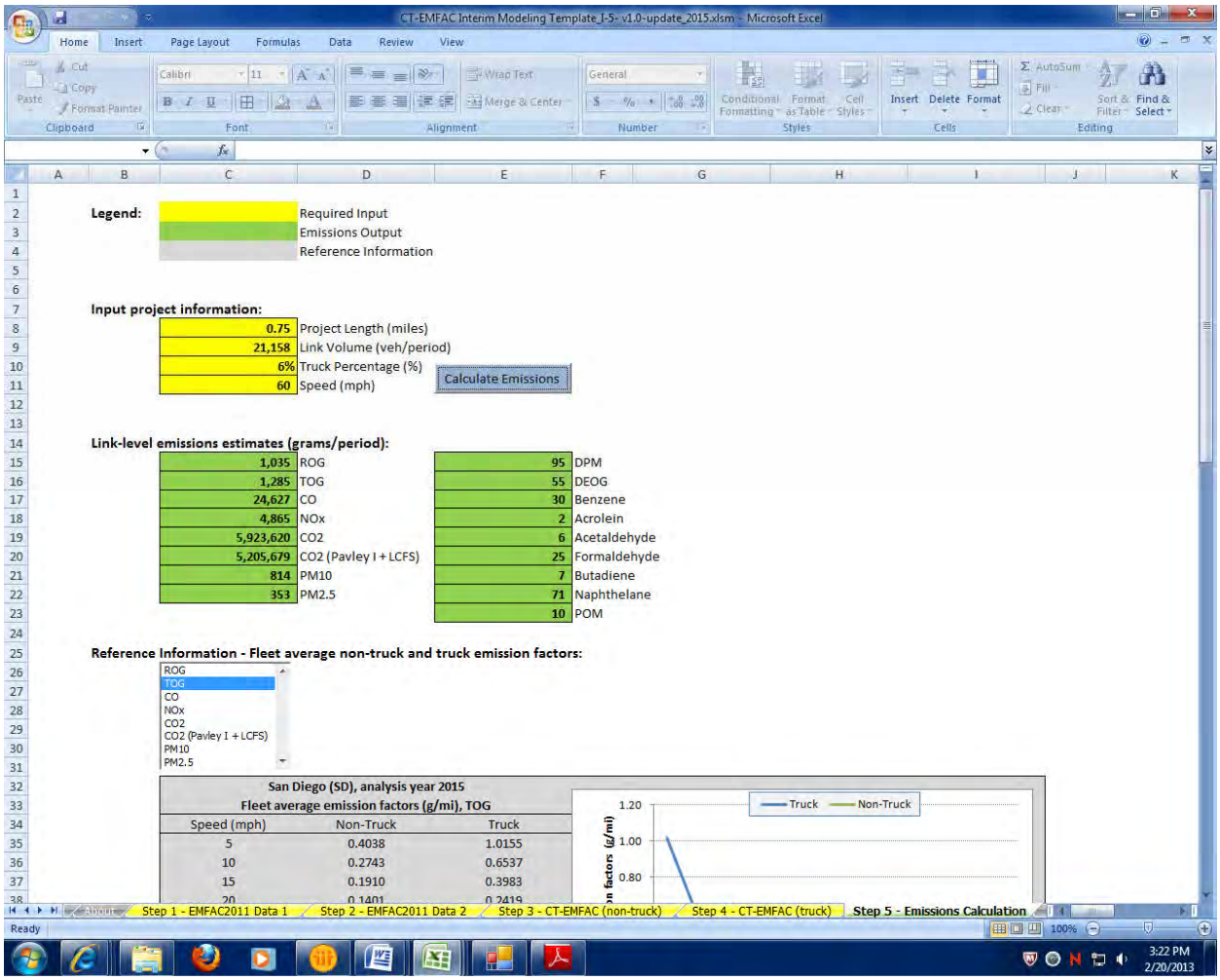
2015 8+4
Link: 1 (NB GP)
Segment: 20
Peak



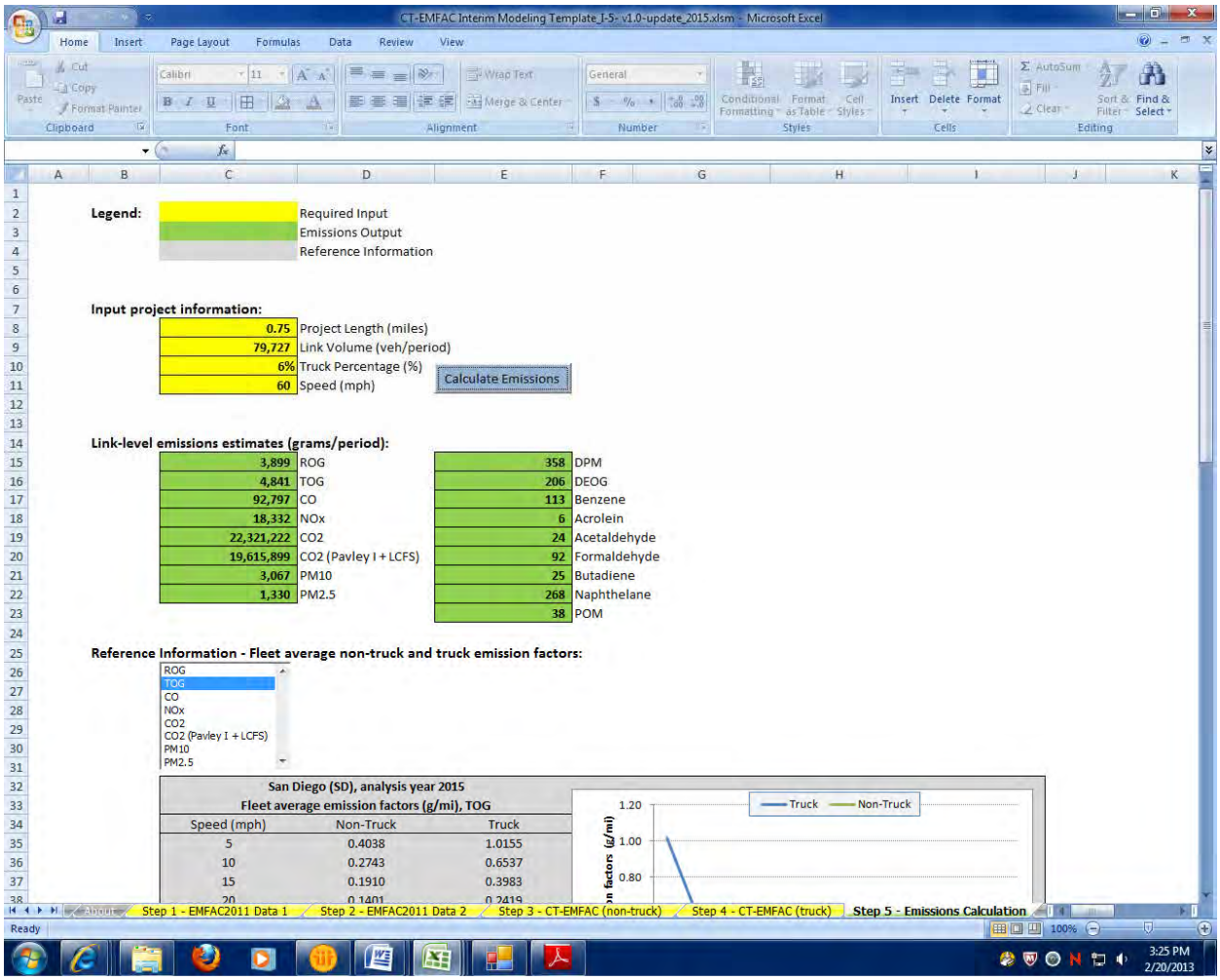
2015 8+4
Link: 1 (NB GP)
Segment: 20
Off Peak



2015 8+4
Link: 1 (NB GP)
Segment: 21
Peak



2015 8+4
Link: 1 (NB GP)
Segment: 21
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.75	Project Length (miles)
79,727	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

3,899	ROG	358	DPM
4,841	TOG	206	DEOG
92,797	CO	113	Benzene
18,332	NOx	6	Acrolein
22,321,222	CO2	24	Acetaldehyde
19,615,899	CO2 (Pavley I + LCFS)	92	Formaldehyde
3,067	PM10	25	Butadiene
1,330	PM2.5	268	Naphthelane
		38	POM

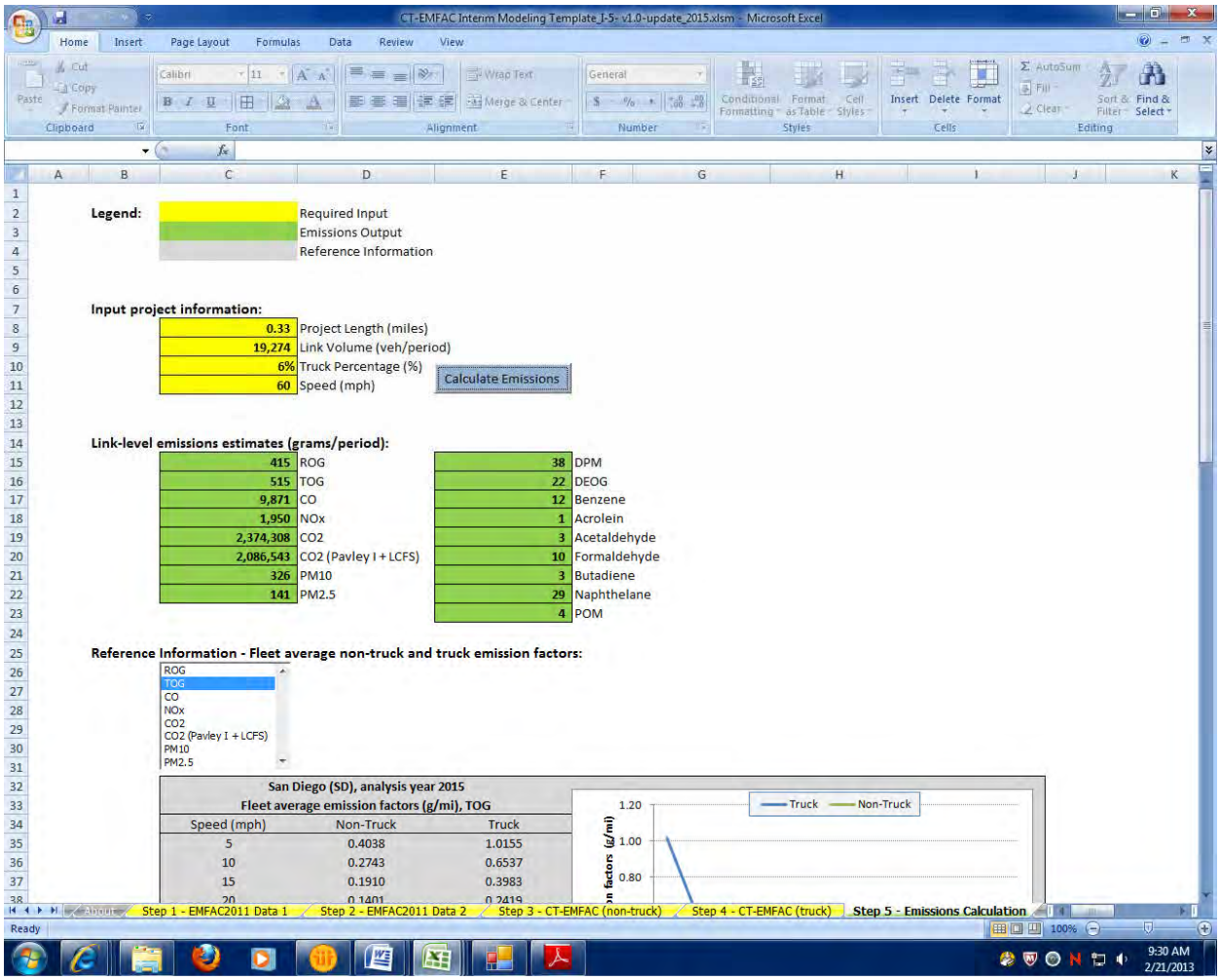
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

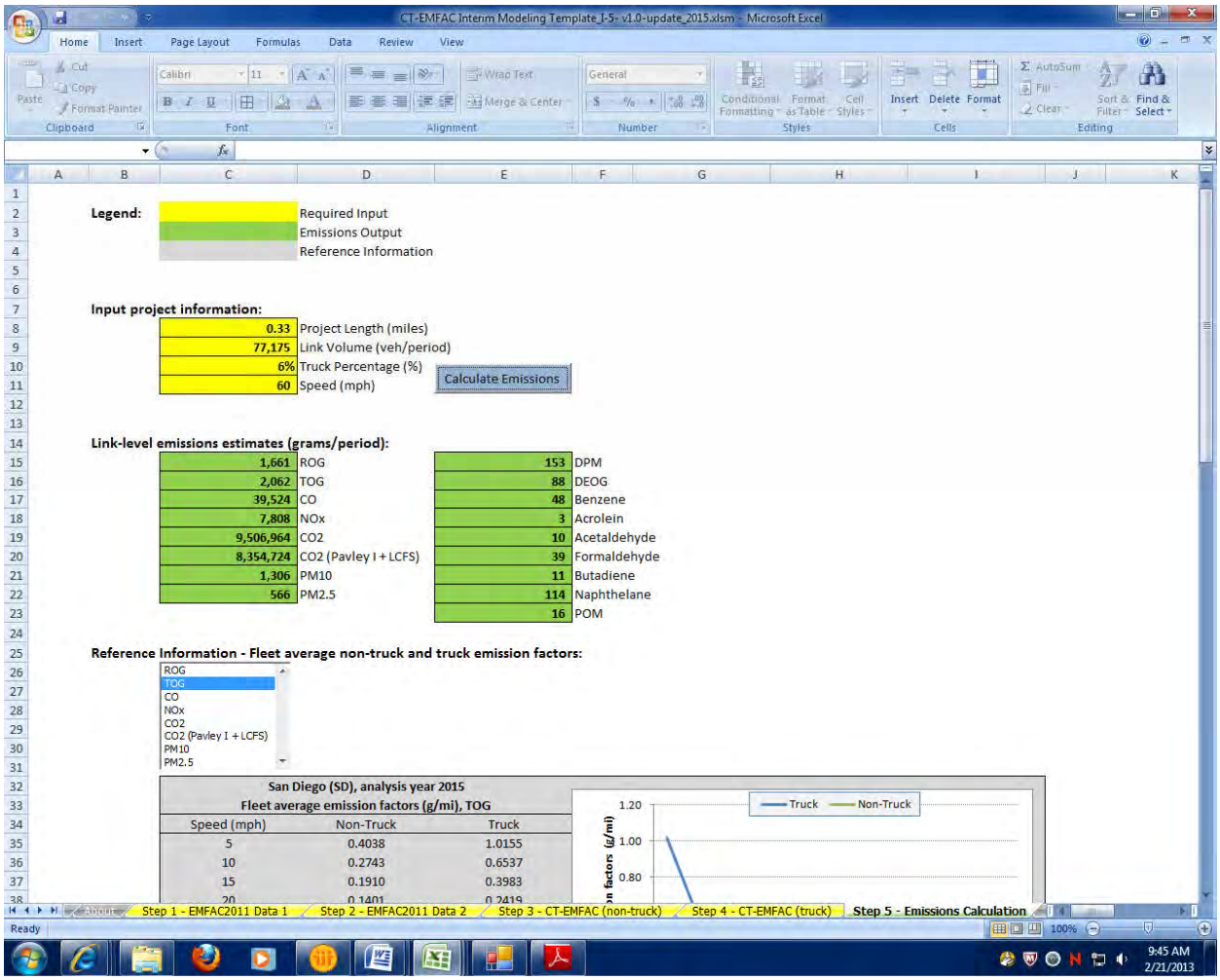
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

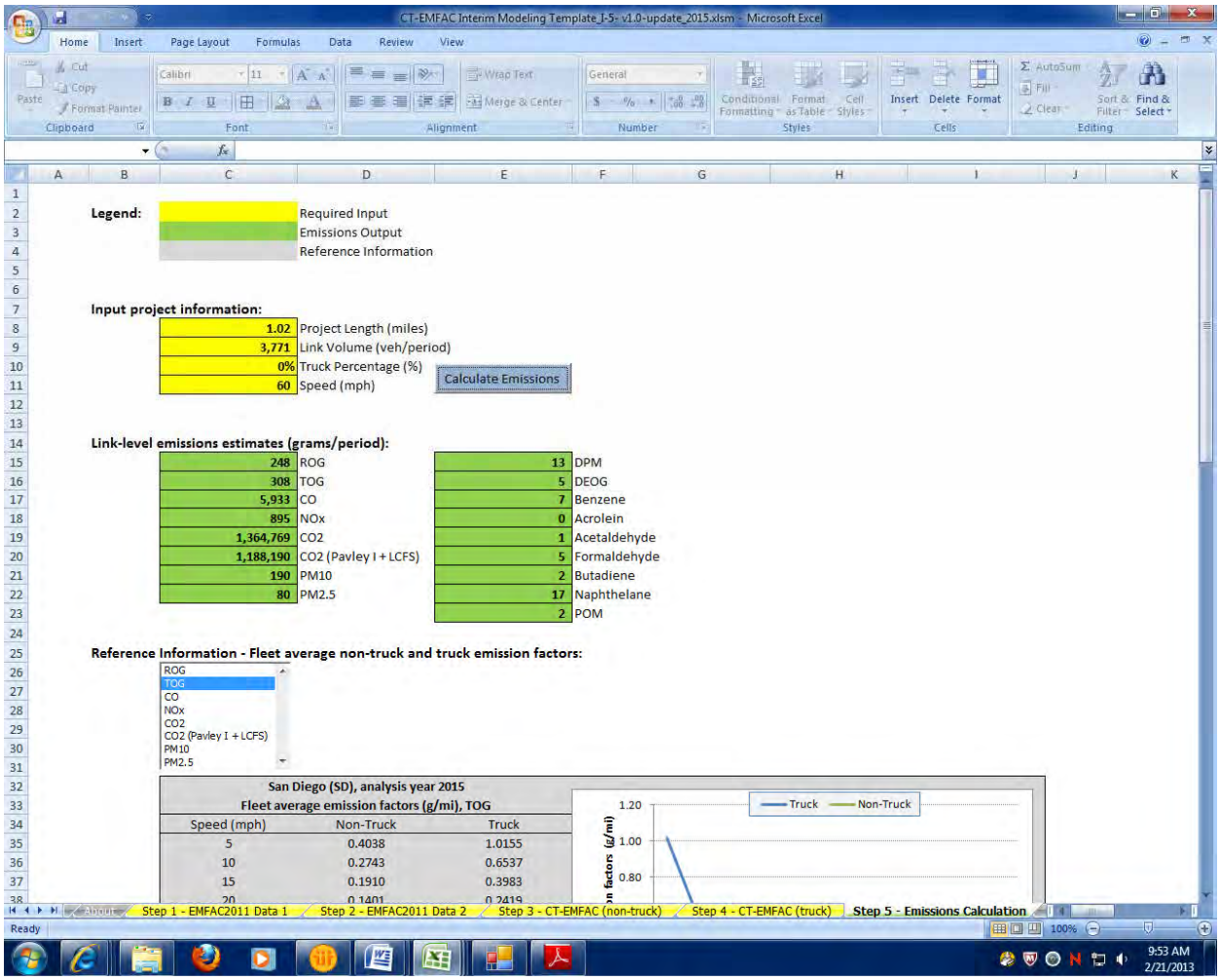
2015 8+4
Link: 1 (NB GP)
Segment: 22
Peak



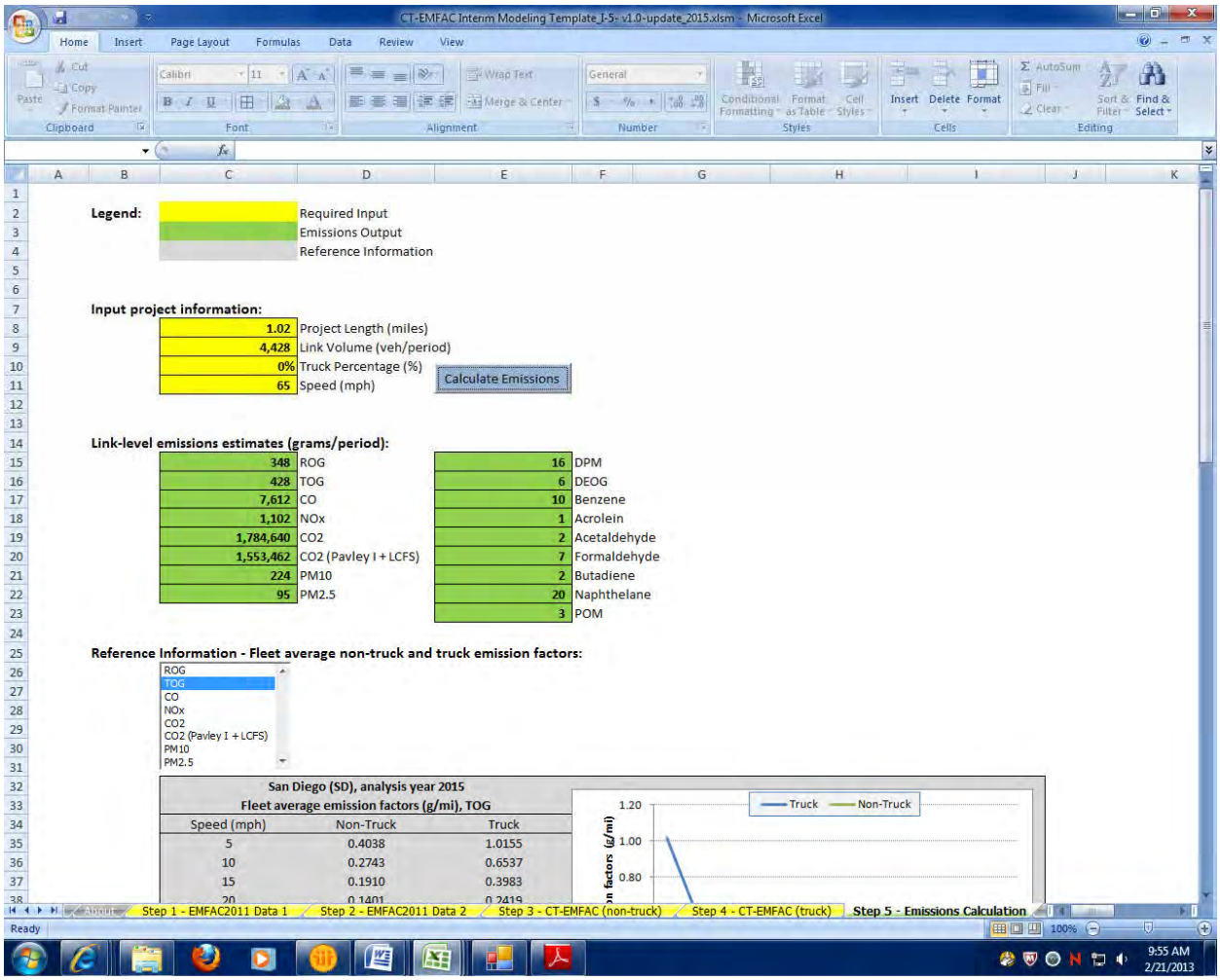
2015 8+4
Link: 1 (NB GP)
Segment: 22
Off Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 1
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 1
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.02	Project Length (miles)
4,428	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

348	ROG	16	DPM
428	TOG	6	DEOG
7,612	CO	10	Benzene
1,102	NOx	1	Acrolein
1,784,640	CO2	2	Acetaldehyde
1,553,462	CO2 (Pavley I + LCFS)	7	Formaldehyde
224	PM10	2	Butadiene
95	PM2.5	20	Naphthelane
		3	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

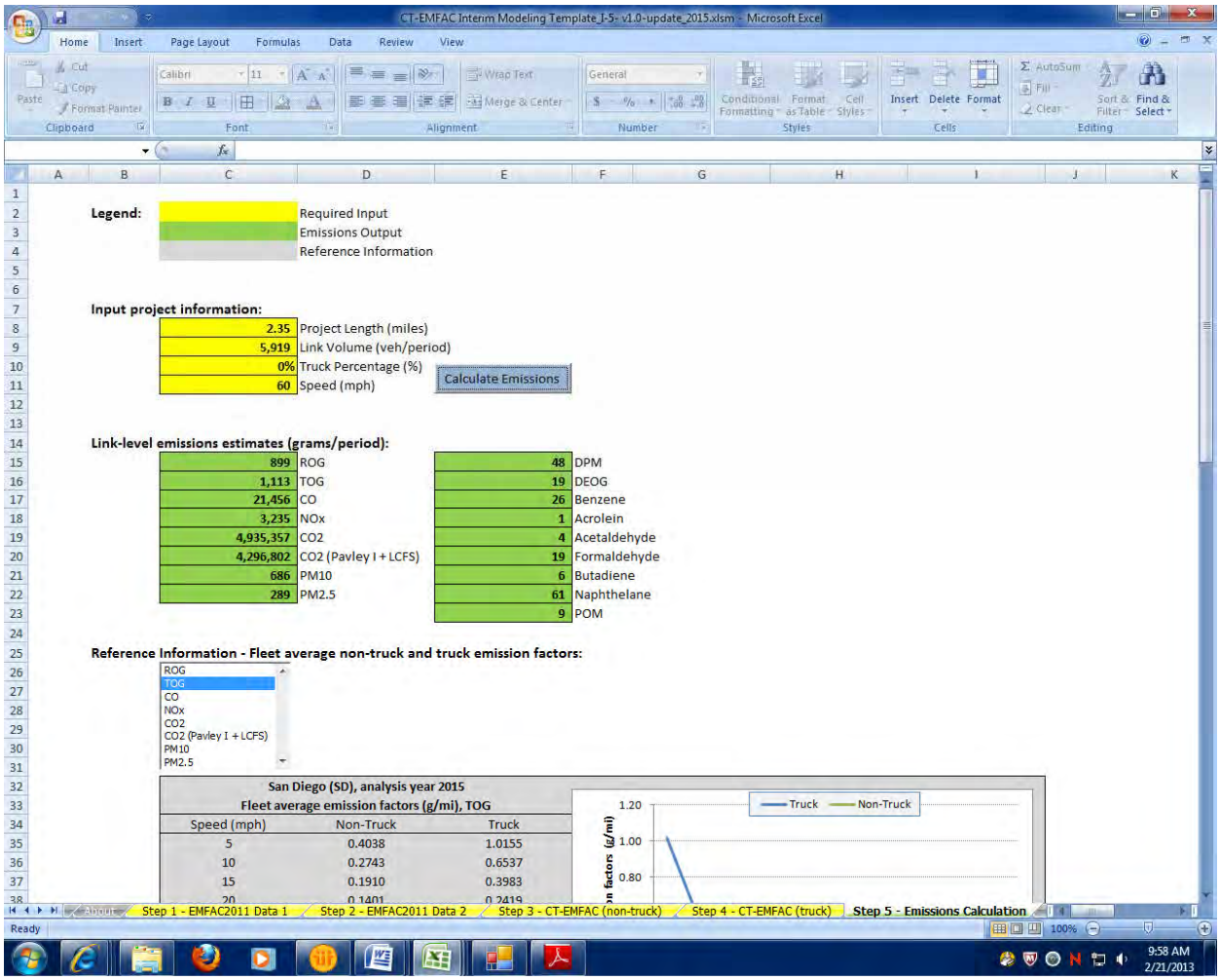
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

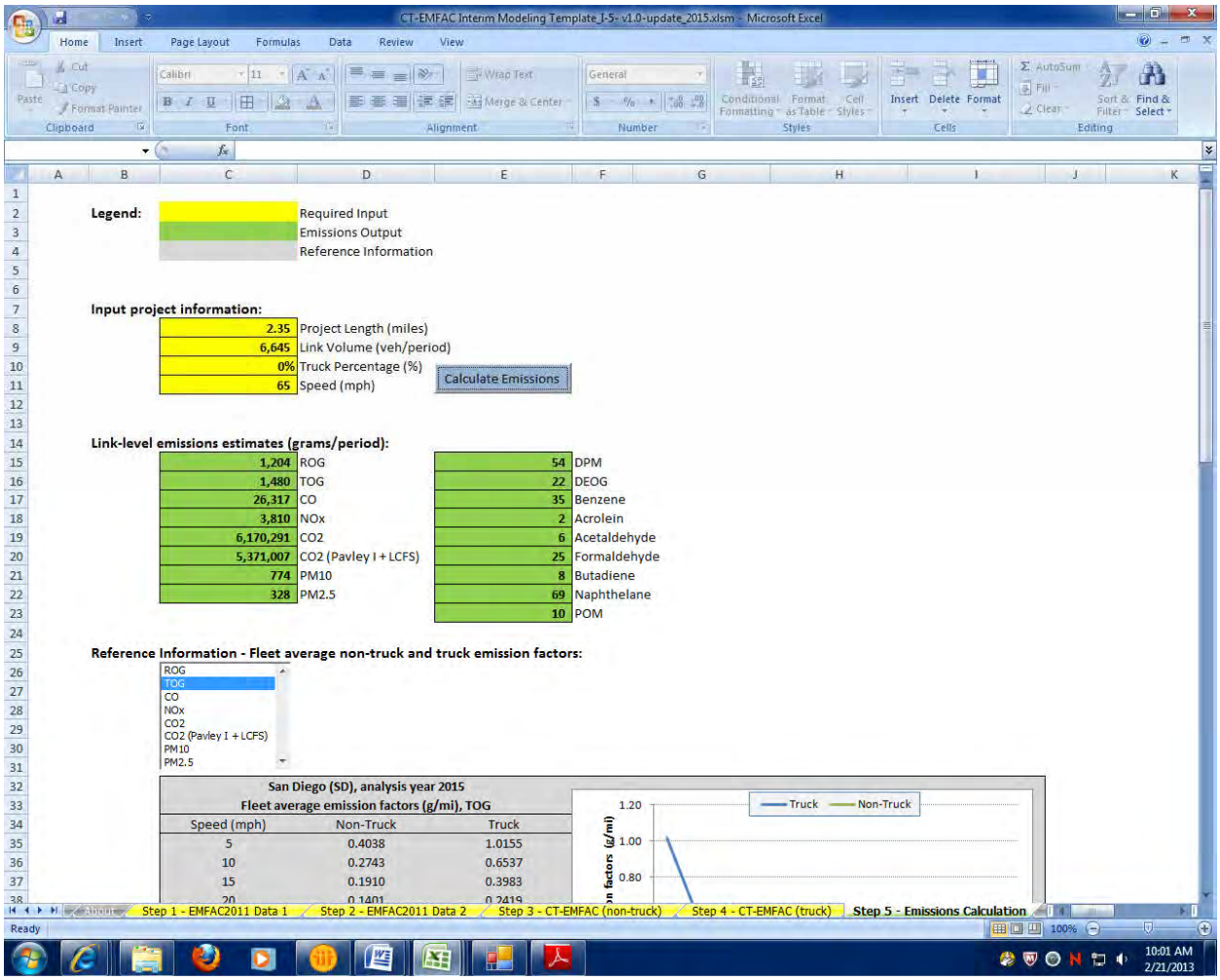
Ready 100%

9:55 AM 2/21/2013

2015 8+4
Link: 2 (NB HOV)
Segment: 2
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 2
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.35	Project Length (miles)
6,645	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,204	ROG	54	DPM
1,480	TOG	22	DEOG
26,317	CO	35	Benzene
3,810	NOx	2	Acrolein
6,170,291	CO2	6	Acetaldehyde
5,371,007	CO2 (Pavley I + LCFS)	25	Formaldehyde
774	PM10	8	Butadiene
328	PM2.5	69	Naphthelane
		10	POM

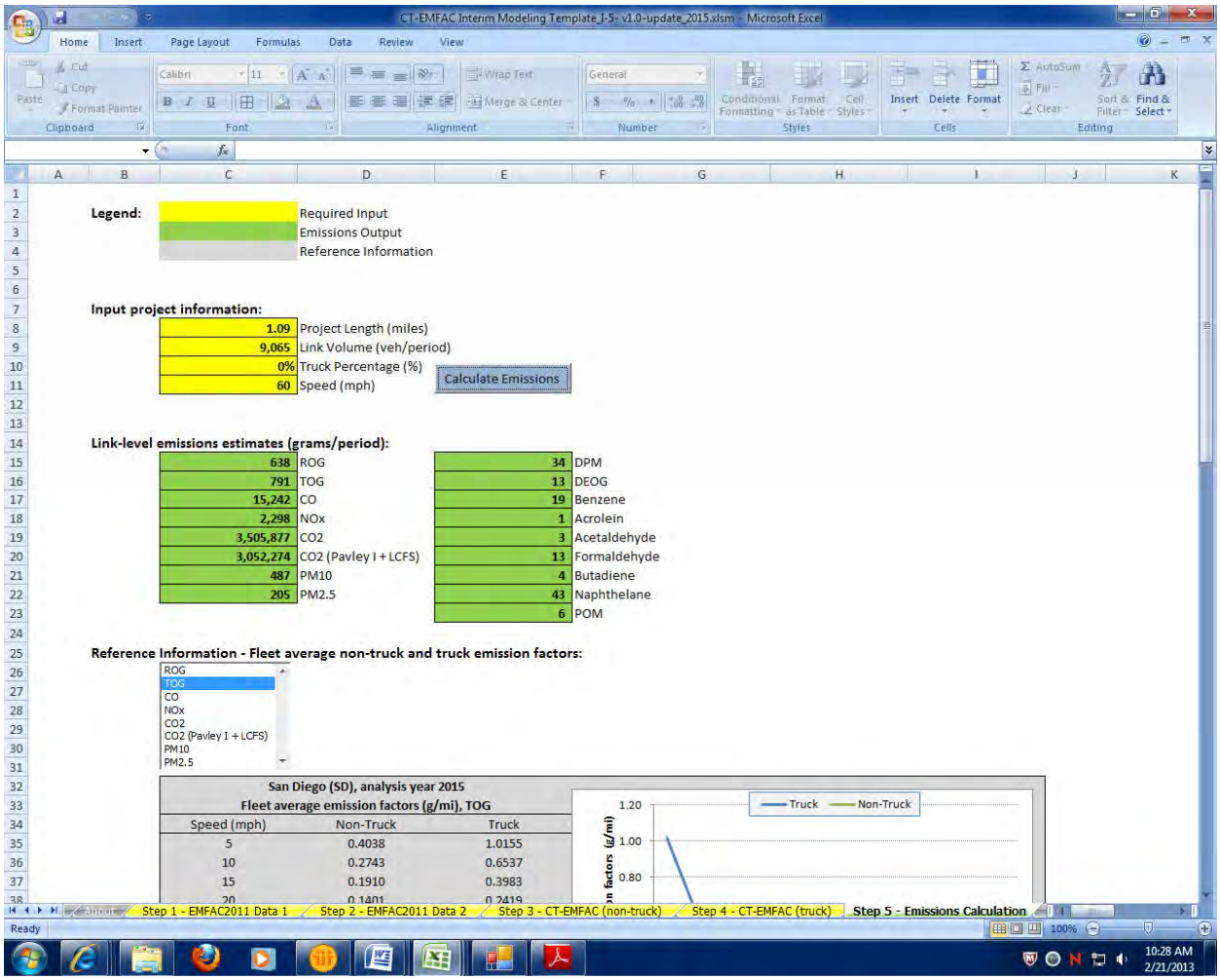
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

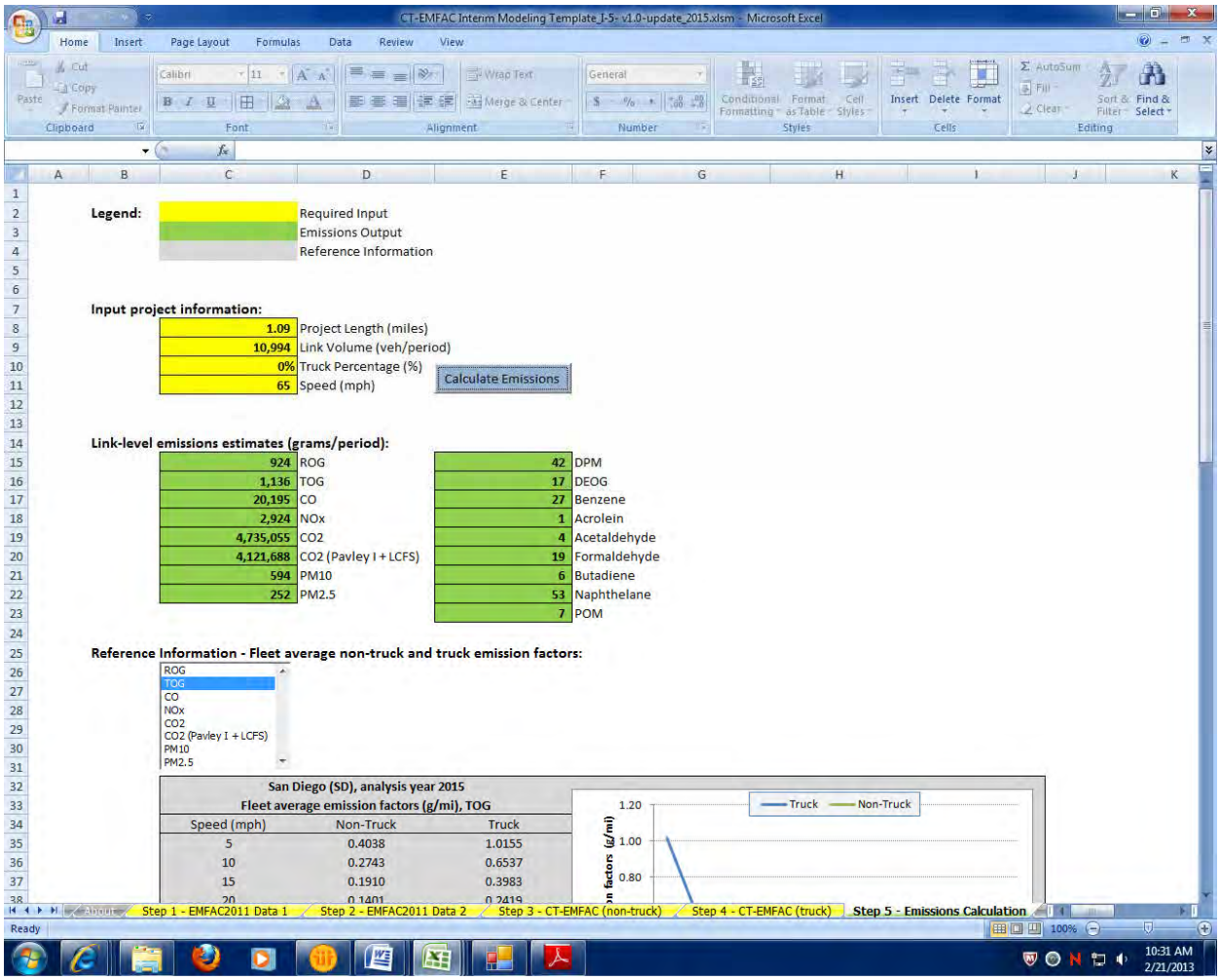
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

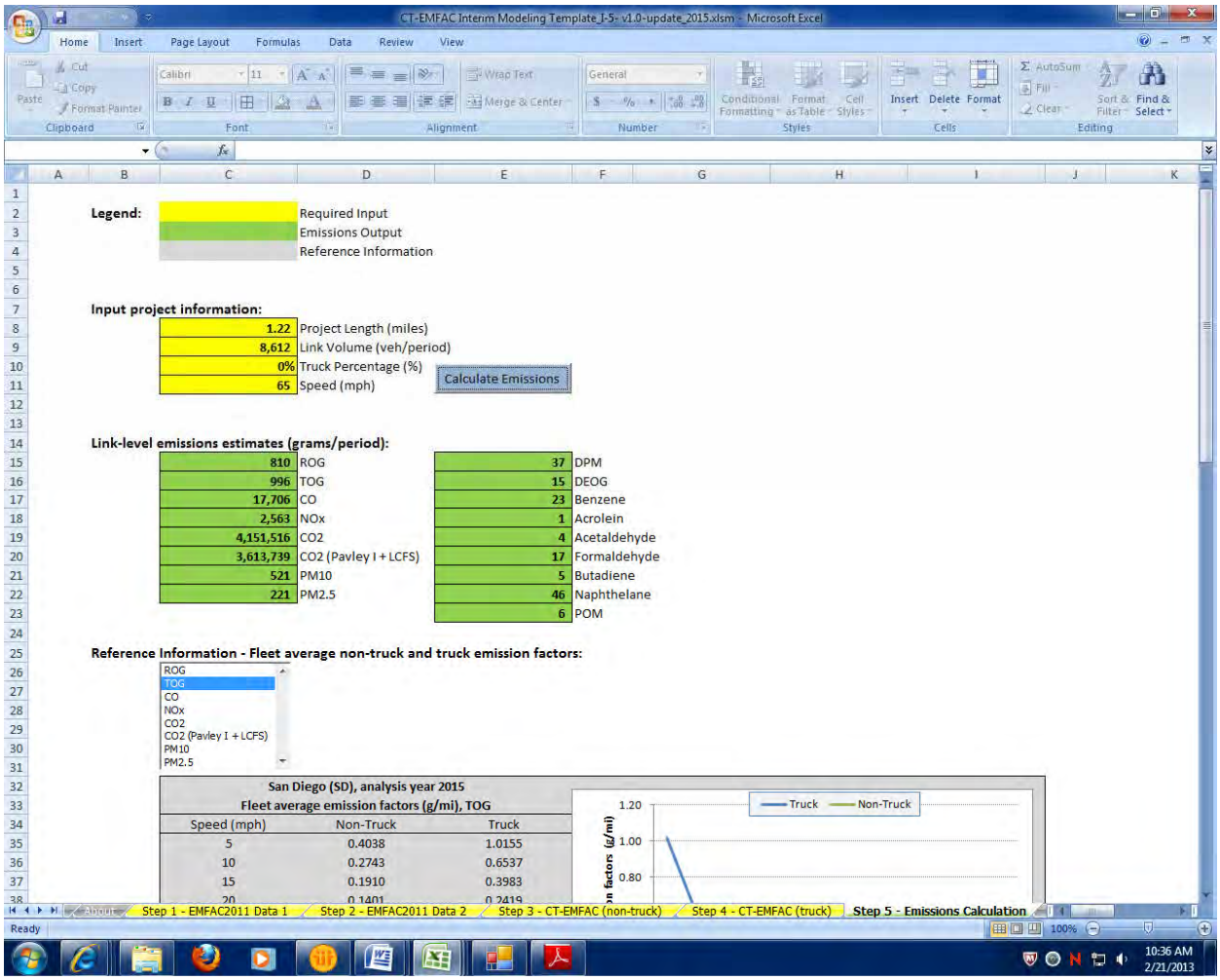
2015 8+4
Link: 2 (NB HOV)
Segment: 3
Peak



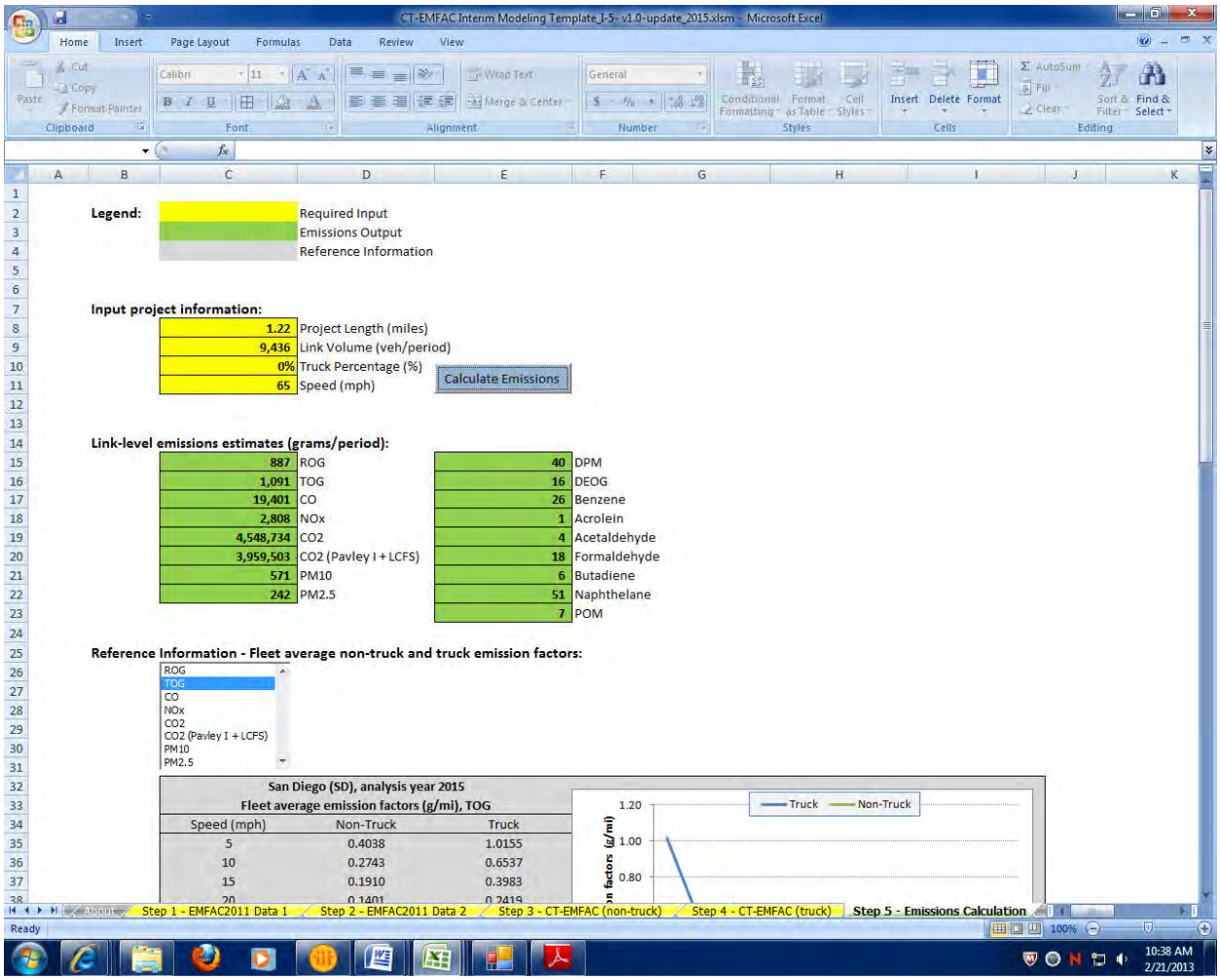
2015 8+4
Link: 2 (NB HOV)
Segment: 3
Off Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 4
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 4
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.22	Project Length (miles)
9,436	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

887	ROG	40	DPM
1,091	TOG	16	DEOG
19,401	CO	26	Benzene
2,808	NOx	1	Acrolein
4,548,734	CO2	4	Acetaldehyde
3,959,503	CO2 (Pavley I + LCFS)	18	Formaldehyde
571	PM10	6	Butadiene
242	PM2.5	51	Naphthelane
		7	POM

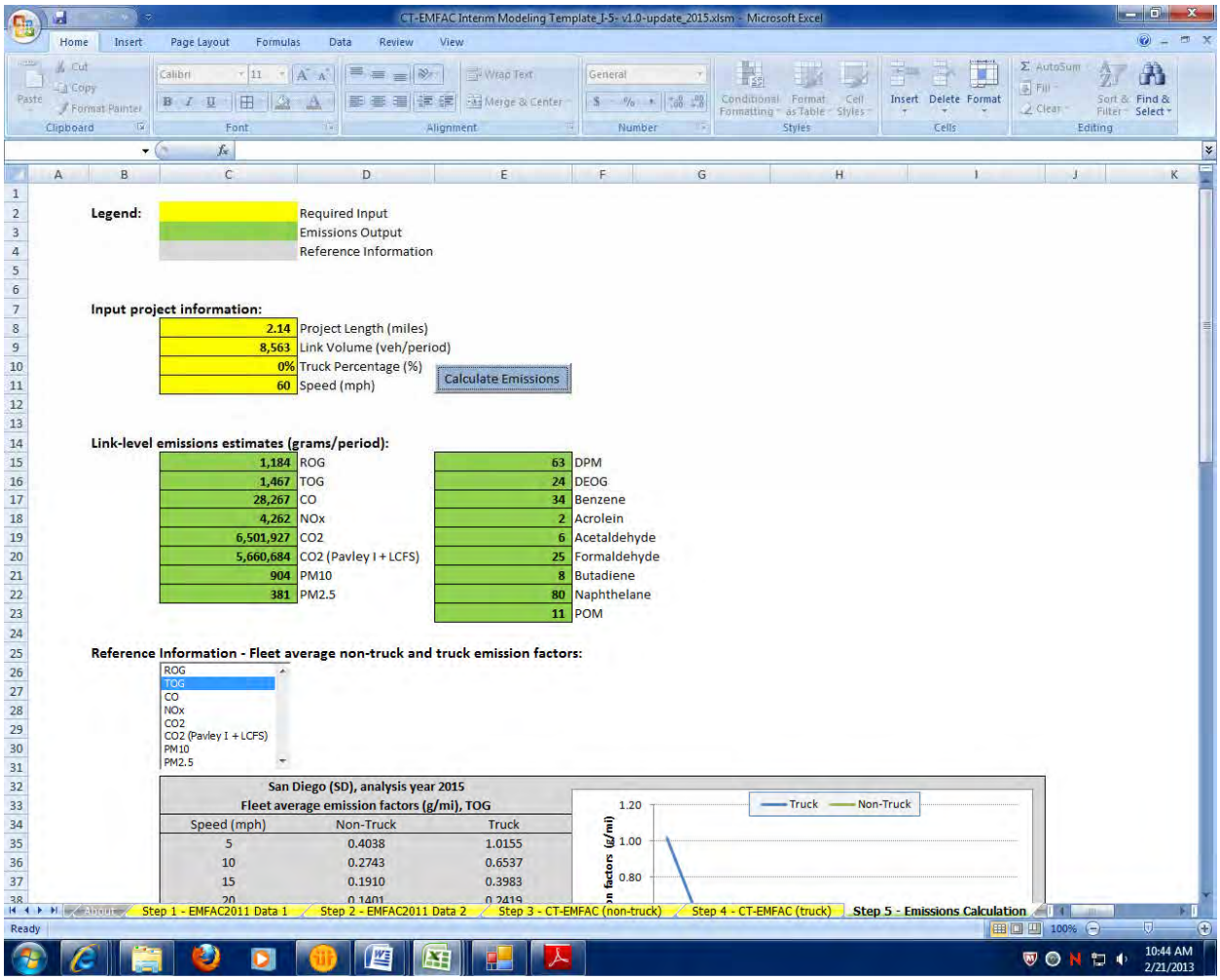
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

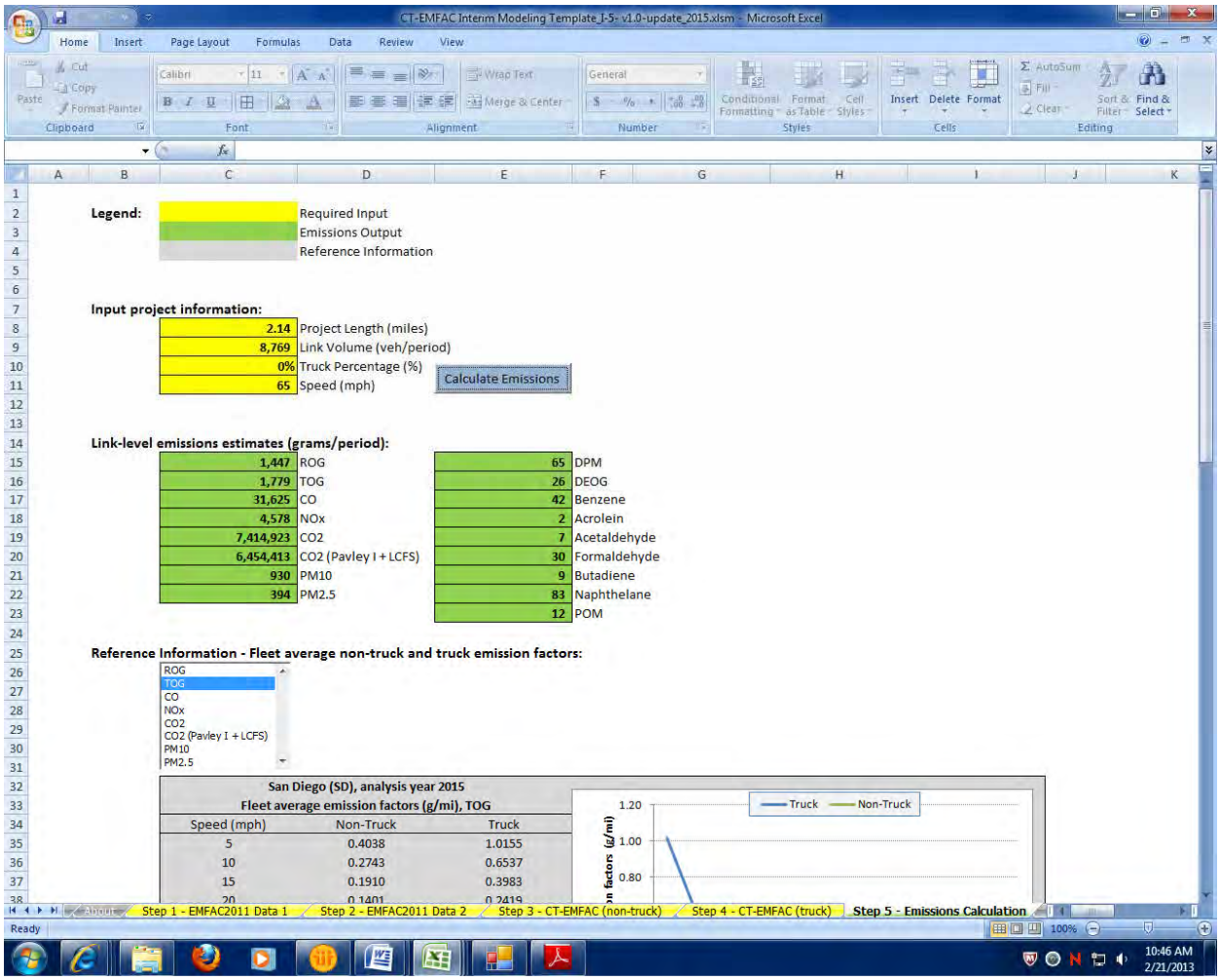
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

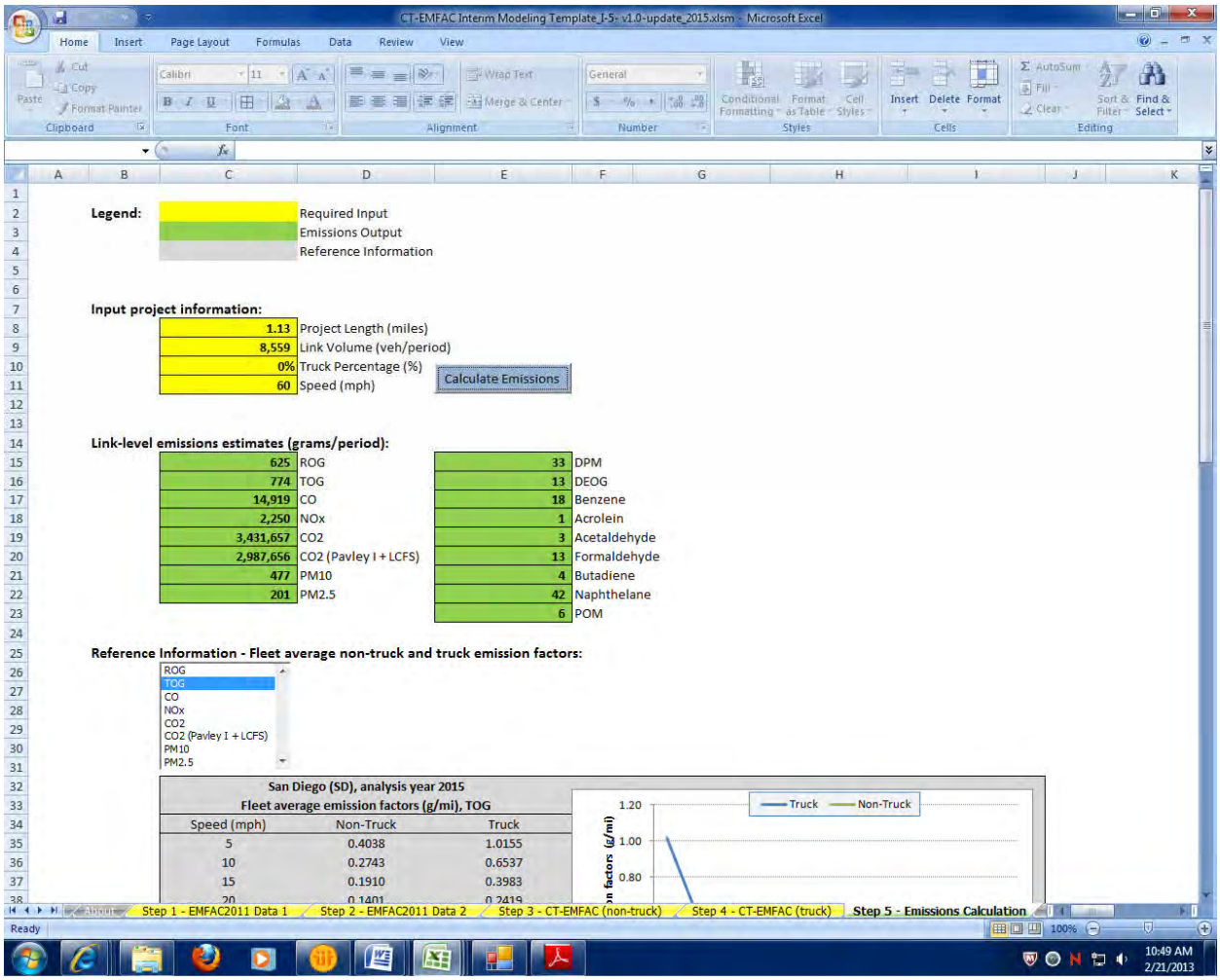
2015 8+4
Link: 2 (NB HOV)
Segment: 5
Peak



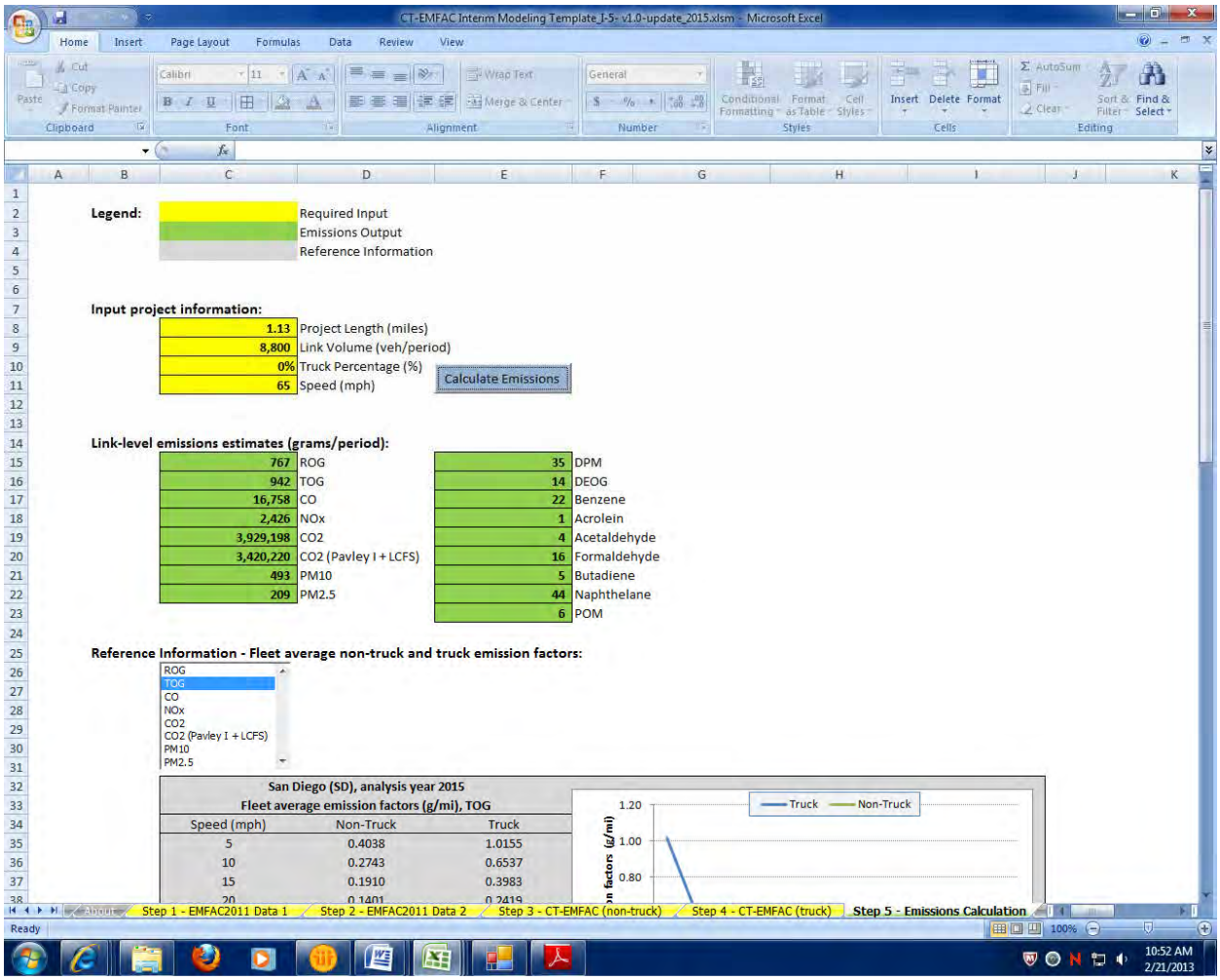
2015 8+4
Link: 2 (NB HOV)
Segment: 5
Off Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 6
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 6
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.13	Project Length (miles)
8,800	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

767	ROG	35	DPM
942	TOG	14	DEOG
16,758	CO	22	Benzene
2,426	NOx	1	Acrolein
3,929,198	CO2	4	Acetaldehyde
3,420,220	CO2 (Pavley I + LCFS)	16	Formaldehyde
493	PM10	5	Butadiene
209	PM2.5	44	Naphthelane
		6	POM

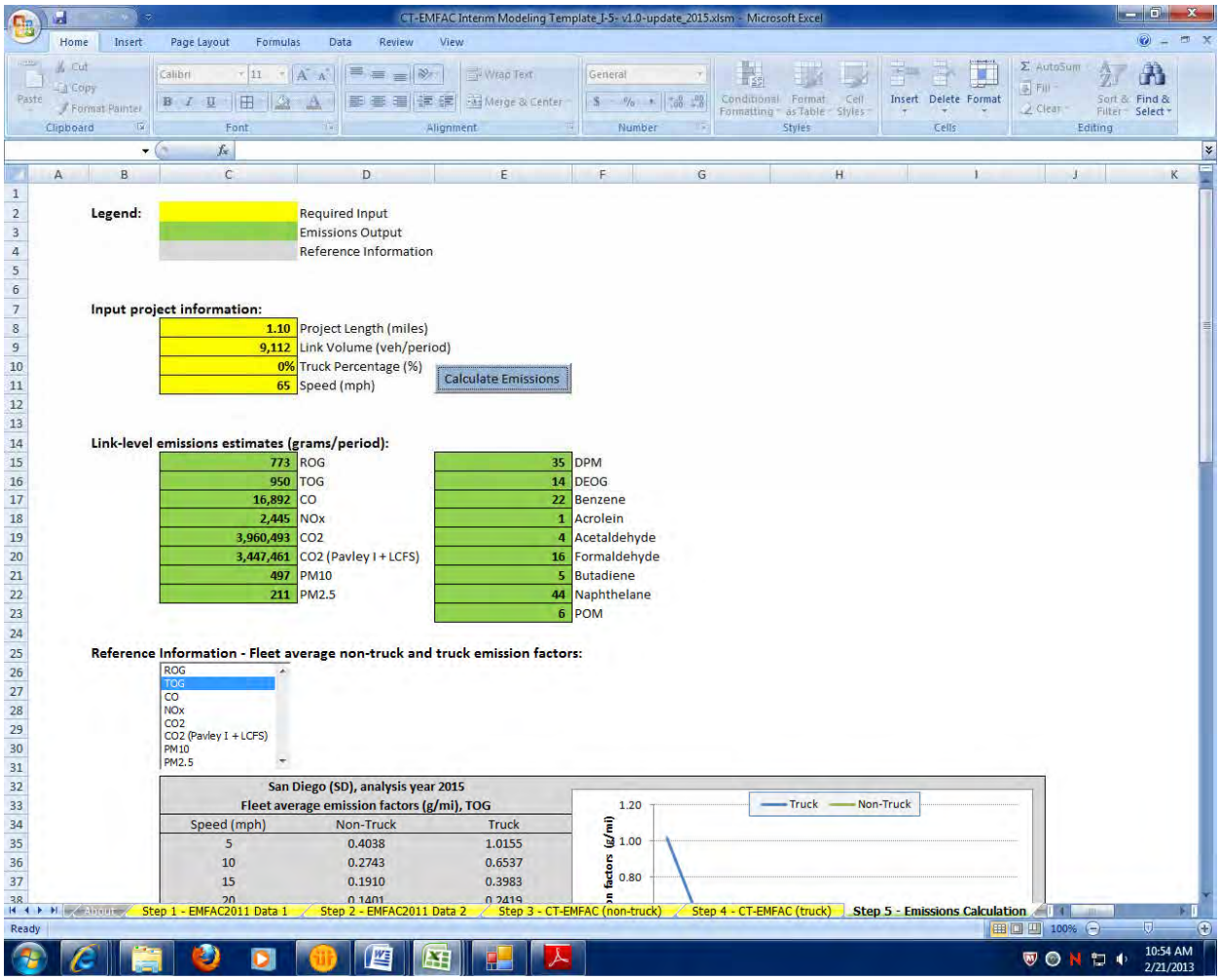
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 7
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.10	Project Length (miles)
9,112	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

773	ROG	35	DPM
950	TOG	14	DEOG
16,892	CO	22	Benzene
2,445	NOx	1	Acrolein
3,960,493	CO2	4	Acetaldehyde
3,447,461	CO2 (Pavley I + LCFS)	16	Formaldehyde
497	PM10	5	Butadiene
211	PM2.5	44	Naphthelane
		6	POM

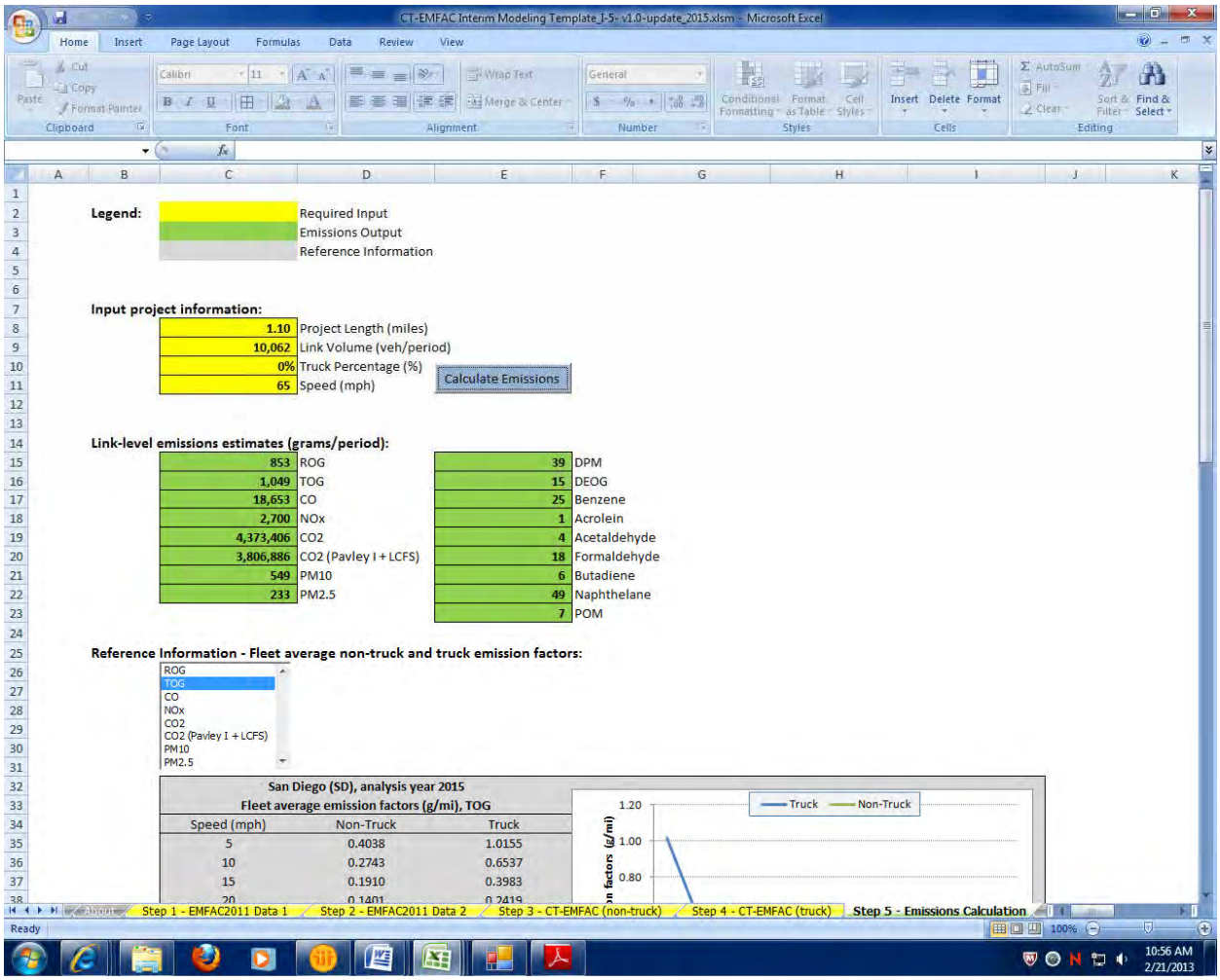
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 7
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.10	Project Length (miles)
10,062	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

853	ROG	39	DPM
1,049	TOG	15	DEOG
18,653	CO	25	Benzene
2,700	NOx	1	Acrolein
4,373,406	CO2	4	Acetaldehyde
3,806,886	CO2 (Pavley I + LCFS)	18	Formaldehyde
549	PM10	6	Butadiene
233	PM2.5	49	Naphthelane
		7	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

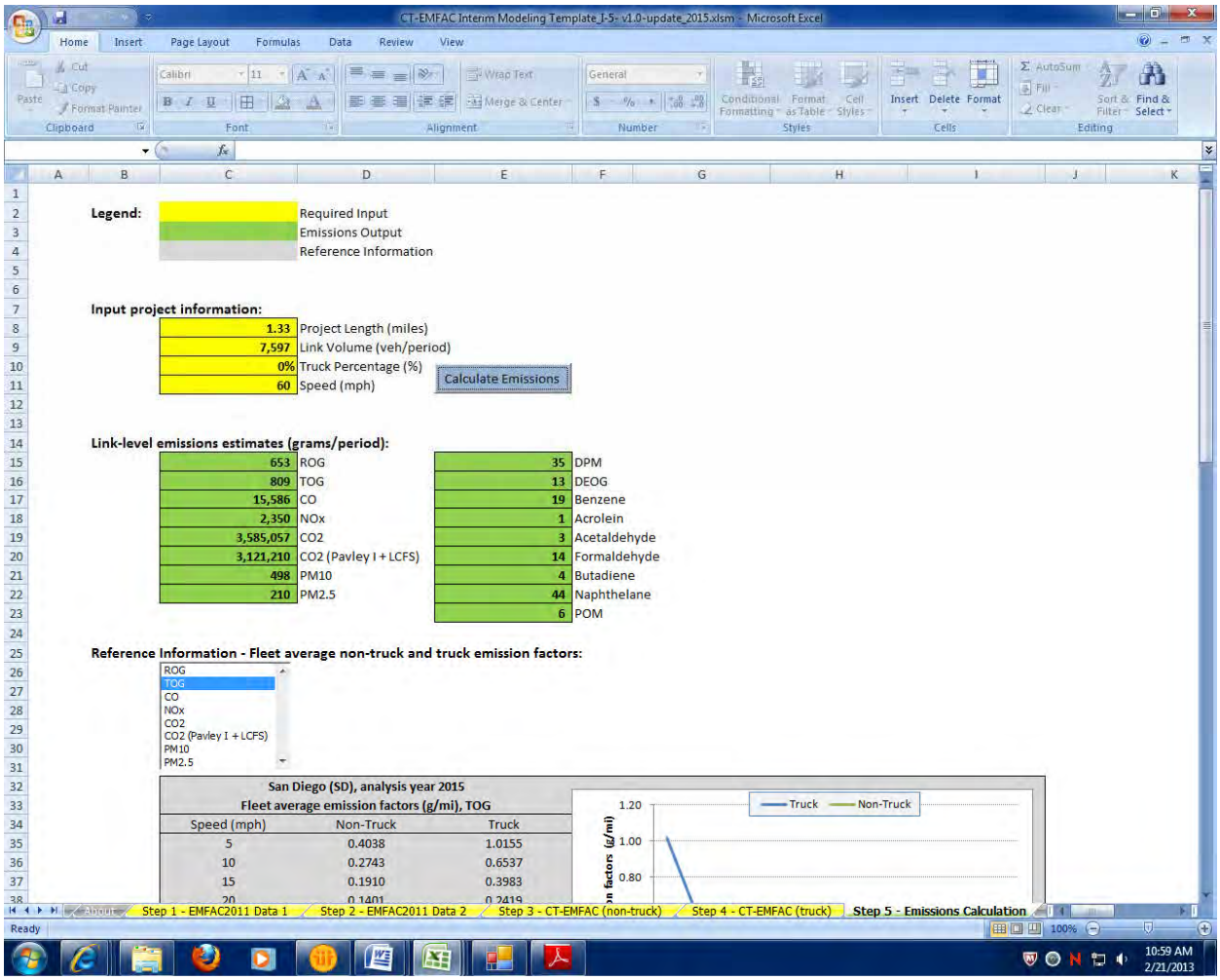
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

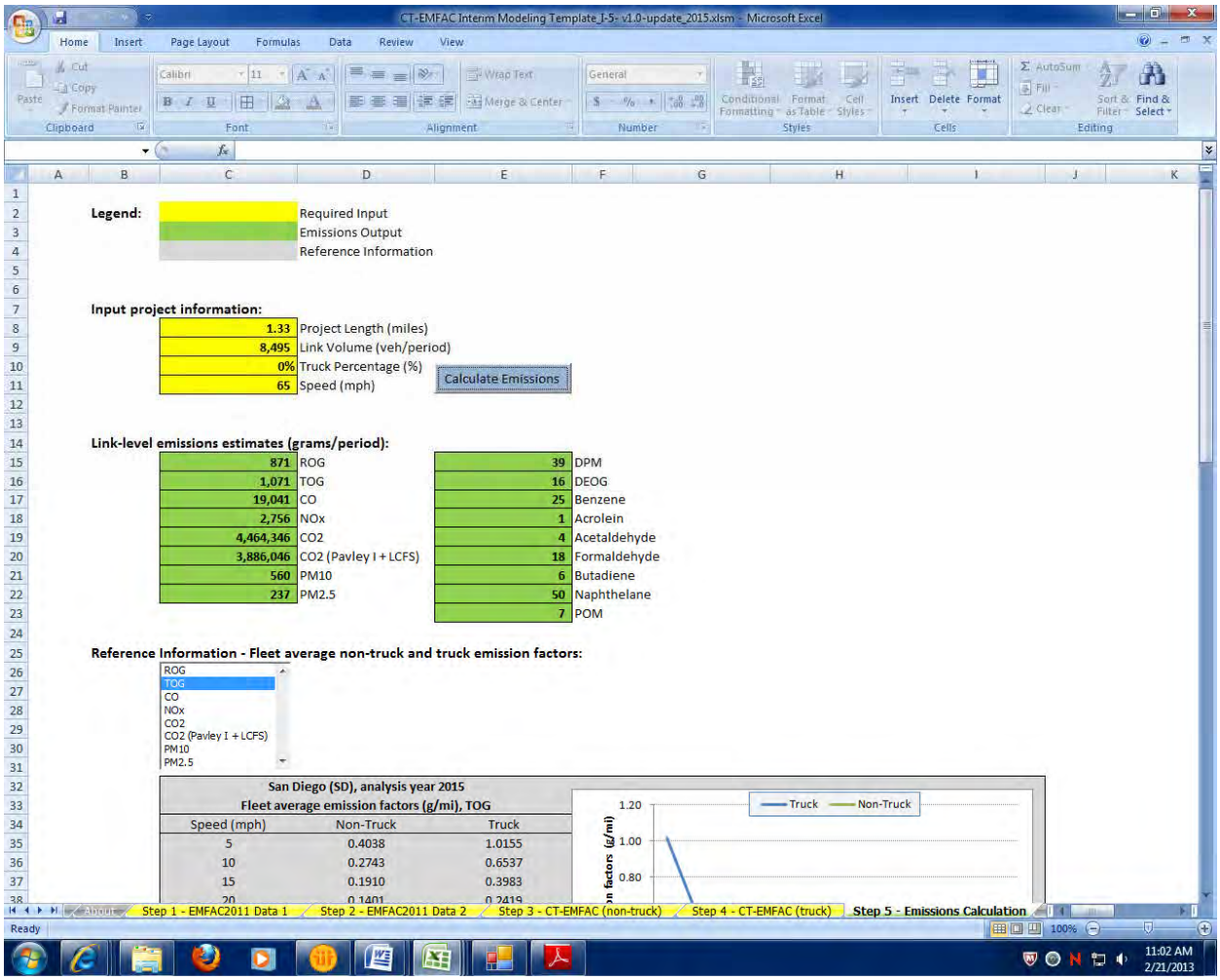
Ready 100%

10:56 AM 2/21/2013

2015 8+4
Link: 2 (NB HOV)
Segment: 8
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 8
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.33	Project Length (miles)
8,495	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

871	ROG	39	DPM
1,071	TOG	16	DEOG
19,041	CO	25	Benzene
2,756	NOx	1	Acrolein
4,464,346	CO2	4	Acetaldehyde
3,886,046	CO2 (Pavley I + LCFS)	18	Formaldehyde
560	PM10	6	Butadiene
237	PM2.5	50	Naphthelane
		7	POM

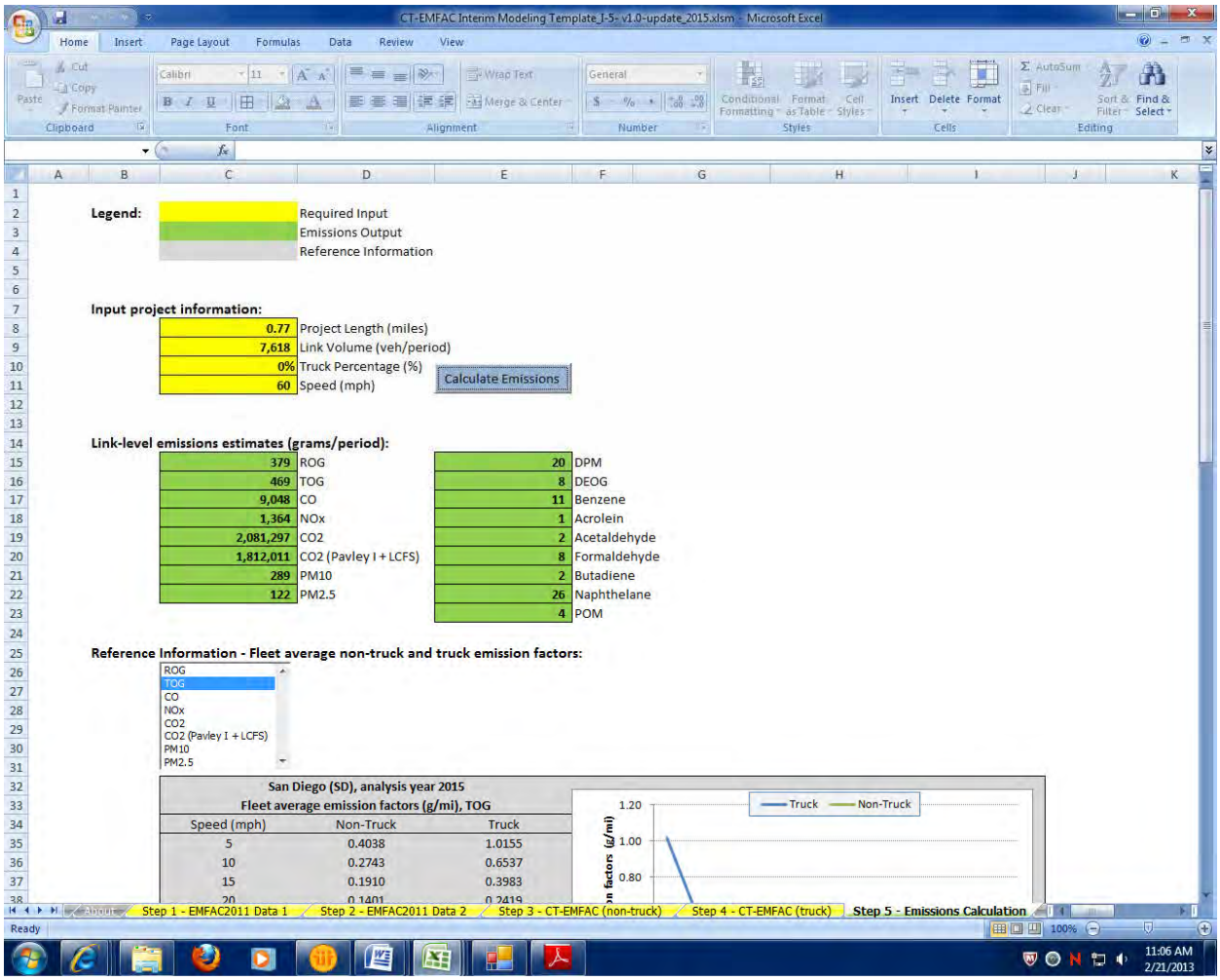
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 9
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
7,618	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

379	ROG	20	DPM
469	TOG	8	DEOG
9,048	CO	11	Benzene
1,364	NOx	1	Acrolein
2,081,297	CO2	2	Acetaldehyde
1,812,011	CO2 (Pavley I + LCFS)	8	Formaldehyde
289	PM10	2	Butadiene
122	PM2.5	26	Naphthelane
		4	POM

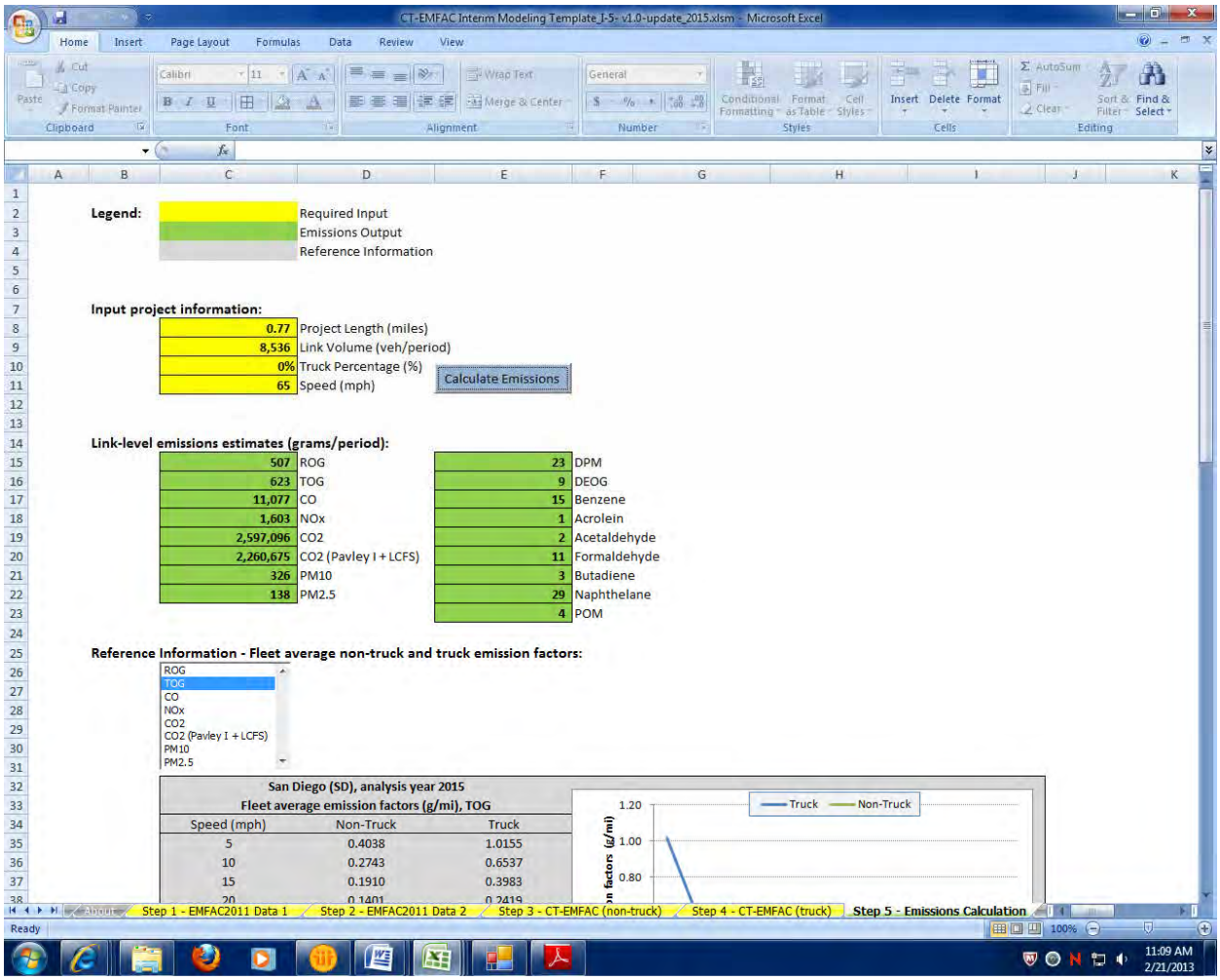
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 9
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
8,536	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

507	ROG	23	DPM
623	TOG	9	DEOG
11,077	CO	15	Benzene
1,603	NOx	1	Acrolein
2,597,096	CO2	2	Acetaldehyde
2,260,675	CO2 (Pavley I + LCFS)	11	Formaldehyde
326	PM10	3	Butadiene
138	PM2.5	29	Naphthelane
		4	POM

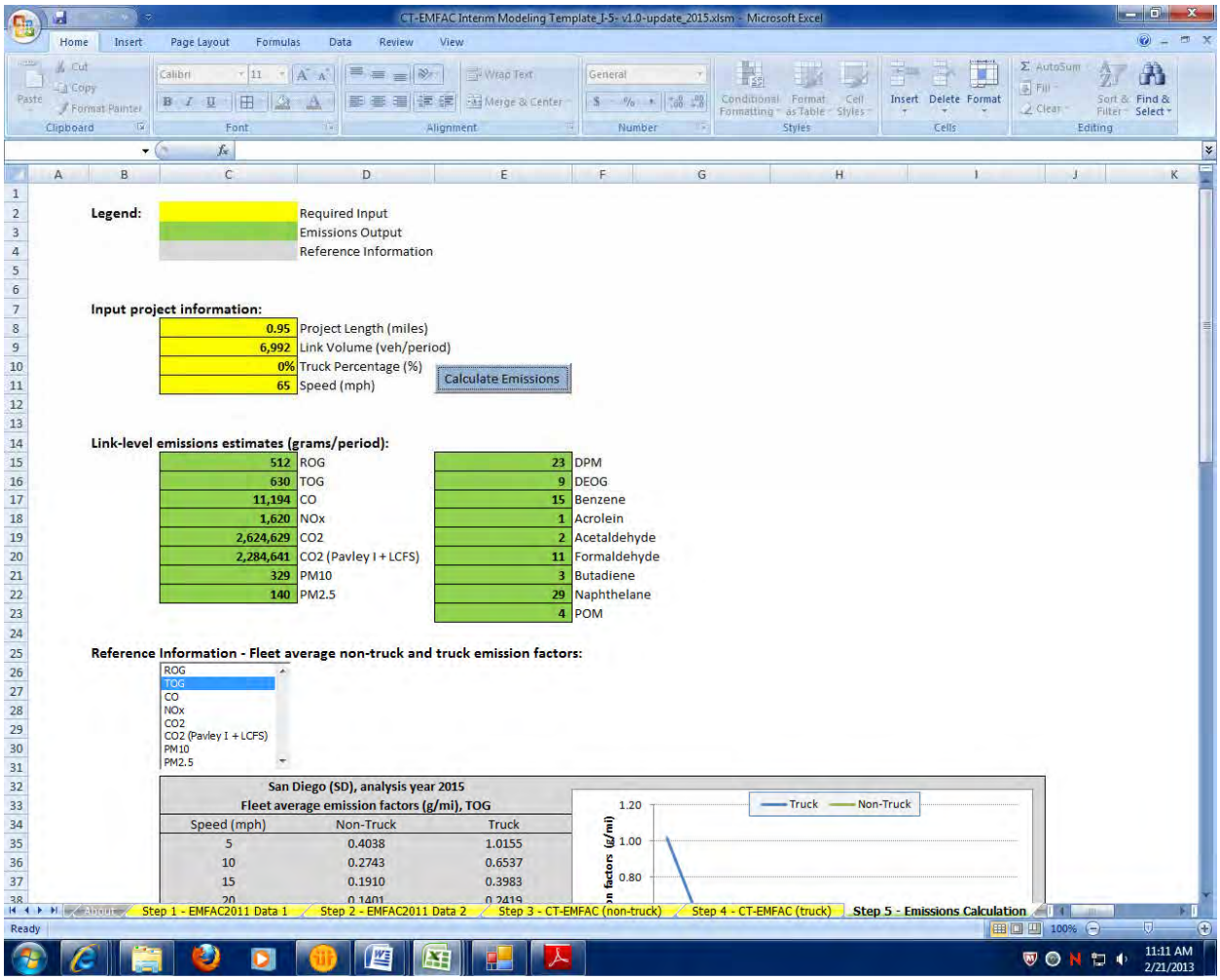
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

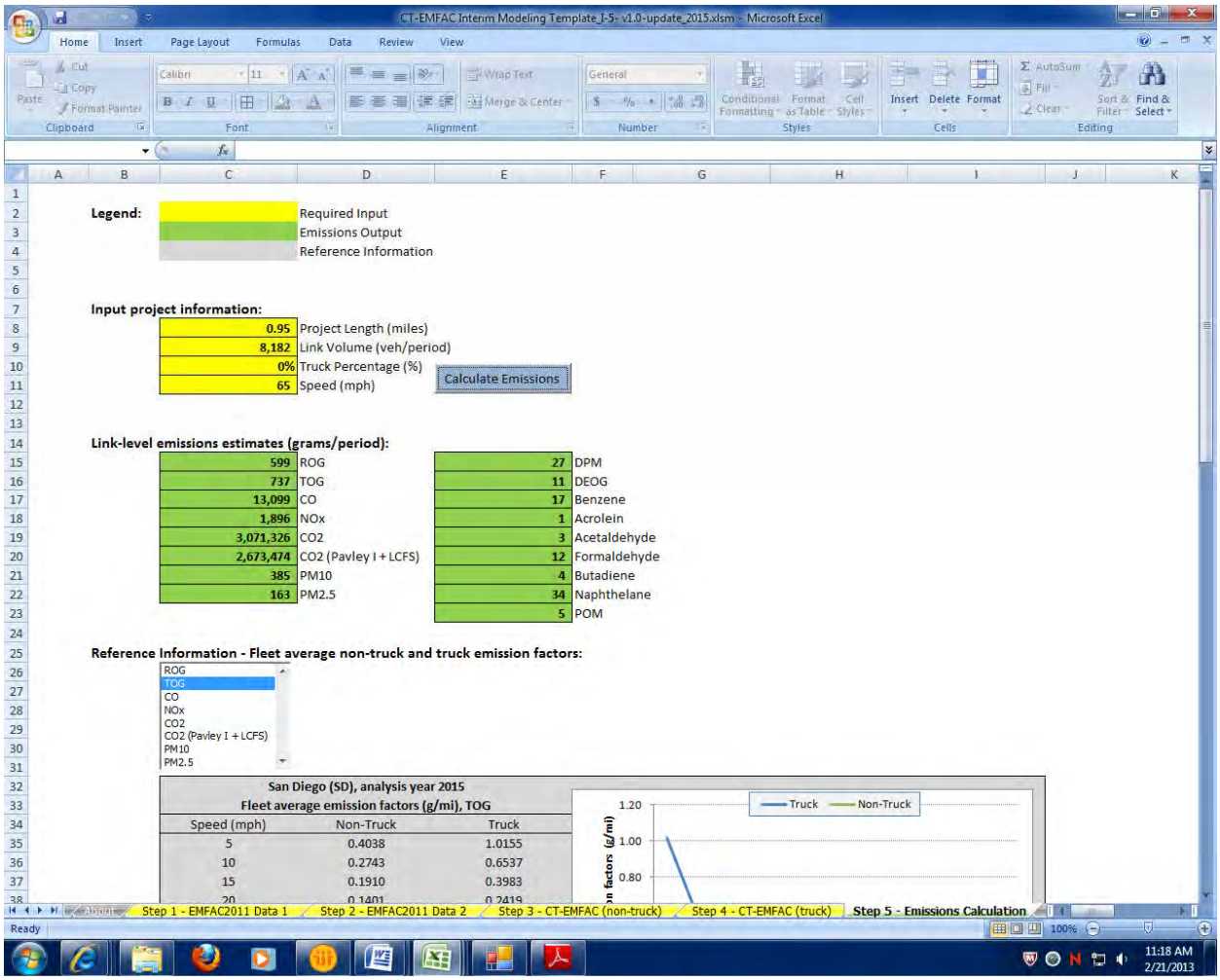
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 10
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 10
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
8,182	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

599	ROG	27	DPM
737	TOG	11	DEOG
13,099	CO	17	Benzene
1,896	NOx	1	Acrolein
3,071,326	CO2	3	Acetaldehyde
2,673,474	CO2 (Pavley I + LCFS)	12	Formaldehyde
385	PM10	4	Butadiene
163	PM2.5	34	Naphthelane
		5	POM

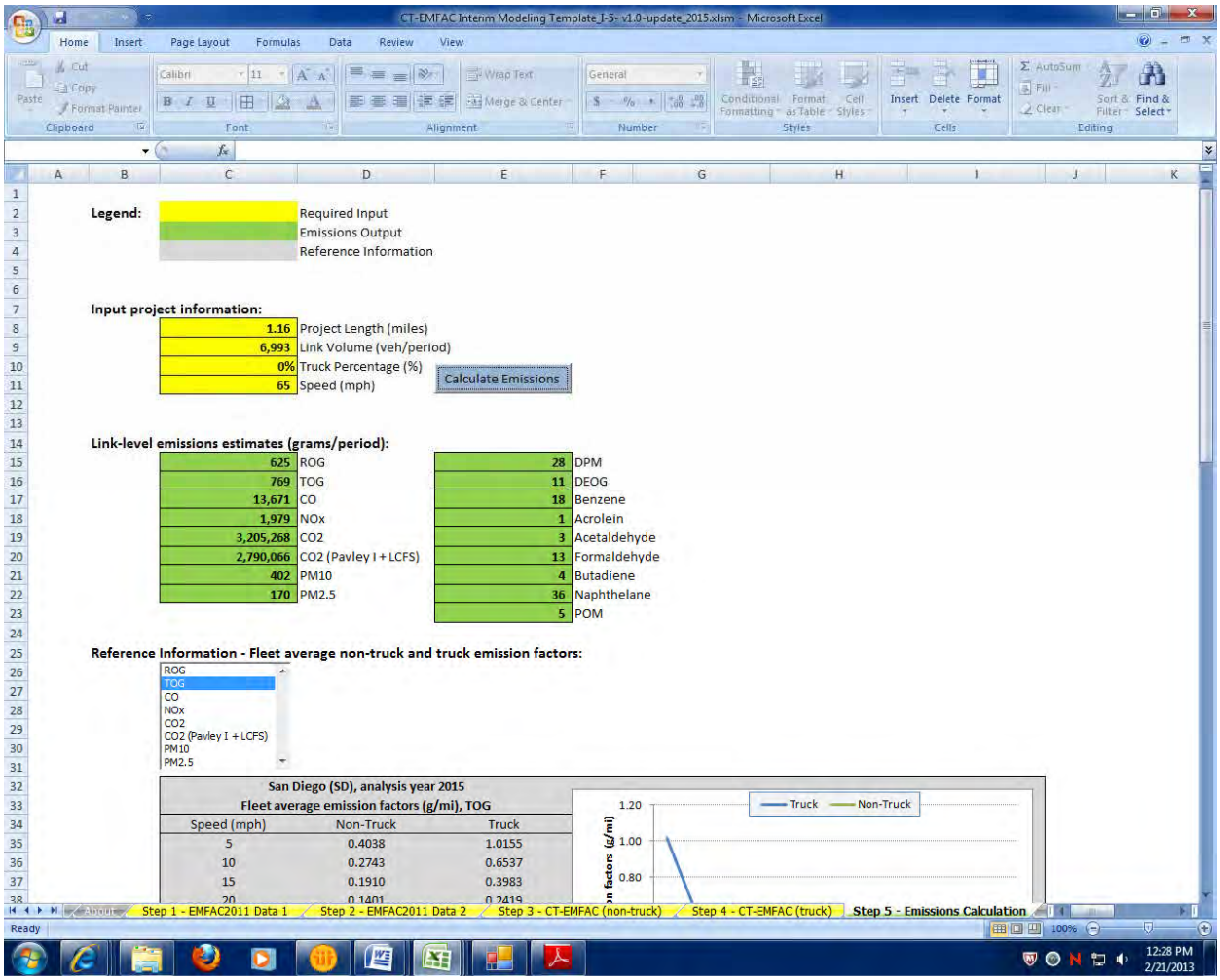
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

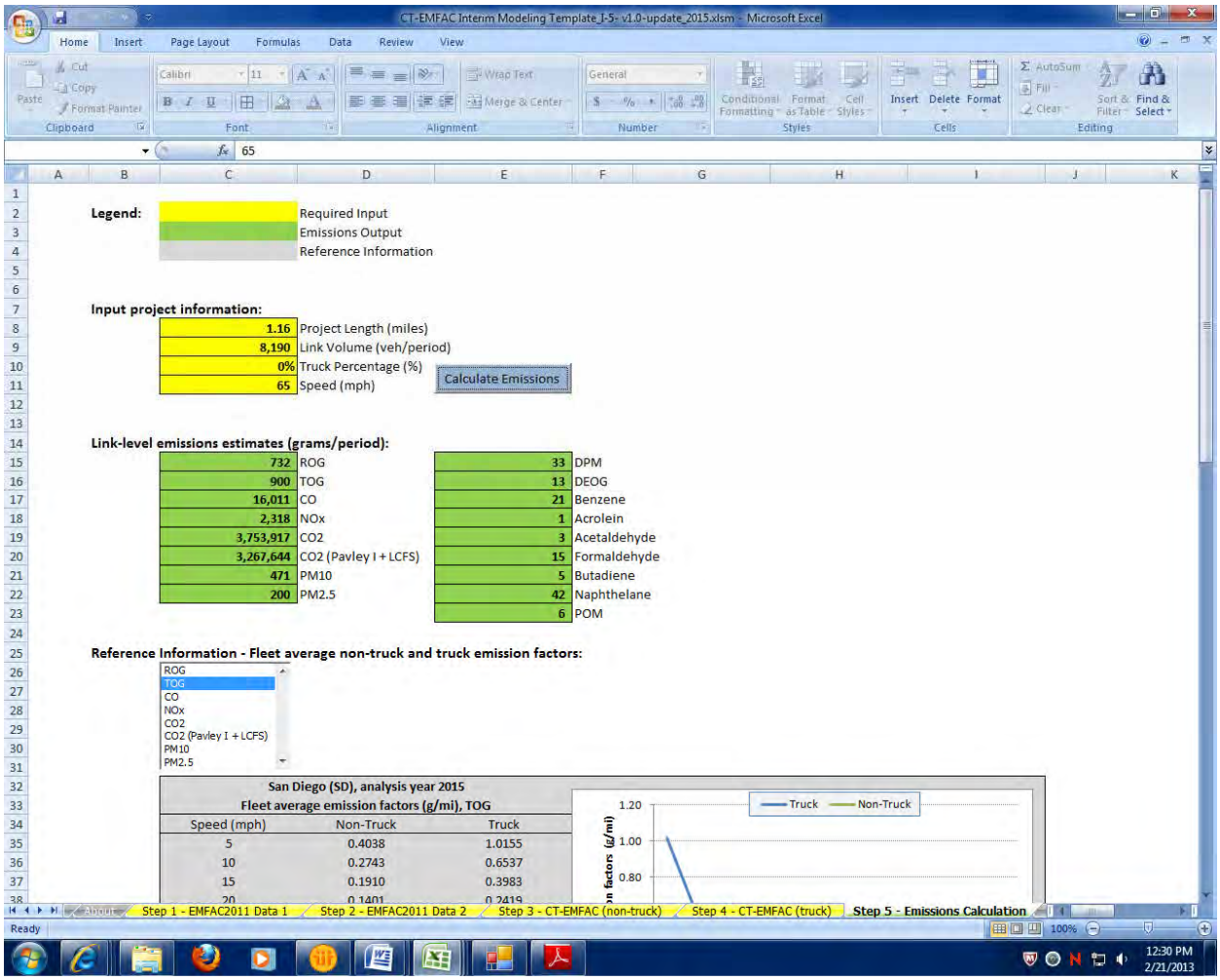
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

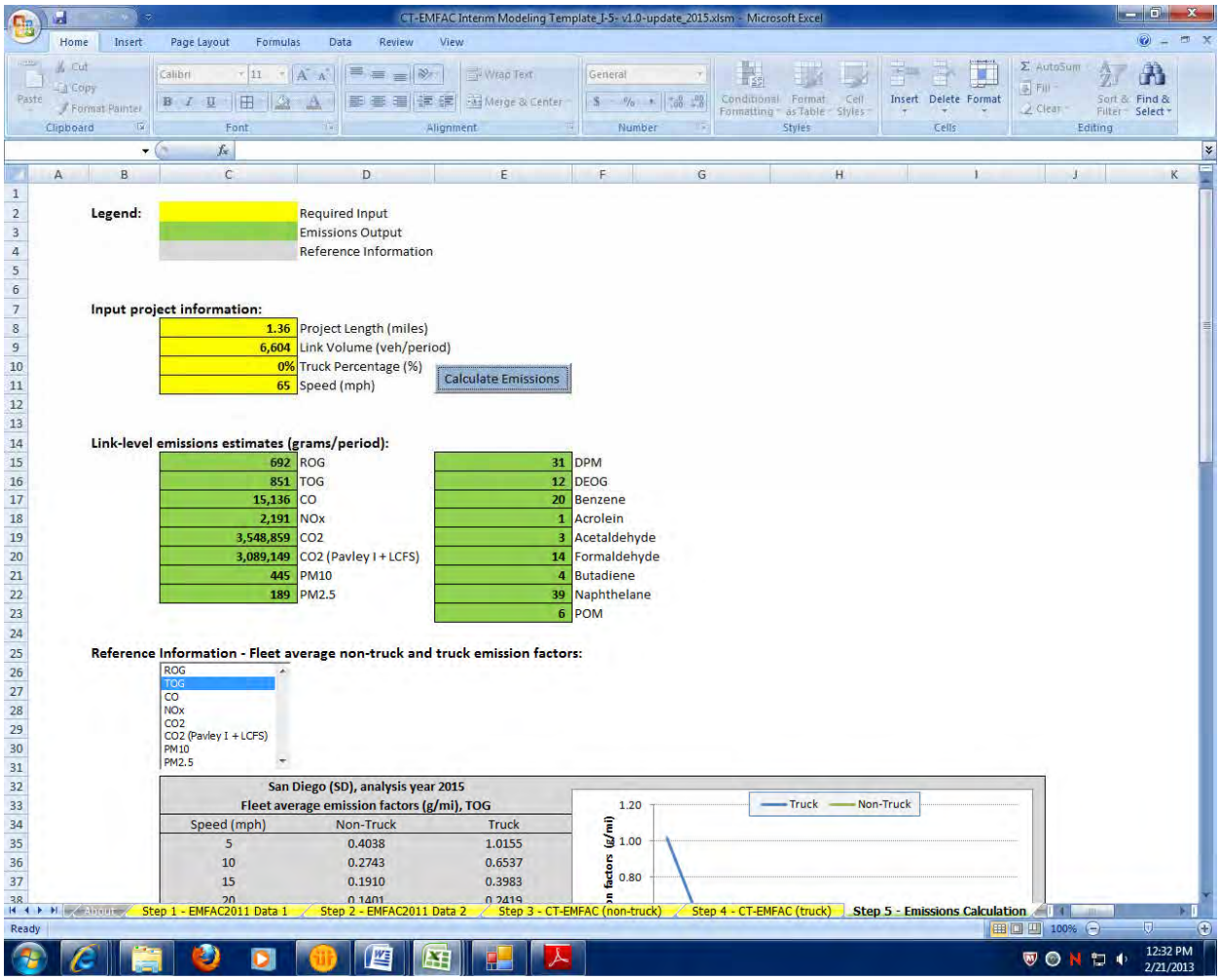
2015 8+4
Link: 2 (NB HOV)
Segment: 11
Peak



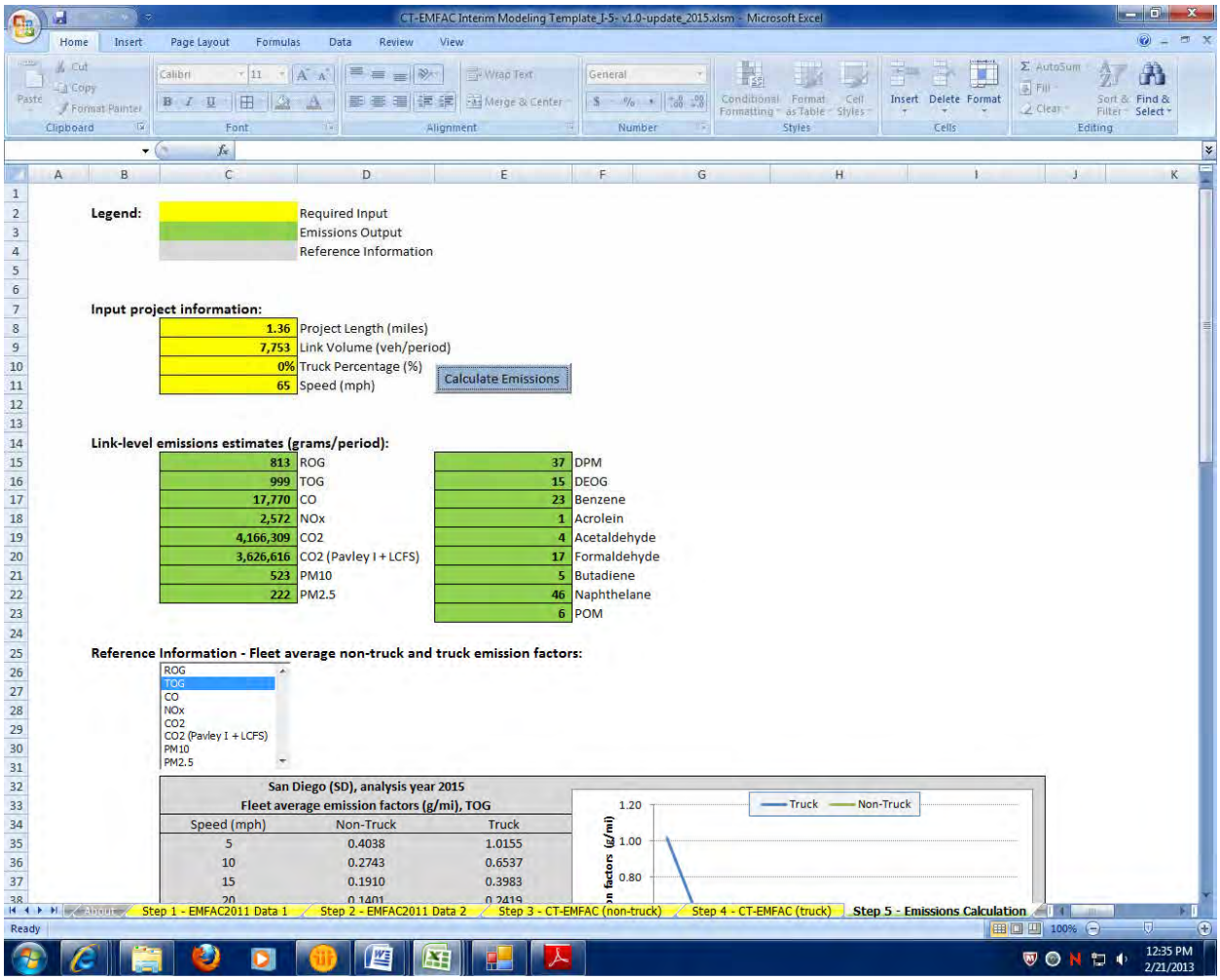
2015 8+4
Link: 2 (NB HOV)
Segment: 11
Off Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 12
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 12
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.36	Project Length (miles)
7,753	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

813	ROG	37	DPM
999	TOG	15	DEOG
17,770	CO	23	Benzene
2,572	NOx	1	Acrolein
4,166,309	CO2	4	Acetaldehyde
3,626,616	CO2 (Pavley I + LCFS)	17	Formaldehyde
523	PM10	5	Butadiene
222	PM2.5	46	Naphthelane
		6	POM

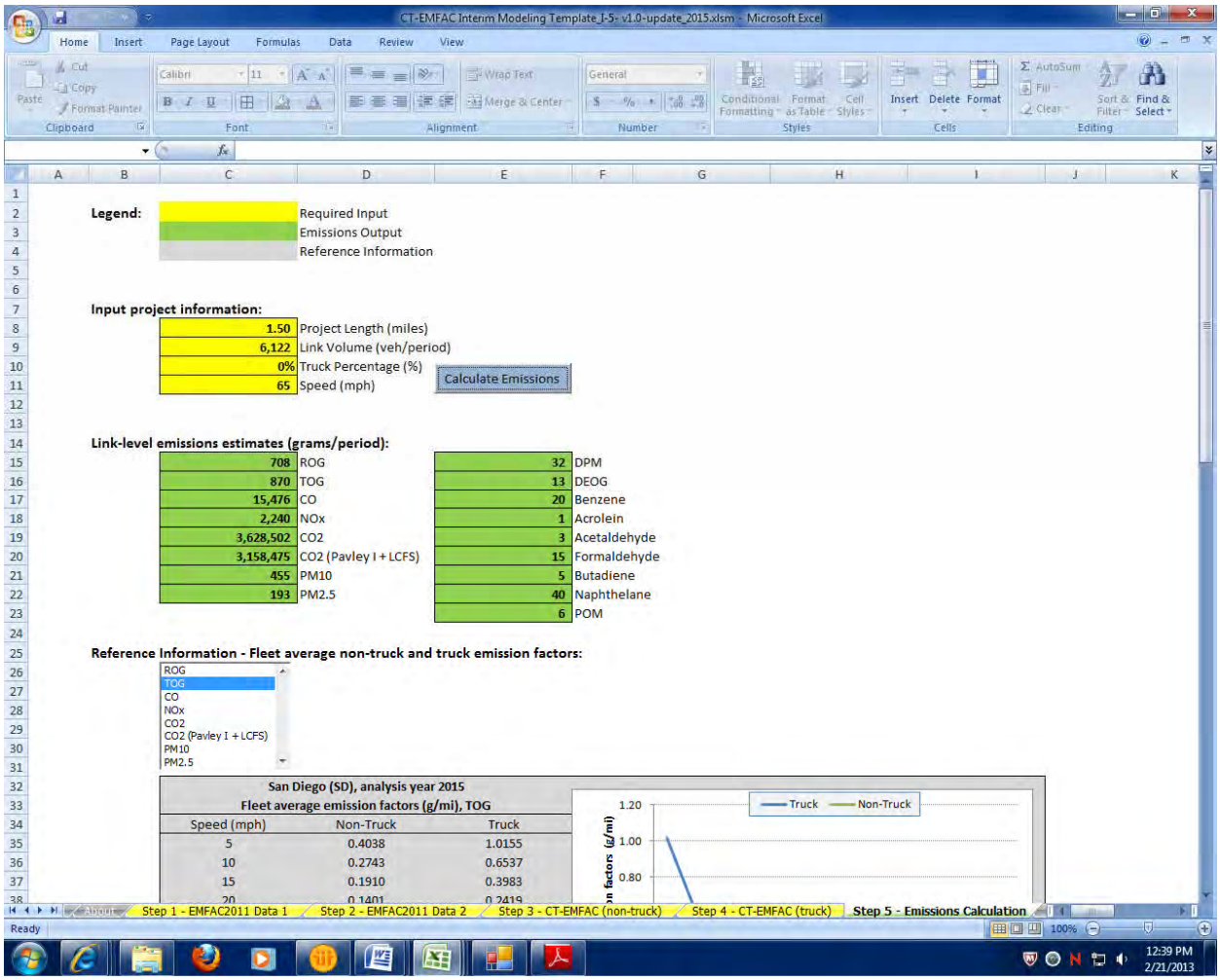
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

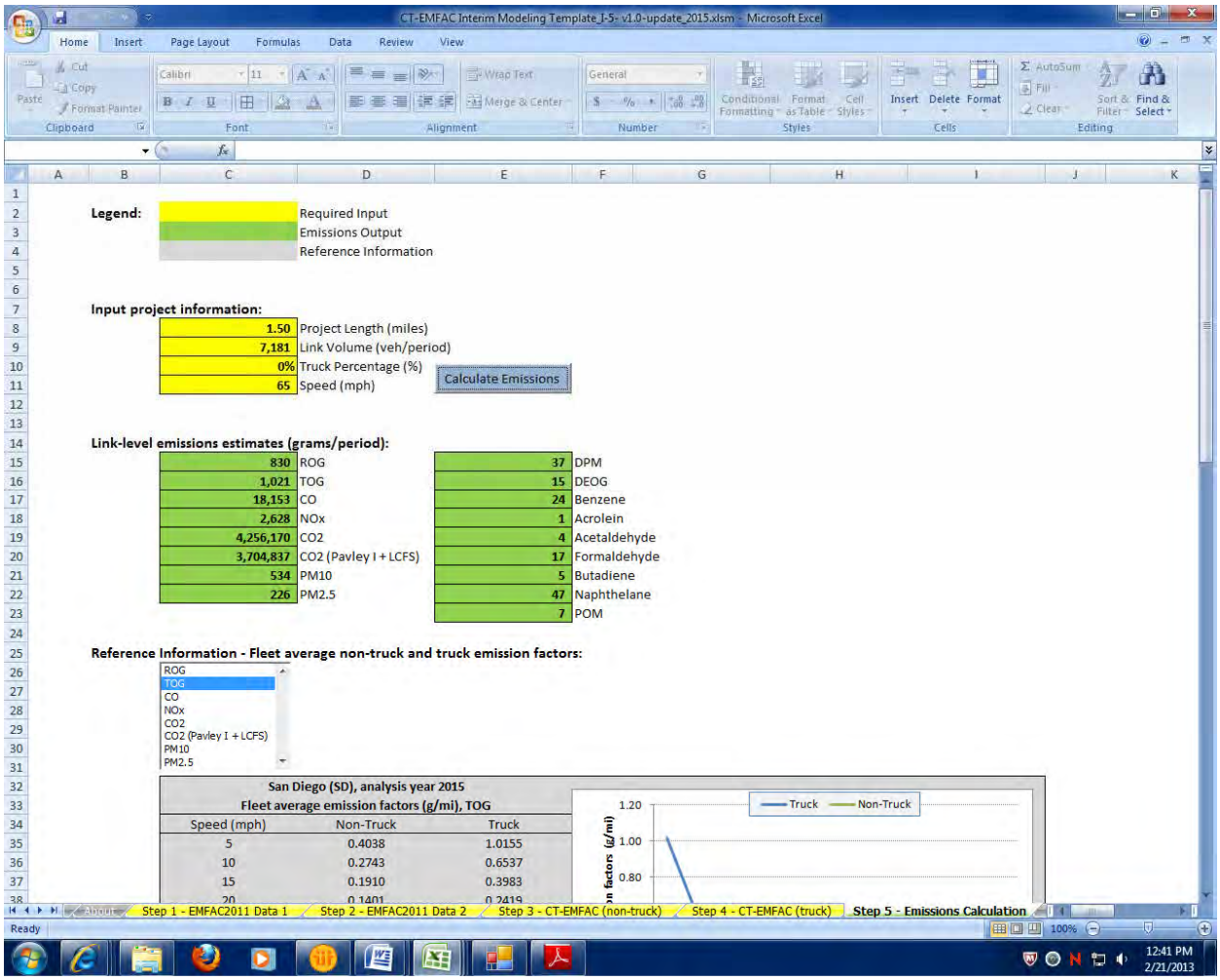
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 13
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 13
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
7,181	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

830	ROG	37	DPM
1,021	TOG	15	DEOG
18,153	CO	24	Benzene
2,628	NOx	1	Acrolein
4,256,170	CO2	4	Acetaldehyde
3,704,837	CO2 (Pavley I + LCFS)	17	Formaldehyde
534	PM10	5	Butadiene
226	PM2.5	47	Naphthelane
		7	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

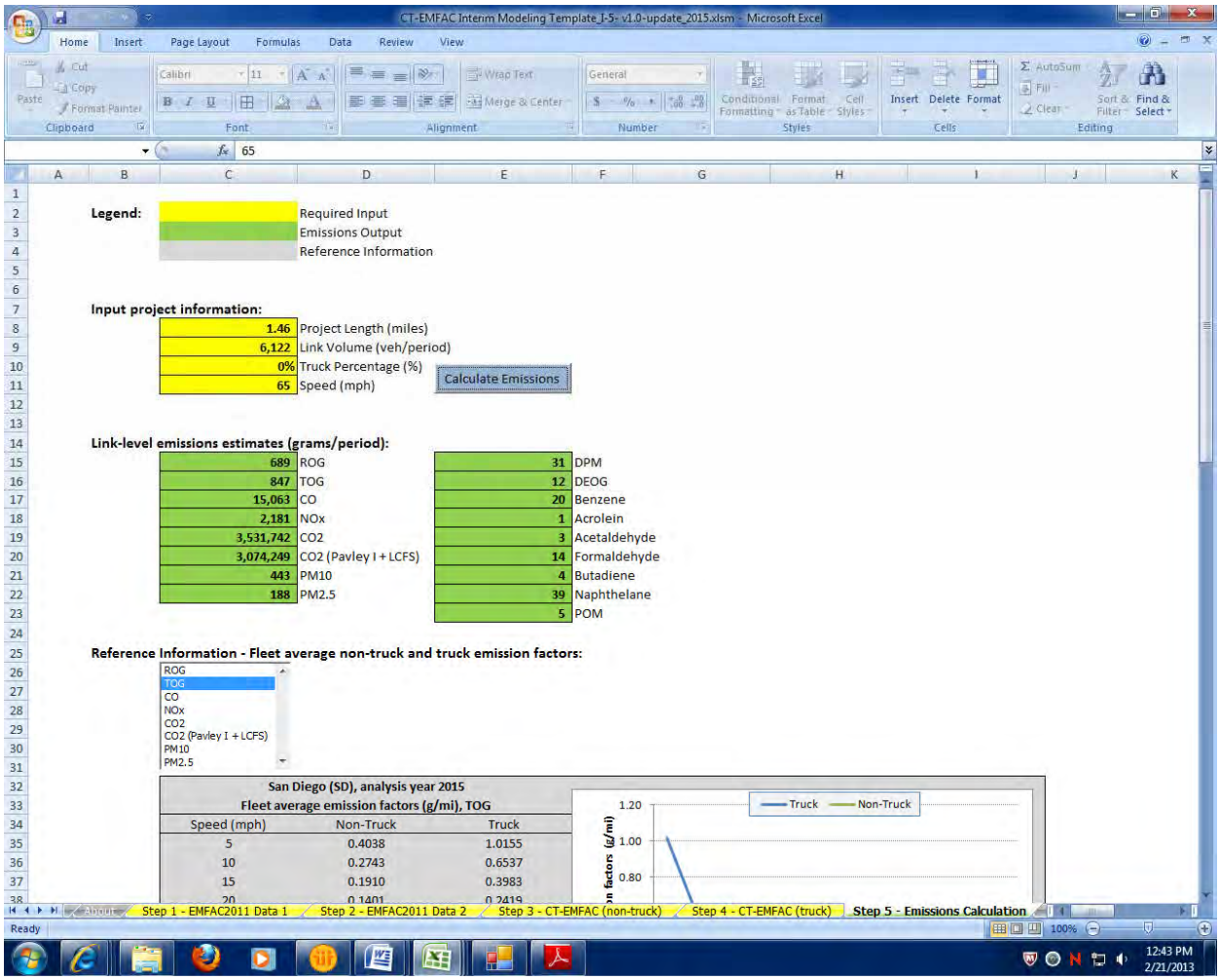
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

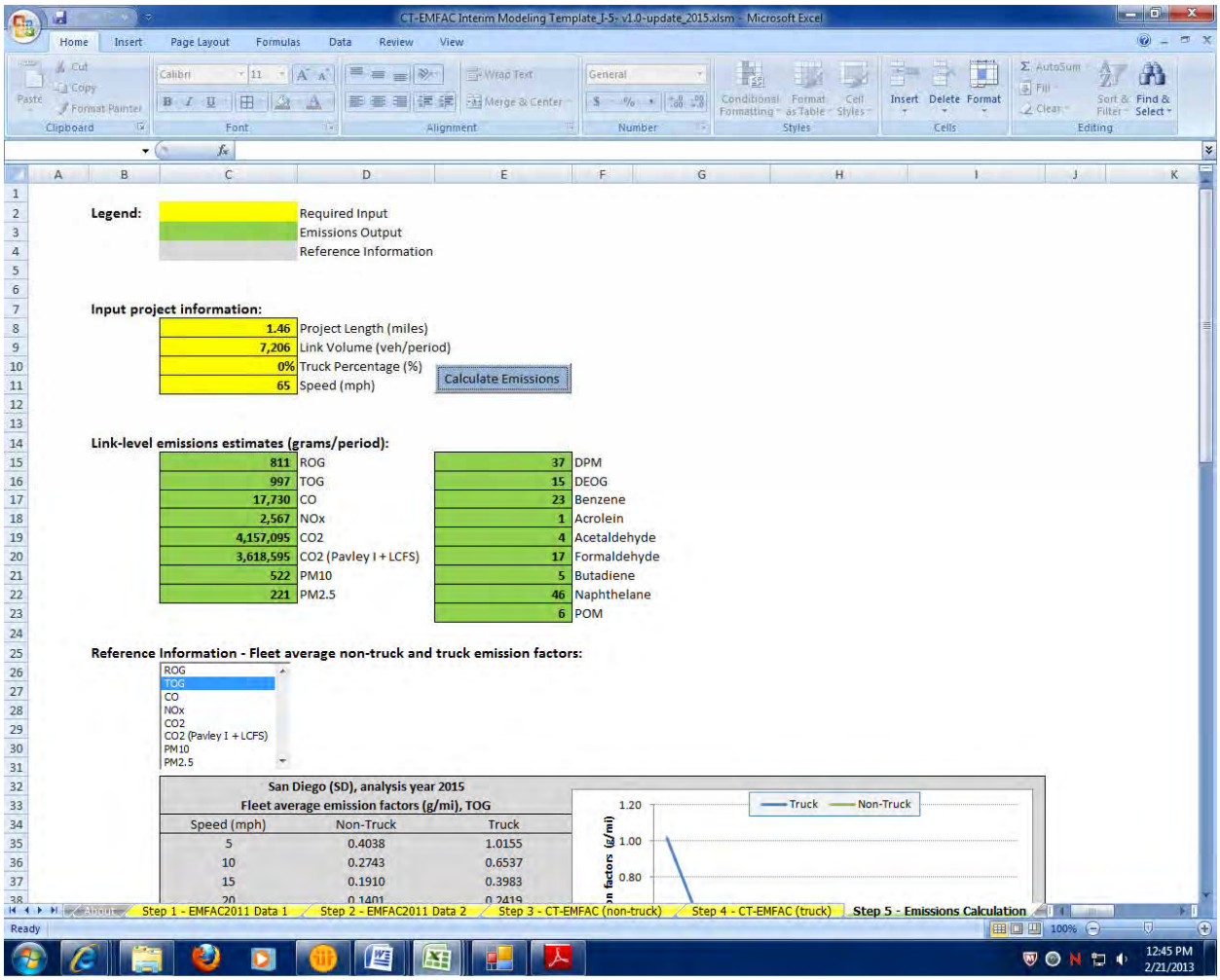
Ready 100%

12:41 PM 2/21/2013

2015 8+4
Link: 2 (NB HOV)
Segment: 14
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 14
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.46	Project Length (miles)
7,206	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

811	ROG	37	DPM
997	TOG	15	DEOG
17,730	CO	23	Benzene
2,567	NOx	1	Acrolein
4,157,095	CO2	4	Acetaldehyde
3,618,595	CO2 (Pavley I + LCFS)	17	Formaldehyde
522	PM10	5	Butadiene
221	PM2.5	46	Naphthelane
		6	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

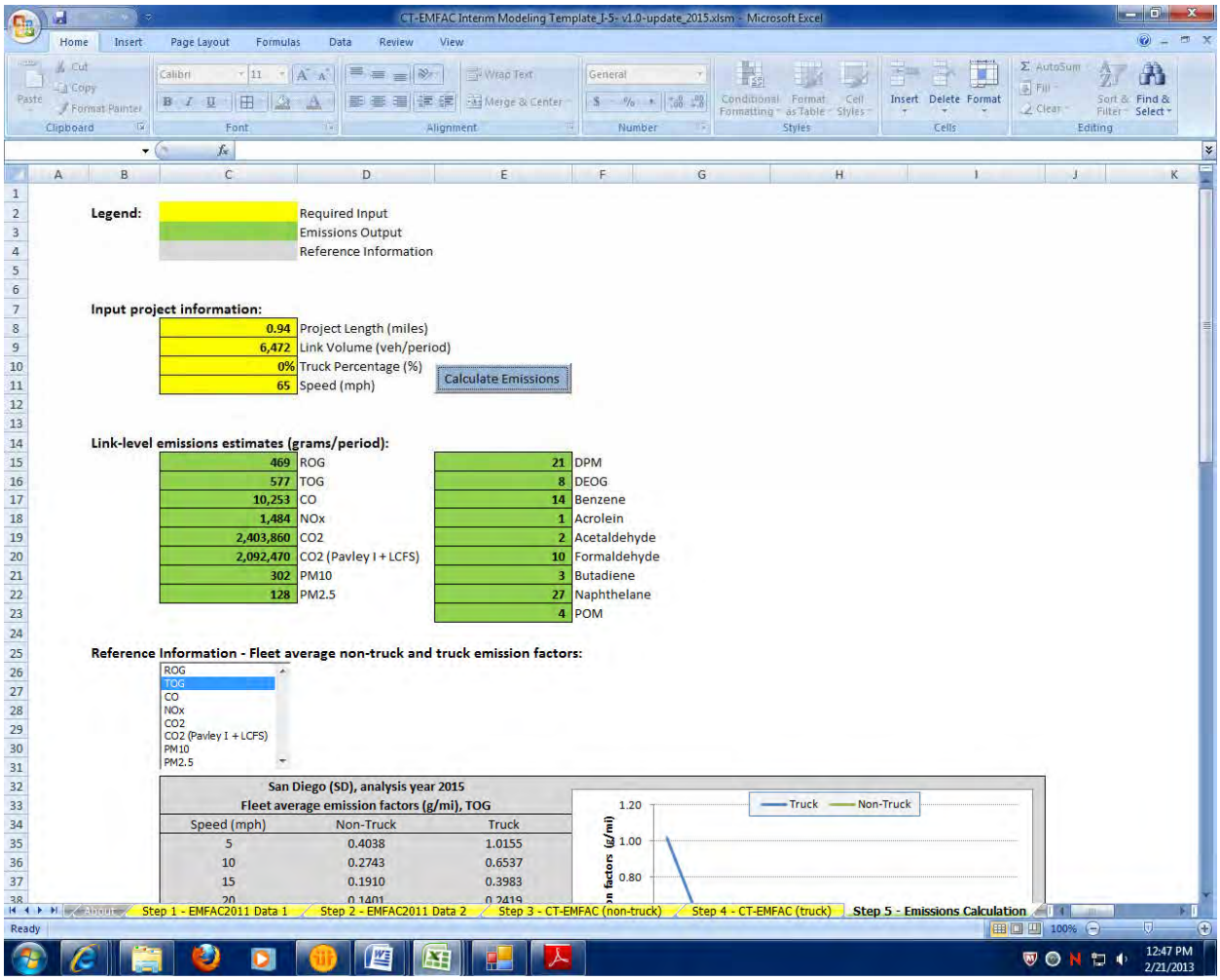
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

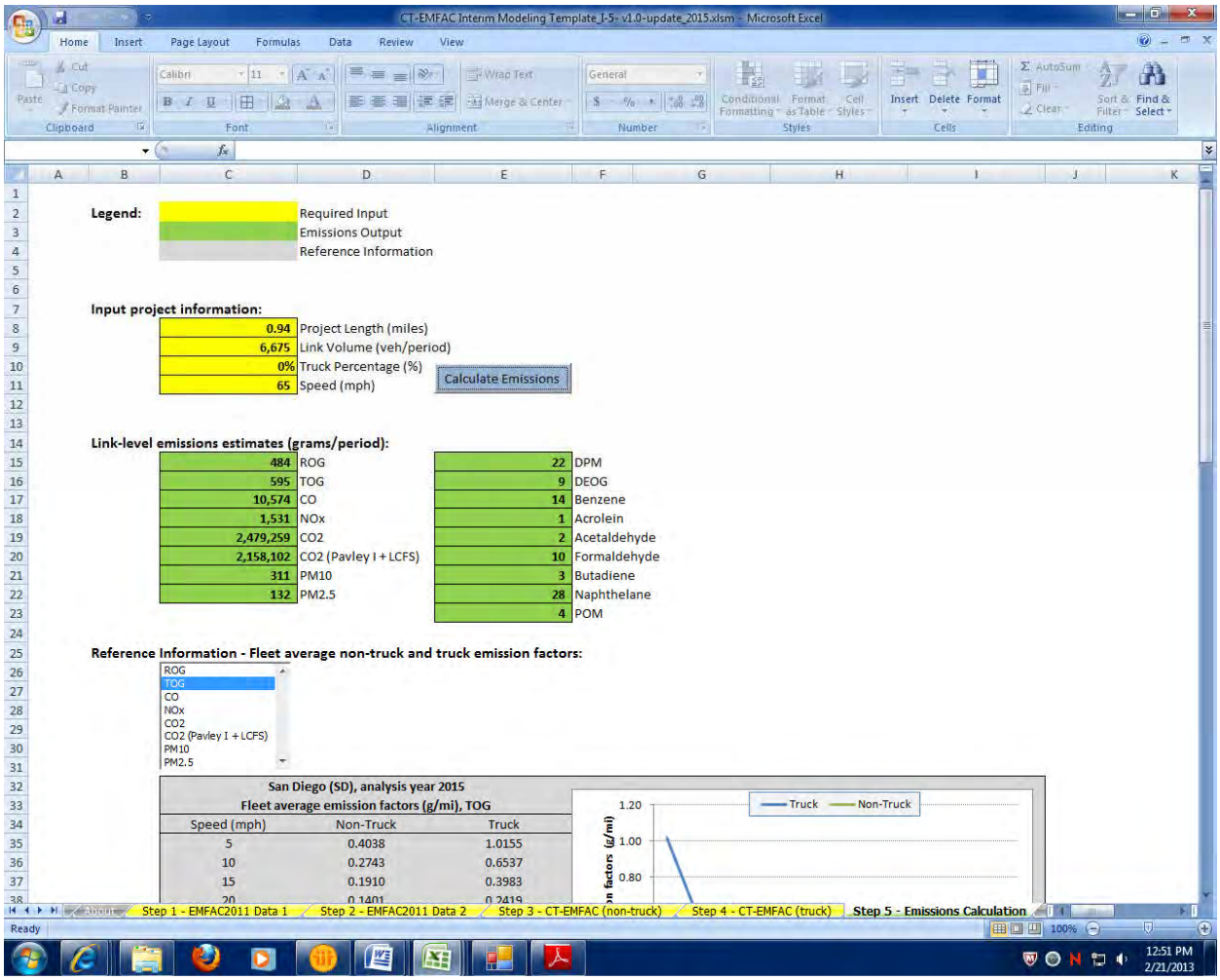
Ready 100%

12:45 PM 2/21/2013

2015 8+4
Link: 2 (NB HOV)
Segment: 15
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 15
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.94	Project Length (miles)
6,675	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

484	ROG	22	DPM
595	TOG	9	DEOG
10,574	CO	14	Benzene
1,531	NOx	1	Acrolein
2,479,259	CO2	2	Acetaldehyde
2,158,102	CO2 (Pavley I + LCFS)	10	Formaldehyde
311	PM10	3	Butadiene
132	PM2.5	28	Naphthelane
		4	POM

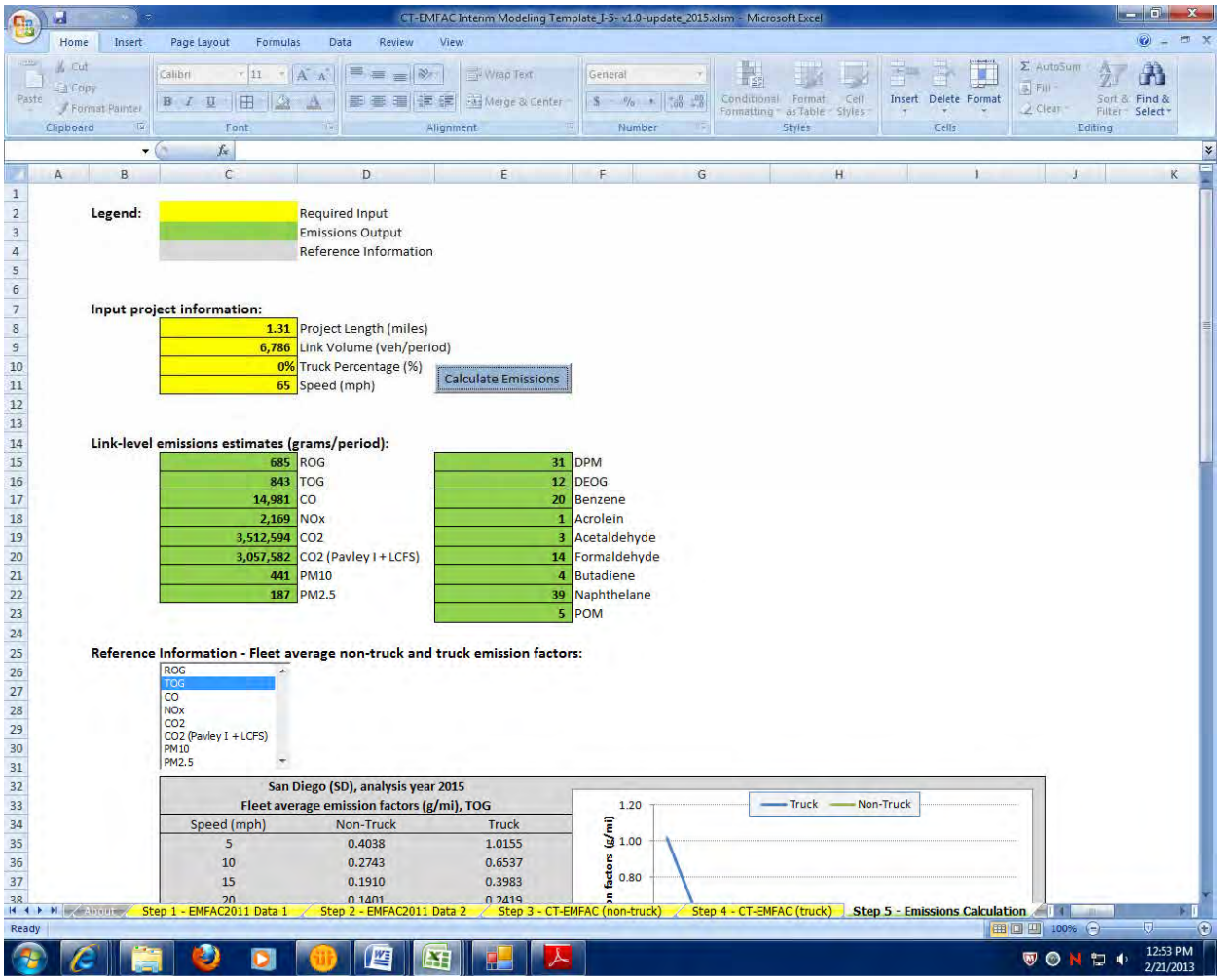
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

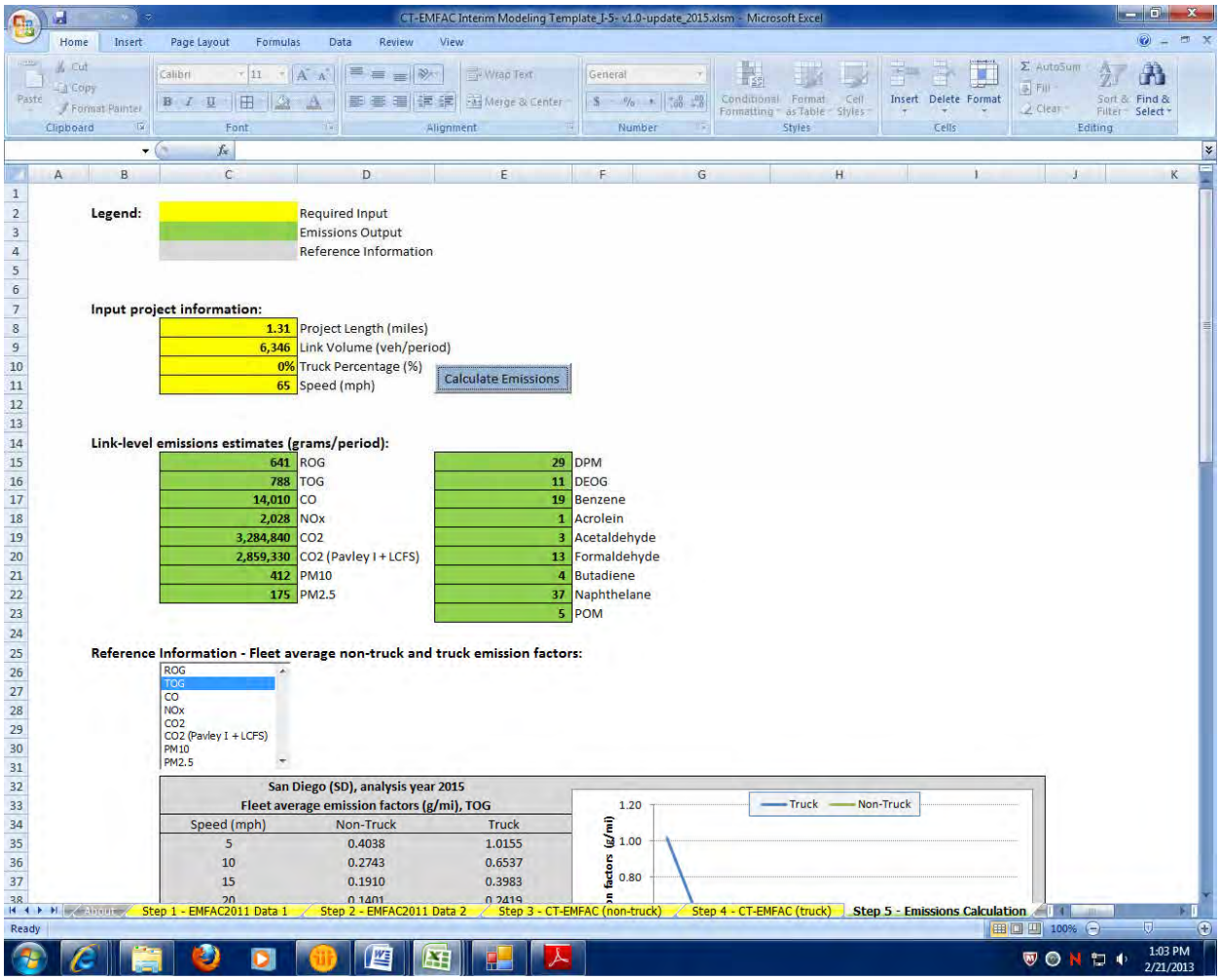
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 16
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 16
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.31	Project Length (miles)
6,346	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

641	ROG	29	DPM
788	TOG	11	DEOG
14,010	CO	19	Benzene
2,028	NOx	1	Acrolein
3,284,840	CO2	3	Acetaldehyde
2,859,330	CO2 (Pavley I + LCFS)	13	Formaldehyde
412	PM10	4	Butadiene
175	PM2.5	37	Naphthelane
		5	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

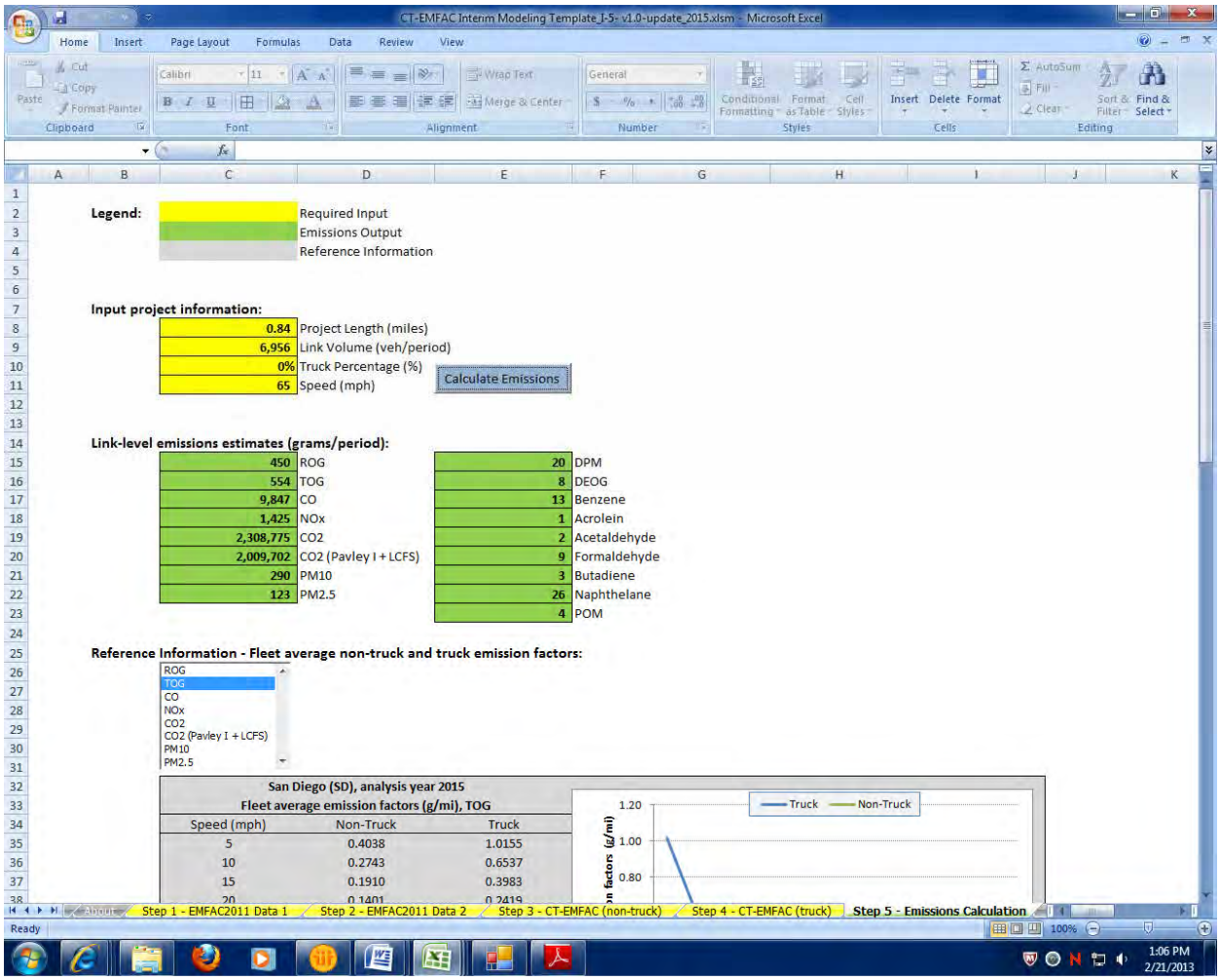
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

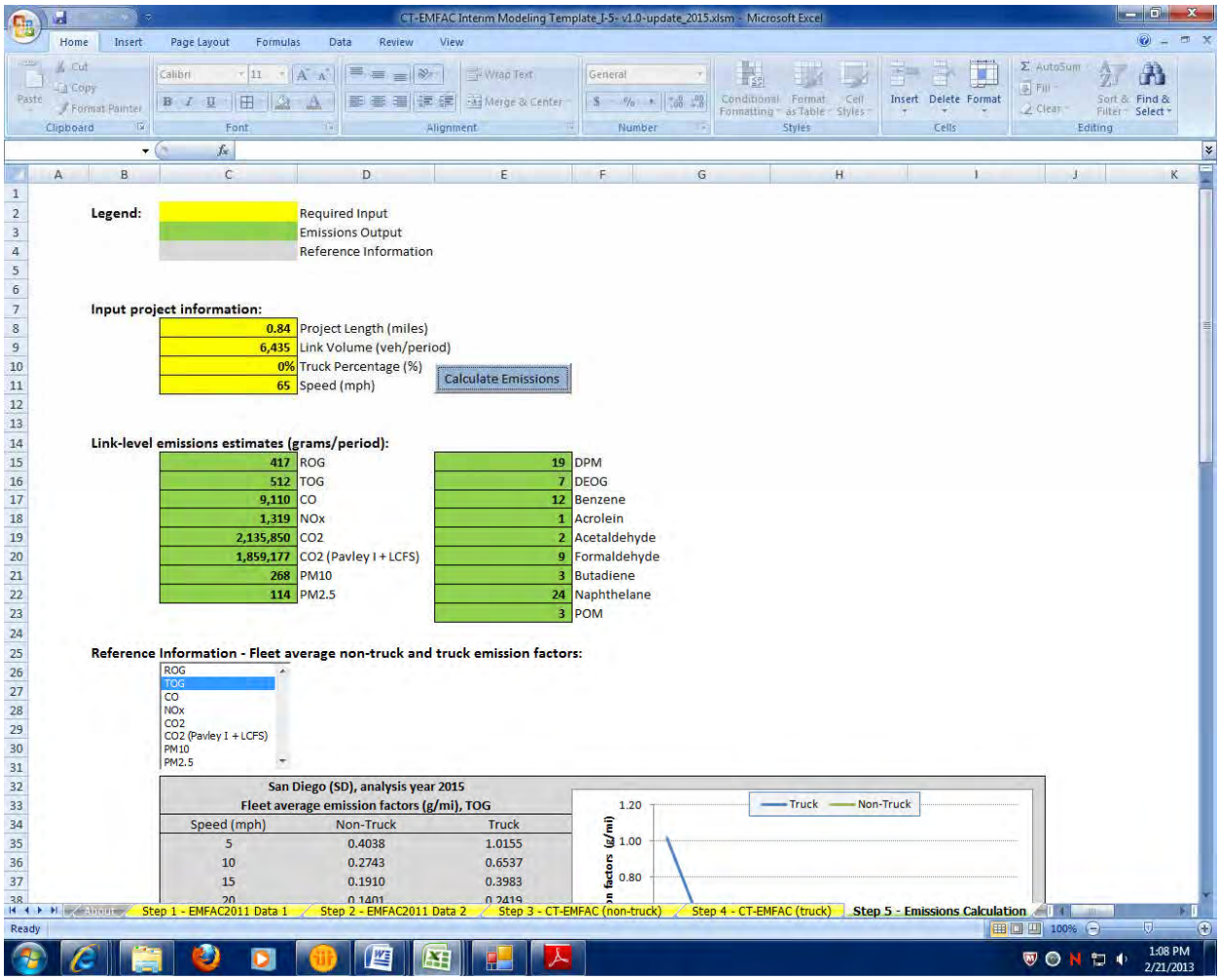
Ready 100%

1:03 PM 2/21/2013

2015 8+4
Link: 2 (NB HOV)
Segment: 17
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 17
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.84	Project Length (miles)
6,435	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

417	ROG	19	DPM
512	TOG	7	DEOG
9,110	CO	12	Benzene
1,319	NOx	1	Acrolein
2,135,850	CO2	2	Acetaldehyde
1,859,177	CO2 (Pavley I + LCFS)	9	Formaldehyde
268	PM10	3	Butadiene
114	PM2.5	24	Naphthelane
		3	POM

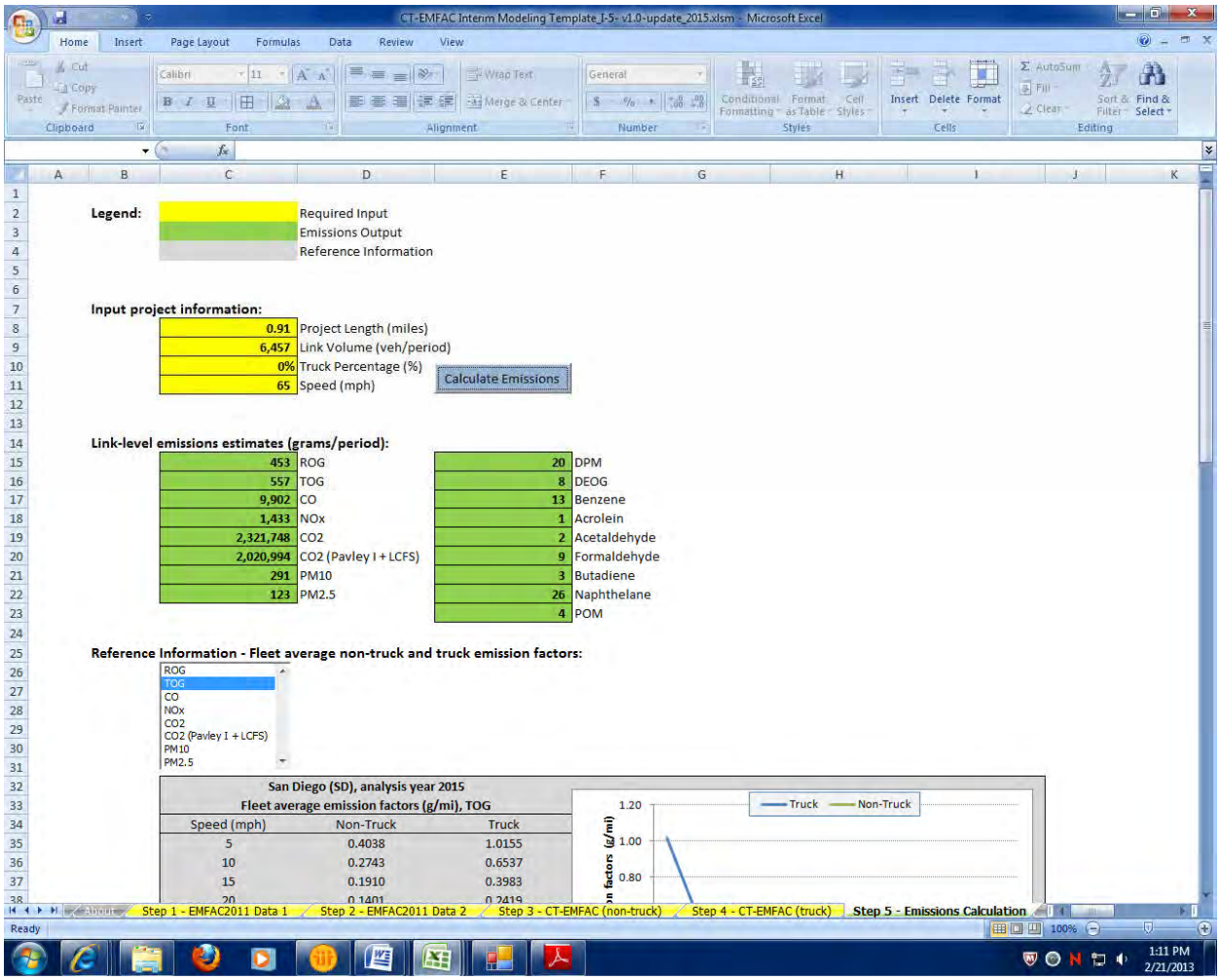
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

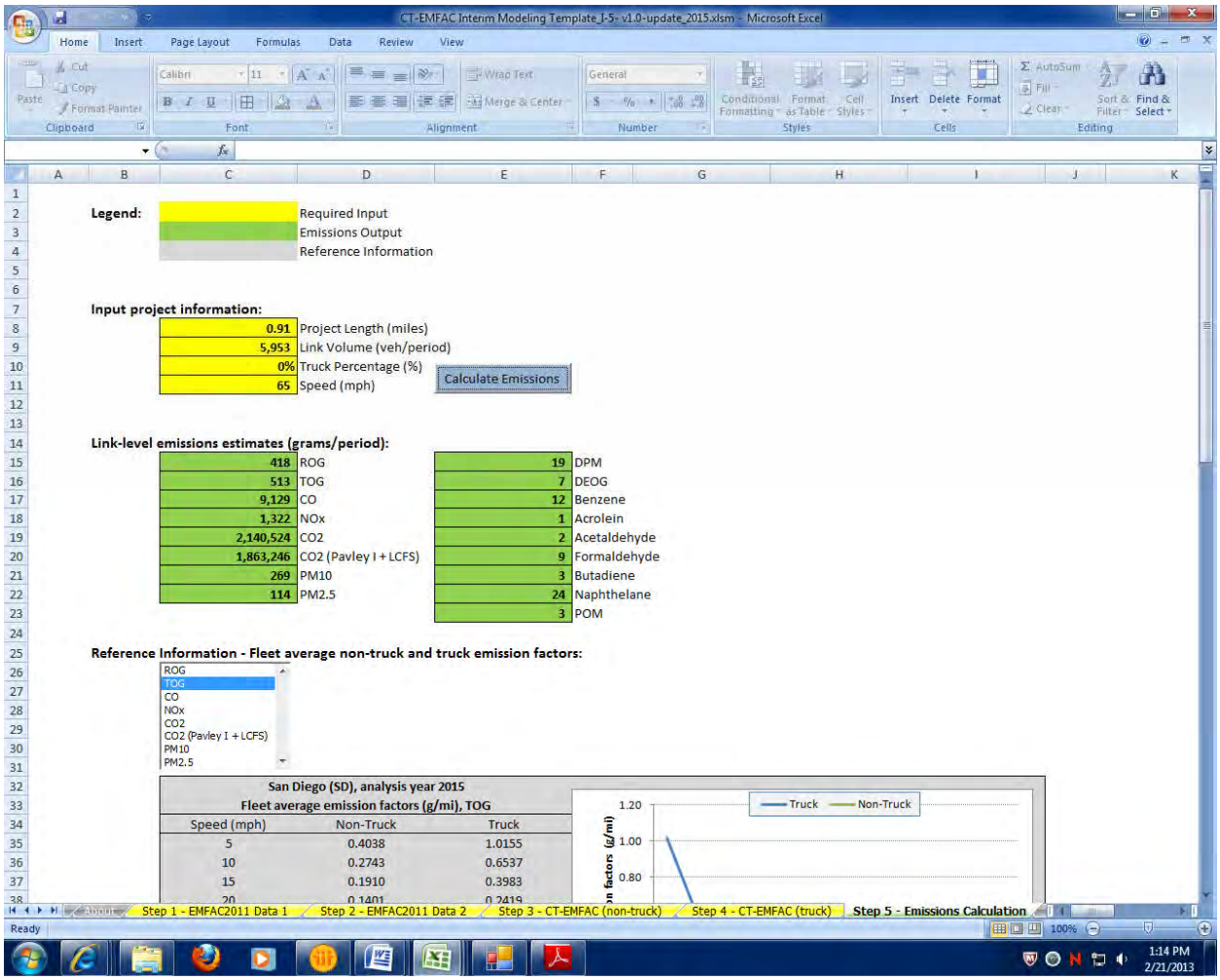
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 18
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 18
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.91	Project Length (miles)
5,953	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

418	ROG	19	DPM
513	TOG	7	DEOG
9,129	CO	12	Benzene
1,322	NOx	1	Acrolein
2,140,524	CO2	2	Acetaldehyde
1,863,246	CO2 (Pavley I + LCFS)	9	Formaldehyde
269	PM10	3	Butadiene
114	PM2.5	24	Naphthelane
		3	POM

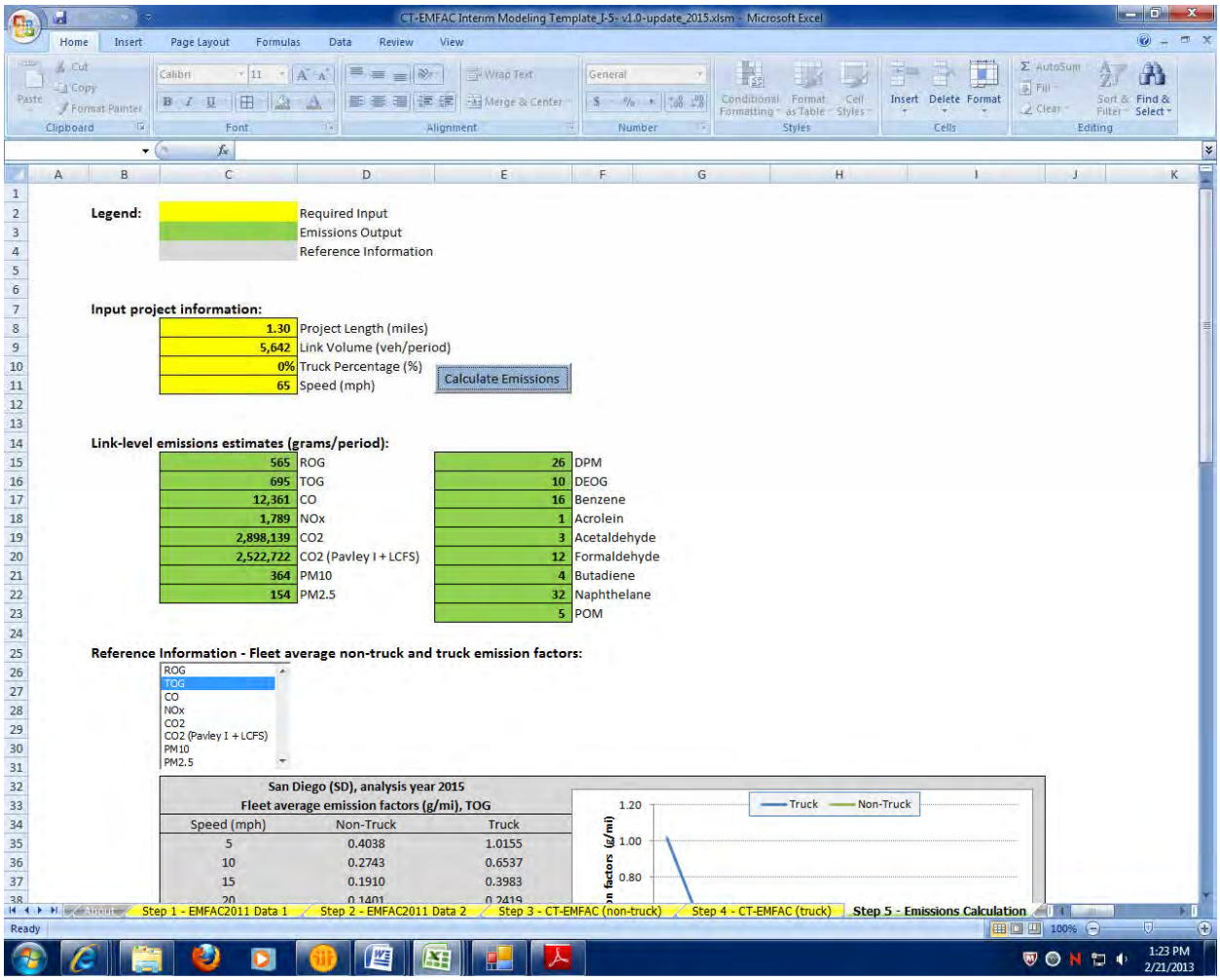
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

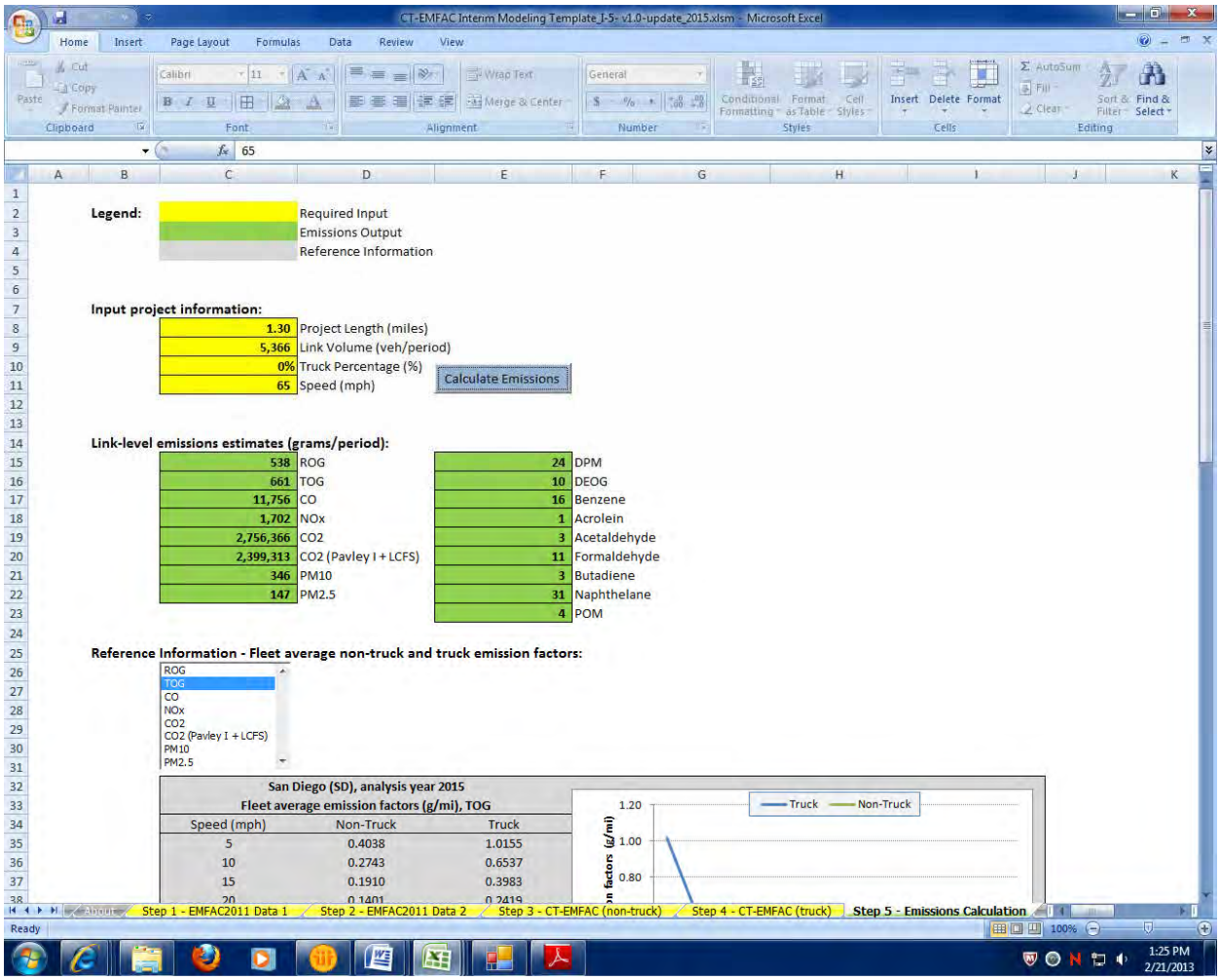
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 19
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 19
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

65

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.30	Project Length (miles)
5,366	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

538	ROG	24	DPM
661	TOG	10	DEOG
11,756	CO	16	Benzene
1,702	NOx	1	Acrolein
2,756,366	CO2	3	Acetaldehyde
2,399,313	CO2 (Pavley I + LCFS)	11	Formaldehyde
346	PM10	3	Butadiene
147	PM2.5	31	Naphthelane
		4	POM

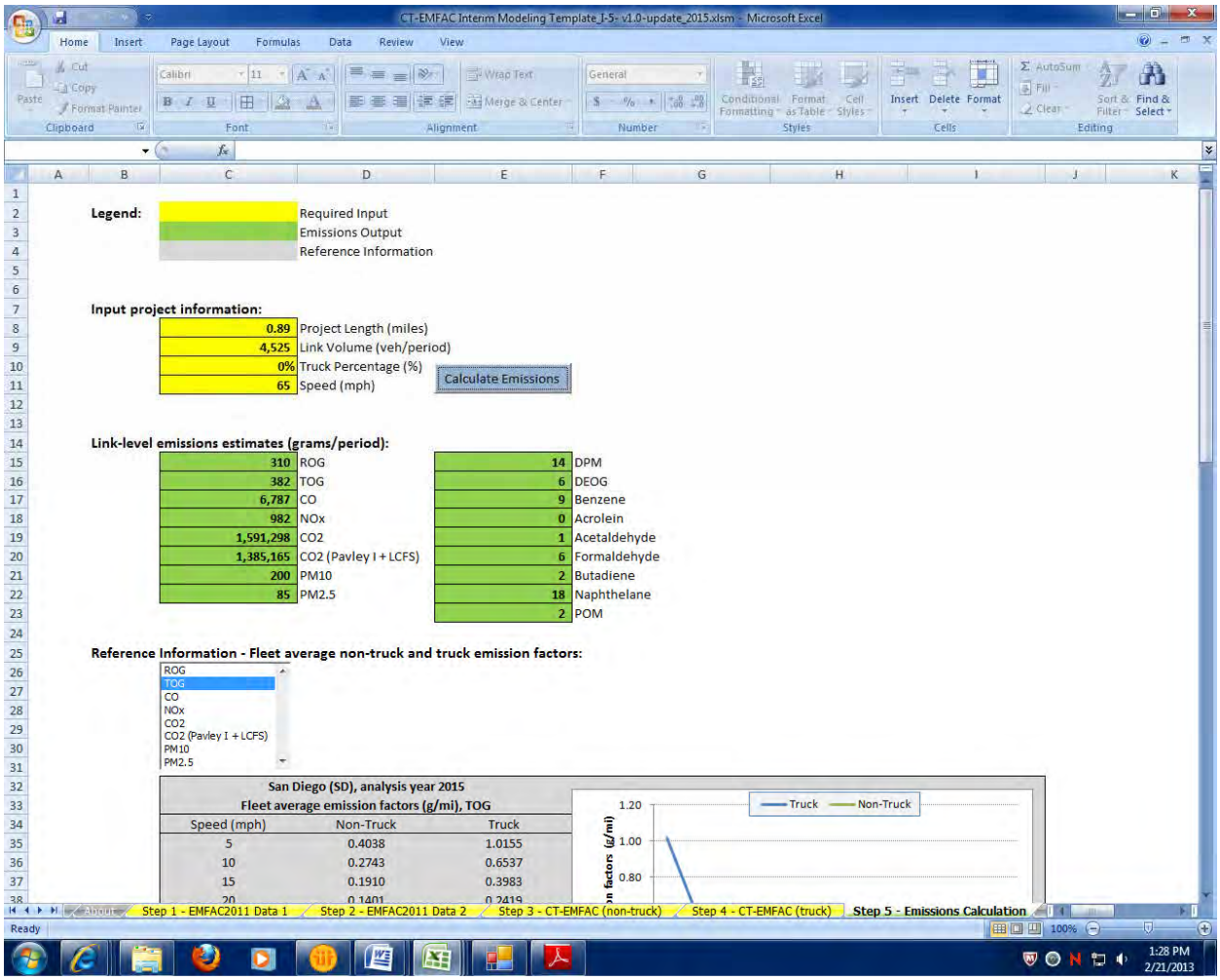
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 2 (NB HOV)
Segment: 20
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
4,525	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

310	ROG	14	DPM
382	TOG	6	DEOG
6,787	CO	9	Benzene
982	NOx	0	Acrolein
1,591,298	CO2	1	Acetaldehyde
1,385,165	CO2 (Pavley I + LCFS)	6	Formaldehyde
200	PM10	2	Butadiene
85	PM2.5	18	Naphthelane
		2	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

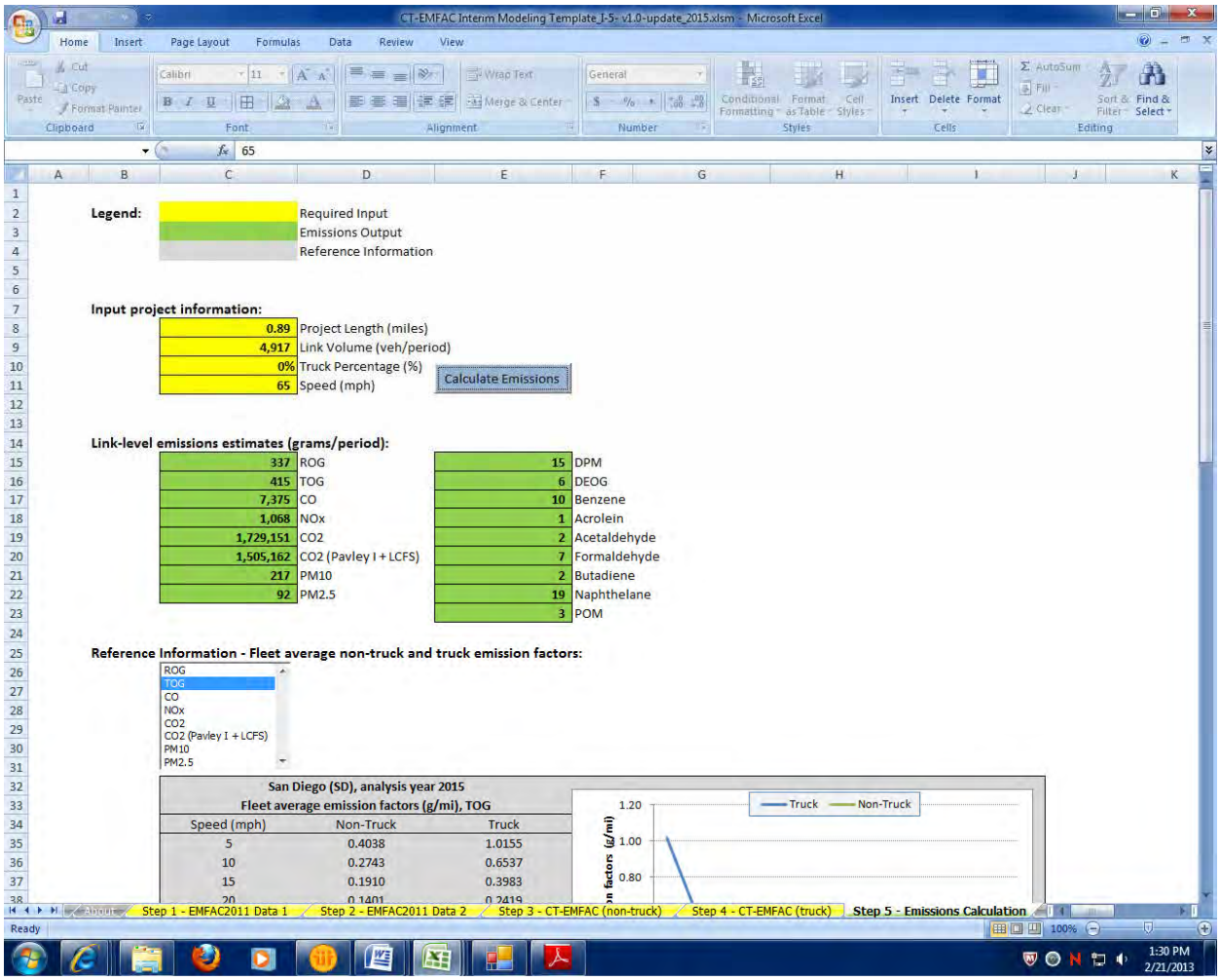
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100% 1:28 PM 2/21/2013

2015 8+4
Link: 2 (NB HOV)
Segment: 20
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

65

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
4,917	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

337	ROG	15	DPM
415	TOG	6	DEOG
7,375	CO	10	Benzene
1,068	NOx	1	Acrolein
1,729,151	CO2	2	Acetaldehyde
1,505,162	CO2 (Pavley I + LCFS)	7	Formaldehyde
217	PM10	2	Butadiene
92	PM2.5	19	Naphthelane
		3	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

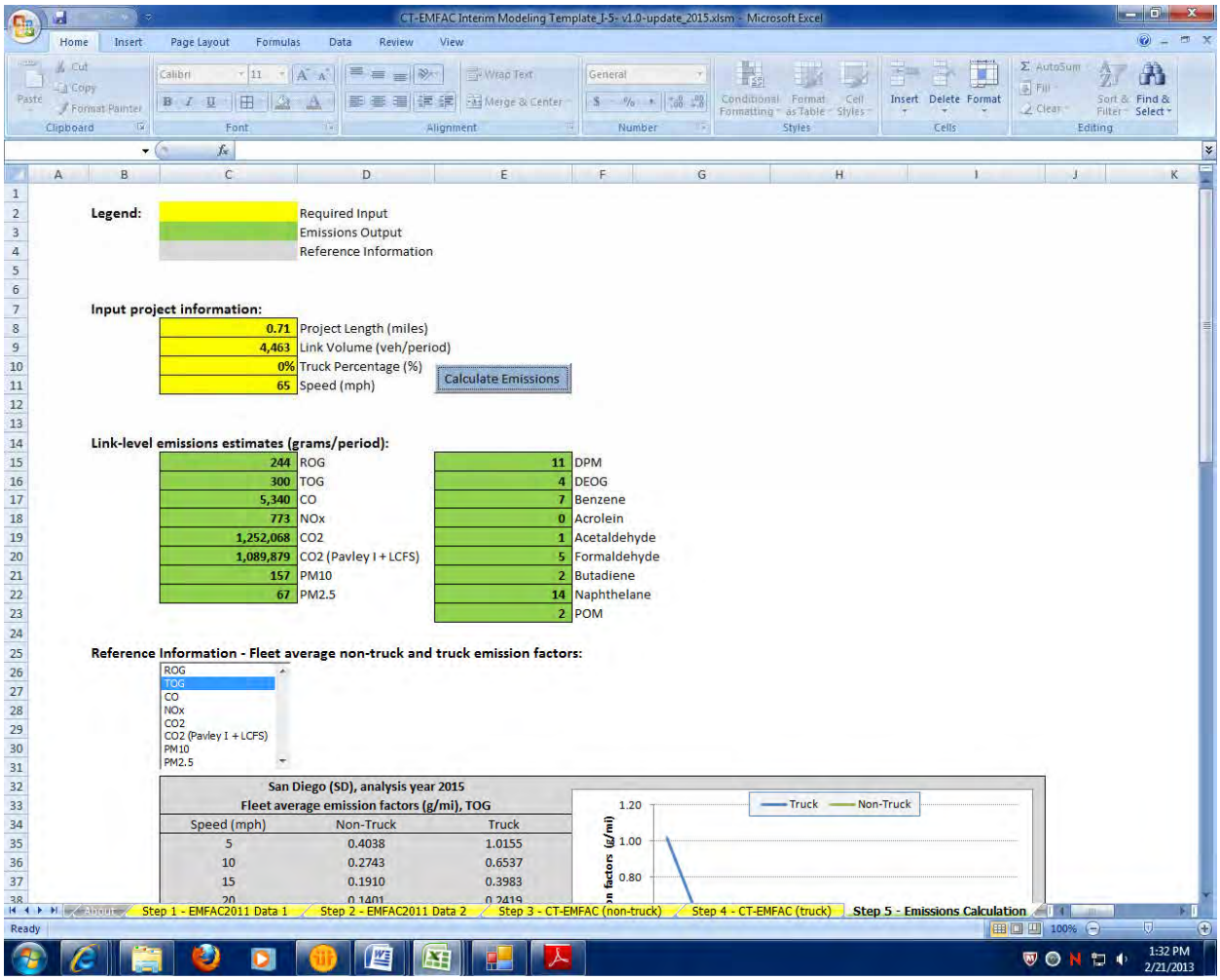
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

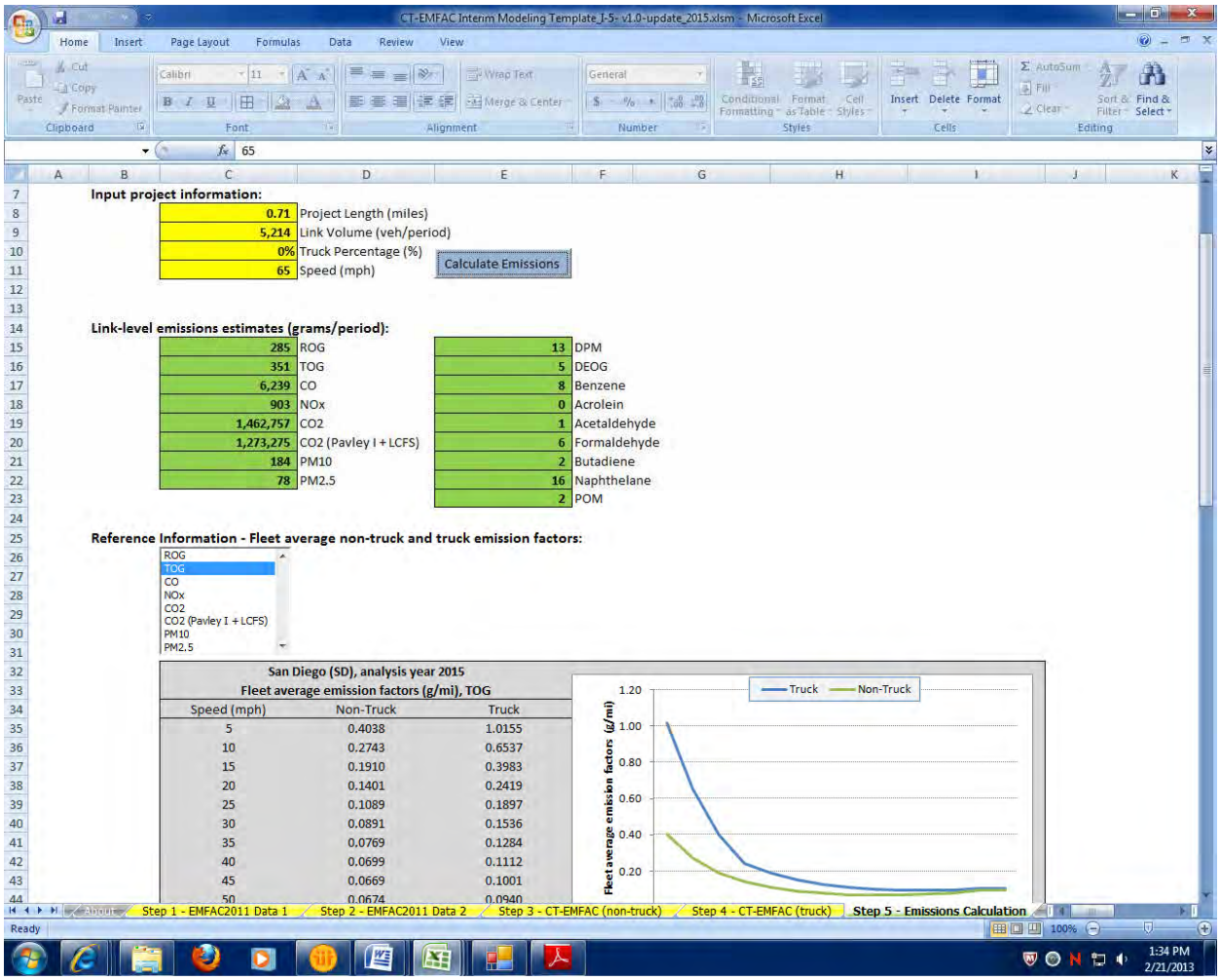
Ready 100%

1:30 PM 2/21/2013

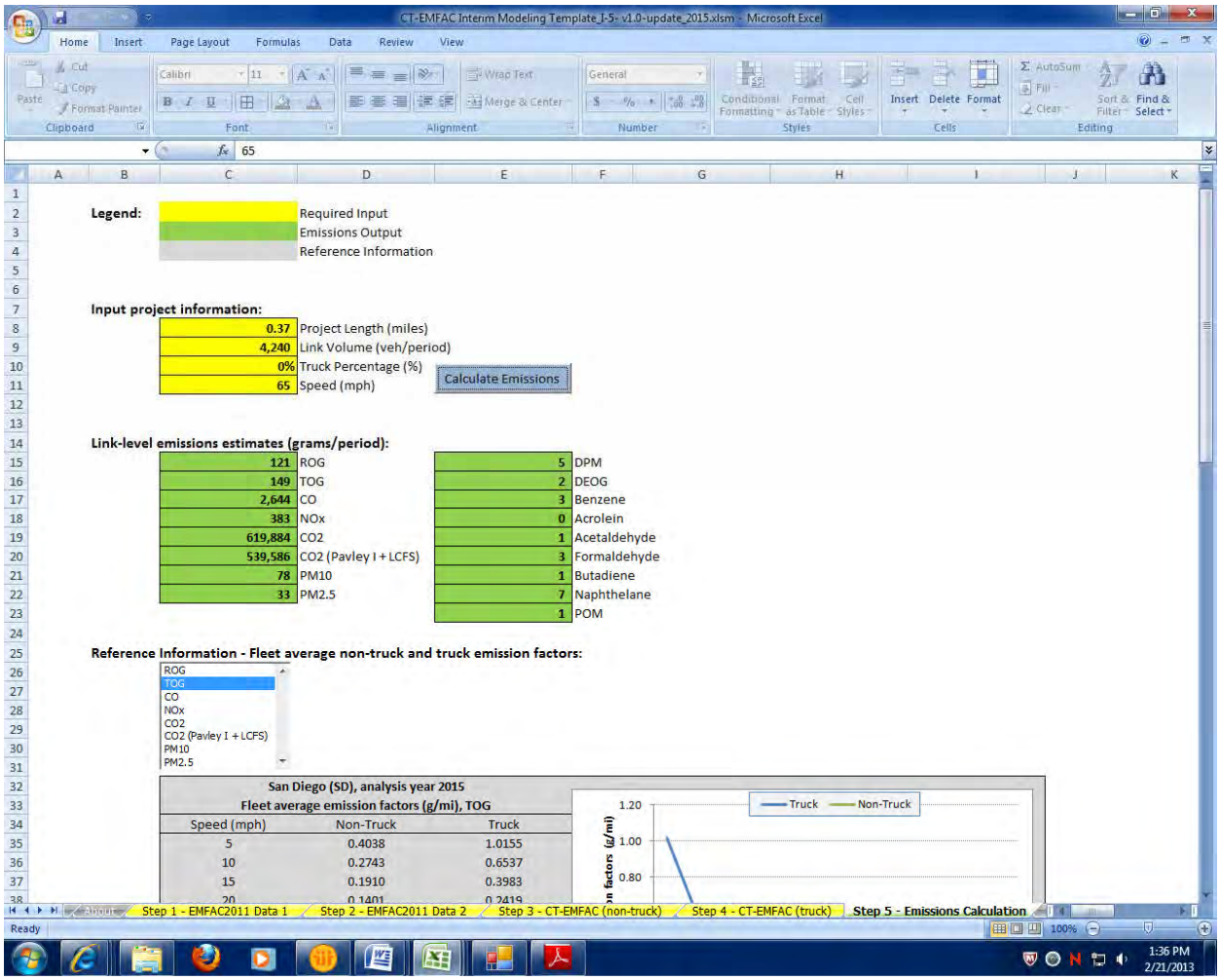
2015 8+4
Link: 2 (NB HOV)
Segment: 21
Peak



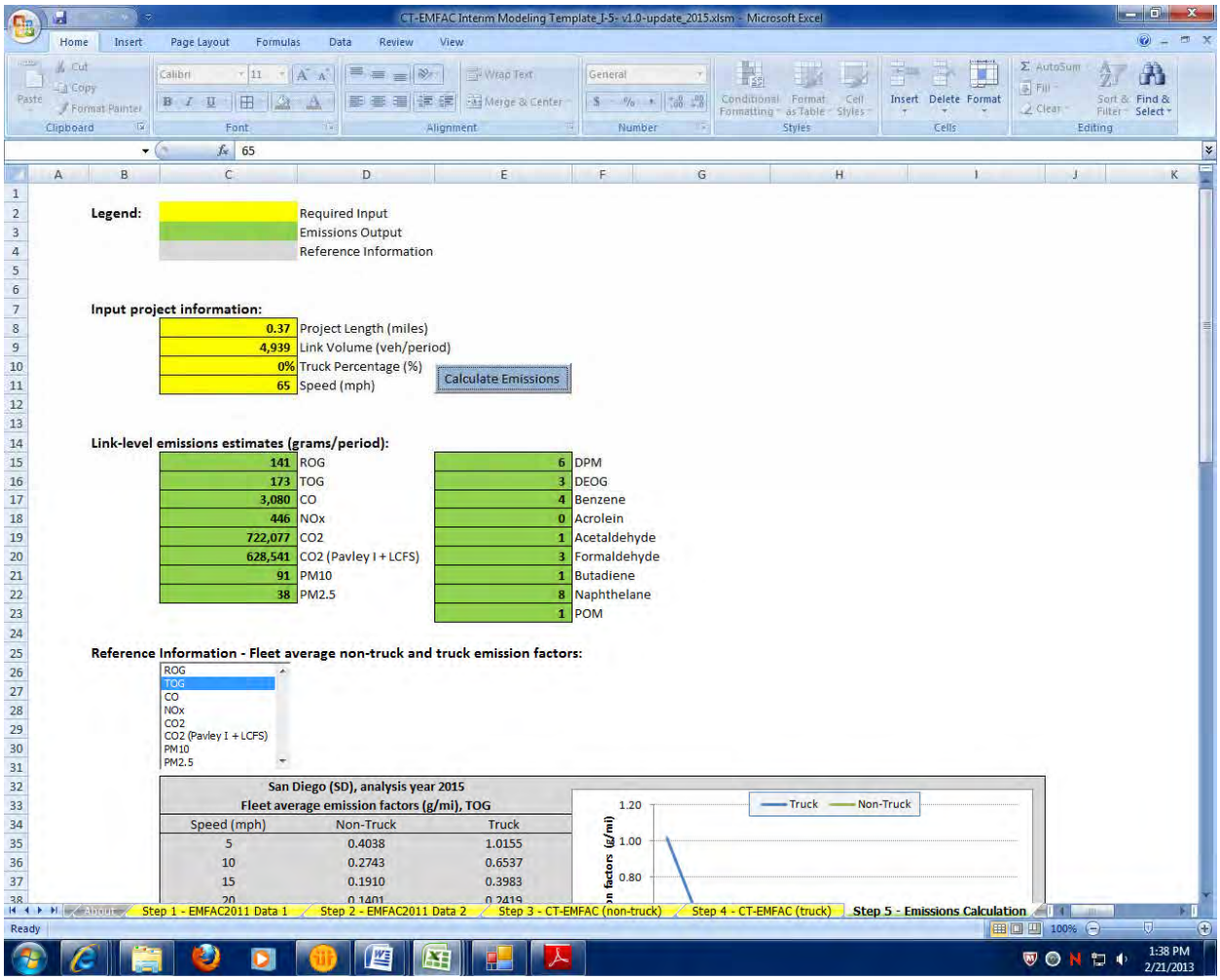
2015 8+4
Link: 2 (NB HOV)
Segment: 21
Off Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 22
Peak



2015 8+4
Link: 2 (NB HOV)
Segment: 22
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

65

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.37	Project Length (miles)
4,939	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

141	ROG	6	DPM
173	TOG	3	DEOG
3,080	CO	4	Benzene
446	NOx	0	Acrolein
722,077	CO2	1	Acetaldehyde
628,541	CO2 (Pavley I + LCFS)	3	Formaldehyde
91	PM10	1	Butadiene
38	PM2.5	8	Naphthelane
		1	POM

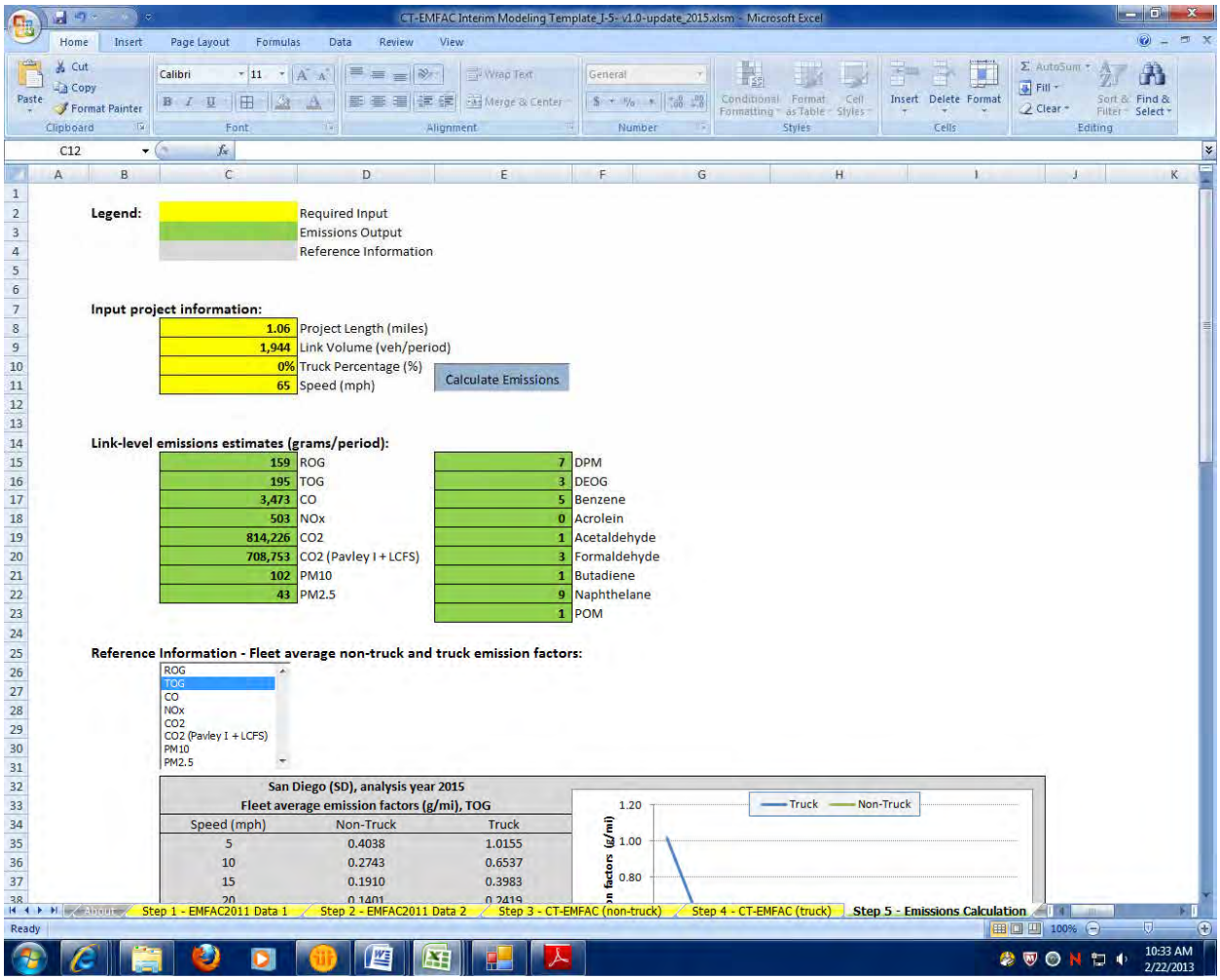
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

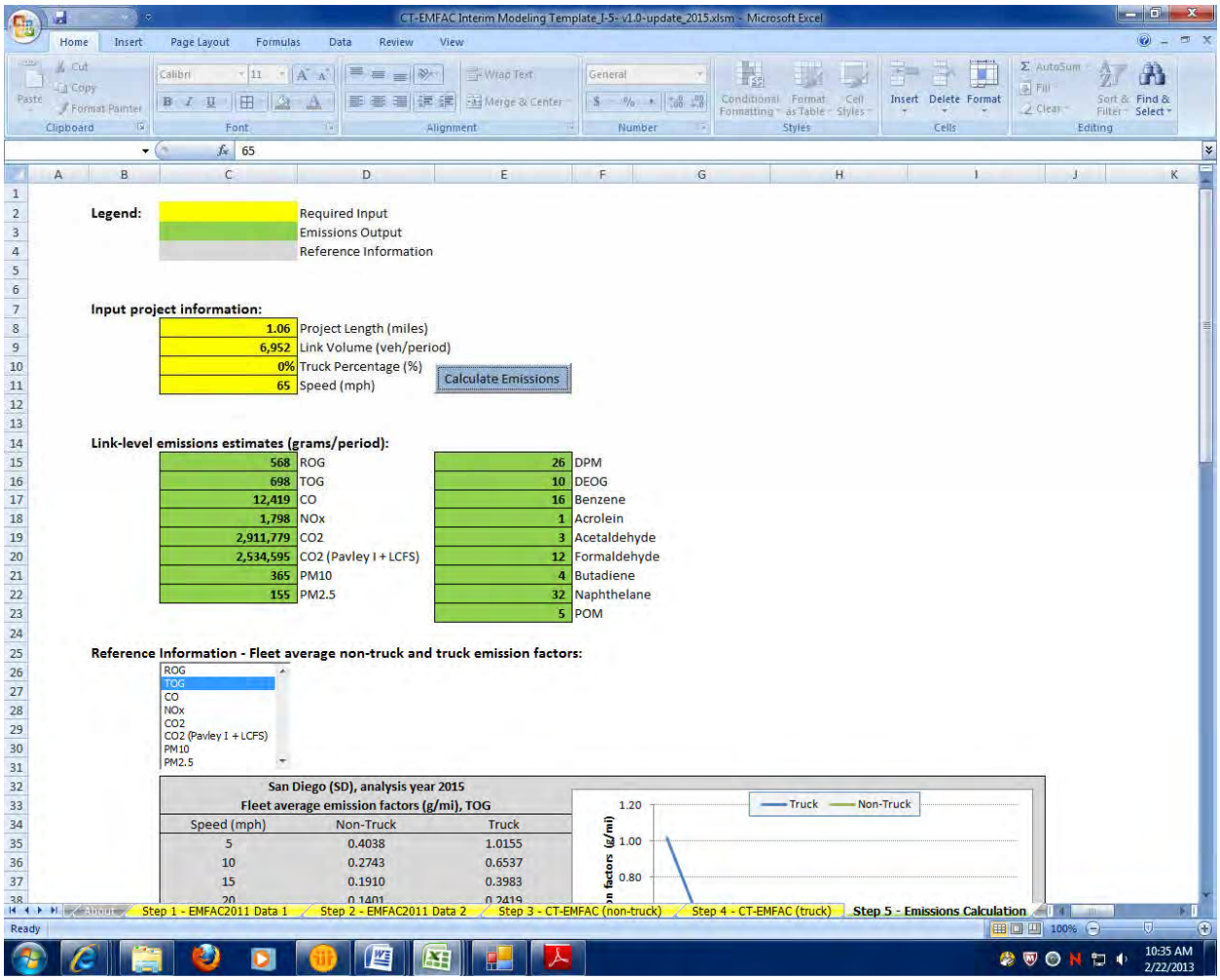
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

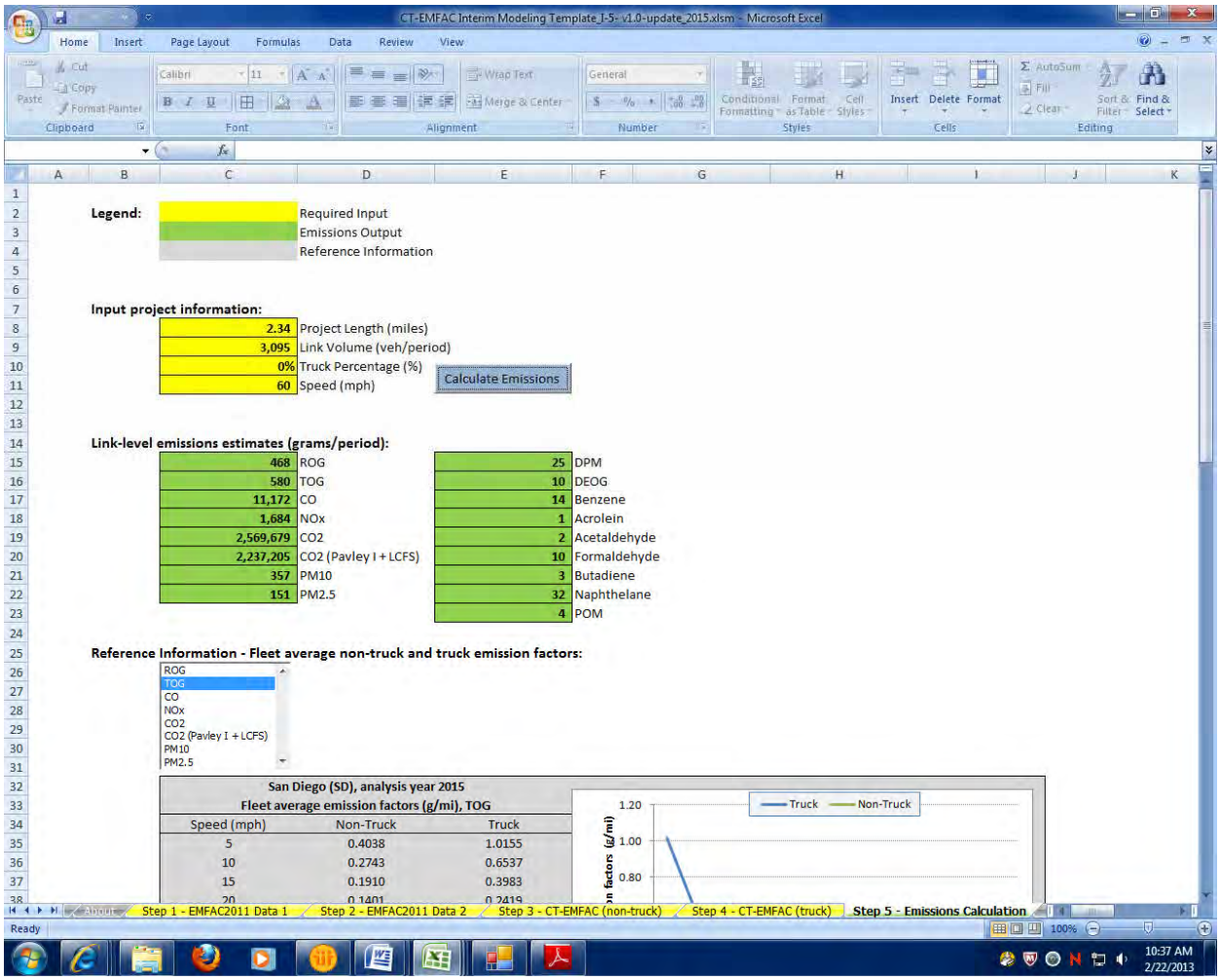
2015 8+4
Link: 3 (SB HOV)
Segment: 1
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 1
Off Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 2
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.34	Project Length (miles)
3,095	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

468	ROG	25	DPM
580	TOG	10	DEOG
11,172	CO	14	Benzene
1,684	NOx	1	Acrolein
2,569,679	CO2	2	Acetaldehyde
2,237,205	CO2 (Pavley I + LCFS)	10	Formaldehyde
357	PM10	3	Butadiene
151	PM2.5	32	Naphthelane
		4	POM

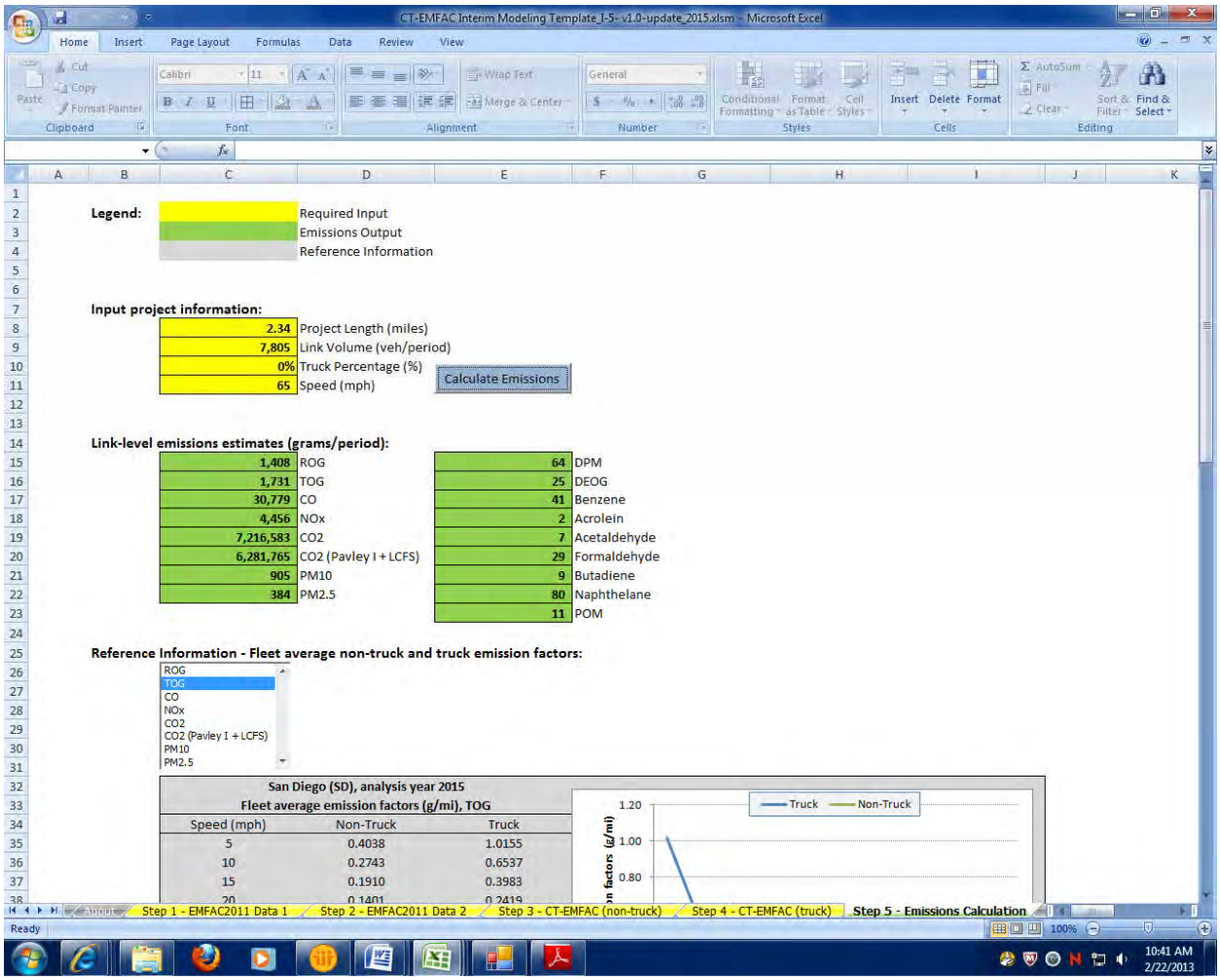
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 2
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.34	Project Length (miles)
7,805	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,408	ROG	64	DPM
1,731	TOG	25	DEOG
30,779	CO	41	Benzene
4,456	NOx	2	Acrolein
7,216,583	CO2	7	Acetaldehyde
6,281,765	CO2 (Pavley I + LCFS)	29	Formaldehyde
905	PM10	9	Butadiene
384	PM2.5	80	Naphthelane
		11	POM

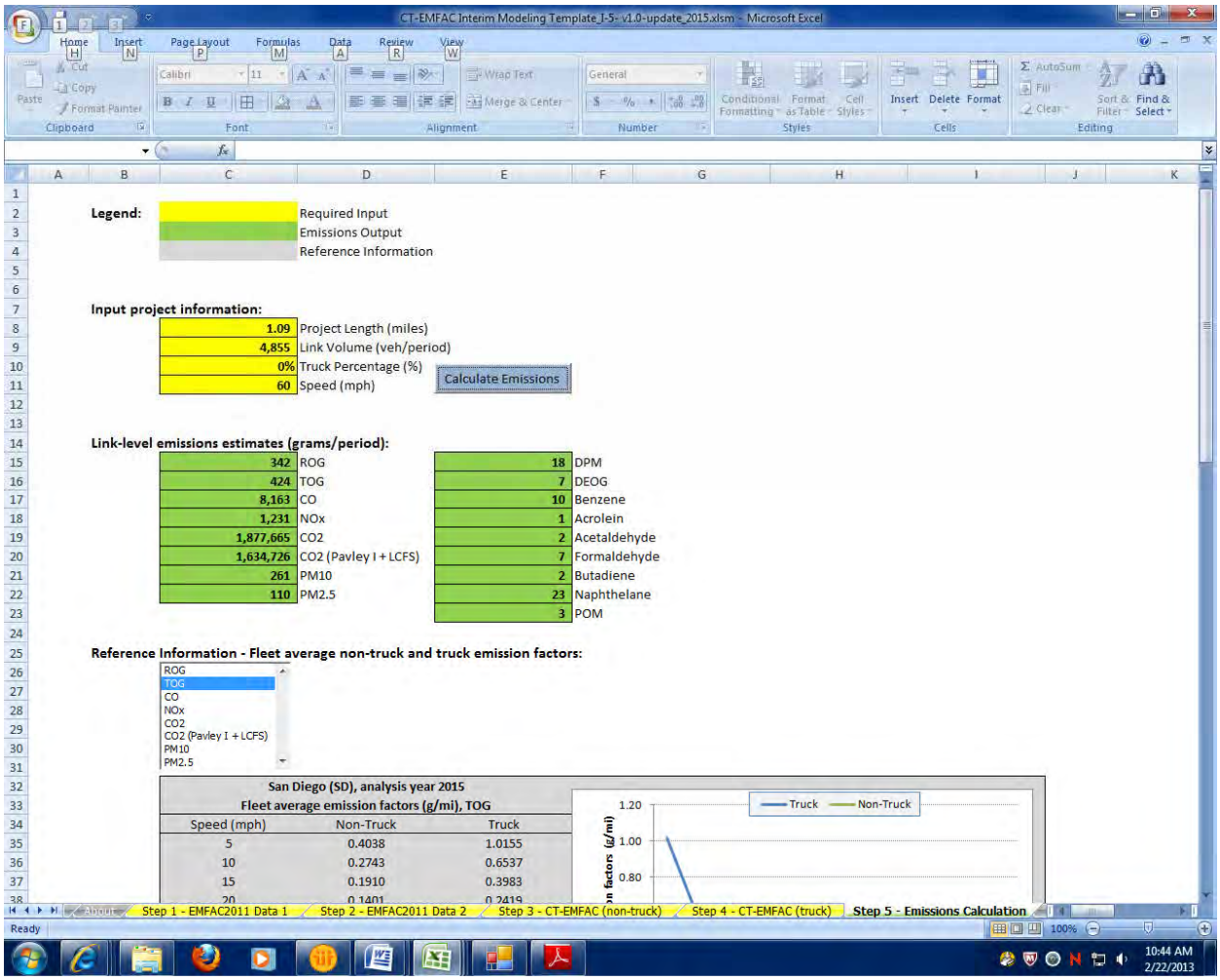
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

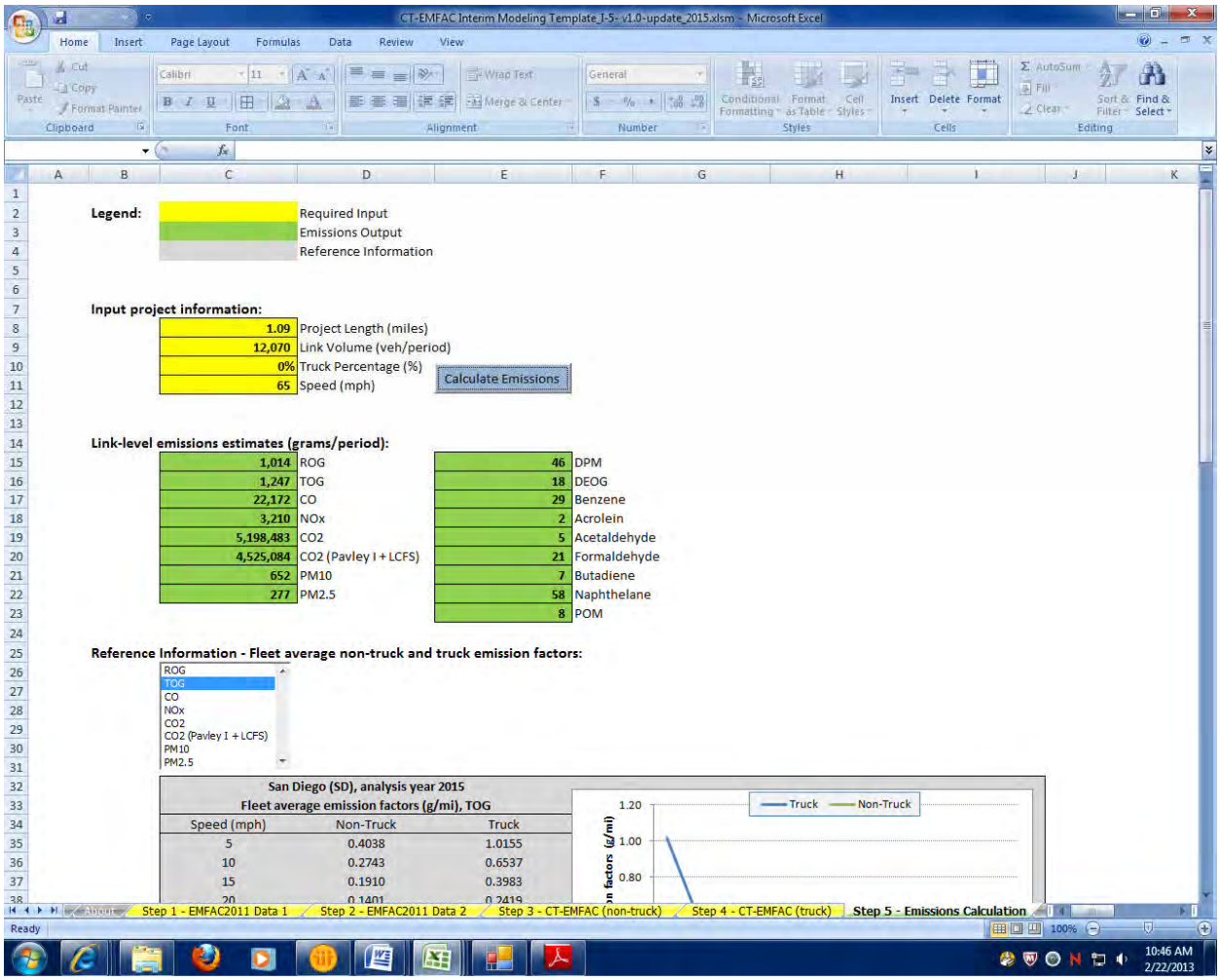
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 3
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 3
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
12,070	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,014	ROG	46	DPM
1,247	TOG	18	DEOG
22,172	CO	29	Benzene
3,210	NOx	2	Acrolein
5,198,483	CO2	5	Acetaldehyde
4,525,084	CO2 (Pavley I + LCFS)	21	Formaldehyde
652	PM10	7	Butadiene
277	PM2.5	58	Naphthelane
		8	POM

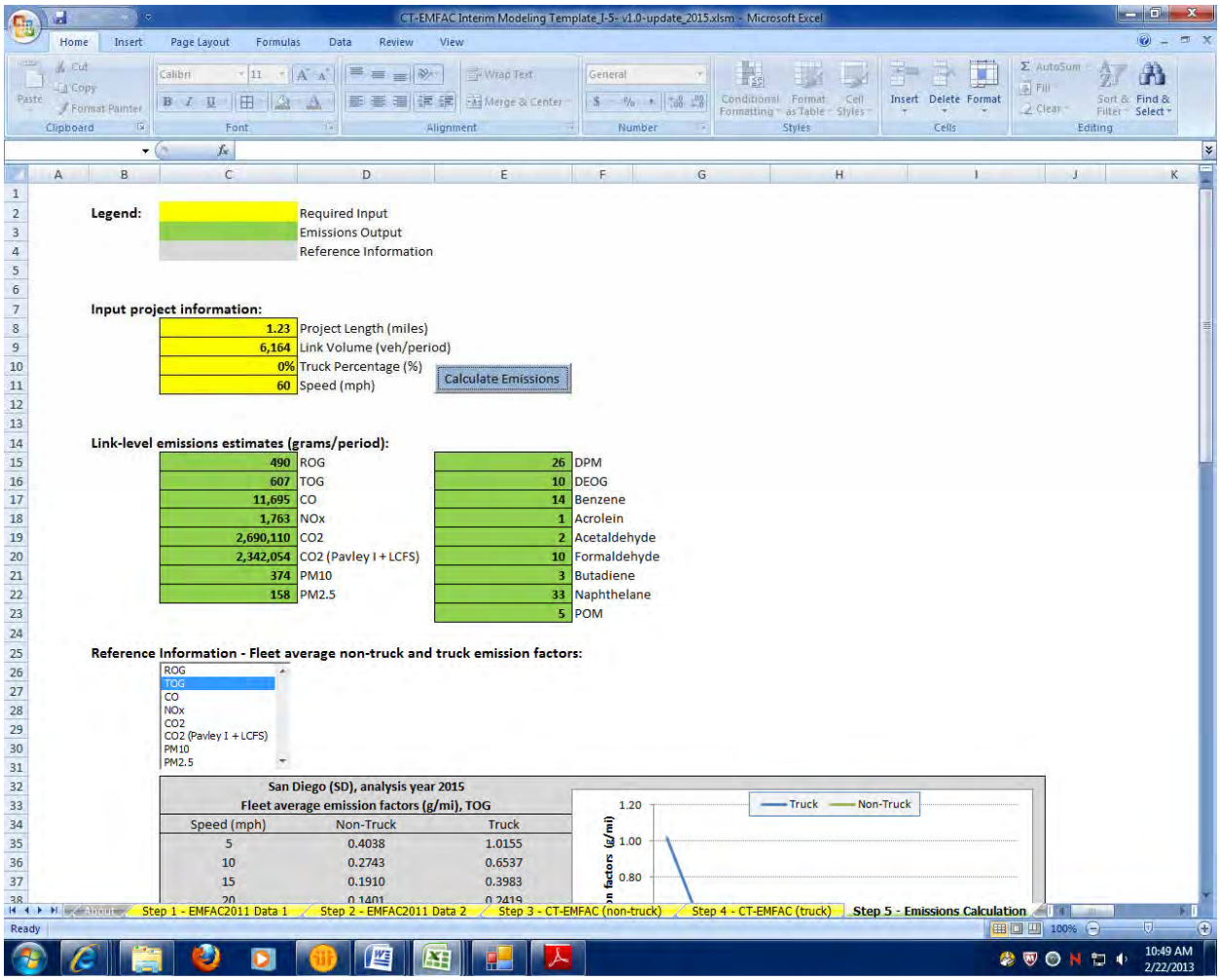
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

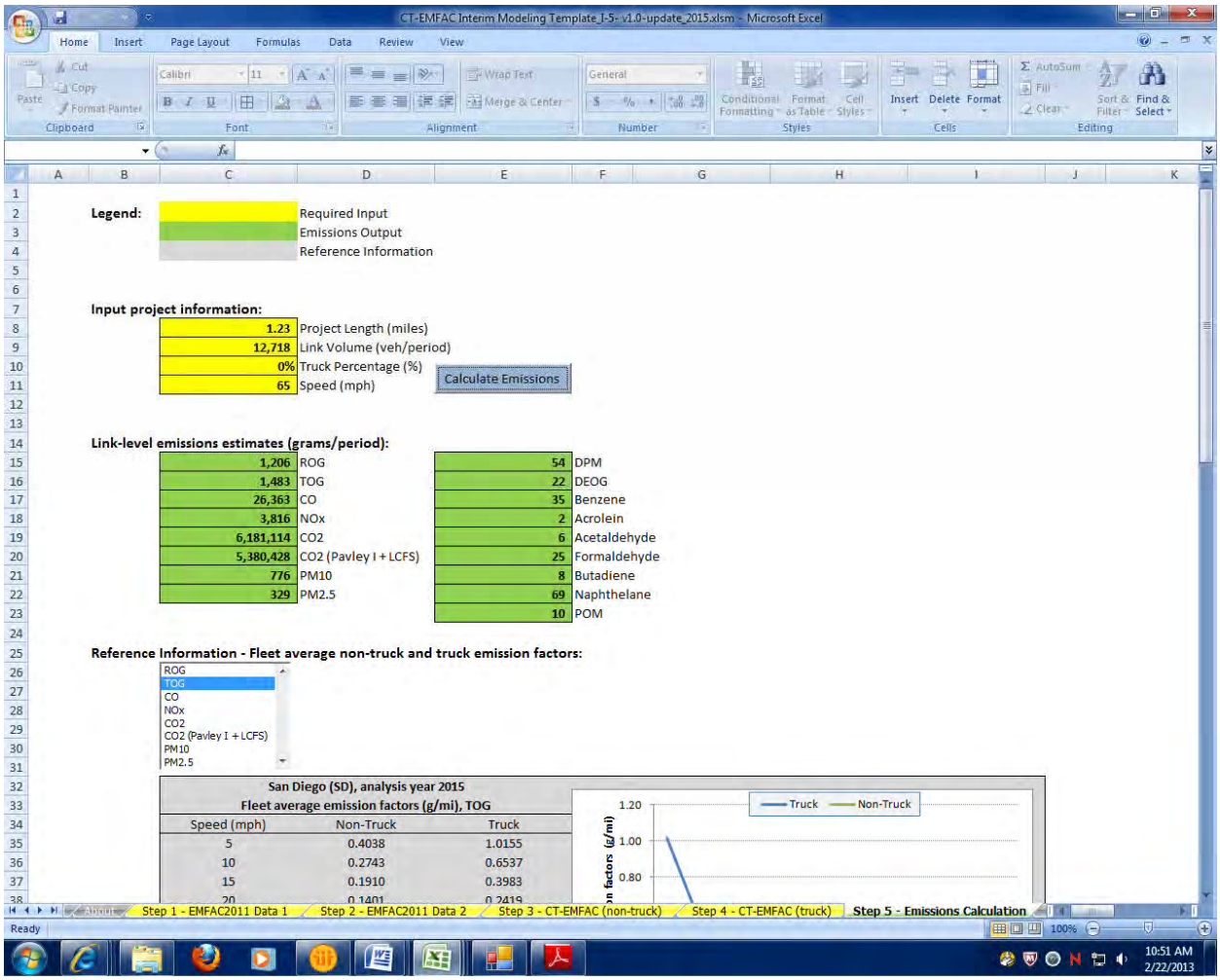
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 4
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 4
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.23	Project Length (miles)
12,718	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,206	ROG	54	DPM
1,483	TOG	22	DEOG
26,363	CO	35	Benzene
3,816	NOx	2	Acrolein
6,181,114	CO2	6	Acetaldehyde
5,380,428	CO2 (Pavley I + LCFS)	25	Formaldehyde
776	PM10	8	Butadiene
329	PM2.5	69	Naphthelane
		10	POM

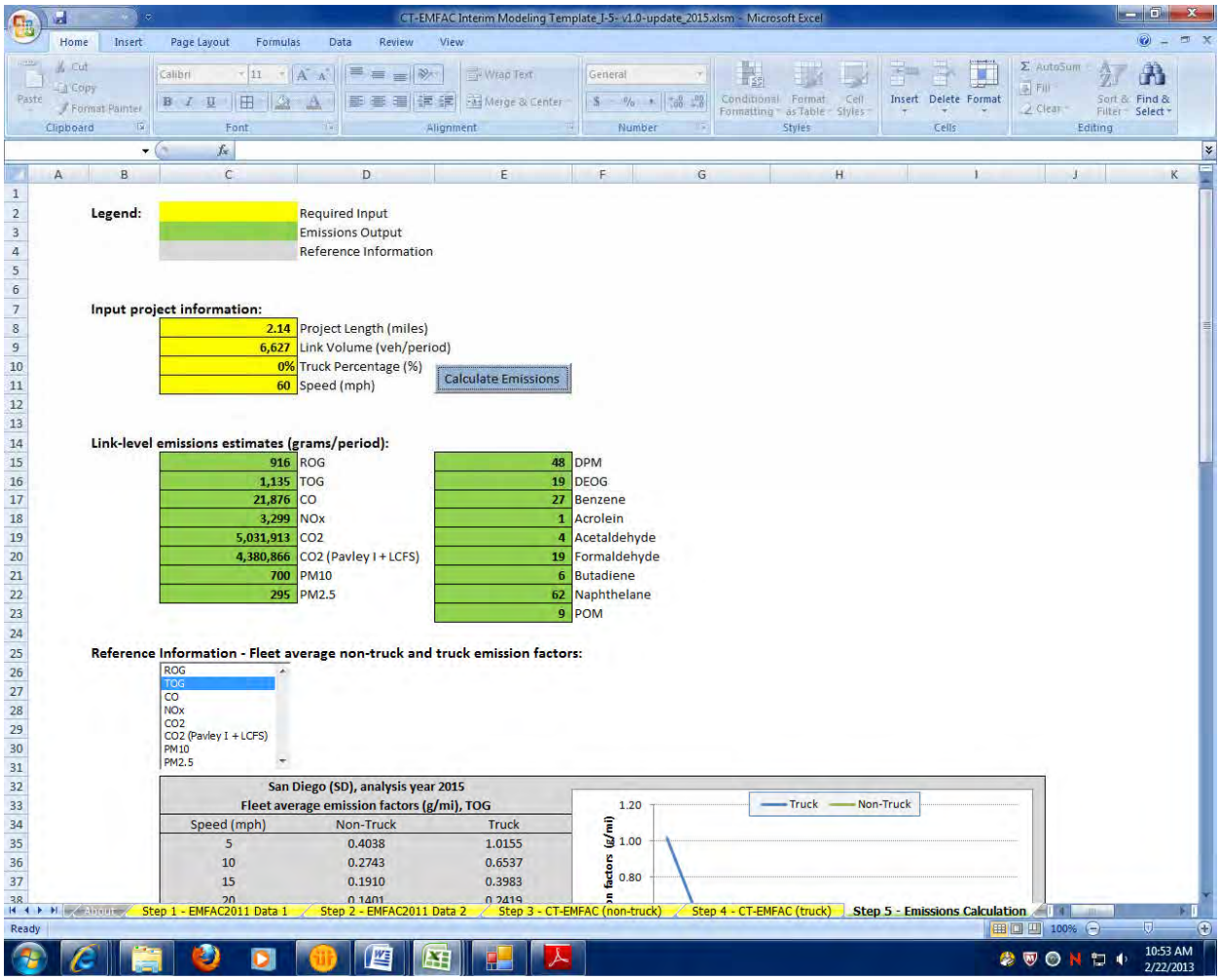
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

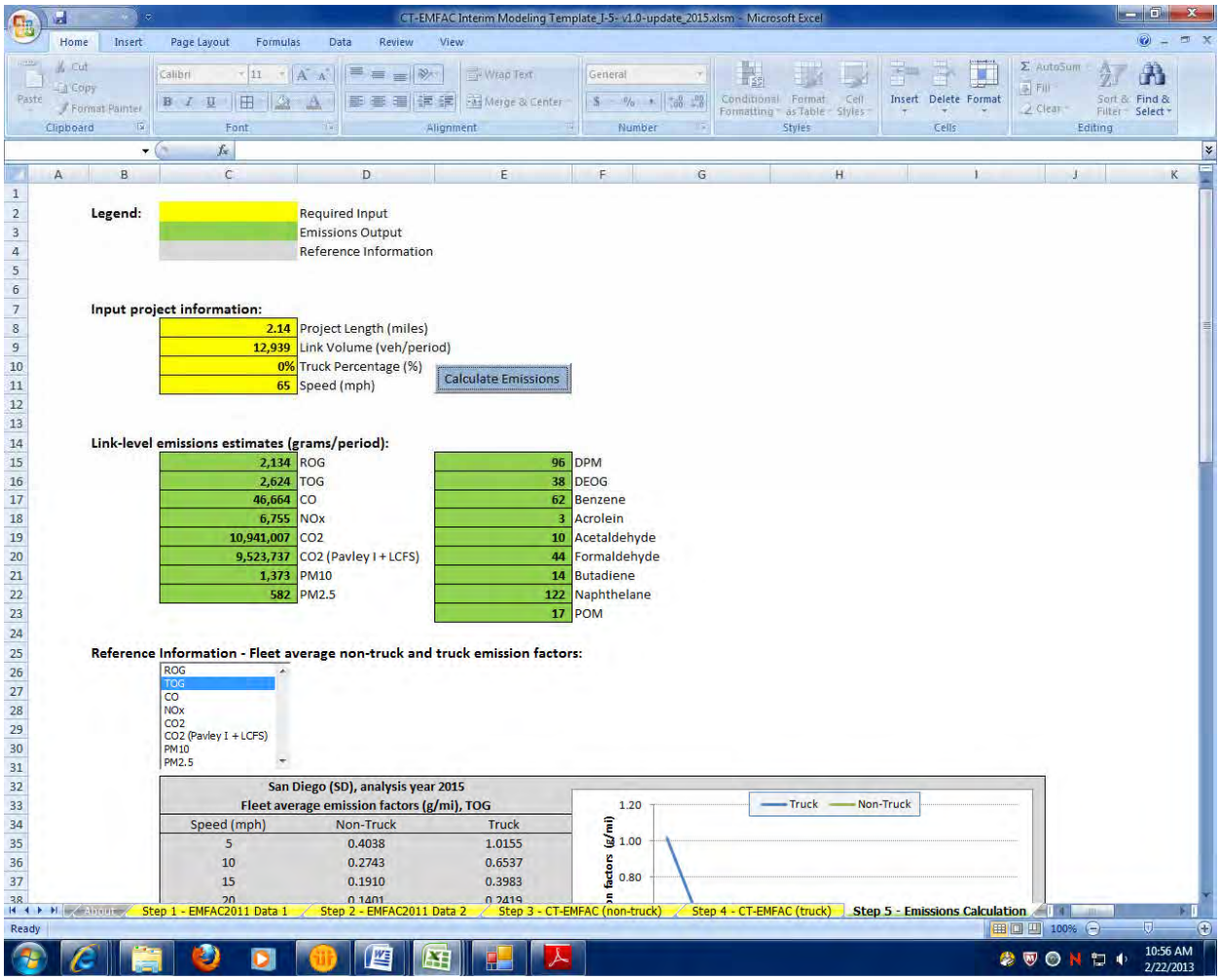
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

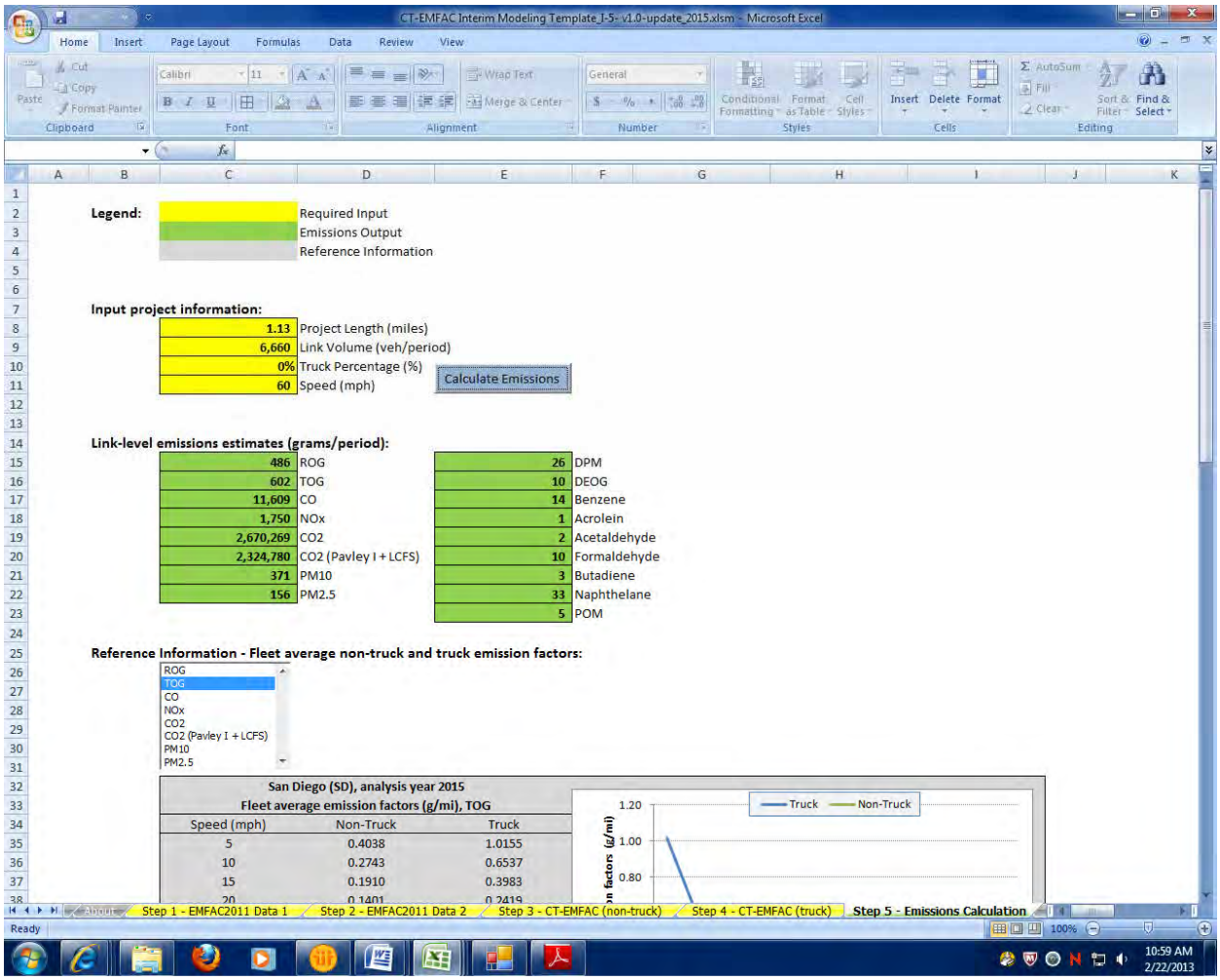
2015 8+4
Link: 3 (SB HOV)
Segment: 5
Peak



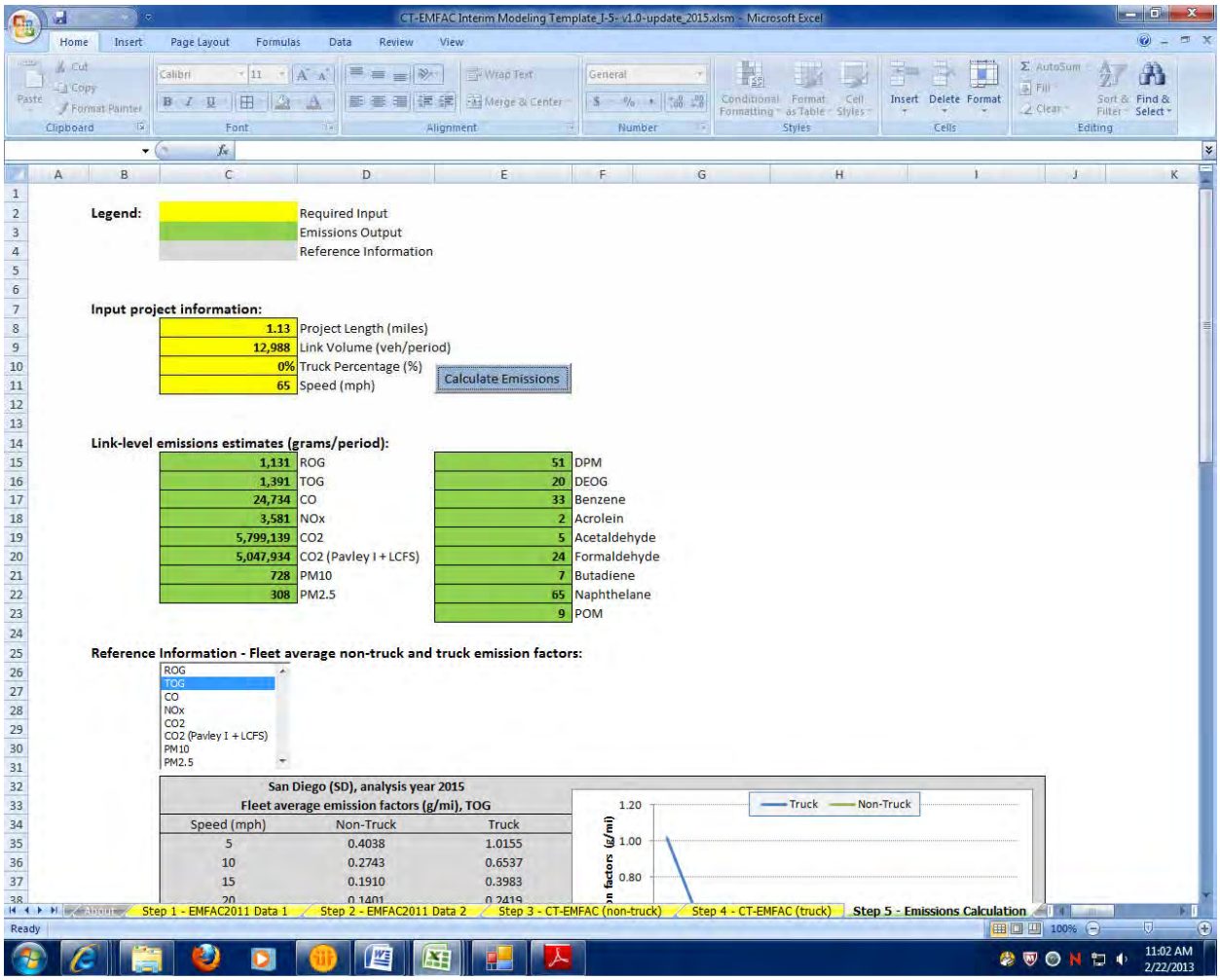
2015 8+4
Link: 3 (SB HOV)
Segment: 5
Off Peak



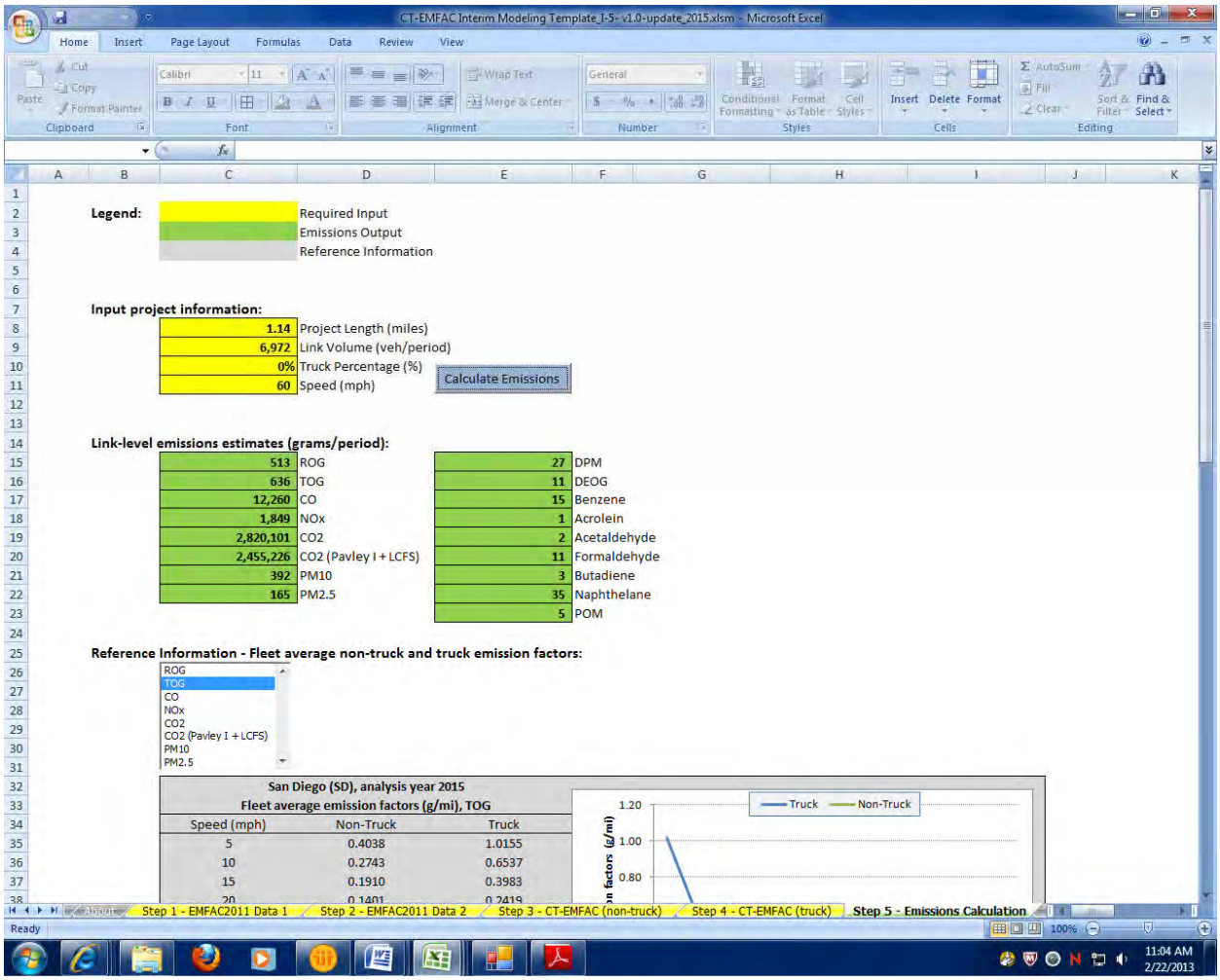
2015 8+4
Link: 3 (SB HOV)
Segment: 6
Peak



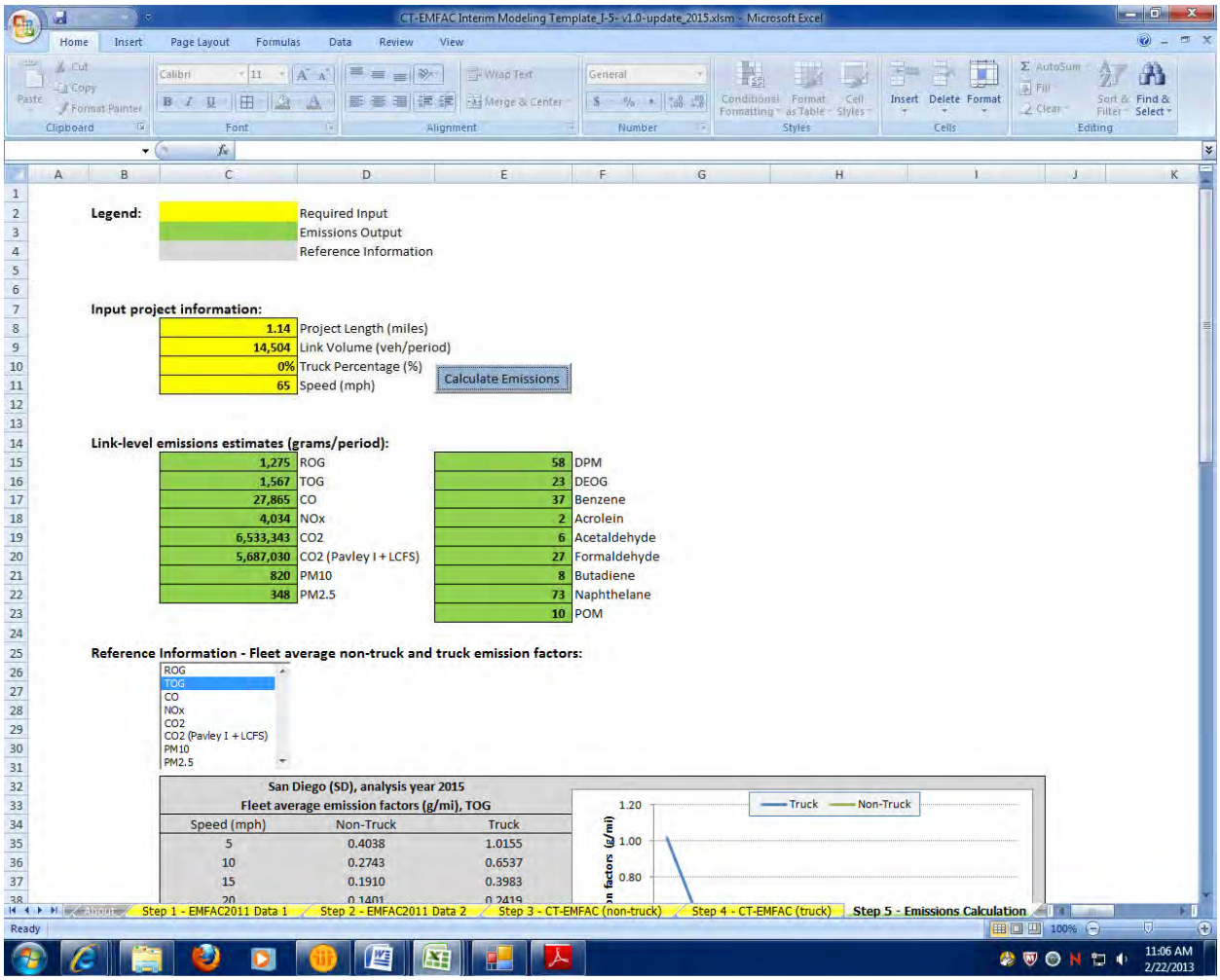
2015 8+4
Link: 3 (SB HOV)
Segment: 6
Off Peak



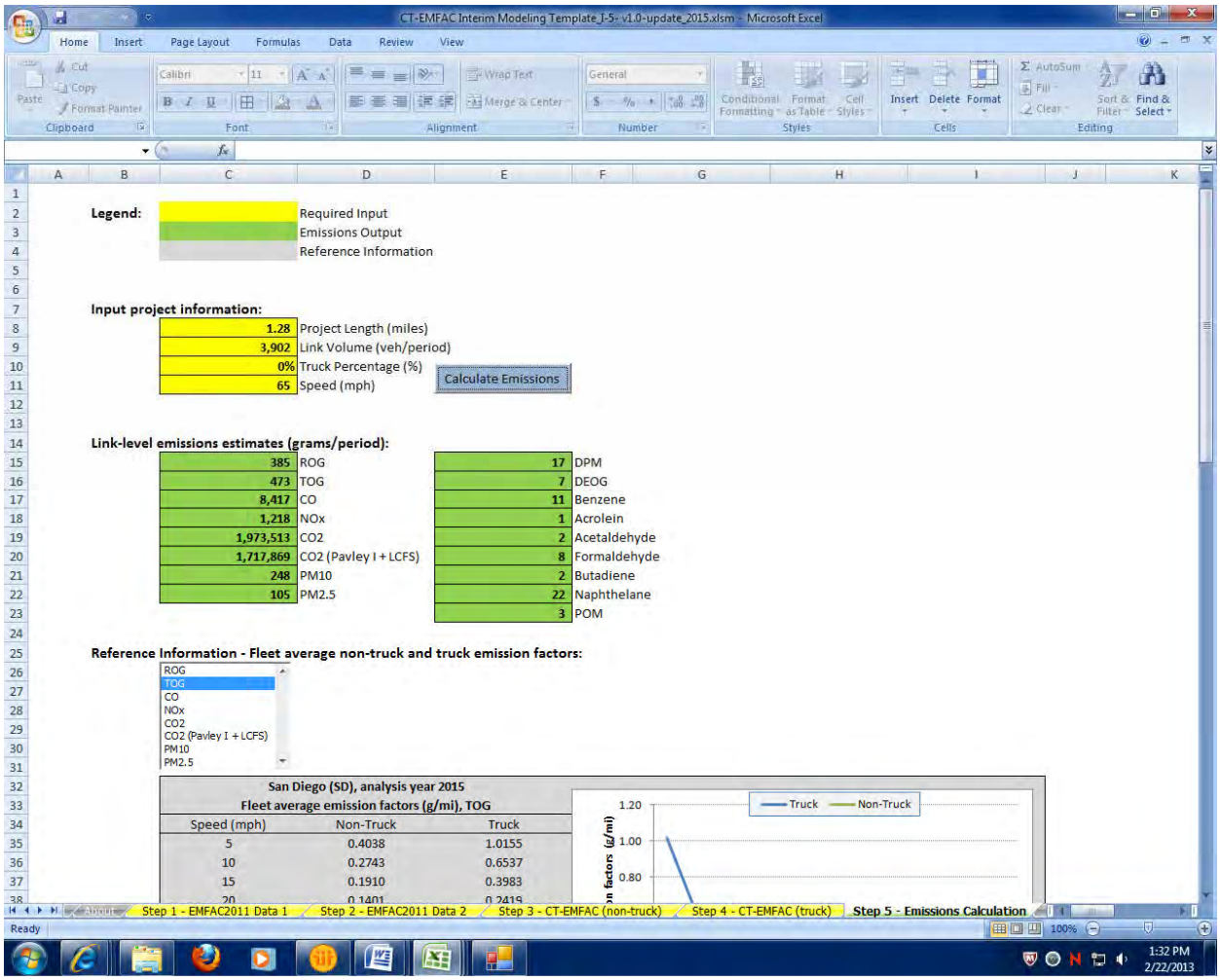
2015 8+4
Link: 3 (SB HOV)
Segment: 7
Peak



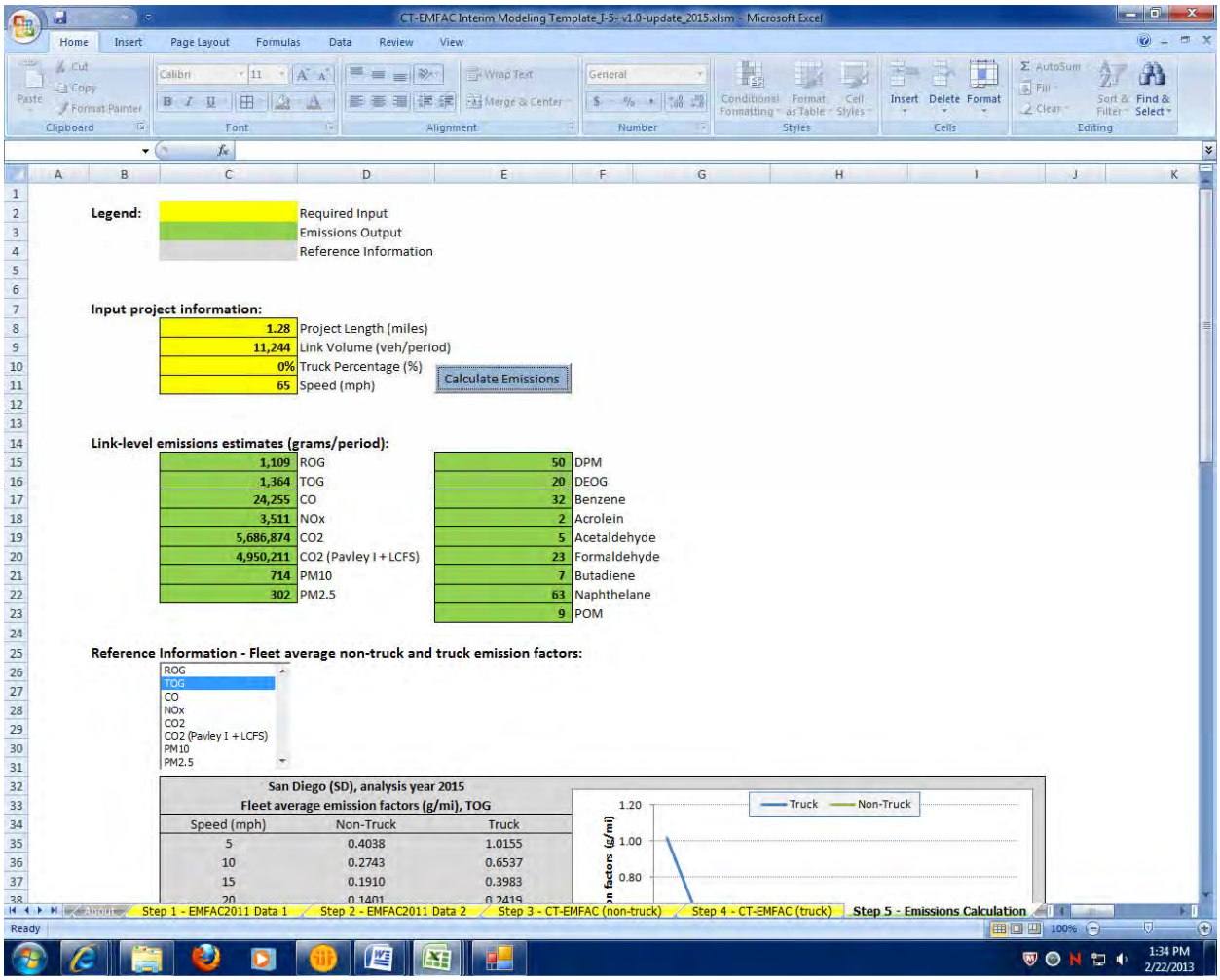
2015 8+4
Link: 3 (SB HOV)
Segment: 7
Off Peak



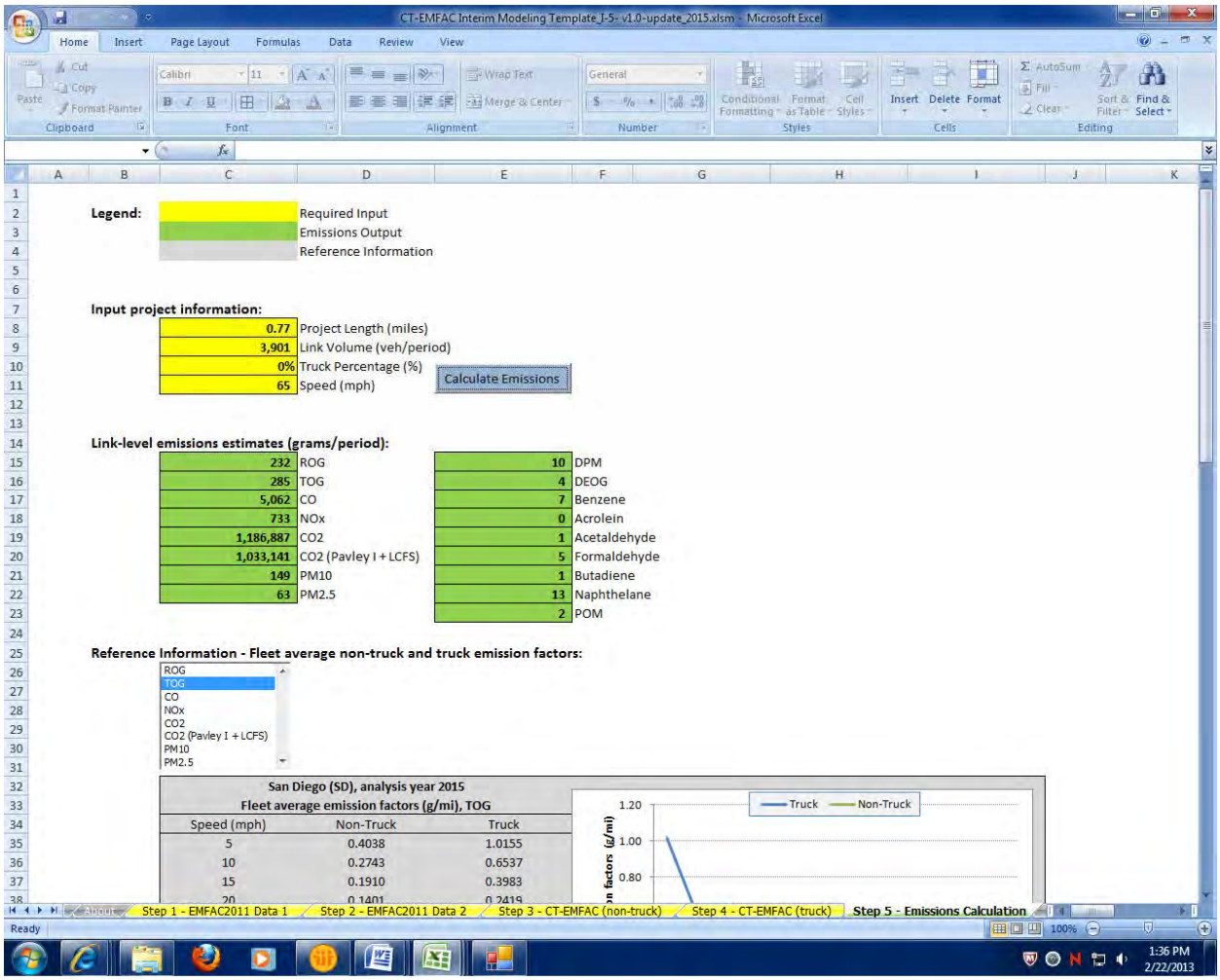
2015 8+4
Link: 3 (SB HOV)
Segment: 8
Peak



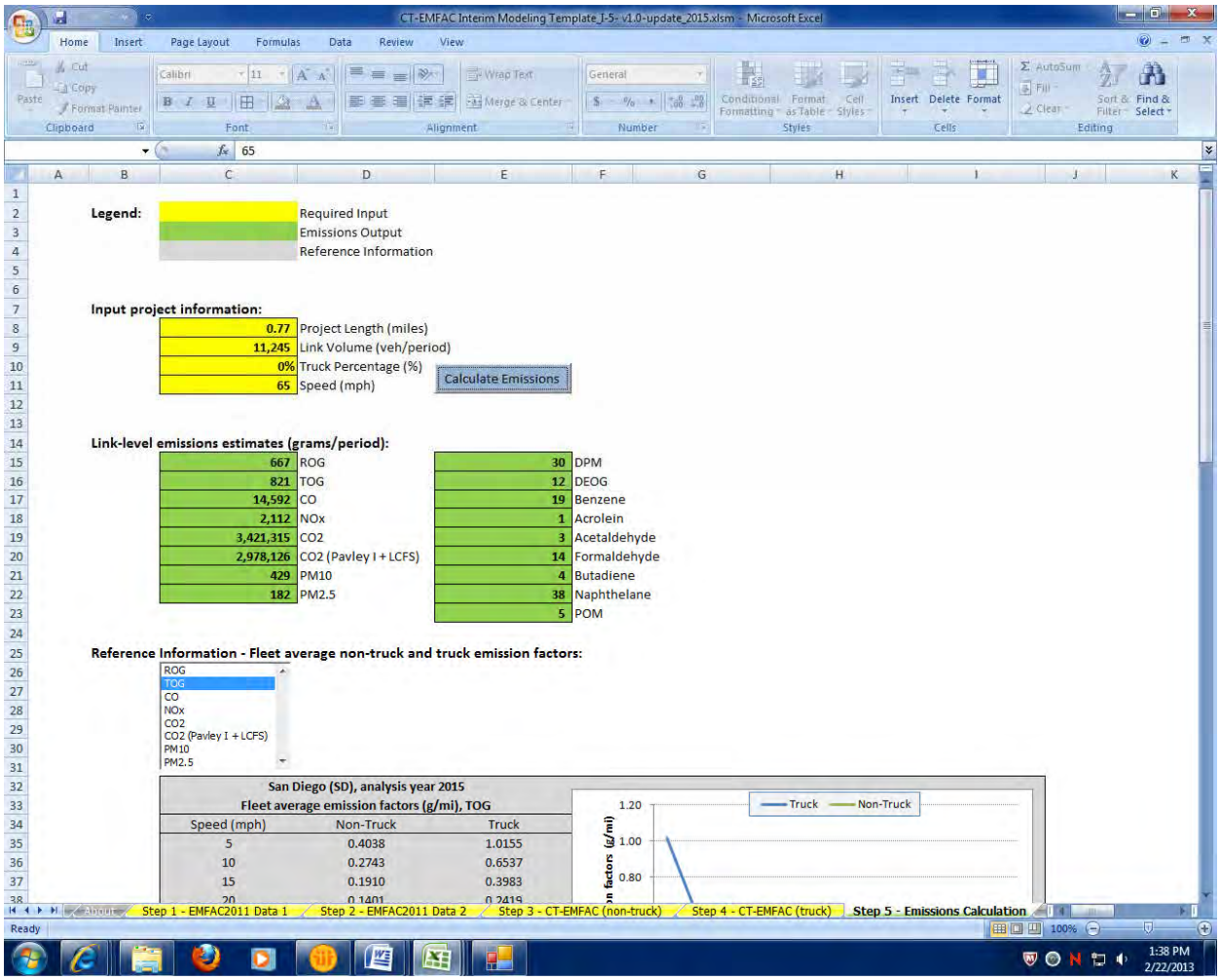
2015 8+4
Link: 3 (SB HOV)
Segment: 8
Off Peak



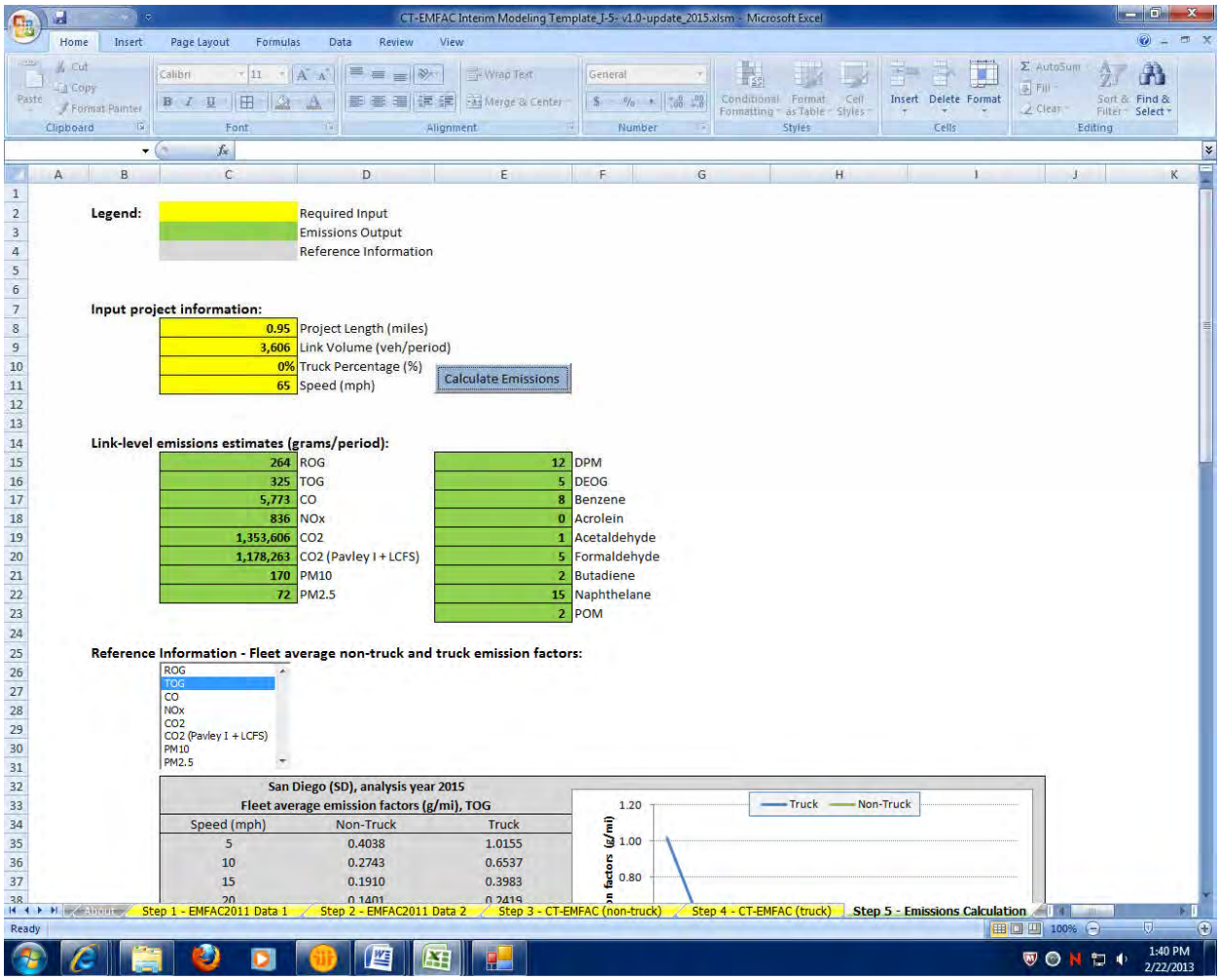
2015 8+4
Link: 3 (SB HOV)
Segment: 9
Peak



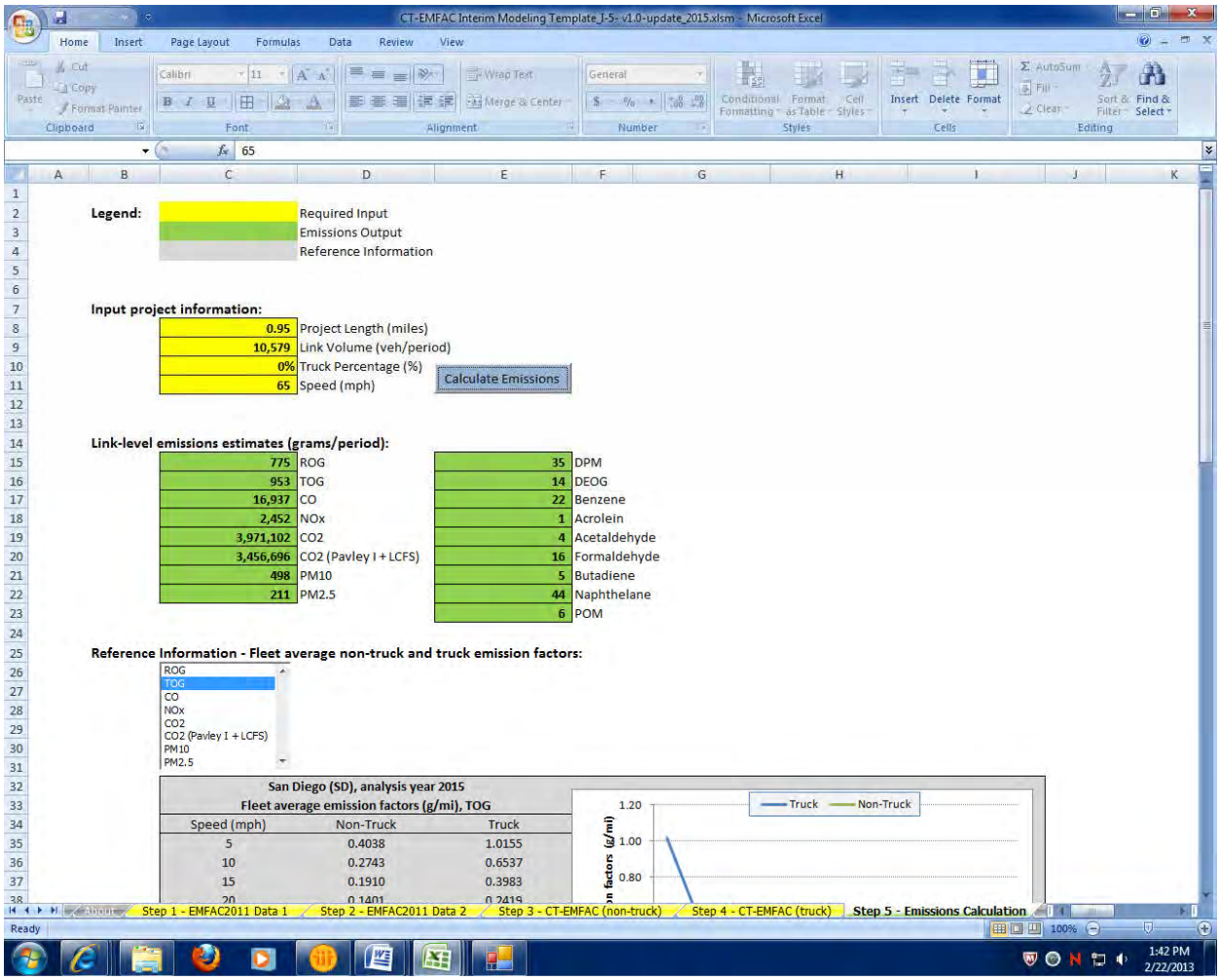
2015 8+4
Link: 3 (SB HOV)
Segment: 9
Off Peak



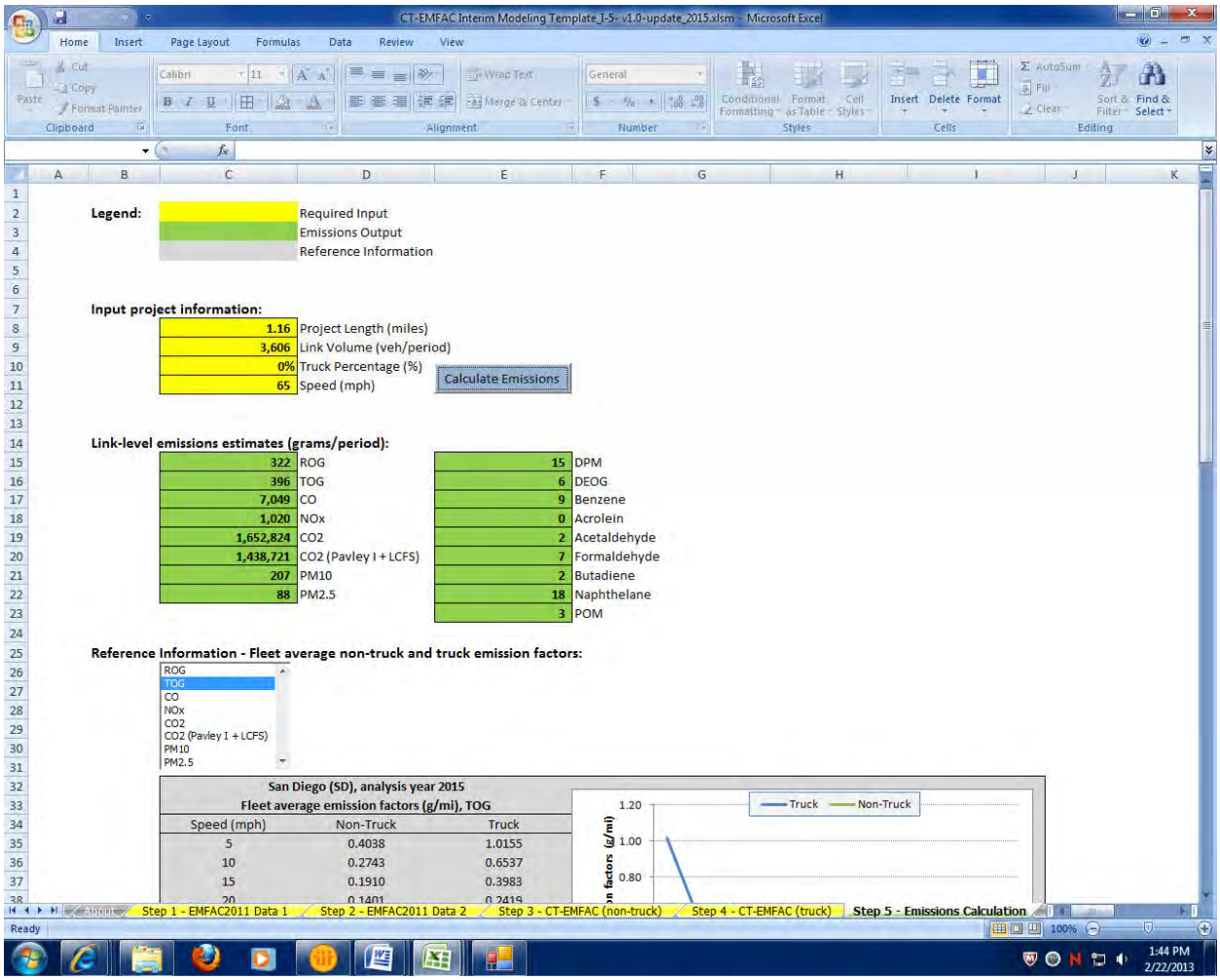
2015 8+4
Link: 3 (SB HOV)
Segment: 10
Peak



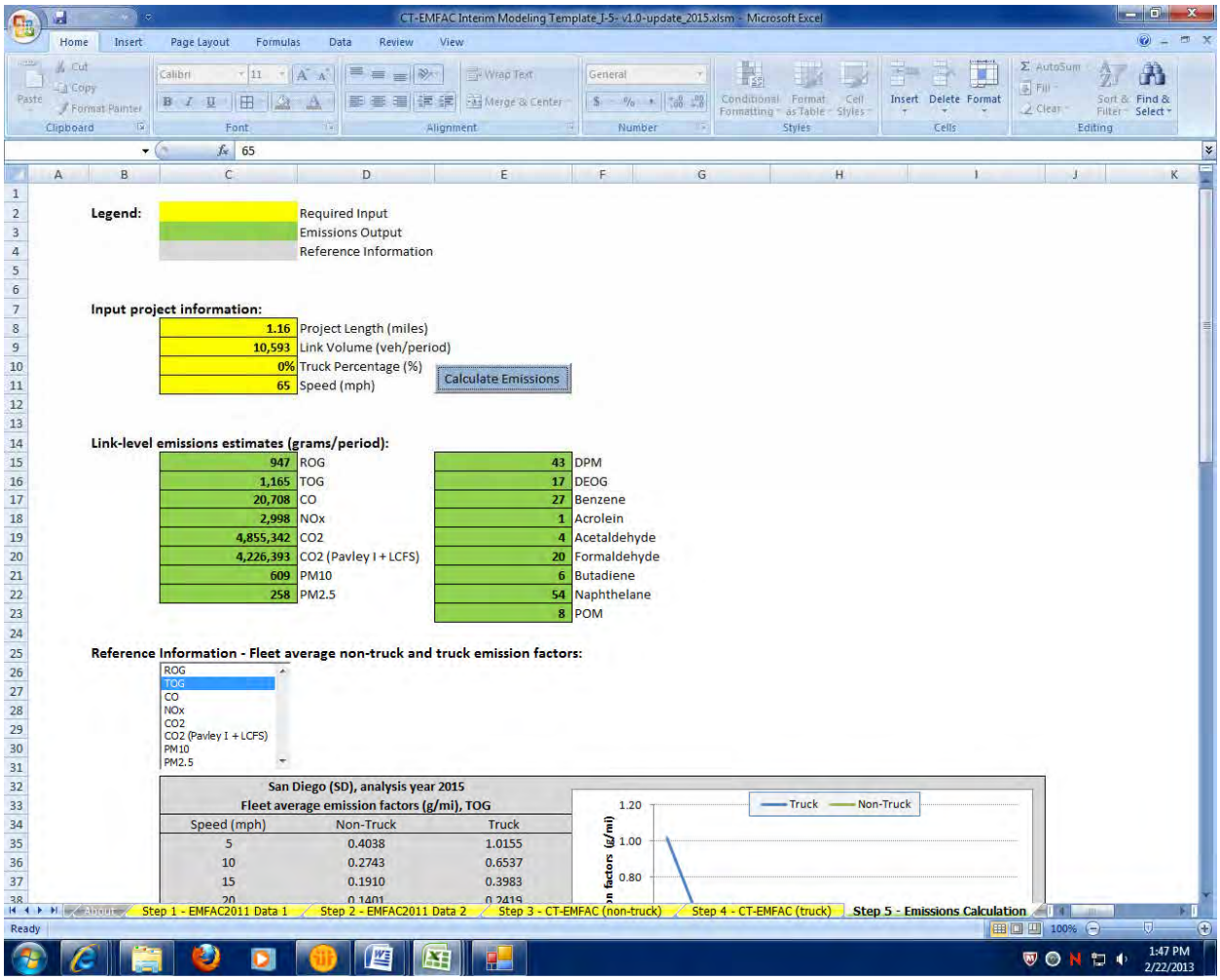
2015 8+4
Link: 3 (SB HOV)
Segment: 10
Off Peak



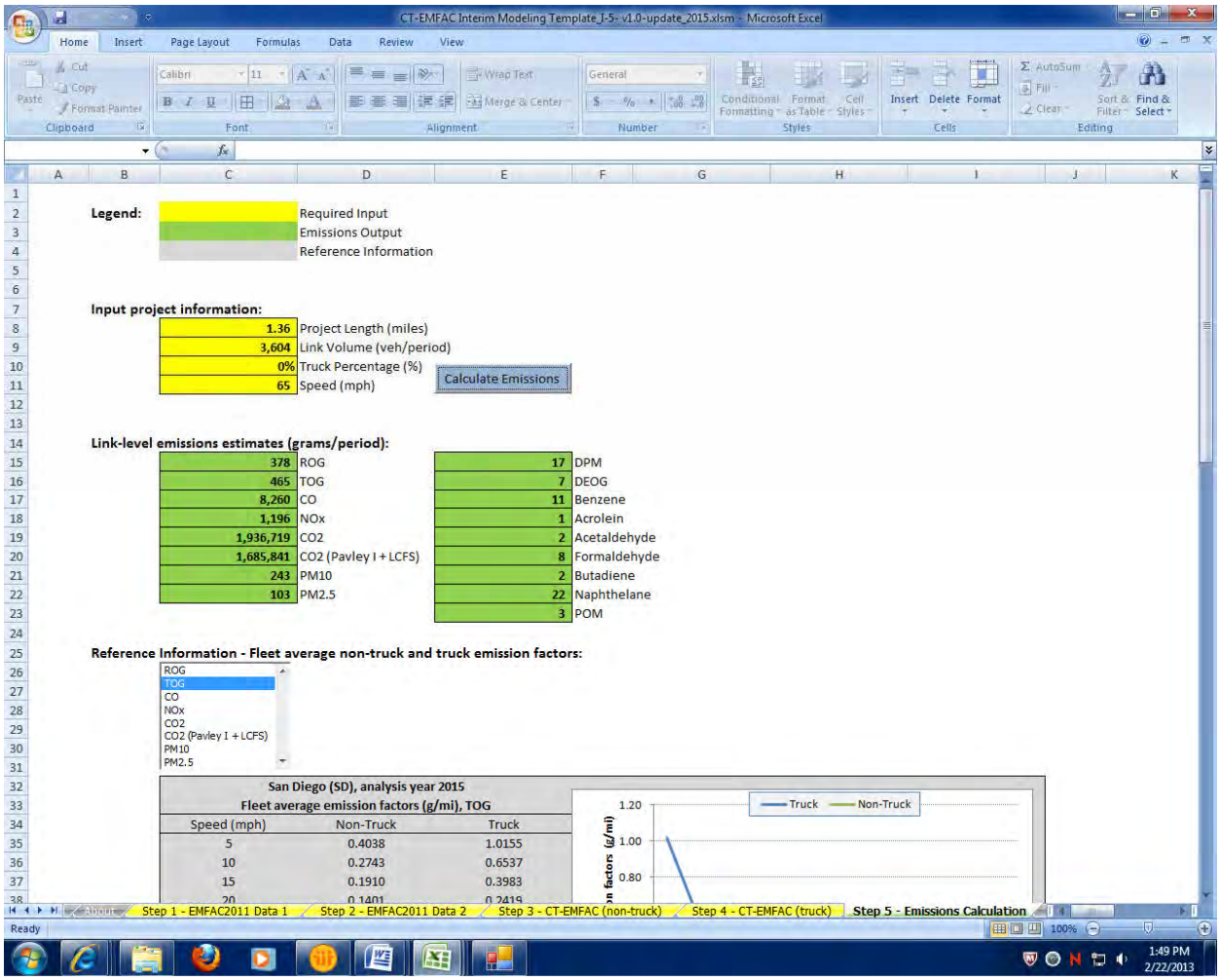
2015 8+4
Link: 3 (SB HOV)
Segment: 11
Peak



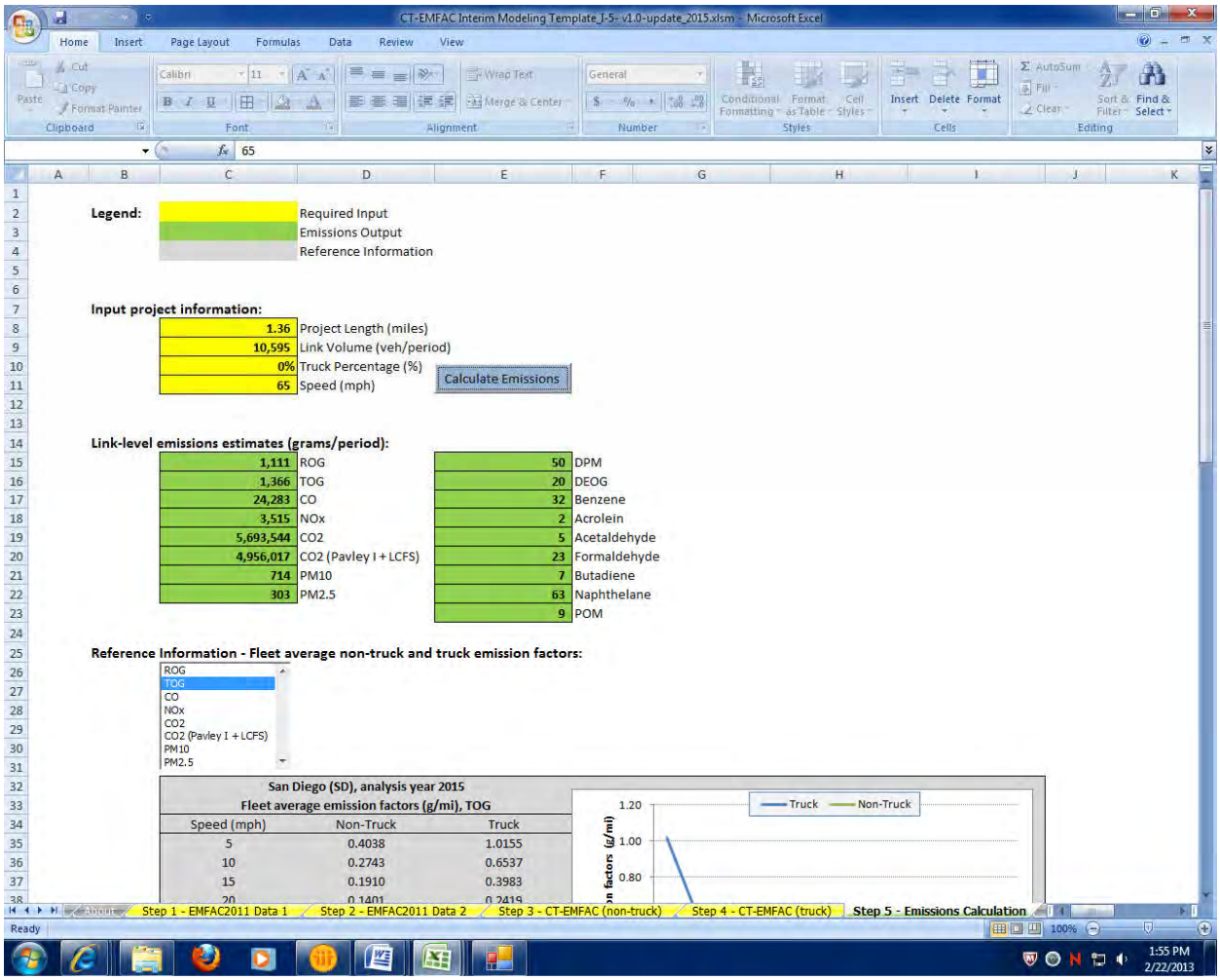
2015 8+4
Link: 3 (SB HOV)
Segment: 11
Off Peak



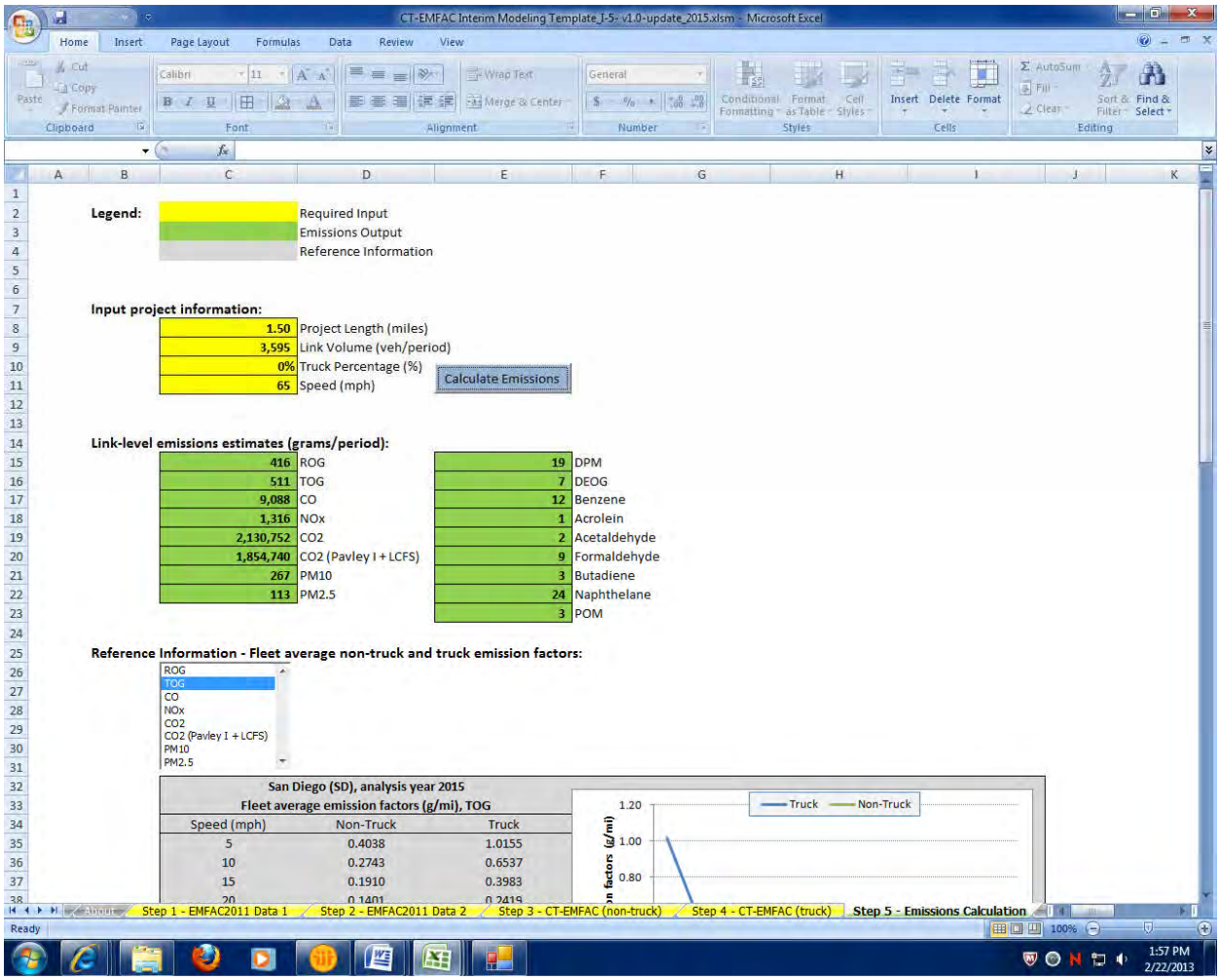
2015 8+4
Link: 3 (SB HOV)
Segment: 12
Peak



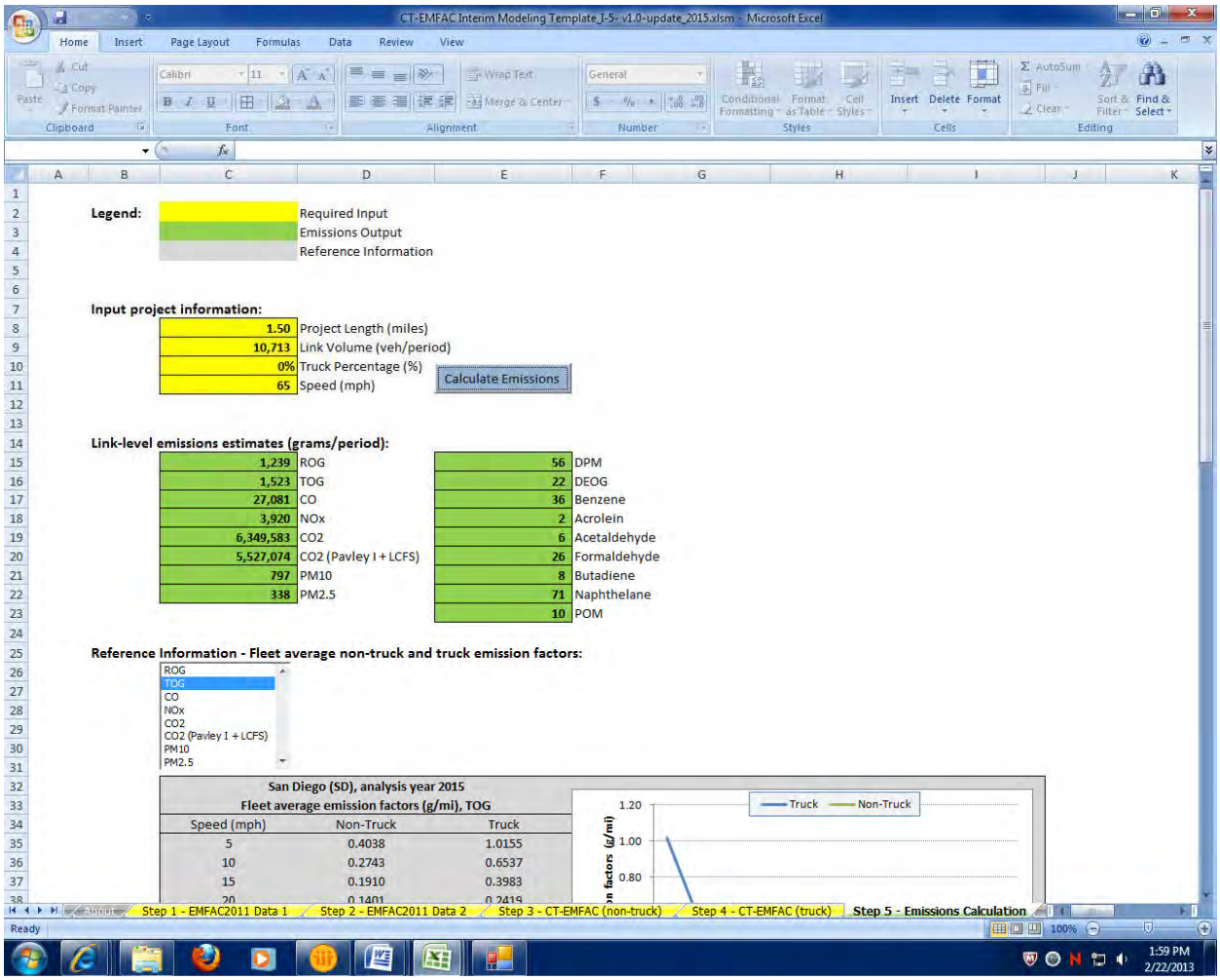
2015 8+4
Link: 3 (SB HOV)
Segment: 12
Off Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 13
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 13
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
10,713	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,239	ROG	56	DPM
1,523	TOG	22	DEOG
27,081	CO	36	Benzene
3,920	NOx	2	Acrolein
6,349,583	CO2	6	Acetaldehyde
5,527,074	CO2 (Pavley I + LCFS)	26	Formaldehyde
797	PM10	8	Butadiene
338	PM2.5	71	Naphthelane
		10	POM

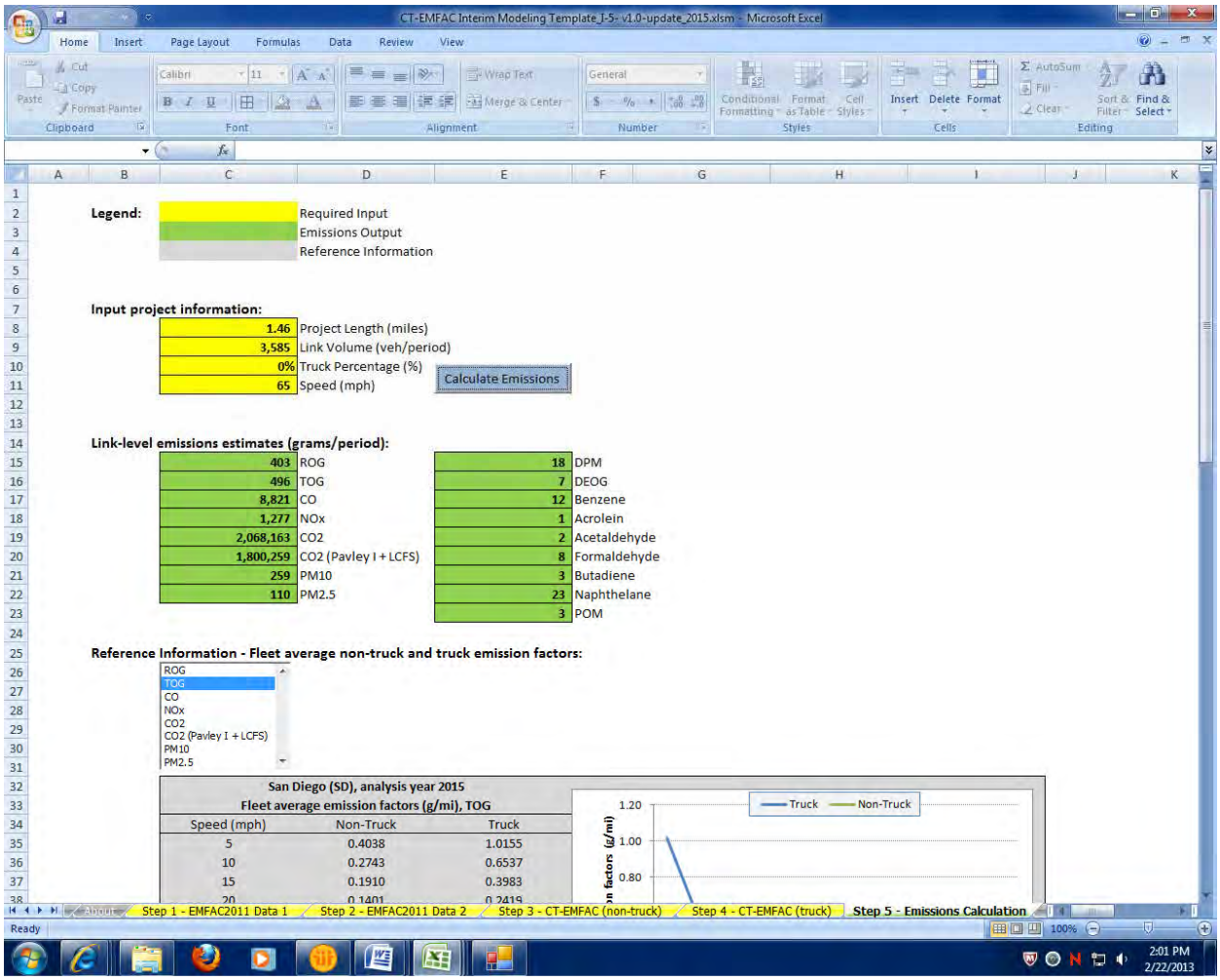
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

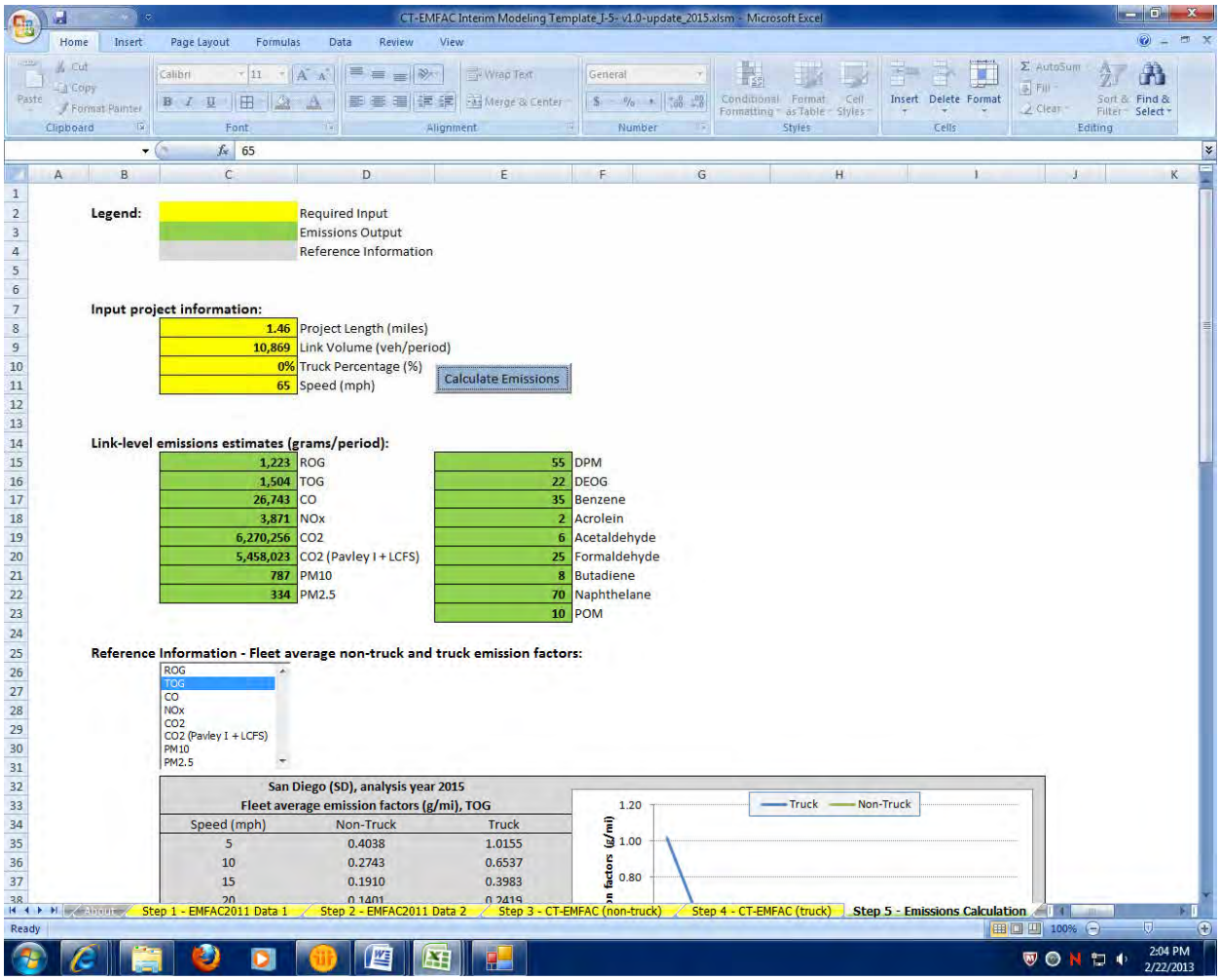
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

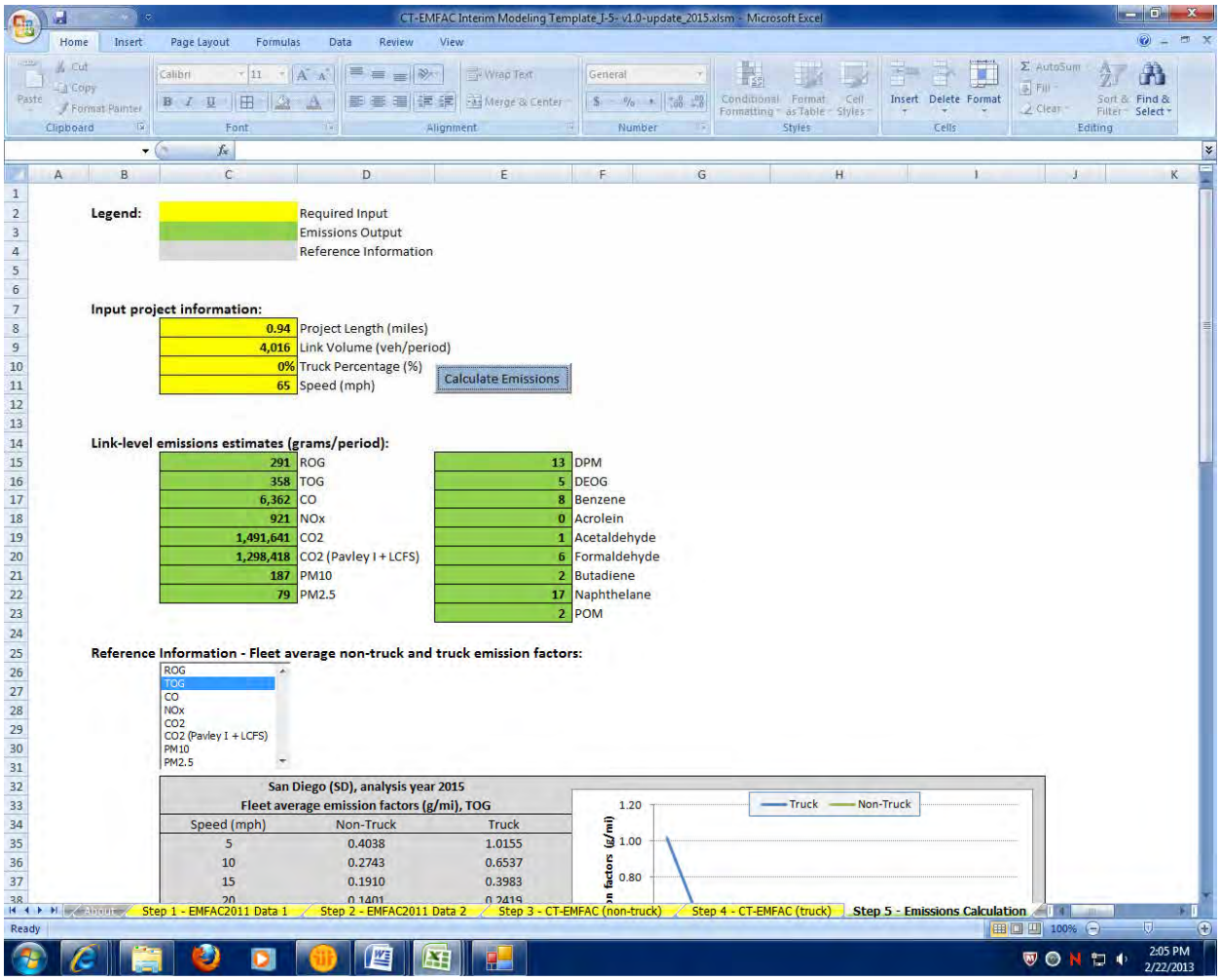
2015 8+4
Link: 3 (SB HOV)
Segment: 14
Peak



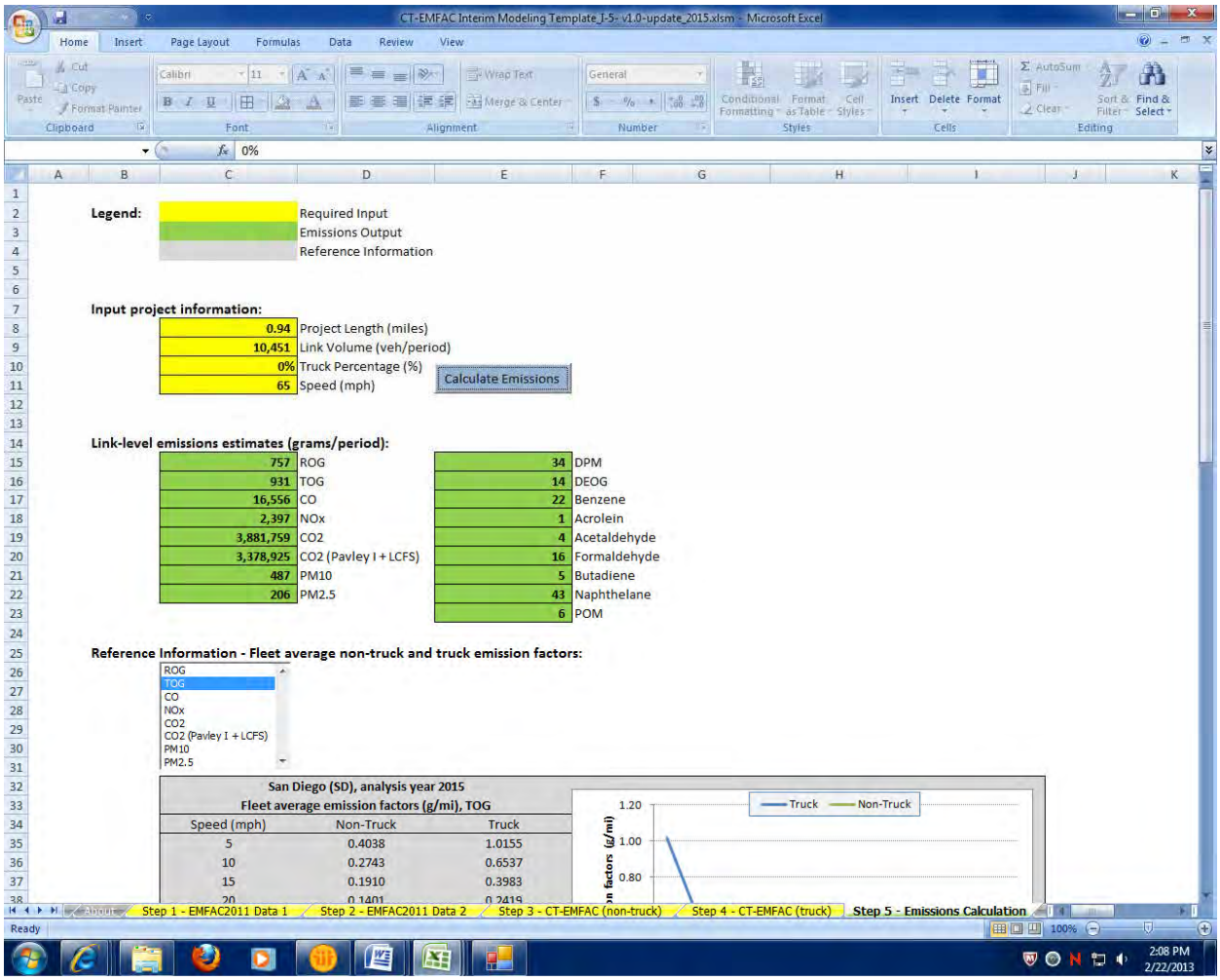
2015 8+4
Link: 3 (SB HOV)
Segment: 14
Off Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 15
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 15
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.94	Project Length (miles)
10,451	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

757	ROG	34	DPM
931	TOG	14	DEOG
16,556	CO	22	Benzene
2,397	NOx	1	Acrolein
3,881,759	CO2	4	Acetaldehyde
3,378,925	CO2 (Pavley I + LCFS)	16	Formaldehyde
487	PM10	5	Butadiene
206	PM2.5	43	Naphthelane
		6	POM

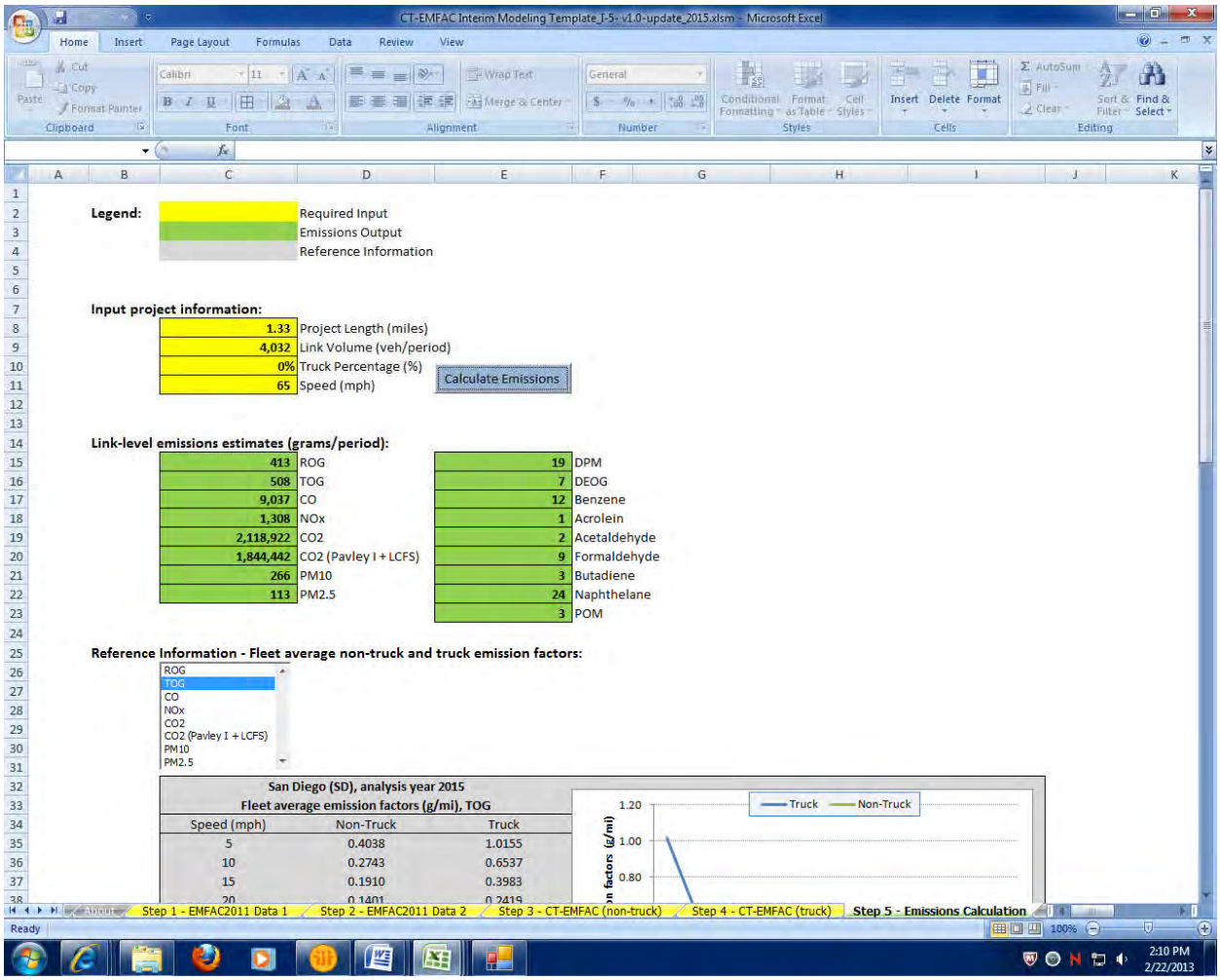
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

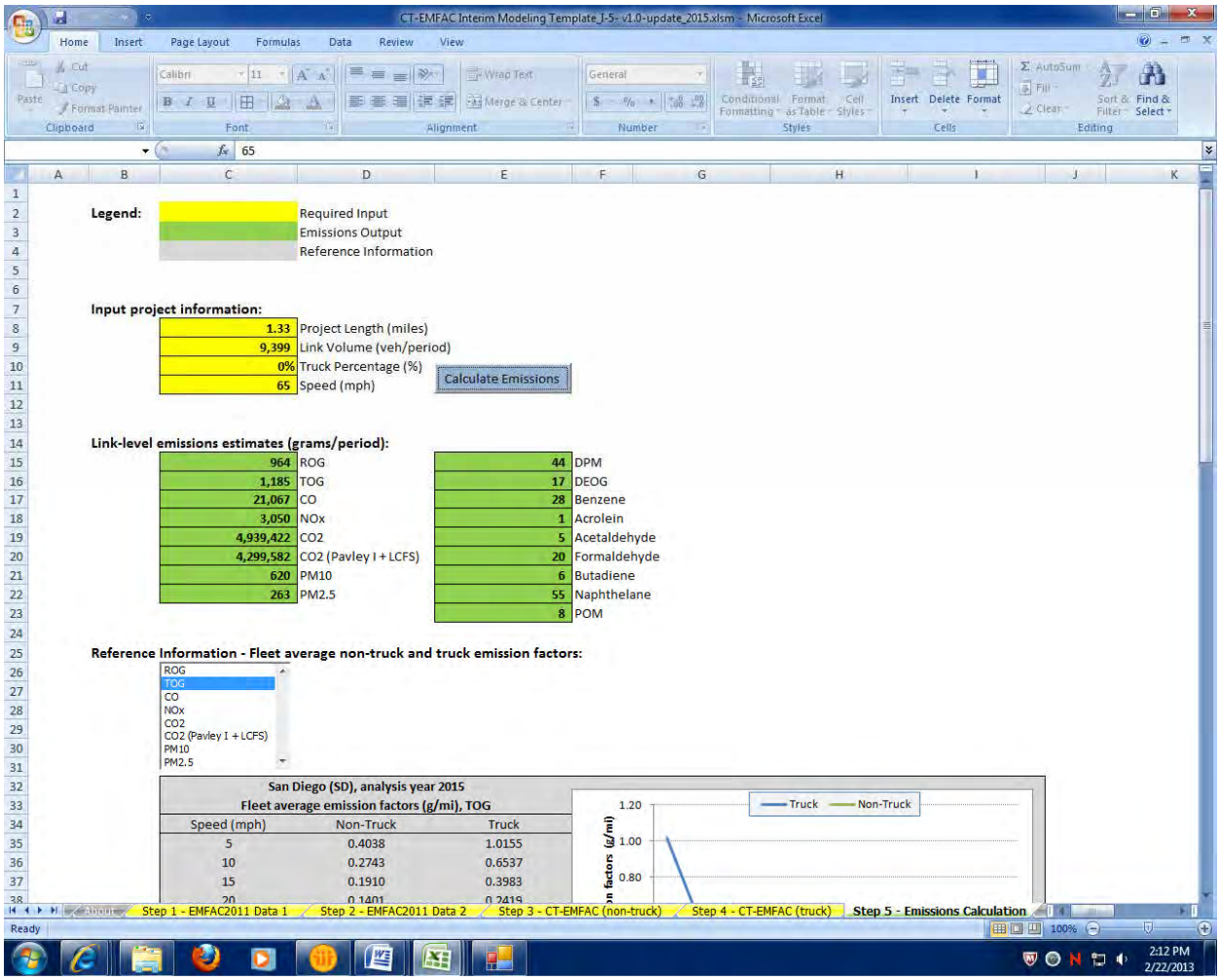
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 16
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 16
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.33	Project Length (miles)
9,399	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

964	ROG	44	DPM
1,185	TOG	17	DEOG
21,067	CO	28	Benzene
3,050	NOx	1	Acrolein
4,939,422	CO2	5	Acetaldehyde
4,299,582	CO2 (Pavley I + LCFS)	20	Formaldehyde
620	PM10	6	Butadiene
263	PM2.5	55	Naphthelane
		8	POM

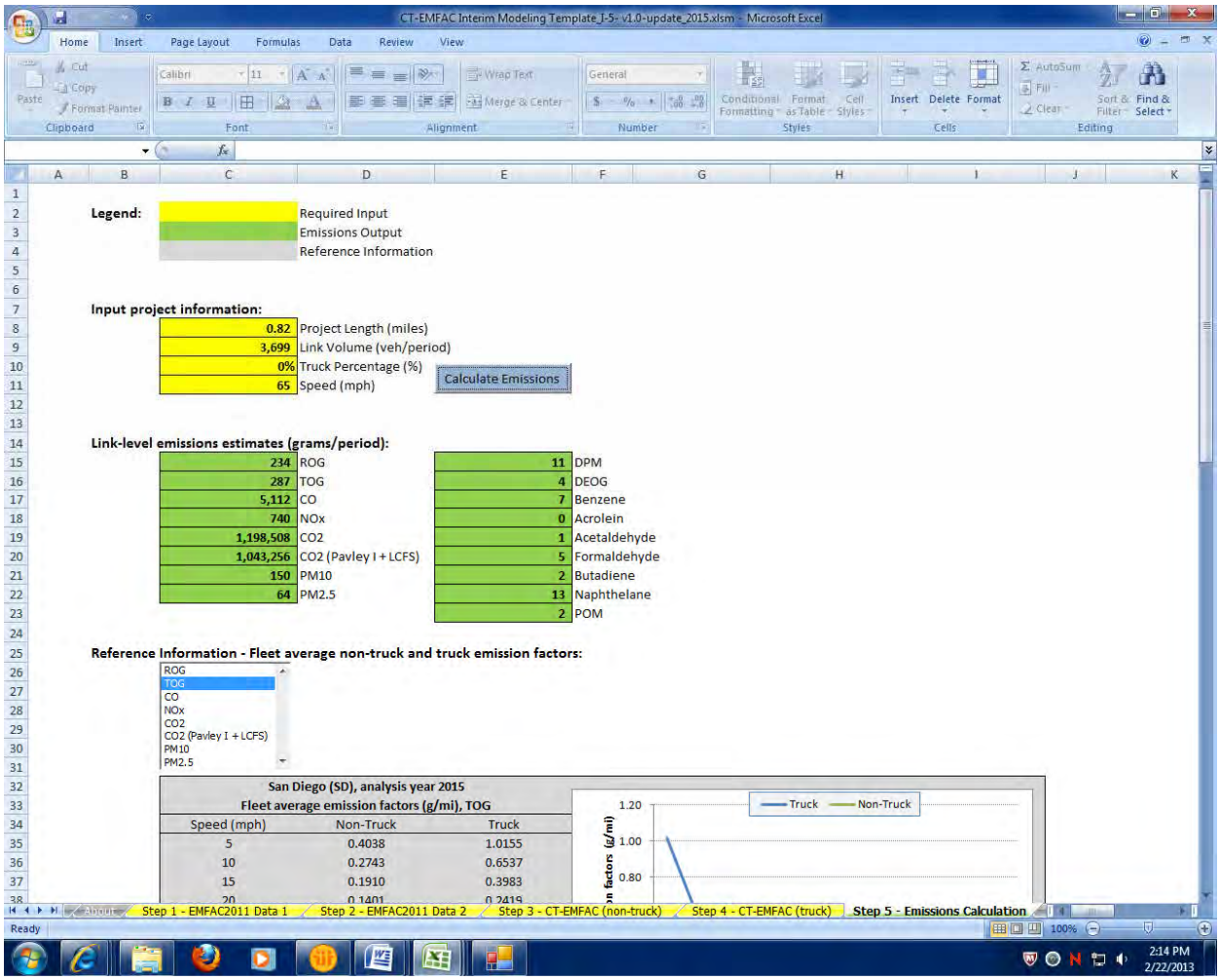
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

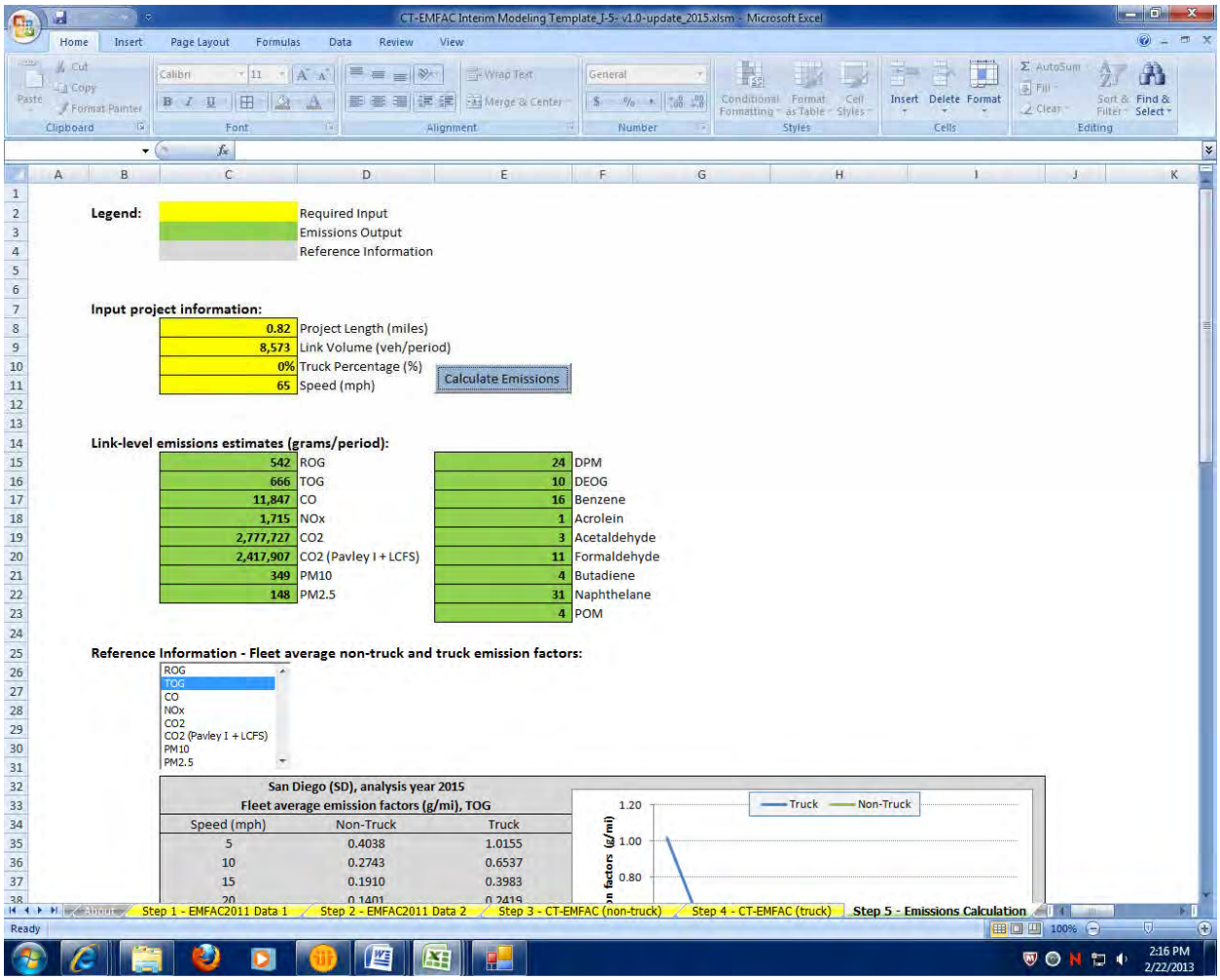
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

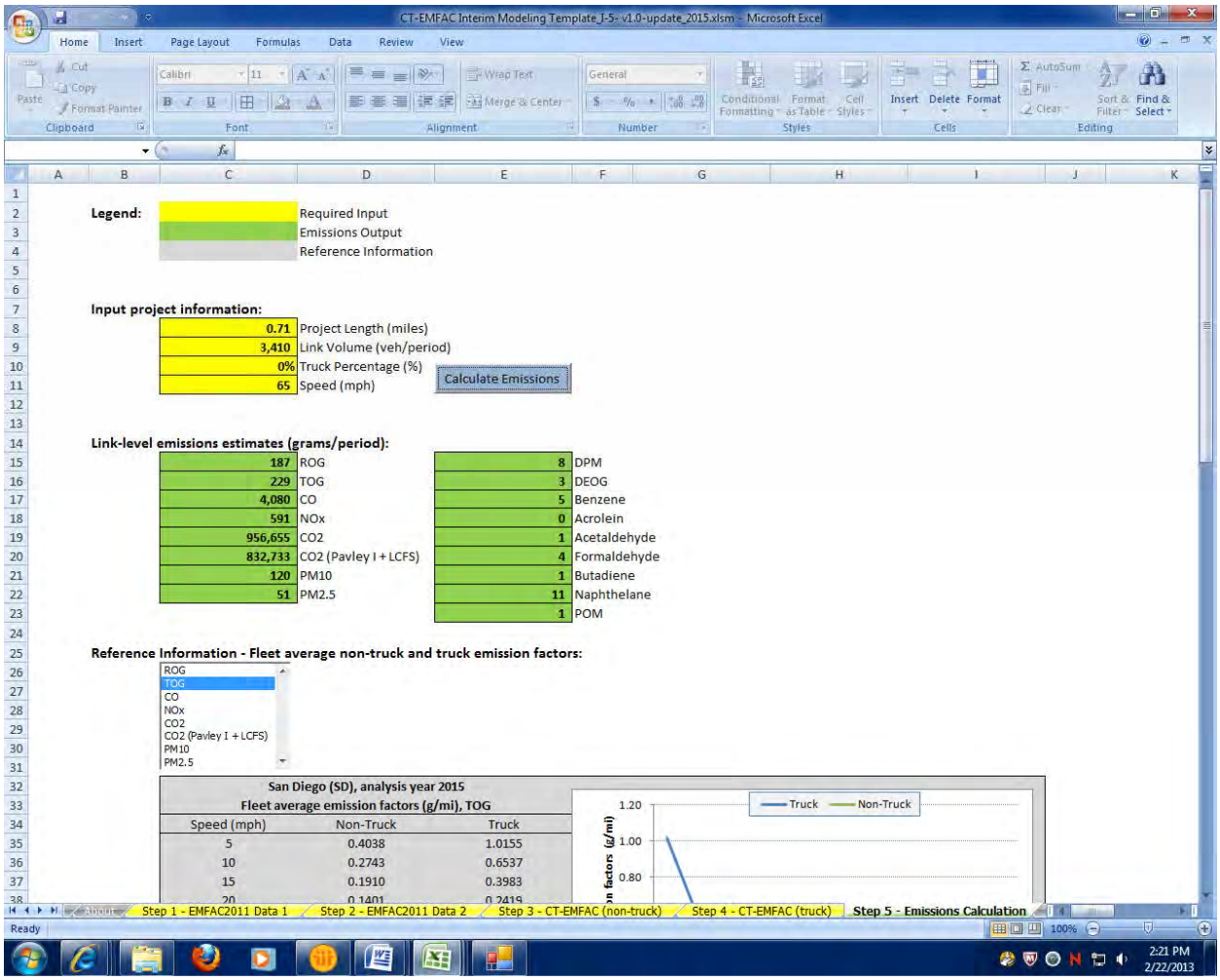
2015 8+4
Link: 3 (SB HOV)
Segment: 17
Peak



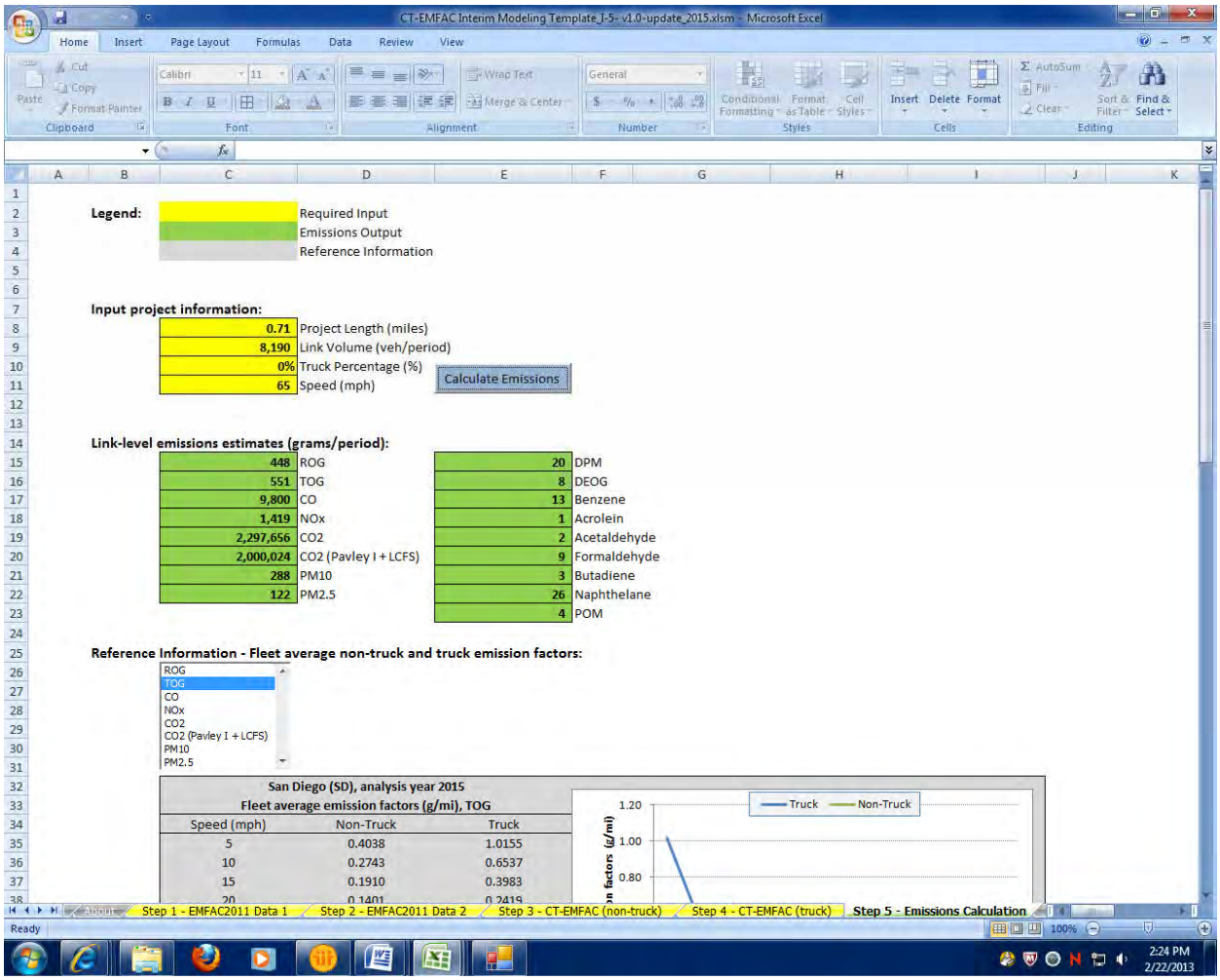
2015 8+4
Link: 3 (SB HOV)
Segment: 17
Off Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 18
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 18
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.71	Project Length (miles)
8,190	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

448	ROG	20	DPM
551	TOG	8	DEOG
9,800	CO	13	Benzene
1,419	NOx	1	Acrolein
2,297,656	CO2	2	Acetaldehyde
2,000,024	CO2 (Pavley I + LCFS)	9	Formaldehyde
288	PM10	3	Butadiene
122	PM2.5	26	Naphthelane
		4	POM

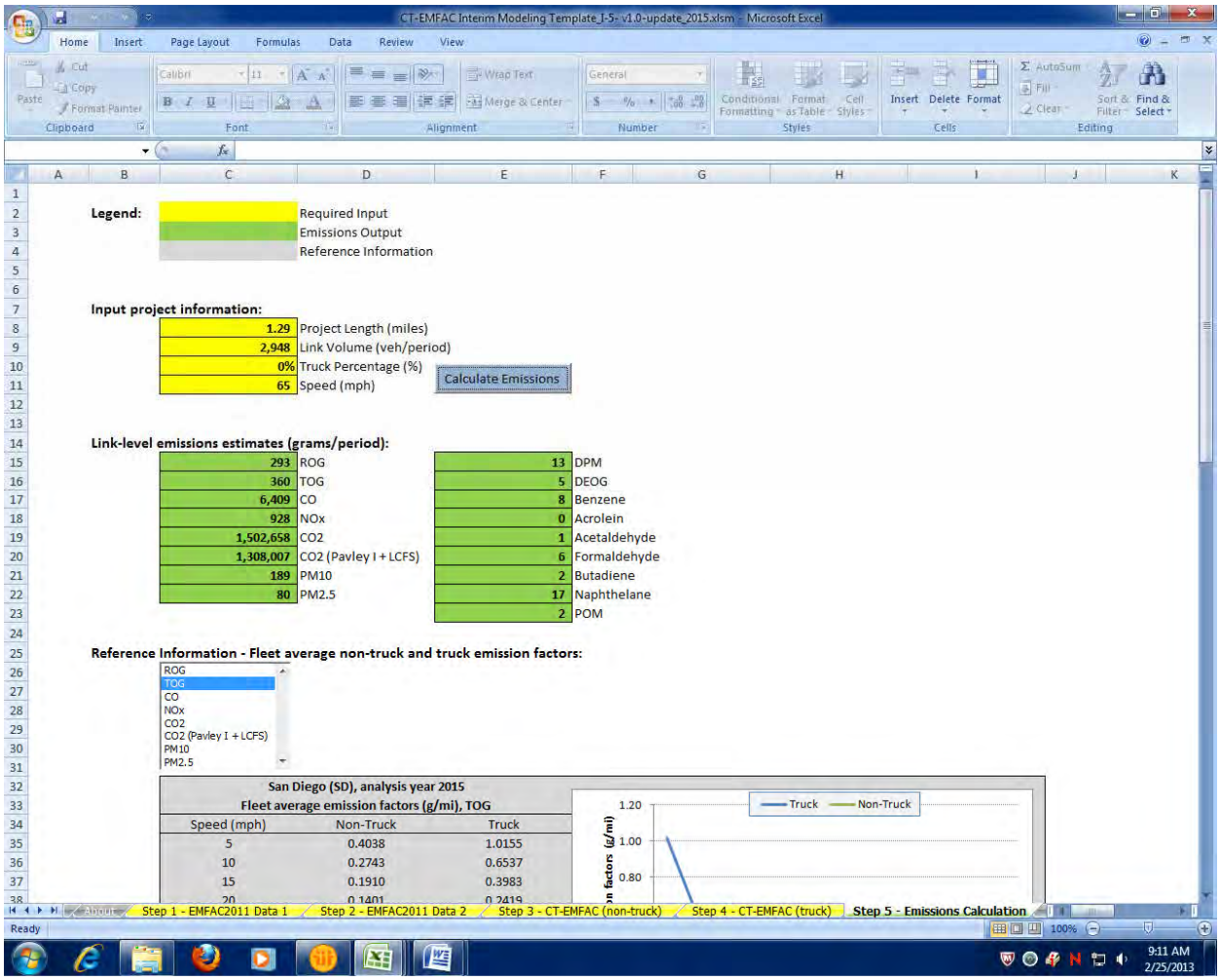
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 19
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.29	Project Length (miles)
2,948	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

293	ROG	13	DPM
360	TOG	5	DEOG
6,409	CO	8	Benzene
928	NOx	0	Acrolein
1,502,658	CO2	1	Acetaldehyde
1,308,007	CO2 (Pavley I + LCFS)	6	Formaldehyde
189	PM10	2	Butadiene
80	PM2.5	17	Naphthelane
		2	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

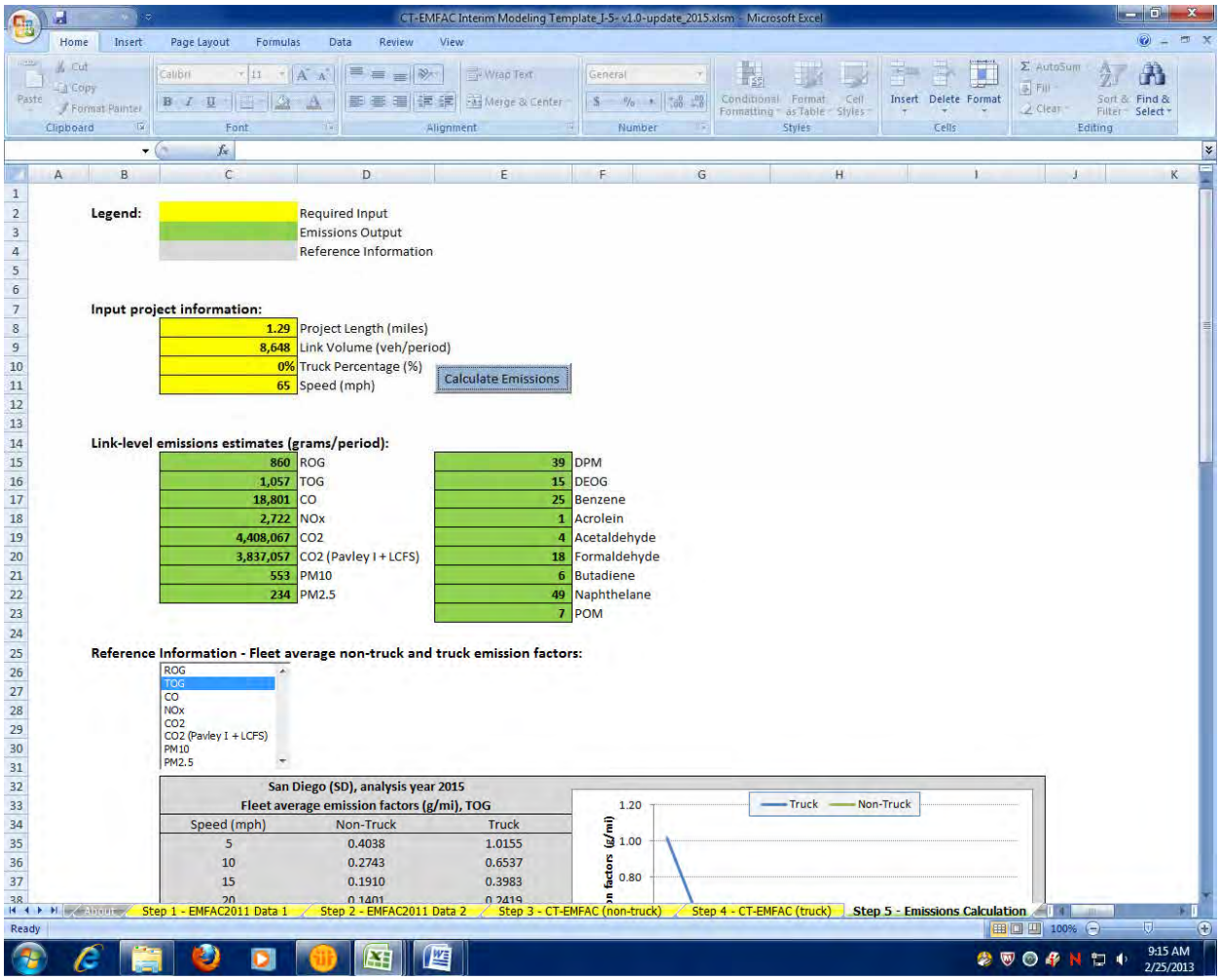
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready 100%

9:11 AM 2/25/2013

2015 8+4
Link: 3 (SB HOV)
Segment: 19
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.29	Project Length (miles)
8,648	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

860	ROG	39	DPM
1,057	TOG	15	DEOG
18,801	CO	25	Benzene
2,722	NOx	1	Acrolein
4,408,067	CO2	4	Acetaldehyde
3,837,057	CO2 (Pavley I + LCFS)	18	Formaldehyde
553	PM10	6	Butadiene
234	PM2.5	49	Naphthelane
		7	POM

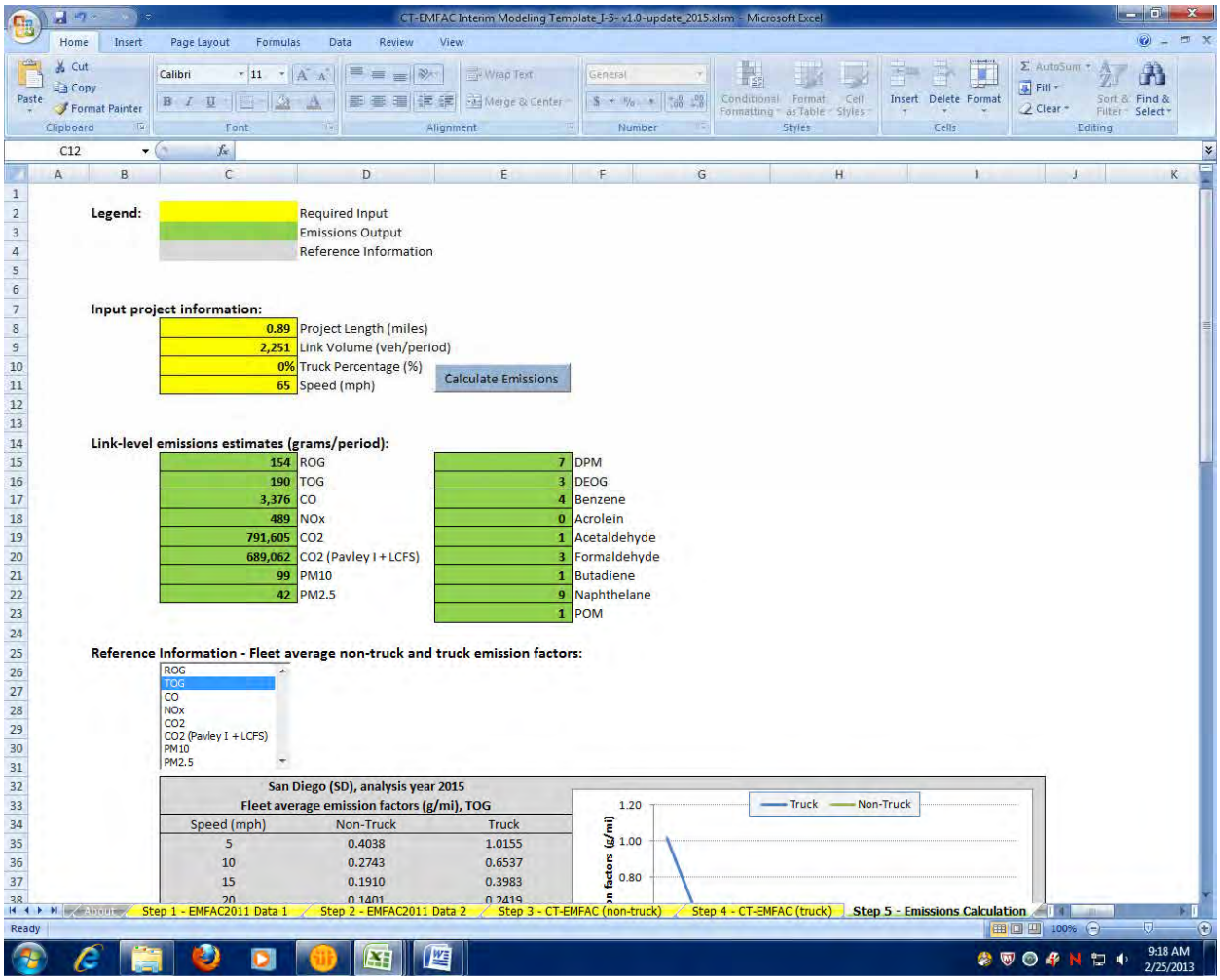
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 20
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
2,251	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

154	ROG	7	DPM
190	TOG	3	DEOG
3,376	CO	4	Benzene
489	NOx	0	Acrolein
791,605	CO2	1	Acetaldehyde
689,062	CO2 (Pavley I + LCFS)	3	Formaldehyde
99	PM10	1	Butadiene
42	PM2.5	9	Naphthelane
		1	POM

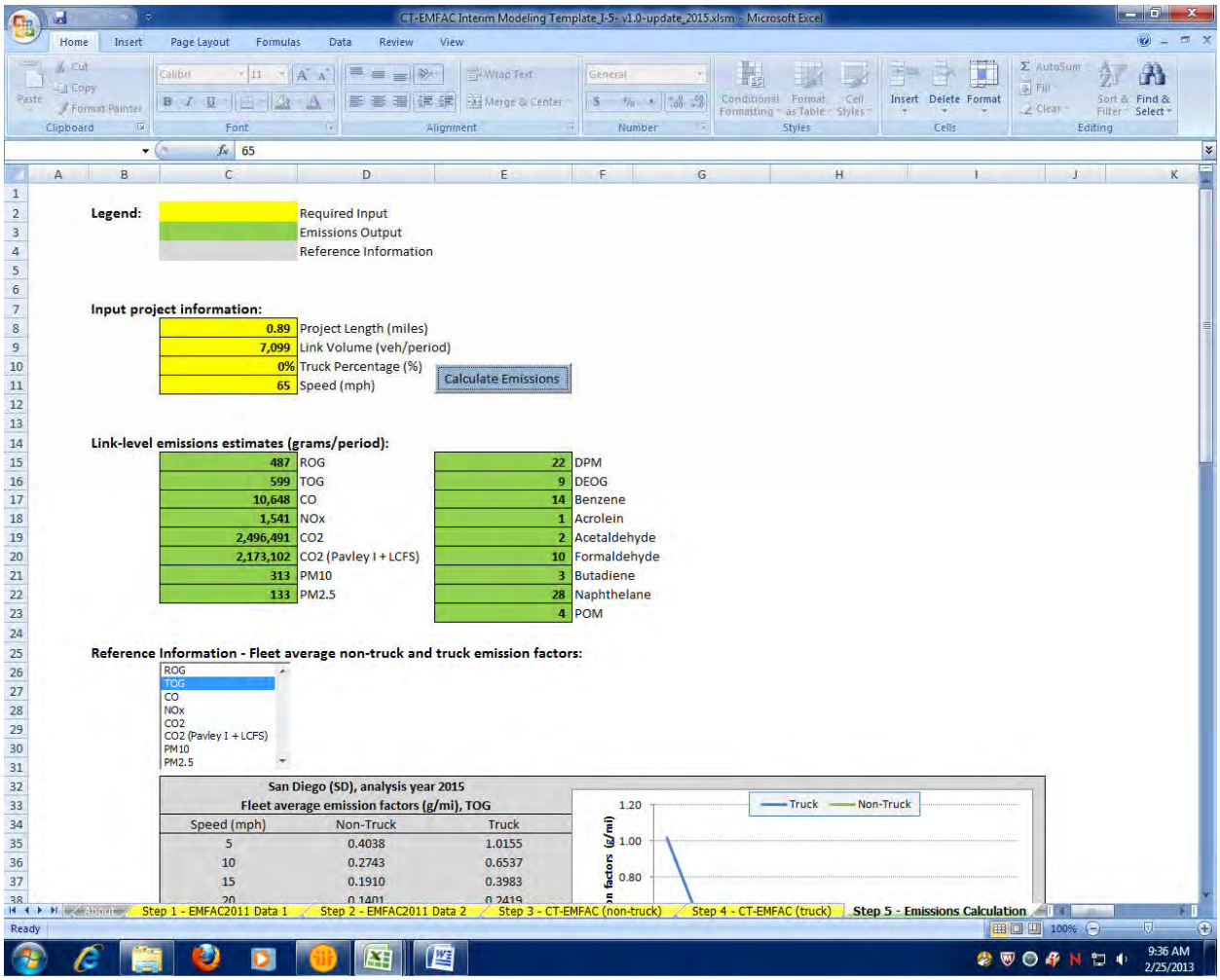
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

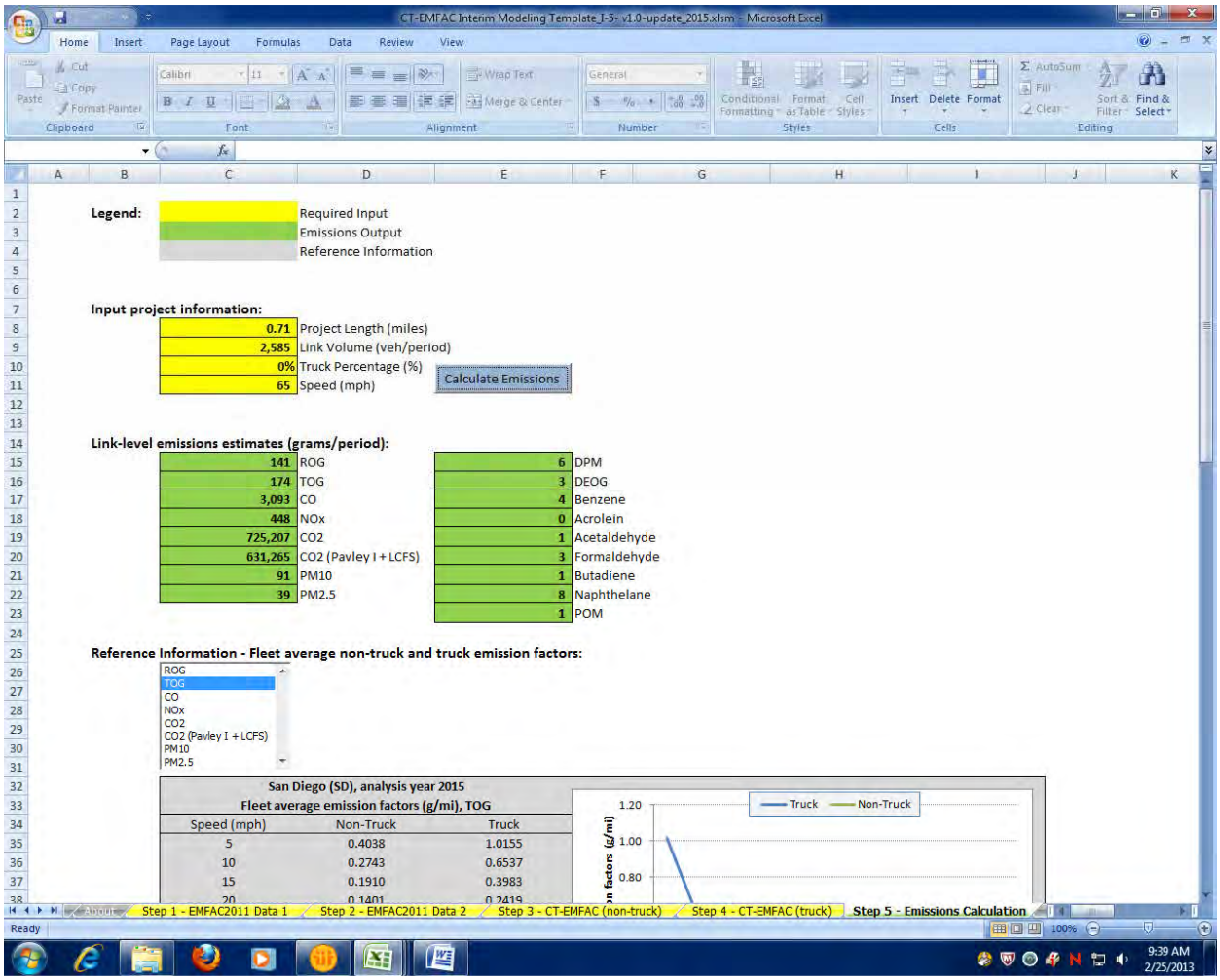
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

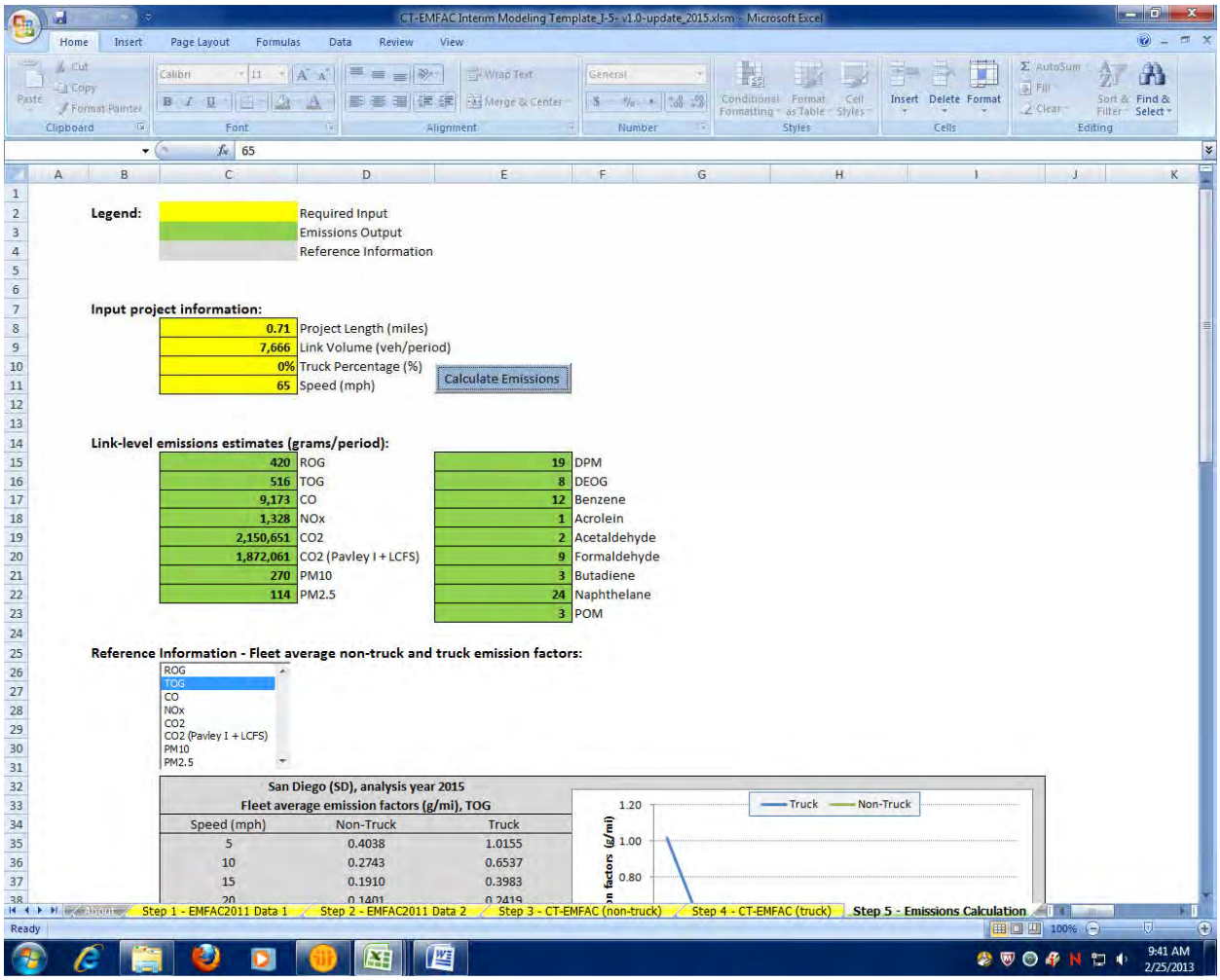
2015 8+4
Link: 3 (SB HOV)
Segment: 20
Off Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 21
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 21
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.71	Project Length (miles)
7,666	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

420	ROG	19	DPM
516	TOG	8	DEOG
9,173	CO	12	Benzene
1,328	NOx	1	Acrolein
2,150,651	CO2	2	Acetaldehyde
1,872,061	CO2 (Pavley I + LCFS)	9	Formaldehyde
270	PM10	3	Butadiene
114	PM2.5	24	Naphthelane
		3	POM

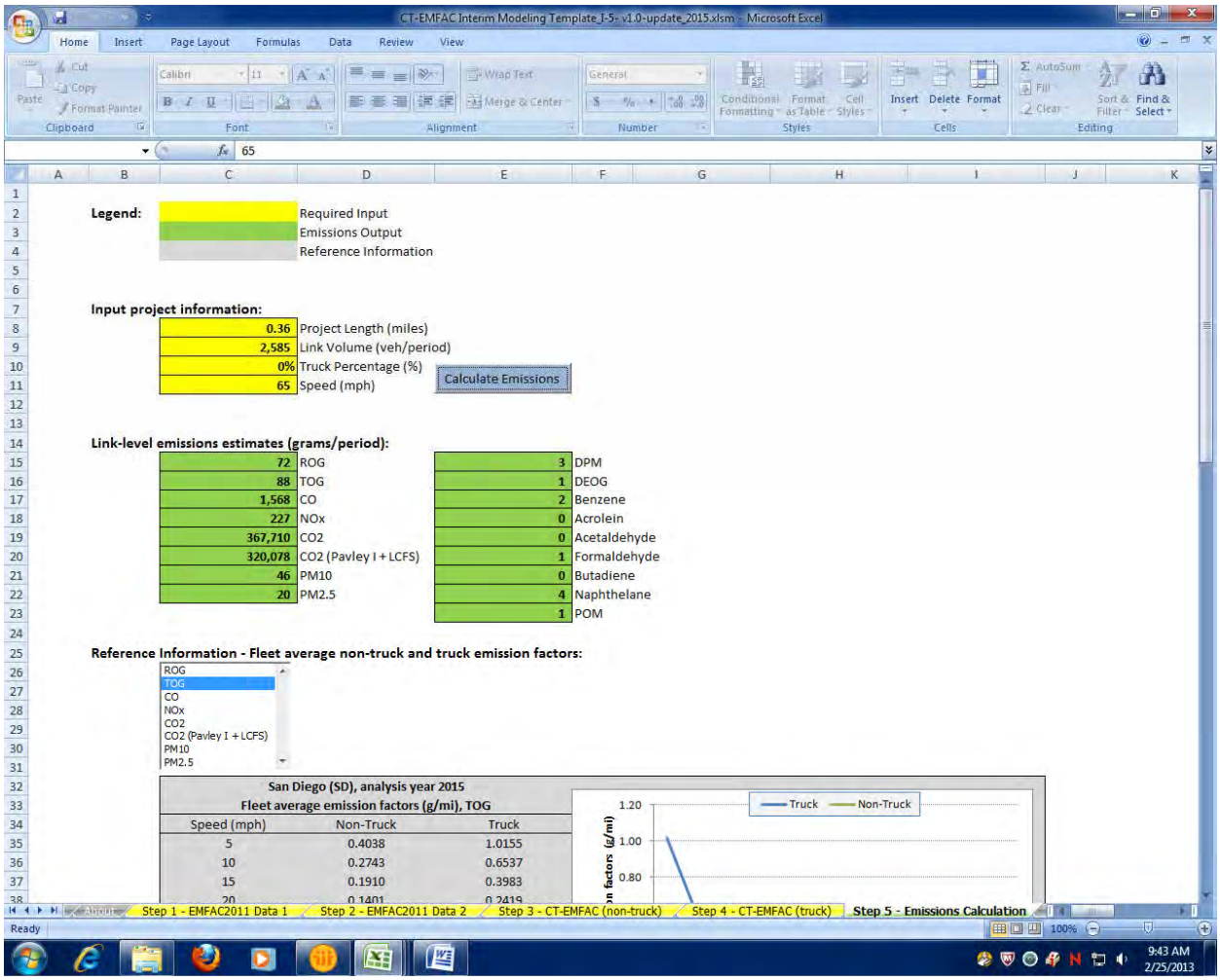
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

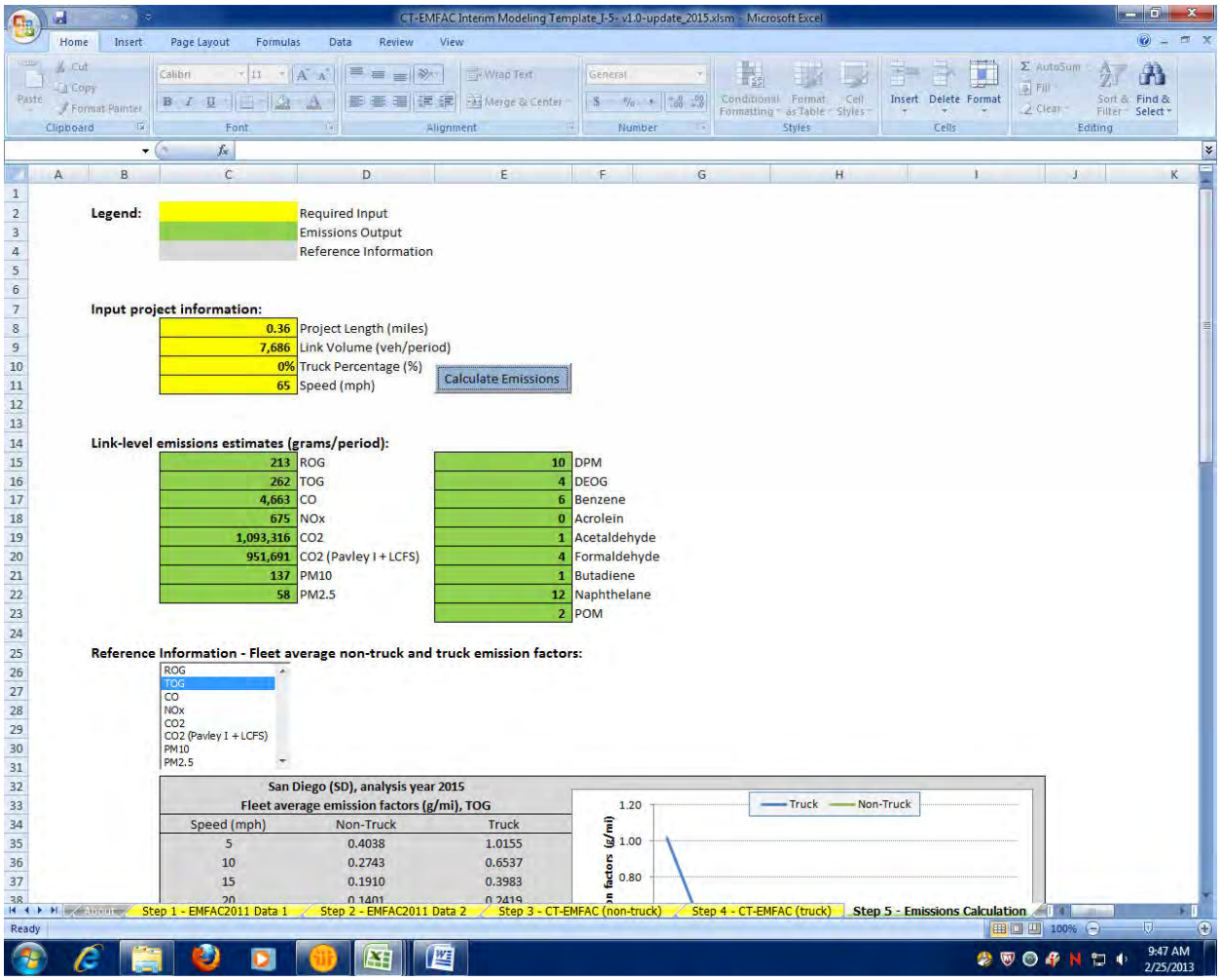
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 3 (SB HOV)
Segment: 22
Peak



2015 8+4
Link: 3 (SB HOV)
Segment: 22
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2015.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.36	Project Length (miles)
7,686	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

213	ROG	10	DPM
262	TOG	4	DEOG
4,663	CO	6	Benzene
675	NOx	0	Acrolein
1,093,316	CO2	1	Acetaldehyde
951,691	CO2 (Pavley I + LCFS)	4	Formaldehyde
137	PM10	1	Butadiene
58	PM2.5	12	Naphthelane
		2	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

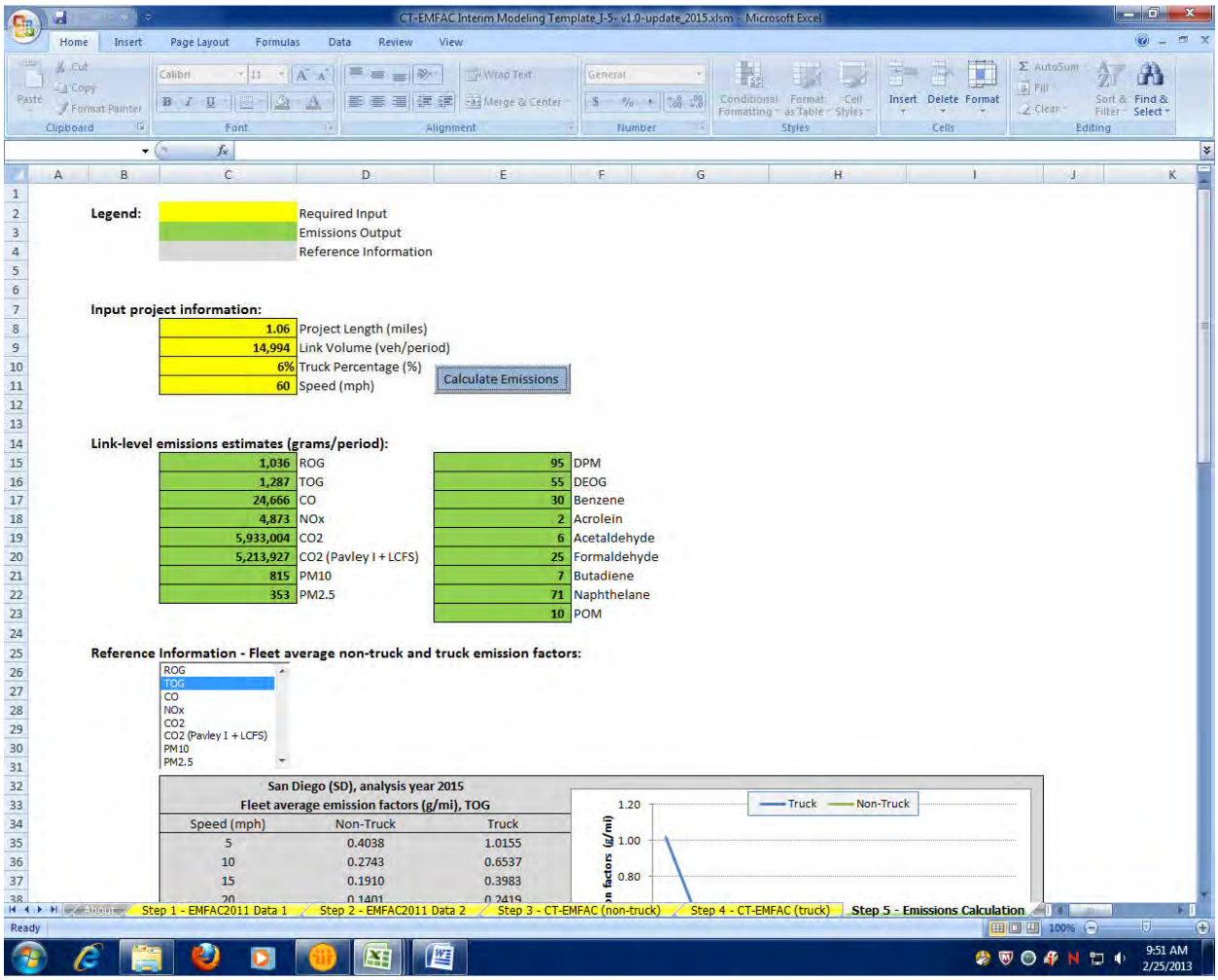
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

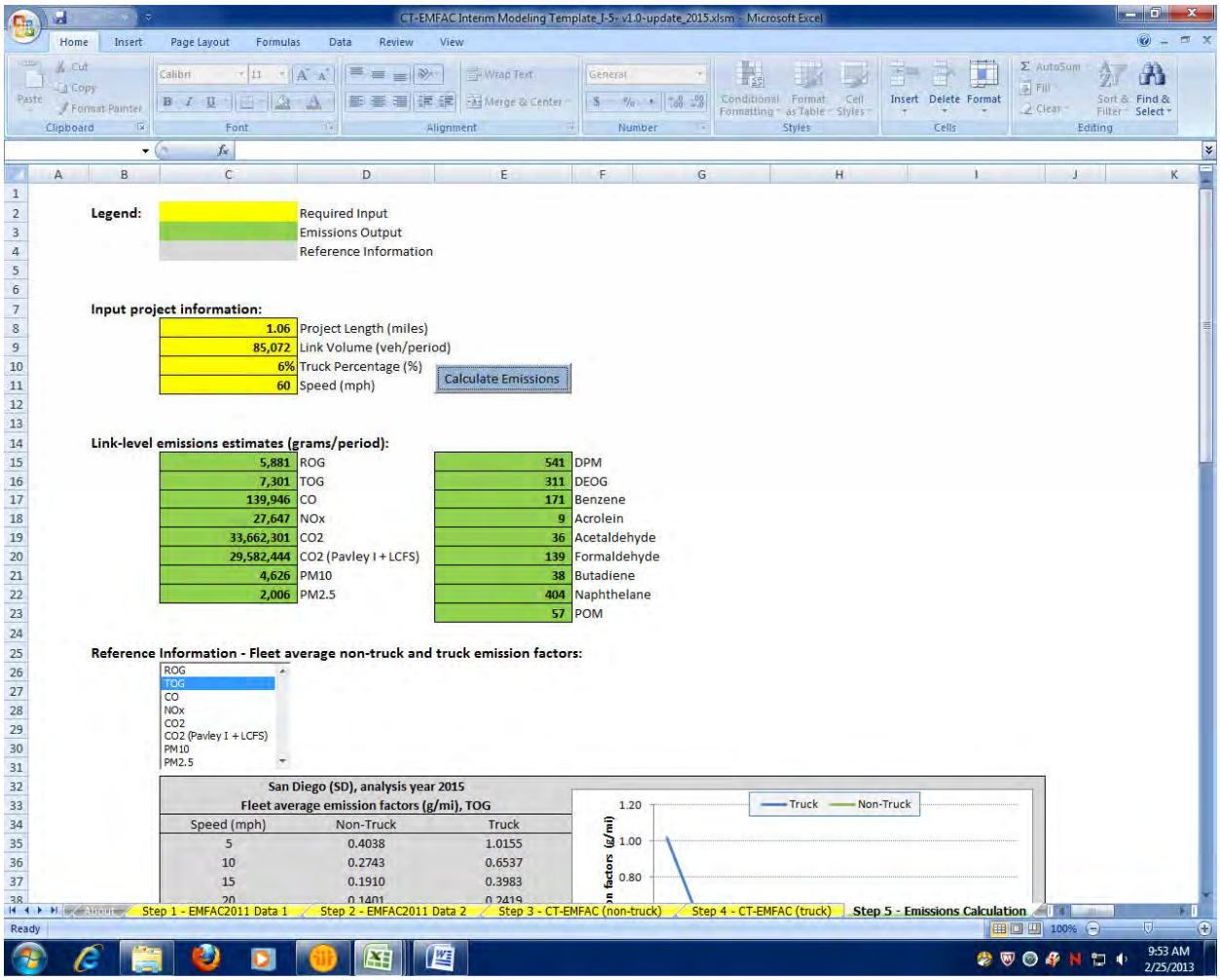
Ready 100%

9:47 AM 2/25/2013

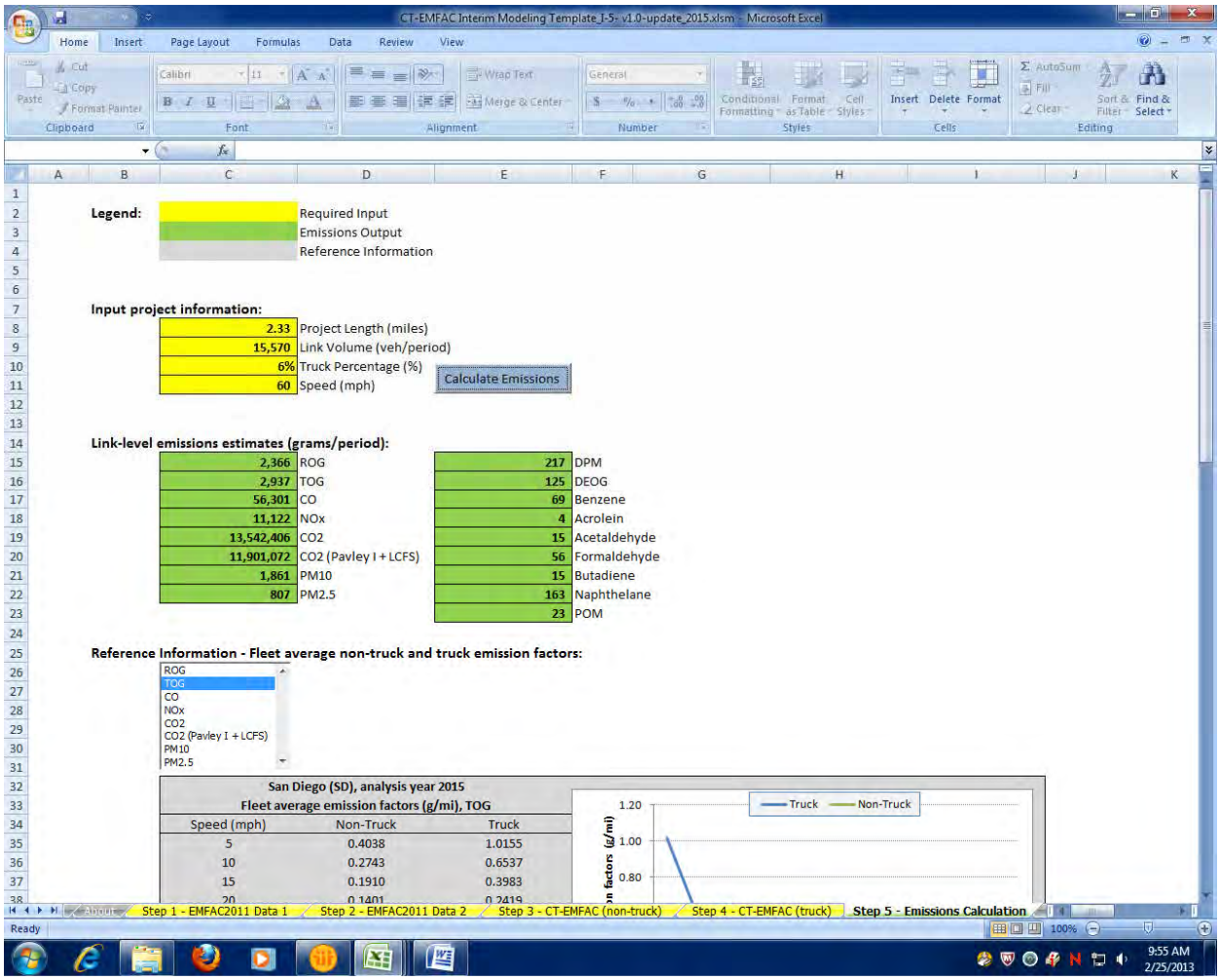
2015 8+4
Link: 4 (SB GP)
Segment: 1
Peak



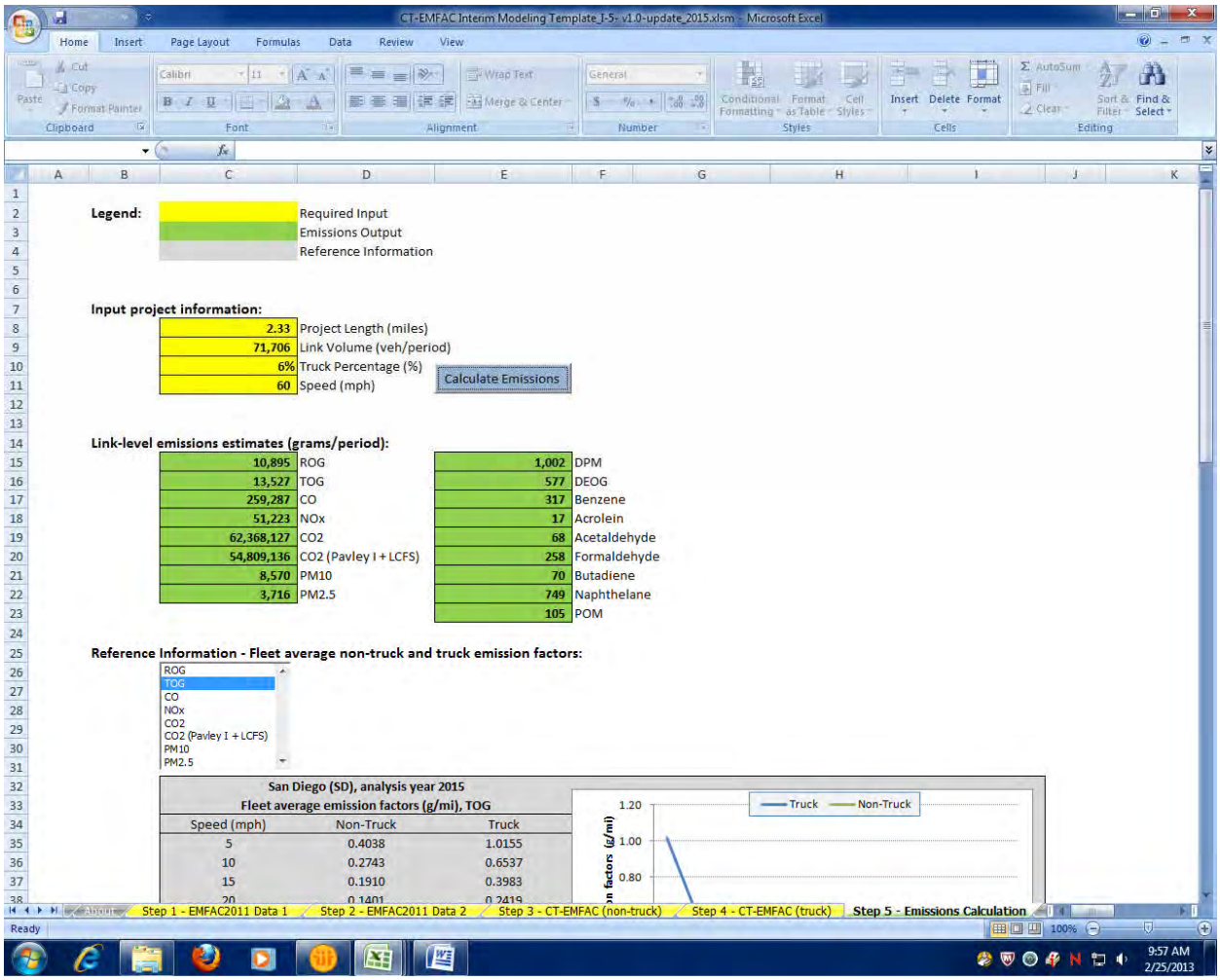
2015 8+4
Link: 4 (SB GP)
Segment: 1
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 2
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.33	Project Length (miles)
71,706	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

10,895	ROG	1,002	DPM
13,527	TOG	577	DEOG
259,287	CO	317	Benzene
51,223	NOx	17	Acrolein
62,368,127	CO2	68	Acetaldehyde
54,809,136	CO2 (Pavley I + LCFS)	258	Formaldehyde
8,570	PM10	70	Butadiene
3,716	PM2.5	749	Naphthelane
		105	POM

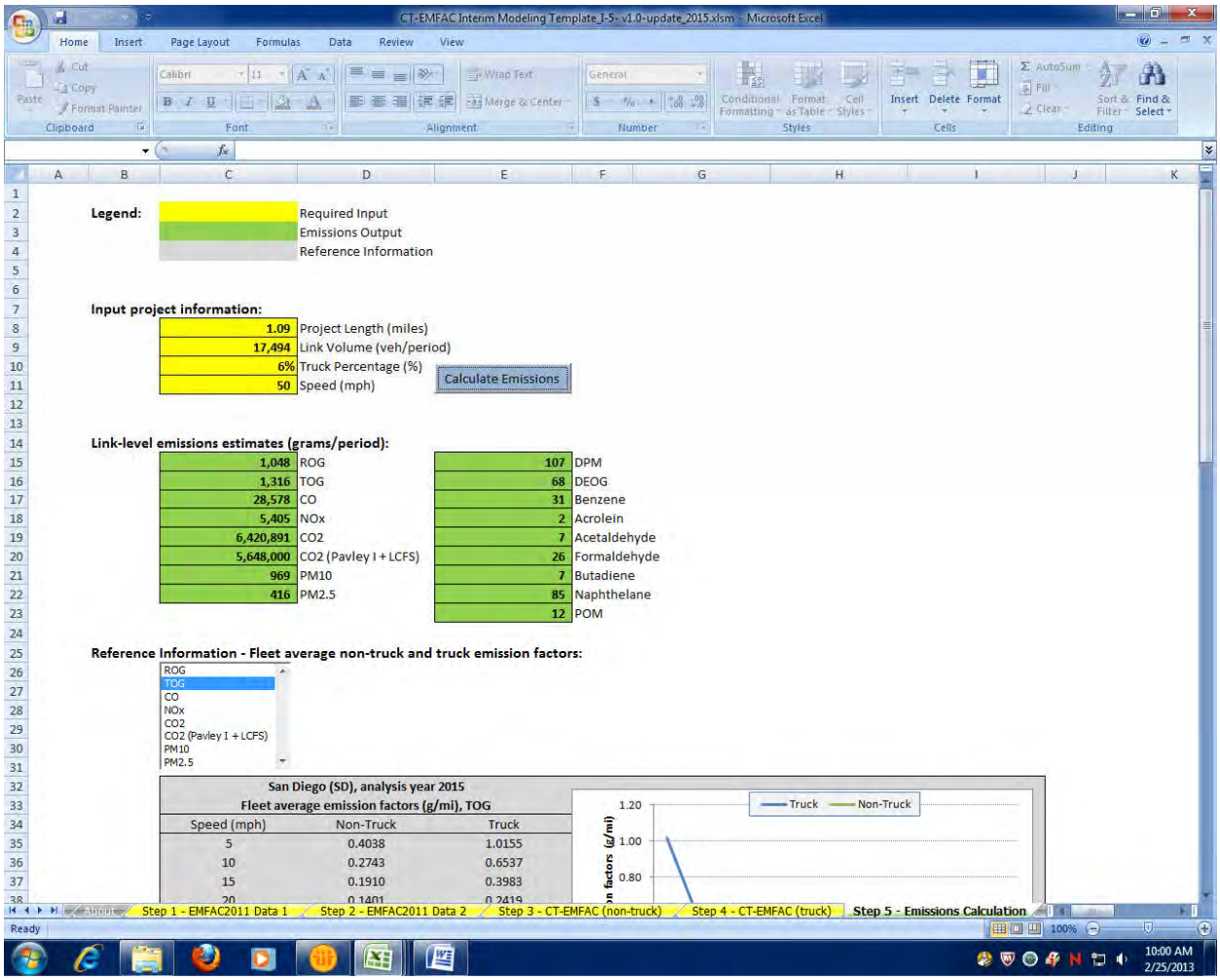
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

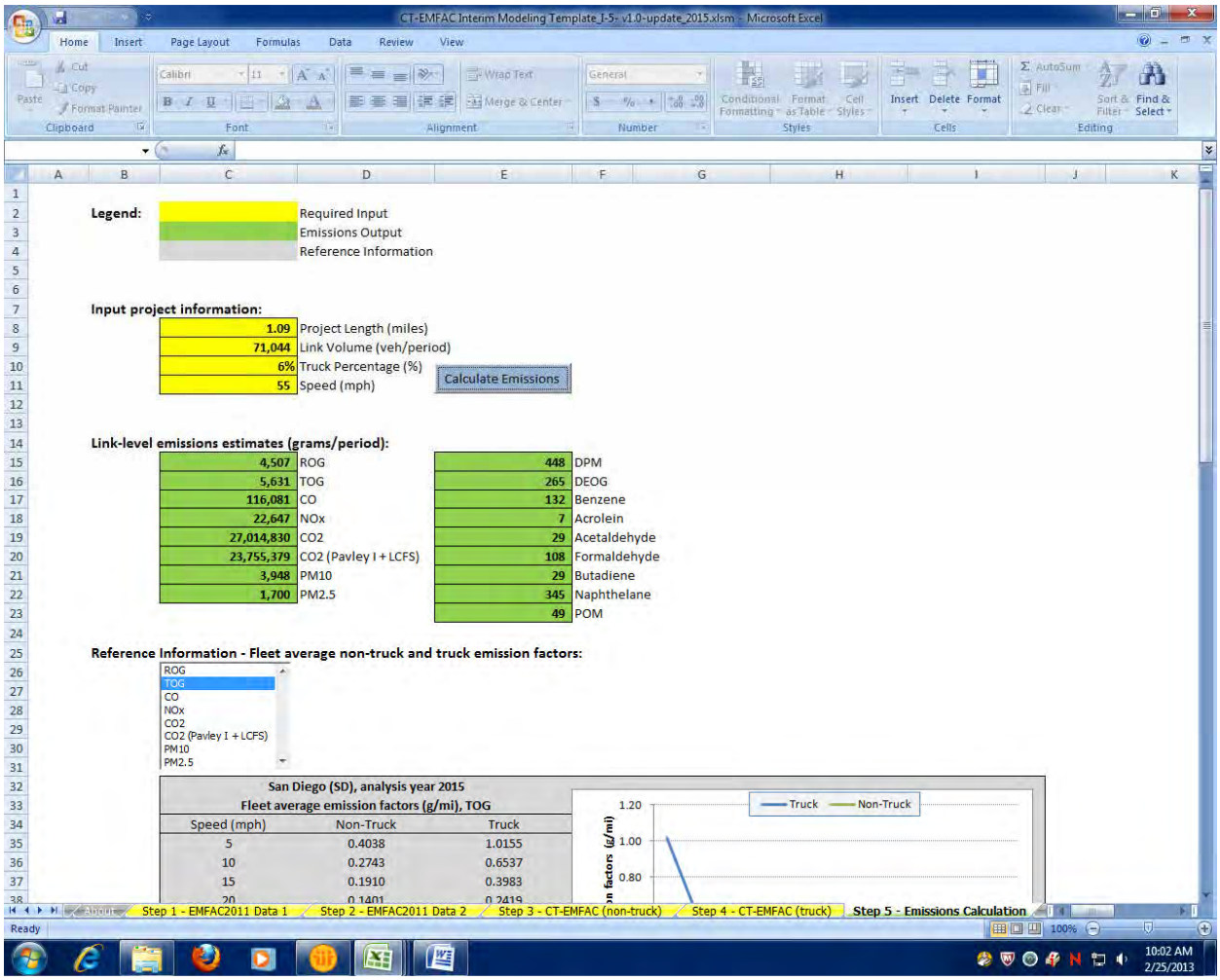
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

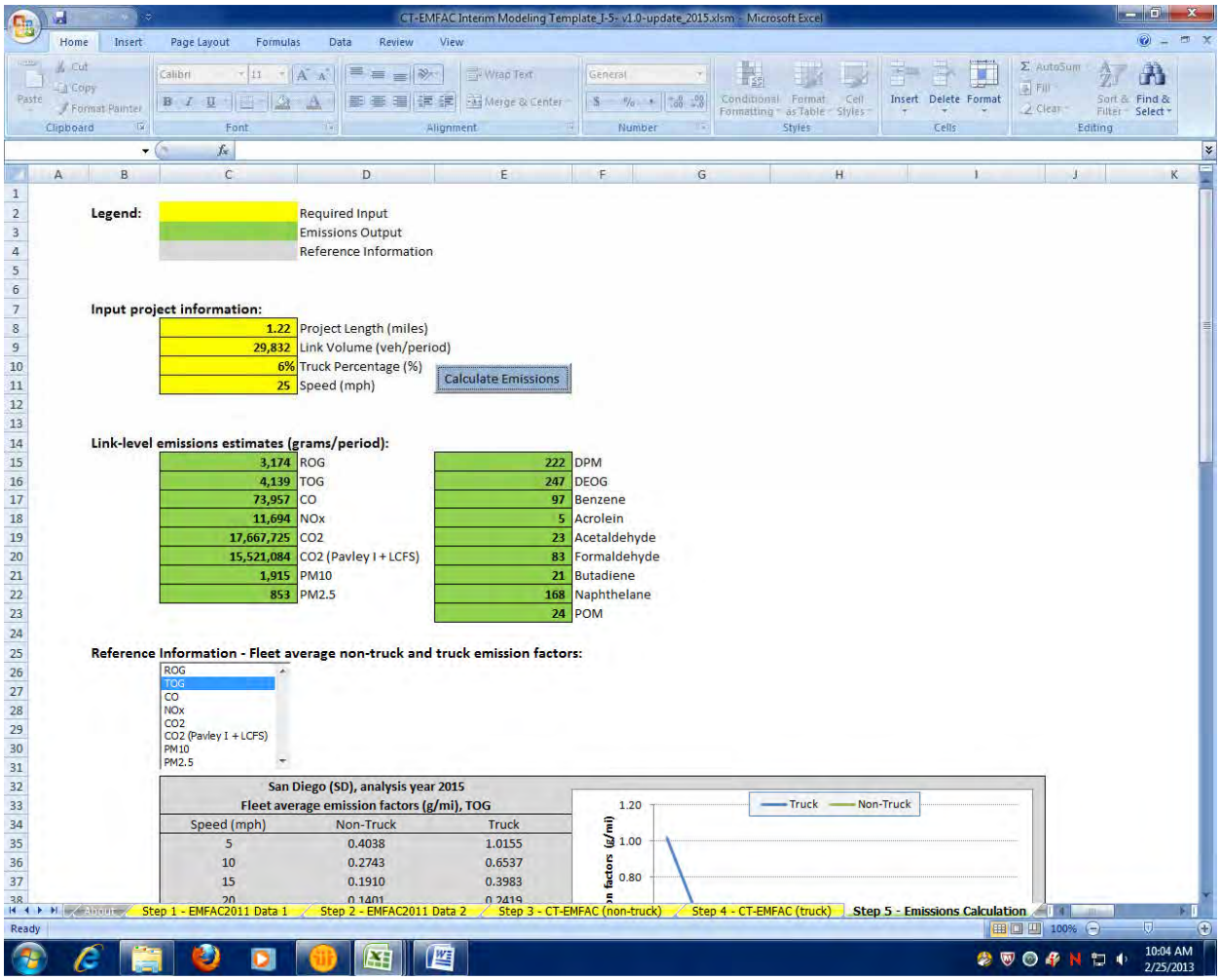
2015 8+4
Link: 4 (SB GP)
Segment: 3
Peak



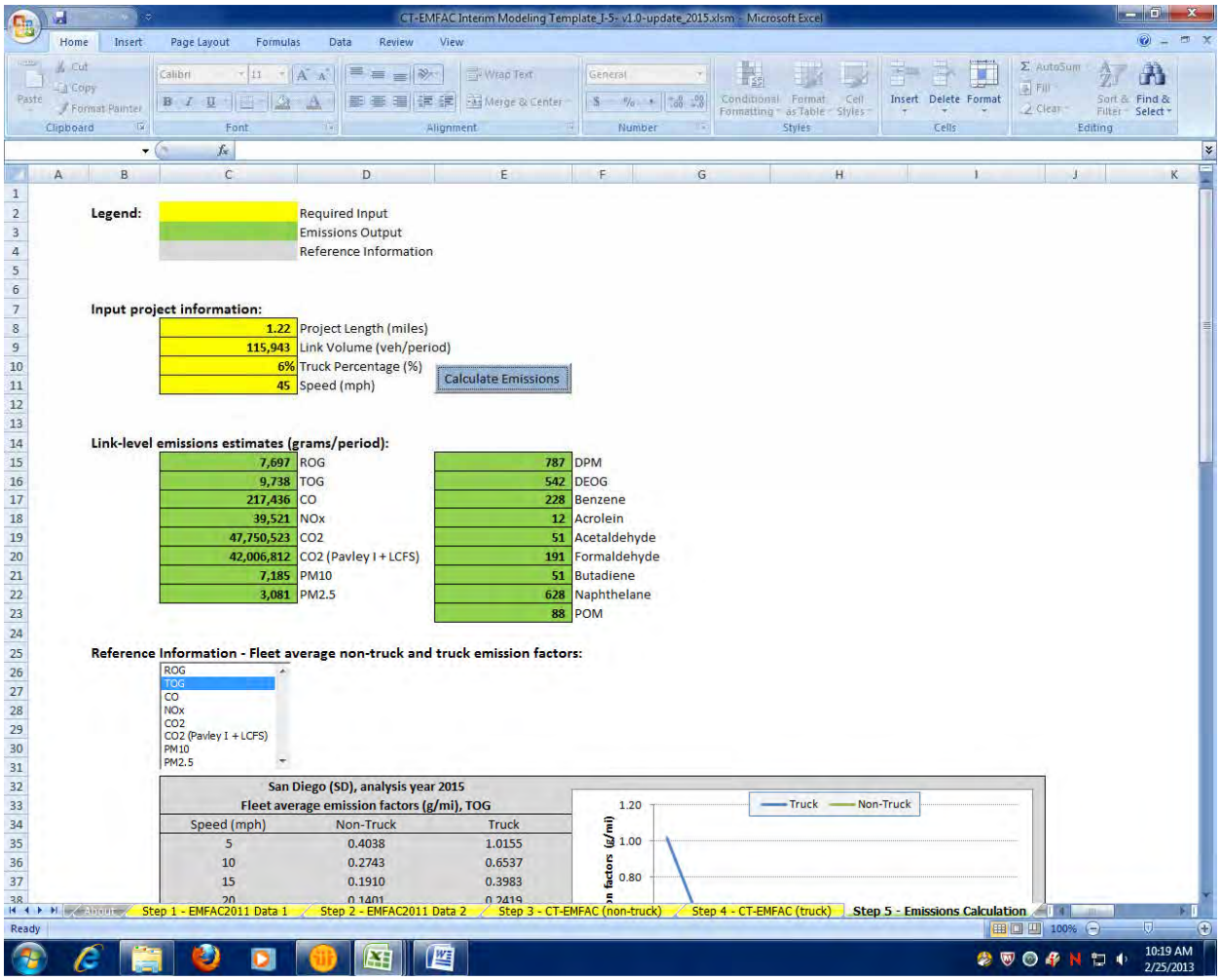
2015 8+4
Link: 4 (SB GP)
Segment: 3
Off Peak



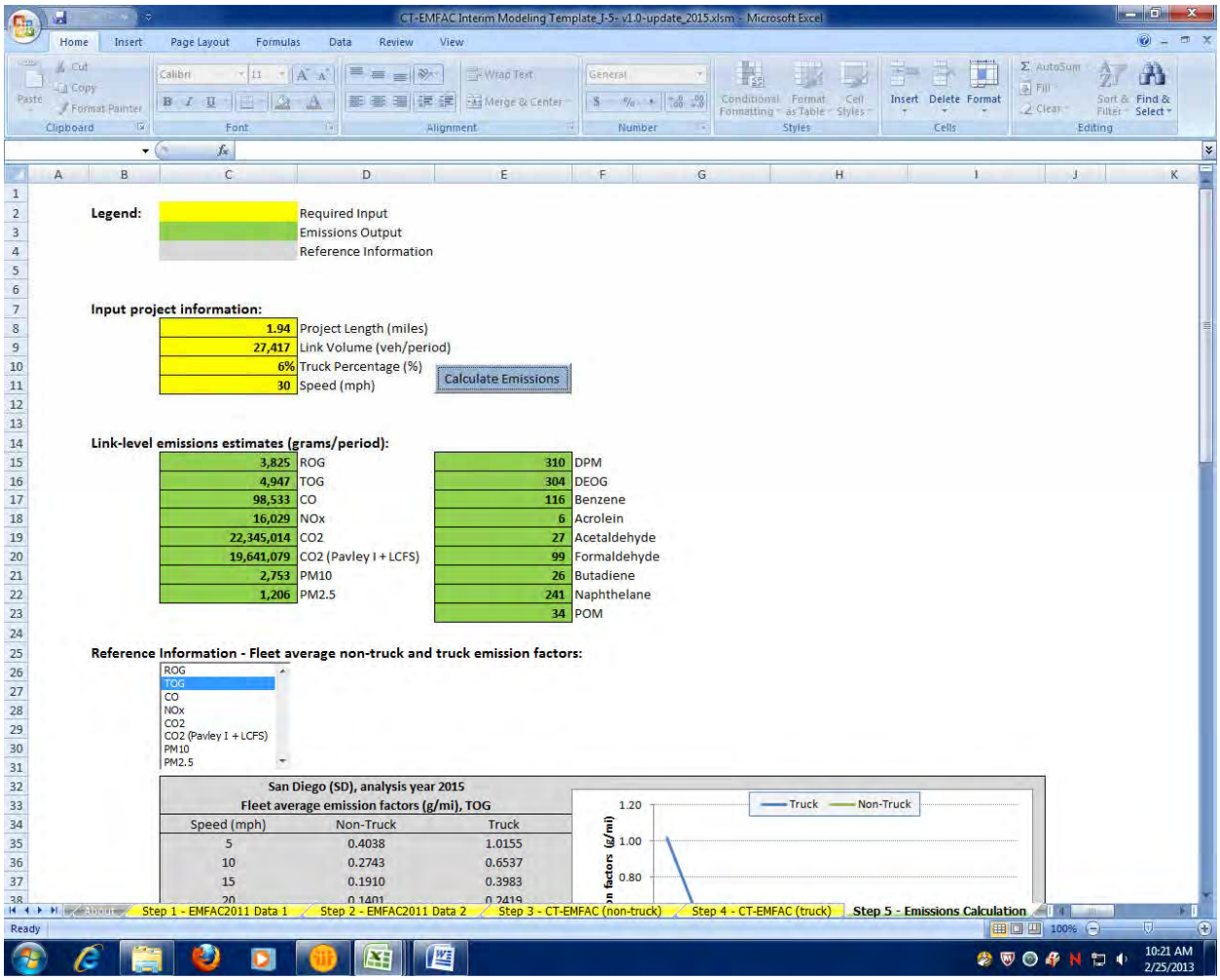
2015 8+4
Link: 4 (SB GP)
Segment: 4
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 4
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 5
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.94	Project Length (miles)
27,417	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

3,825	ROG	310	DPM
4,947	TOG	304	DEOG
98,533	CO	116	Benzene
16,029	NOx	6	Acrolein
22,345,014	CO2	27	Acetaldehyde
19,641,079	CO2 (Pavley I + LCFS)	99	Formaldehyde
2,753	PM10	26	Butadiene
1,206	PM2.5	241	Naphthelane
		34	POM

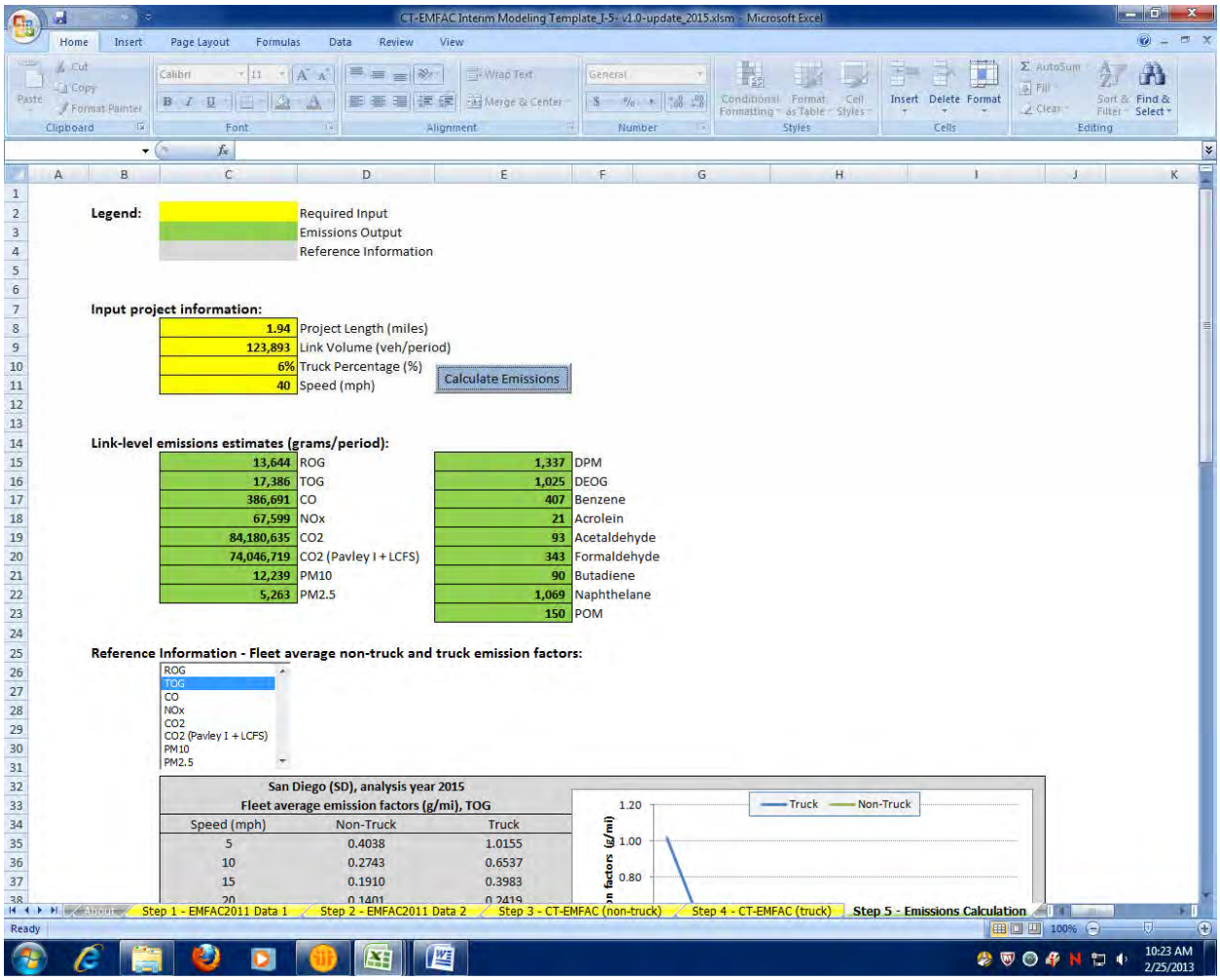
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

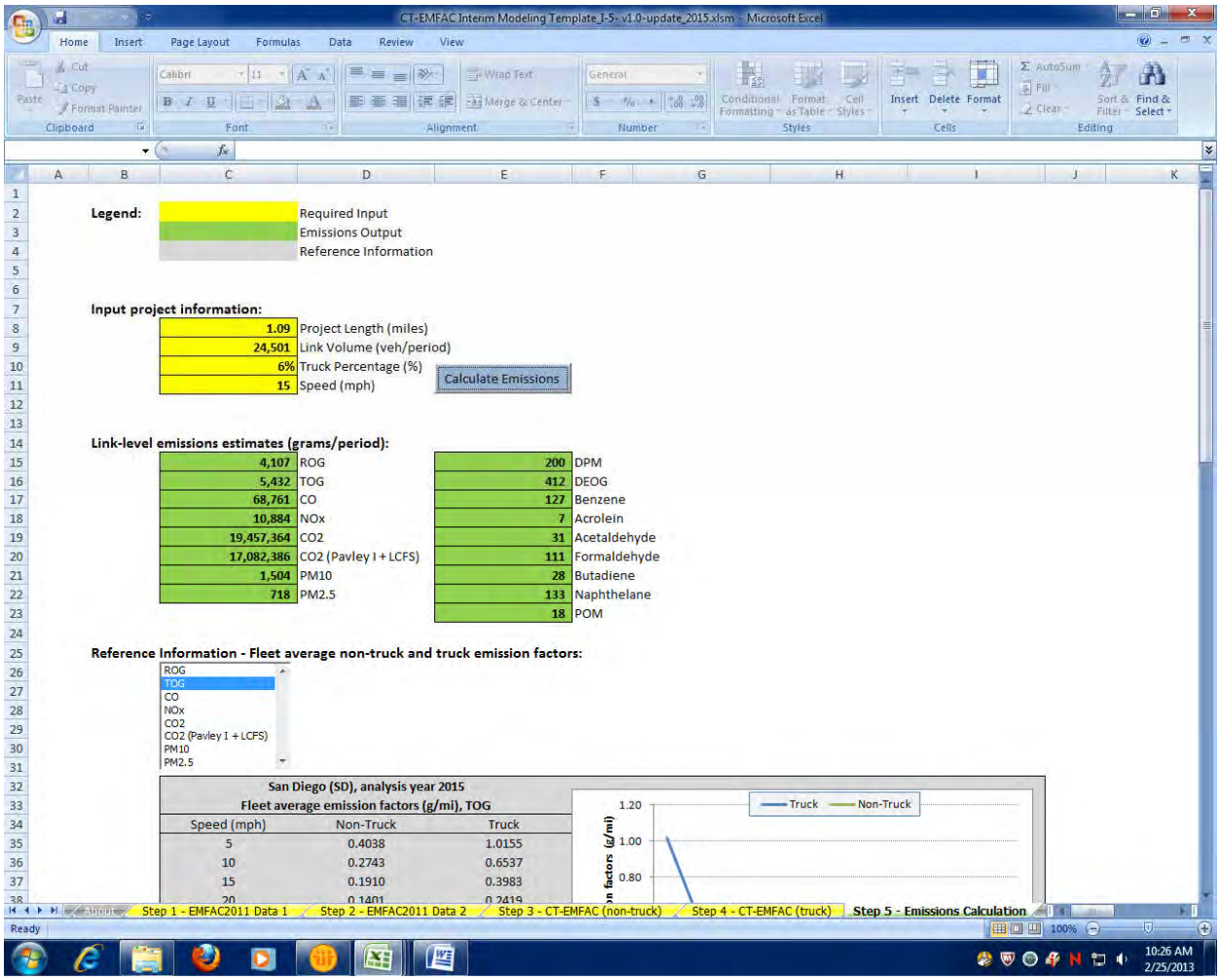
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

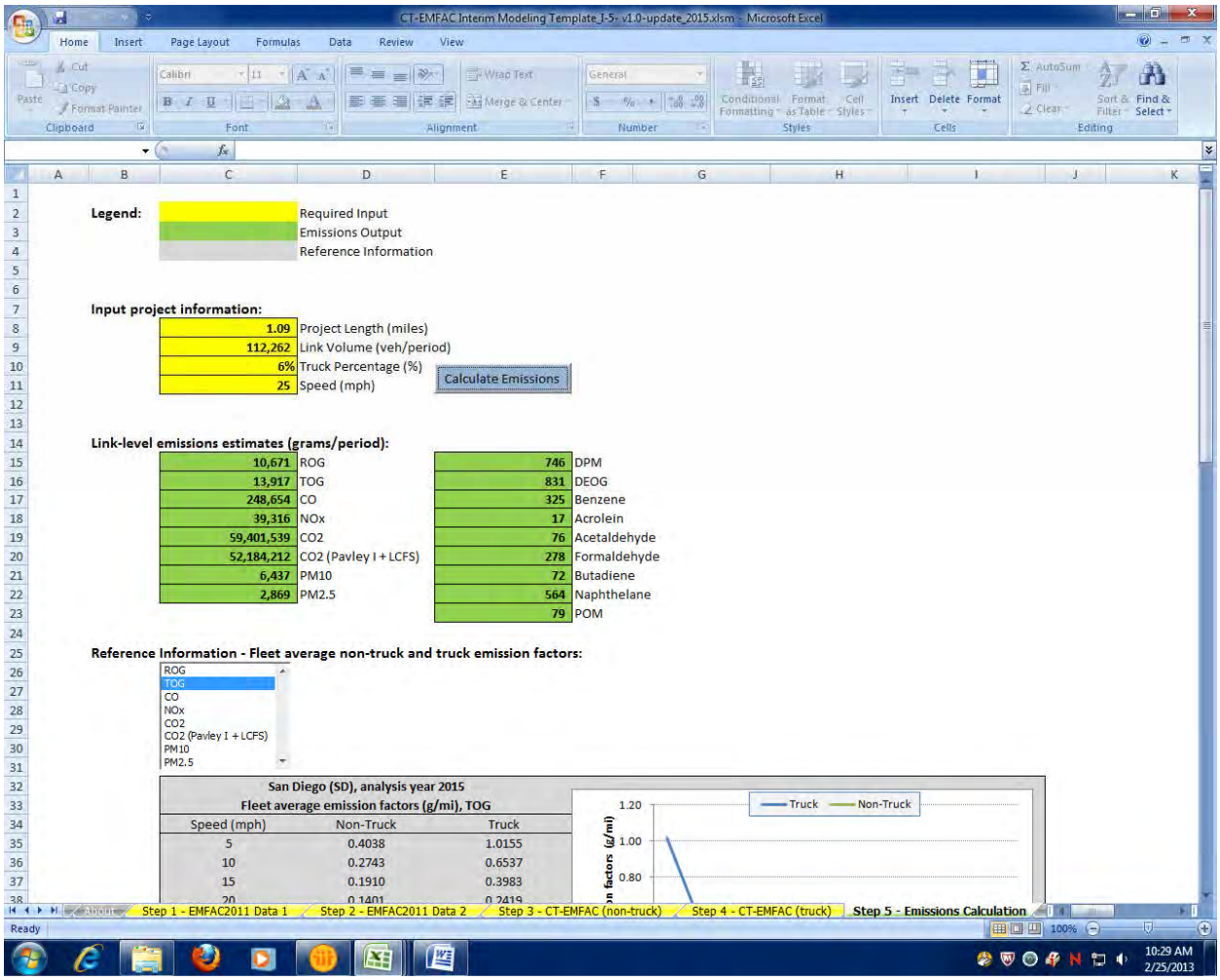
2015 8+4
Link: 4 (SB GP)
Segment: 5
Off Peak



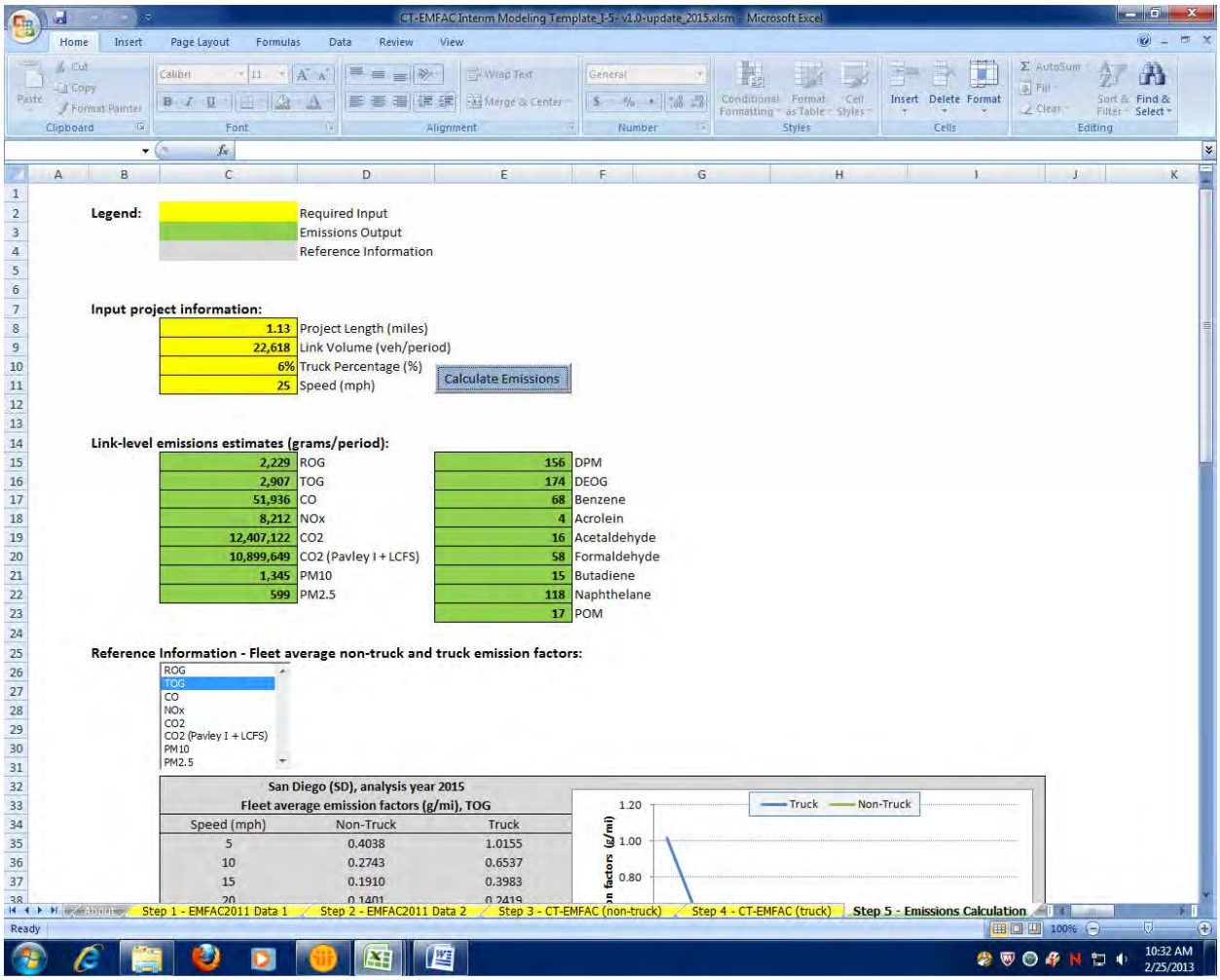
2015 8+4
Link: 4 (SB GP)
Segment: 6
Peak



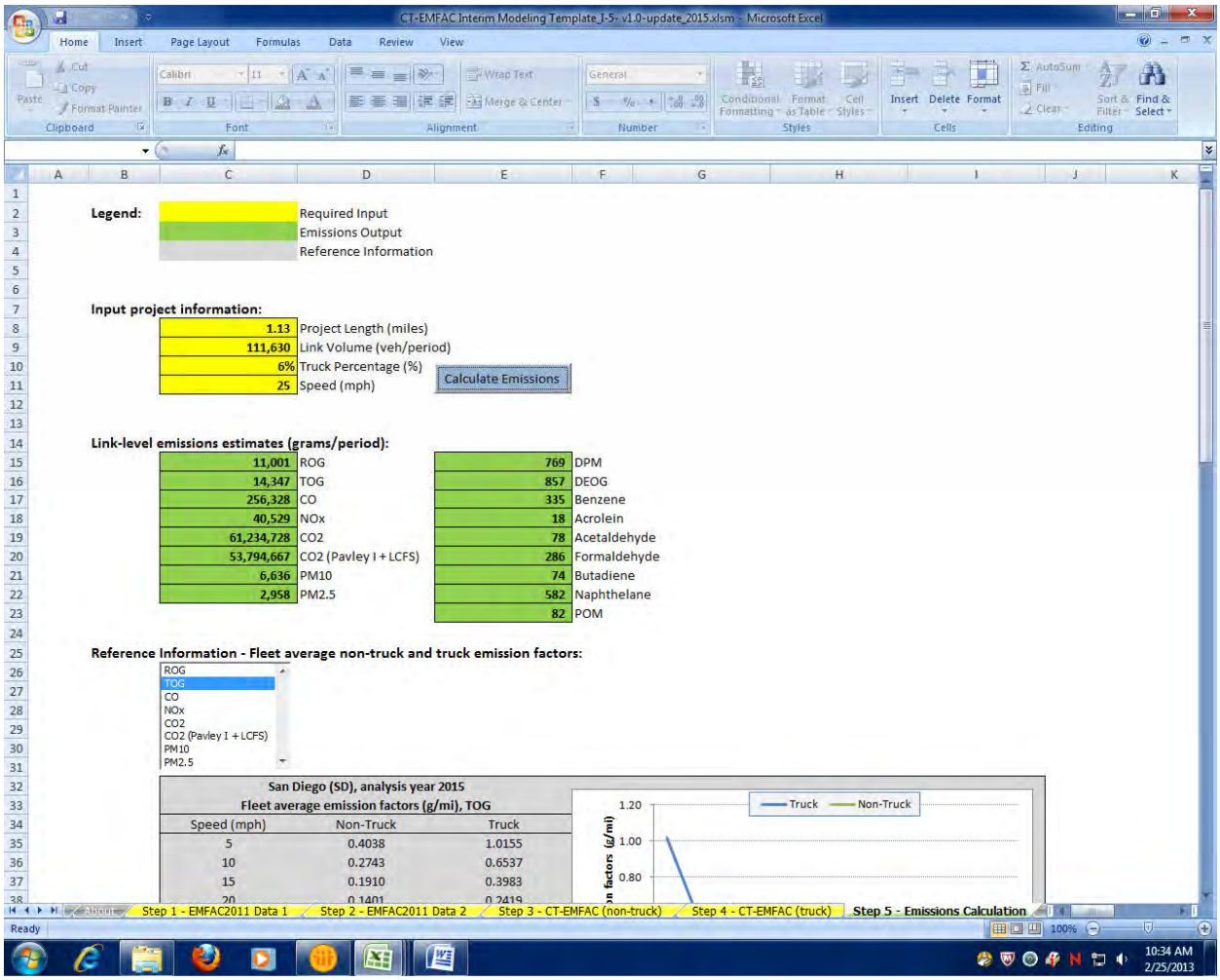
2015 8+4
Link: 4 (SB GP)
Segment: 6
Off Peak



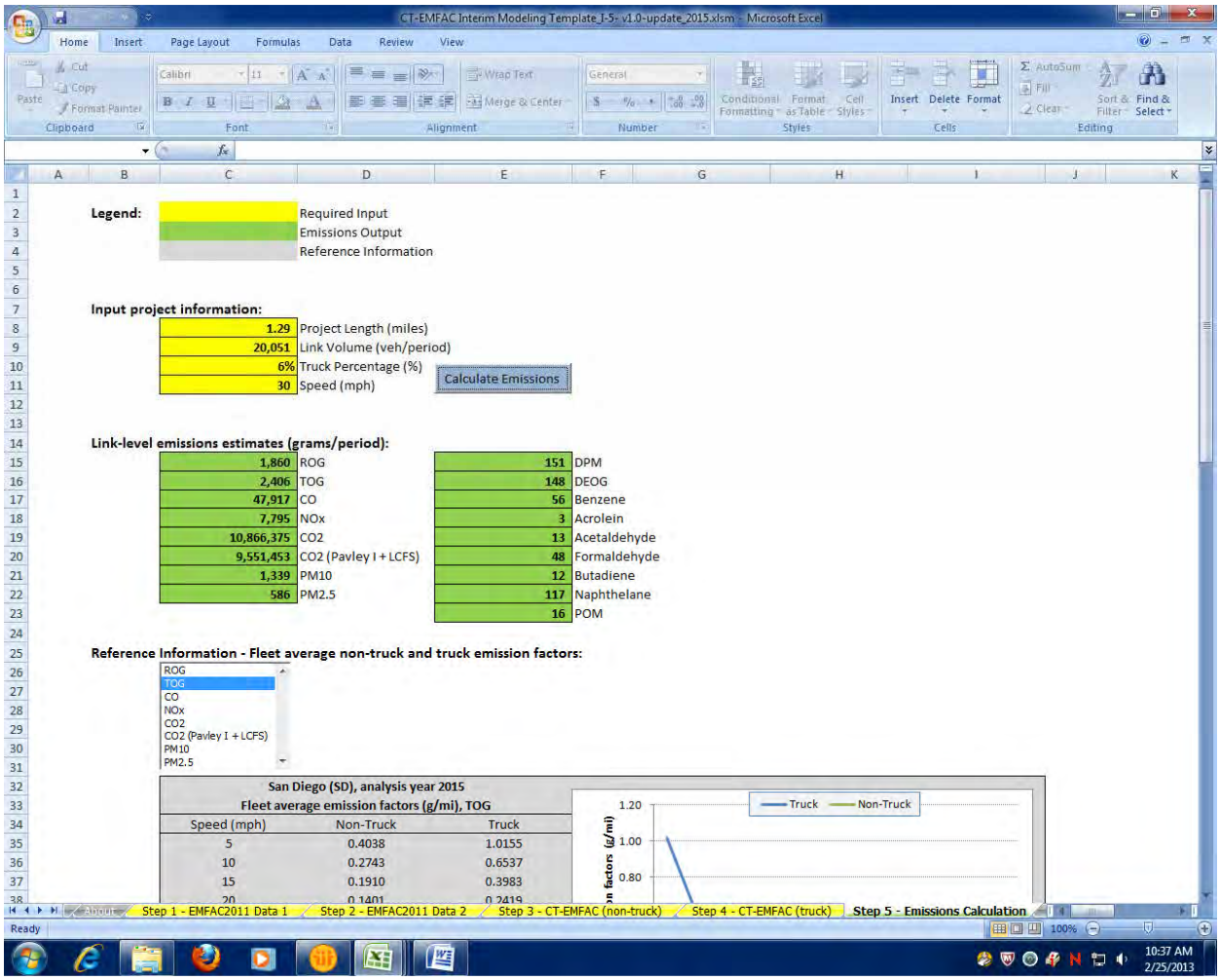
2015 8+4
Link: 4 (SB GP)
Segment: 7
Peak



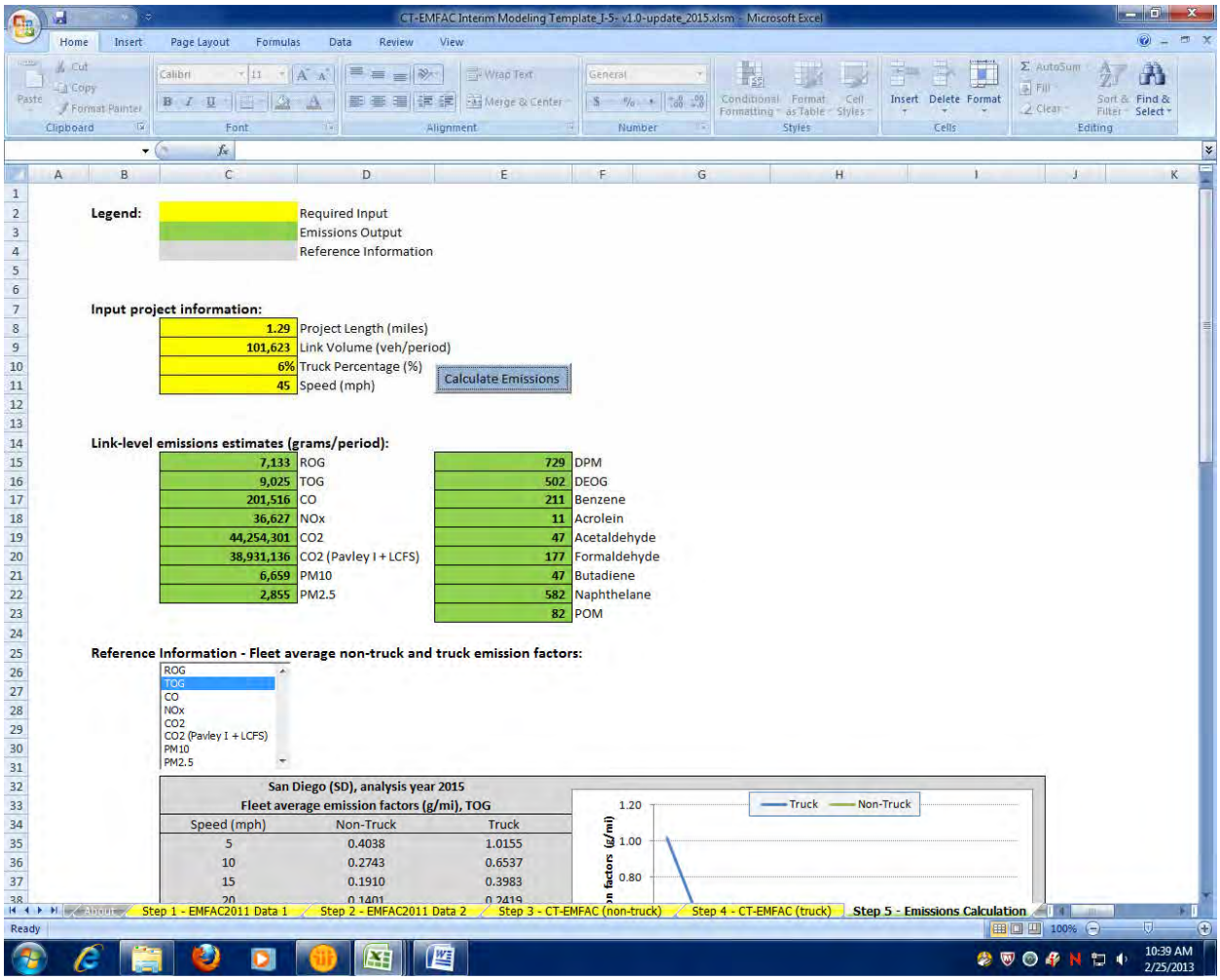
2015 8+4
Link: 4 (SB GP)
Segment: 7
Off Peak



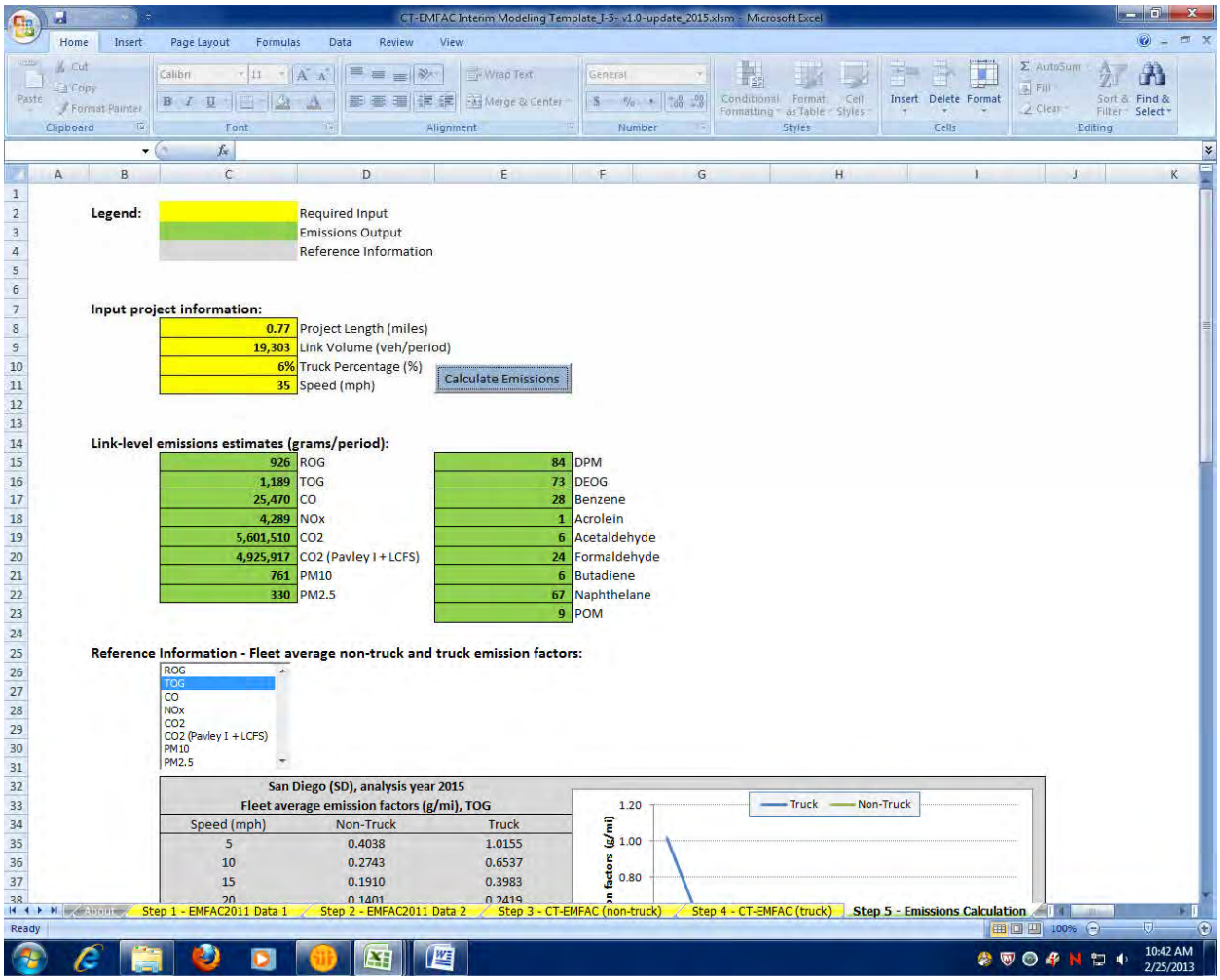
2015 8+4
Link: 4 (SB GP)
Segment: 8
Peak



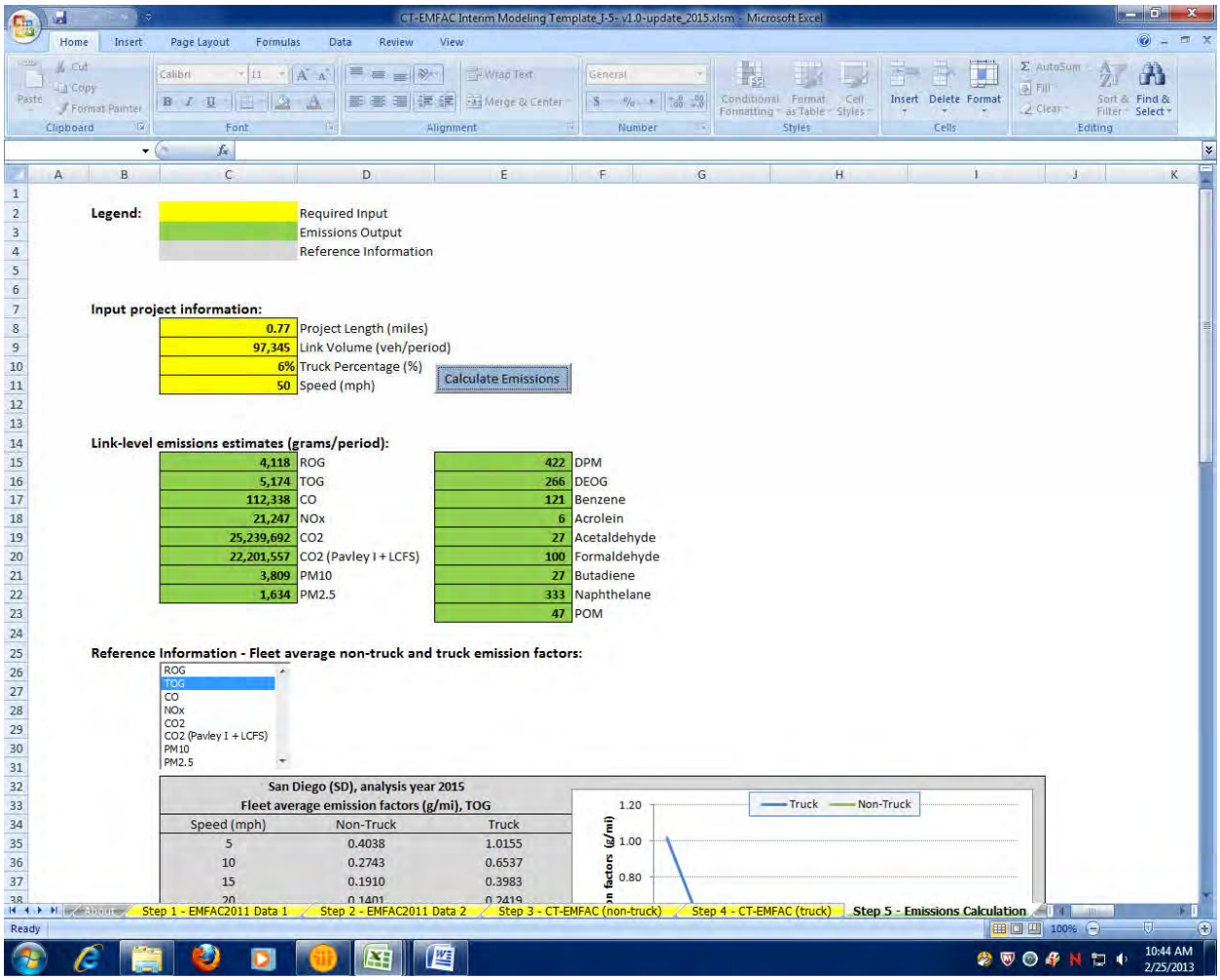
2015 8+4
Link: 4 (SB GP)
Segment: 8
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 9
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 9
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
97,345	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,118	ROG	422	DPM
5,174	TOG	266	DEOG
112,338	CO	121	Benzene
21,247	NOx	6	Acrolein
25,239,692	CO2	27	Acetaldehyde
22,201,557	CO2 (Pavley I + LCFS)	100	Formaldehyde
3,809	PM10	27	Butadiene
1,634	PM2.5	333	Naphthelane
		47	POM

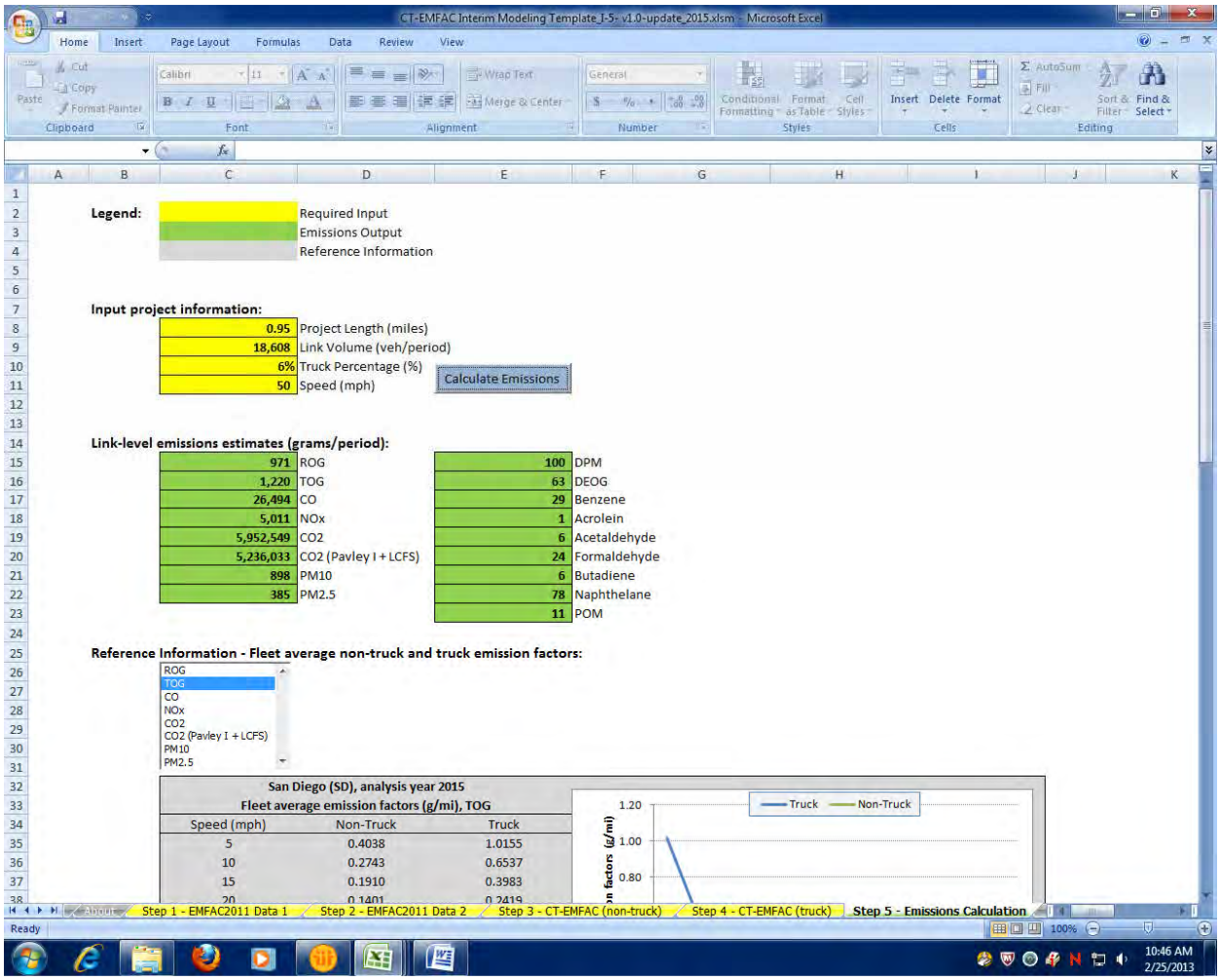
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

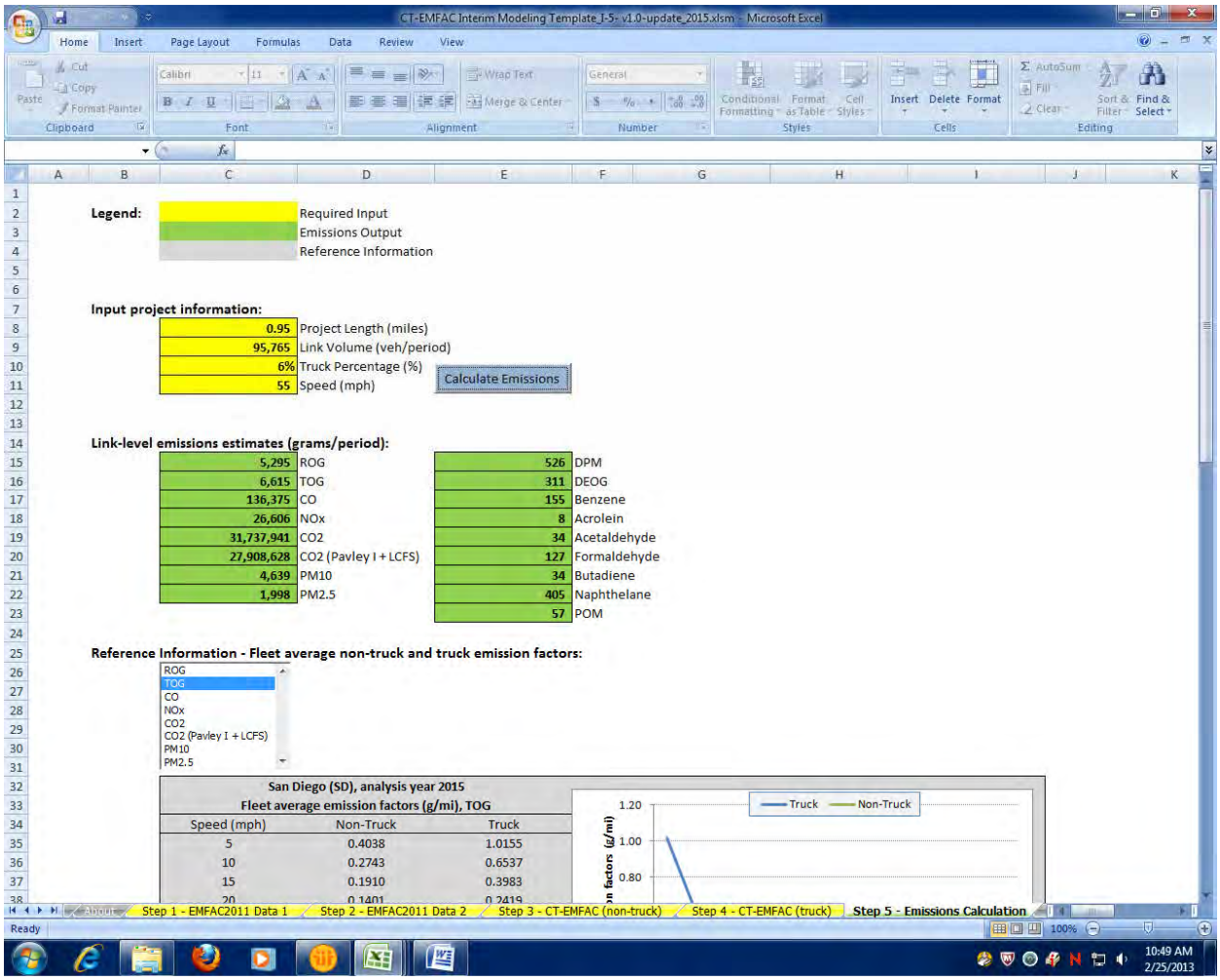
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

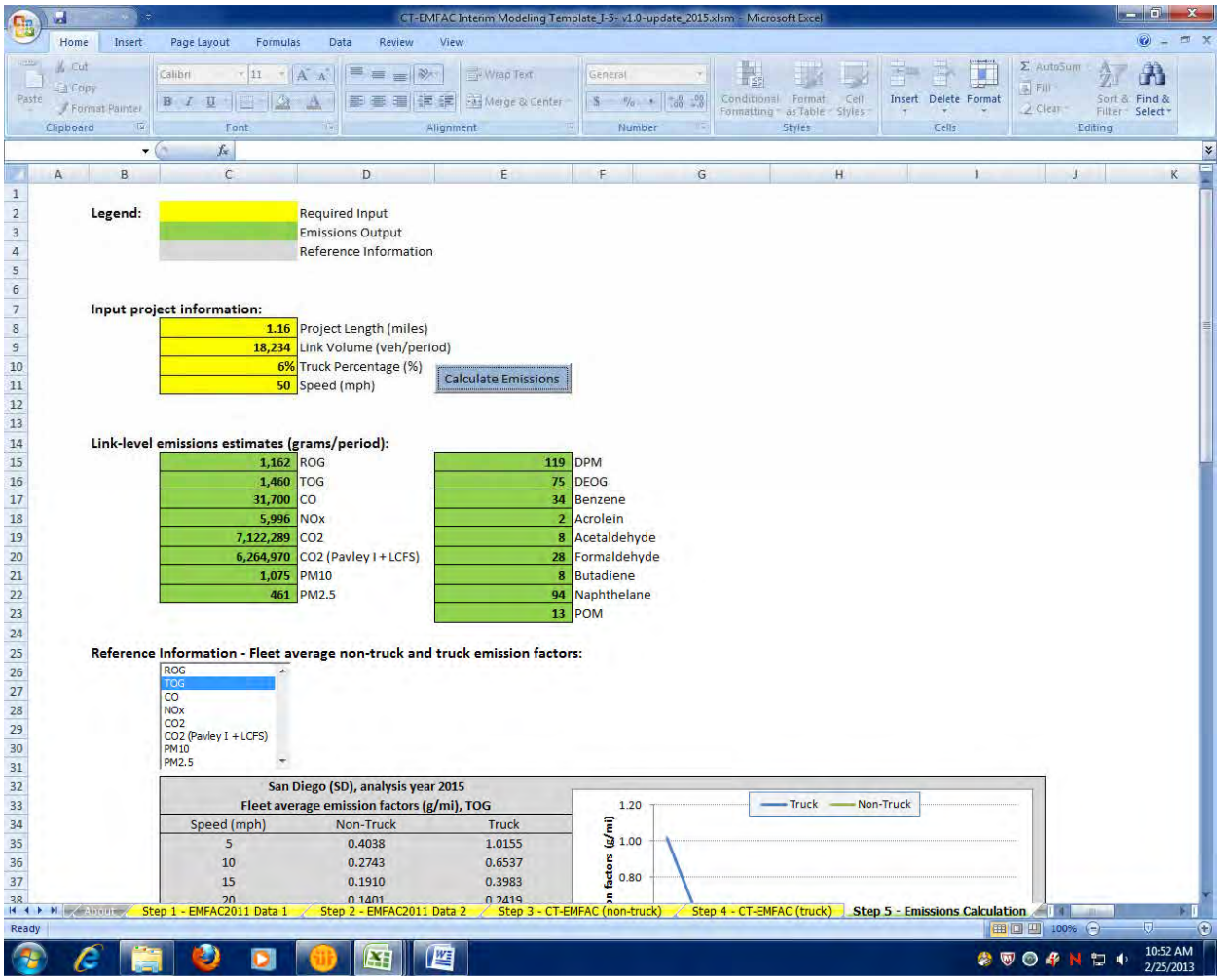
2015 8+4
Link: 4 (SB GP)
Segment: 10
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 10
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 11
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
18,234	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,162	ROG	119	DPM
1,460	TOG	75	DEOG
31,700	CO	34	Benzene
5,996	NOx	2	Acrolein
7,122,289	CO2	8	Acetaldehyde
6,264,970	CO2 (Pavley I + LCFS)	28	Formaldehyde
1,075	PM10	8	Butadiene
461	PM2.5	94	Naphthelane
		13	POM

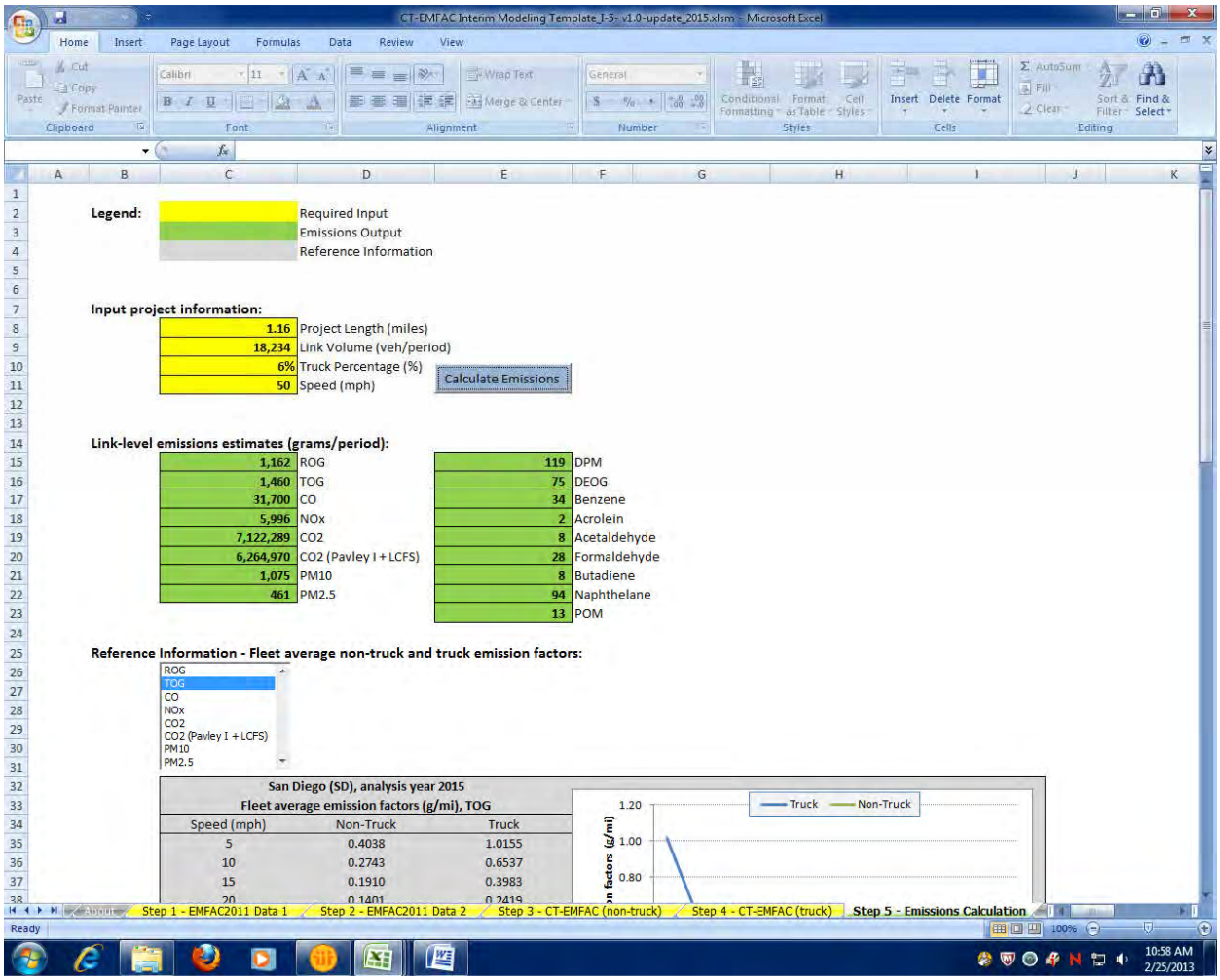
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

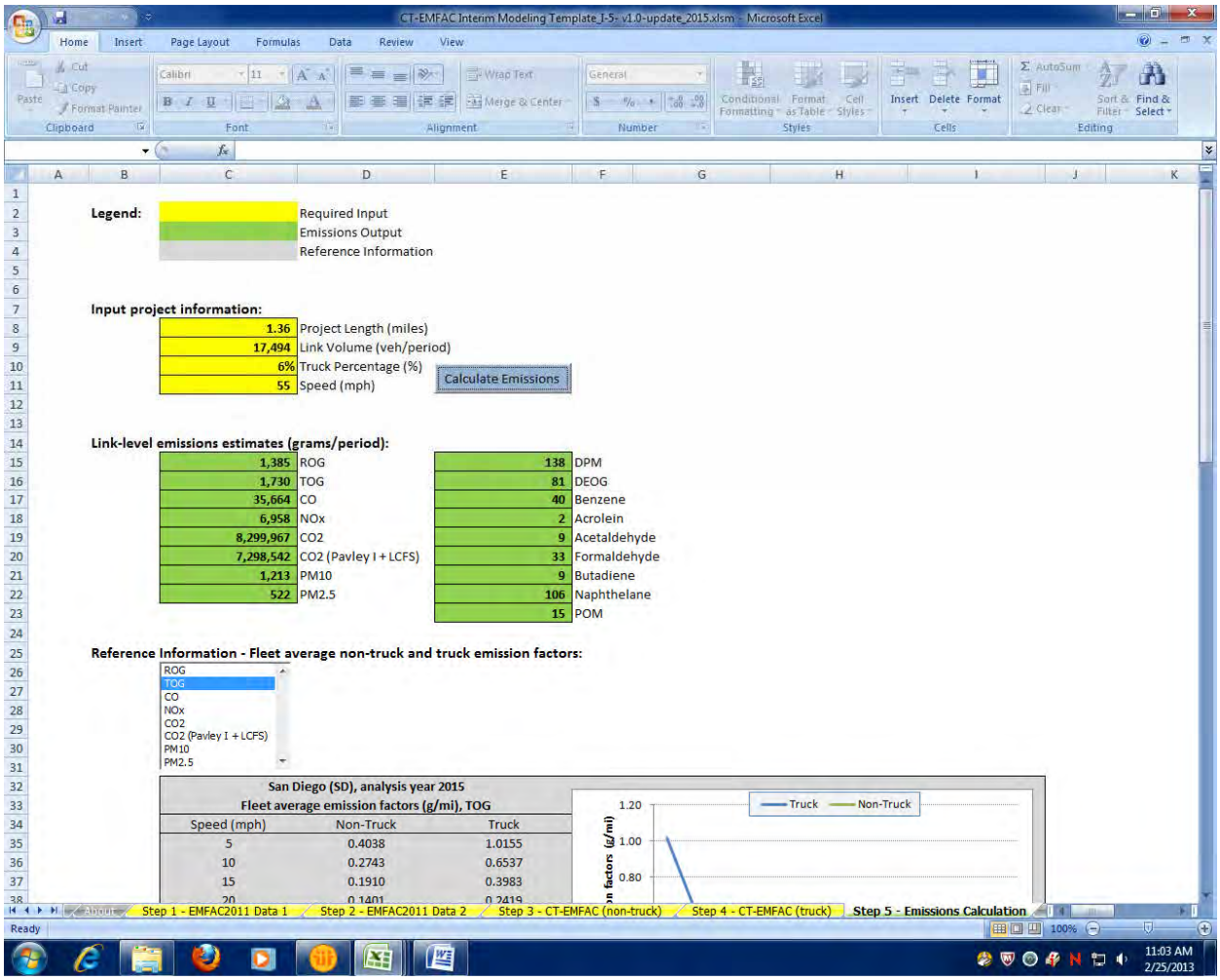
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 11
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 12
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.36	Project Length (miles)
17,494	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,385	ROG	138	DPM
1,730	TOG	81	DEOG
35,664	CO	40	Benzene
6,958	NOx	2	Acrolein
8,299,967	CO2	9	Acetaldehyde
7,298,542	CO2 (Pavley I + LCFS)	33	Formaldehyde
1,213	PM10	9	Butadiene
522	PM2.5	106	Naphthelane
		15	POM

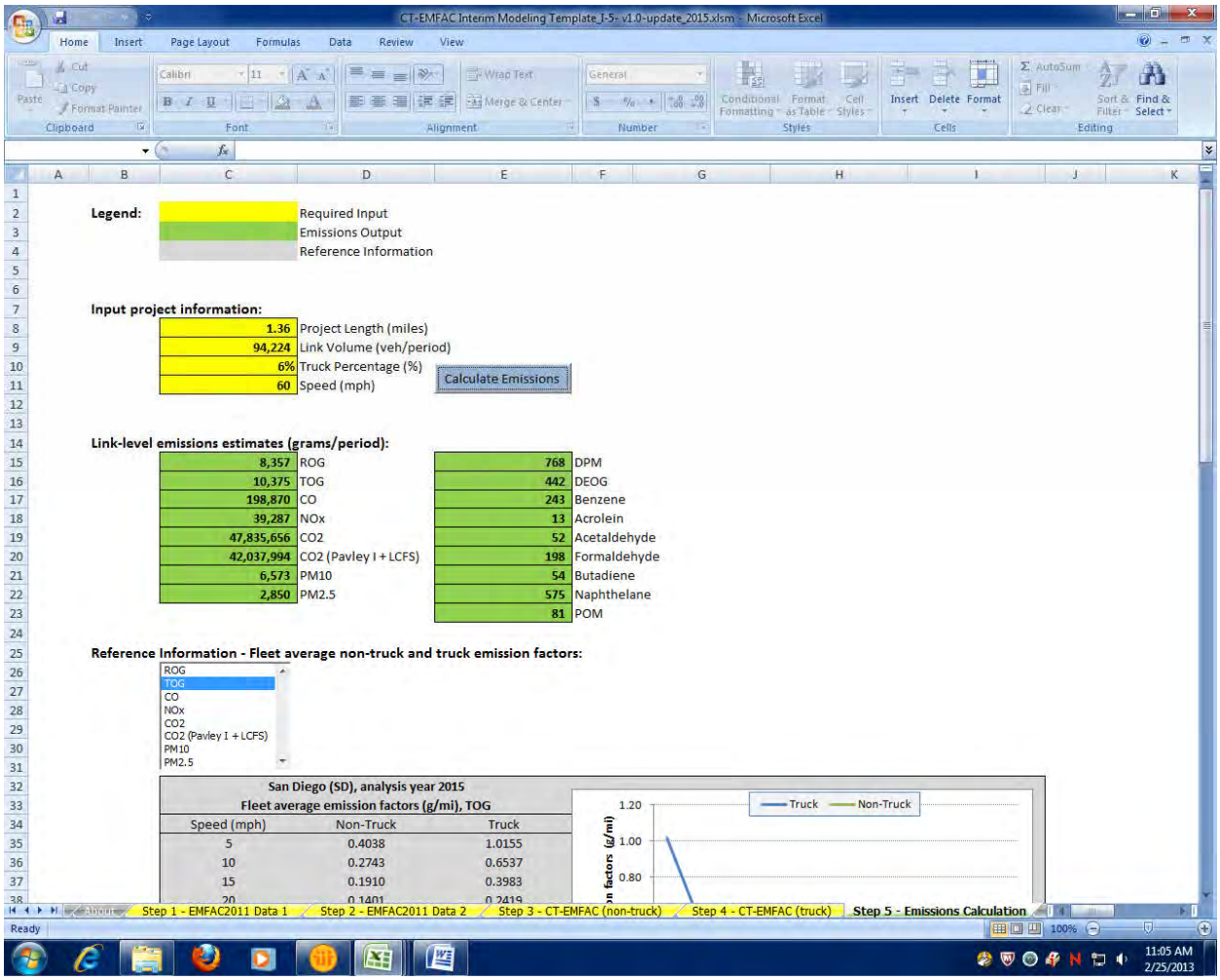
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

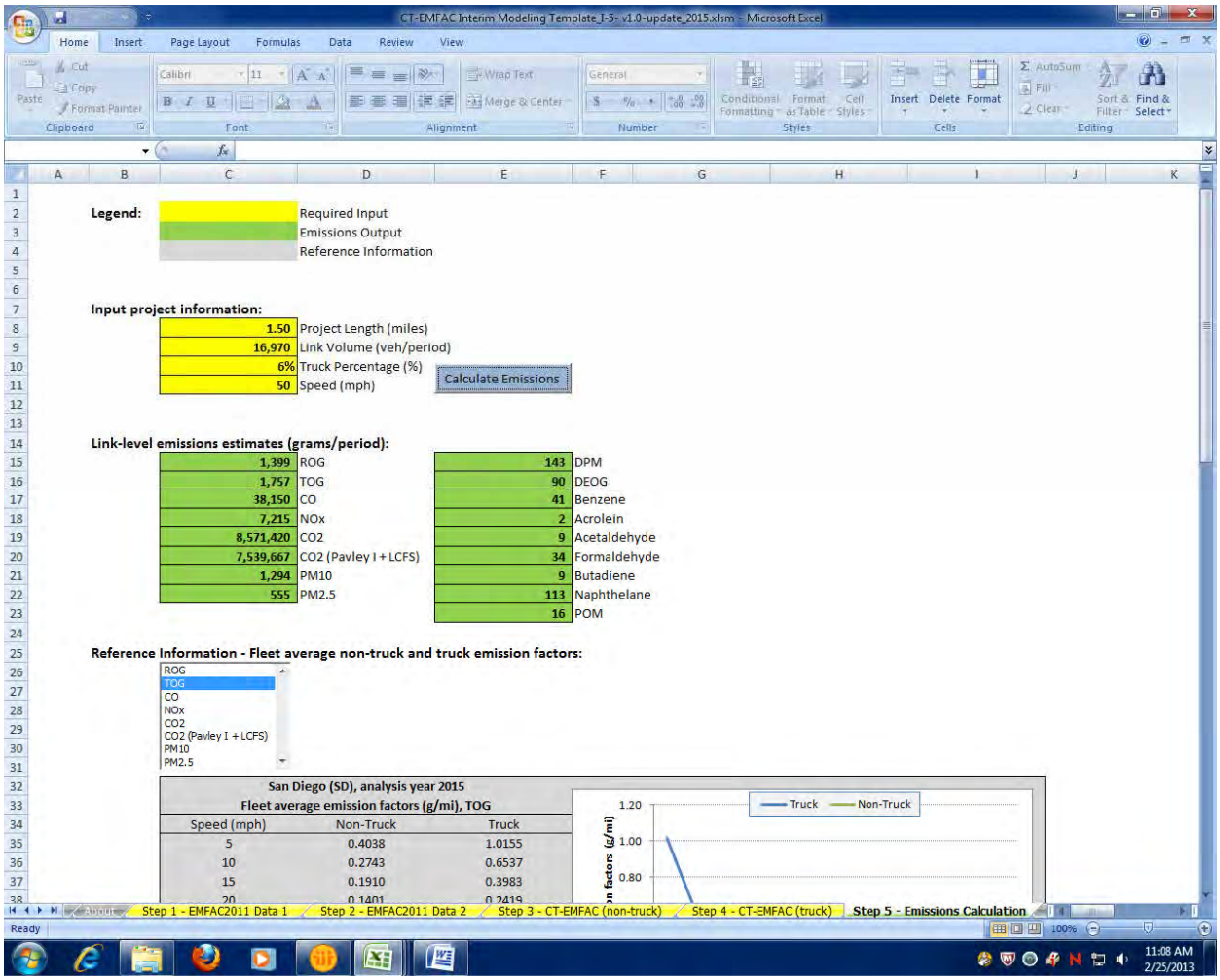
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 12
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 13
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
16,970	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,399	ROG	143	DPM
1,757	TOG	90	DEOG
38,150	CO	41	Benzene
7,215	NOx	2	Acrolein
8,571,420	CO2	9	Acetaldehyde
7,539,667	CO2 (Pavley I + LCFS)	34	Formaldehyde
1,294	PM10	9	Butadiene
555	PM2.5	113	Naphthelane
		16	POM

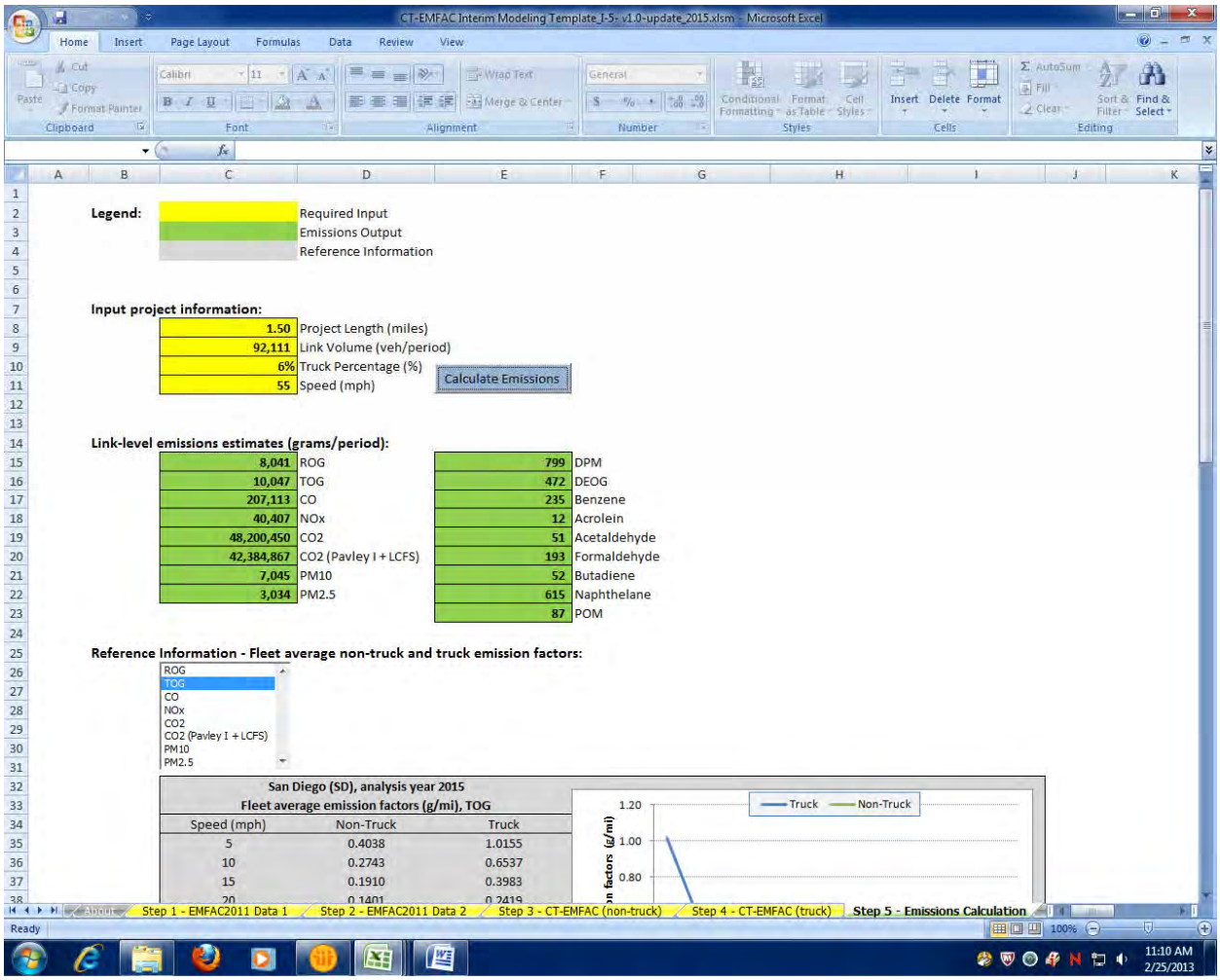
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

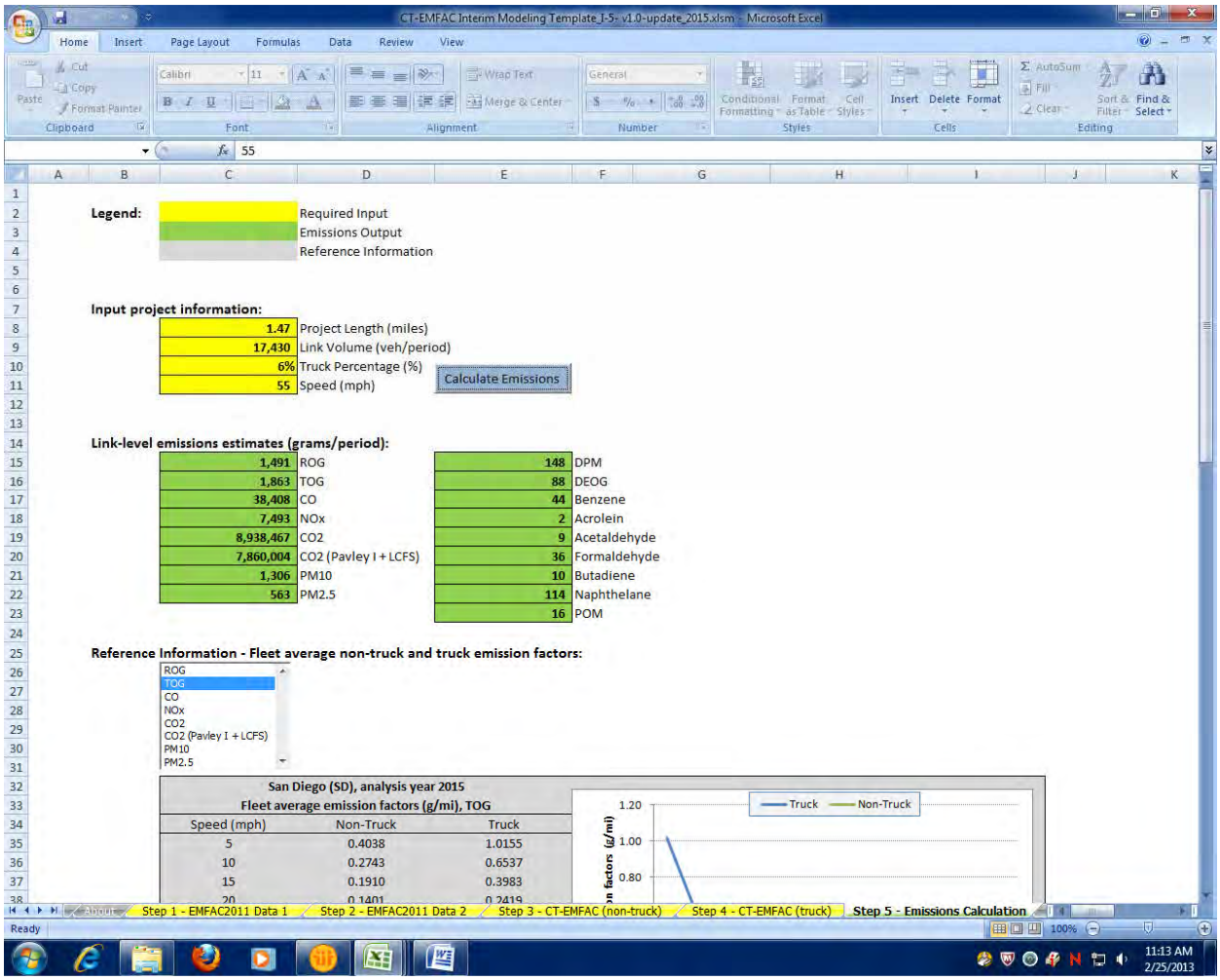
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 13
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 14
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.47	Project Length (miles)
17,430	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,491	ROG	148	DPM
1,863	TOG	88	DEOG
38,408	CO	44	Benzene
7,493	NOx	2	Acrolein
8,938,467	CO2	9	Acetaldehyde
7,860,004	CO2 (Pavley I + LCFS)	36	Formaldehyde
1,306	PM10	10	Butadiene
563	PM2.5	114	Naphthelane
		16	POM

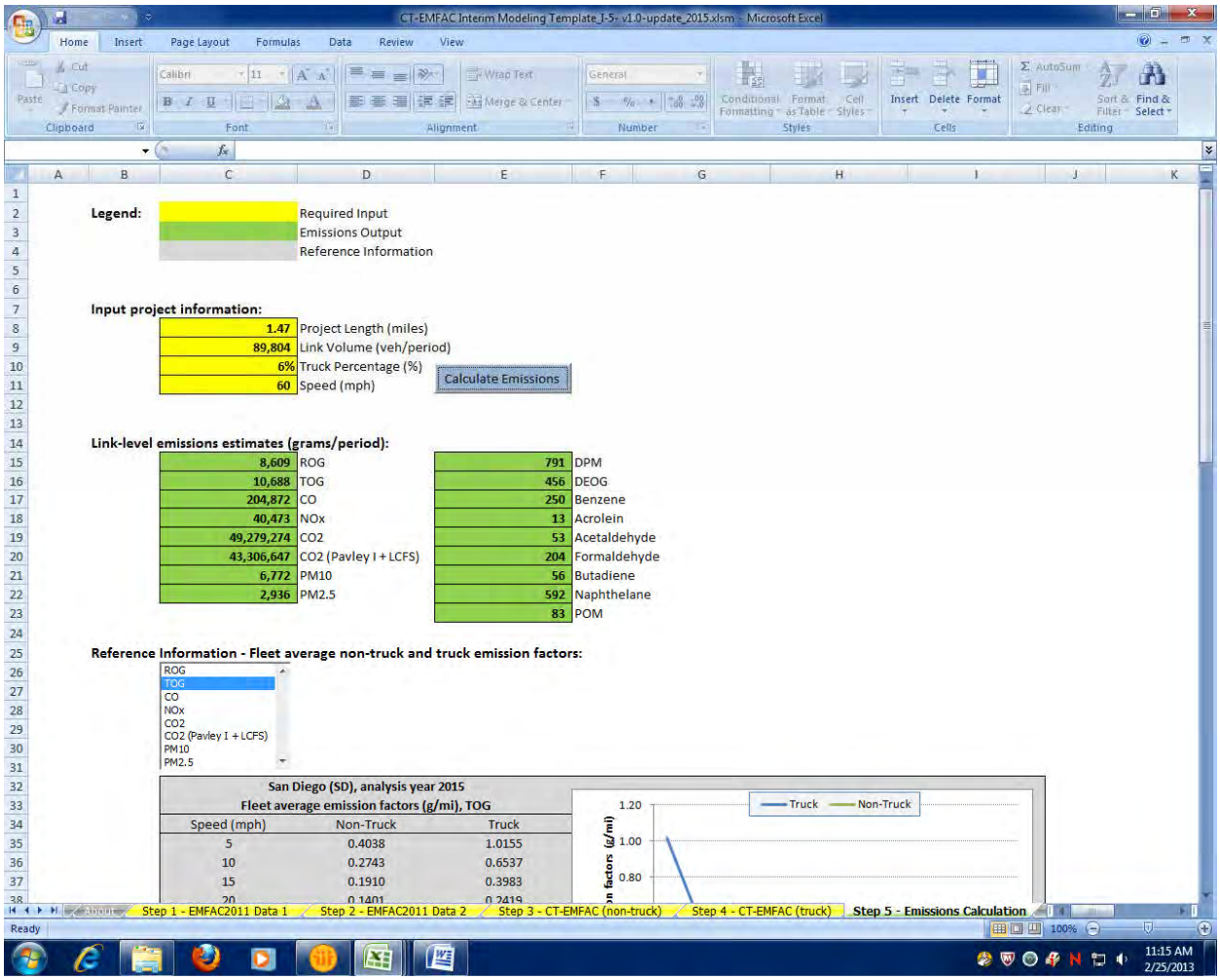
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 14
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.47	Project Length (miles)
89,804	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

8,609	ROG	791	DPM
10,688	TOG	456	DEOG
204,872	CO	250	Benzene
40,473	NOx	13	Acrolein
49,279,274	CO2	53	Acetaldehyde
43,306,647	CO2 (Pavley I + LCFS)	204	Formaldehyde
6,772	PM10	56	Butadiene
2,936	PM2.5	592	Naphthelane
		83	POM

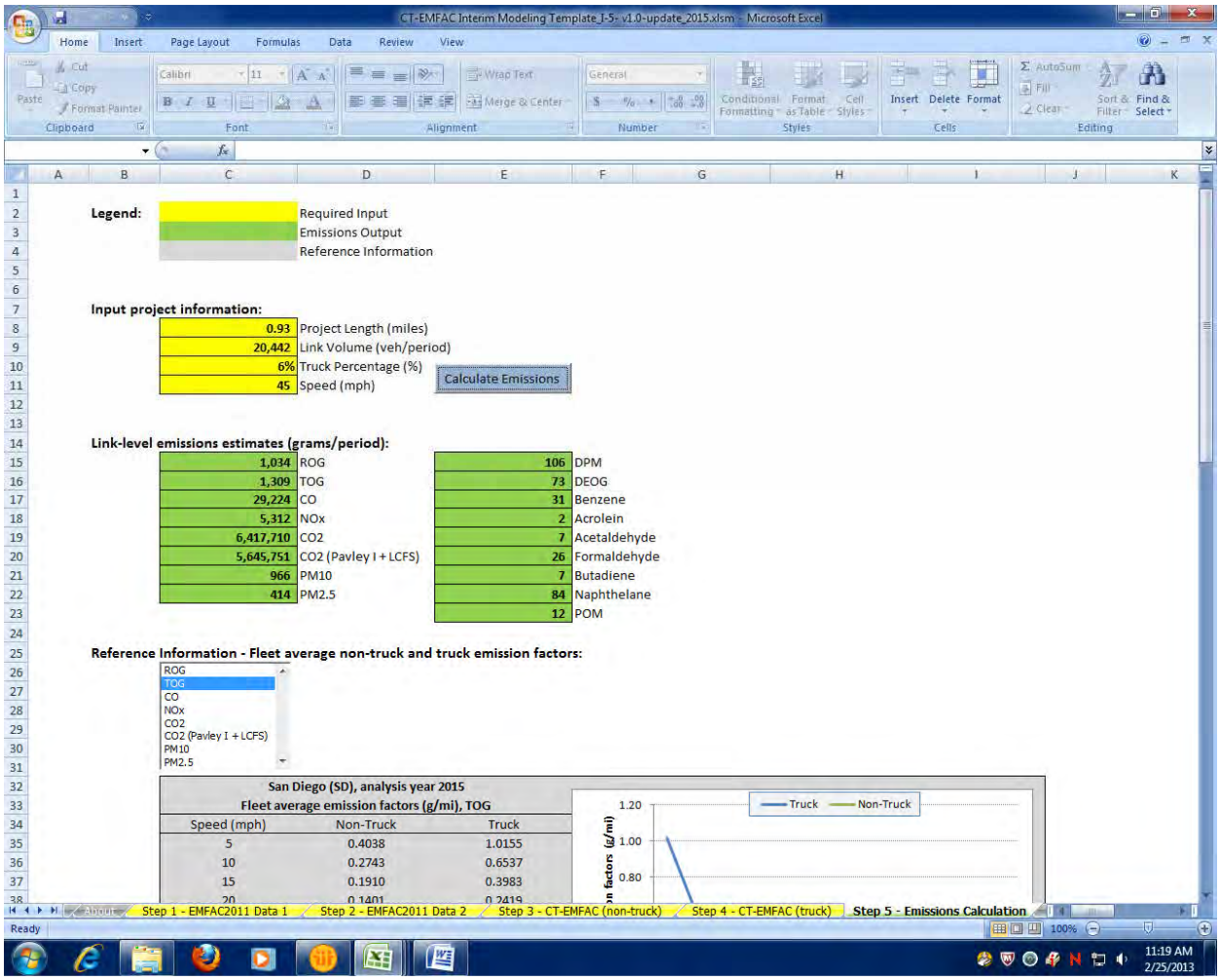
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

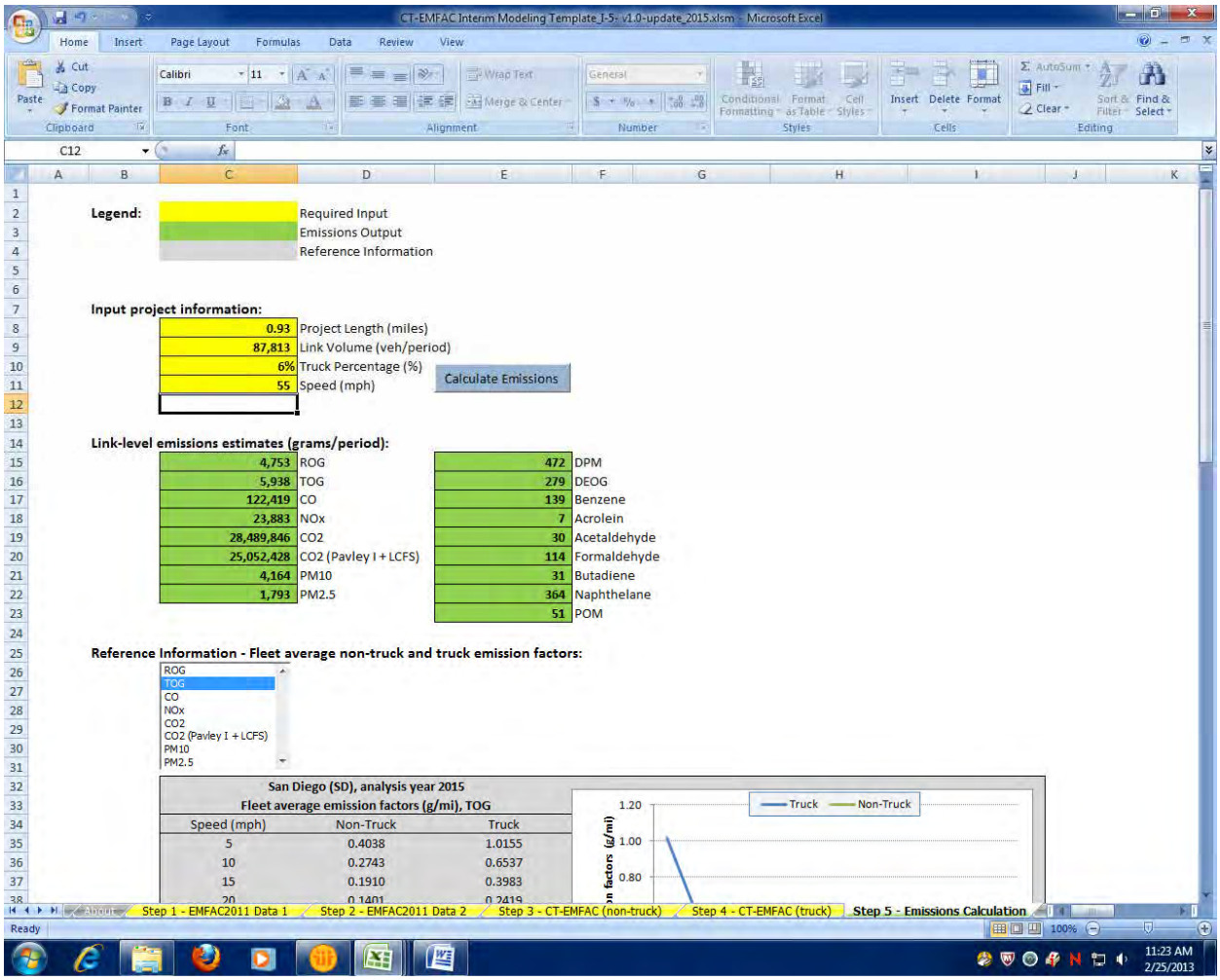
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

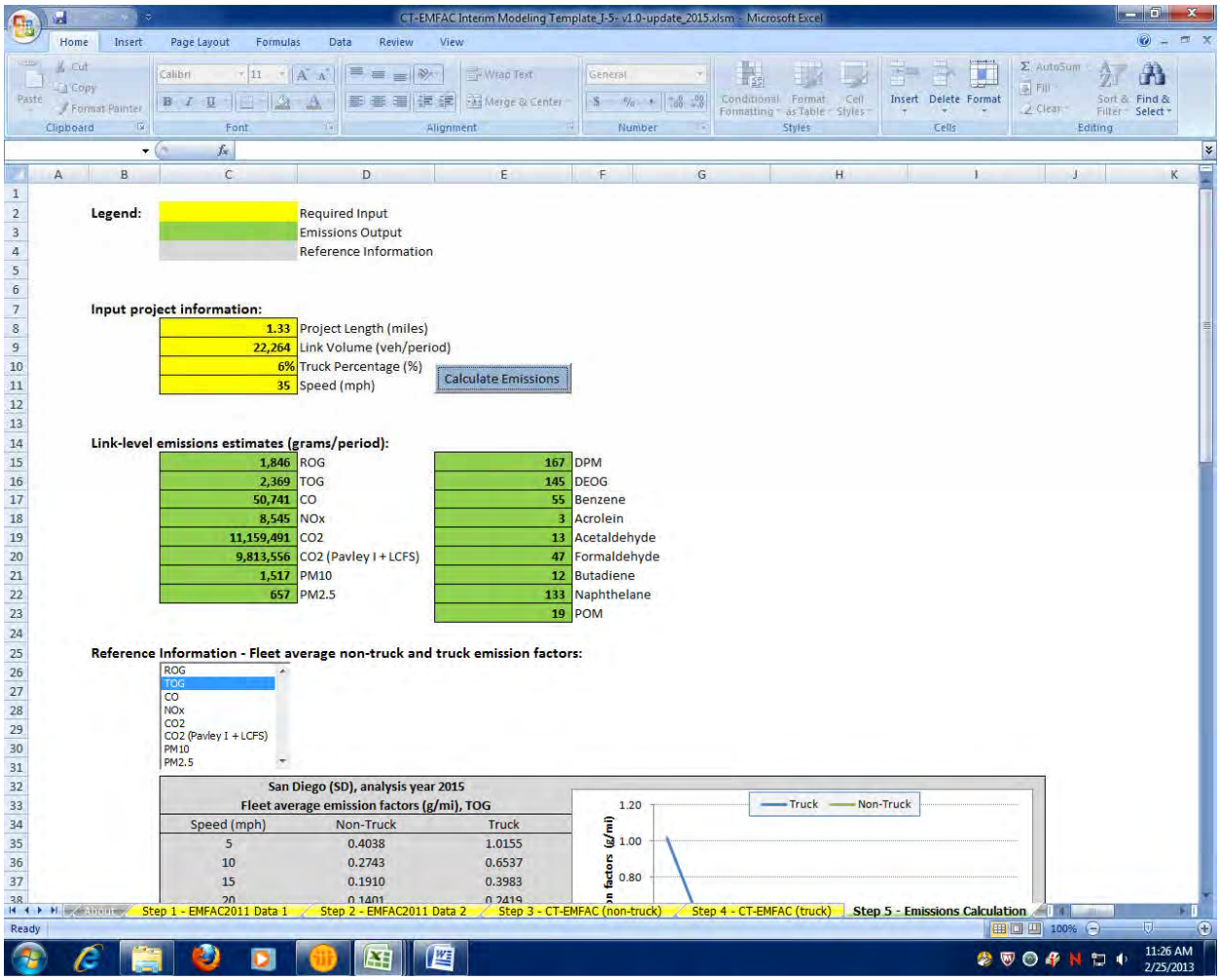
2015 8+4
Link: 4 (SB GP)
Segment: 15
Peak



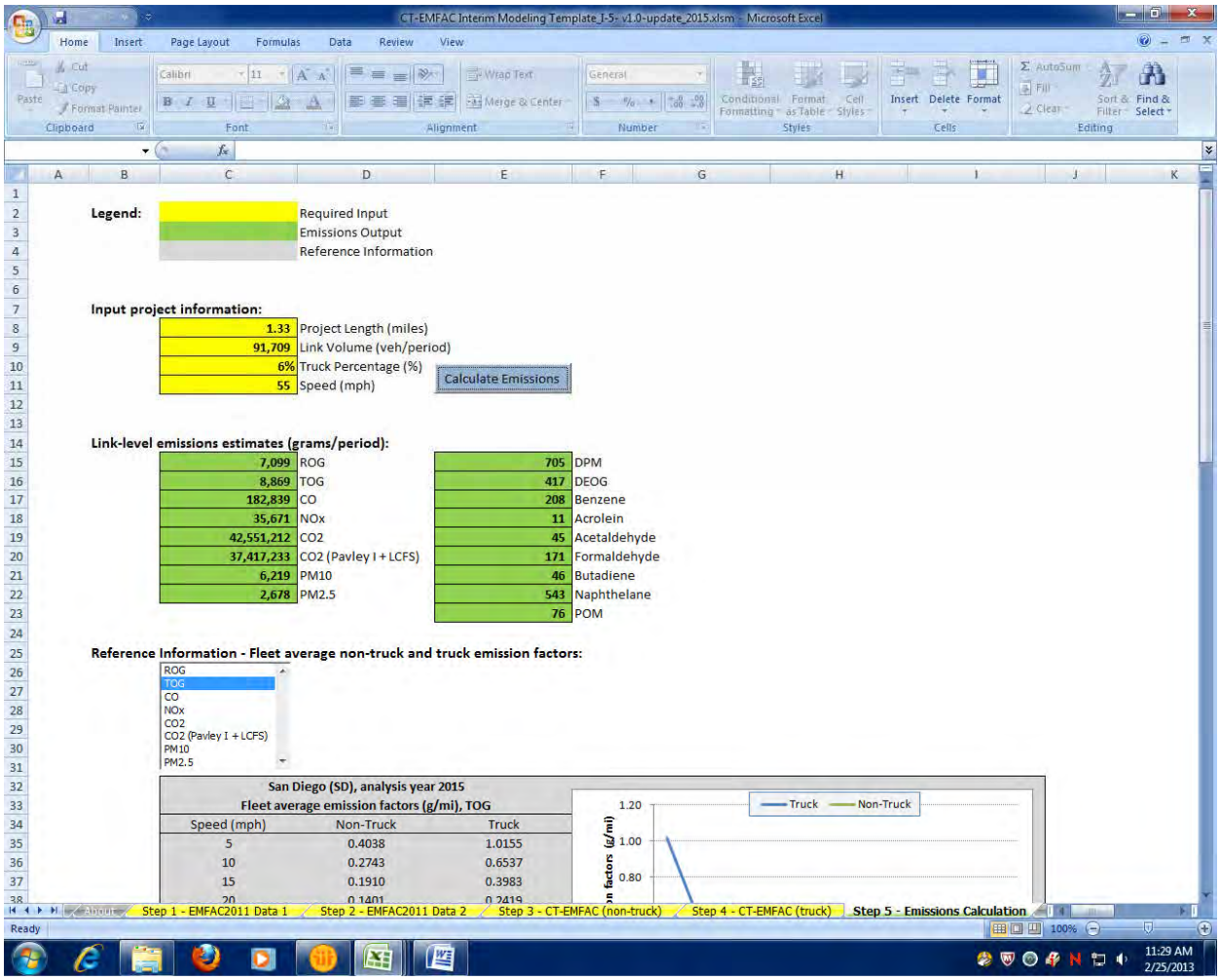
2015 8+4
Link: 4 (SB GP)
Segment: 15
Off Peak



2015 8+4
Link: 4 (SB GP)
Segment: 16
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 16
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.33	Project Length (miles)
91,709	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,099	ROG	705	DPM
8,869	TOG	417	DEOG
182,839	CO	208	Benzene
35,671	NOx	11	Acrolein
42,551,212	CO2	45	Acetaldehyde
37,417,233	CO2 (Pavley I + LCFS)	171	Formaldehyde
6,219	PM10	46	Butadiene
2,678	PM2.5	543	Naphthelane
		76	POM

Reference Information - Fleet average non-truck and truck emission factors:

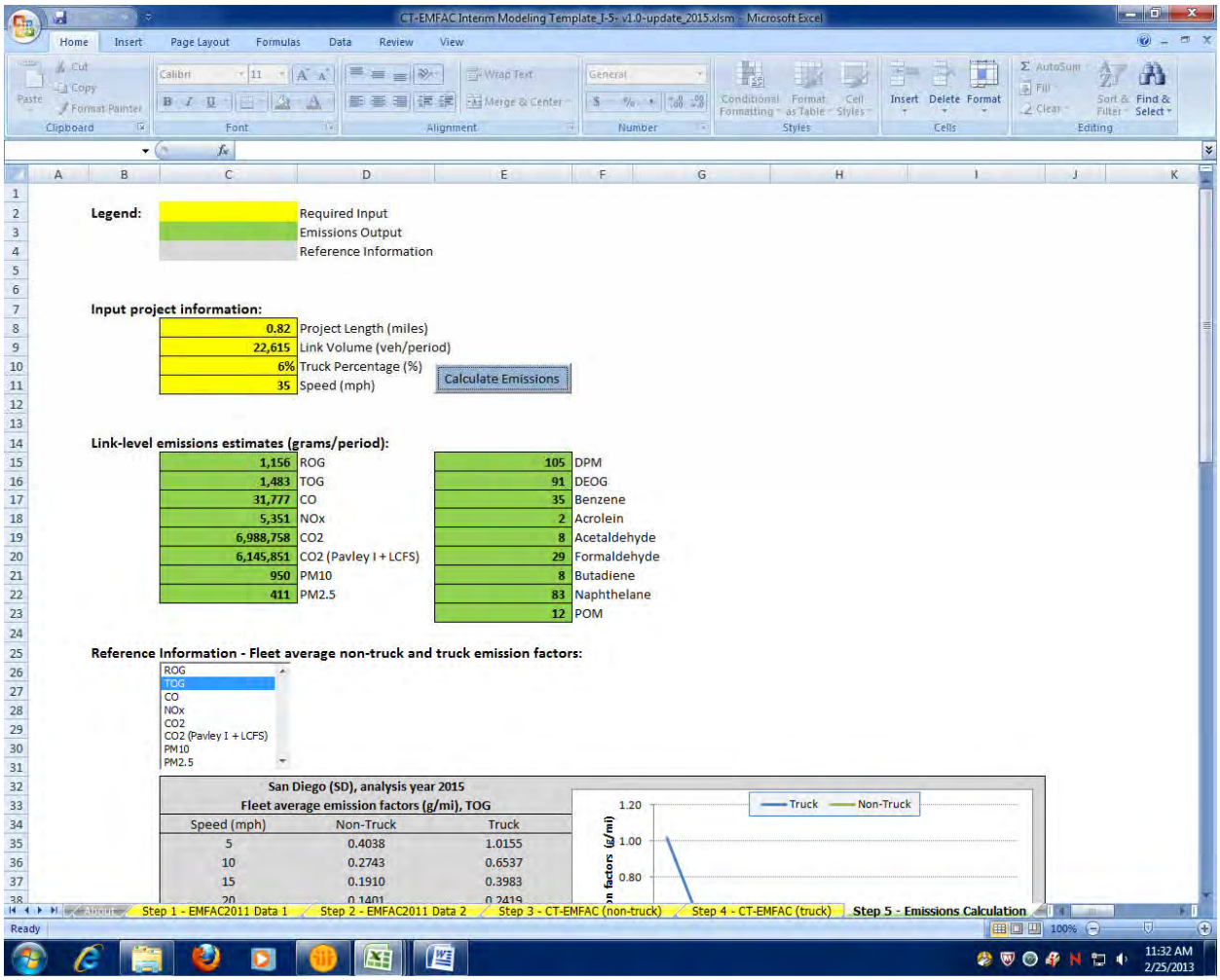
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

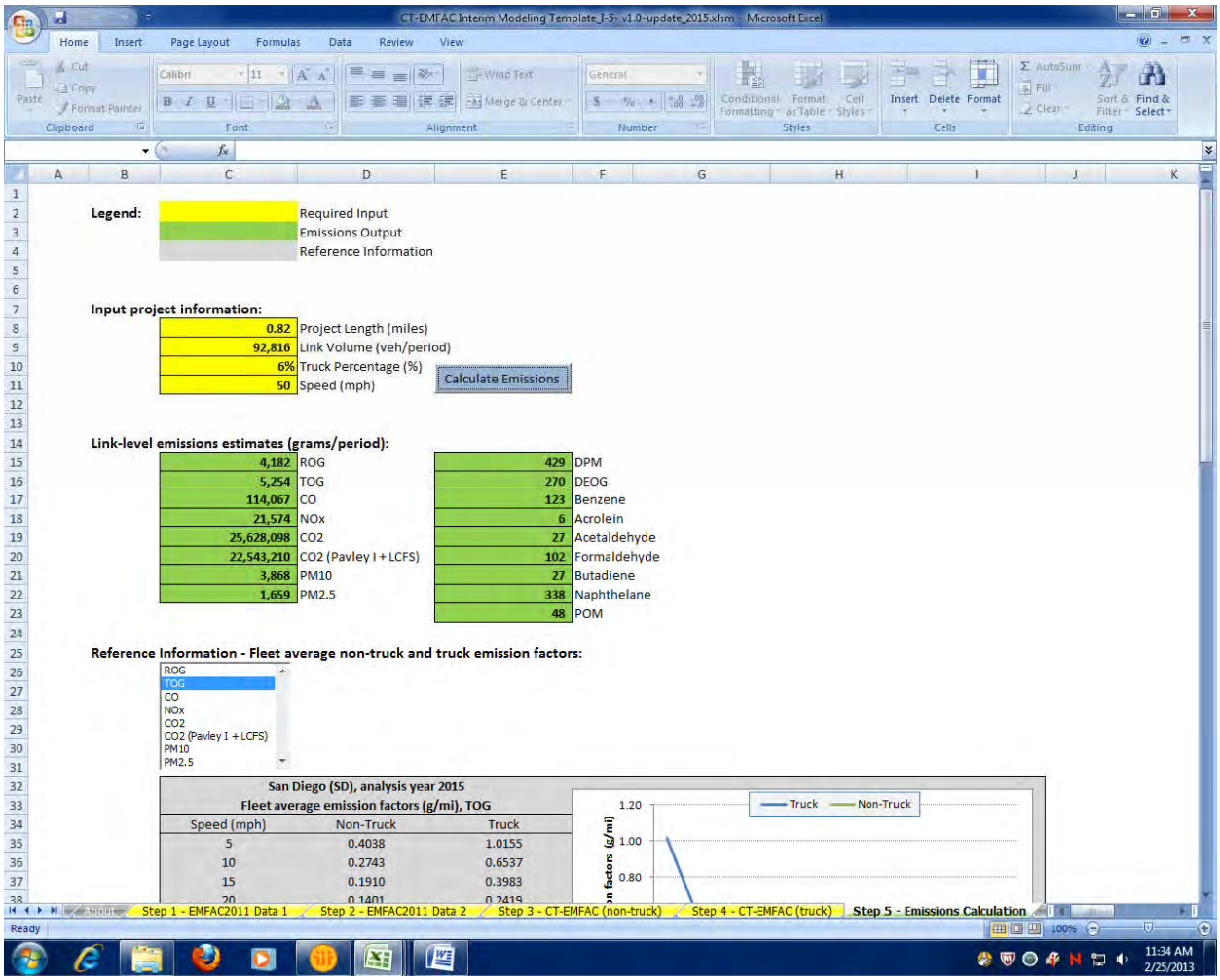
Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

2015 8+4
Link: 4 (SB GP)
Segment: 17
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 17
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.82	Project Length (miles)
92,816	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,182	ROG	429	DPM
5,254	TOG	270	DEOG
114,067	CO	123	Benzene
21,574	NOx	6	Acrolein
25,628,098	CO2	27	Acetaldehyde
22,543,210	CO2 (Pavley I + LCFS)	102	Formaldehyde
3,868	PM10	27	Butadiene
1,659	PM2.5	338	Naphthelane
		48	POM

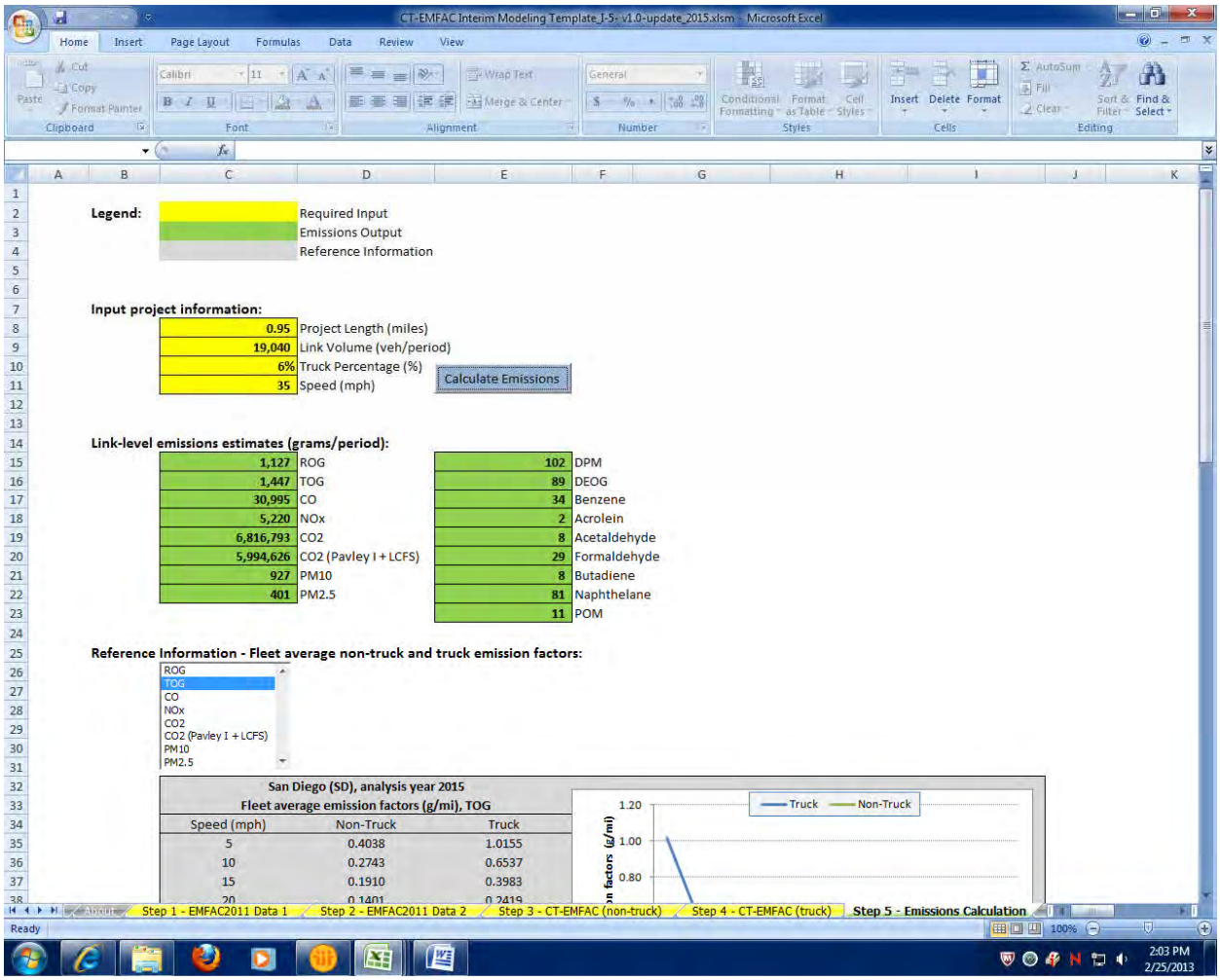
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

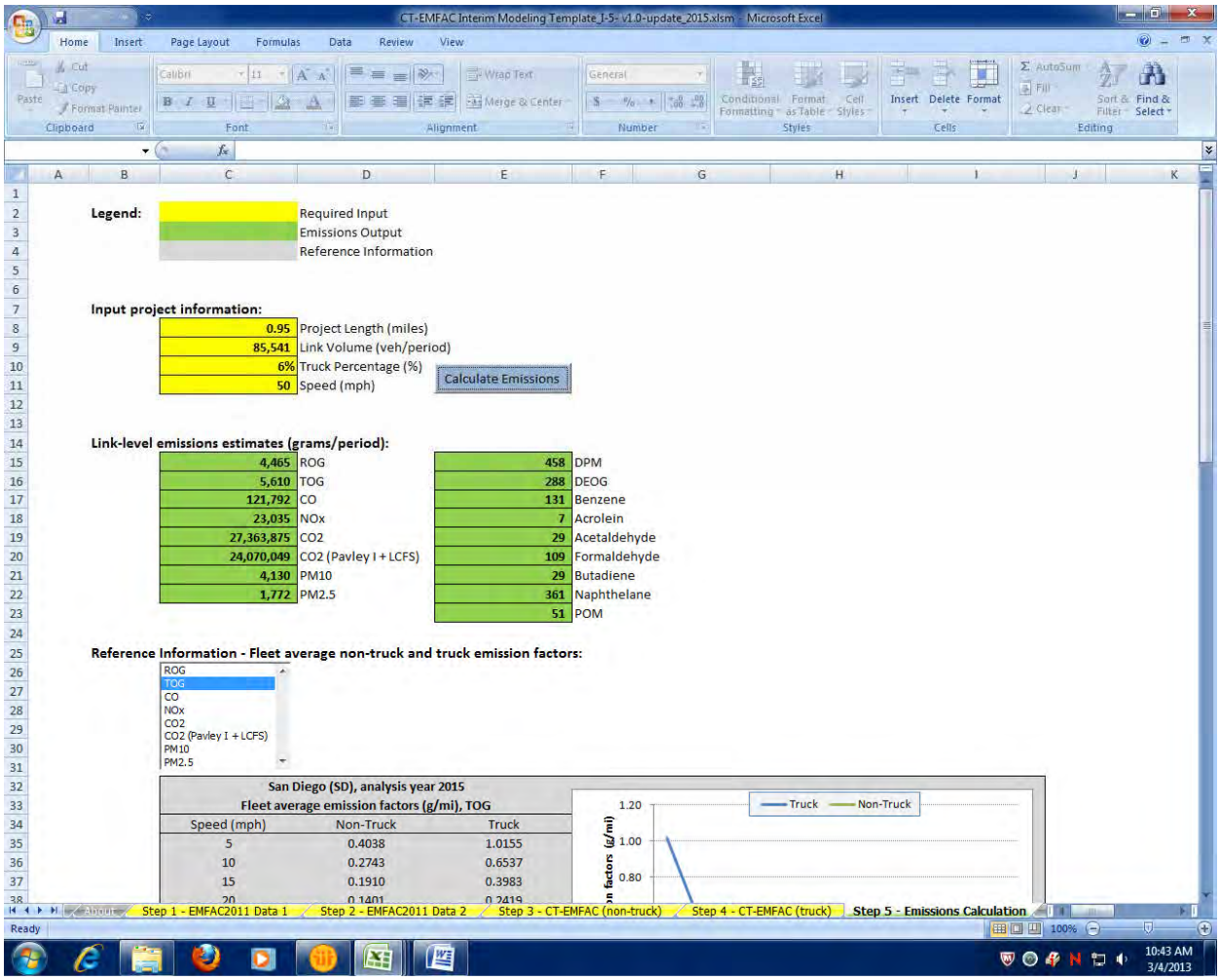
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 18
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 18
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
85,541	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,465	ROG	458	DPM
5,610	TOG	288	DEOG
121,792	CO	131	Benzene
23,035	NOx	7	Acrolein
27,363,875	CO2	29	Acetaldehyde
24,070,049	CO2 (Pavley I + LCFS)	109	Formaldehyde
4,130	PM10	29	Butadiene
1,772	PM2.5	361	Naphthelane
		51	POM

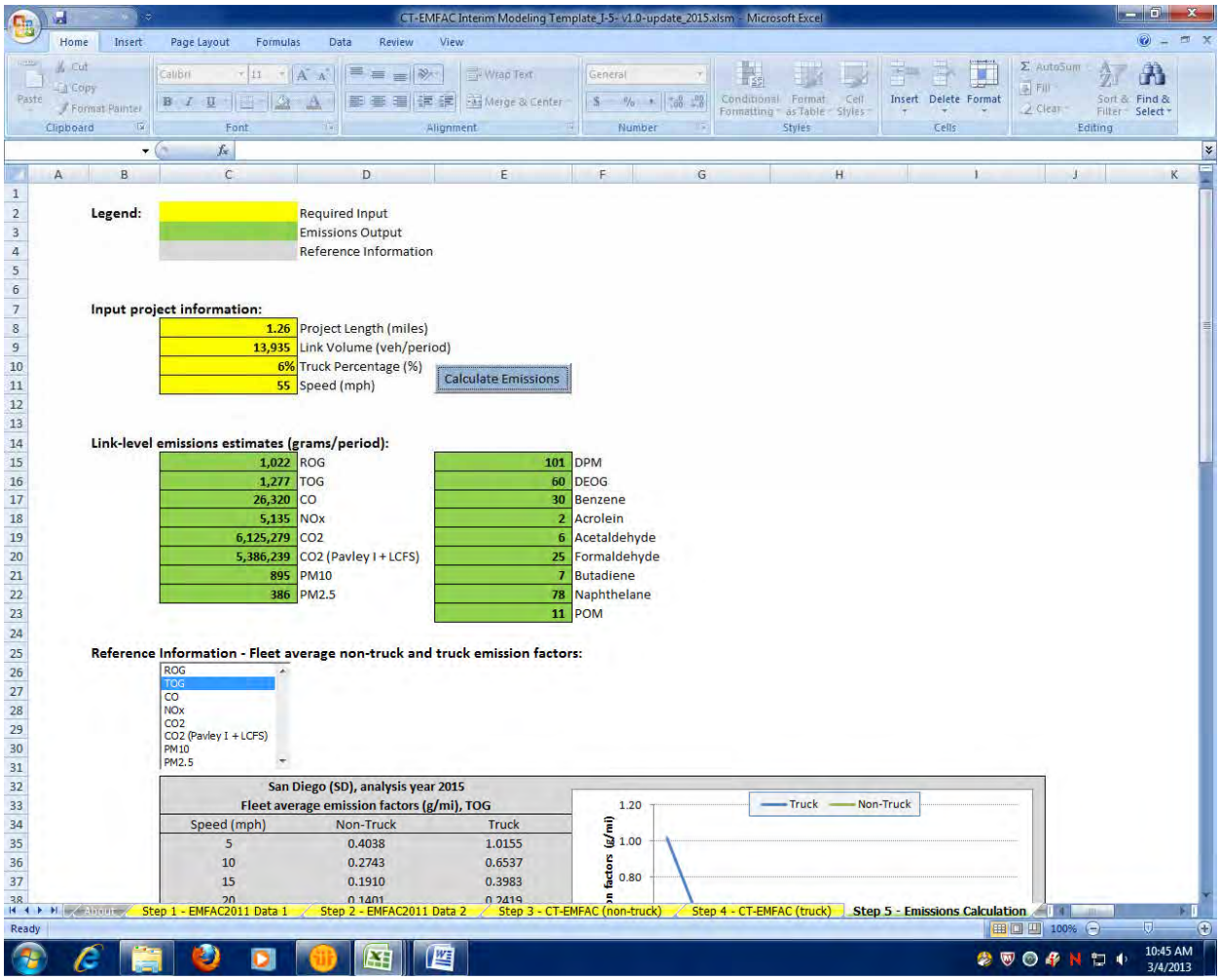
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

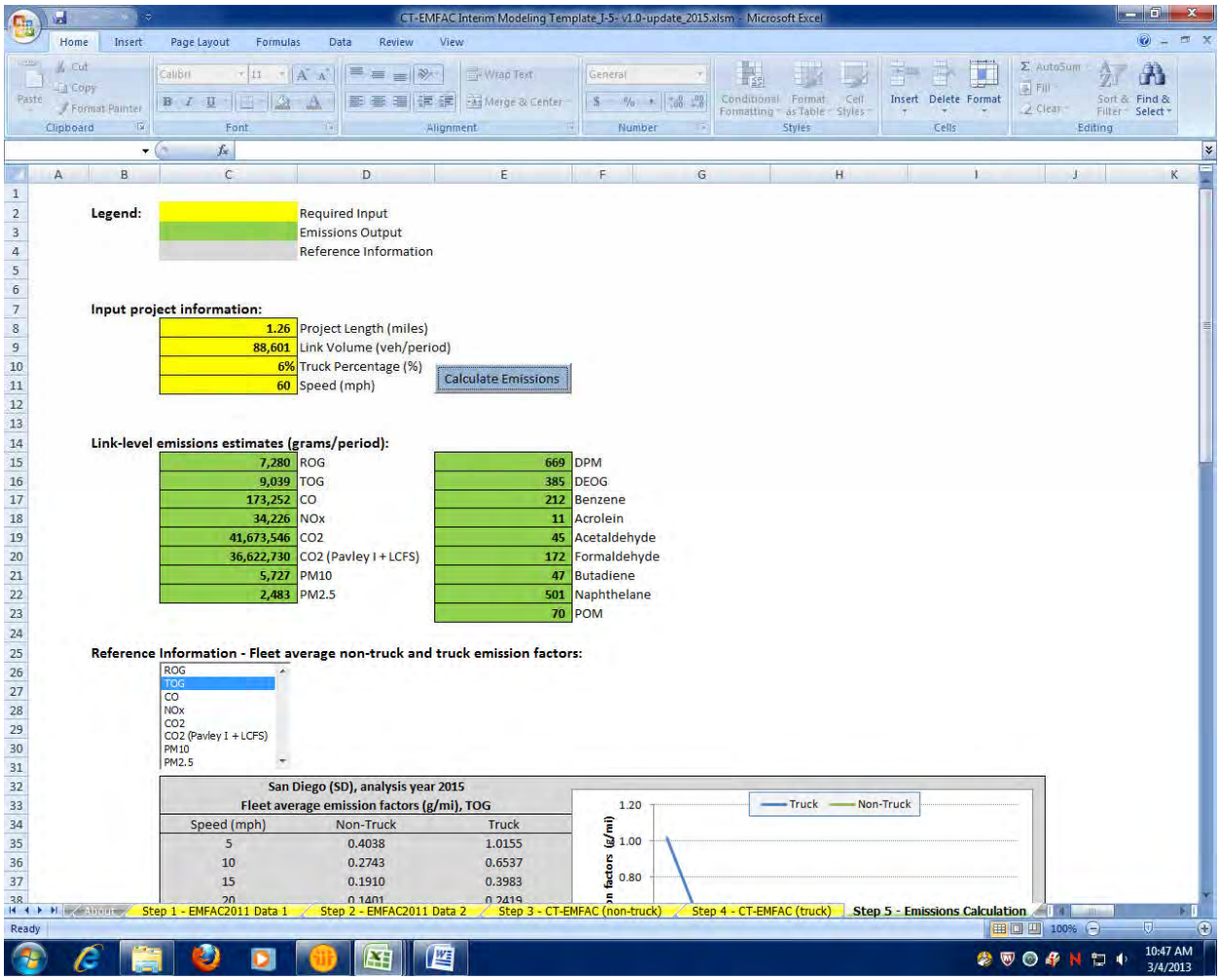
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 19
Peak



2015 8+4
Link: 4 (SB GP)
Segment: 19
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.26	Project Length (miles)
88,601	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,280	ROG	669	DPM
9,039	TOG	385	DEOG
173,252	CO	212	Benzene
34,226	NOx	11	Acrolein
41,673,546	CO2	45	Acetaldehyde
36,622,730	CO2 (Pavley I + LCFS)	172	Formaldehyde
5,727	PM10	47	Butadiene
2,483	PM2.5	501	Naphthelane
		70	POM

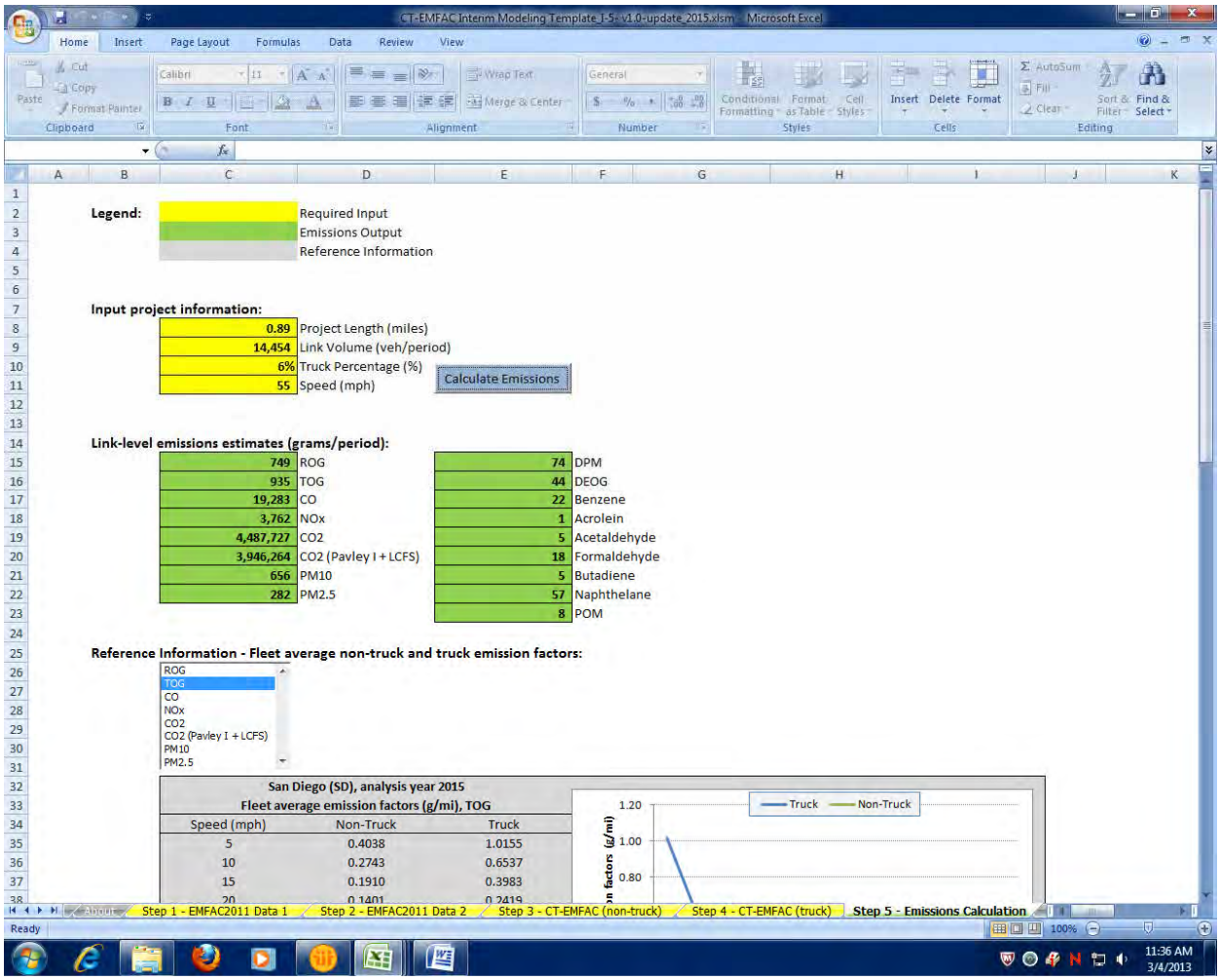
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

2015 8+4
Link: 4 (SB GP)
Segment: 20
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
14,454	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

749	ROG	74	DPM
935	TOG	44	DEOG
19,283	CO	22	Benzene
3,762	NOx	1	Acrolein
4,487,727	CO2	5	Acetaldehyde
3,946,264	CO2 (Pavley I + LCFS)	18	Formaldehyde
656	PM10	5	Butadiene
282	PM2.5	57	Naphthelane
		8	POM

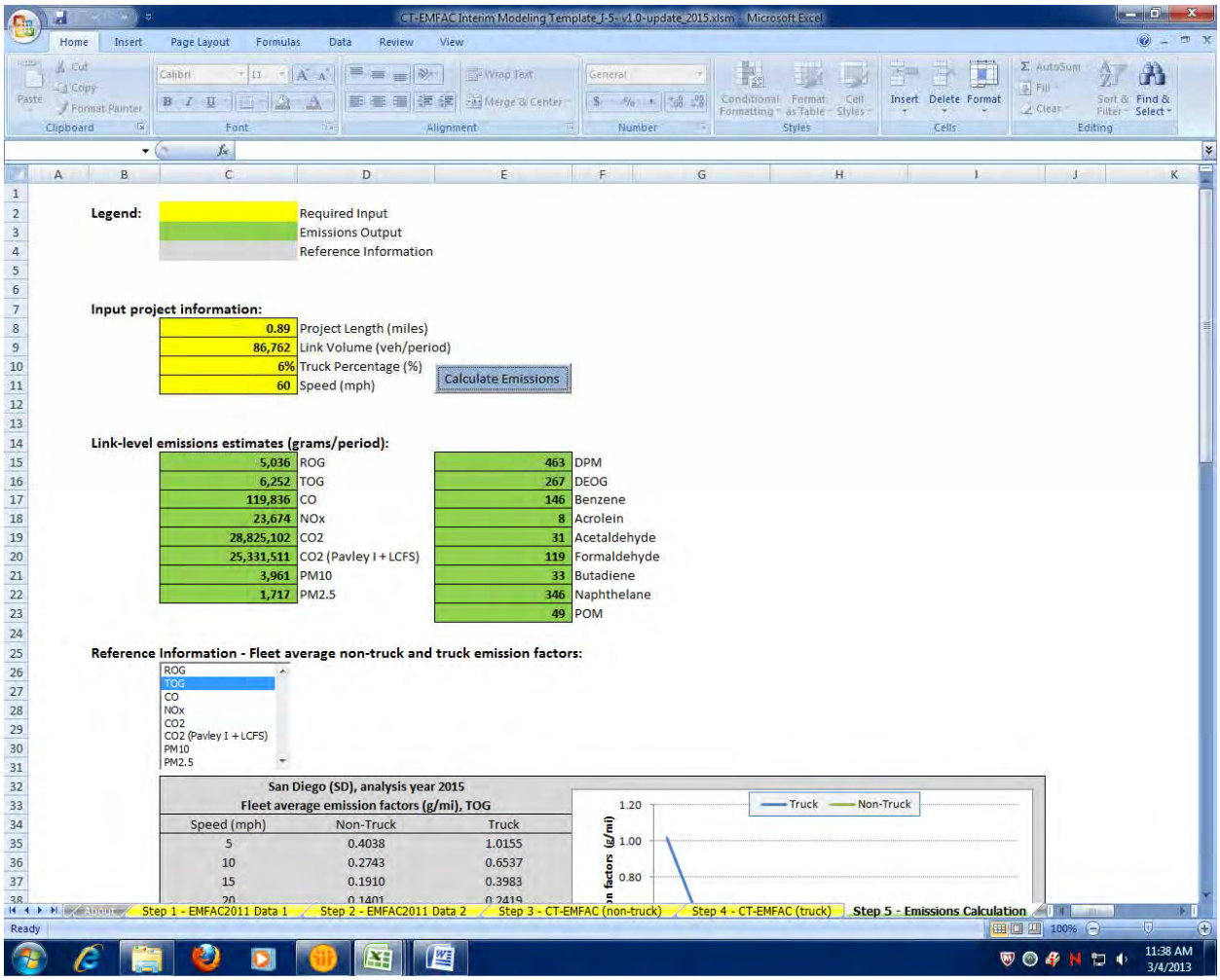
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

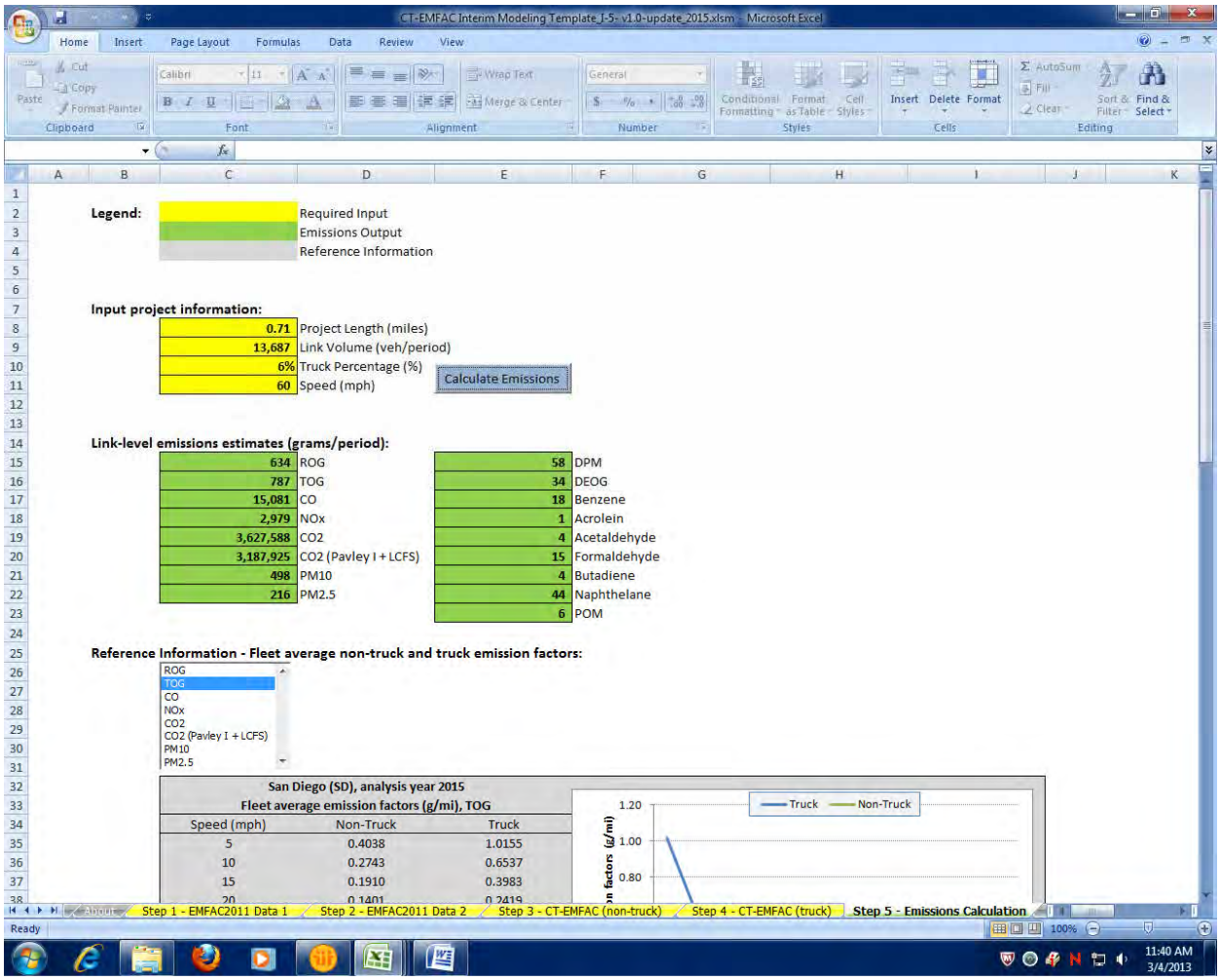
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

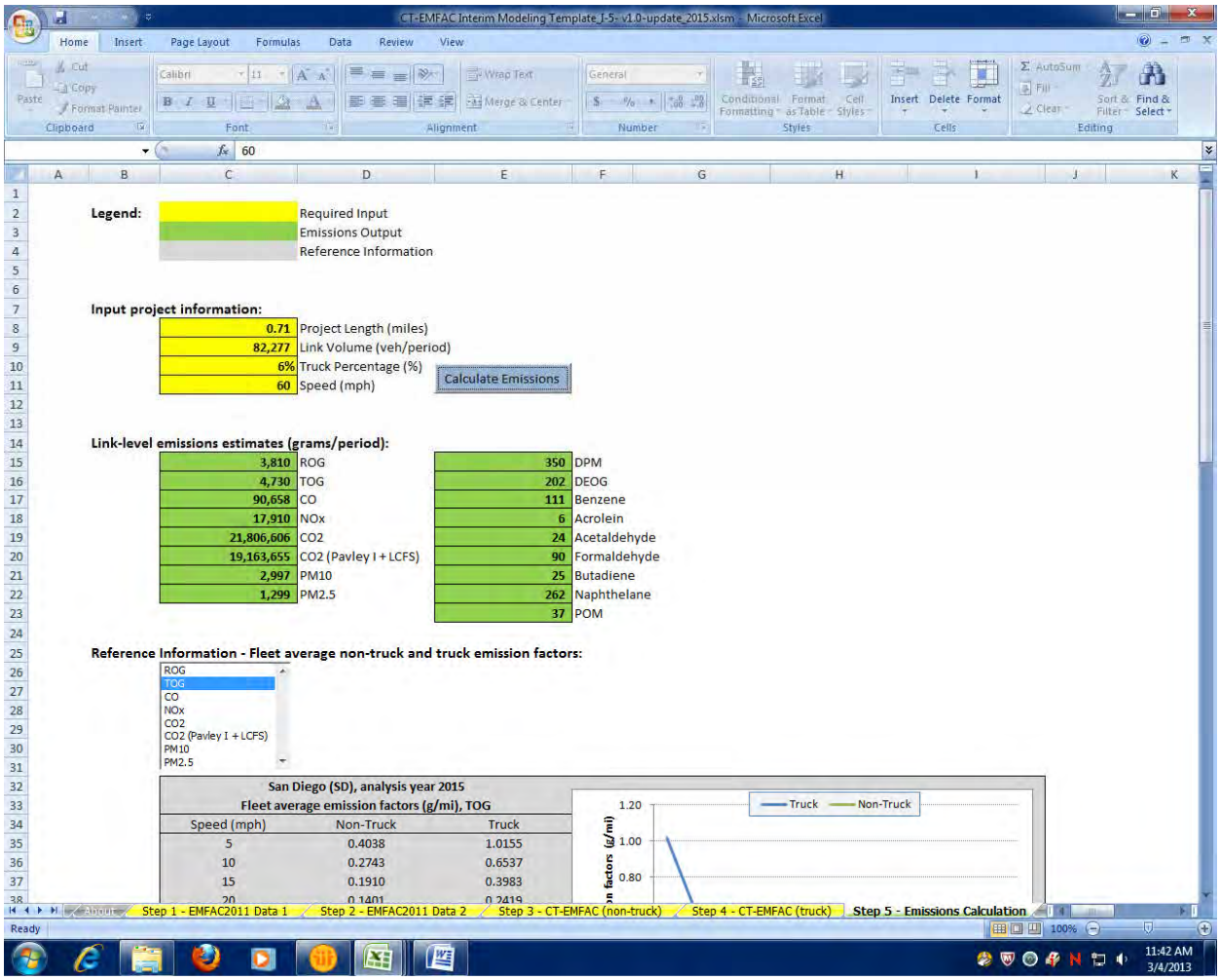
2015 8+4
Link: 4 (SB GP)
Segment: 20
Off Peak



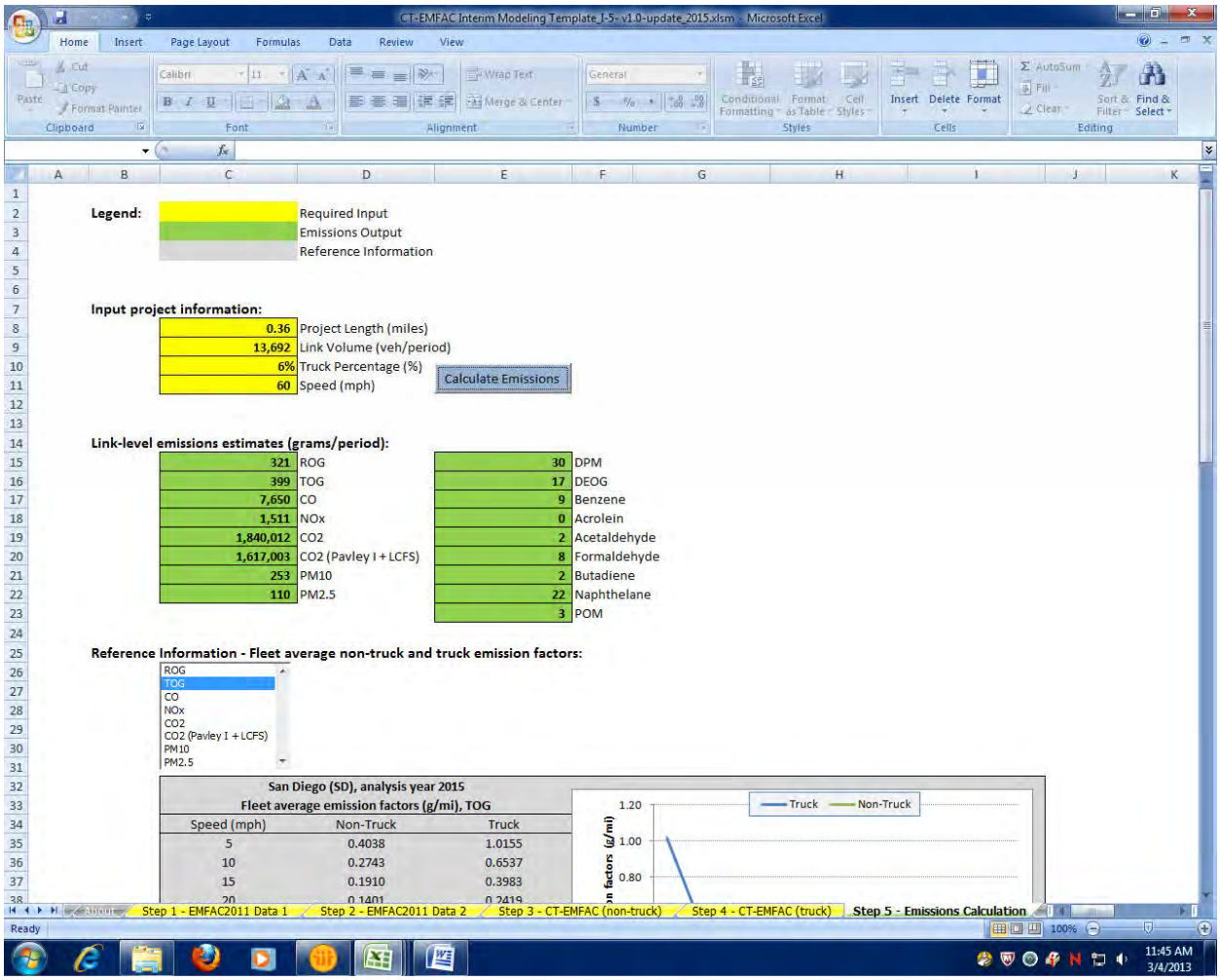
2015 8+4
Link: 4 (SB GP)
Segment: 21
Peak



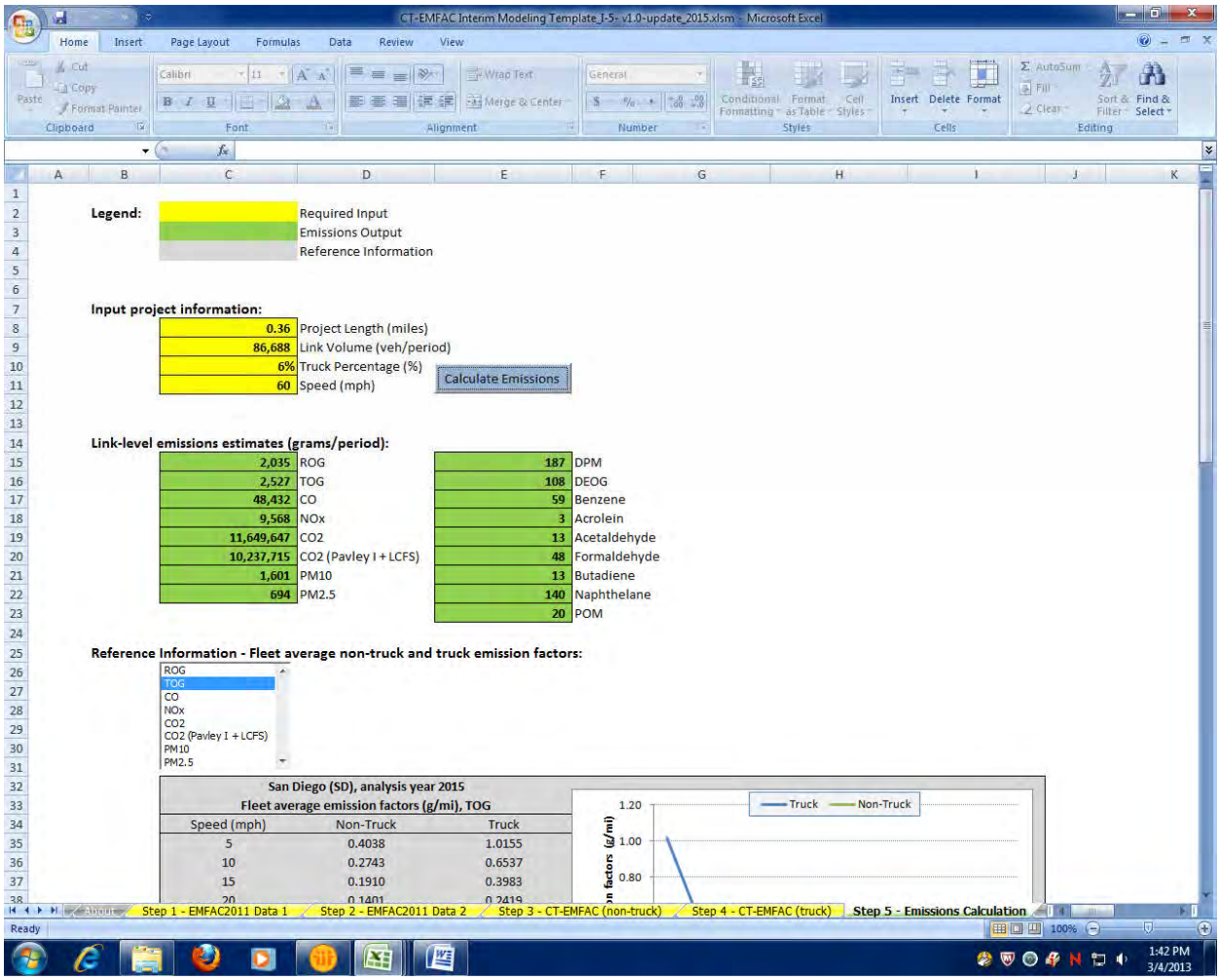
2015 8+4
Link: 4 (SB GP)
Segment: 21
Off Peak



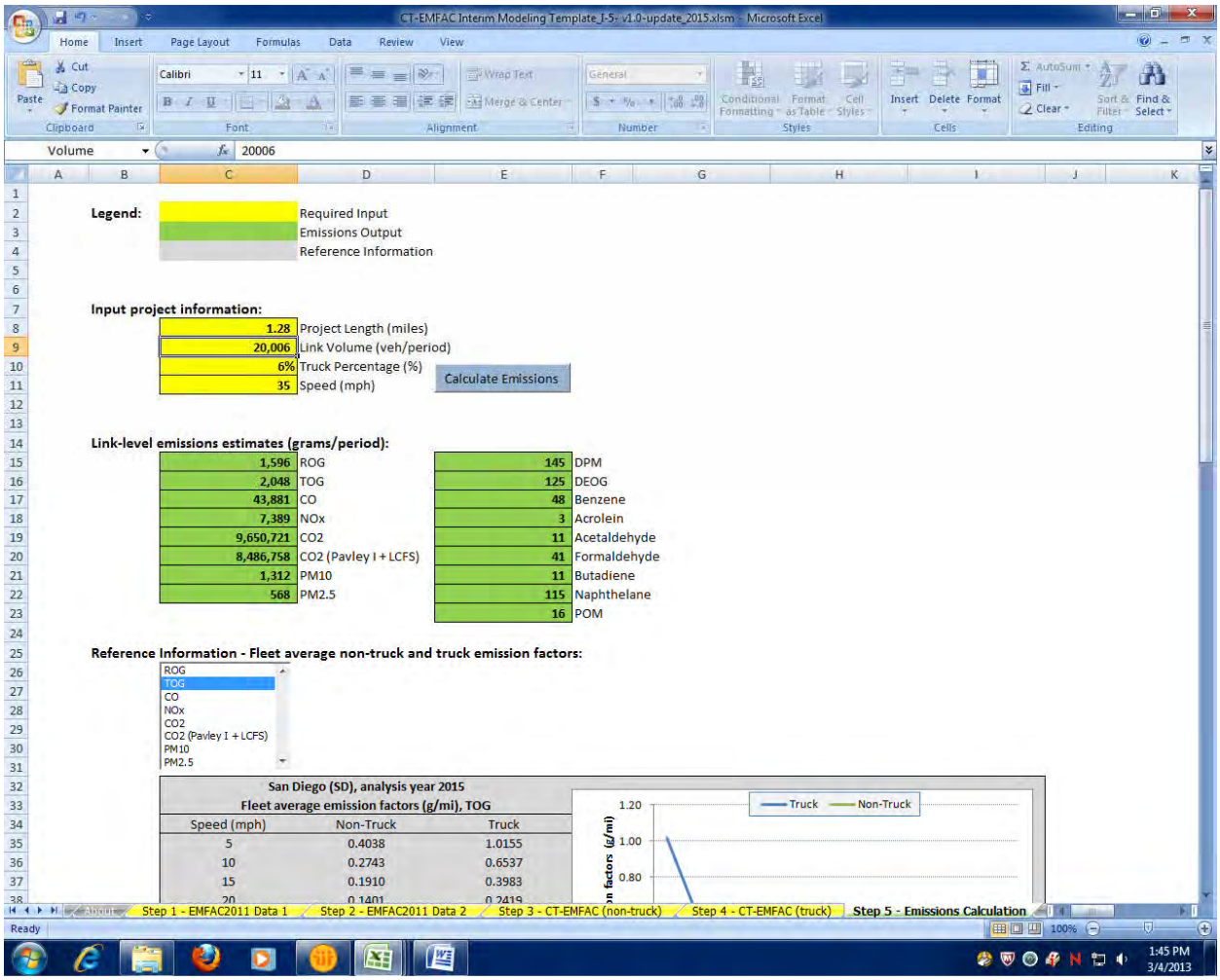
2015 8+4
Link: 4 (SB GP)
Segment: 22
Peak



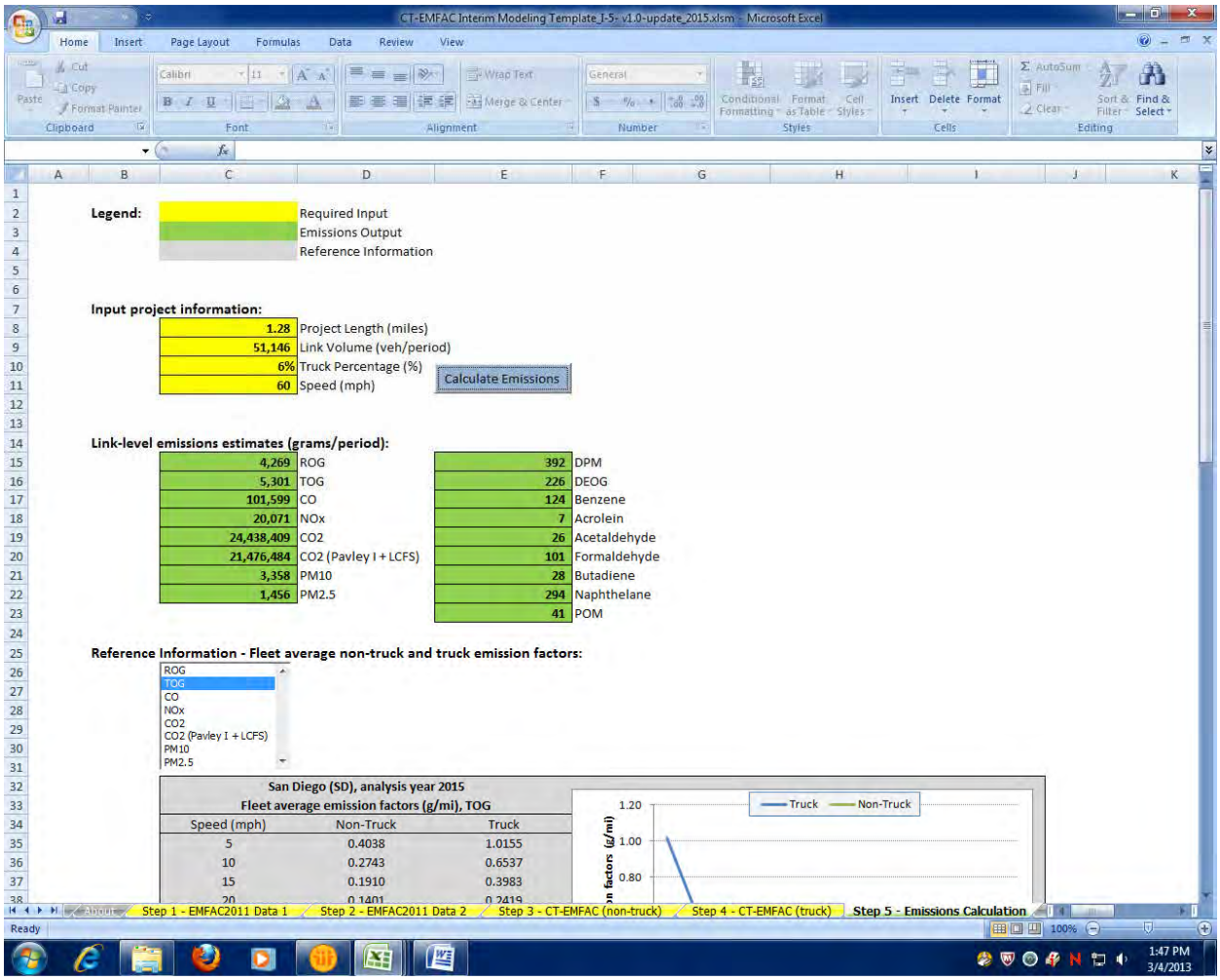
2015 8+4
Link: 4 (SB GP)
Segment: 22
Off Peak



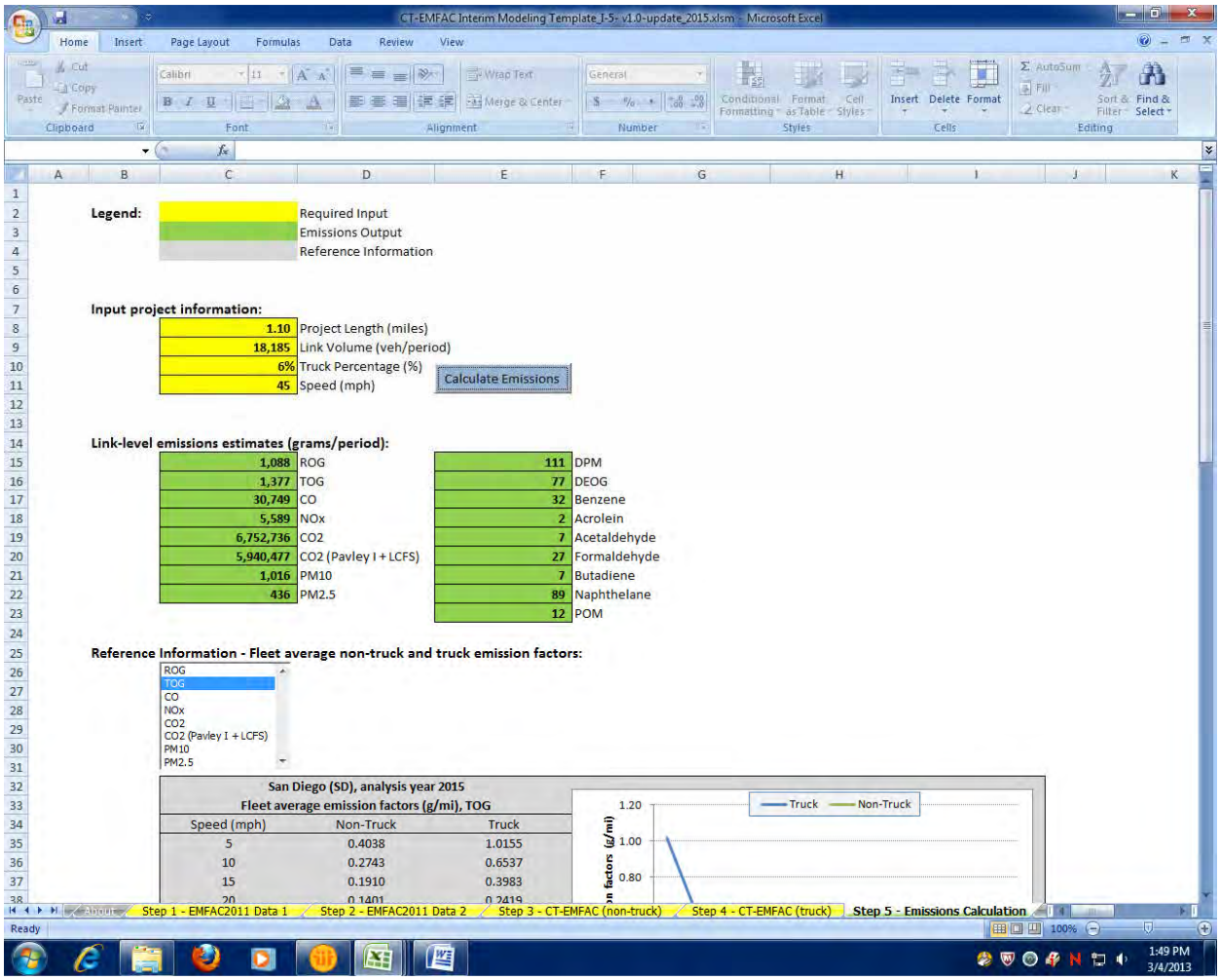
2015 8+4
Link: 5 (NB BP)
Segment: 1
Peak



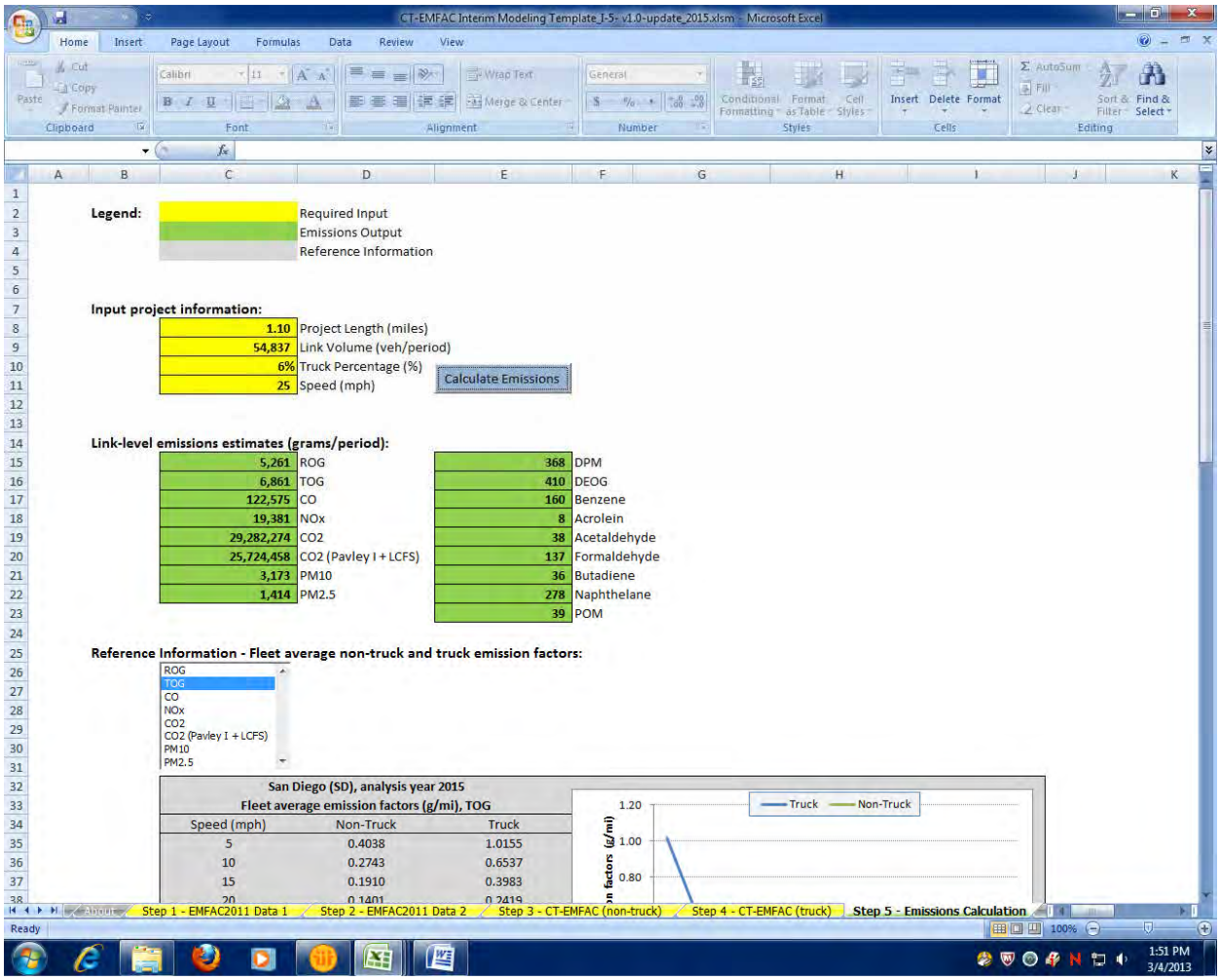
2015 8+4
Link: 5 (NB BP)
Segment: 1
Off Peak



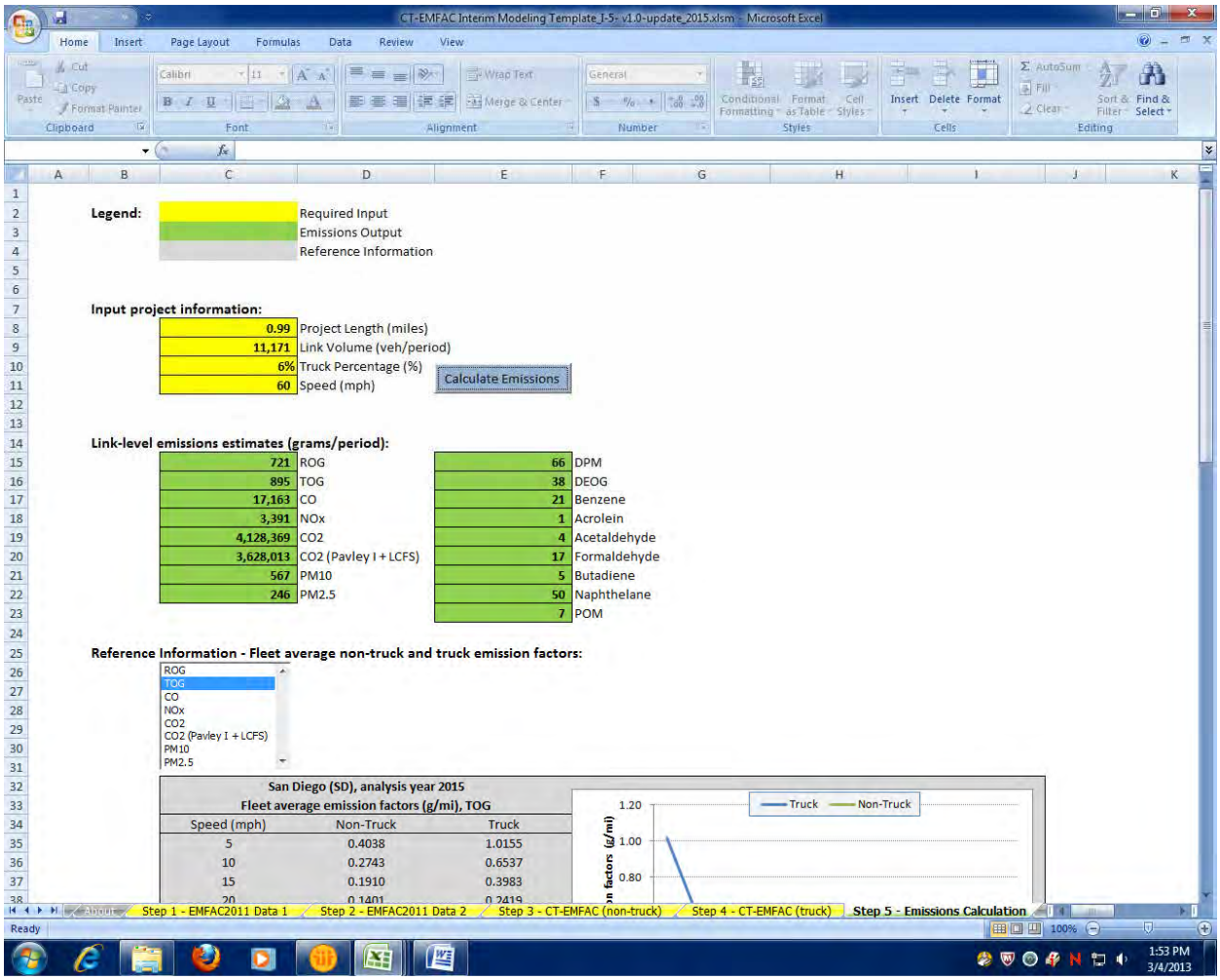
2015 8+4
Link: 5 (NB BP)
Segment: 2
Peak



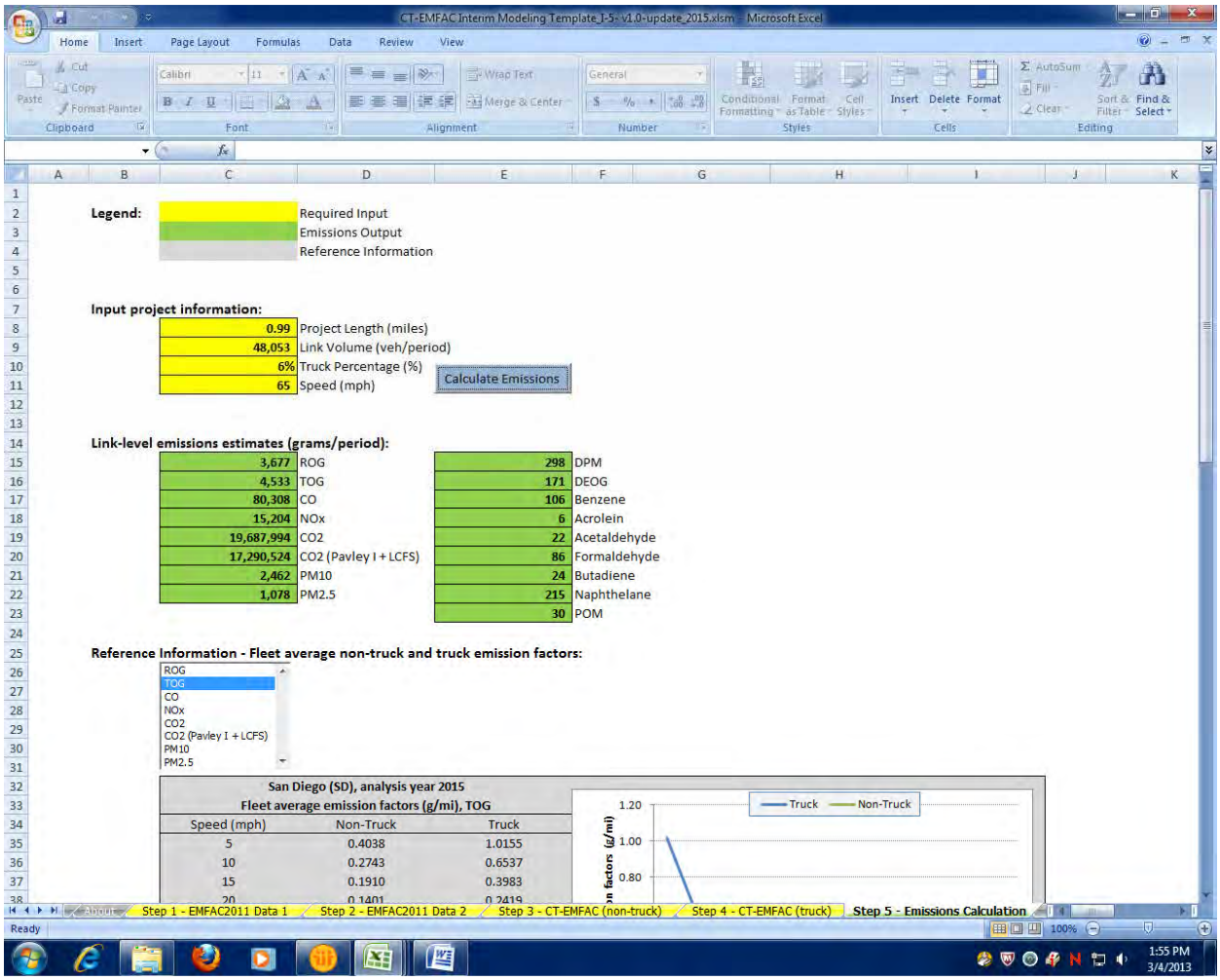
2015 8+4
Link: 5 (NB BP)
Segment: 2
Off Peak



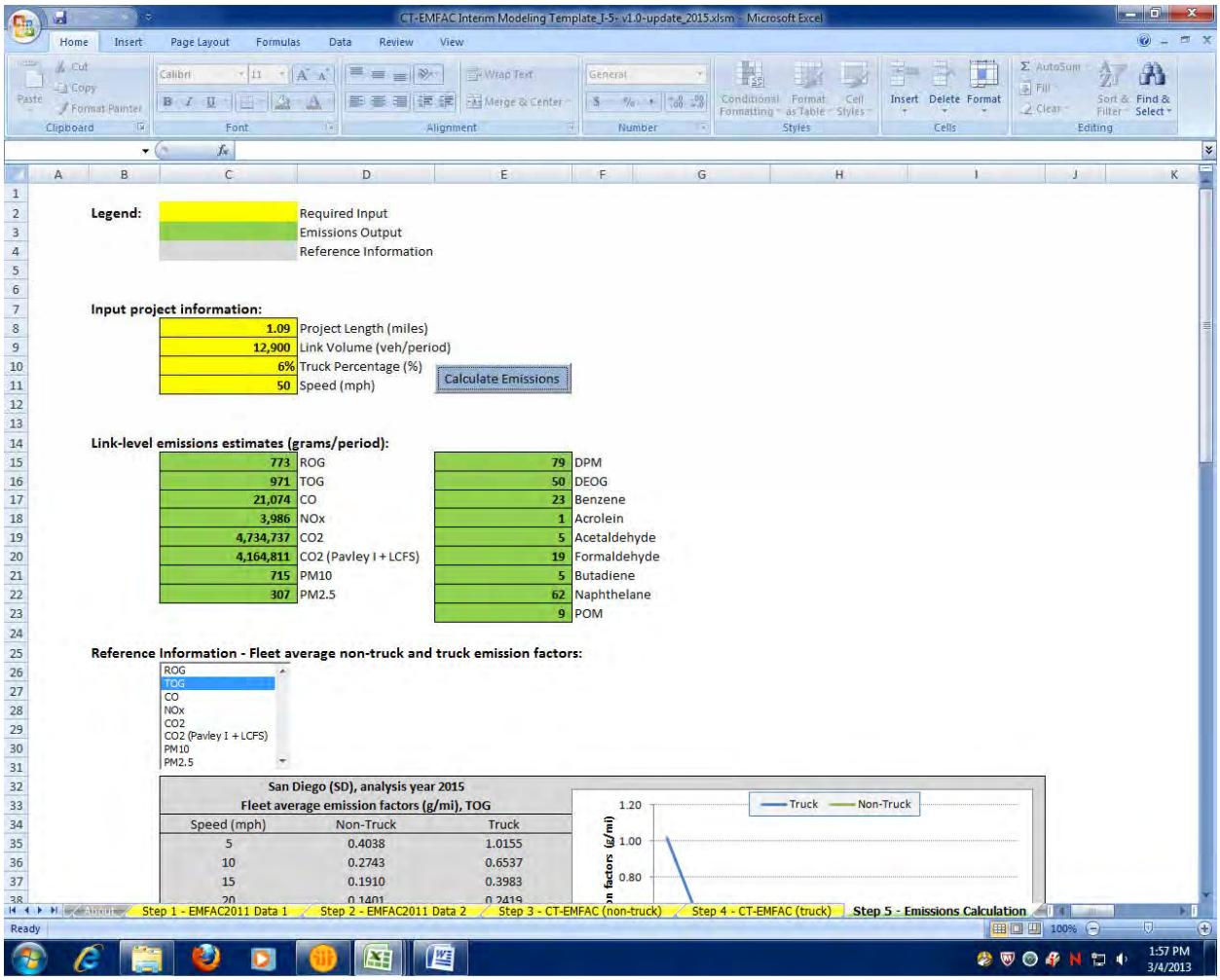
2015 8+4
Link: 6 (SB BP)
Segment: 1
Peak



2015 8+4
Link: 6 (SB BP)
Segment: 1
Off Peak



2015 8+4
Link: 6 (SB BP)
Segment: 2
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
12,900	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

773	ROG	79	DPM
971	TOG	50	DEOG
21,074	CO	23	Benzene
3,986	NOx	1	Acrolein
4,734,737	CO2	5	Acetaldehyde
4,164,811	CO2 (Pavley I + LCFS)	19	Formaldehyde
715	PM10	5	Butadiene
307	PM2.5	62	Naphthelane
		9	POM

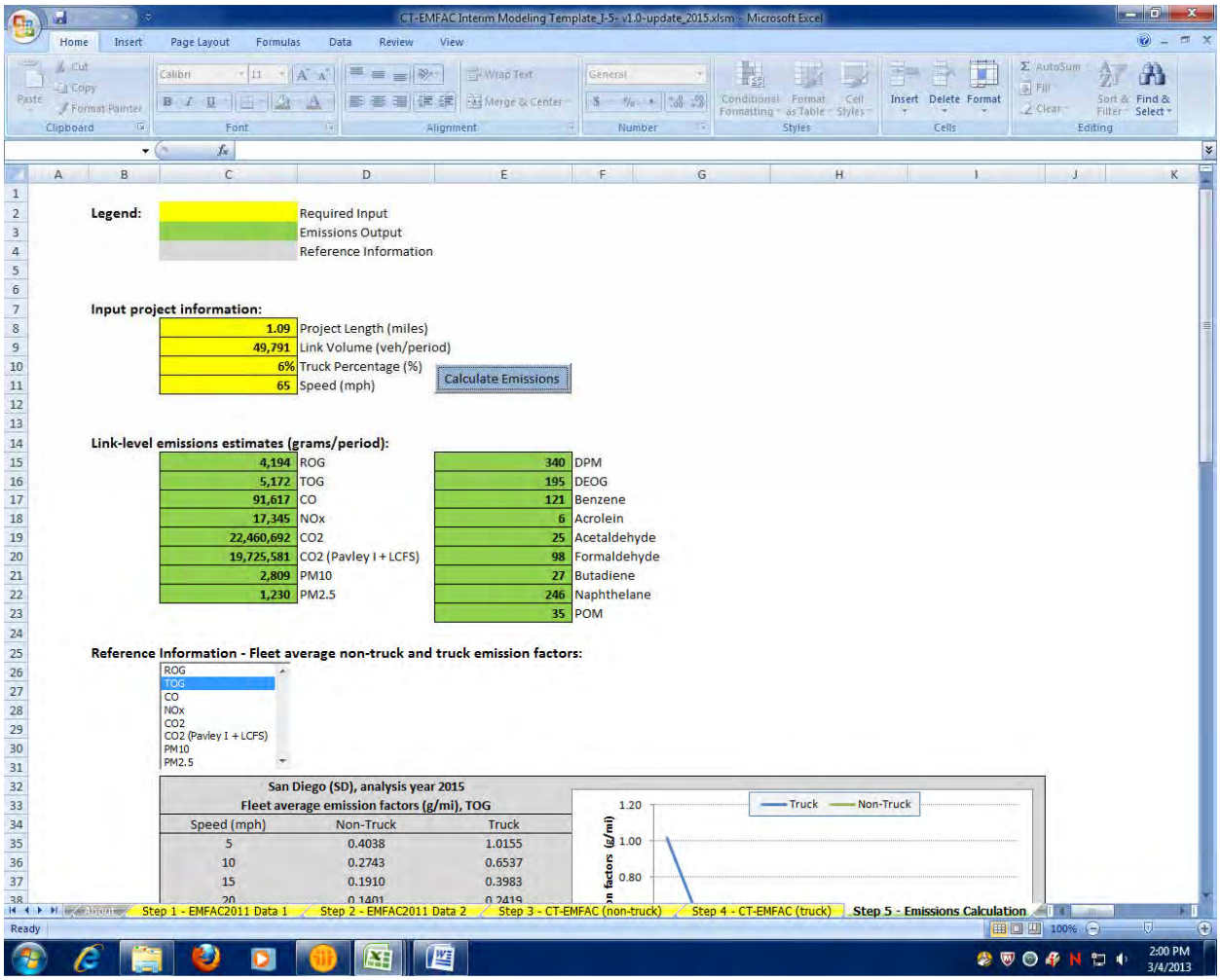
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

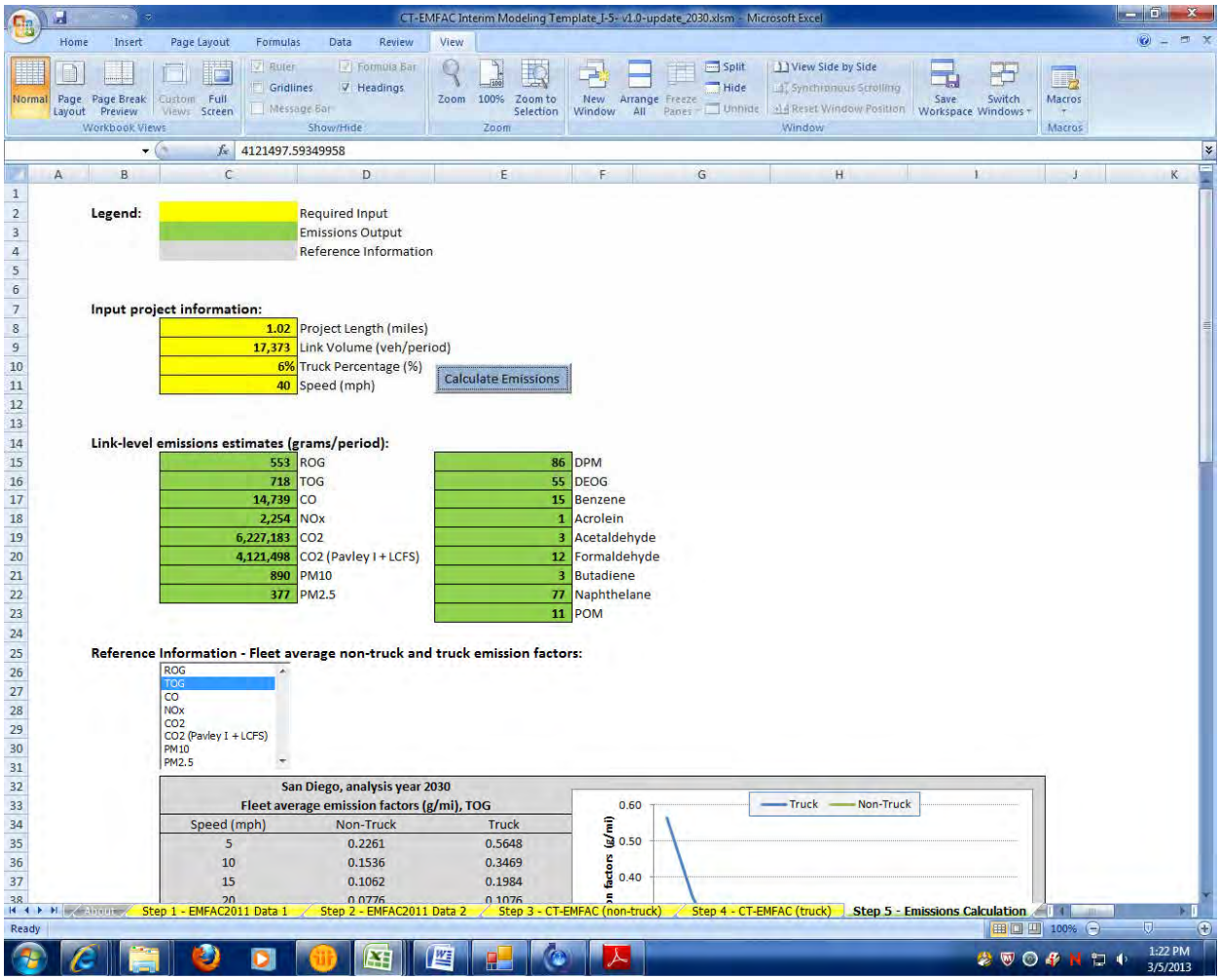
San Diego (SD), analysis year 2015
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.4038	1.0155
10	0.2743	0.6537
15	0.1910	0.3983
20	0.1401	0.2419

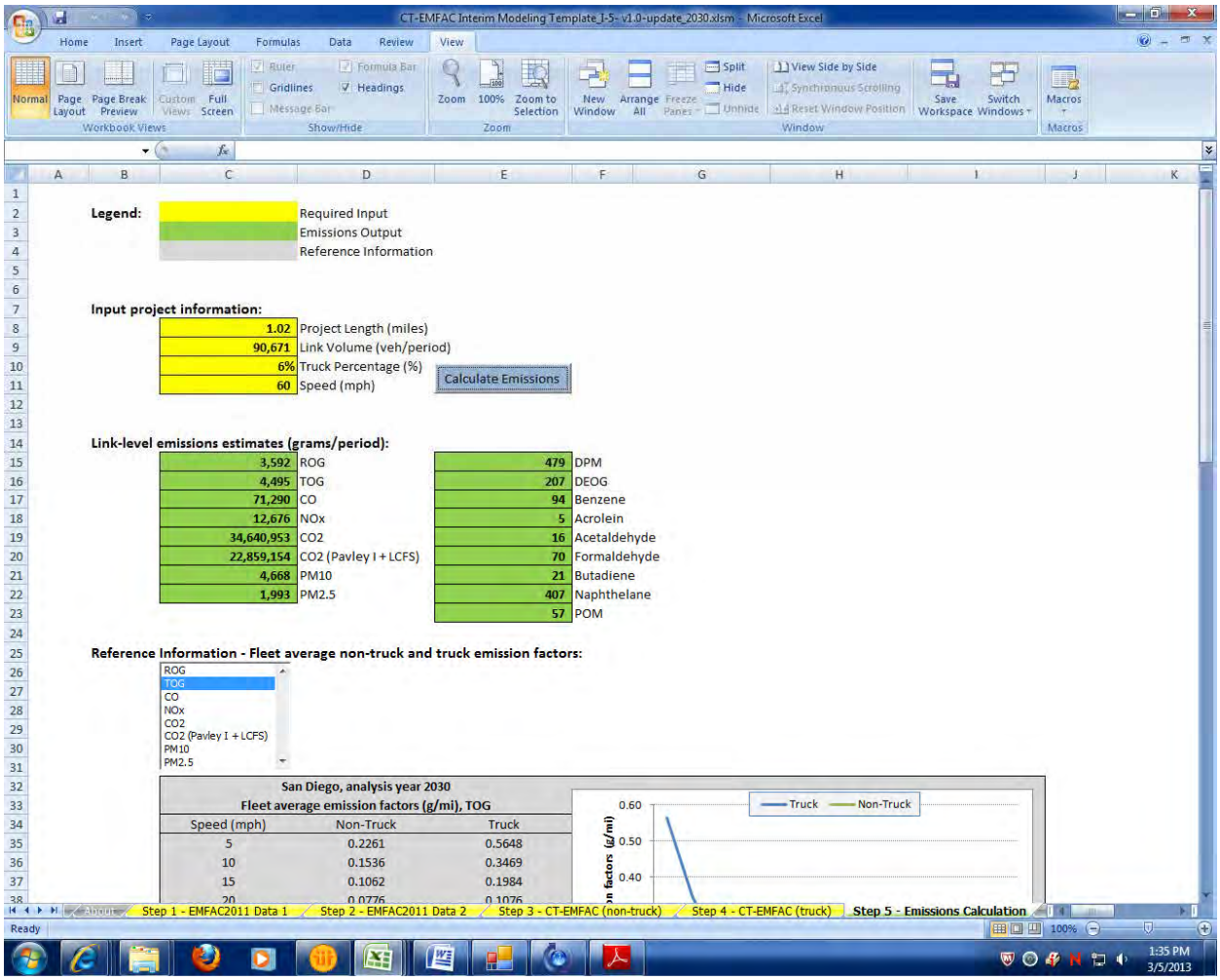
2015 8+4
Link: 6 (SB BP)
Segment: 2
Off Peak



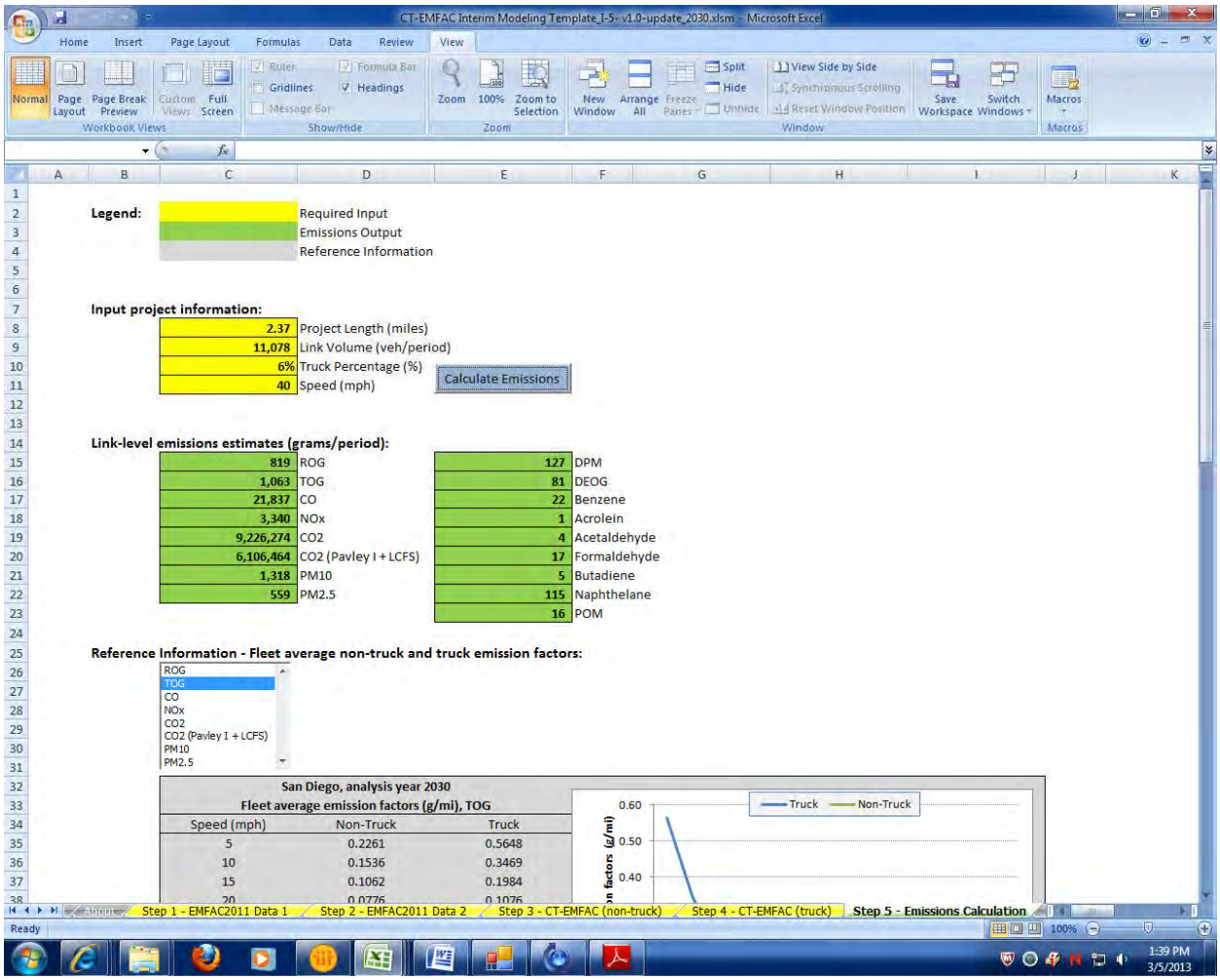
2030 No-build
Link: 1 (NB GP)
Segment: 1
Peak



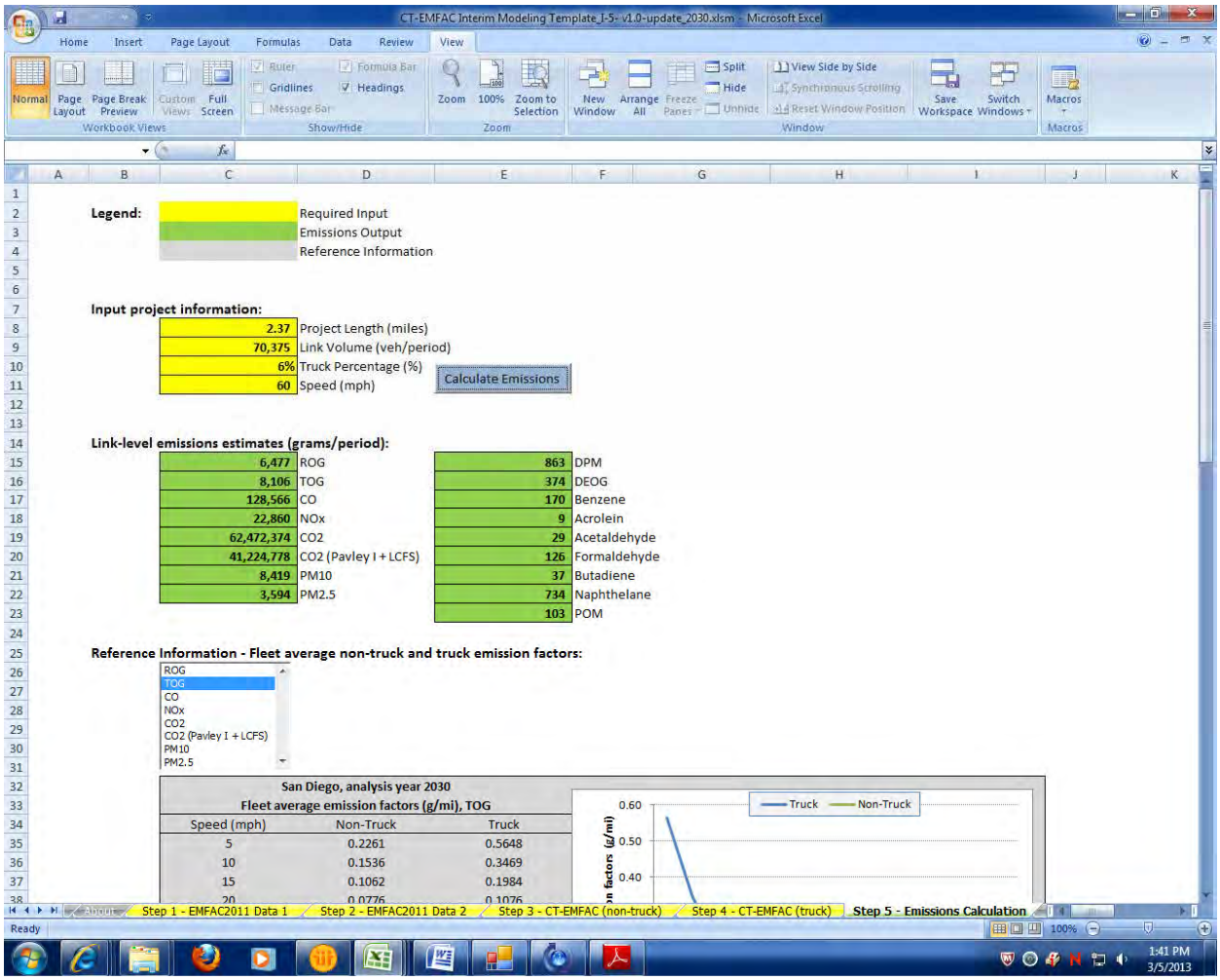
2030 No-build
Link: 1 (NB GP)
Segment: 1
Off Peak



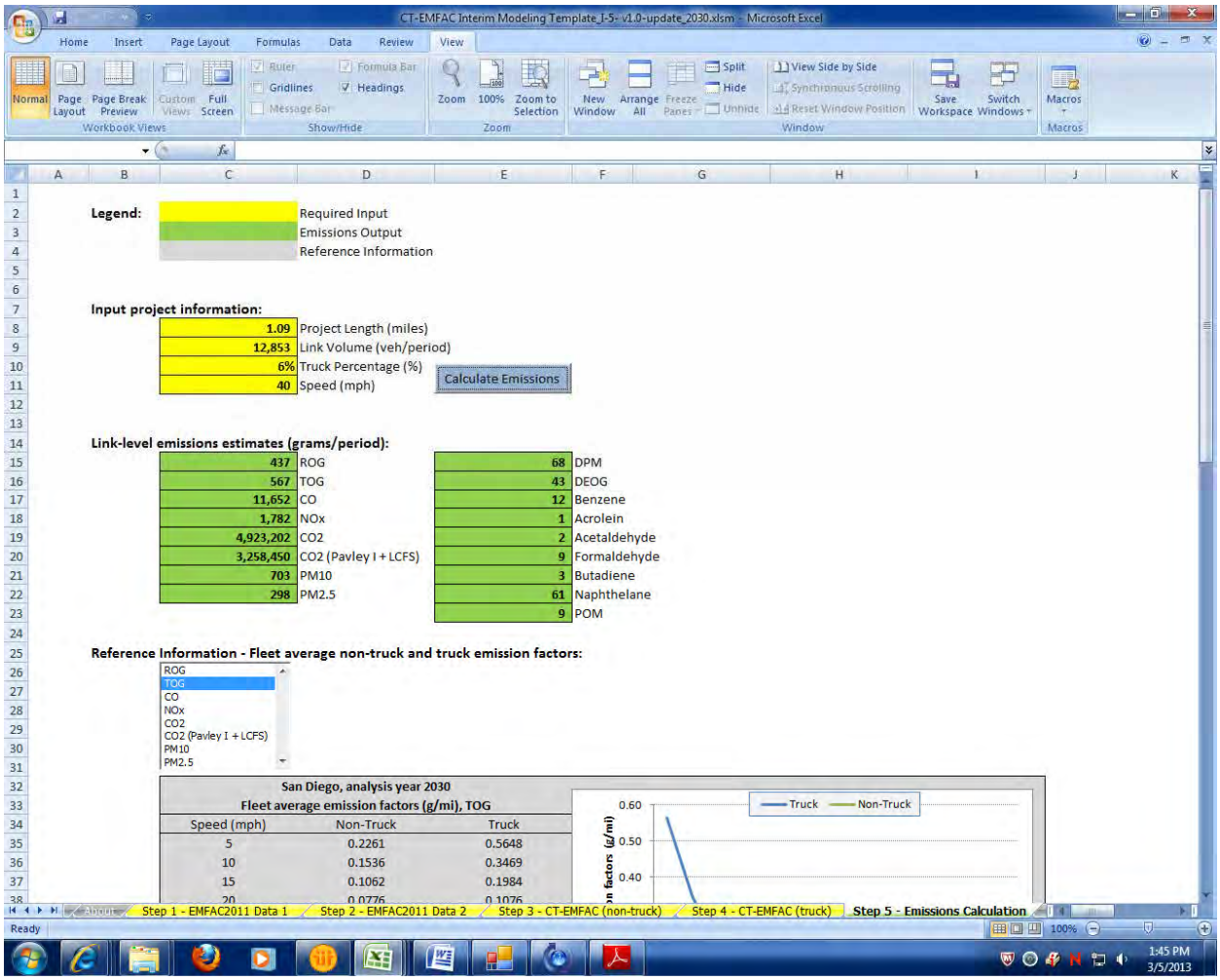
2030 No-build
Link: 1 (NB GP)
Segment: 2
Peak



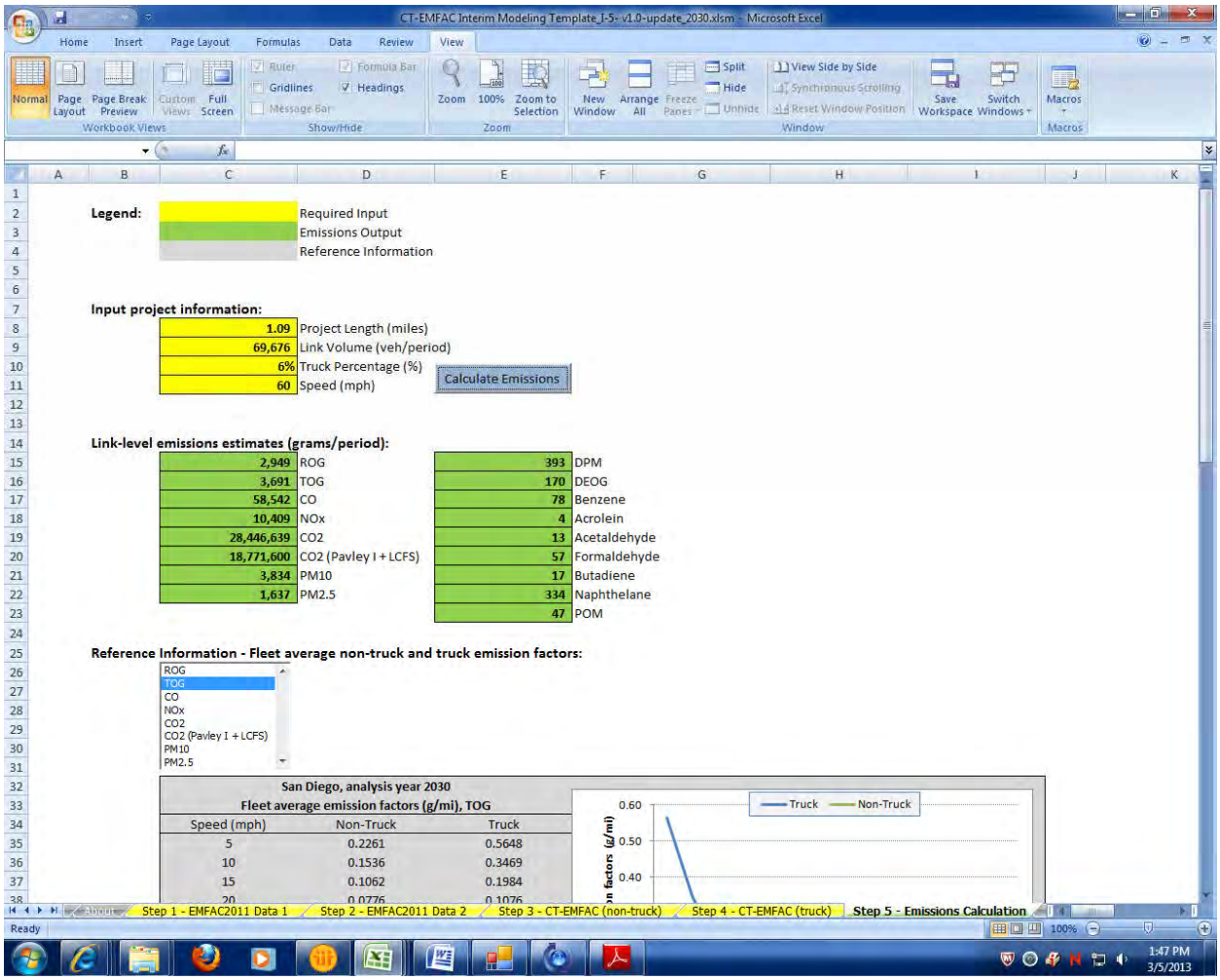
2030 No-build
Link: 1 (NB GP)
Segment: 2
Off Peak



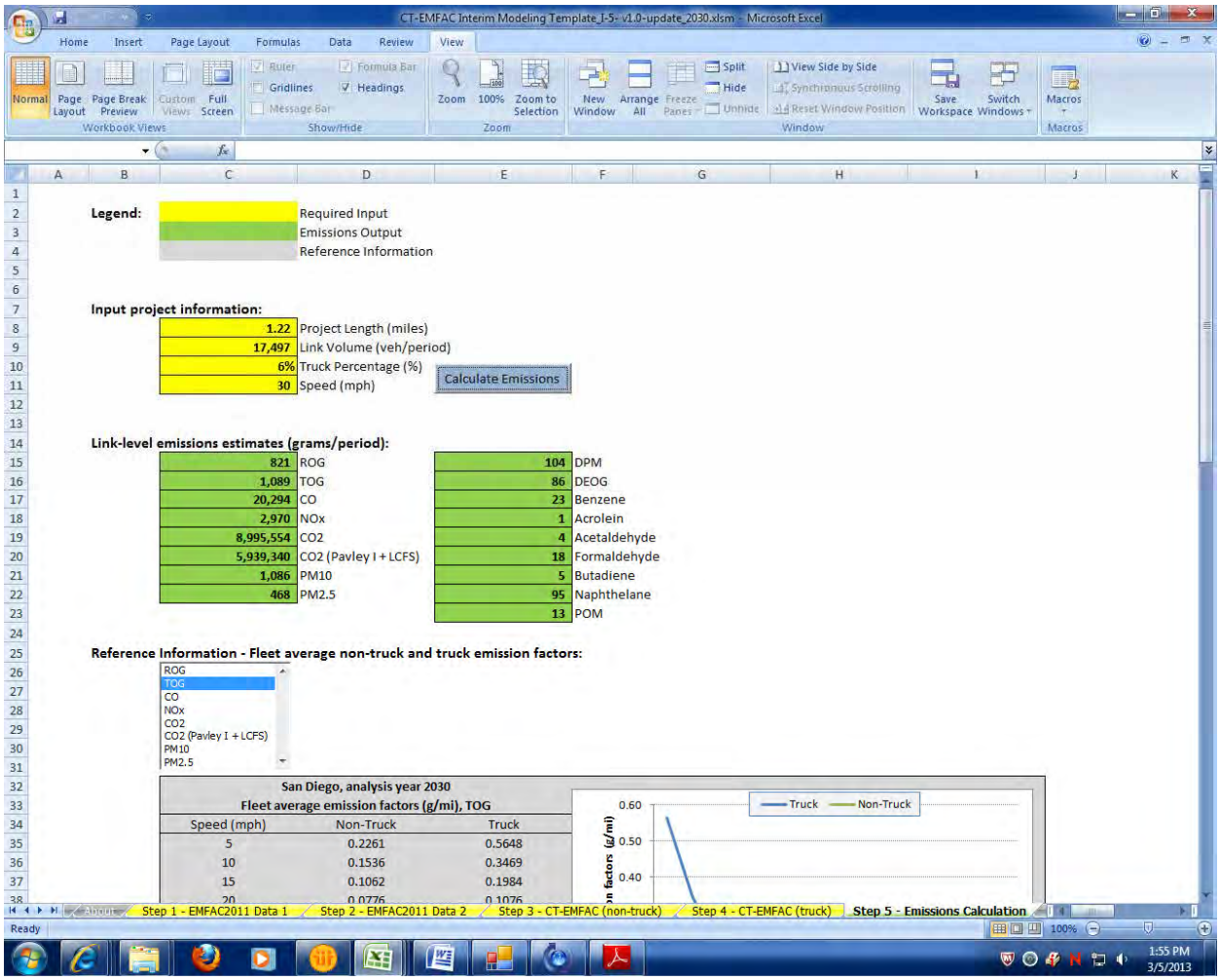
2030 No-build
Link: 1 (NB GP)
Segment: 3
Peak



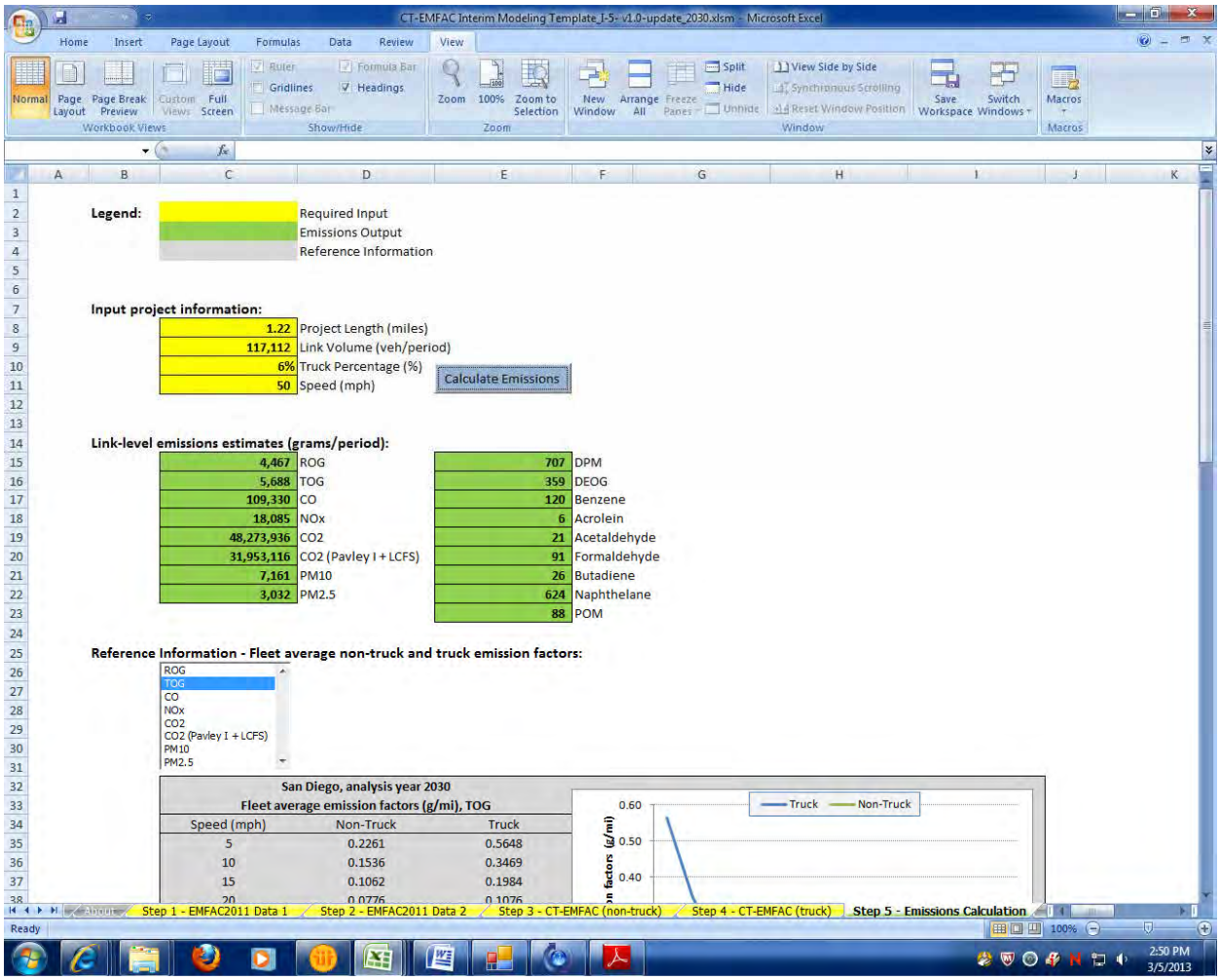
2030 No-build
Link: 1 (NB GP)
Segment: 3
Off Peak



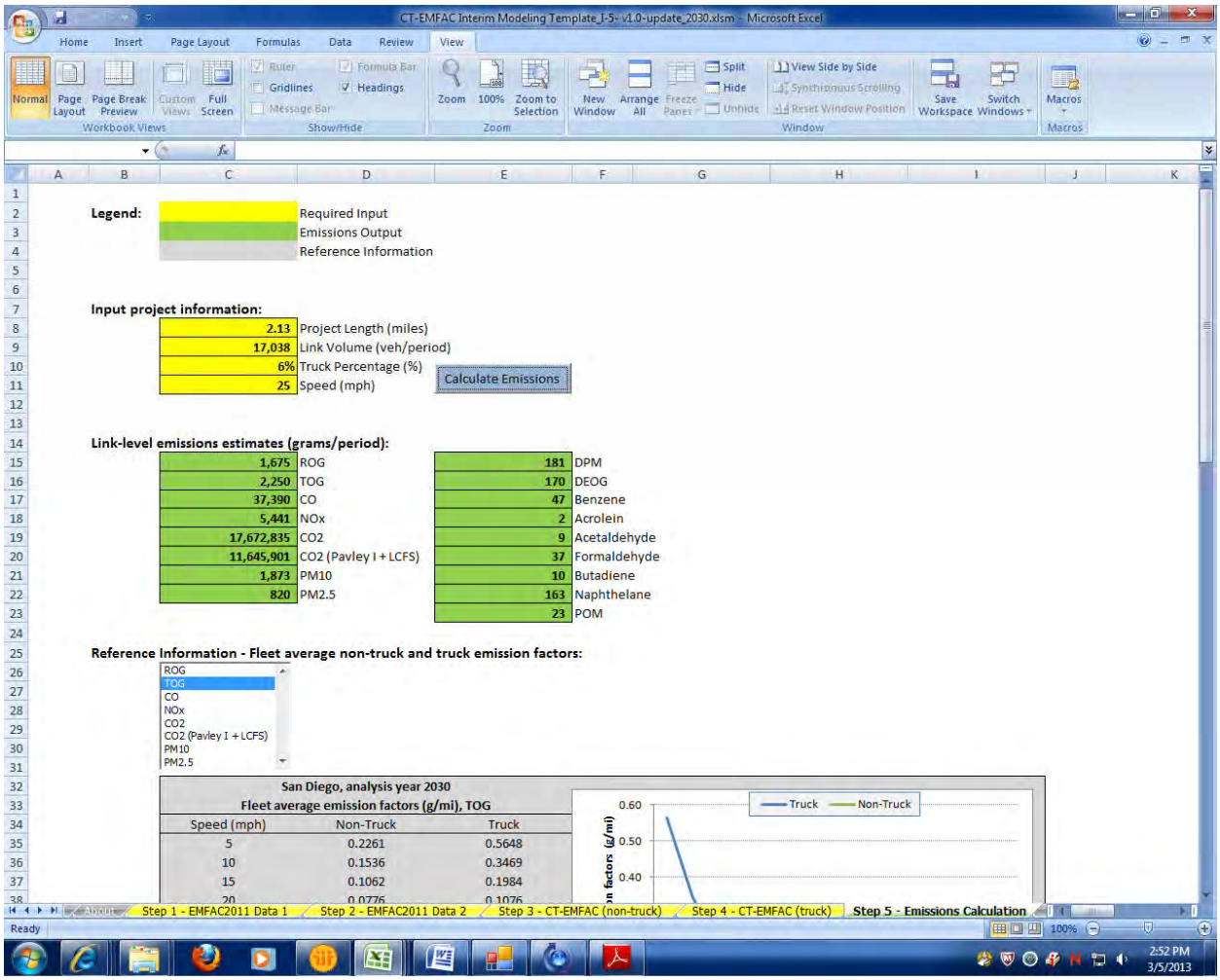
2030 No-build
Link: 1 (NB GP)
Segment: 4
Peak



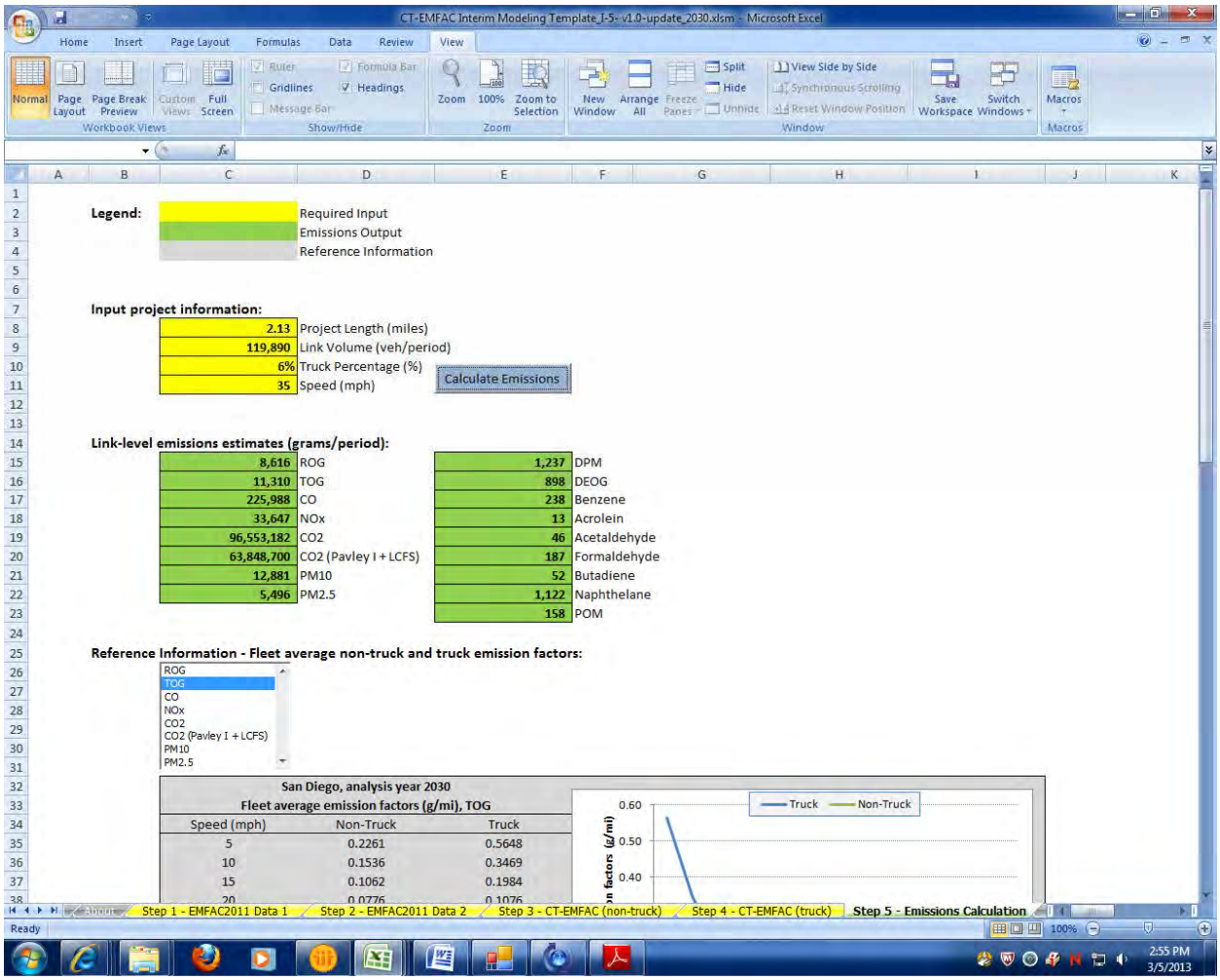
2030 No-build
Link: 1 (NB GP)
Segment: 4
Off Peak



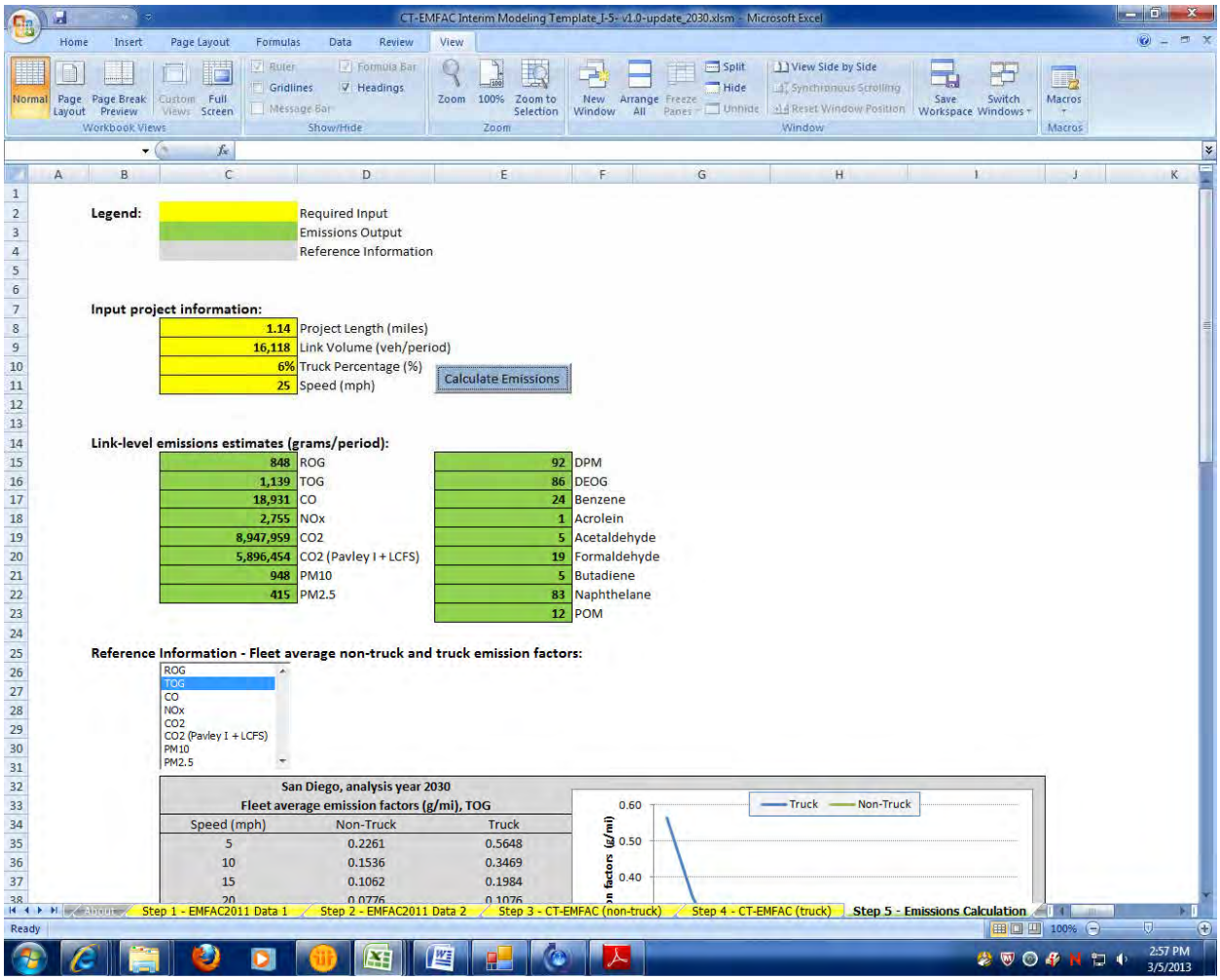
2030 No-build
Link: 1 (NB GP)
Segment: 5
Peak



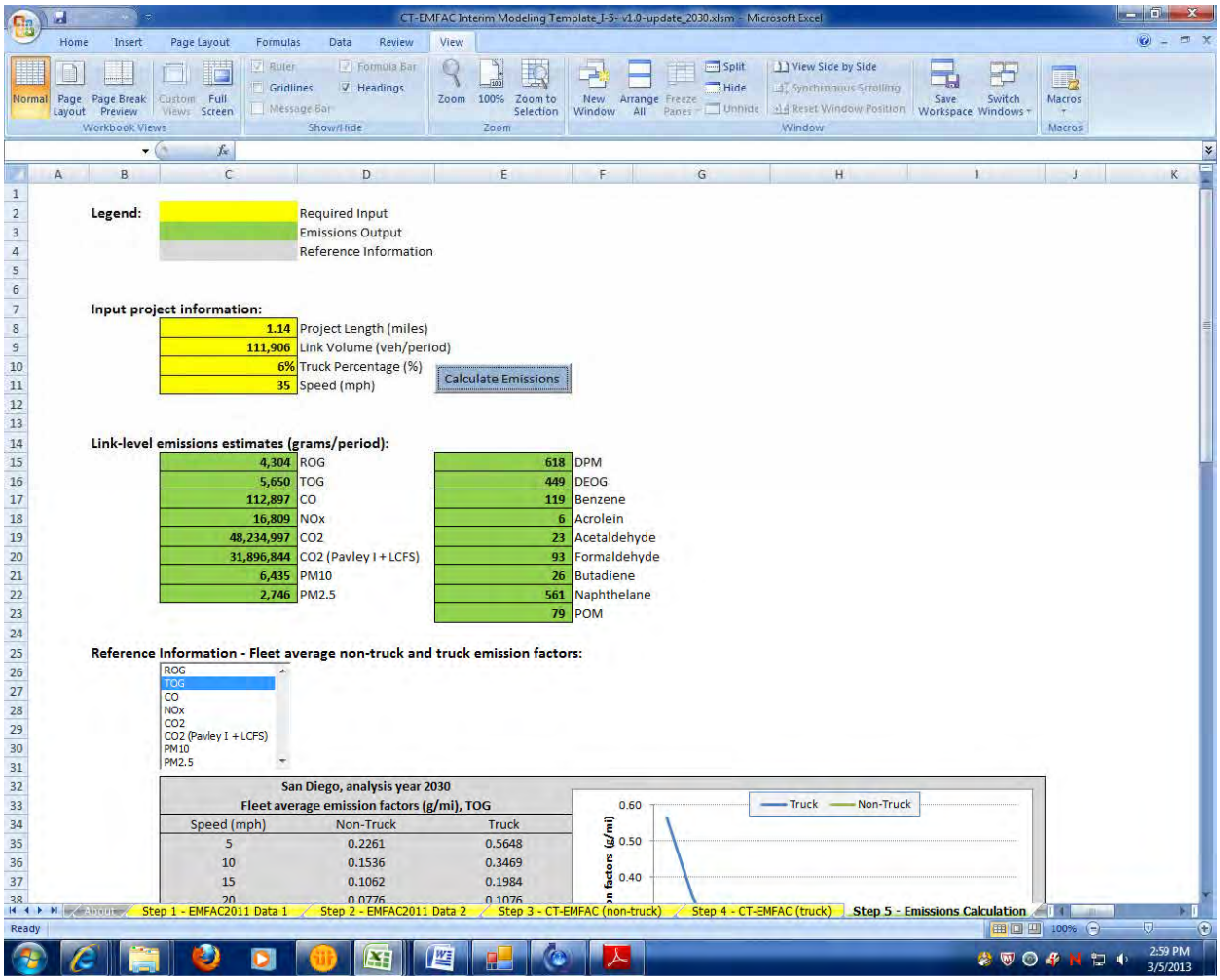
2030 No-build
Link: 1 (NB GP)
Segment: 5
Off Peak



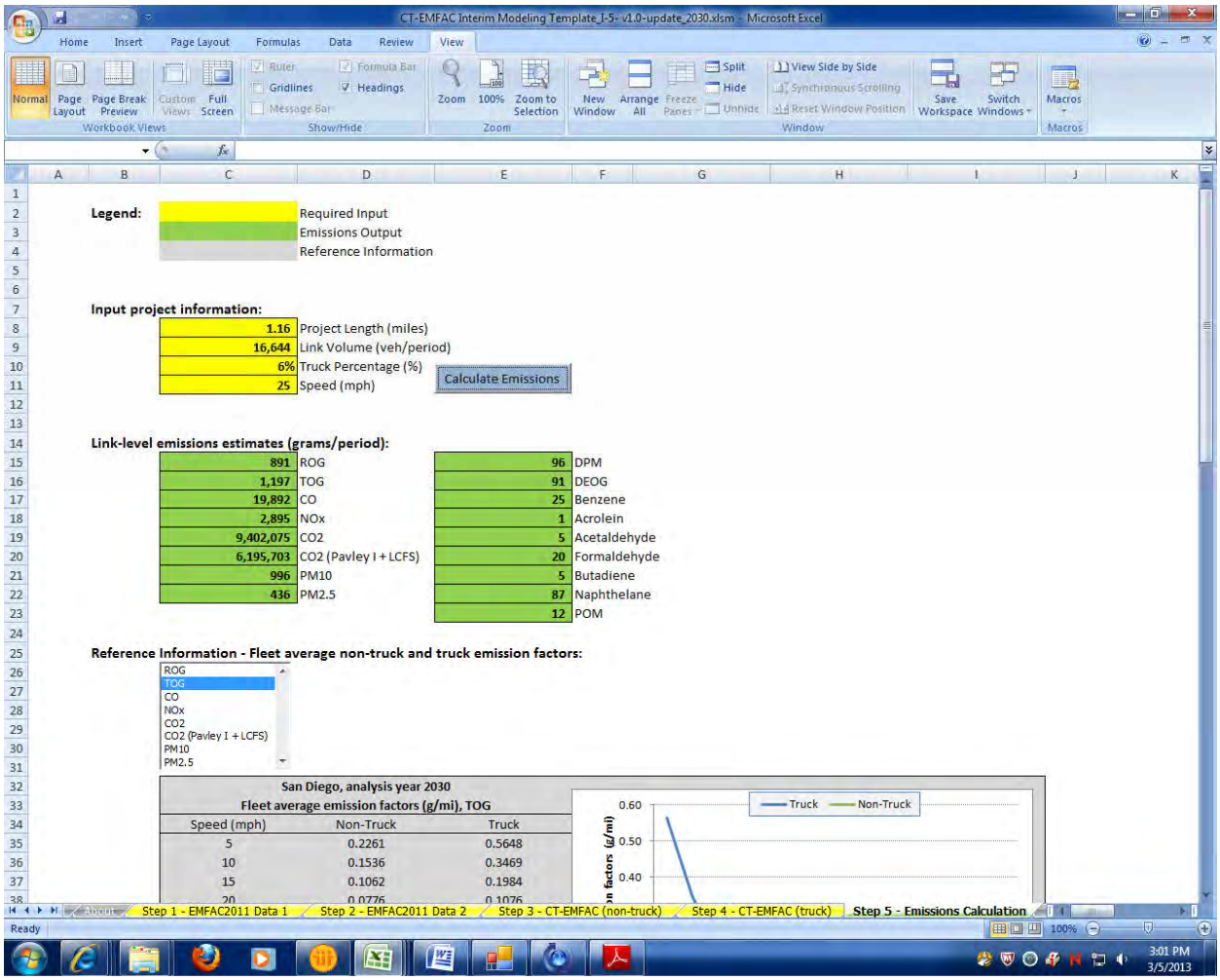
2030 No-build
Link: 1 (NB GP)
Segment: 6
Peak



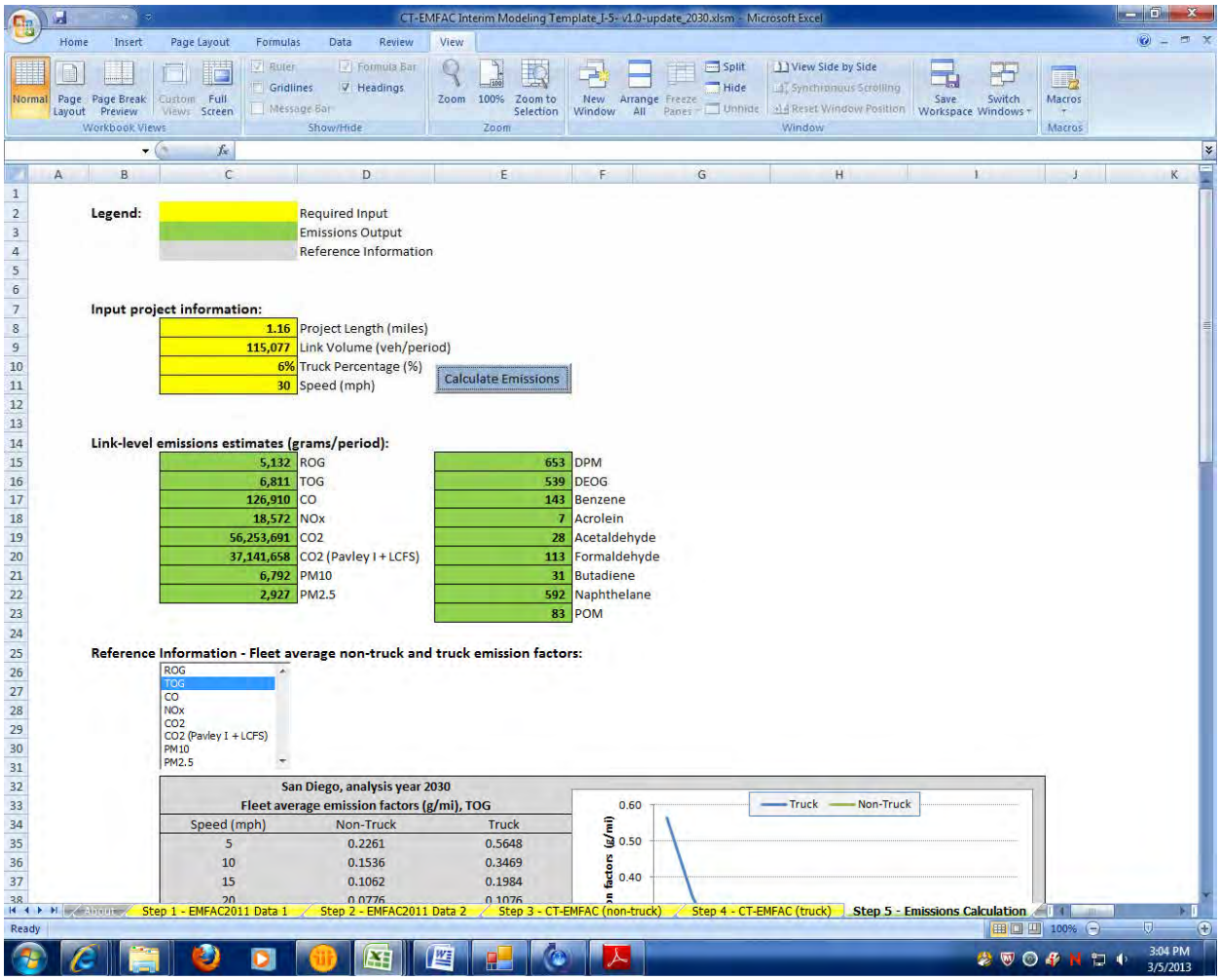
2030 No-build
Link: 1 (NB GP)
Segment: 6
Off Peak



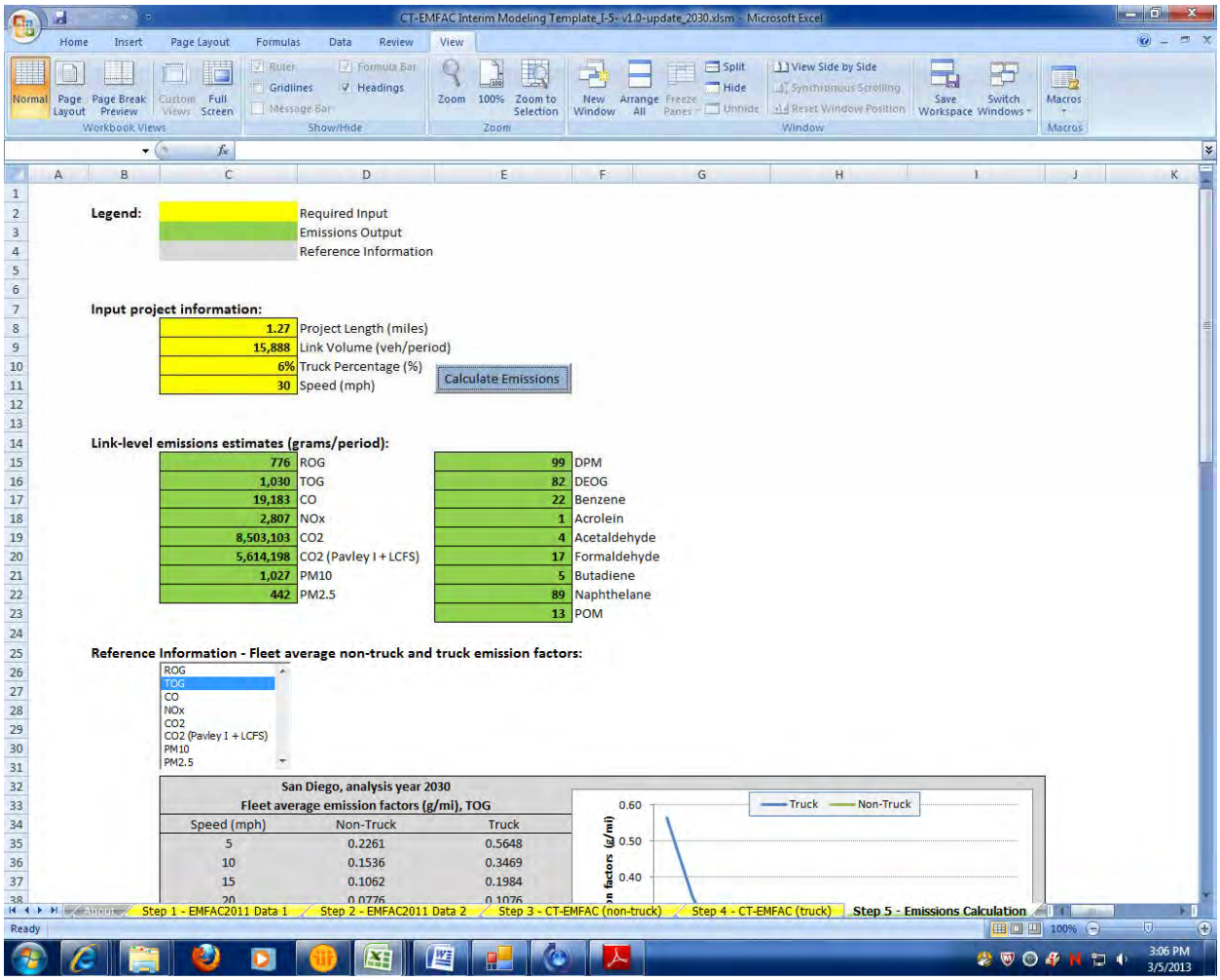
2030 No-build
Link: 1 (NB GP)
Segment: 7
Peak



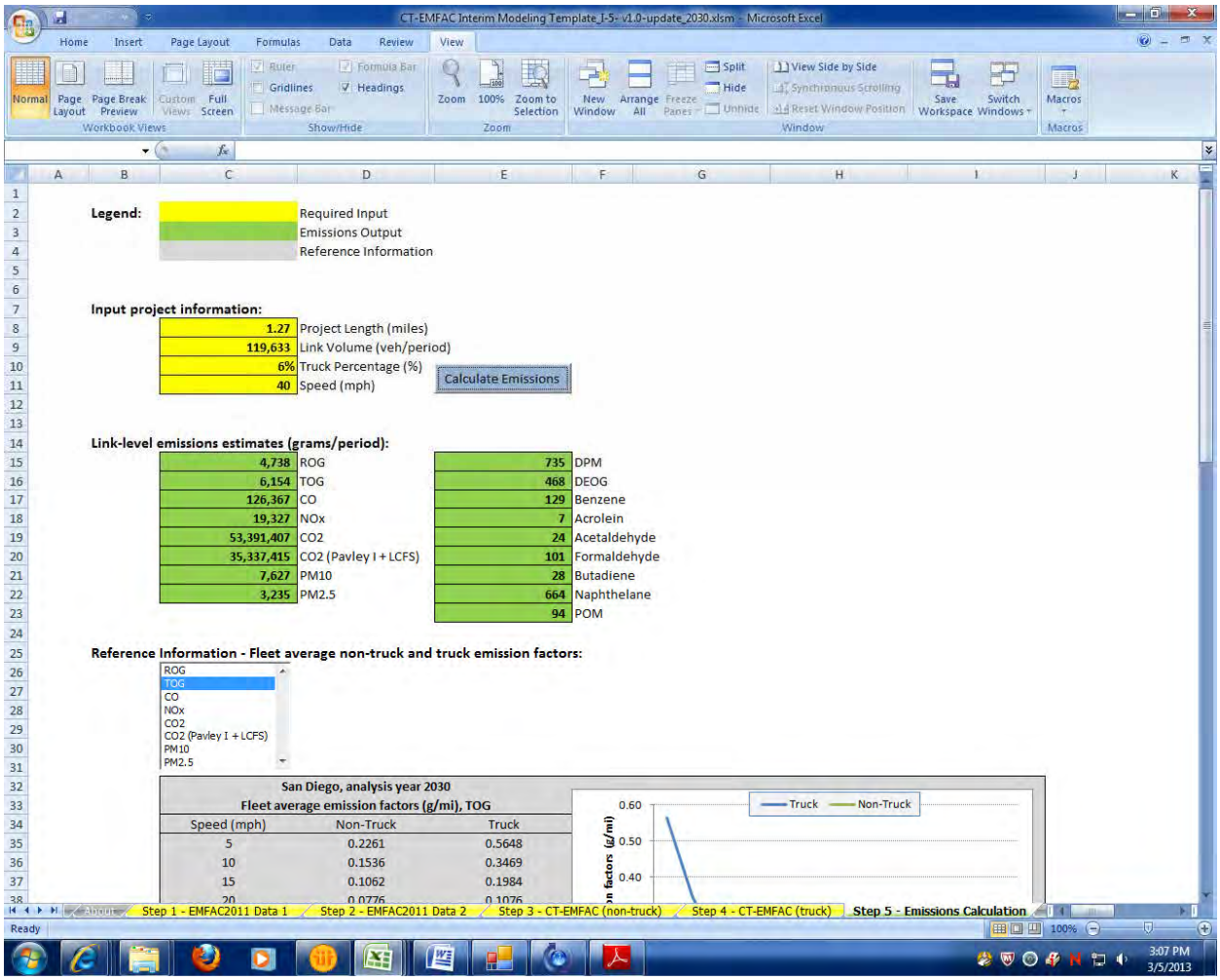
2030 No-build
Link: 1 (NB GP)
Segment: 7
Off Peak



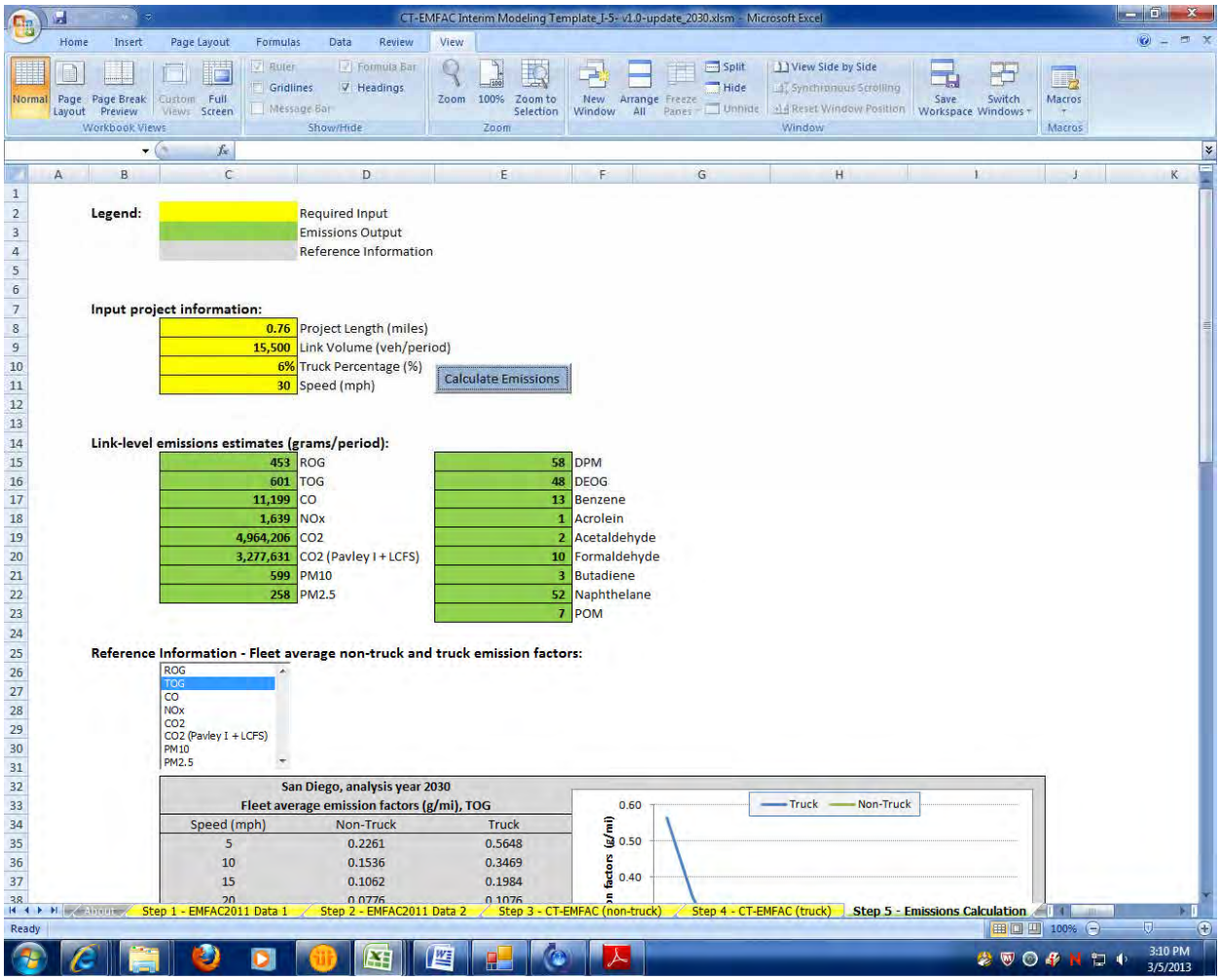
2030 No-build
Link: 1 (NB GP)
Segment: 8
Peak



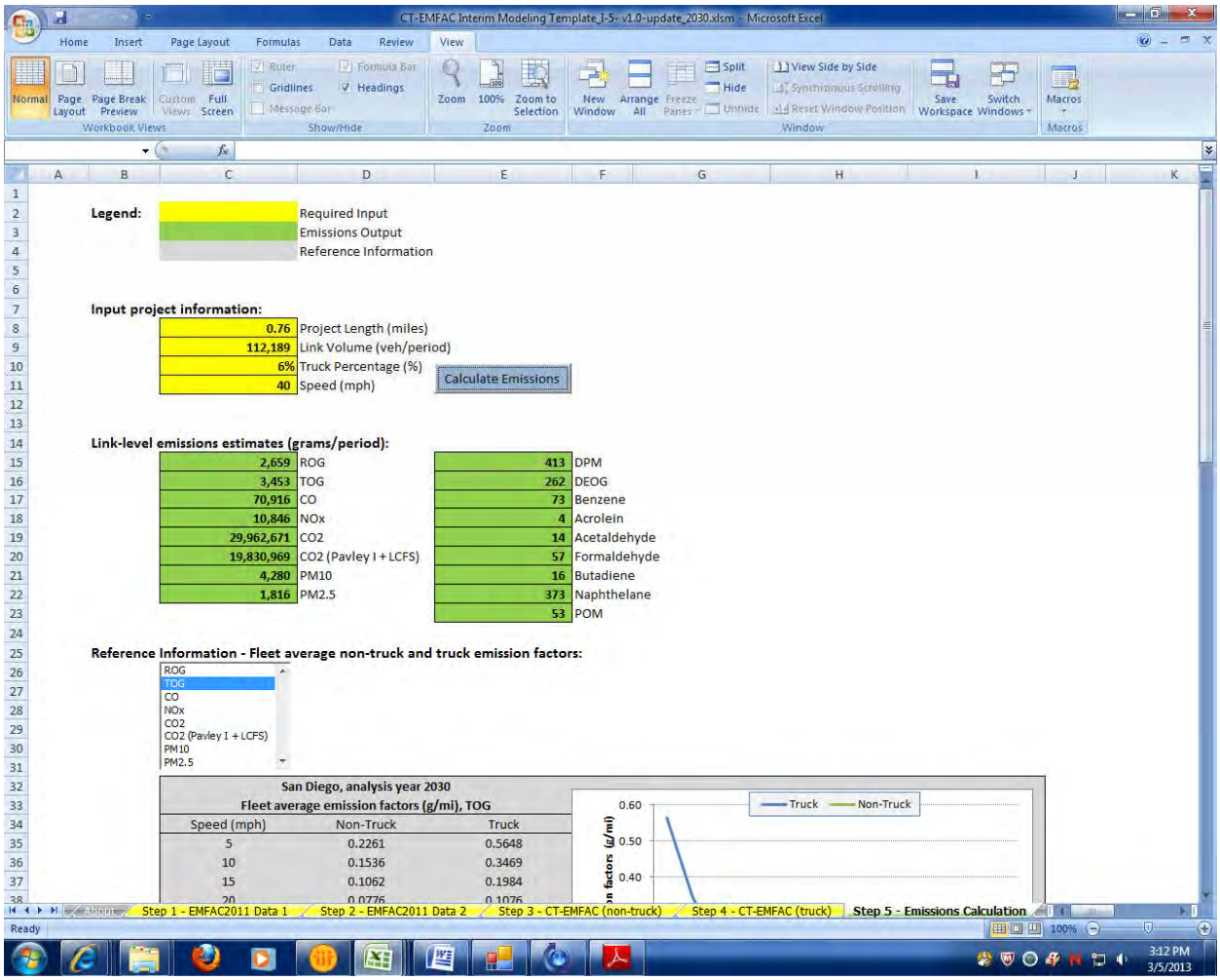
2030 No-build
Link: 1 (NB GP)
Segment: 8
Off Peak



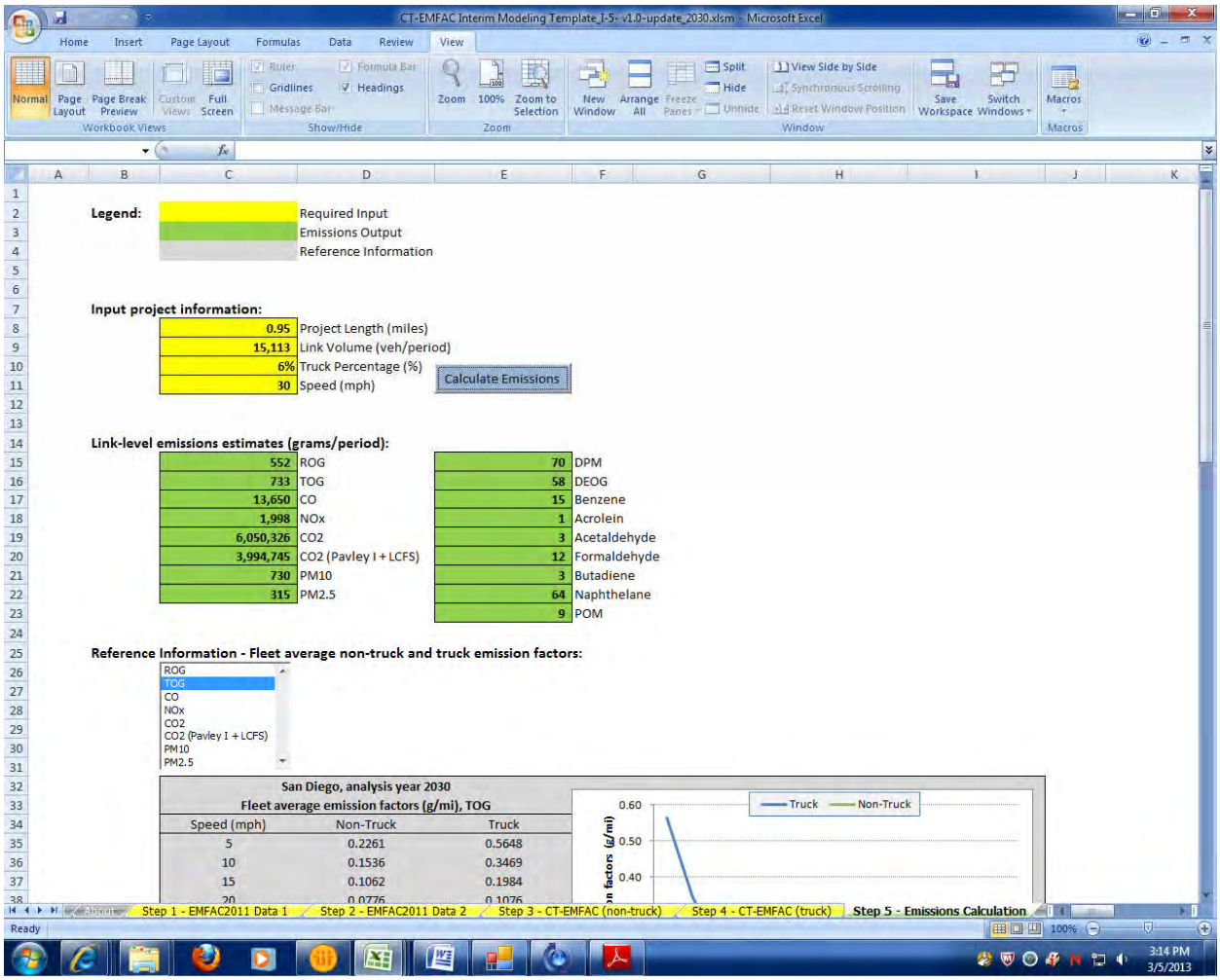
2030 No-build
Link: 1 (NB GP)
Segment: 9
Peak



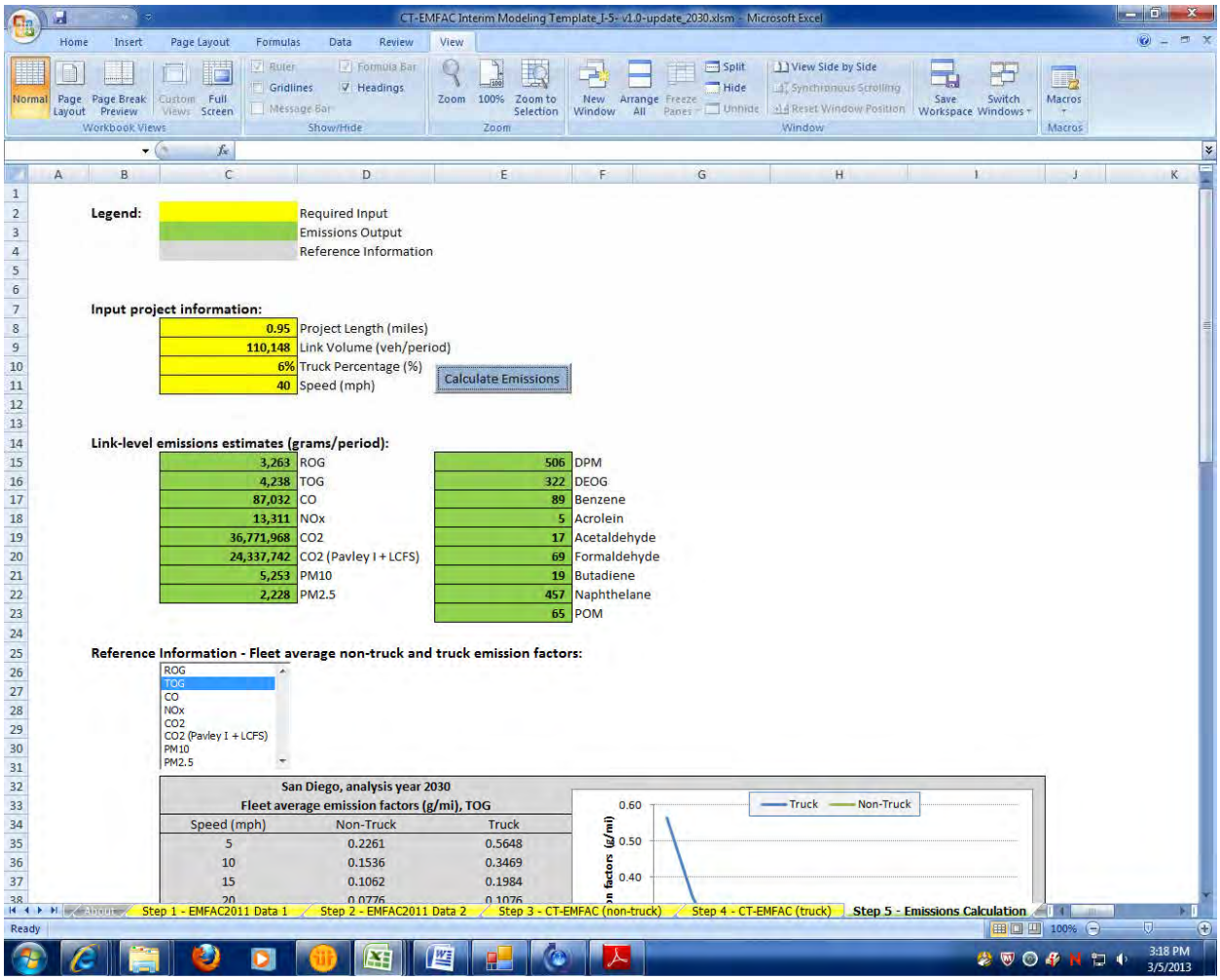
2030 No-build
Link: 1 (NB GP)
Segment: 9
Off Peak



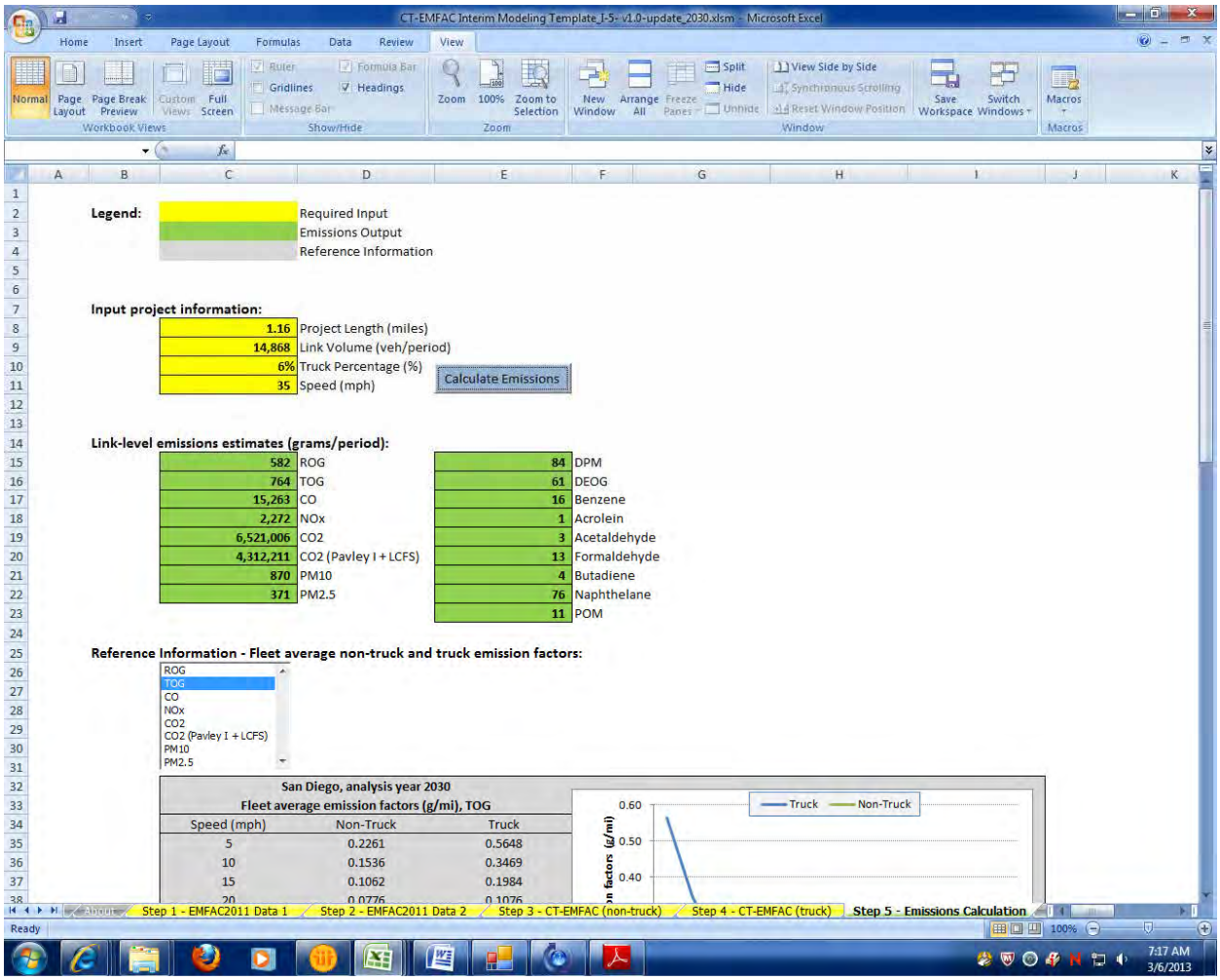
2030 No-build
Link: 1 (NB GP)
Segment: 10
Peak



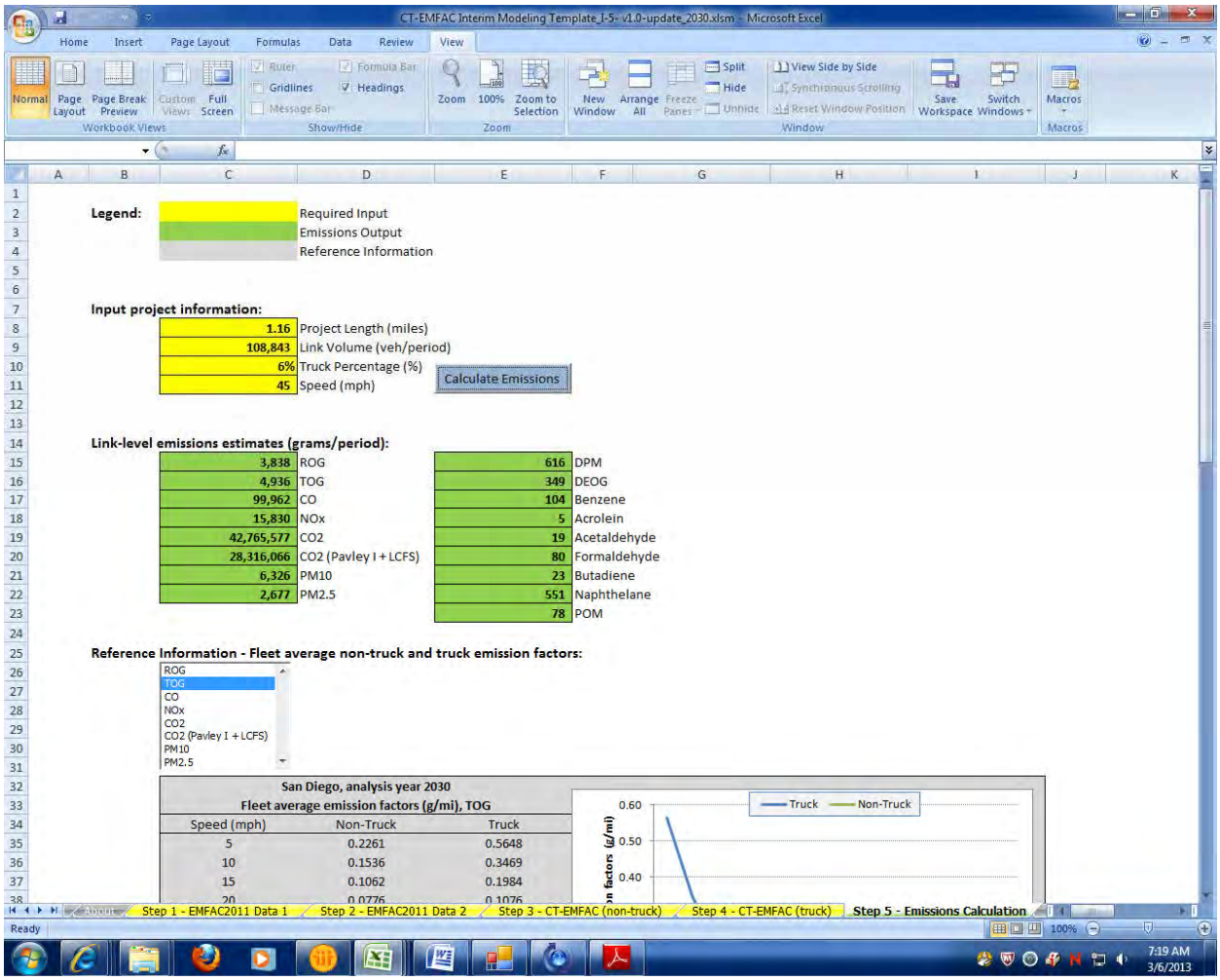
2030 No-build
Link: 1 (NB GP)
Segment: 10
Off Peak



2030 No-build
Link: 1 (NB GP)
Segment: 11
Peak



2030 No-build
Link: 1 (NB GP)
Segment: 11
Off Peak



2030 No-build
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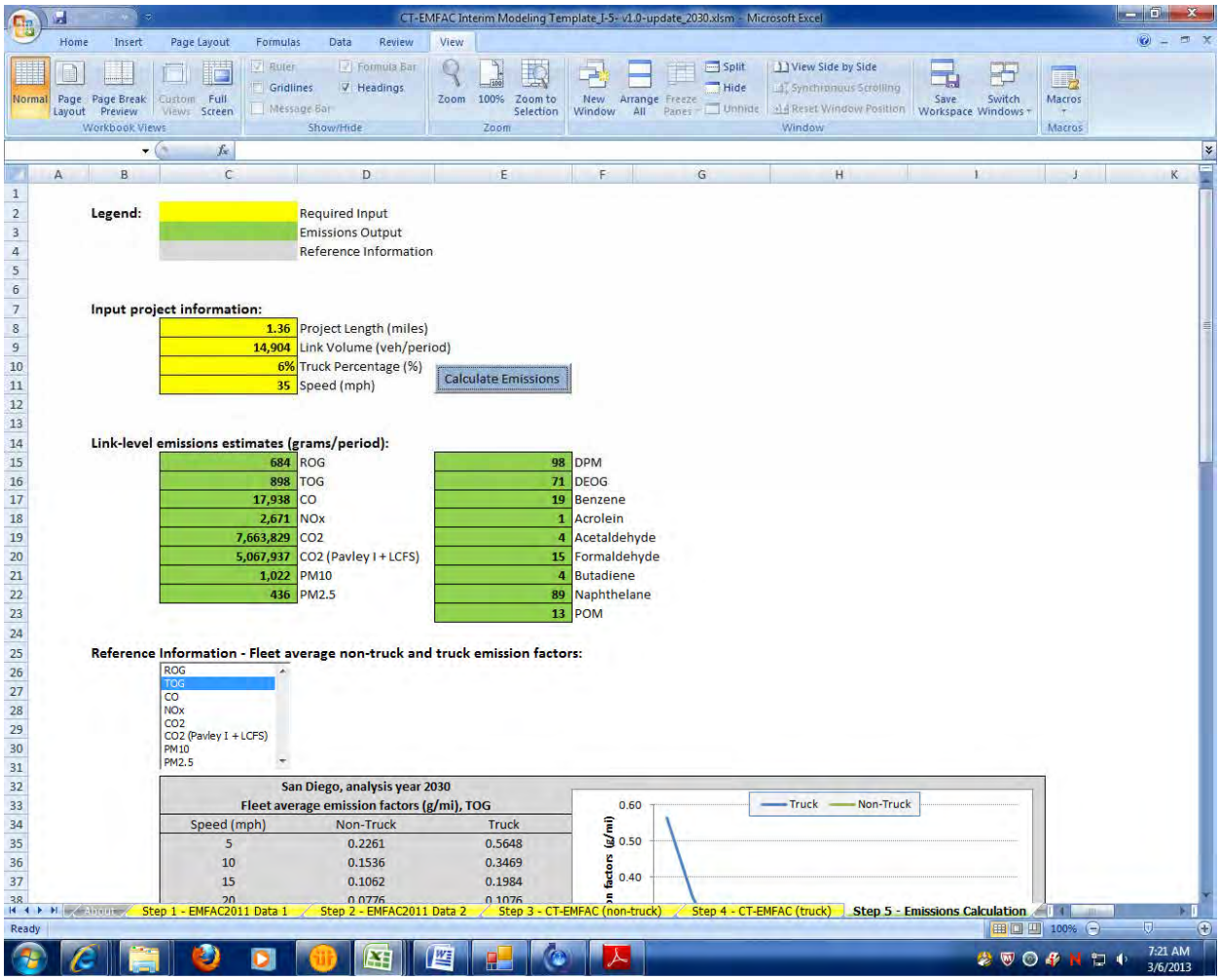
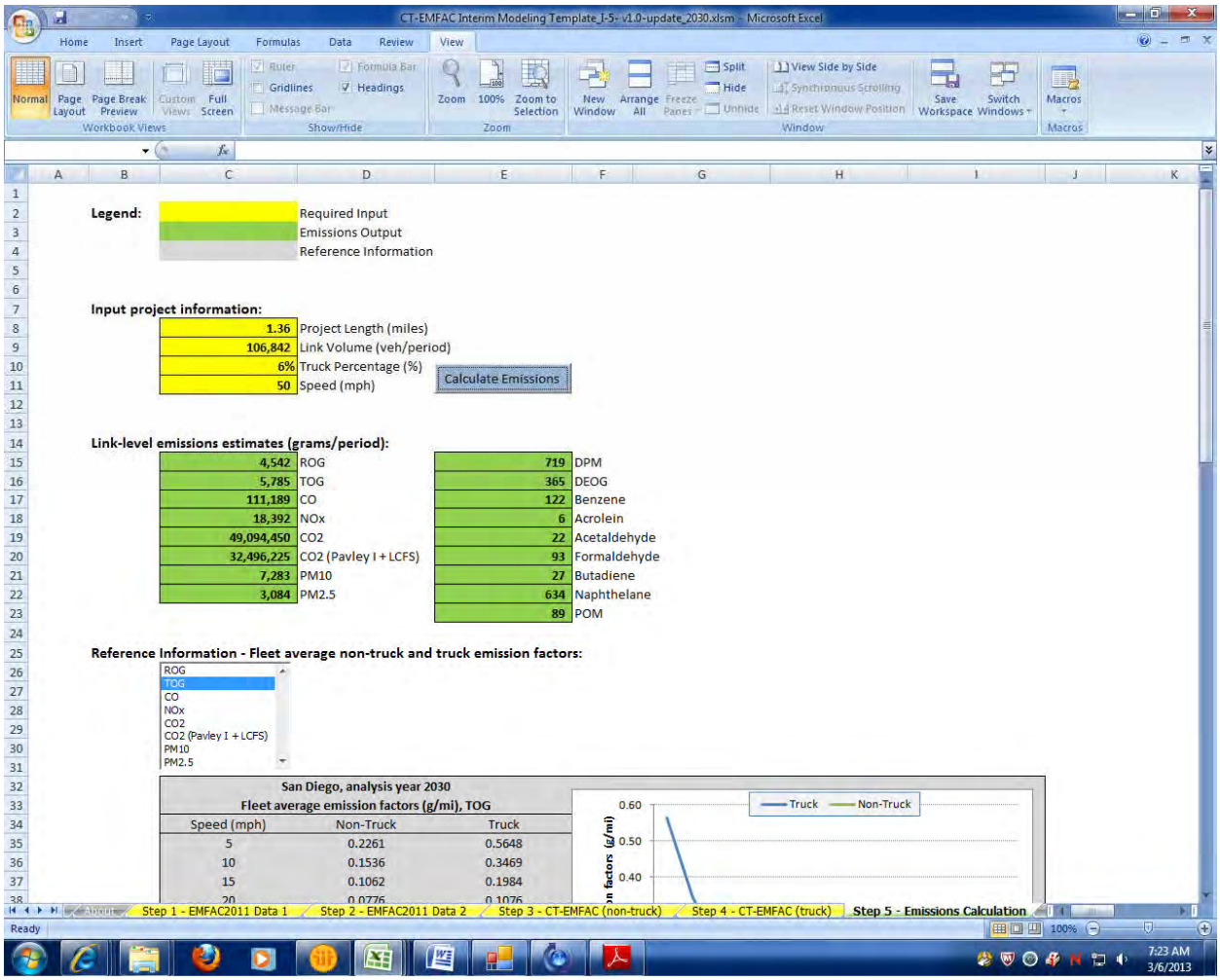
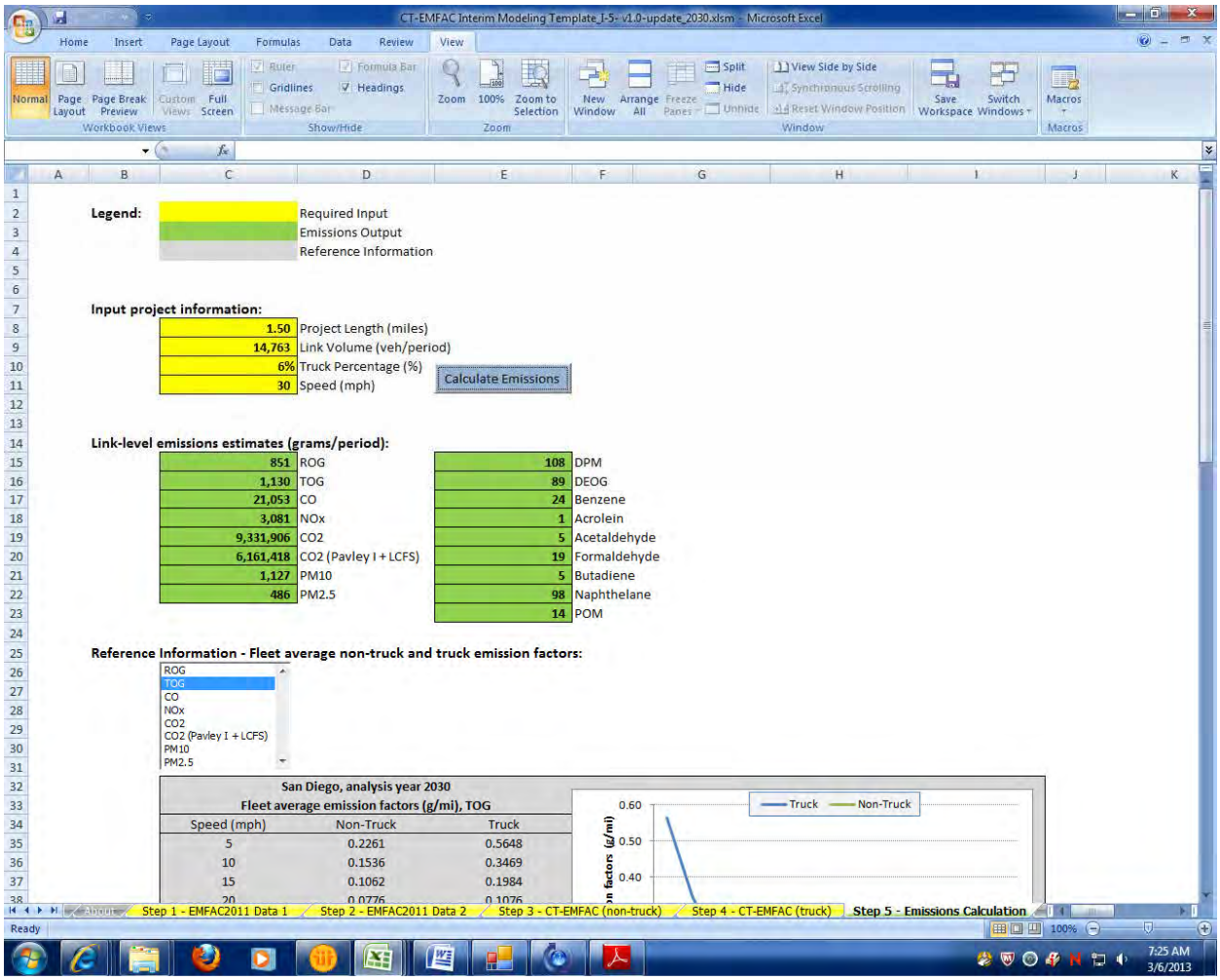
Segment: 12
Peak



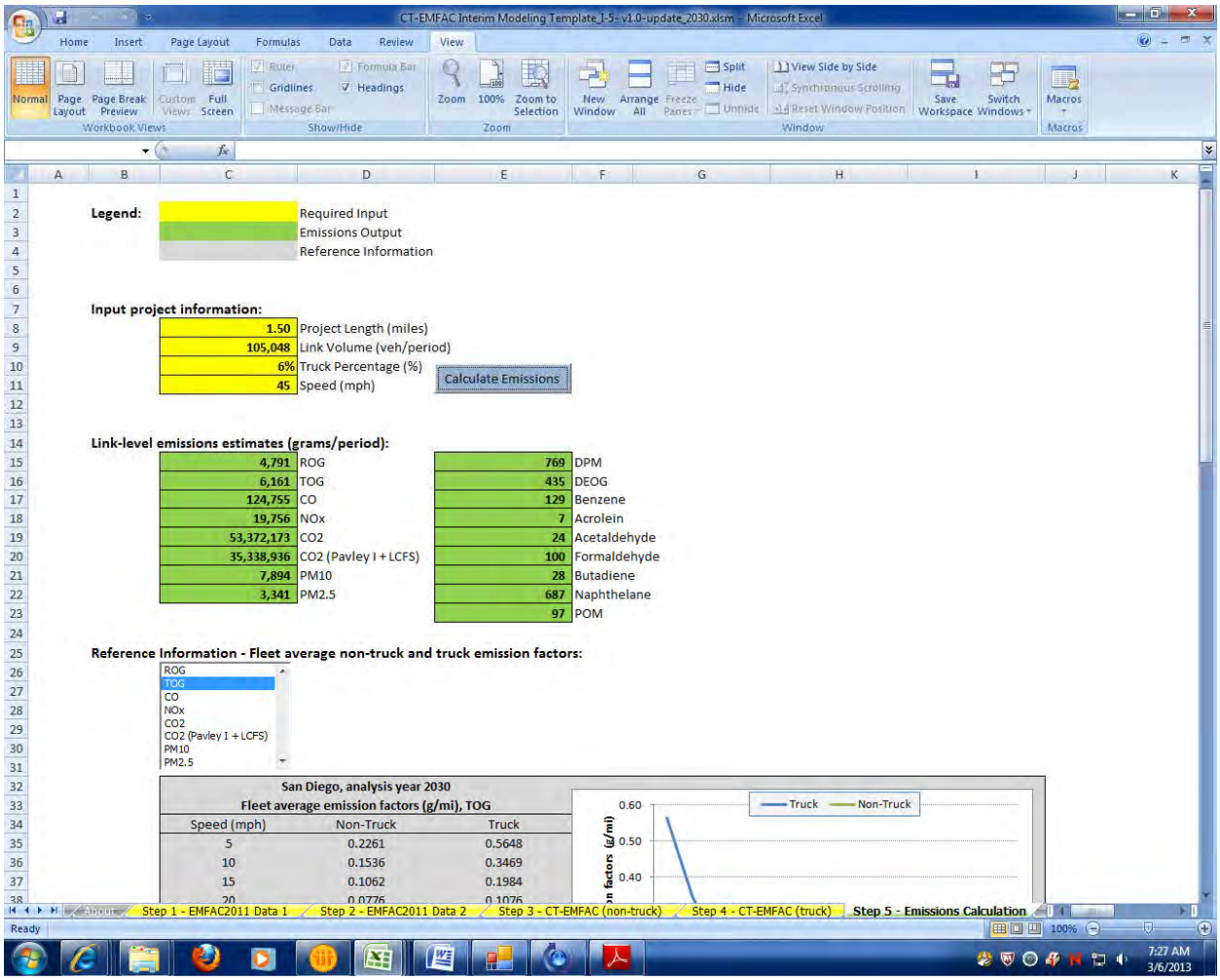
2030 No-build
Link: 1 (NB GP)
Segment: 12
Off Peak



2030 No-build
Link: 1 (NB GP)
Segment: 13
Peak



2030 No-build
Link: 1 (NB GP)
Segment: 13
Off Peak



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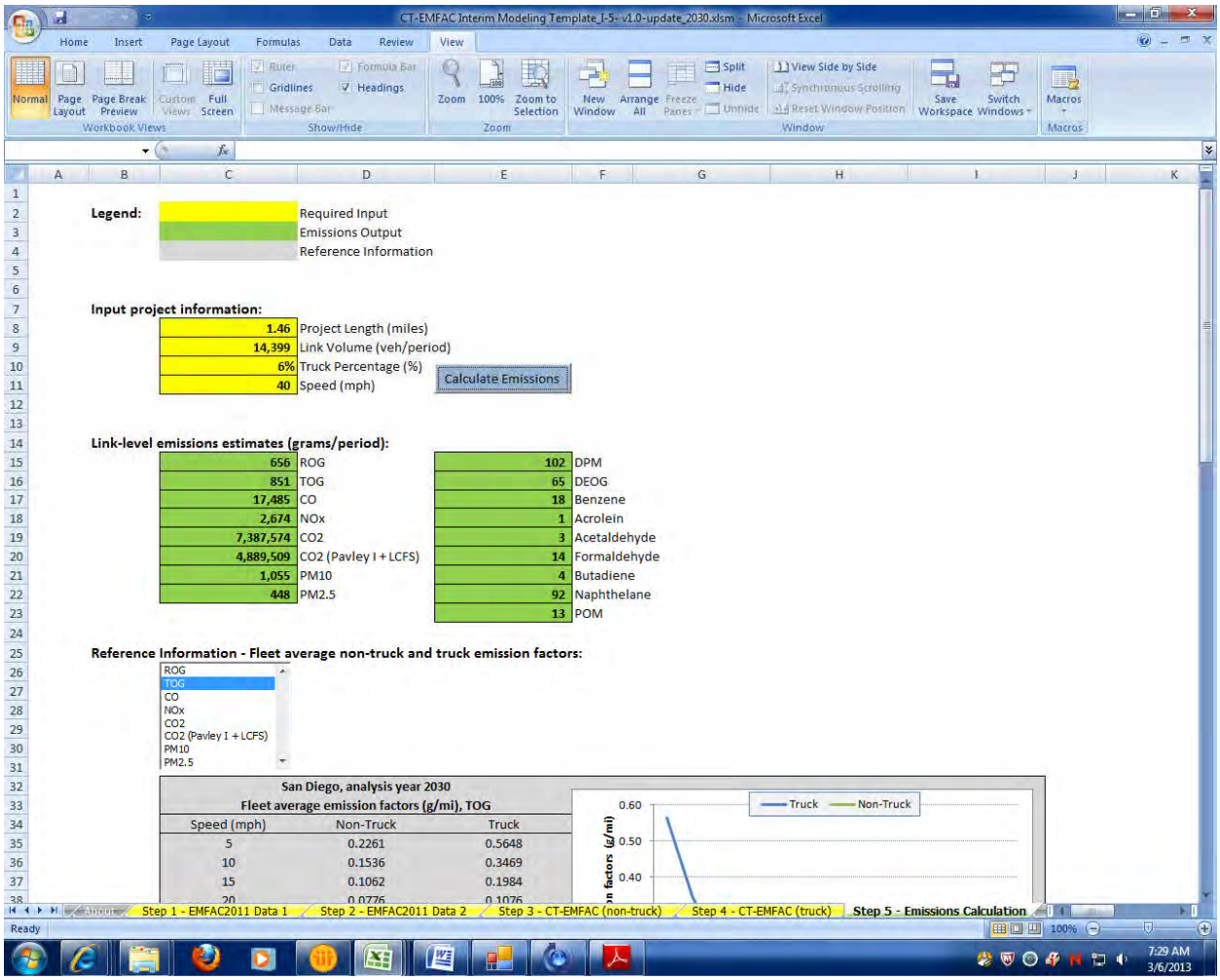
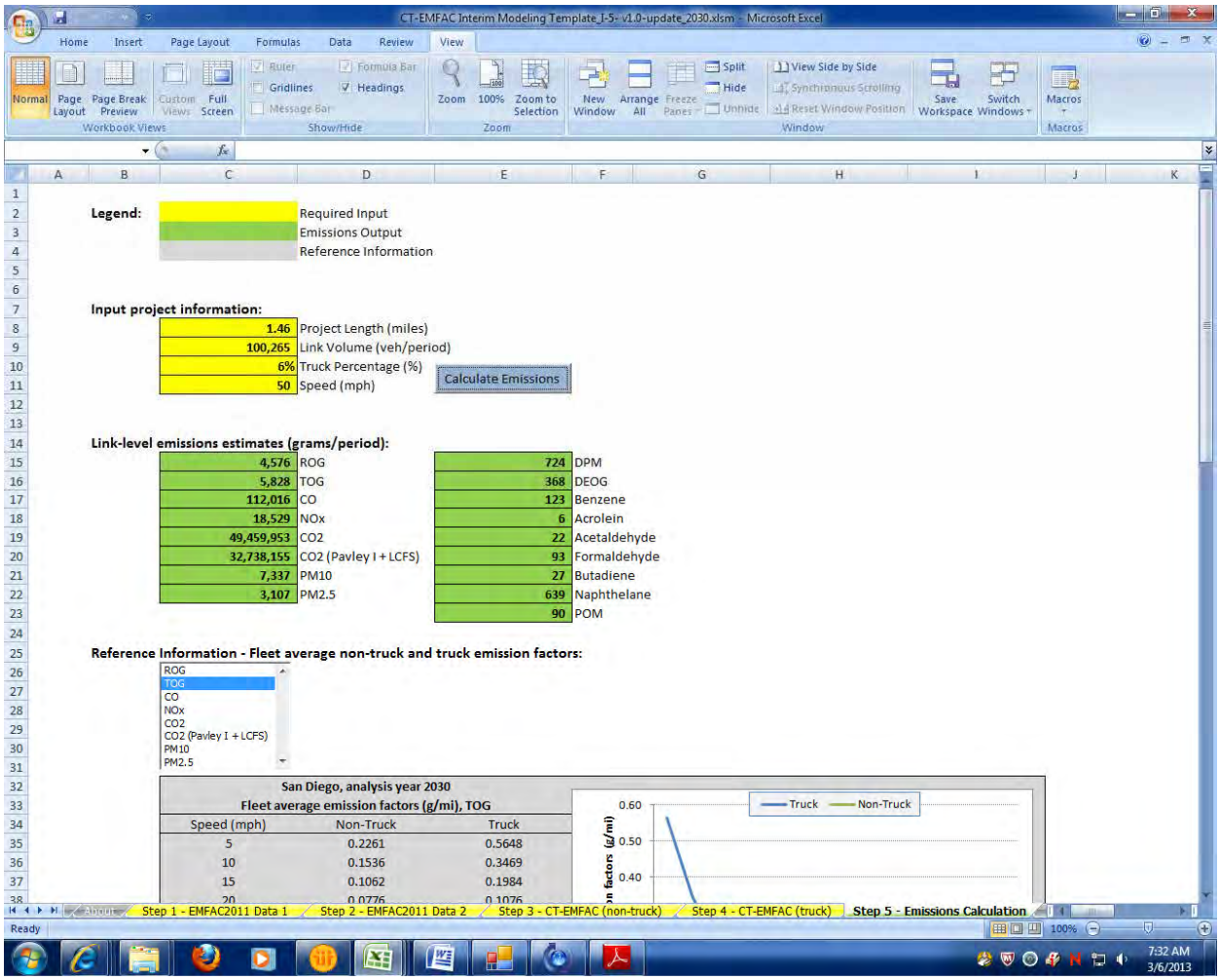
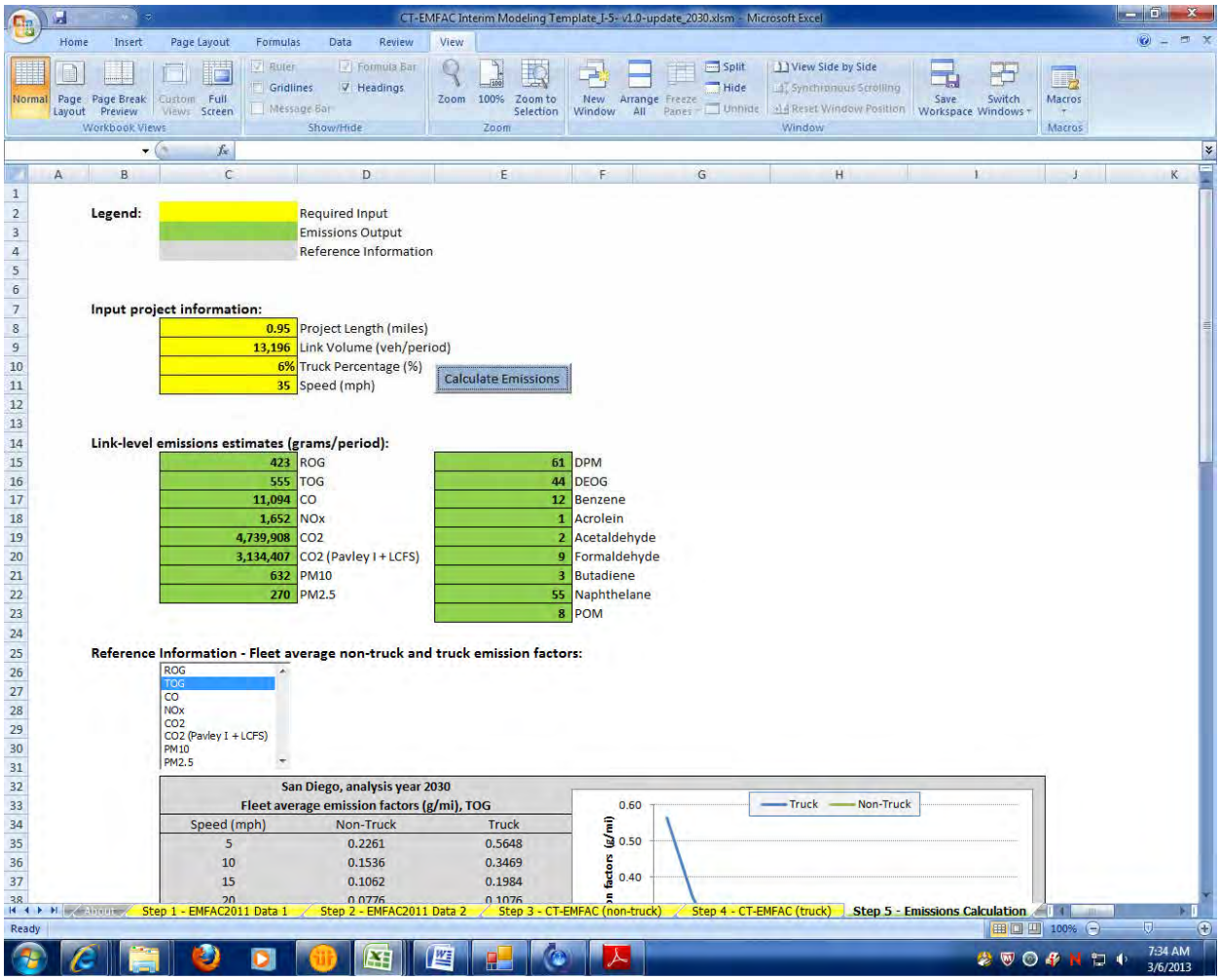
Link: 1 (NB GP)
Segment: 14
Peak



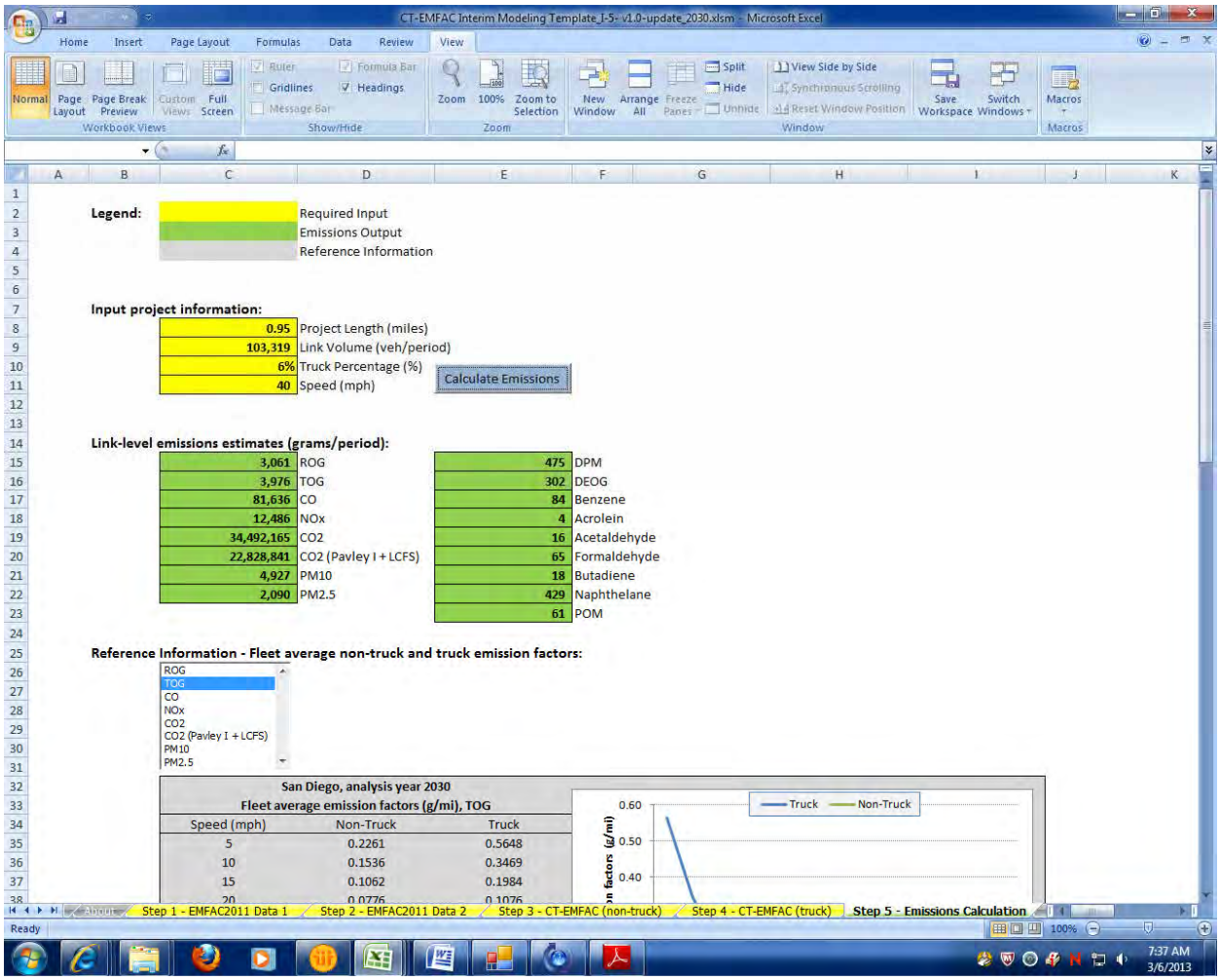
2030 No-build
Link: 1 (NB GP)
Segment: 14
Off Peak



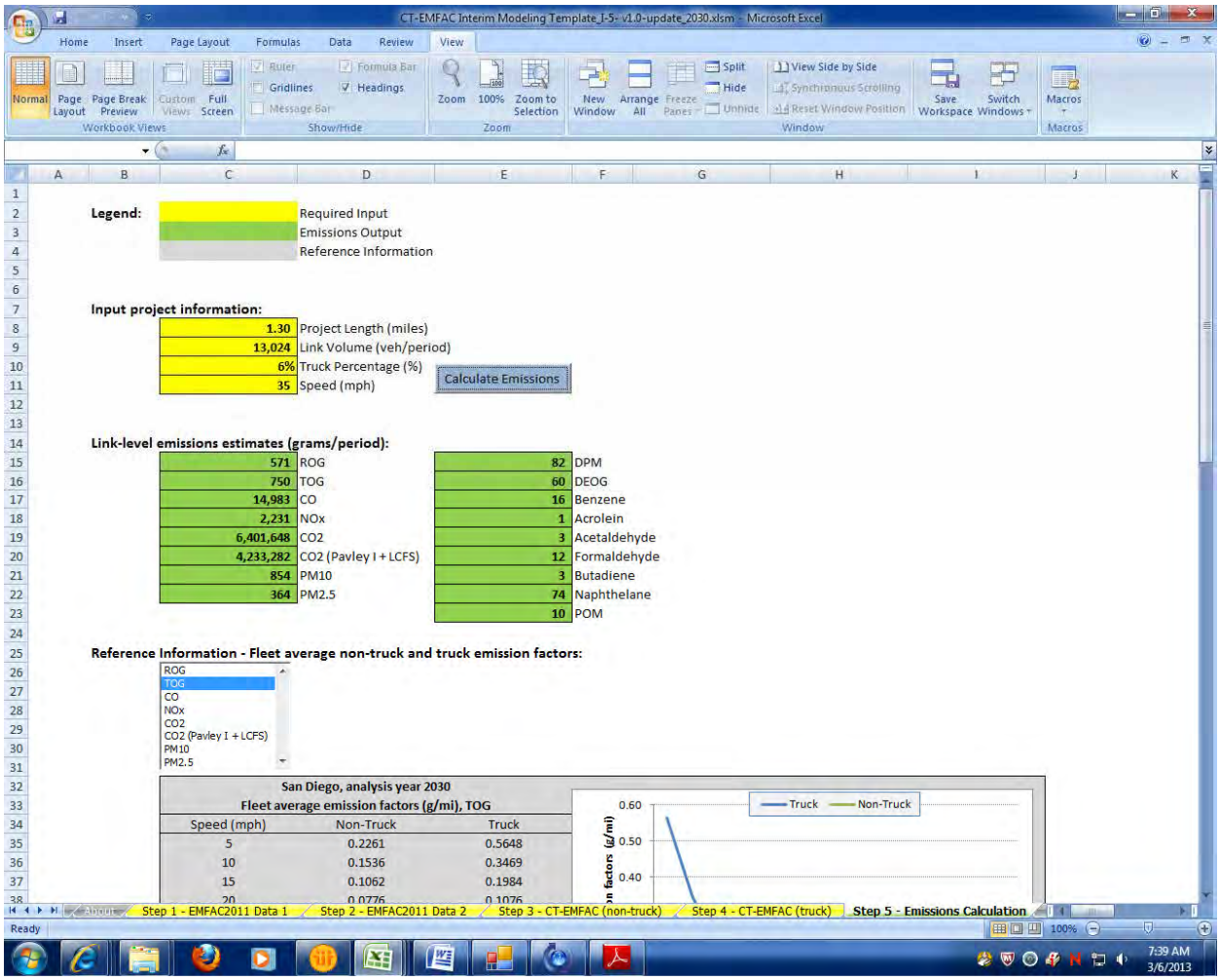
2030 No-build
Link: 1 (NB GP)
Segment: 15
Peak



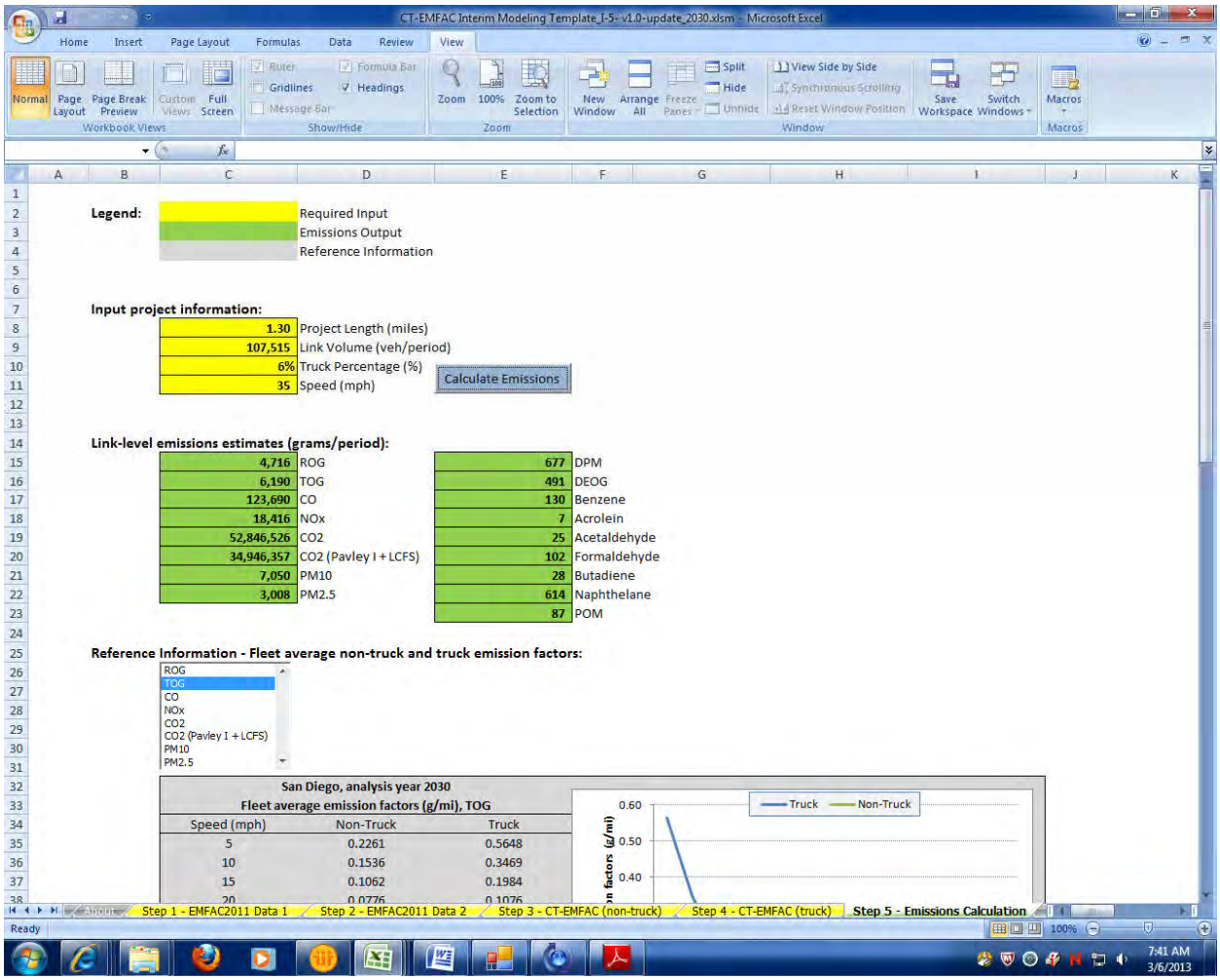
2030 No-build
Link: 1 (NB GP)
Segment: 15
Off Peak



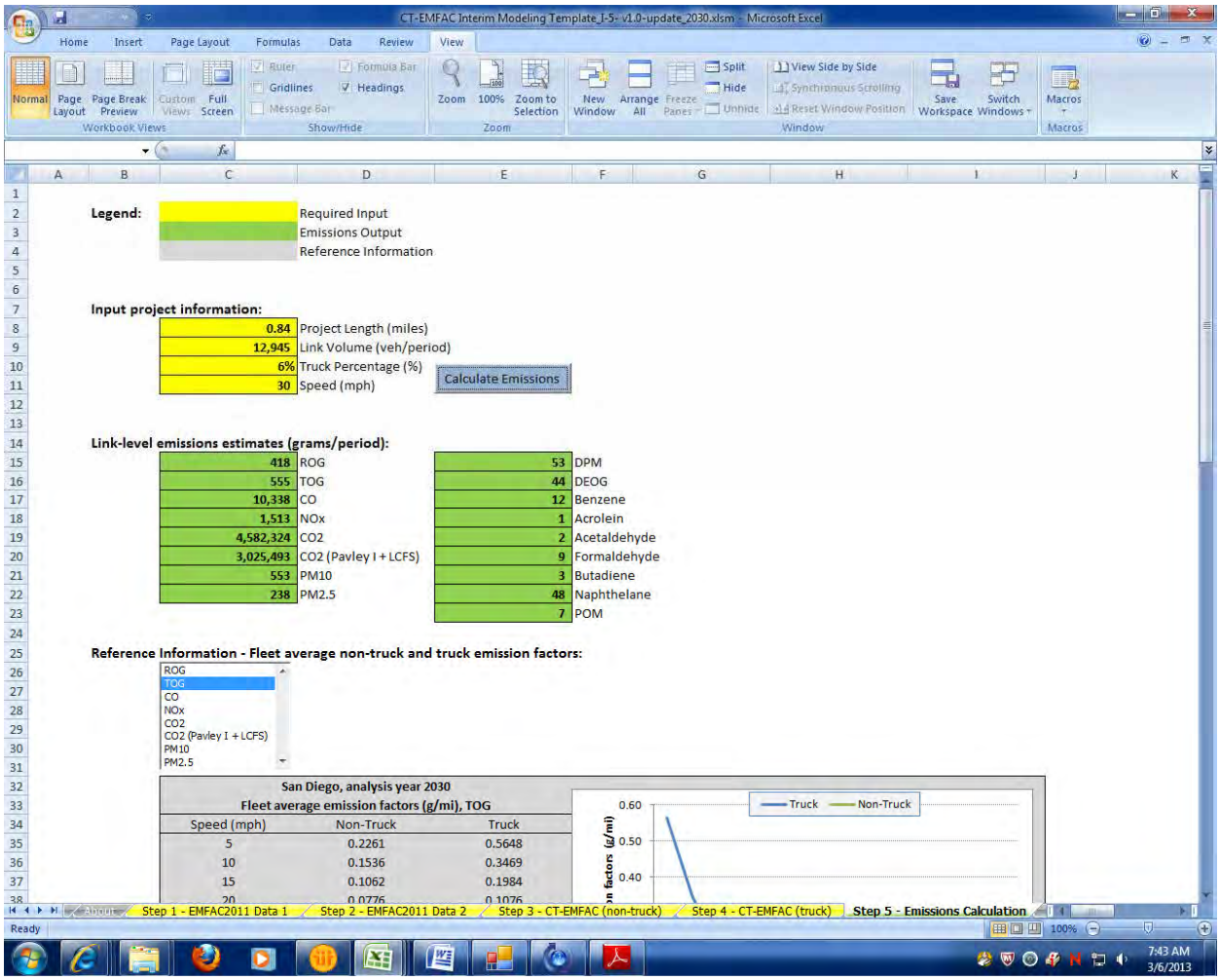
2030 No-build
Link: 1 (NB GP)
Segment: 16
Peak



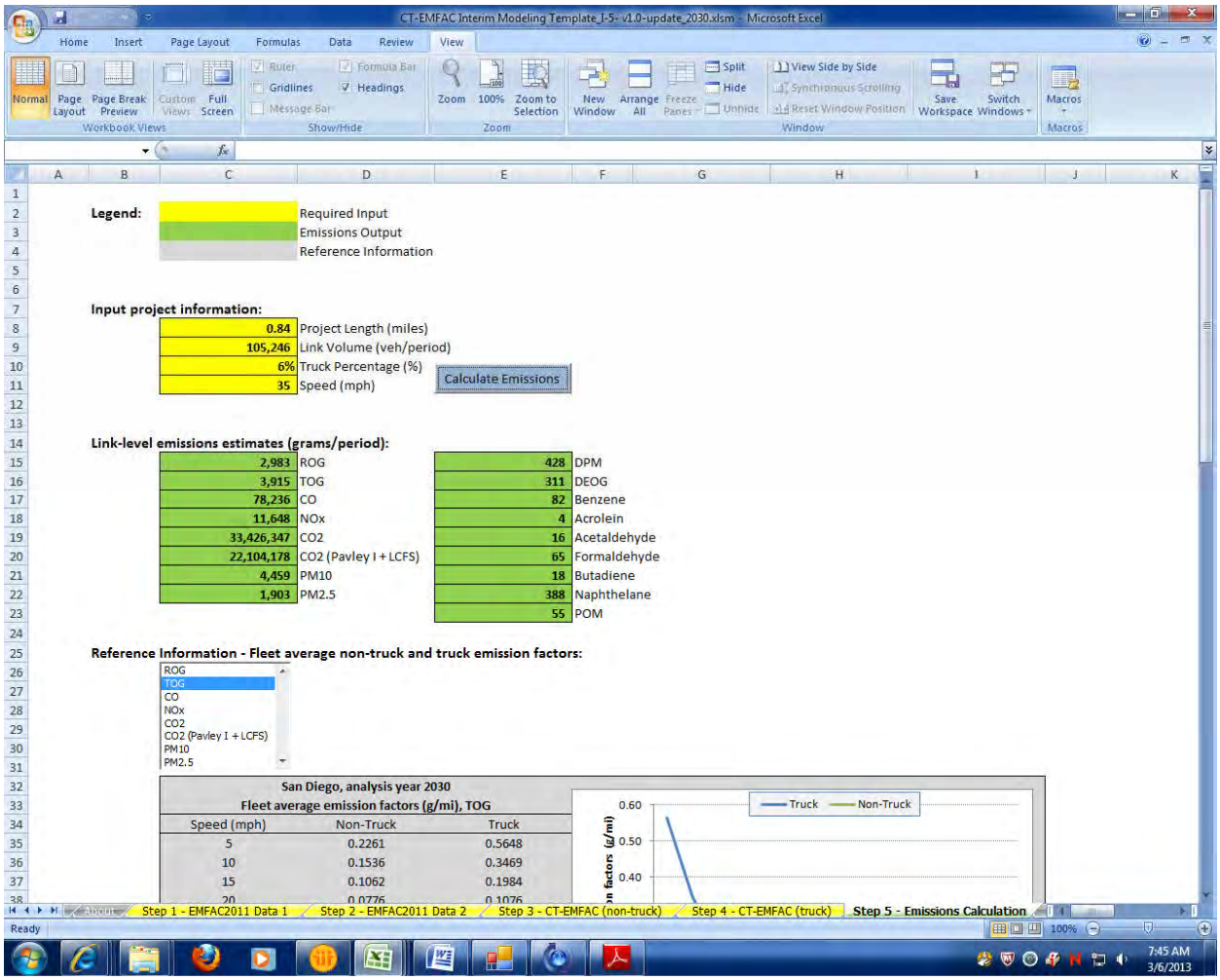
2030 No-build
Link: 1 (NB GP)
Segment: 16
Off Peak



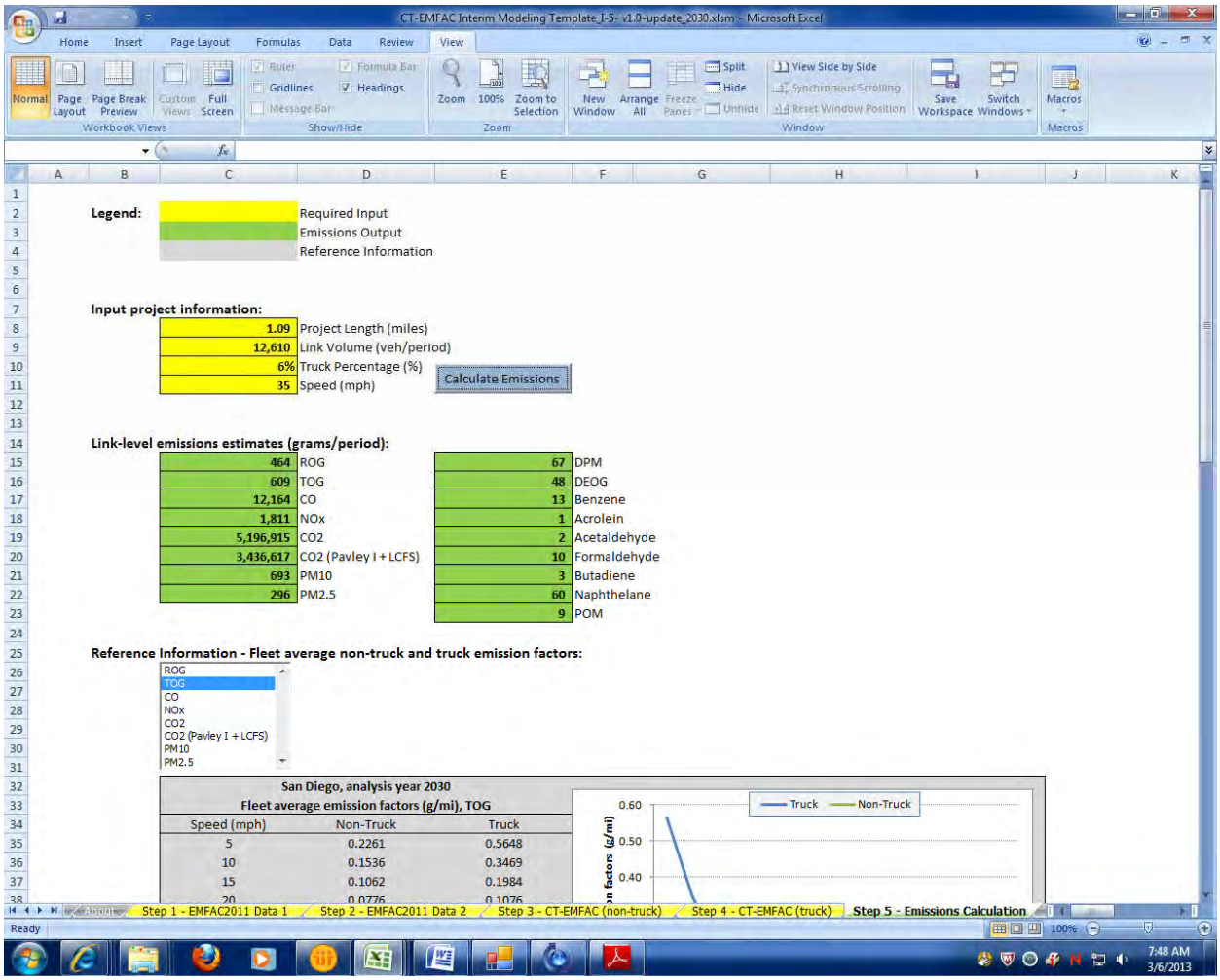
2030 No-build
Link: 1 (NB GP)
Segment: 17
Peak



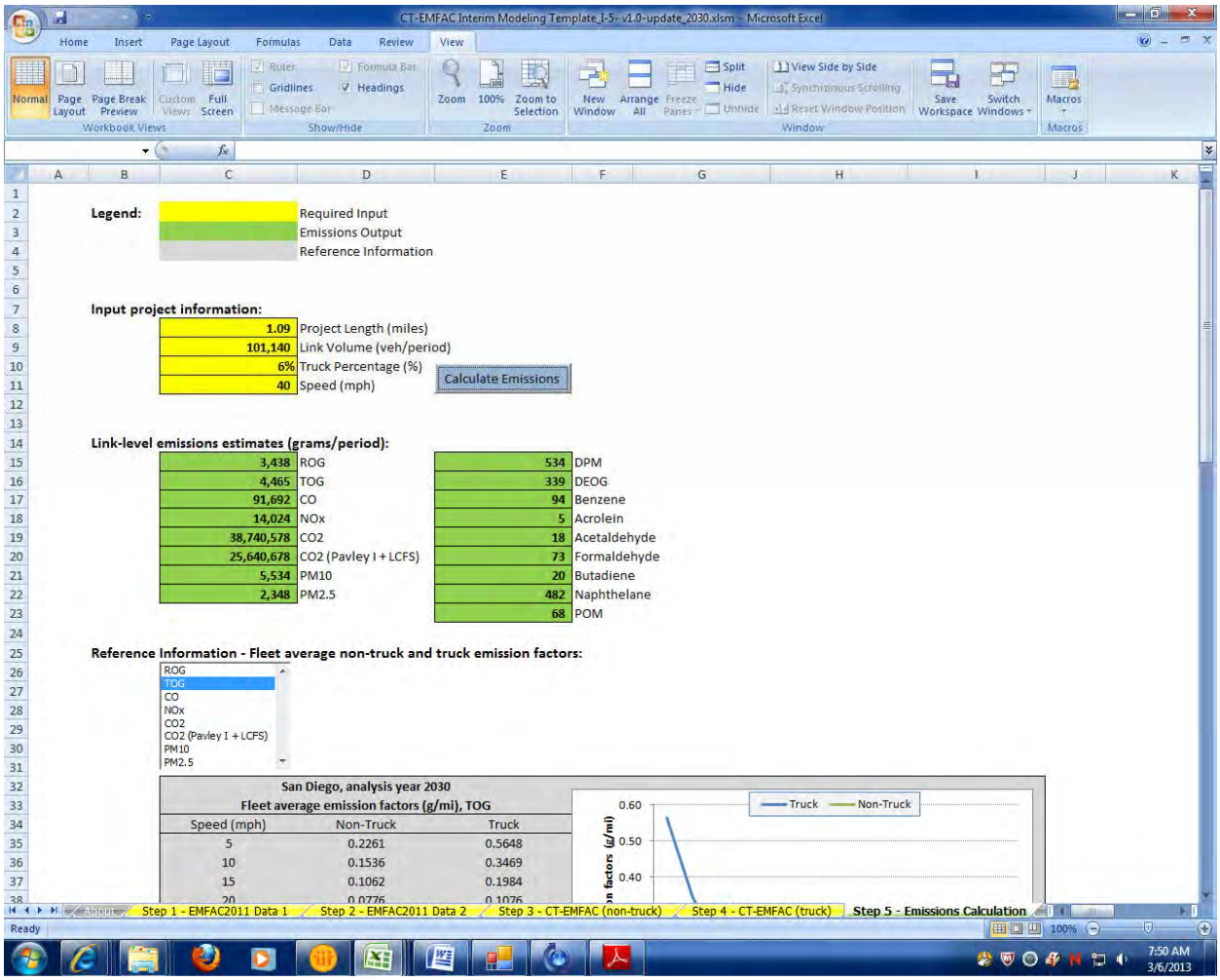
2030 No-build
Link: 1 (NB GP)
Segment: 17
Off Peak



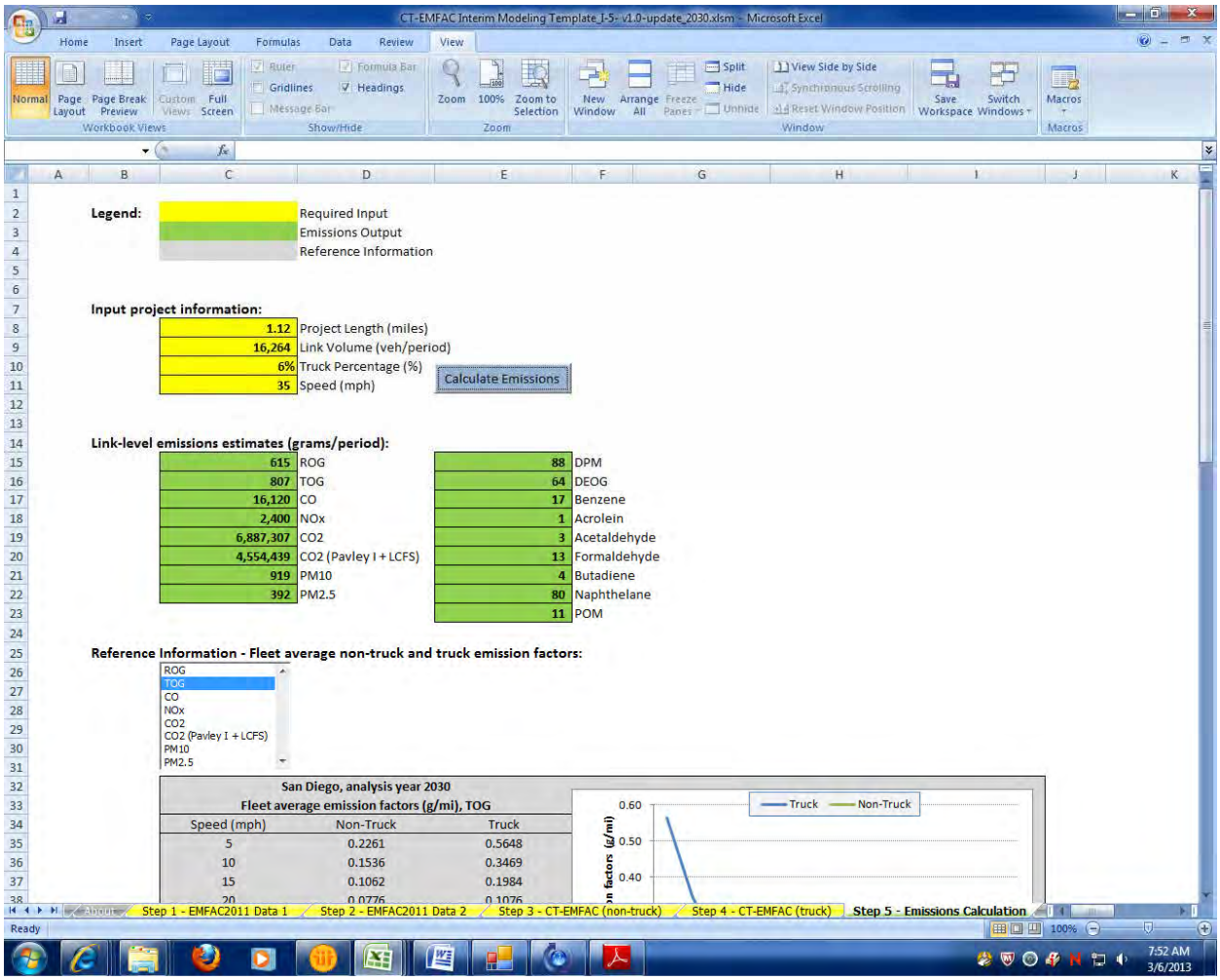
2030 No-build
Link: 1 (NB GP)
Segment: 18
Peak



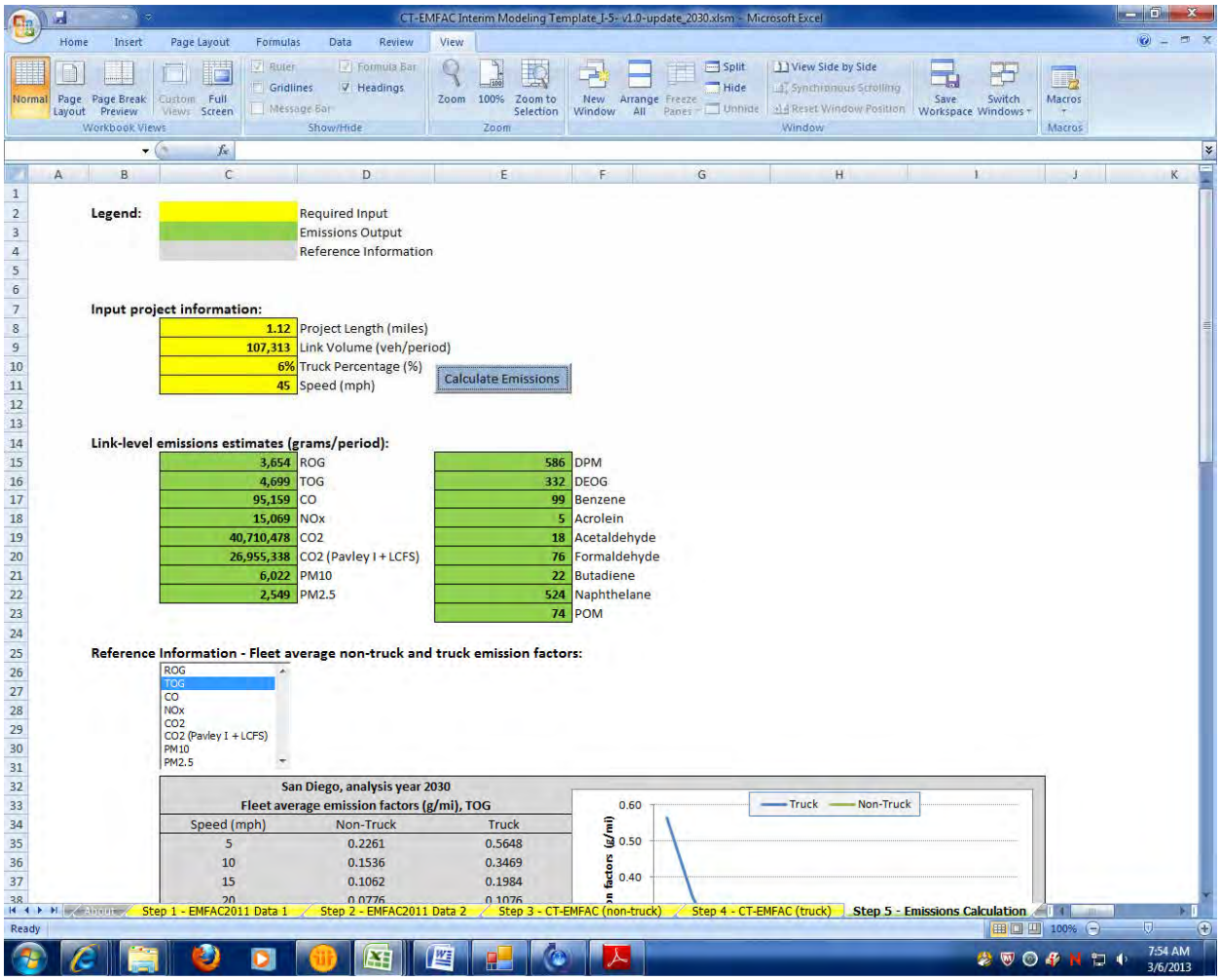
2030 No-build
Link: 1 (NB GP)
Segment: 18
Off Peak



2030 No-build
Link: 1 (NB GP)
Segment: 19
Peak



2030 No-build
Link: 1 (NB GP)
Segment: 19
Off Peak



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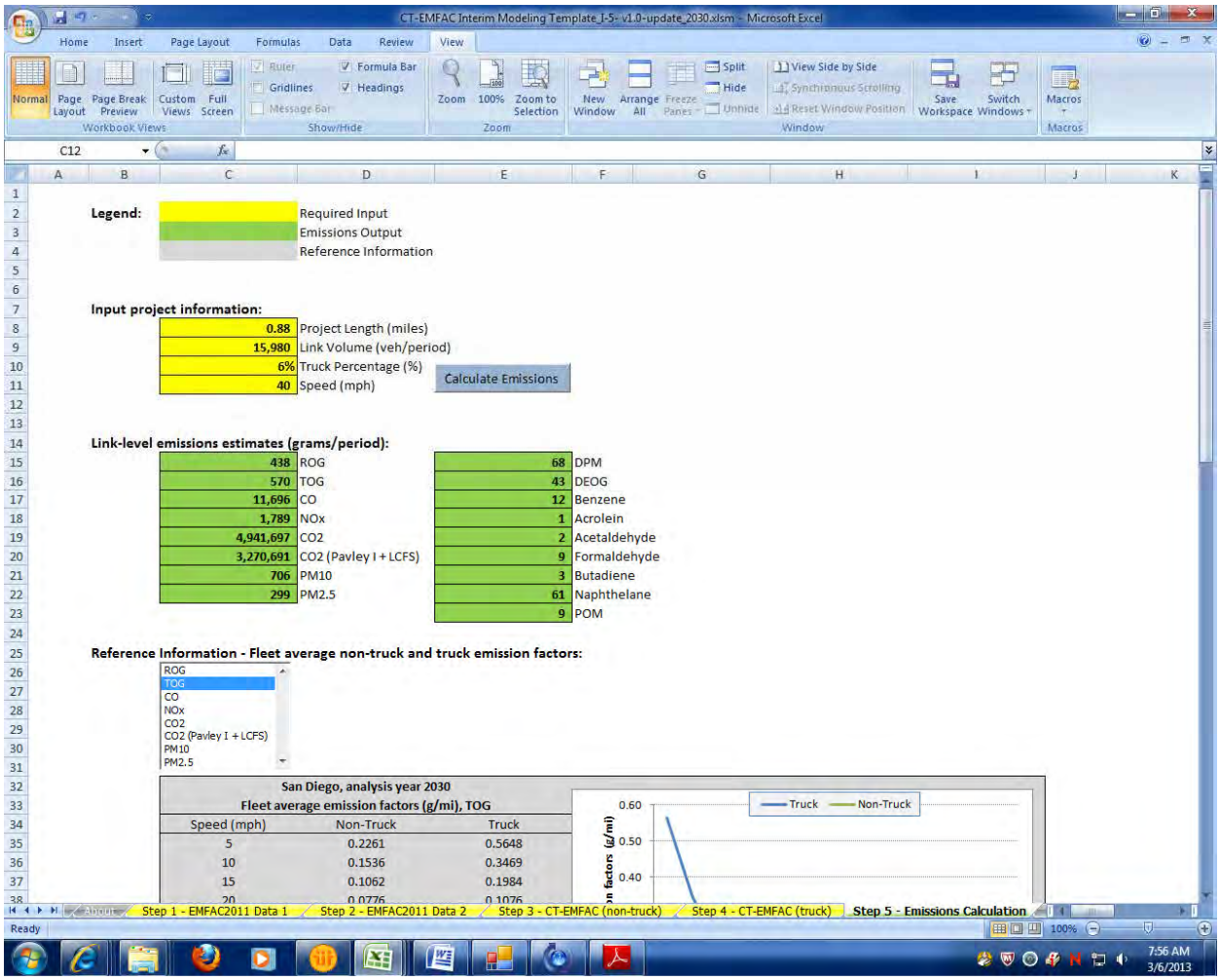
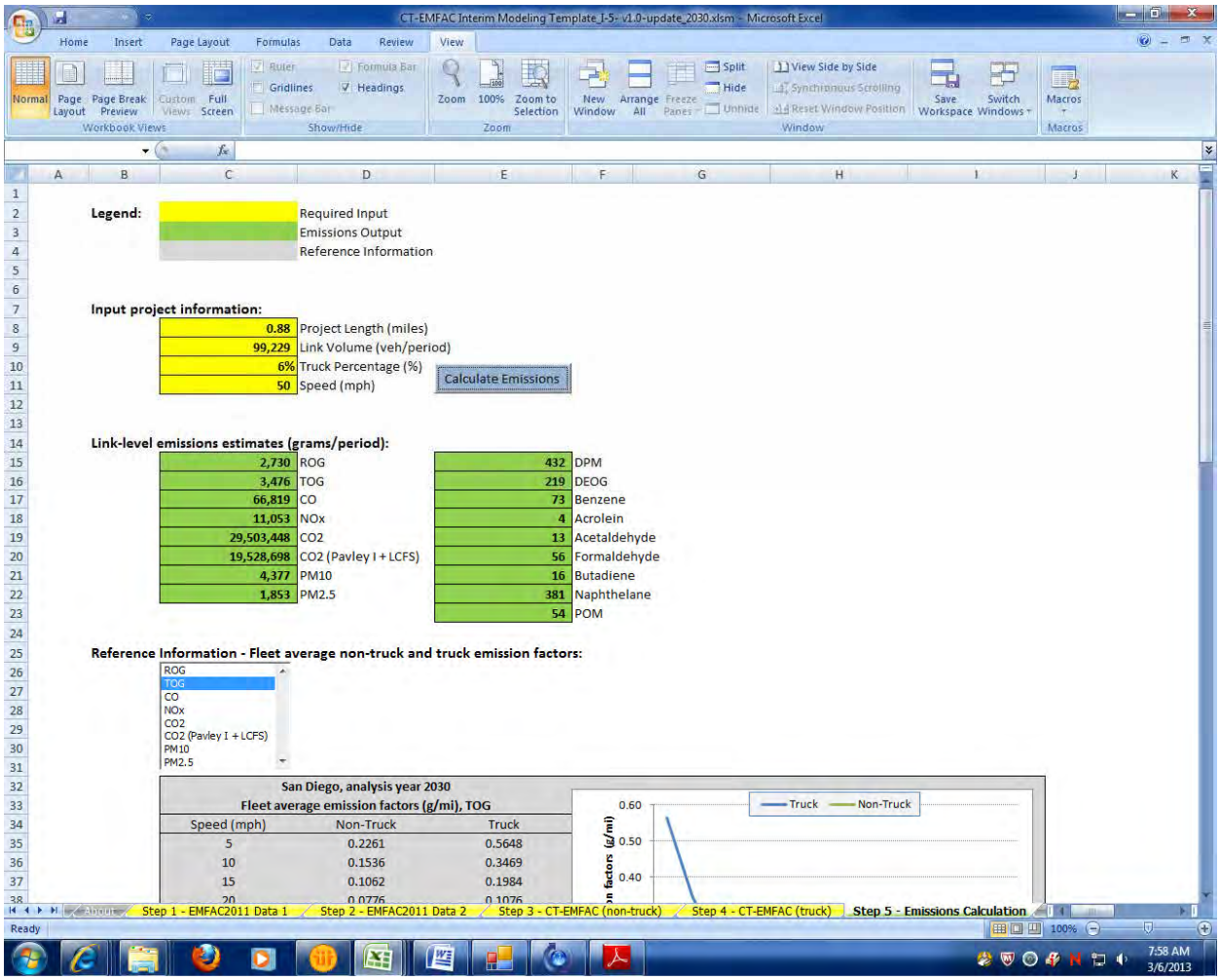
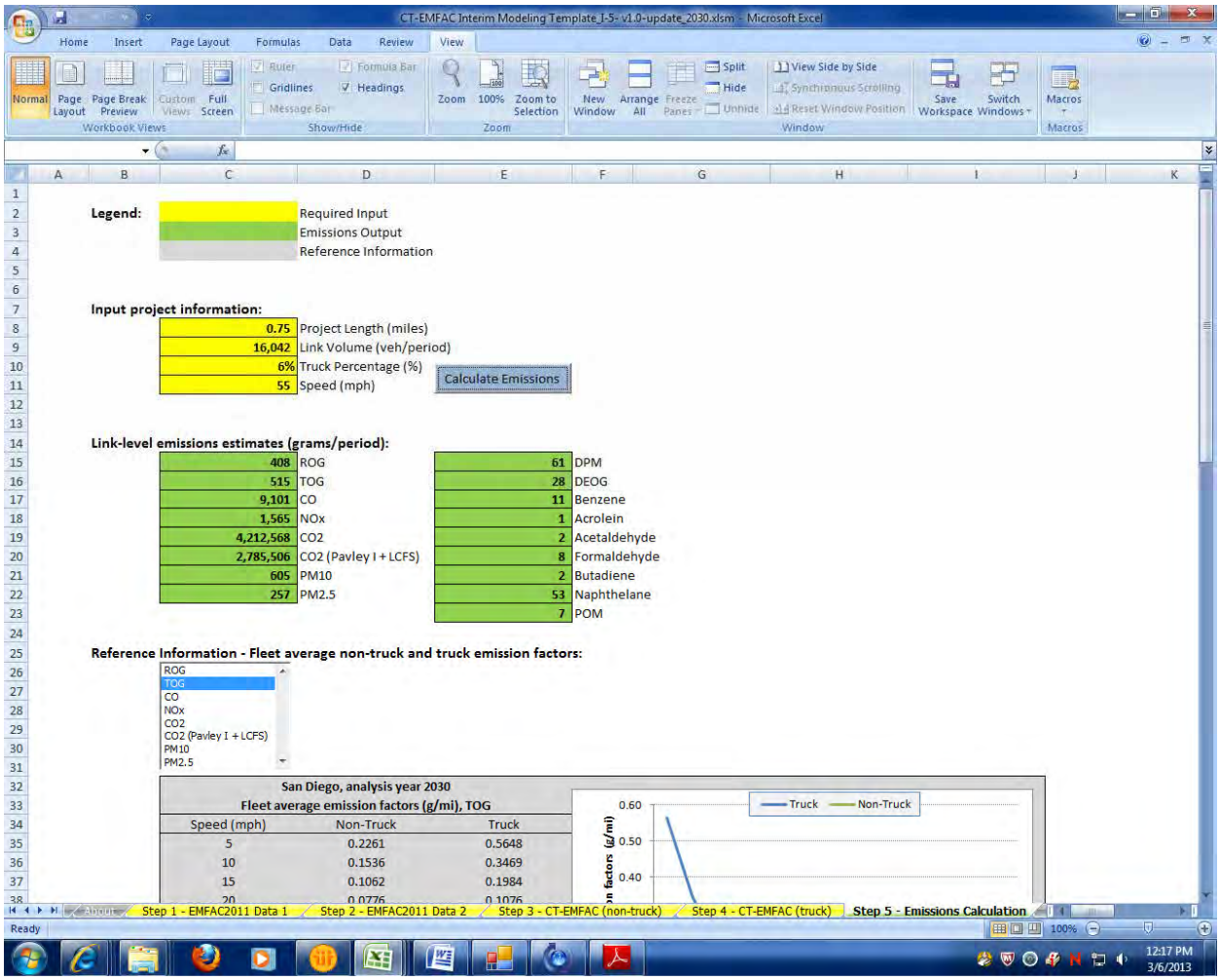
Link: 1 (NB GP)
Segment: 20
Peak



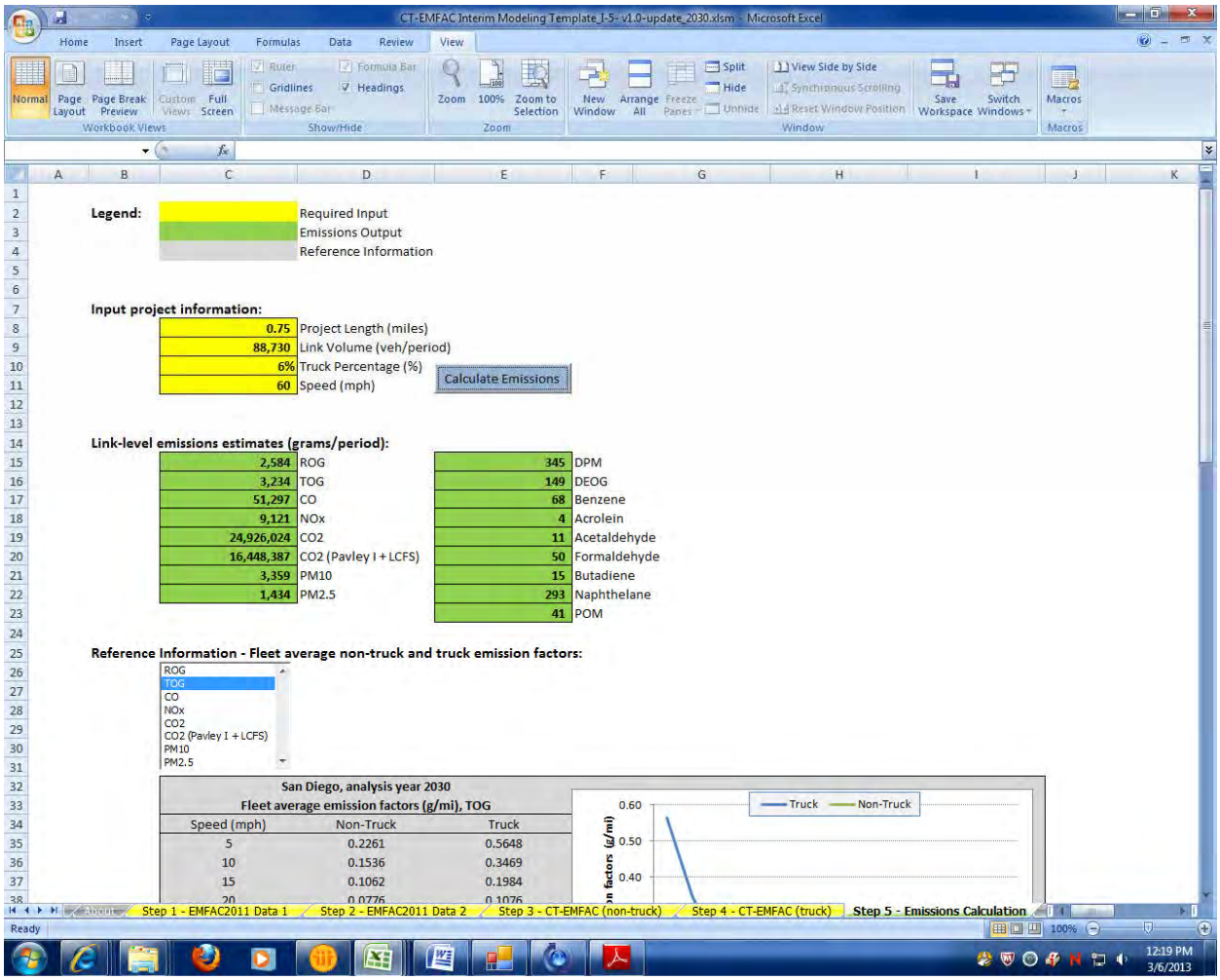
2030 No-build
Link: 1 (NB GP)
Segment: 20
Off Peak



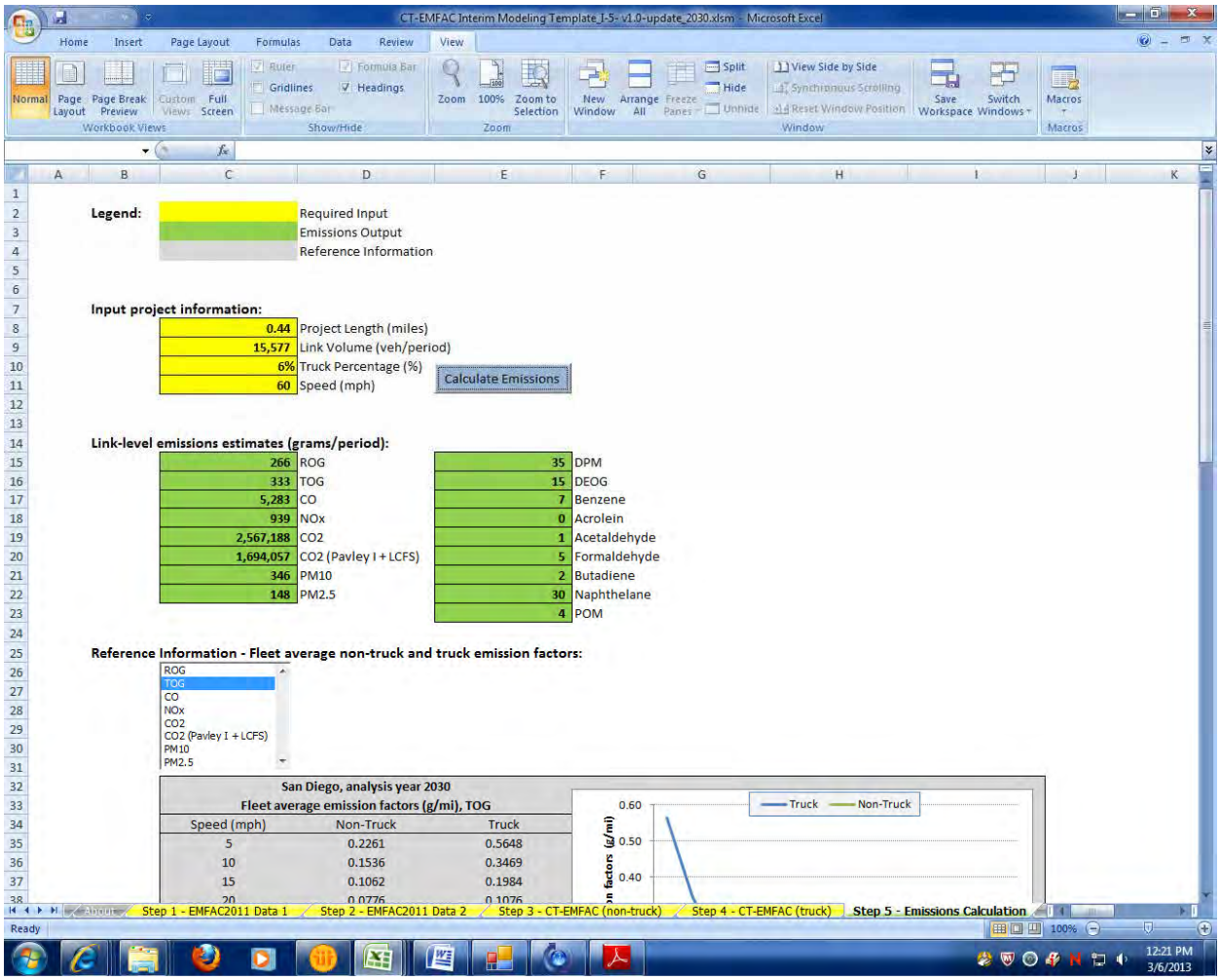
2030 No-build
Link: 1 (NB GP)
Segment: 21
Peak



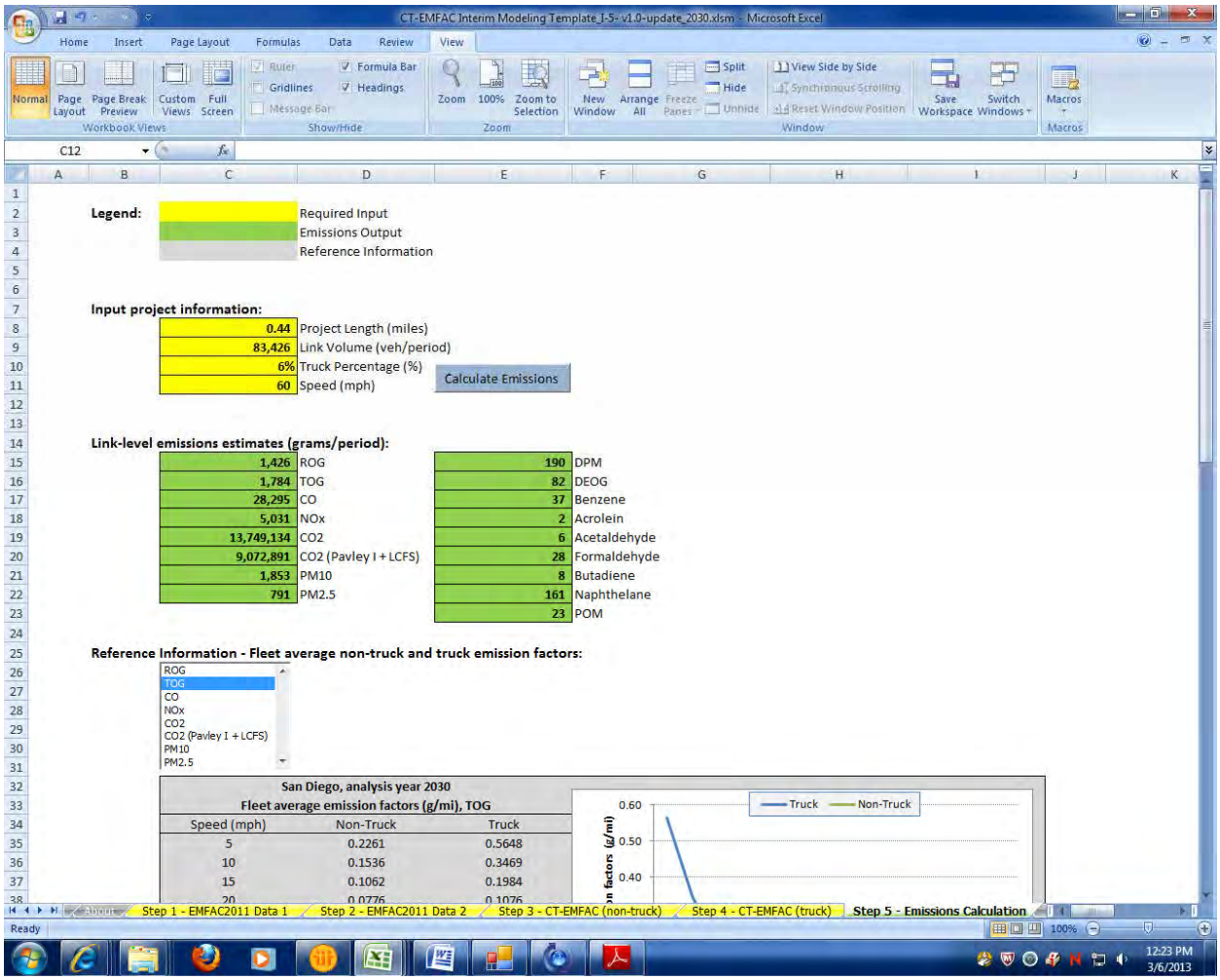
2030 No-build
Link: 1 (NB GP)
Segment: 21
Off Peak



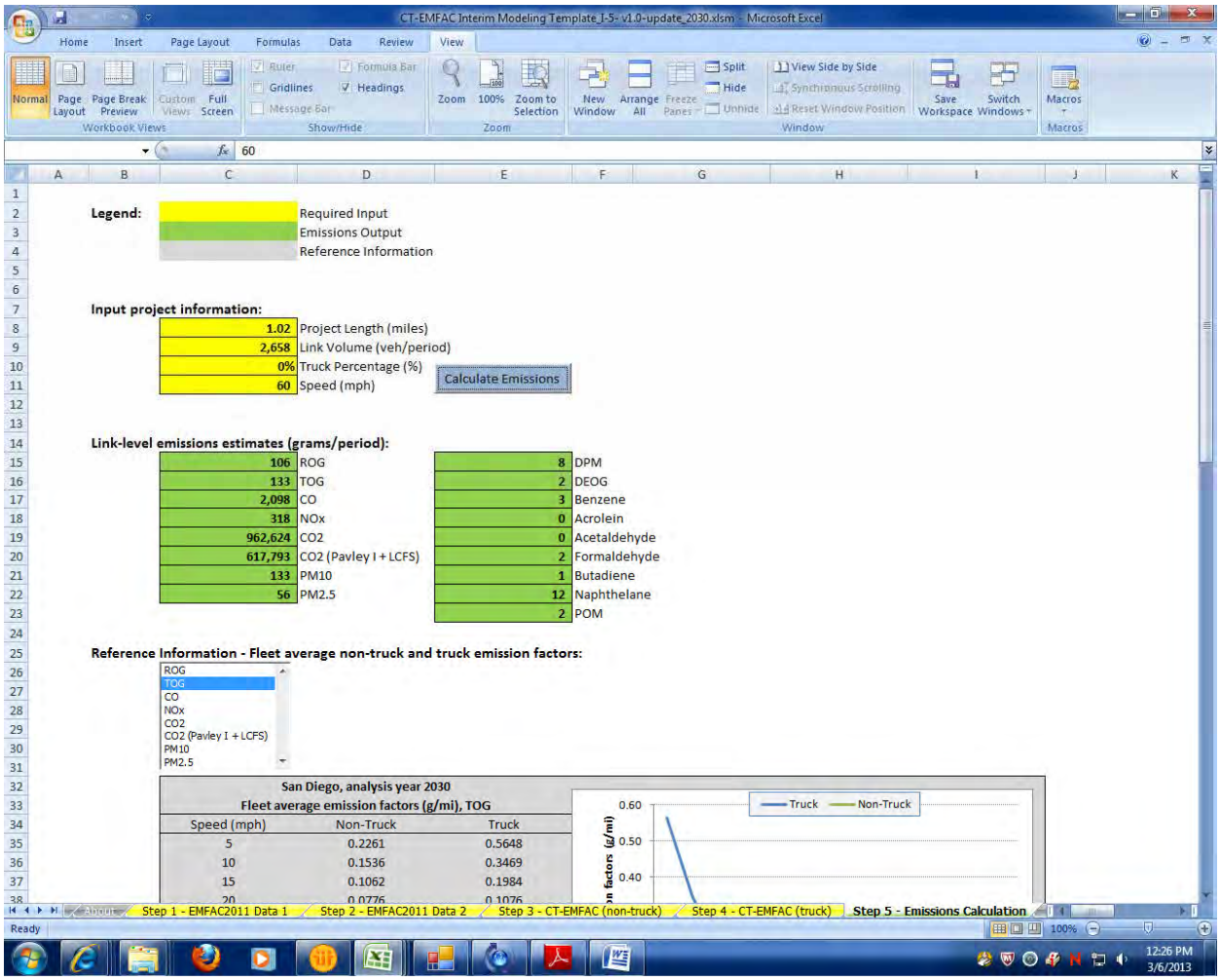
2030 No-build
Link: 1 (NB GP)
Segment: 22
Peak



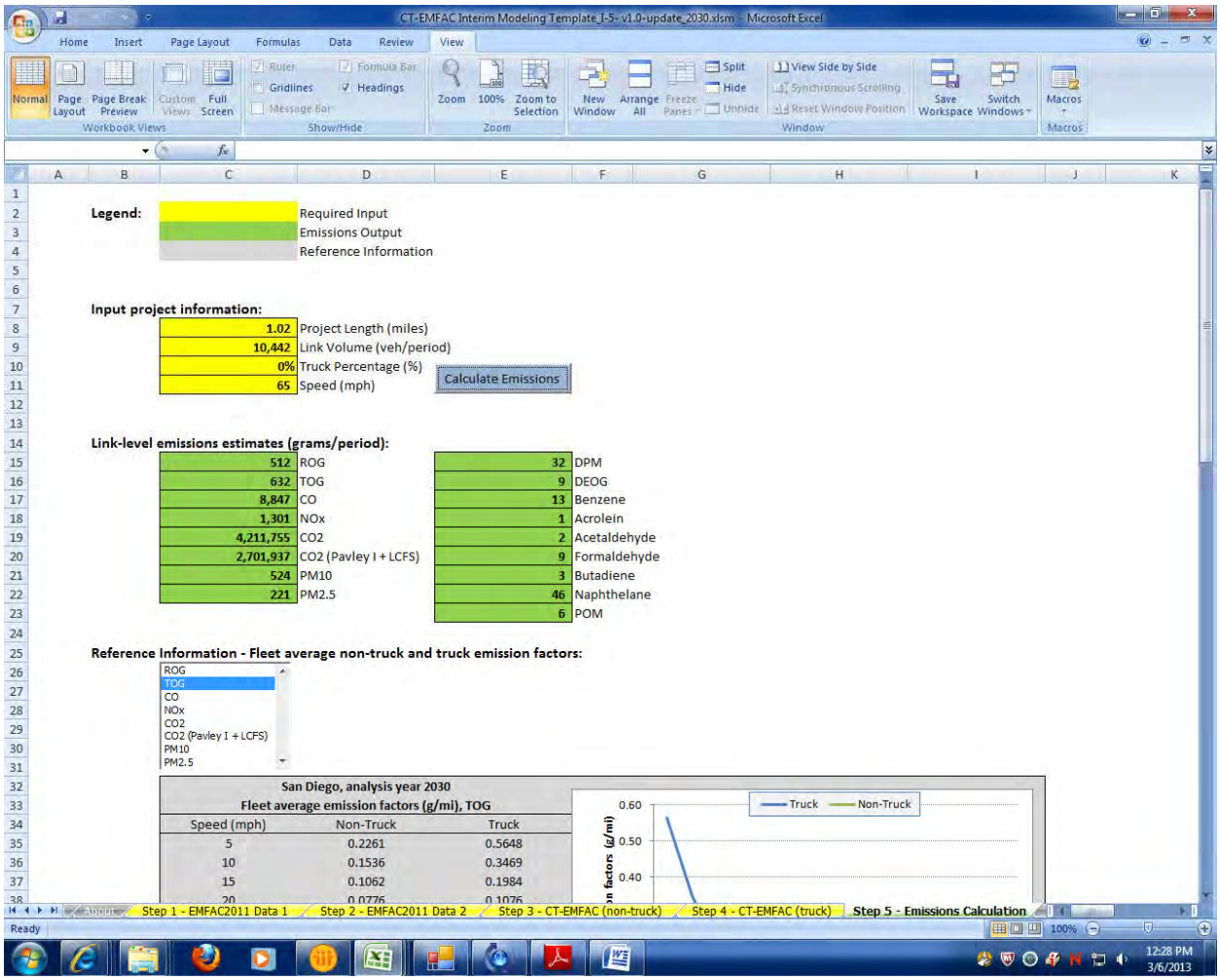
2030 No-build
Link: 1 (NB GP)
Segment: 22
Off Peak



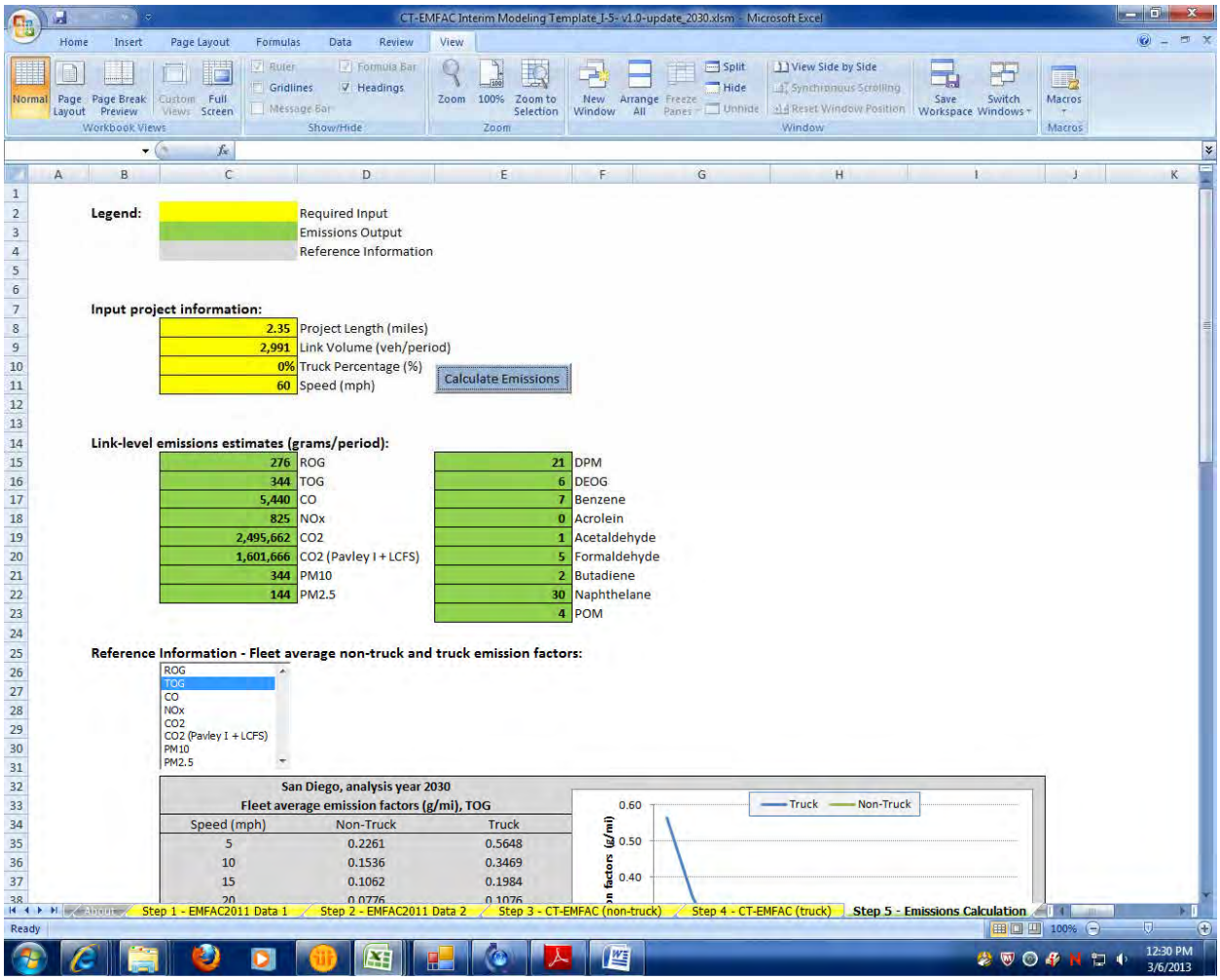
2030 No-build
Link: 2 (NB HOV)
Segment: 1
Peak



2030 No-build
Link: 2 (NB HOV)
Segment: 1
Off Peak



2030 No-build
Link: 2 (NB HOV)
Segment: 2
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.35	Project Length (miles)
2,991	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

276	ROG	21	DPM
344	TOG	6	DEOG
5,440	CO	7	Benzene
825	NOx	0	Acrolein
2,495,662	CO2	1	Acetaldehyde
1,601,666	CO2 (Pavley I + LCFS)	5	Formaldehyde
344	PM10	2	Butadiene
144	PM2.5	30	Naphthelane
		4	POM

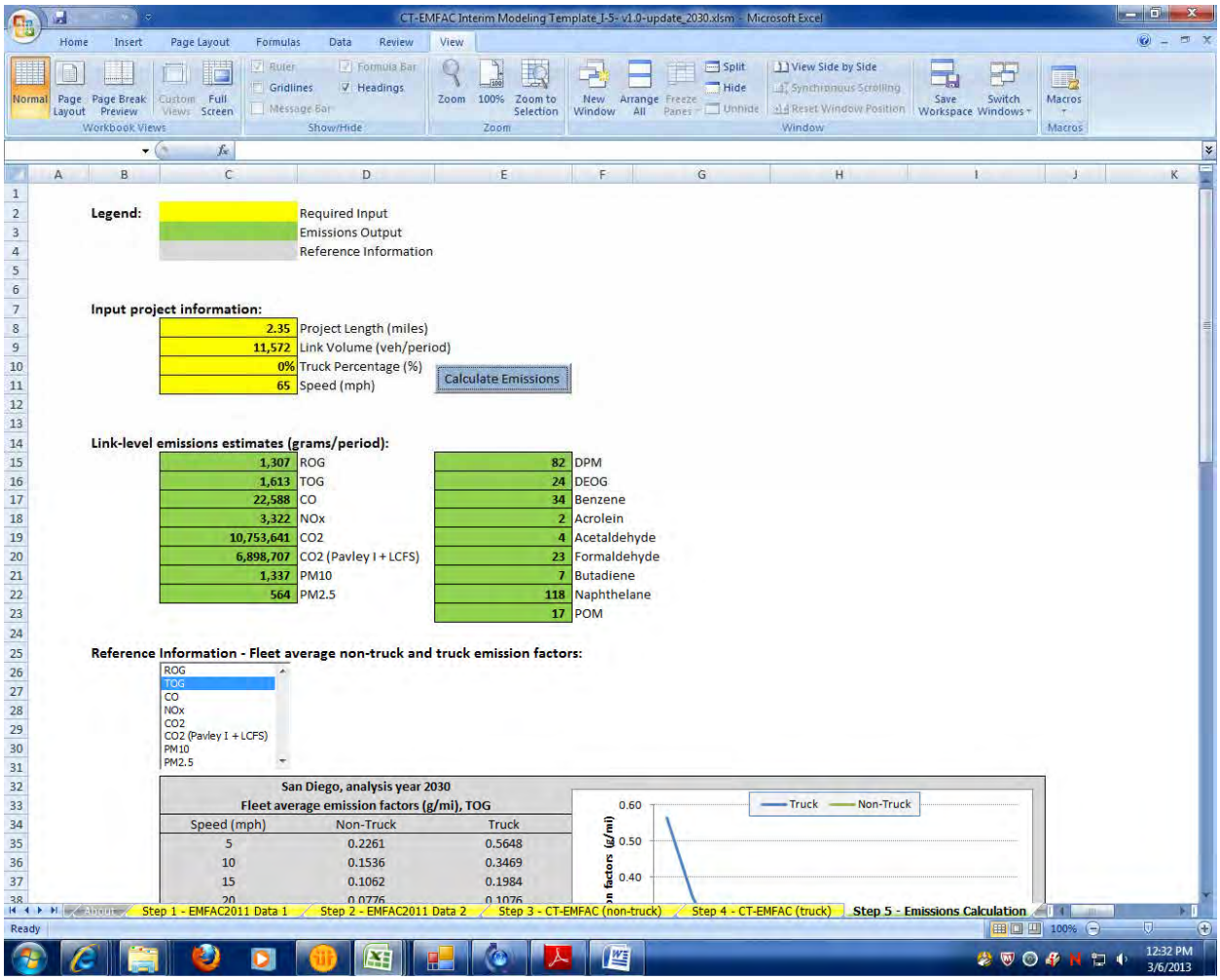
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

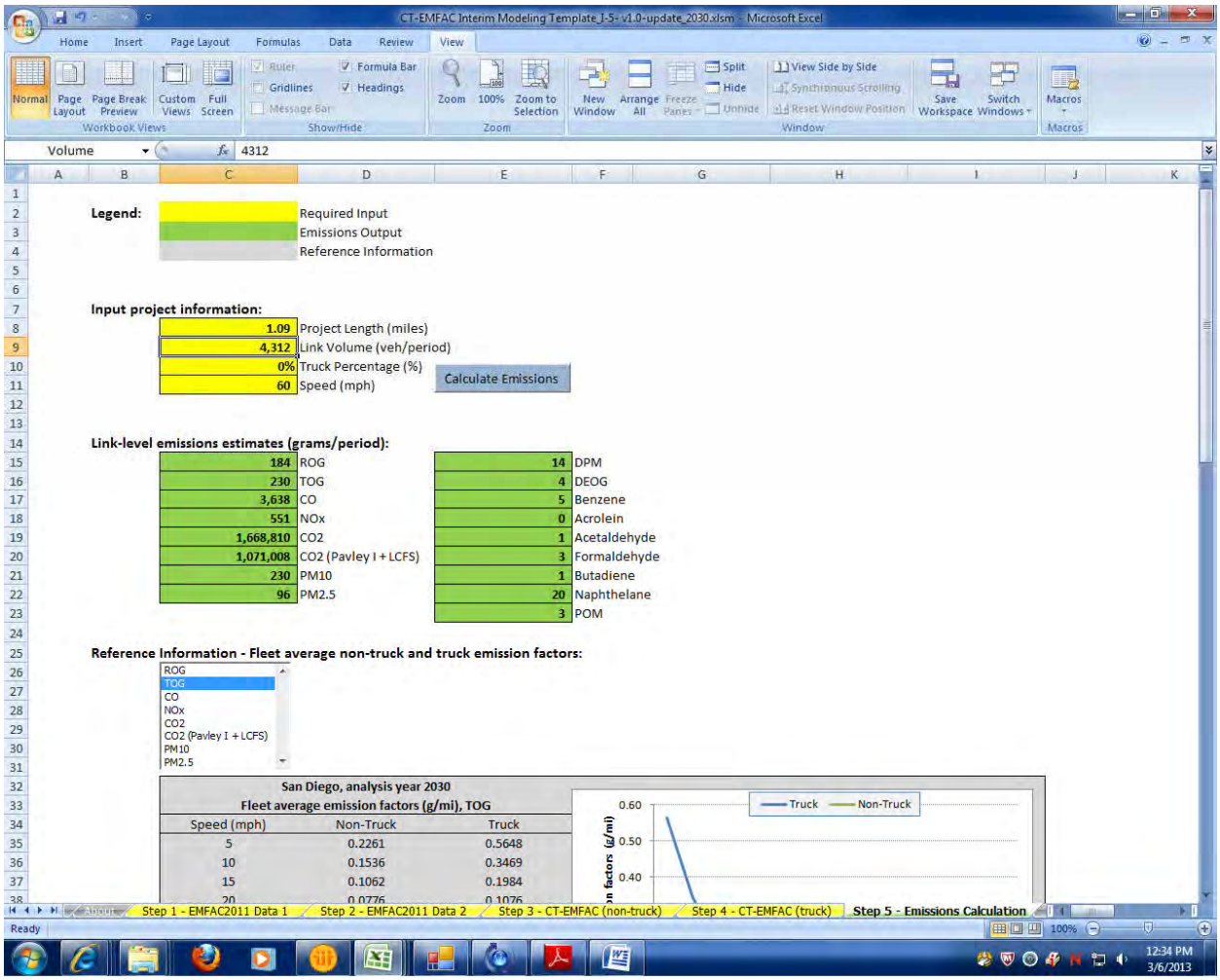
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

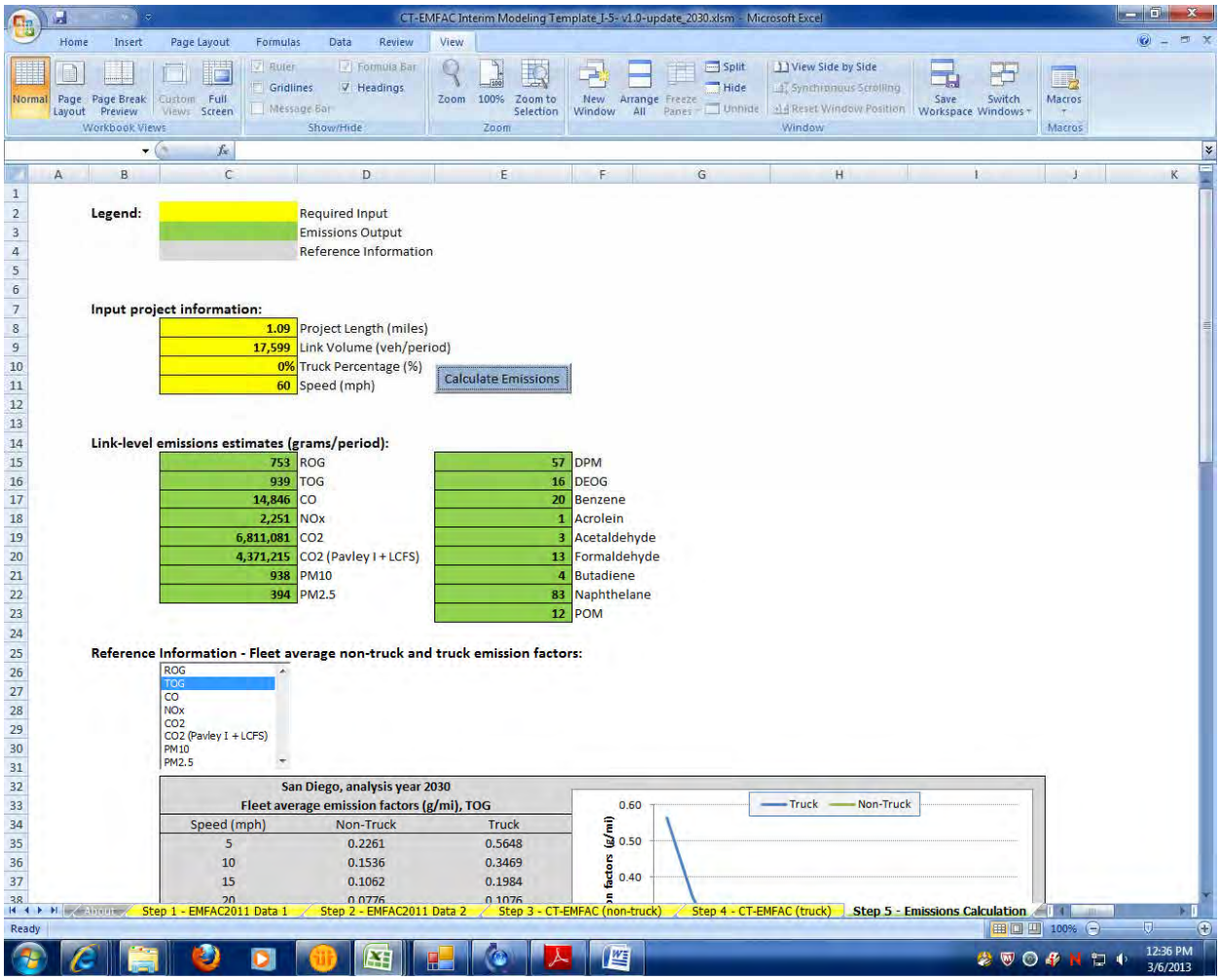
2030 No-build
Link: 2 (NB HOV)
Segment: 2
Off Peak



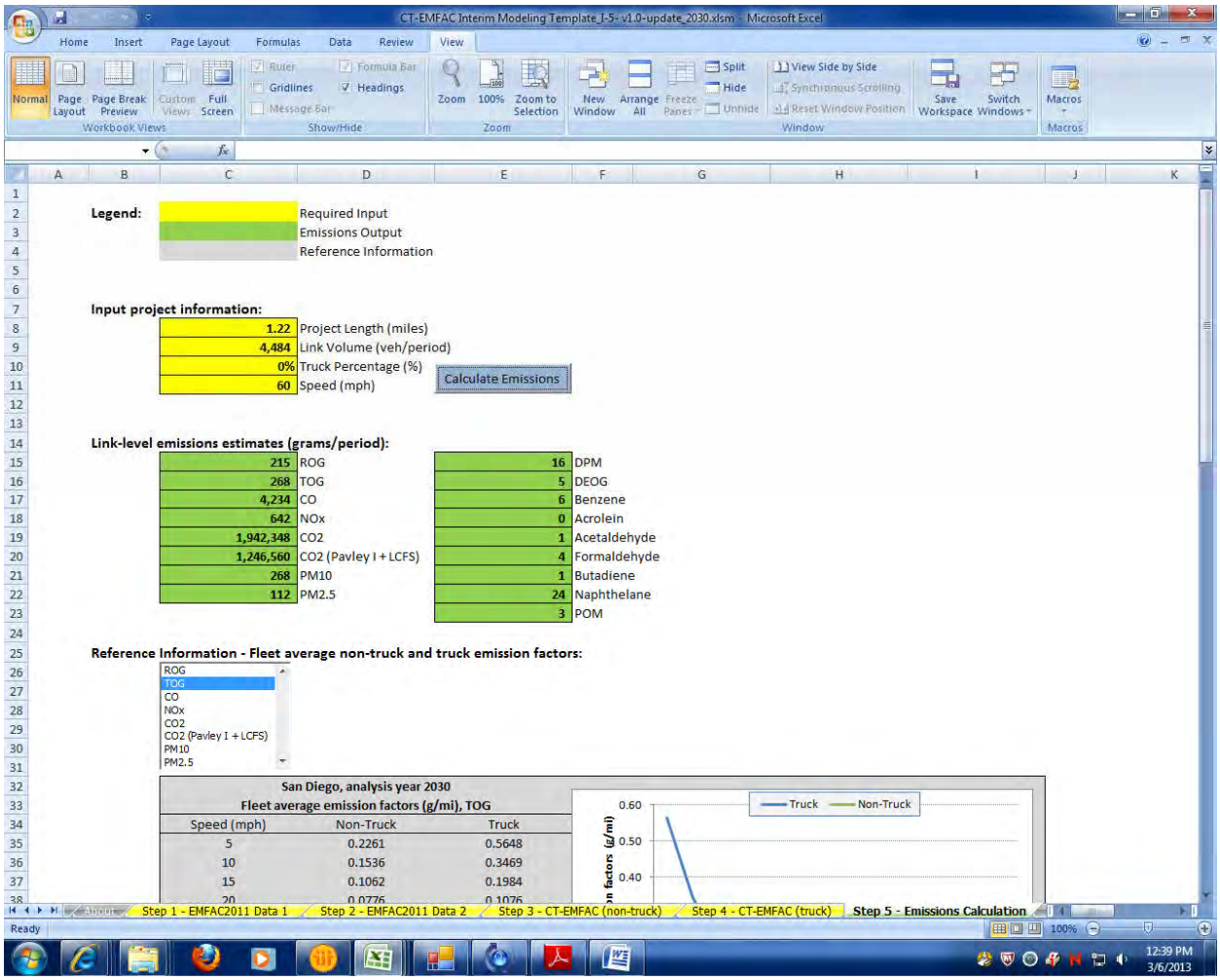
2030 No-build
Link: 2 (NB HOV)
Segment: 3
Peak



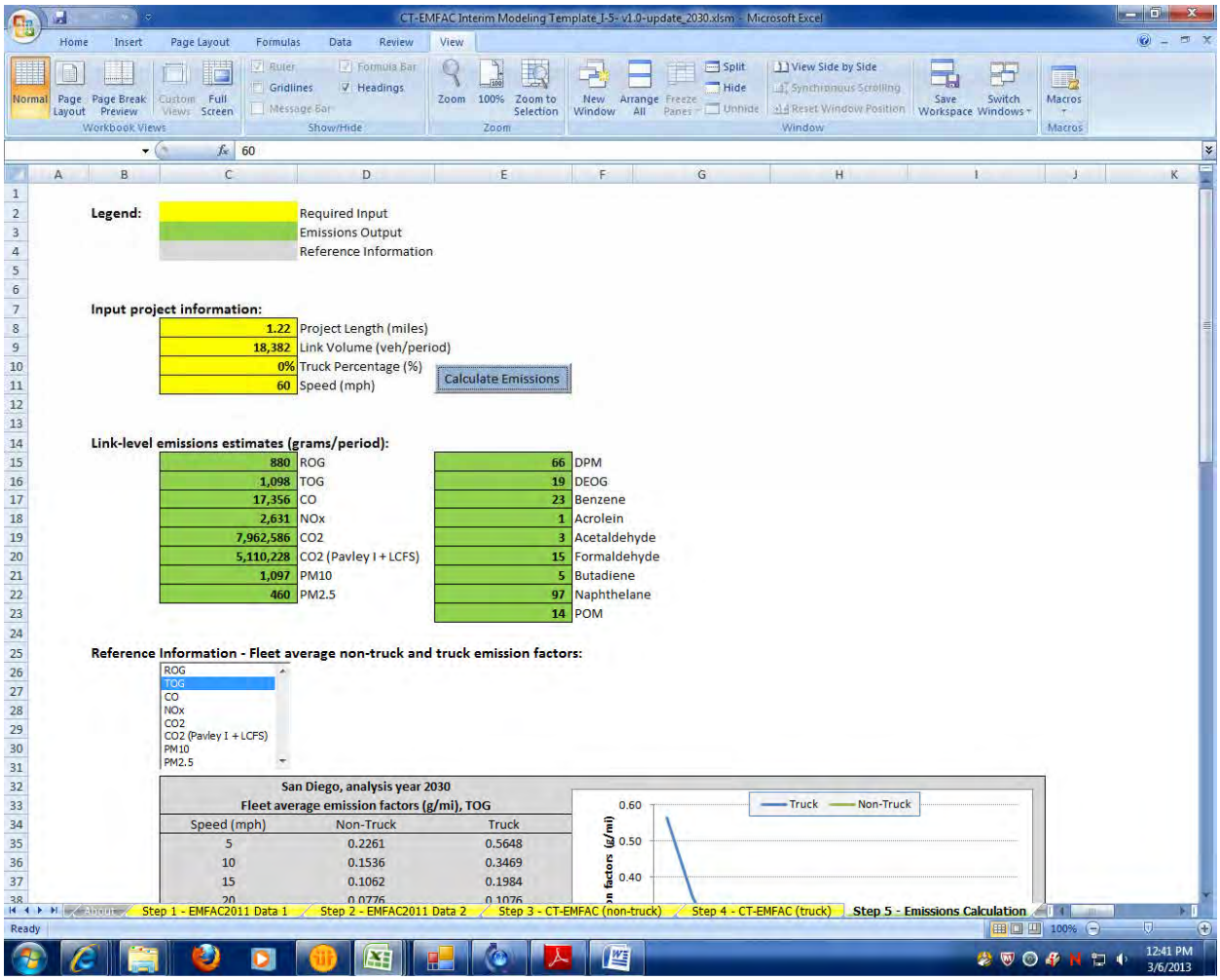
2030 No-build
Link: 2 (NB HOV)
Segment: 3
Off Peak



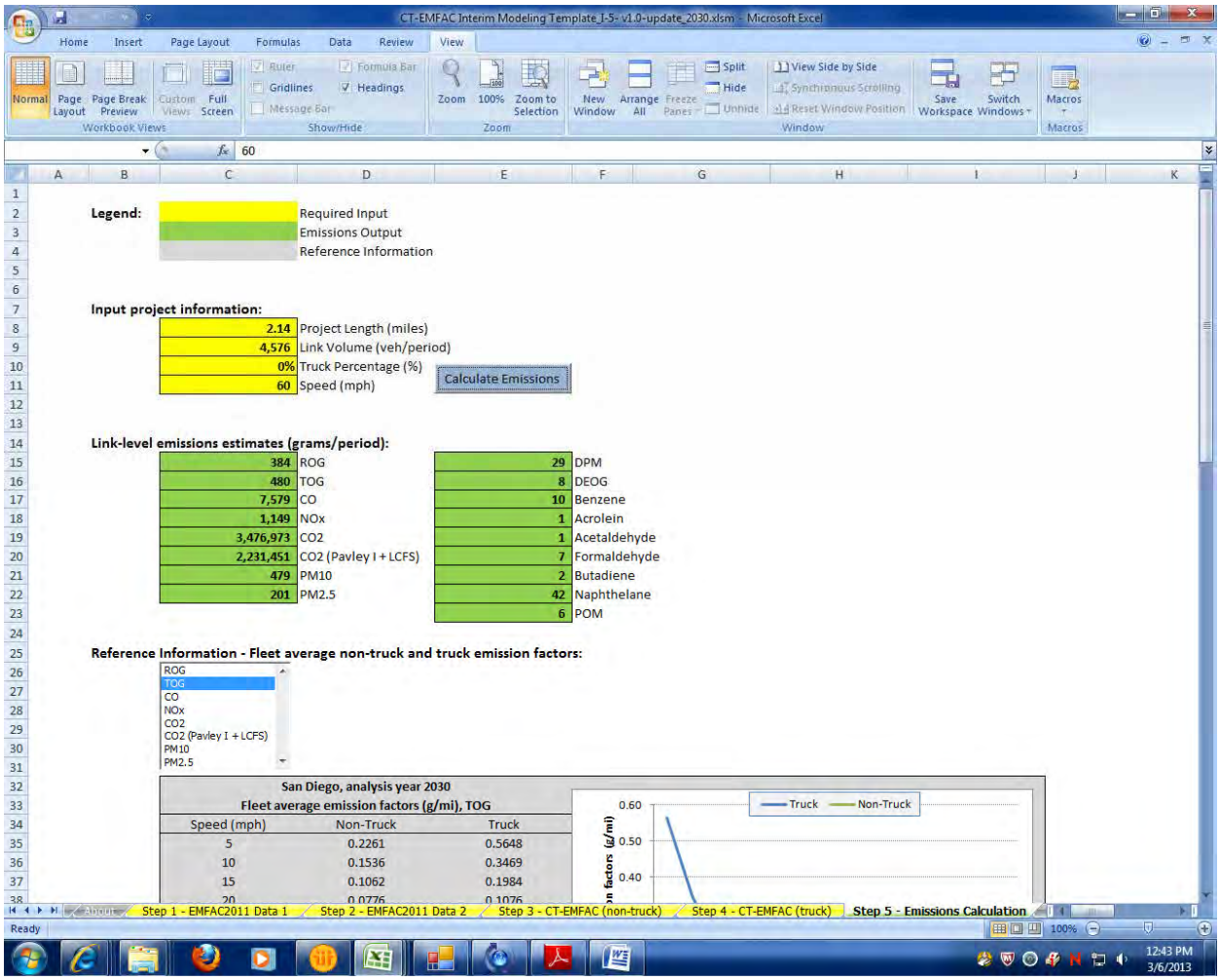
2030 No-build
Link: 2 (NB HOV)
Segment: 4
Peak



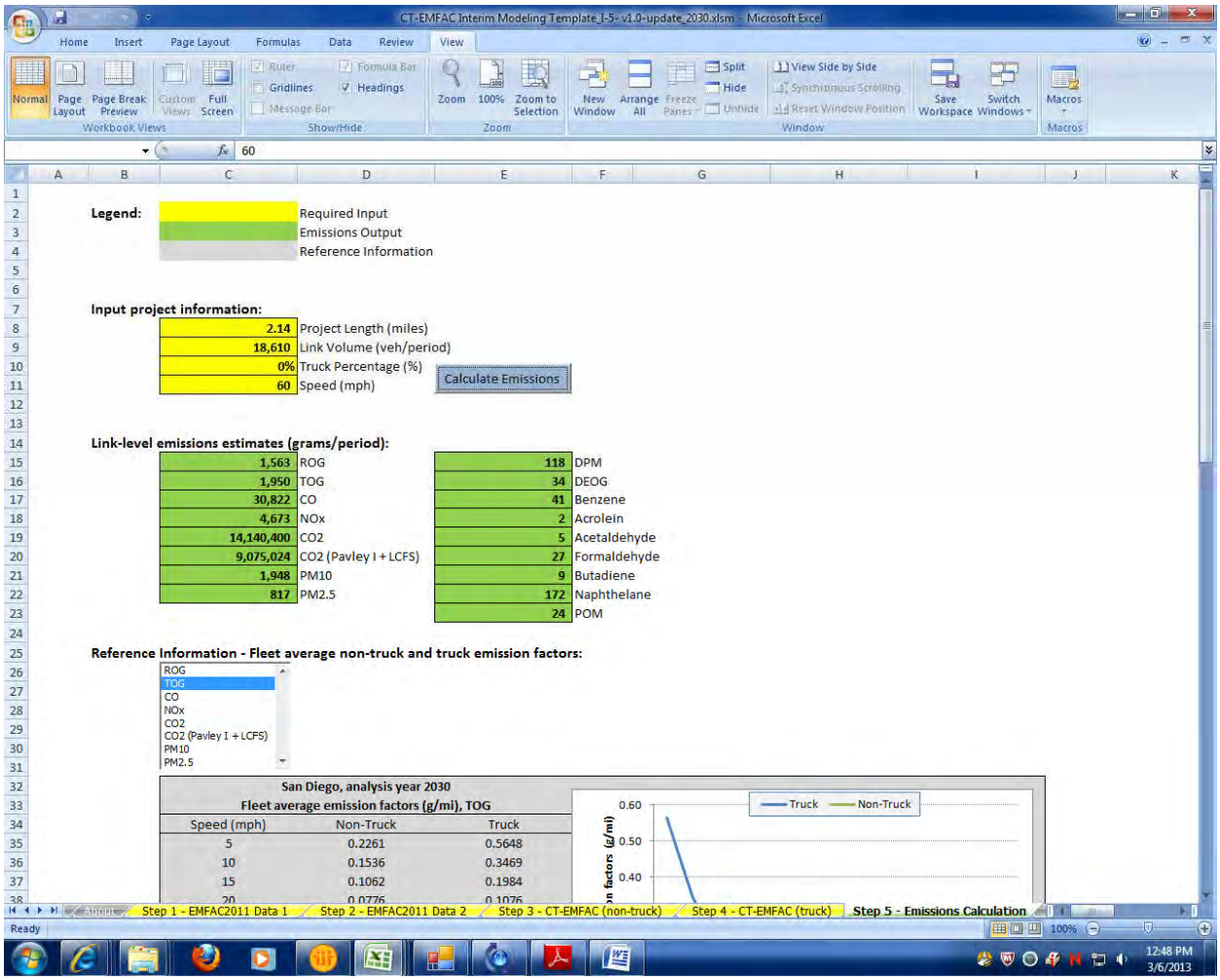
2030 No-build
Link: 2 (NB HOV)
Segment: 4
Off Peak



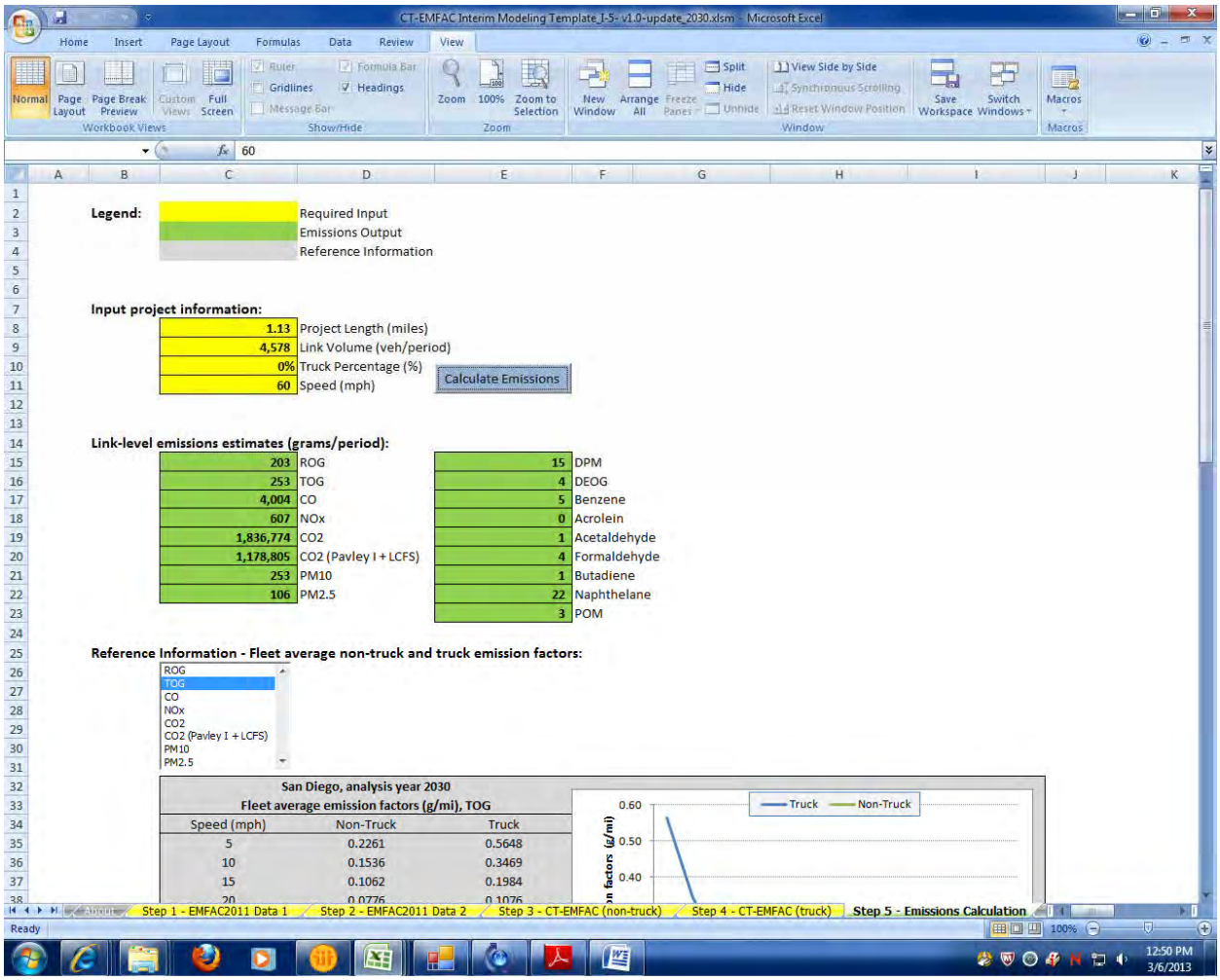
2030 No-build
Link: 2 (NB HOV)
Segment: 5
Peak



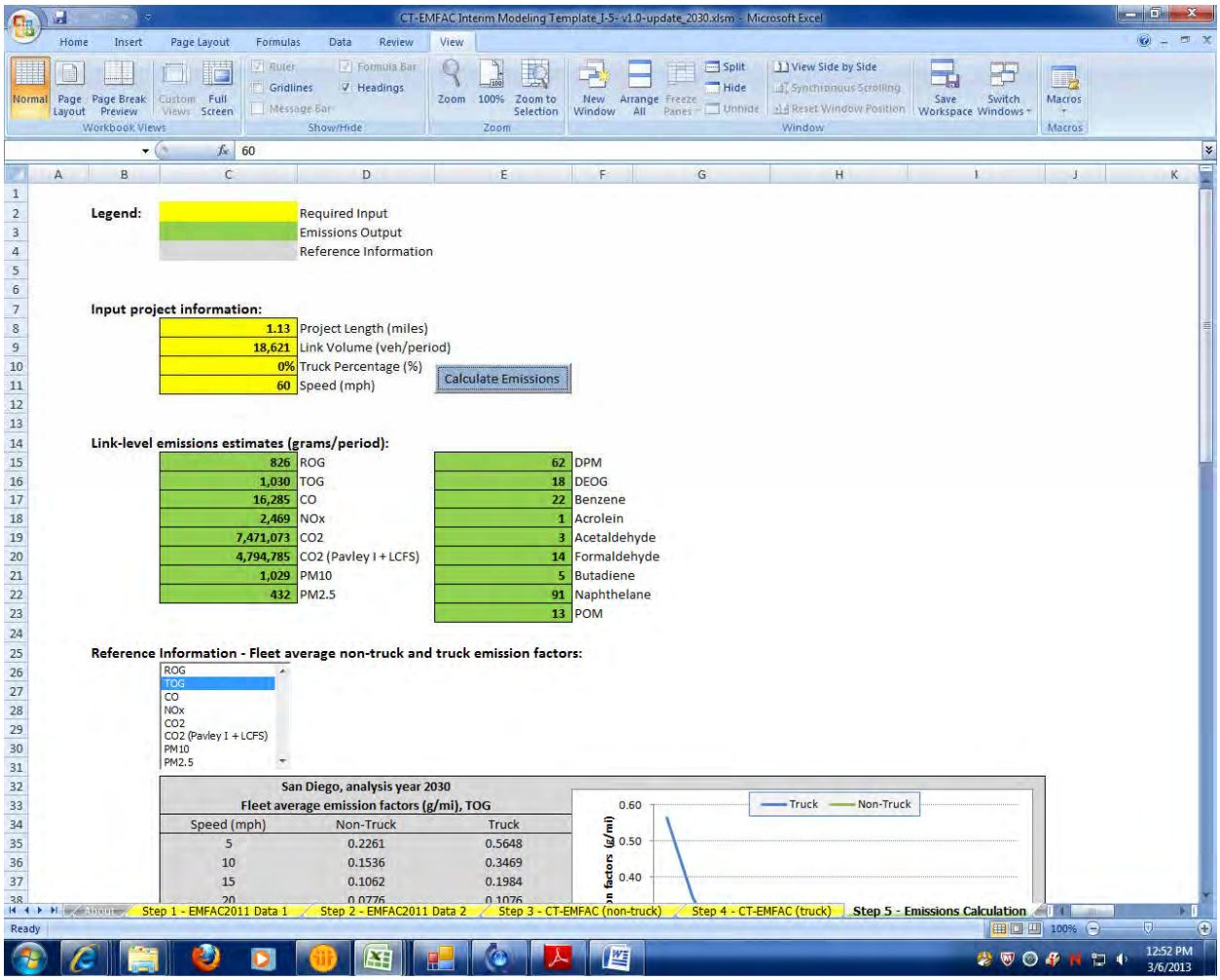
2030 No-build
Link: 2 (NB HOV)
Segment: 5
Off Peak



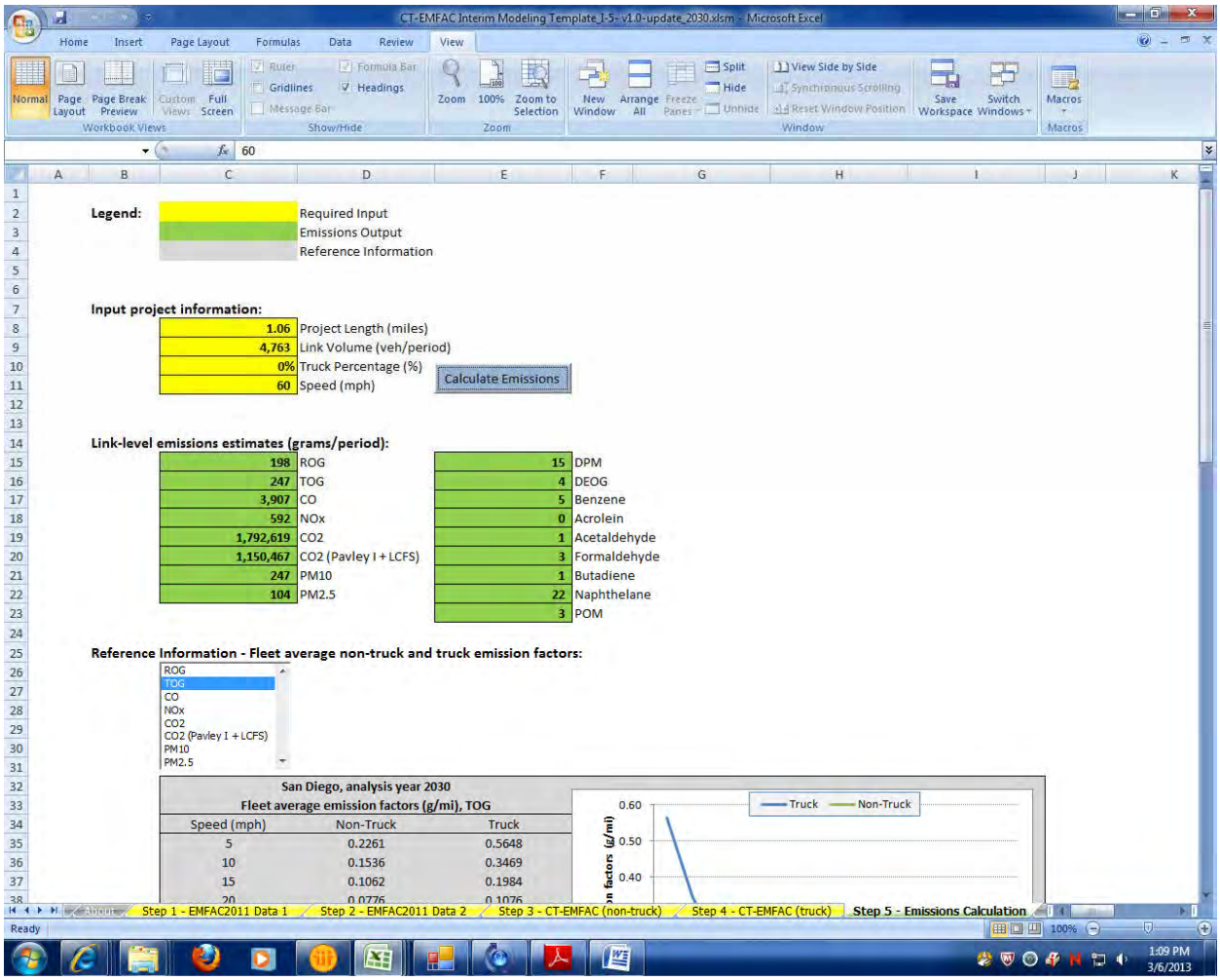
2030 No-build
Link: 2 (NB HOV)
Segment: 6
Peak



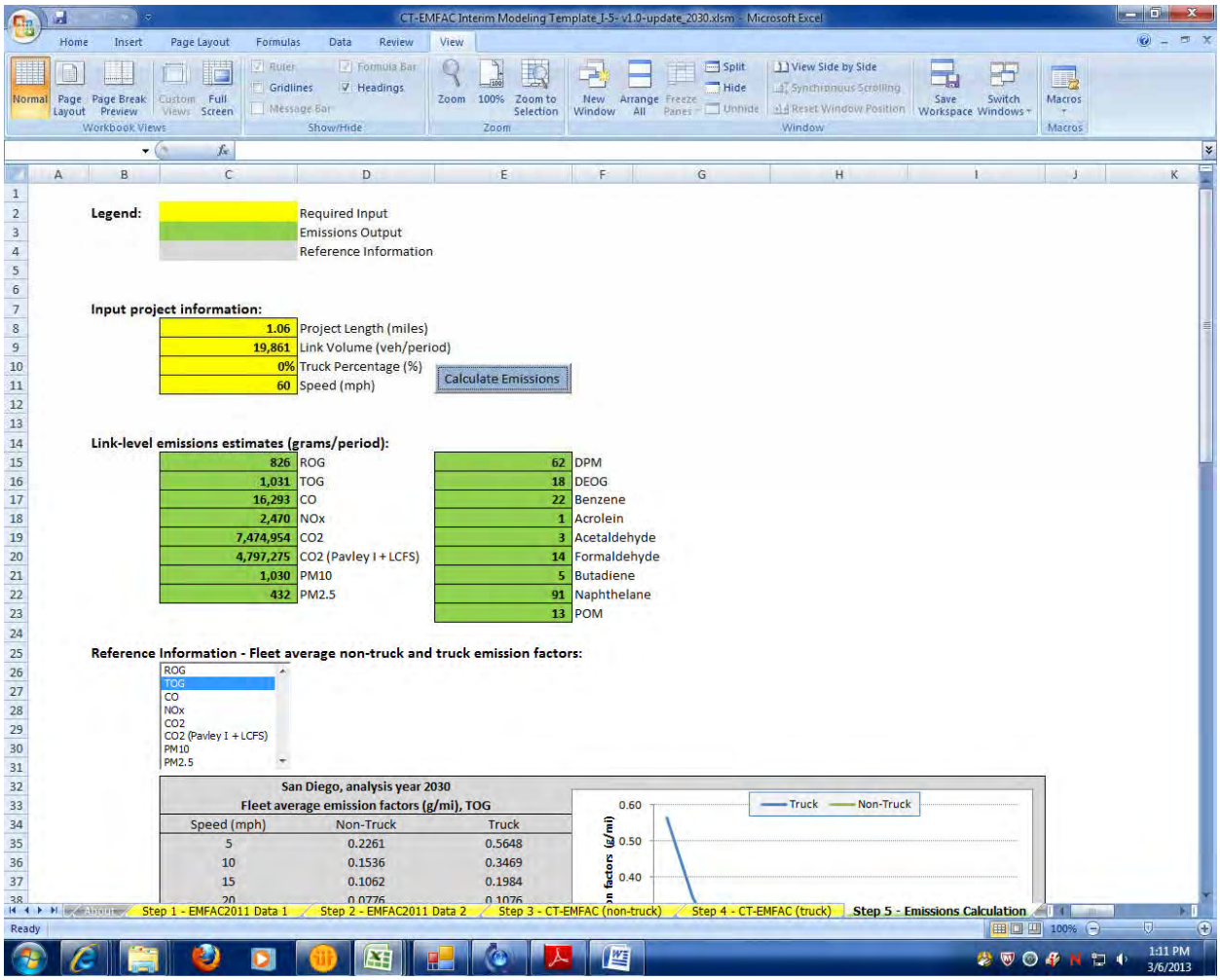
2030 No-build
Link: 2 (NB HOV)
Segment: 6
Off Peak



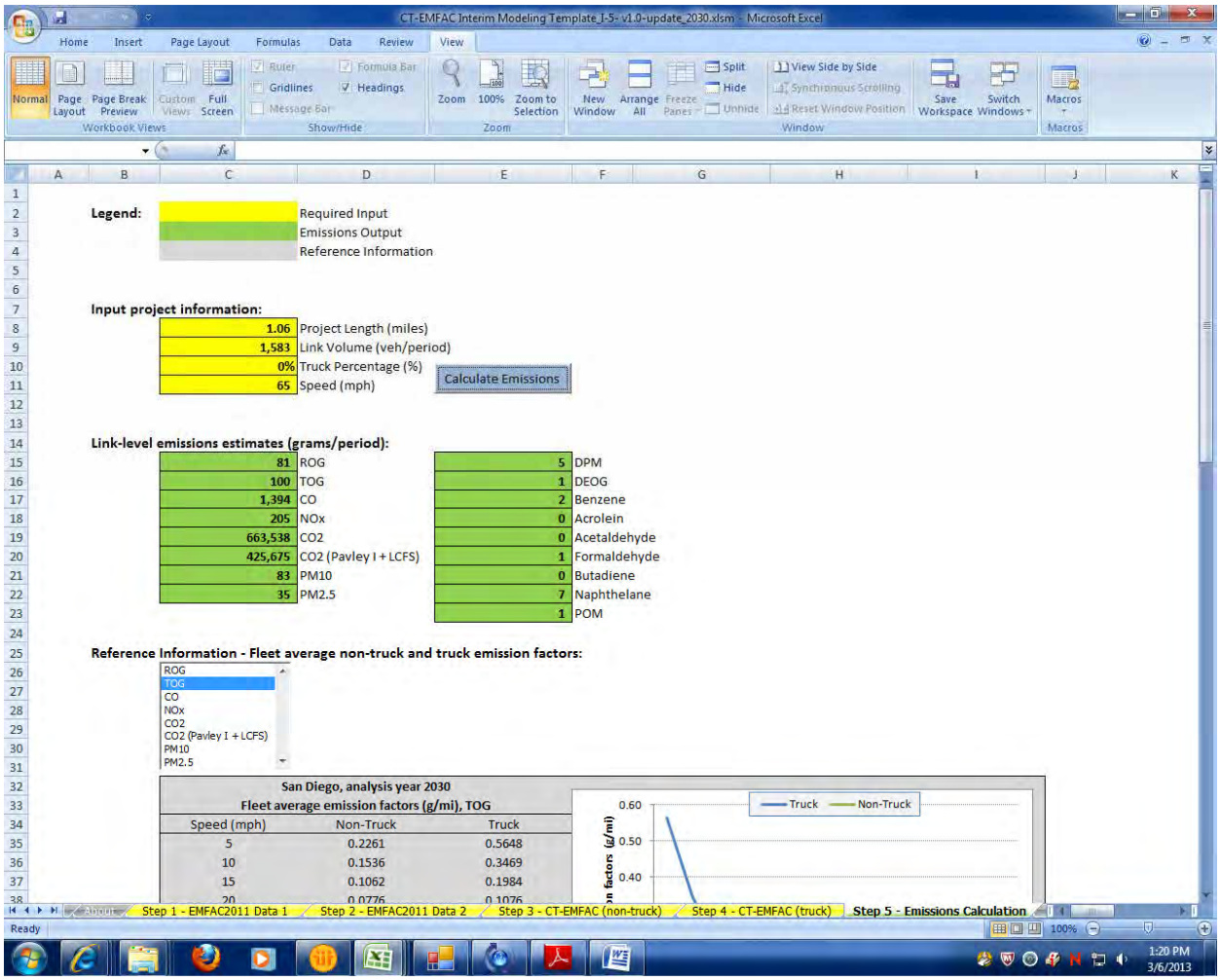
2030 No-build
Link: 2 (NB HOV)
Segment: 7
Peak



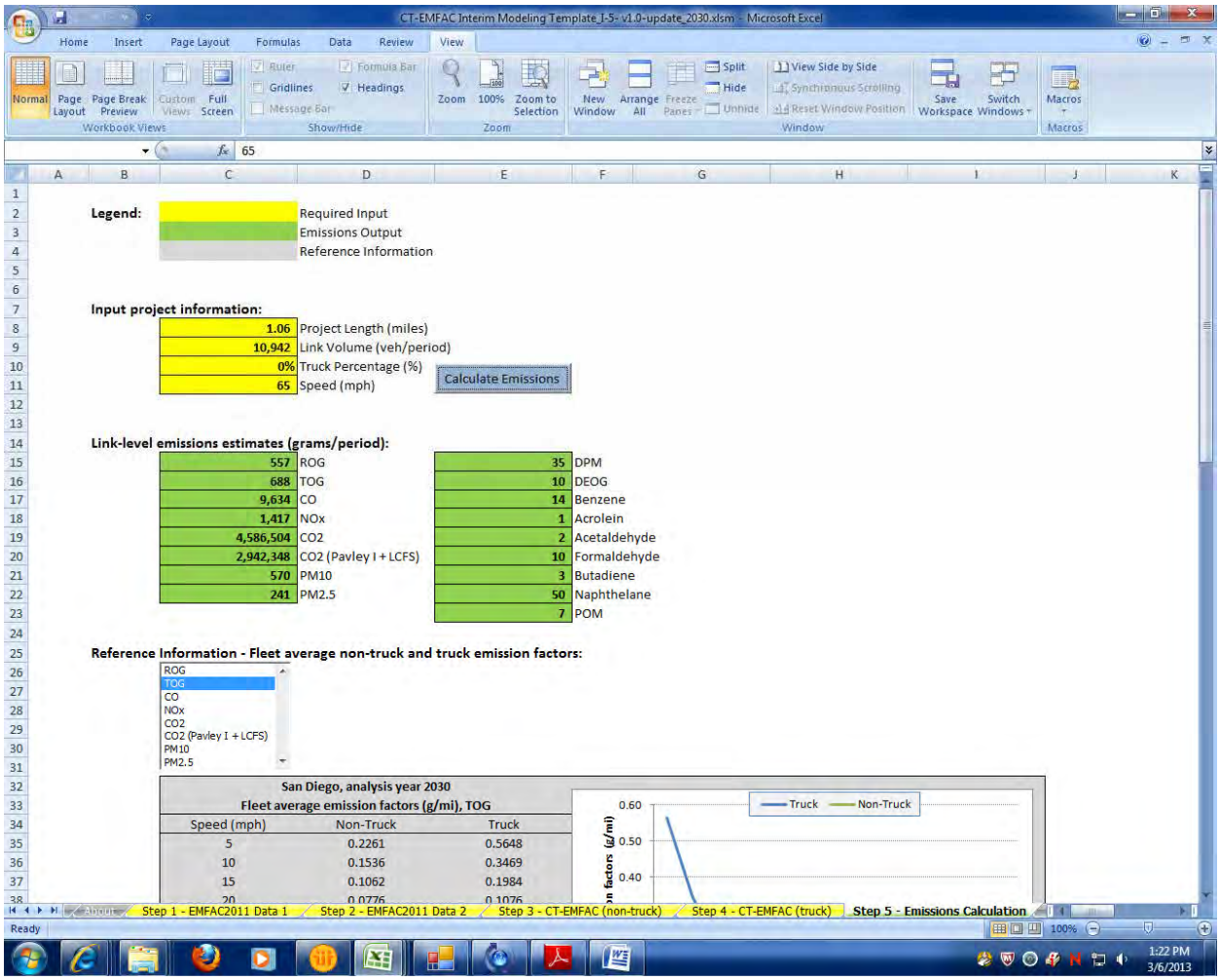
2030 No-build
Link: 2 (NB HOV)
Segment: 7
Off Peak



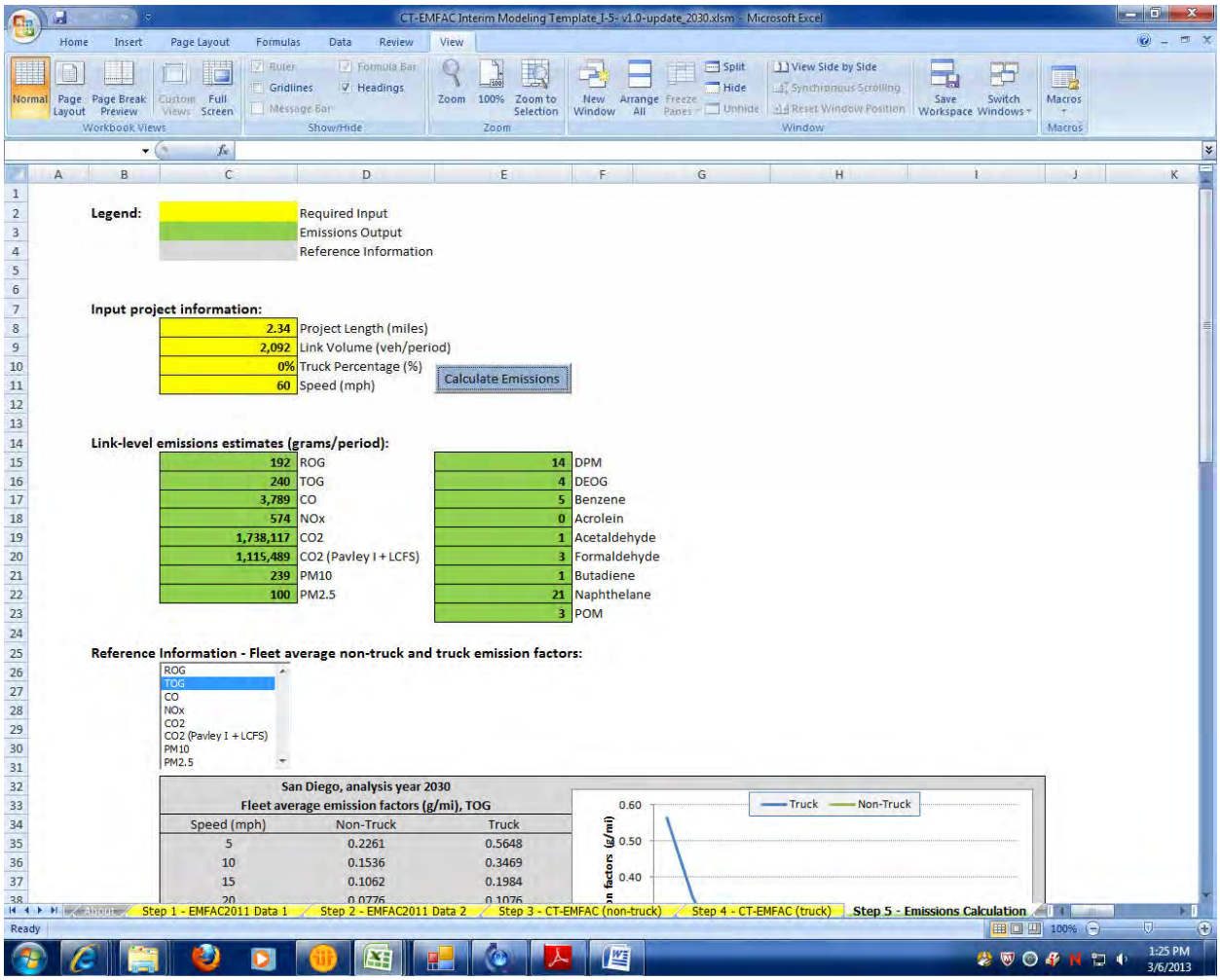
2030 No-build
Link: 3 (SB HOV)
Segment: 1
Peak



2030 No-build
Link: 3 (SB HOV)
Segment: 1
Off Peak



2030 No-build
Link: 3 (SB HOV)
Segment: 2
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.34	Project Length (miles)
2,092	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

192	ROG	14	DPM
240	TOG	4	DEOG
3,789	CO	5	Benzene
574	NOx	0	Acrolein
1,738,117	CO2	1	Acetaldehyde
1,115,489	CO2 (Pavley I + LCFS)	3	Formaldehyde
239	PM10	1	Butadiene
100	PM2.5	21	Naphthelane
		3	POM

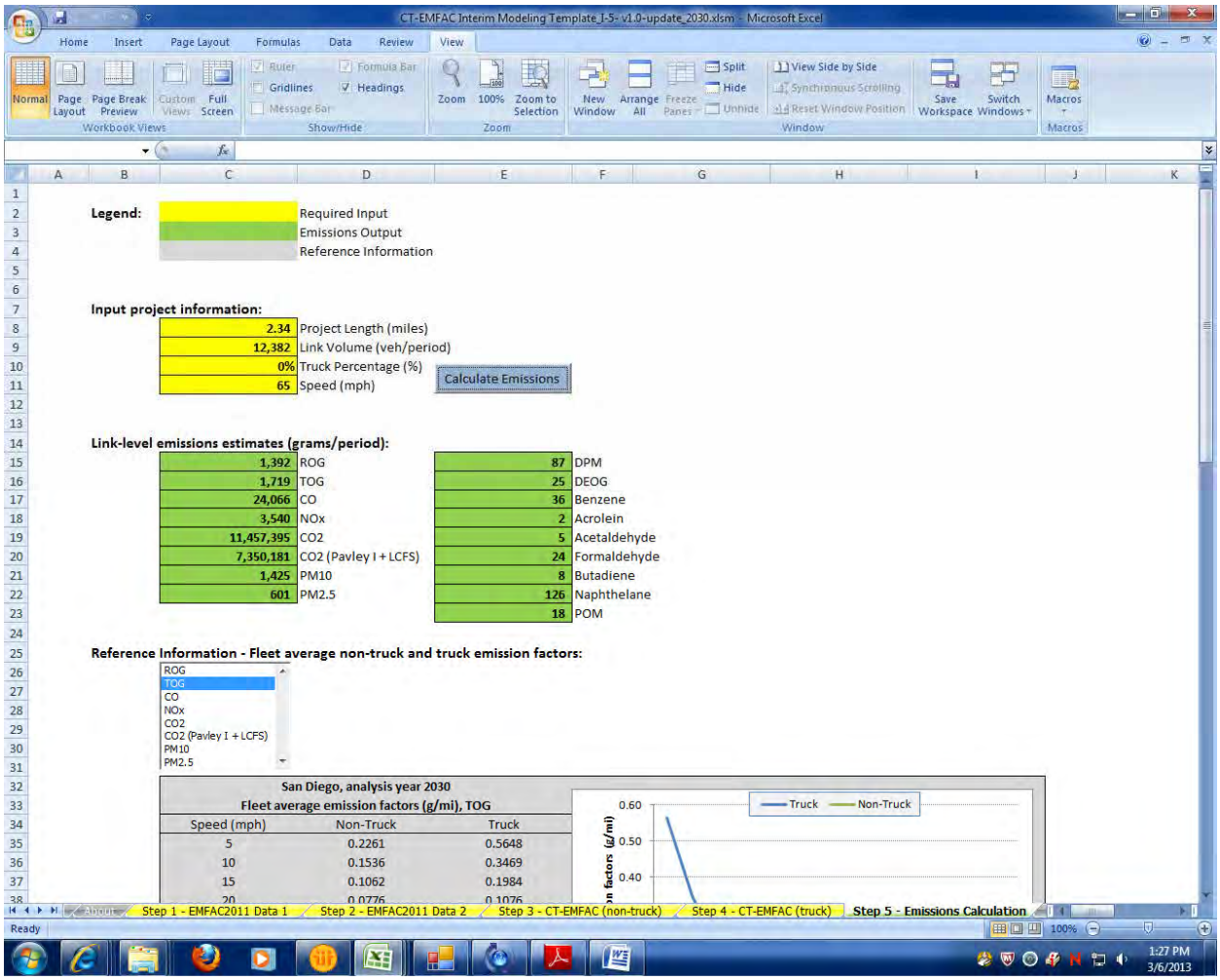
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 No-build
Link: 3 (SB HOV)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.34	Project Length (miles)
12,382	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,392	ROG	87	DPM
1,719	TOG	25	DEOG
24,066	CO	36	Benzene
3,540	NOx	2	Acrolein
11,457,395	CO2	5	Acetaldehyde
7,350,181	CO2 (Pavley I + LCFS)	24	Formaldehyde
1,425	PM10	8	Butadiene
601	PM2.5	126	Naphthelane
		18	POM

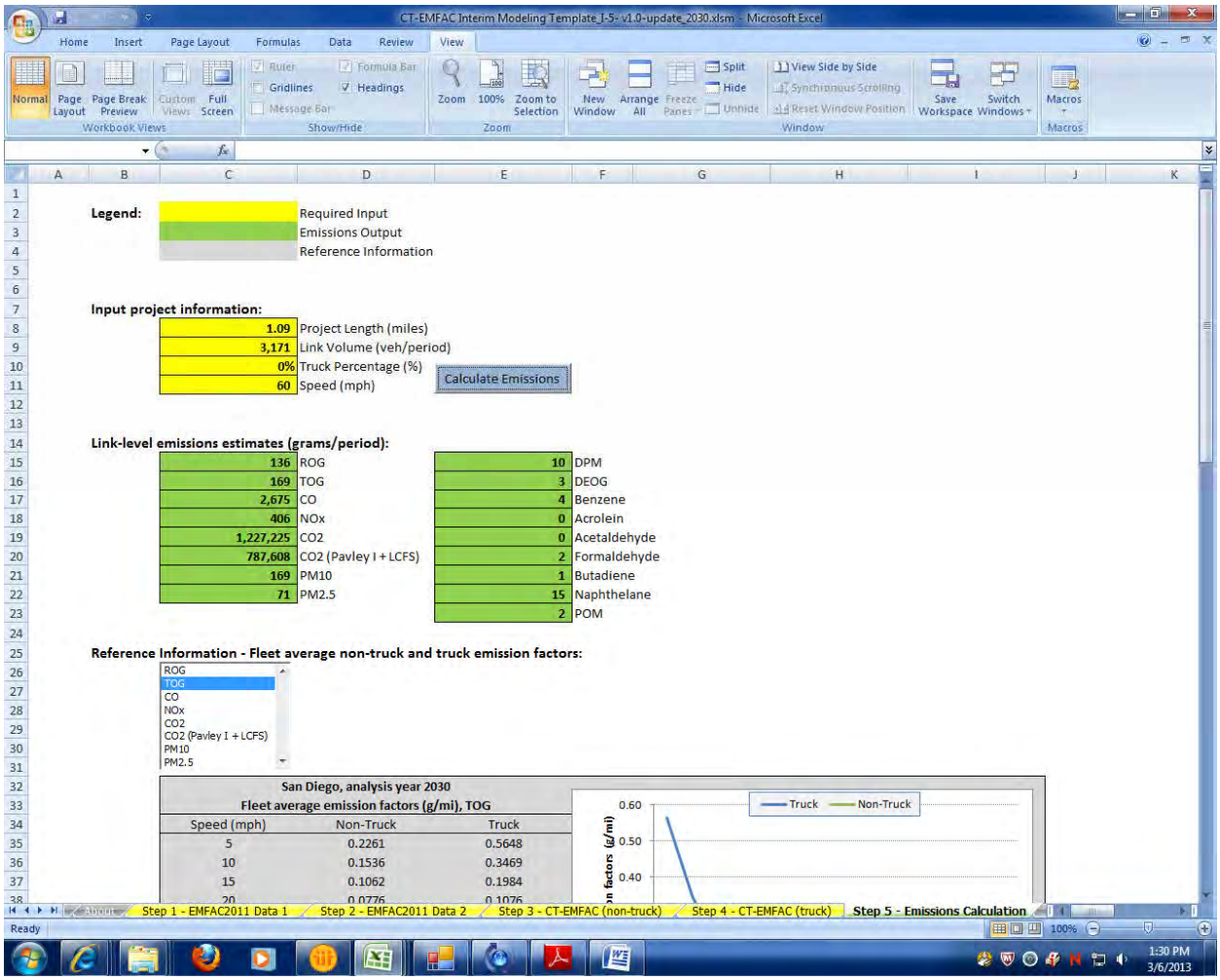
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

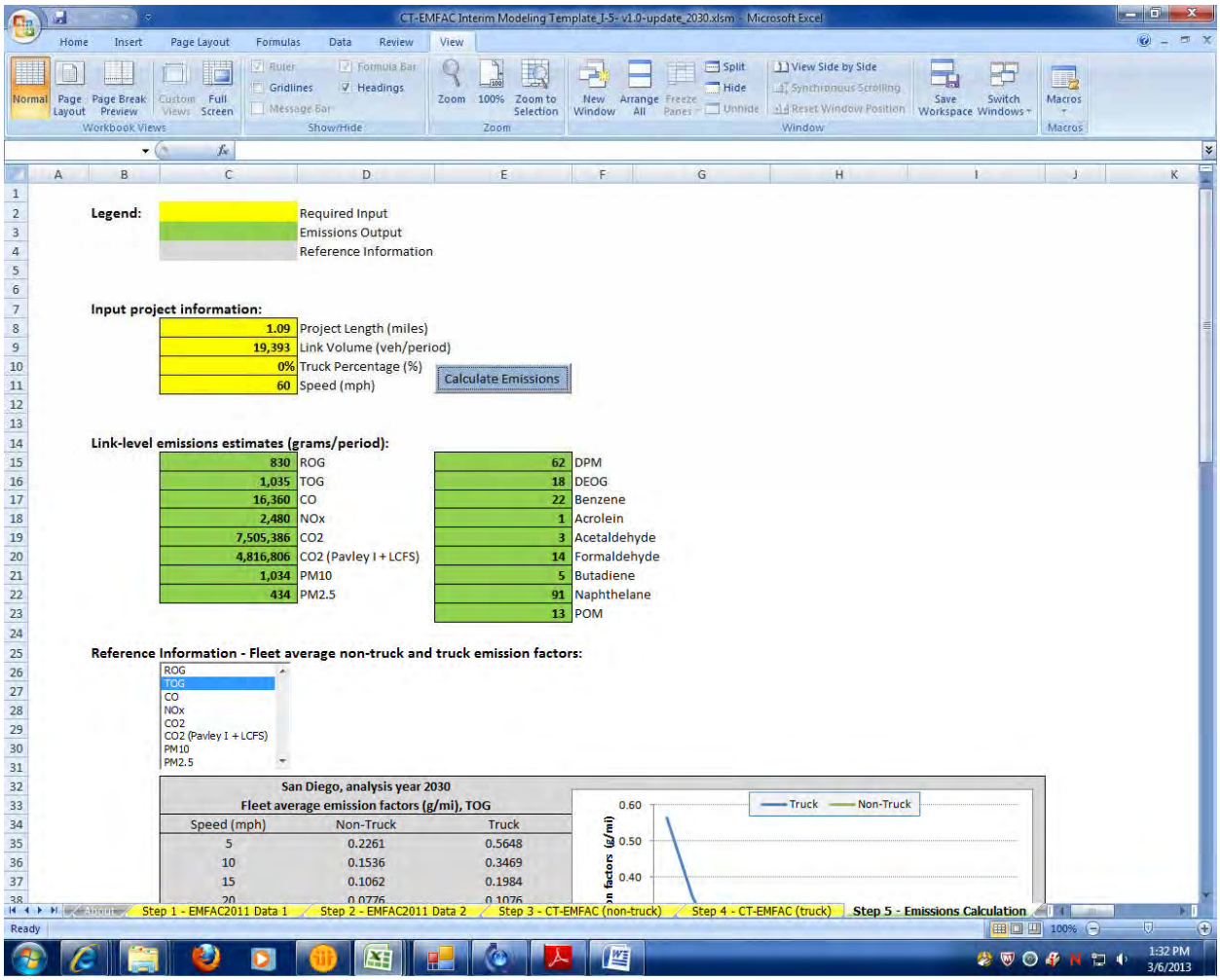
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 No-build
Link: 3 (SB HOV)
Segment: 3
Peak



2030 No-build
Link: 3 (SB HOV)
Segment: 3
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
19,393	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

830	ROG	62	DPM
1,035	TOG	18	DEOG
16,360	CO	22	Benzene
2,480	NOx	1	Acrolein
7,505,386	CO2	3	Acetaldehyde
4,816,806	CO2 (Pavley I + LCFS)	14	Formaldehyde
1,034	PM10	5	Butadiene
434	PM2.5	91	Naphthelane
		13	POM

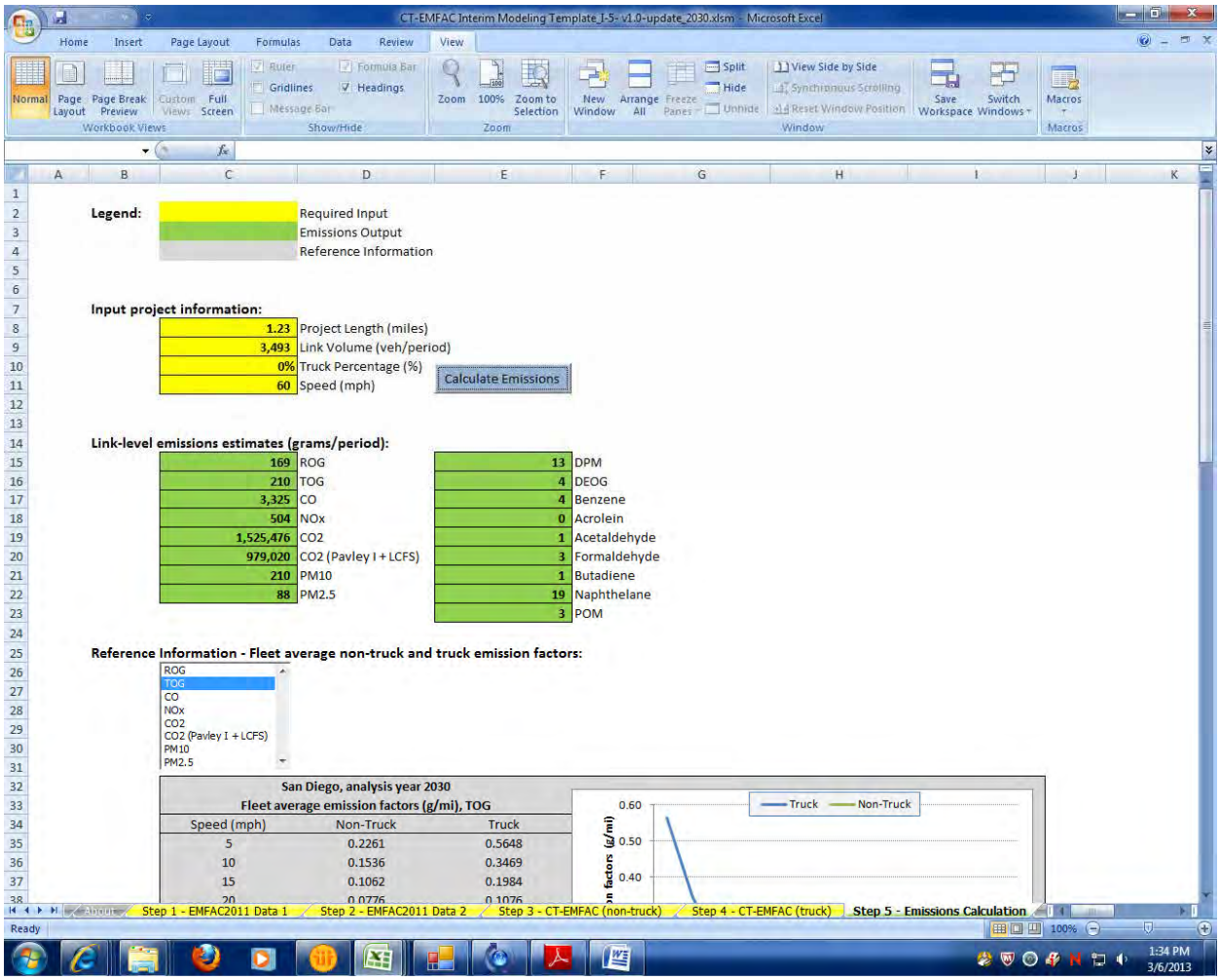
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

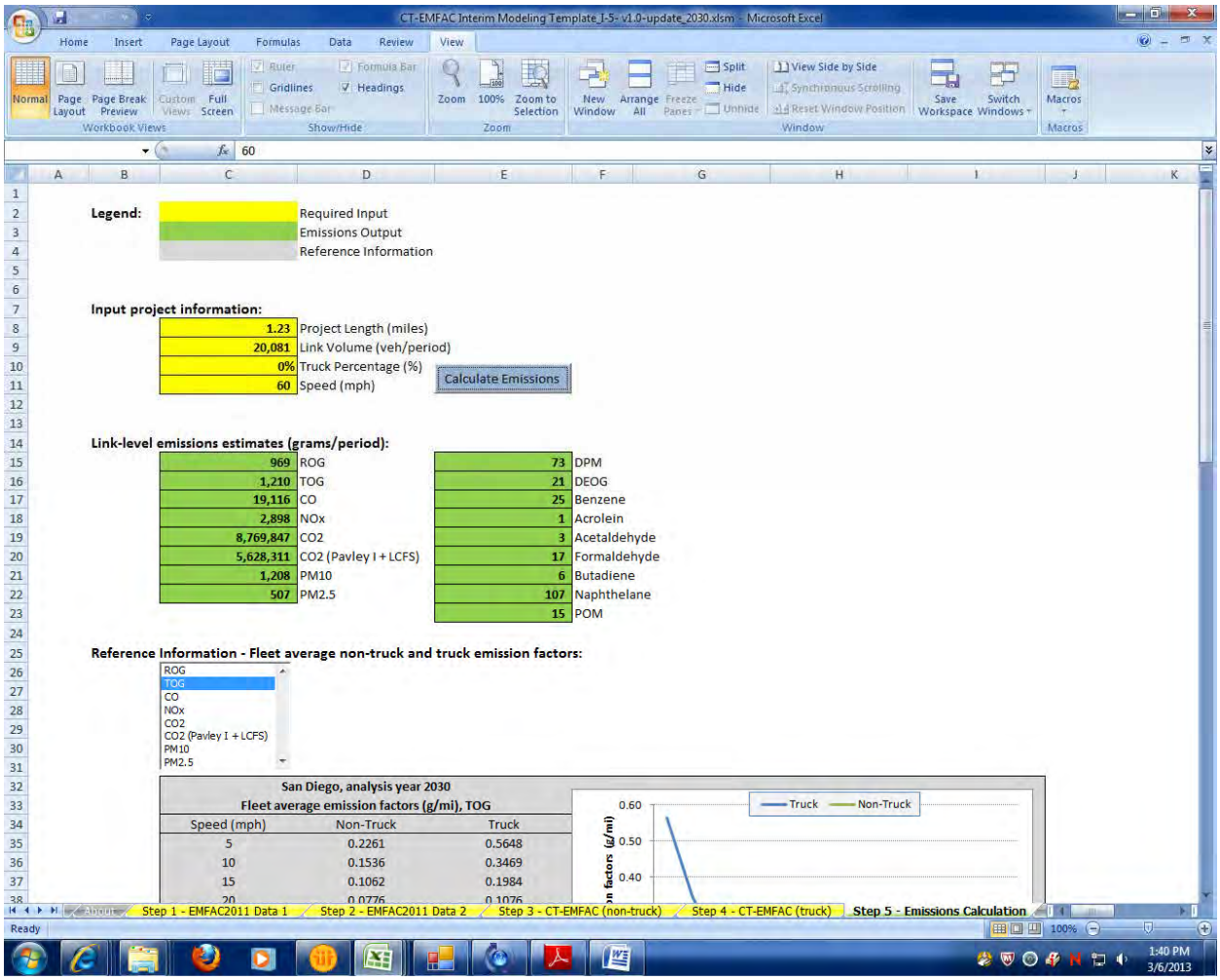
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

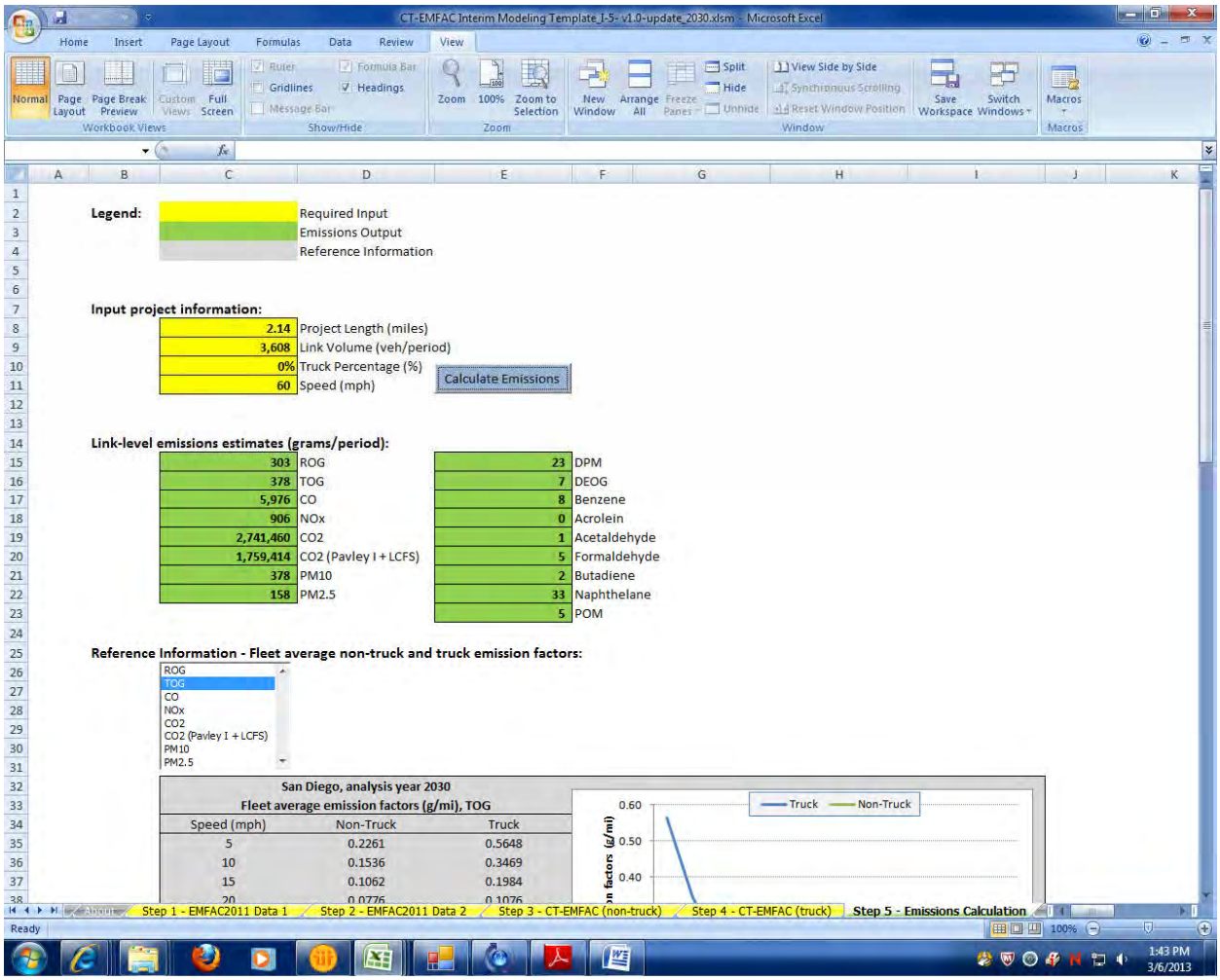
2030 No-build
Link: 3 (SB HOV)
Segment: 4
Peak



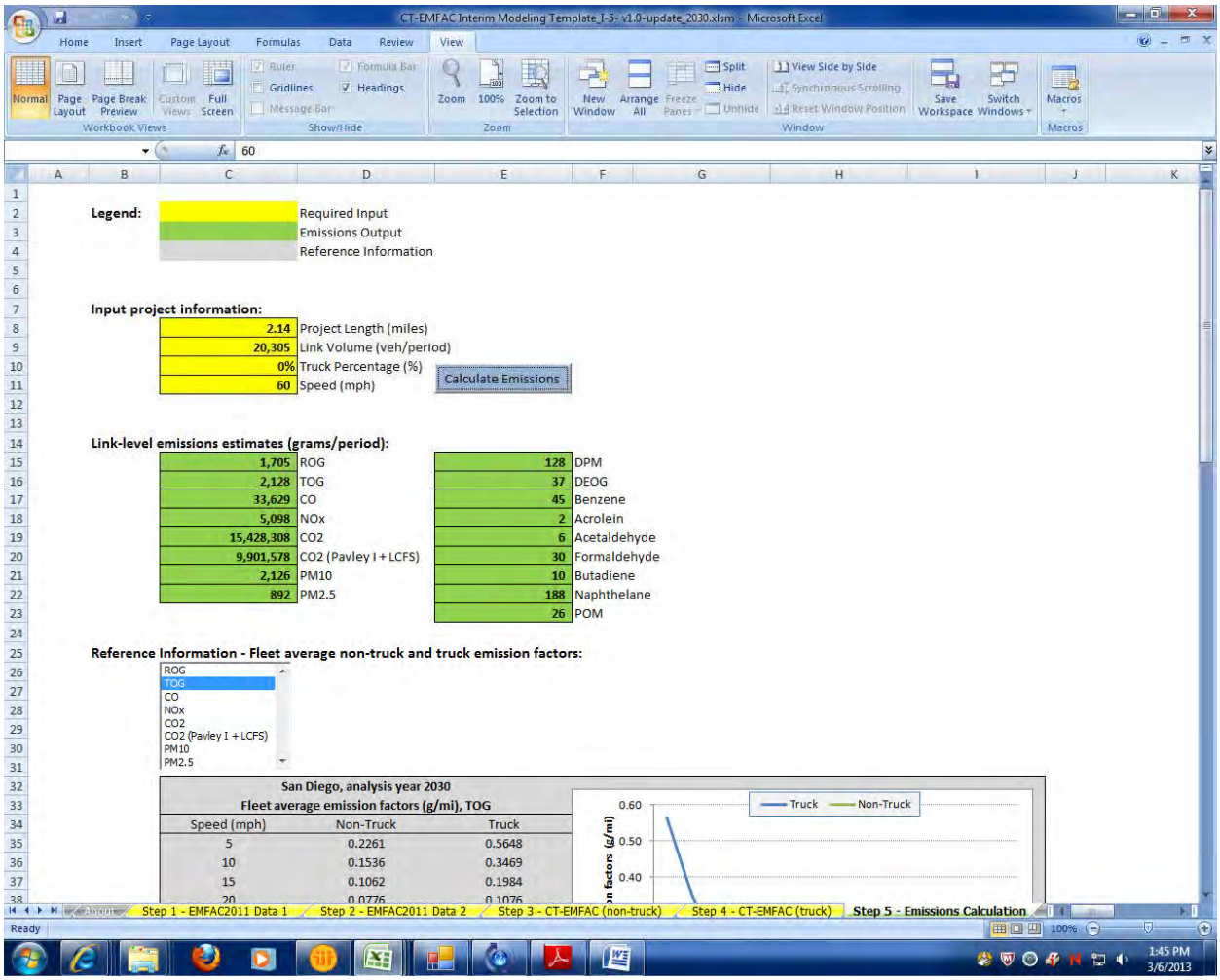
2030 No-build
Link: 3 (SB HOV)
Segment: 4
Off Peak



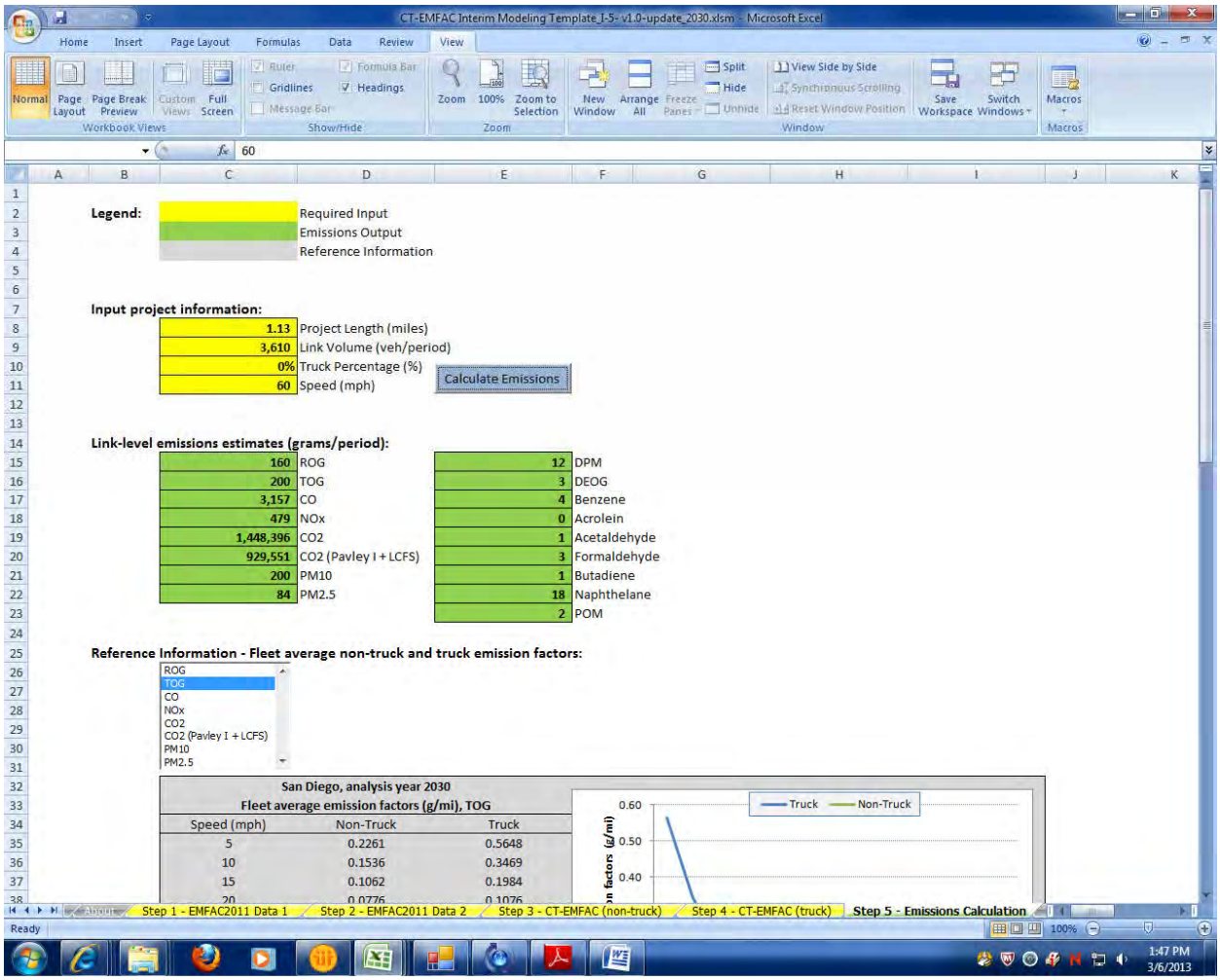
2030 No-build
Link: 3 (SB HOV)
Segment: 5
Peak



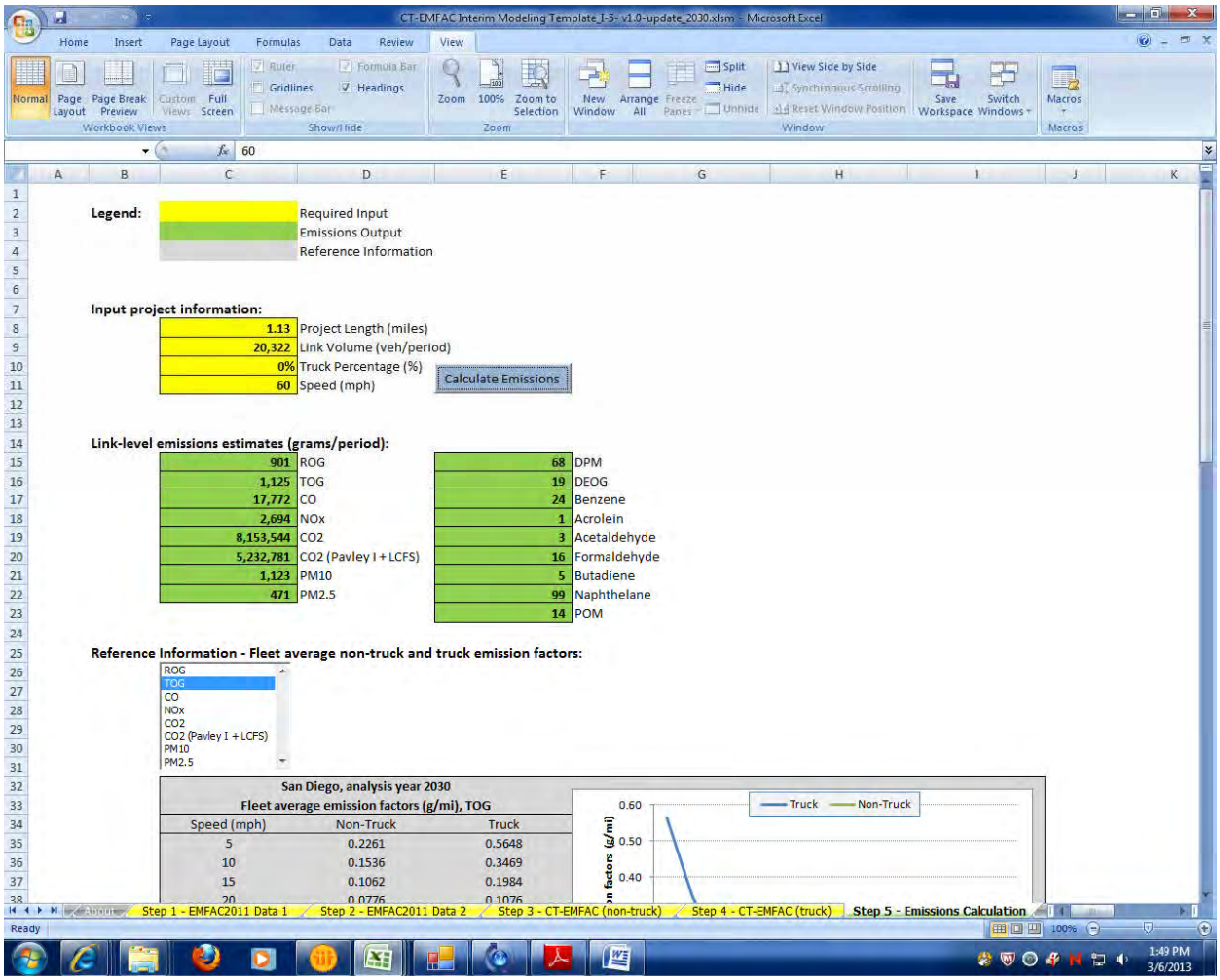
2030 No-build
Link: 3 (SB HOV)
Segment: 5
Off Peak



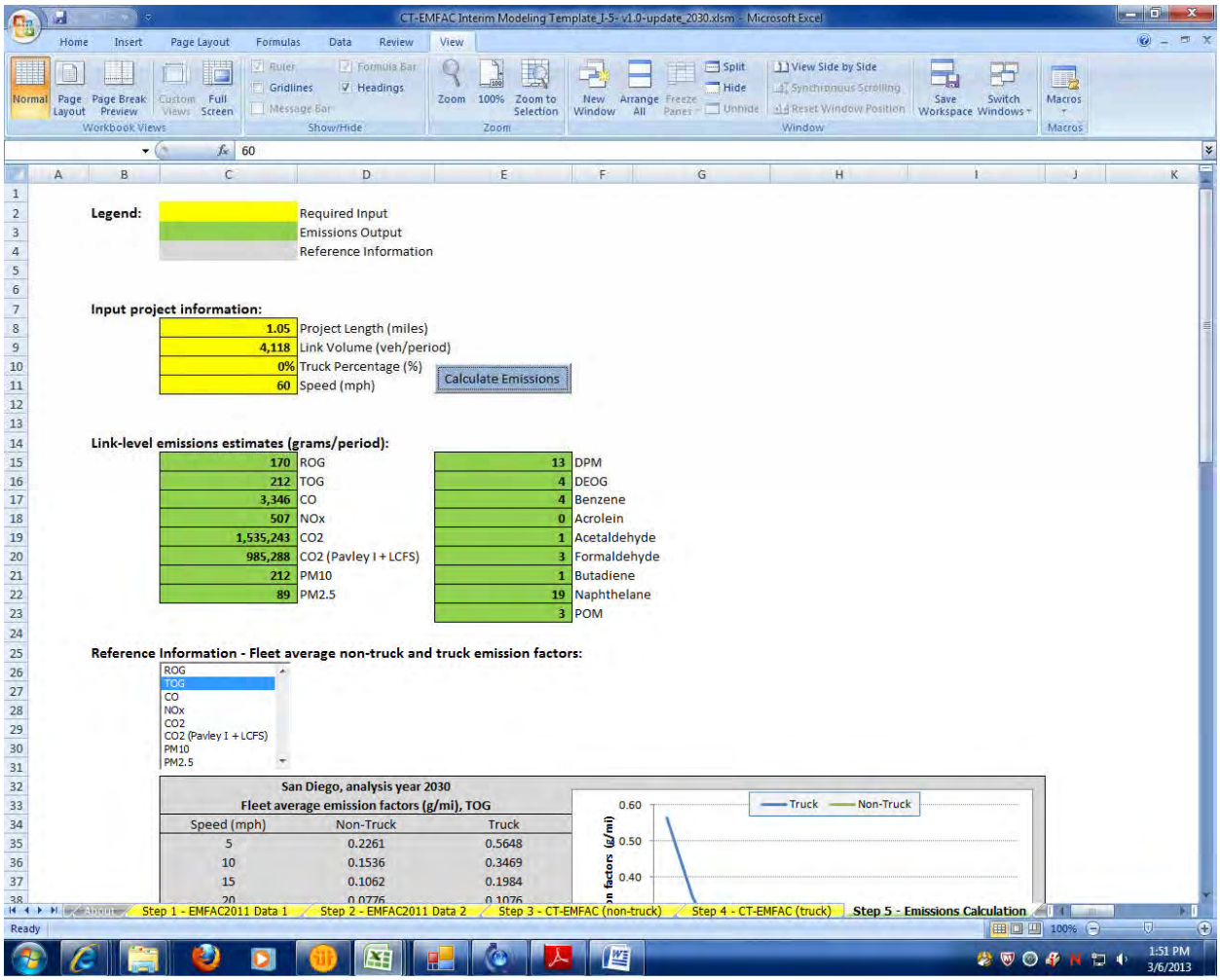
2030 No-build
Link: 3 (SB HOV)
Segment: 6
Peak



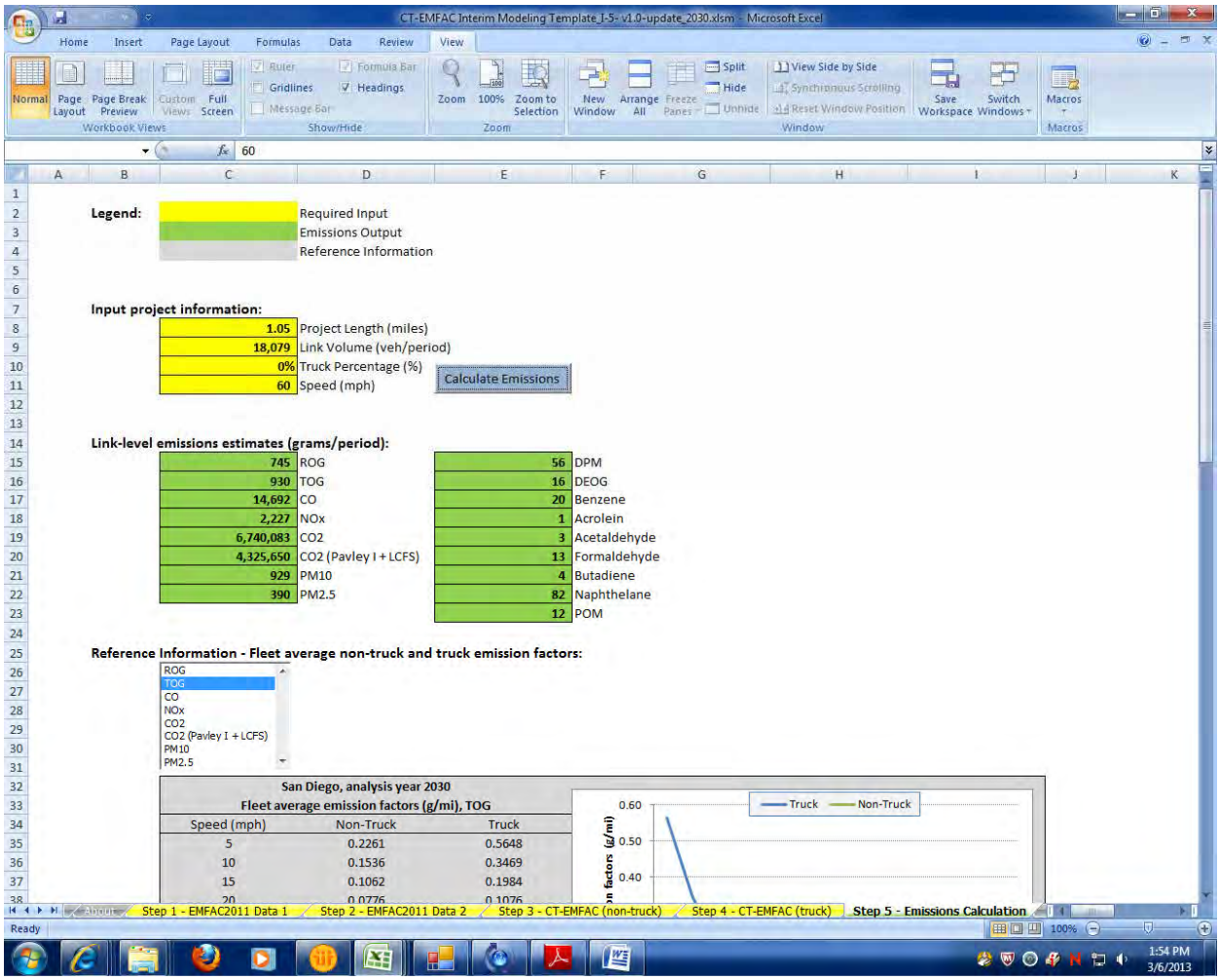
2030 No-build
Link: 3 (SB HOV)
Segment: 6
Off Peak



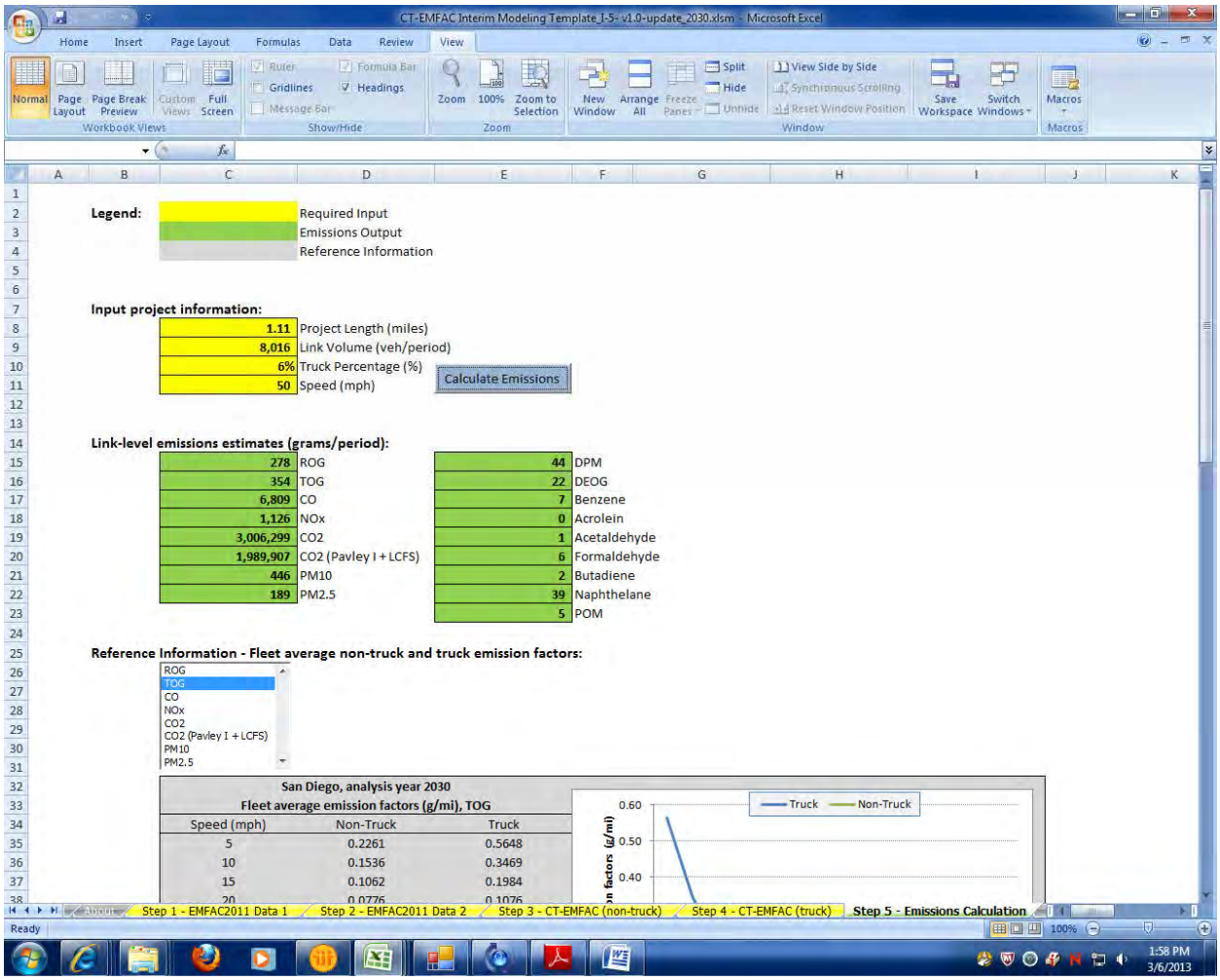
2030 No-build
Link: 3 (SB HOV)
Segment: 7
Peak



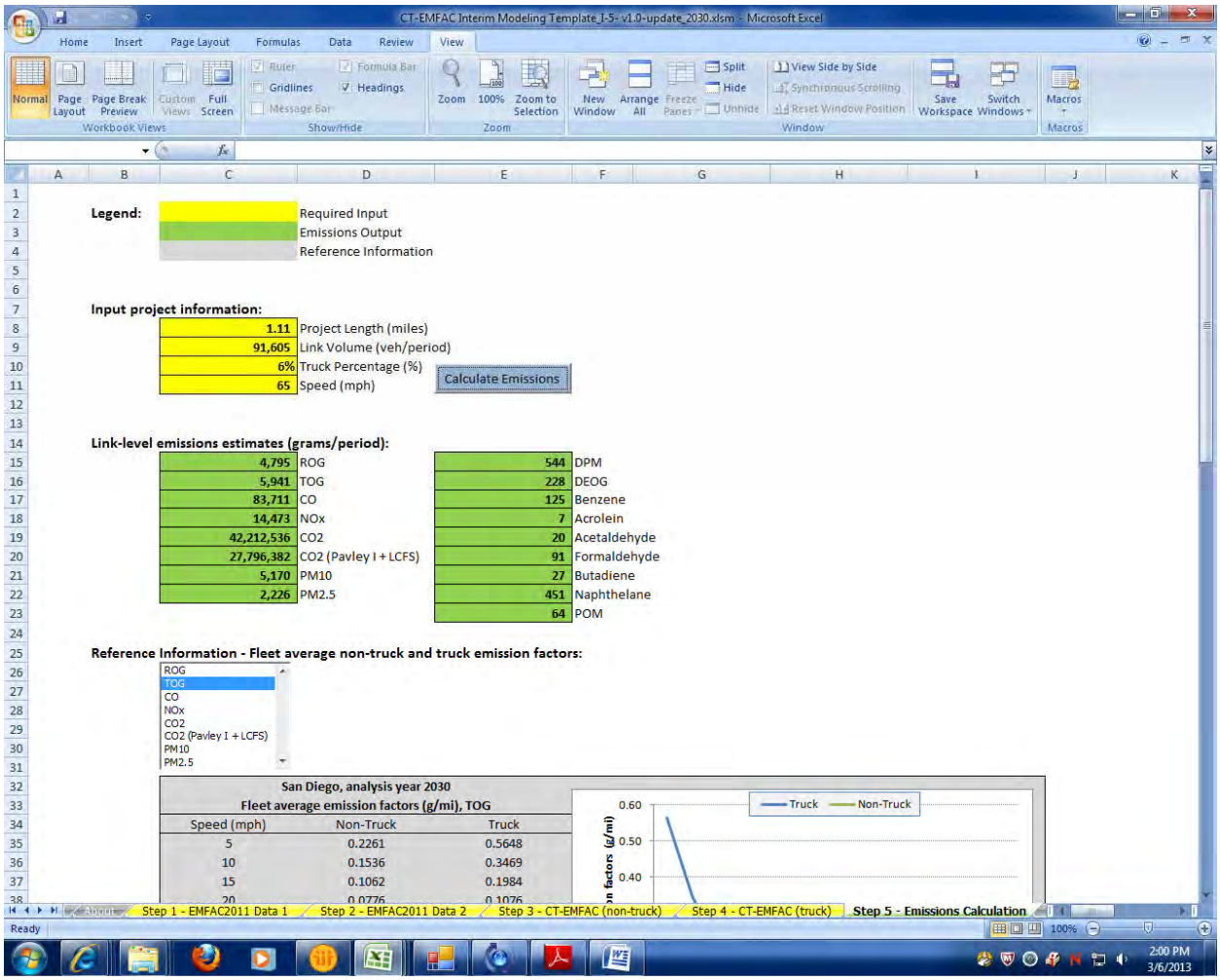
2030 No-build
Link: 3 (SB HOV)
Segment: 7
Off Peak



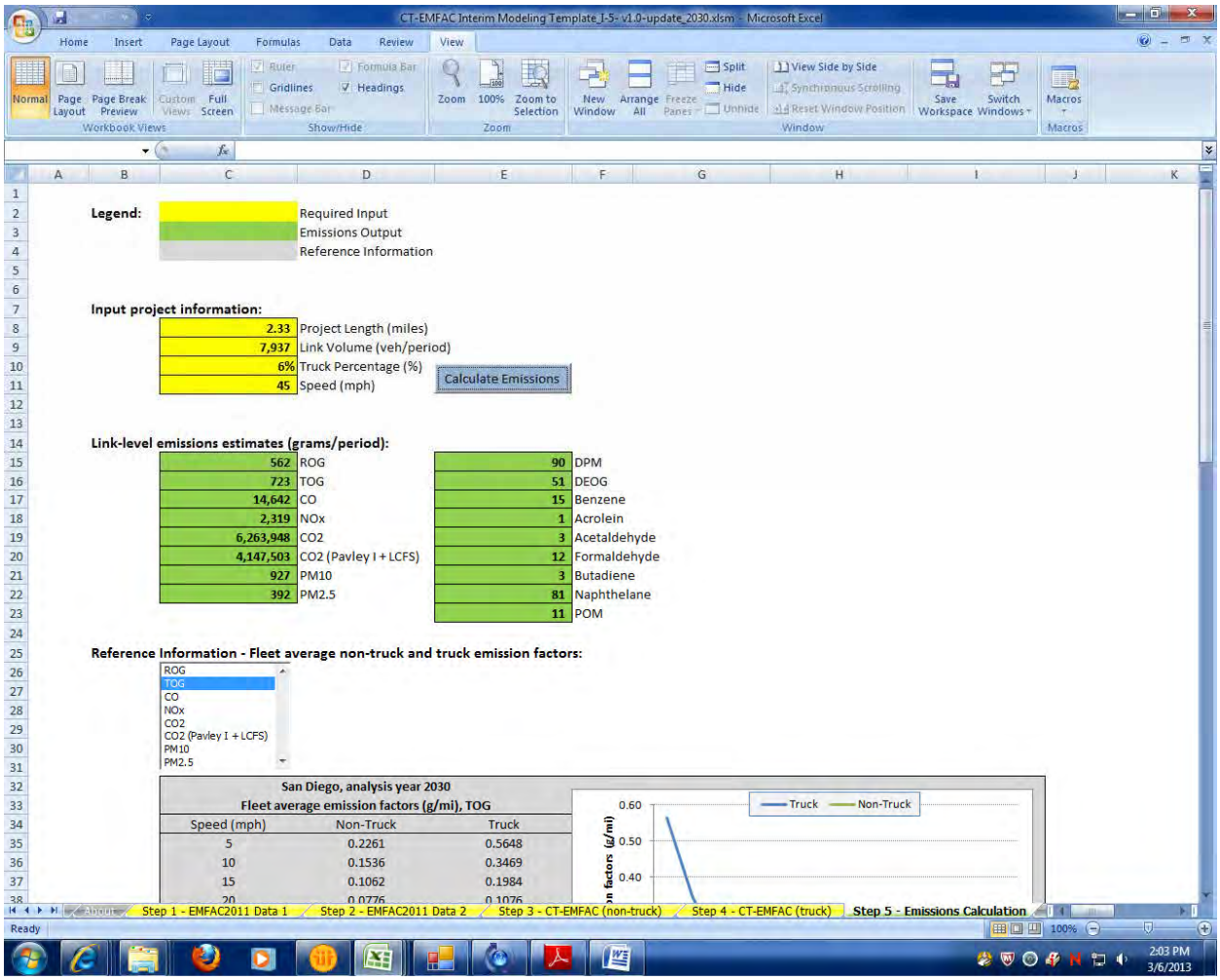
2030 No-build
Link: 4 (NB GP)
Segment: 1
Peak



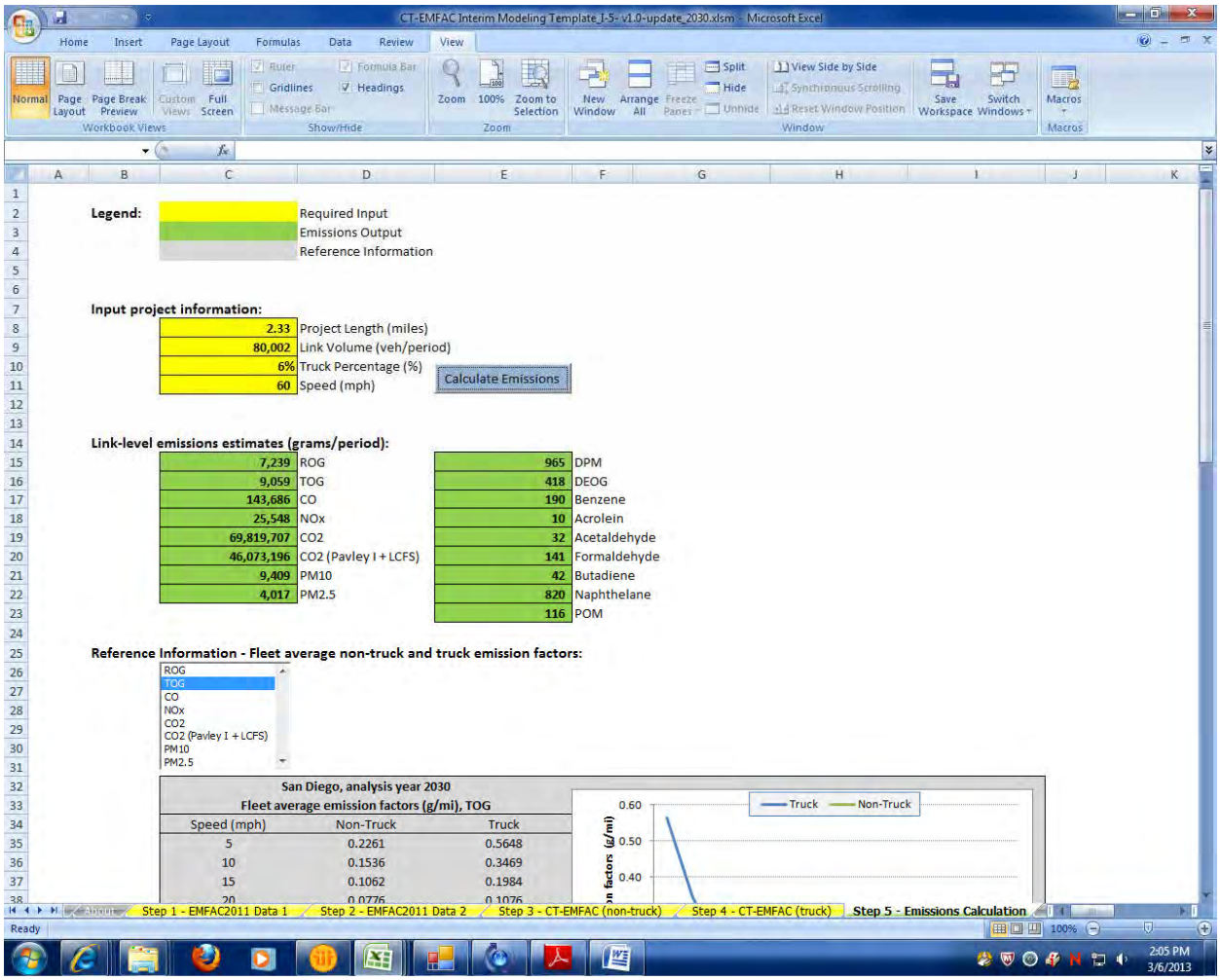
2030 No-build
Link: 4 (NB GP)
Segment: 1
Off Peak



2030 No-build
Link: 4 (NB GP)
Segment: 2
Peak



2030 No-build
Link: 4 (NB GP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.33	Project Length (miles)
80,002	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,239	ROG	965	DPM
9,059	TOG	418	DEOG
143,686	CO	190	Benzene
25,548	NOx	10	Acrolein
69,819,707	CO2	32	Acetaldehyde
46,073,196	CO2 (Pavley I + LCFS)	141	Formaldehyde
9,409	PM10	42	Butadiene
4,017	PM2.5	820	Naphthelane
		116	POM

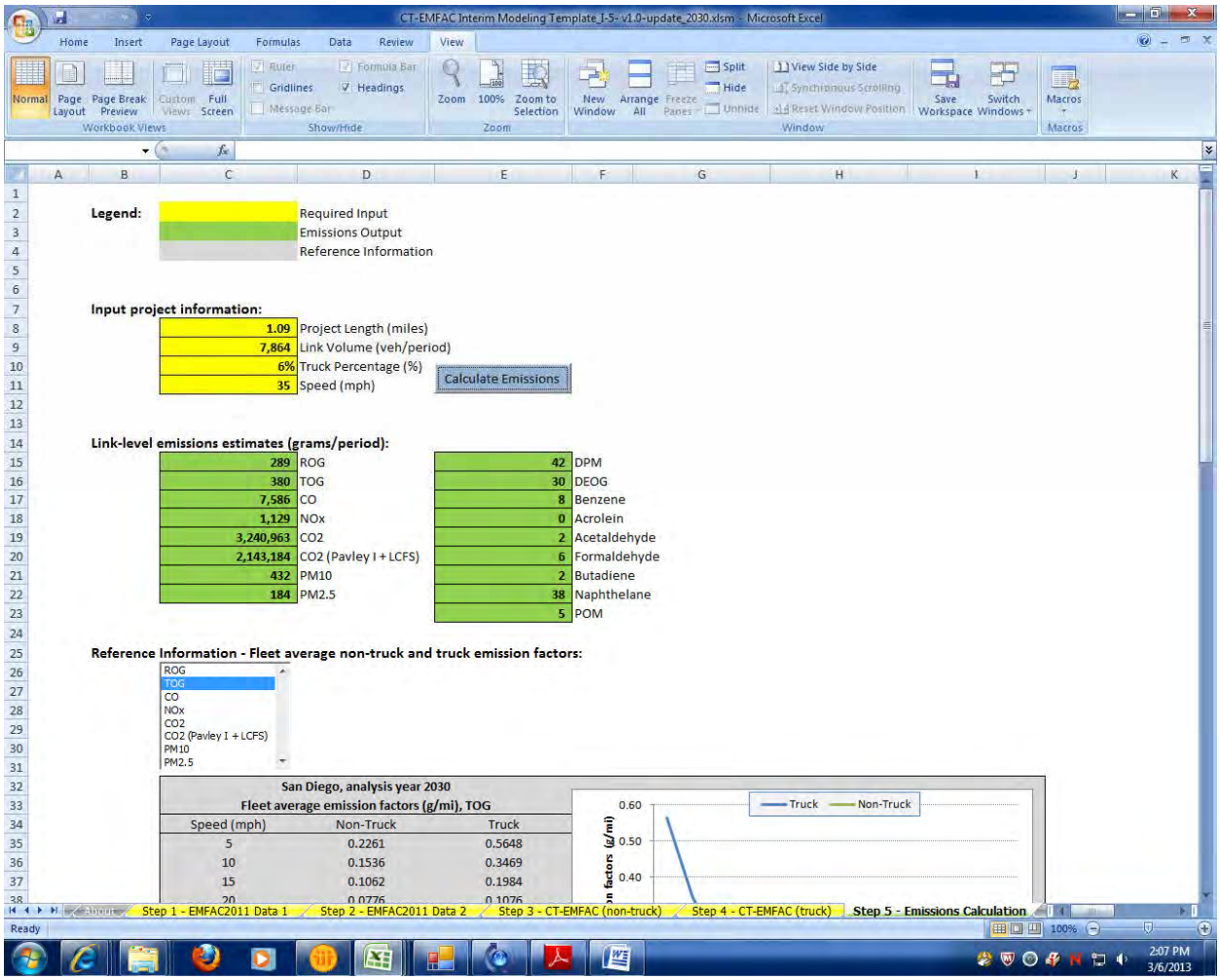
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

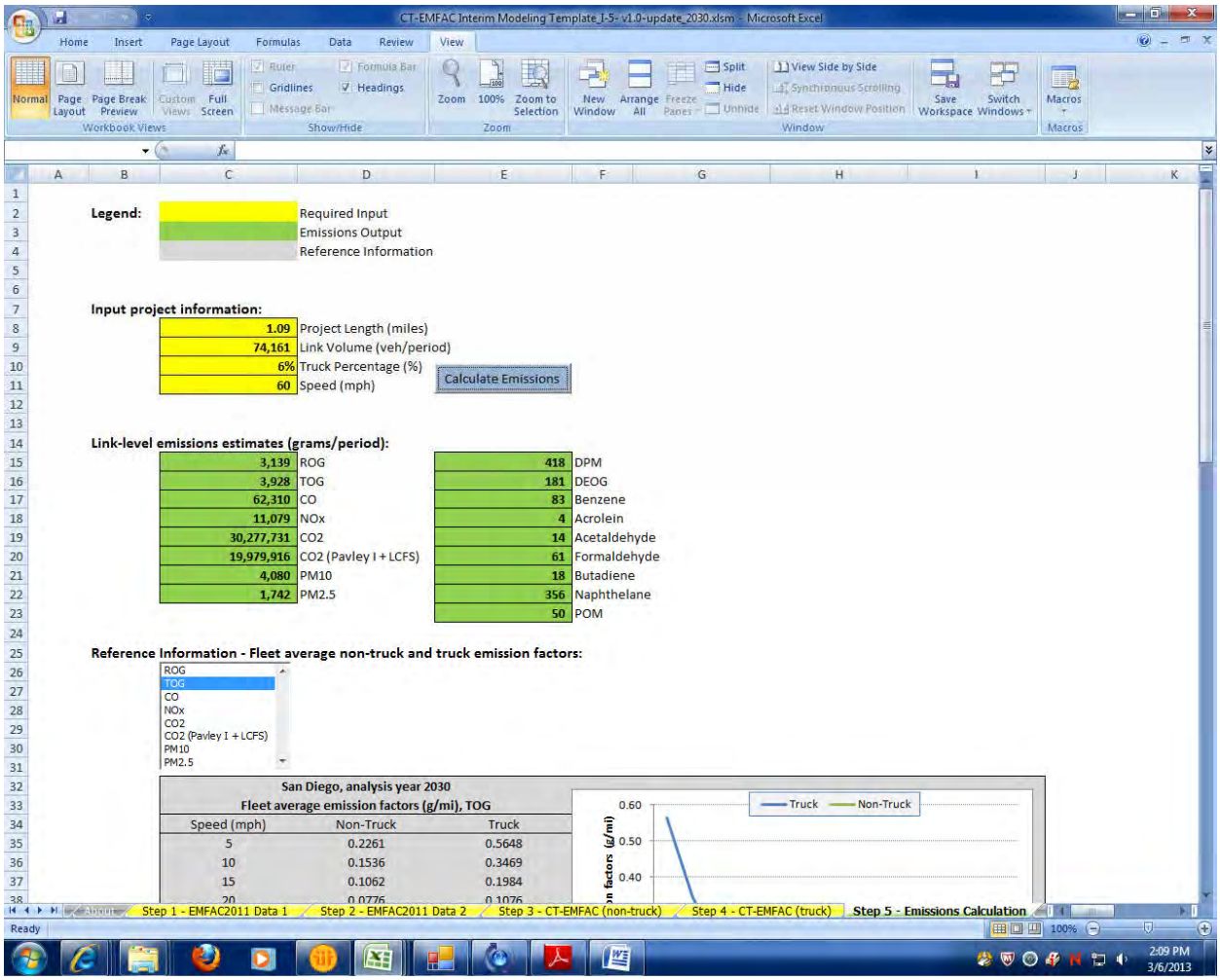
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

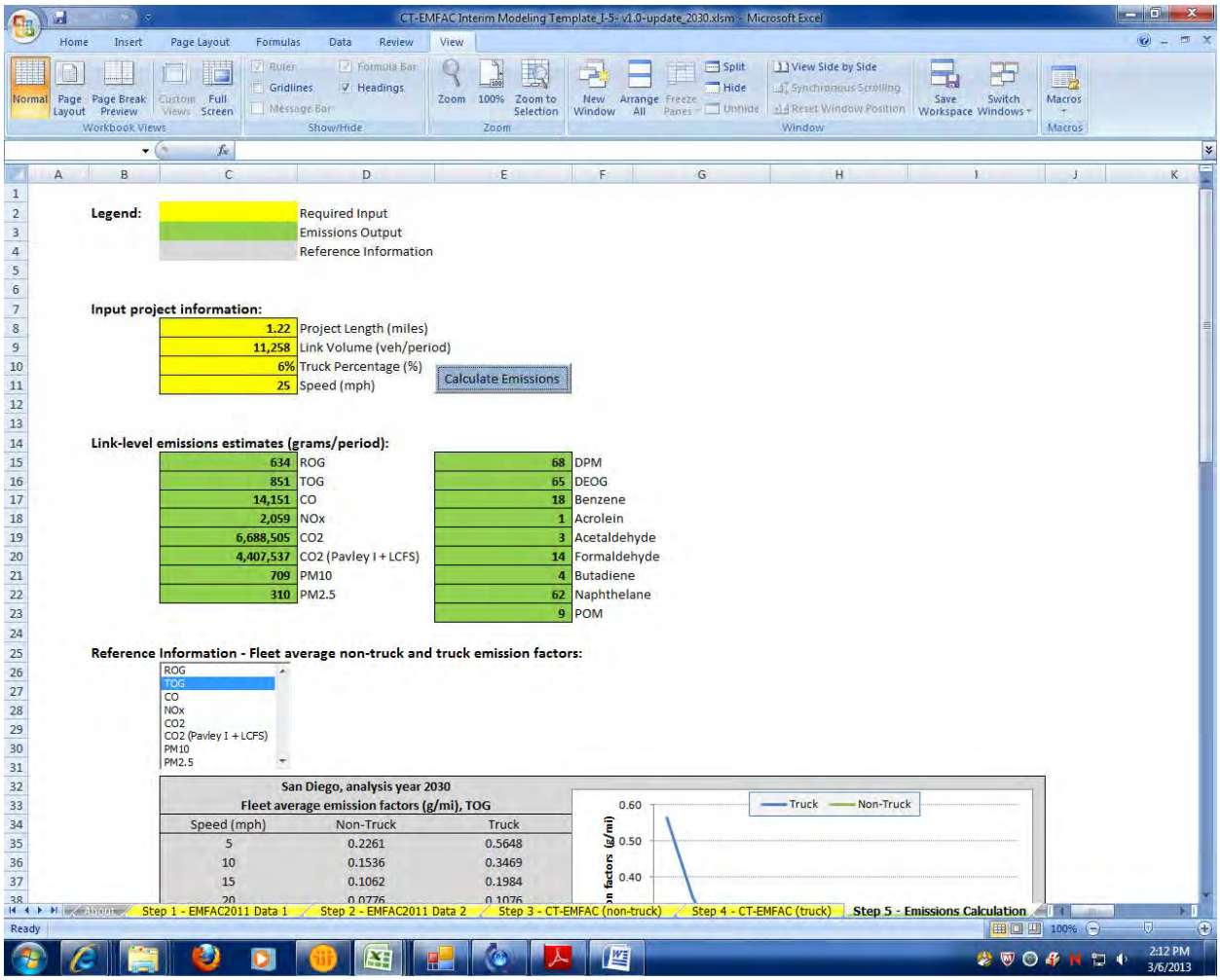
2030 No-build
Link: 4 (NB GP)
Segment: 3
Peak



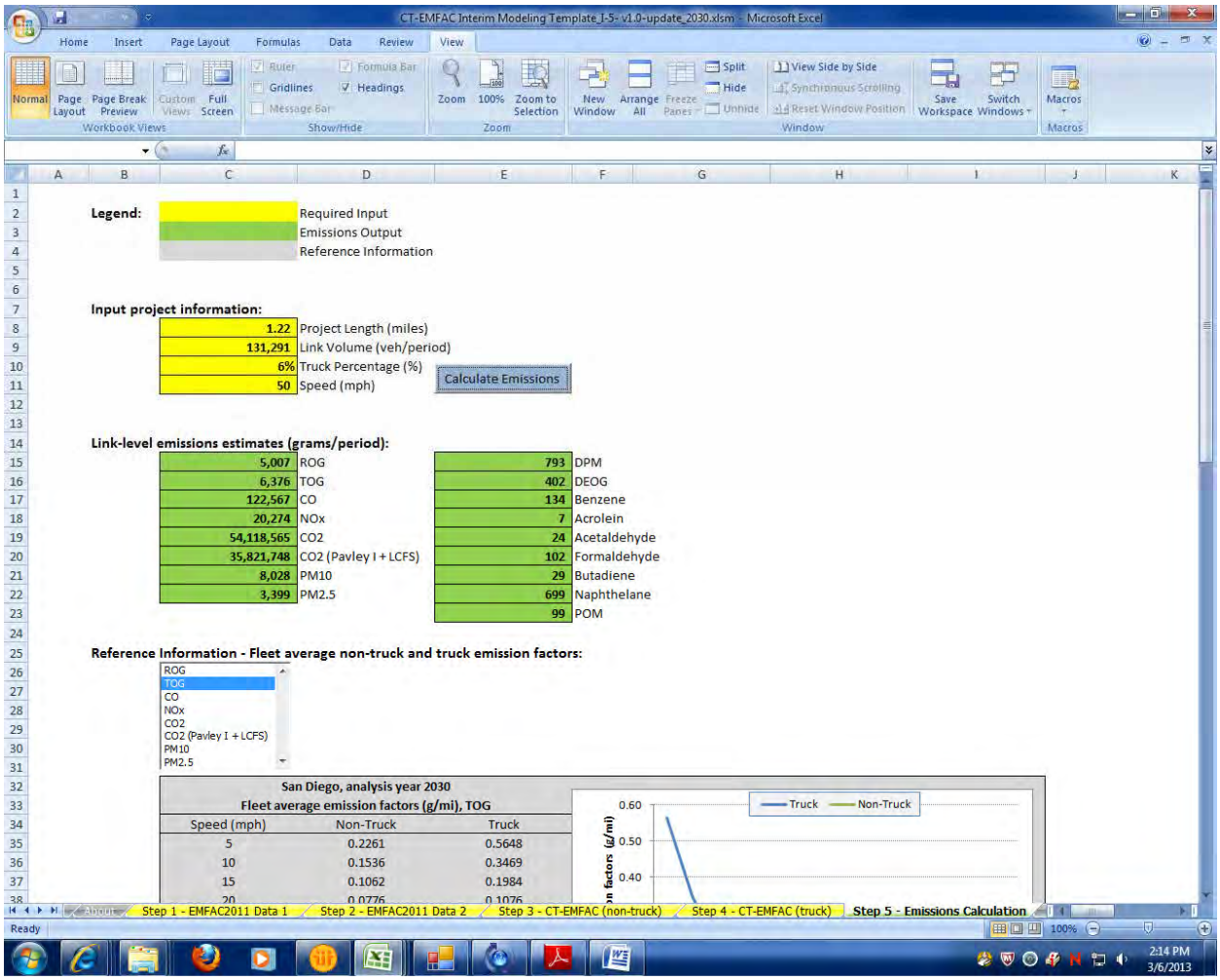
2030 No-build
Link: 4 (NB GP)
Segment: 3
Off Peak



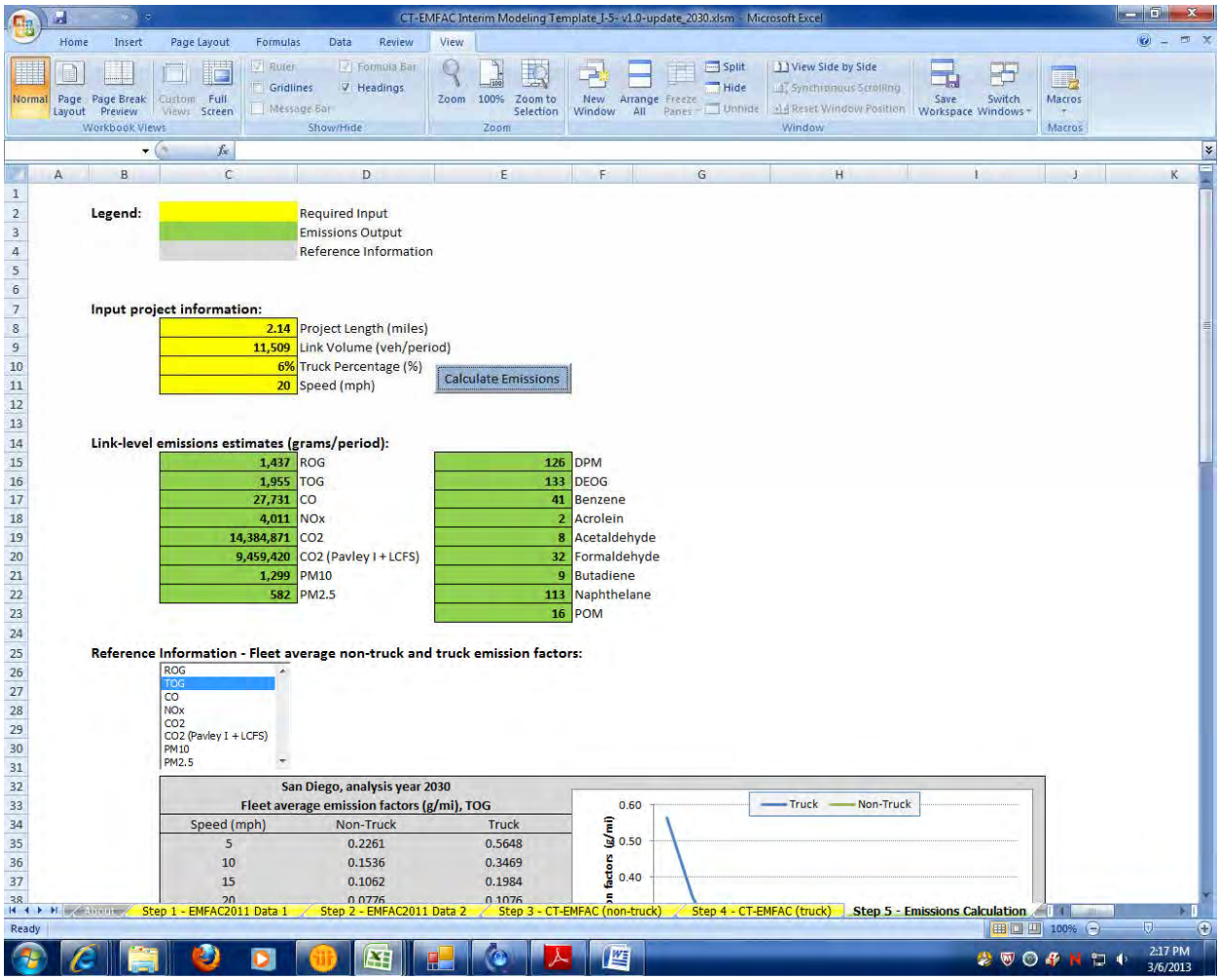
2030 No-build
Link: 4 (NB GP)
Segment: 4
Peak



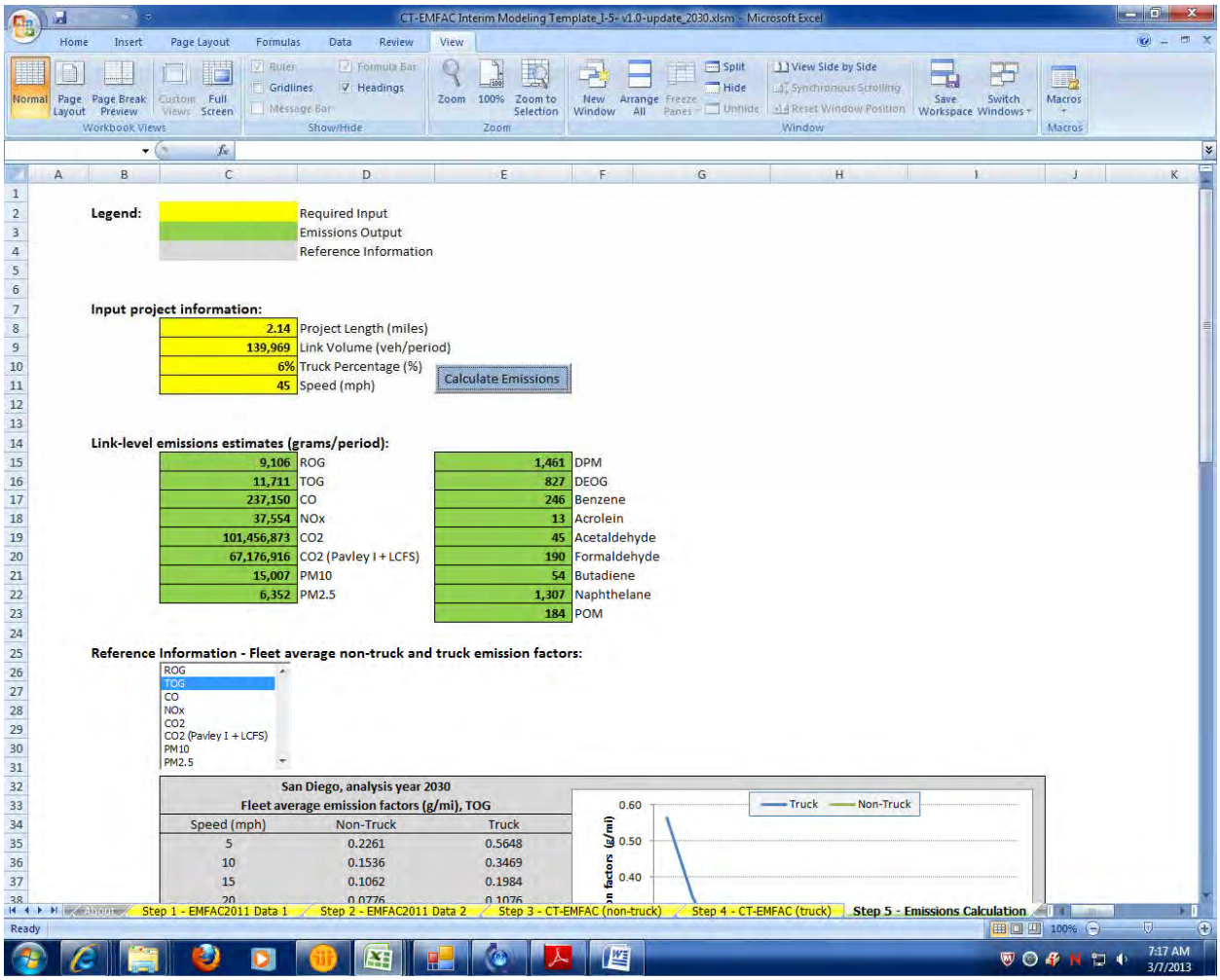
2030 No-build
Link: 4 (NB GP)
Segment: 4
Off Peak



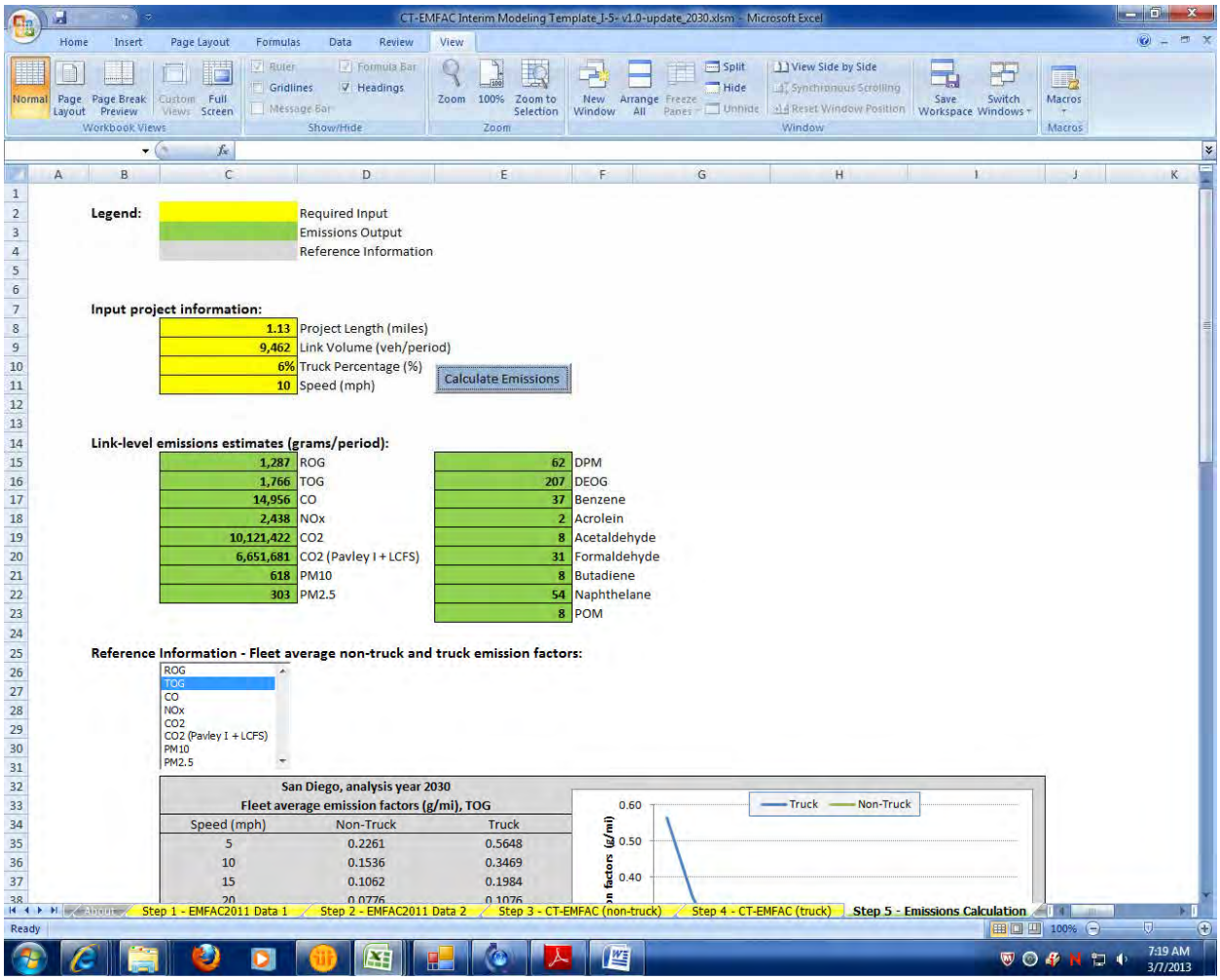
2030 No-build
Link: 4 (NB GP)
Segment: 5
Peak



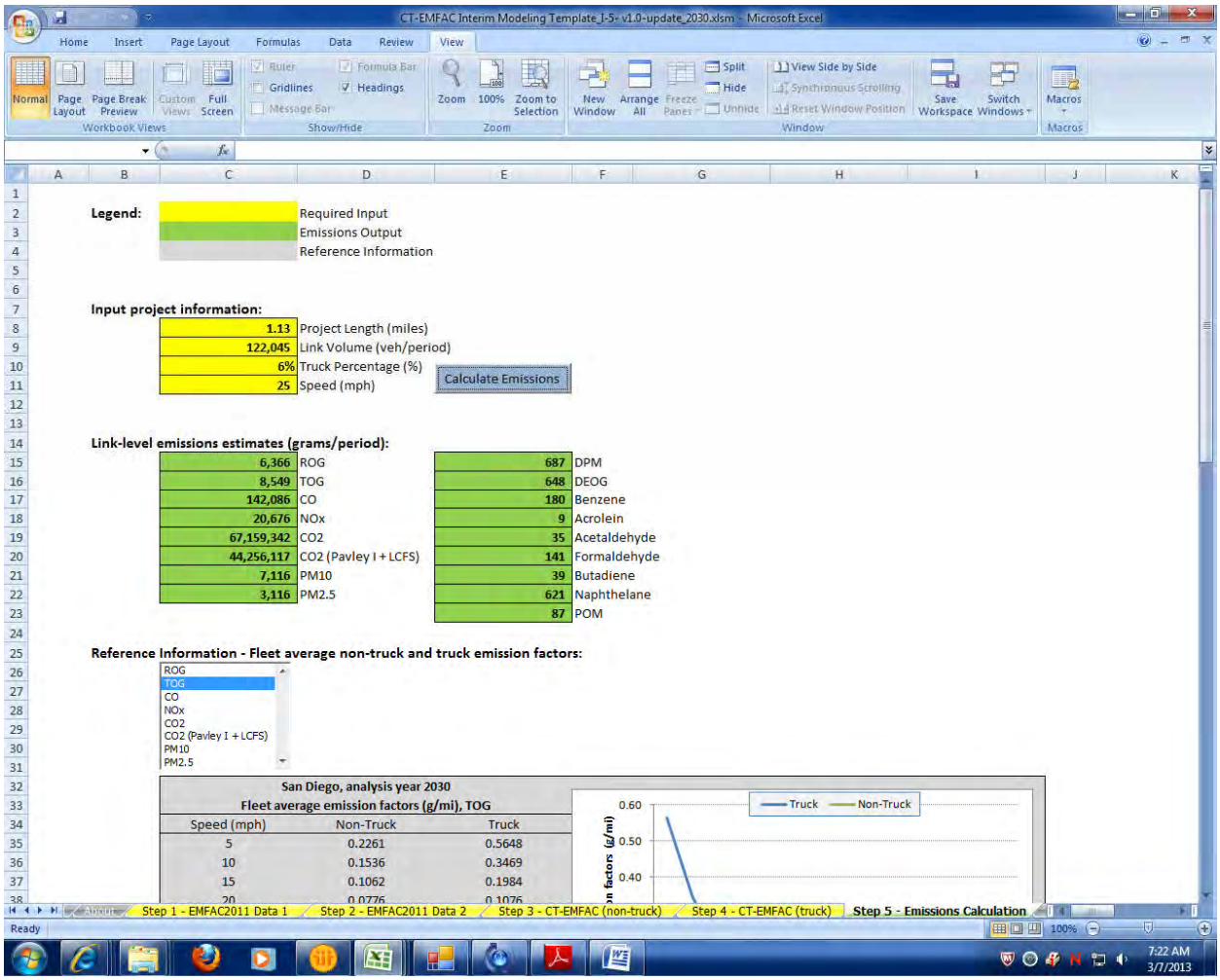
2030 No-build
Link: 4 (NB GP)
Segment: 5
Off Peak



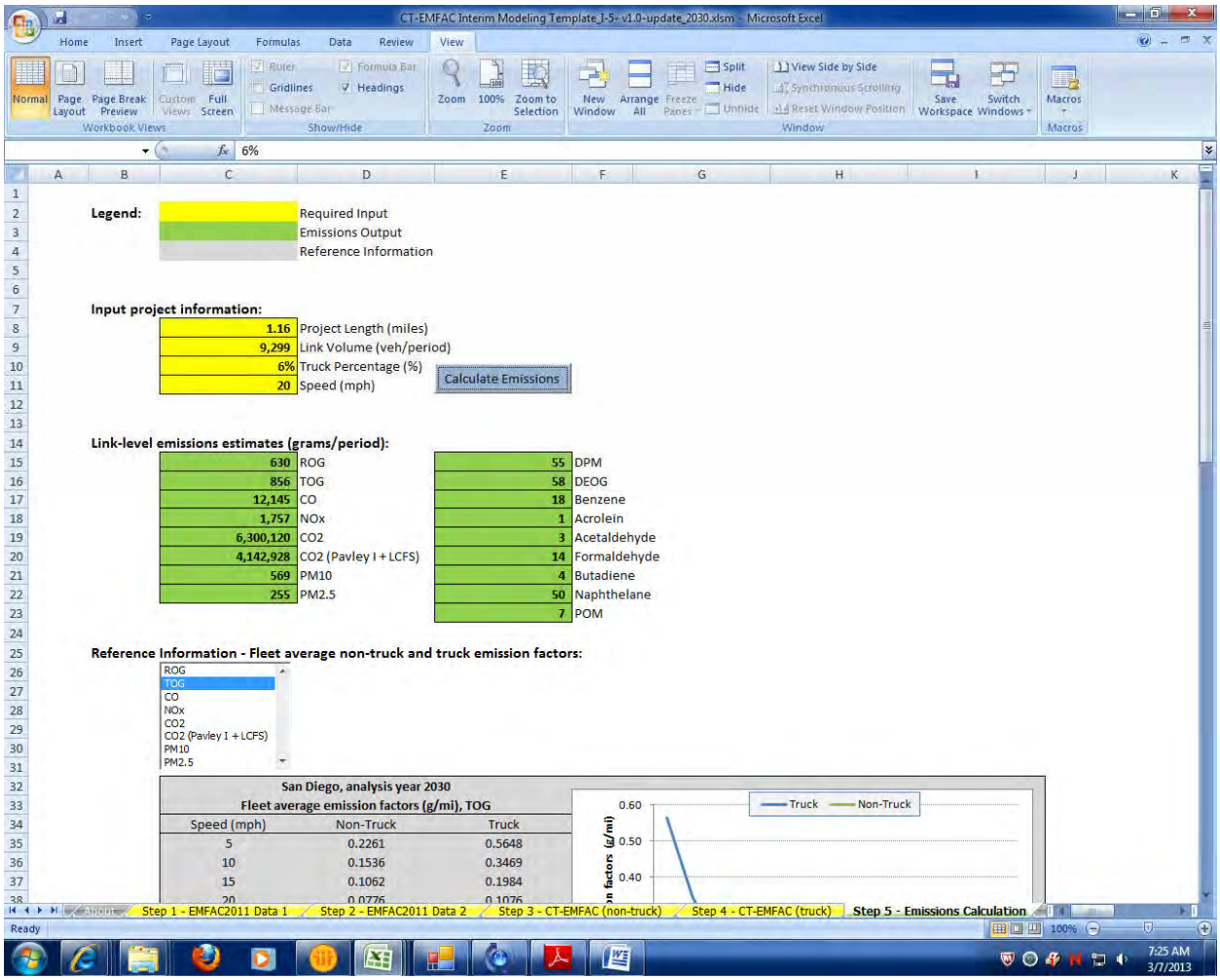
2030 No-build
Link: 4 (NB GP)
Segment: 6
Peak



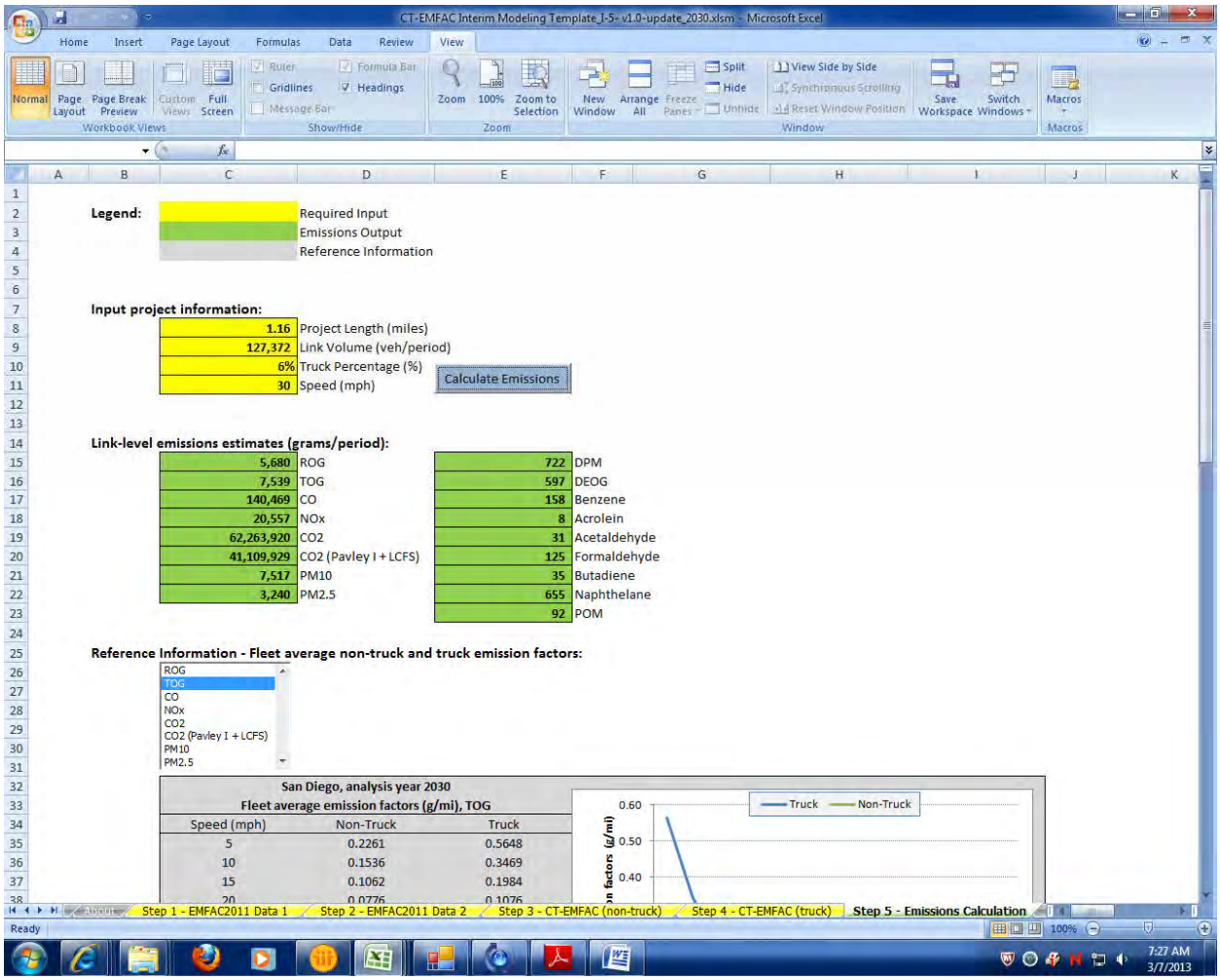
2030 No-build
Link: 4 (NB GP)
Segment: 6
Off Peak



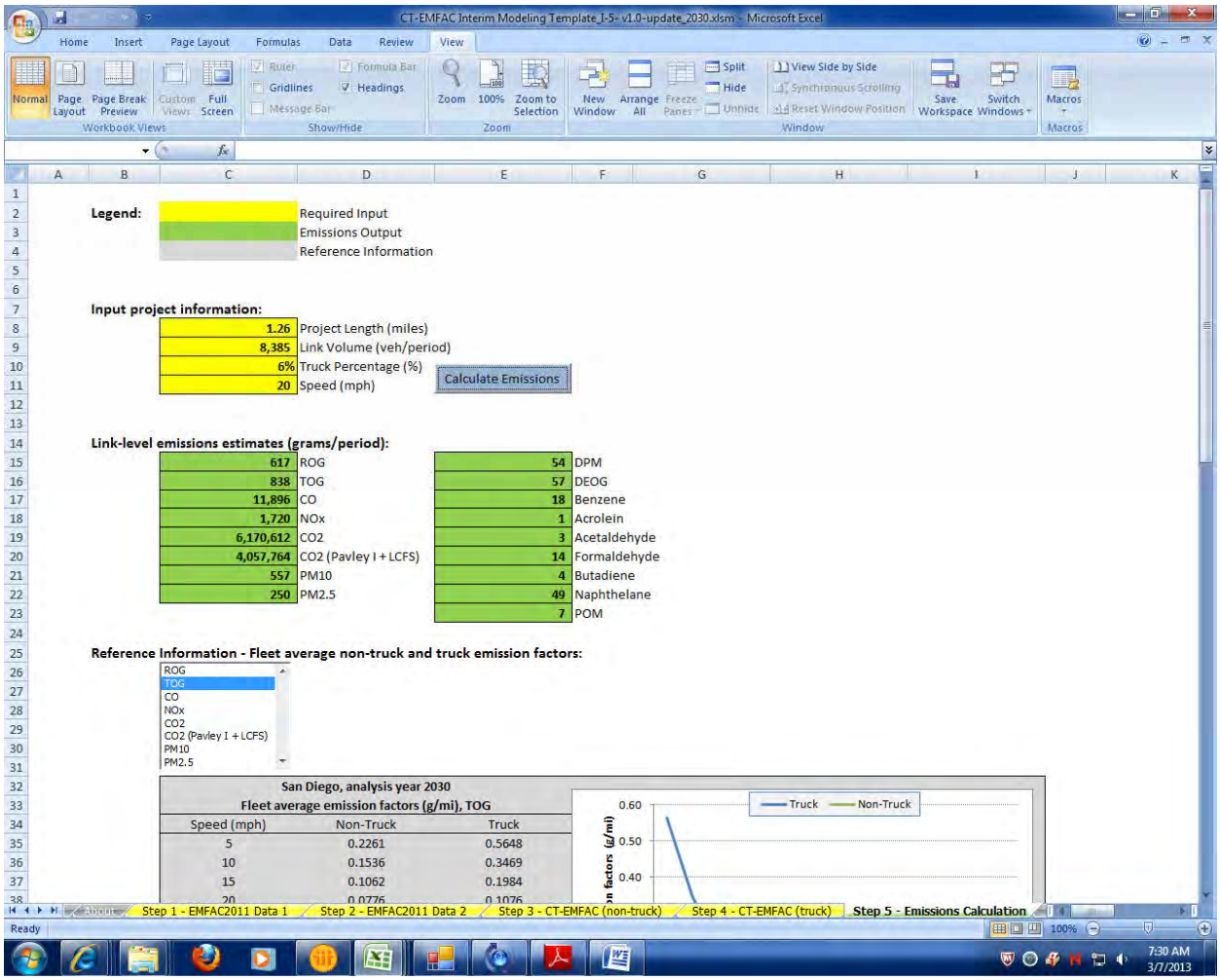
2030 No-build
Link: 4 (NB GP)
Segment: 7
Peak



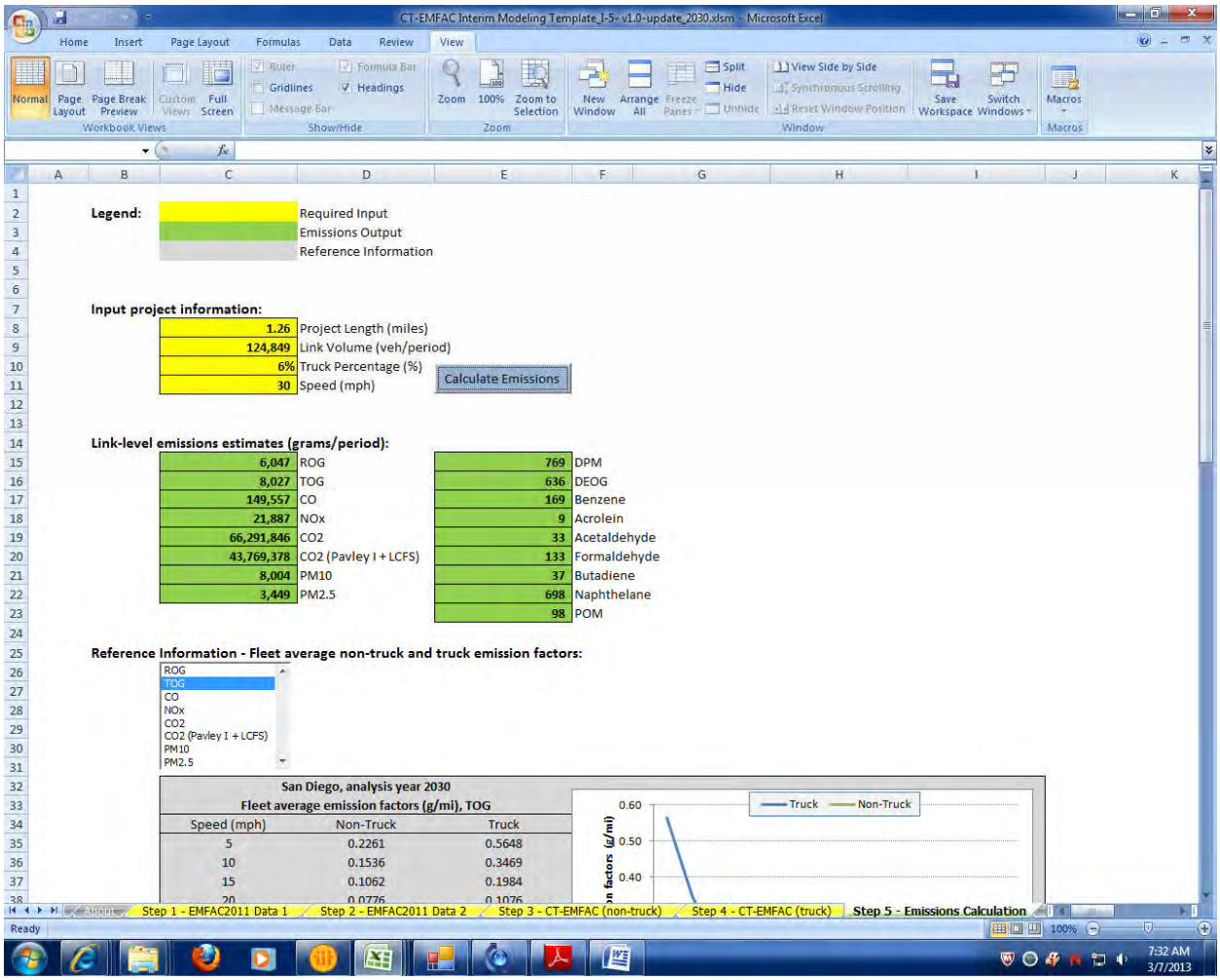
2030 No-build
Link: 4 (NB GP)
Segment: 7
Off Peak



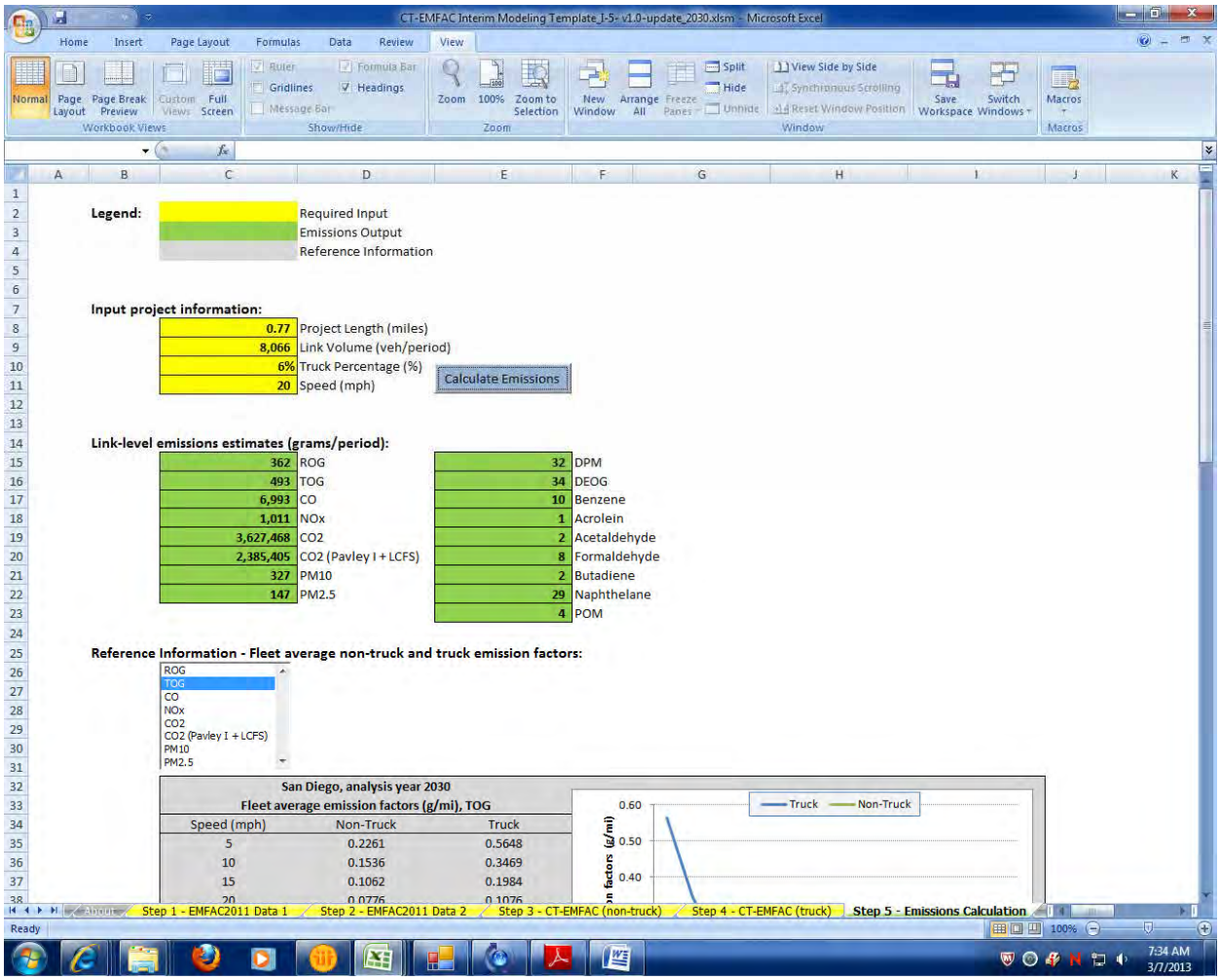
2030 No-build
Link: 4 (NB GP)
Segment: 8
Peak



2030 No-build
Link: 4 (NB GP)
Segment: 8
Off Peak



2030 No-build
Link: 4 (NB GP)
Segment: 9
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
8,066	Link Volume (veh/period)
6%	Truck Percentage (%)
20	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

362	ROG	32	DPM
493	TOG	34	DEOG
6,993	CO	10	Benzene
1,011	NOx	1	Acrolein
3,627,468	CO2	2	Acetaldehyde
2,385,405	CO2 (Pavley I + LCFS)	8	Formaldehyde
327	PM10	2	Butadiene
147	PM2.5	29	Naphthelane
		4	POM

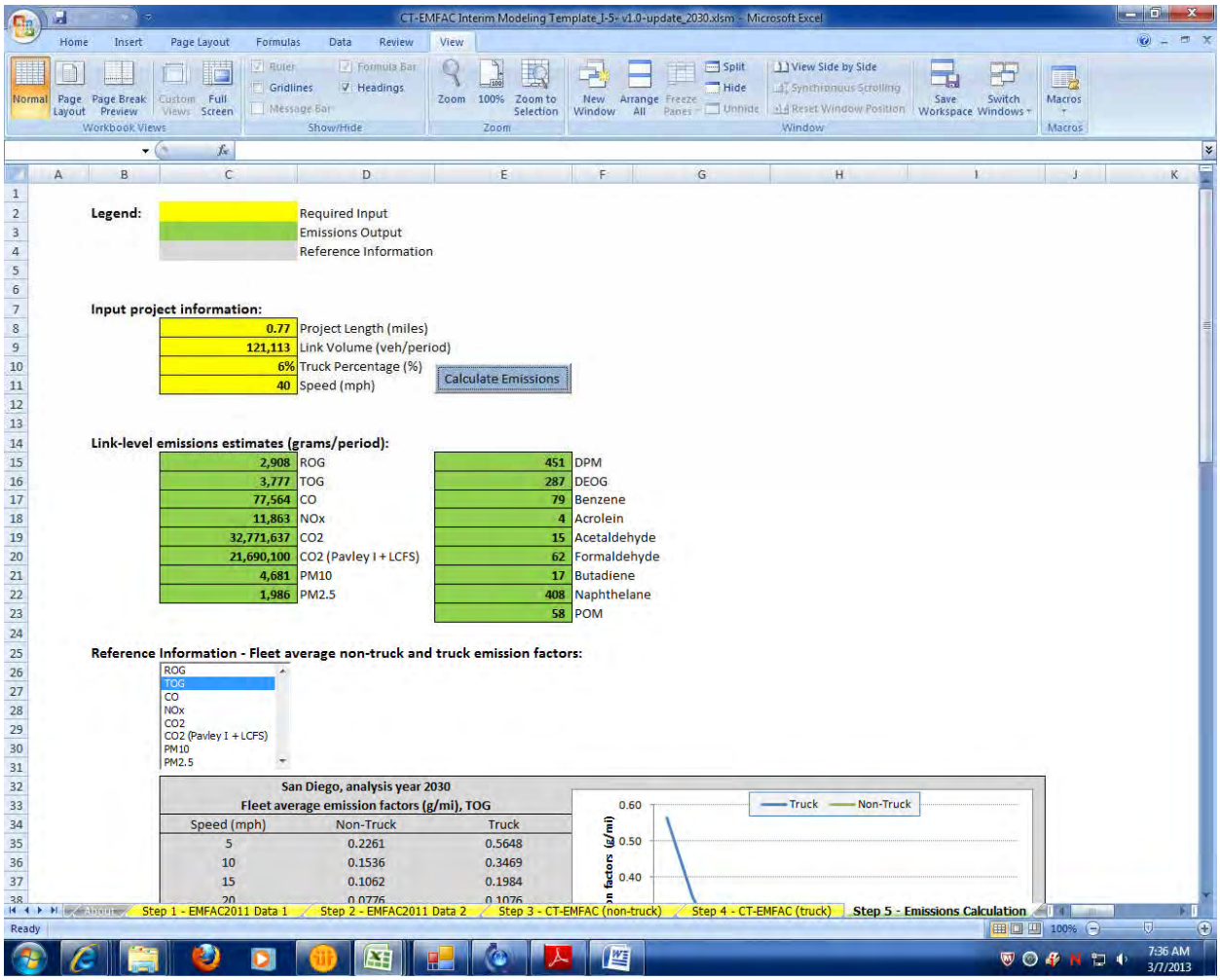
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

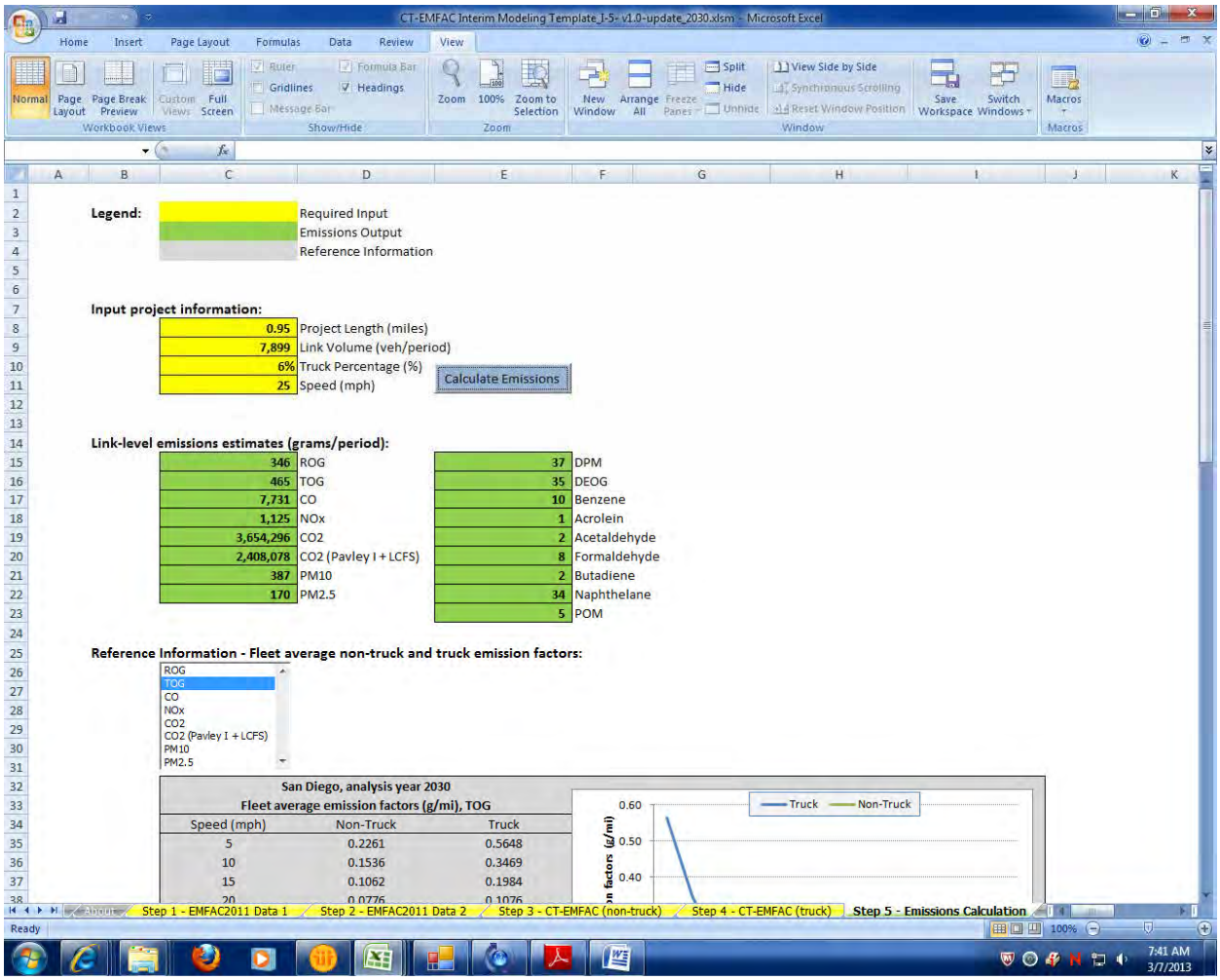
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

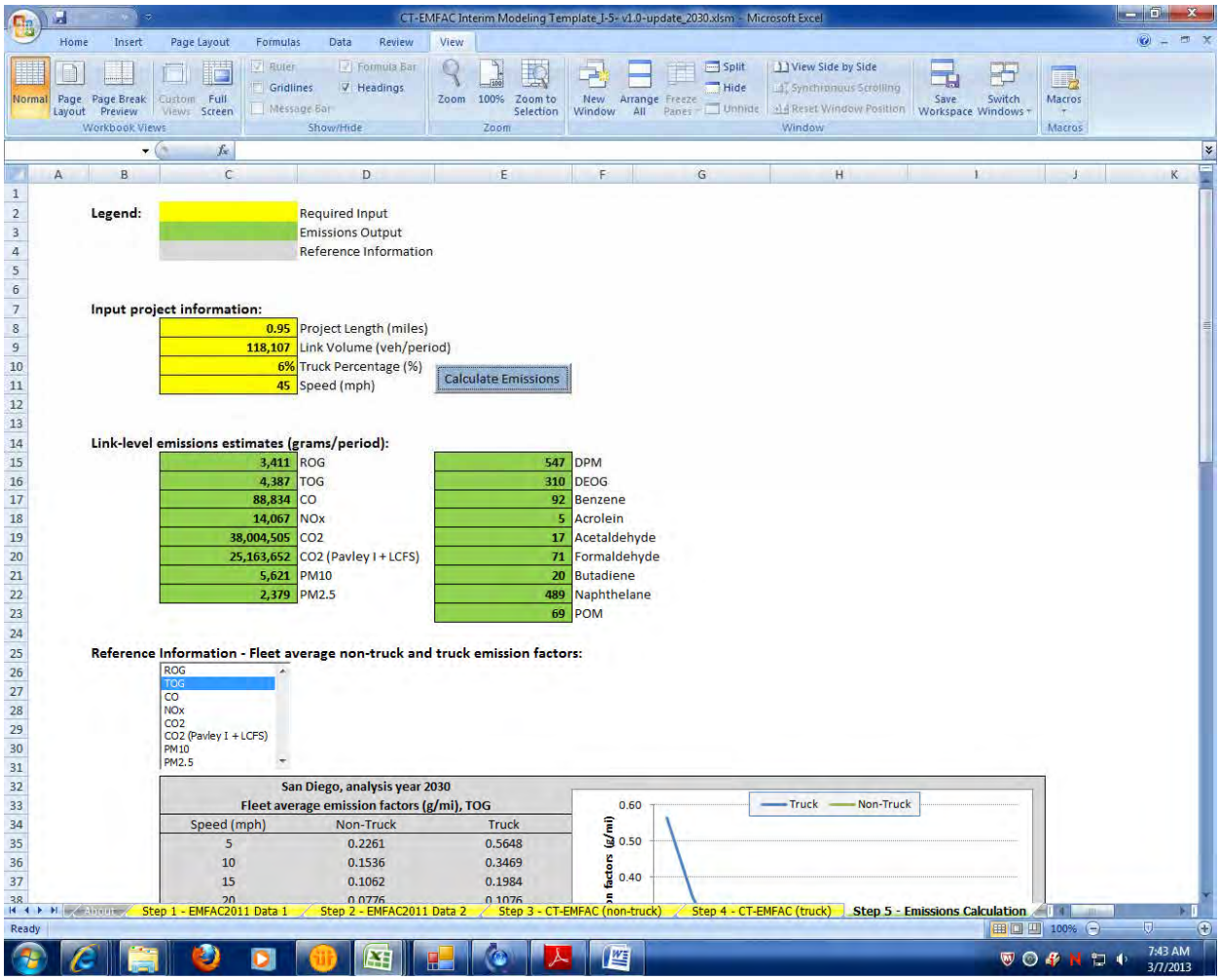
2030 No-build
Link: 4 (NB GP)
Segment: 9
Off Peak



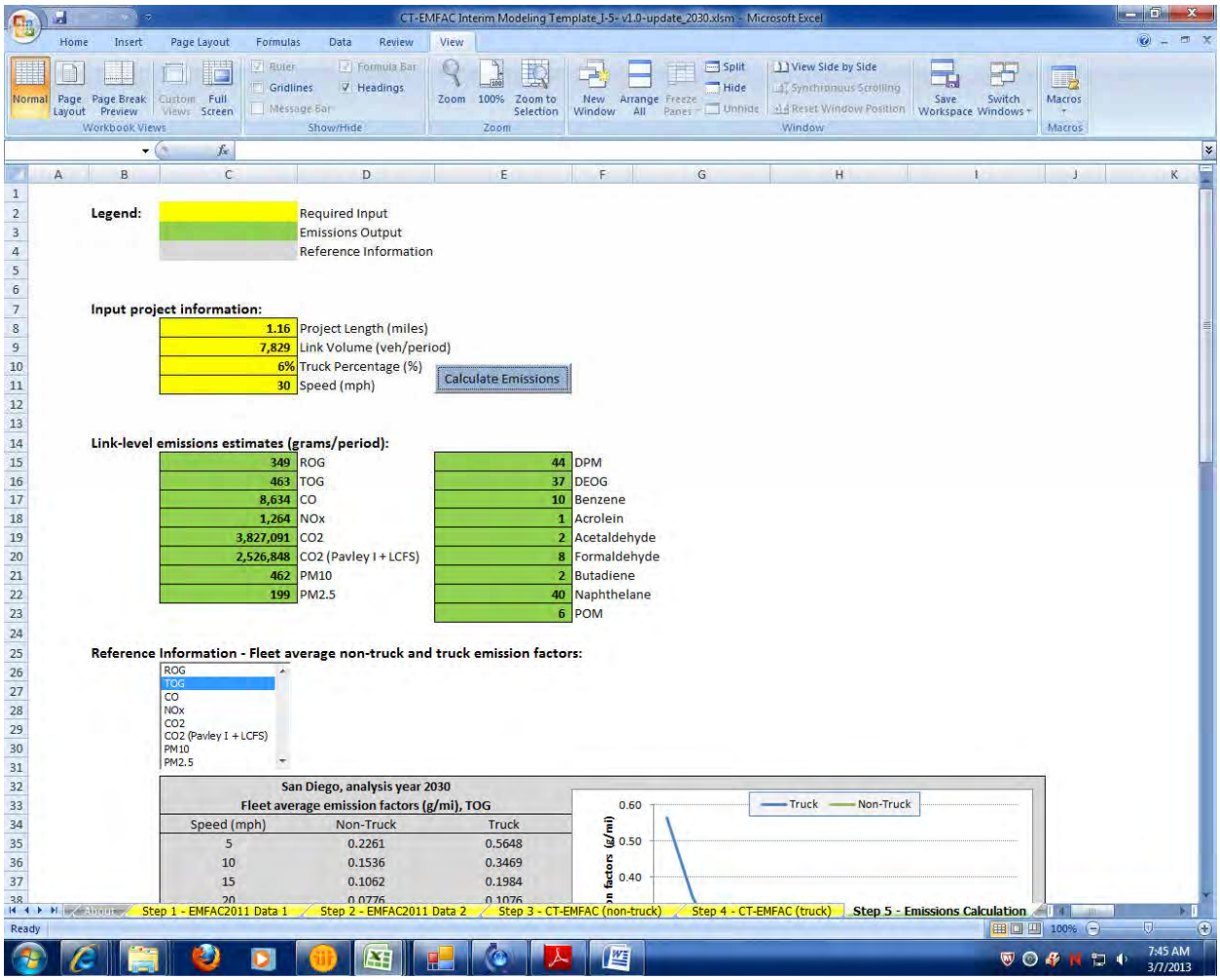
2030 No-build
Link: 4 (NB GP)
Segment: 10
Peak



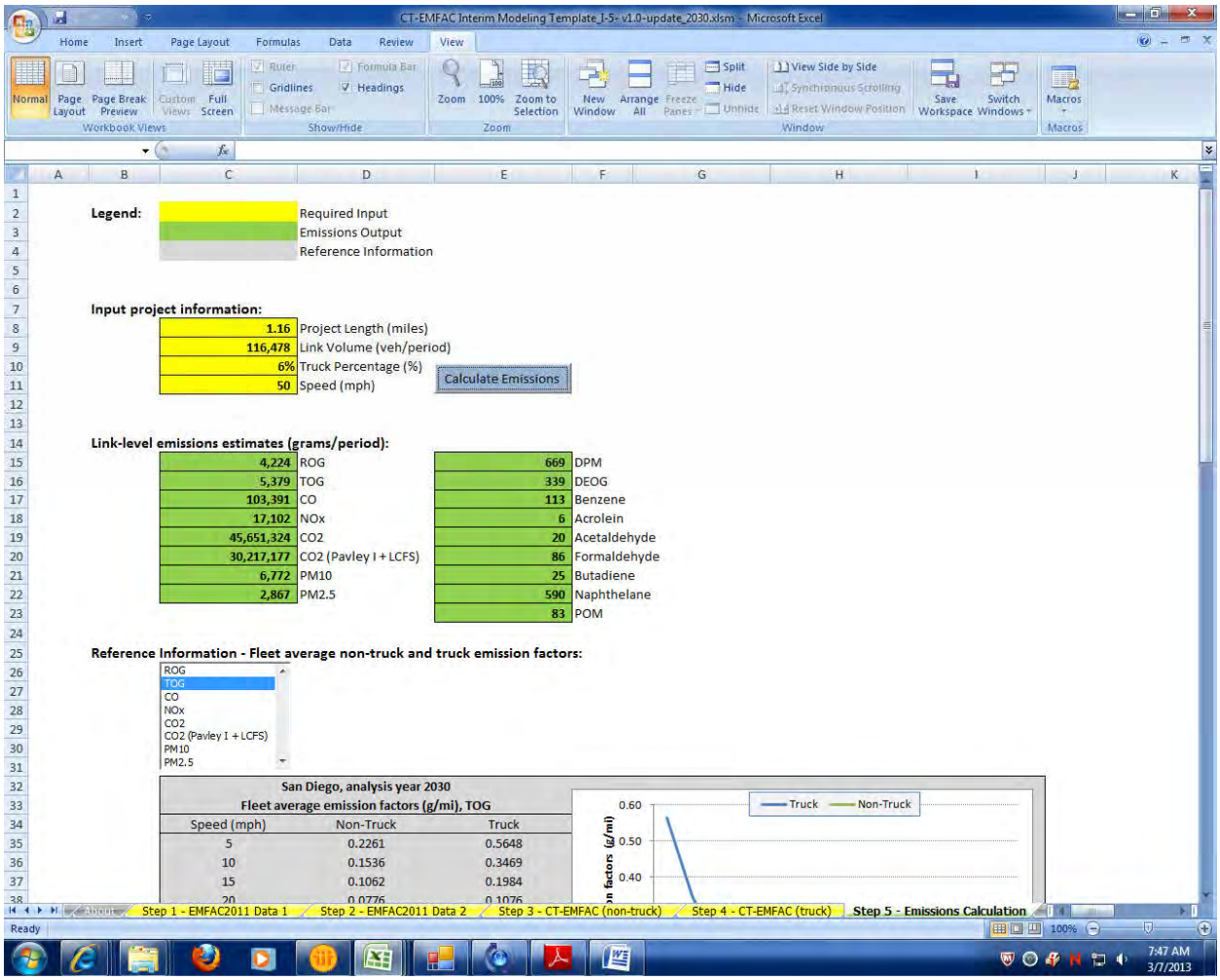
2030 No-build
Link: 4 (NB GP)
Segment: 10
Off Peak



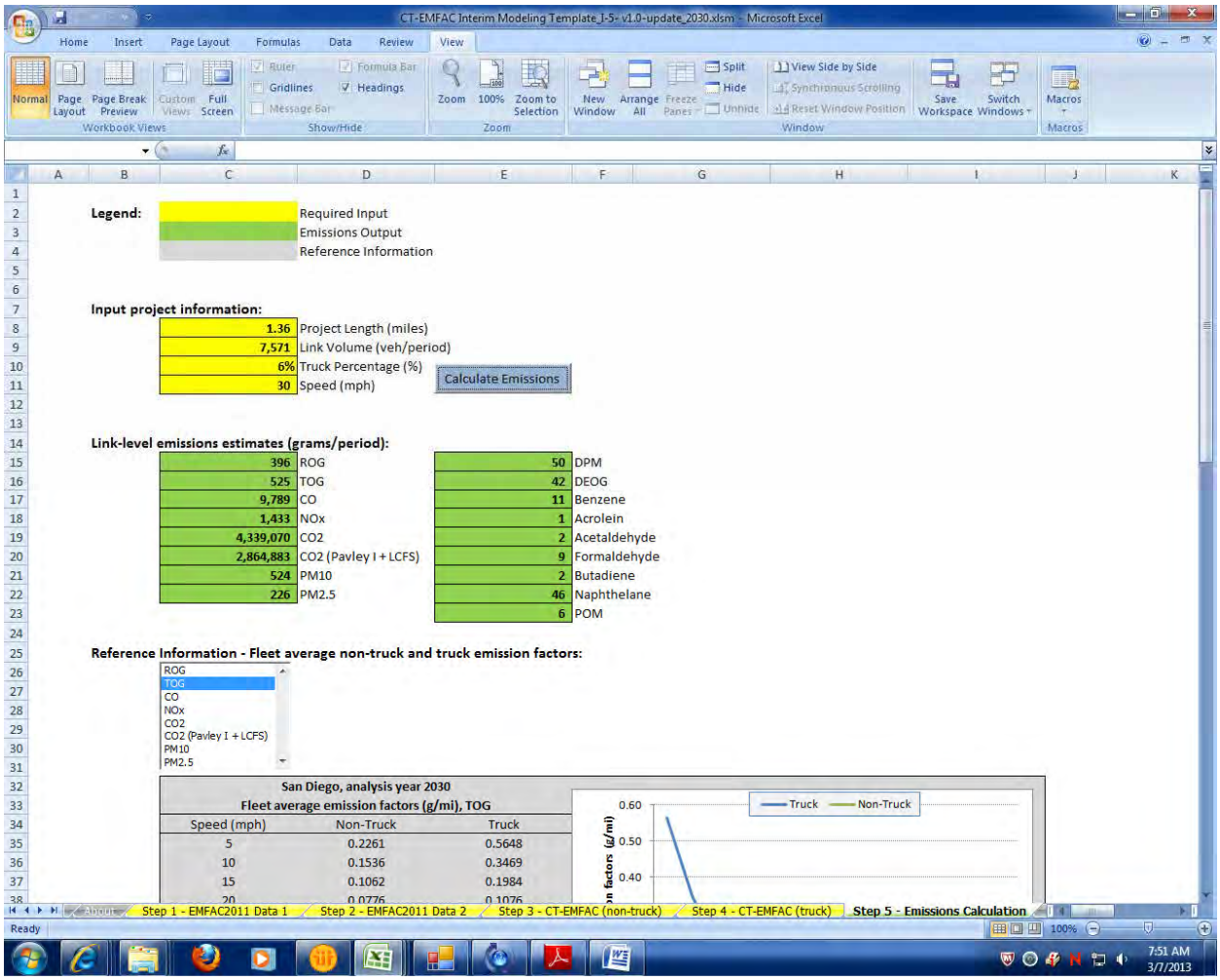
2030 No-build
Link: 4 (NB GP)
Segment: 11
Peak



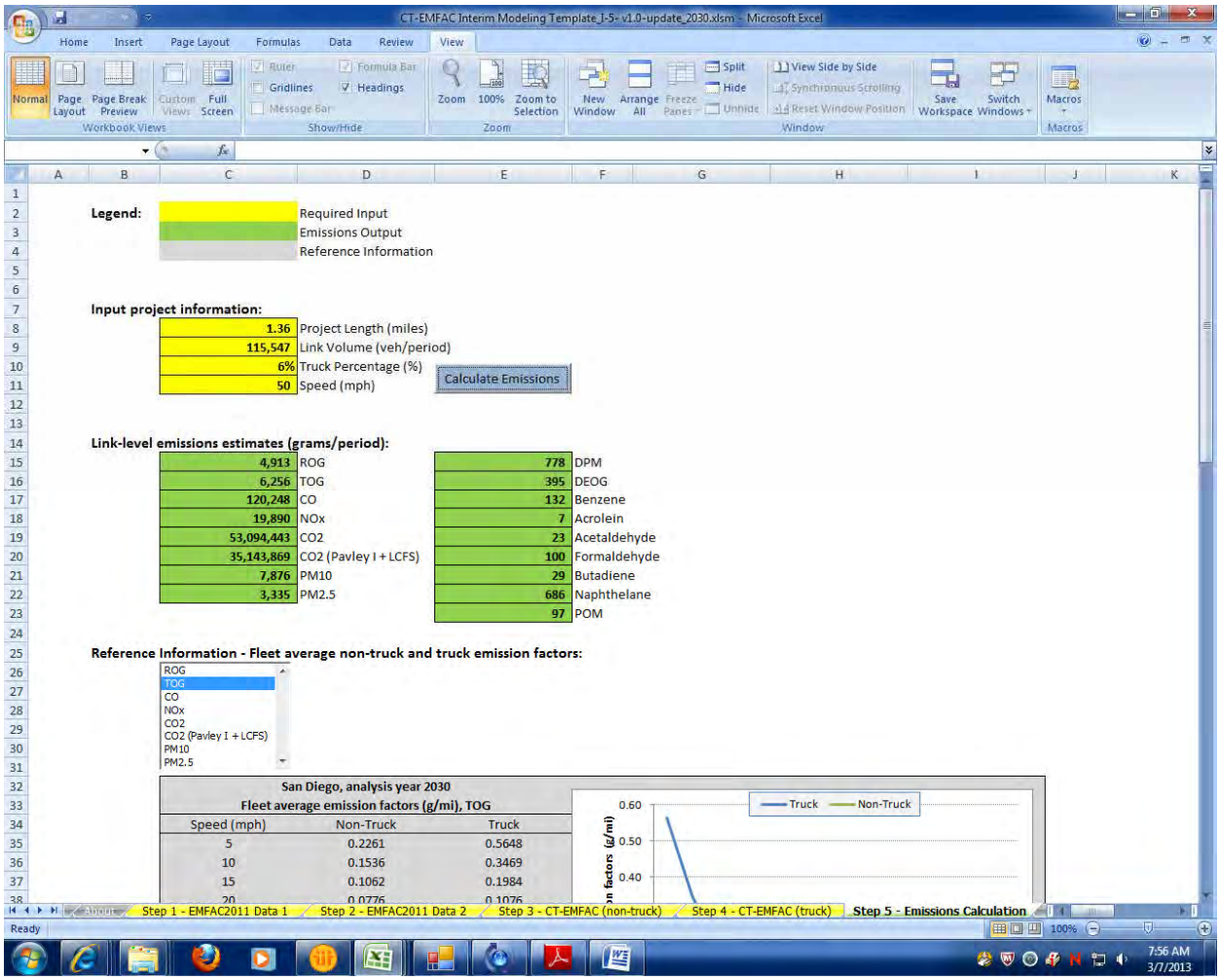
2030 No-build
Link: 4 (NB GP)
Segment: 11
Off Peak



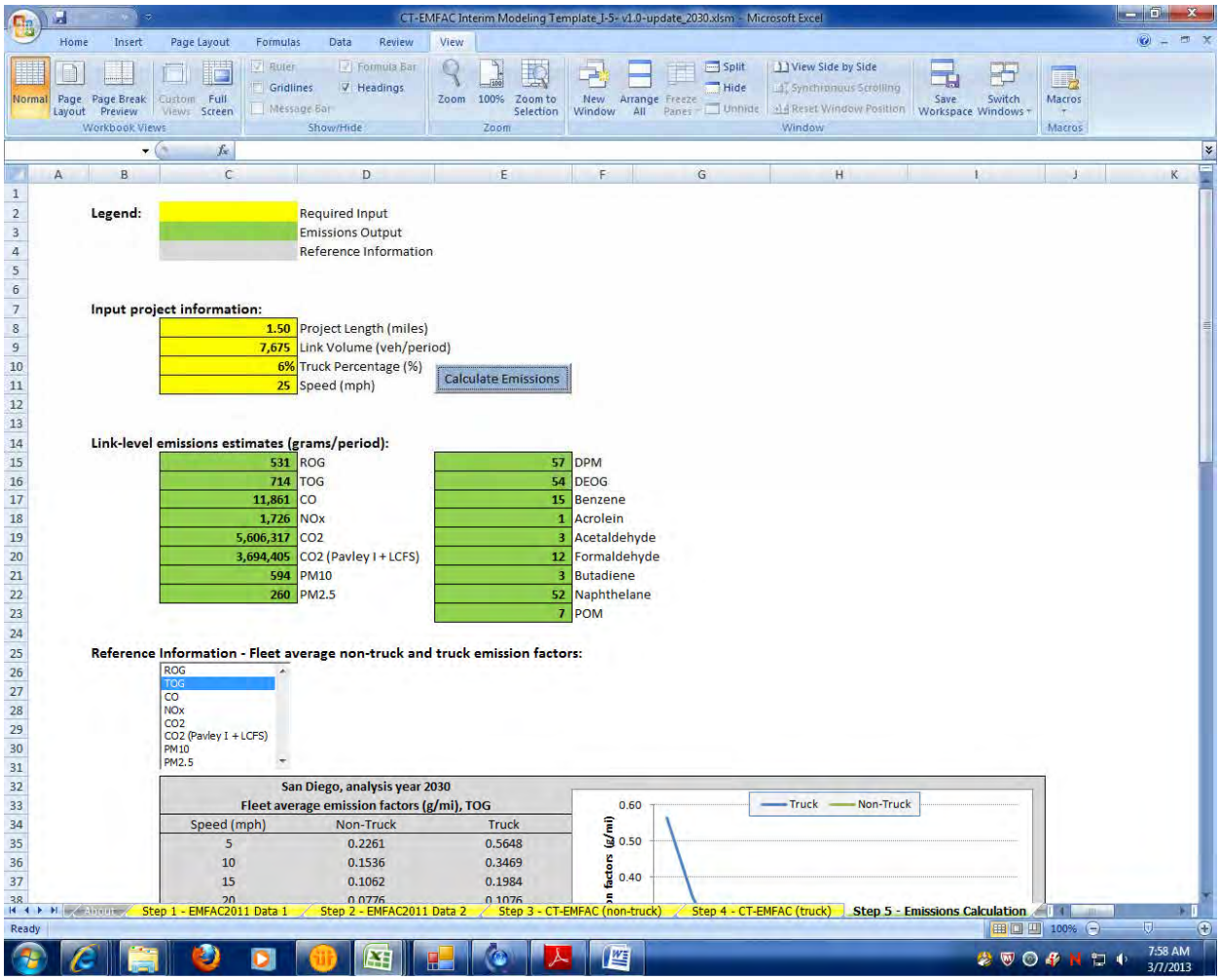
2030 No-build
Link: 4 (NB GP)
Segment: 12
Peak



2030 No-build
Link: 4 (NB GP)
Segment: 12
Off Peak



2030 No-build
Link: 4 (NB GP)
Segment: 13
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
7,675	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

531	ROG	57	DPM
714	TOG	54	DEOG
11,861	CO	15	Benzene
1,726	NOx	1	Acrolein
5,606,317	CO2	3	Acetaldehyde
3,694,405	CO2 (Pavley I + LCFS)	12	Formaldehyde
594	PM10	3	Butadiene
260	PM2.5	52	Naphthelane
		7	POM

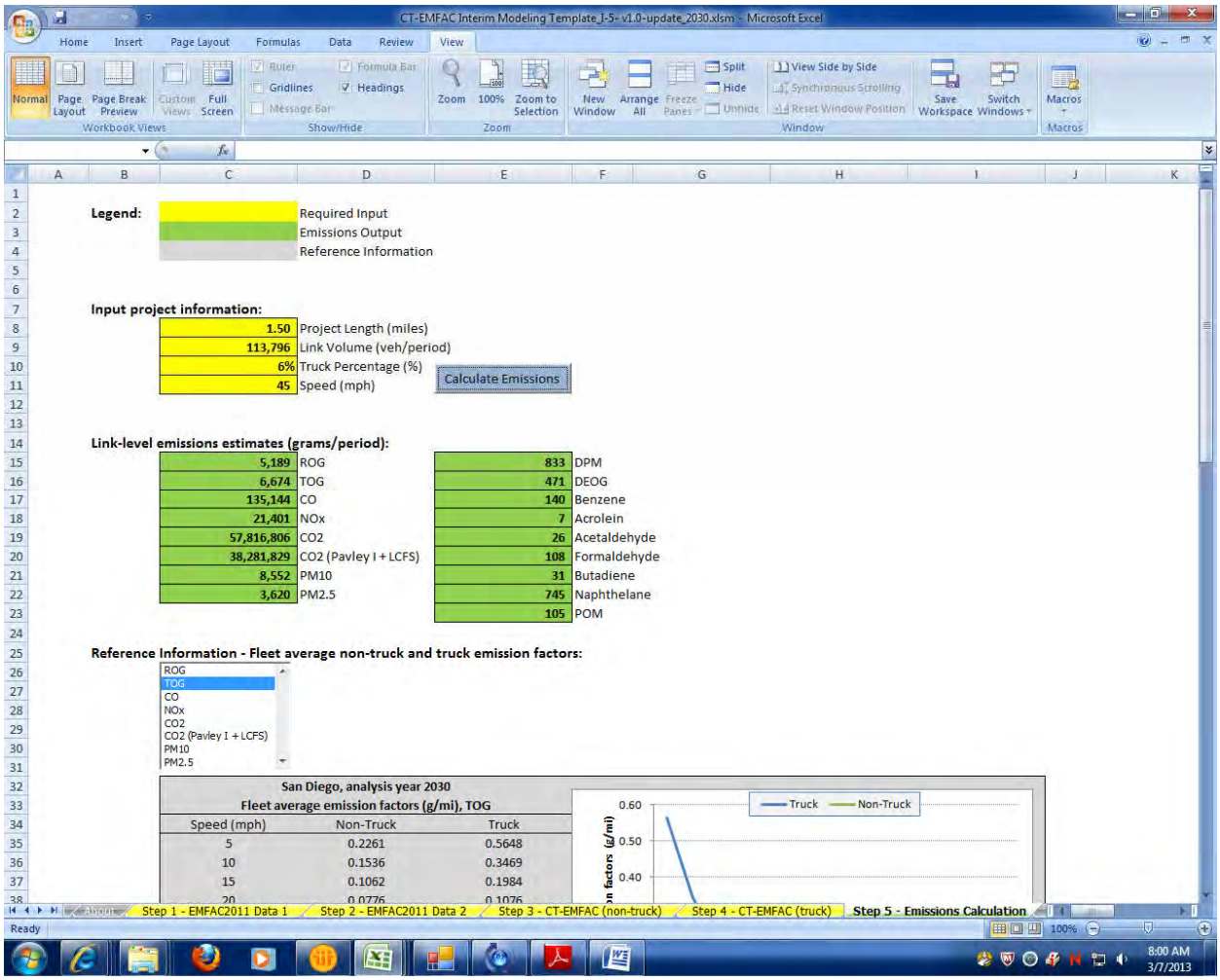
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

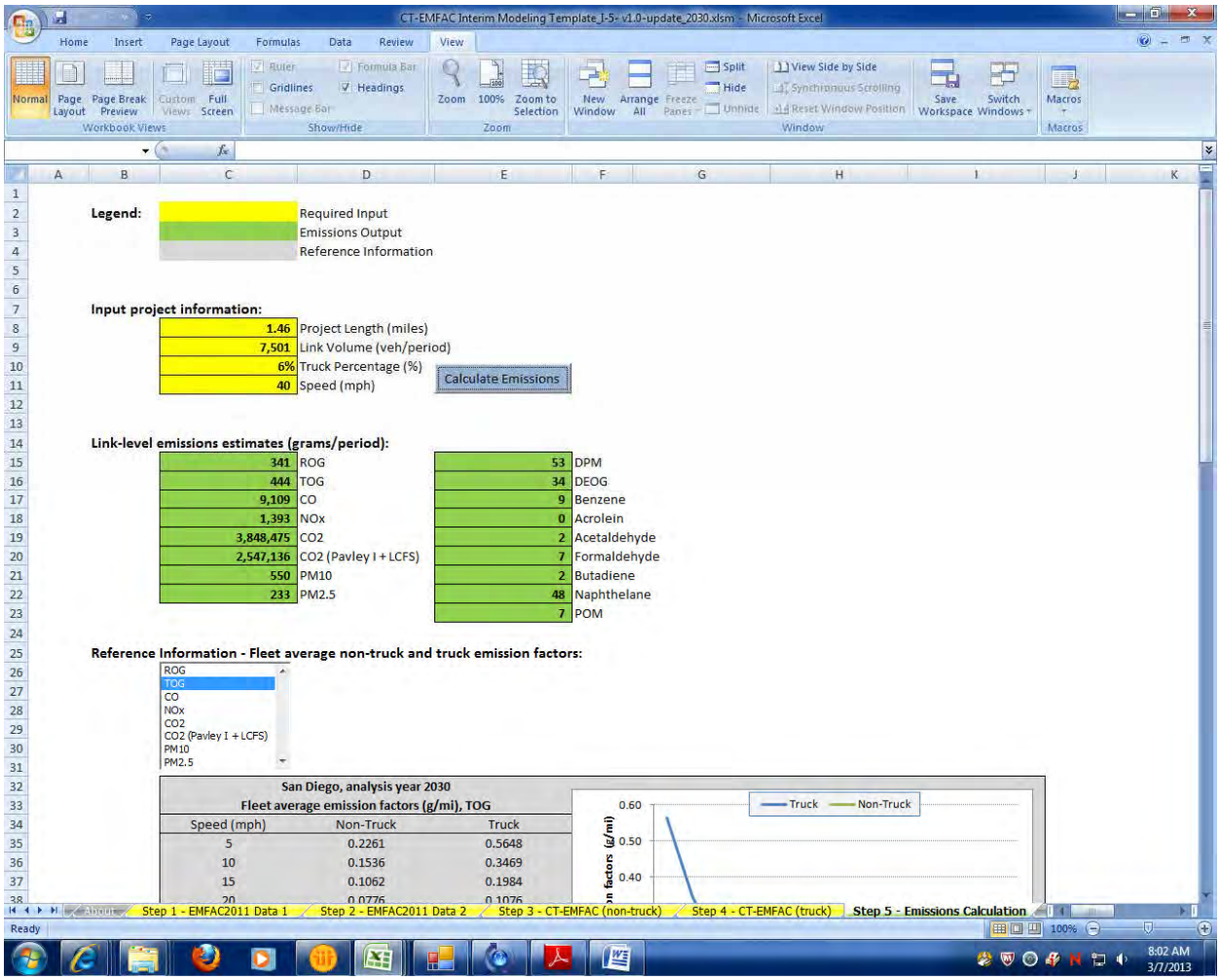
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

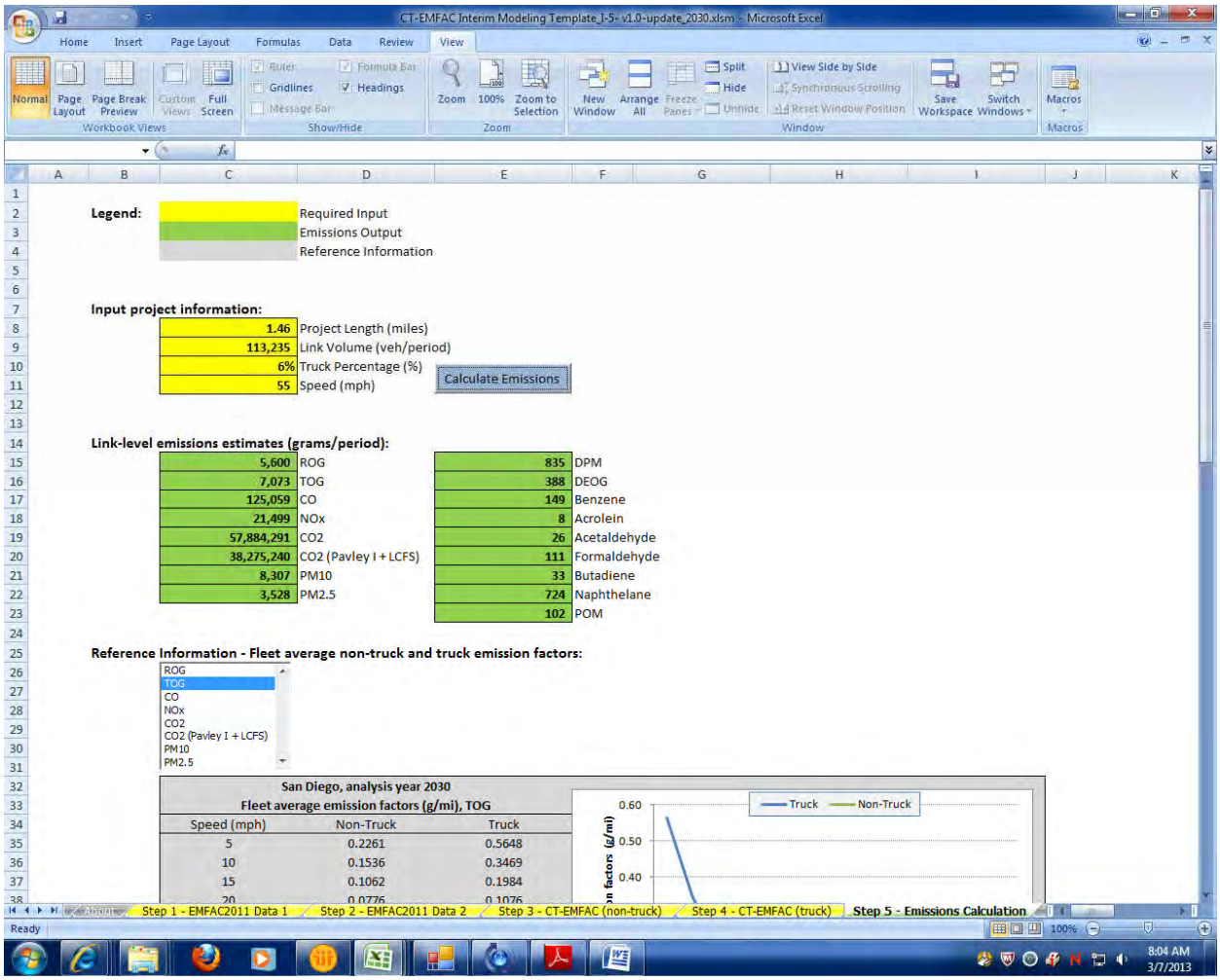
2030 No-build
Link: 4 (NB GP)
Segment: 13
Off Peak



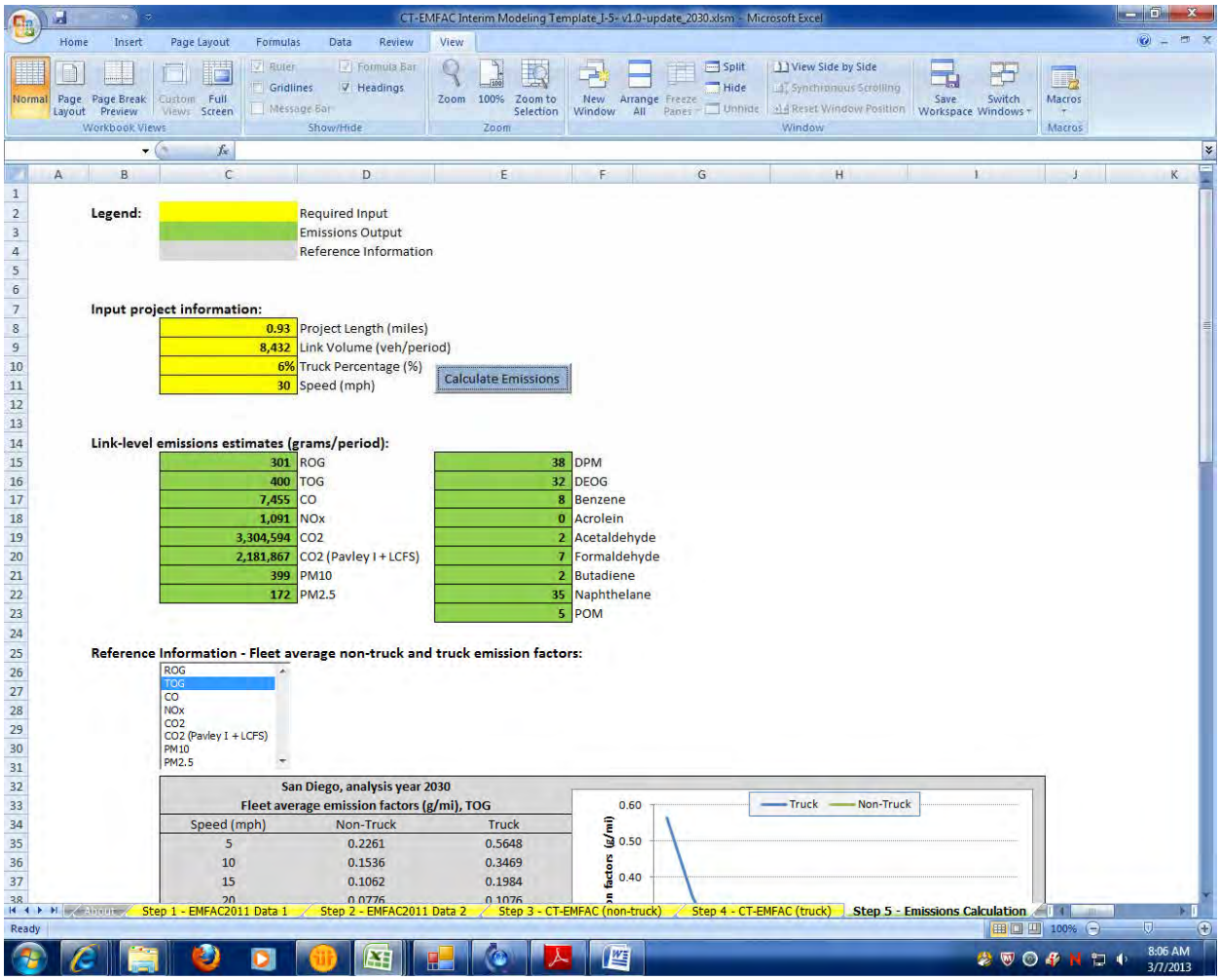
2030 No-build
Link: 4 (NB GP)
Segment: 14
Peak



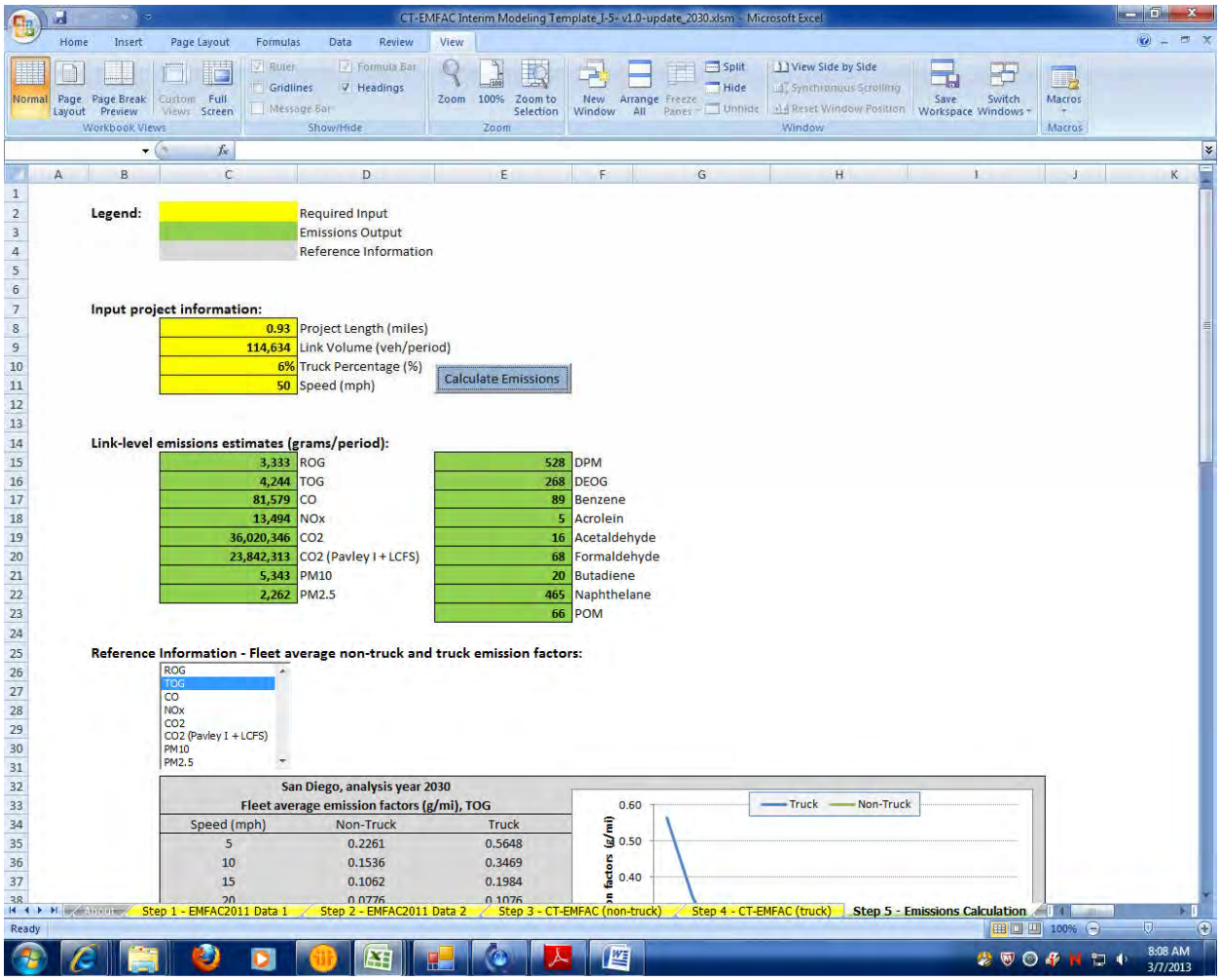
2030 No-build
Link: 4 (NB GP)
Segment: 14
Off Peak



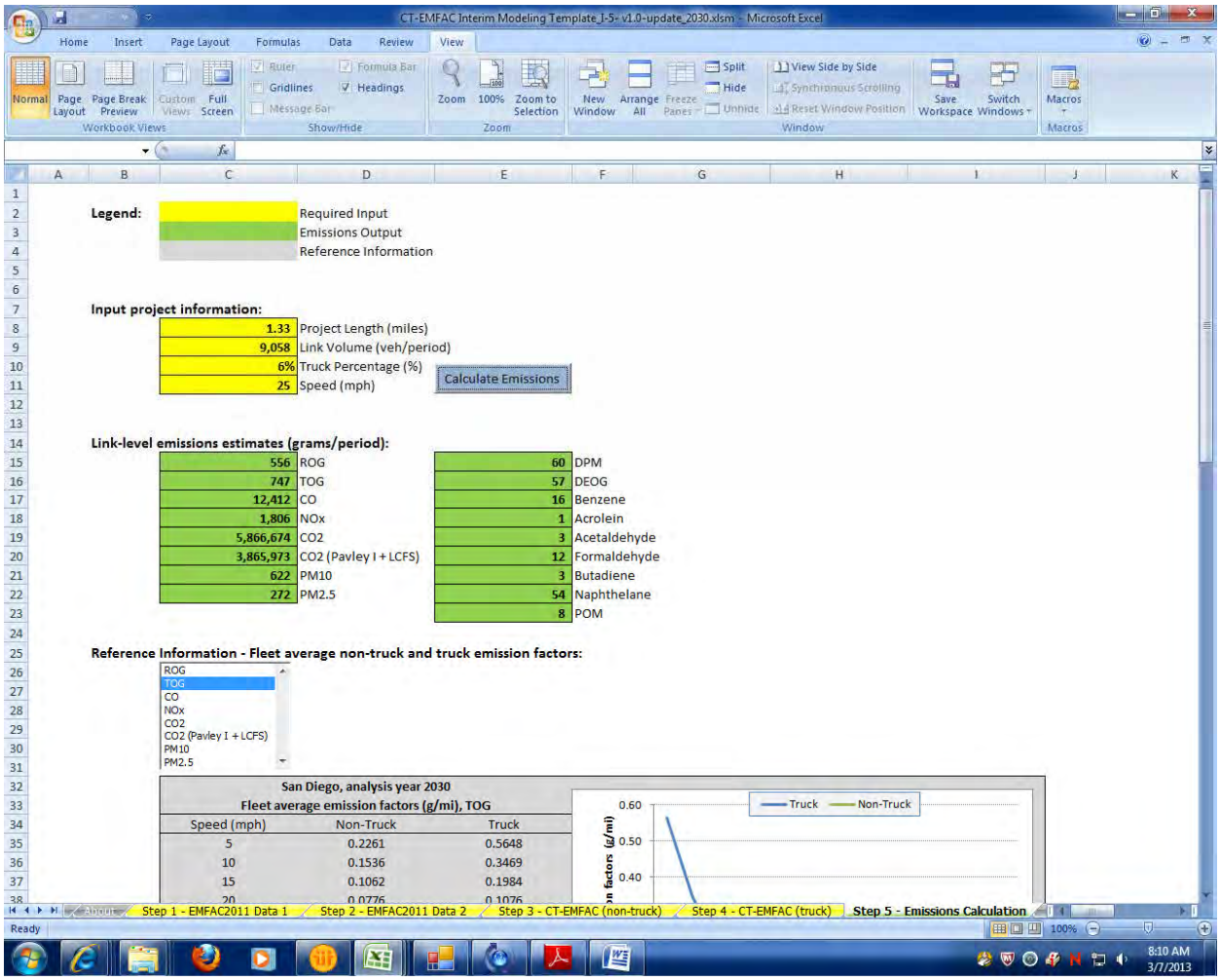
2030 No-build
Link: 4 (NB GP)
Segment: 15
Peak



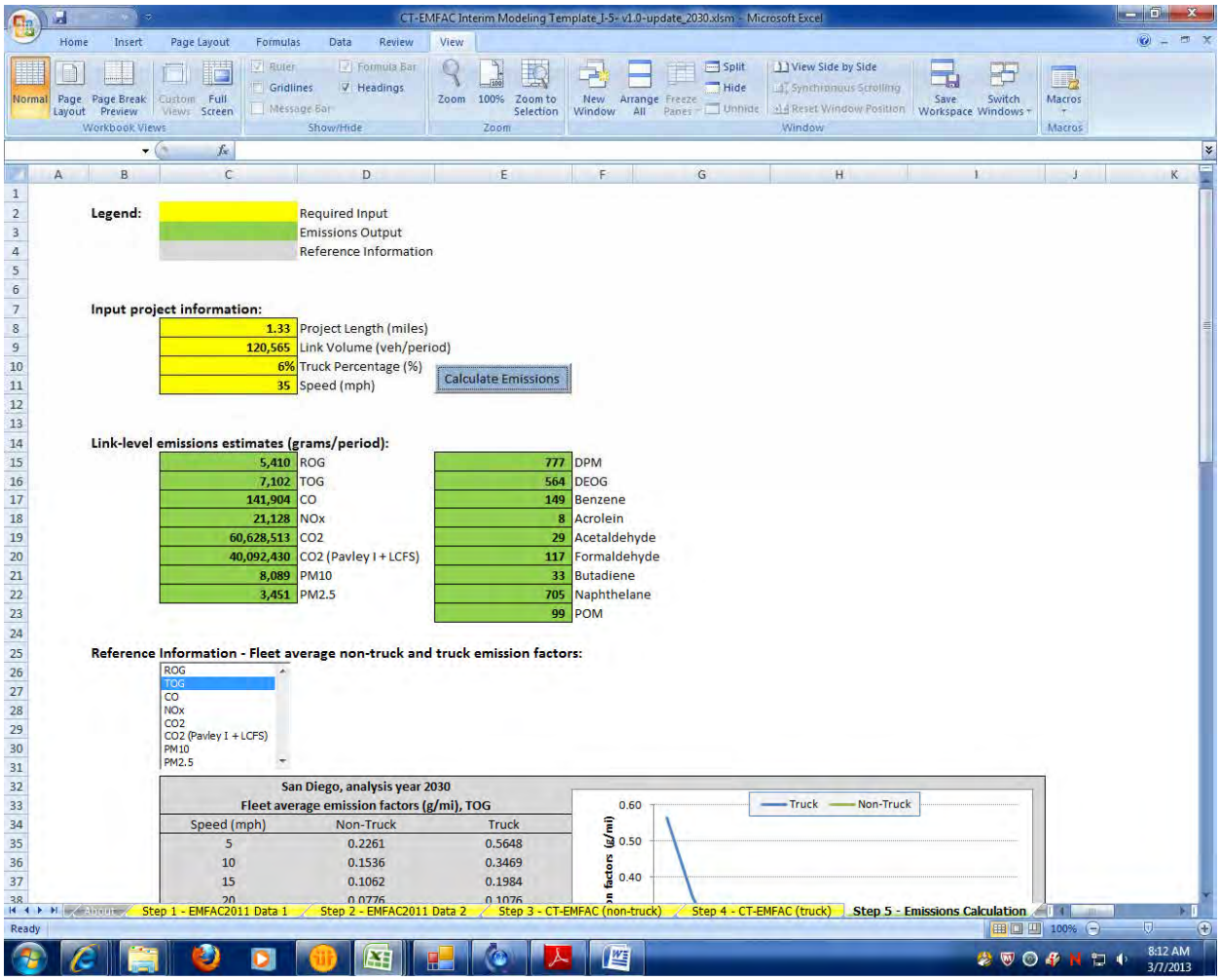
2030 No-build
Link: 4 (NB GP)
Segment: 15
Off Peak



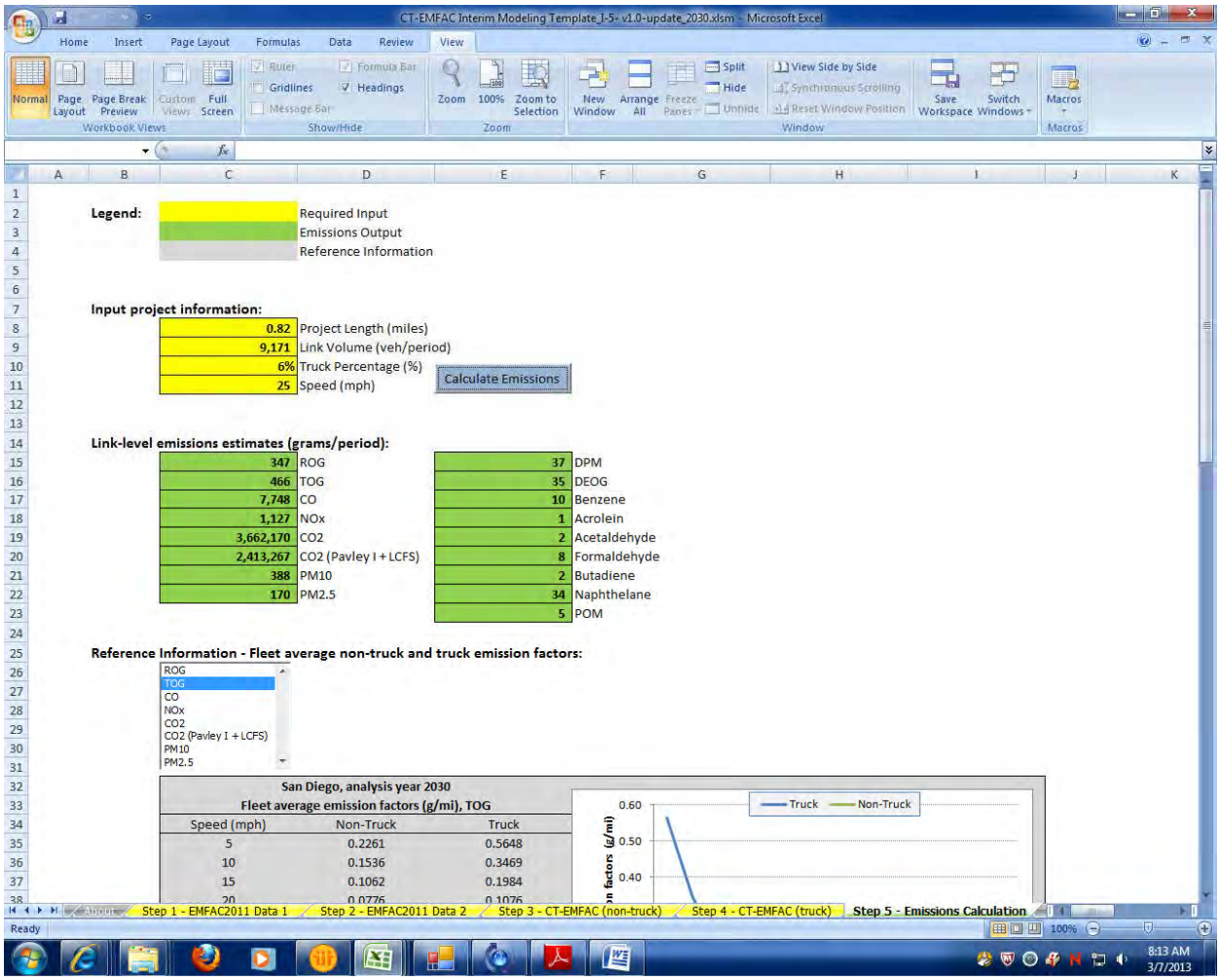
2030 No-build
Link: 4 (NB GP)
Segment: 16
Peak



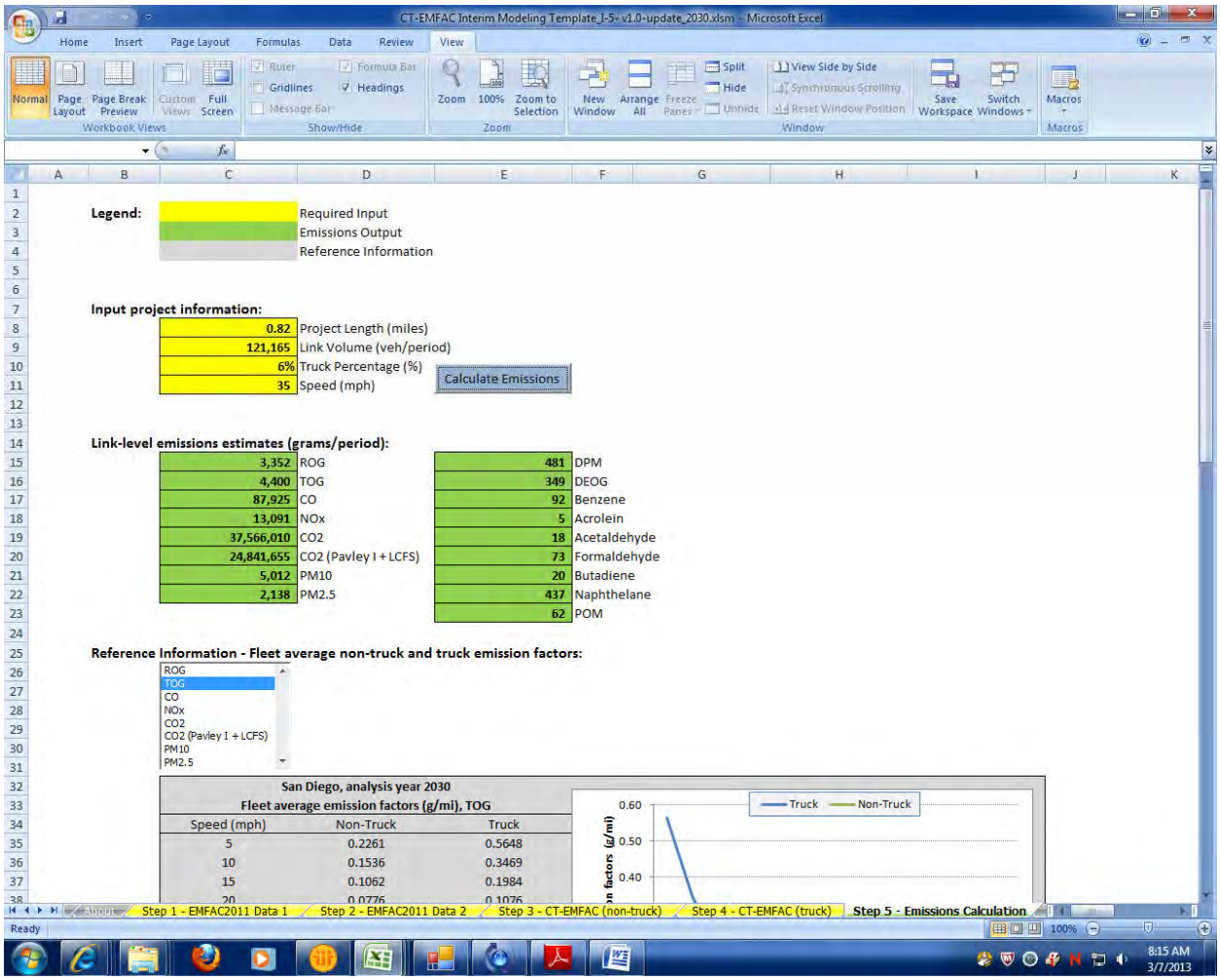
2030 No-build
Link: 4 (NB GP)
Segment: 16
Off Peak



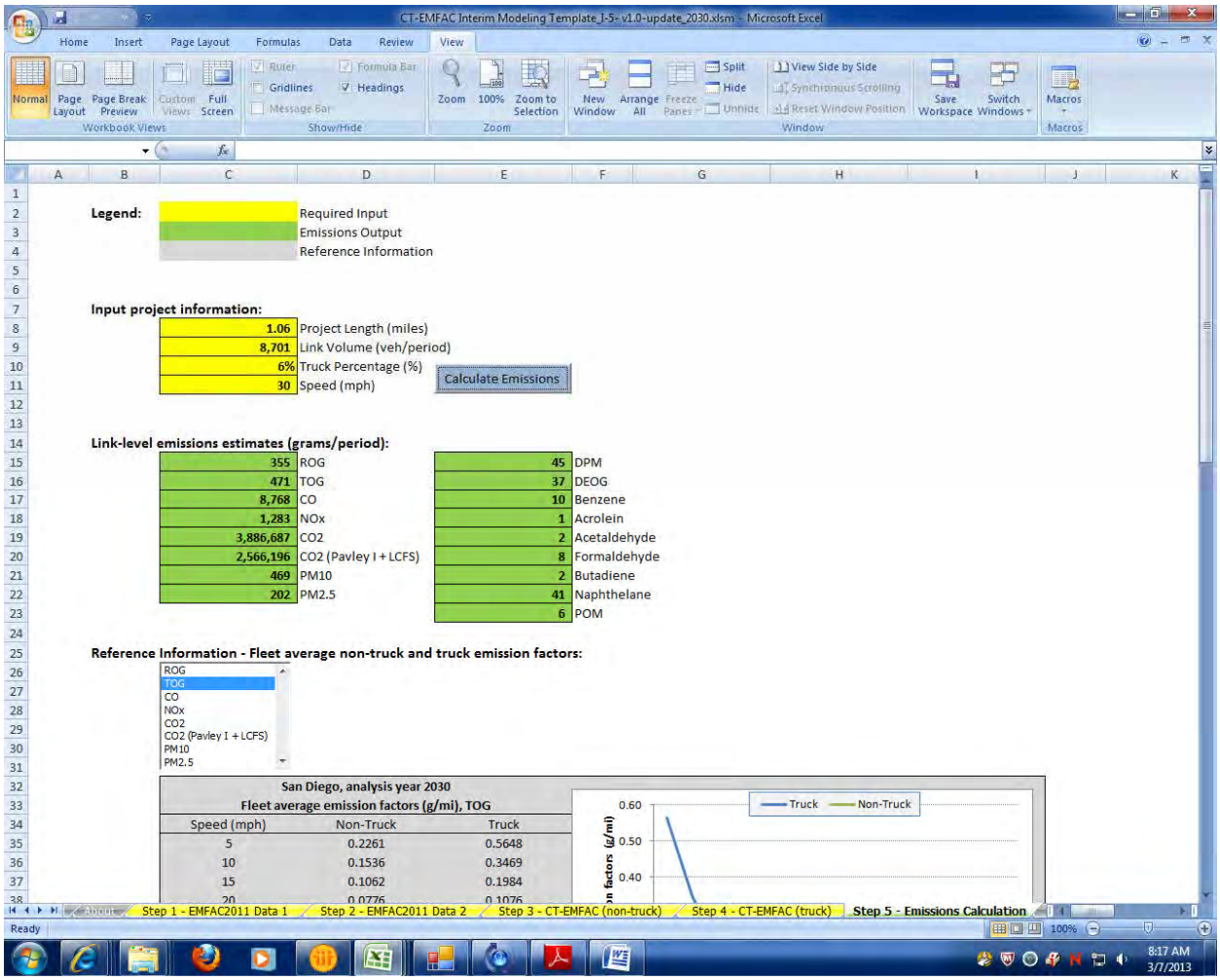
2030 No-build
Link: 4 (NB GP)
Segment: 17
Peak



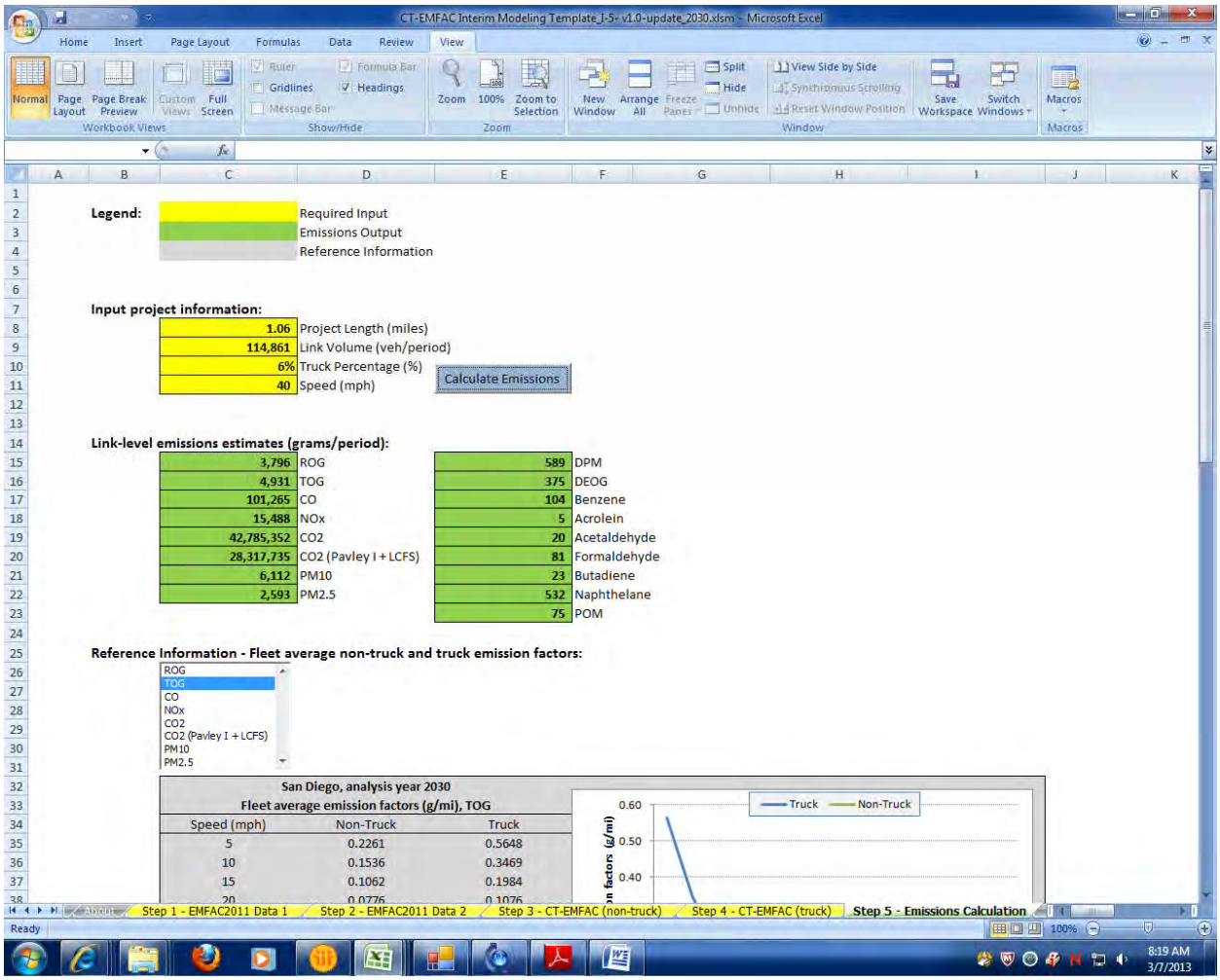
2030 No-build
Link: 4 (NB GP)
Segment: 17
Off Peak



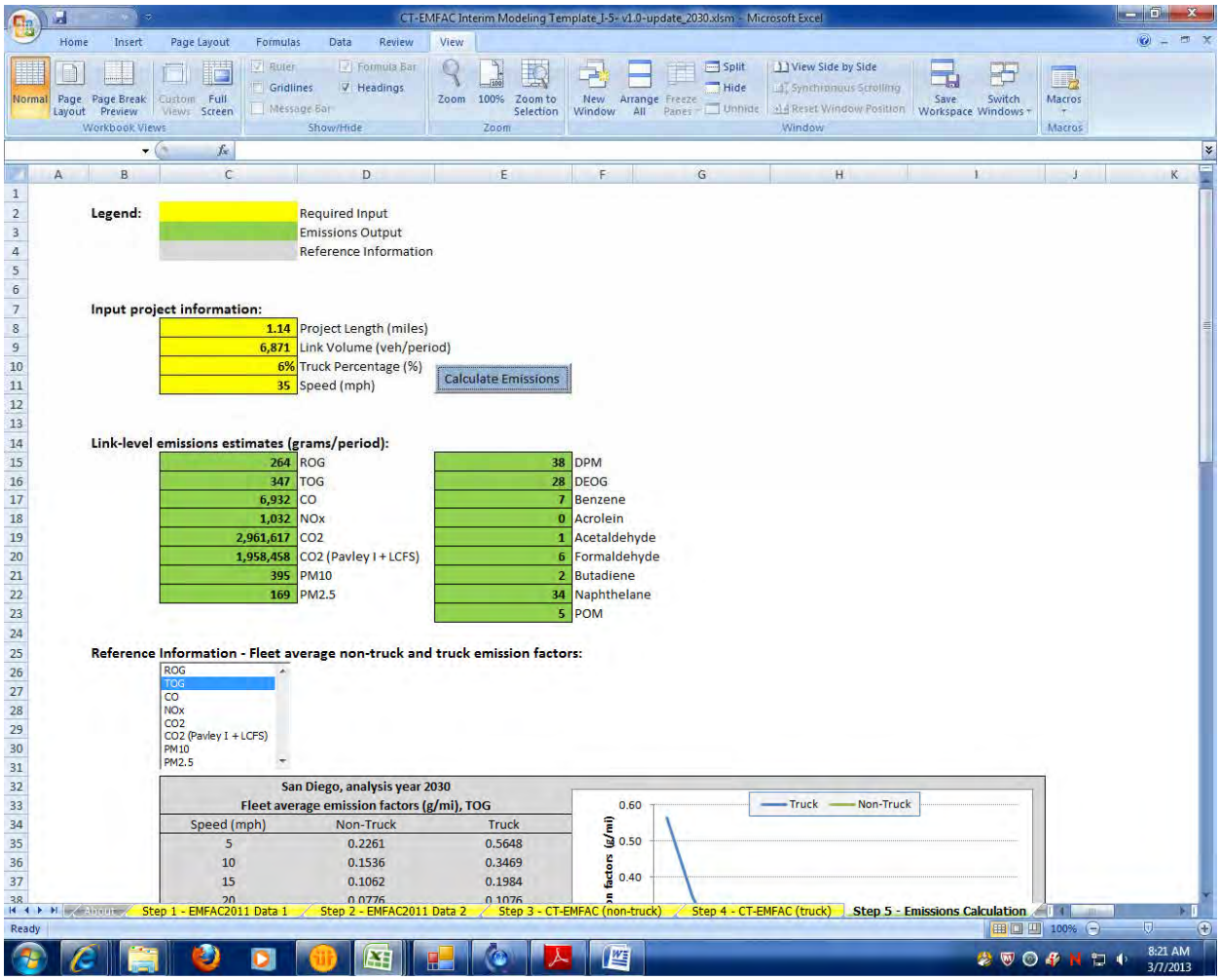
2030 No-build
Link: 4 (NB GP)
Segment: 18
Peak



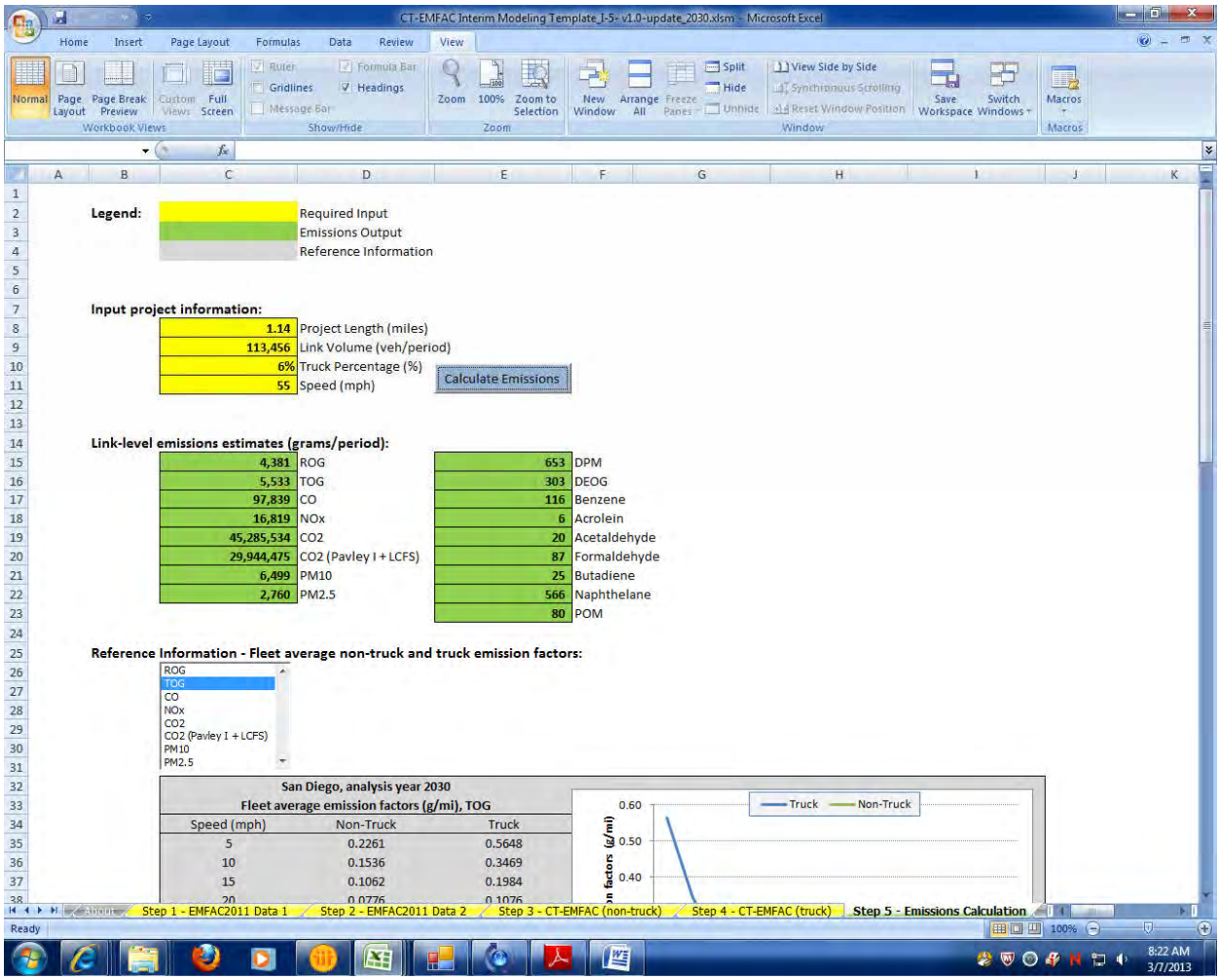
2030 No-build
Link: 4 (NB GP)
Segment: 18
Off Peak



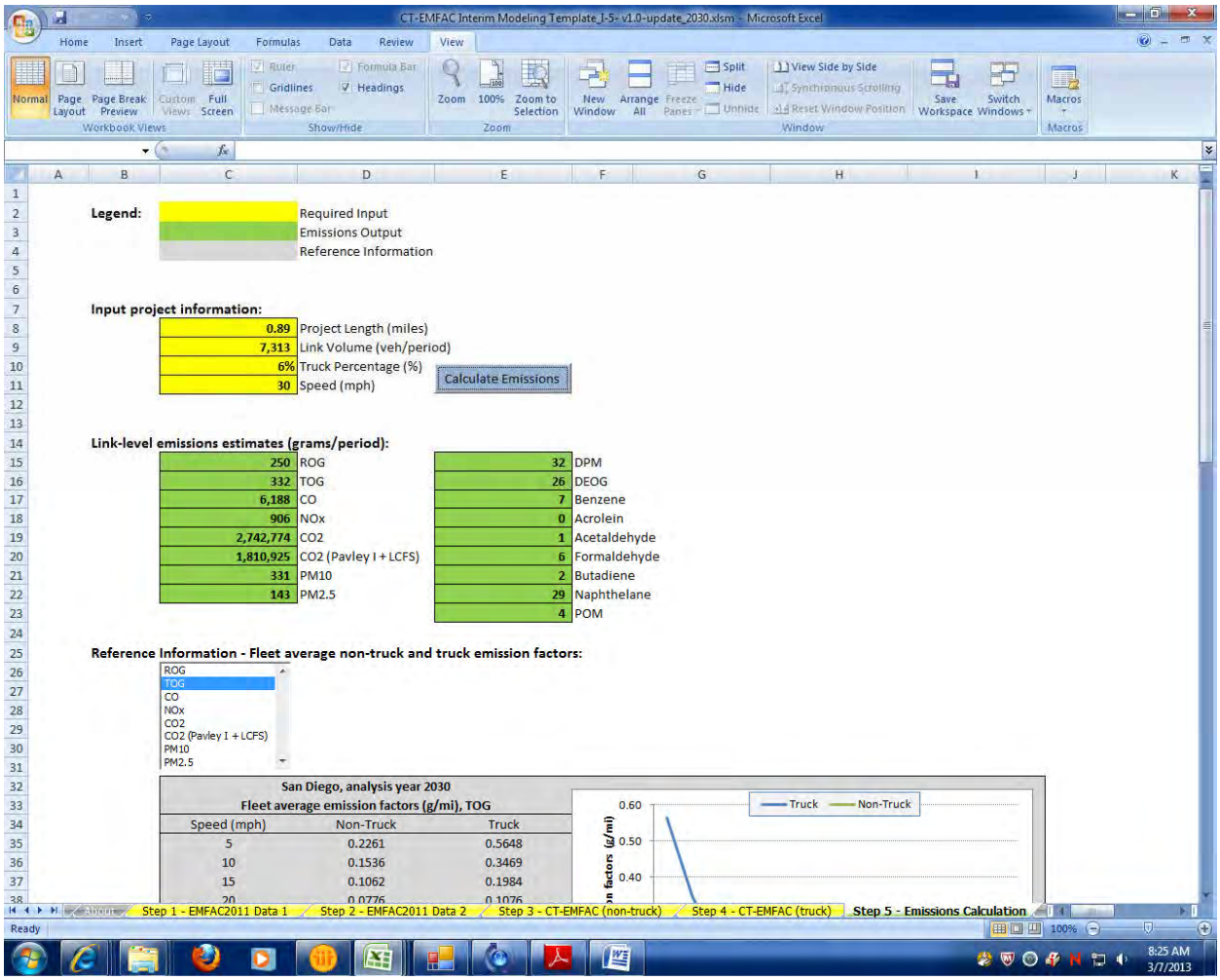
2030 No-build
Link: 4 (NB GP)
Segment: 19
Peak



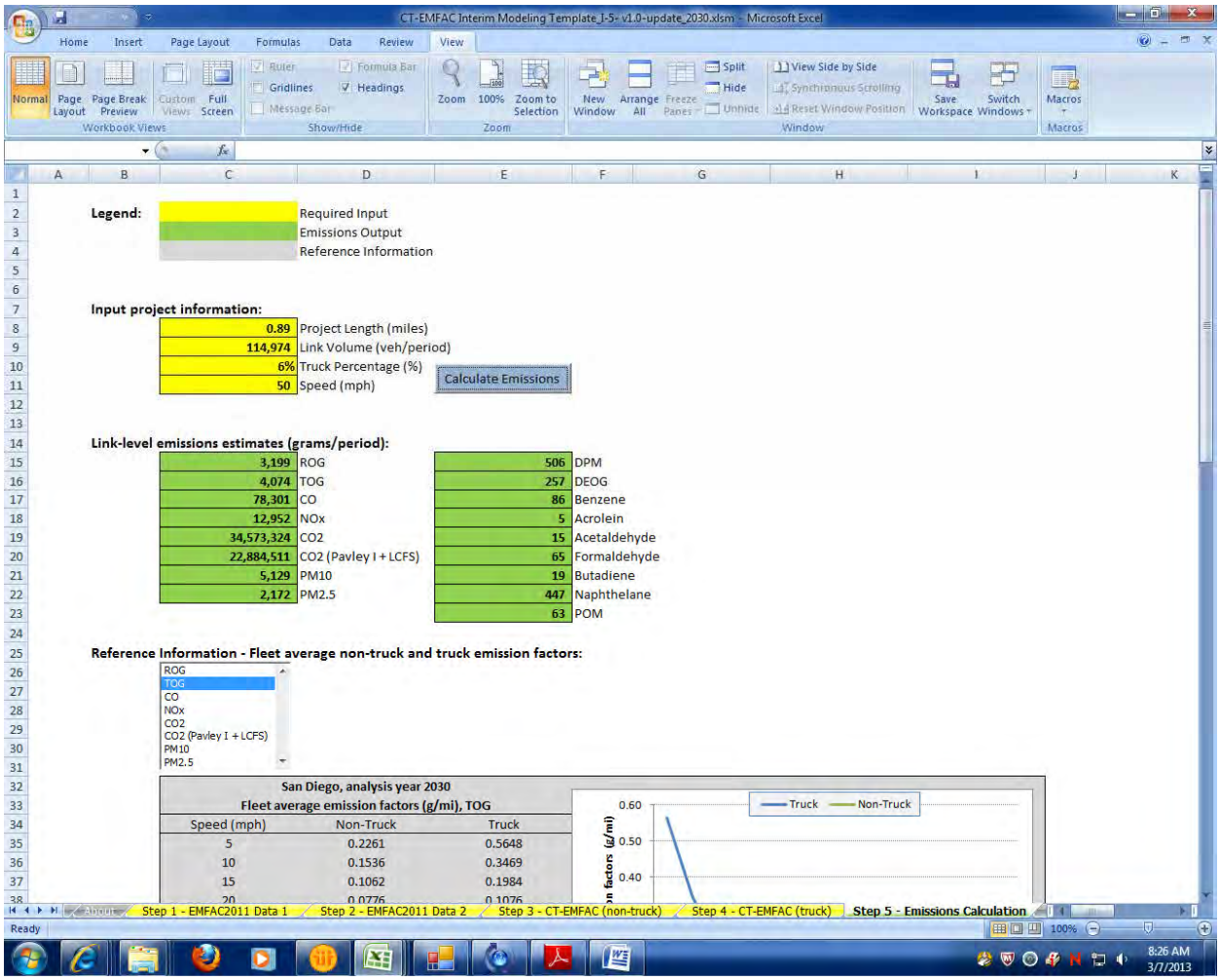
2030 No-build
Link: 4 (NB GP)
Segment: 19
Off Peak



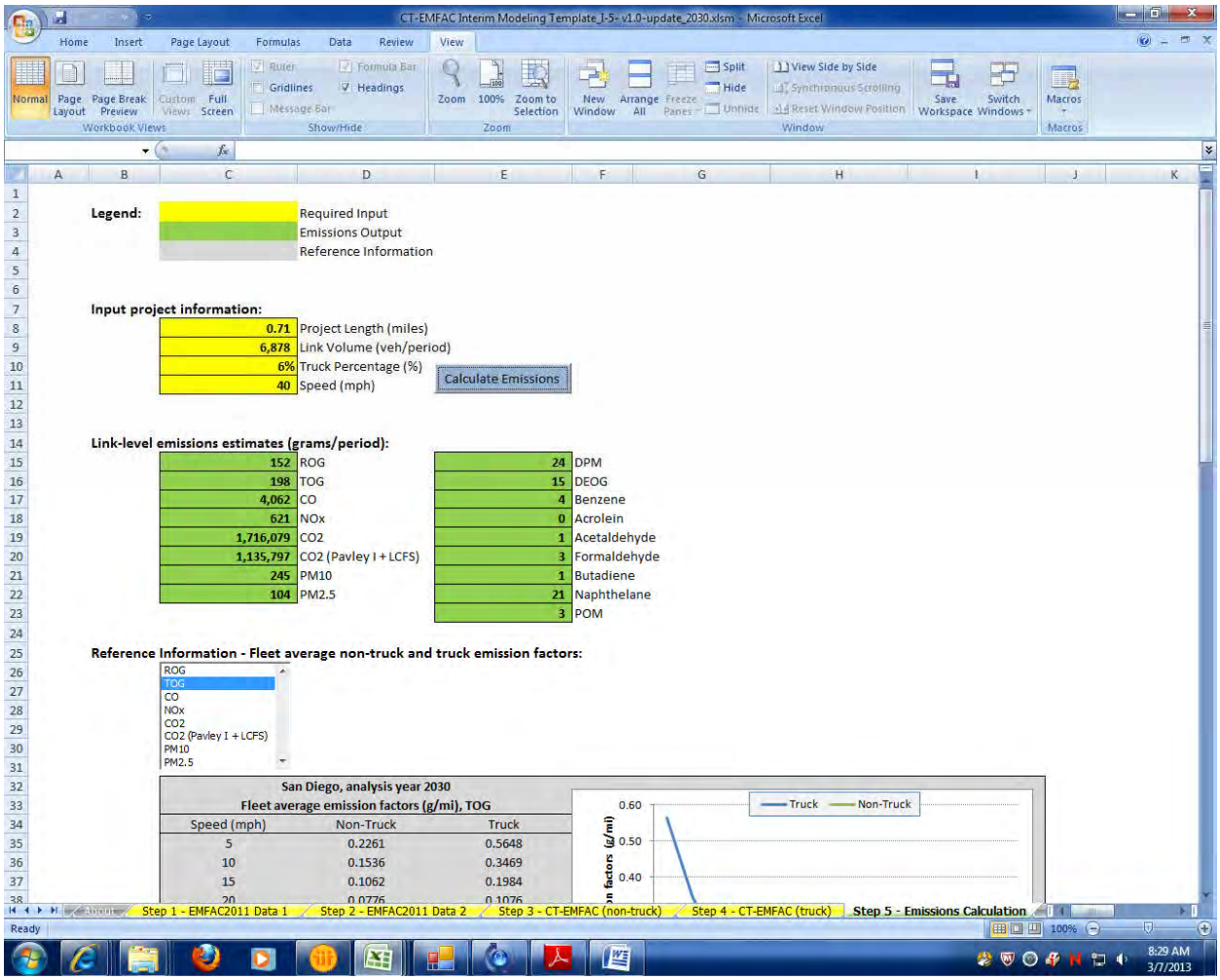
2030 No-build
Link: 4 (NB GP)
Segment: 20
Peak



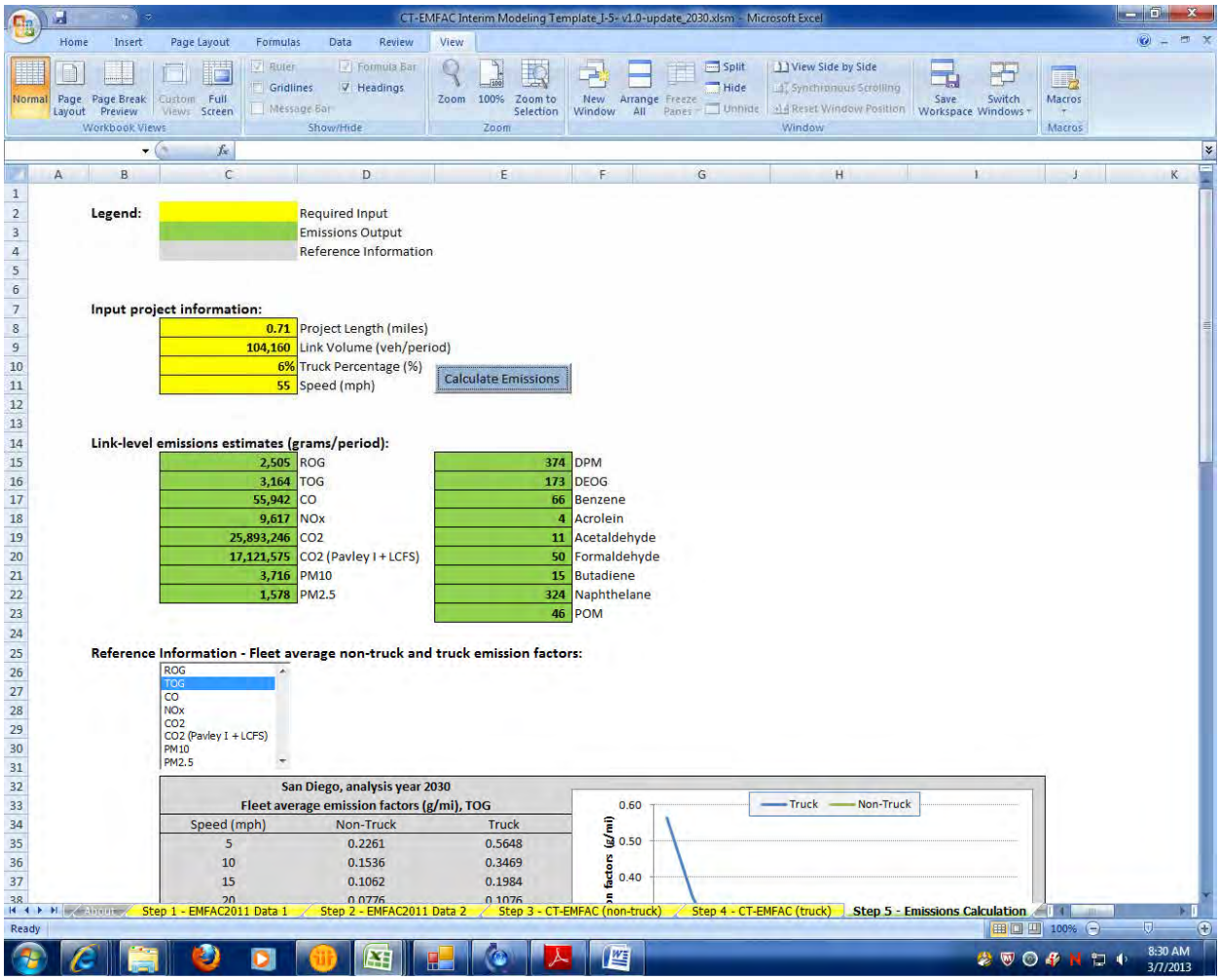
2030 No-build
Link: 4 (NB GP)
Segment: 20
Off Peak



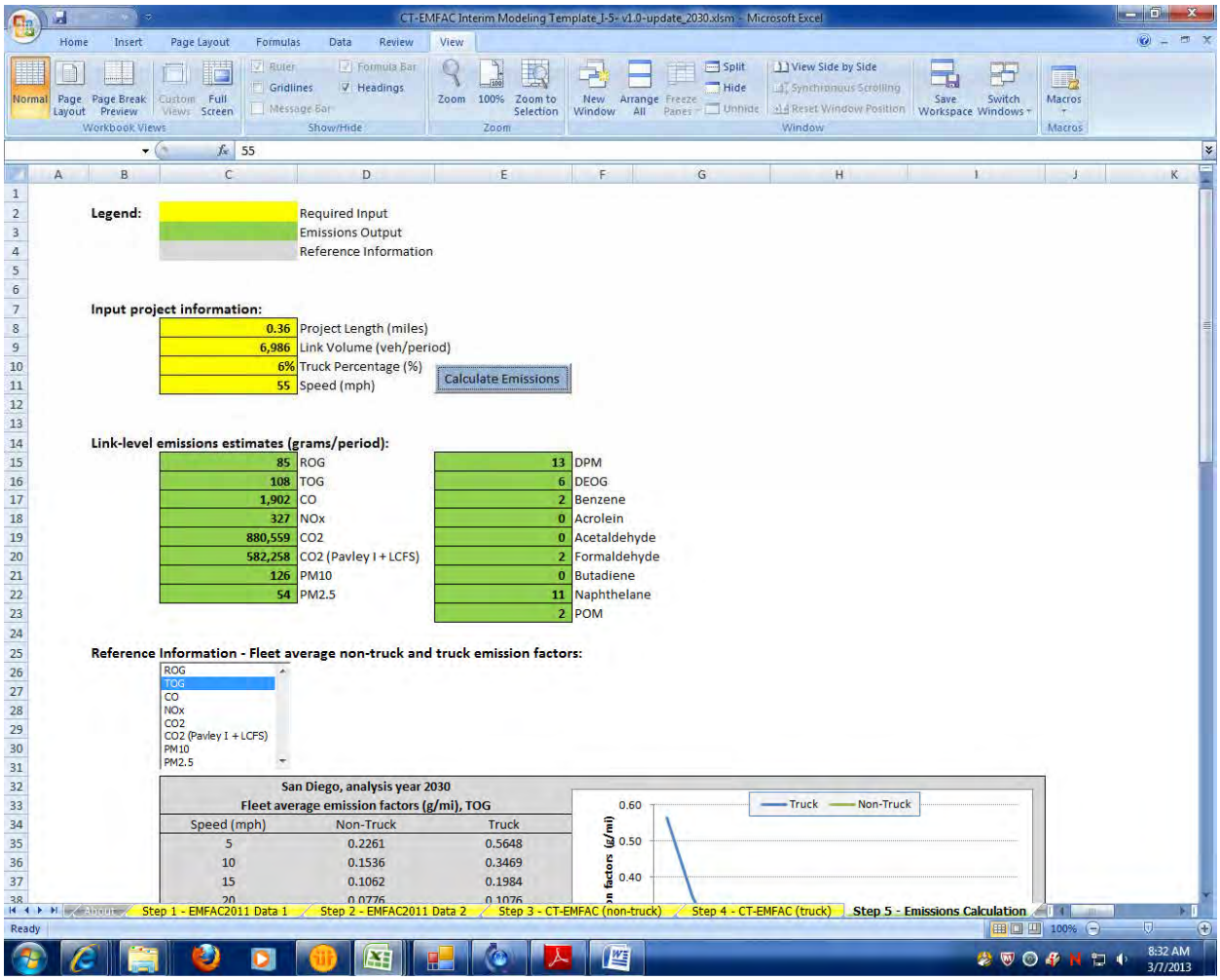
2030 No-build
Link: 4 (NB GP)
Segment: 21
Peak



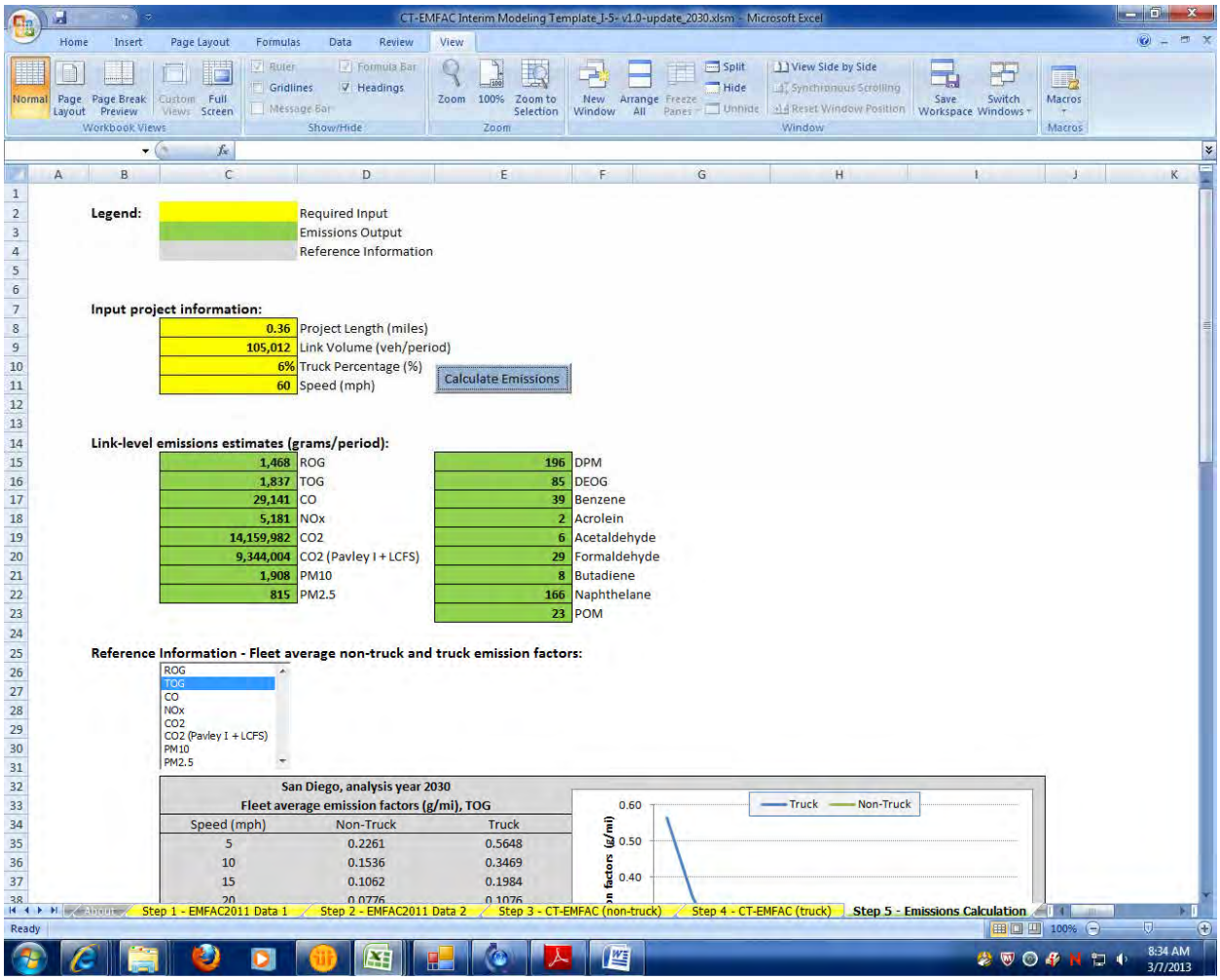
2030 No-build
Link: 4 (NB GP)
Segment: 21
Off Peak



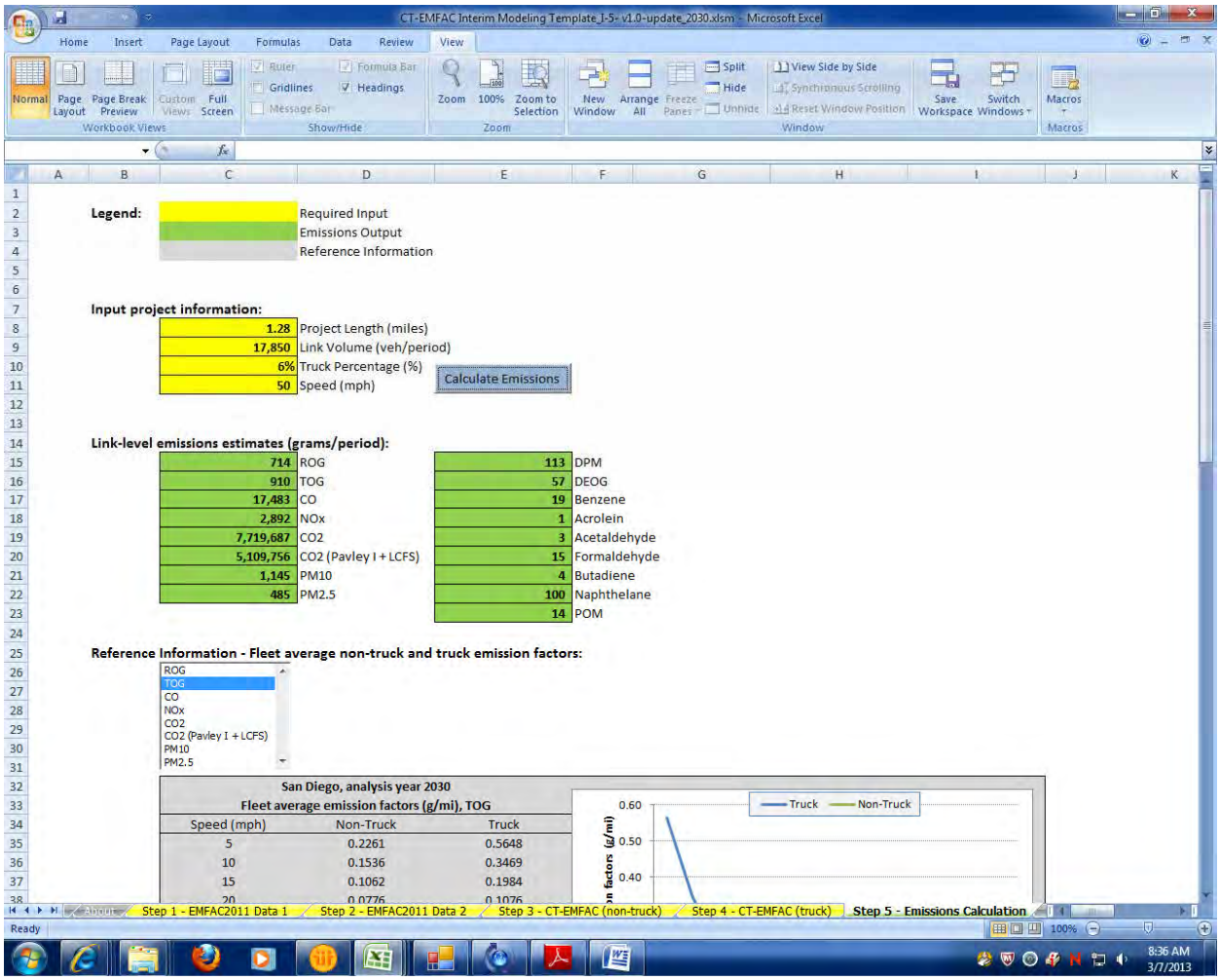
2030 No-build
Link: 4 (NB GP)
Segment: 22
Peak



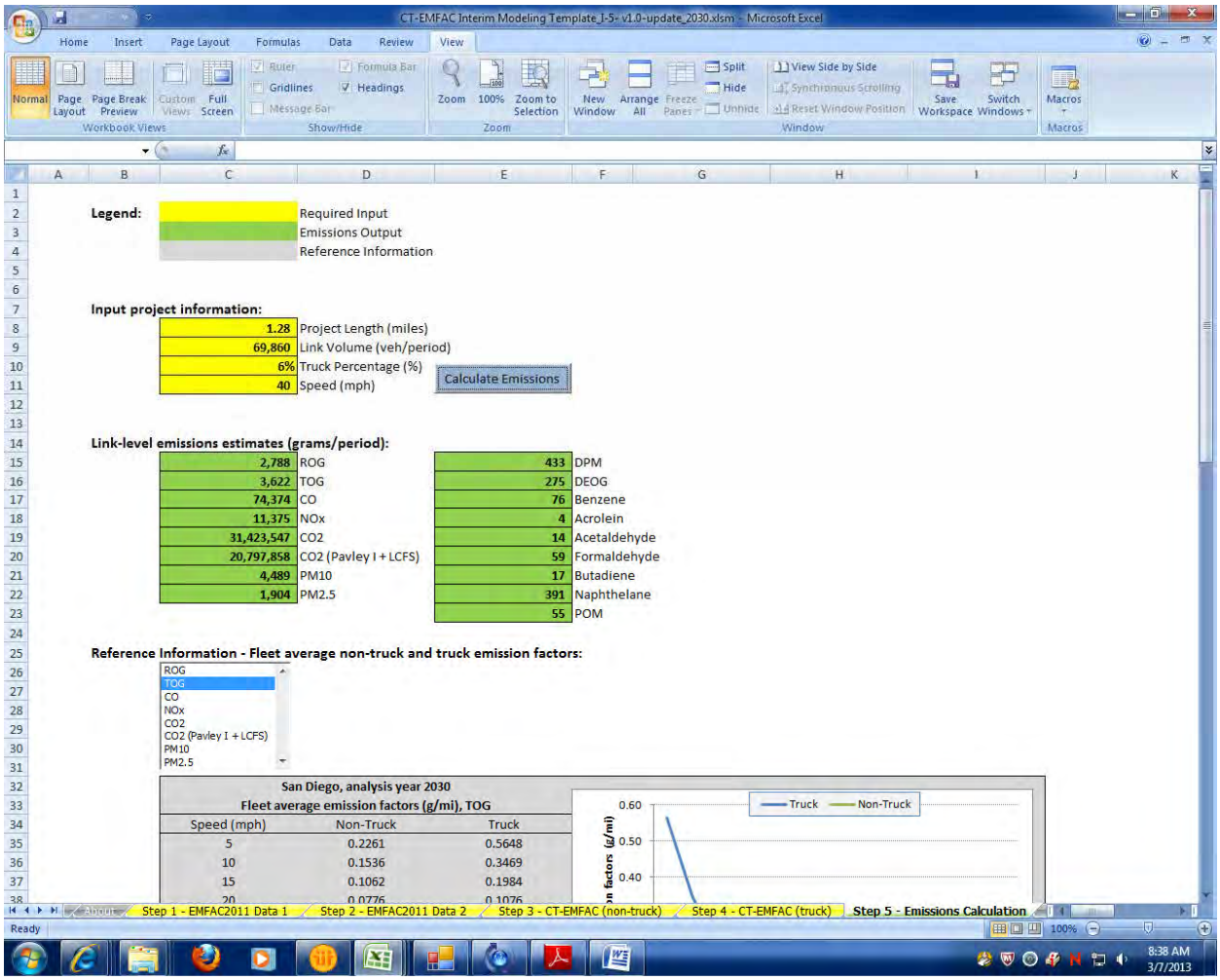
2030 No-build
Link: 4 (NB GP)
Segment: 22
Off Peak



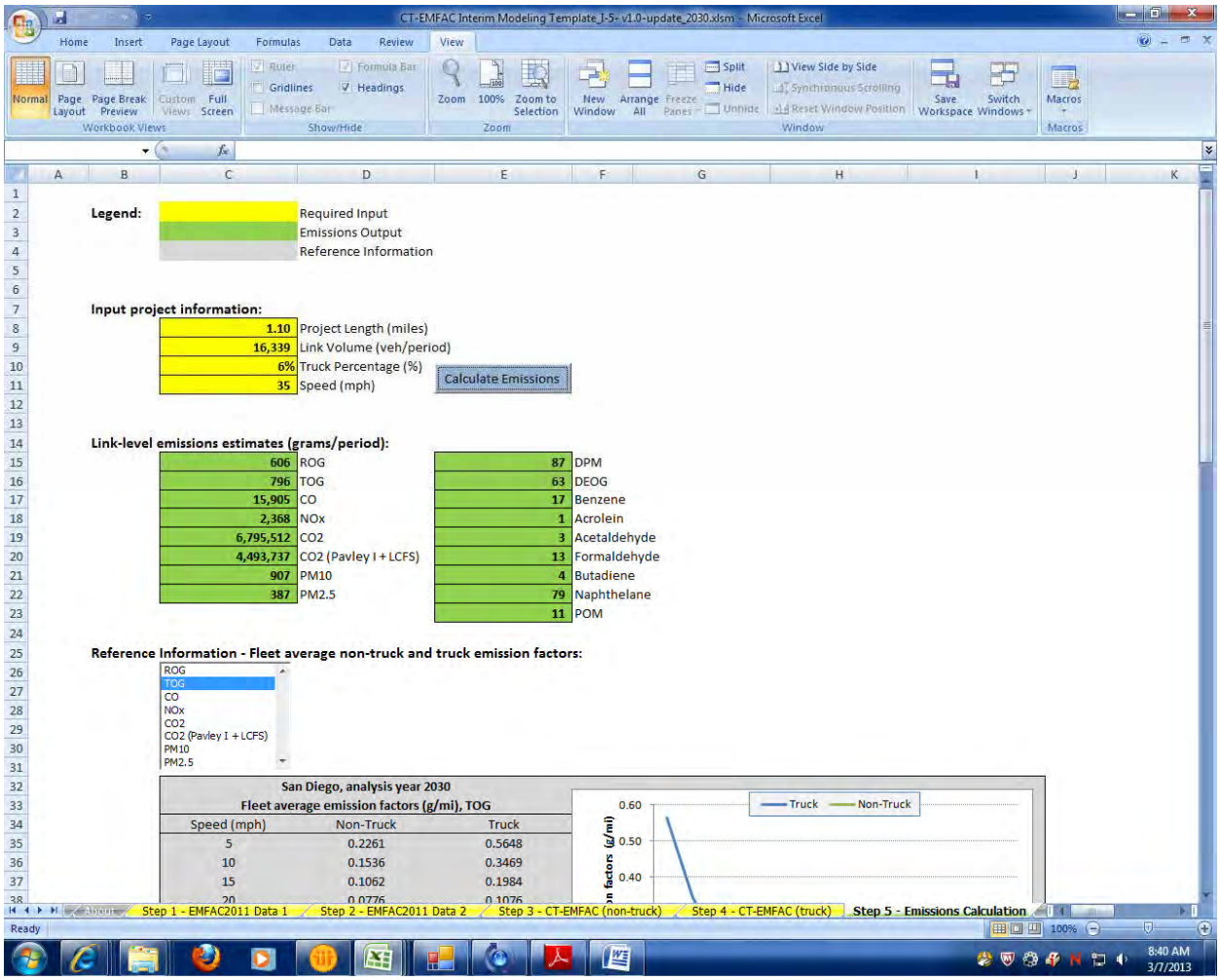
2030 No-build
Link: 5 (NB BP)
Segment: 2
Peak



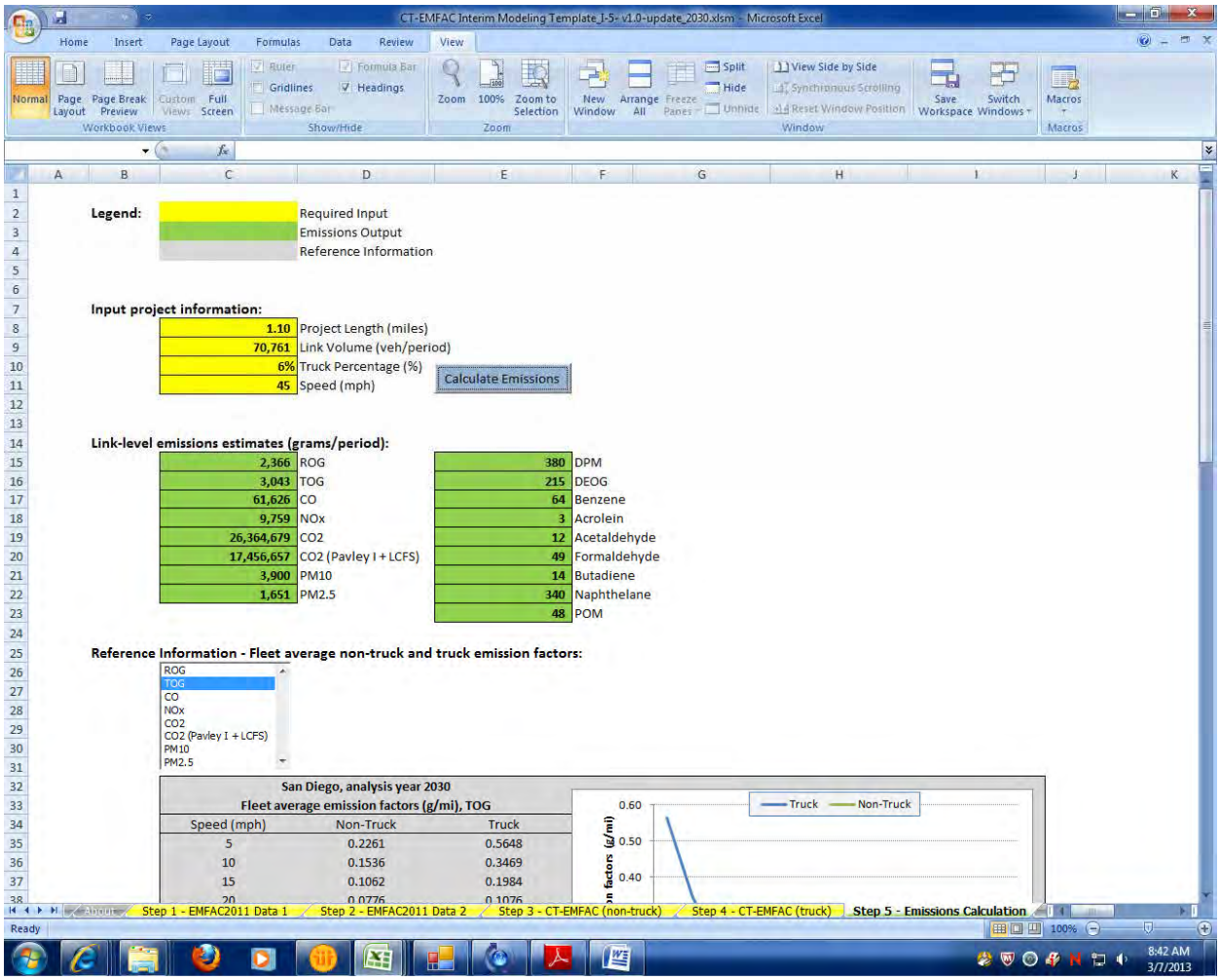
2030 No-build
Link: 5 (NB BP)
Segment: 2
Off Peak



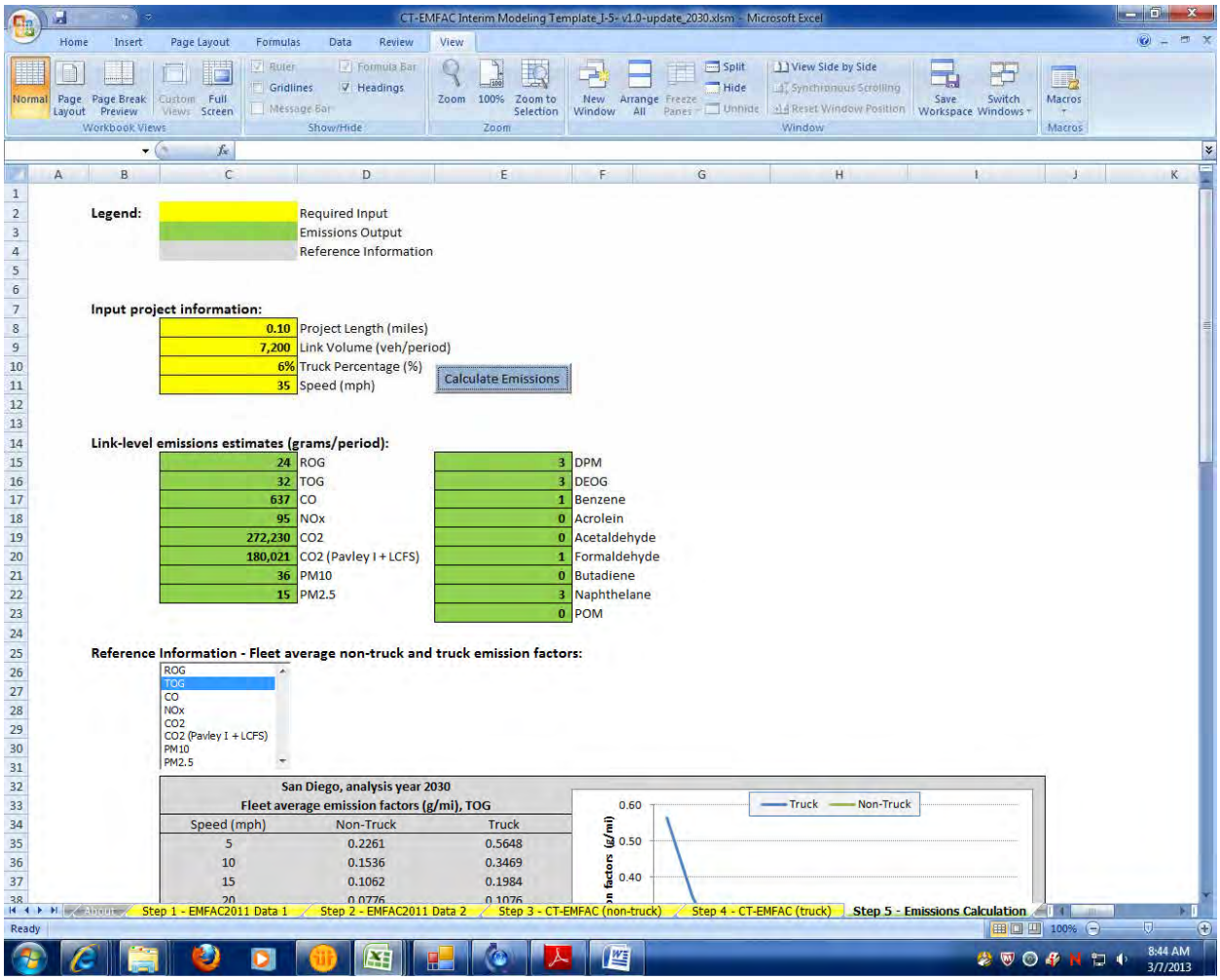
2030 No-build
Link: 5 (NB BP)
Segment: 3
Peak



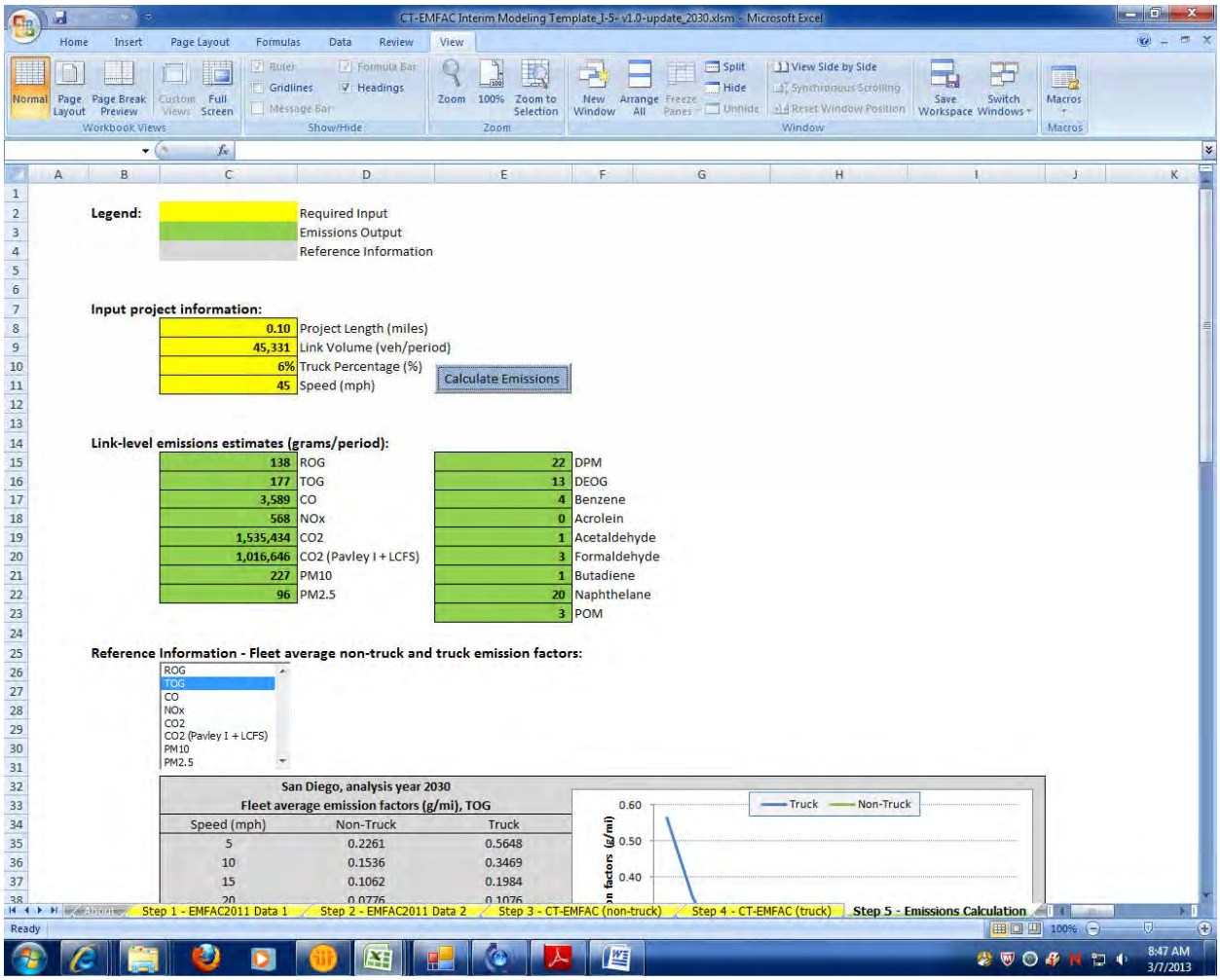
2030 No-build
Link: 5 (NB BP)
Segment: 3
Off Peak



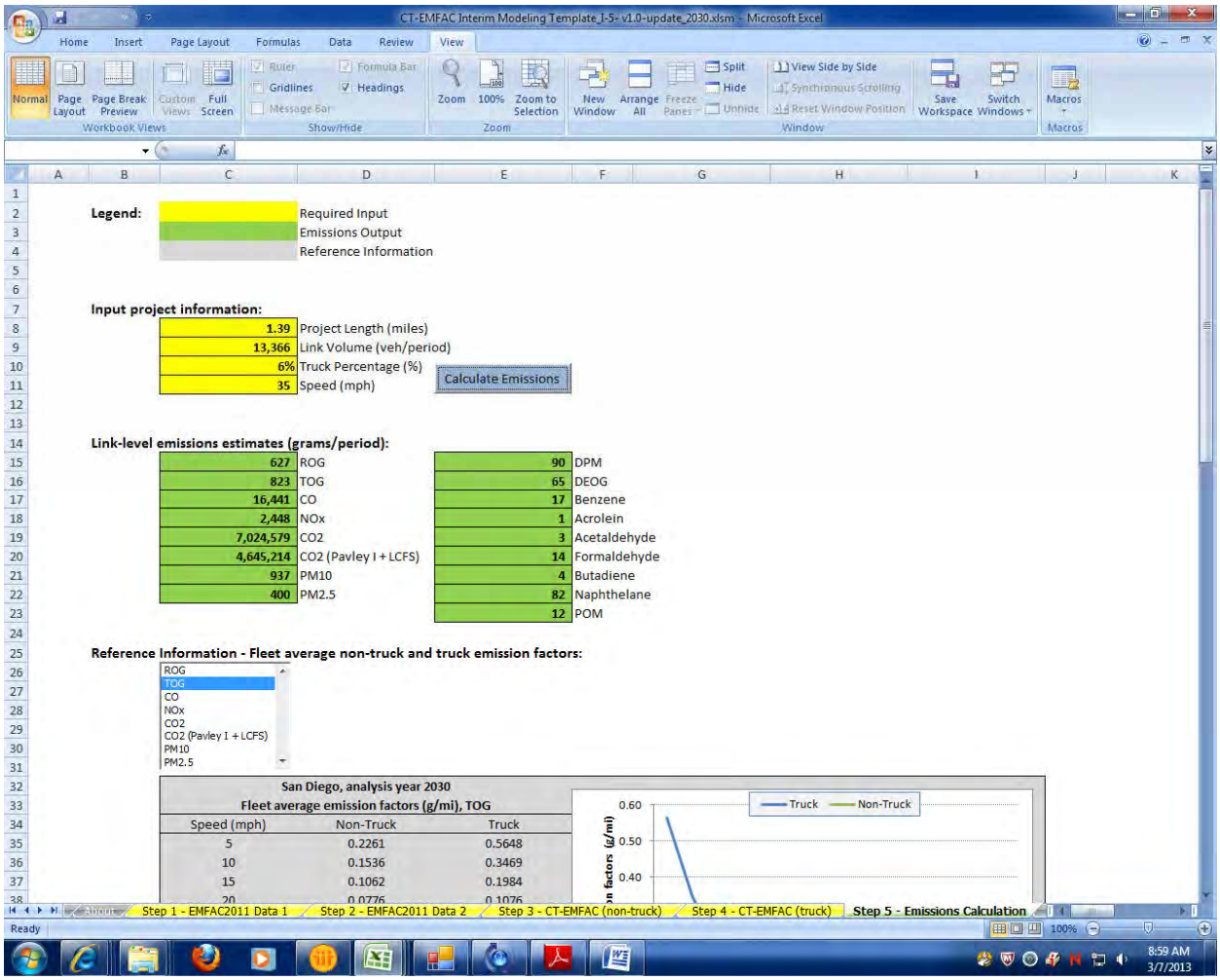
2030 No-build
Link: 5 (NB BP)
Segment: 4
Peak



2030 No-build
Link: 5 (NB BP)
Segment: 4
Off Peak



2030 No-build
Link: 6 (SB BP)
Segment: 2
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.39	Project Length (miles)
13,366	Link Volume (veh/period)
6%	Truck Percentage (%)
35	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

627	ROG	90	DPM
823	TOG	65	DEOG
16,441	CO	17	Benzene
2,448	NOx	1	Acrolein
7,024,579	CO2	3	Acetaldehyde
4,645,214	CO2 (Pavley I + LCFS)	14	Formaldehyde
937	PM10	4	Butadiene
400	PM2.5	82	Naphthelane
		12	POM

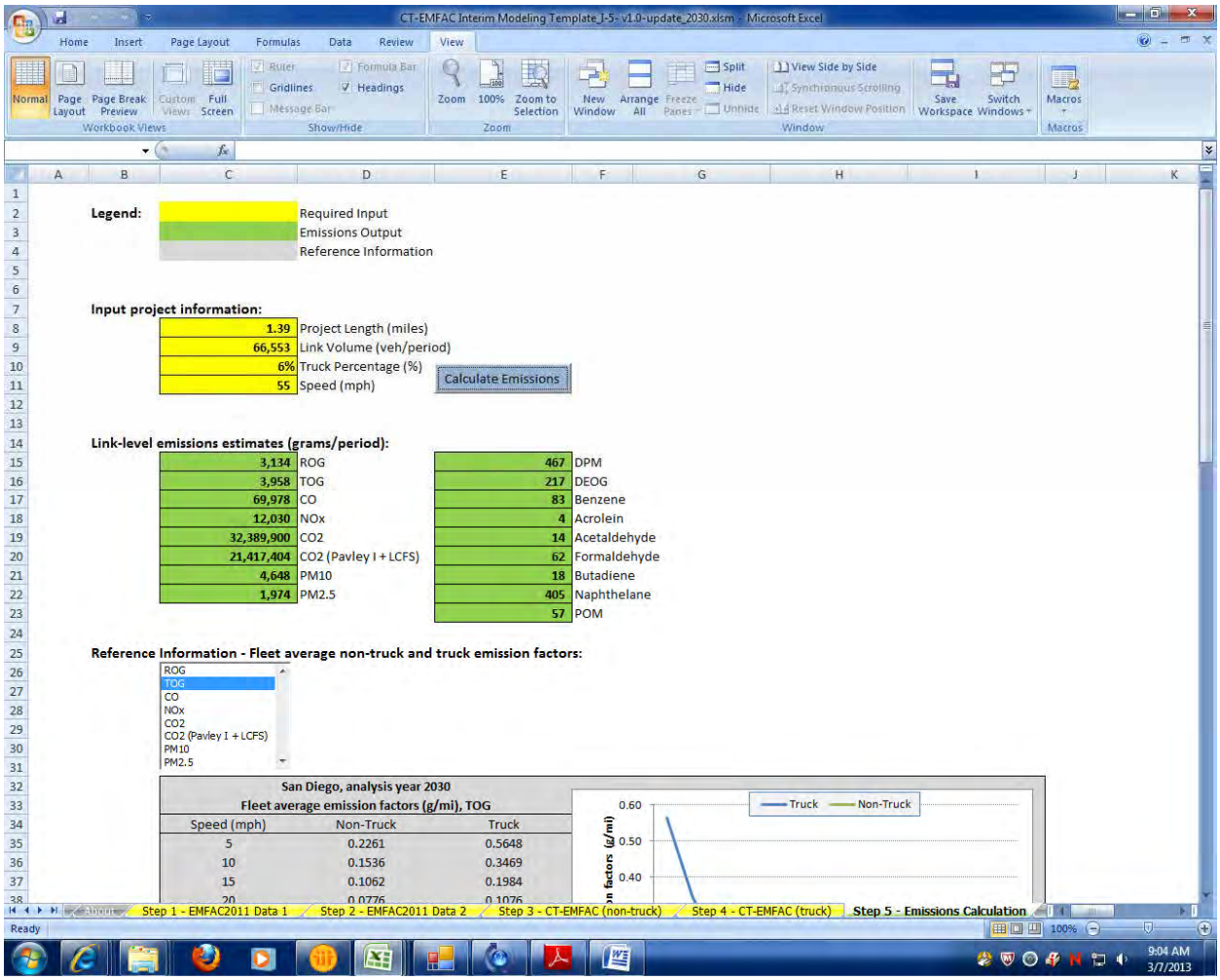
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

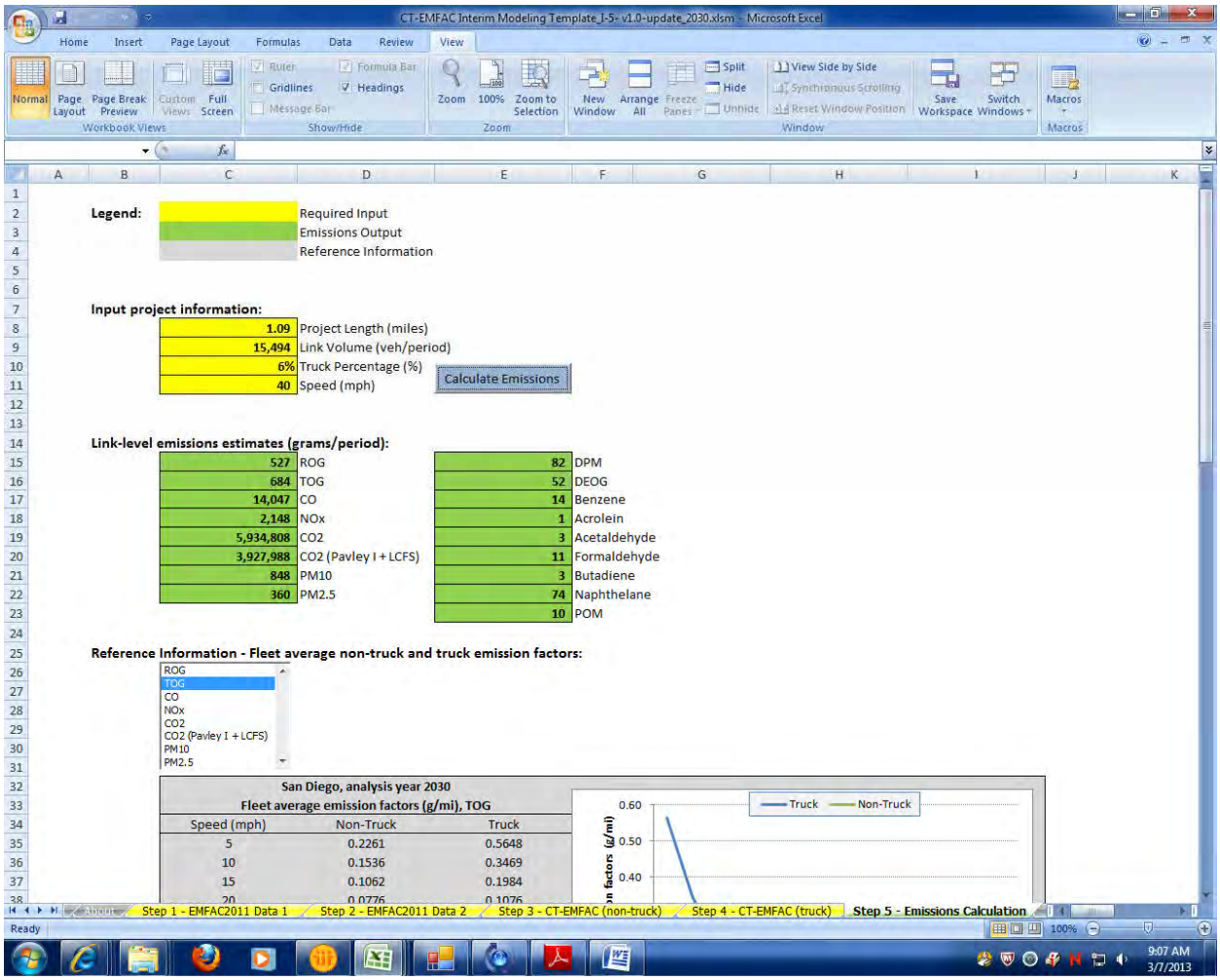
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

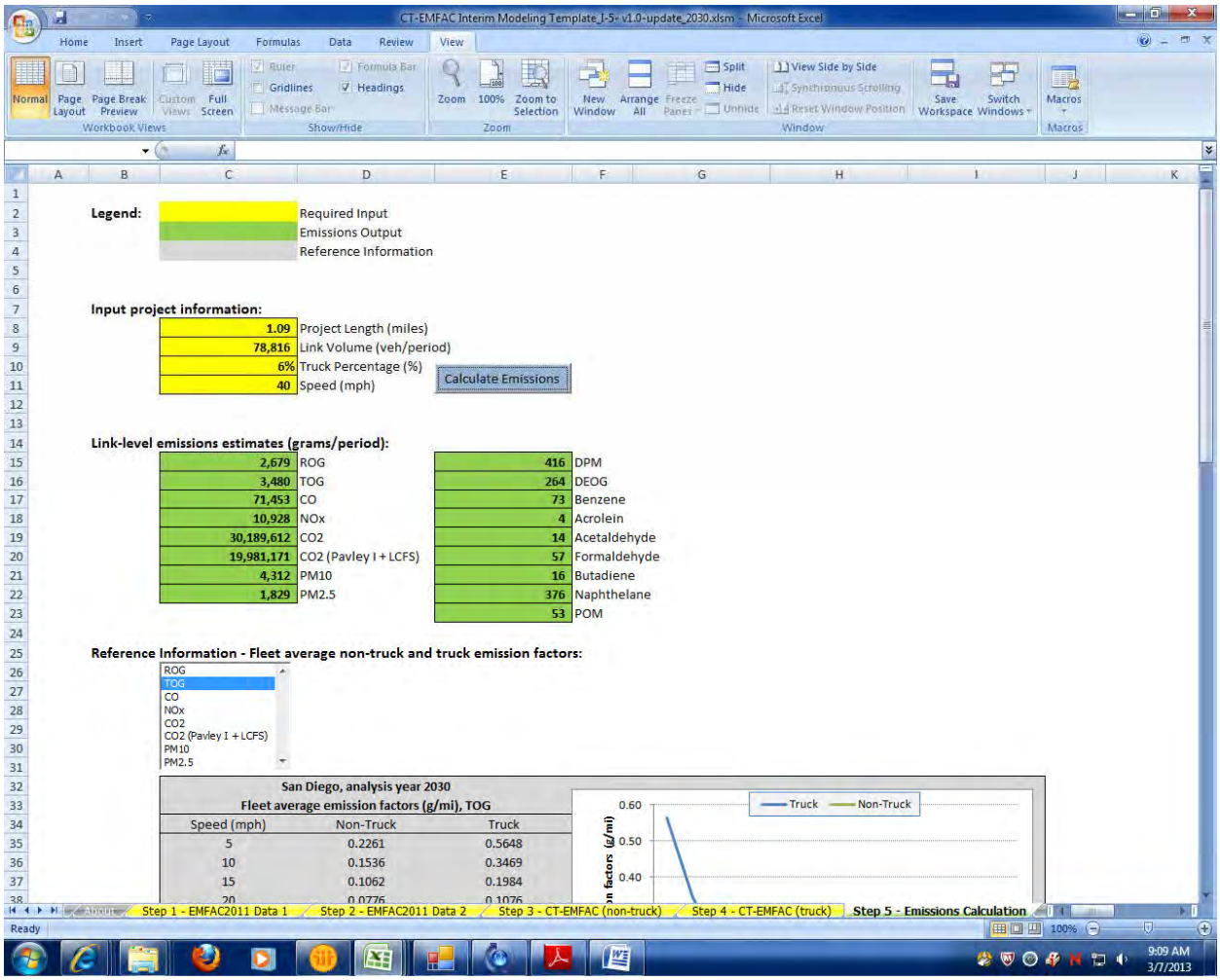
2030 No-build
Link: 6 (SB BP)
Segment: 2
Off Peak



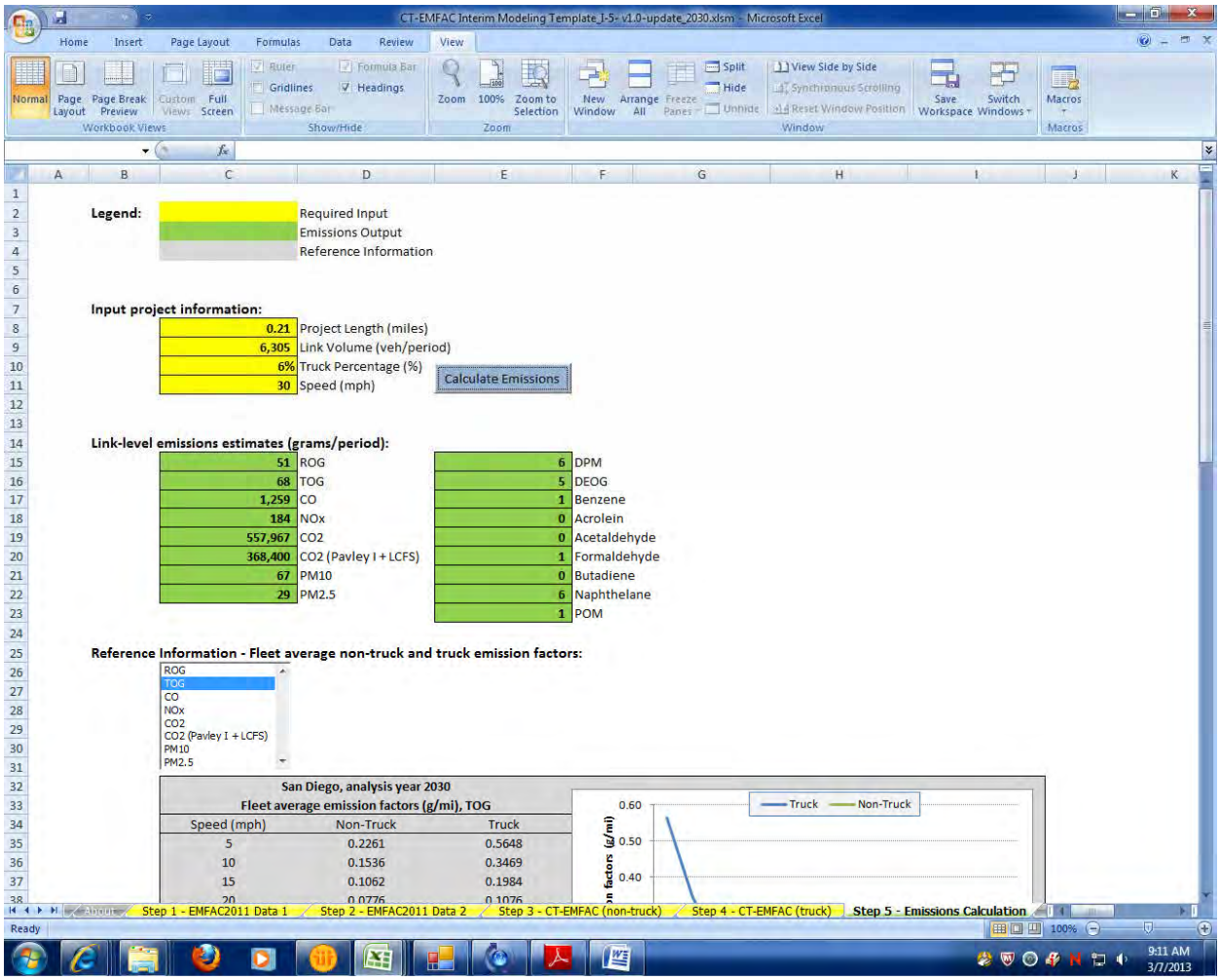
2030 No-build
Link: 6 (SB BP)
Segment: 3
Peak



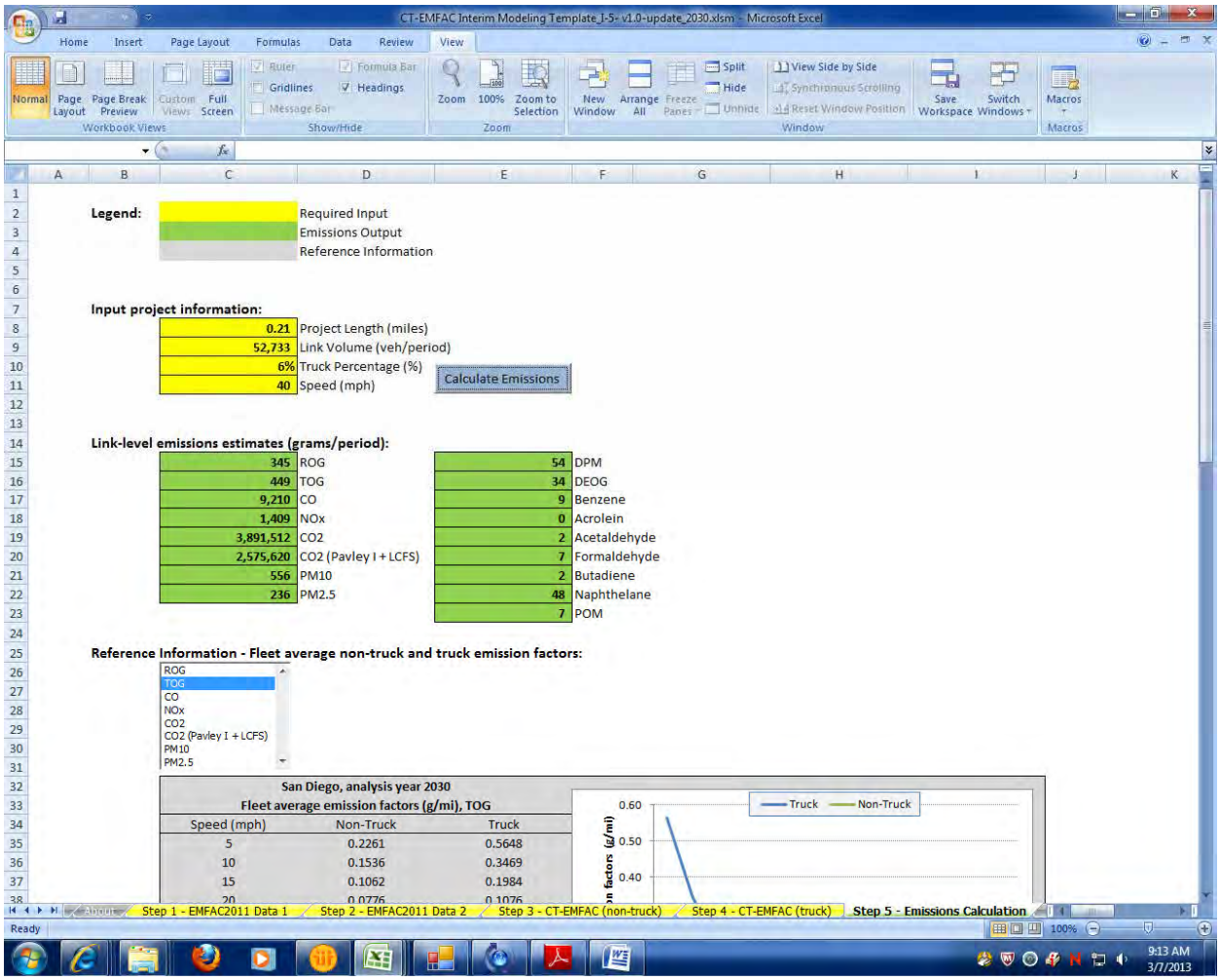
2030 No-build
Link: 6 (SB BP)
Segment: 3
Off Peak



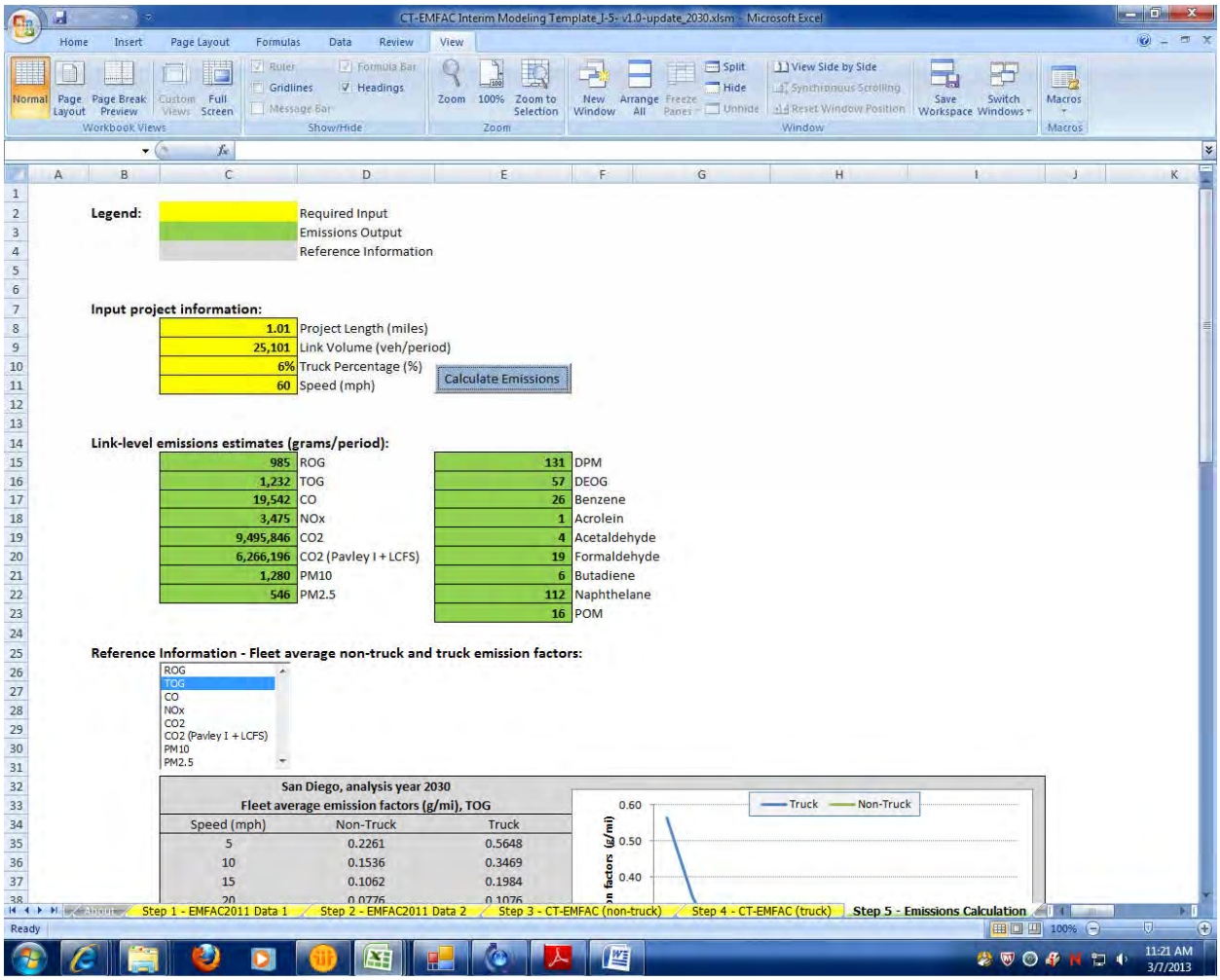
2030 No-build
Link: 6 (SB BP)
Segment: 4
Peak



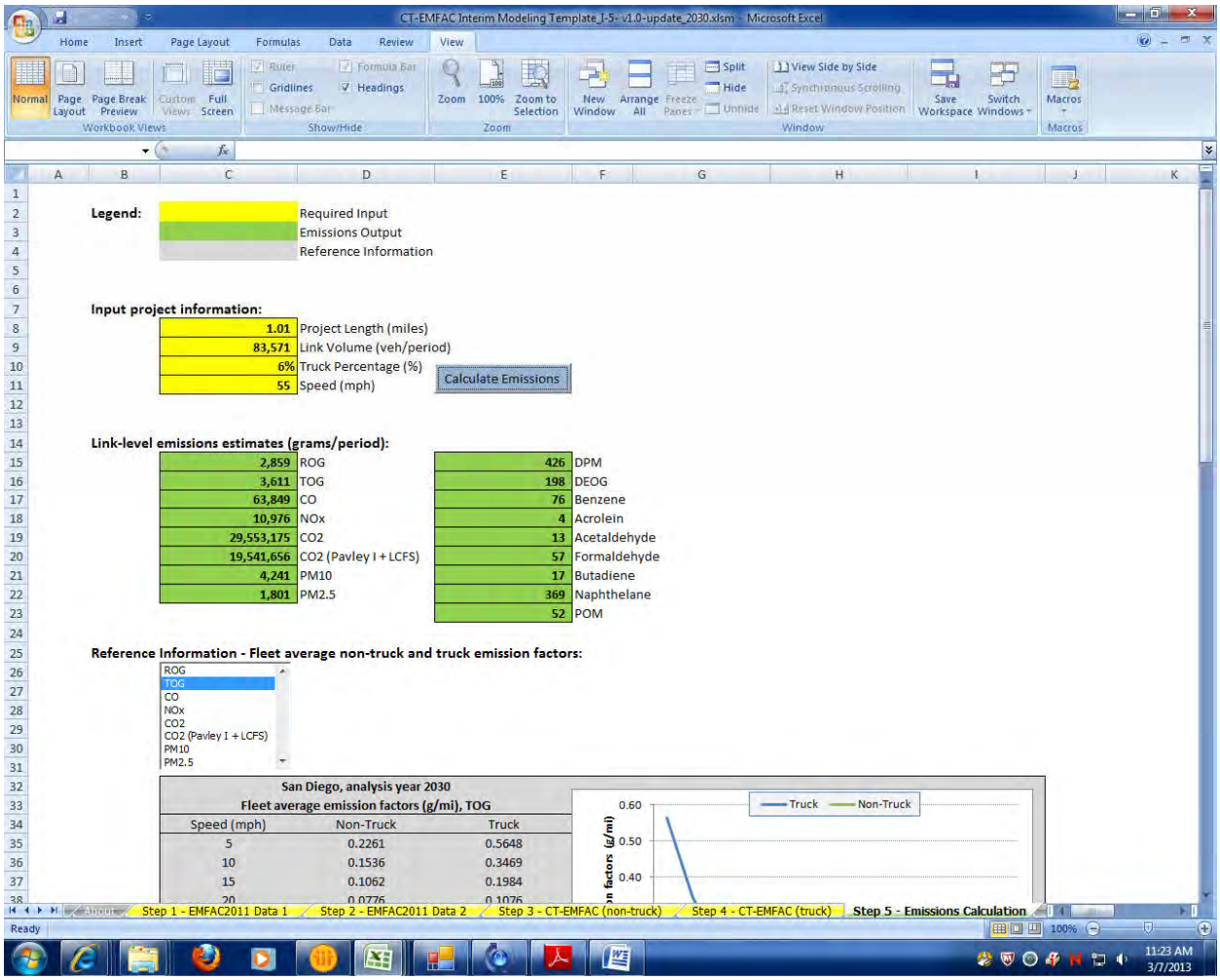
2030 No-build
Link: 6 (SB BP)
Segment: 4
Off Peak



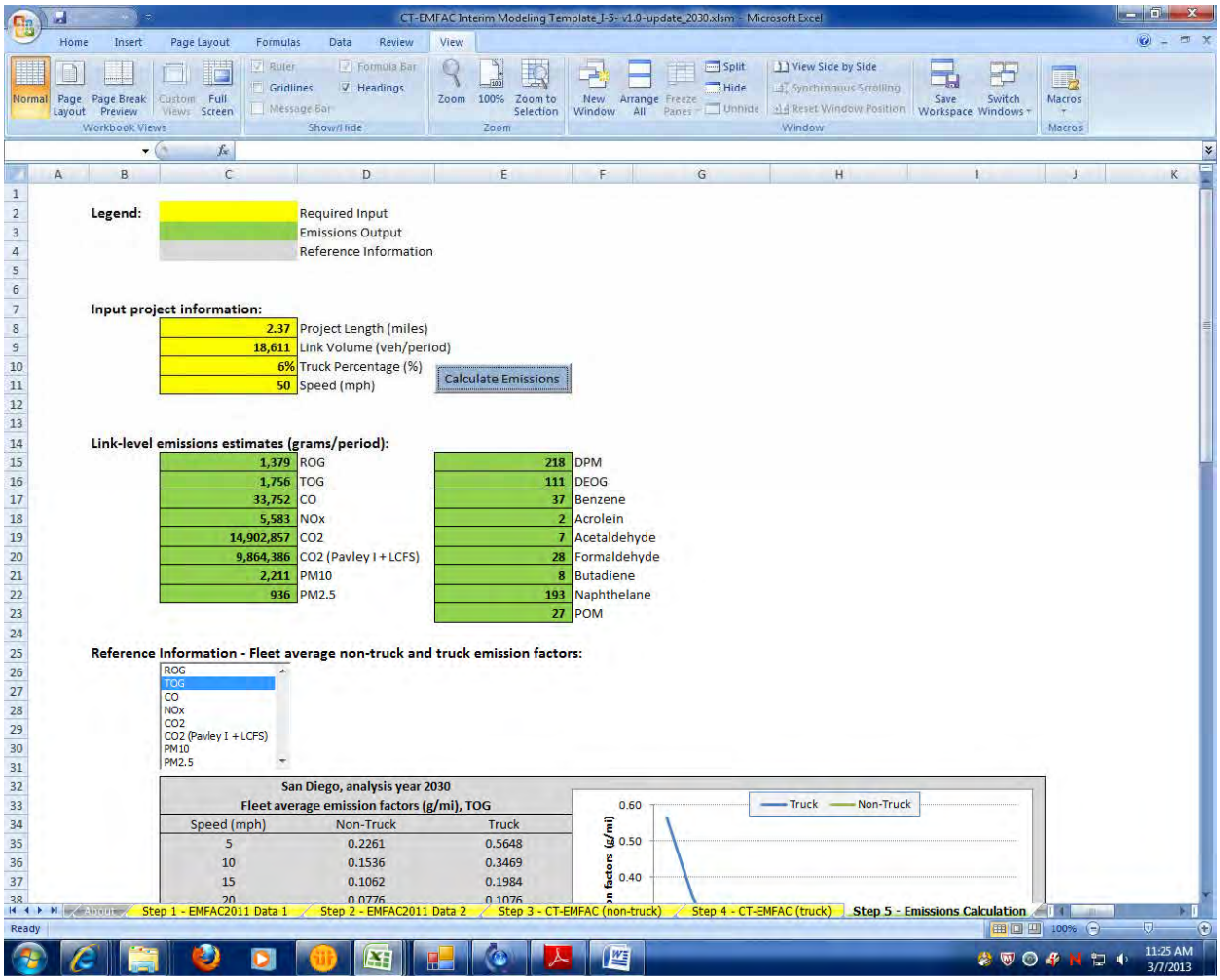
2030 8+4
Link: 1 (NB GP)
Segment: 1
Peak



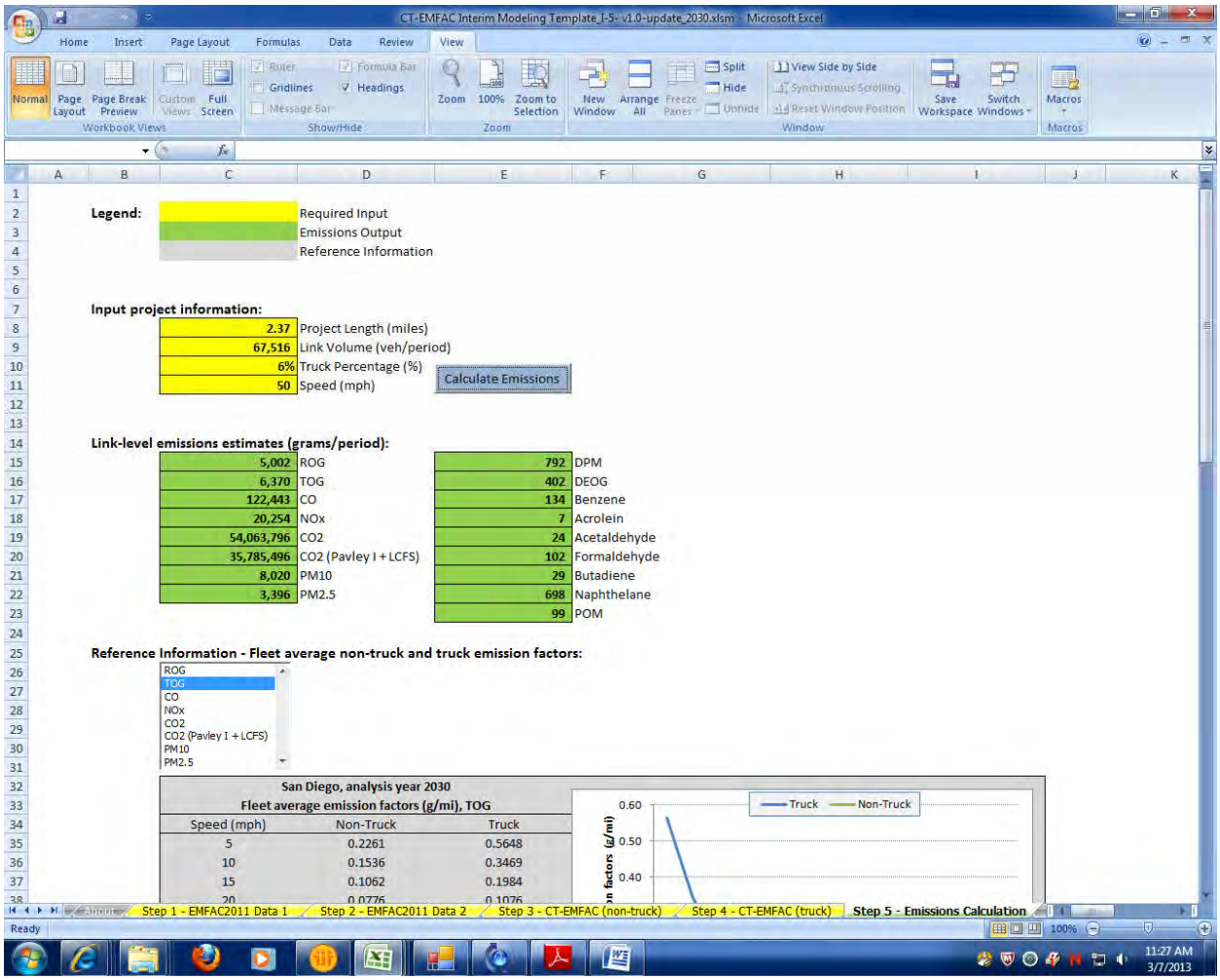
2030 8+4
Link: 1 (NB GP)
Segment: 1
Off Peak



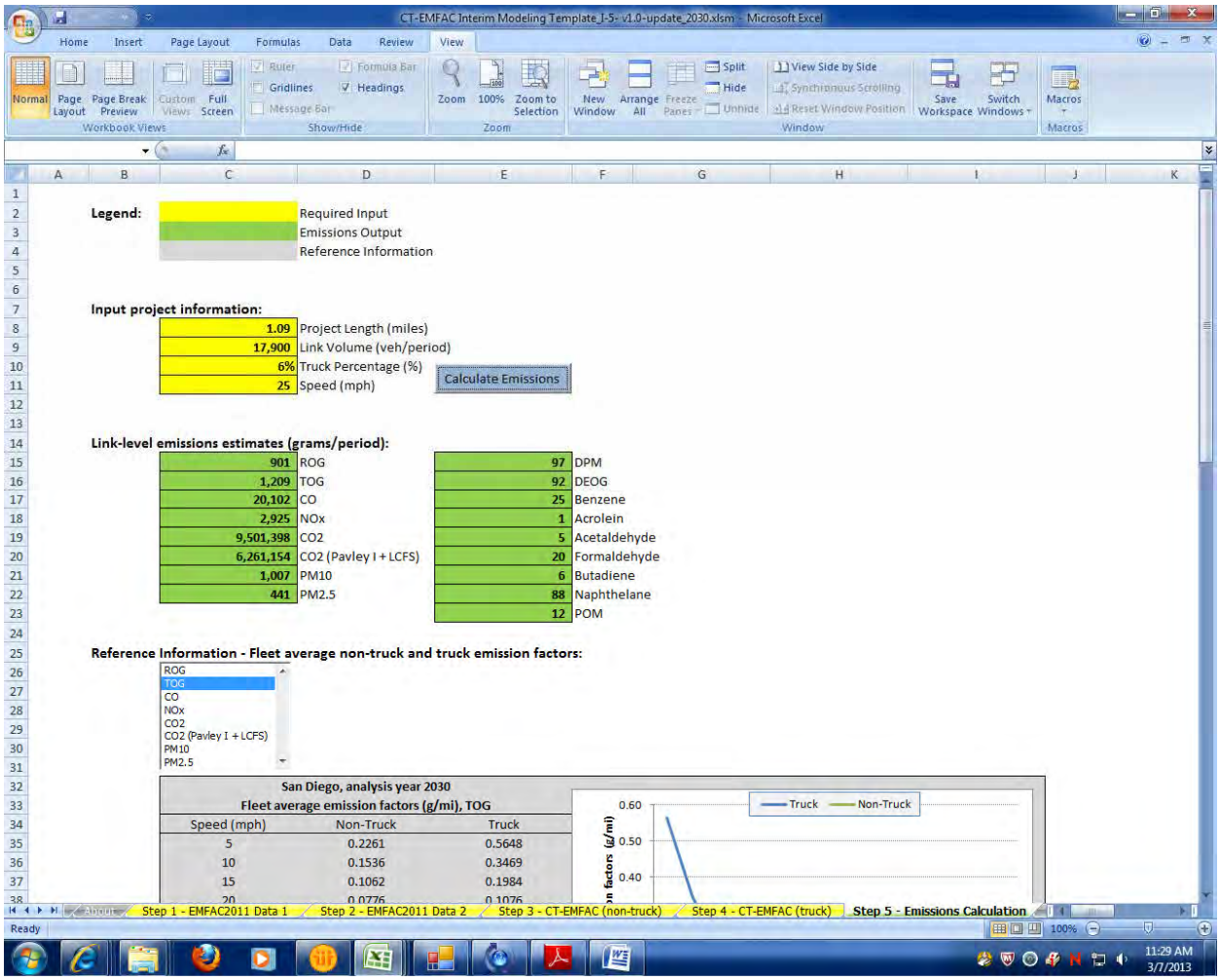
2030 8+4
Link: 1 (NB GP)
Segment: 2
Peak



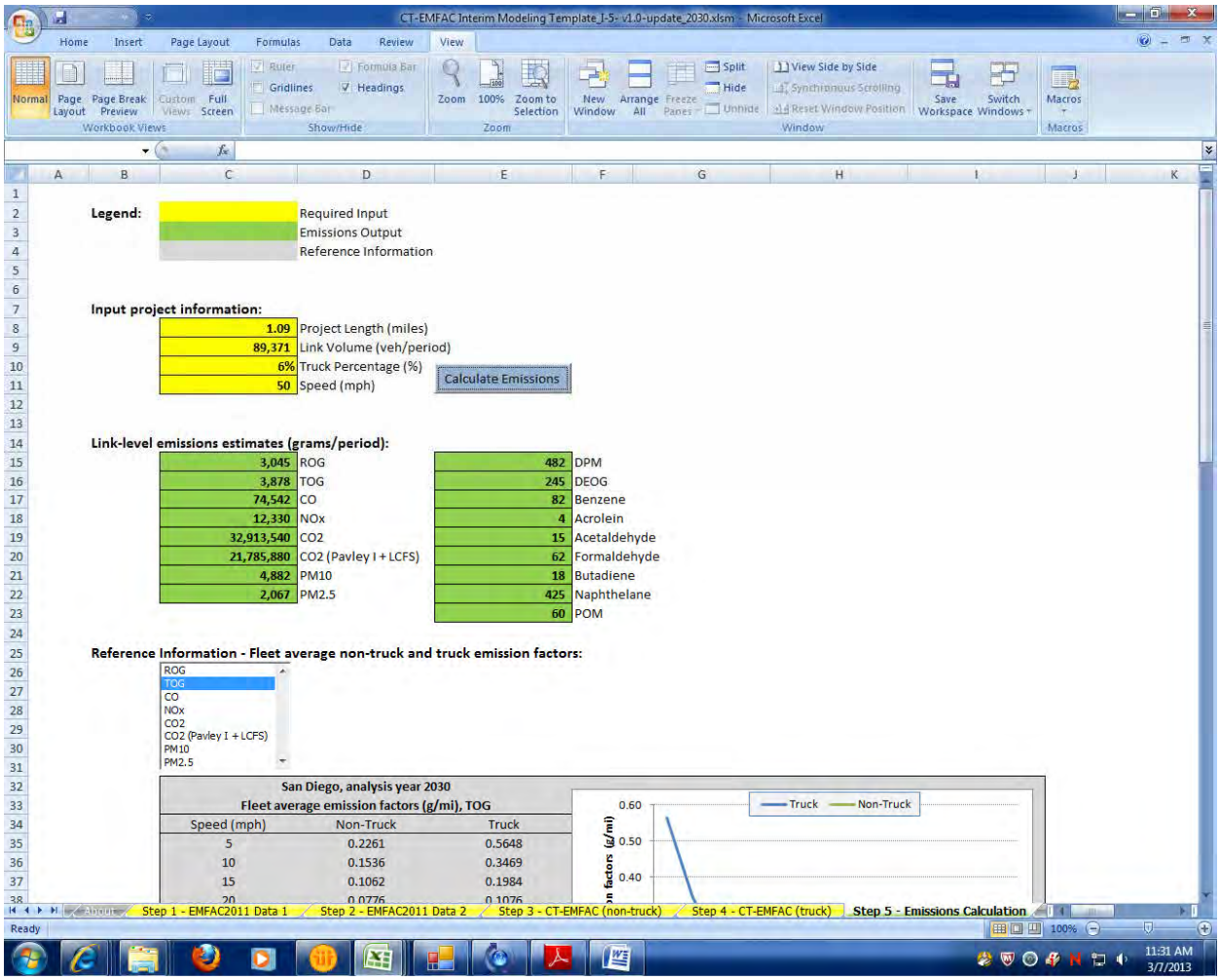
2030 8+4
Link: 1 (NB GP)
Segment: 2
Off Peak



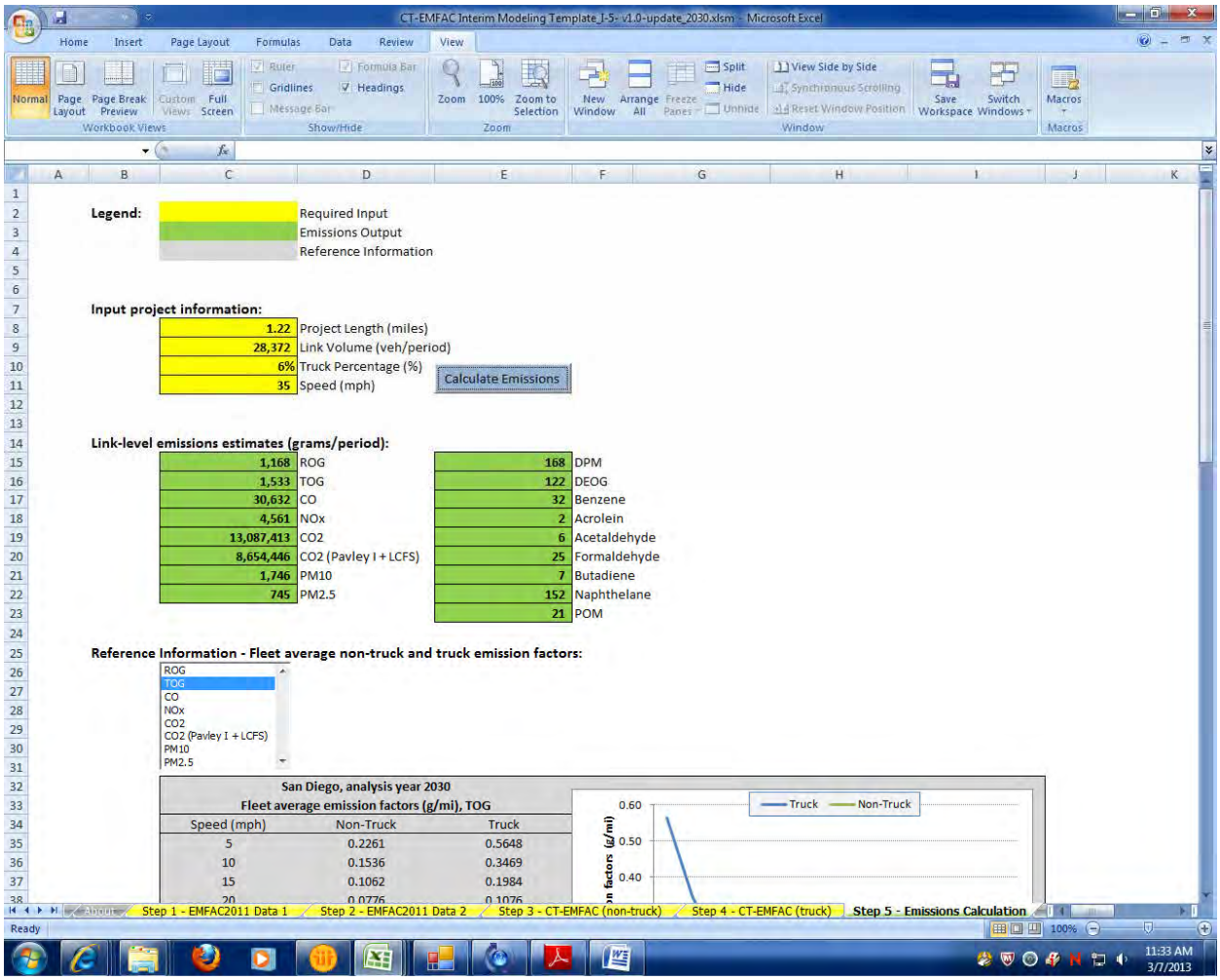
2030 8+4
Link: 1 (NB GP)
Segment: 3
Peak



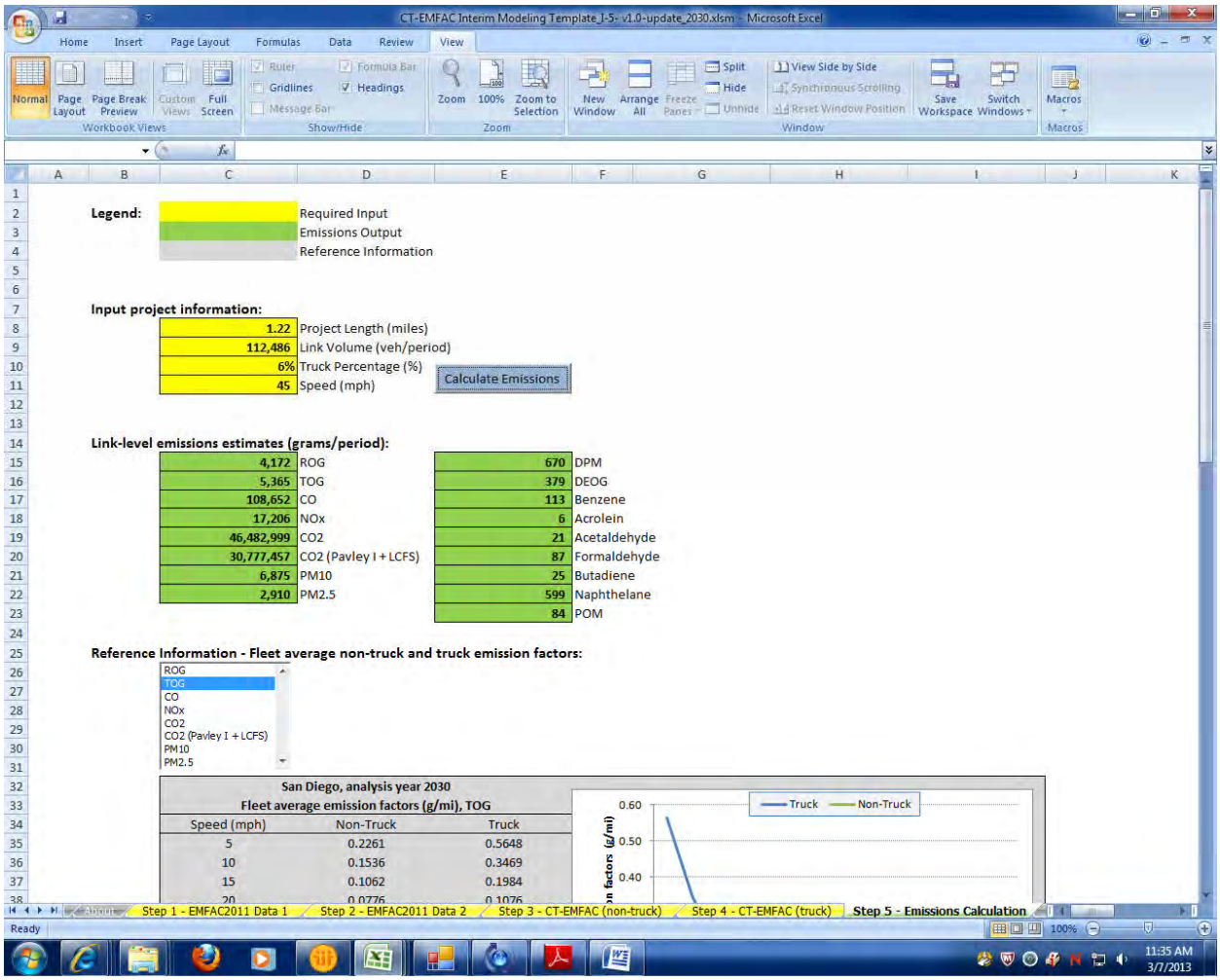
2030 8+4
Link: 1 (NB GP)
Segment: 3
Off Peak



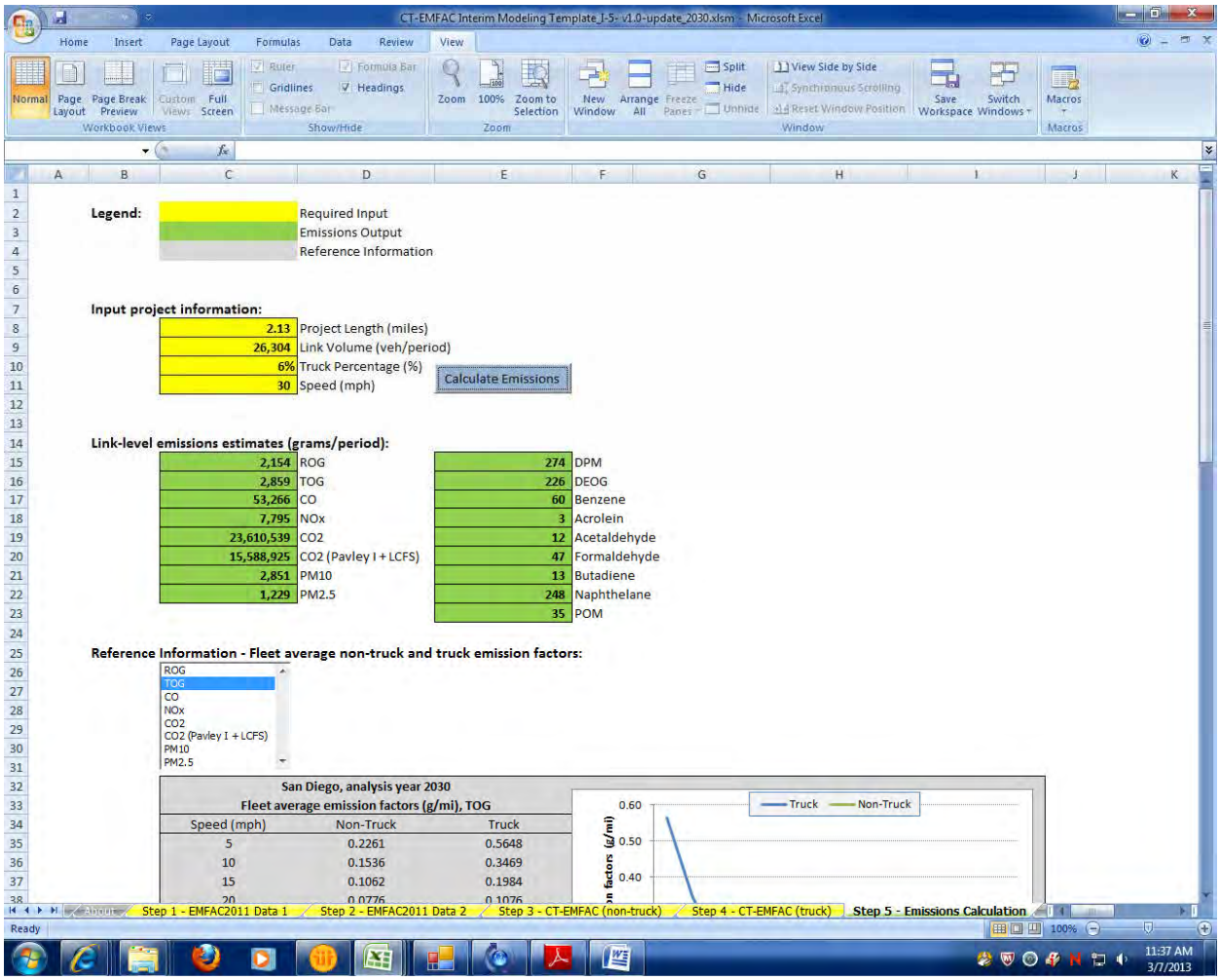
2030 8+4
Link: 1 (NB GP)
Segment: 4
Peak



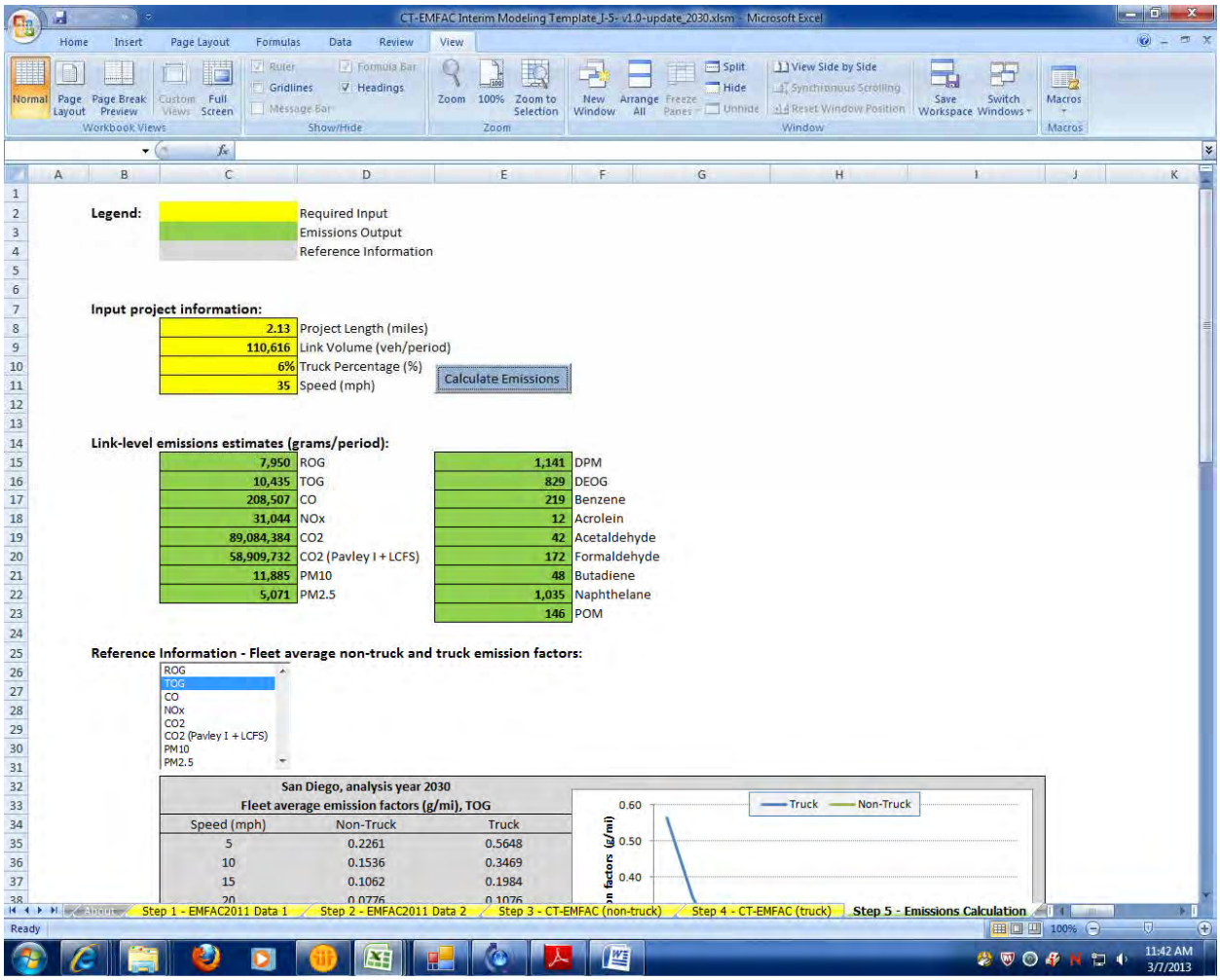
2030 8+4
Link: 1 (NB GP)
Segment: 4
Off Peak



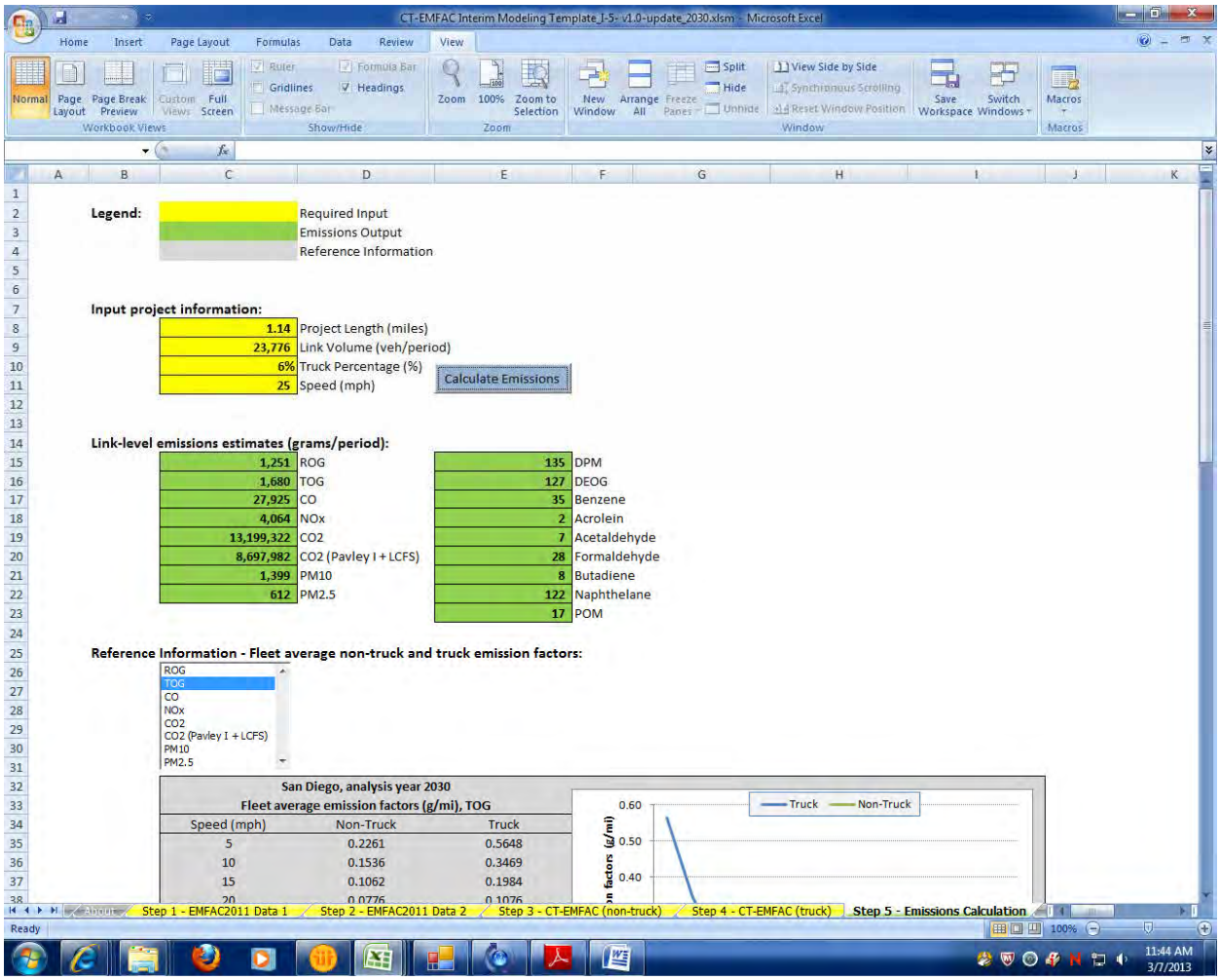
2030 8+4
Link: 1 (NB GP)
Segment: 5
Peak



2030 8+4
Link: 1 (NB GP)
Segment: 5
Off Peak



2030 8+4
Link: 1 (NB GP)
Segment: 6
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.14	Project Length (miles)
23,776	Link Volume (veh/period)
6%	Truck Percentage (%)
25	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

1,251	ROG	135	DPM
1,680	TOG	127	DEOG
27,925	CO	35	Benzene
4,064	NOx	2	Acrolein
13,199,322	CO2	7	Acetaldehyde
8,697,982	CO2 (Pavley I + LCFS)	28	Formaldehyde
1,399	PM10	8	Butadiene
612	PM2.5	122	Naphthelane
		17	POM

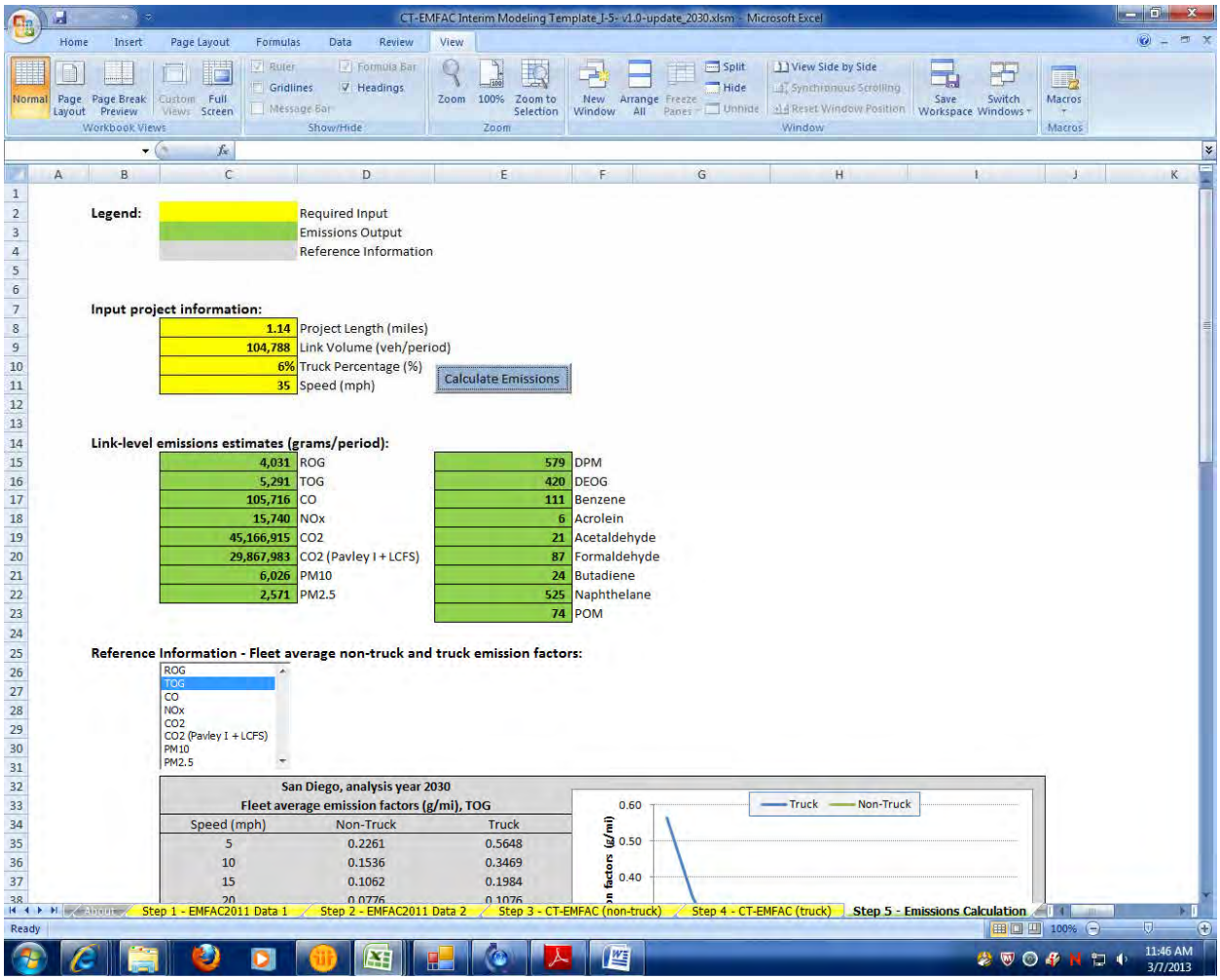
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

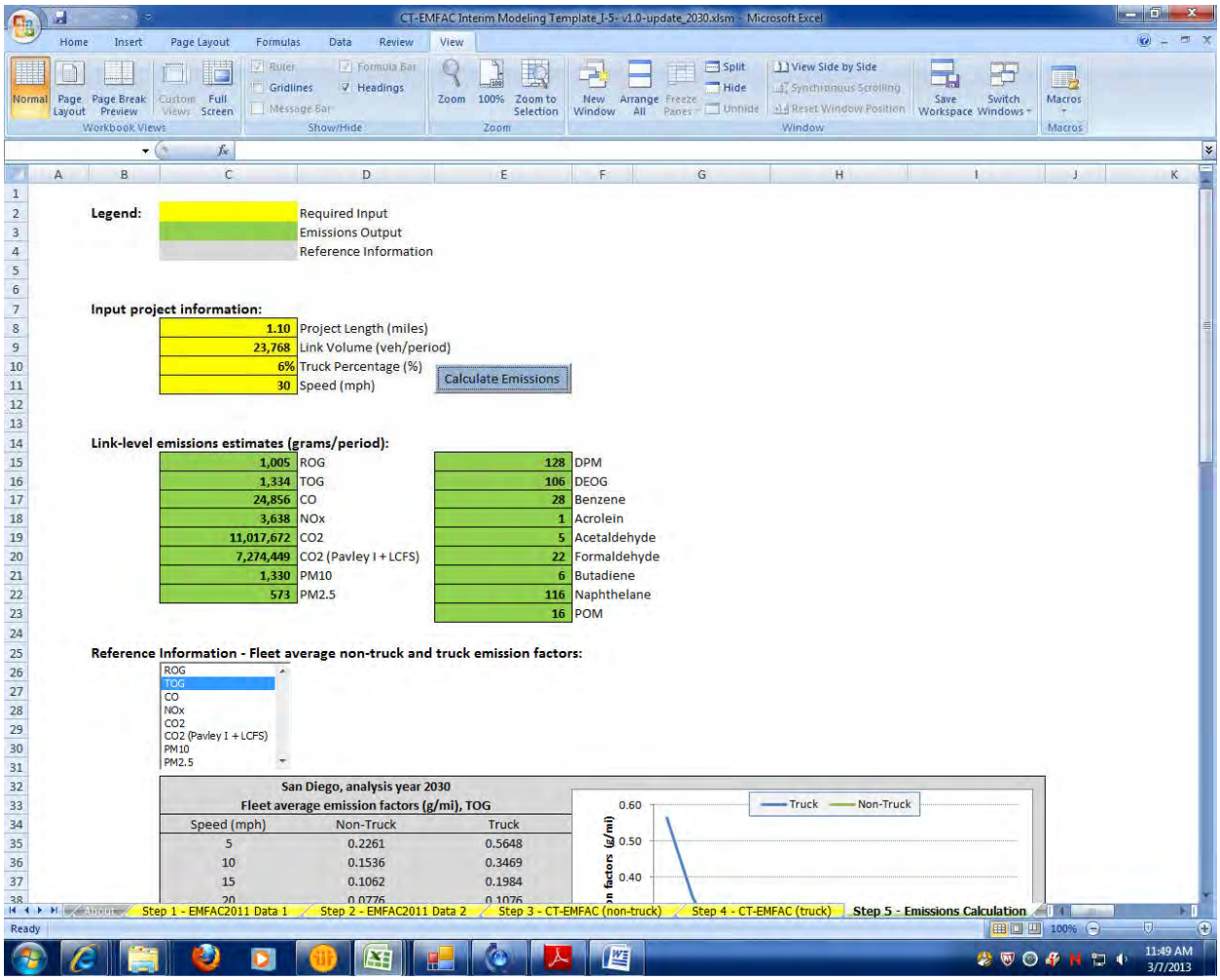
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

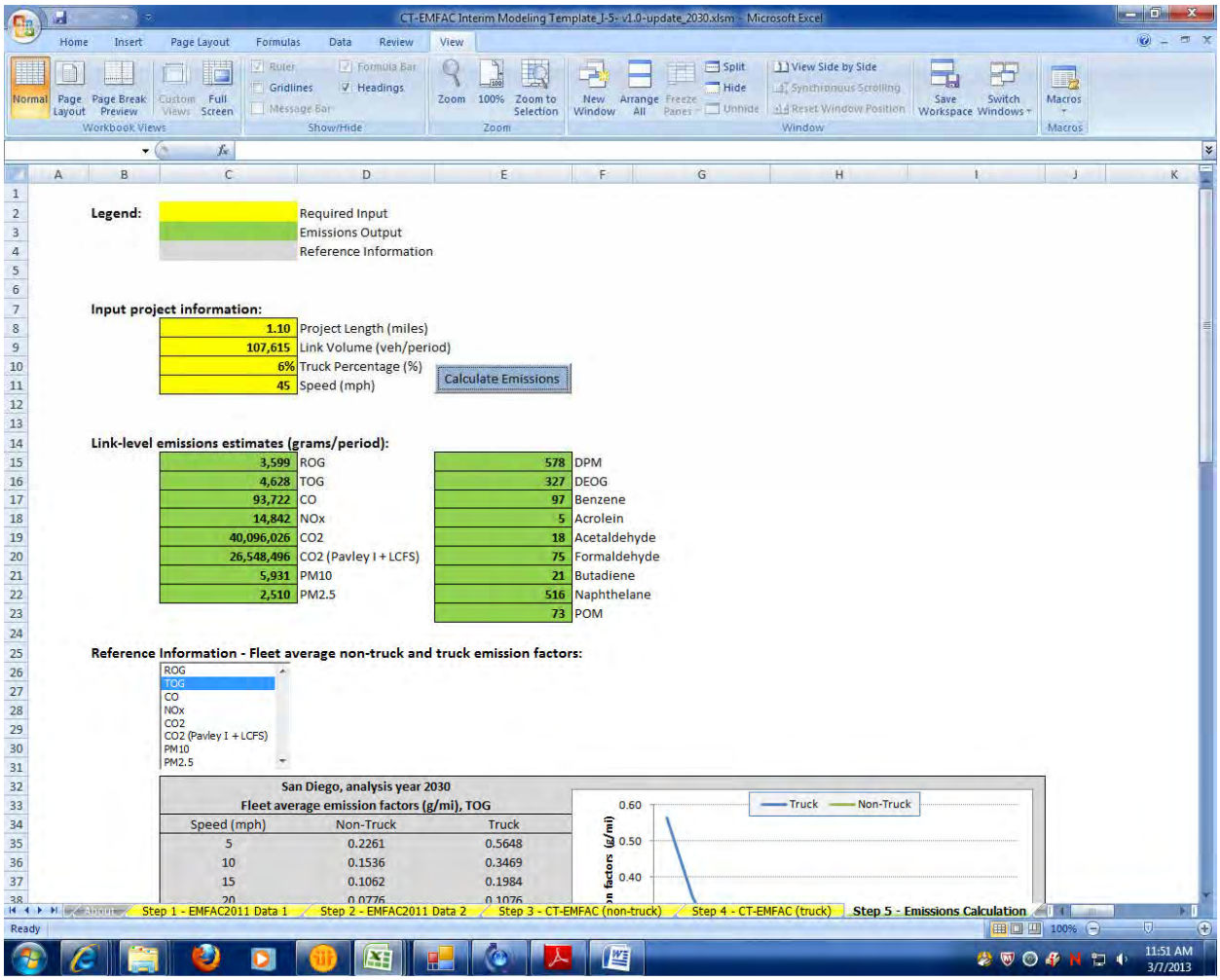
2030 8+4
Link: 1 (NB GP)
Segment: 6
Off Peak



2030 8+4
Link: 1 (NB GP)
Segment: 7
Peak



2030 8+4
Link: 1 (NB GP)
Segment: 7
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.10	Project Length (miles)
107,615	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

3,599	ROG	578	DPM
4,628	TOG	327	DEOG
93,722	CO	97	Benzene
14,842	NOx	5	Acrolein
40,096,026	CO2	18	Acetaldehyde
26,548,496	CO2 (Pavley I + LCFS)	75	Formaldehyde
5,931	PM10	21	Butadiene
2,510	PM2.5	516	Naphthelane
		73	POM

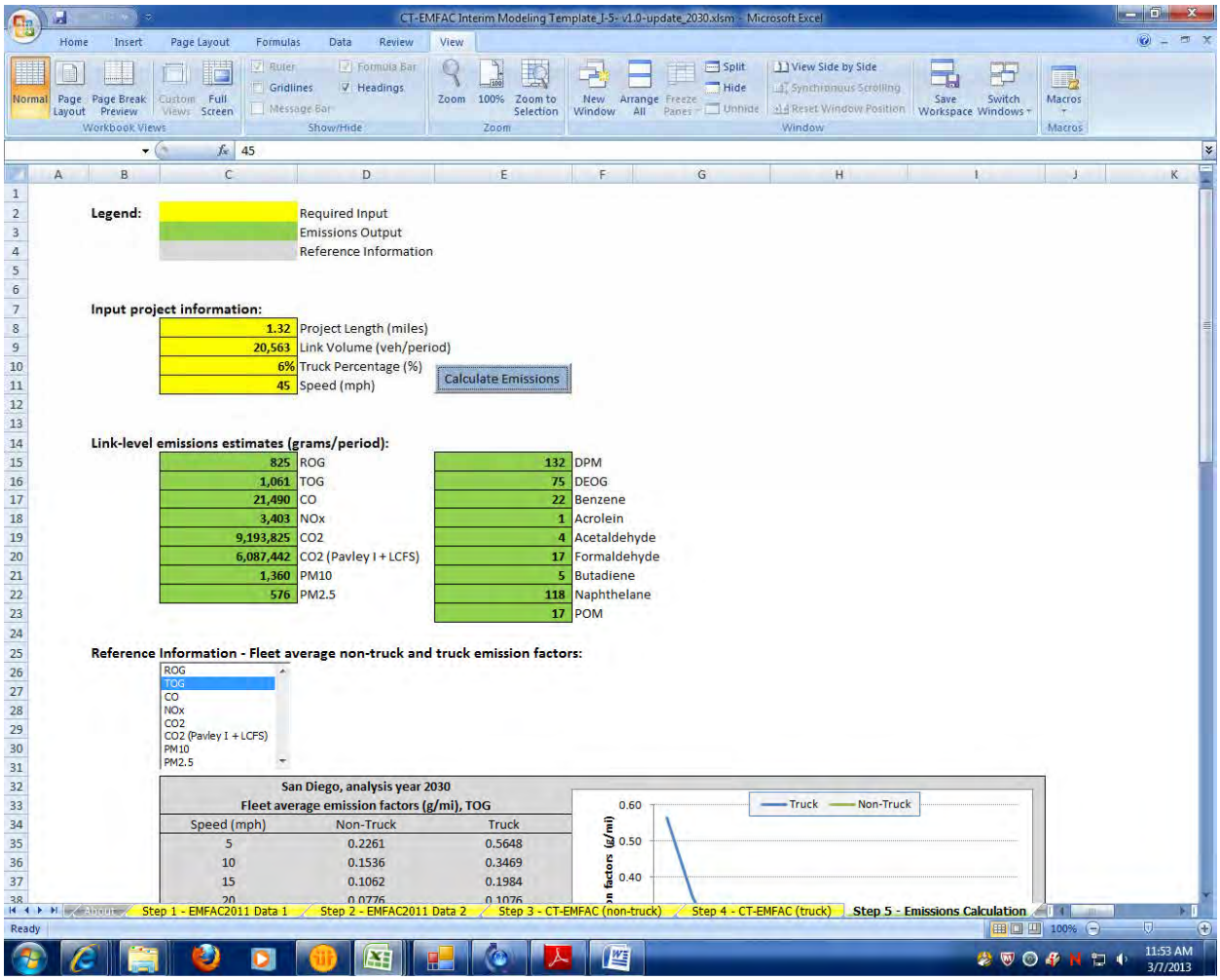
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

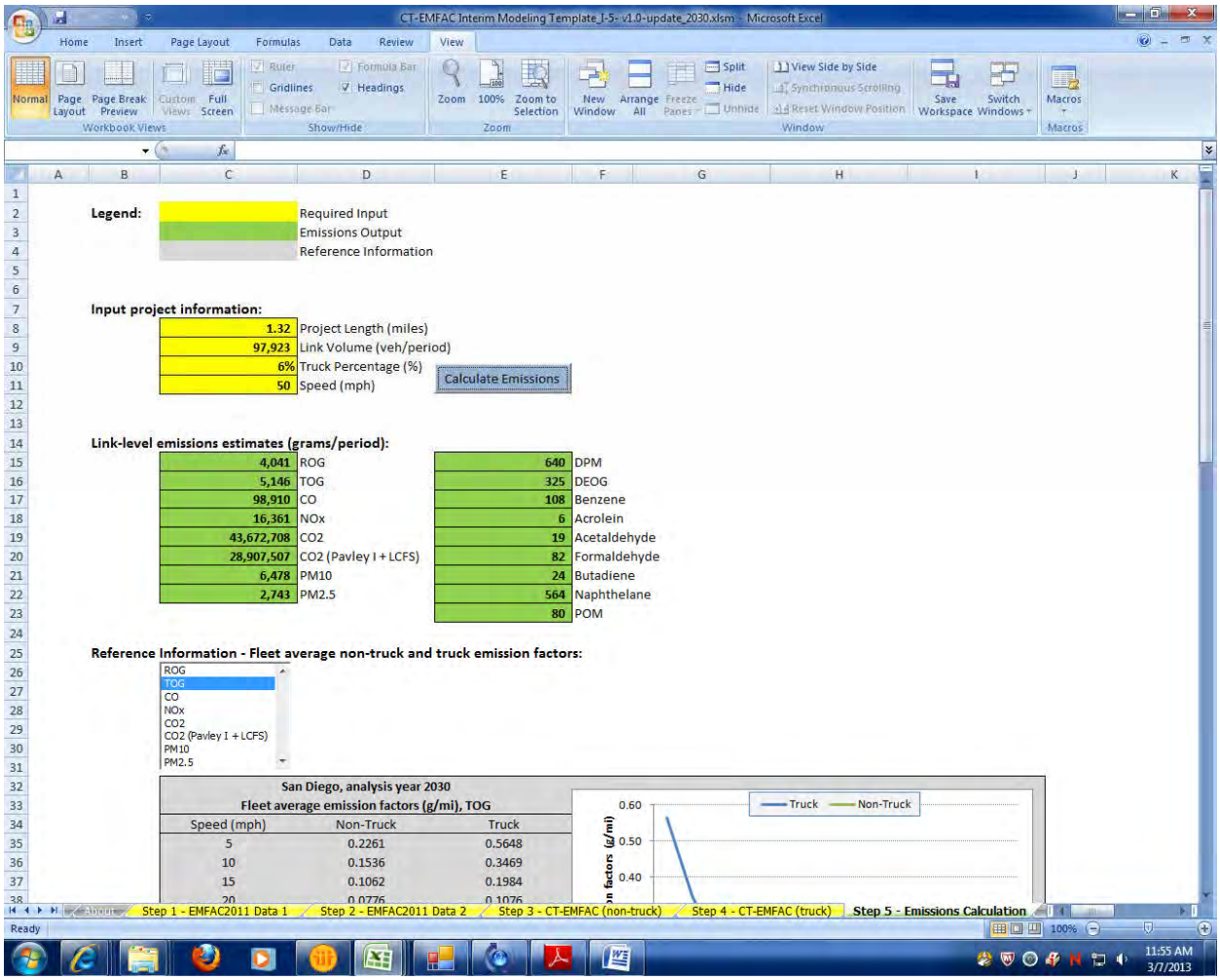
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

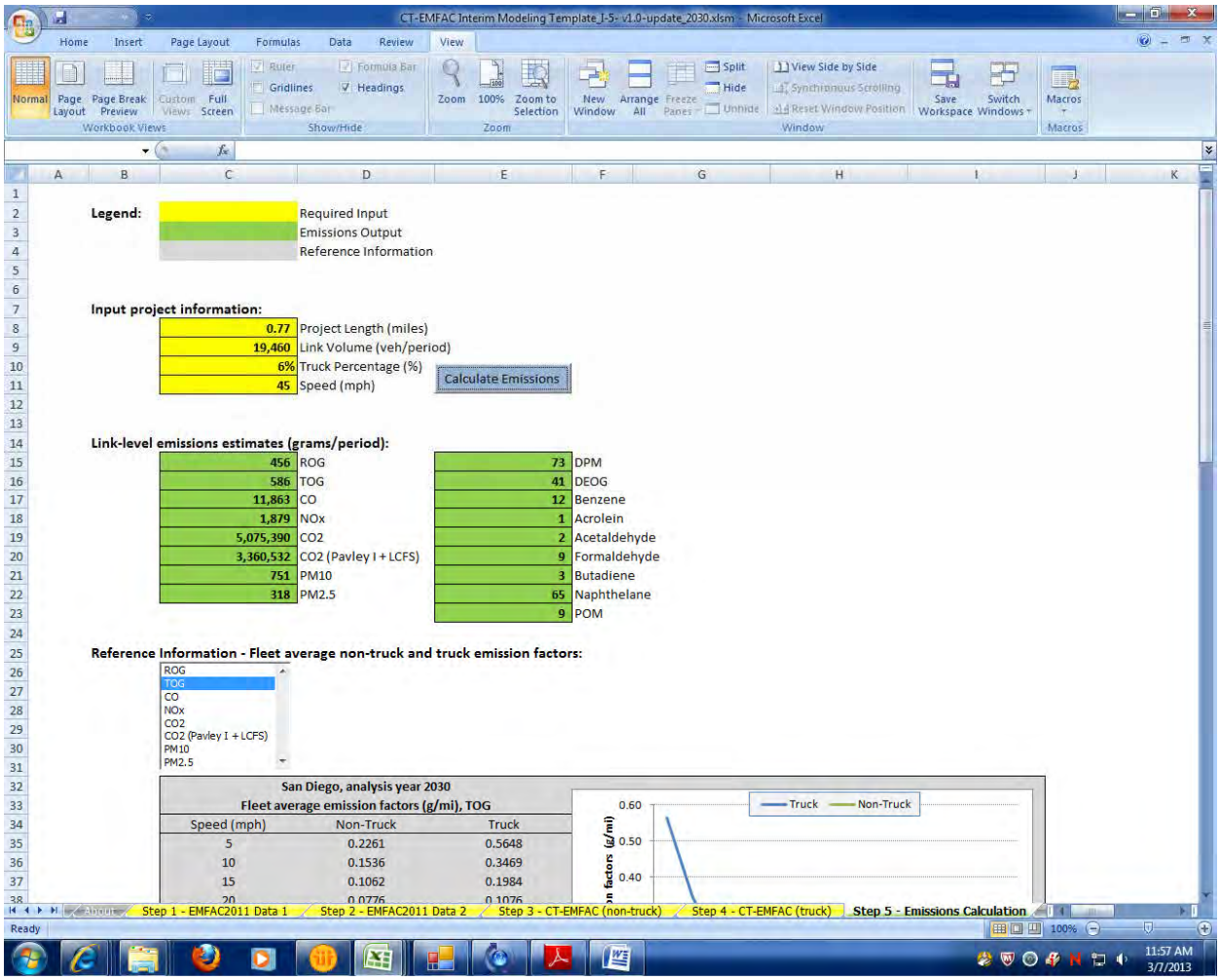
2030 8+4
Link: 1 (NB GP)
Segment: 8
Peak



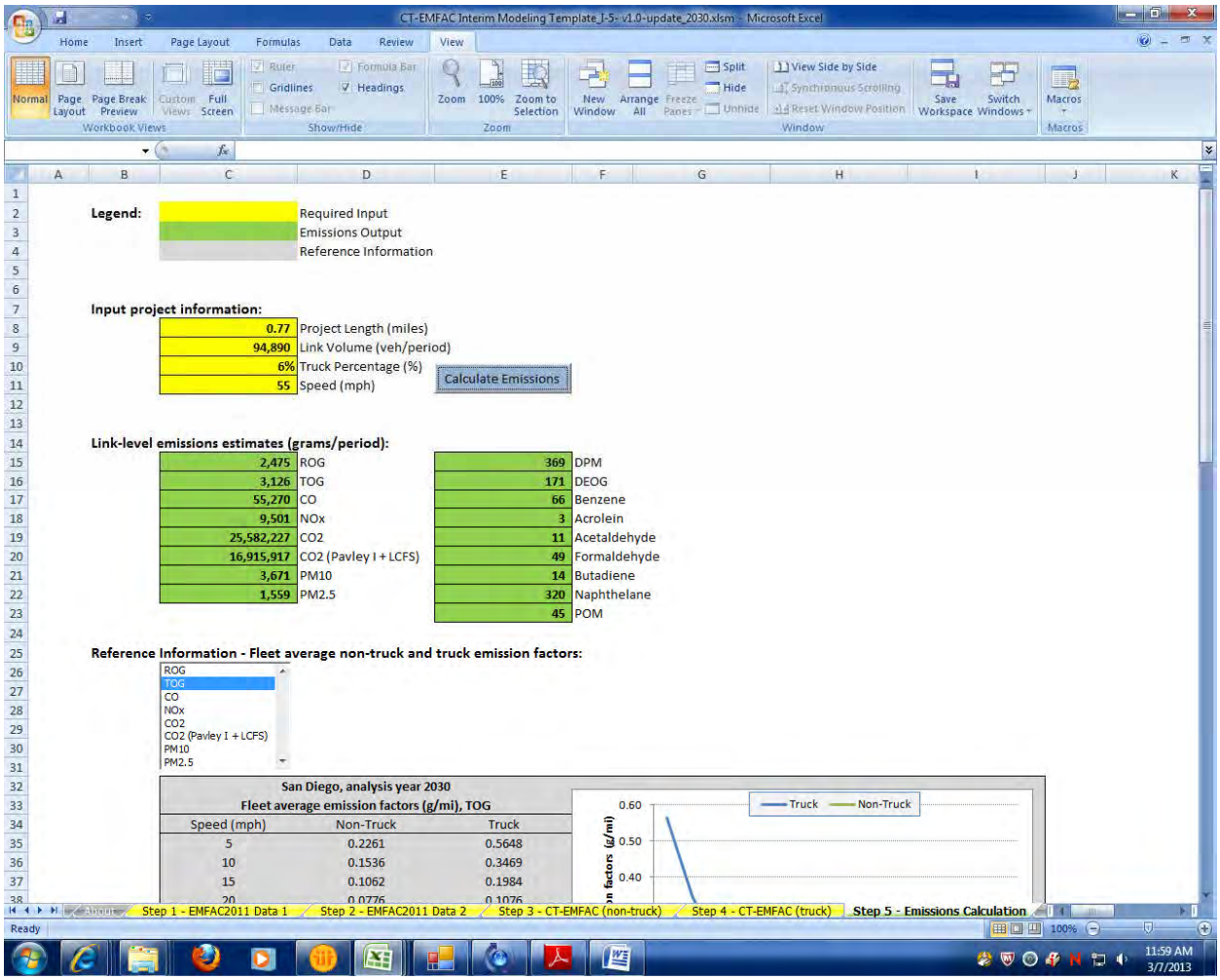
2030 8+4
Link: 1 (NB GP)
Segment: 8
Off Peak



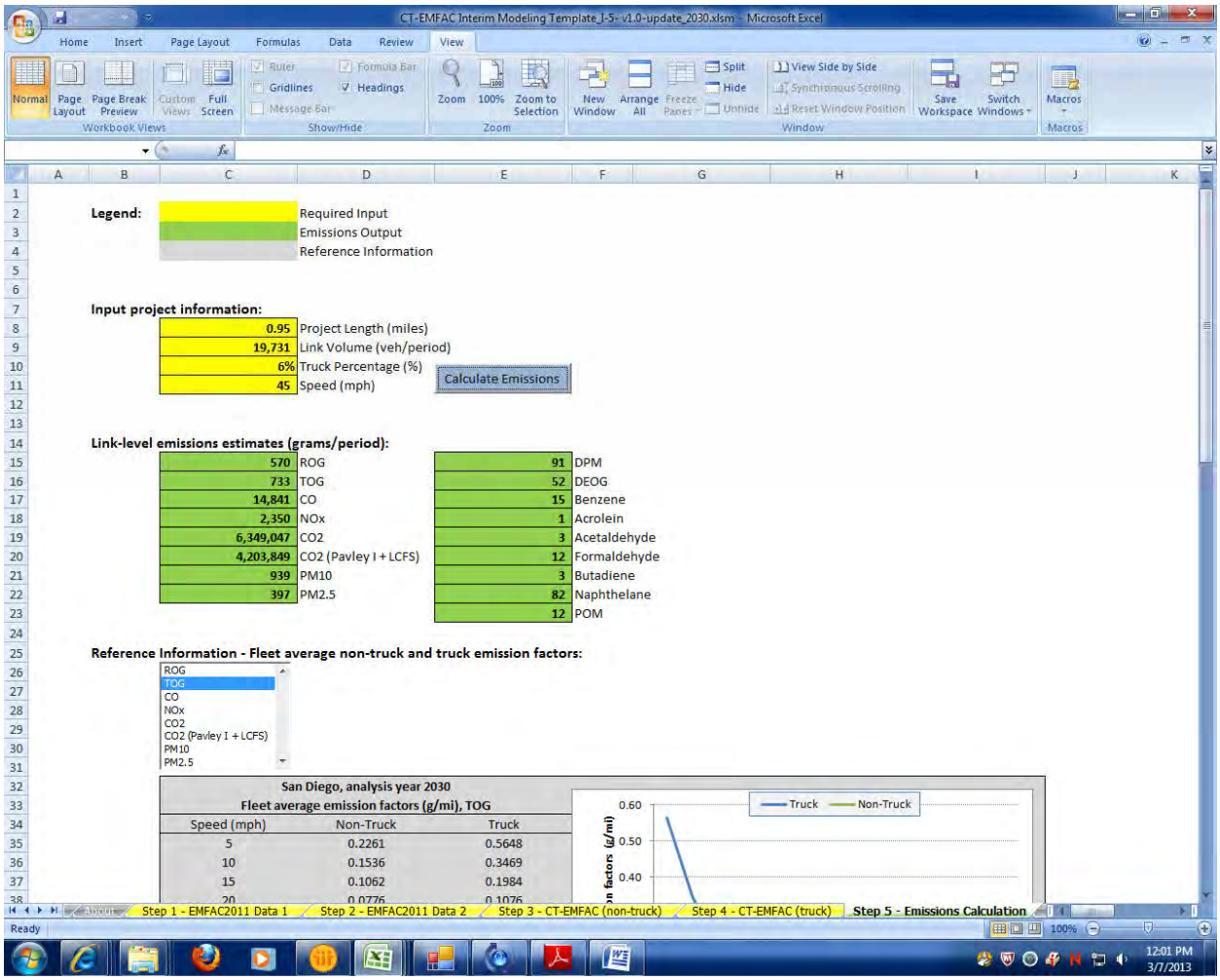
2030 8+4
Link: 1 (NB GP)
Segment: 9
Peak



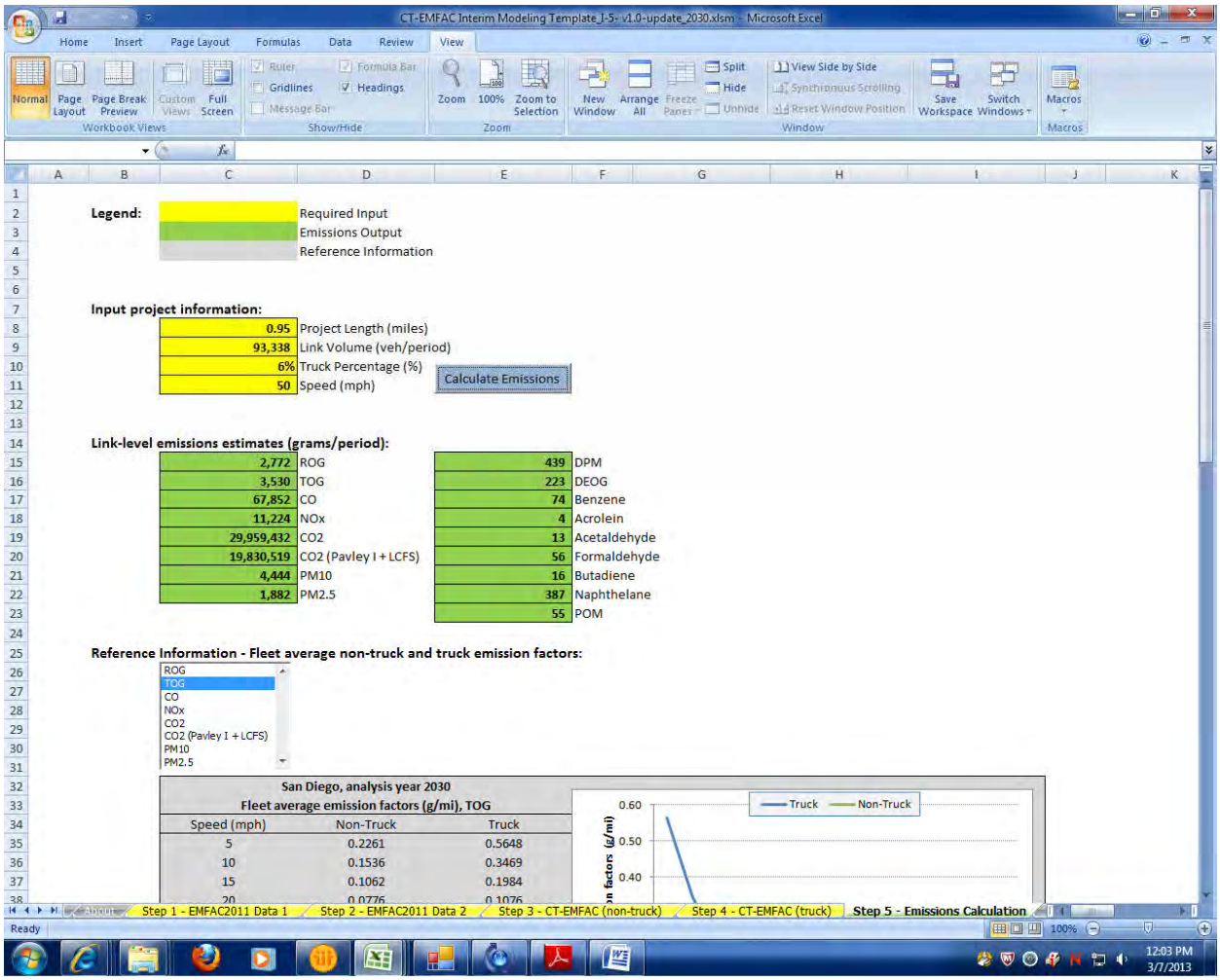
2030 8+4
Link: 1 (NB GP)
Segment: 9
Off Peak



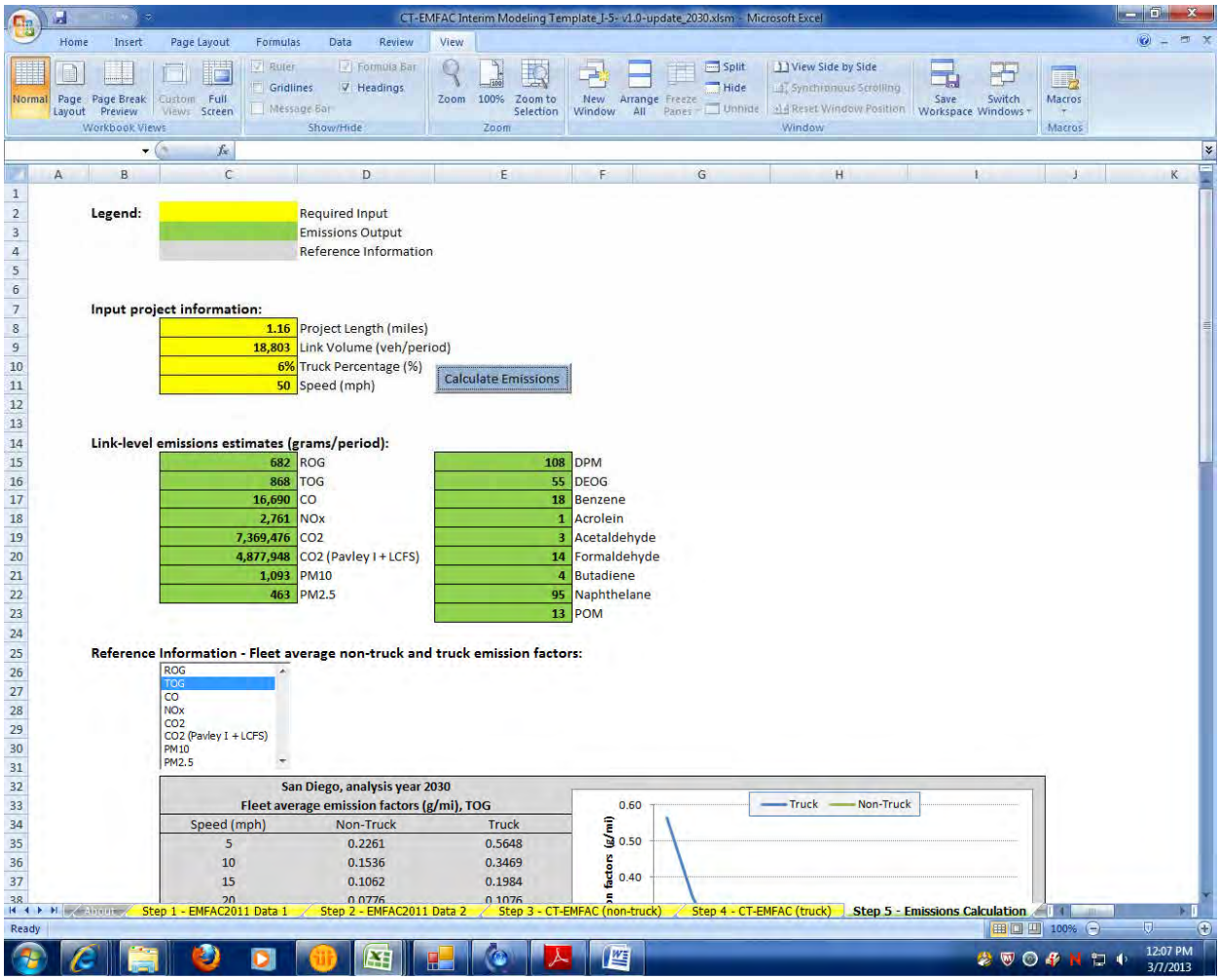
2030 8+4
Link: 1 (NB GP)
Segment: 10
Peak



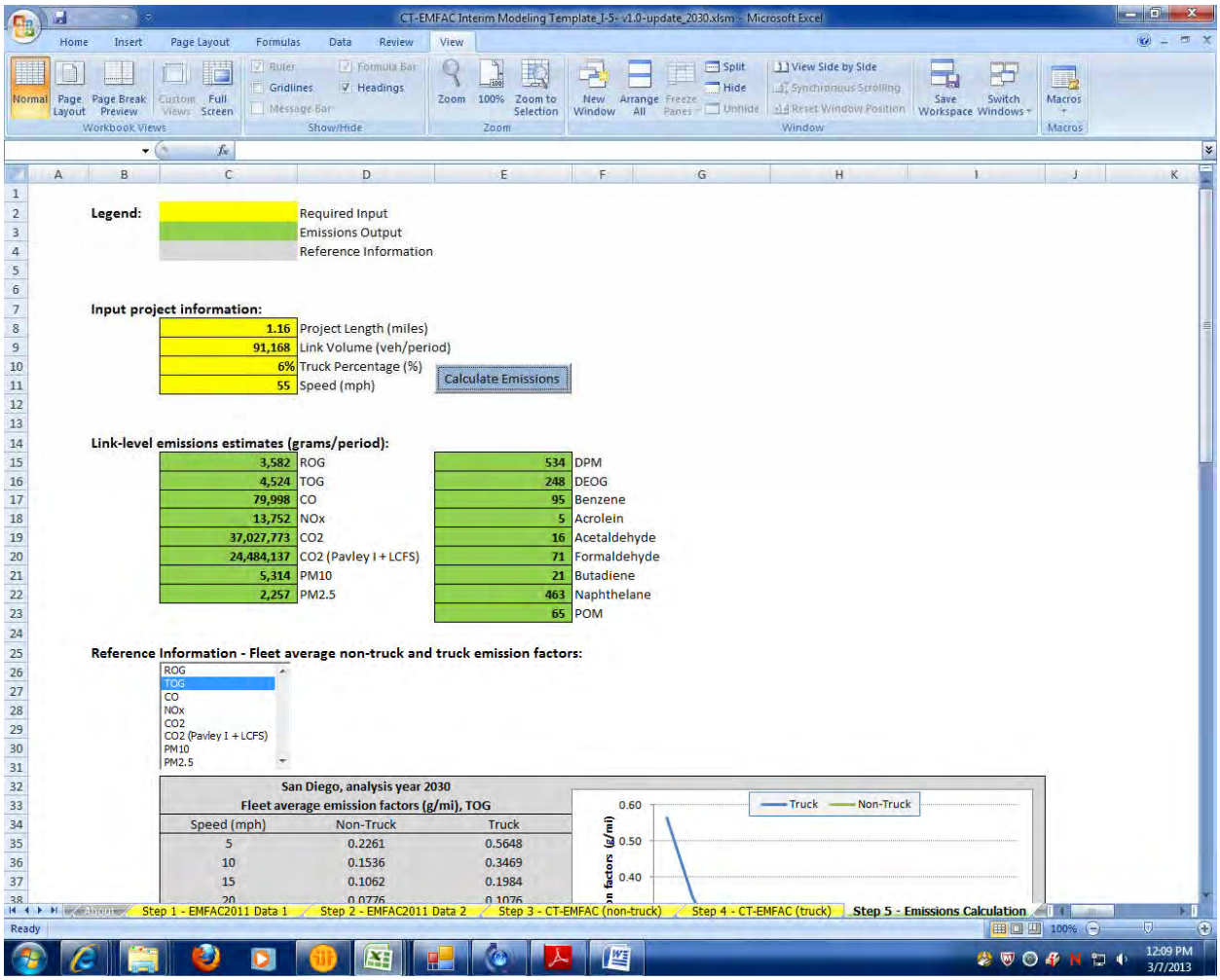
2030 8+4
Link: 1 (NB GP)
Segment: 10
Off Peak



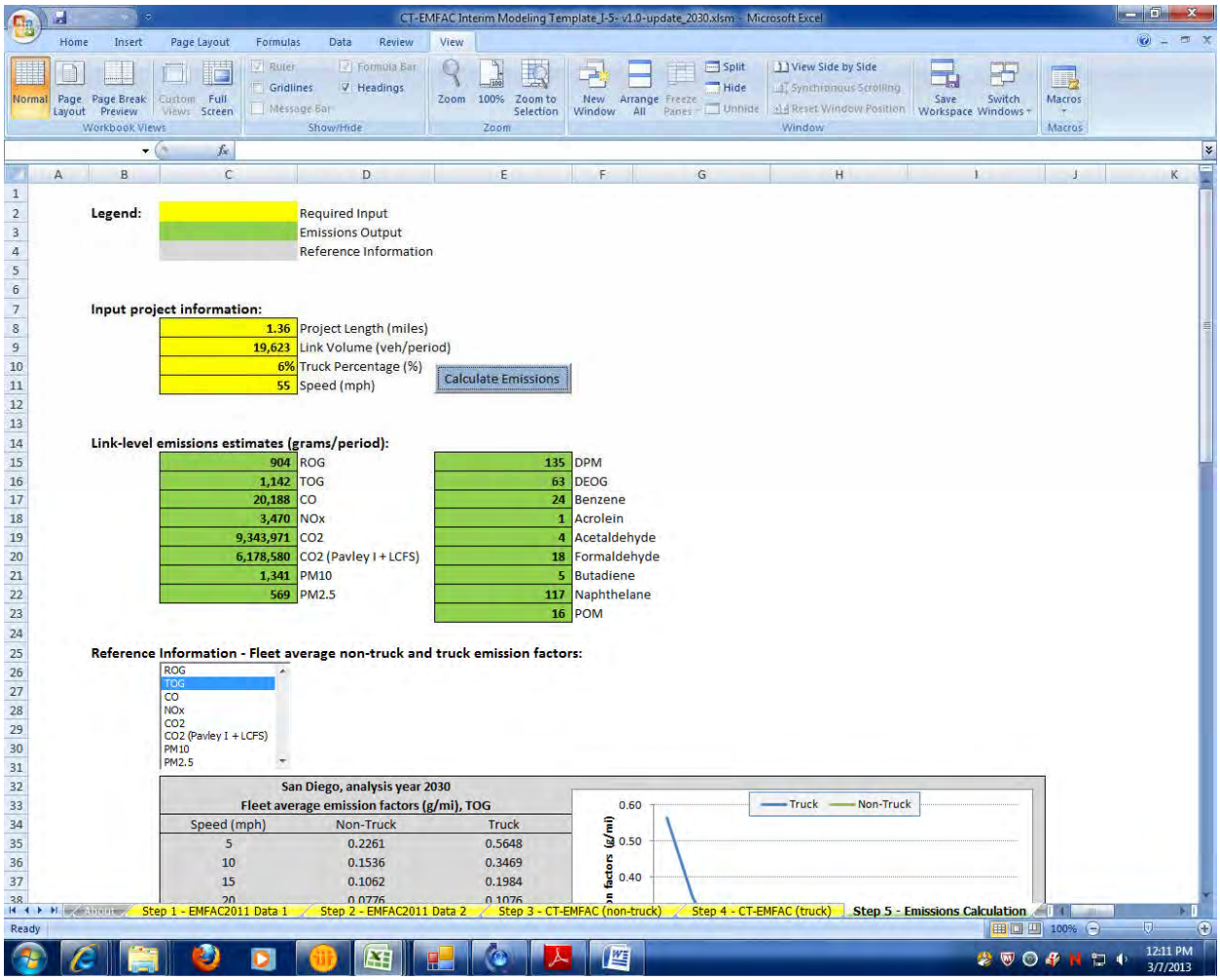
2030 8+4
Link: 1 (NB GP)
Segment: 11
Peak



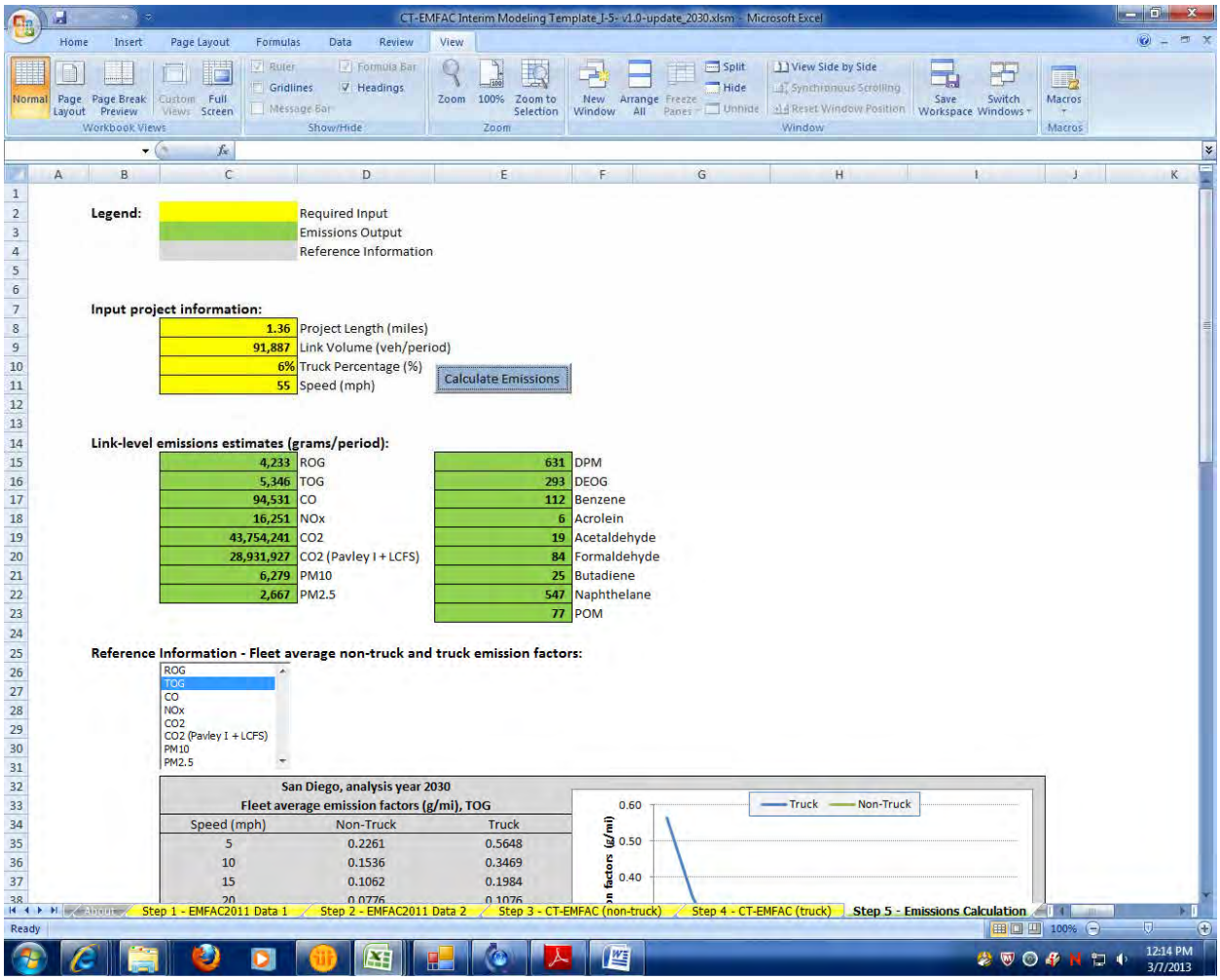
2030 8+4
Link: 1 (NB GP)
Segment: 11
Off Peak



2030 8+4
Link: 1 (NB GP)
Segment: 12
Peak



2030 8+4
Link: 1 (NB GP)
Segment: 12
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.36	Project Length (miles)
91,887	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,233	ROG	631	DPM
5,346	TOG	293	DEOG
94,531	CO	112	Benzene
16,251	NOx	6	Acrolein
43,754,241	CO2	19	Acetaldehyde
28,931,927	CO2 (Pavley I + LCFS)	84	Formaldehyde
6,279	PM10	25	Butadiene
2,667	PM2.5	547	Naphthelane
		77	POM

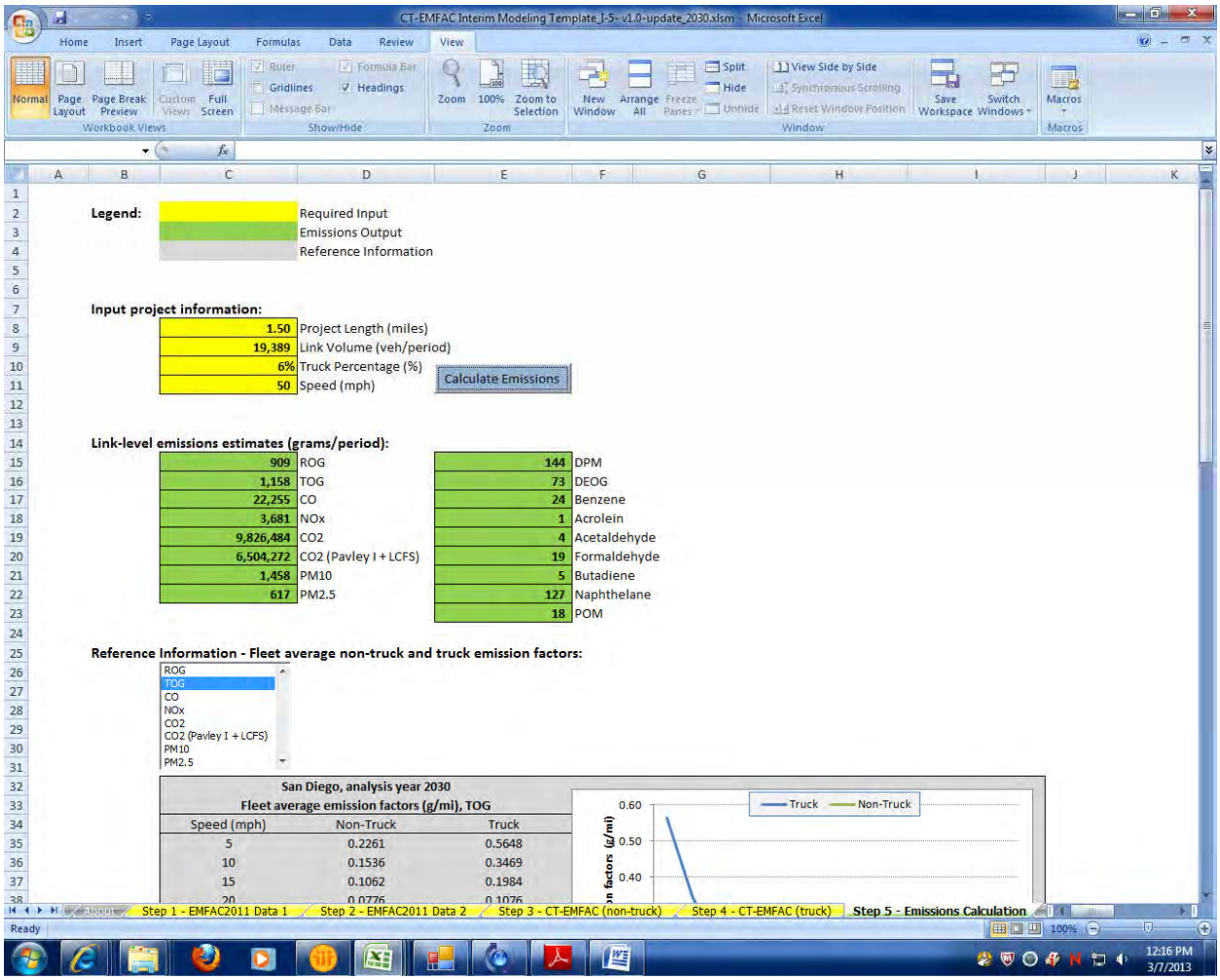
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

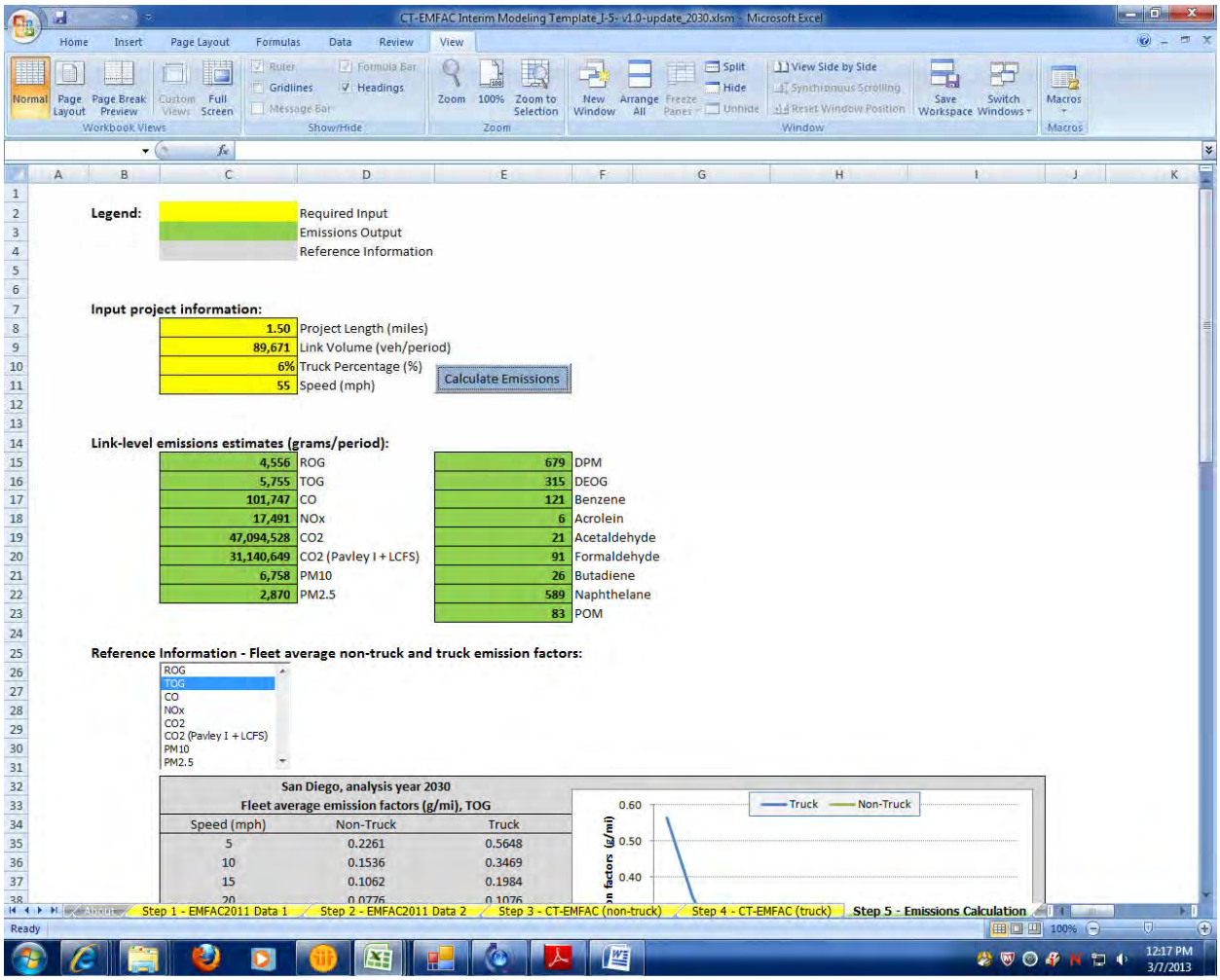
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 1 (NB GP)
Segment: 13
Peak



2030 8+4
Link: 1 (NB GP)
Segment: 13
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
89,671	Link Volume (veh/period)
6%	Truck Percentage (%)
55	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,556	ROG	679	DPM
5,755	TOG	315	DEOG
101,747	CO	121	Benzene
17,491	NOx	6	Acrolein
47,094,528	CO2	21	Acetaldehyde
31,140,649	CO2 (Pavley I + LCFS)	91	Formaldehyde
6,758	PM10	26	Butadiene
2,870	PM2.5	589	Naphthelane
		83	POM

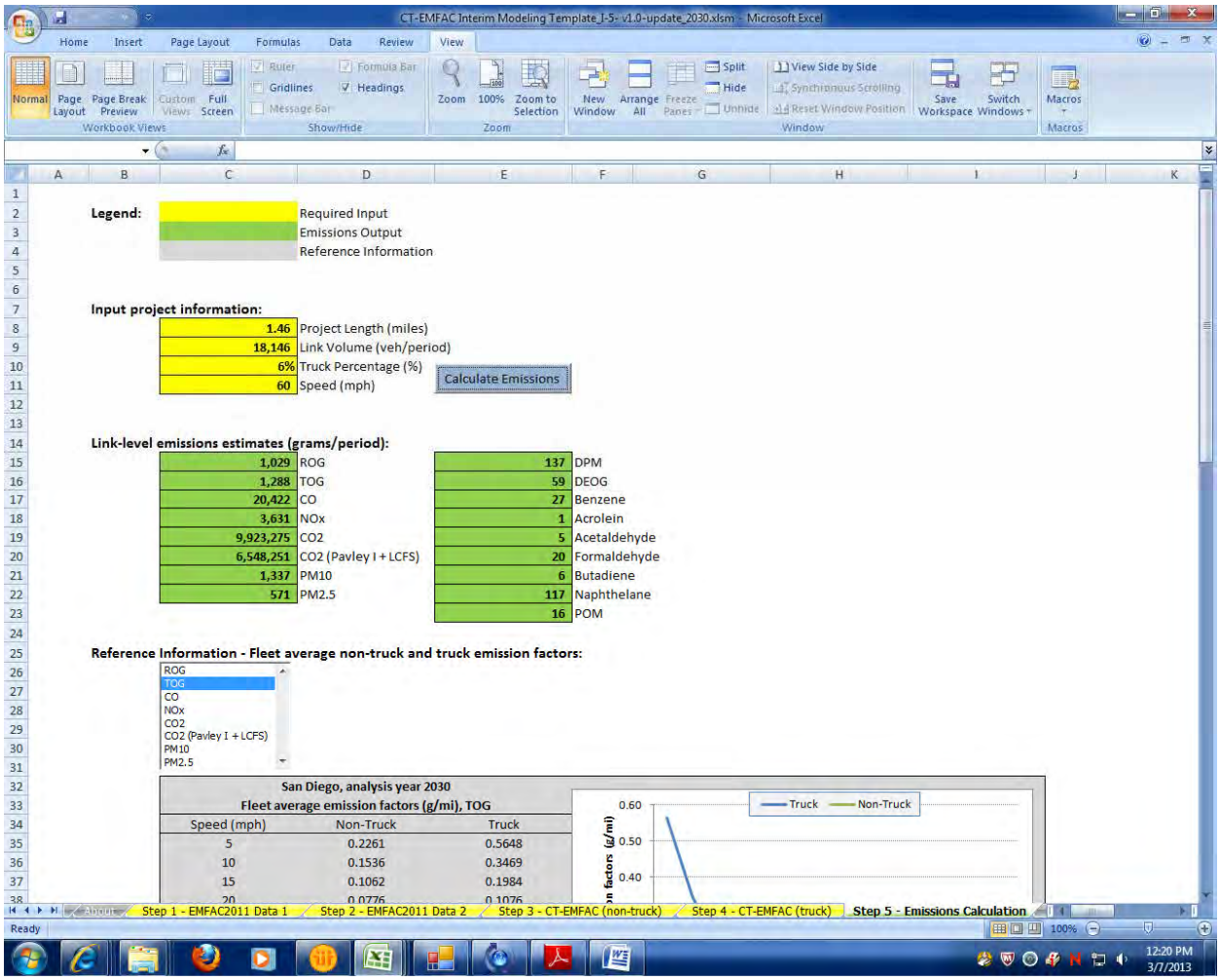
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

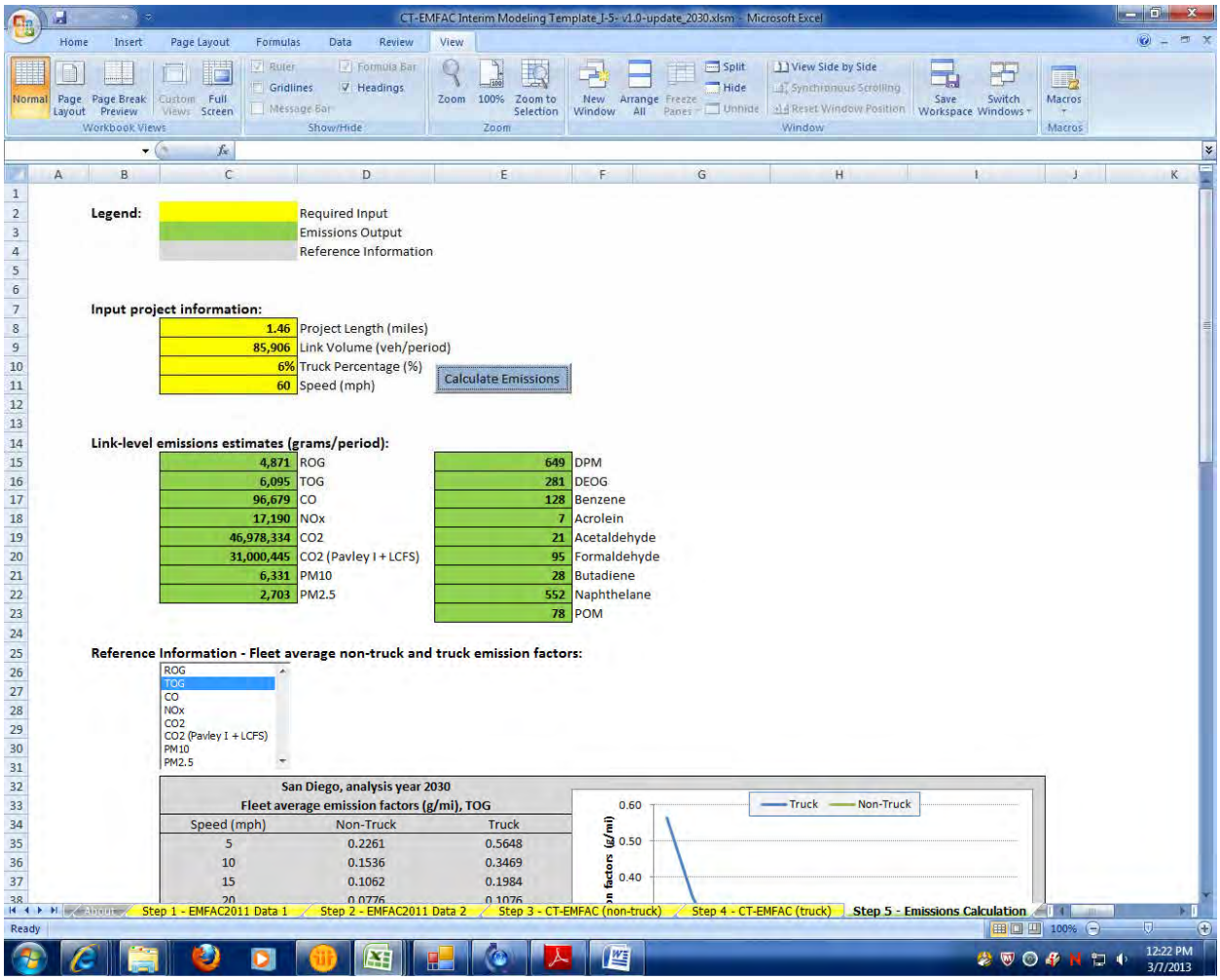
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

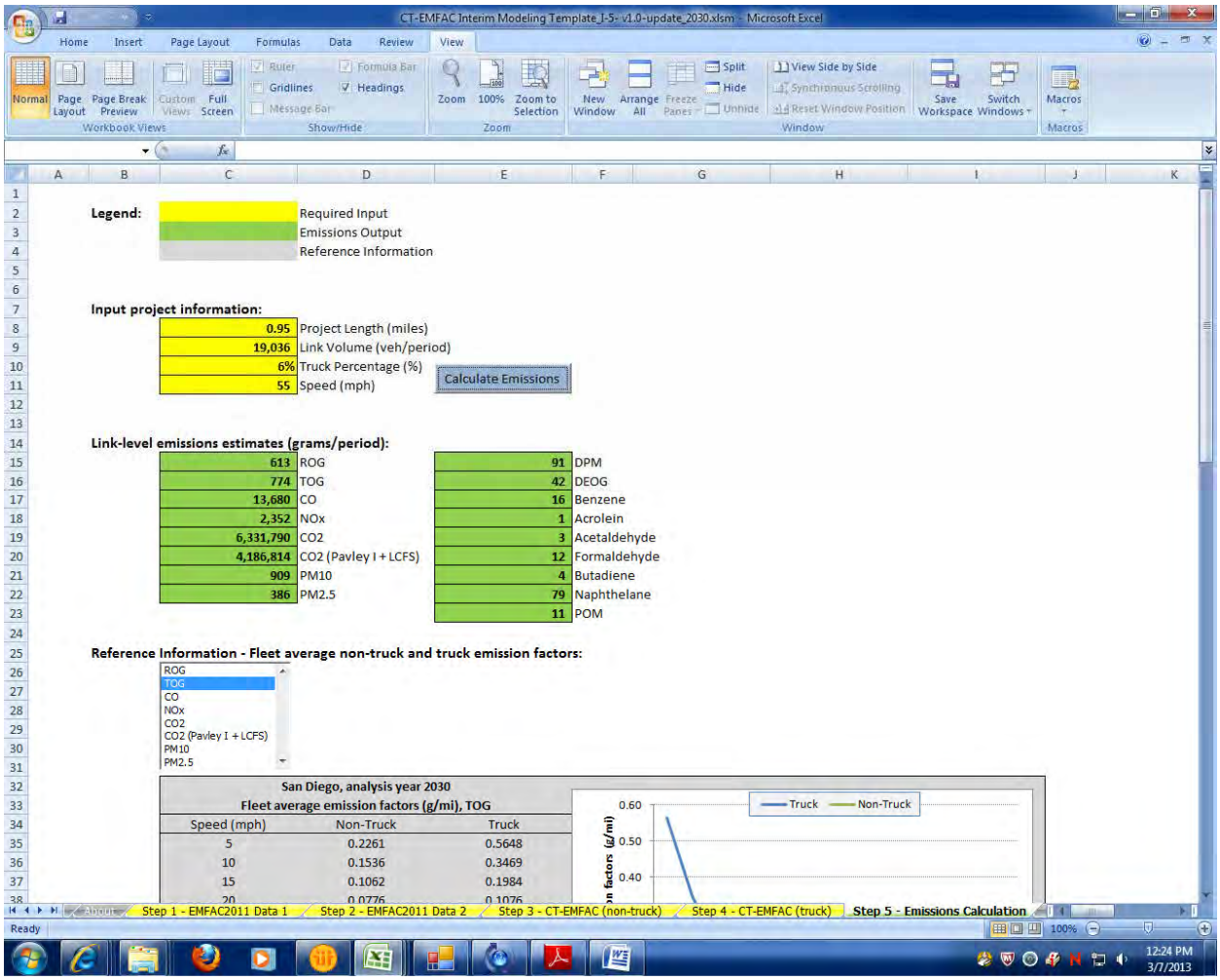
2030 8+4
Link: 1 (NB GP)
Segment: 14
Peak



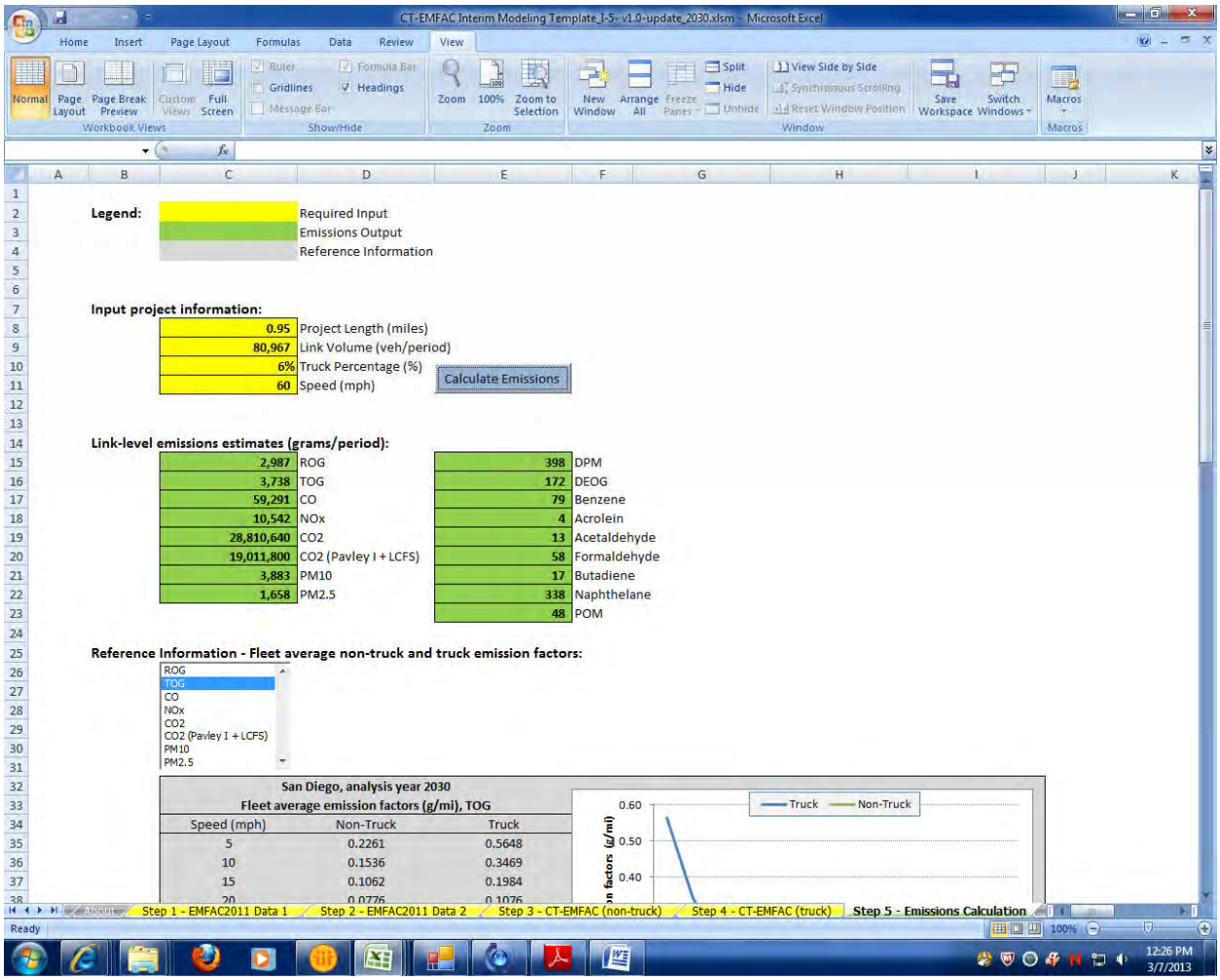
2030 8+4
Link: 1 (NB GP)
Segment: 14
Off Peak



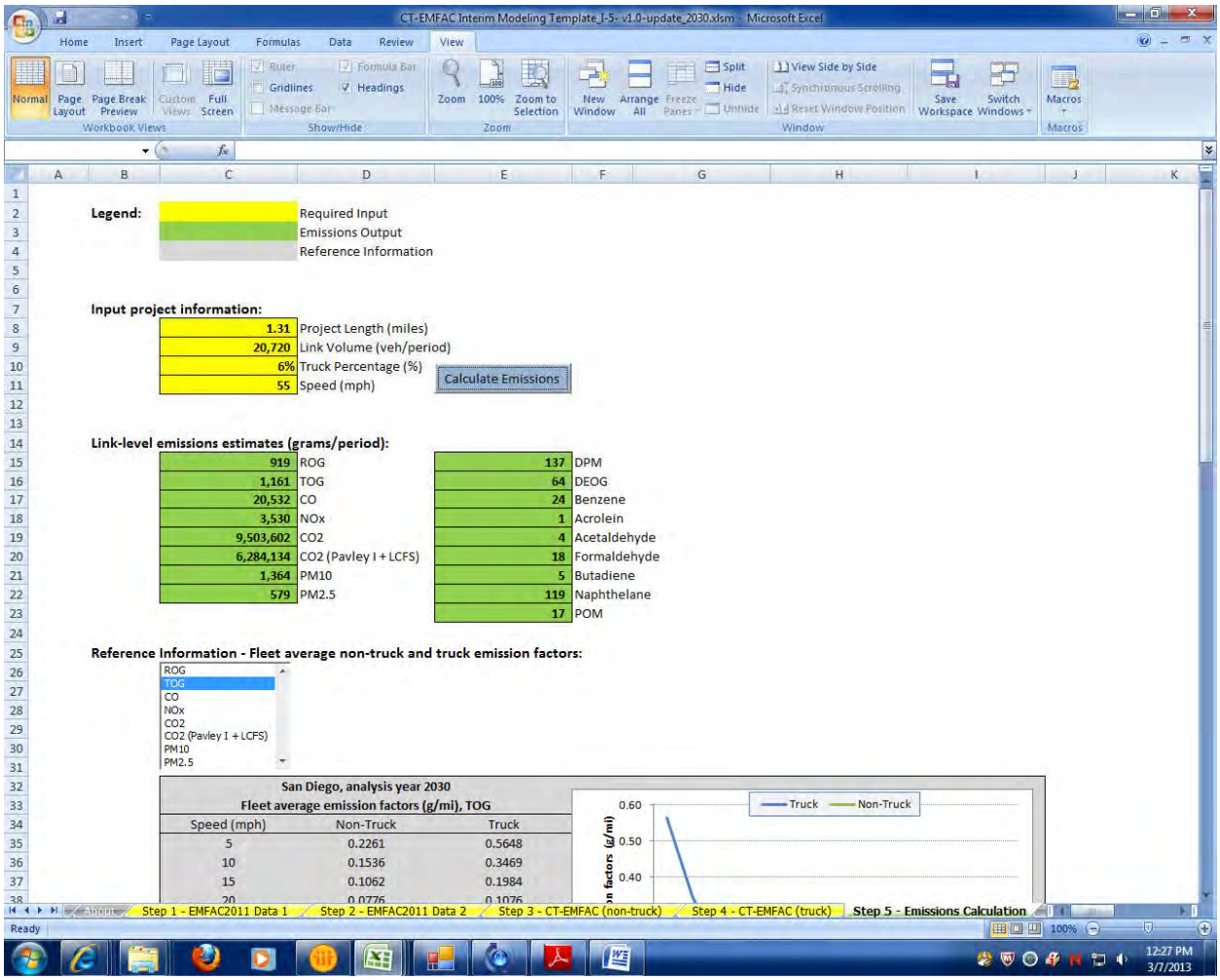
2030 8+4
Link: 1 (NB GP)
Segment: 15
Peak



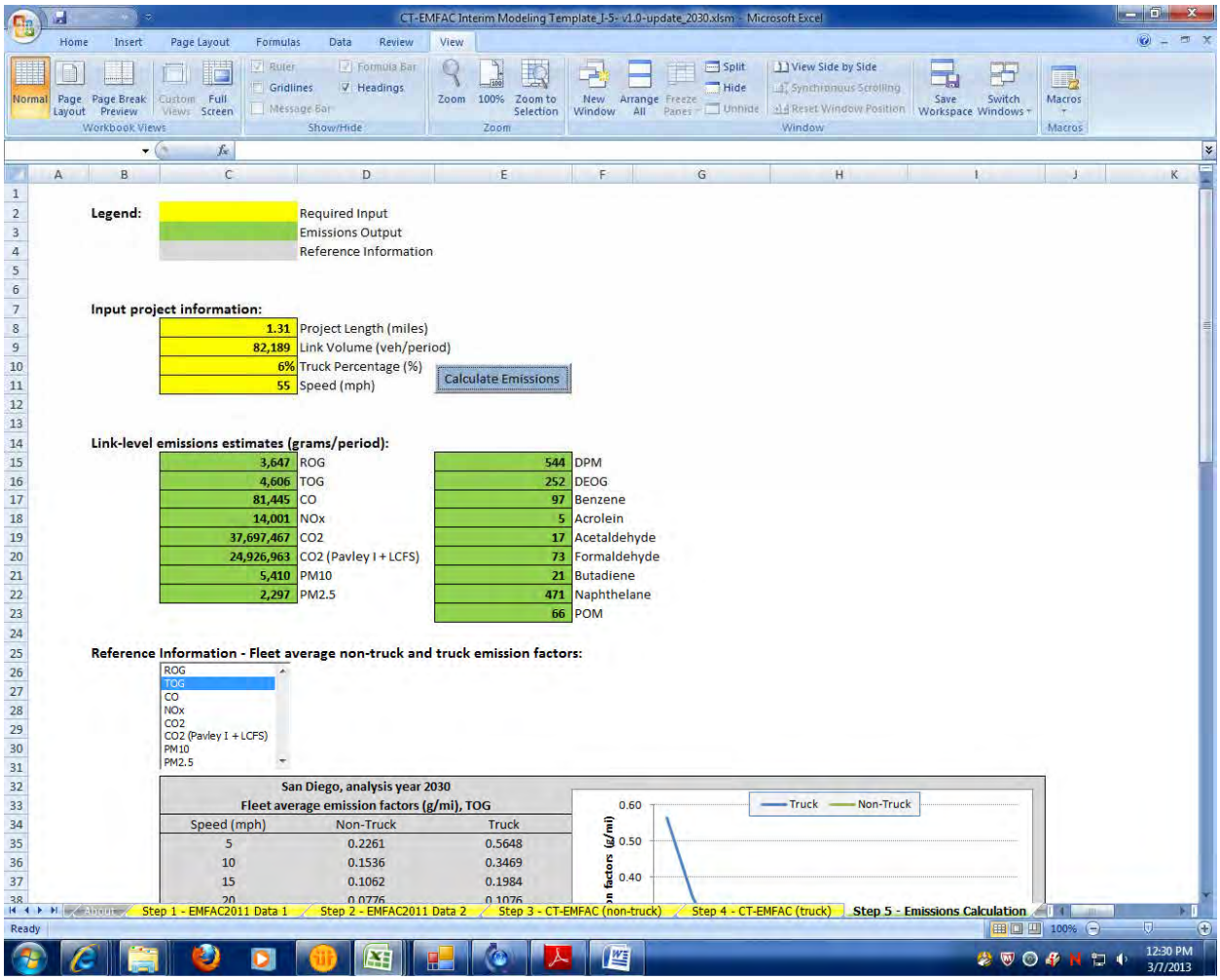
2030 8+4
Link: 1 (NB GP)
Segment: 15
Off Peak



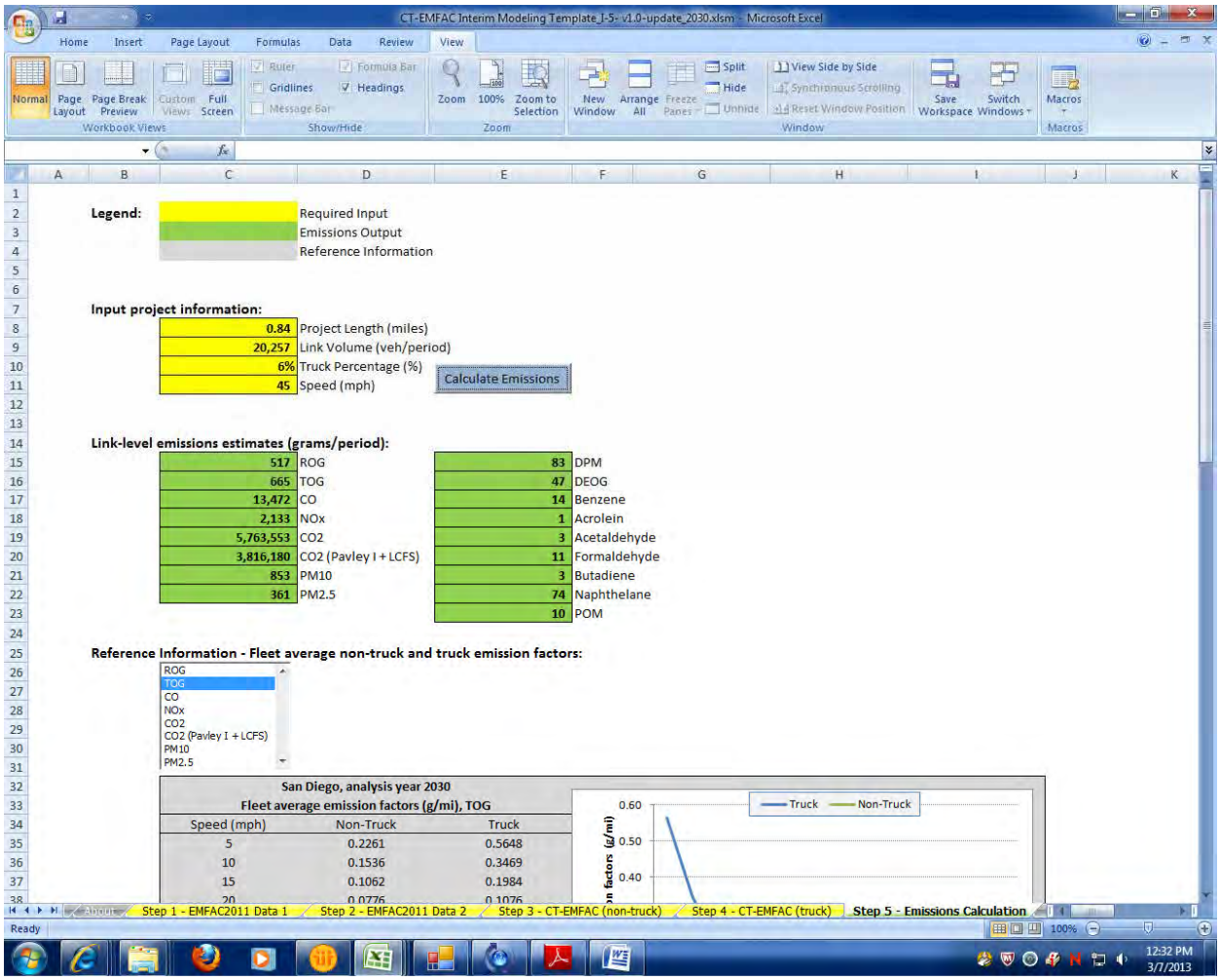
2030 8+4
Link: 1 (NB GP)
Segment: 16
Peak



2030 8+4
Link: 1 (NB GP)
Segment: 16
Off Peak



2030 8+4
Link: 1 (NB GP)
Segment: 17
Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2030.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.84	Project Length (miles)
20,257	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

517	ROG	83	DPM
665	TOG	47	DEOG
13,472	CO	14	Benzene
2,133	NOx	1	Acrolein
5,763,553	CO2	3	Acetaldehyde
3,816,180	CO2 (Pavley I + LCFS)	11	Formaldehyde
853	PM10	3	Butadiene
361	PM2.5	74	Naphthelane
		10	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

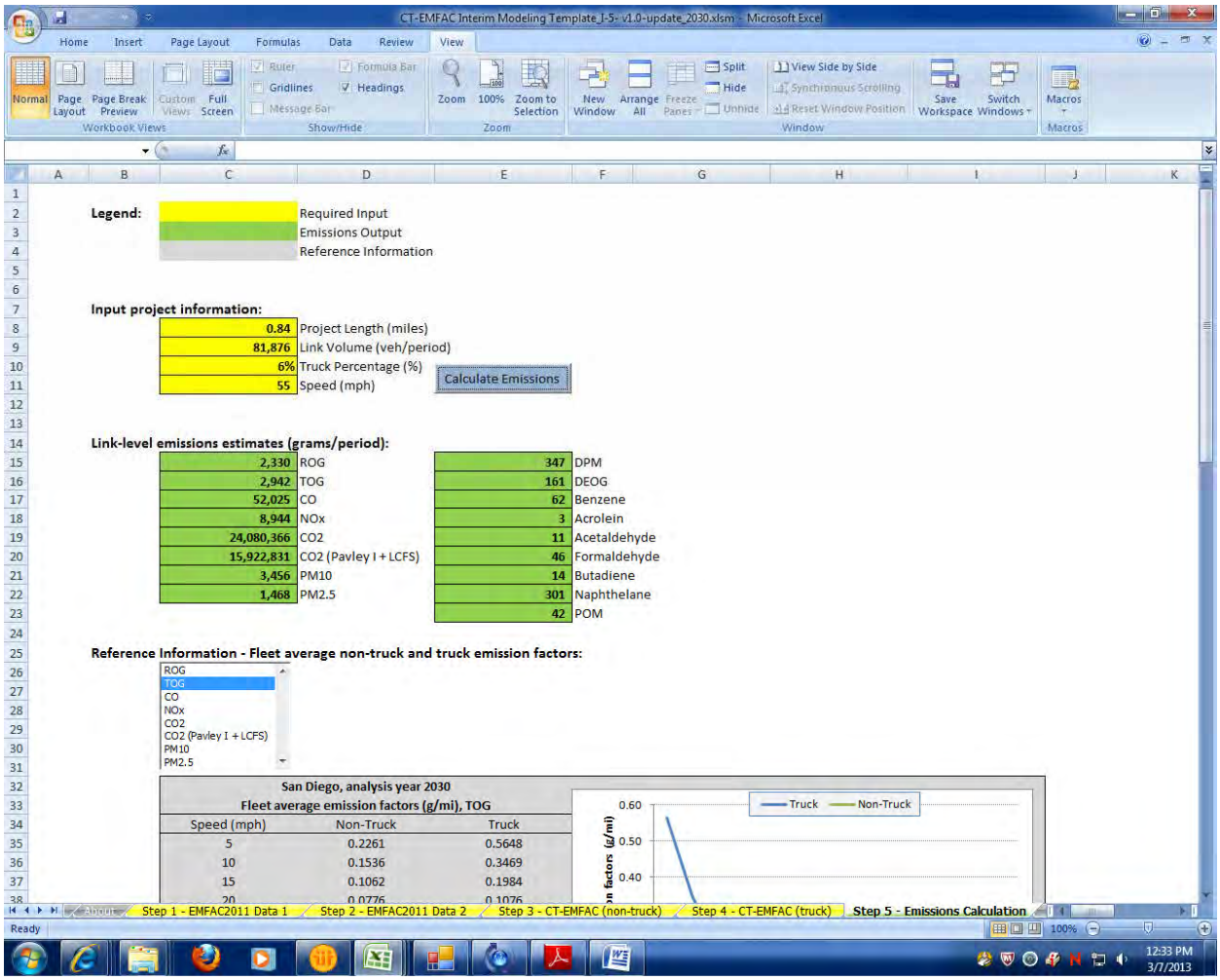
Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

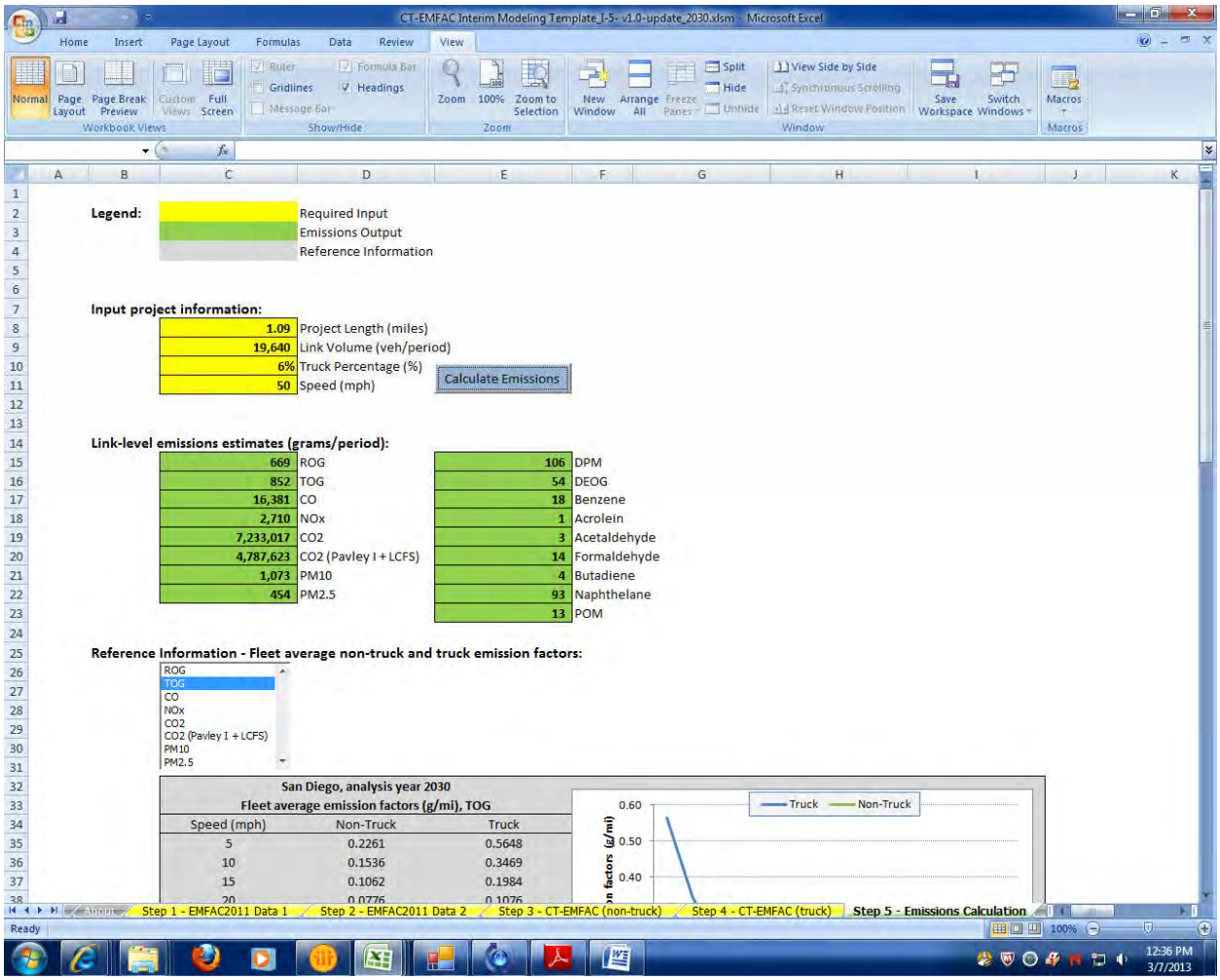
Ready 100%

12:32 PM 3/7/2013

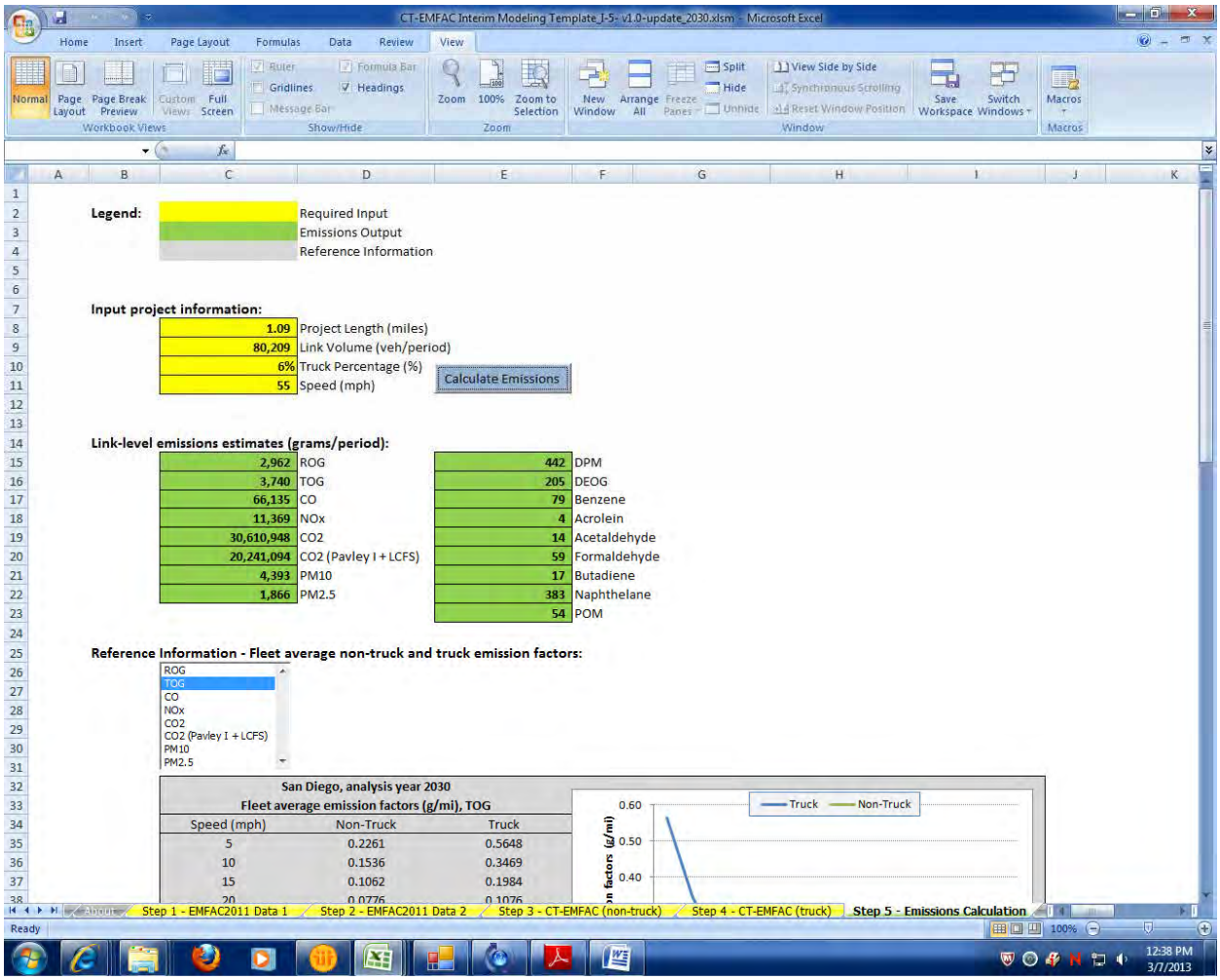
2030 8+4
Link: 1 (NB GP)
Segment: 17
Off Peak



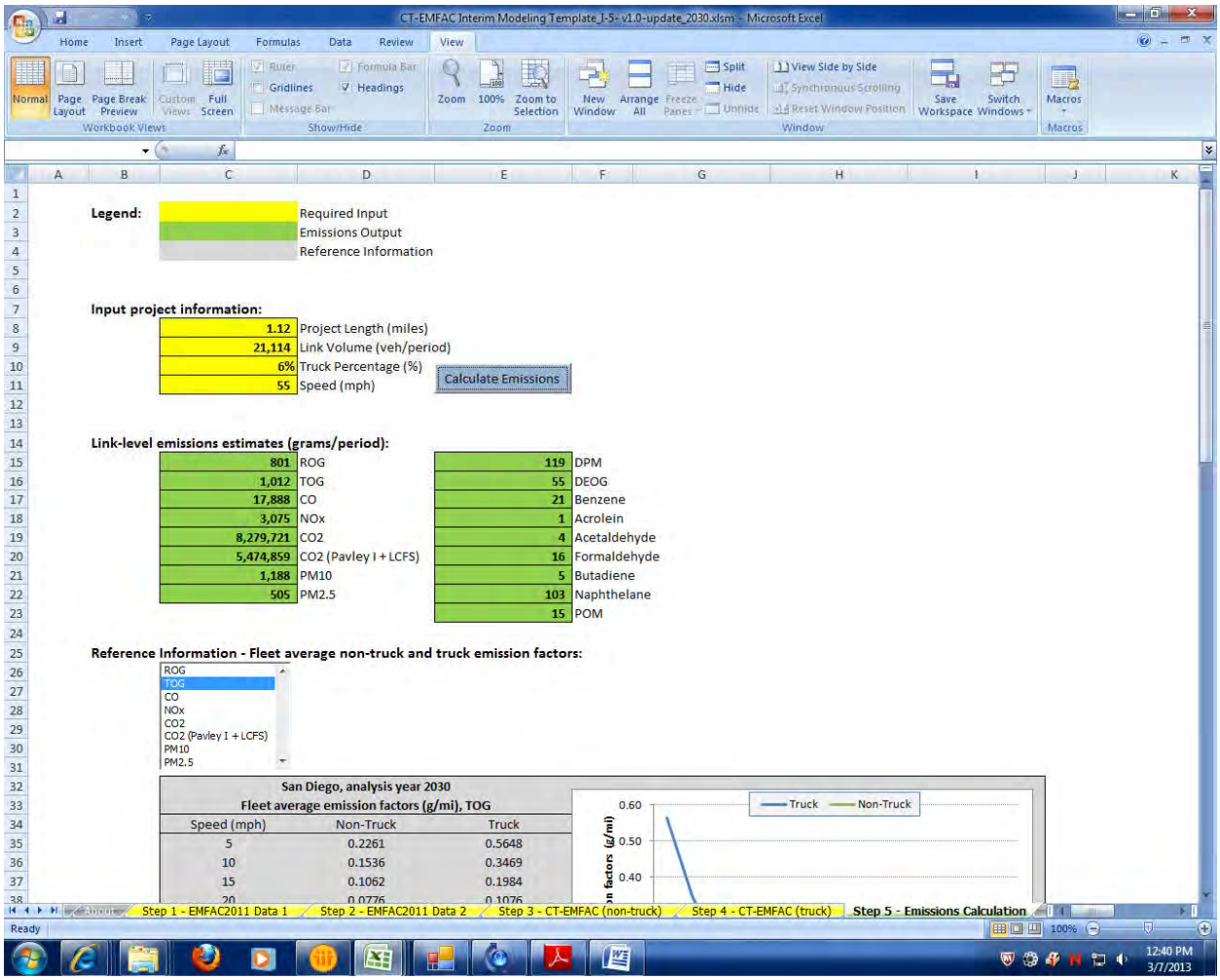
2030 8+4
Link: 1 (NB GP)
Segment: 18
Peak



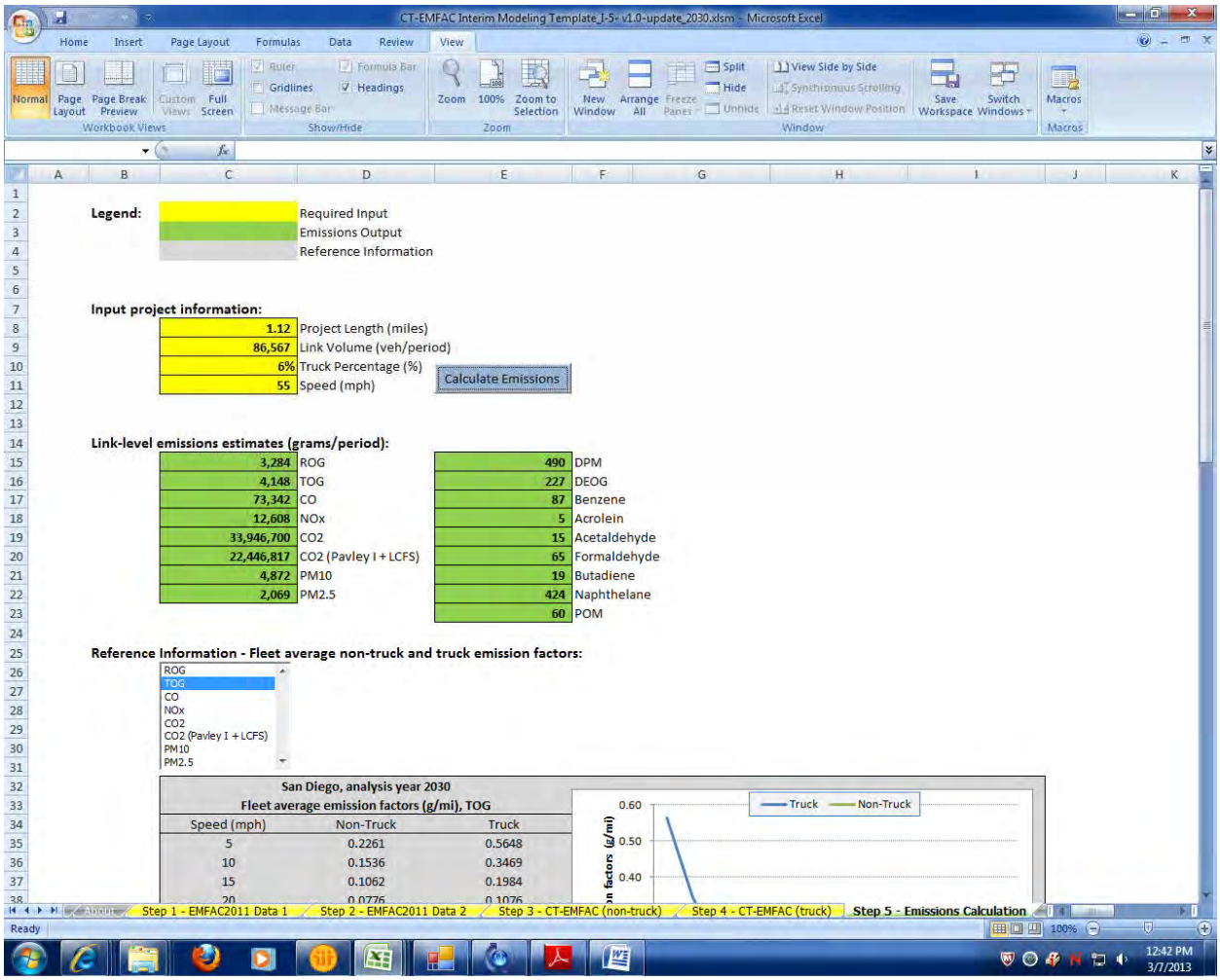
2030 8+4
Link: 1 (NB GP)
Segment: 18
Off Peak



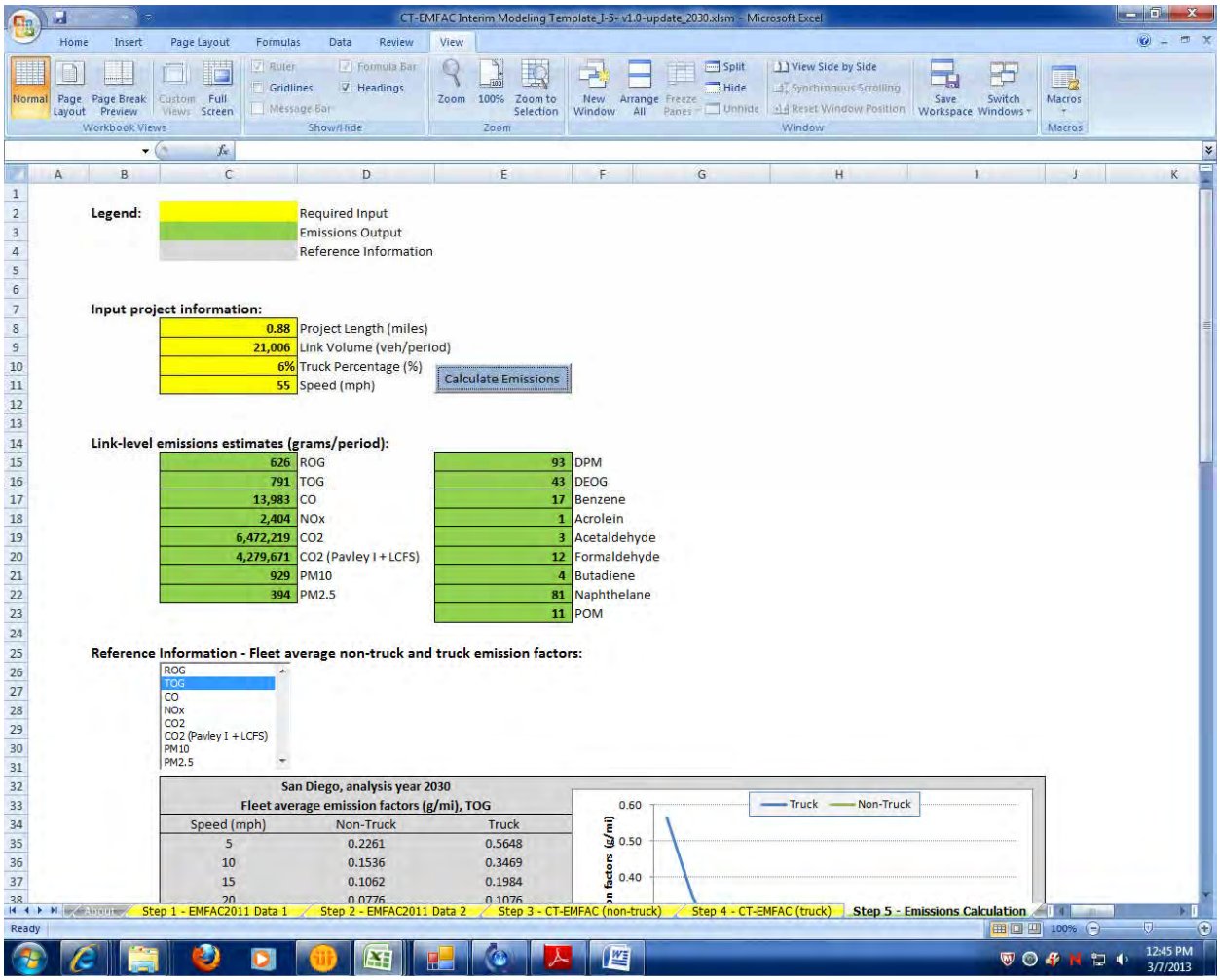
2030 8+4
Link: 1 (NB GP)
Segment: 19
Peak



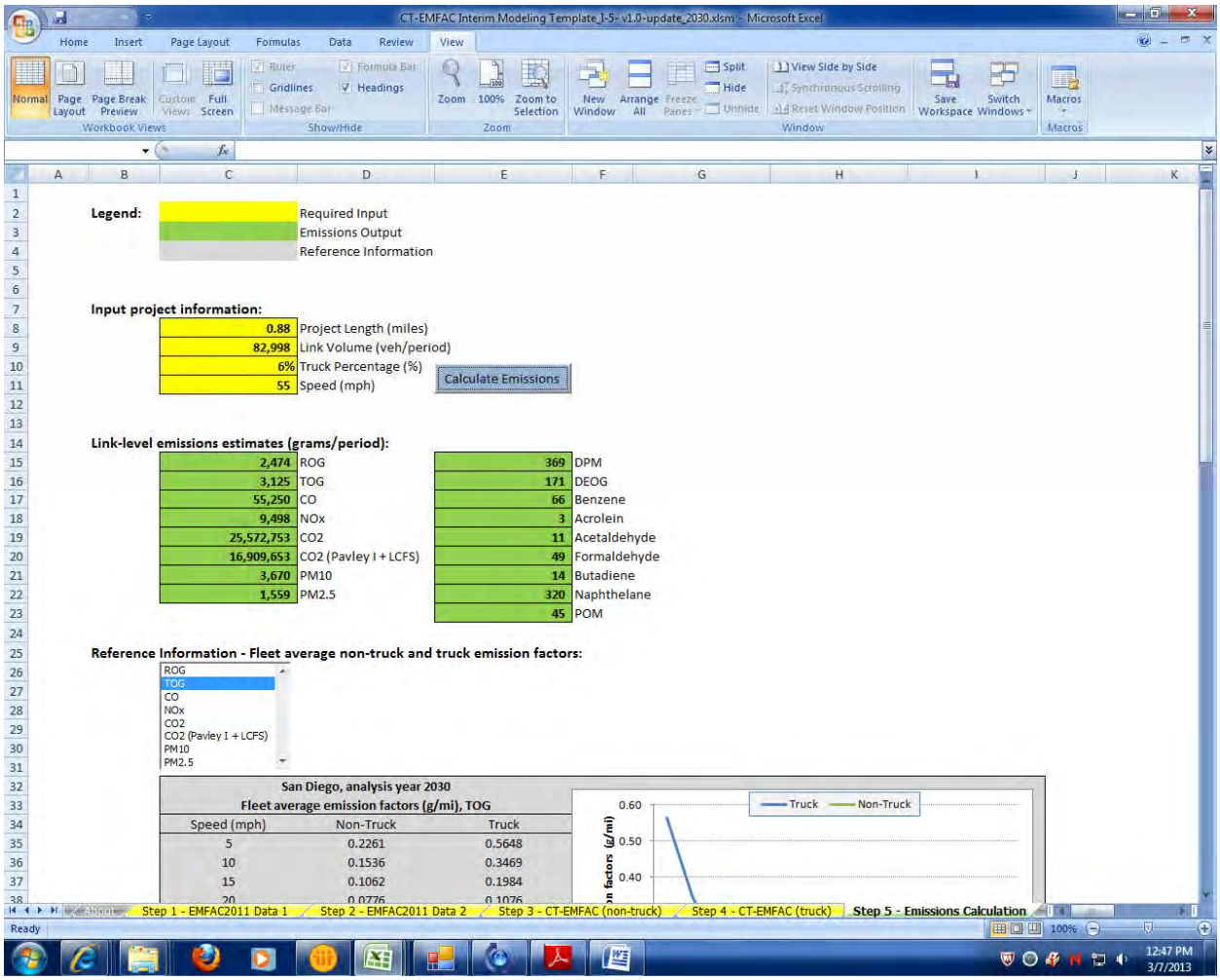
2030 8+4
Link: 1 (NB GP)
Segment: 19
Off Peak



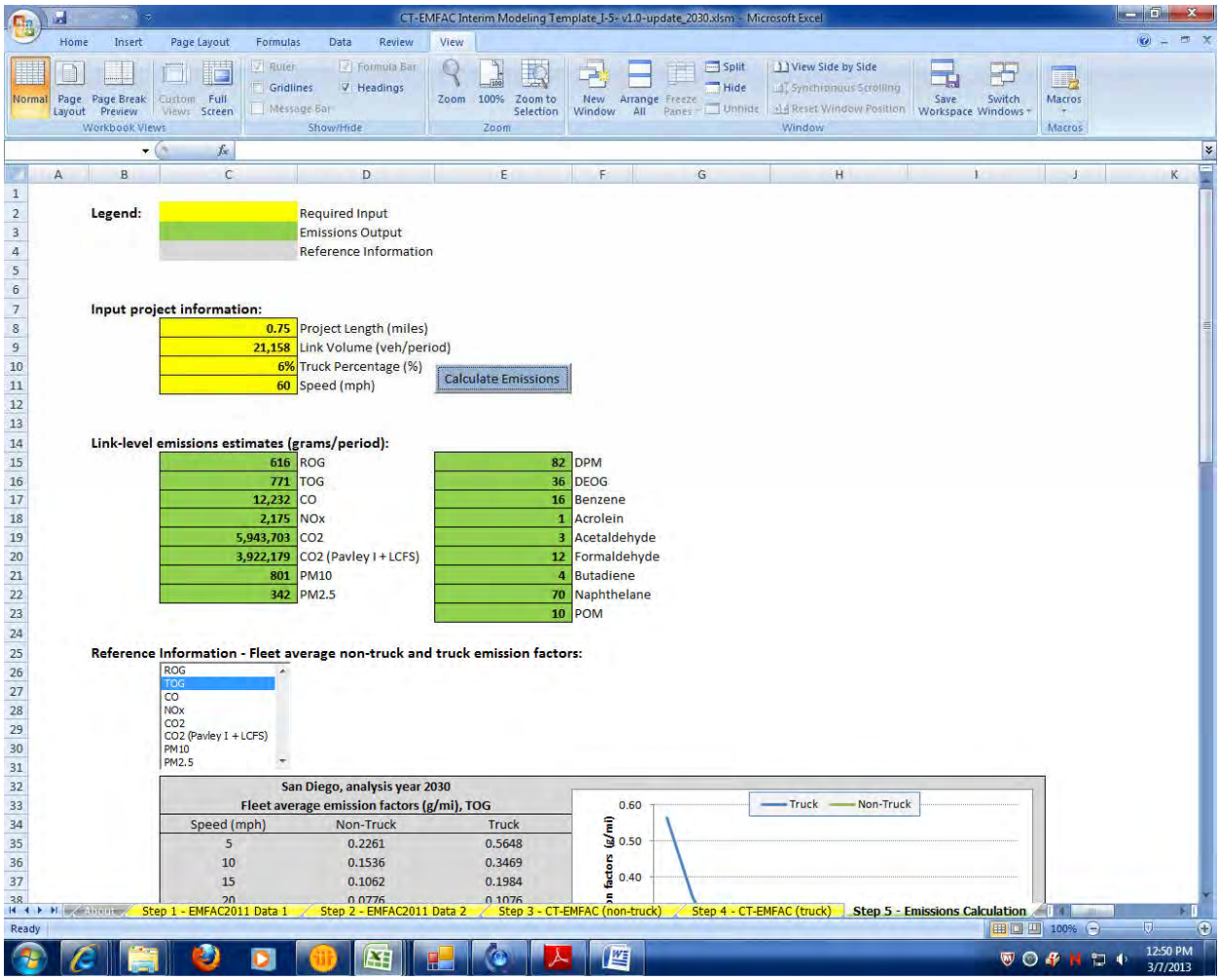
2030 8+4
Link: 1 (NB GP)
Segment: 20
Peak



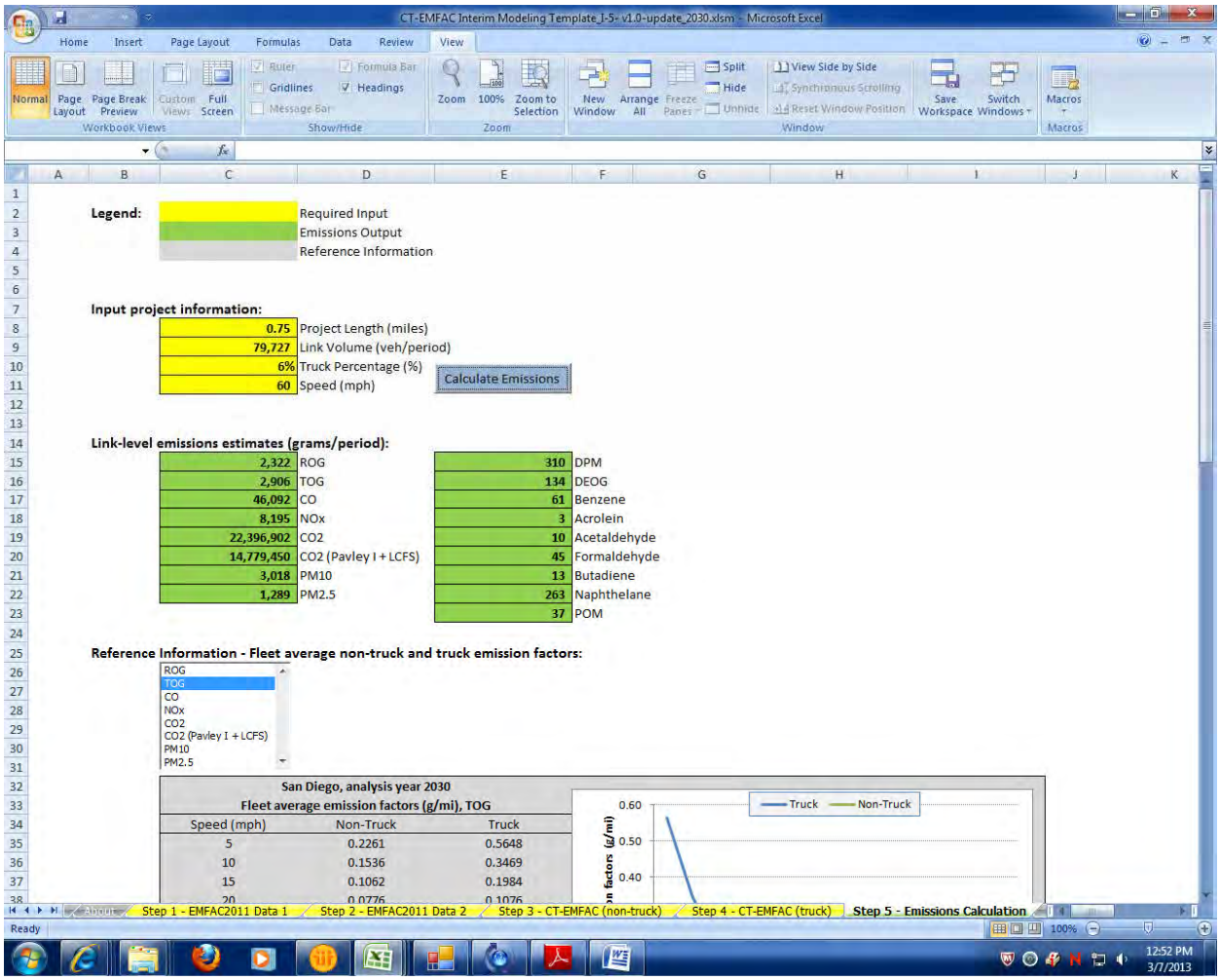
2030 8+4
Link: 1 (NB GP)
Segment: 20
Off Peak



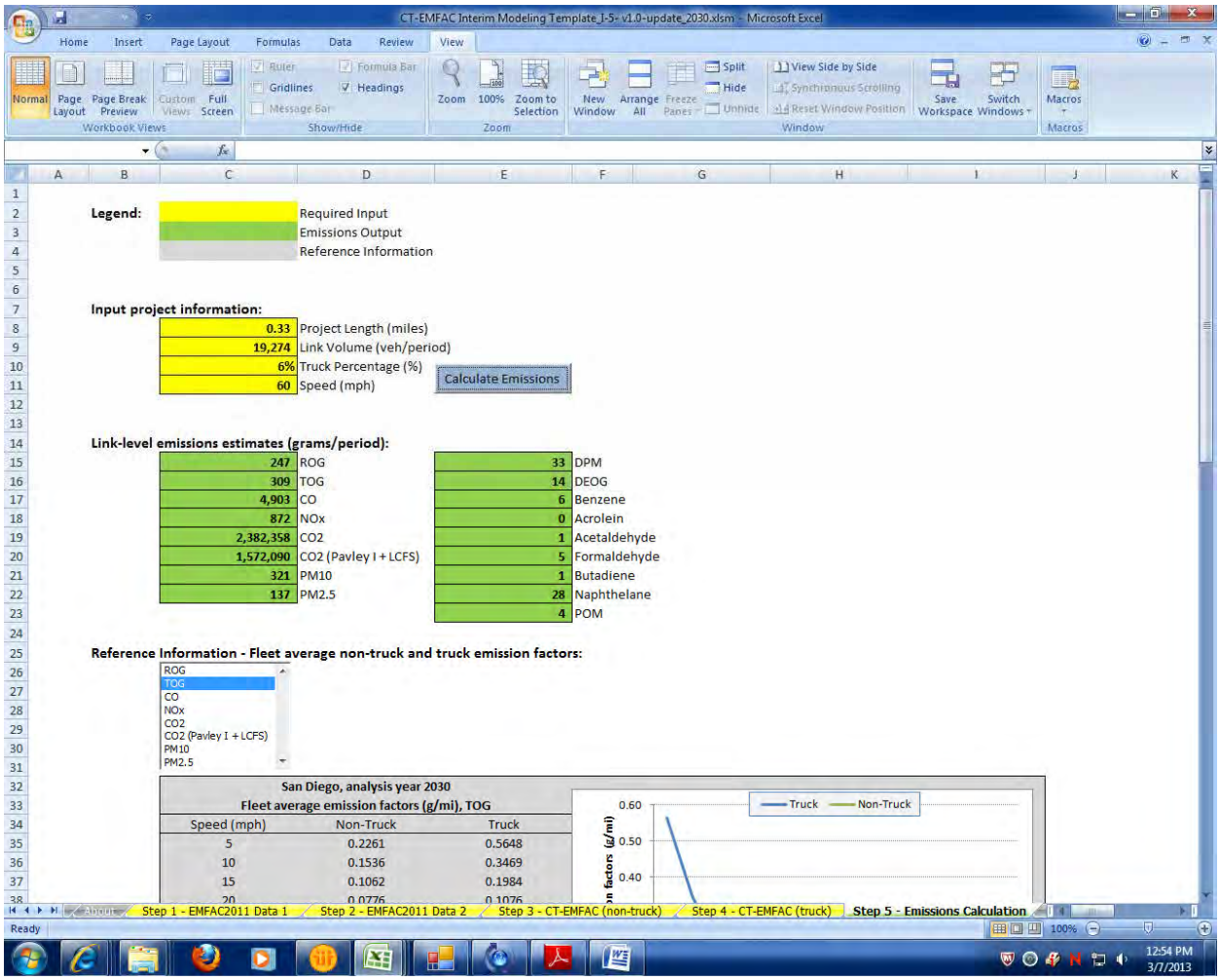
2030 8+4
Link: 1 (NB GP)
Segment: 21
Peak



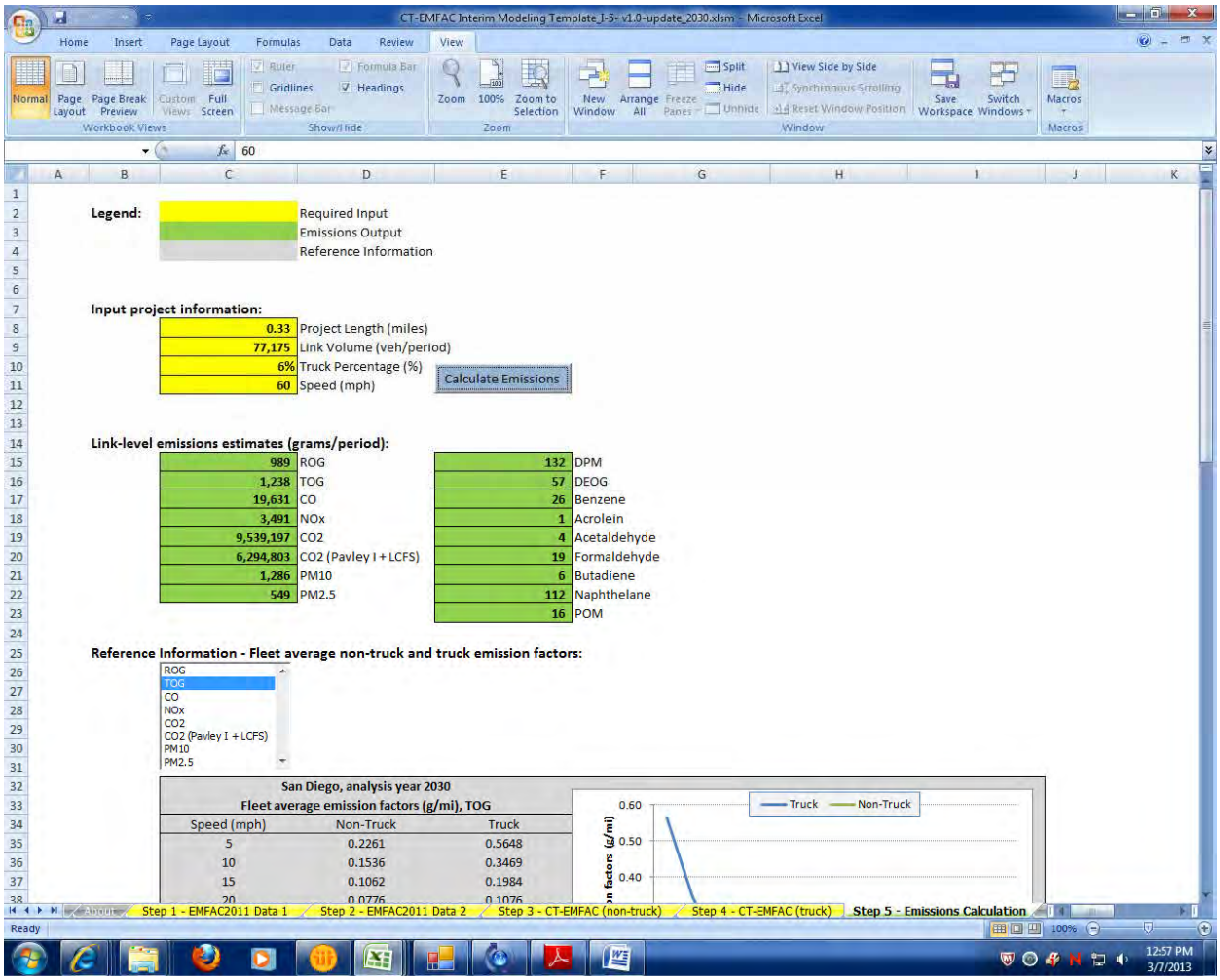
2030 8+4
Link: 1 (NB GP)
Segment: 21
Off Peak



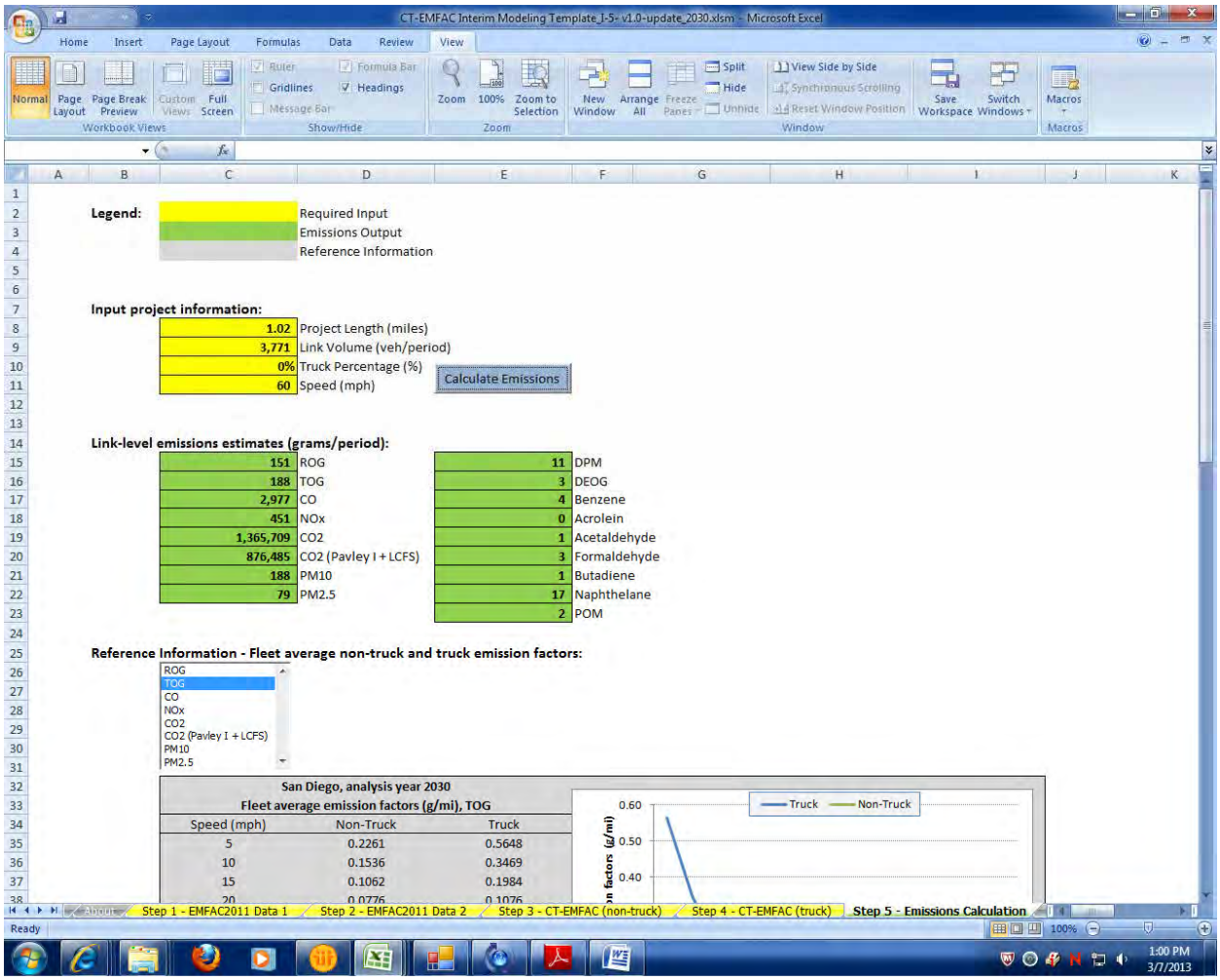
2030 8+4
Link: 1 (NB GP)
Segment: 22
Peak



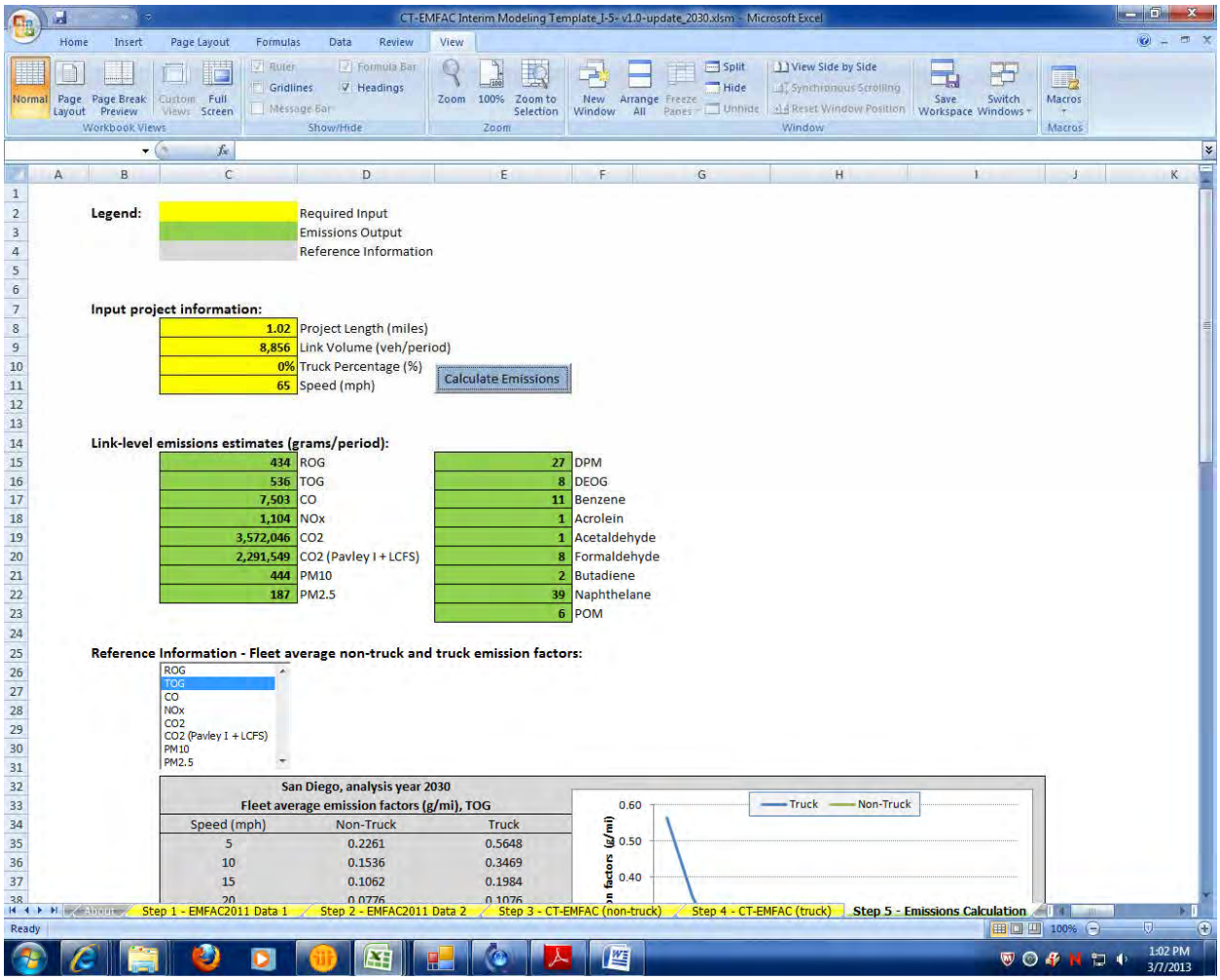
2030 8+4
Link: 1 (NB GP)
Segment: 22
Off Peak



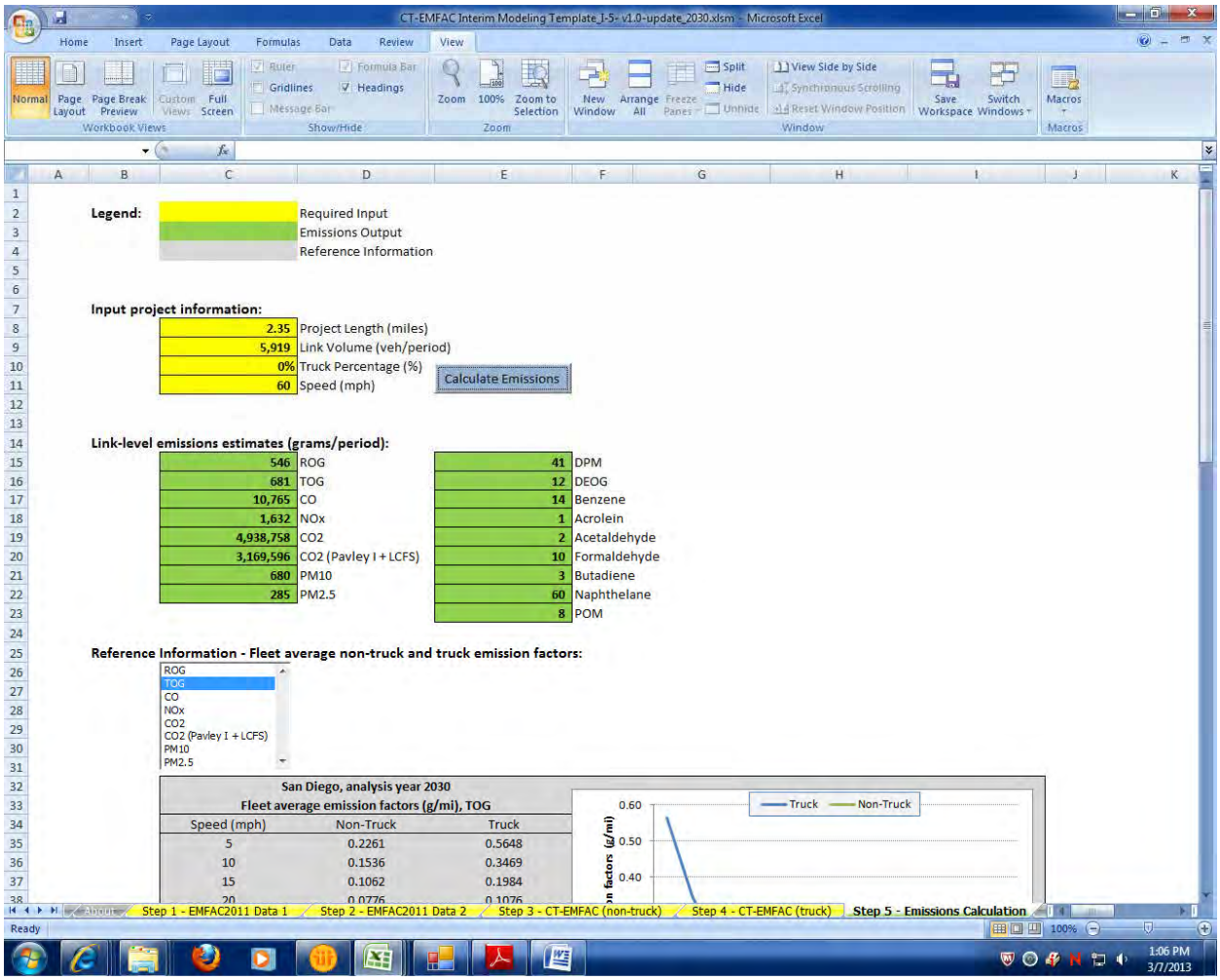
2030 8+4
Link: 2 (NB HOV)
Segment: 1
Peak



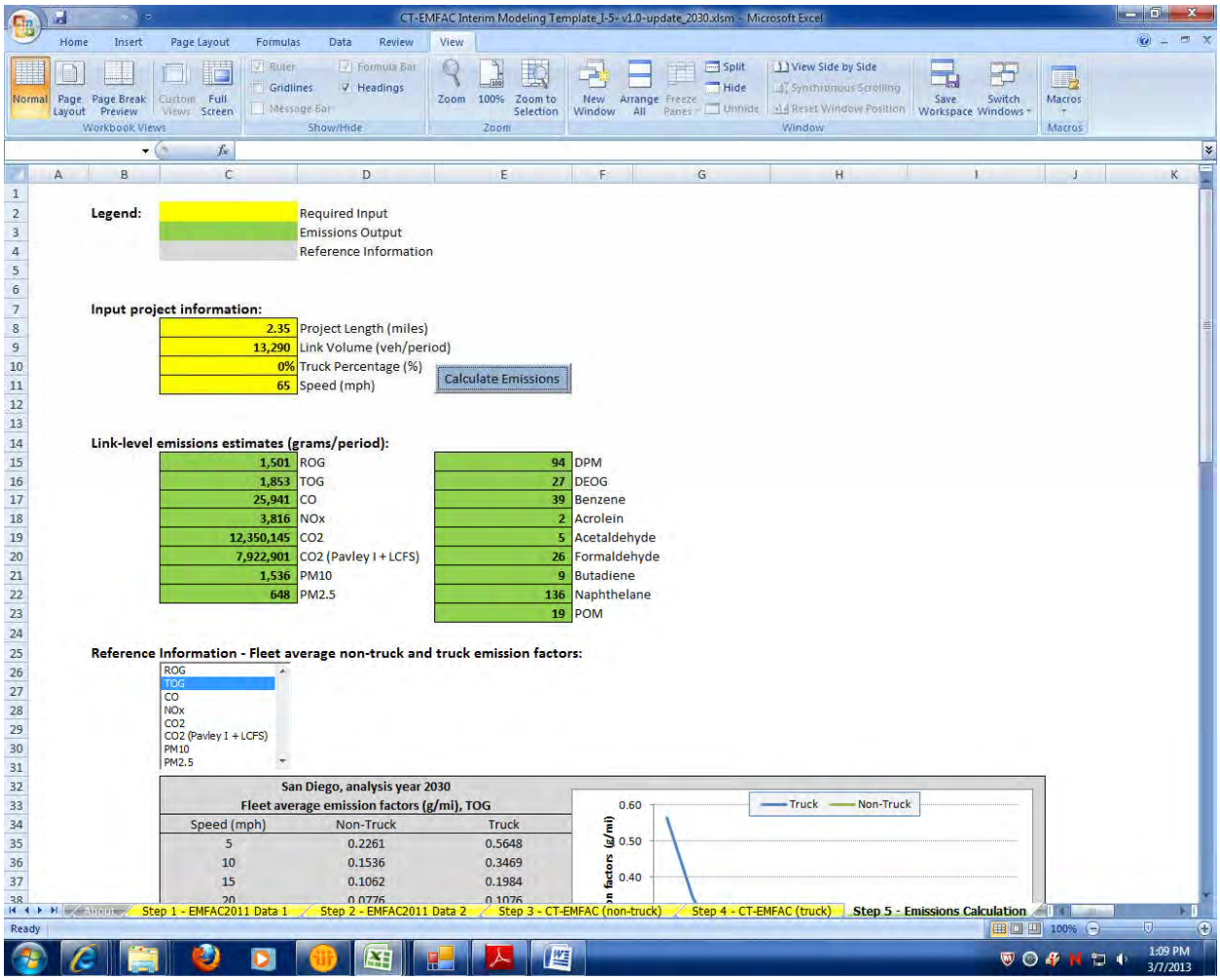
2030 8+4
Link: 2 (NB HOV)
Segment: 1
Off Peak



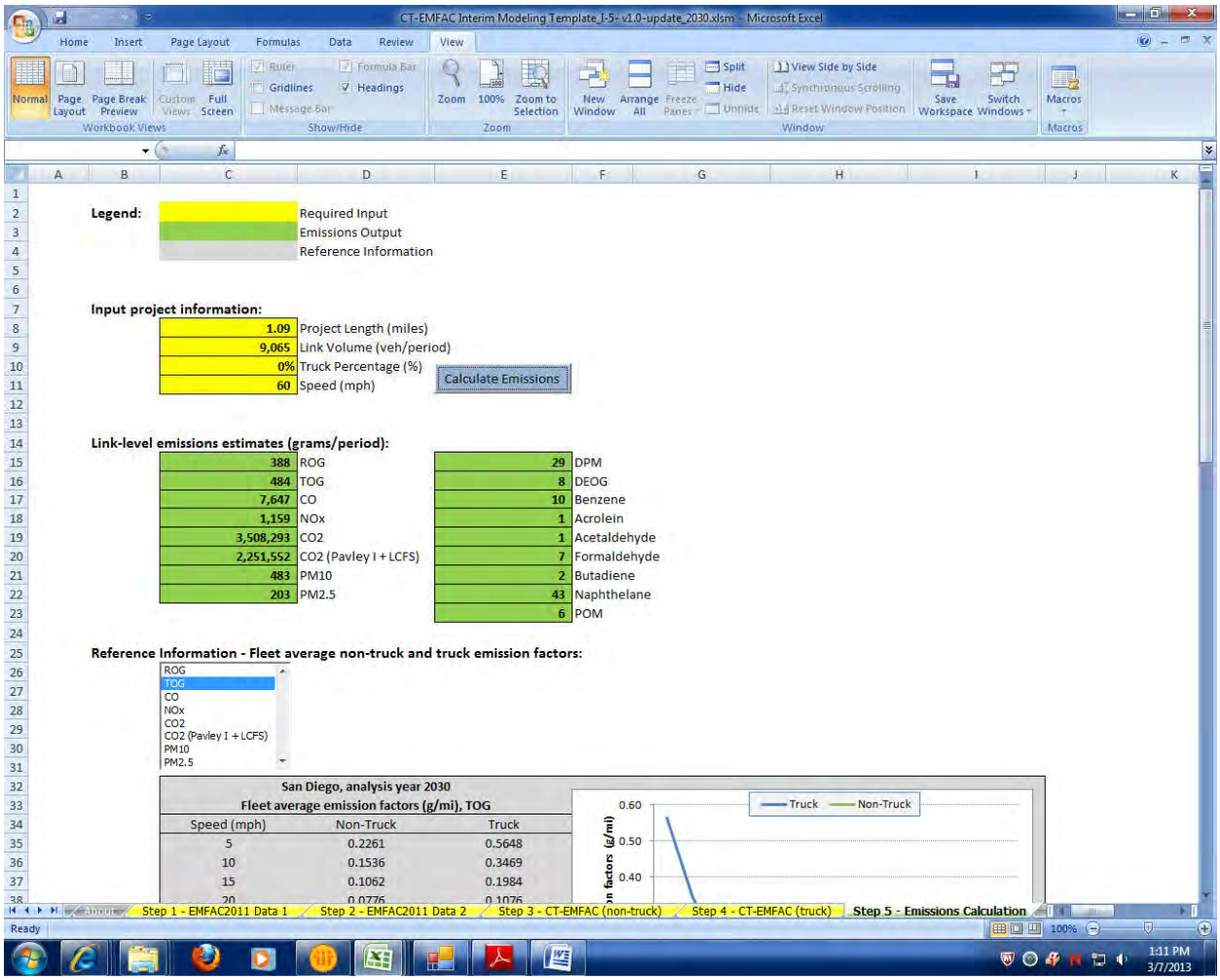
2030 8+4
Link: 2 (NB HOV)
Segment: 2
Peak



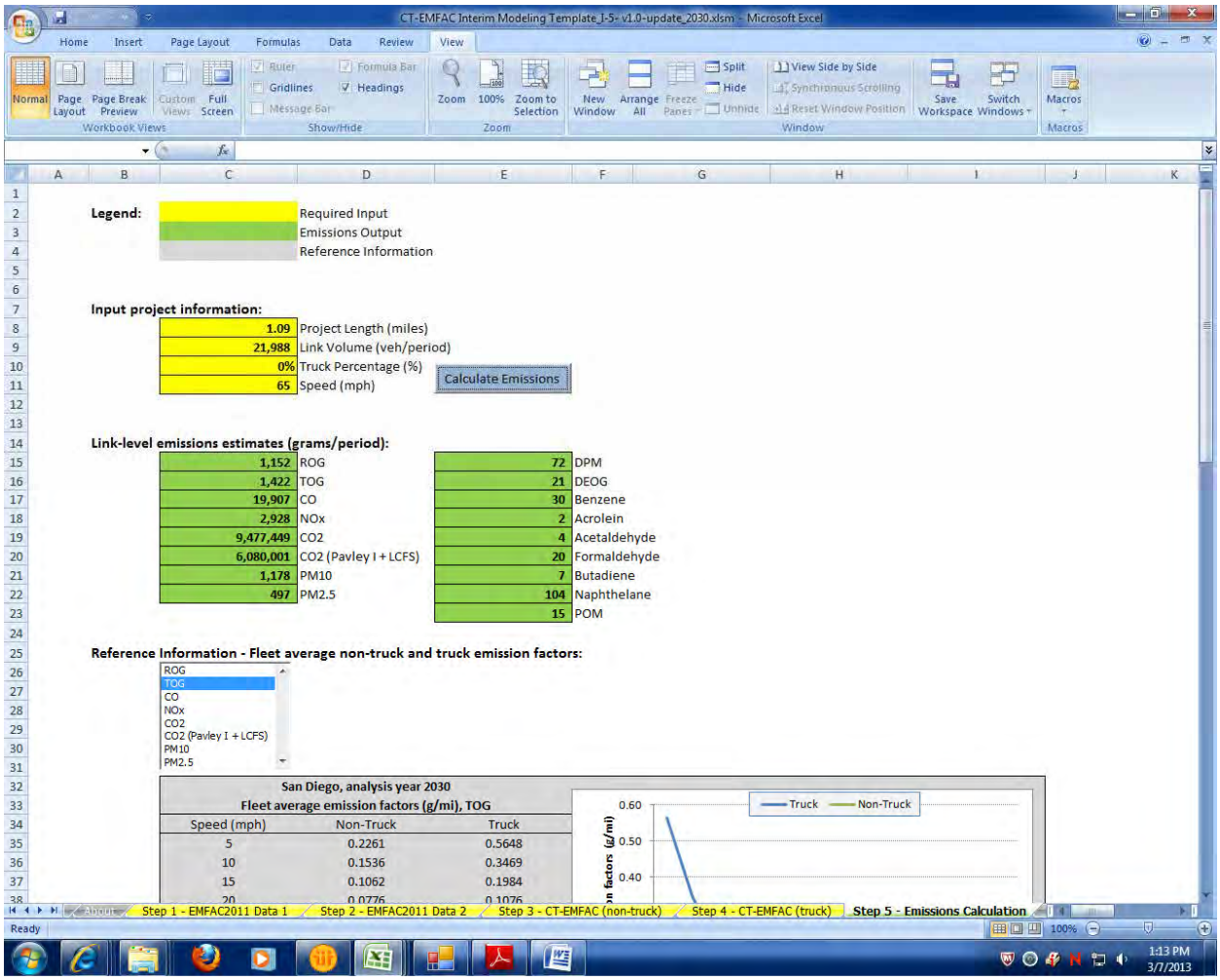
2030 8+4
Link: 2 (NB HOV)
Segment: 2
Off Peak



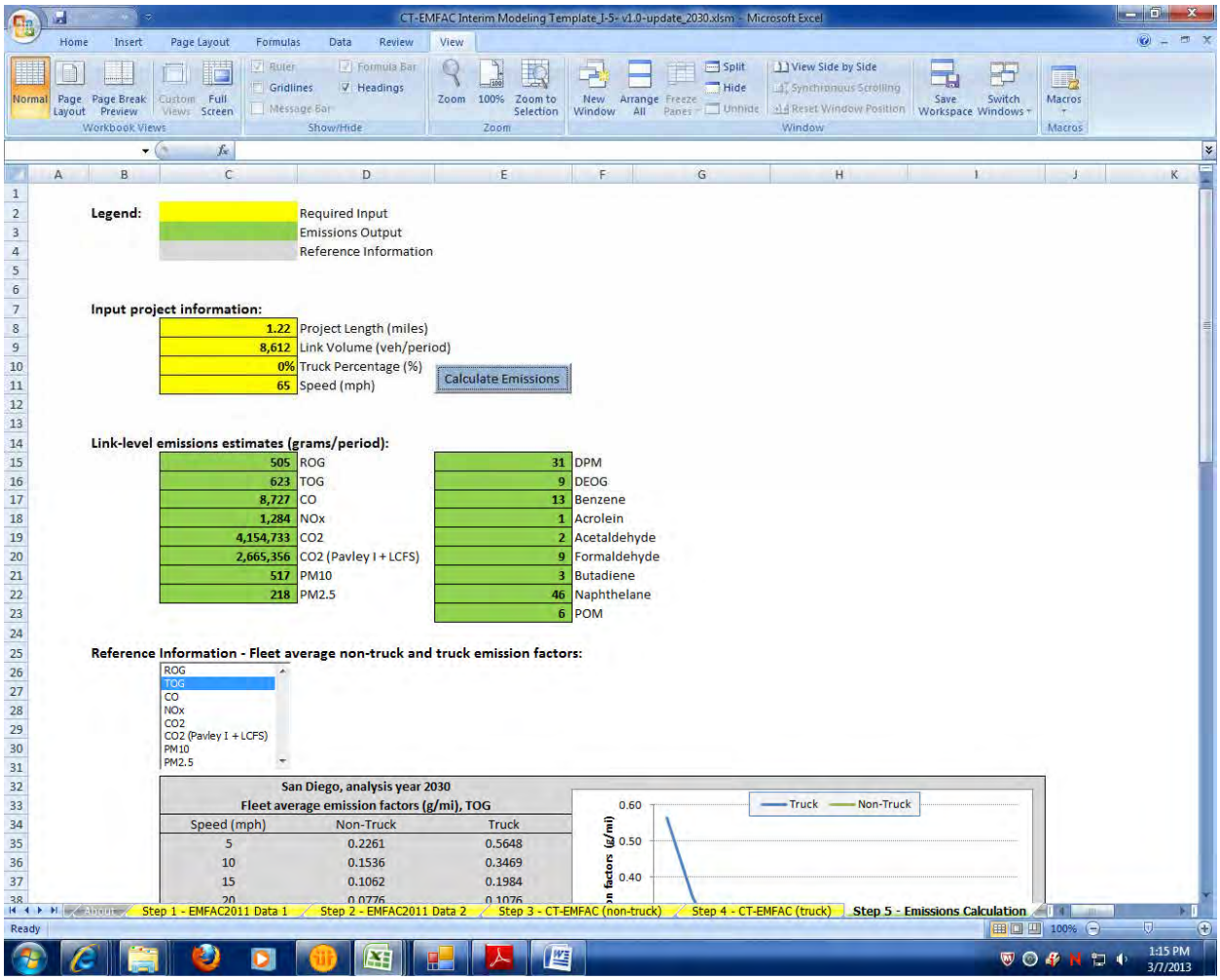
2030 8+4
Link: 2 (NB HOV)
Segment: 3
Peak



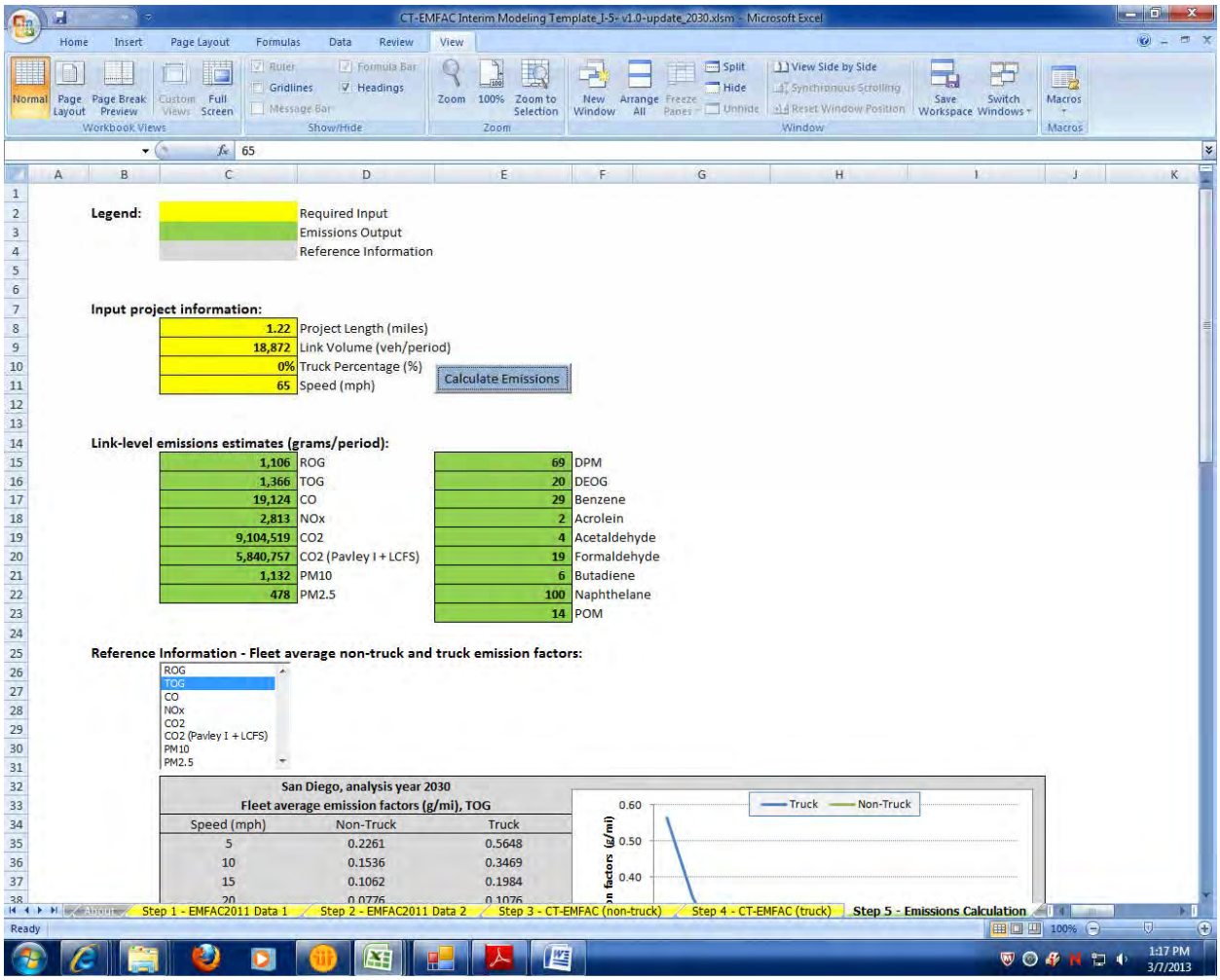
2030 8+4
Link: 2 (NB HOV)
Segment: 3
Off Peak



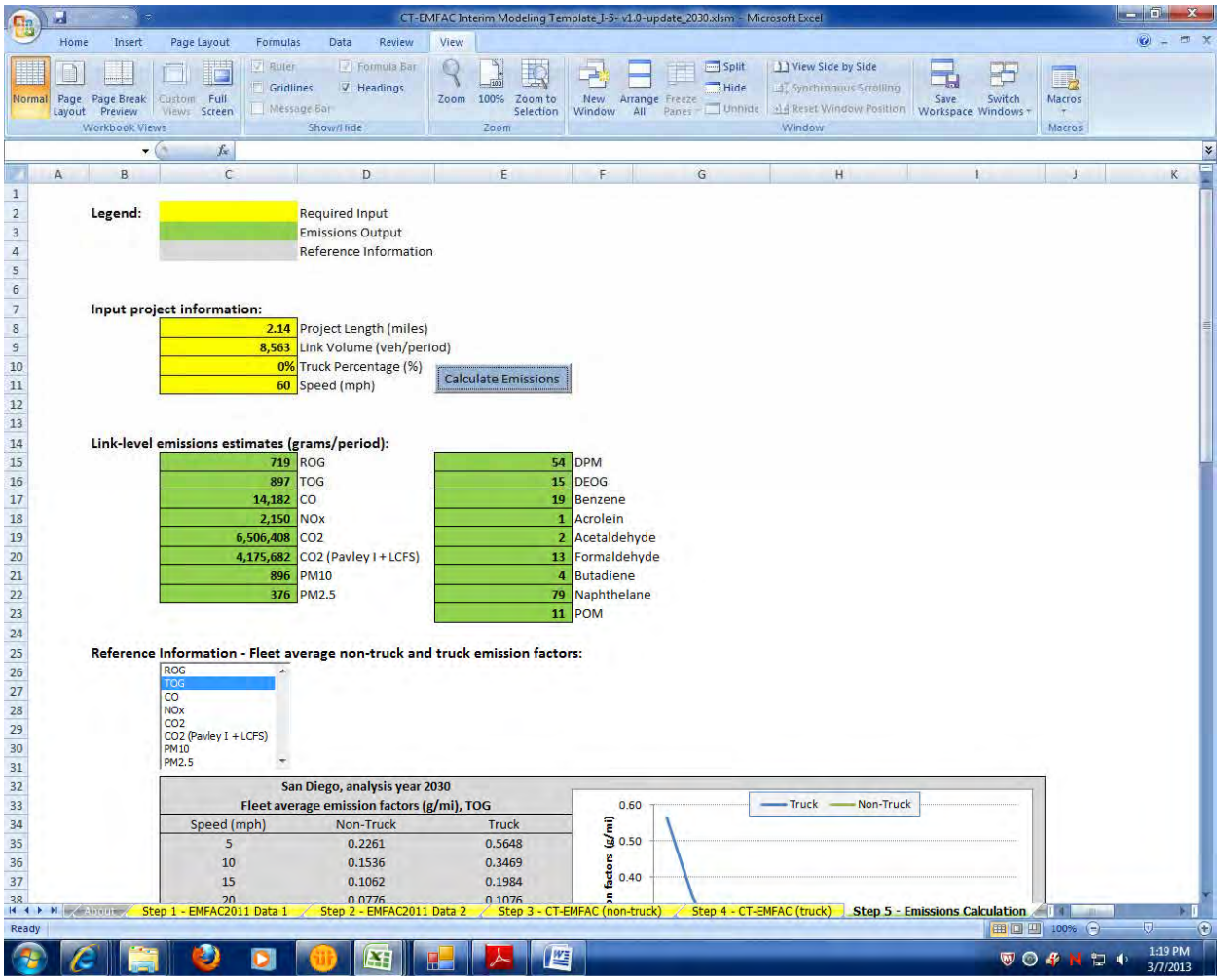
2030 8+4
Link: 2 (NB HOV)
Segment: 4
Peak



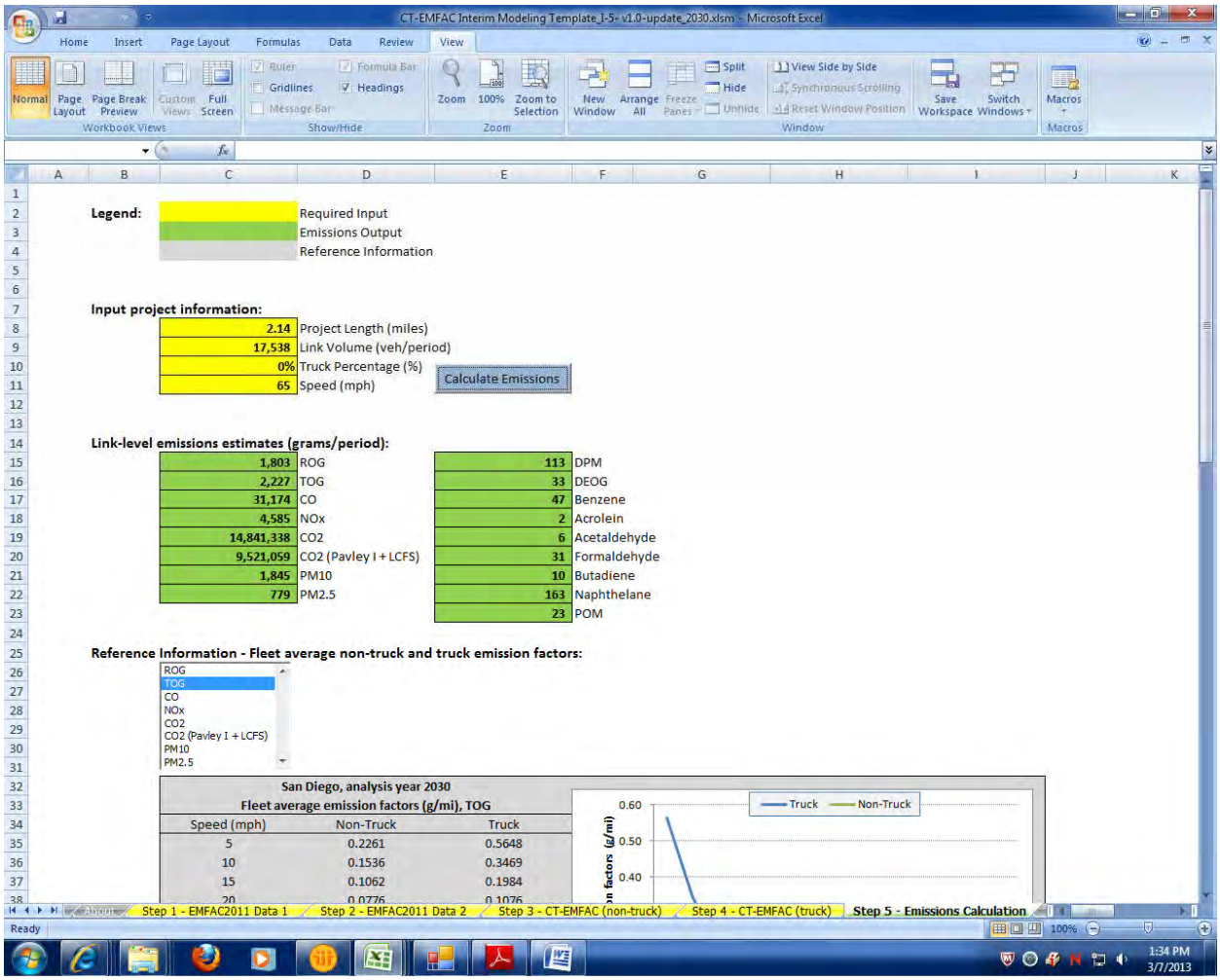
2030 8+4
Link: 2 (NB HOV)
Segment: 4
Off Peak



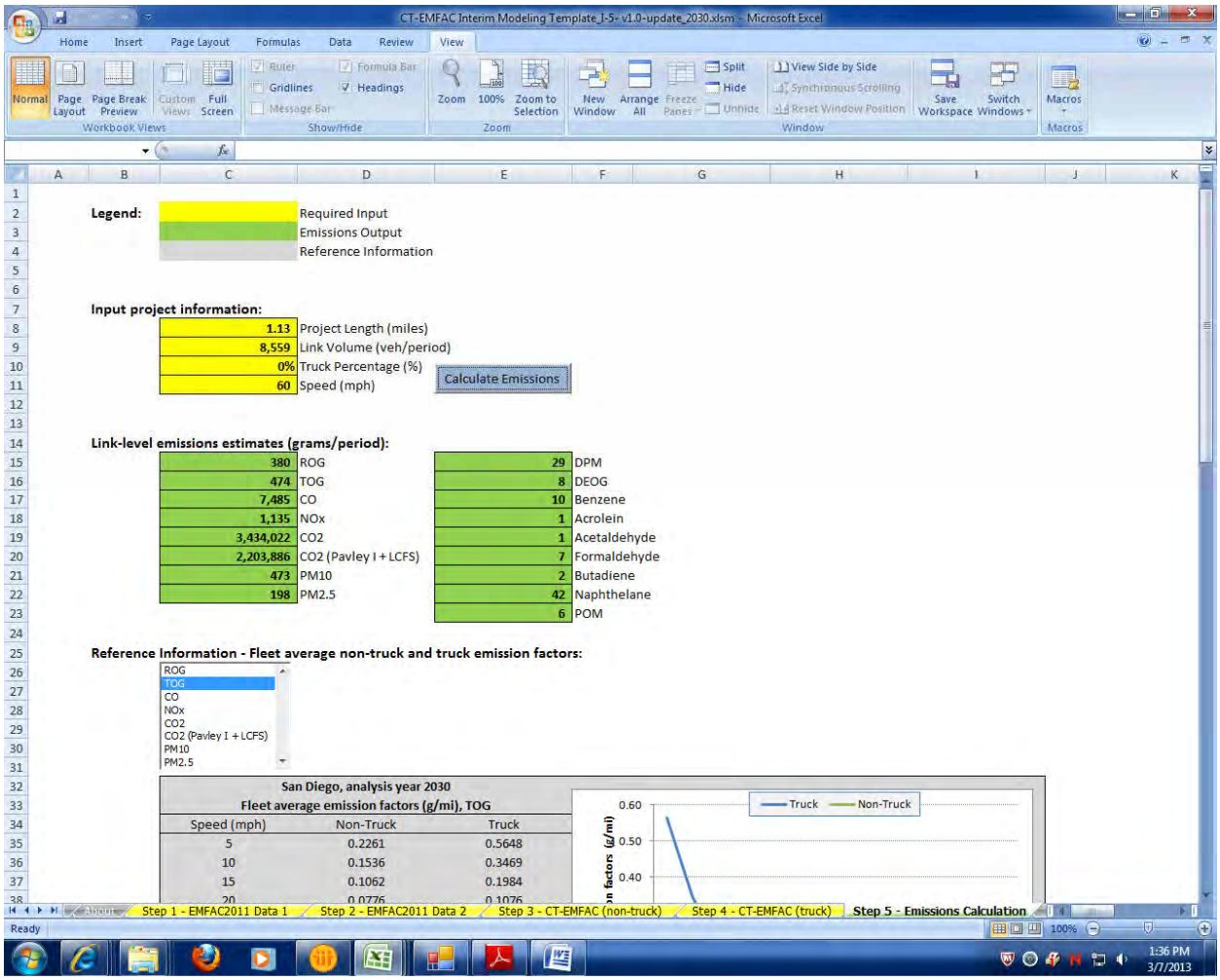
2030 8+4
Link: 2 (NB HOV)
Segment: 5
Peak



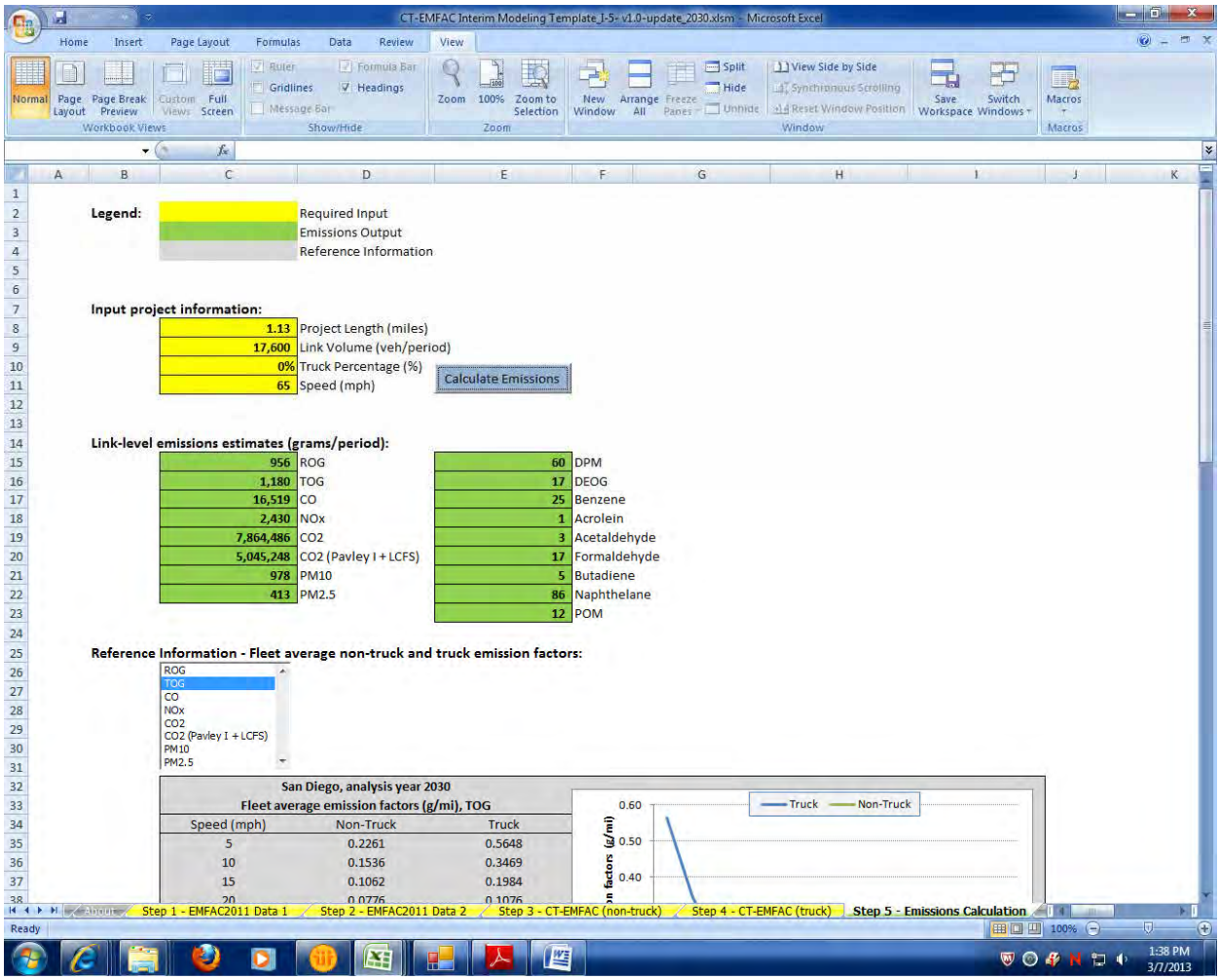
2030 8+4
Link: 2 (NB HOV)
Segment: 5
Off Peak



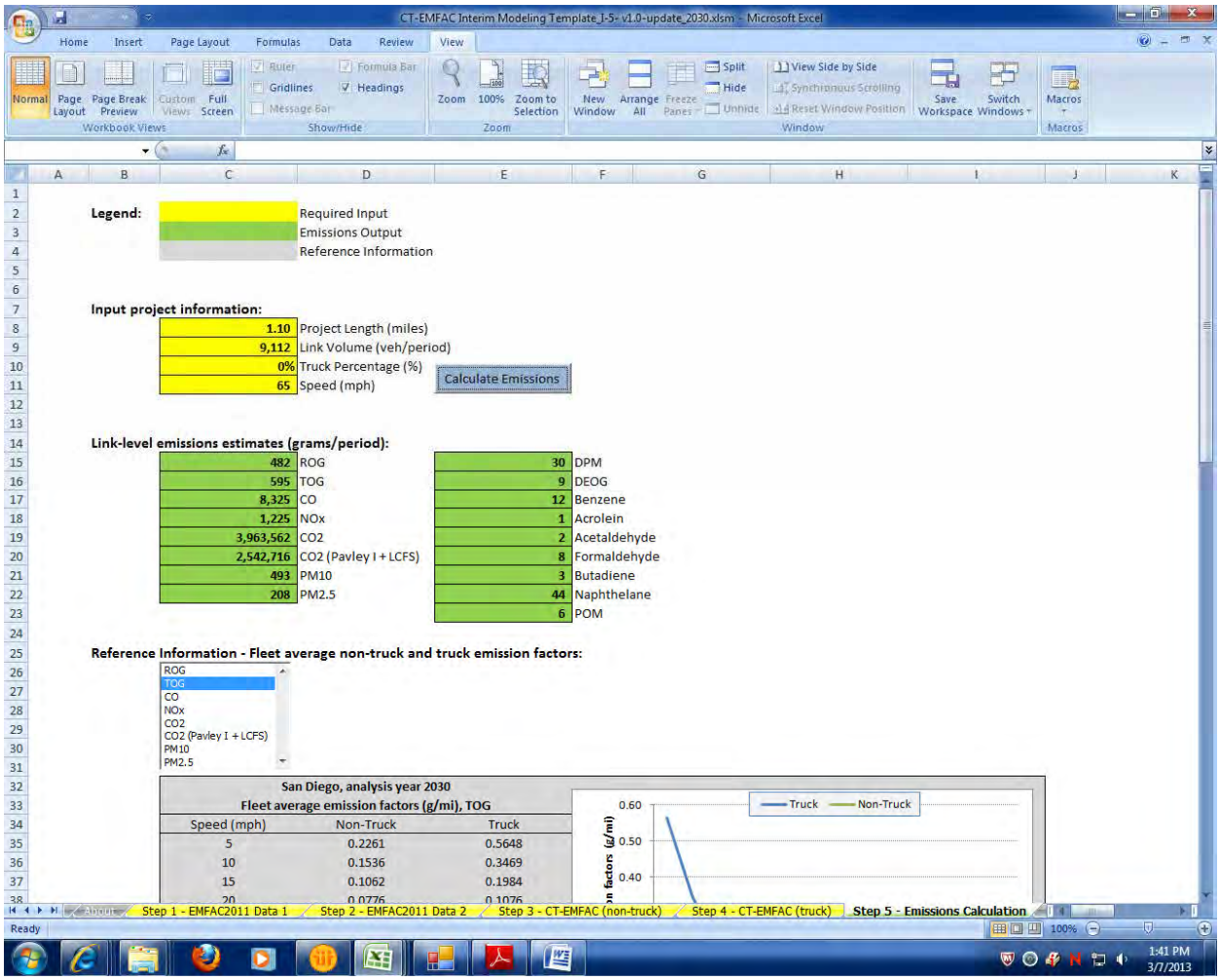
2030 8+4
Link: 2 (NB HOV)
Segment: 6
Peak



2030 8+4
Link: 2 (NB HOV)
Segment: 6
Off Peak



2030 8+4
Link: 2 (NB HOV)
Segment: 7
Peak



CT-EMFAC Interim Modeling Template_J-5+ v1.0-update_2030.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.10	Project Length (miles)
9,112	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

482	ROG	30	DPM
595	TOG	9	DEOG
8,325	CO	12	Benzene
1,225	NOx	1	Acrolein
3,963,562	CO2	2	Acetaldehyde
2,542,716	CO2 (Pavley I + LCFS)	8	Formaldehyde
493	PM10	3	Butadiene
208	PM2.5	44	Naphthelane
		6	POM

Reference Information - Fleet average non-truck and truck emission factors:

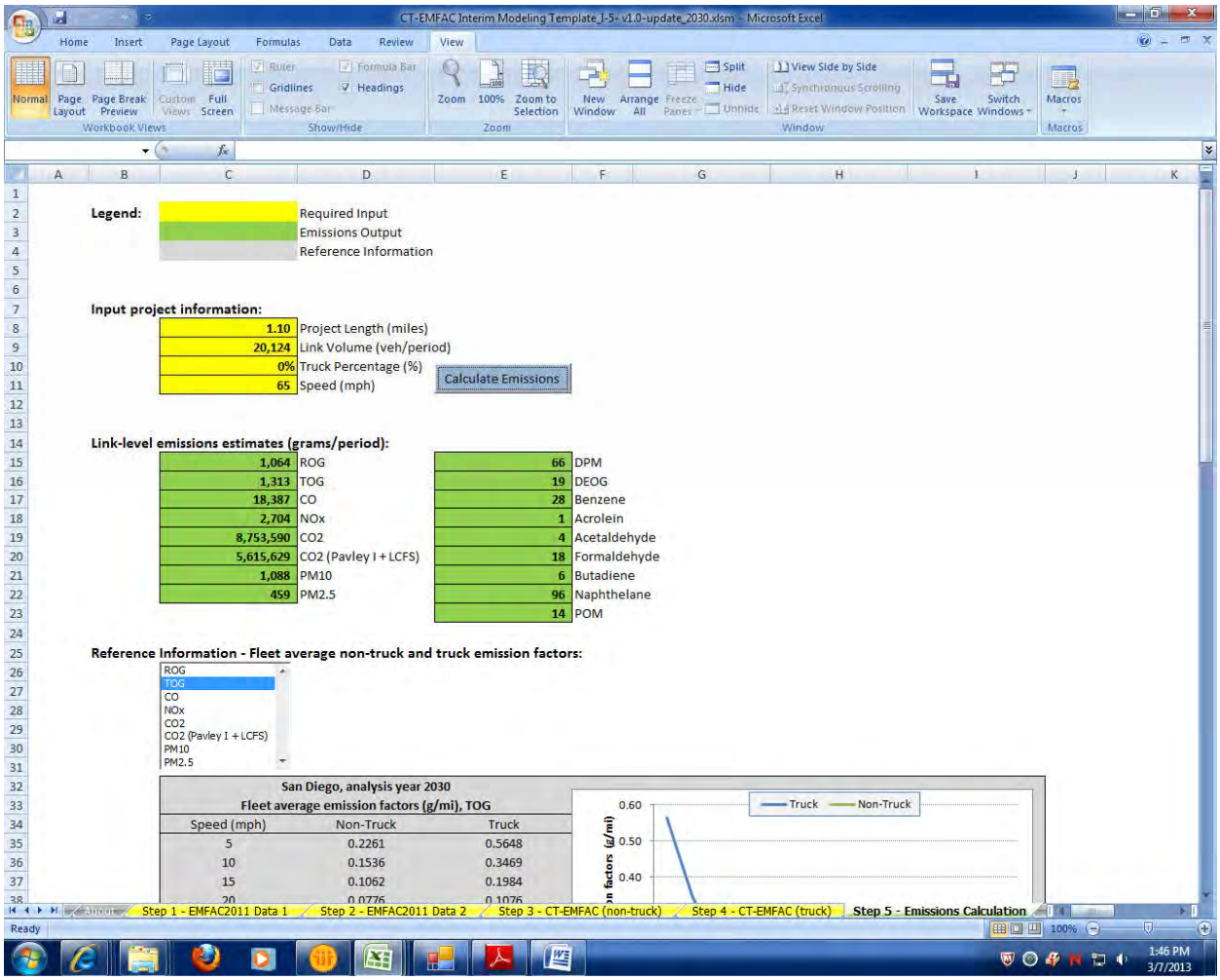
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

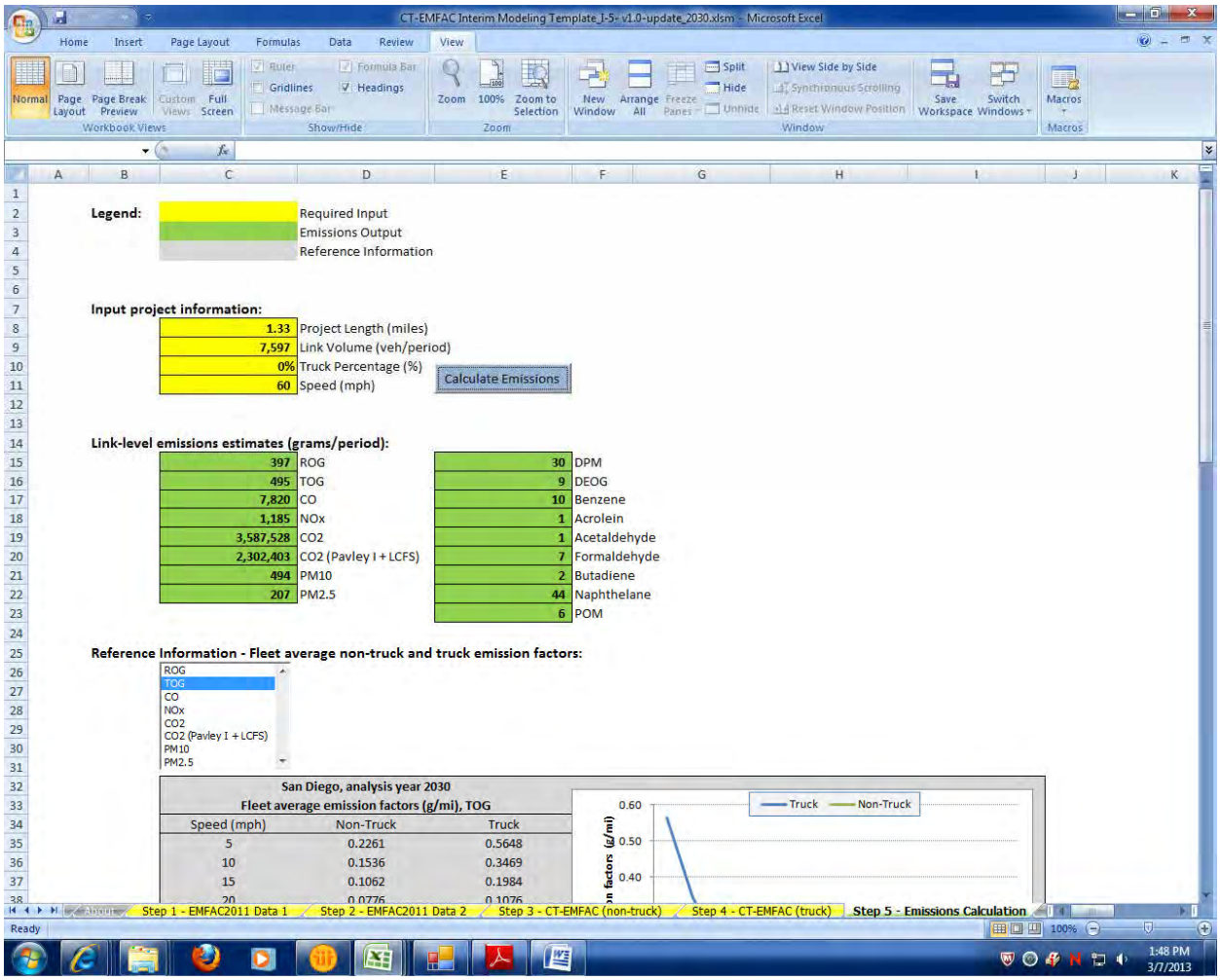
Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

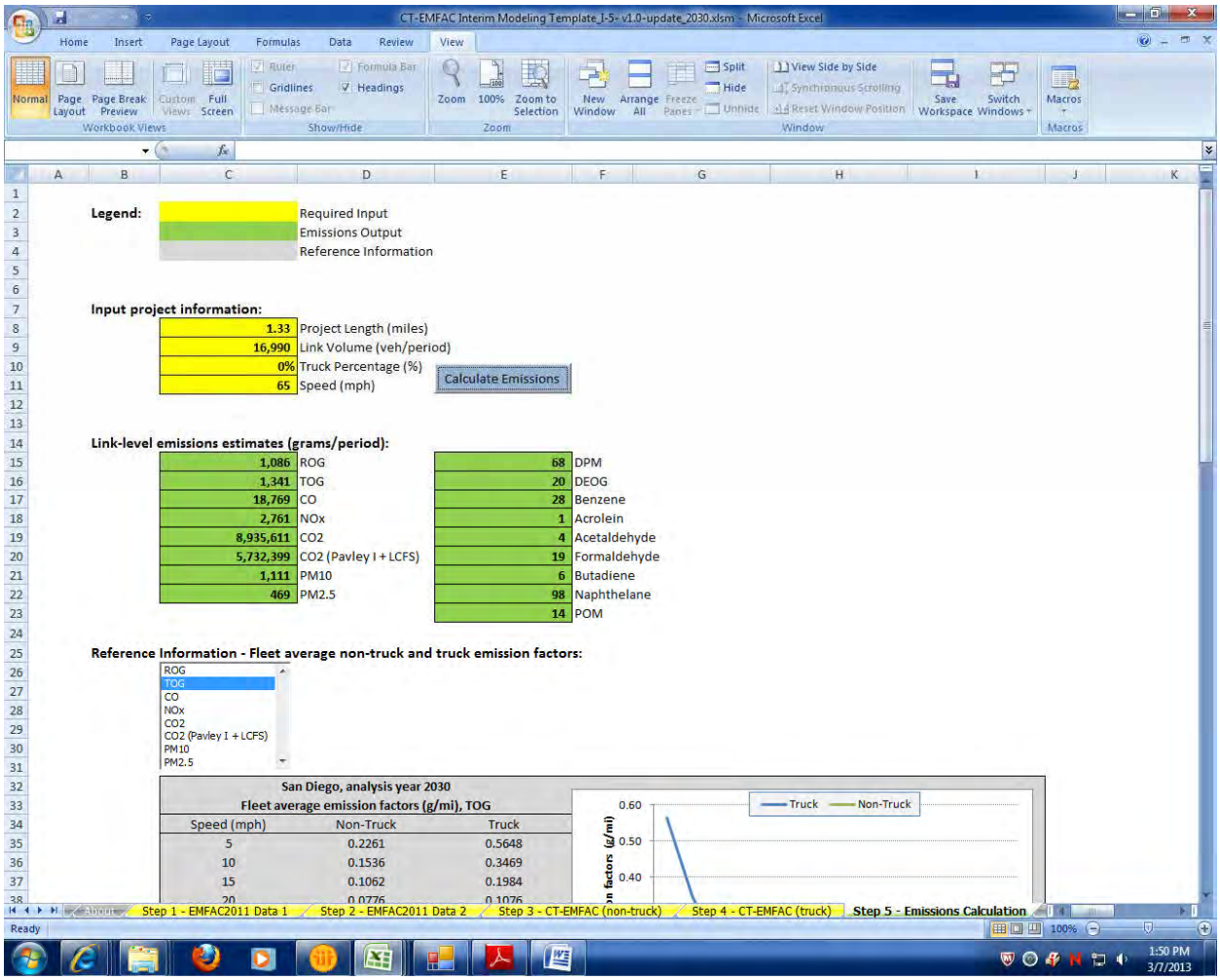
2030 8+4
Link: 2 (NB HOV)
Segment: 7
Off Peak



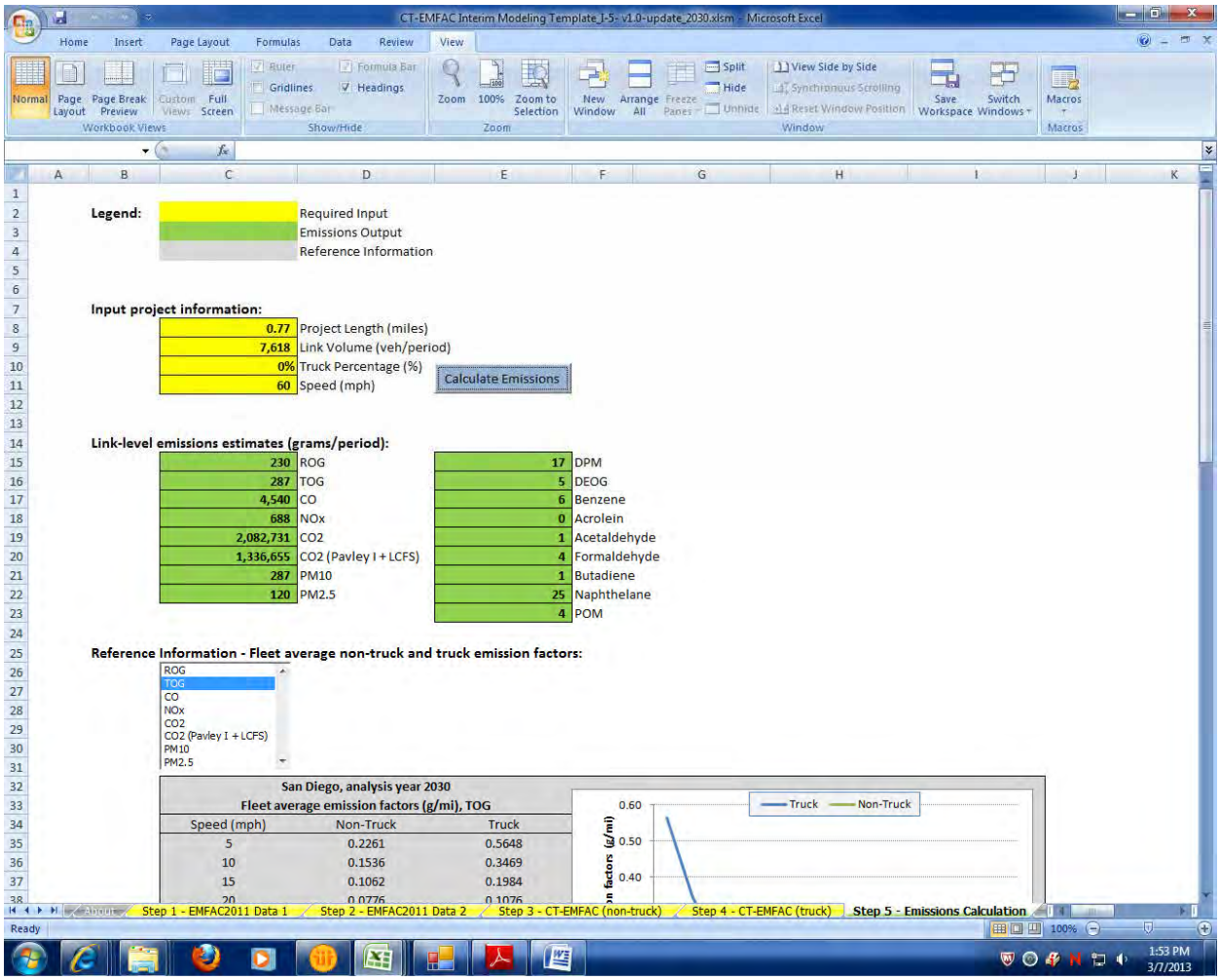
2030 8+4
Link: 2 (NB HOV)
Segment: 8
Peak



2030 8+4
Link: 2 (NB HOV)
Segment: 8
Off Peak



2030 8+4
Link: 2 (NB HOV)
Segment: 9
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
7,618	Link Volume (veh/period)
0%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

230	ROG	17	DPM
287	TOG	5	DEOG
4,540	CO	6	Benzene
688	NOx	0	Acrolein
2,082,731	CO2	1	Acetaldehyde
1,336,655	CO2 (Pavley I + LCFS)	4	Formaldehyde
287	PM10	1	Butadiene
120	PM2.5	25	Naphthelane
		4	POM

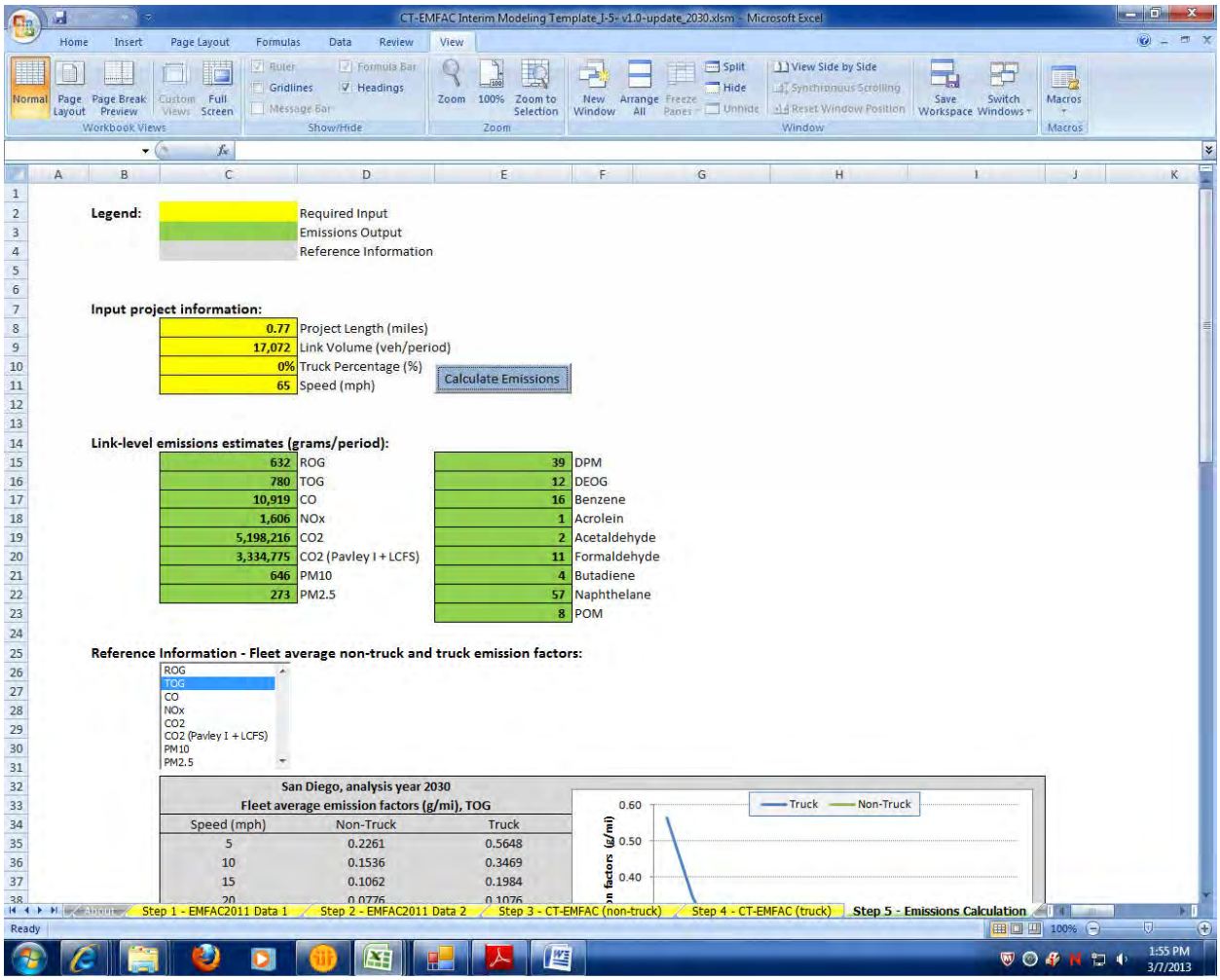
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 2 (NB HOV)
Segment: 9
Off Peak



CT-EMFAC Interim Modeling Template_J-5+ v1.0-update_2030.xlsm - Microsoft Excel

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
17,072	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

632	ROG	39	DPM
780	TOG	12	DEOG
10,919	CO	16	Benzene
1,606	NOx	1	Acrolein
5,198,216	CO2	2	Acetaldehyde
3,334,775	CO2 (Pavley I + LCFS)	11	Formaldehyde
646	PM10	4	Butadiene
273	PM2.5	57	Naphthelane
		8	POM

Reference Information - Fleet average non-truck and truck emission factors:

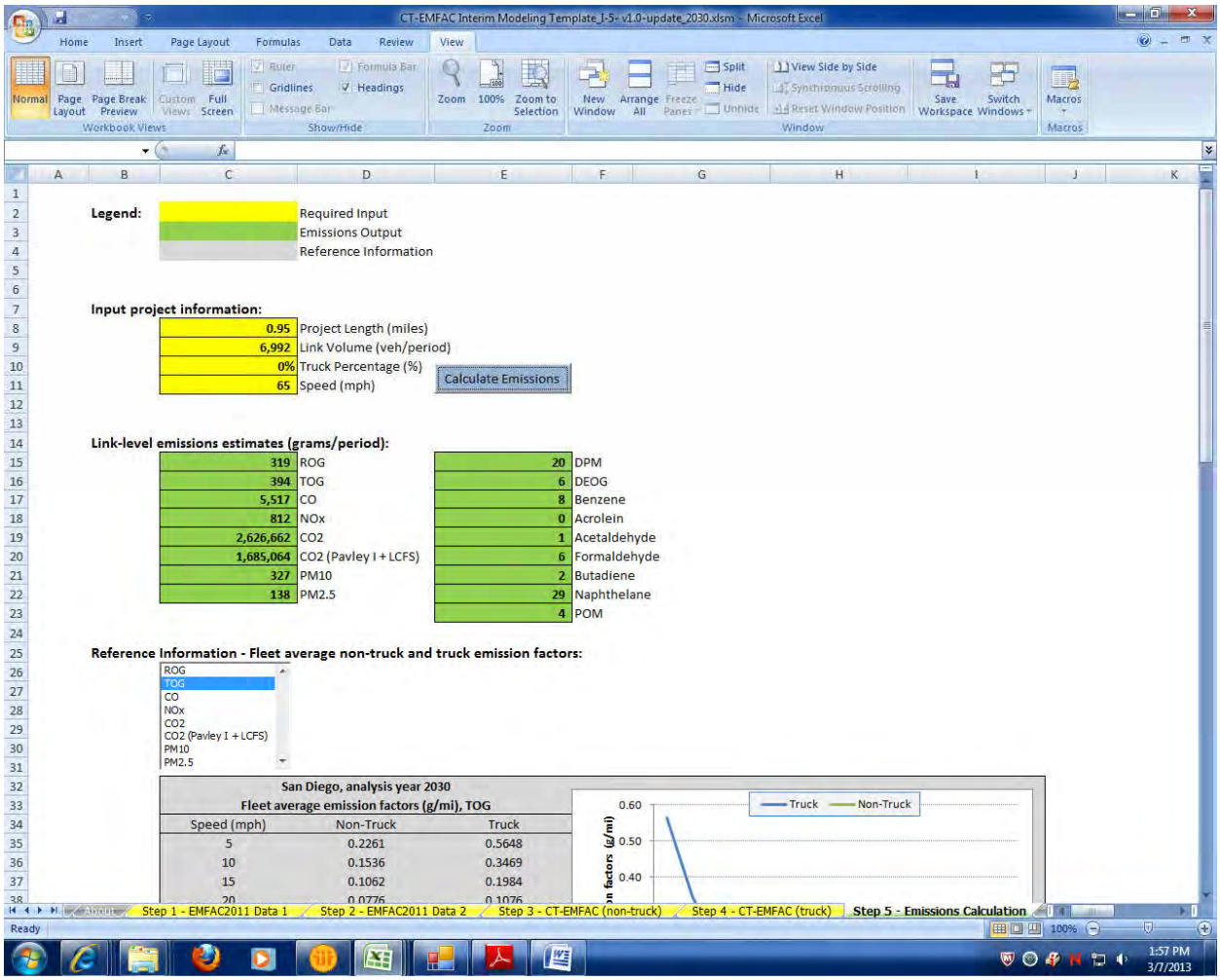
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

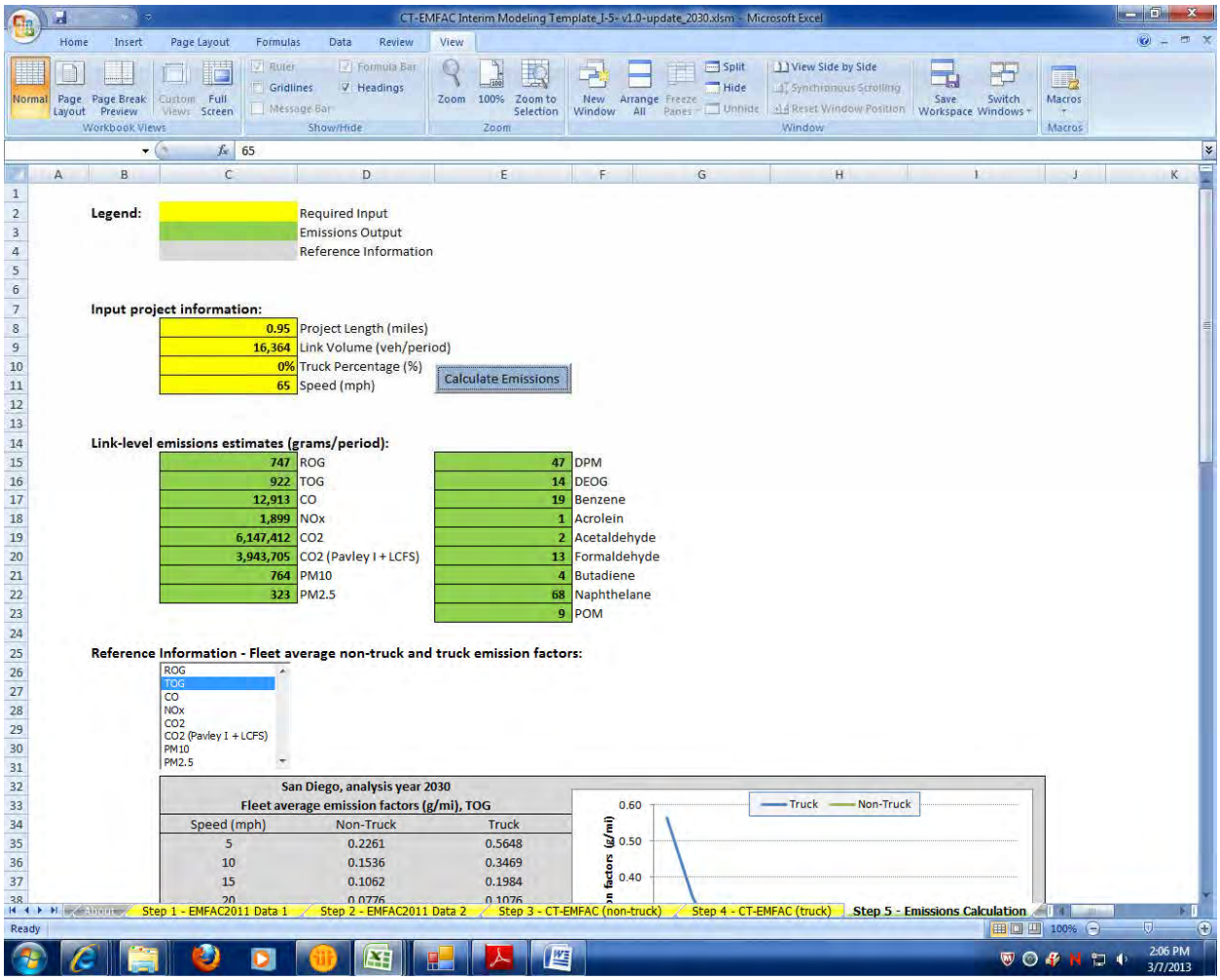
Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

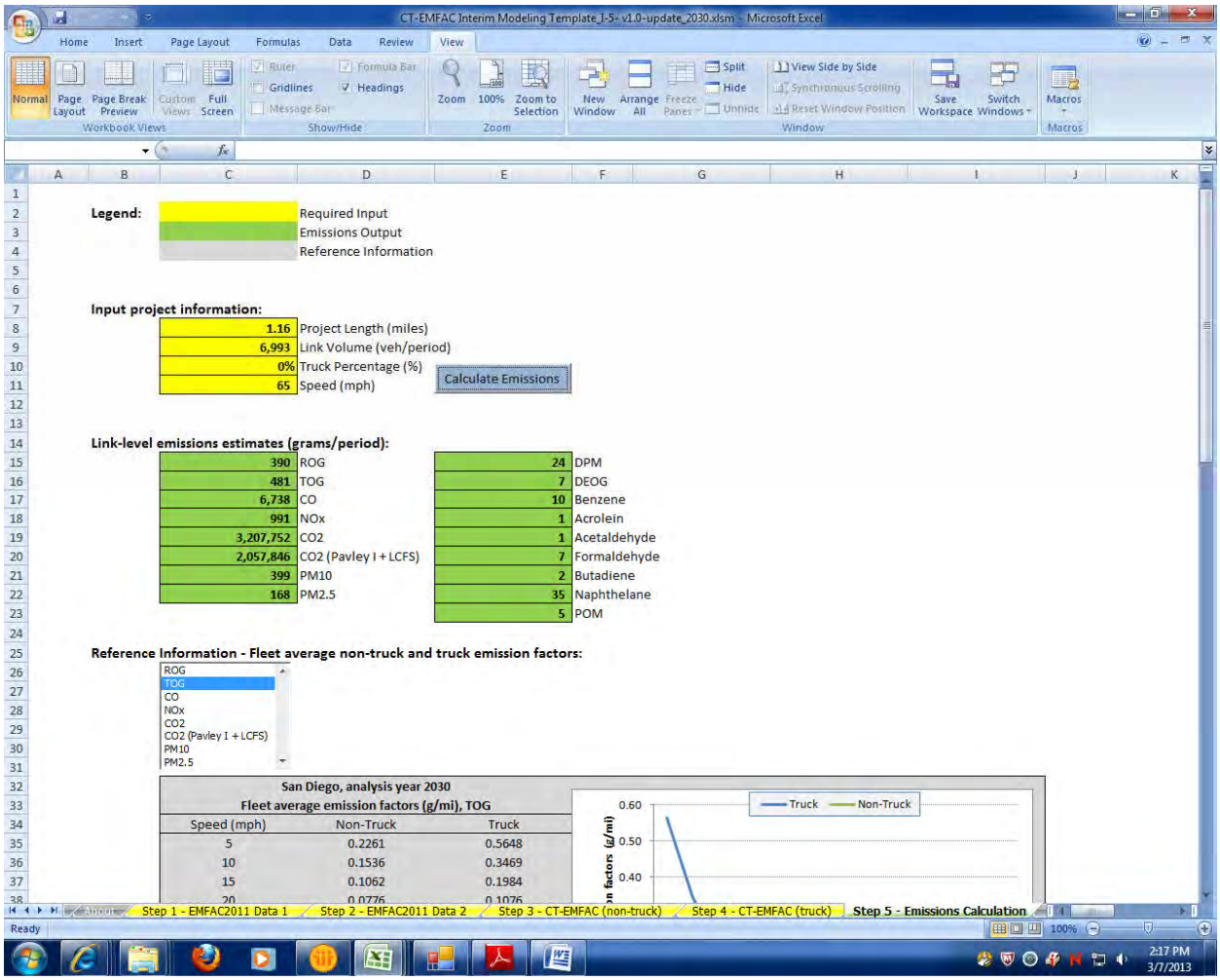
2030 8+4
Link: 2 (NB HOV)
Segment: 10
Peak



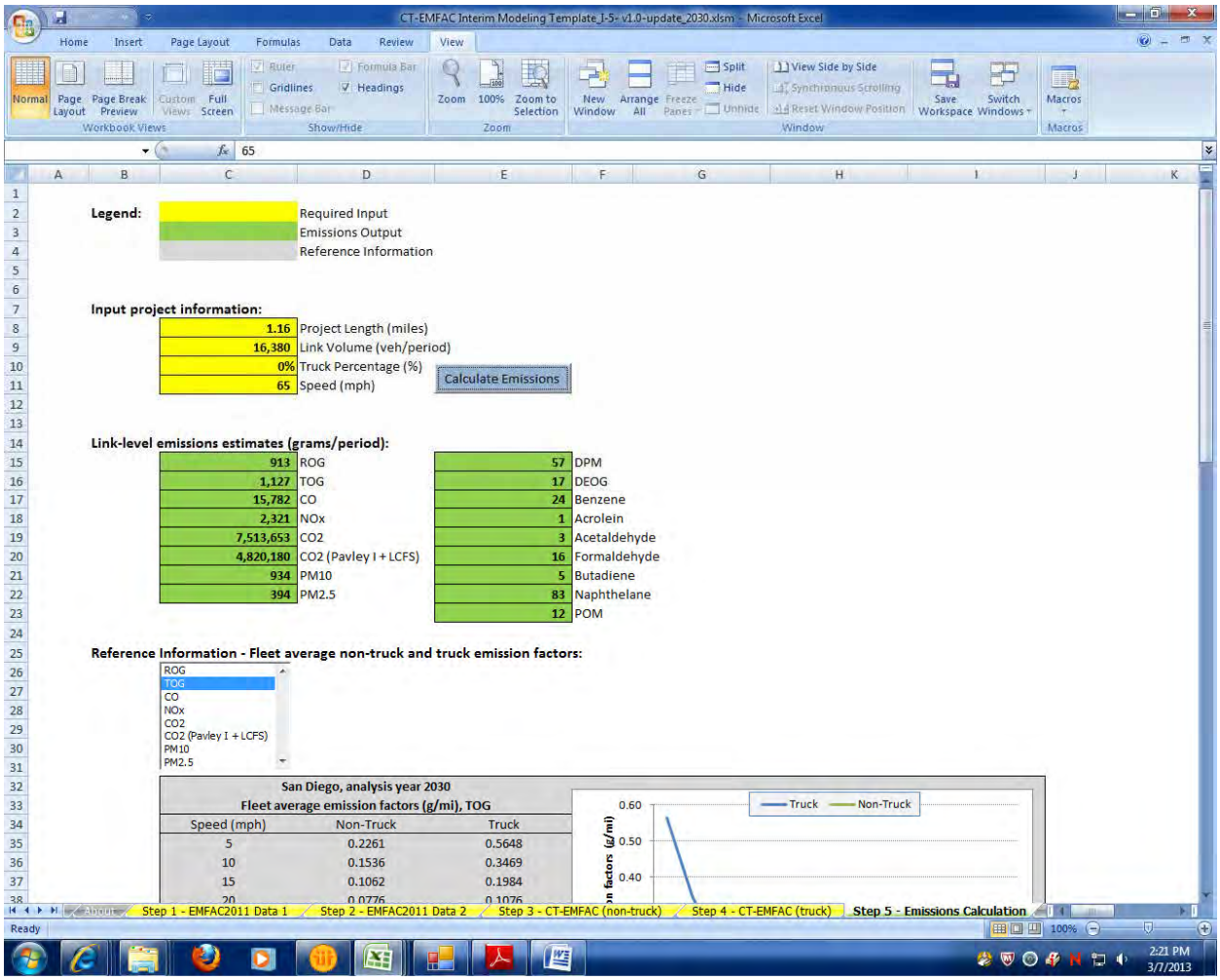
2030 8+4
Link: 2 (NB HOV)
Segment: 10
Off Peak



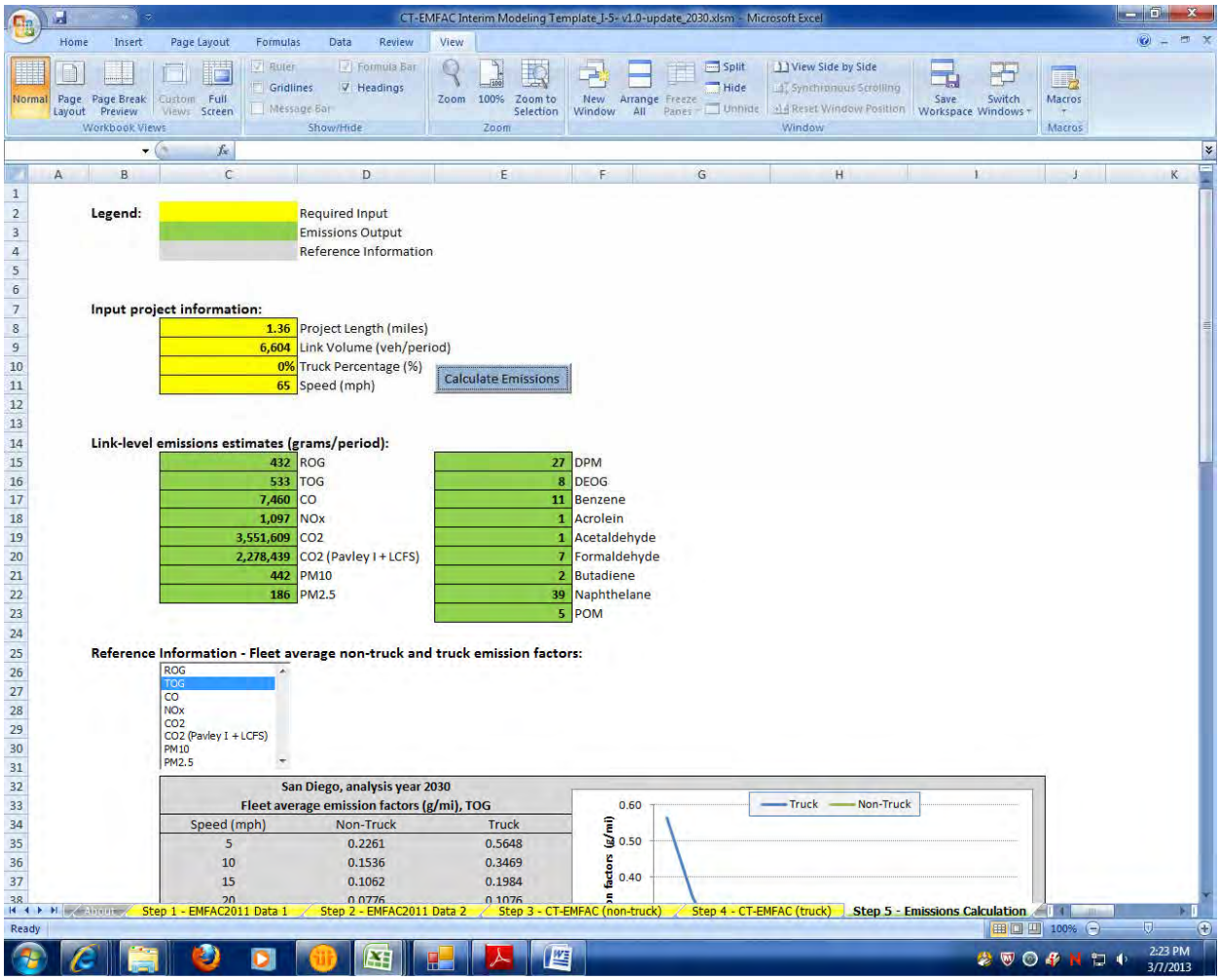
2030 8+4
Link: 2 (NB HOV)
Segment: 11
Peak



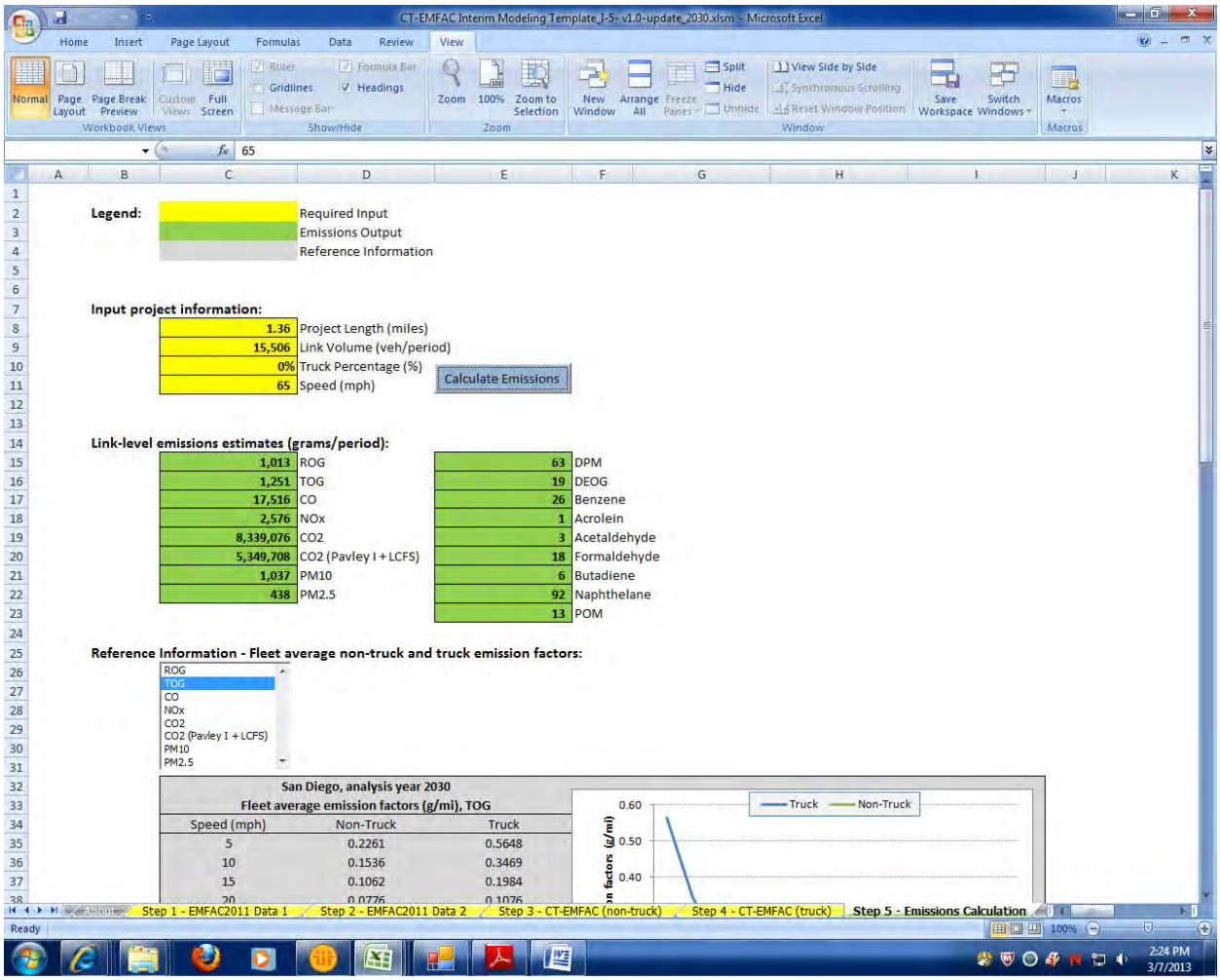
2030 8+4
Link: 2 (NB HOV)
Segment: 11
Off Peak



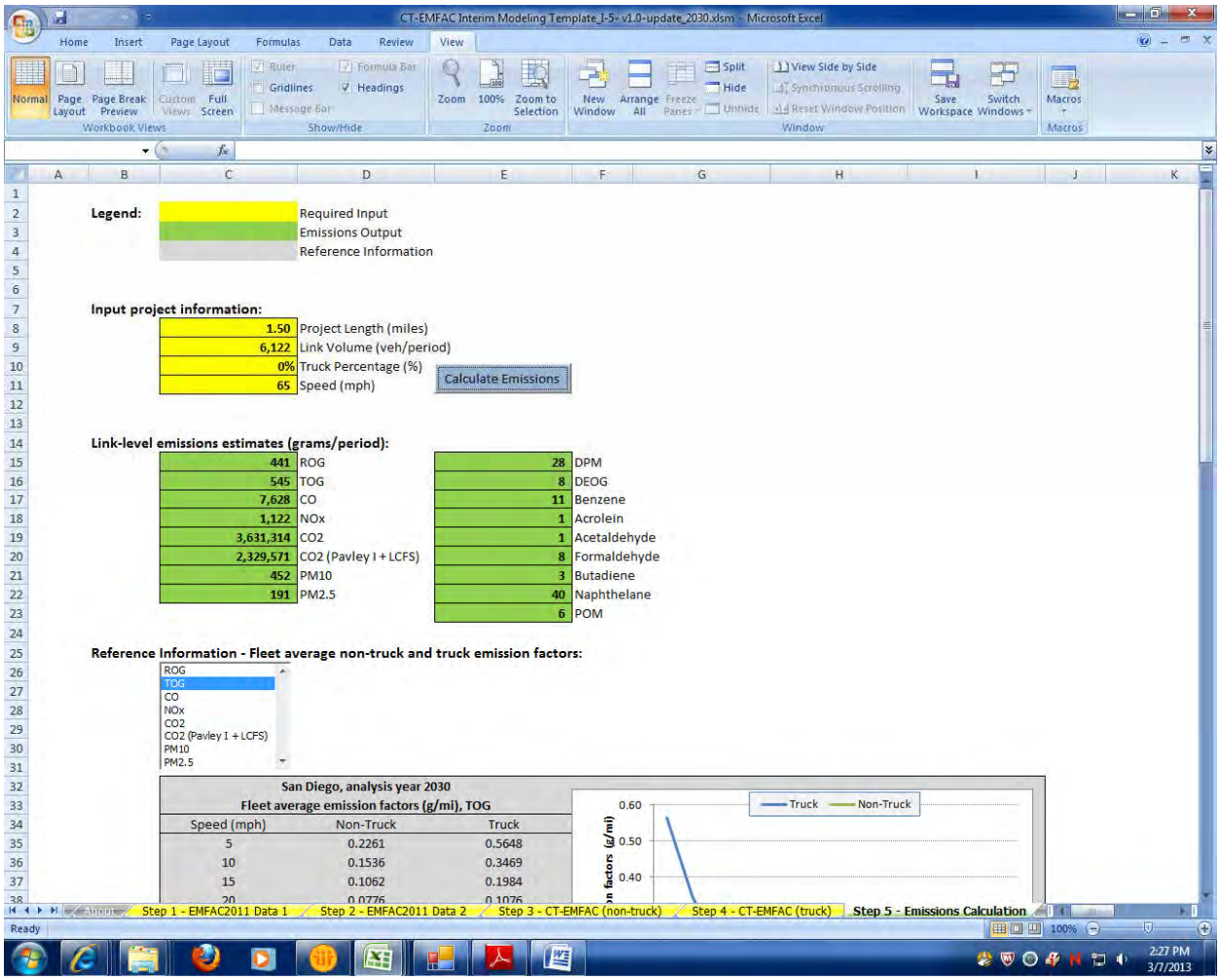
2030 8+4
Link: 2 (NB HOV)
Segment: 12
Peak



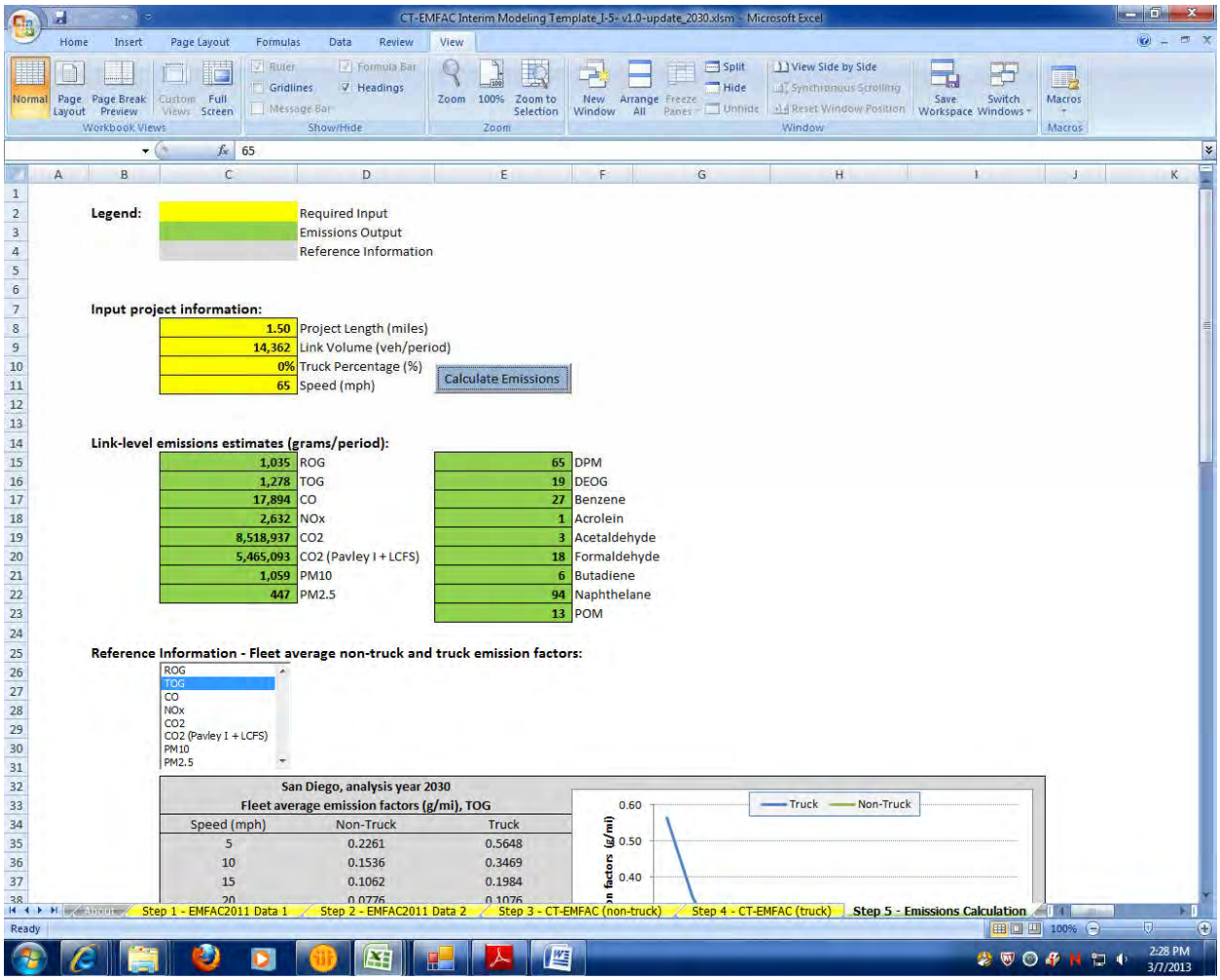
2030 8+4
Link: 2 (NB HOV)
Segment: 12
Off Peak



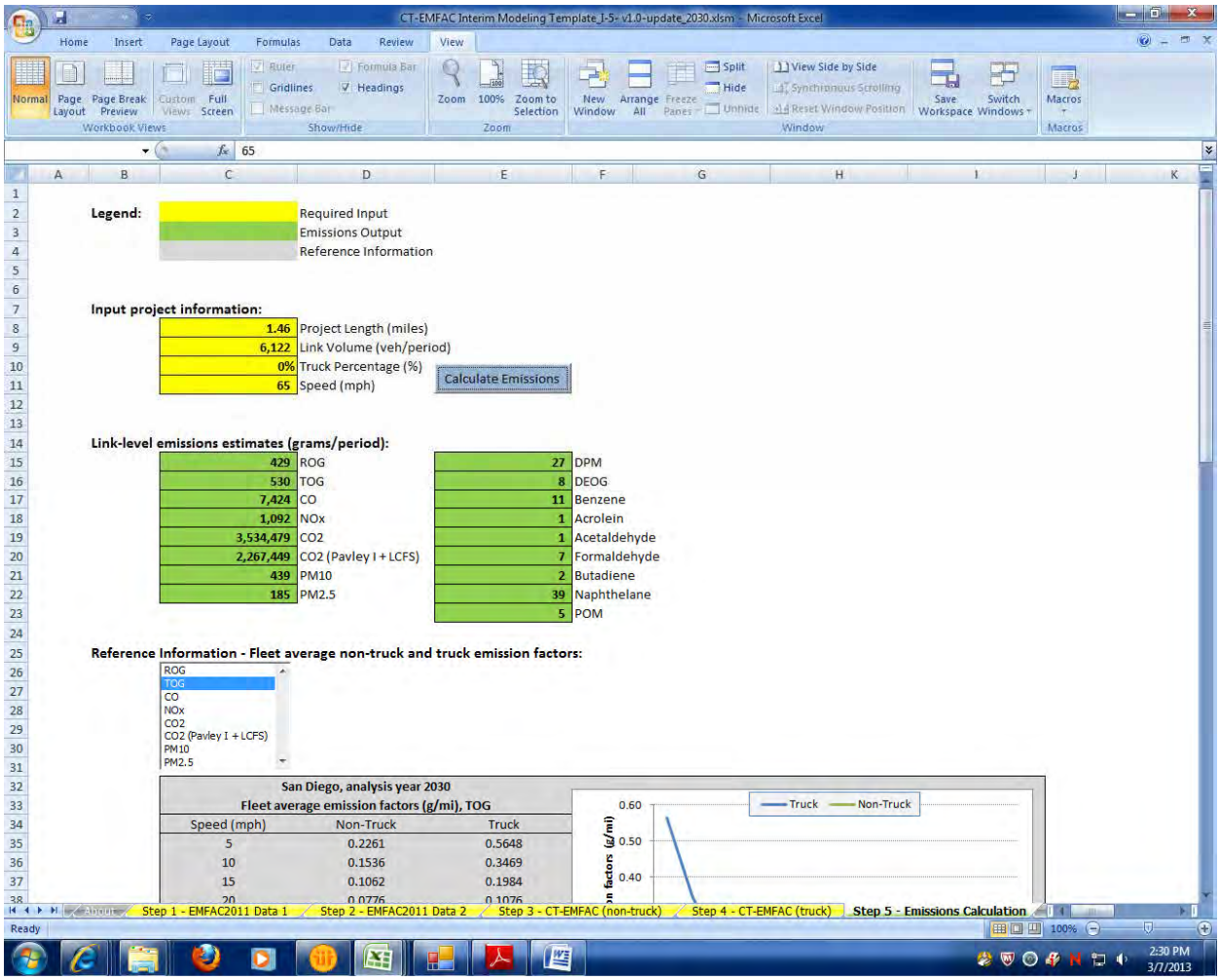
2030 8+4
Link: 2 (NB HOV)
Segment: 13
Peak



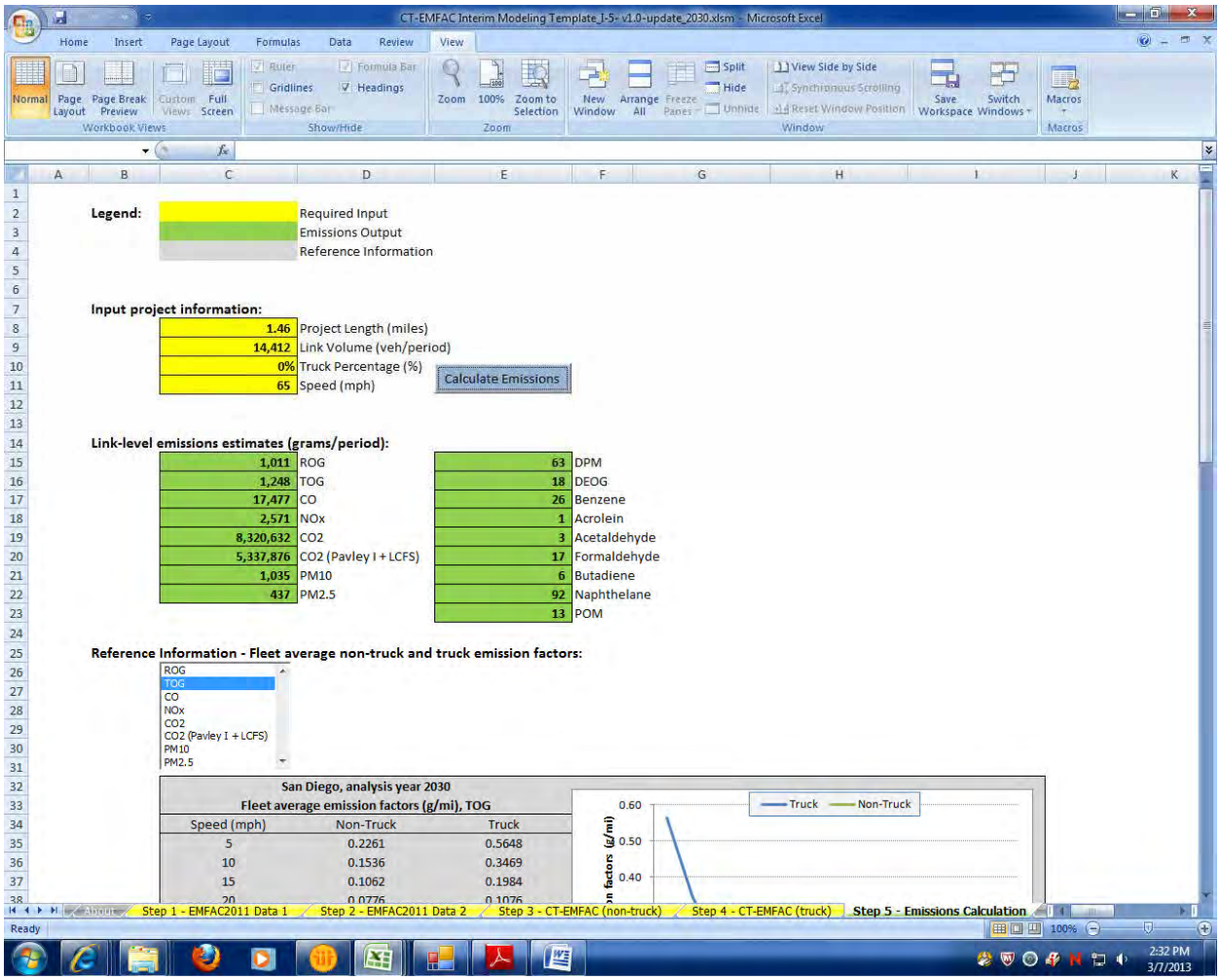
2030 8+4
Link: 2 (NB HOV)
Segment: 13
Off Peak



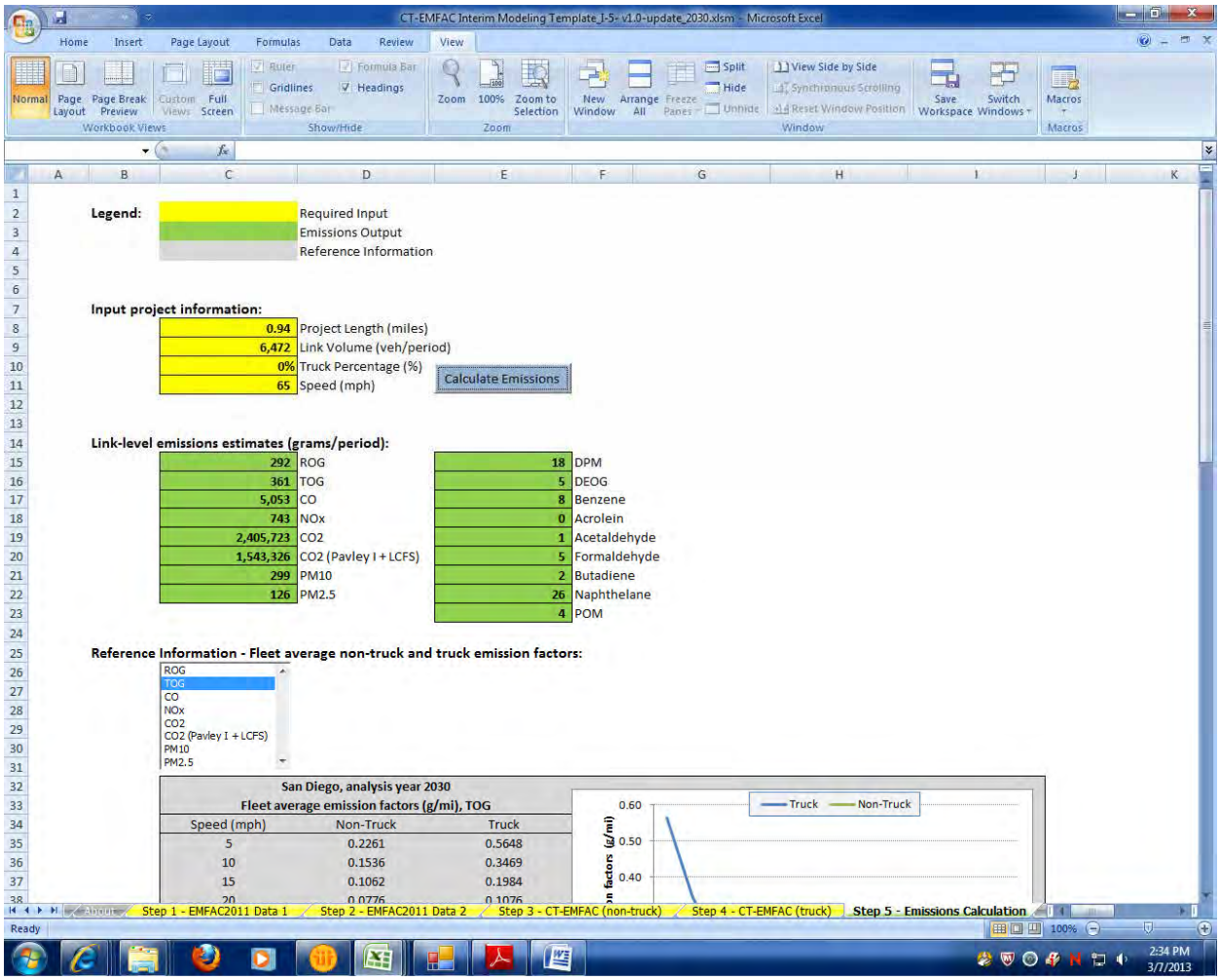
2030 8+4
Link: 2 (NB HOV)
Segment: 14
Peak



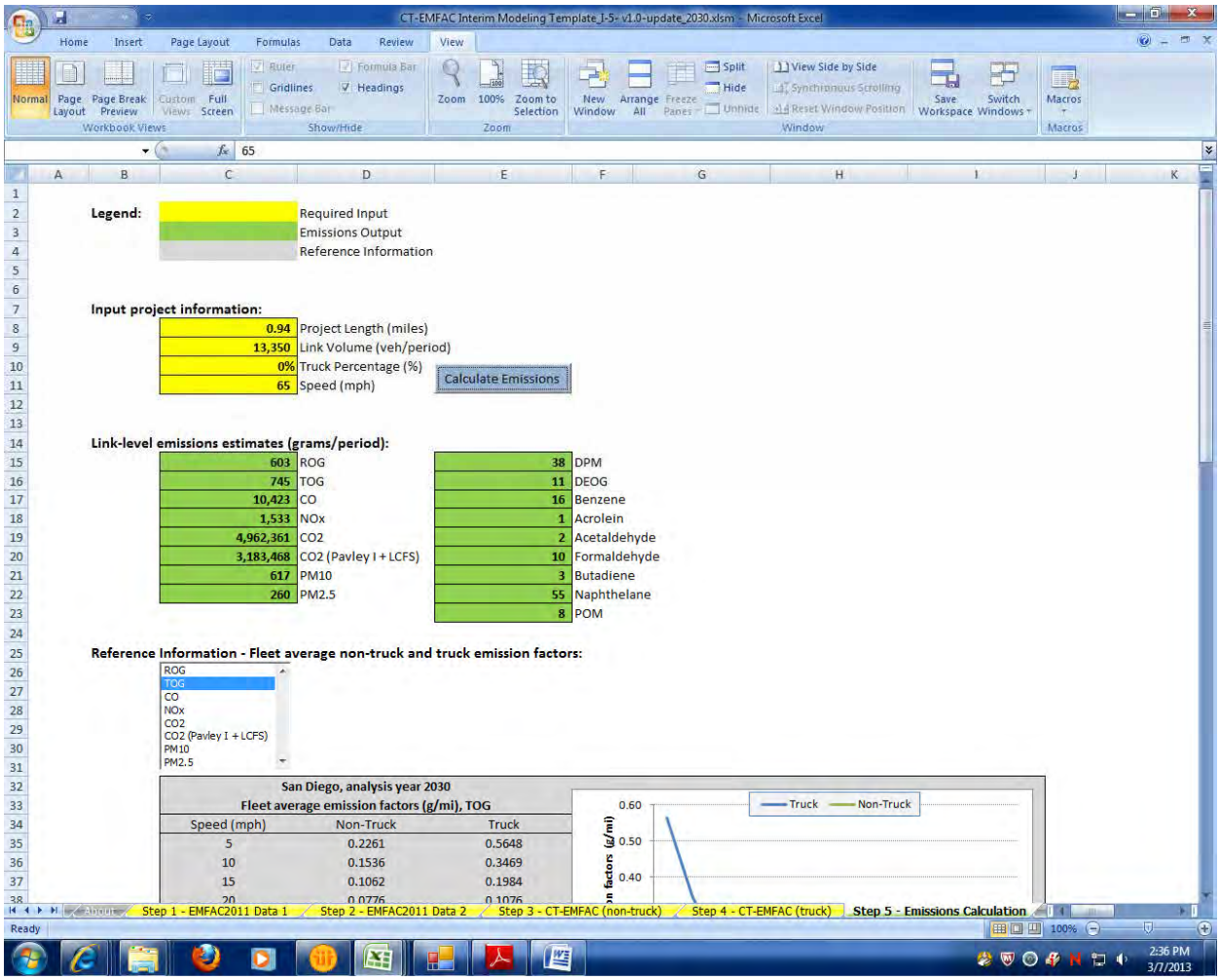
2030 8+4
Link: 2 (NB HOV)
Segment: 14
Off Peak



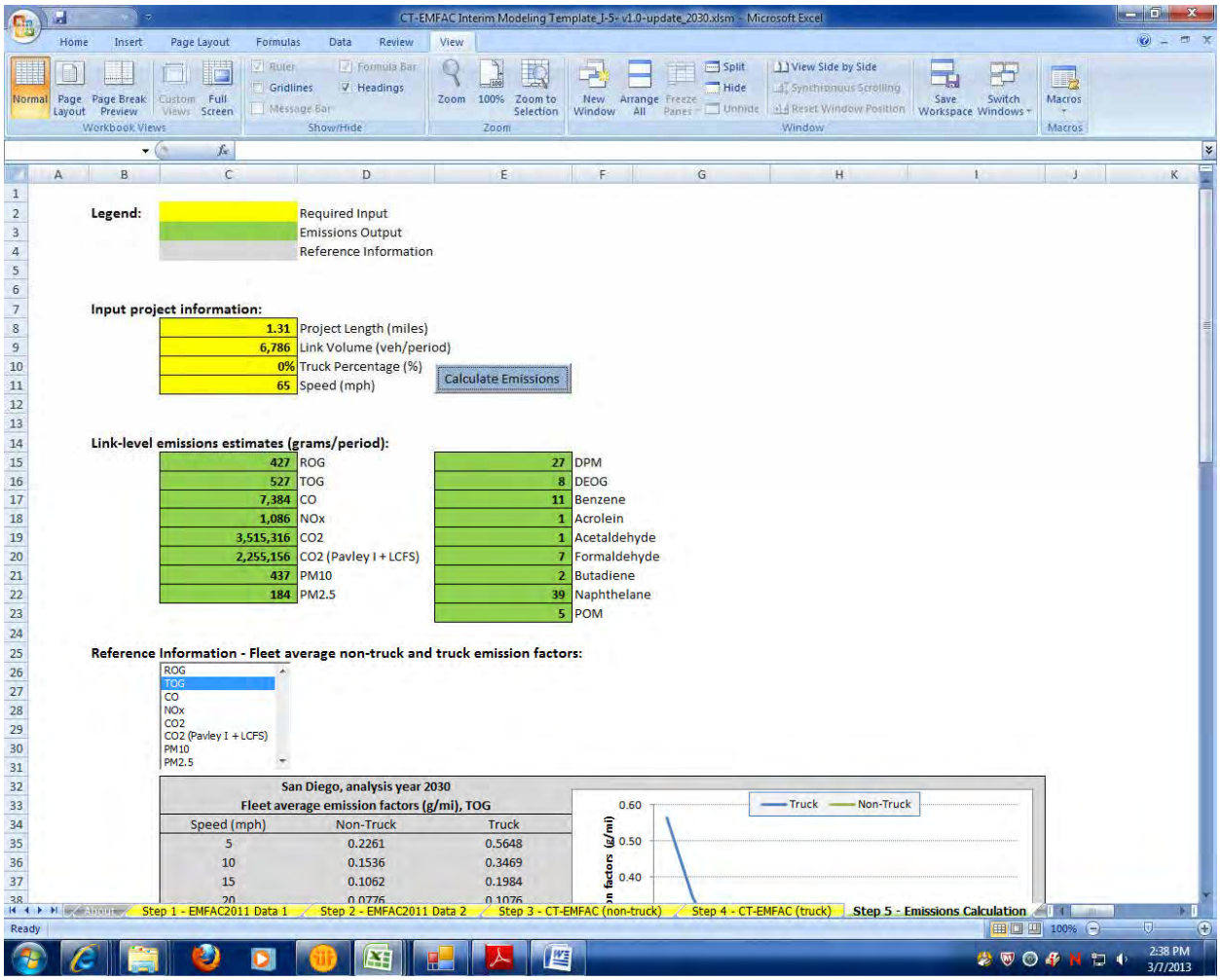
2030 8+4
Link: 2 (NB HOV)
Segment: 15
Peak



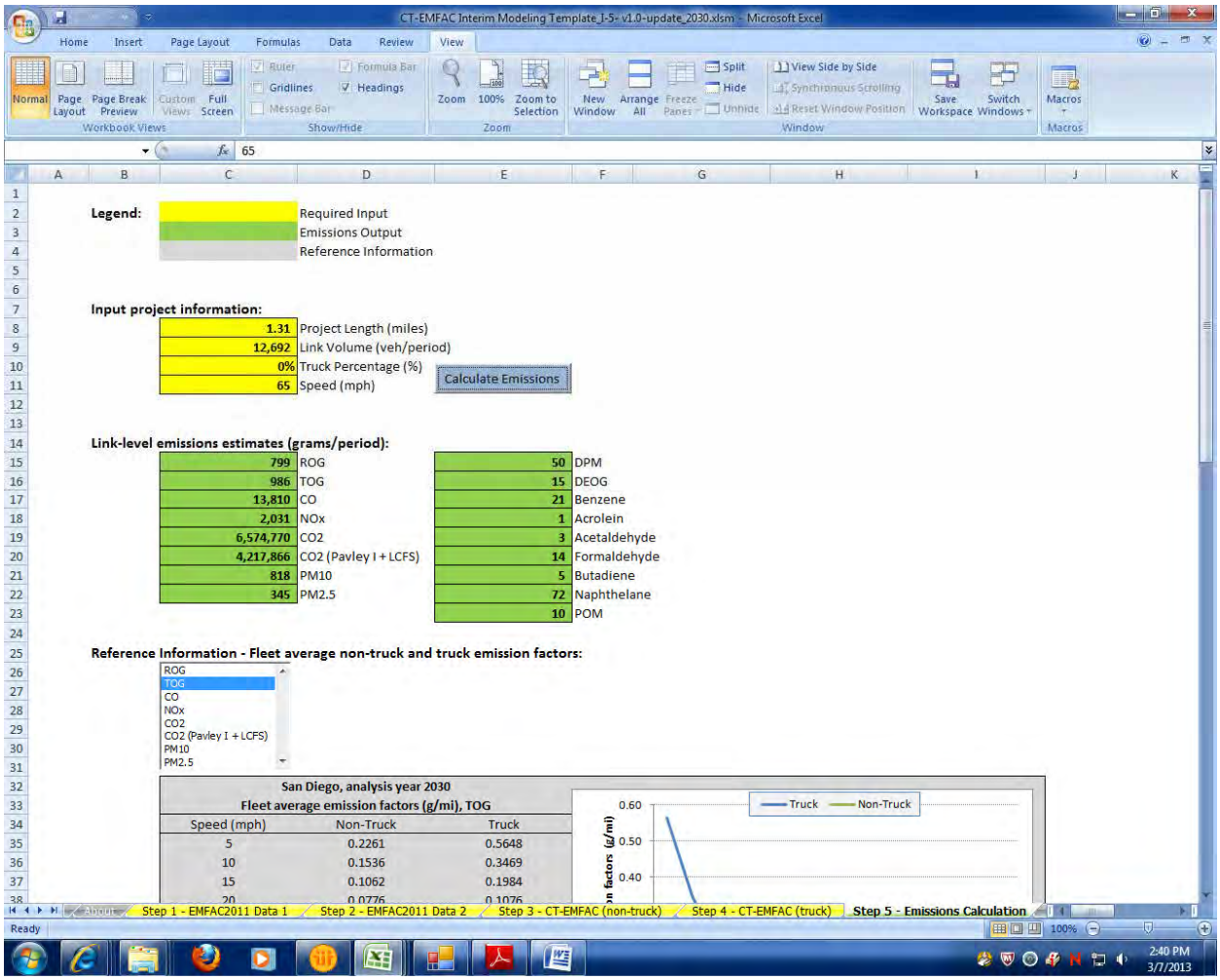
2030 8+4
Link: 2 (NB HOV)
Segment: 15
Off Peak



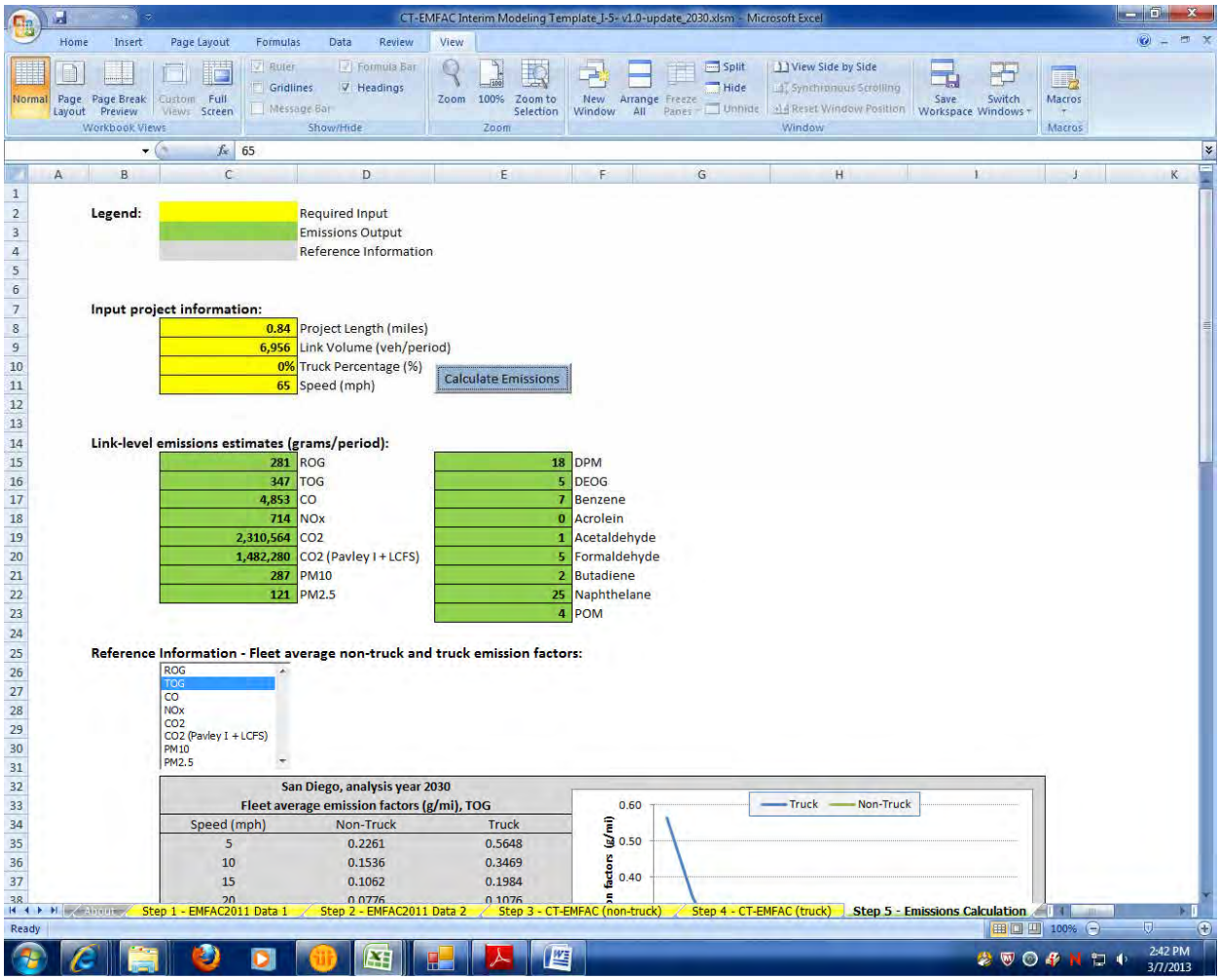
2030 8+4
Link: 2 (NB HOV)
Segment: 16
Peak



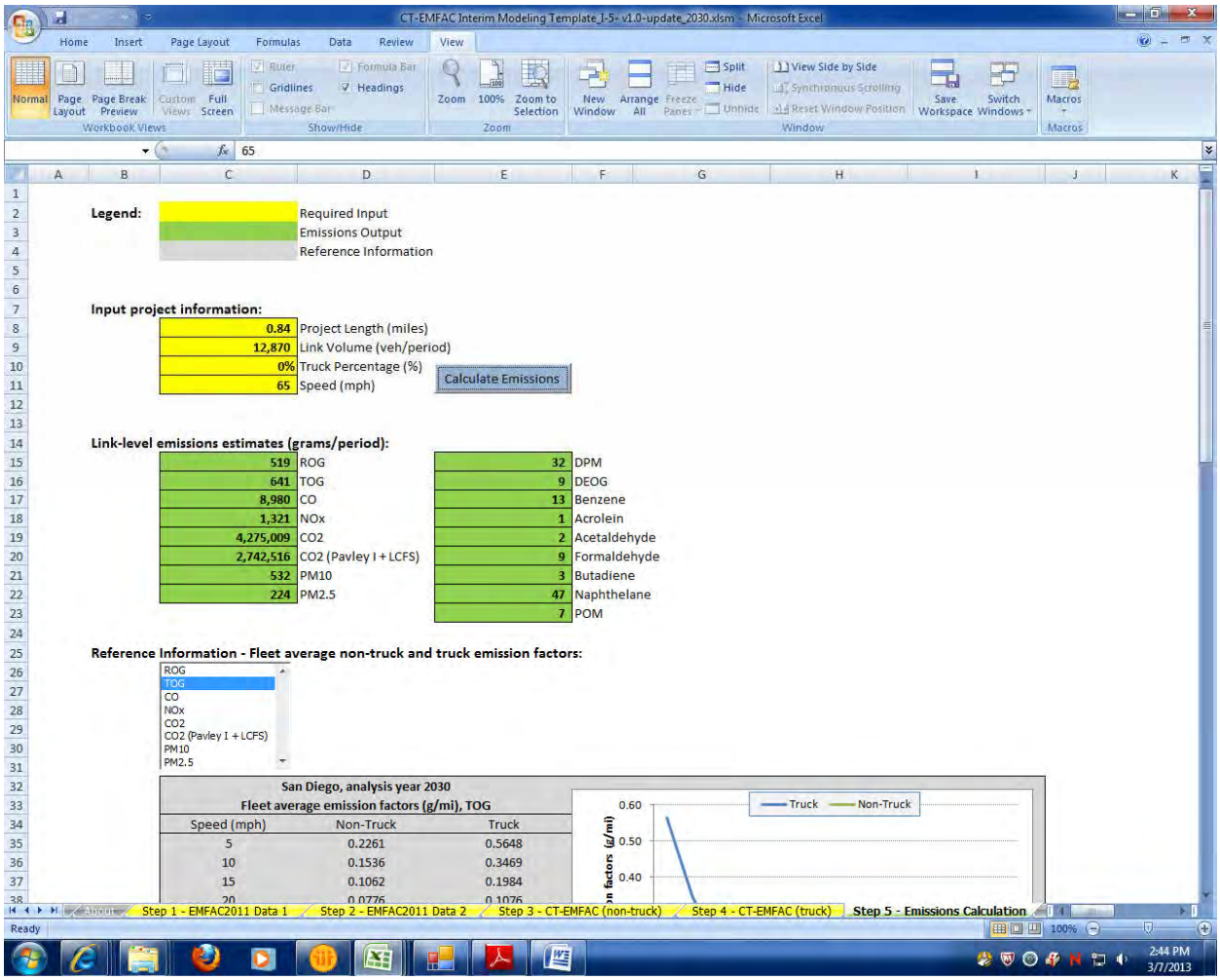
2030 8+4
Link: 2 (NB HOV)
Segment: 16
Off Peak



2030 8+4
Link: 2 (NB HOV)
Segment: 17
Peak



2030 8+4
Link: 2 (NB HOV)
Segment: 17
Off Peak



2030 8+4
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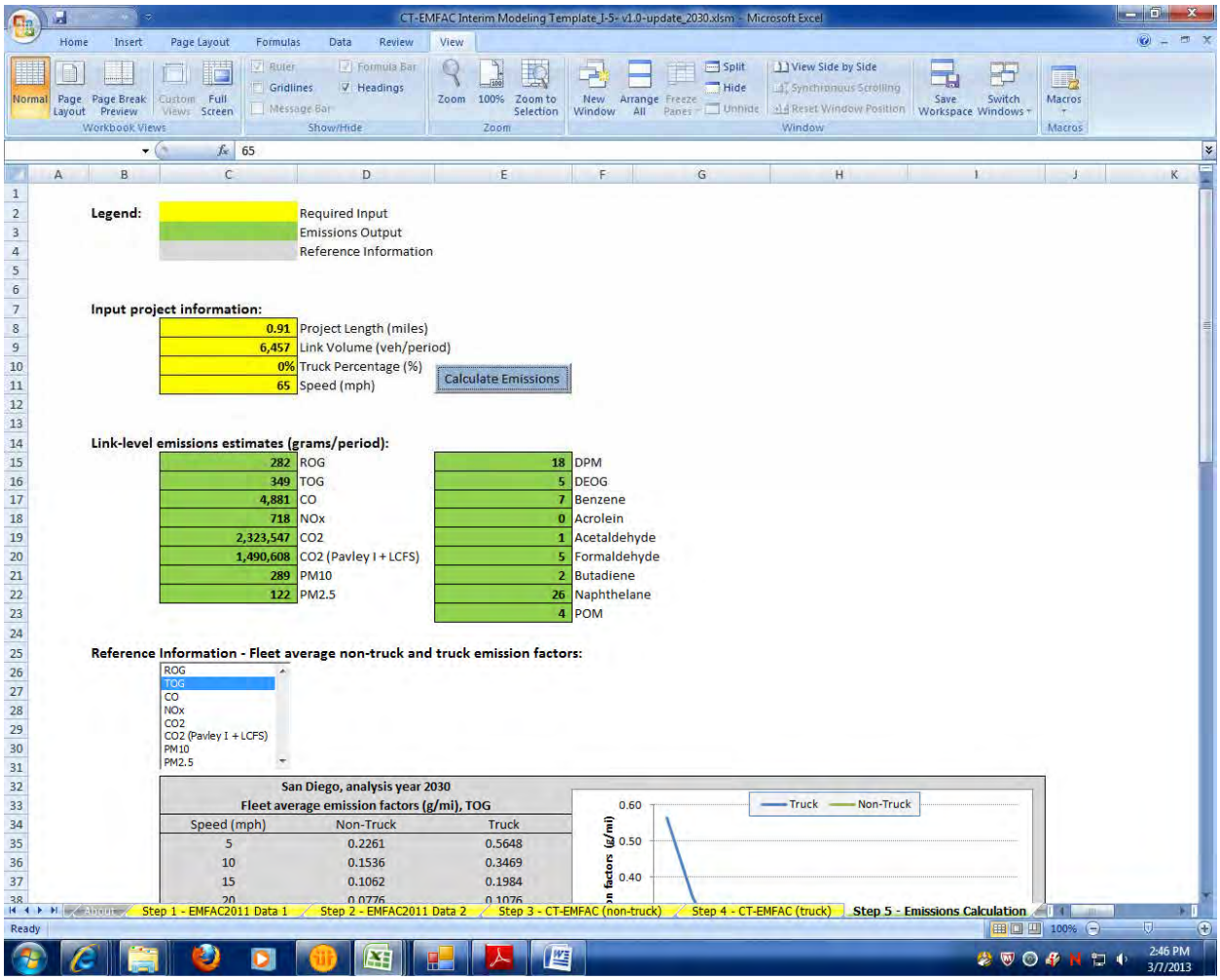
Segment: 18
Peak



2030 8+4
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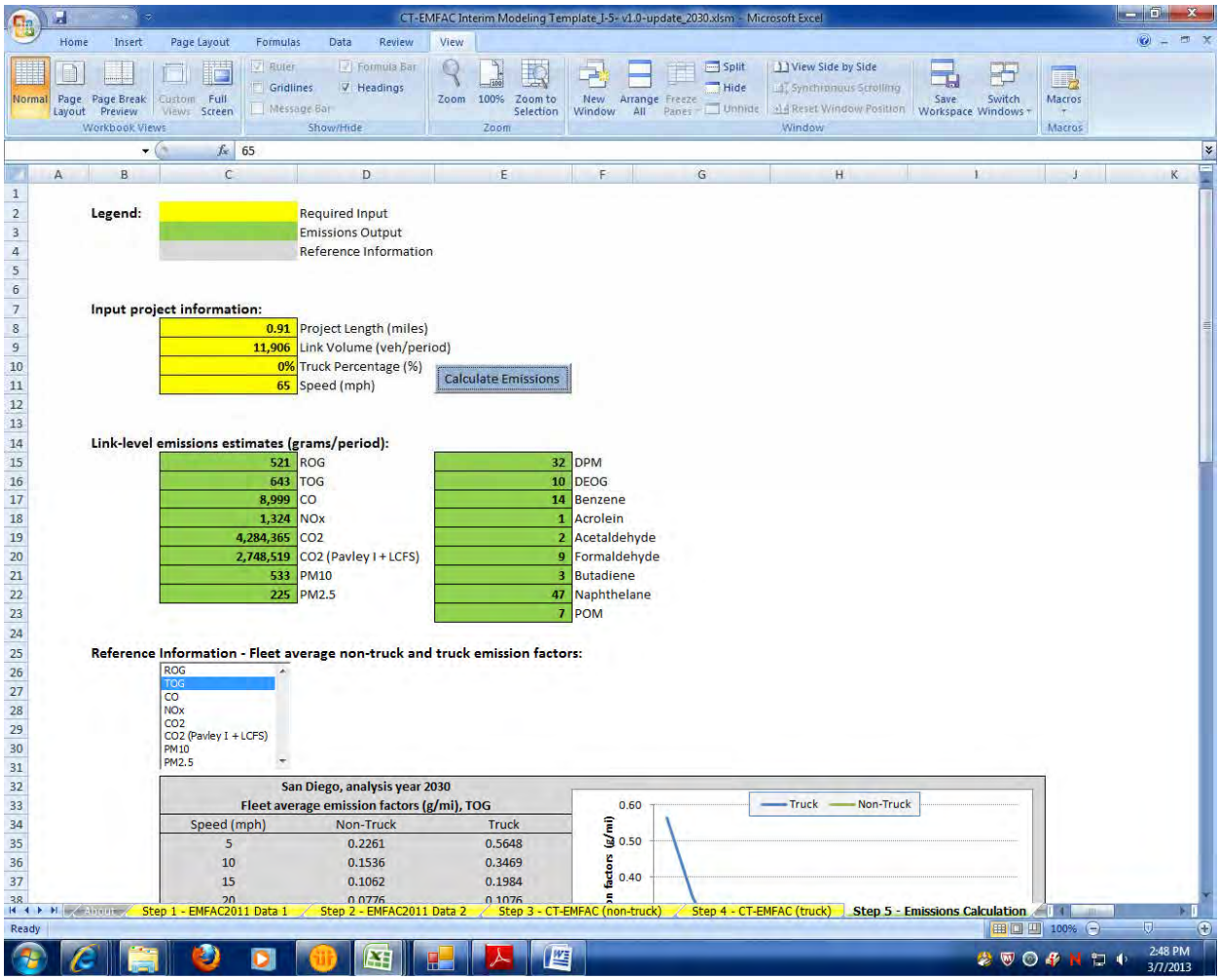
Segment: 18
Off Peak



2030 8+4
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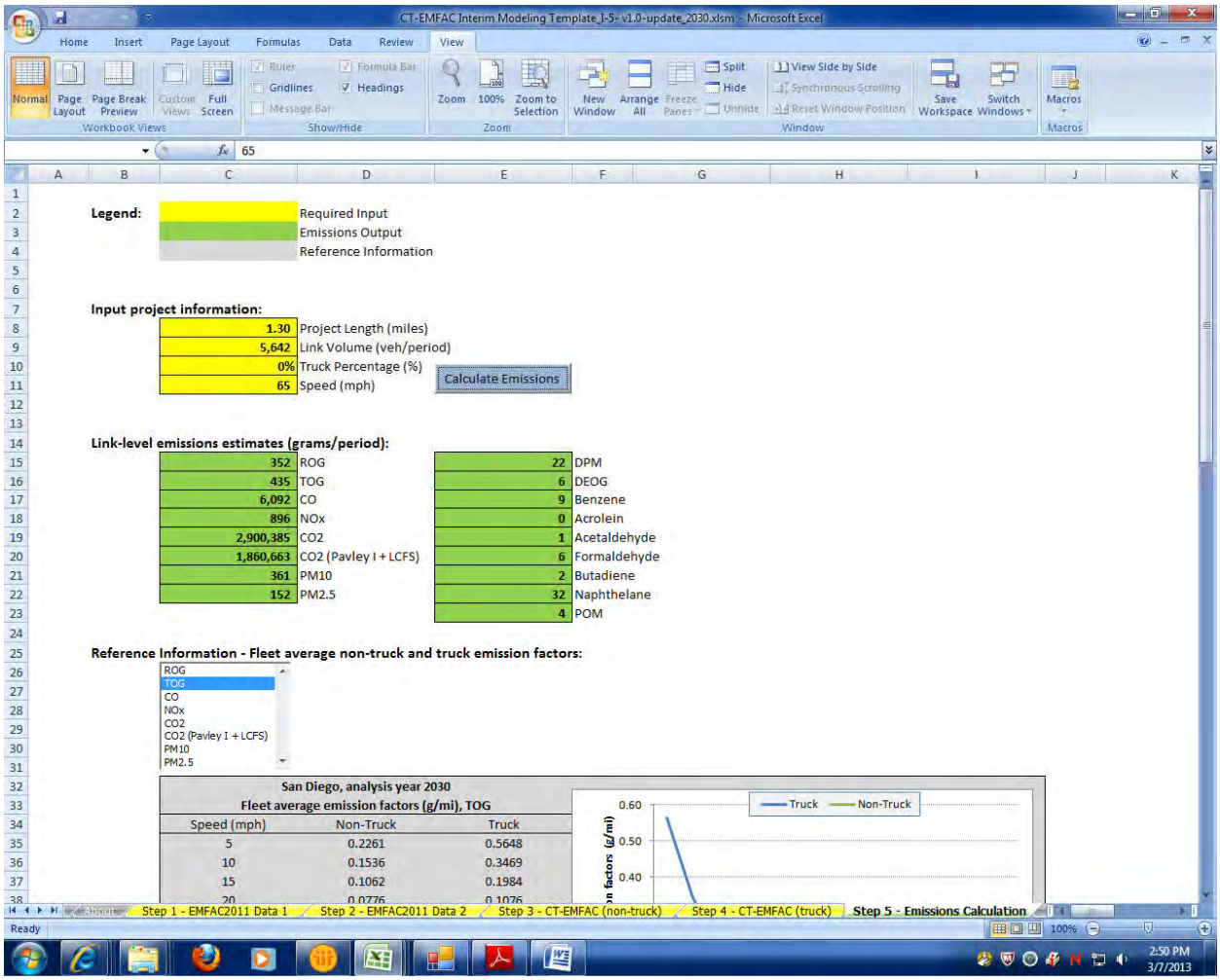
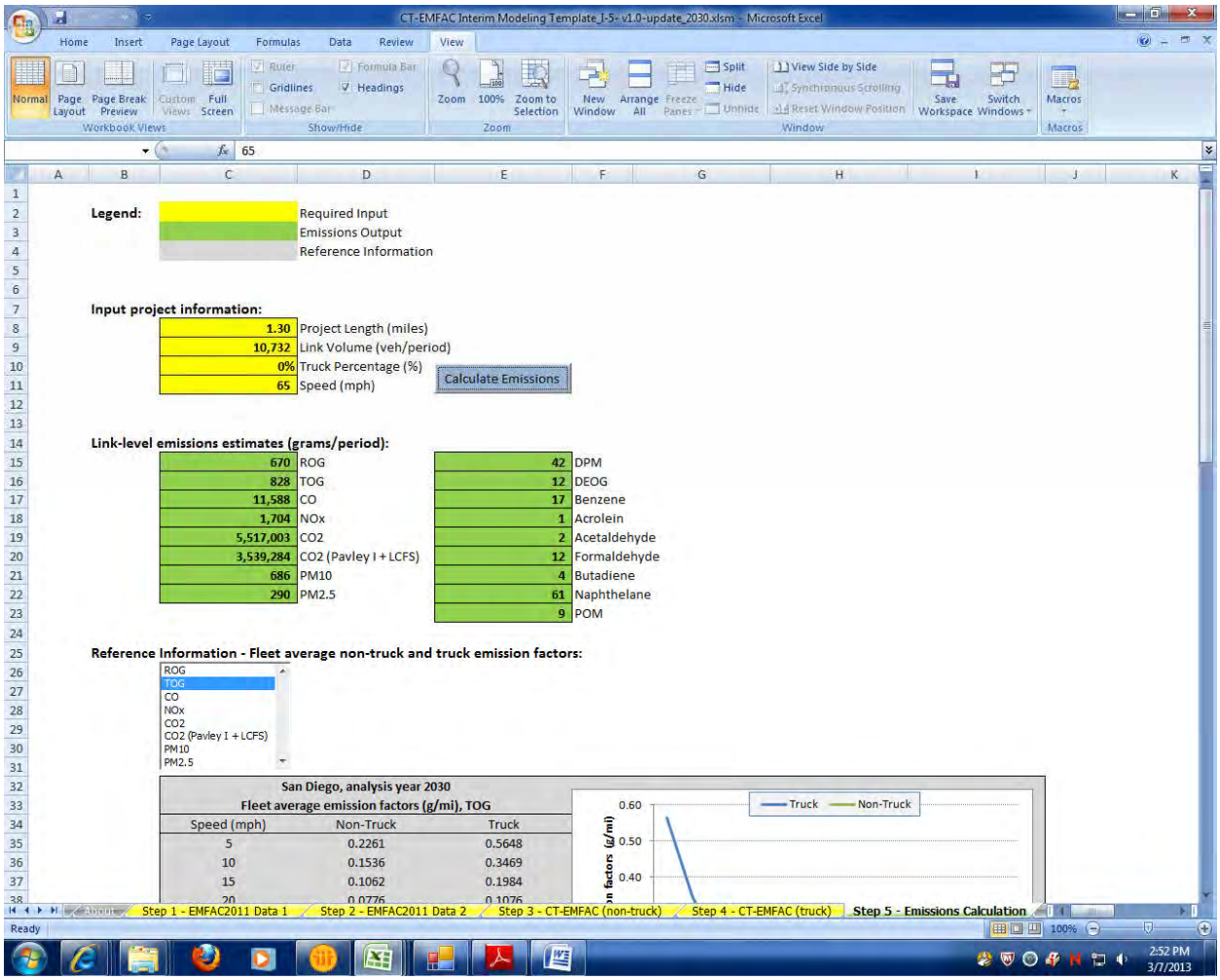
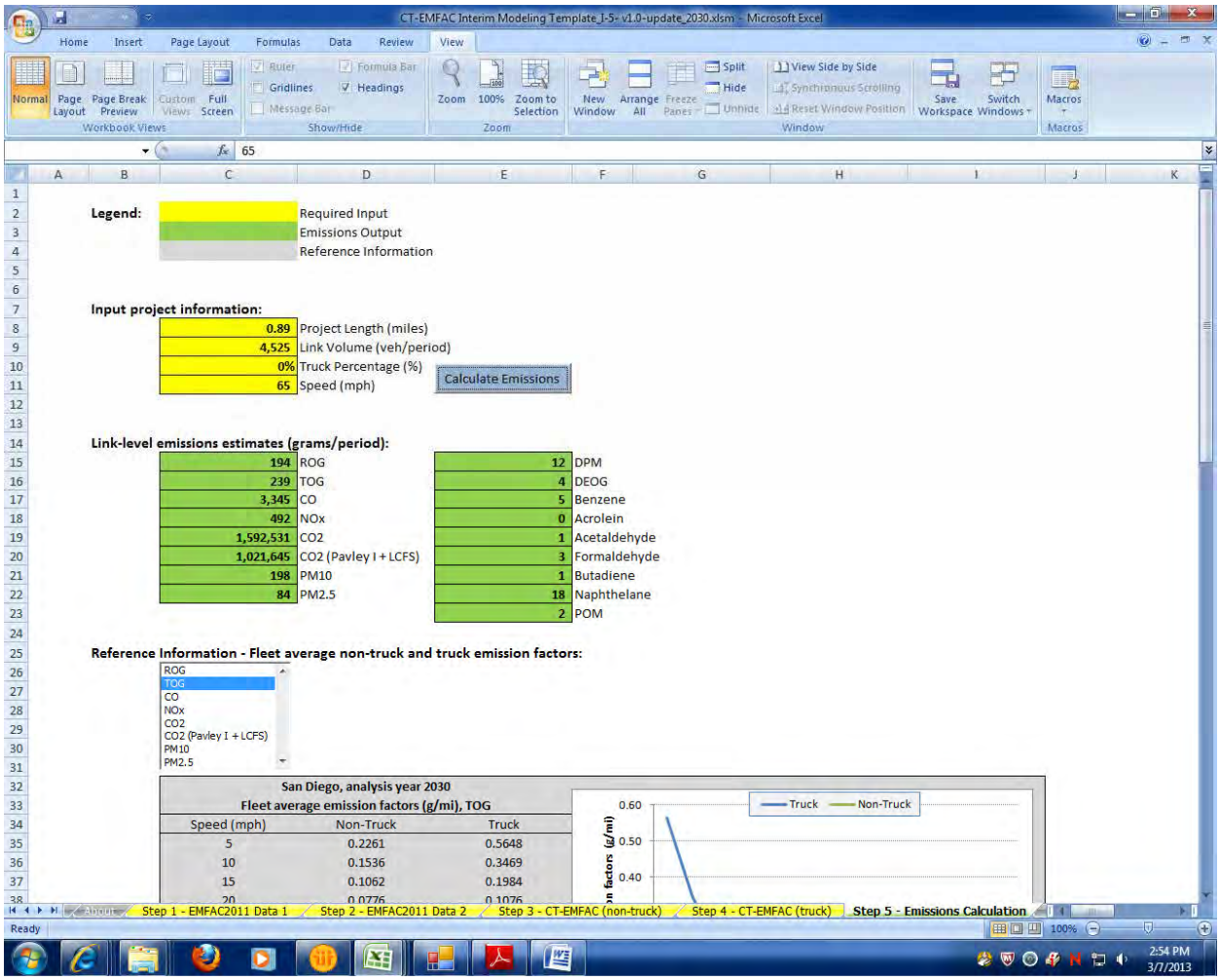
Segment: 19
Peak



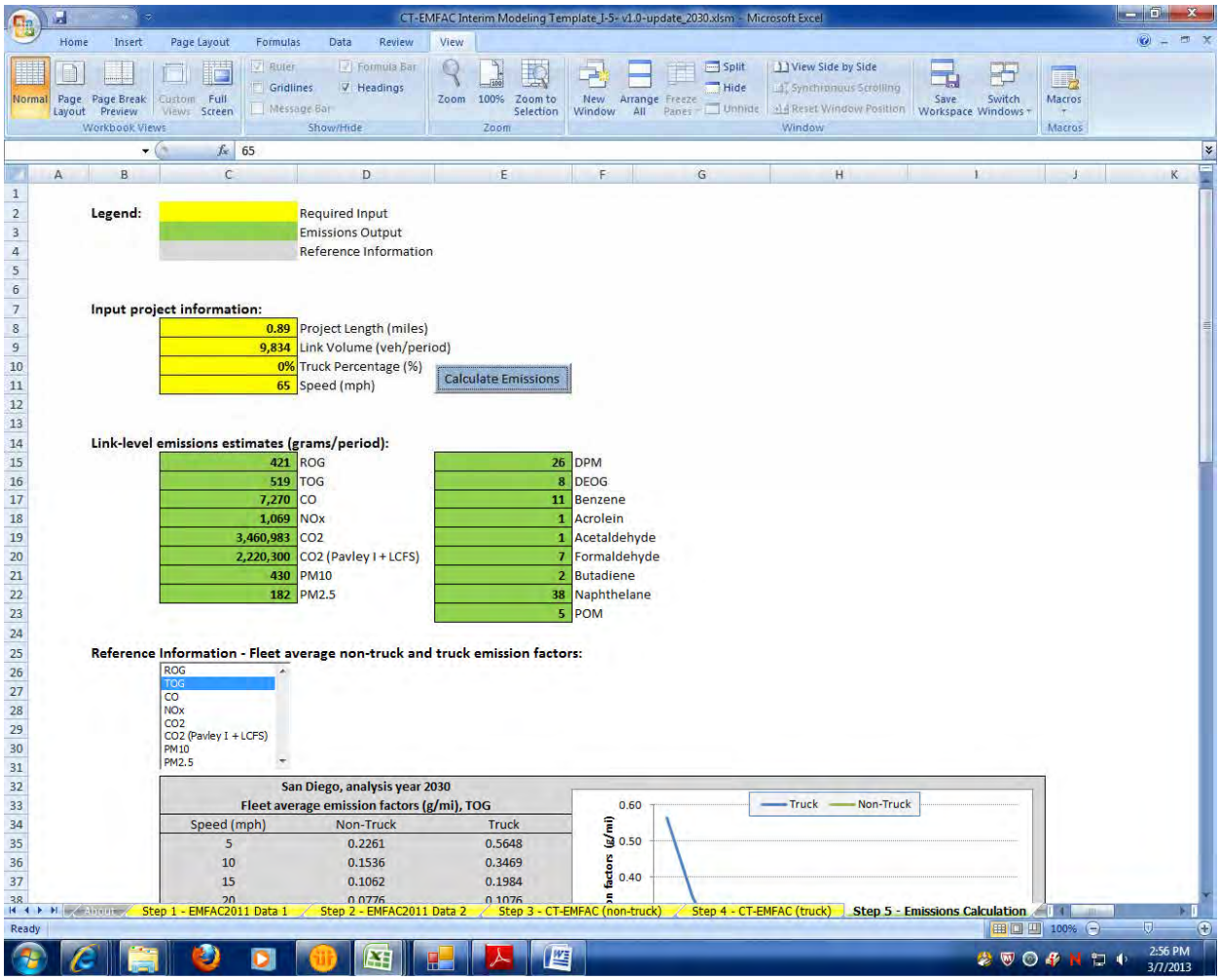
2030 8+4
Link: 2 (NB HOV)
Segment: 19
Off Peak



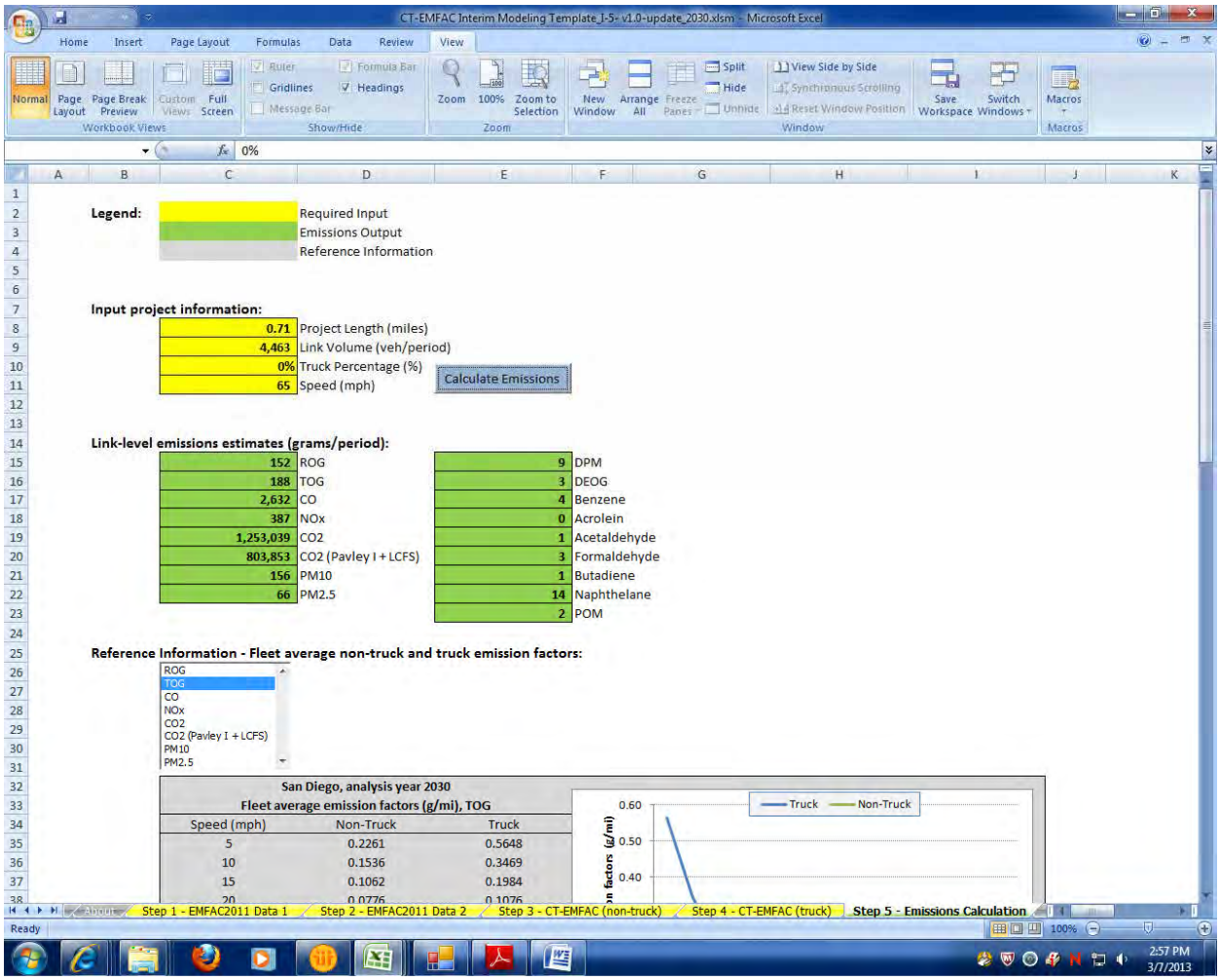
2030 8+4
Link: 2 (NB HOV)
Segment: 20
Peak



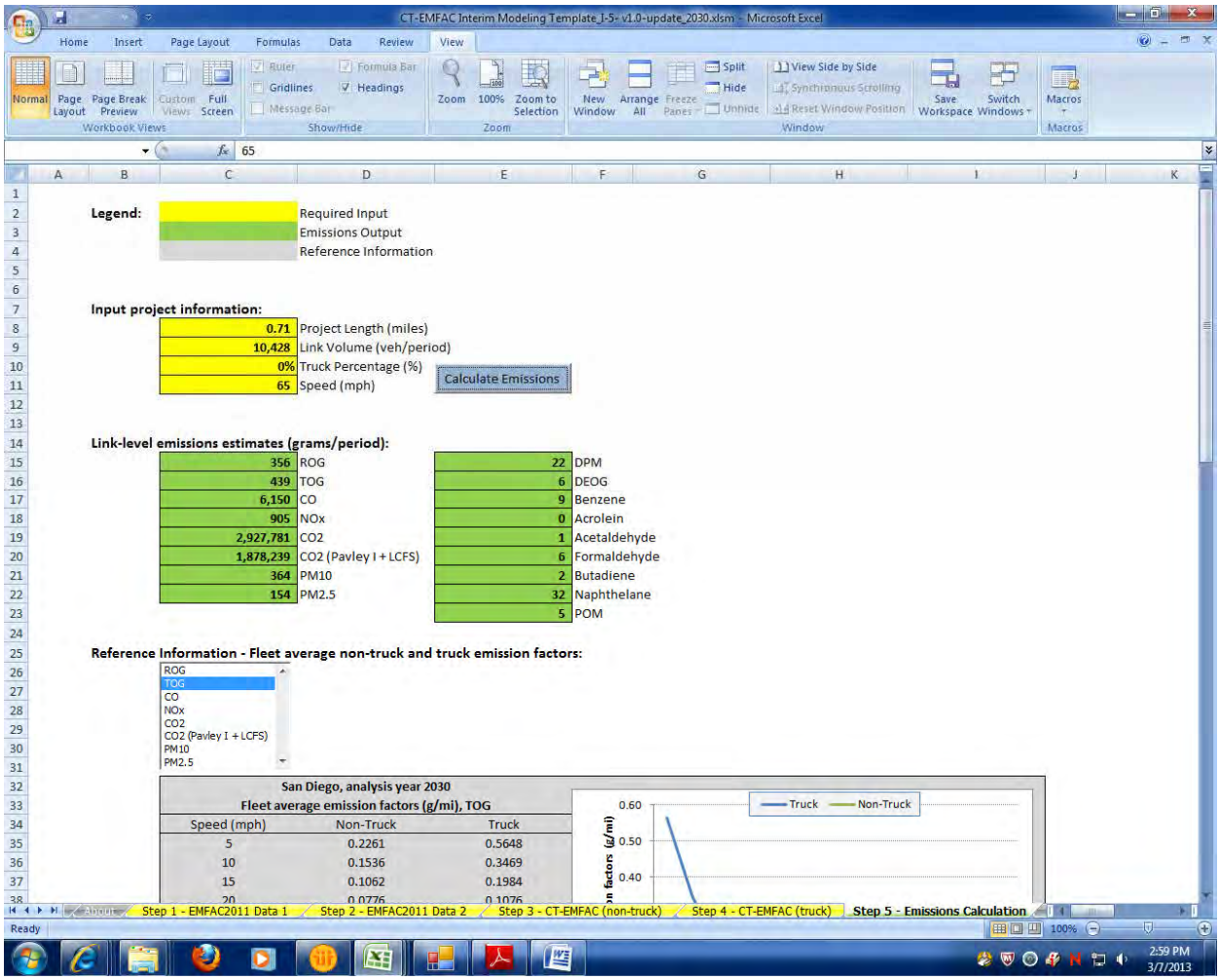
2030 8+4
Link: 2 (NB HOV)
Segment: 20
Off Peak



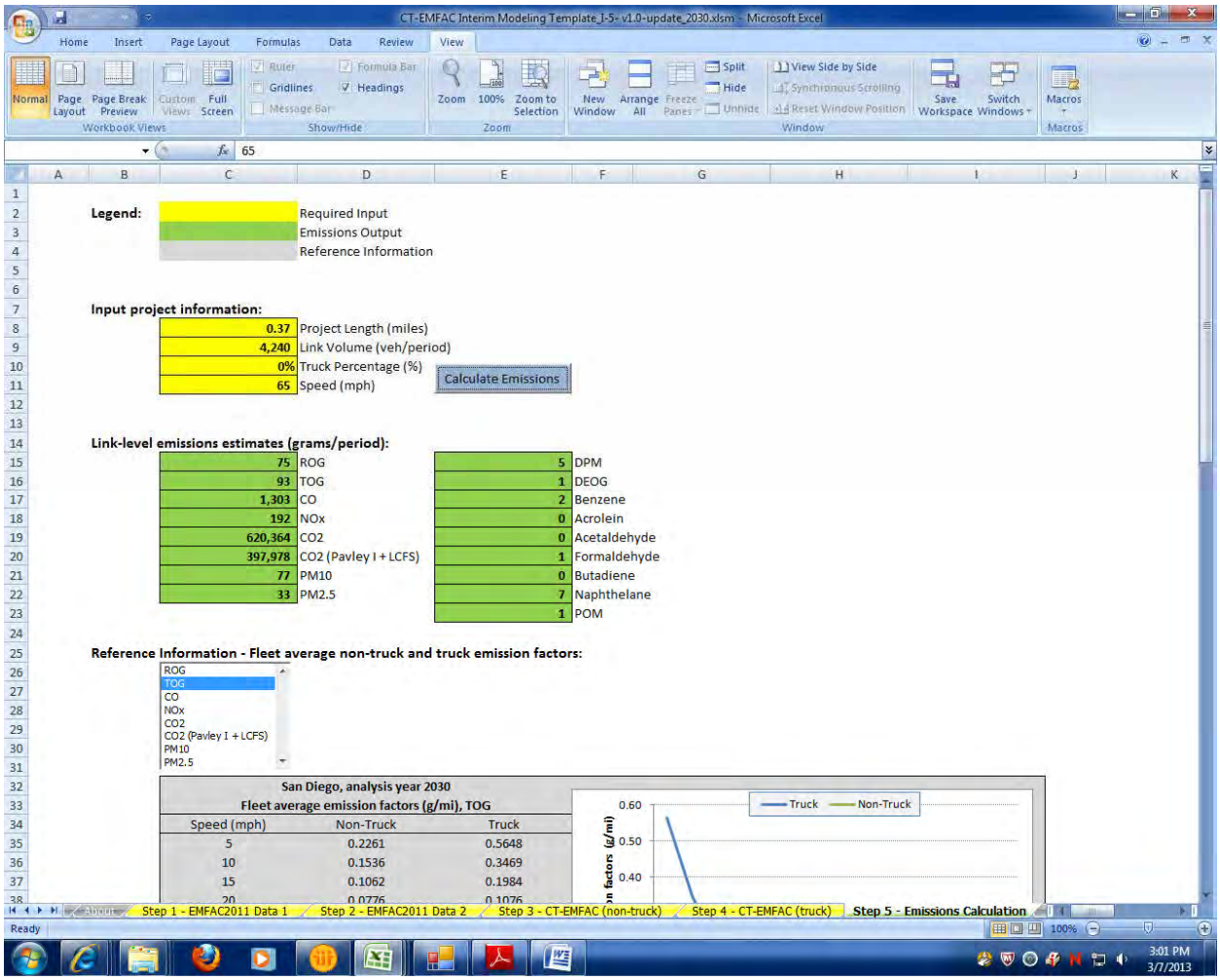
2030 8+4
Link: 2 (NB HOV)
Segment: 21
Peak



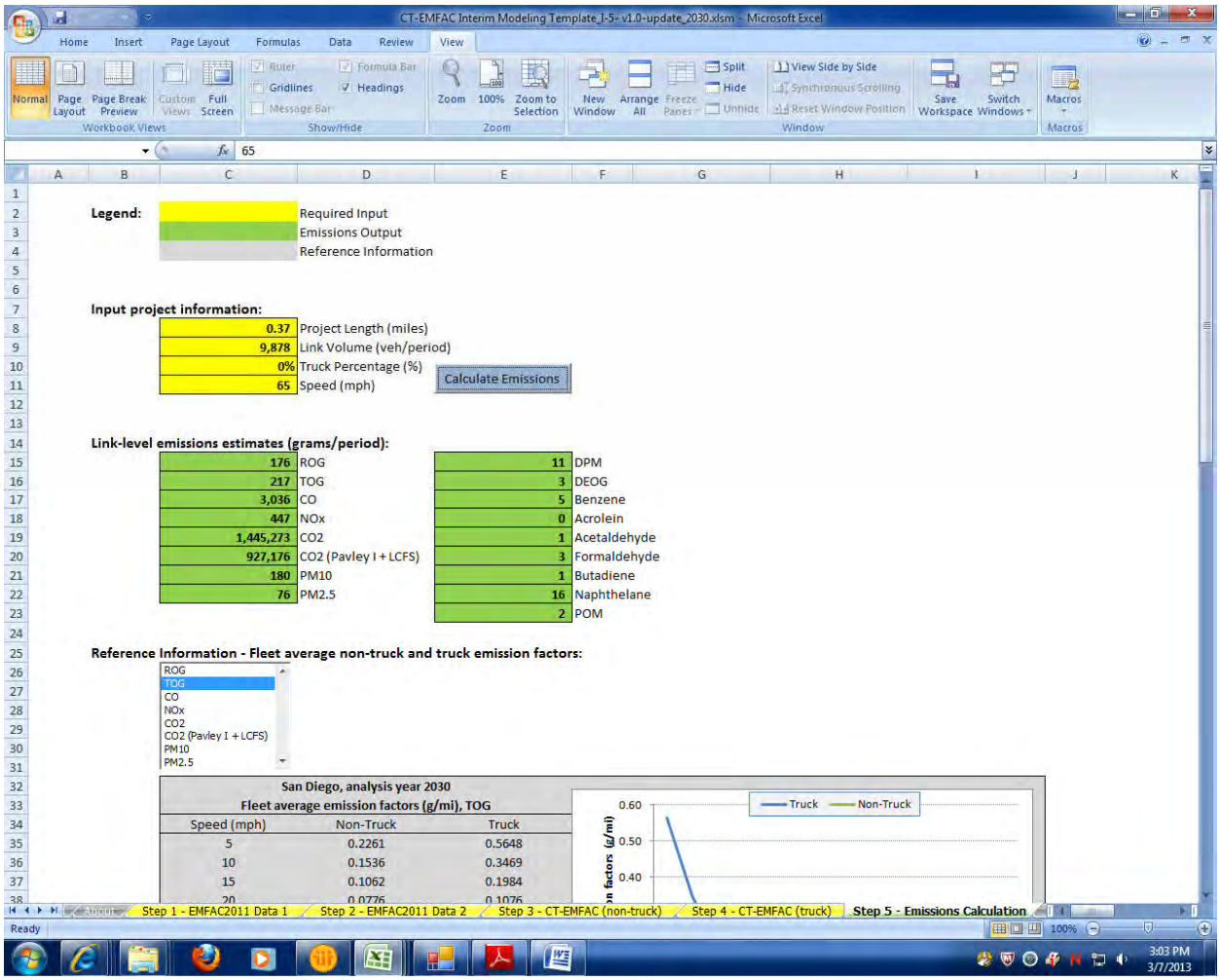
2030 8+4
Link: 2 (NB HOV)
Segment: 21
Off Peak



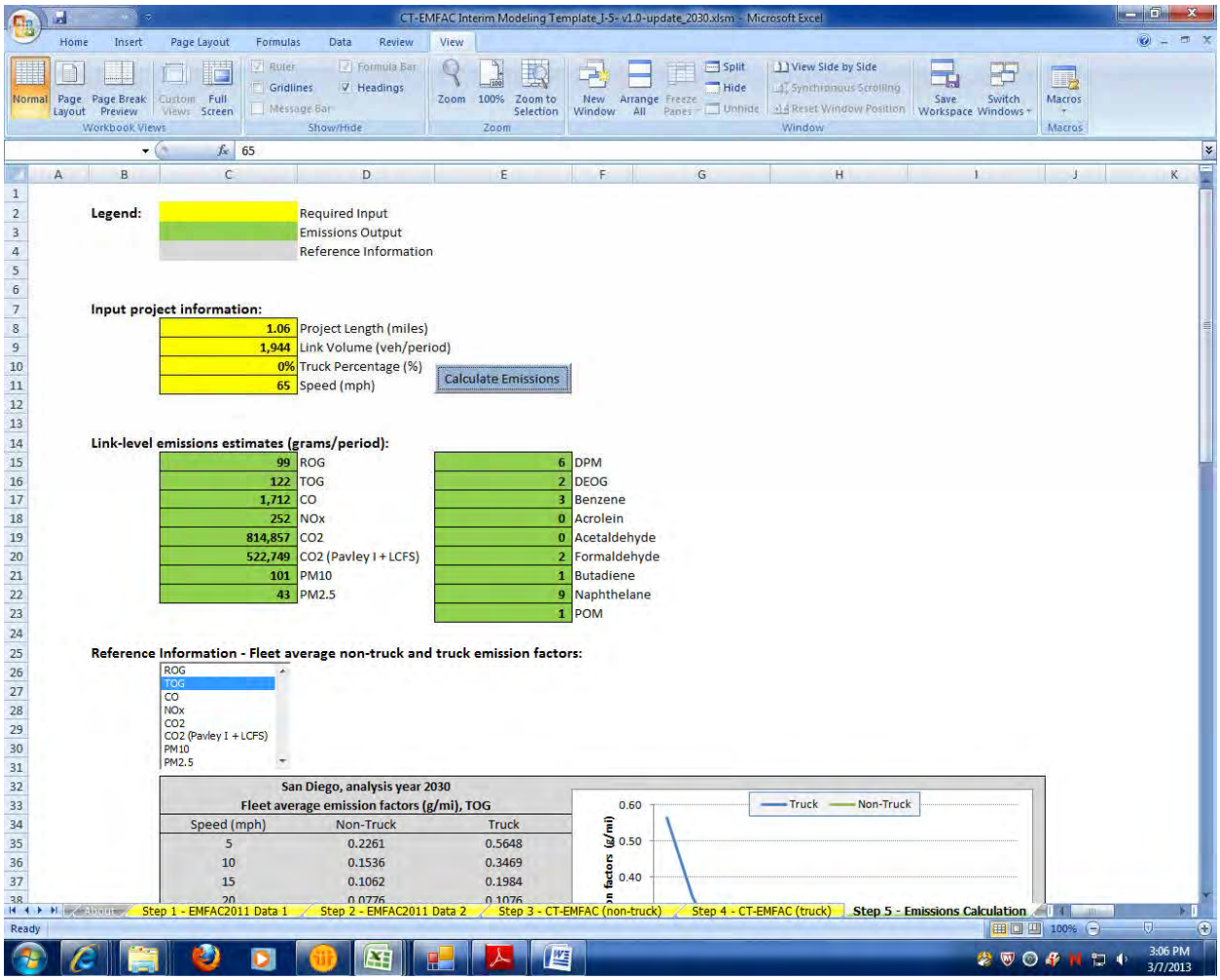
2030 8+4
Link: 2 (NB HOV)
Segment: 22
Peak



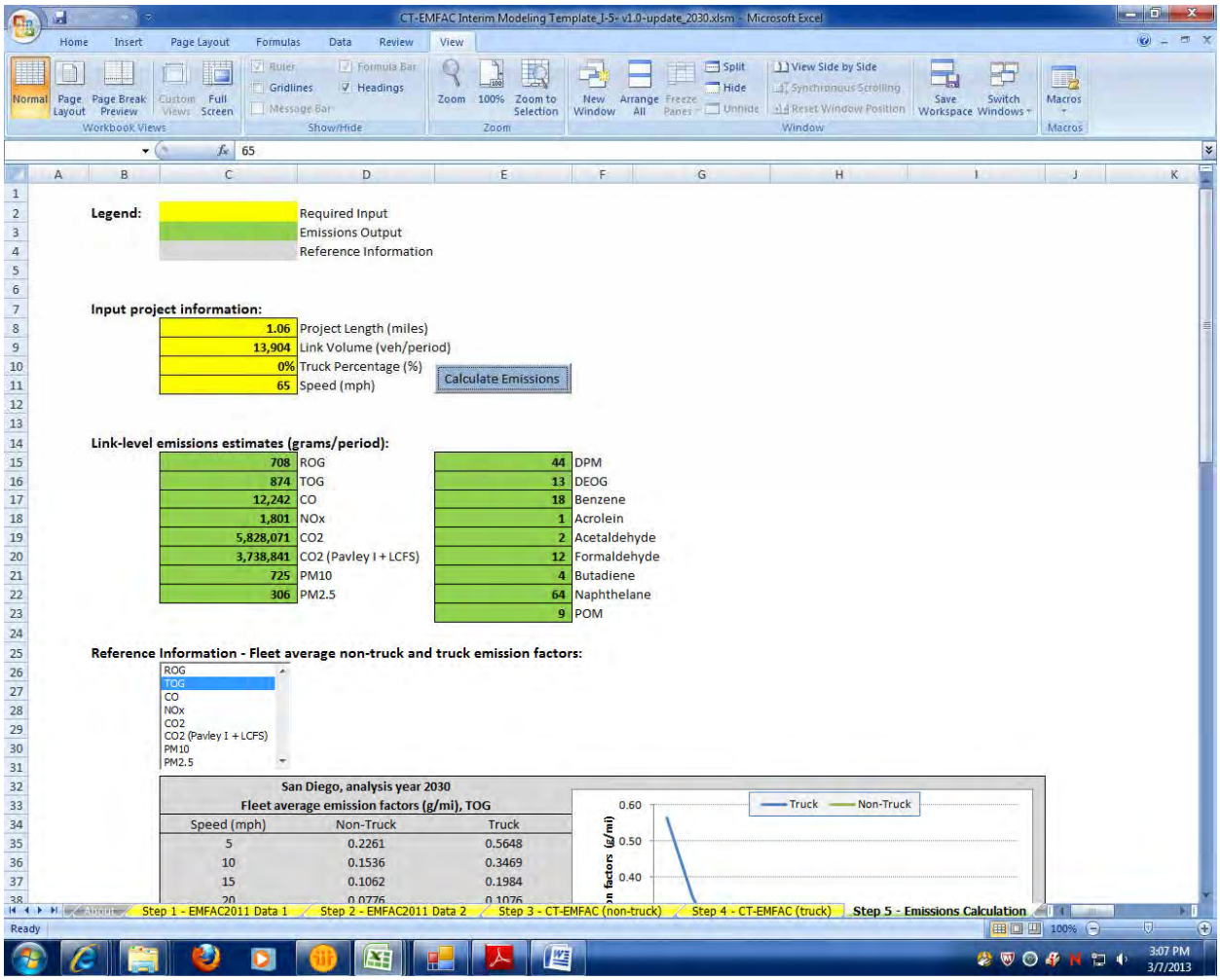
2030 8+4
Link: 2 (NB HOV)
Segment: 22
Off Peak



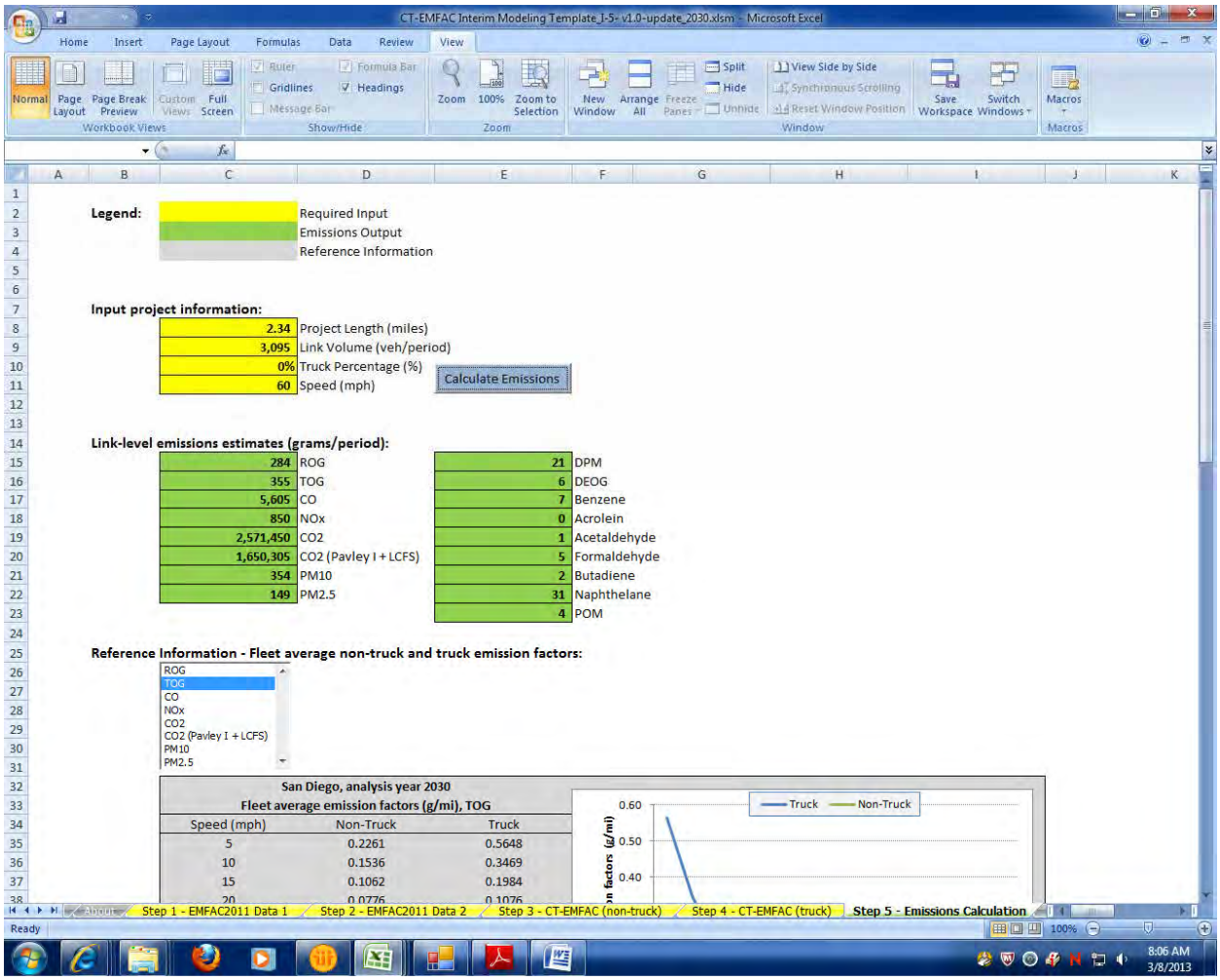
2030 8+4
Link: 3 (SB HOV)
Segment: 1
Peak



2030 8+4
Link: 3 (SB HOV)
Segment: 1
Off Peak



2030 8+4
Link: 3 (SB HOV)
Segment: 2
Peak



2030 8+4
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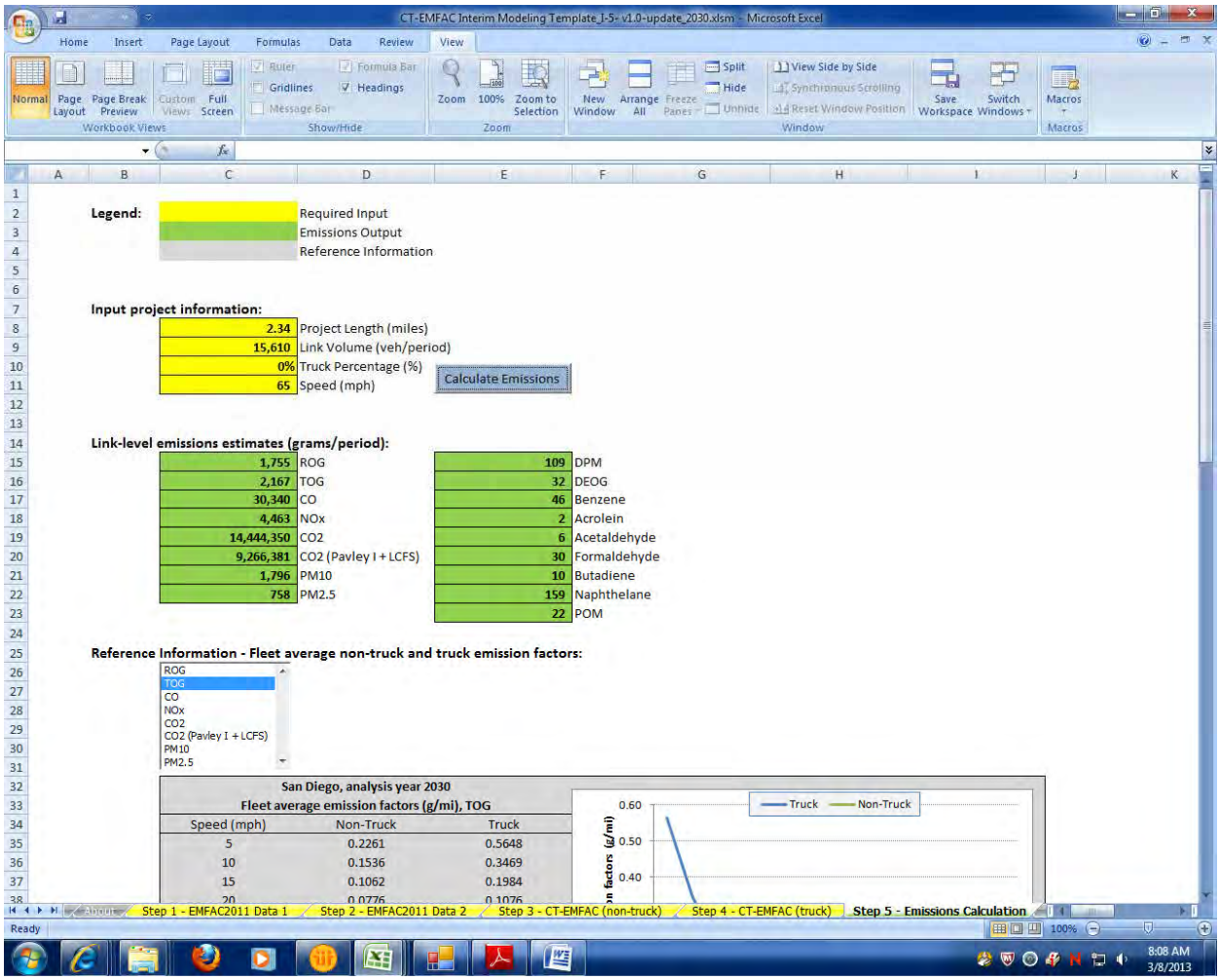
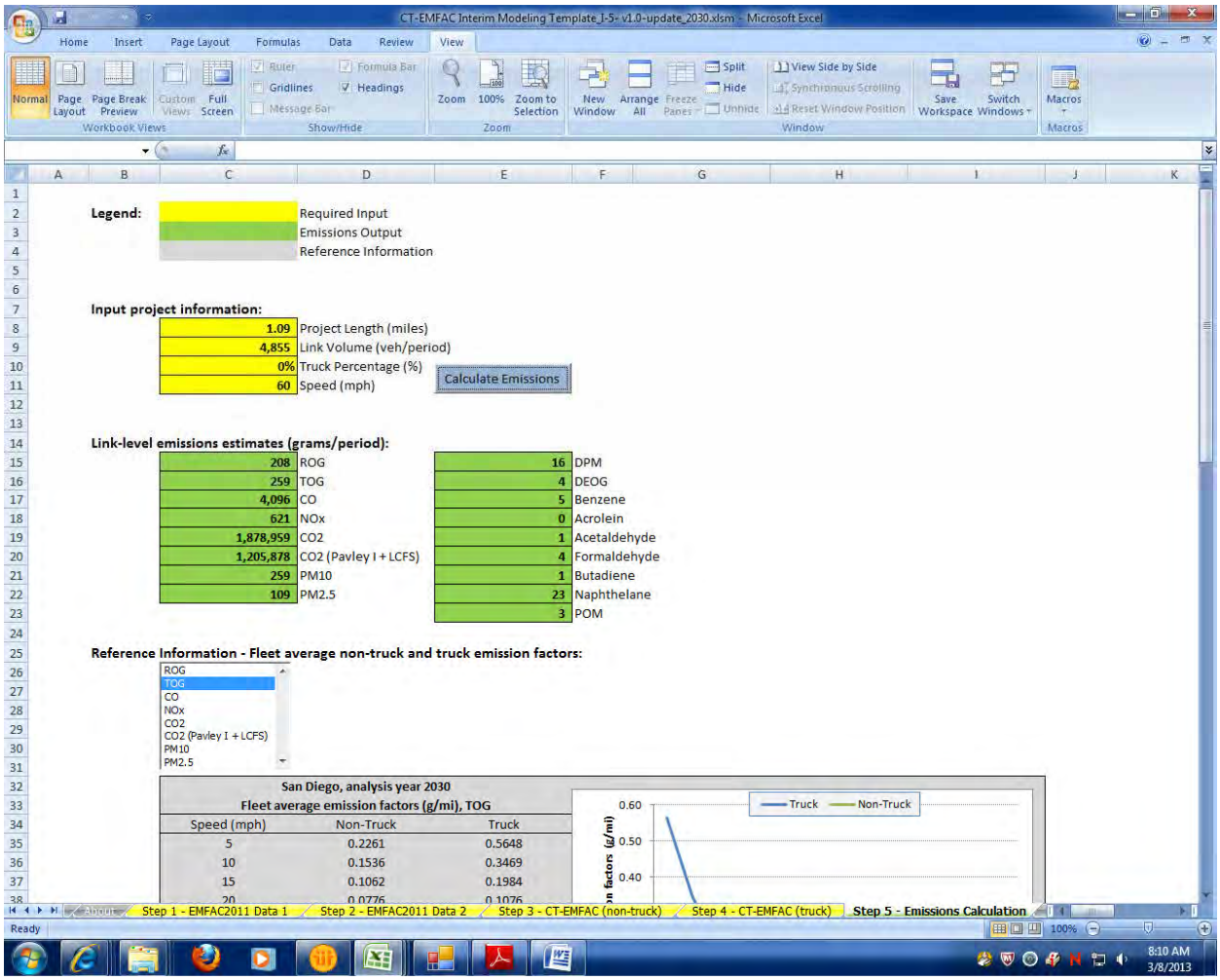
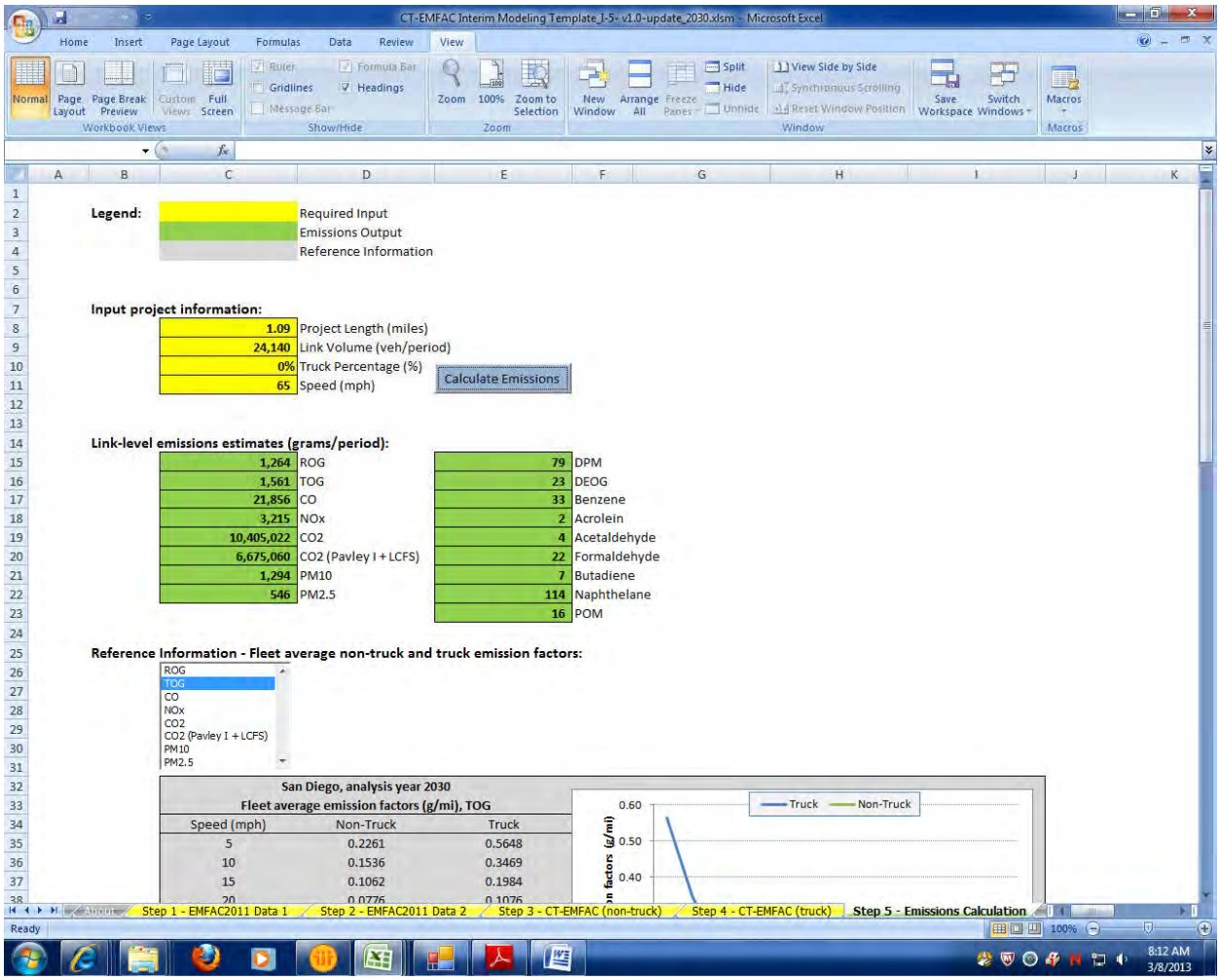
Segment: 2
Off Peak



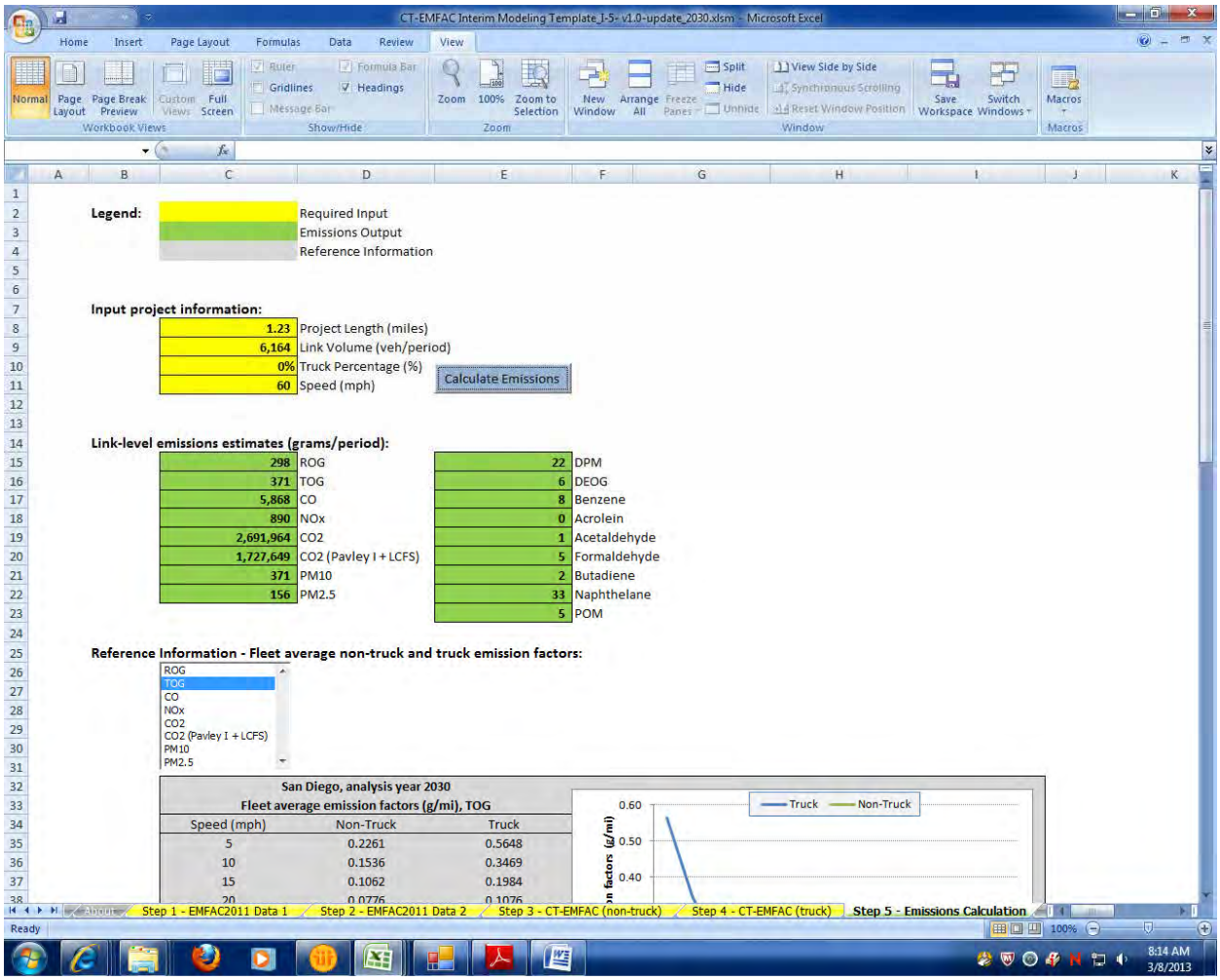
2030 8+4
Link: 3 (SB HOV)
Segment: 3
Peak



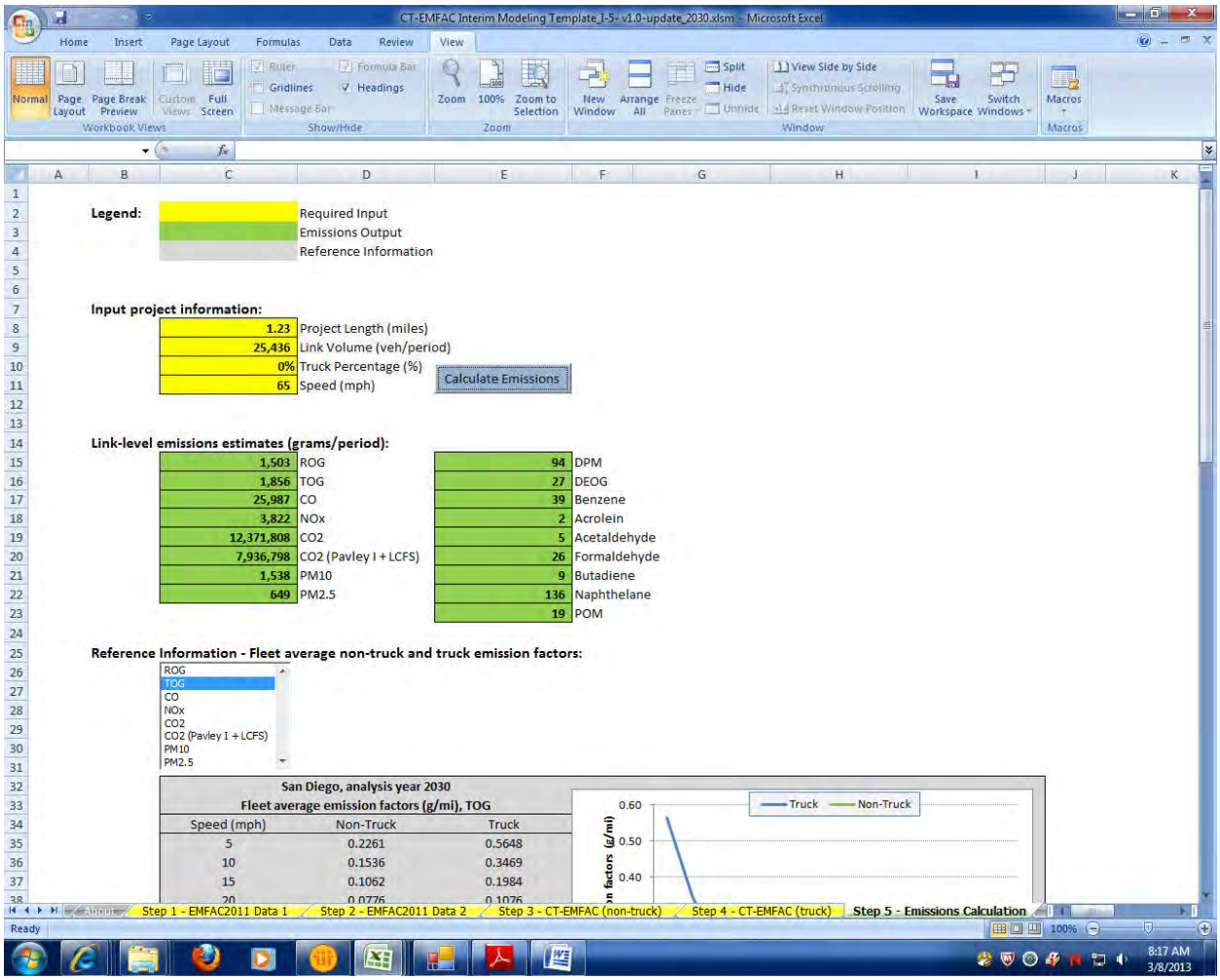
2030 8+4
Link: 3 (SB HOV)
Segment: 3
Off Peak



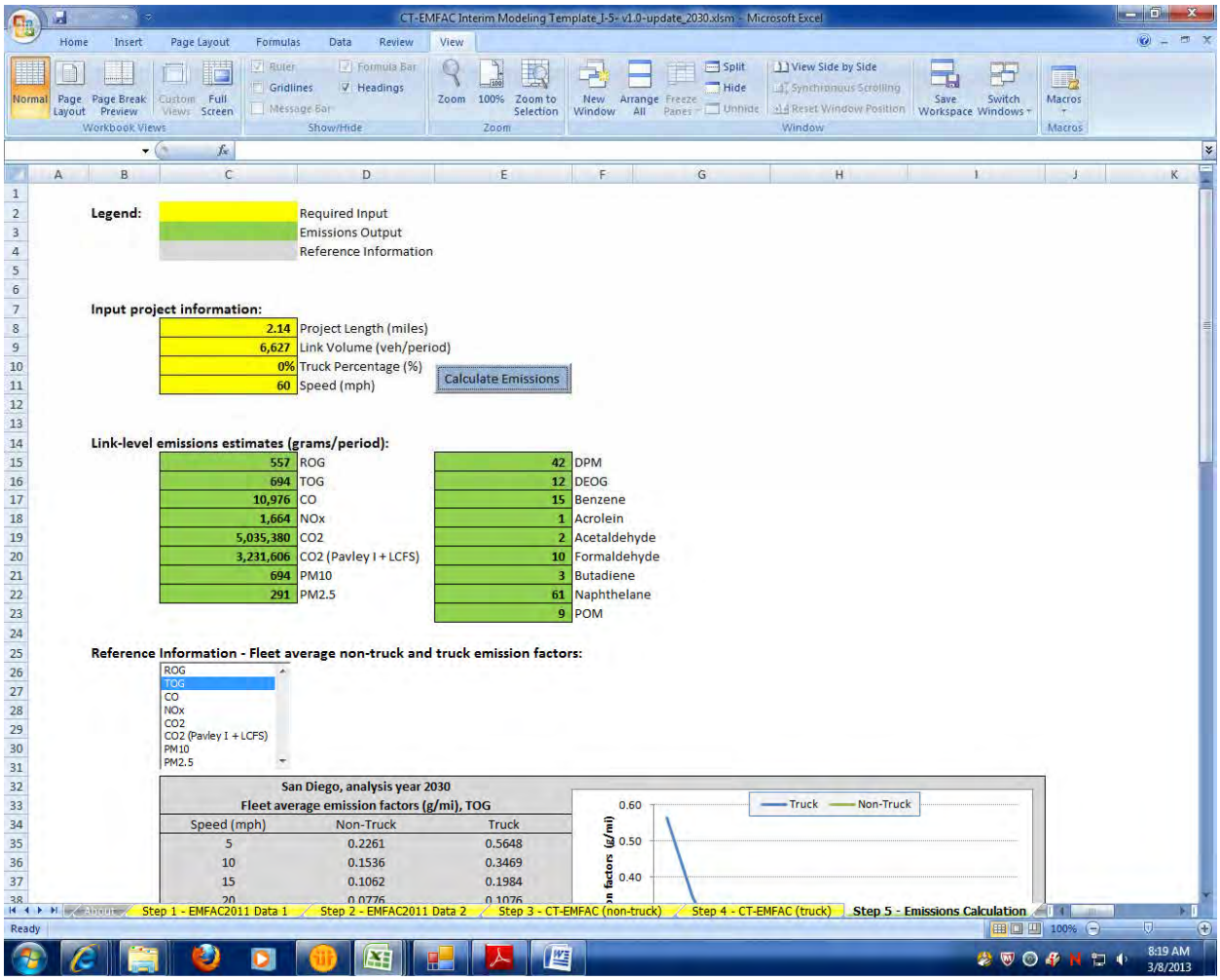
2030 8+4
Link: 3 (SB HOV)
Segment: 4
Peak



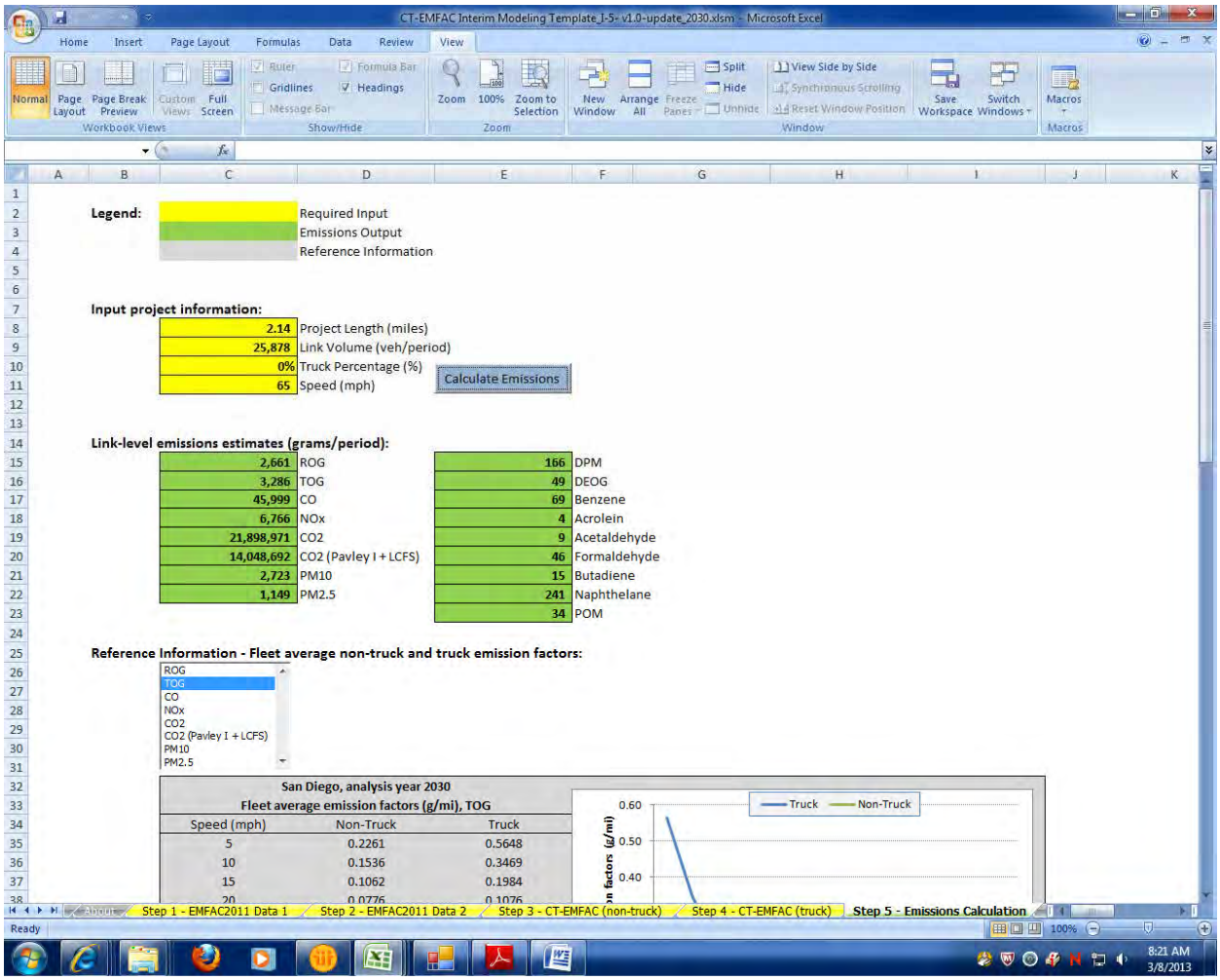
2030 8+4
Link: 3 (SB HOV)
Segment: 4
Off Peak



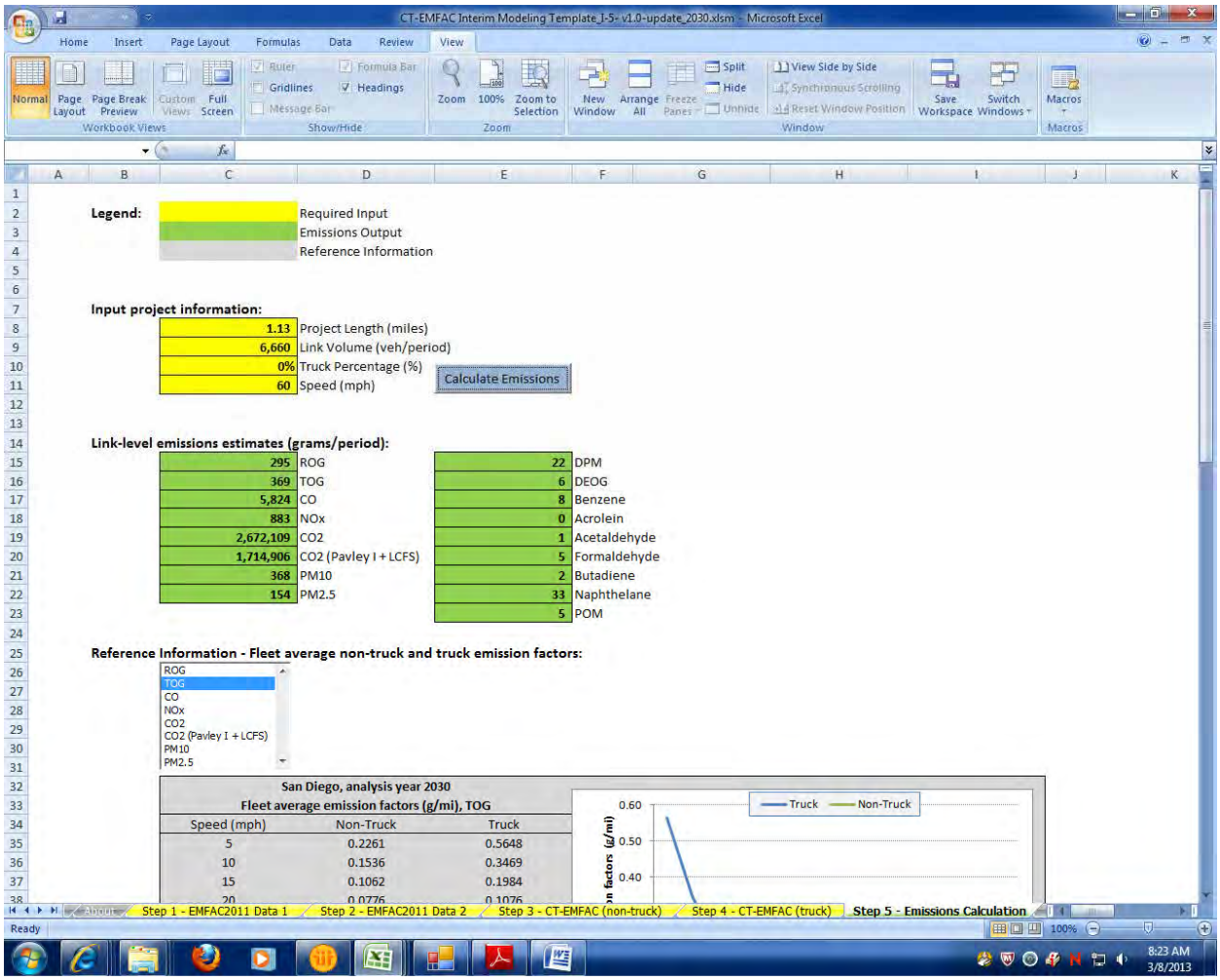
2030 8+4
Link: 3 (SB HOV)
Segment: 5
Peak



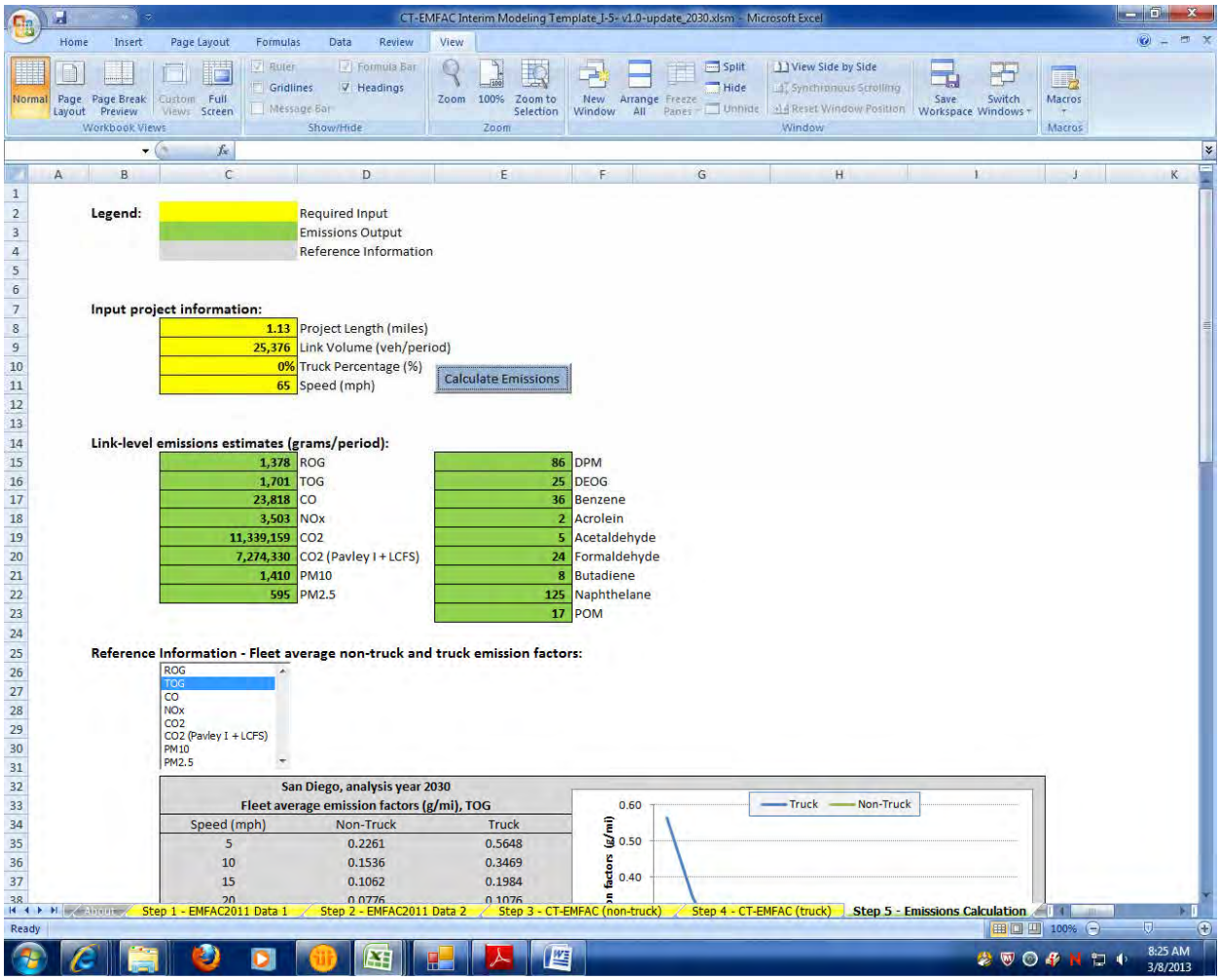
2030 8+4
Link: 3 (SB HOV)
Segment: 5
Off Peak



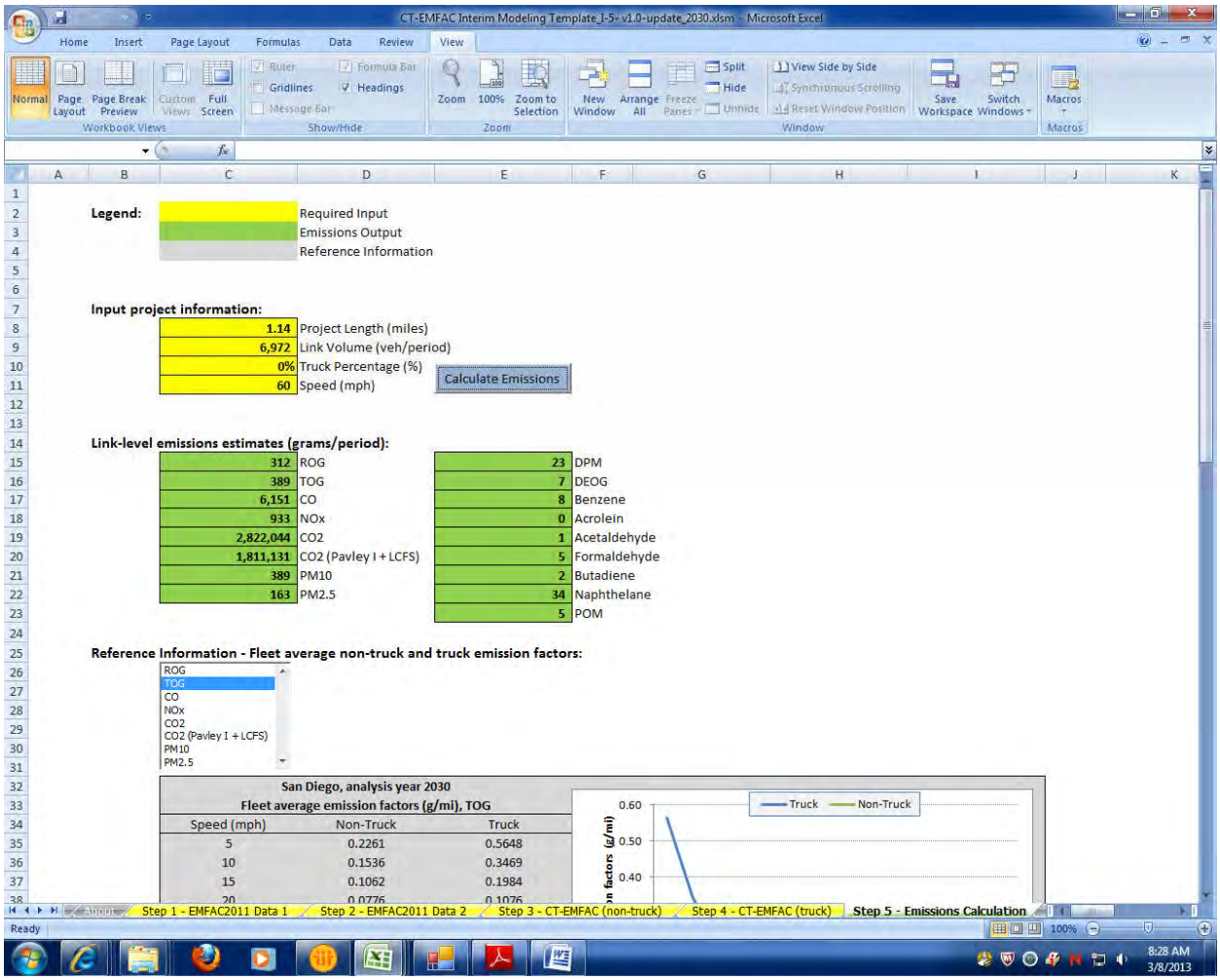
2030 8+4
Link: 3 (SB HOV)
Segment: 6
Peak



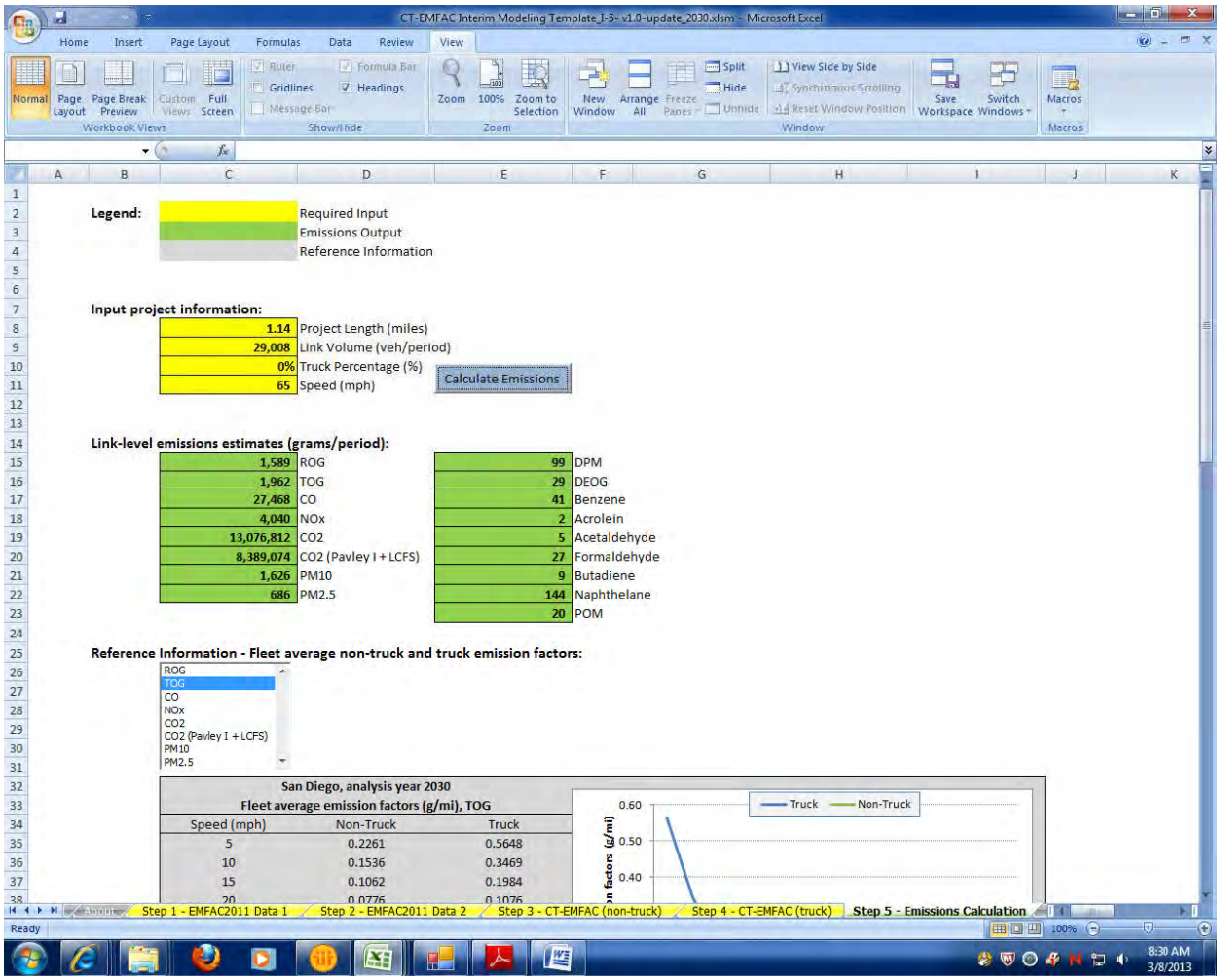
2030 8+4
Link: 3 (SB HOV)
Segment: 6
Off Peak



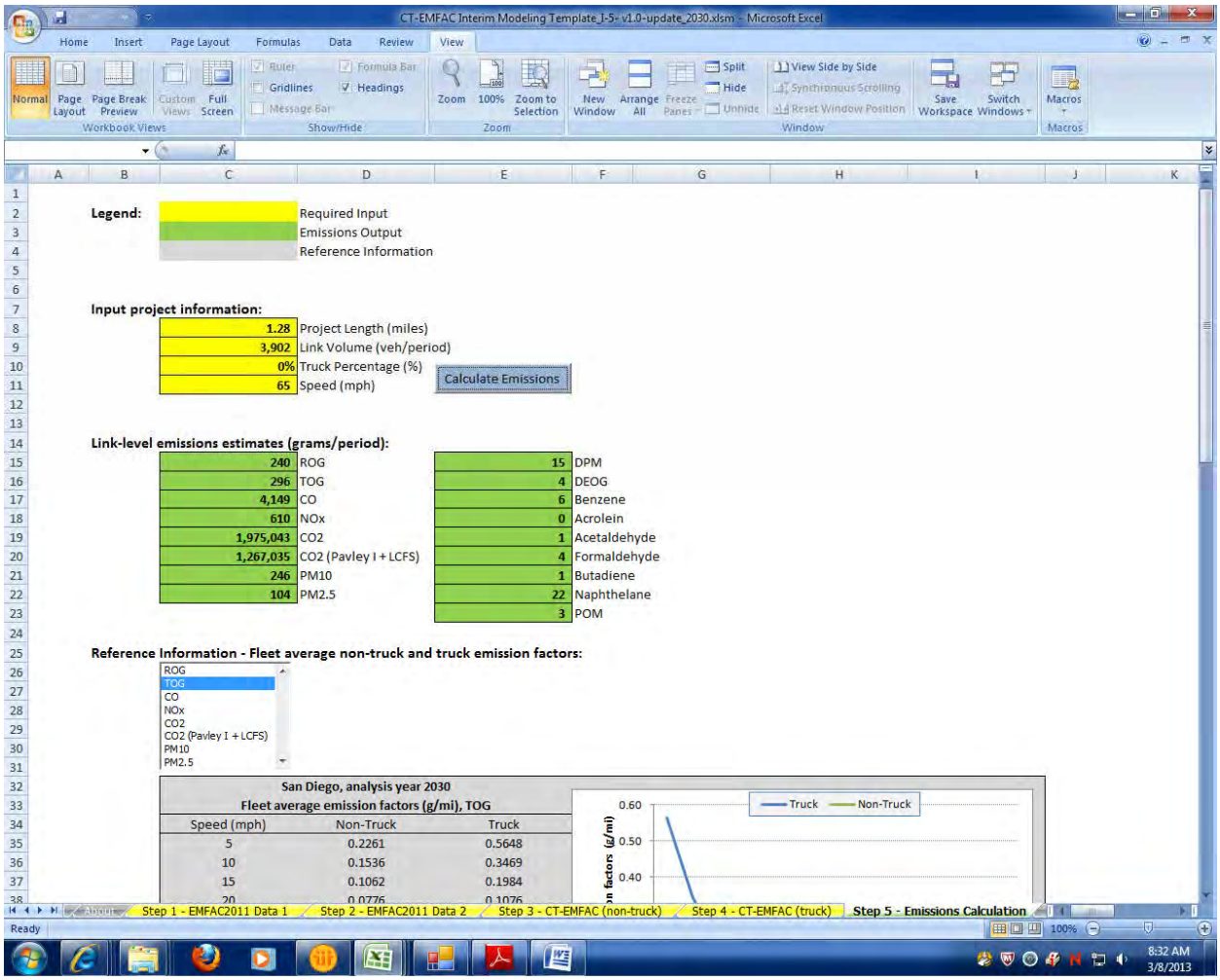
2030 8+4
Link: 3 (SB HOV)
Segment: 7
Peak



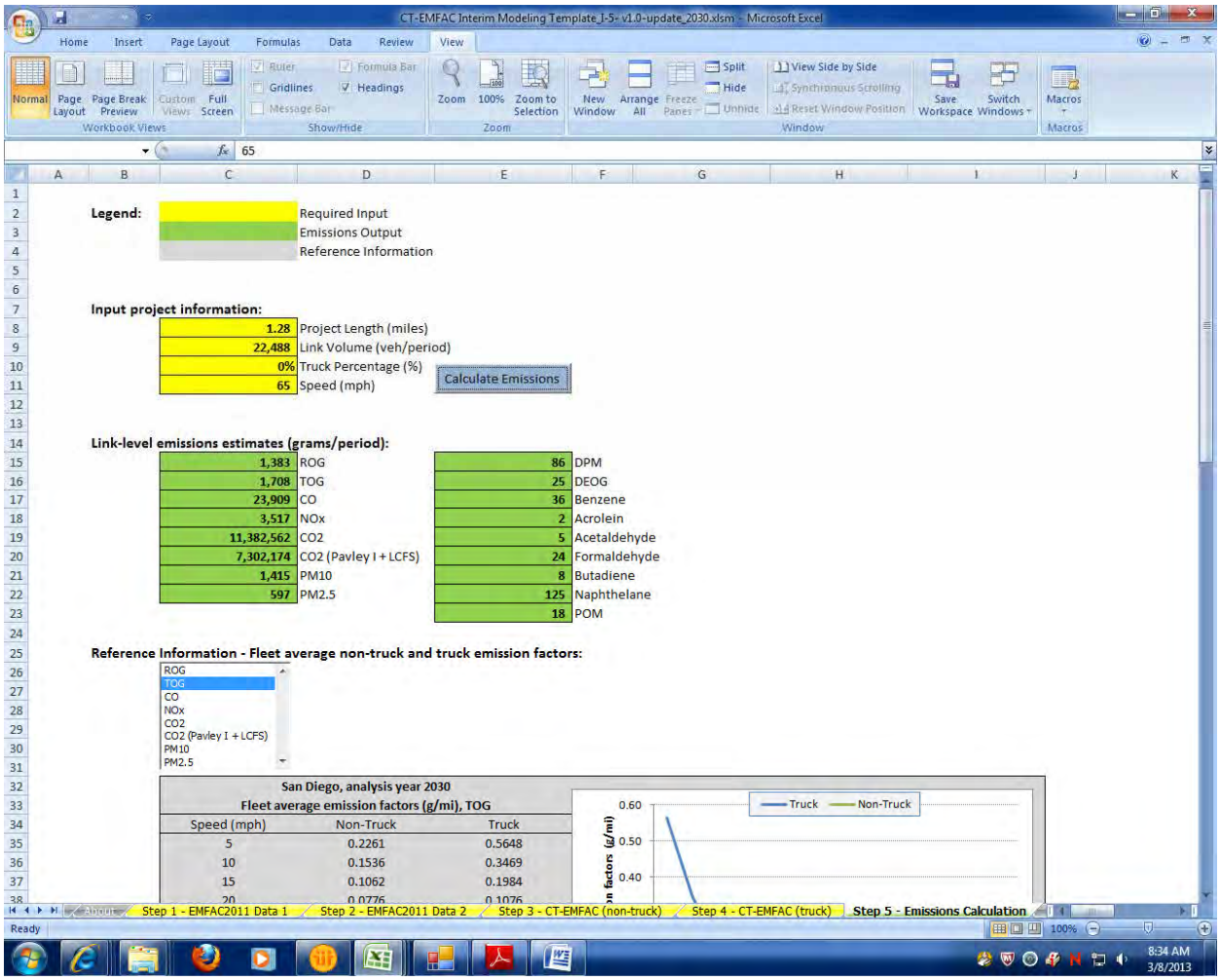
2030 8+4
Link: 3 (SB HOV)
Segment: 7
Off Peak



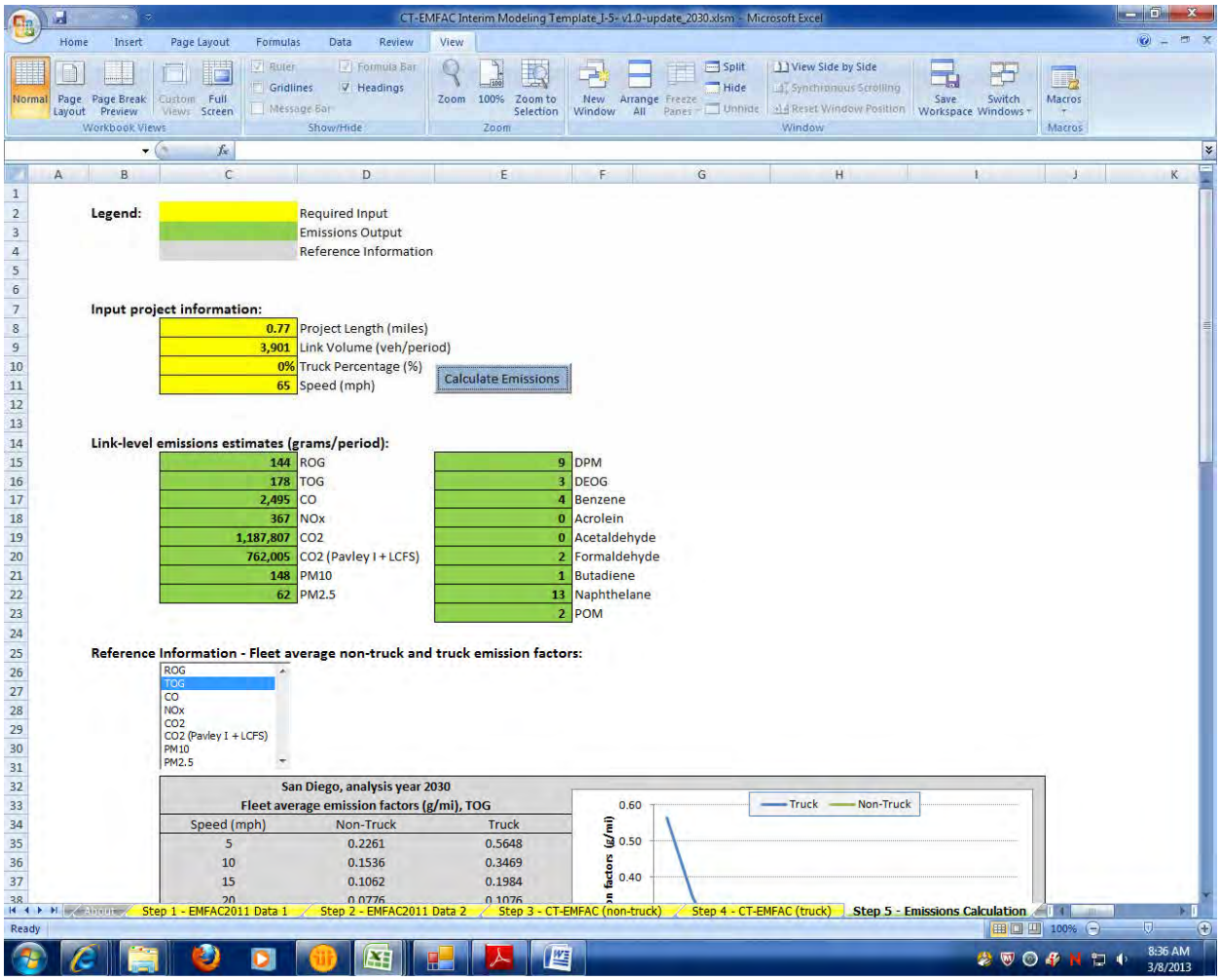
2030 8+4
Link: 3 (SB HOV)
Segment: 8
Peak



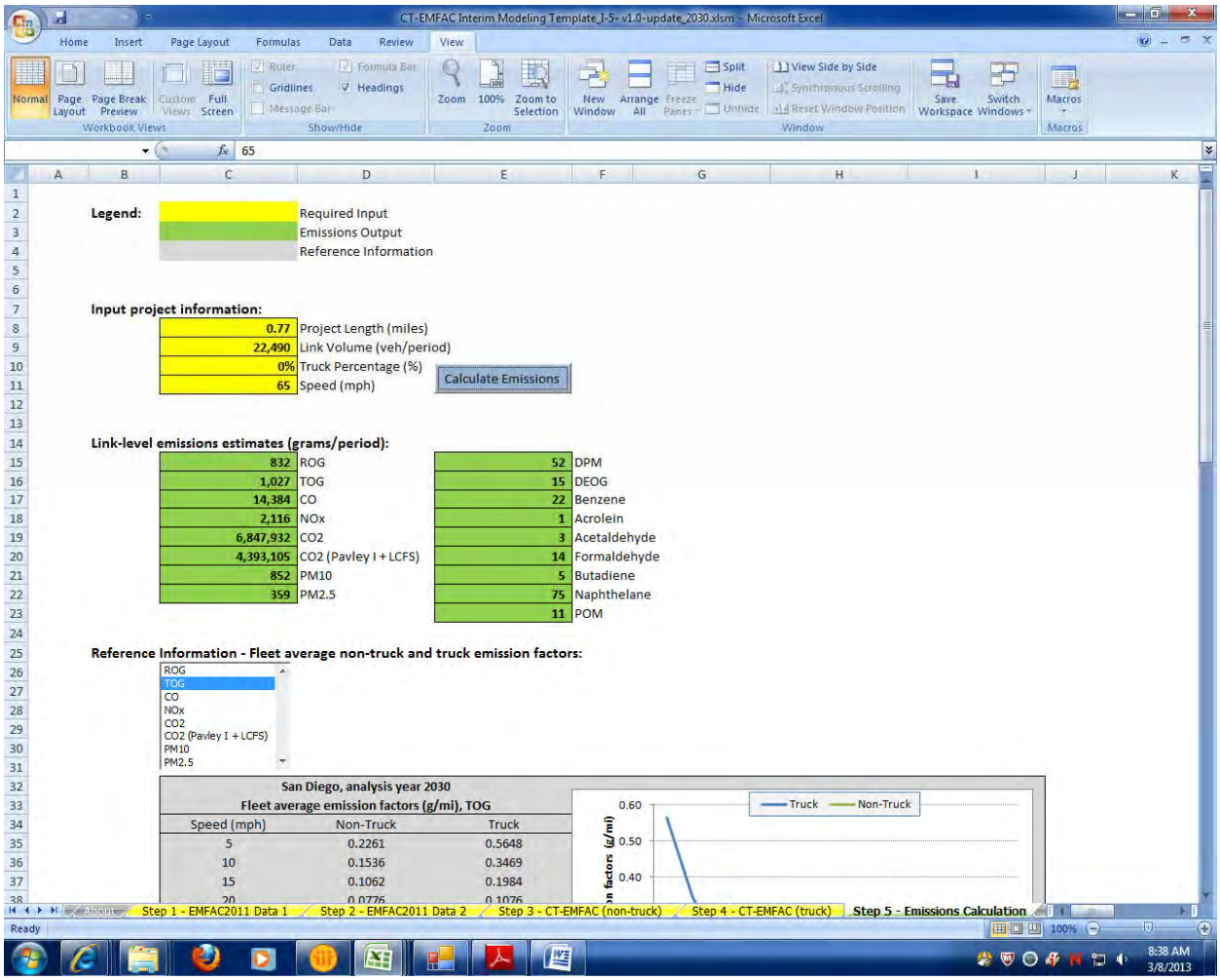
2030 8+4
Link: 3 (SB HOV)
Segment: 8
Off Peak



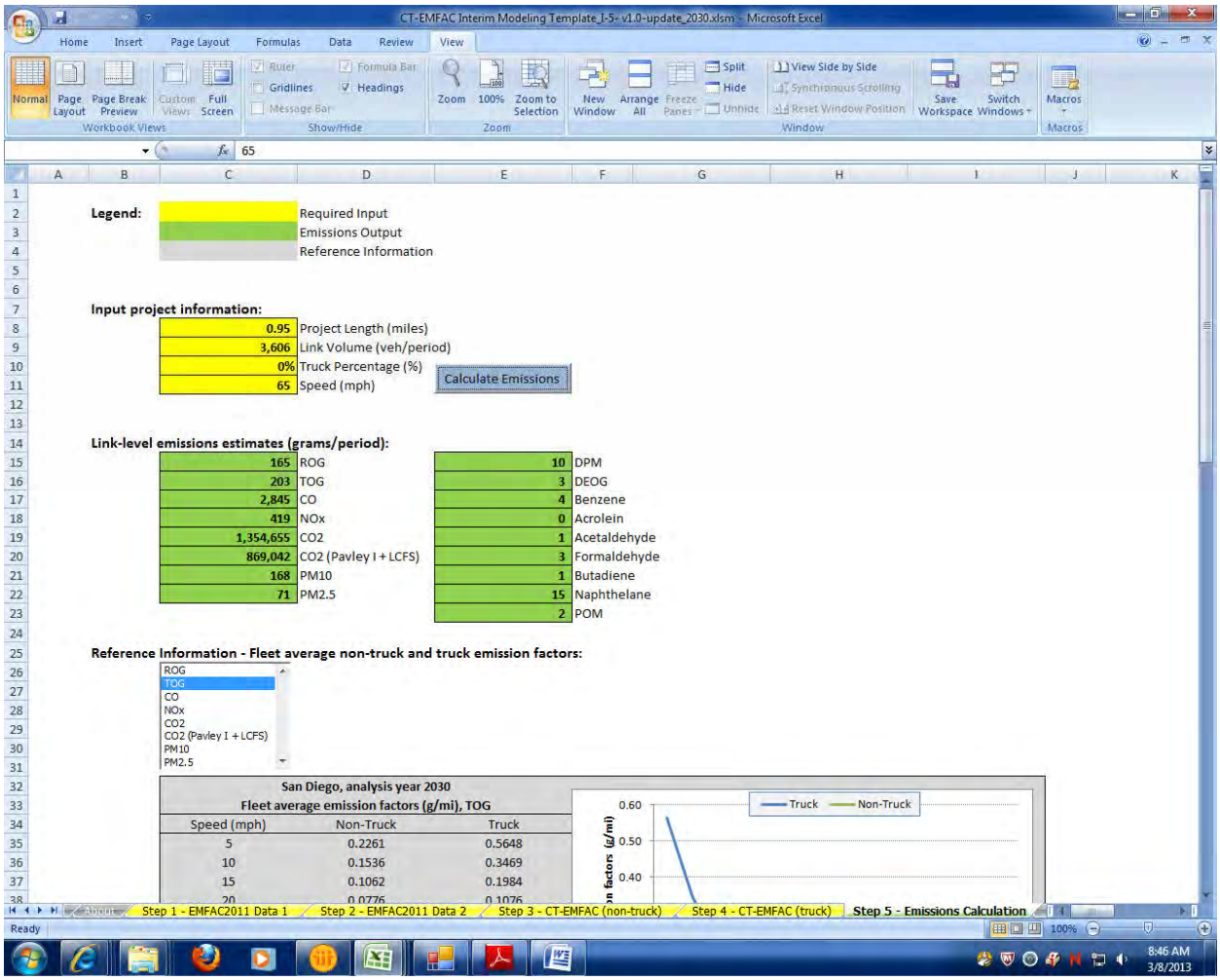
2030 8+4
Link: 3 (SB HOV)
Segment: 9
Peak



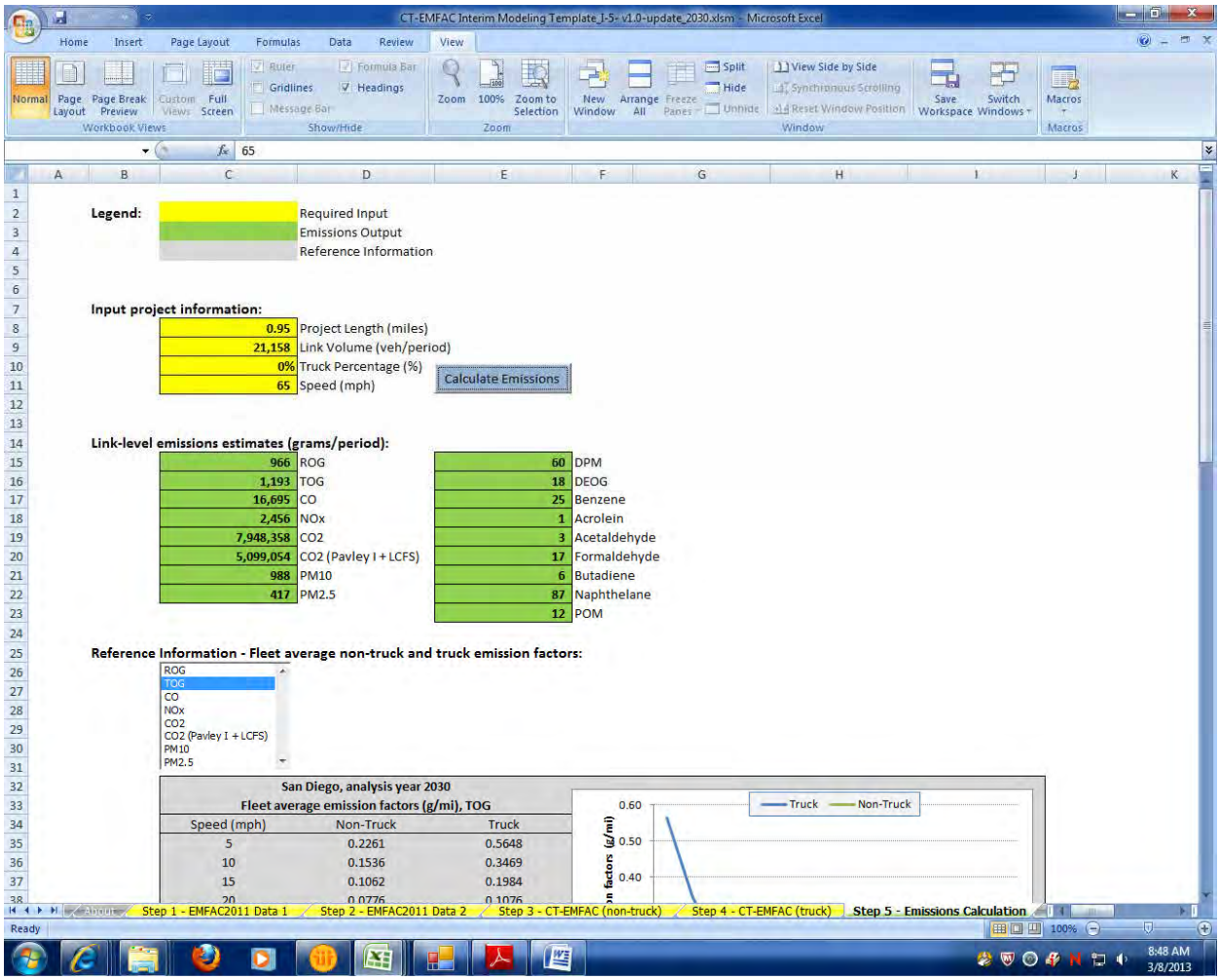
2030 8+4
Link: 3 (SB HOV)
Segment: 9
Off Peak



2030 8+4
Link: 3 (SB HOV)
Segment: 10
Peak



2030 8+4
Link: 3 (SB HOV)
Segment: 10
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.95	Project Length (miles)
21,158	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

966	ROG	60	DPM
1,193	TOG	18	DEOG
16,695	CO	25	Benzene
2,456	NOx	1	Acrolein
7,948,358	CO2	3	Acetaldehyde
5,099,054	CO2 (Pavley I + LCFS)	17	Formaldehyde
988	PM10	6	Butadiene
417	PM2.5	87	Naphthelane
		12	POM

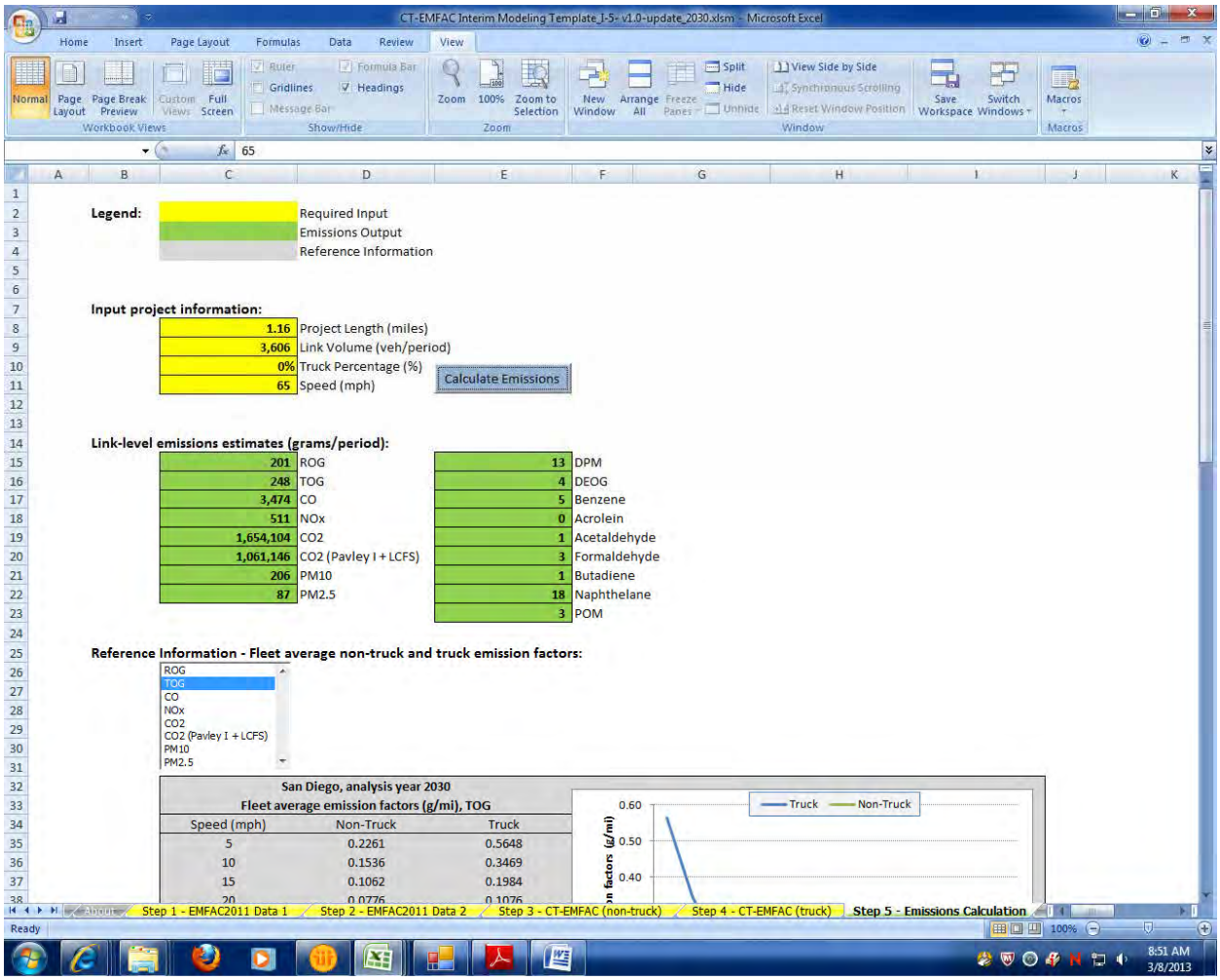
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

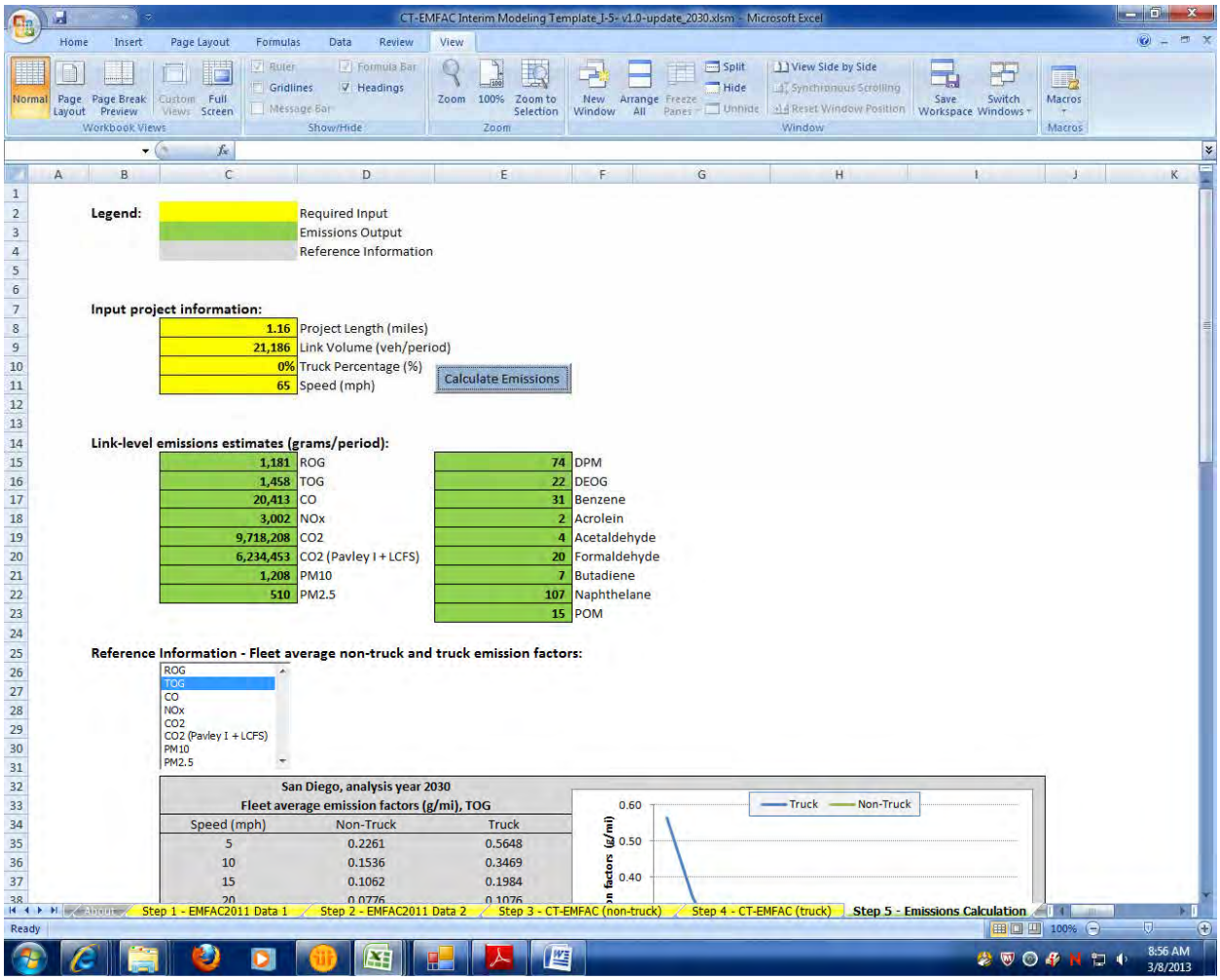
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

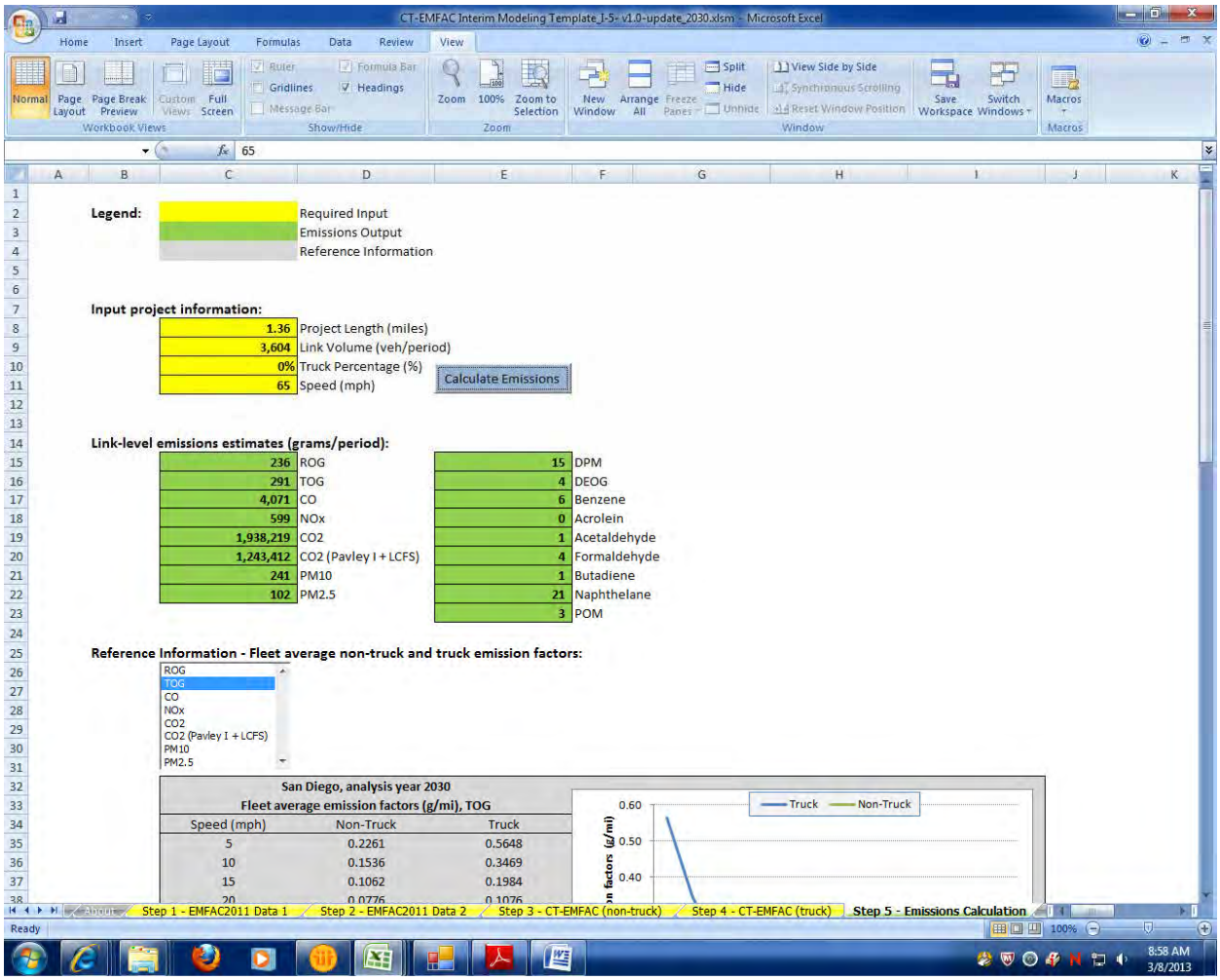
2030 8+4
Link: 3 (SB HOV)
Segment: 11
Peak



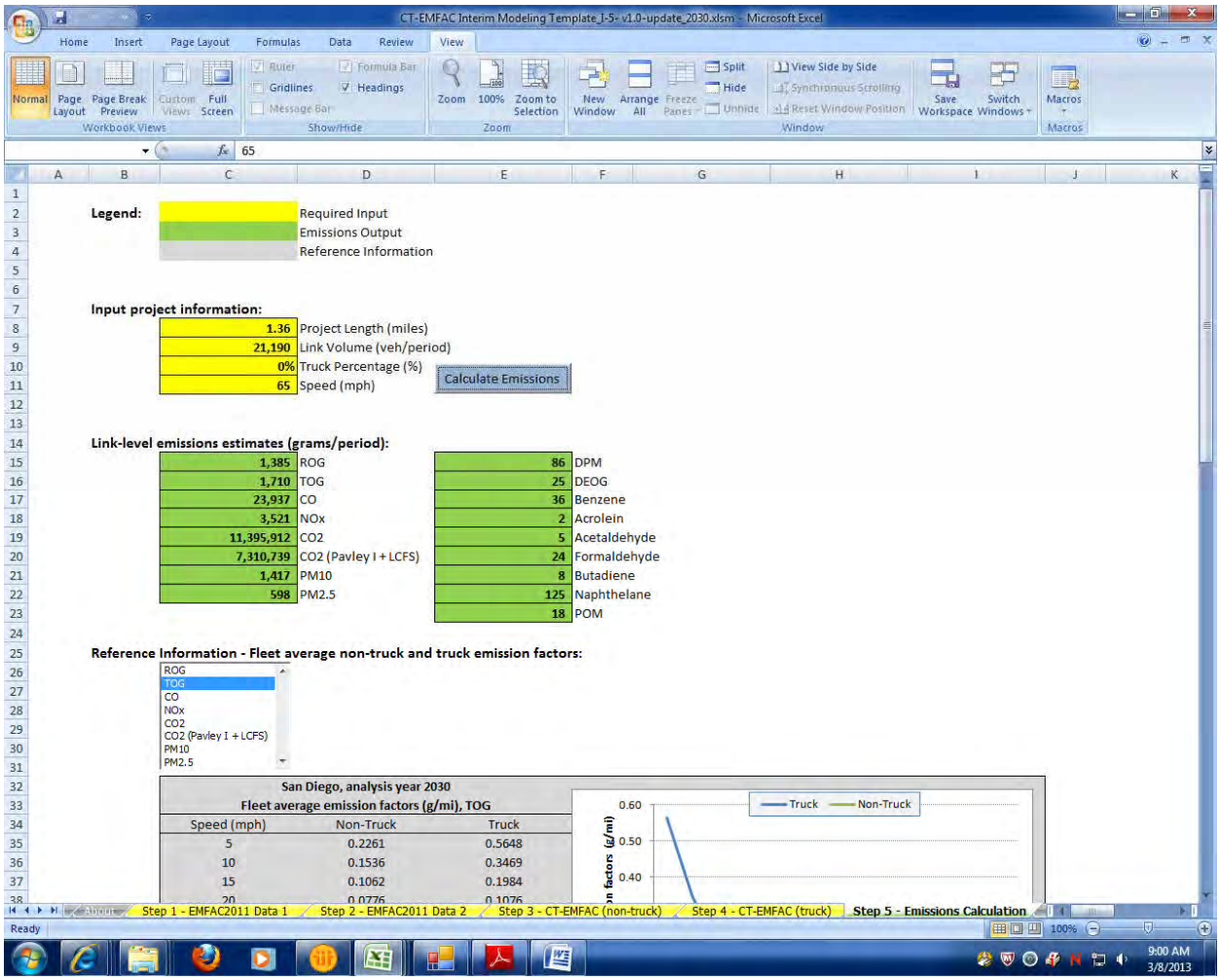
2030 8+4
Link: 3 (SB HOV)
Segment: 11
Off Peak



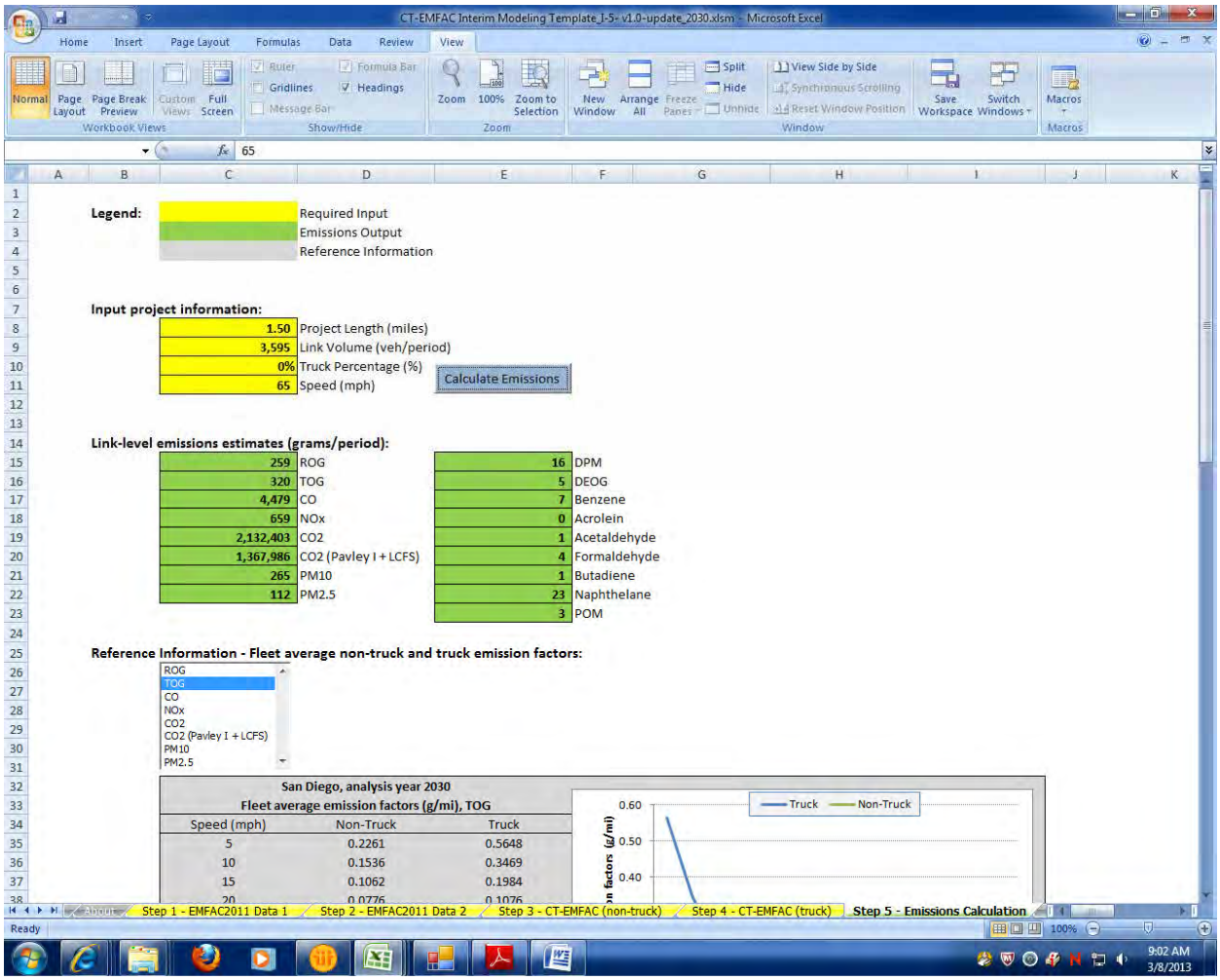
2030 8+4
Link: 3 (SB HOV)
Segment: 12
Peak



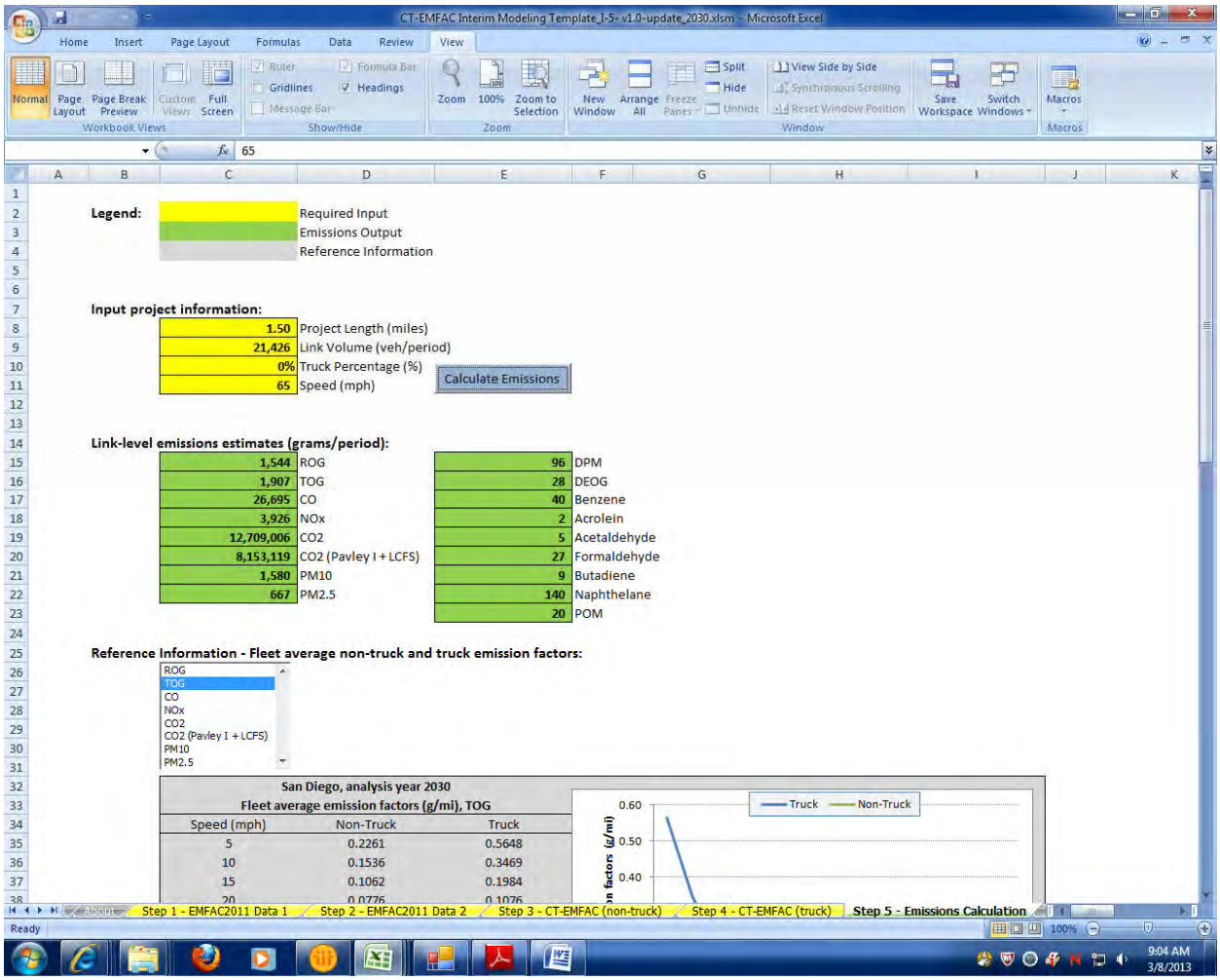
2030 8+4
Link: 3 (SB HOV)
Segment: 12
Off Peak



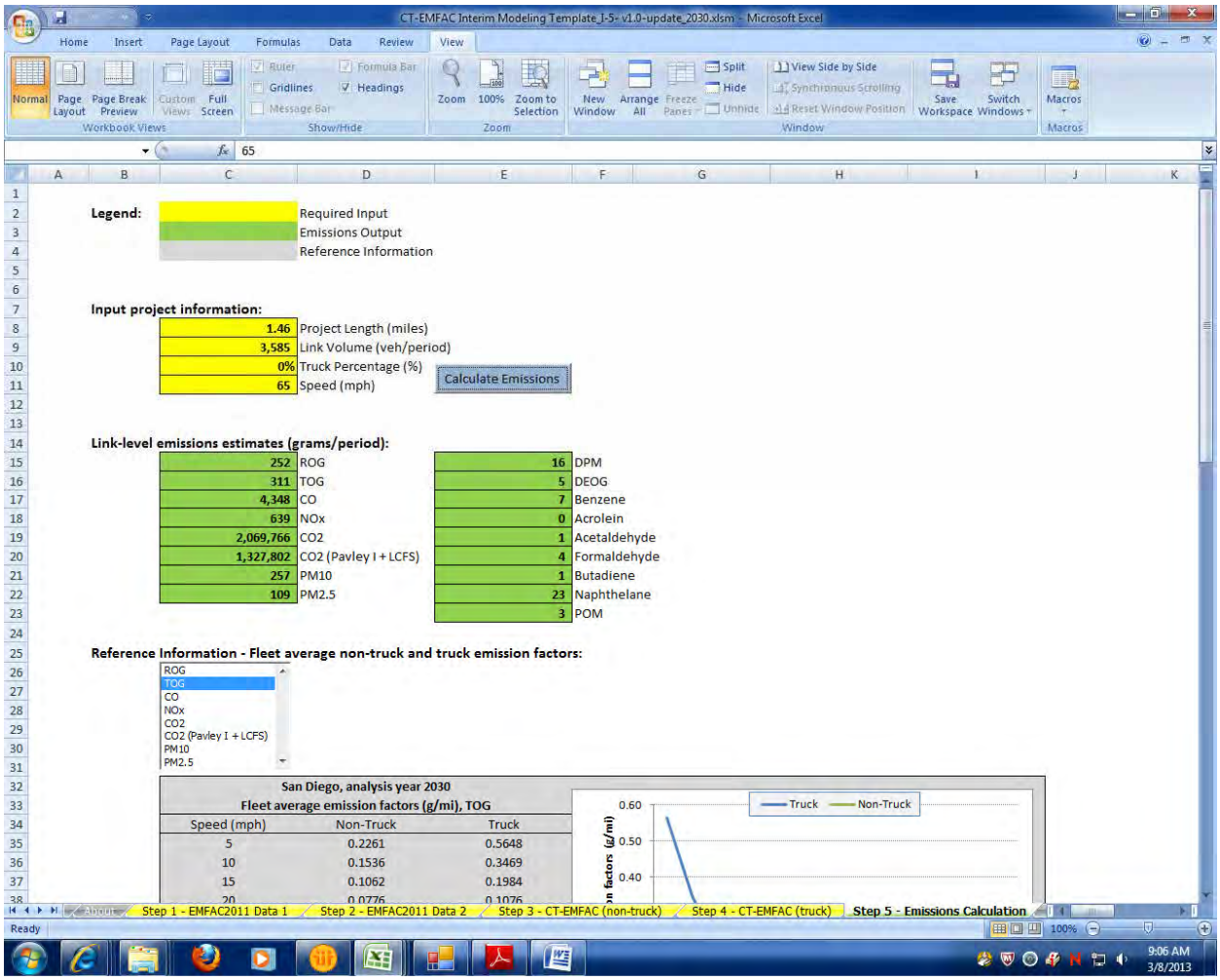
2030 8+4
Link: 3 (SB HOV)
Segment: 13
Peak



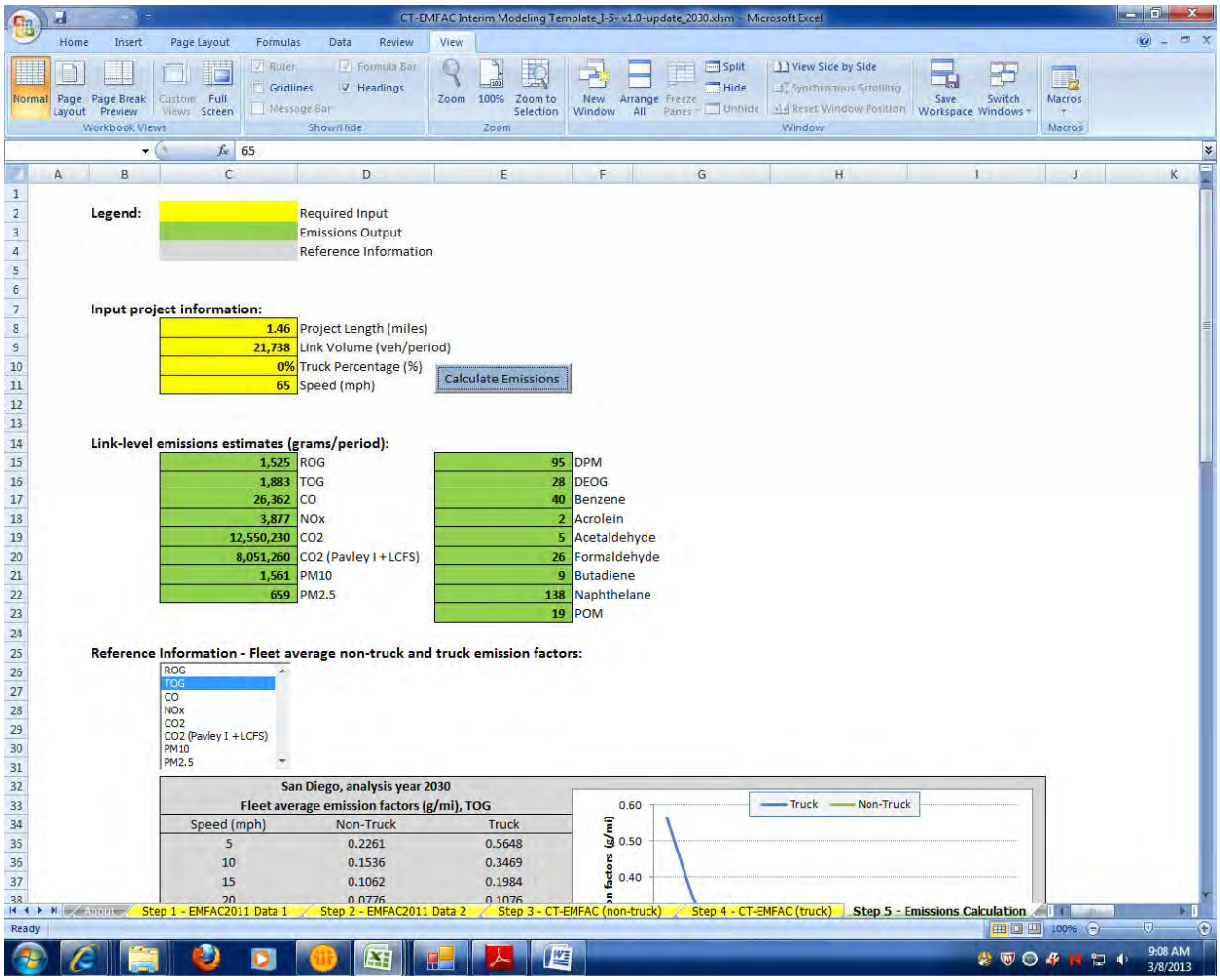
2030 8+4
Link: 3 (SB HOV)
Segment: 13
Off Peak



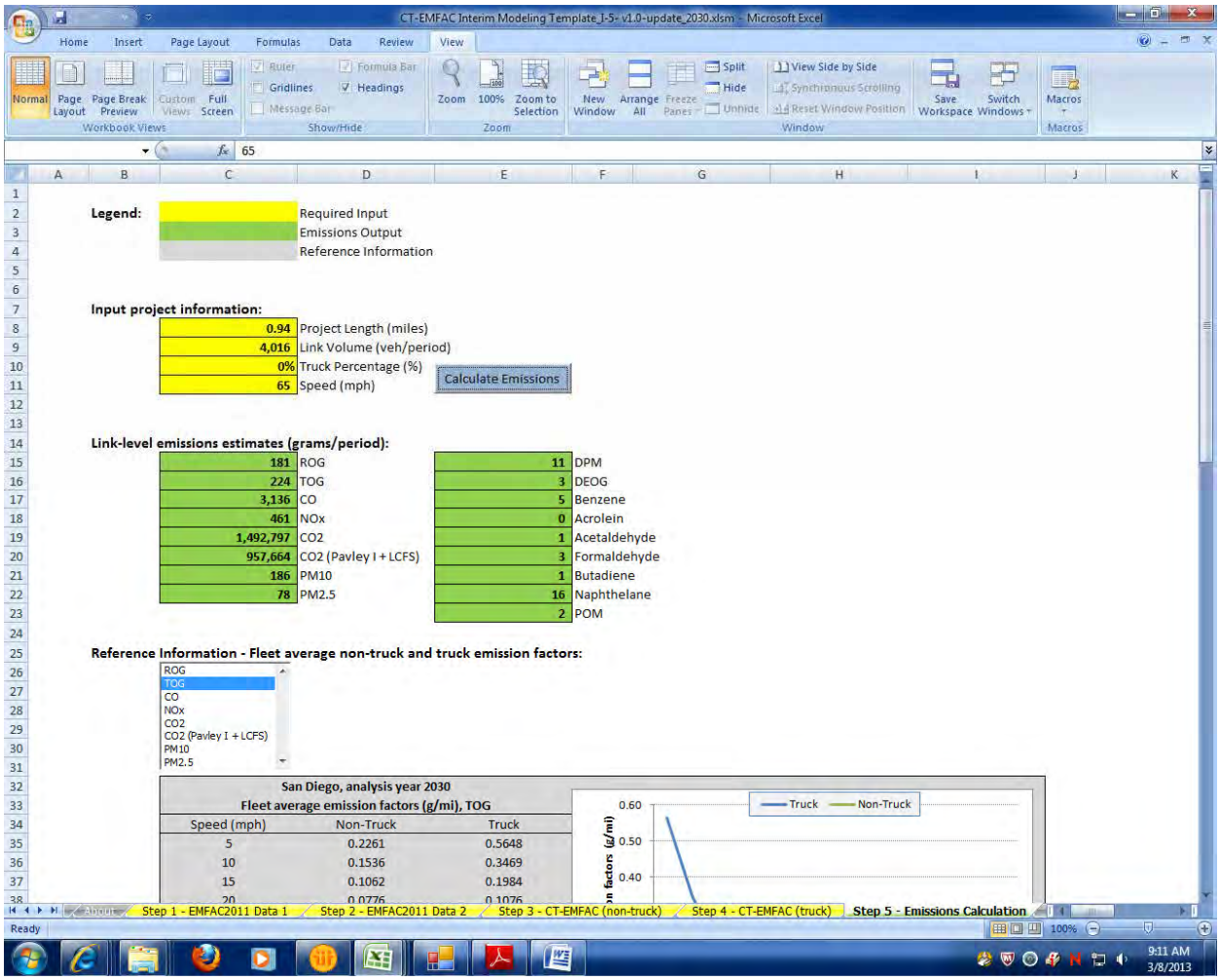
2030 8+4
Link: 3 (SB HOV)
Segment: 14
Peak



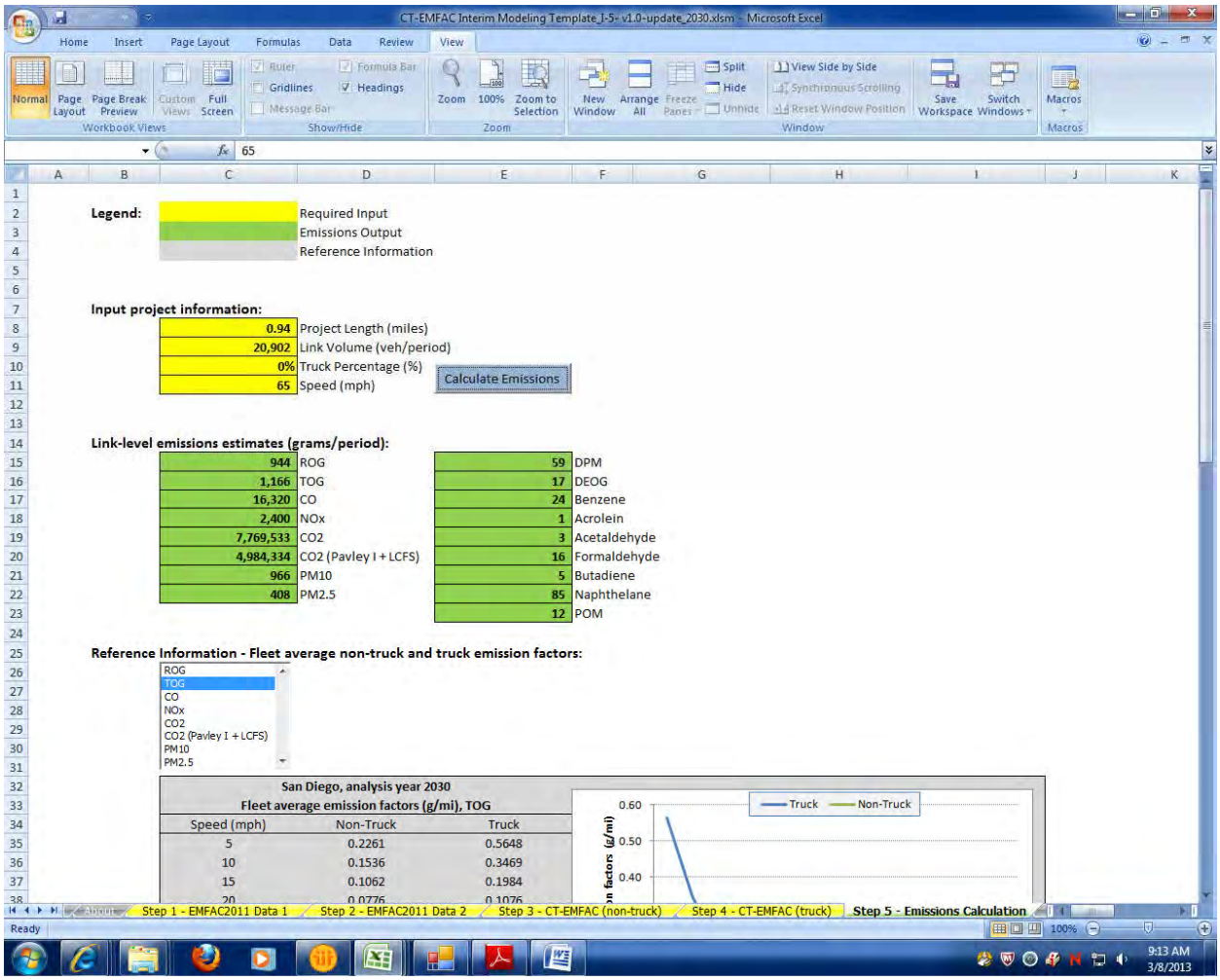
2030 8+4
Link: 3 (SB HOV)
Segment: 14
Off Peak



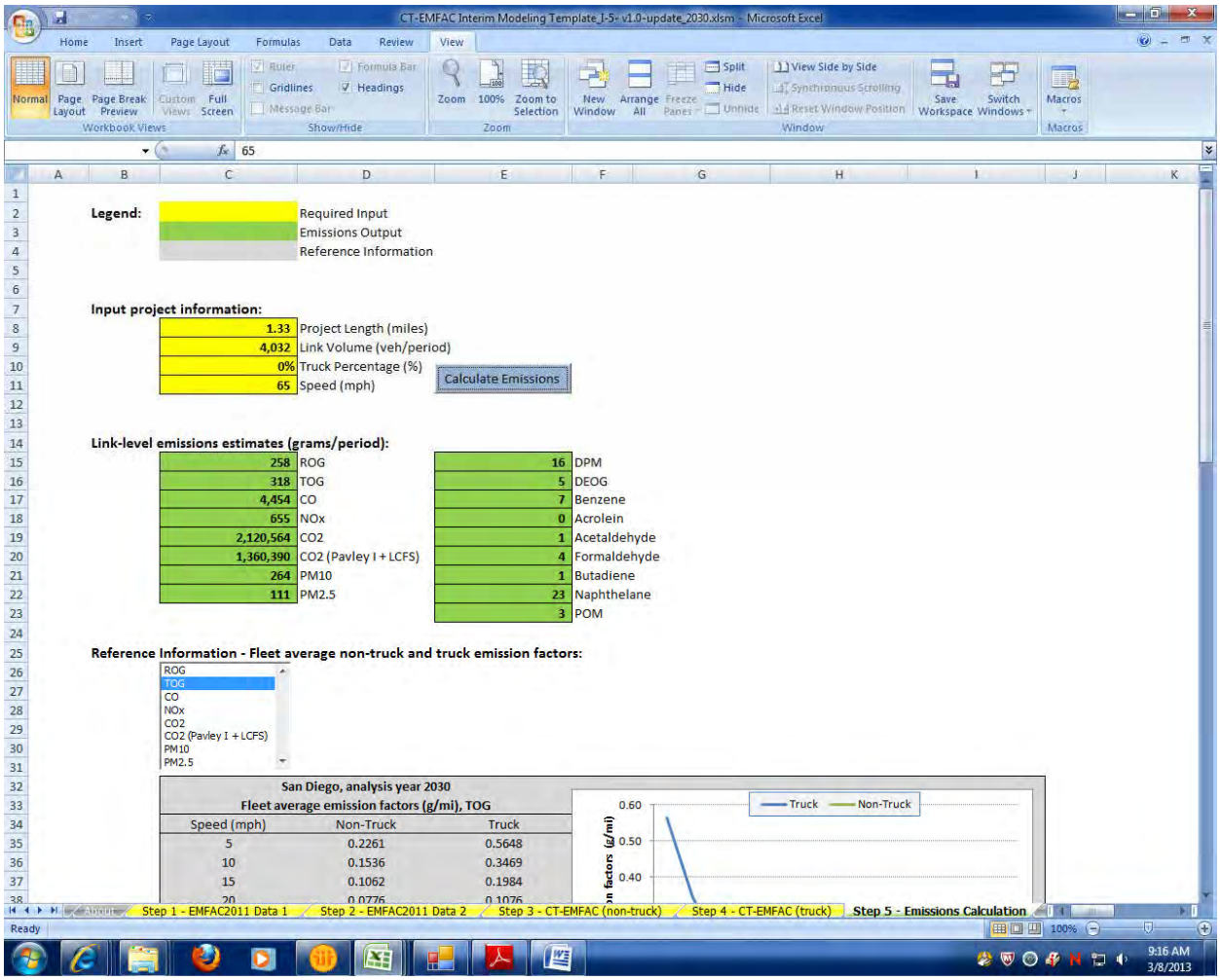
2030 8+4
Link: 3 (SB HOV)
Segment: 15
Peak



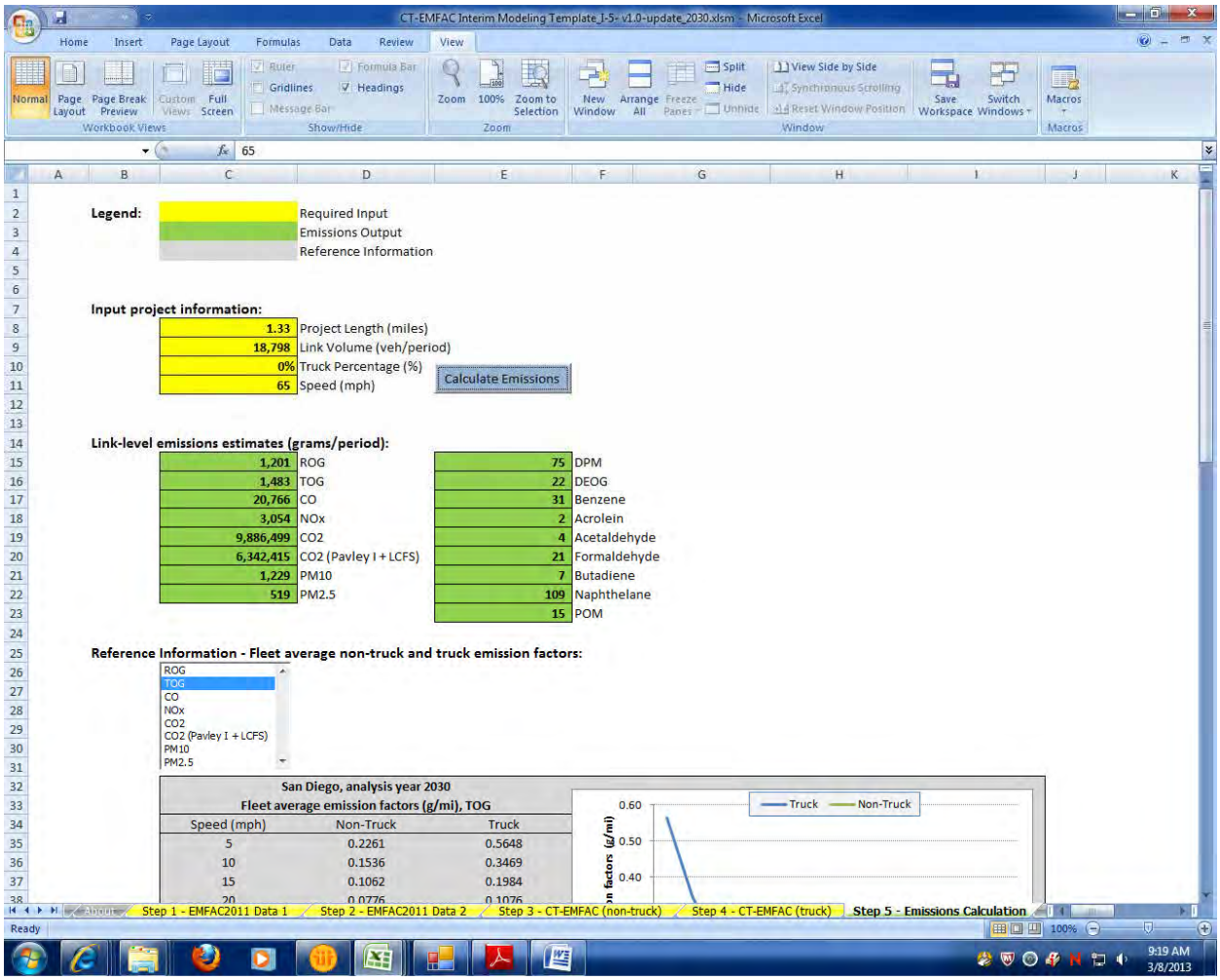
2030 8+4
Link: 3 (SB HOV)
Segment: 15
Off Peak



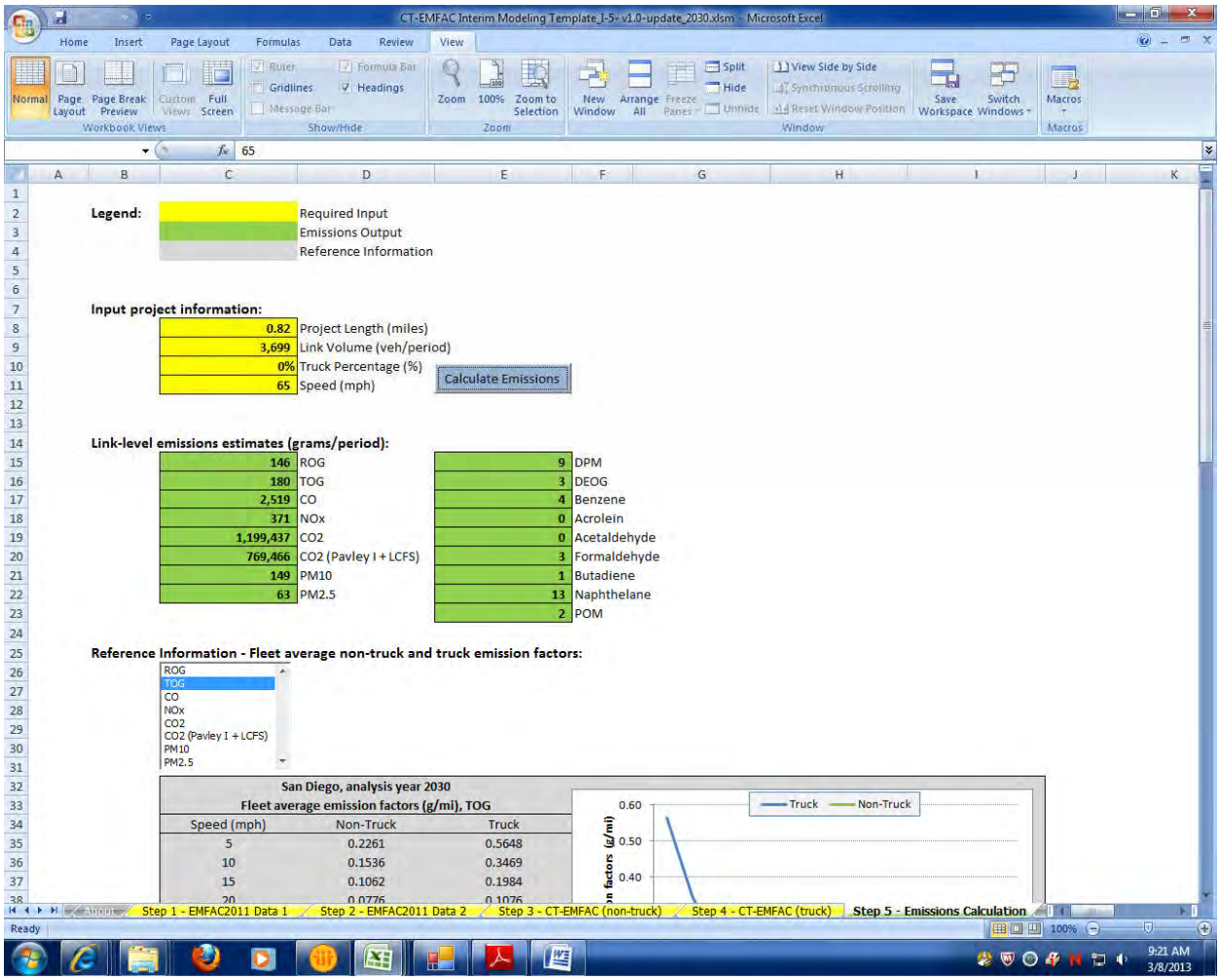
2030 8+4
Link: 3 (SB HOV)
Segment: 16
Peak



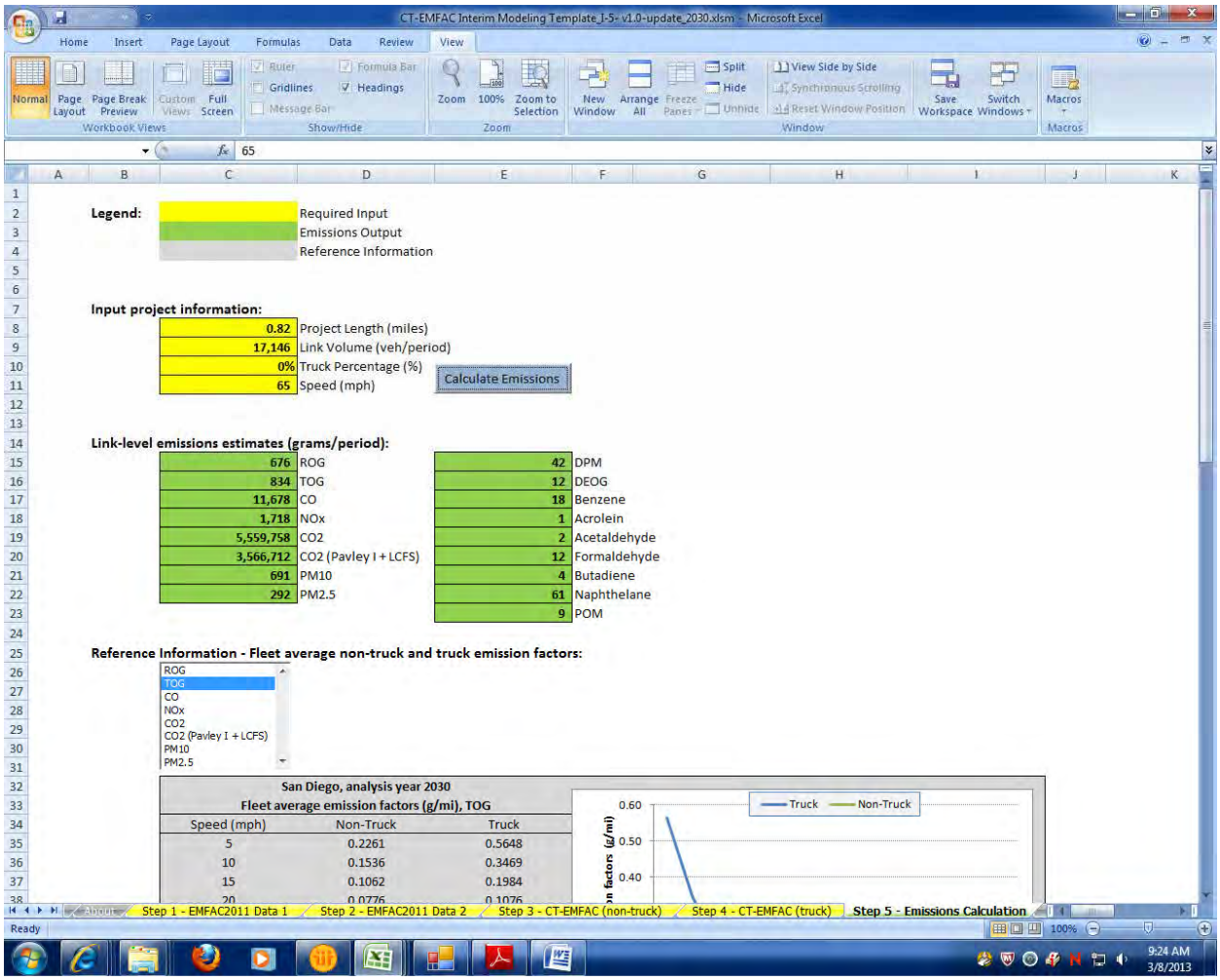
2030 8+4
Link: 3 (SB HOV)
Segment: 16
Off Peak



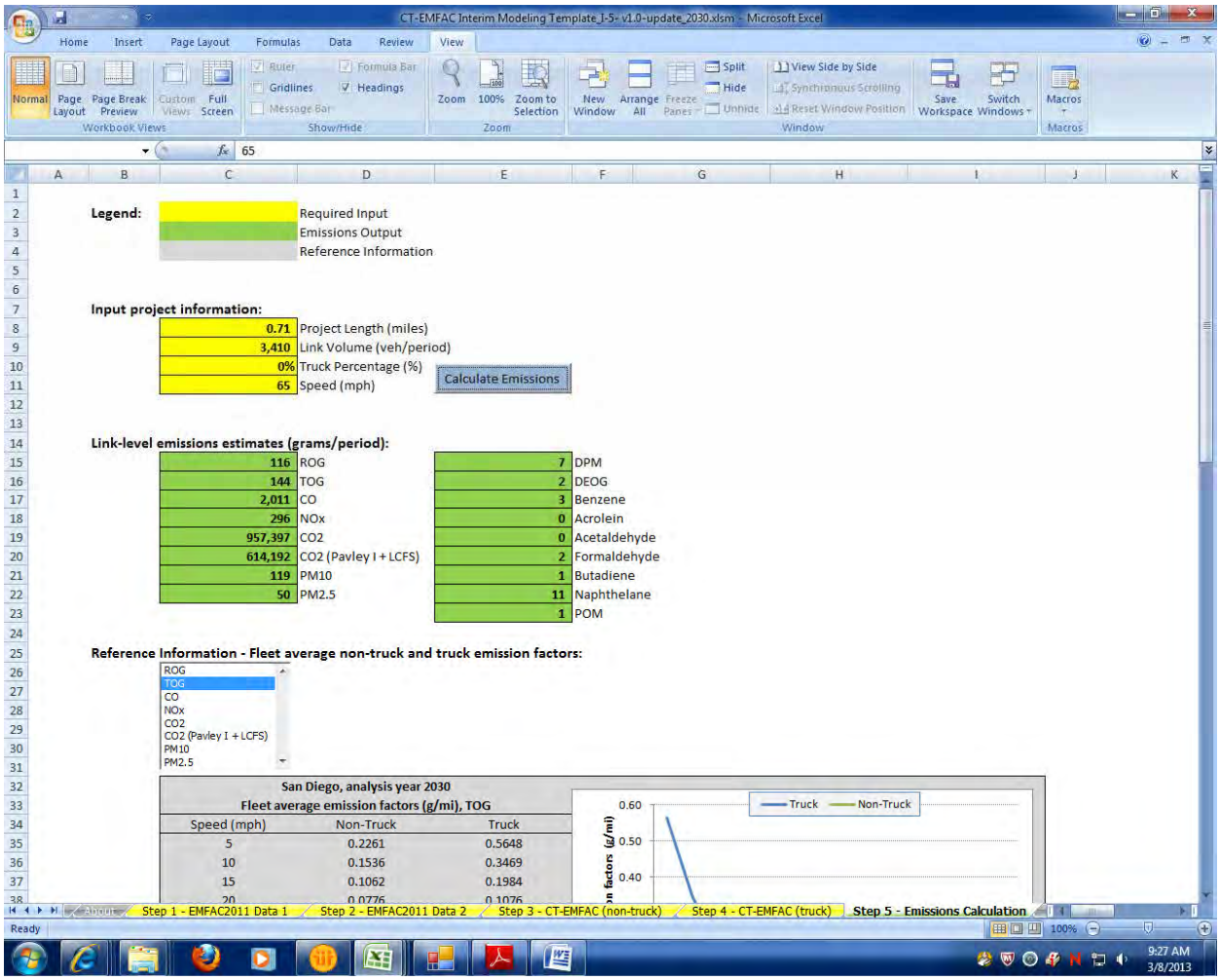
2030 8+4
Link: 3 (SB HOV)
Segment: 17
Peak



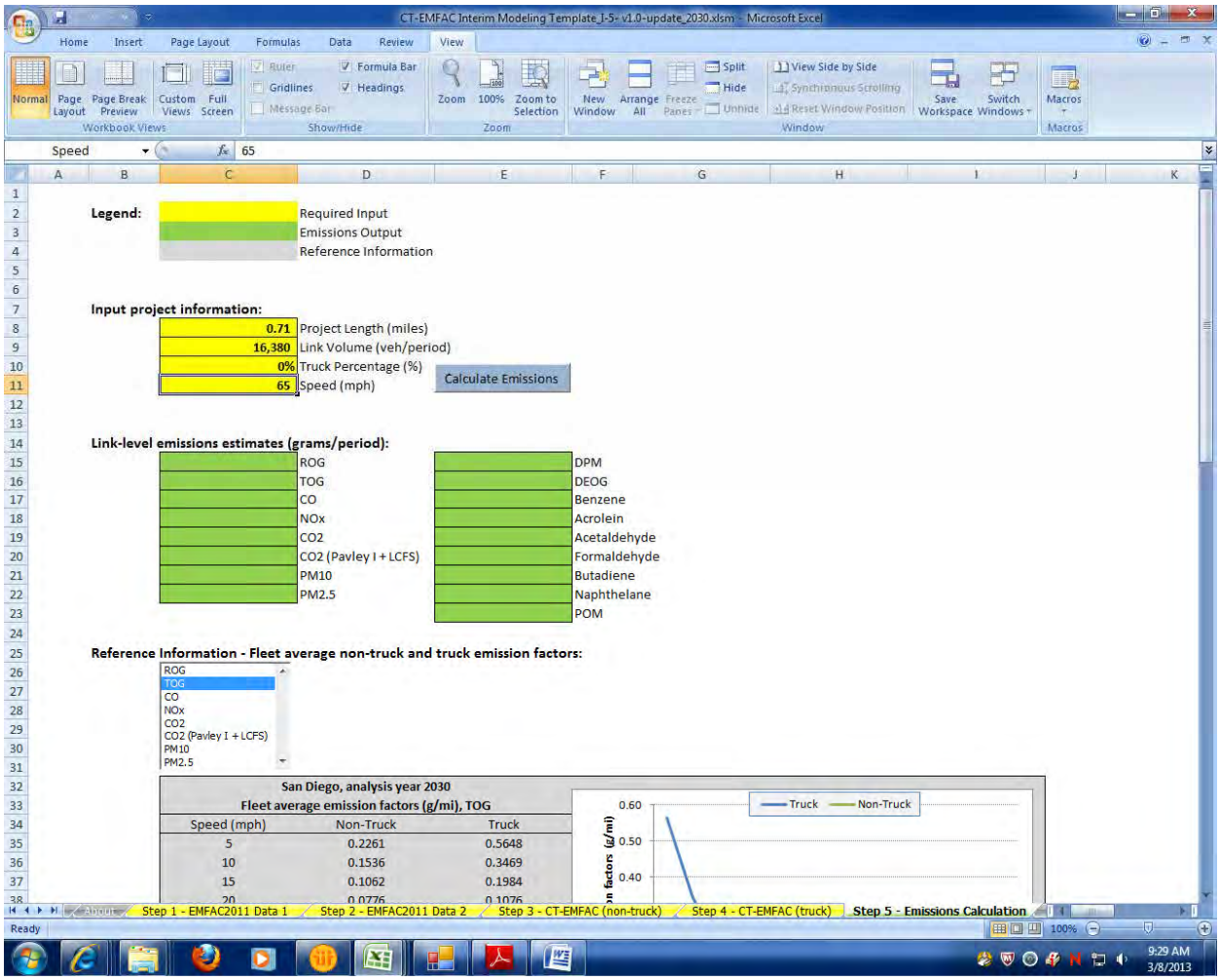
2030 8+4
Link: 3 (SB HOV)
Segment: 17
Off Peak



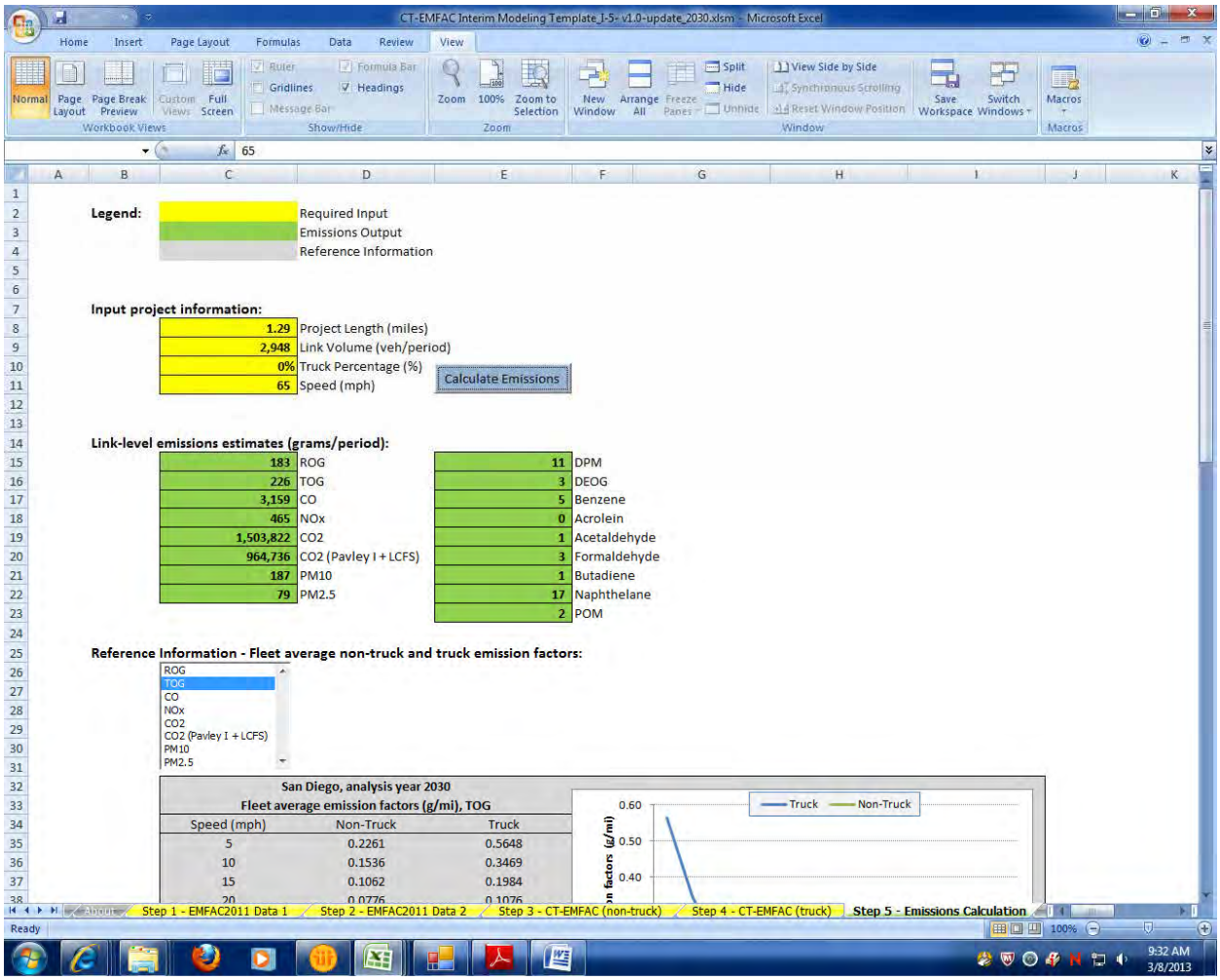
2030 8+4
Link: 3 (SB HOV)
Segment: 18
Peak



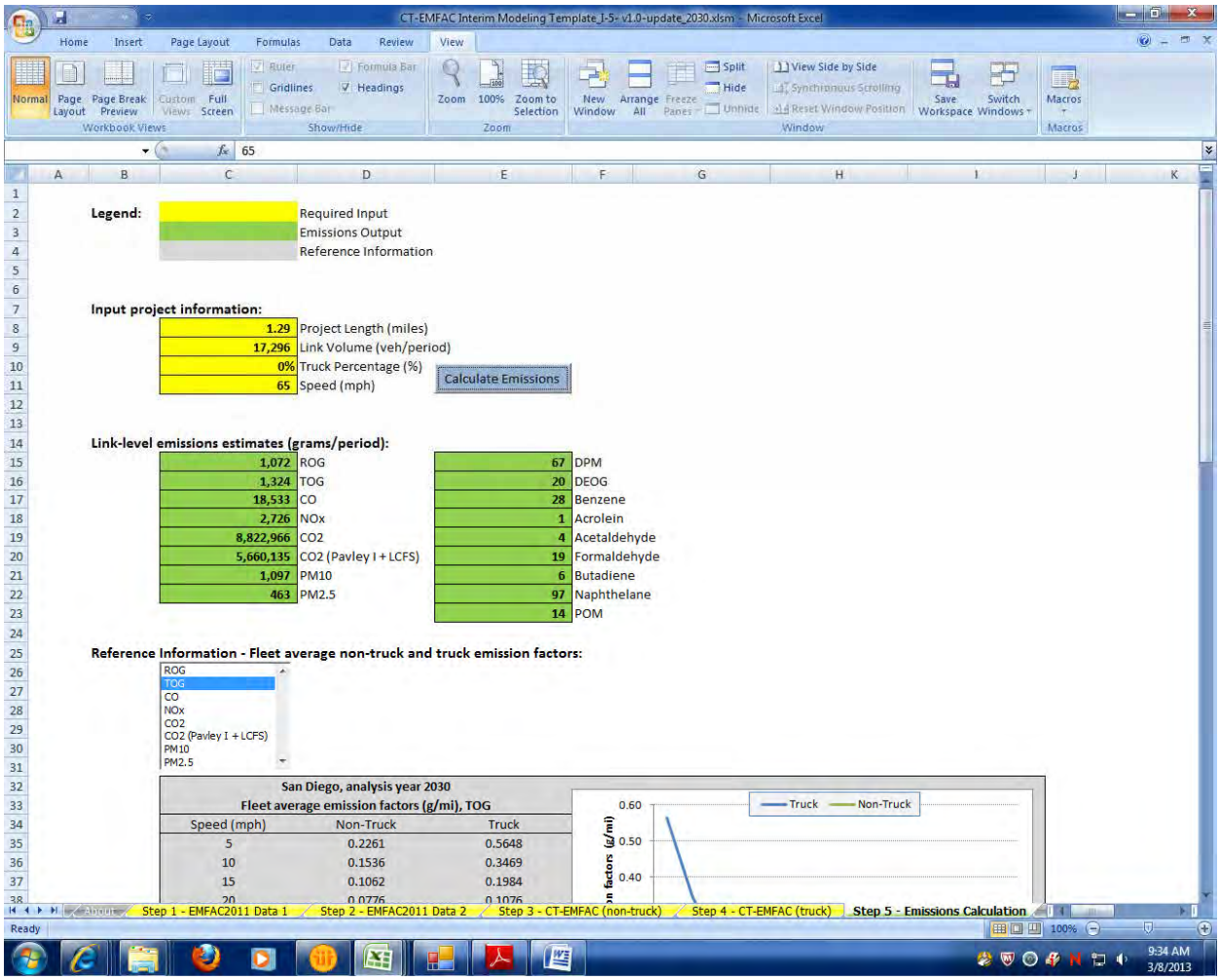
2030 8+4
Link: 3 (SB HOV)
Segment: 18
Off Peak



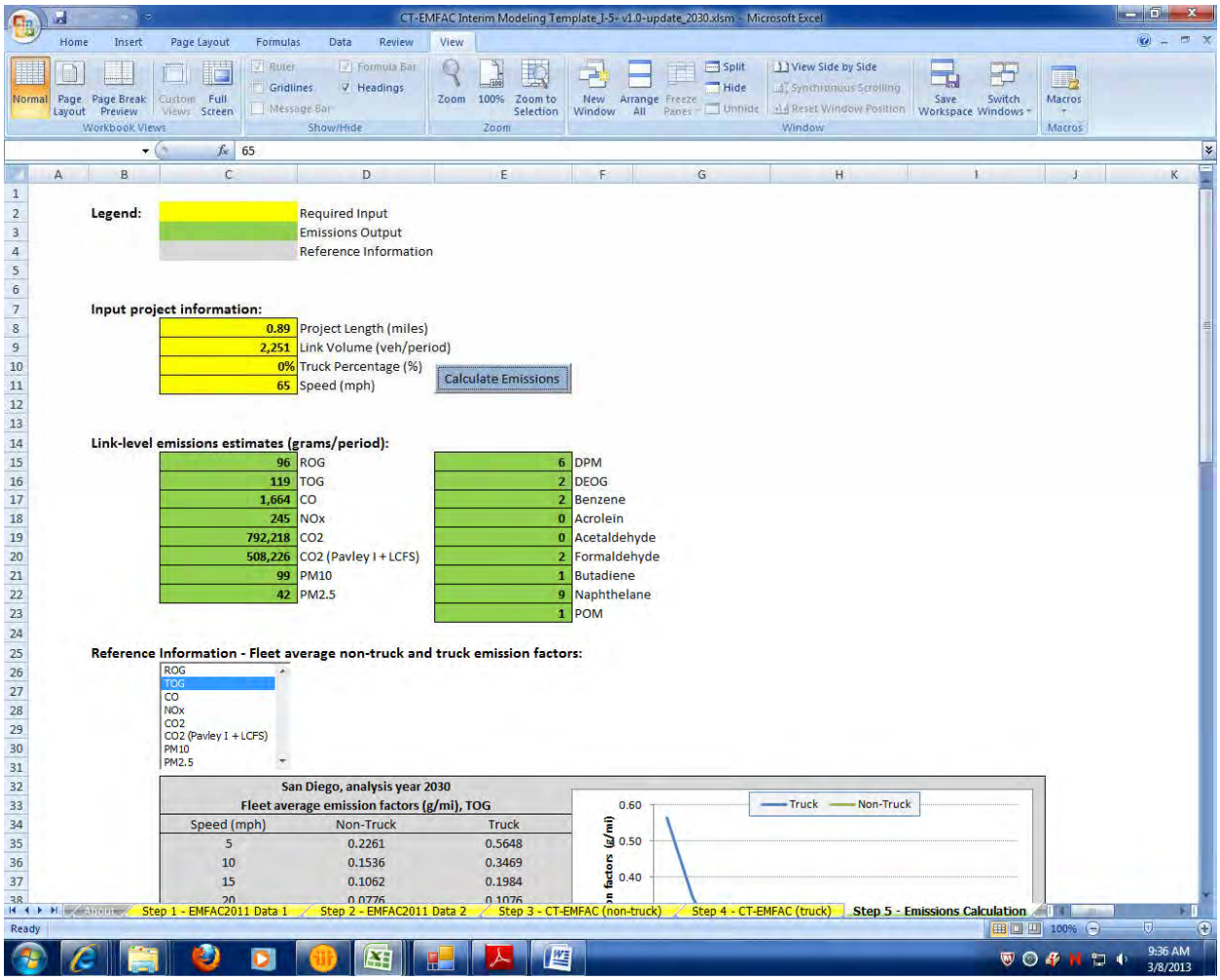
2030 8+4
Link: 3 (SB HOV)
Segment: 19
Peak



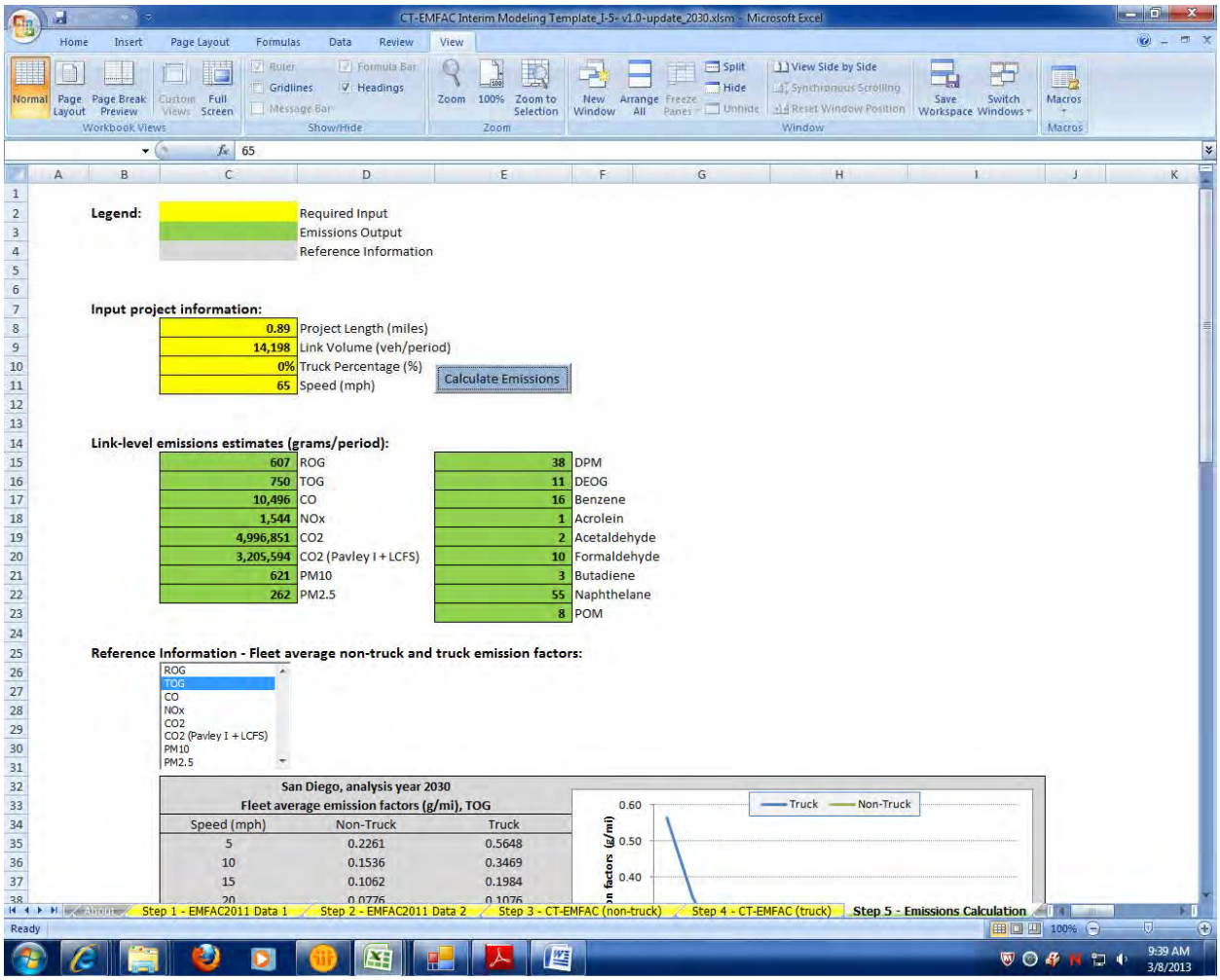
2030 8+4
Link: 3 (SB HOV)
Segment: 19
Off Peak



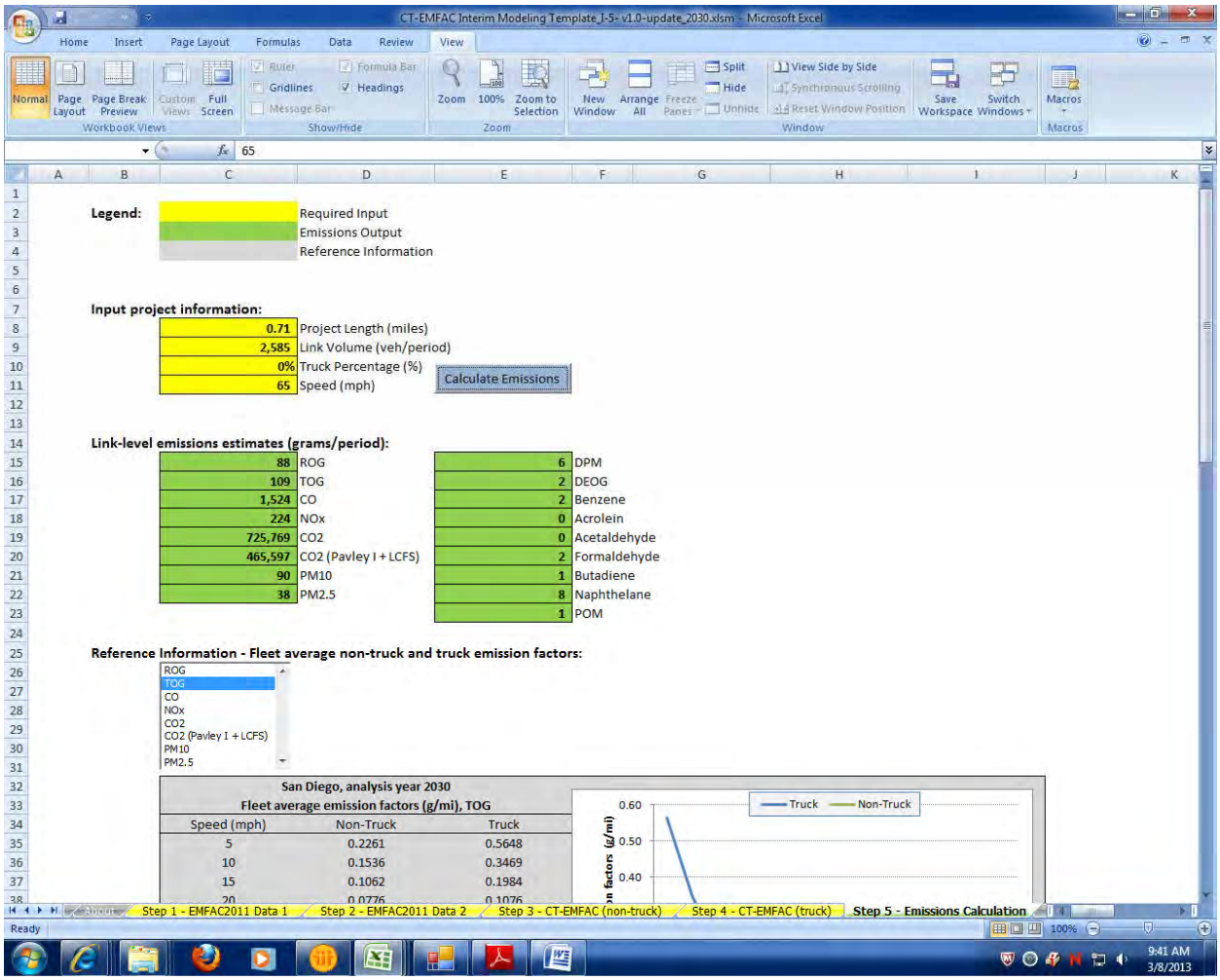
2030 8+4
Link: 3 (SB HOV)
Segment: 20
Peak



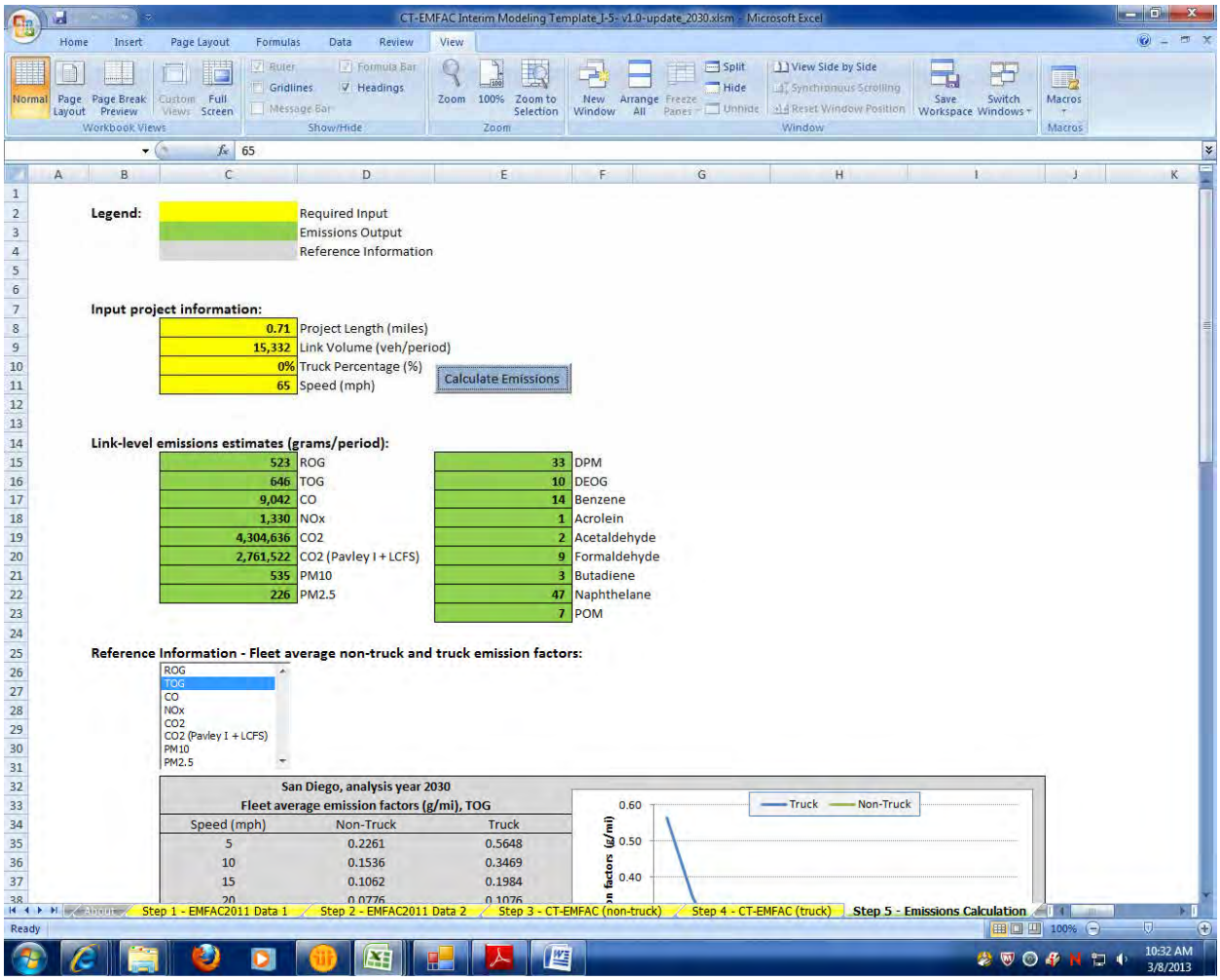
2030 8+4
Link: 3 (SB HOV)
Segment: 20
Off Peak



2030 8+4
Link: 3 (SB HOV)
Segment: 21
Peak



2030 8+4
Link: 3 (SB HOV)
Segment: 21
Off Peak



CT-EMFAC Interim Modeling Template_J-5- v1.0-update_2030.xlsm - Microsoft Excel

65

Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.71	Project Length (miles)
15,332	Link Volume (veh/period)
0%	Truck Percentage (%)
65	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

523	ROG	33	DPM
646	TOG	10	DEOG
9,042	CO	14	Benzene
1,330	NOx	1	Acrolein
4,304,636	CO2	2	Acetaldehyde
2,761,522	CO2 (Pavley I + LCFS)	9	Formaldehyde
535	PM10	3	Butadiene
226	PM2.5	47	Naphthelane
		7	POM

Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

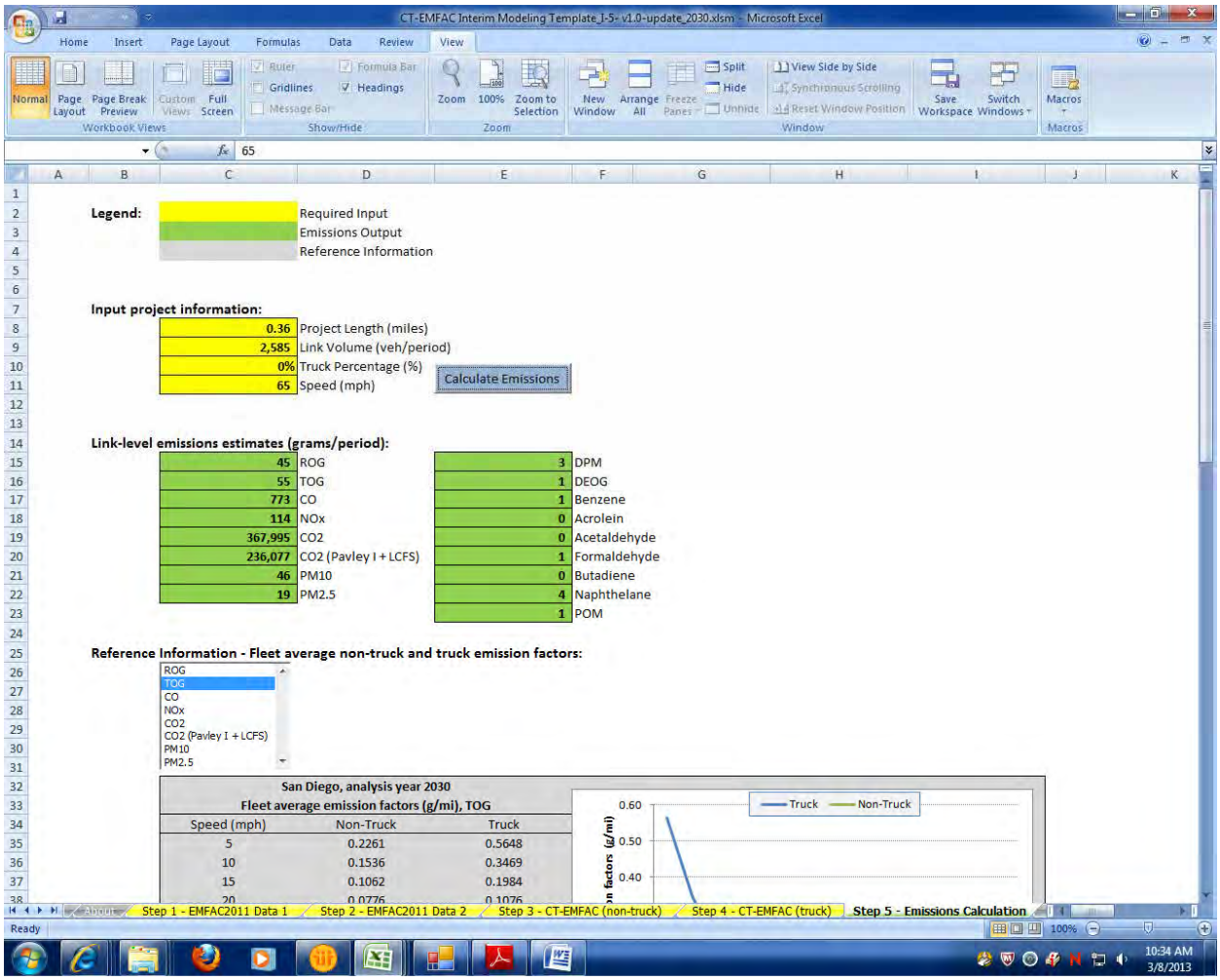
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

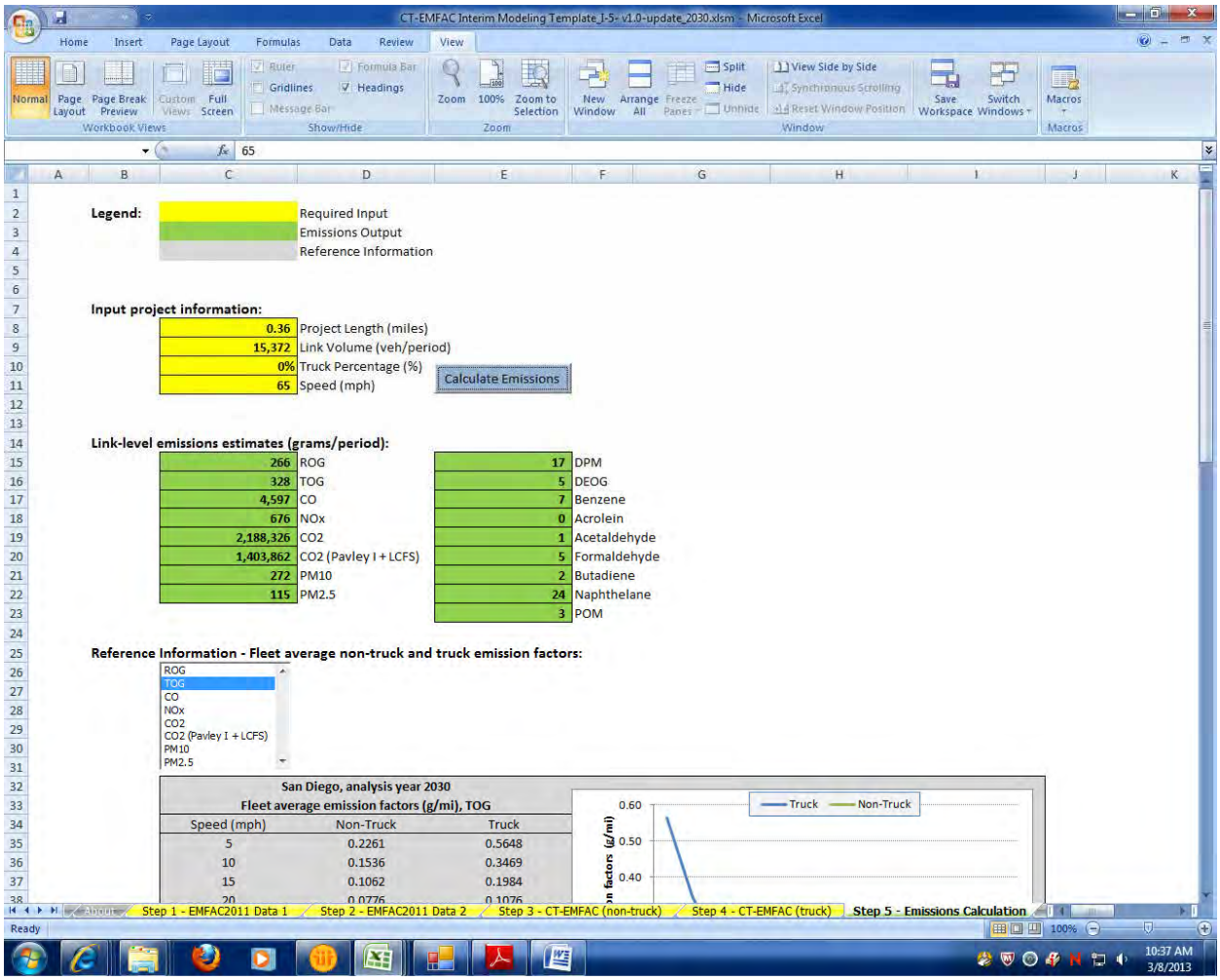
Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

Ready

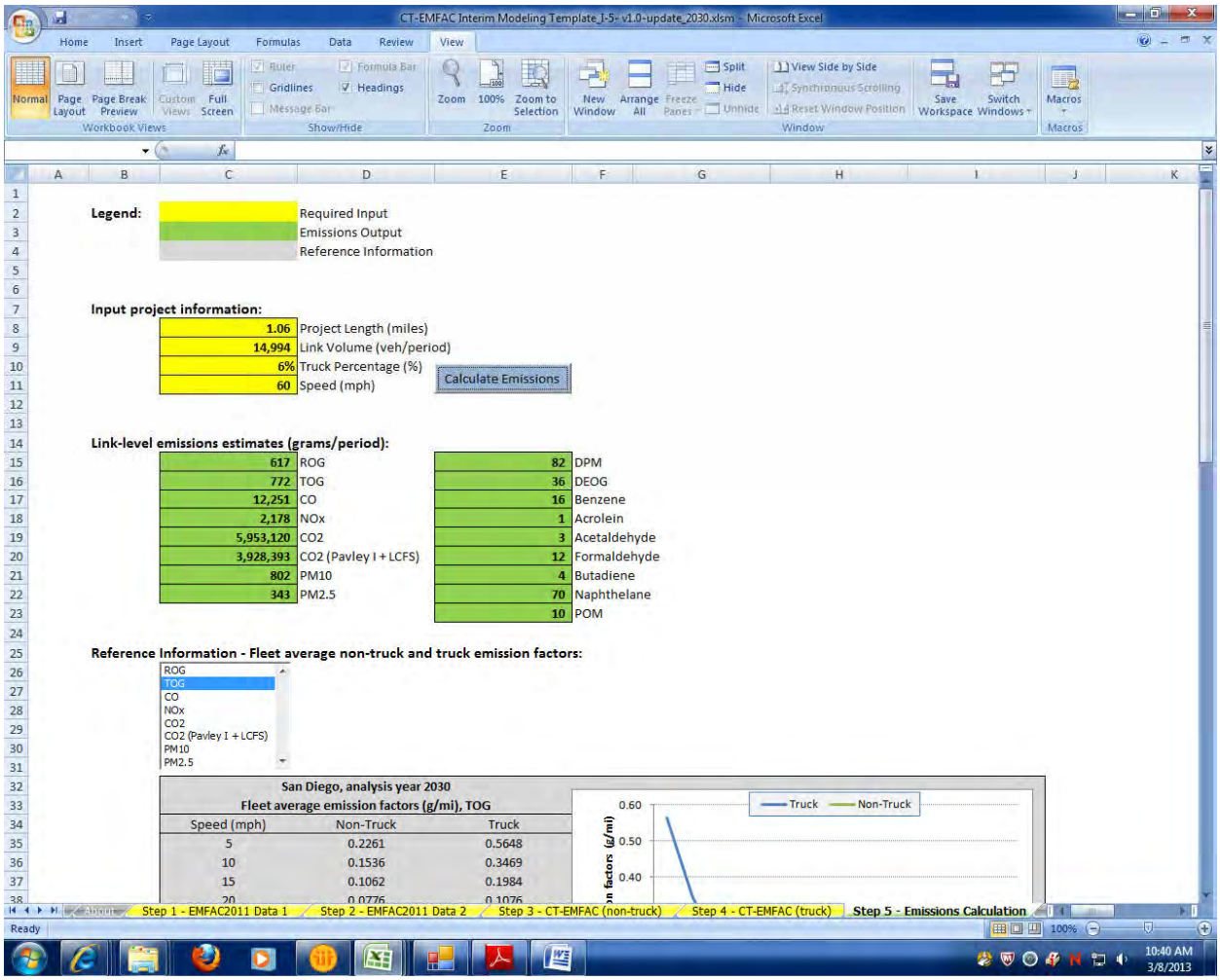
2030 8+4
Link: 3 (SB HOV)
Segment: 22
Peak



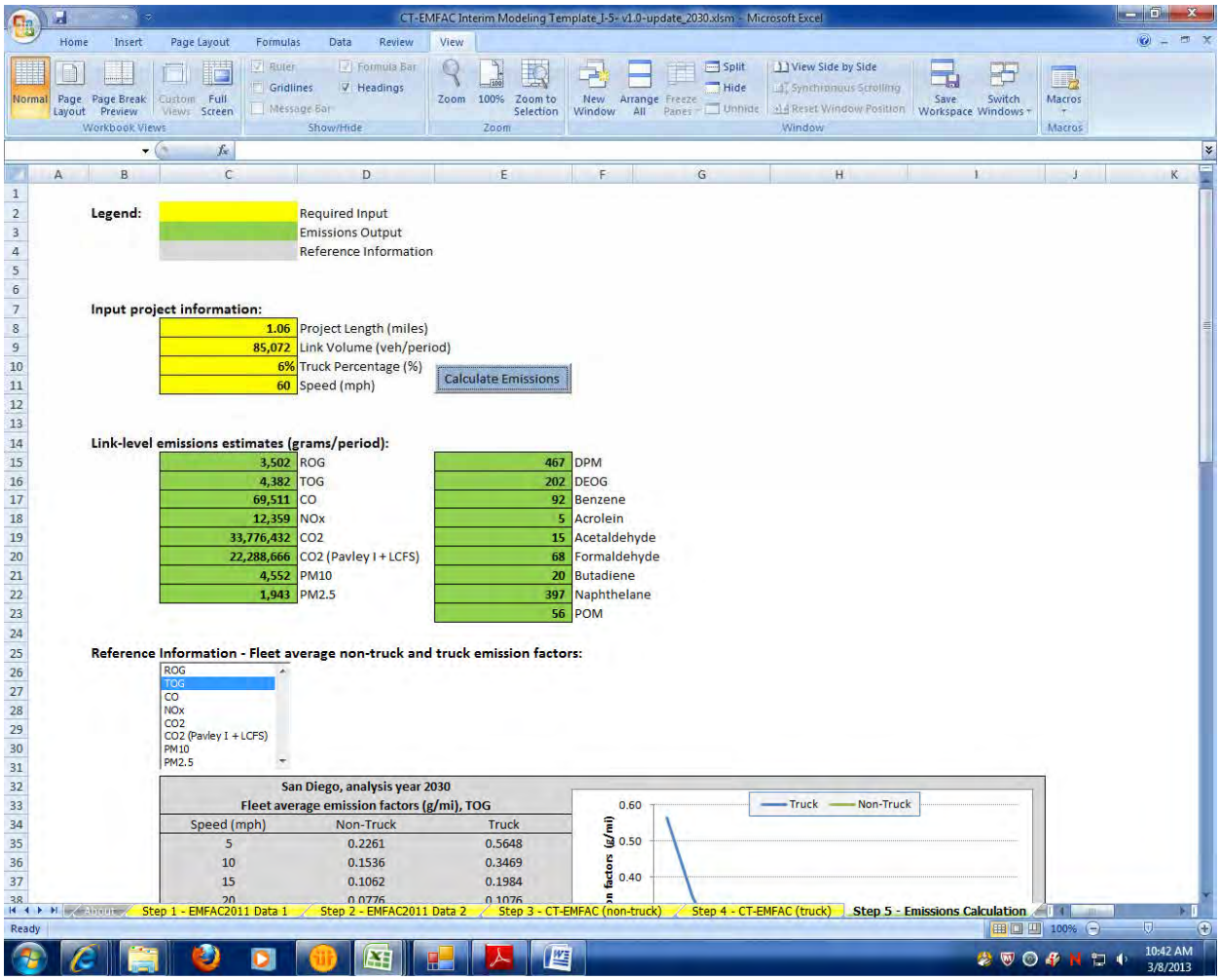
2030 8+4
Link: 3 (SB HOV)
Segment: 22
Off Peak



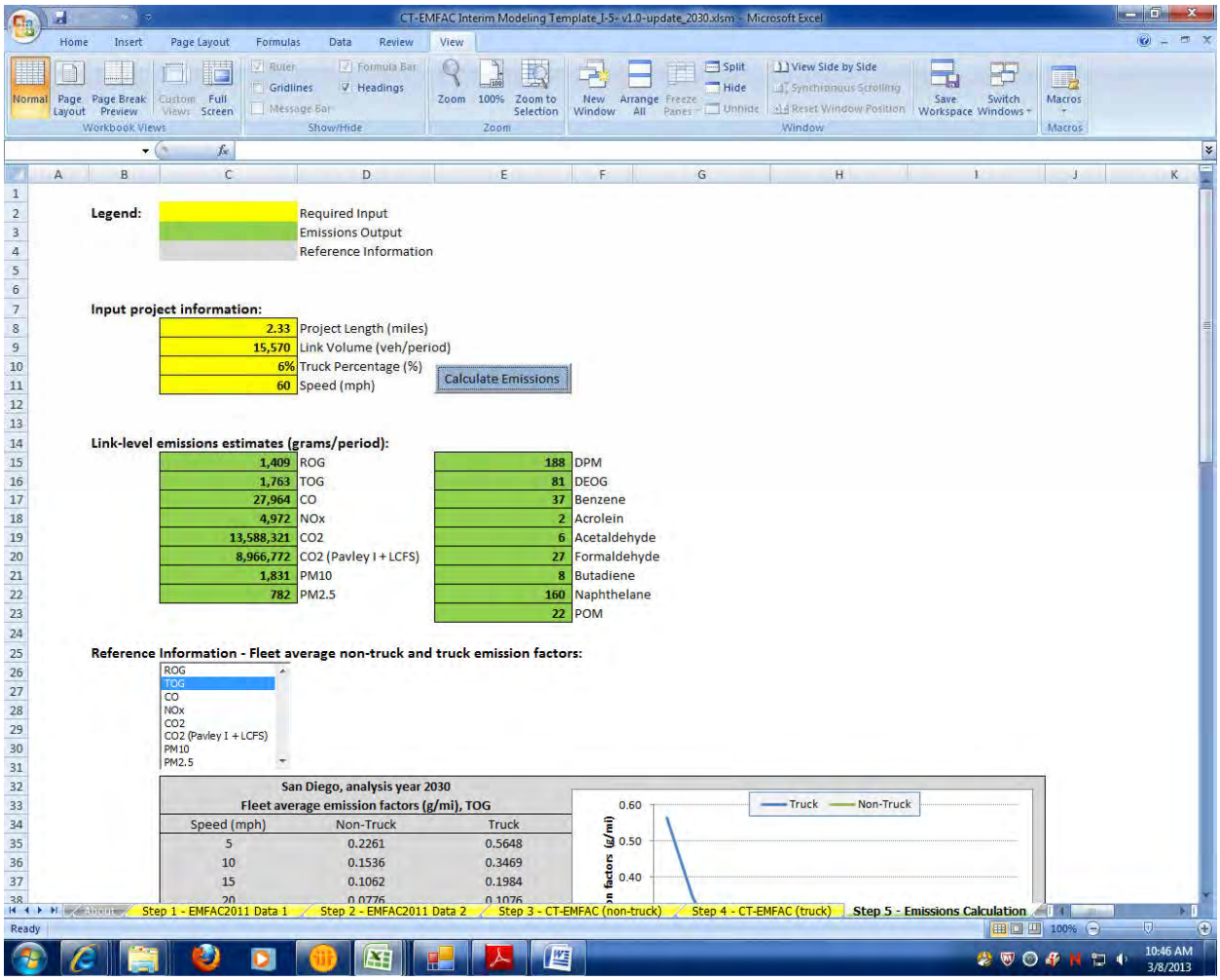
2030 8+4
Link: 4 (SB GP)
Segment: 1
Peak



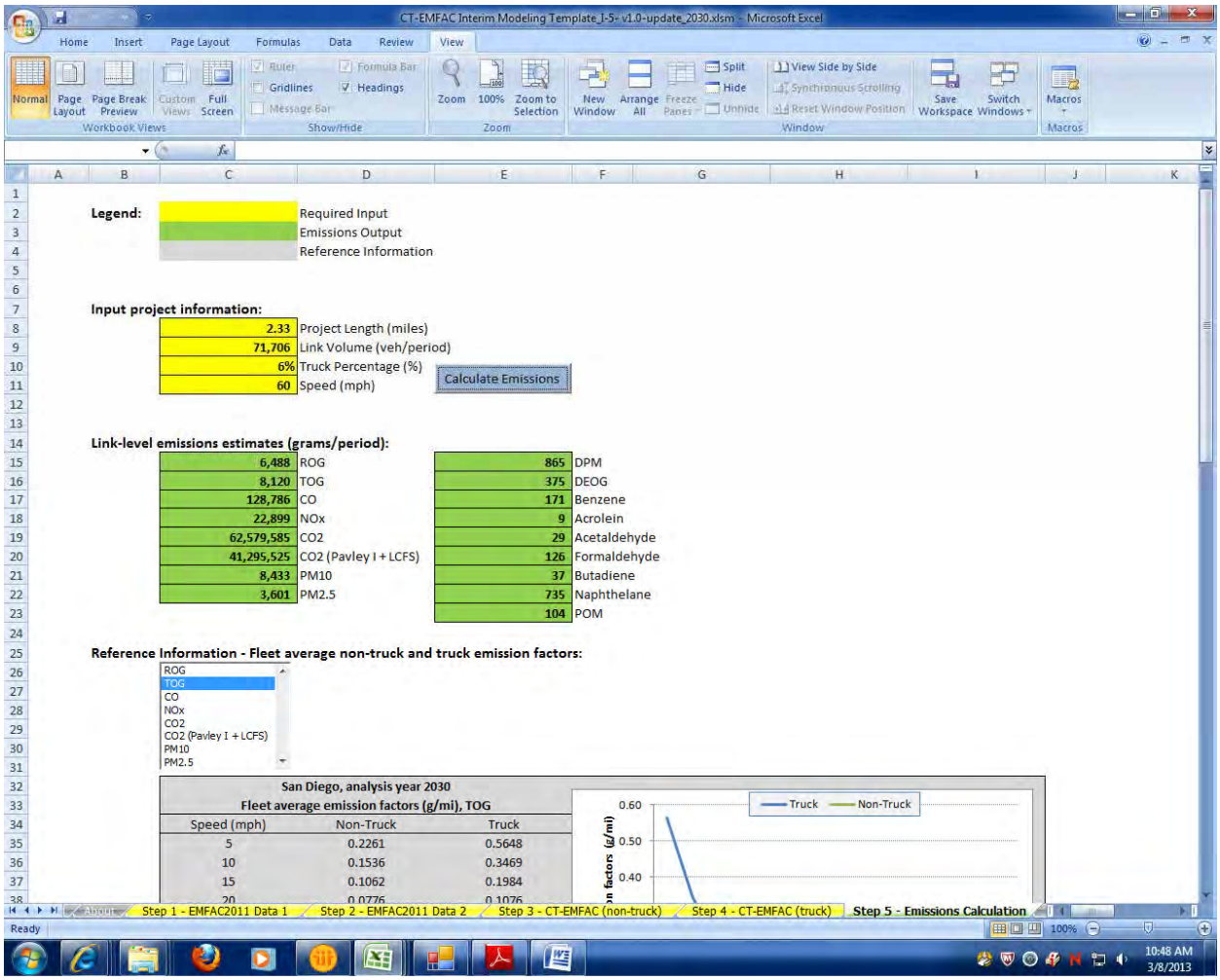
2030 8+4
Link: 4 (SB GP)
Segment: 1
Off Peak



2030 8+4
Link: 4 (SB GP)
Segment: 2
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 2
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

2.33	Project Length (miles)
71,706	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

6,488	ROG	865	DPM
8,120	TOG	375	DEOG
128,786	CO	171	Benzene
22,899	NOx	9	Acrolein
62,579,585	CO2	29	Acetaldehyde
41,295,525	CO2 (Pavley I + LCFS)	126	Formaldehyde
8,433	PM10	37	Butadiene
3,601	PM2.5	735	Naphthelane
		104	POM

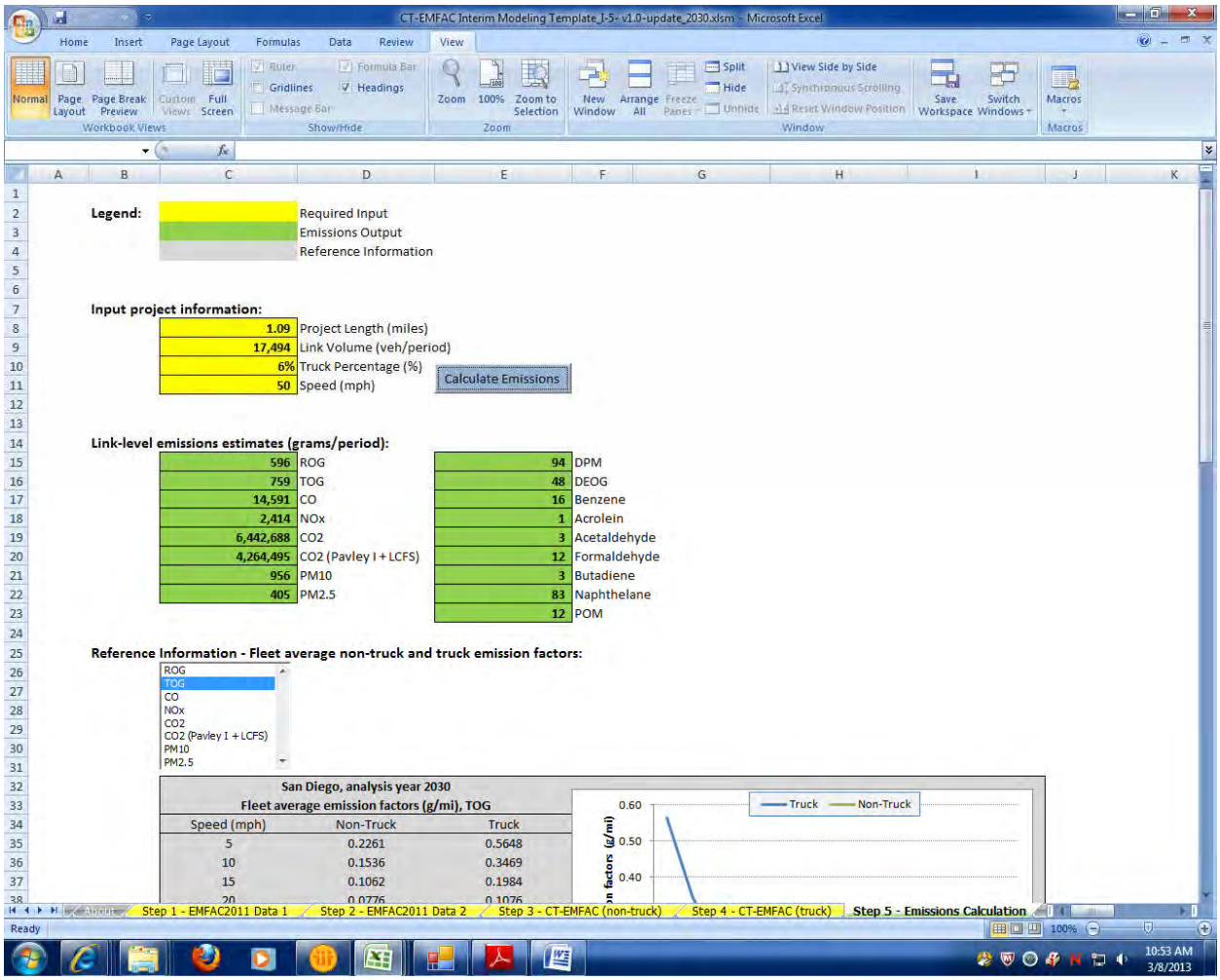
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 4 (SB GP)
Segment: 3
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.09	Project Length (miles)
17,494	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

596	ROG	94	DPM
759	TOG	48	DEOG
14,591	CO	16	Benzene
2,414	NOx	1	Acrolein
6,442,688	CO2	3	Acetaldehyde
4,264,495	CO2 (Pavley I + LCFS)	12	Formaldehyde
956	PM10	3	Butadiene
405	PM2.5	83	Naphthelane
		12	POM

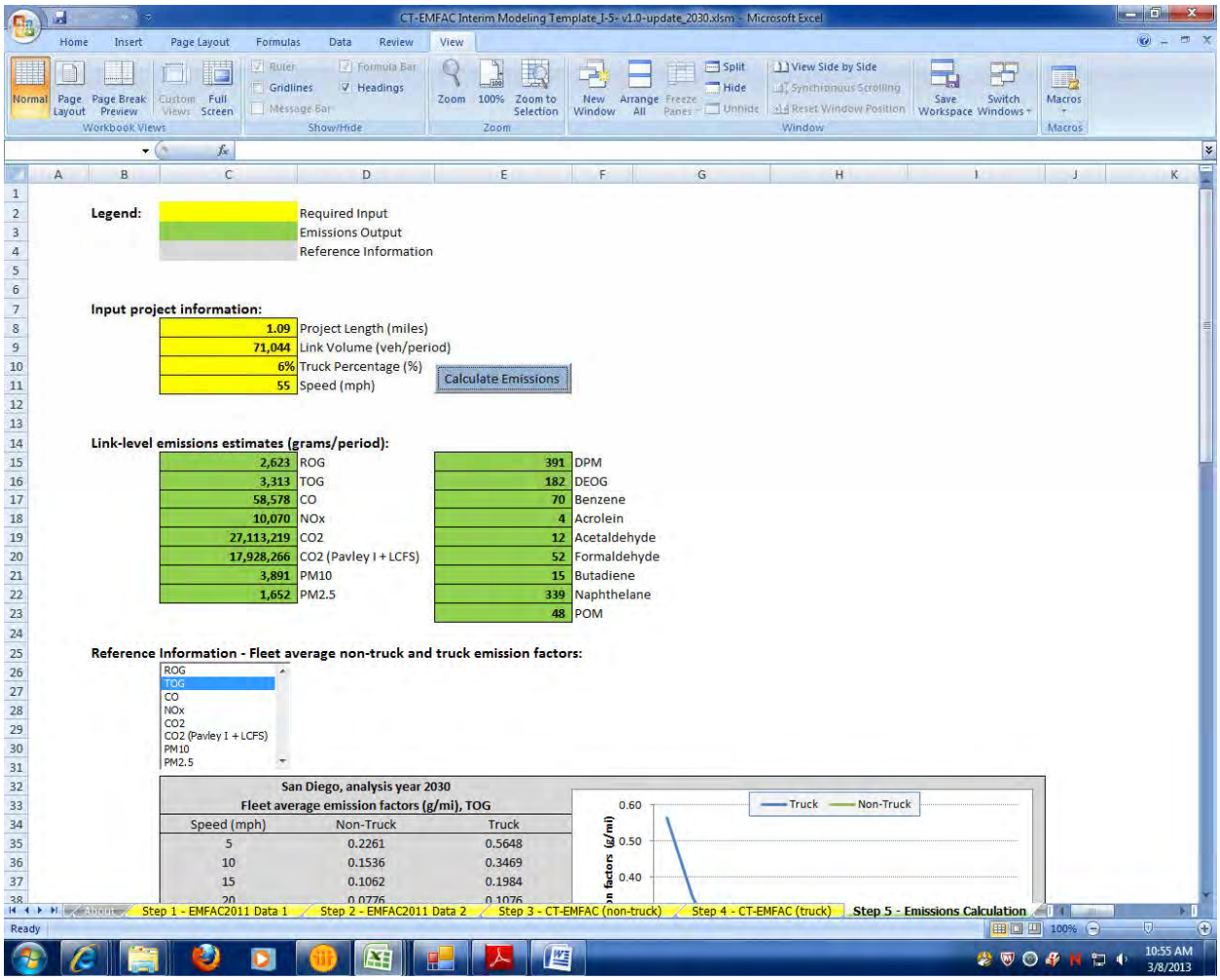
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

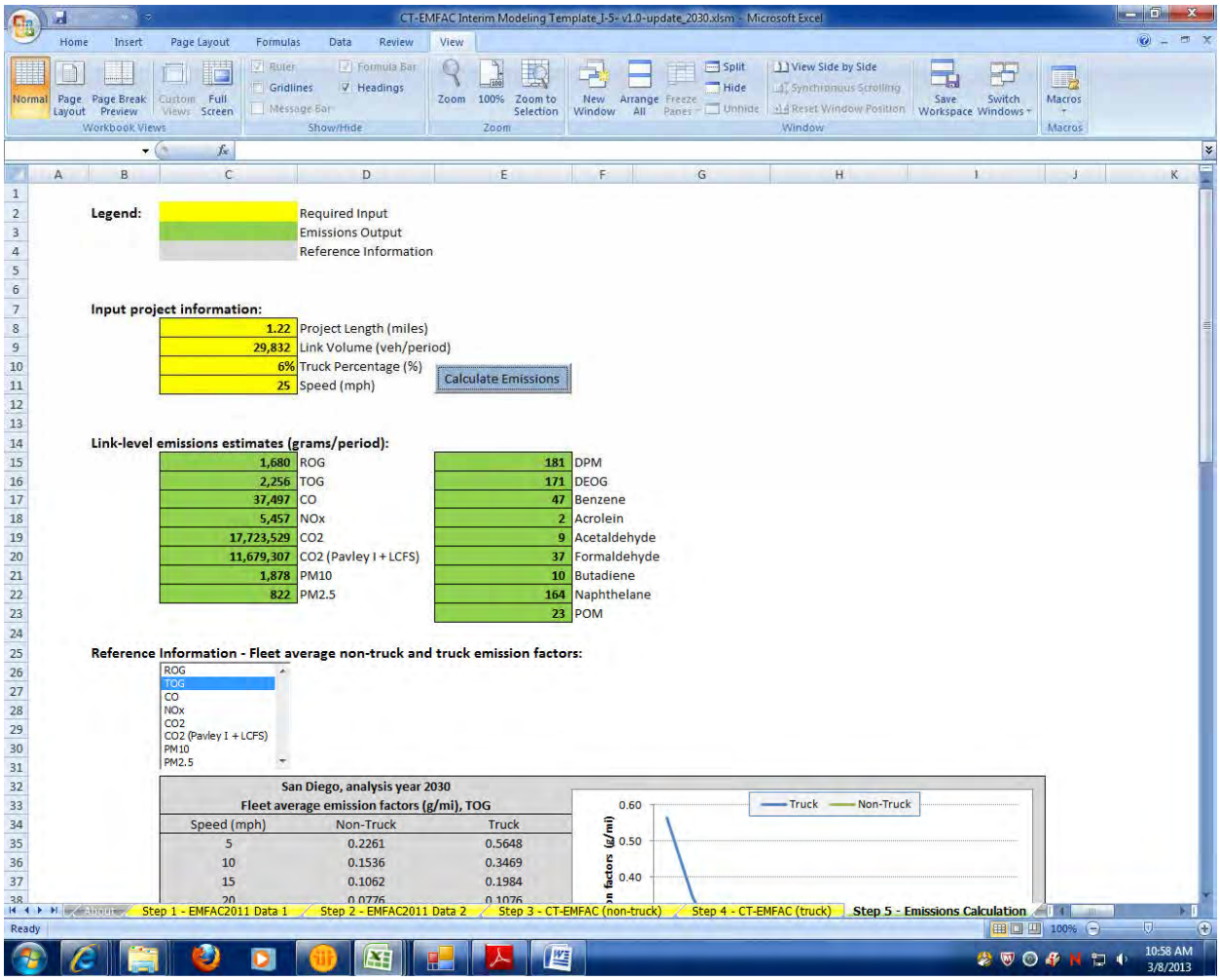
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

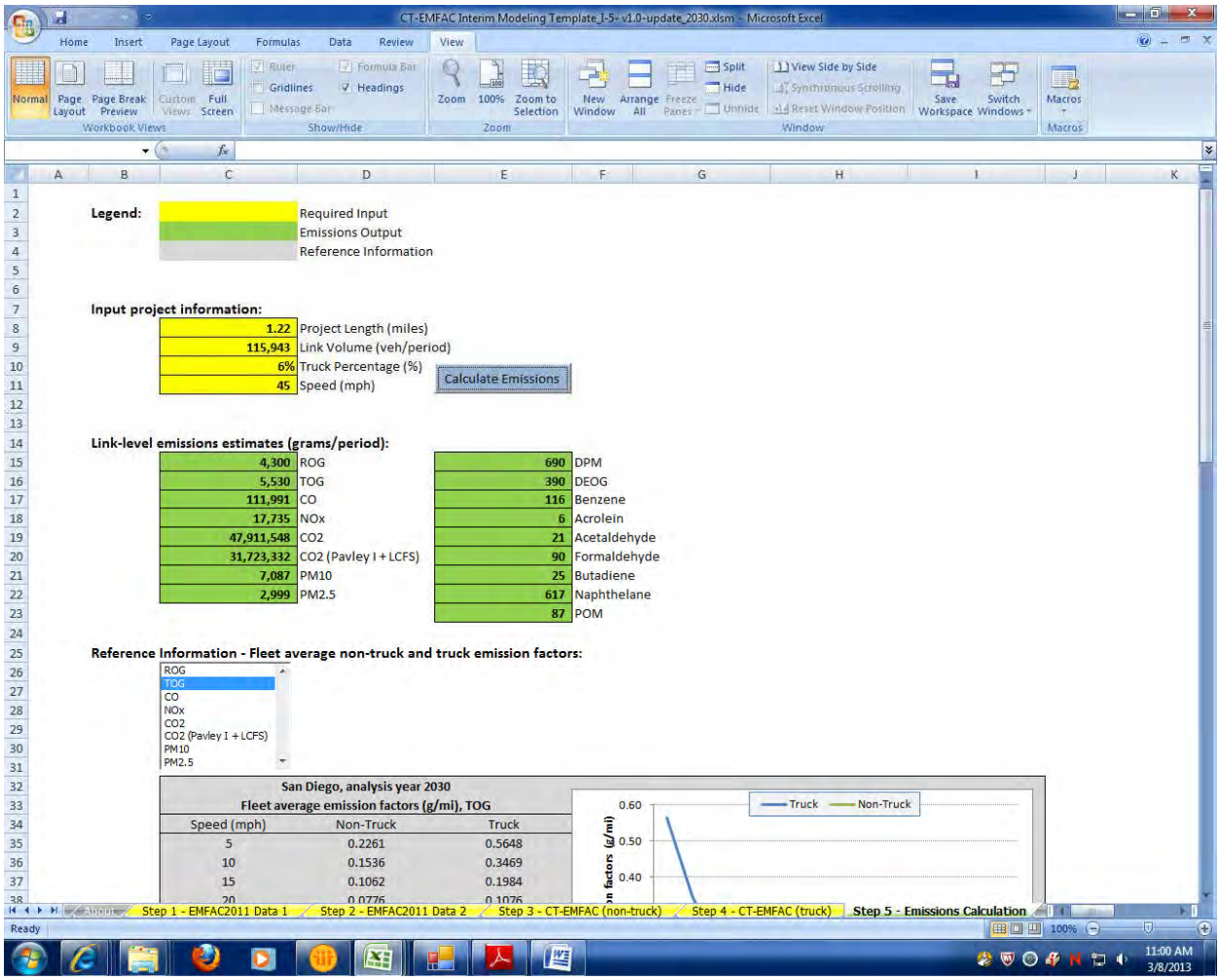
2030 8+4
Link: 4 (SB GP)
Segment: 3
Off Peak



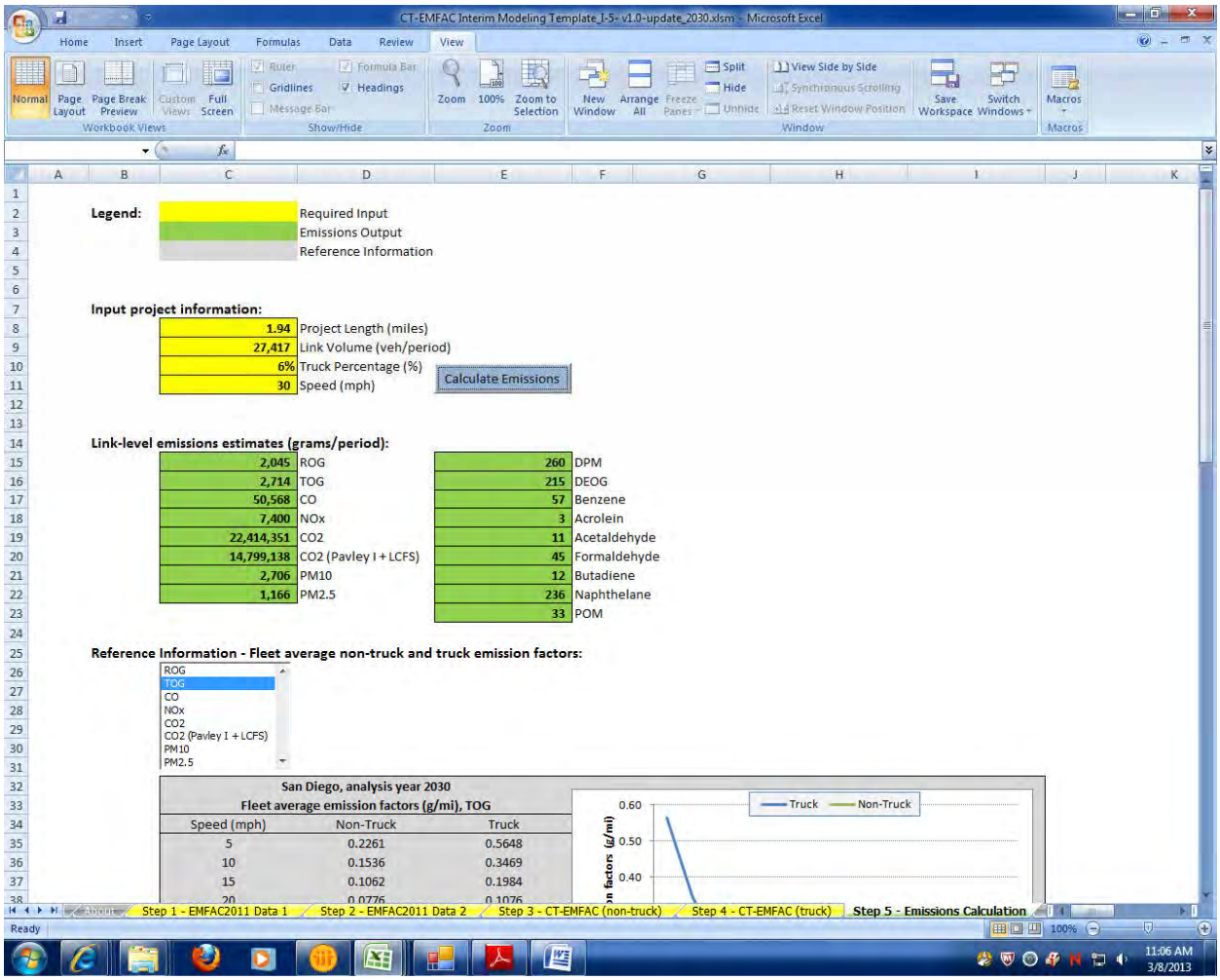
2030 8+4
Link: 4 (SB GP)
Segment: 4
Peak



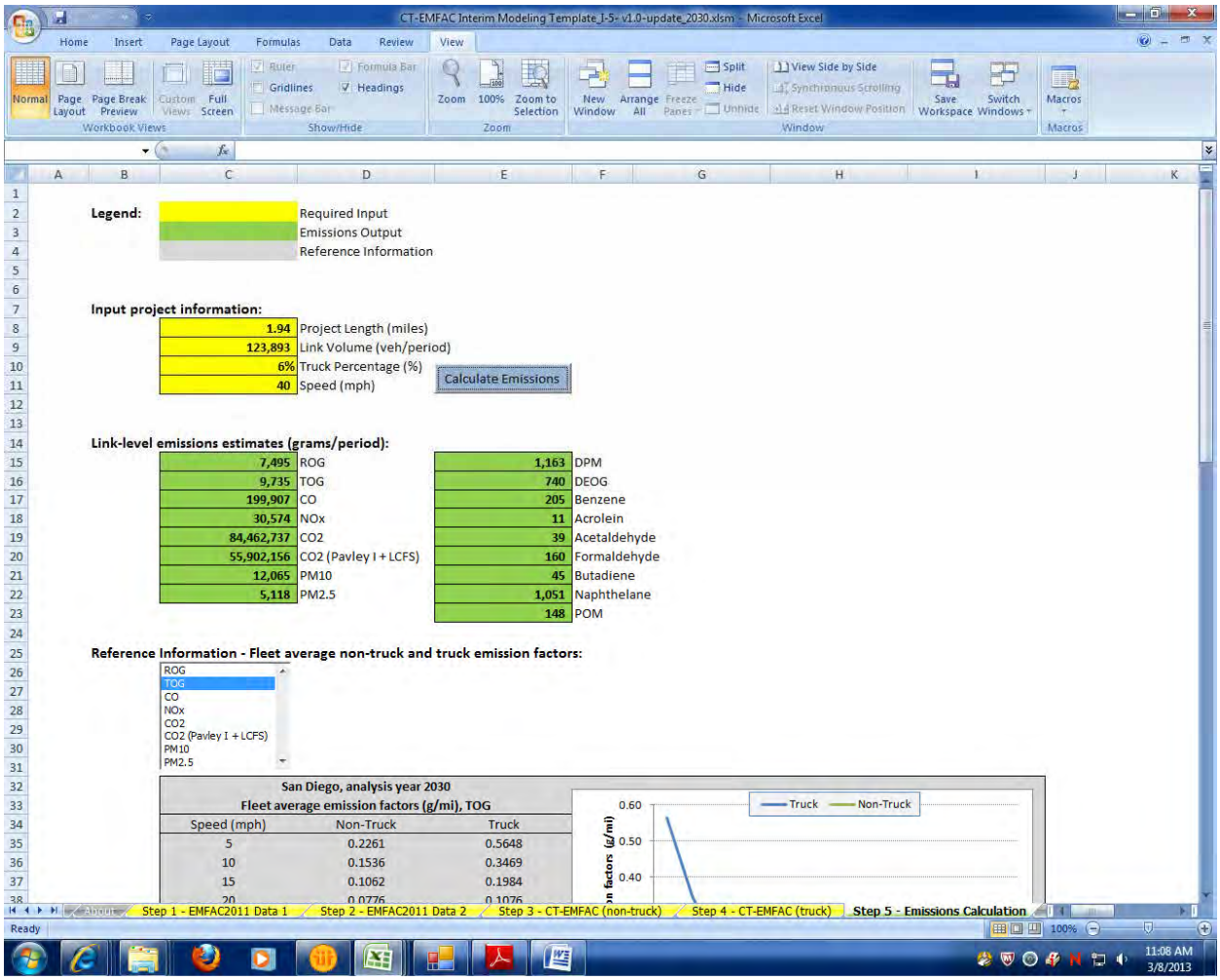
2030 8+4
Link: 4 (SB GP)
Segment: 4
Off Peak



2030 8+4
Link: 4 (SB GP)
Segment: 5
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 5
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.94	Project Length (miles)
123,893	Link Volume (veh/period)
6%	Truck Percentage (%)
40	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

7,495	ROG	1,163	DPM
9,735	TOG	740	DEOG
199,907	CO	205	Benzene
30,574	NOx	11	Acrolein
84,462,737	CO2	39	Acetaldehyde
55,902,156	CO2 (Pavley I + LCFS)	160	Formaldehyde
12,065	PM10	45	Butadiene
5,118	PM2.5	1,051	Naphthelane
		148	POM

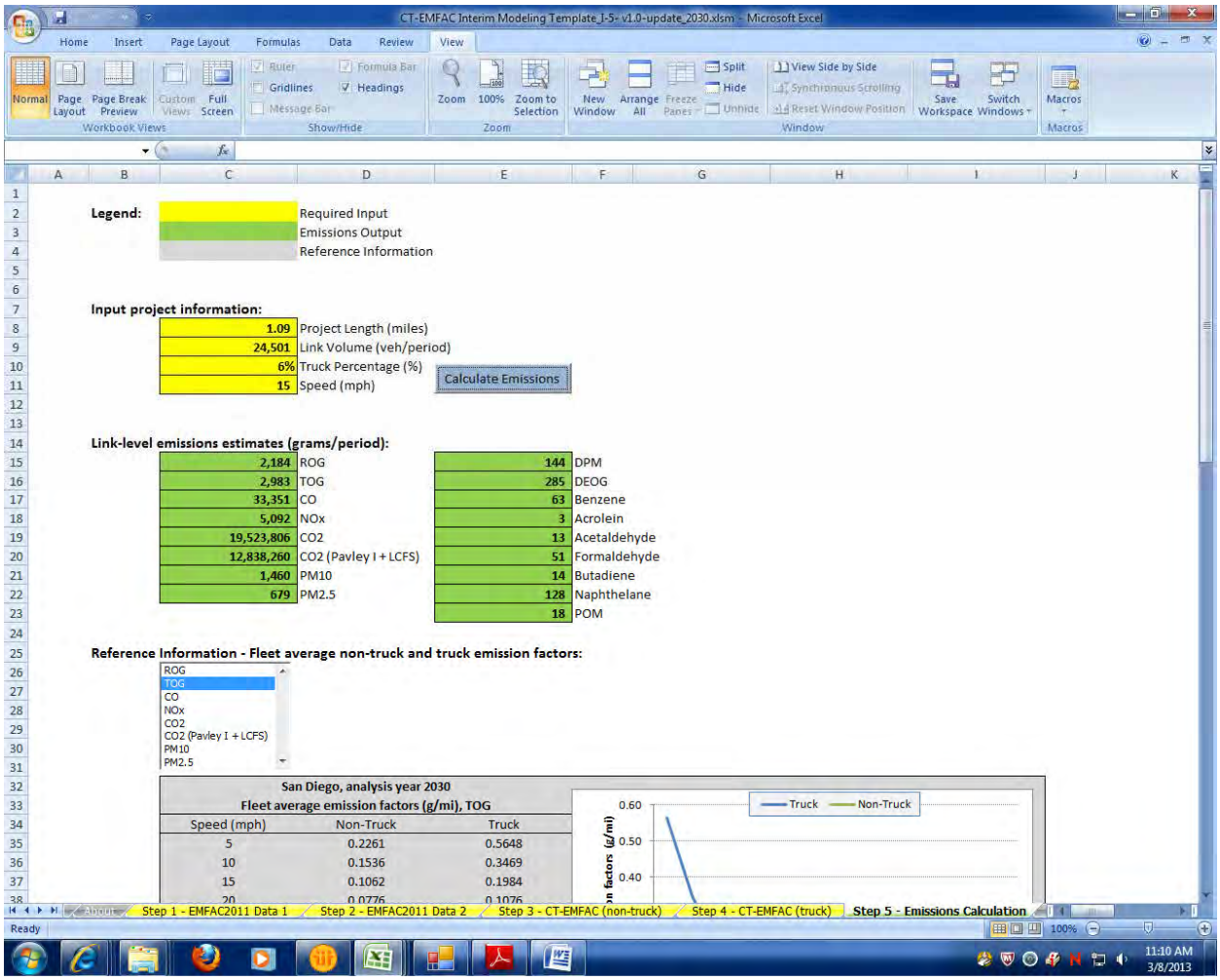
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

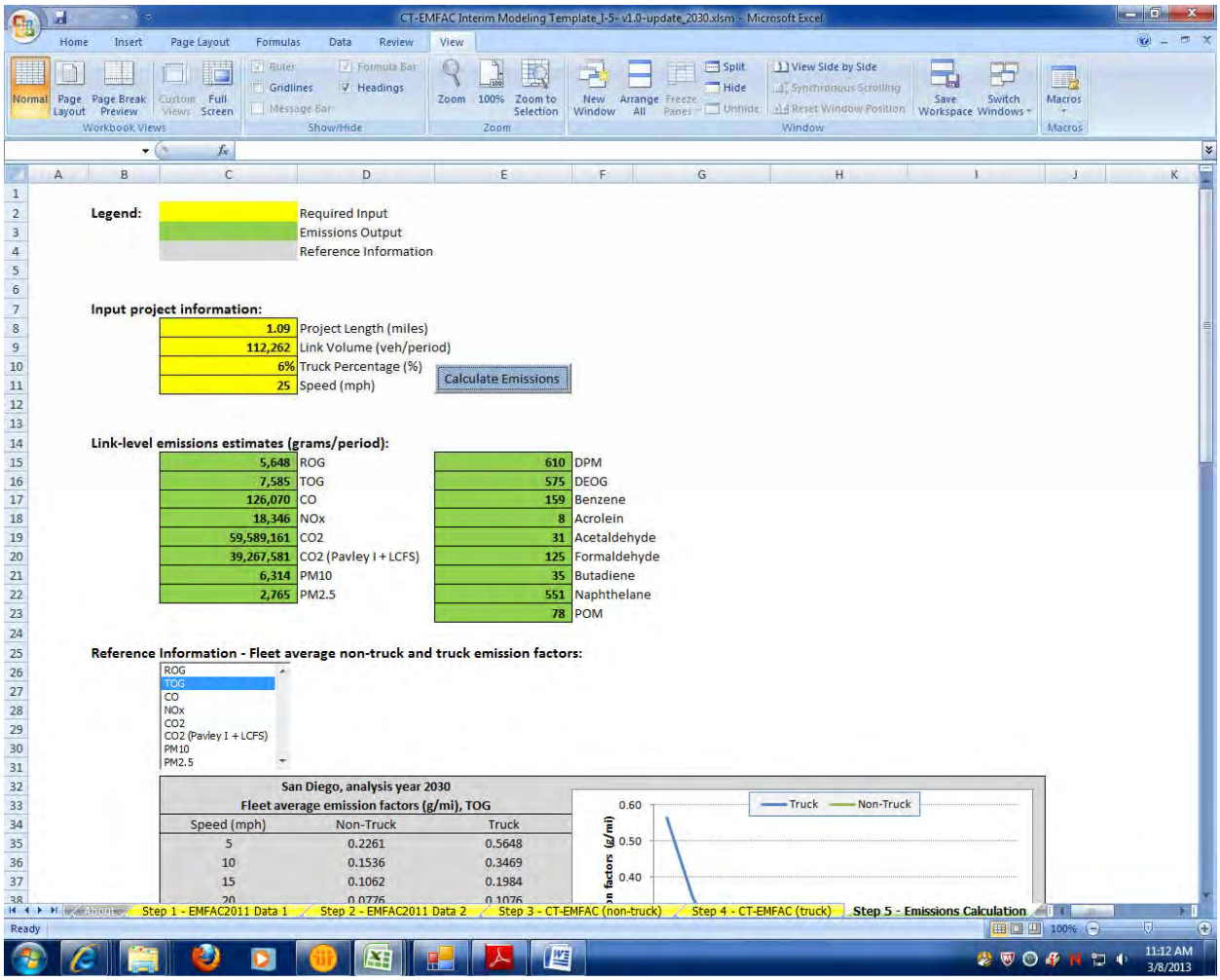
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

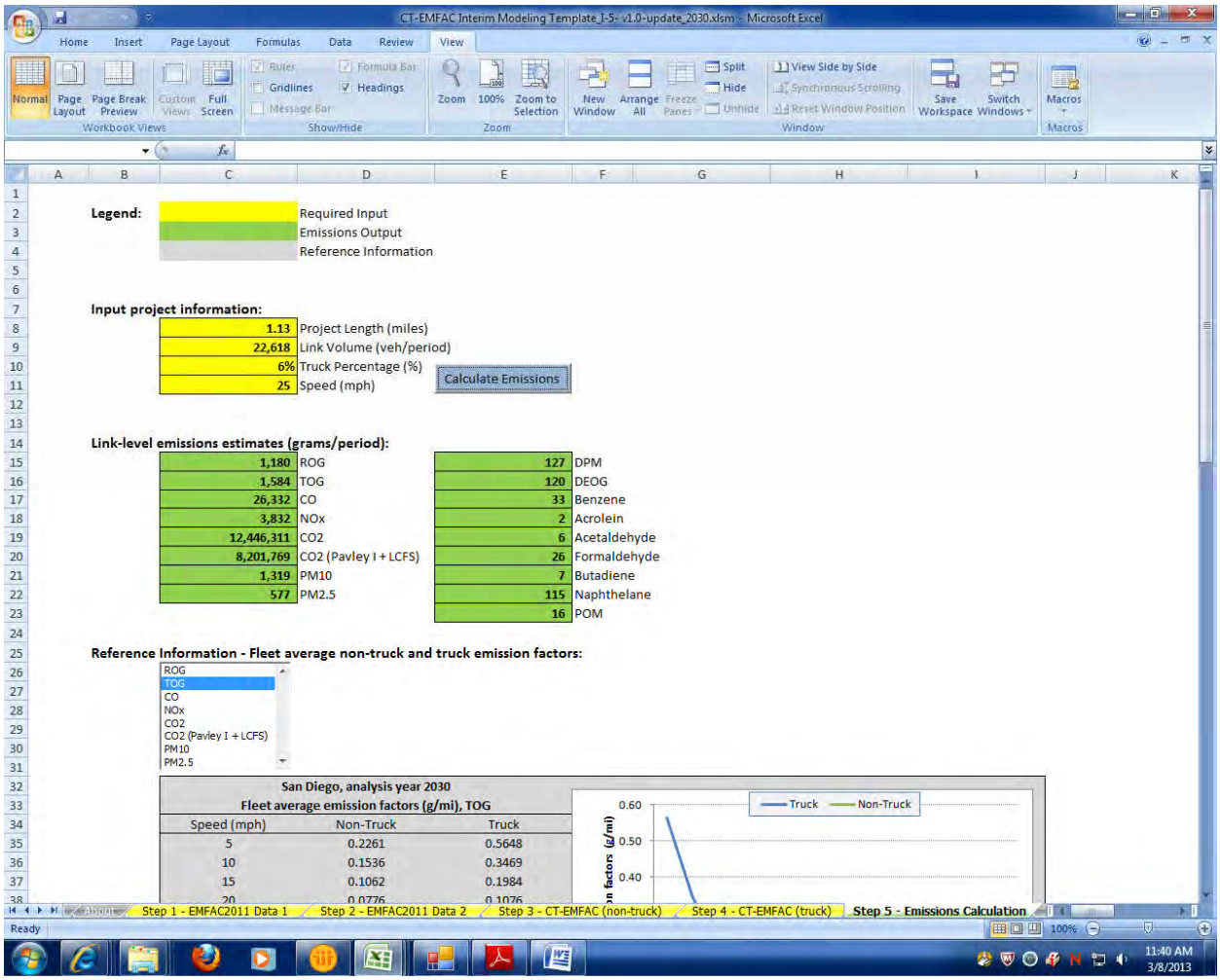
2030 8+4
Link: 4 (SB GP)
Segment: 6
Peak



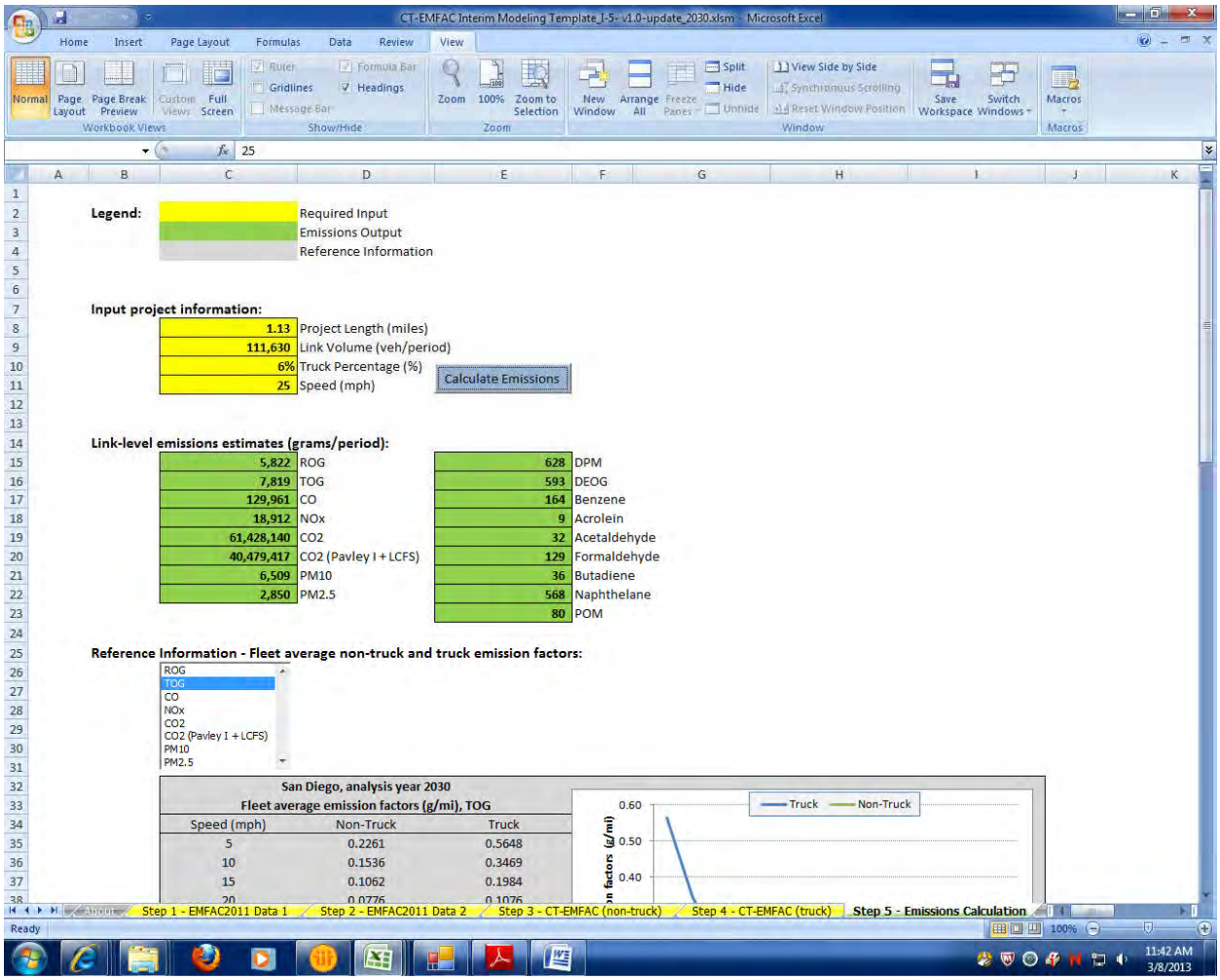
2030 8+4
Link: 4 (SB GP)
Segment: 6
Off Peak



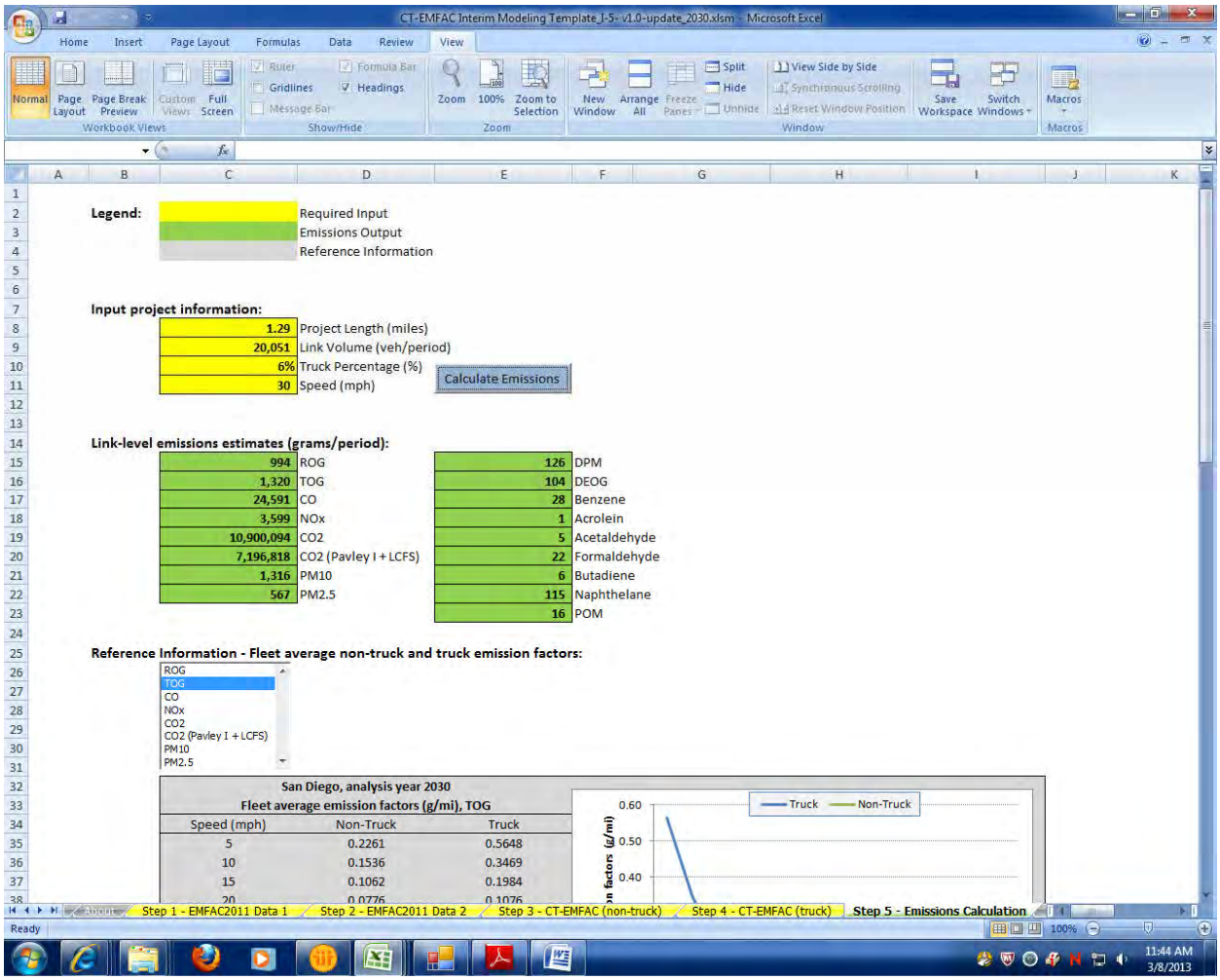
2030 8+4
Link: 4 (SB GP)
Segment: 7
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 7
Off Peak



2030 8+4
Link: 4 (SB GP)
Segment: 8
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.29	Project Length (miles)
20,051	Link Volume (veh/period)
6%	Truck Percentage (%)
30	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

994	ROG	126	DPM
1,320	TOG	104	DEOG
24,591	CO	28	Benzene
3,599	NOx	1	Acrolein
10,900,094	CO2	5	Acetaldehyde
7,196,818	CO2 (Pavley I + LCFS)	22	Formaldehyde
1,316	PM10	6	Butadiene
567	PM2.5	115	Naphthelane
		16	POM

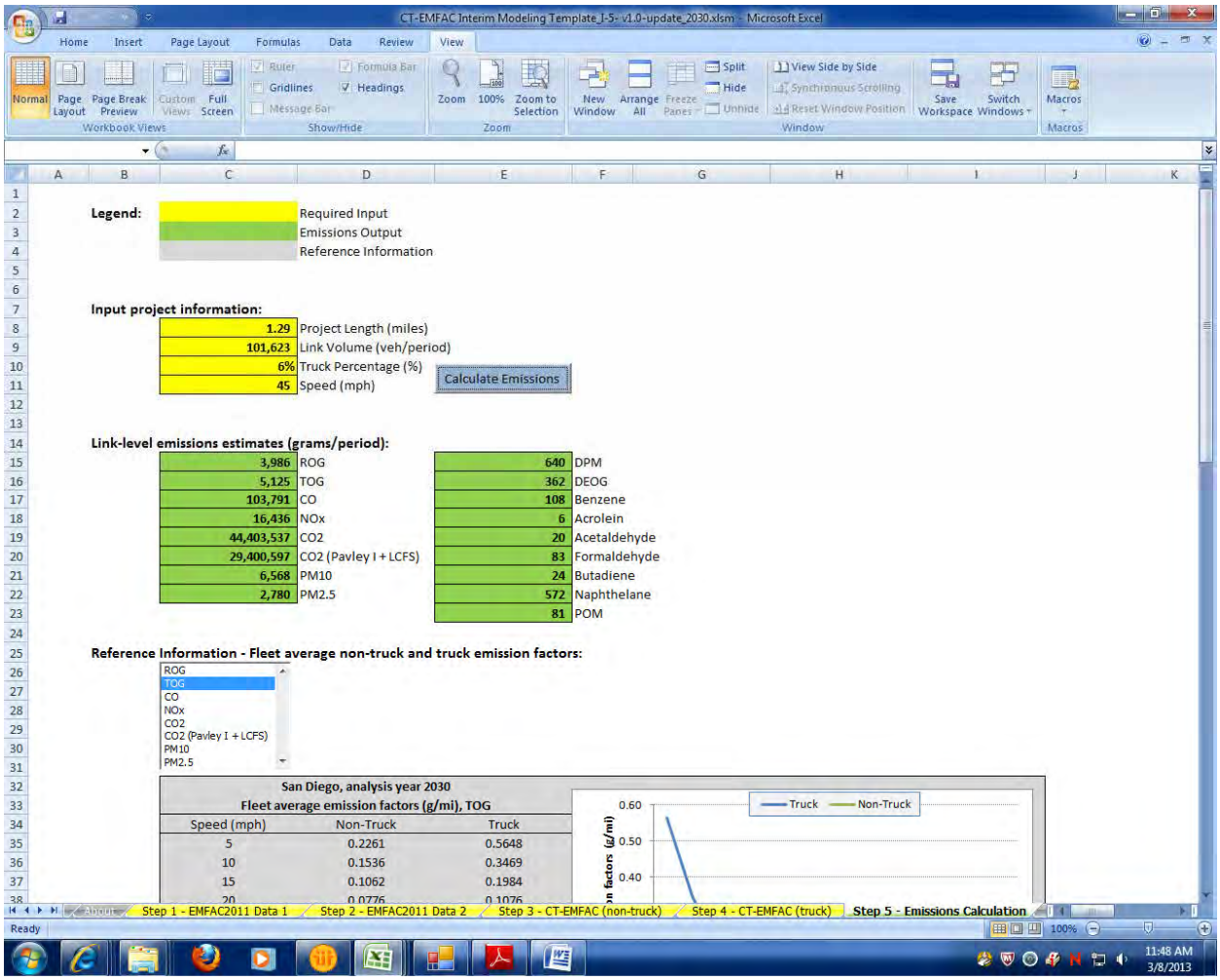
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 4 (SB GP)
Segment: 8
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.29	Project Length (miles)
101,623	Link Volume (veh/period)
6%	Truck Percentage (%)
45	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

3,986	ROG	640	DPM
5,125	TOG	362	DEOG
103,791	CO	108	Benzene
16,436	NOx	6	Acrolein
44,403,537	CO2	20	Acetaldehyde
29,400,597	CO2 (Pavley I + LCFS)	83	Formaldehyde
6,568	PM10	24	Butadiene
2,780	PM2.5	572	Naphthelane
		81	POM

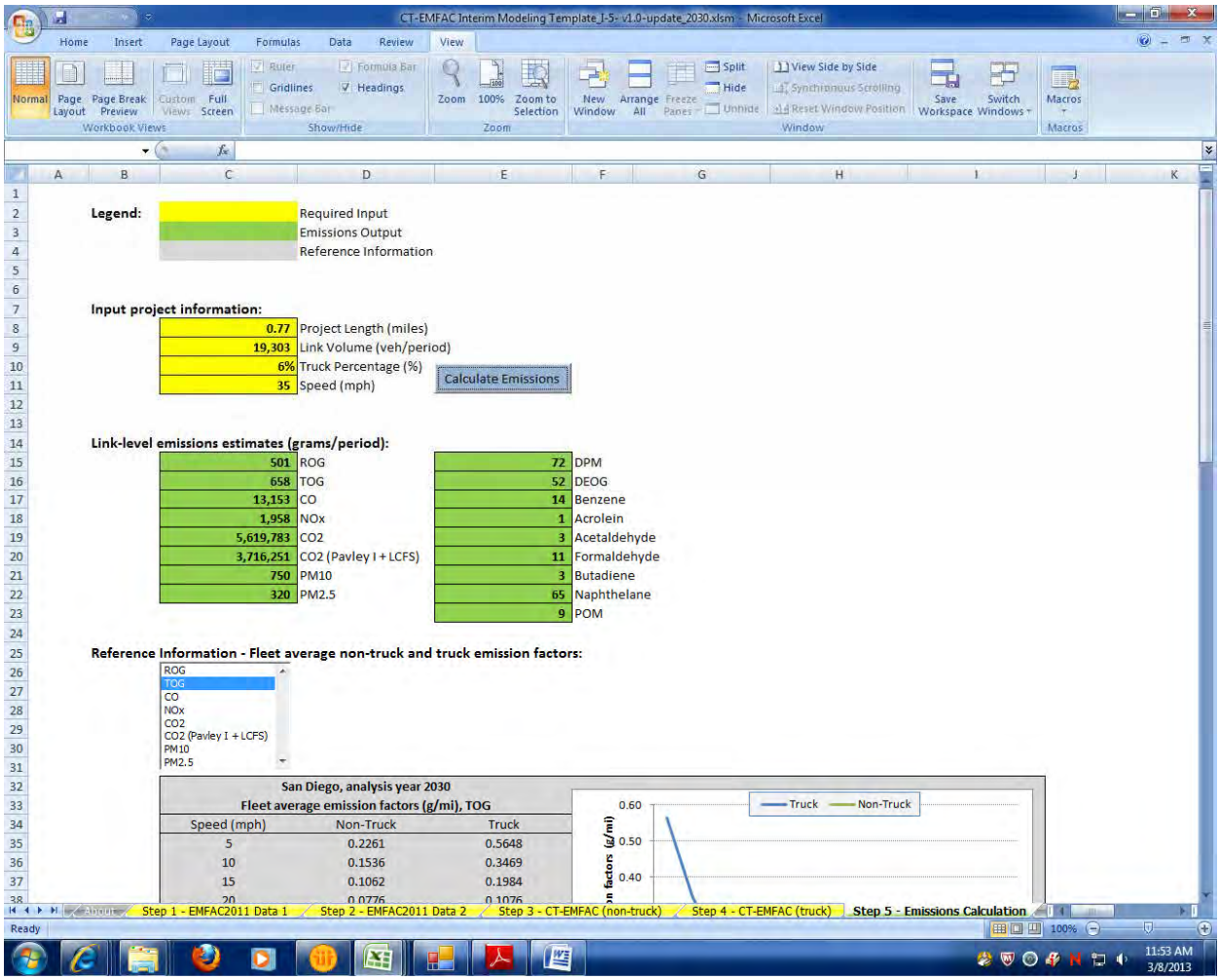
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

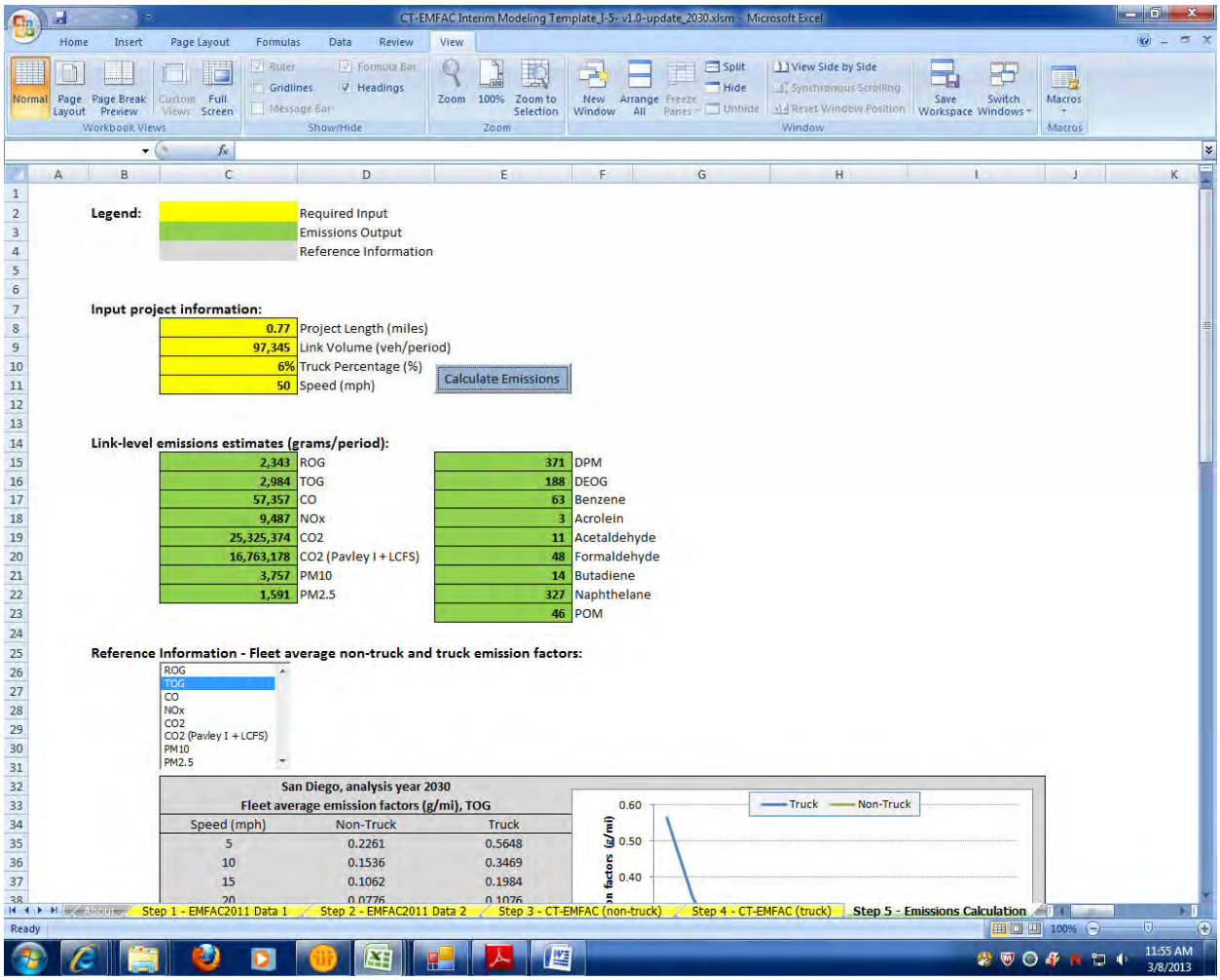
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 4 (SB GP)
Segment: 9
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 9
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.77	Project Length (miles)
97,345	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,343	ROG	371	DPM
2,984	TOG	188	DEOG
57,357	CO	63	Benzene
9,487	NOx	3	Acrolein
25,325,374	CO2	11	Acetaldehyde
16,763,178	CO2 (Pavley I + LCFS)	48	Formaldehyde
3,757	PM10	14	Butadiene
1,591	PM2.5	327	Naphthelane
		46	POM

Reference Information - Fleet average non-truck and truck emission factors:

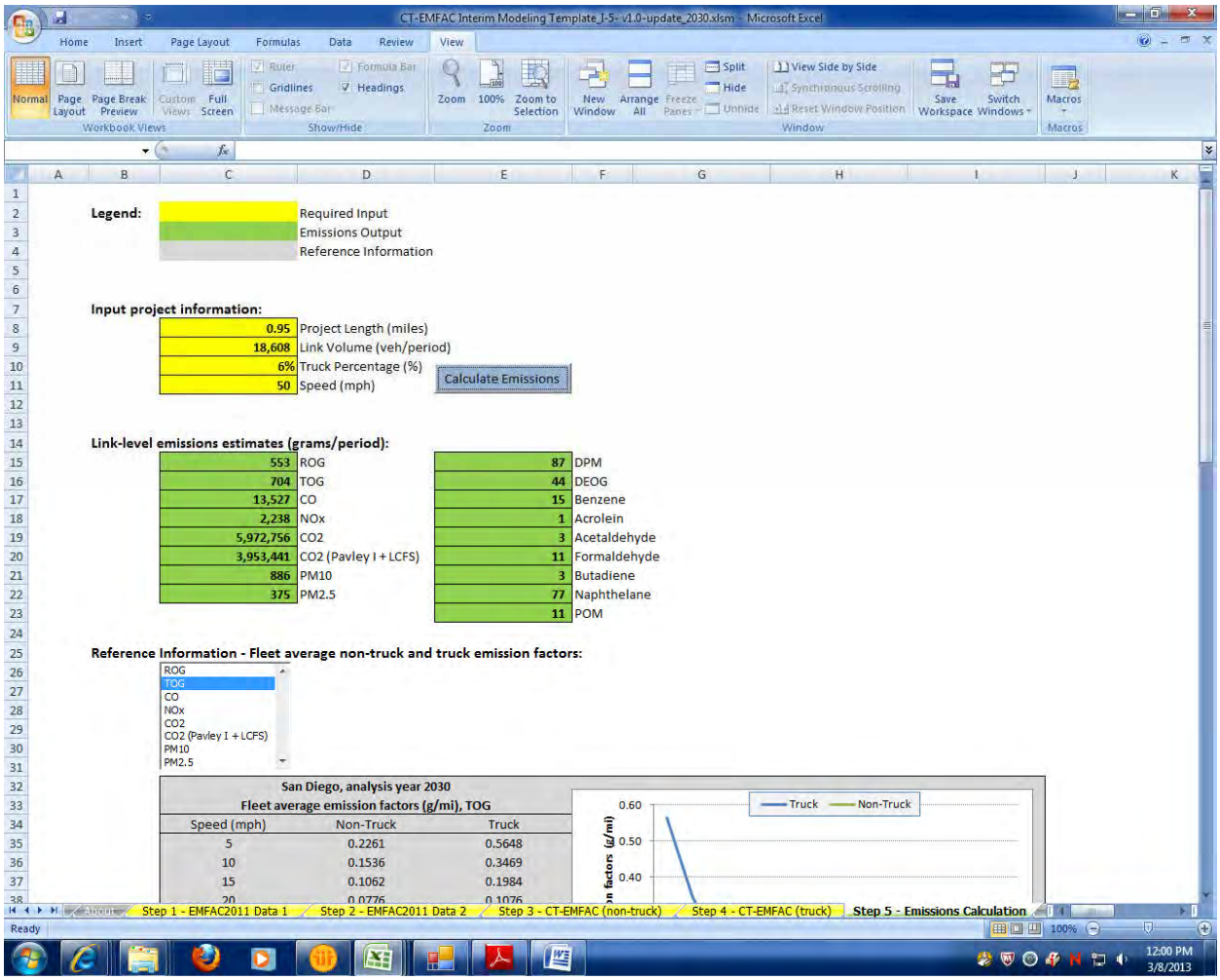
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

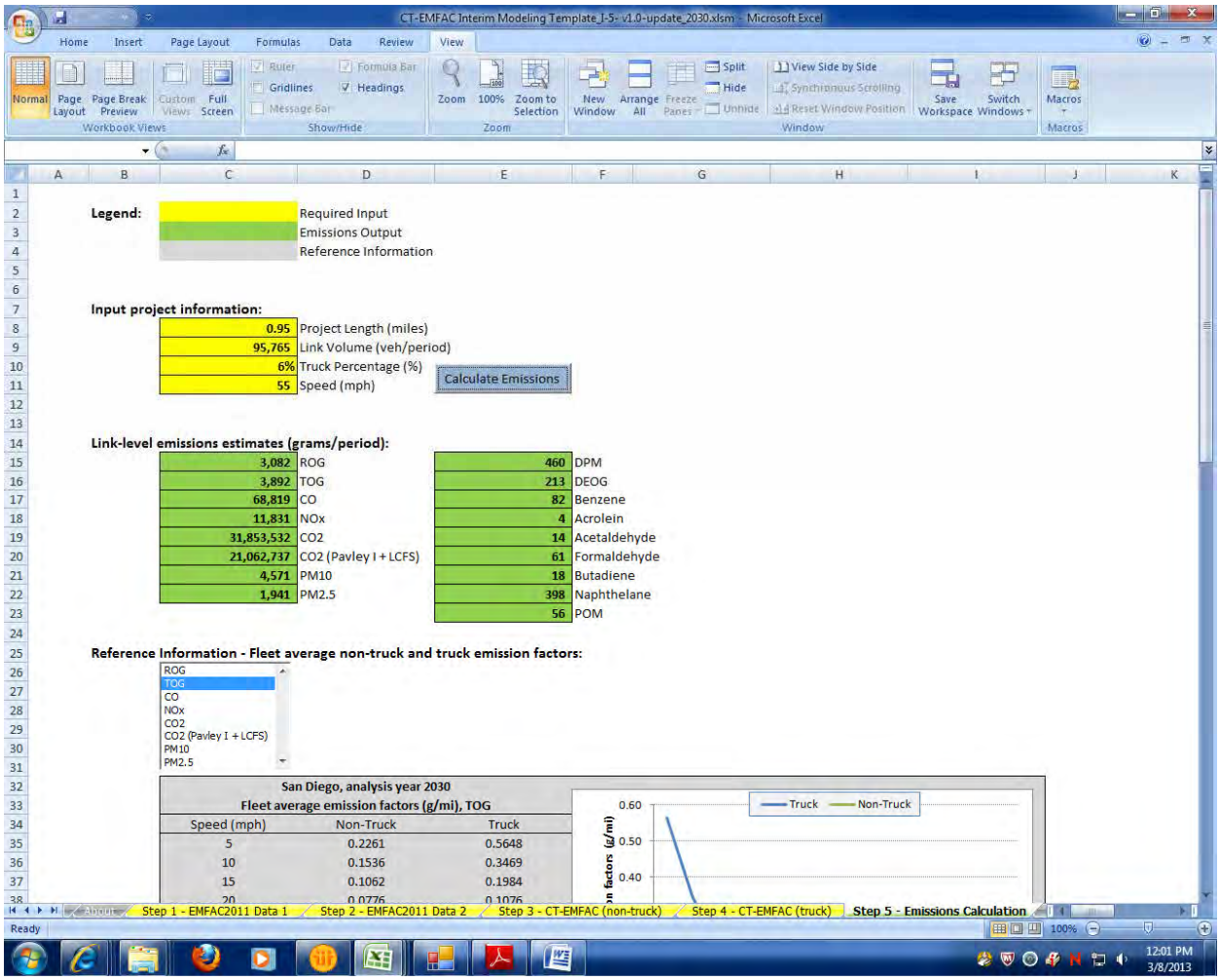
Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

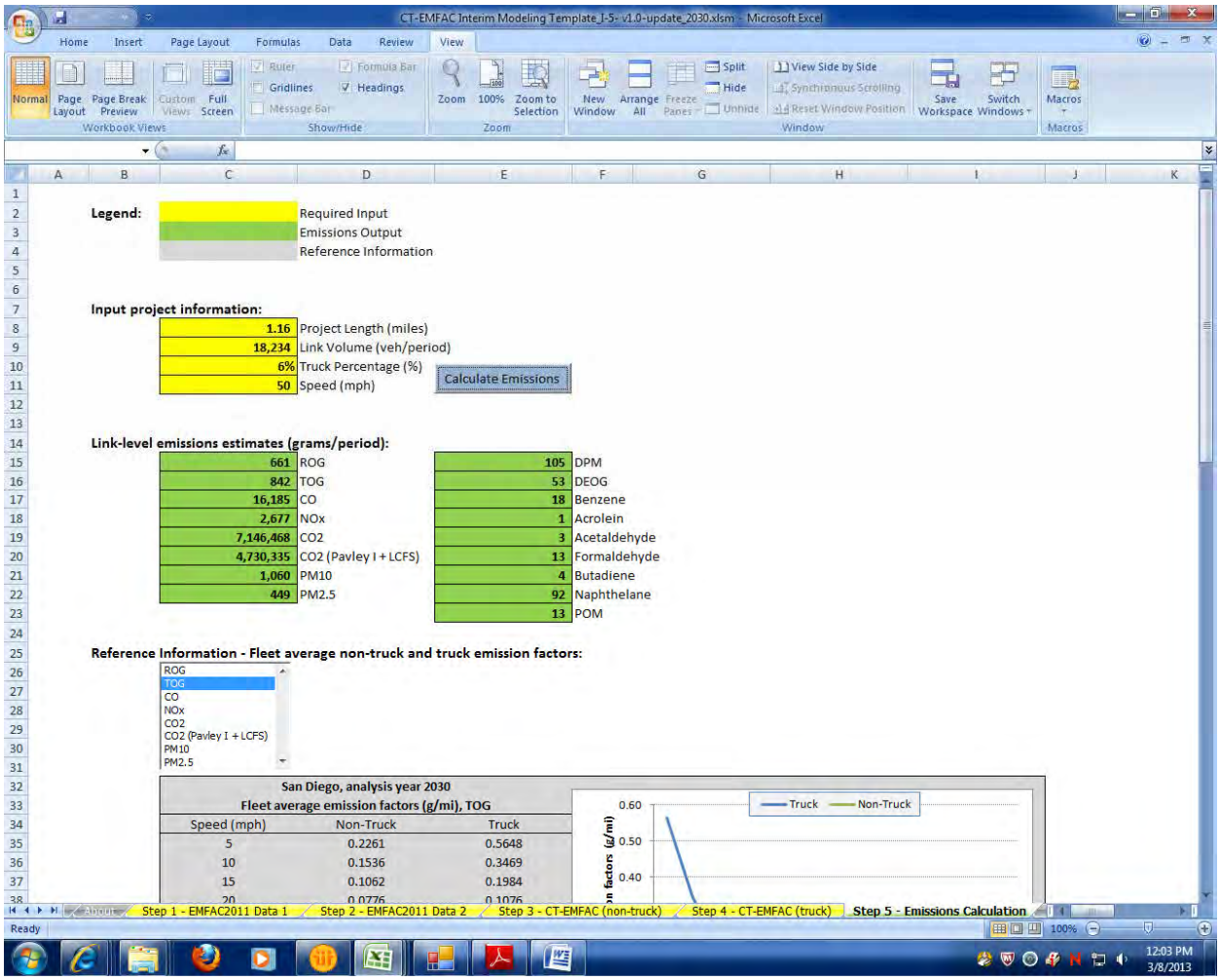
2030 8+4
Link: 4 (SB GP)
Segment: 10
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 10
Off Peak



2030 8+4
Link: 4 (SB GP)
Segment: 11
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.16	Project Length (miles)
18,234	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

661	ROG	105	DPM
842	TOG	53	DEOG
16,185	CO	18	Benzene
2,677	NOx	1	Acrolein
7,146,468	CO2	3	Acetaldehyde
4,730,335	CO2 (Pavley I + LCFS)	13	Formaldehyde
1,060	PM10	4	Butadiene
449	PM2.5	92	Naphthelane
		13	POM

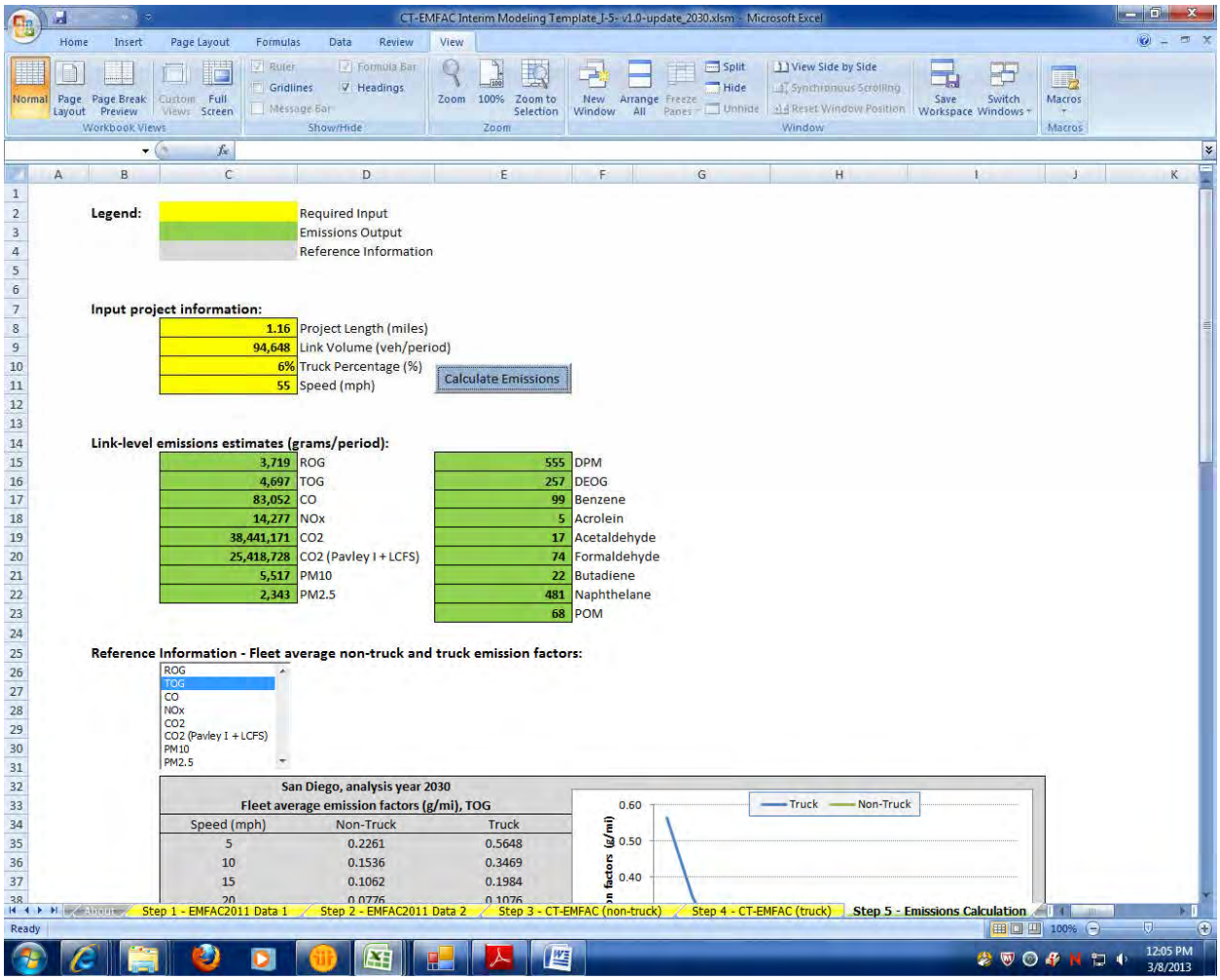
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

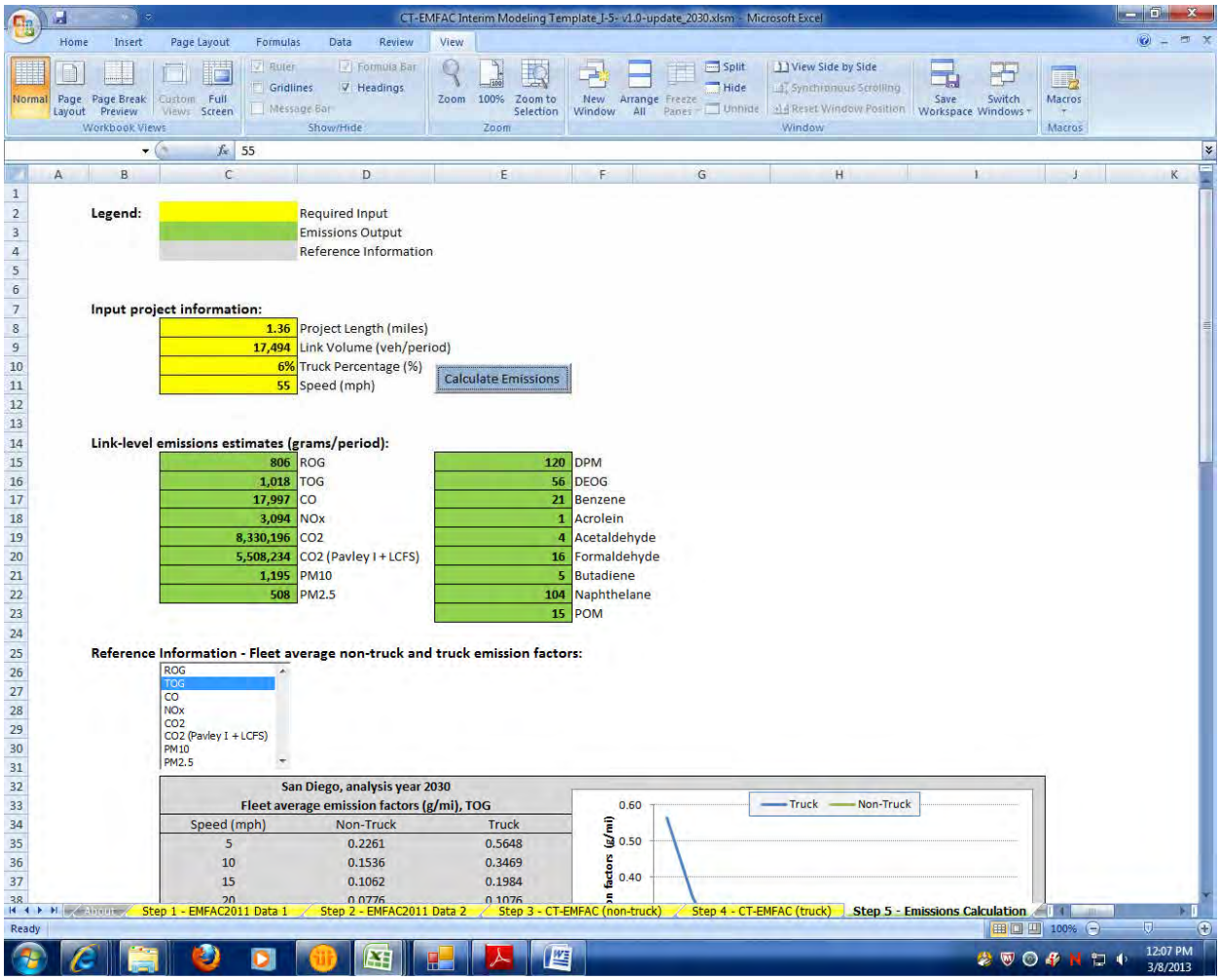
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

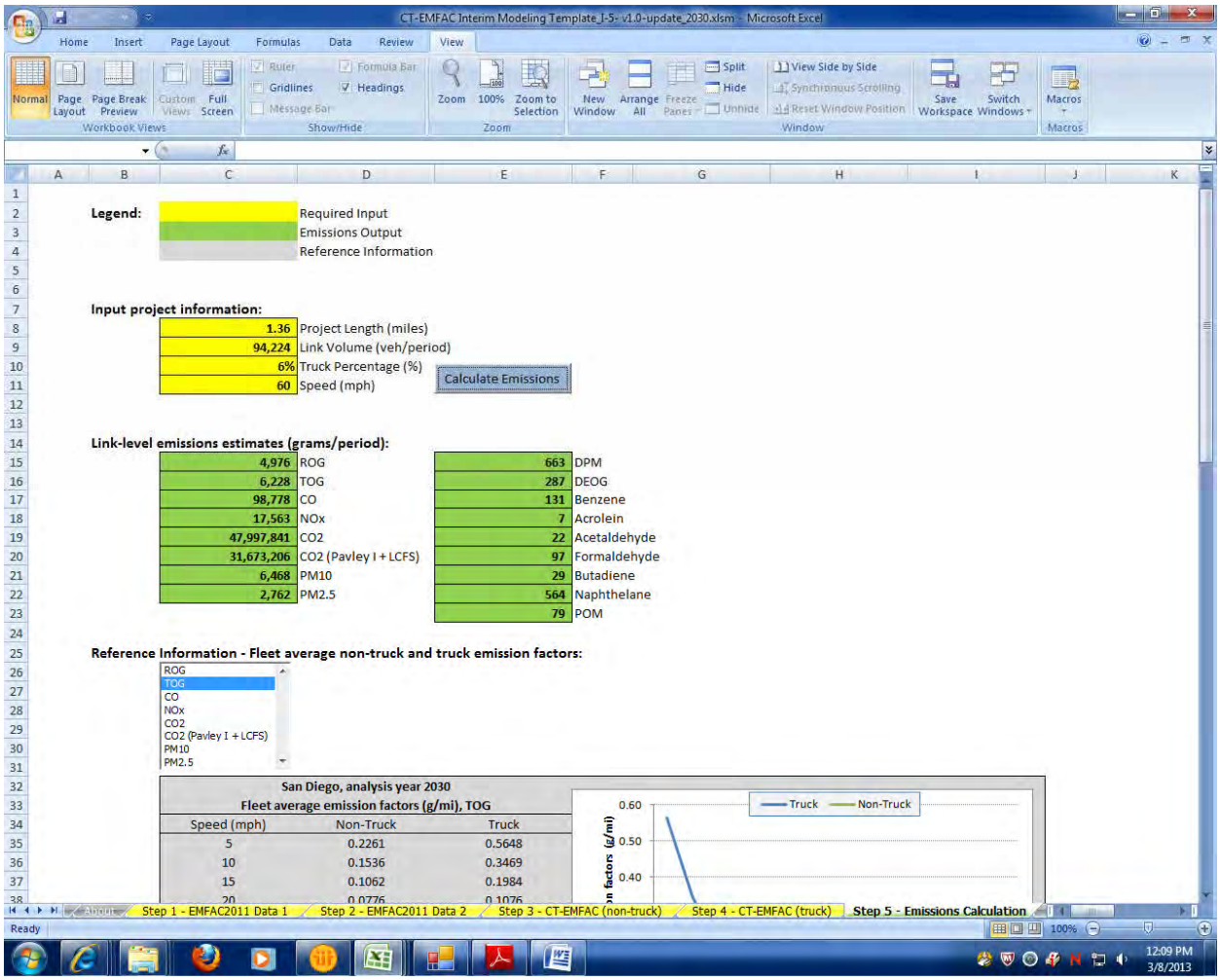
2030 8+4
Link: 4 (SB GP)
Segment: 11
Off Peak



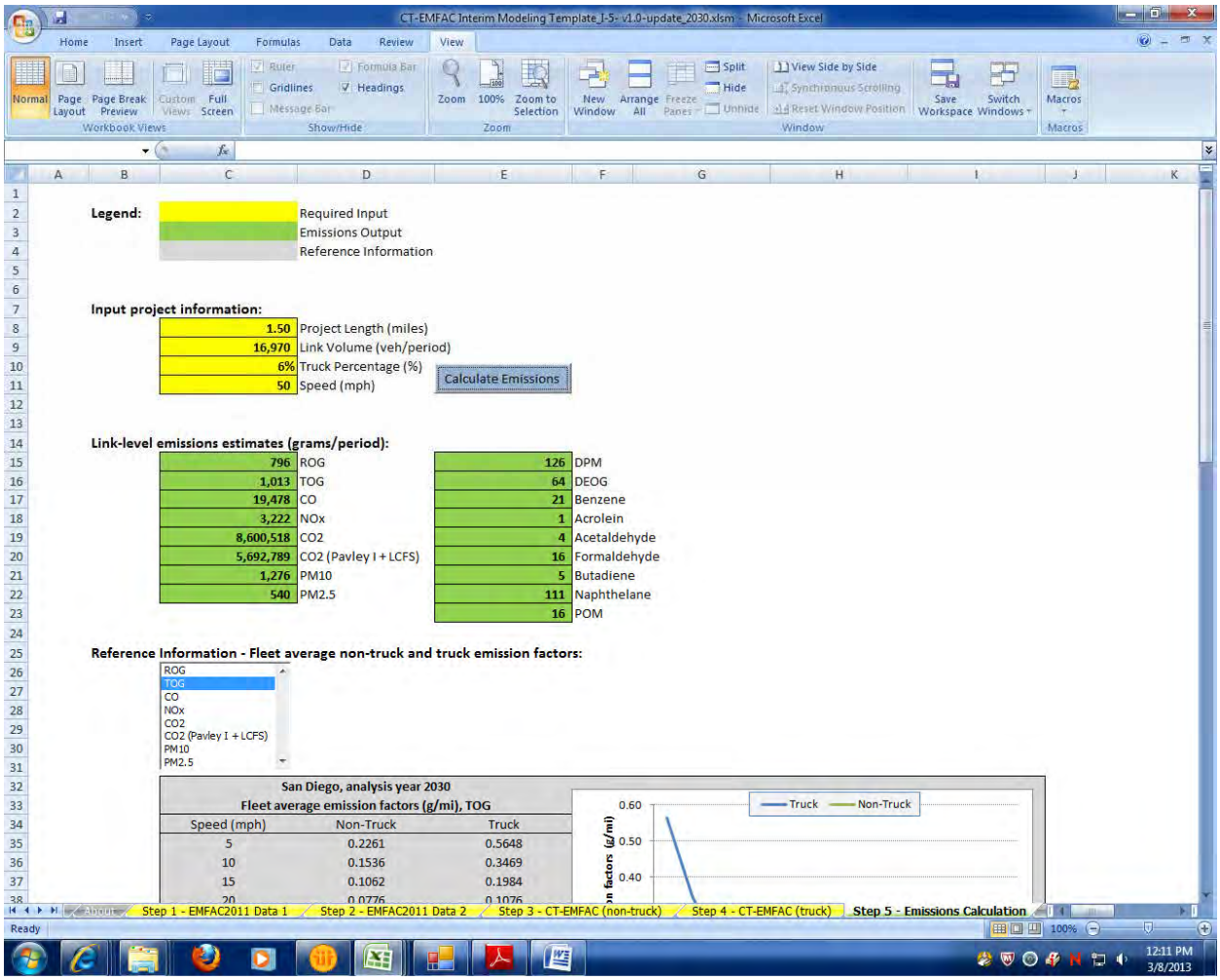
2030 8+4
Link: 4 (SB GP)
Segment: 12
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 12
Off Peak



2030 8+4
Link: 4 (SB GP)
Segment: 13
Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.50	Project Length (miles)
16,970	Link Volume (veh/period)
6%	Truck Percentage (%)
50	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

796	ROG	126	DPM
1,013	TOG	64	DEOG
19,478	CO	21	Benzene
3,222	NOx	1	Acrolein
8,600,518	CO2	4	Acetaldehyde
5,692,789	CO2 (Pavley I + LCFS)	16	Formaldehyde
1,276	PM10	5	Butadiene
540	PM2.5	111	Naphthelane
		16	POM

Reference Information - Fleet average non-truck and truck emission factors:

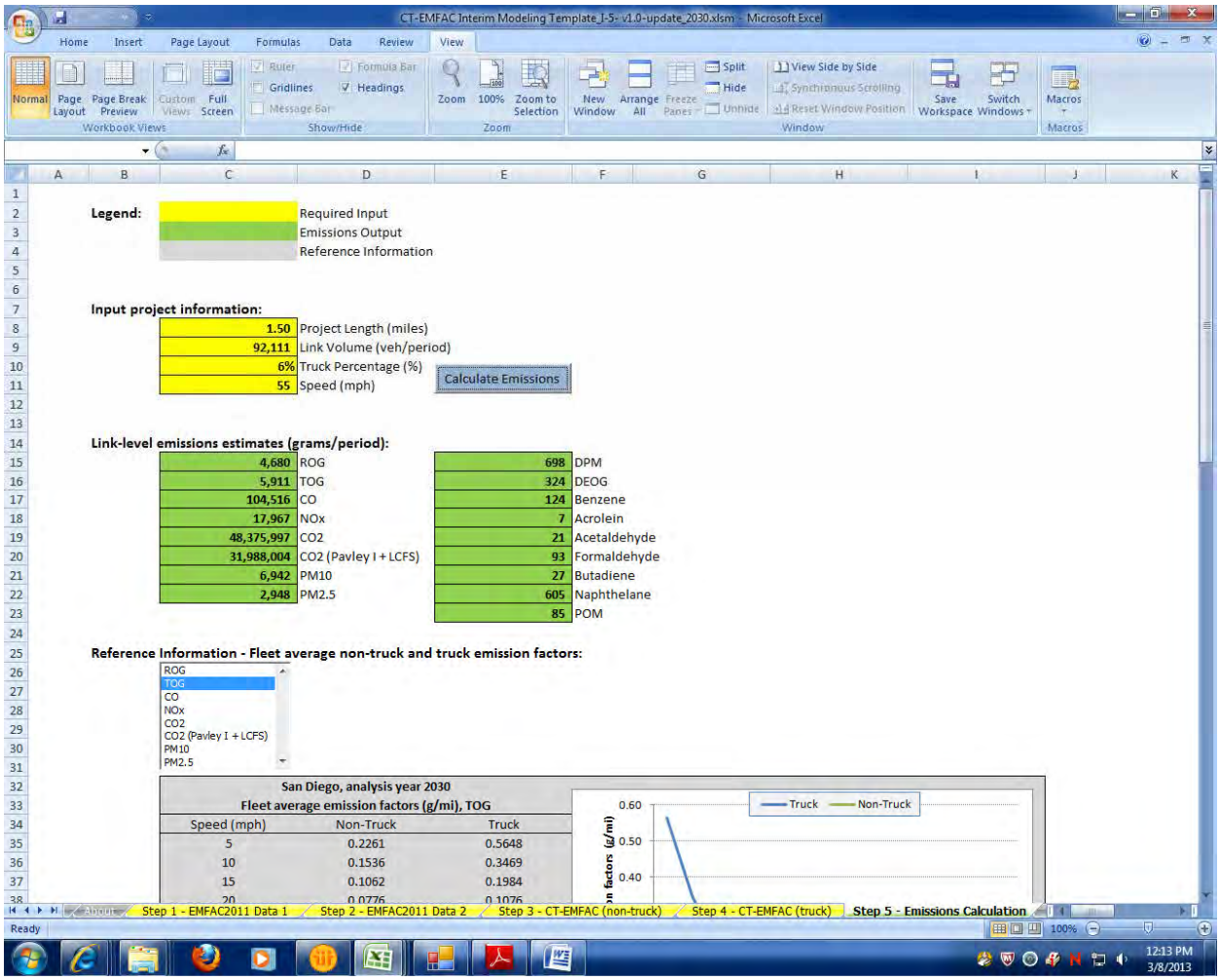
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

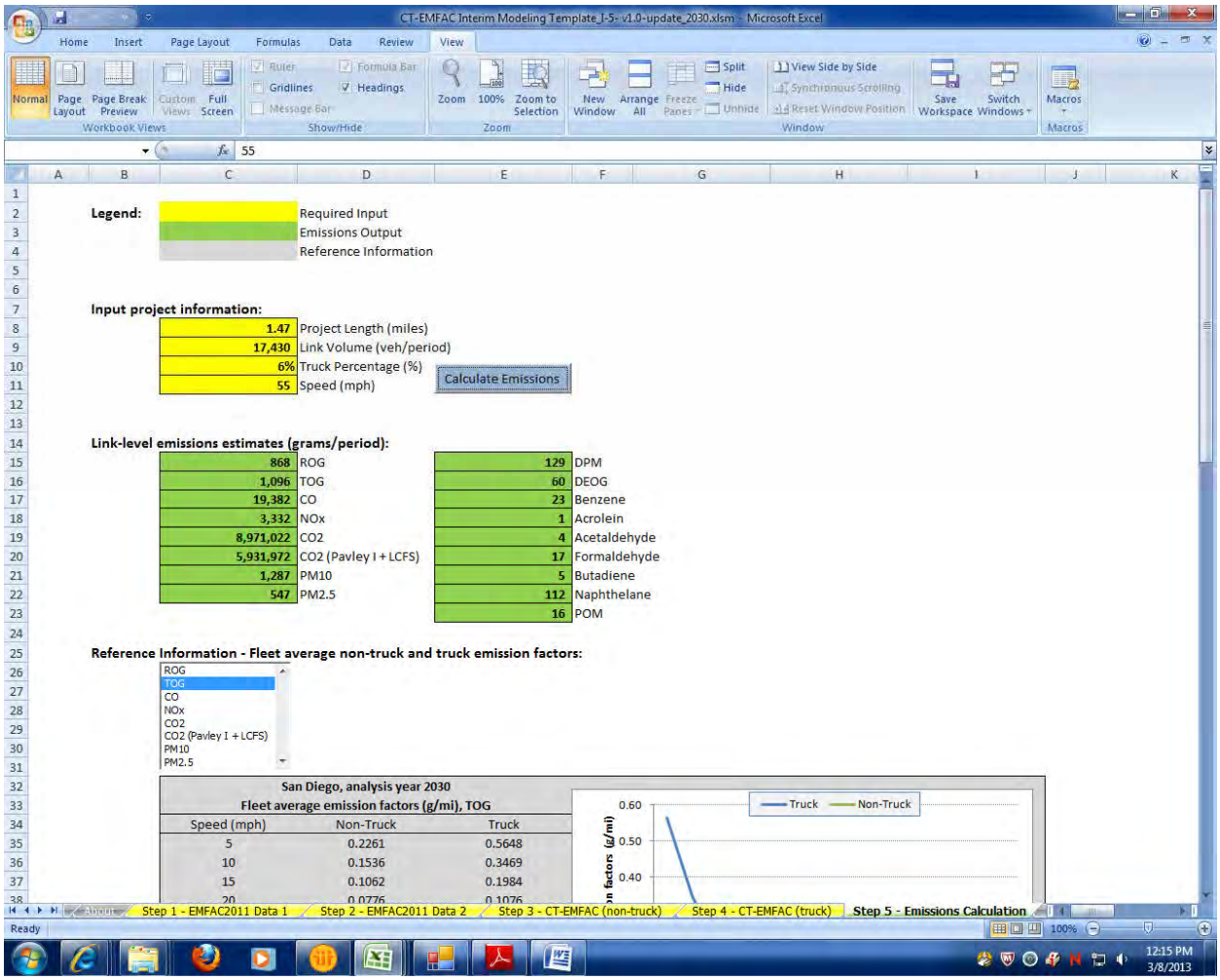
Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

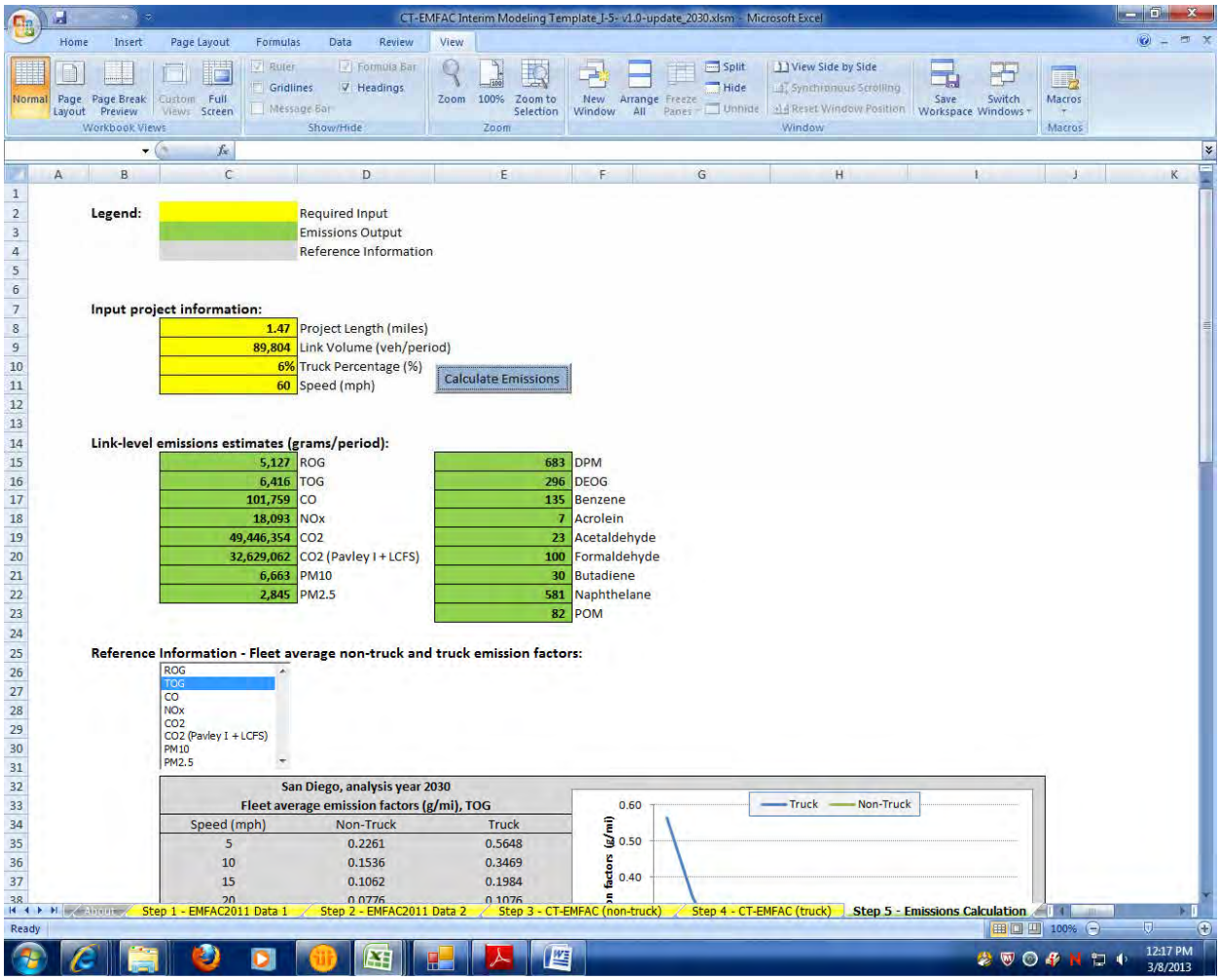
2030 8+4
Link: 4 (SB GP)
Segment: 13
Off Peak



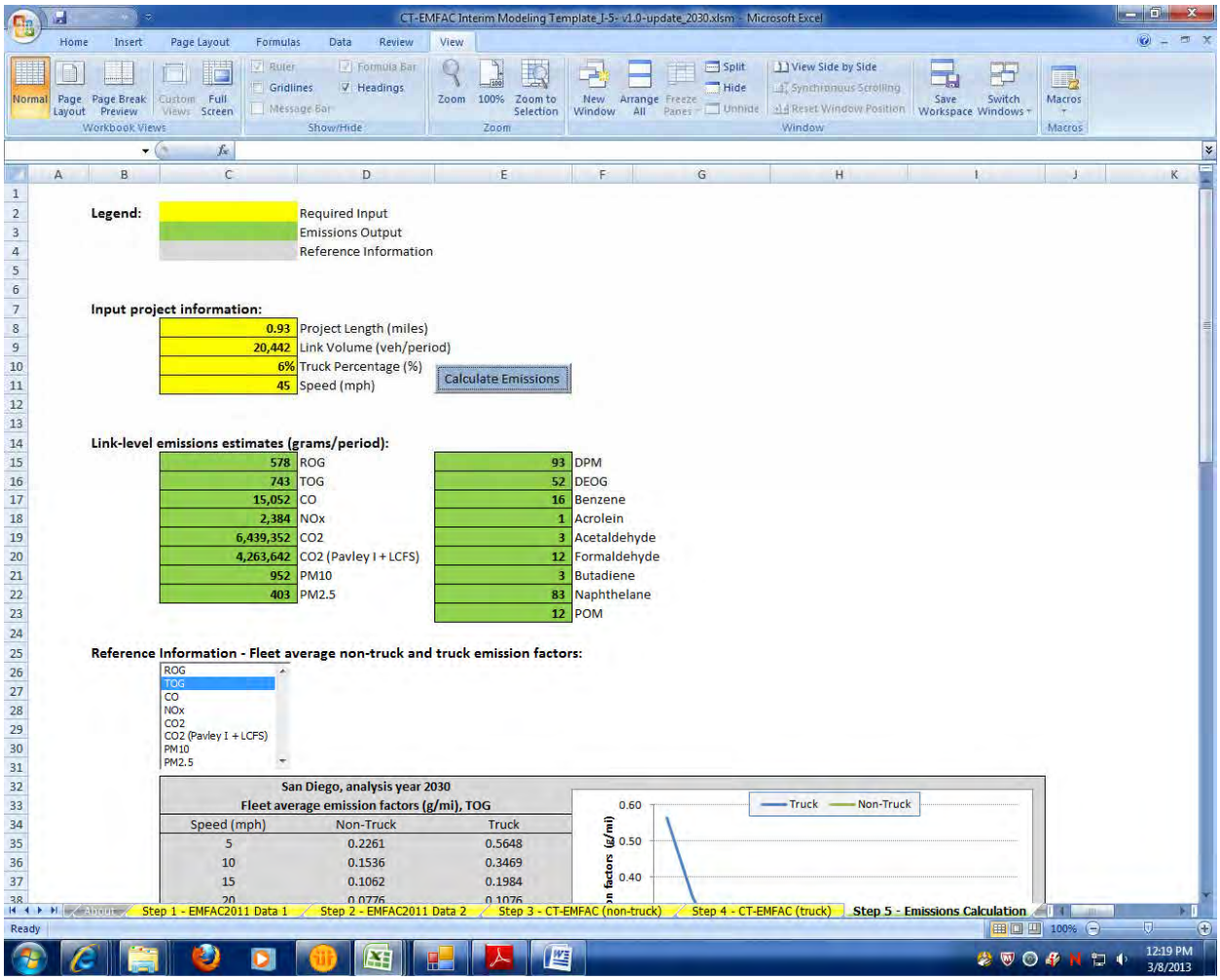
2030 8+4
Link: 4 (SB GP)
Segment: 14
Peak



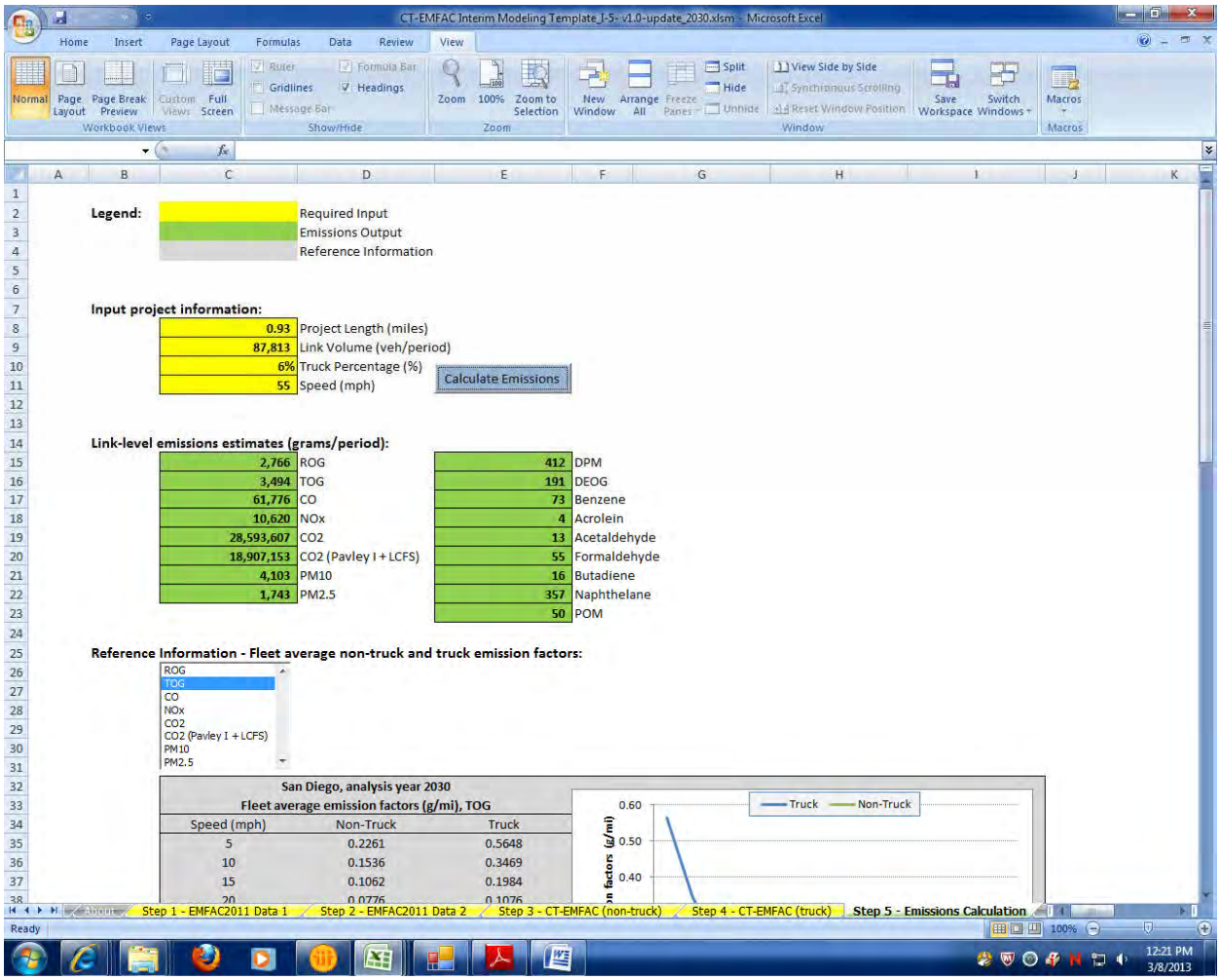
2030 8+4
Link: 4 (SB GP)
Segment: 14
Off Peak



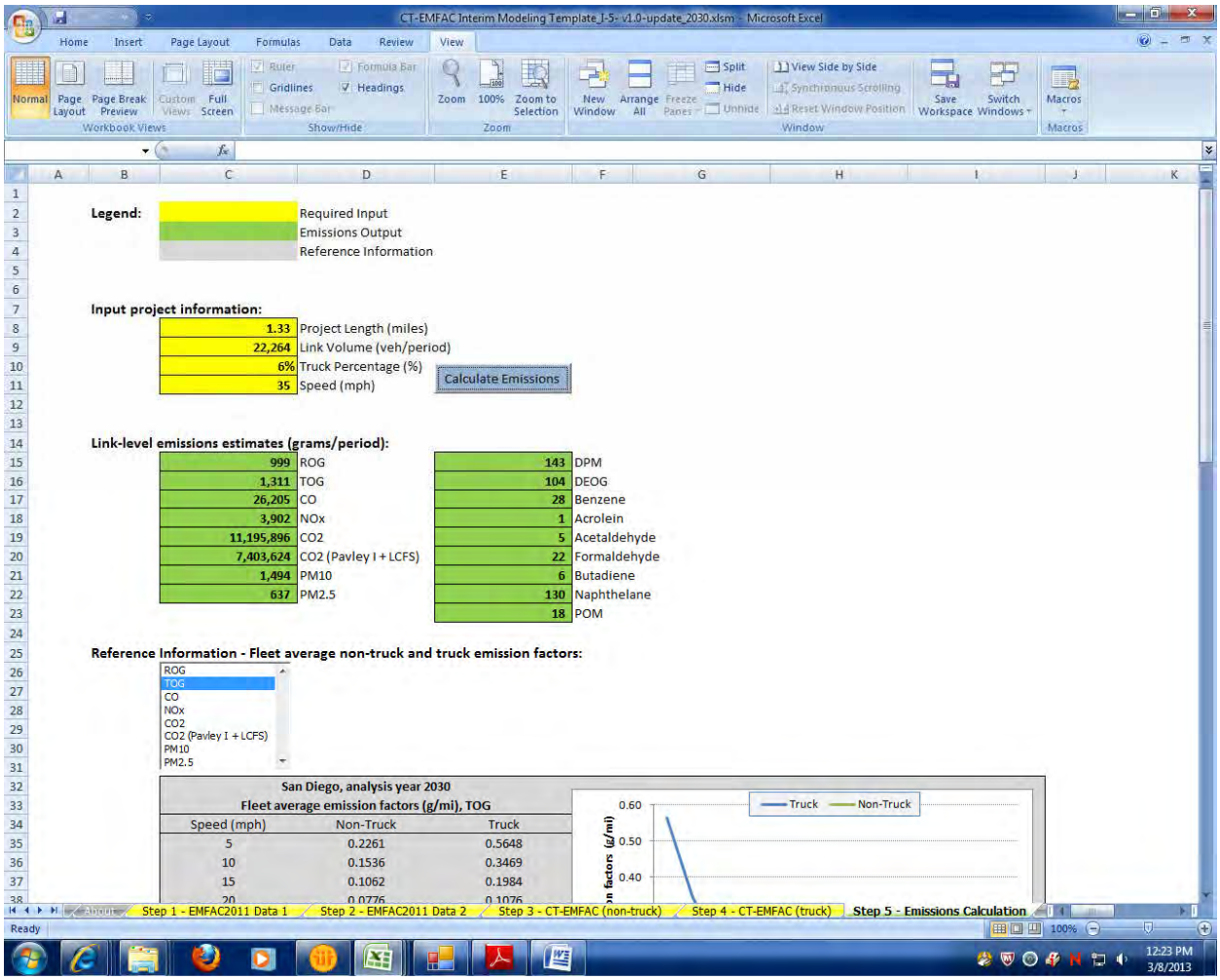
2030 8+4
Link: 4 (SB GP)
Segment: 15
Peak



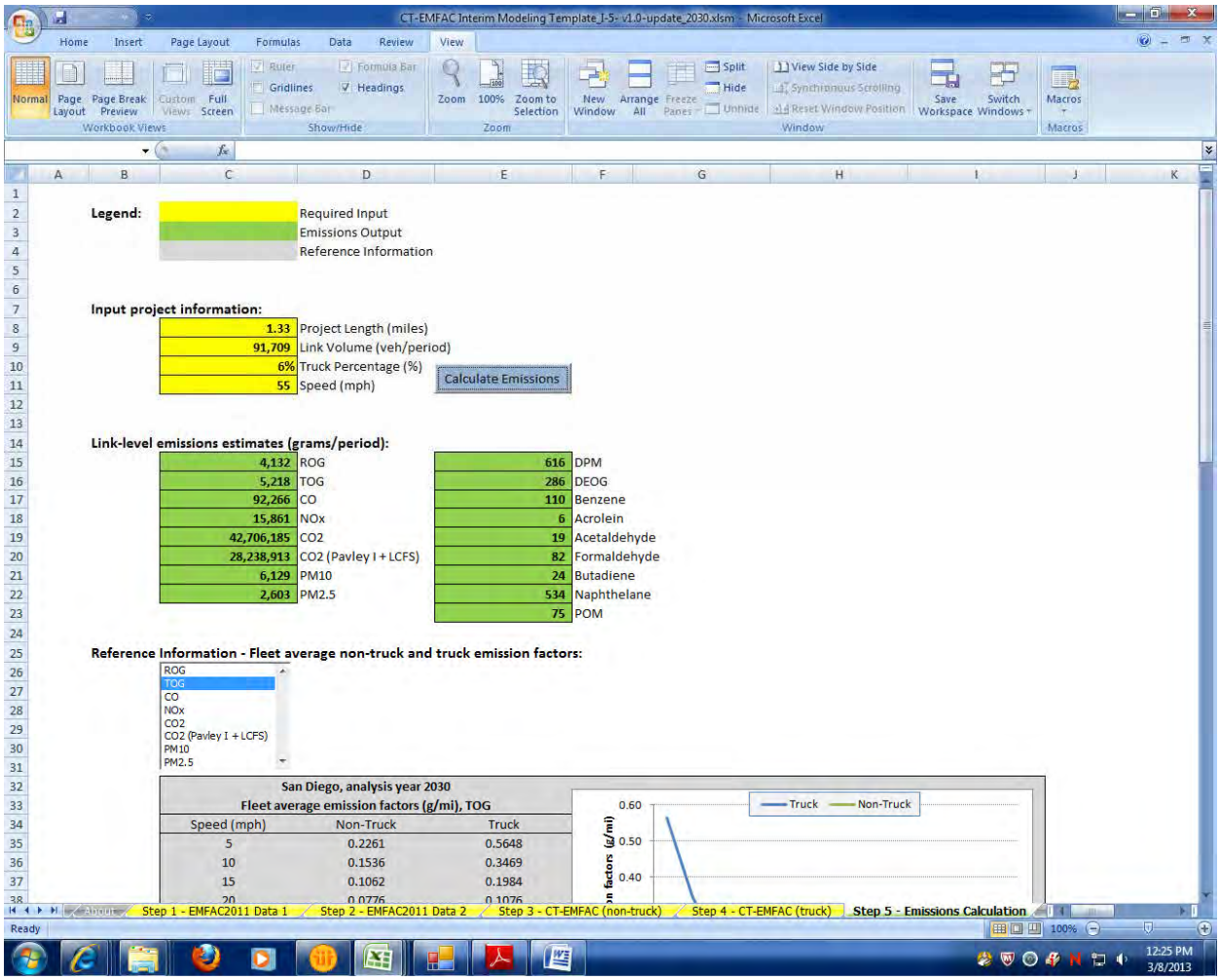
2030 8+4
Link: 4 (SB GP)
Segment: 15
Off Peak



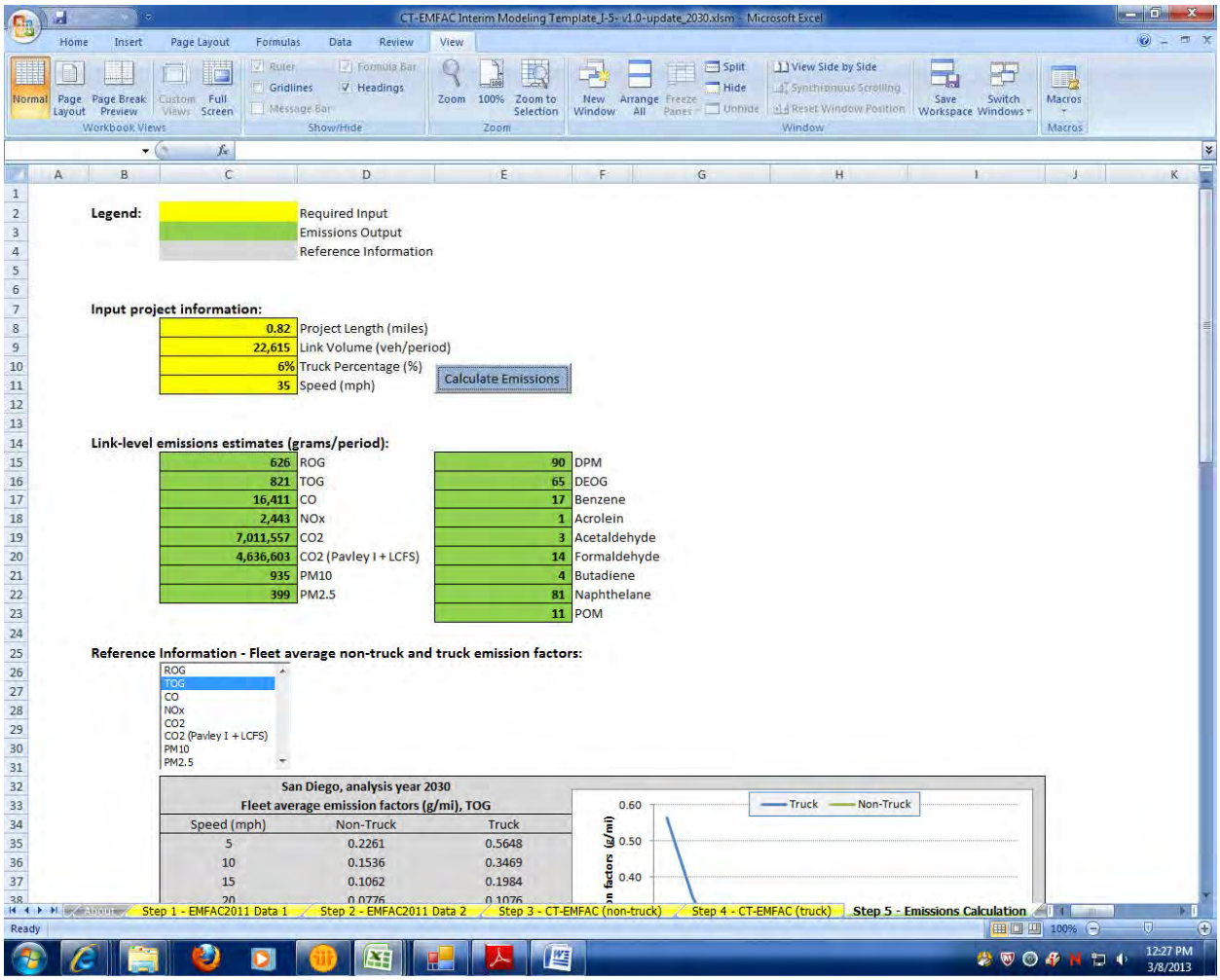
2030 8+4
Link: 4 (SB GP)
Segment: 16
Peak



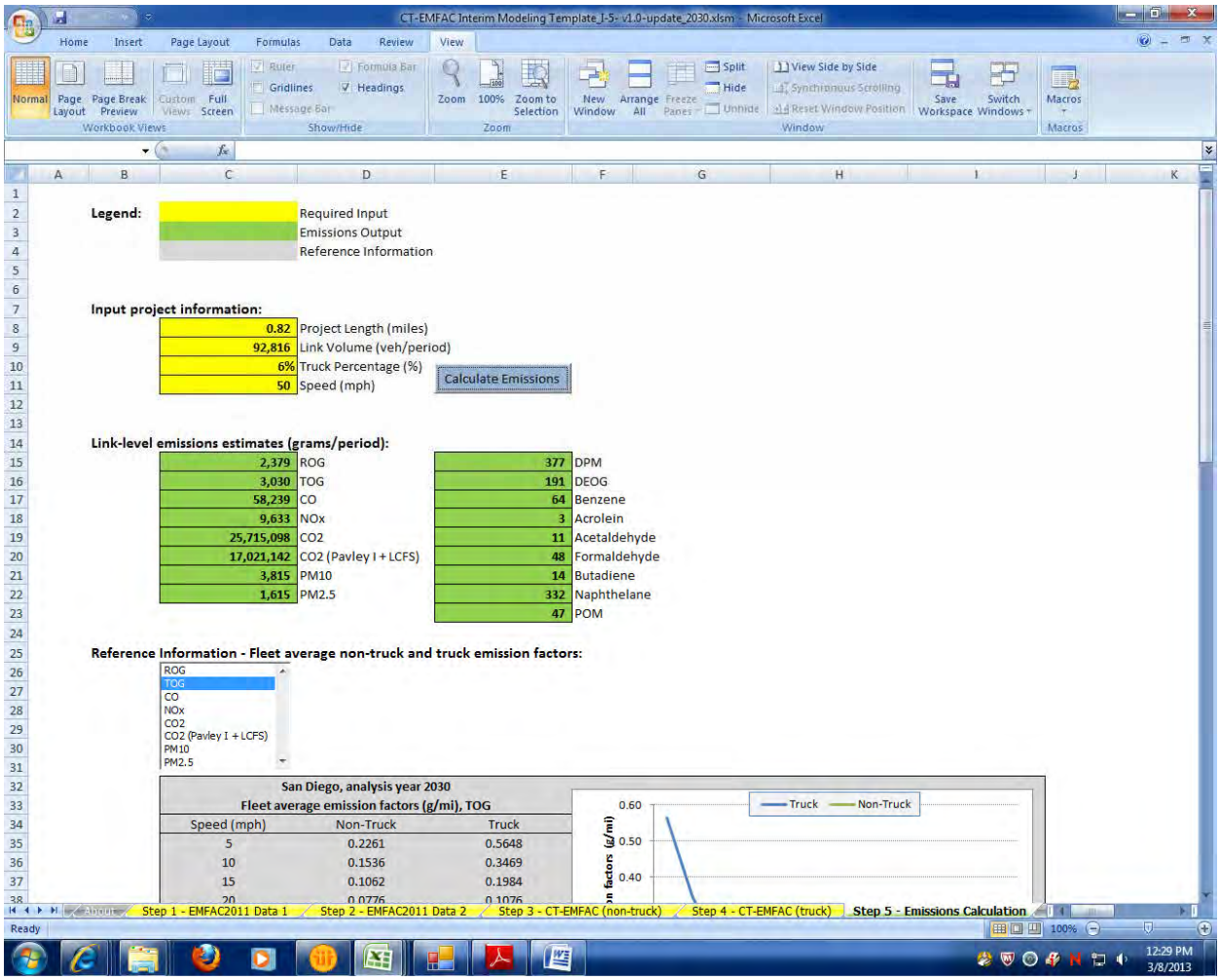
2030 8+4
Link: 4 (SB GP)
Segment: 16
Off Peak



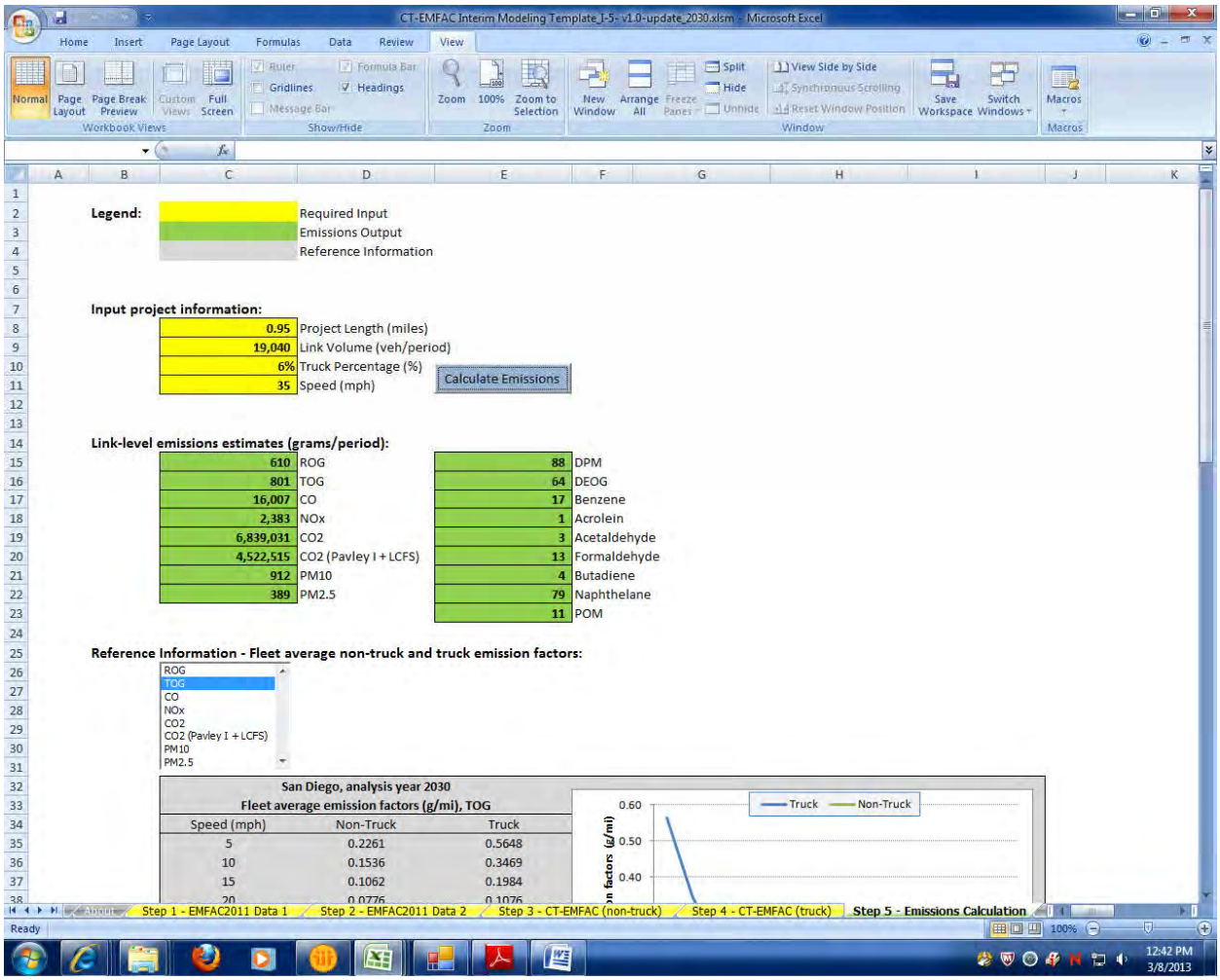
2030 8+4
Link: 4 (SB GP)
Segment: 17
Peak



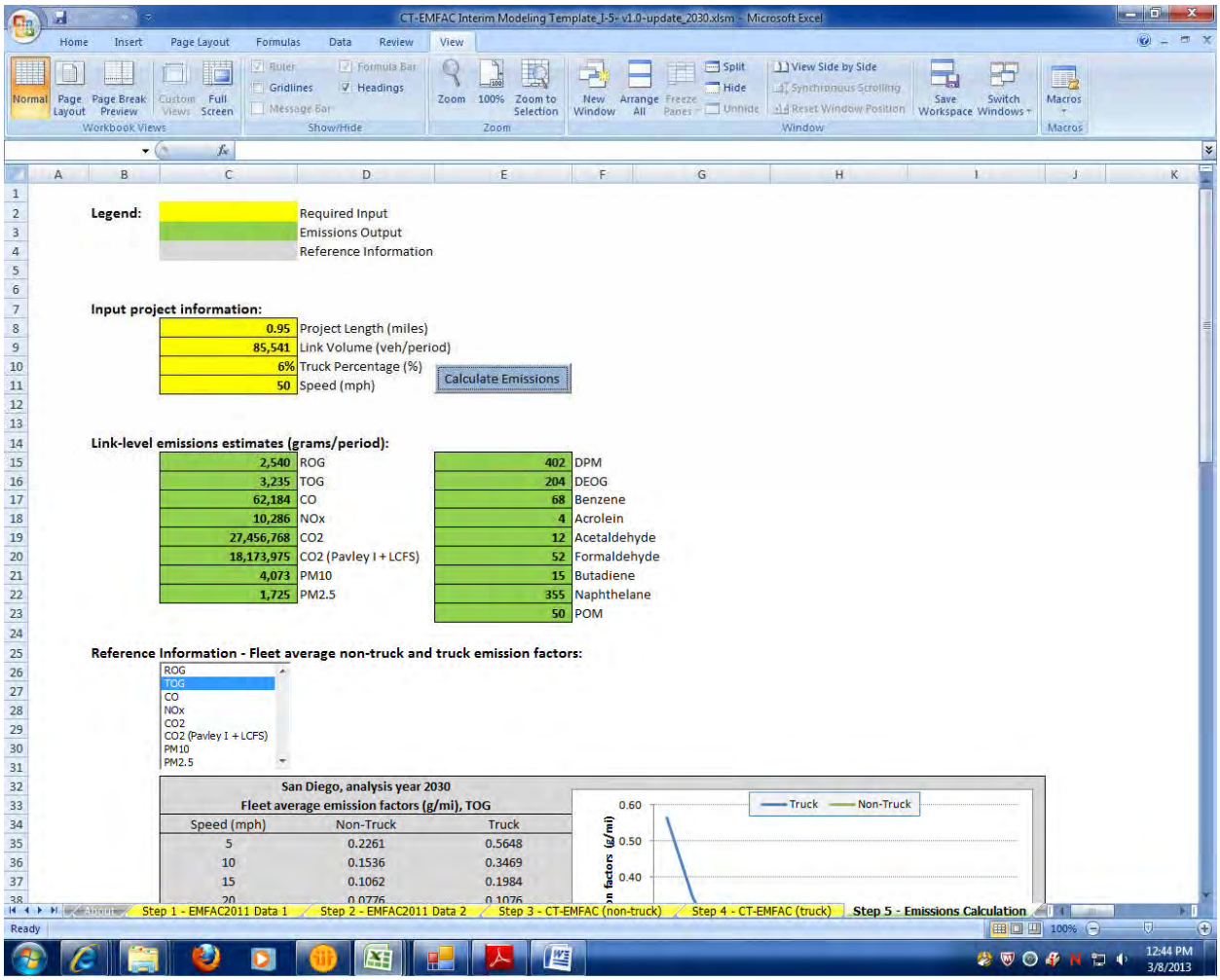
2030 8+4
Link: 4 (SB GP)
Segment: 17
Off Peak



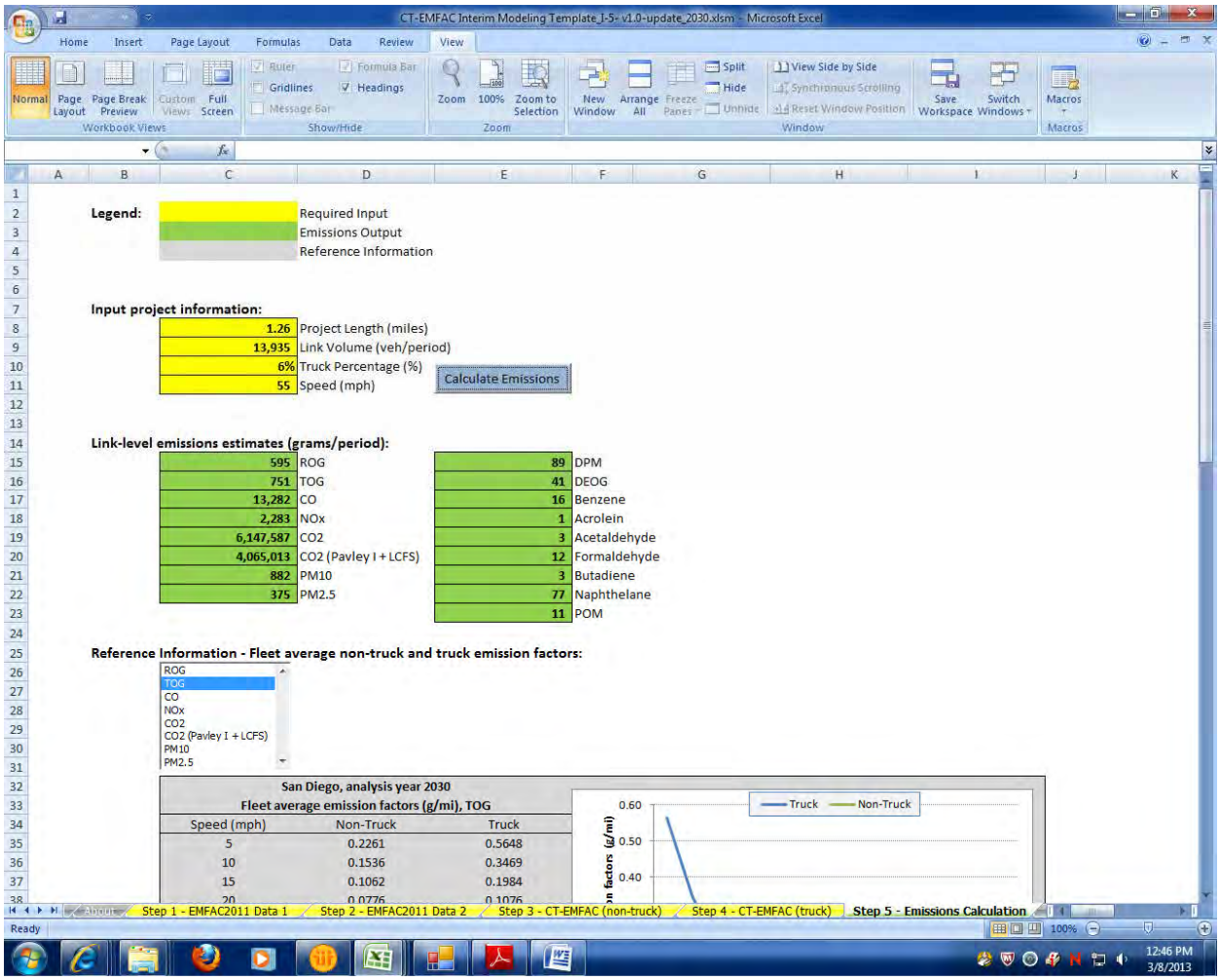
2030 8+4
Link: 4 (SB GP)
Segment: 18
Peak



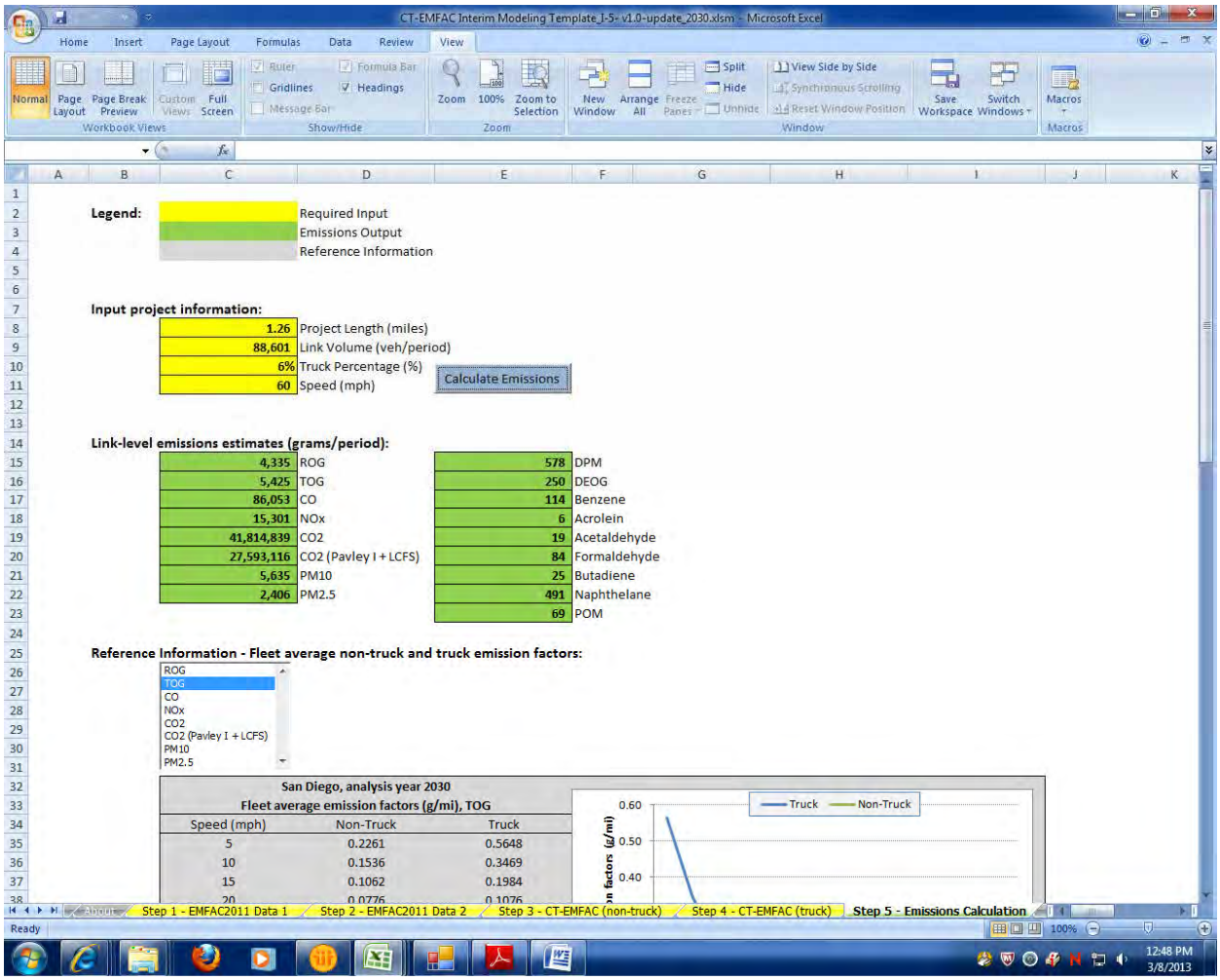
2030 8+4
Link: 4 (SB GP)
Segment: 18
Off Peak



2030 8+4
Link: 4 (SB GP)
Segment: 19
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 19
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

1.26	Project Length (miles)
88,601	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

4,335	ROG	578	DPM
5,425	TOG	250	DEOG
86,053	CO	114	Benzene
15,301	NOx	6	Acrolein
41,814,839	CO2	19	Acetaldehyde
27,593,116	CO2 (Pavley I + LCFS)	84	Formaldehyde
5,635	PM10	25	Butadiene
2,406	PM2.5	491	Naphthelane
		69	POM

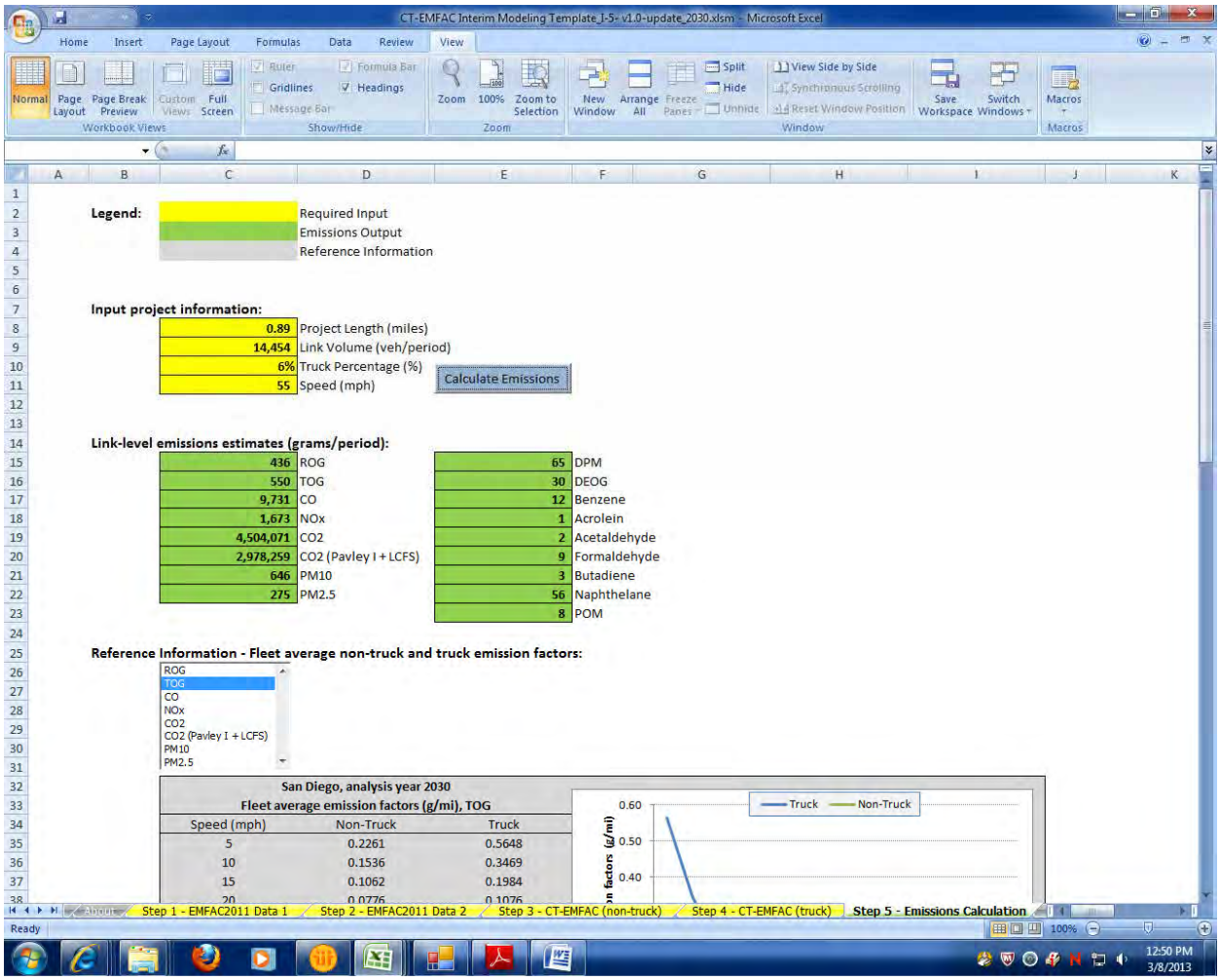
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

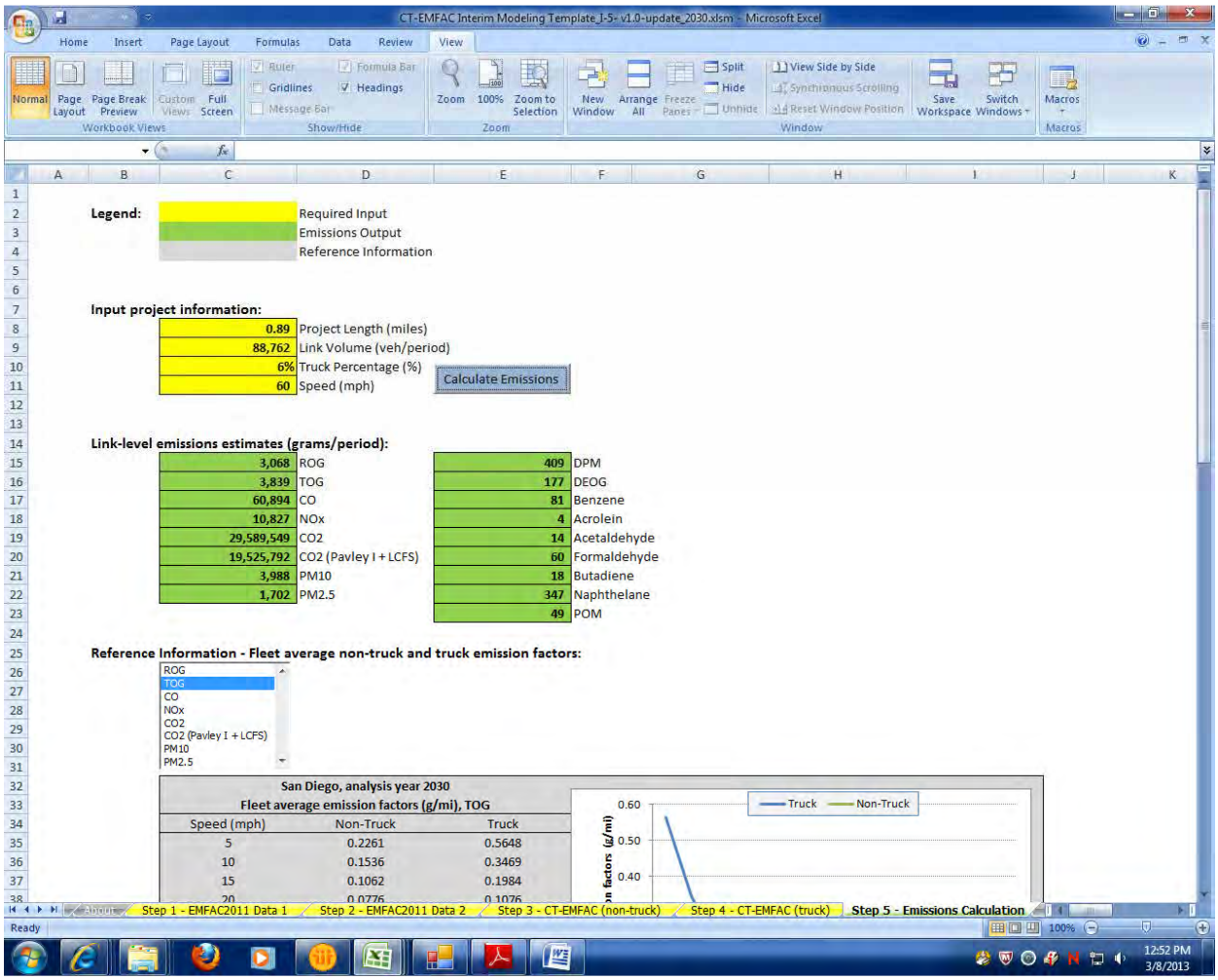
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 4 (SB GP)
Segment: 20
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 20
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.89	Project Length (miles)
88,762	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

3,068	ROG	409	DPM
3,839	TOG	177	DEOG
60,894	CO	81	Benzene
10,827	NOx	4	Acrolein
29,589,549	CO2	14	Acetaldehyde
19,525,792	CO2 (Pavley I + LCFS)	60	Formaldehyde
3,988	PM10	18	Butadiene
1,702	PM2.5	347	Naphthelane
		49	POM

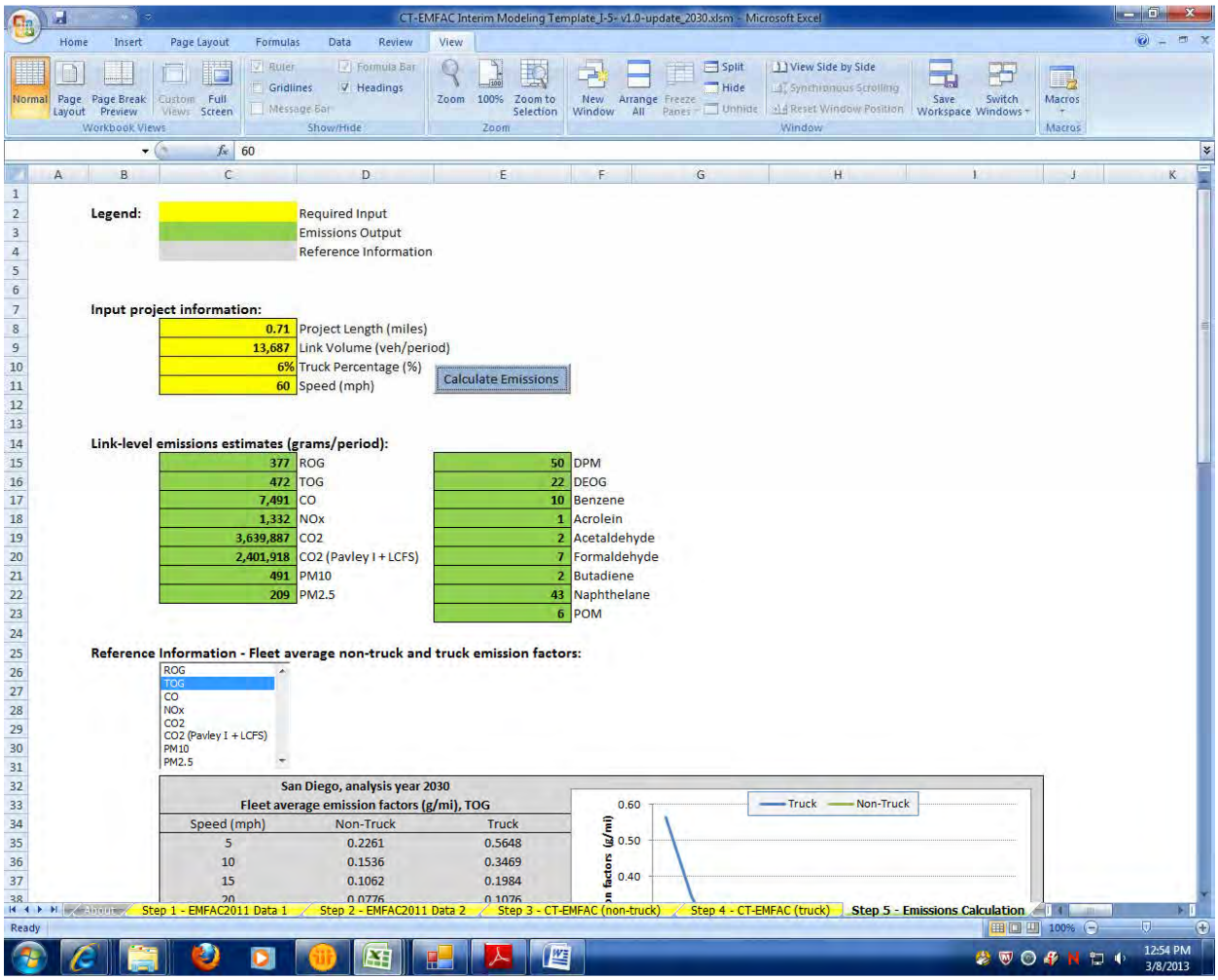
Reference Information - Fleet average non-truck and truck emission factors:

ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

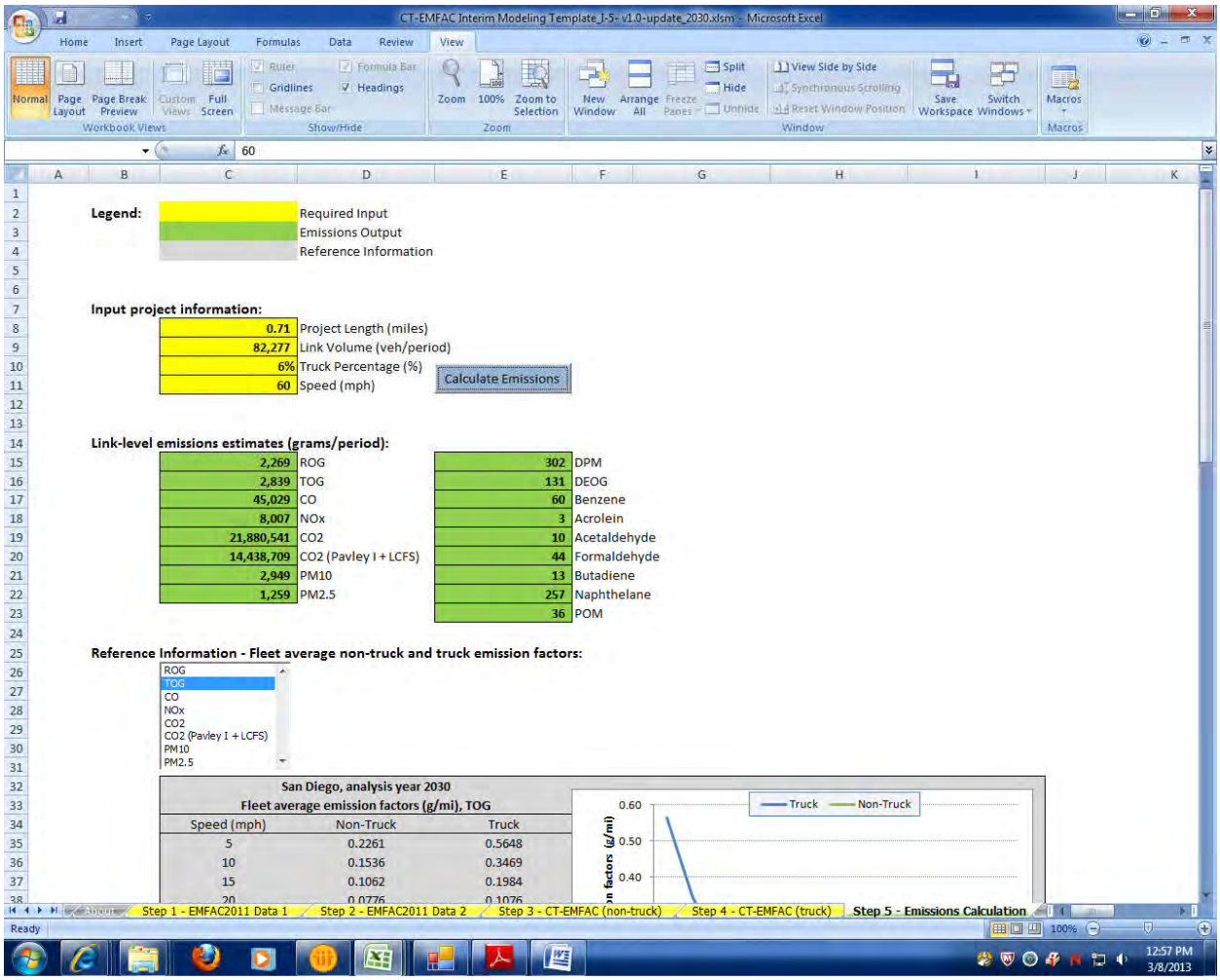
San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

2030 8+4
Link: 4 (SB GP)
Segment: 21
Peak



2030 8+4
Link: 4 (SB GP)
Segment: 21
Off Peak



Legend:

	Required Input
	Emissions Output
	Reference Information

Input project information:

0.71	Project Length (miles)
82,277	Link Volume (veh/period)
6%	Truck Percentage (%)
60	Speed (mph)

Calculate Emissions

Link-level emissions estimates (grams/period):

2,269	ROG	302	DPM
2,839	TOG	131	DEOG
45,029	CO	60	Benzene
8,007	NOx	3	Acrolein
21,880,541	CO2	10	Acetaldehyde
14,438,709	CO2 (Pavley I + LCFS)	44	Formaldehyde
2,949	PM10	13	Butadiene
1,259	PM2.5	257	Naphthelane
		36	POM

Reference Information - Fleet average non-truck and truck emission factors:

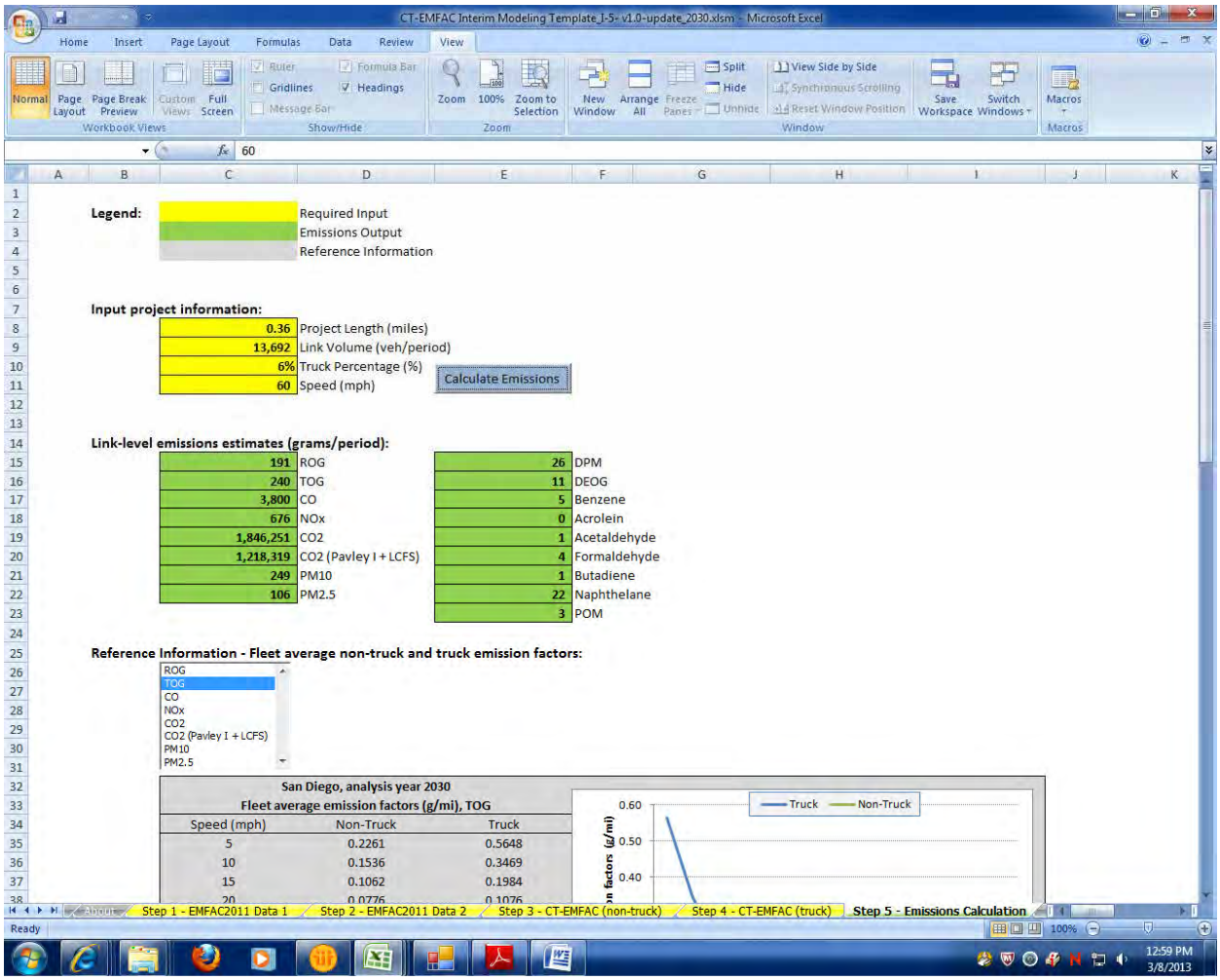
ROG
TOG
CO
NOx
CO2
CO2 (Pavley I + LCFS)
PM10
PM2.5

San Diego, analysis year 2030
Fleet average emission factors (g/mi), TOG

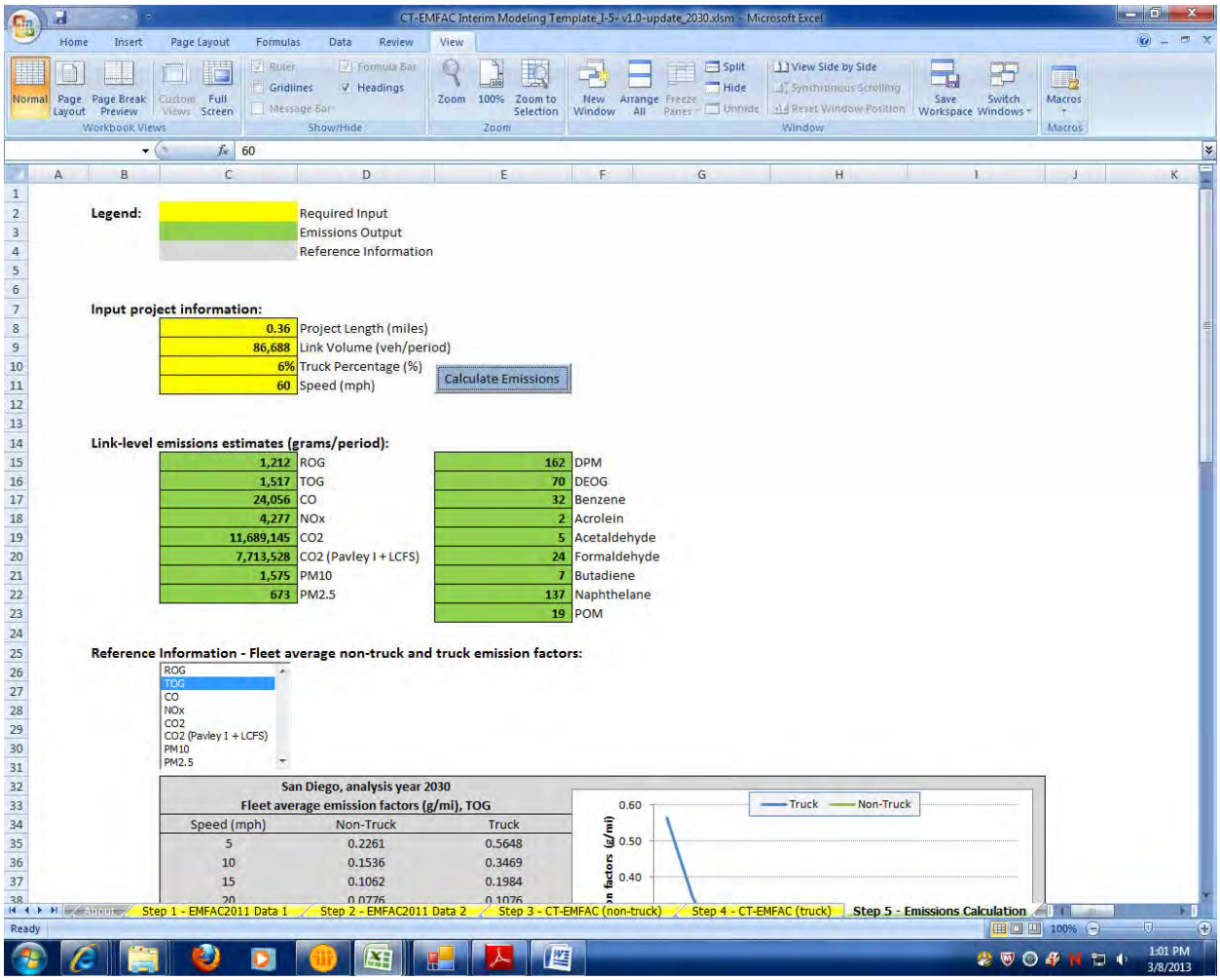
Speed (mph)	Non-Truck	Truck
5	0.2261	0.5648
10	0.1536	0.3469
15	0.1062	0.1984
20	0.0776	0.1076

Step 1 - EMFAC2011 Data 1 | Step 2 - EMFAC2011 Data 2 | Step 3 - CT-EMFAC (non-truck) | Step 4 - CT-EMFAC (truck) | Step 5 - Emissions Calculation

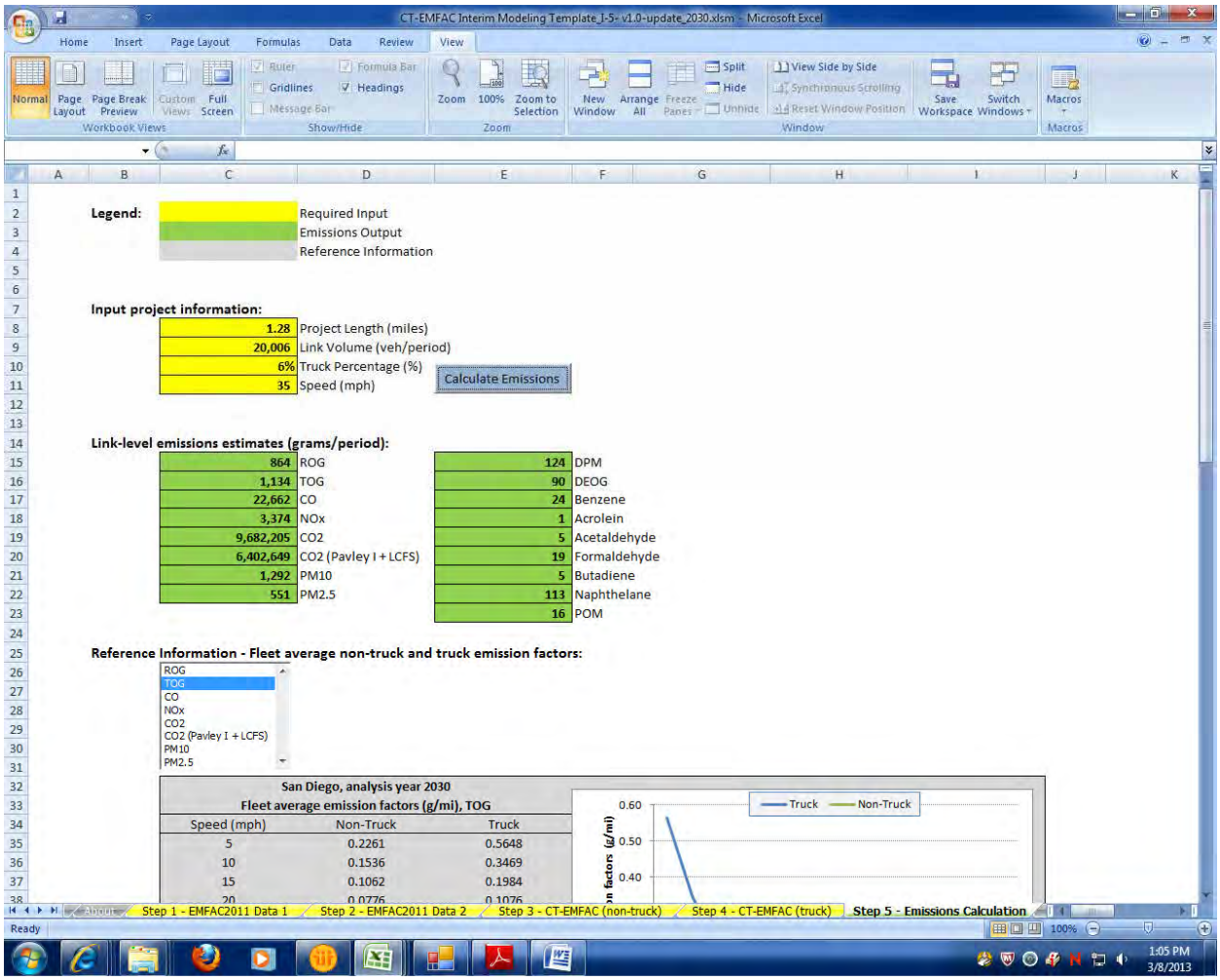
2030 8+4
Link: 4 (SB GP)
Segment: 22
Peak



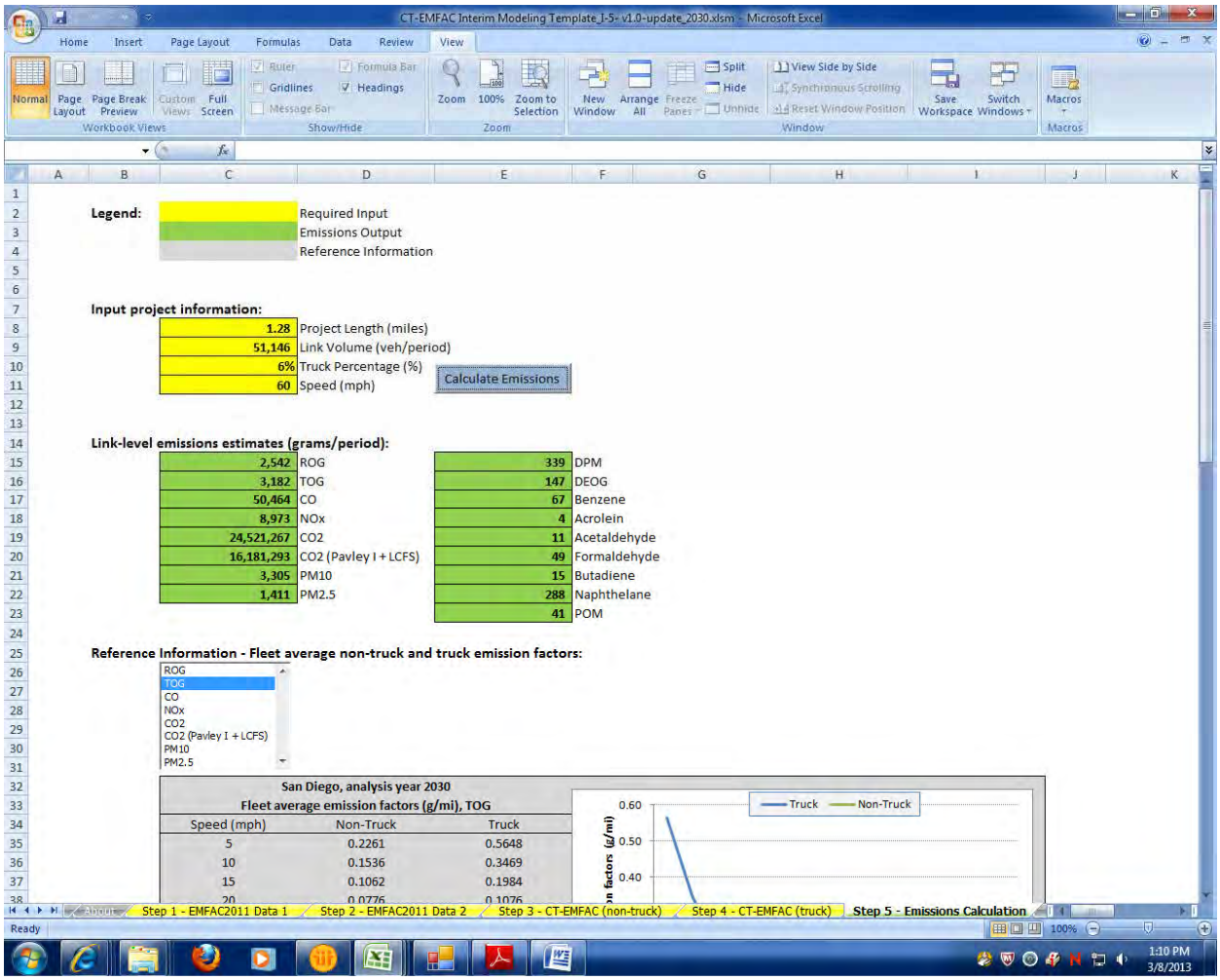
2030 8+4
Link: 4 (SB GP)
Segment: 22
Off Peak



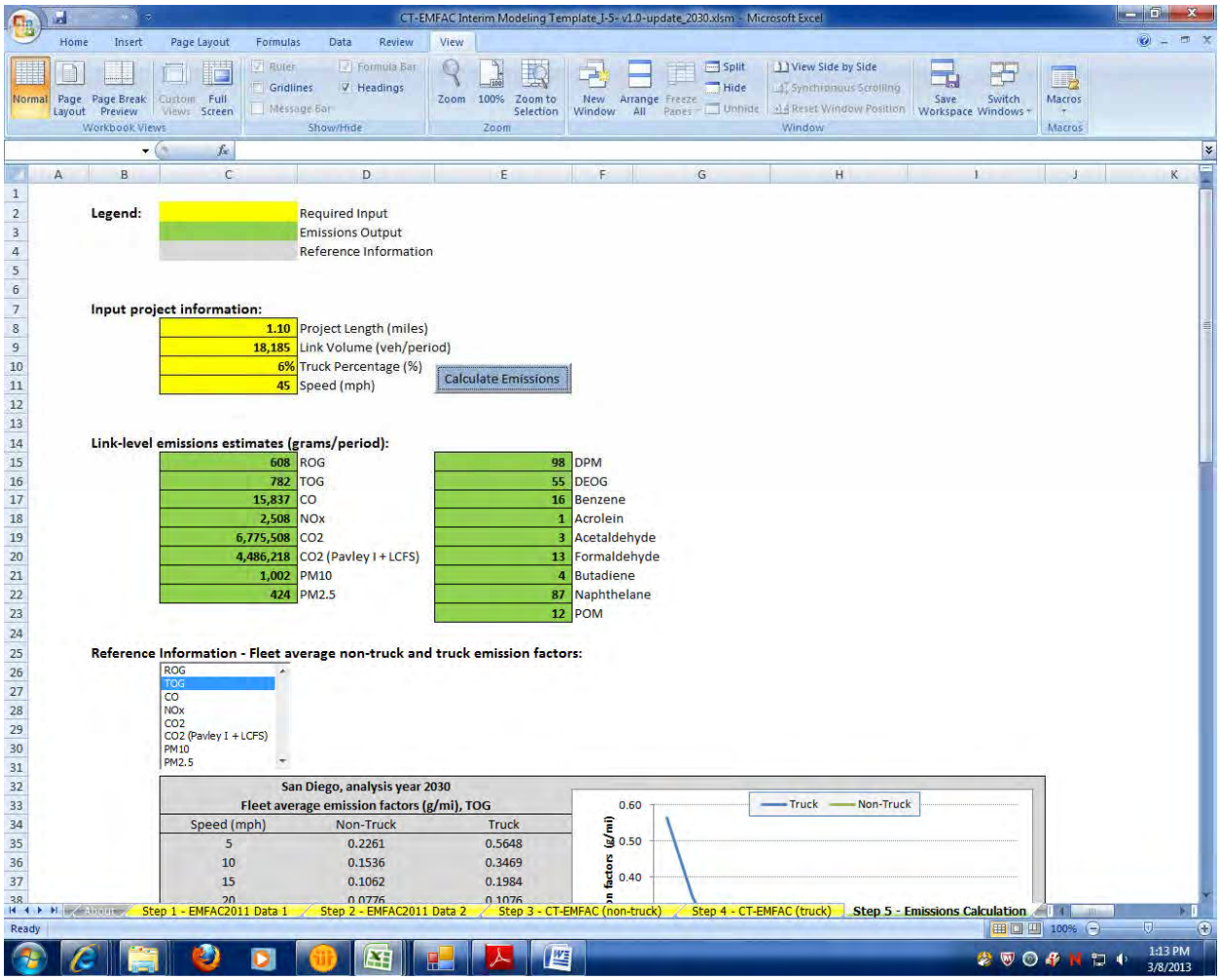
2030 8+4
Link: 5 (NB BP)
Segment: 2
Peak



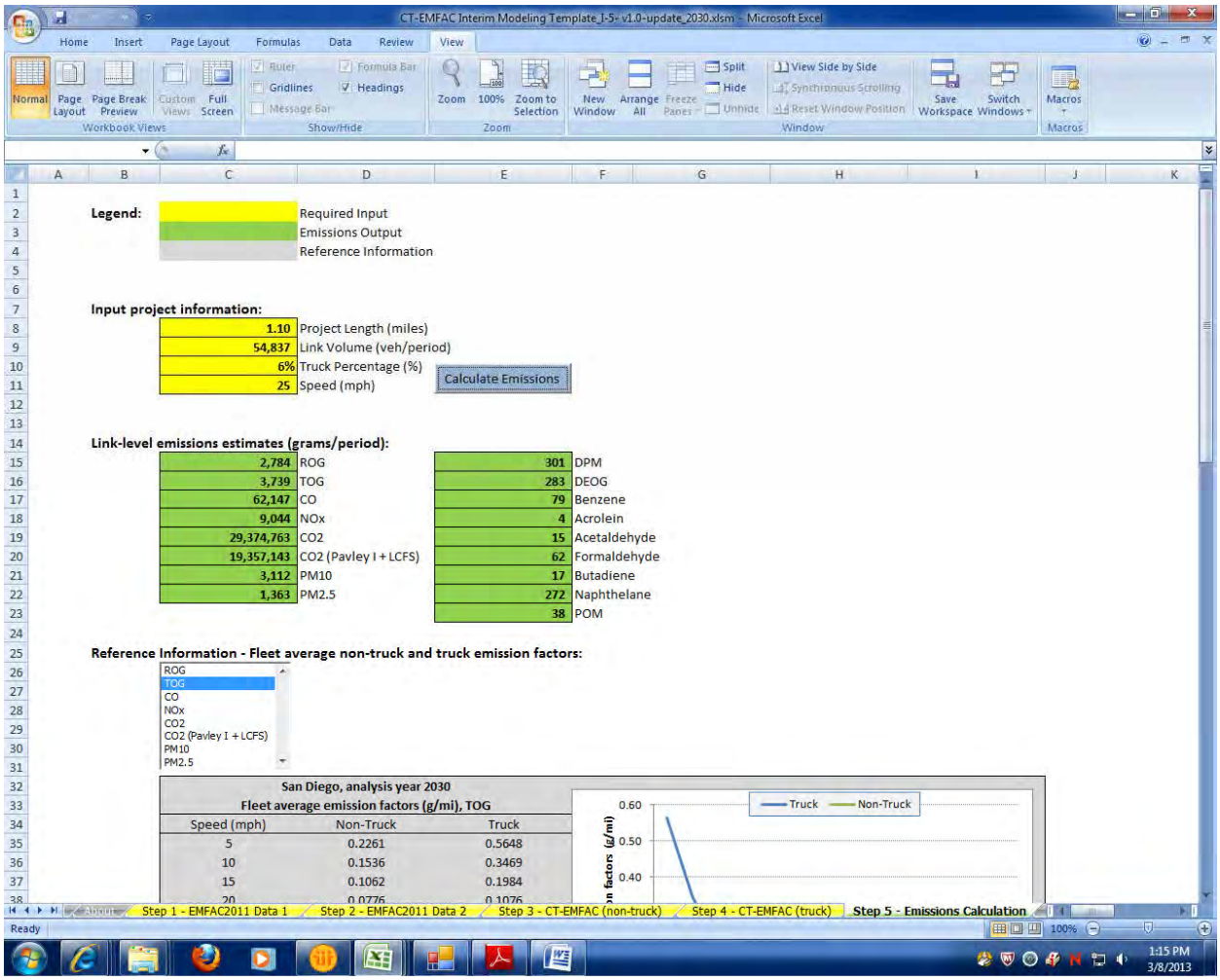
2030 8+4
Link: 5 (NB BP)
Segment: 2
Off Peak



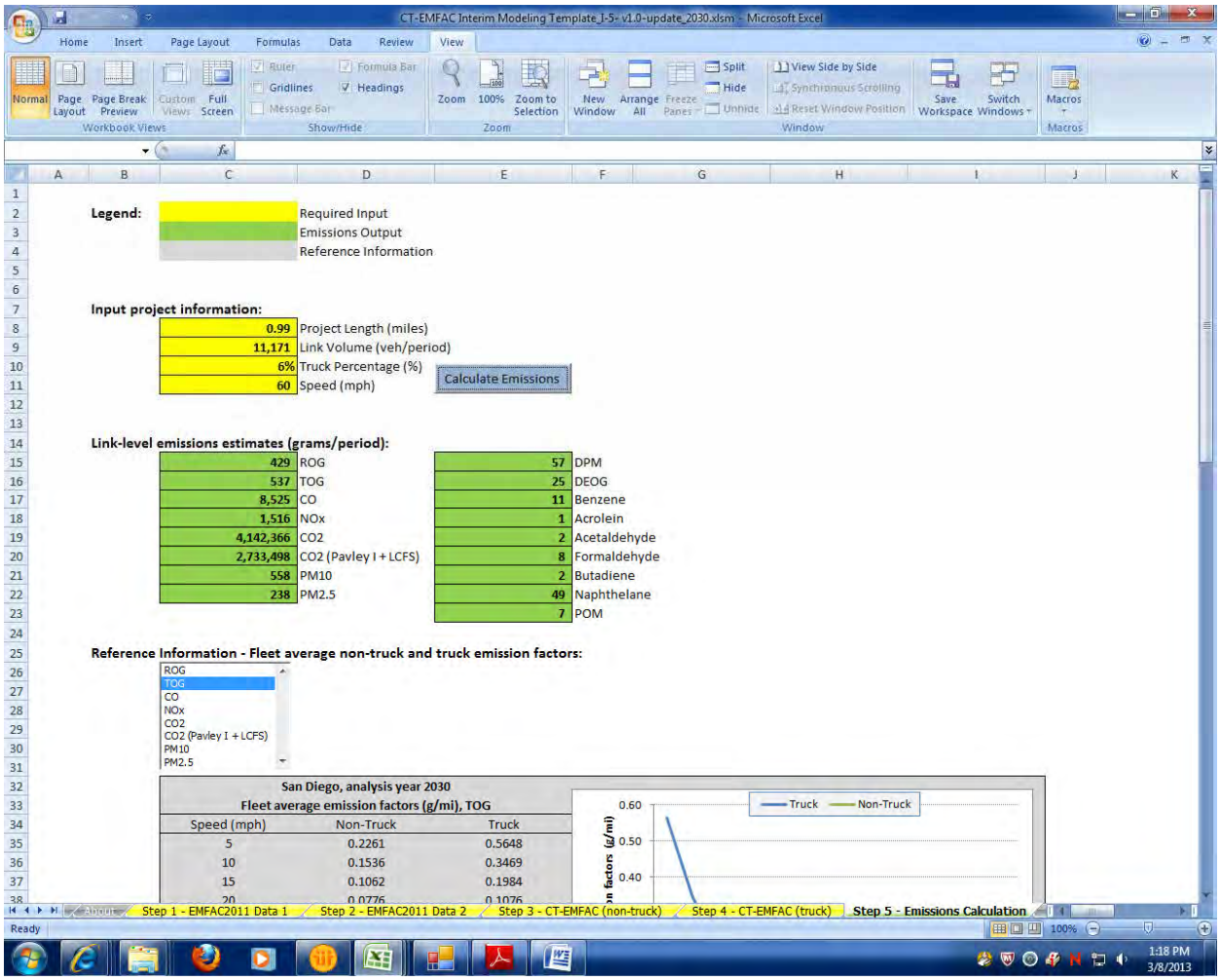
2030 8+4
Link: 5 (NB BP)
Segment: 3
Peak



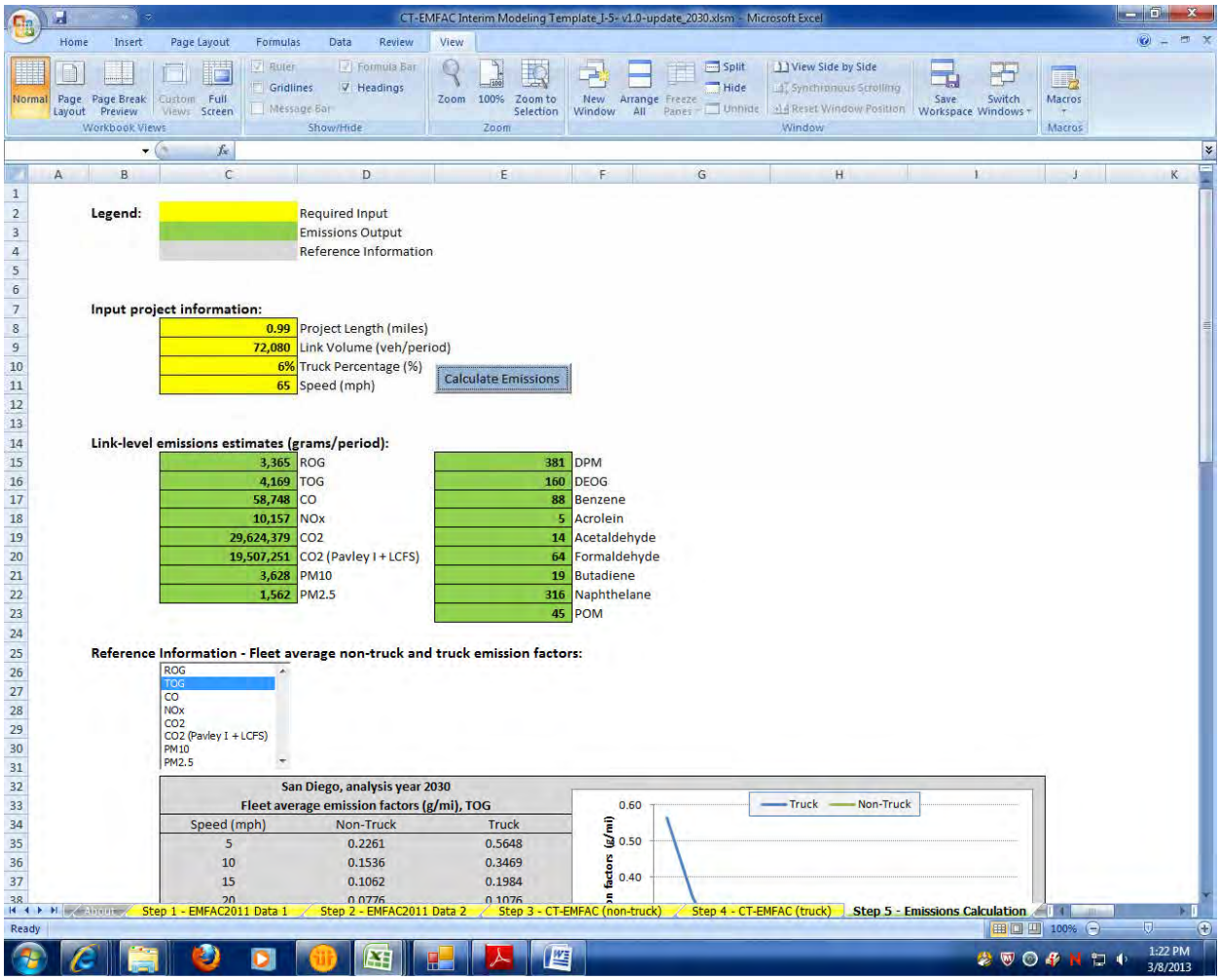
2030 8+4
Link: 5 (NB BP)
Segment: 3
Off Peak



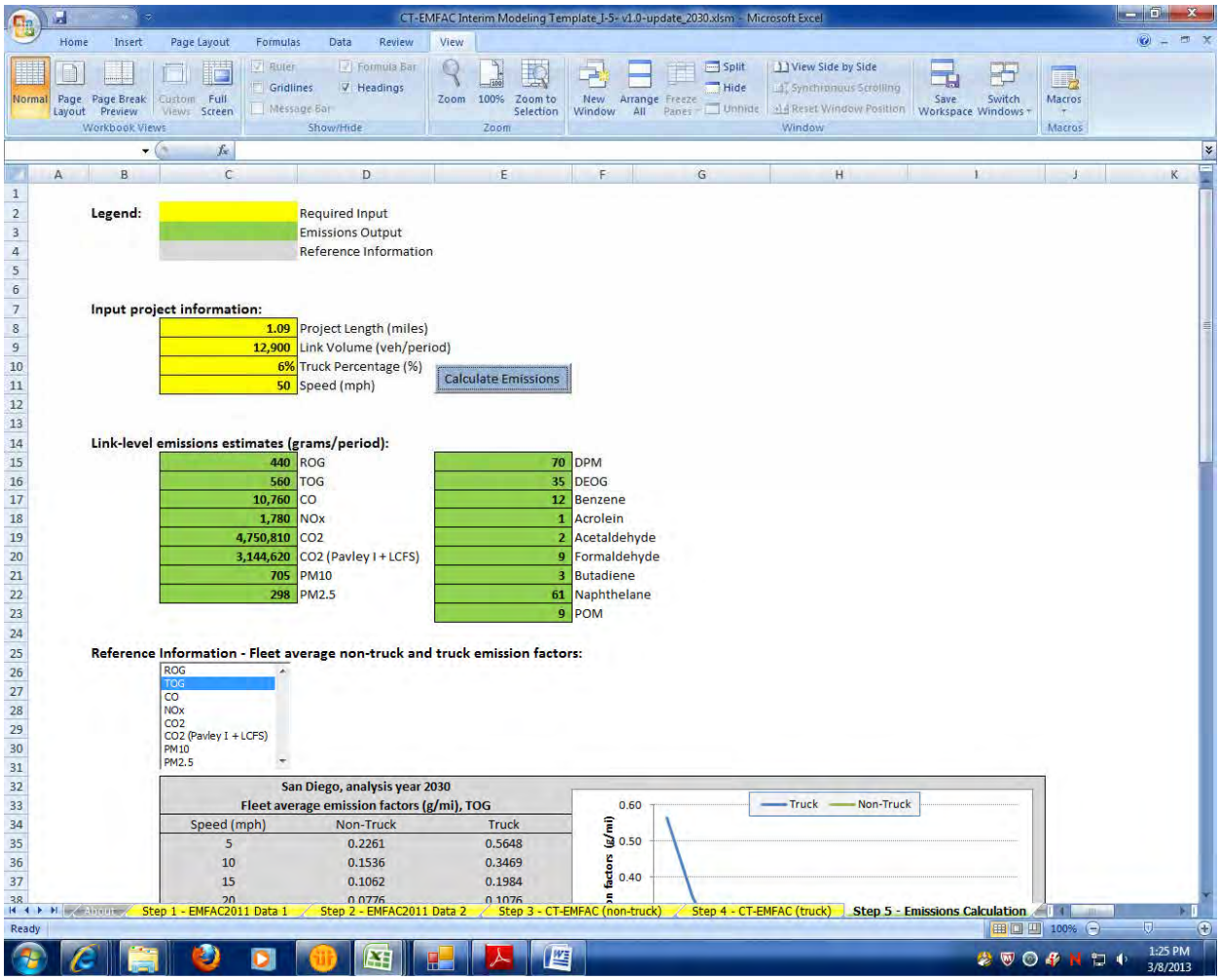
2030 8+4
Link: 6 (SB BP)
Segment: 2
Peak



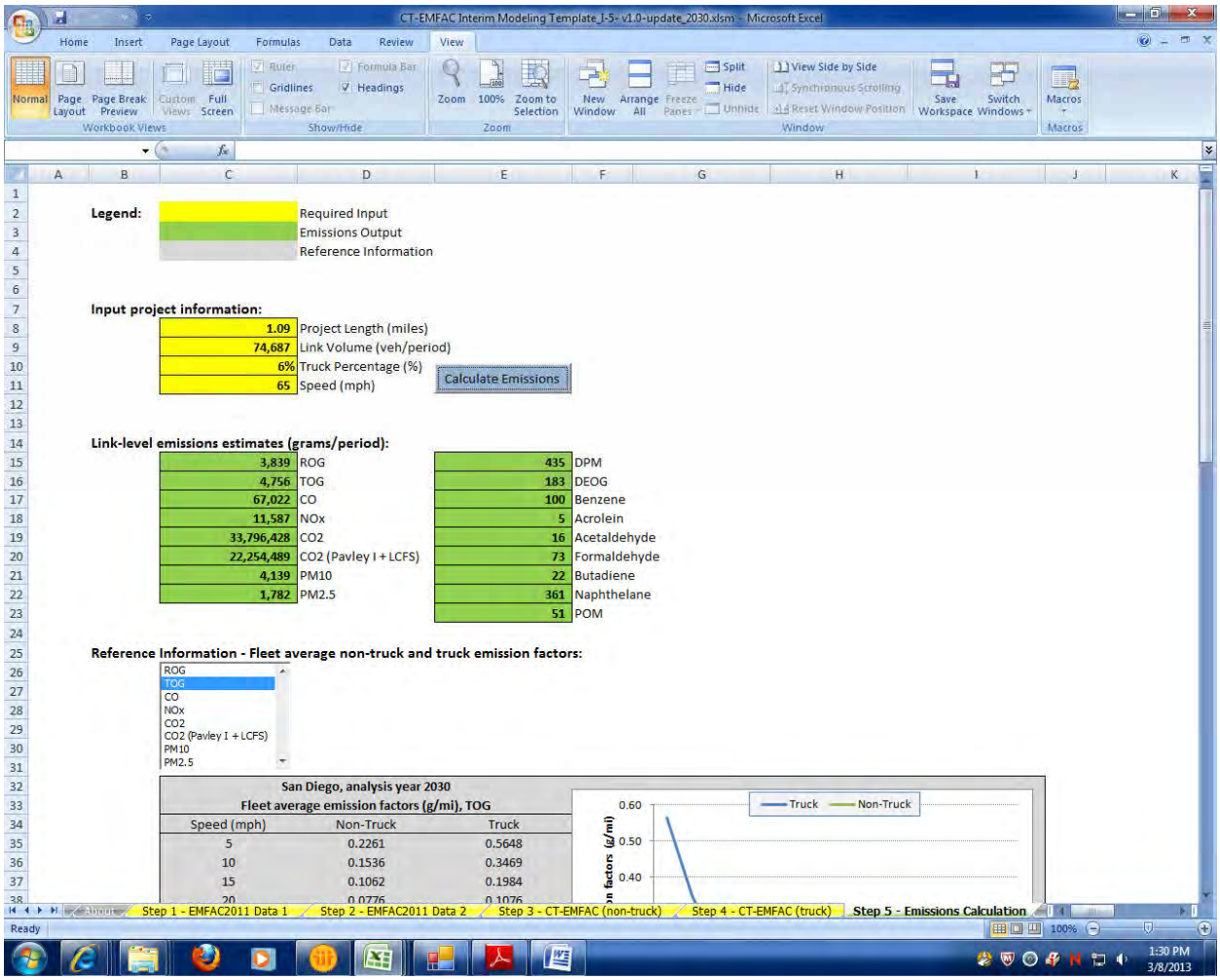
2030 8+4
Link: 6 (SB BP)
Segment: 2
Off Peak



2030 8+4
Link: 6 (SB BP)
Segment: 3
Peak



2030 8+4
Link: 6 (SB BP)
Segment: 3
Off Peak



Existing 2006

		Acrolein (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	5	29	37	9	17	11	11	10	5	6	7	7	7	7	5	8	5	5	5	4	3	1
	2	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	4	25	31	17	31	14	14	7	3	4	5	5	5	5	4	7	4	4	4	3	2	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	17	47	27	24	41	27	28	27	15	18	23	26	29	29	18	22	15	19	21	17	14	6
	2	0	4	6	6	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	19	41	25	28	52	29	37	28	16	20	26	30	32	29	20	25	16	21	22	19	13	7
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	22	76	64	33	58	38	39	37	20	24	30	33	36	36	23	30	20	24	26	21	17	7	714
	2	0	5	7	7	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
	3	23	66	56	45	83	43	51	35	19	24	31	35	37	34	24	32	20	25	26	22	15	8	754
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		45	147	127	85	153	82	90	72	39	48	61	68	73	70	47	62	40	49	52	43	32	15	1500

		Benzene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	86	544	705	165	315	212	217	196	93	106	140	138	138	133	91	157	88	100	97	76	57	21
	2	0	17	25	27	47	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	69	482	598	319	588	260	275	128	65	69	90	99	102	96	84	125	73	84	70	63	45	20
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	331	890	517	447	779	523	541	506	290	342	441	501	545	555	346	427	287	352	395	315	271	114
	2	0	79	107	104	169	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	366	768	474	523	995	554	696	526	310	379	492	562	602	557	389	479	308	401	422	351	247	137
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	417	1434	1222	612	1094	735	758	702	383	448	581	639	683	688	437	584	375	452	492	391	328	135	13590
	2	0	96	132	131	216	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	598
	3	435	1250	1072	842	1583	814	971	654	375	448	582	661	704	653	473	604	381	485	492	414	292	157	14342
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		852	2780	2426	1585	2893	1572	1729	1356	758	896	1163	1300	1387	1341	910	1188	756	937	984	805	620	292	28530

		1,3 Butadiene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	19	123	158	37	71	48	49	44	21	24	32	31	31	30	21	35	20	23	22	17	13	5
	2	0	4	6	6	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	16	109	134	72	133	59	62	29	15	16	20	22	23	22	19	28	16	19	16	14	10	4
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	75	201	117	101	176	118	122	114	66	77	100	113	123	125	78	96	65	80	89	71	61	26
	2	0	18	24	24	38	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	83	174	107	118	225	125	157	119	70	86	111	127	136	126	88	108	70	91	95	79	56	31
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	94	324	275	138	247	166	171	158	87	101	132	144	154	155	99	131	85	103	111	88	74	31	3068
	2	0	22	30	30	49	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136
	3	99	283	241	190	358	184	219	148	85	102	131	149	159	148	107	136	86	110	111	93	66	35	3240
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		193	629	546	358	654	355	390	306	172	203	263	293	313	303	206	267	171	213	222	181	140	66	6444

		DEOG (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	164	1039	2777	331	654	439	449	406	186	213	282	265	252	238	164	316	169	180	174	136	104	39
	2	0	10	14	15	26	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	127	920	2355	609	1122	497	526	258	125	127	161	177	182	171	154	240	134	151	129	115	81	36
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	595	1627	929	800	1428	1051	1087	904	519	615	792	900	978	1015	632	763	514	632	722	576	500	210
	2	0	42	60	58	95	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	669	1409	908	959	1825	1114	1443	945	557	693	900	1027	1099	1018	711	860	553	732	771	642	452	252
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	759	2666	3706	1131	2082	1490	1536	1310	705	828	1074	1165	1230	1253	796	1079	683	812	896	712	604	249	26766
	2	0	52	74	73	121	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	333
	3	796	2329	3263	1568	2947	1611	1969	1203	682	820	1061	1204	1281	1189	865	1100	687	883	900	757	533	288	27936
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		1555	5047	7043	2772	5150	3114	3505	2513	1387	1648	2135	2369	2511	2442	1661	2179	1370	1695	1796	1469	1137	537	55035

		Diesel PM (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	183	819	1008	333	594	363	371	369	188	214	284	296	307	307	209	318	189	230	223	175	130	49
	2		17	24	26	45	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	154	726	855	480	885	392	415	260	140	154	206	226	232	219	187	268	162	193	156	140	104	45
	4																						

		Diesel PM (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	766	2032	1196	1022	1734	1059	1095	1155	663	792	1020	1159	1260	1267	789	975	663	814	901	719	592	249
	2		68	103	100	162	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	836	1711	1013	1164	2217	1122	1311	1217	717	865	1124	1282	1373	1272	888	1108	712	914	963	802	565	299
	4																						

		Diesel PM (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	949	2851	2204	1355	2328	1422	1466	1524	851	1006	1304	1455	1567	1574	998	1293	852	1044	1124	894	722	298	29081
	2	0	85	127	126	207	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	567
	3	990	2437	1868	1644	3102	1514	1726	1477	857	1019	1330	1508	1605	1491	1075	1376	874	1107	1119	942	669	344	30074
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		1939	5373	4199	3125	5637	2958	3192	3001	1708	2025	2634	2963	3172	3065	2073	2669	1726	2151	2243	1836	1391	642	59722

		Formaldehyde (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	74	475	650	143	276	185	190	171	81	92	122	120	119	114	79	137	77	87	84	65	49	18
	2		14	20	21	37	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	60	421	551	278	513	227	240	112	57	60	78	85	88	82	73	109	63	73	61	54	39	17
	4																						

		Formaldehyde (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	285	766	445	385	672	455	471	436	250	295	380	431	469	478	298	368	247	303	340	271	233	98
	2		62	85	82	133	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	315	664	411	452	860	482	608	453	267	326	424	484	518	480	335	412	265	345	363	303	213	118
	4																						

		Formaldehyde (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	359	1241	1095	528	948	640	661	607	331	387	502	551	588	592	377	505	324	390	424	336	282	116	11784
	2	0	76	105	103	170	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	472
	3	375	1085	962	730	1373	709	848	565	324	386	502	569	606	562	408	521	328	418	424	357	252	135	12439
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		734	2402	2162	1361	2491	1367	1509	1172	655	773	1004	1120	1194	1154	785	1026	652	808	848	693	534	251	24695

		Naphthalene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	95	345	298	166	281	161	165	174	94	107	141	153	160	152	108	159	98	118	115	87	61	23
	2	0	17	25	27	46	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	81	305	253	202	372	165	174	130	72	81	106	116	120	113	98	139	85	99	82	73	51	21
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	380	955	593	527	906	528	546	595	342	393	506	575	625	595	371	502	329	404	423	338	259	109
	2	0	68	106	103	167	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	393	894	523	608	1158	560	620	604	356	406	528	602	645	597	417	550	353	429	452	377	265	131
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	475	1300	891	693	1187	689	711	769	436	500	647	728	785	747	479	661	427	522	538	425	320	132	14062
	2	0	85	131	130	213	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	582
	3	474	1199	776	810	1530	725	794	734	428	487	634	718	765	710	515	689	438	528	534	450	316	152	14406
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		949	2584	1798	1633	2930	1437	1505	1503	864	987	1281	1446	1550	1457	994	1350	865	1050	1072	875	636	284	29050

		Polycyclic Organic Matter (POM) (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	13	48	41	23	39	22	23	24	13	15	20	21	22	21	15	22	14	17	16	12	9	3
	2	0	2	3	4	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	11	42	35	28	52	23	24	18	10	11	15	16	17	16	14	19	12	14	11	10	7	3
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (POM) (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	53	133	83	74	127	74	76	83	48	55	71	80	87	83	52	70	46	57	59	47	36	15
	2	0	9	15	14	23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	55	125	73	85	162	78	86	84	50	57	74	84	90	83	58	77	49	60	63	53	37	18
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	66	181	124	97	166	96	99	107	61	70	91	101	109	104	67	92	60	74	75	59	45	18	1962
	2	0	11	18	18	29	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79
	3	66	167	108	113	214	101	110	102	60	68	89	100	107	99	72	96	61	74	74	63	44	21	2009
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		132	359	250	228	409	200	209	209	121	138	180	201	216	203	139	188	121	148	149	122	89	39	4050

2015 No Build

		Acrolein (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	2	2	1	2	5	3	3	2	1	2	2	2	3	2	1	2	1	1	2	1	1	1
	2	0	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	2	1	2	4	4	2	2	1	1	1	1	2	1	1	2	1	1	1	1	0	0
	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	9	17	8	12	25	12	15	14	8	12	11	12	13	12	9	14	9	10	10	7	7	4
	2	1	3	2	2	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	3	2	2	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	12	19	8	14	25	19	17	18	8	10	11	13	14	15	9	16	10	11	12	9	7	4
	5	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	8	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	11	19	9	14	30	15	18	16	9	14	13	14	16	14	10	16	10	11	12	8	8	5	292
	2	1	4	2	3	5	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
	3	1	4	2	2	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
	4	13	21	9	16	29	23	19	20	9	11	12	14	16	16	10	18	11	12	13	10	7	4	313
	5	10	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
	6	10	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
TOTAL		46	67	23	35	69	43	42	36	18	25	25	28	32	30	20	34	21	23	25	18	15	9	684

		Benzene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	30	44	9	46	97	49	51	44	26	31	32	38	48	36	23	32	24	26	34	24	20	13
	2	5	13	25	10	18	10	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	4	11	6	8	15	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	14	30	16	37	84	74	37	36	21	20	20	22	31	19	17	32	20	20	15	14	8	4
	5	37	34	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	35	29	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	175	316	144	231	478	239	290	257	144	228	203	235	254	237	166	261	165	187	194	141	126	70
	2	24	61	36	42	75	40	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	26	64	40	46	82	43	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	227	353	153	259	482	367	321	342	158	181	218	254	275	281	172	300	186	206	220	165	126	72
	5	151	125	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	157	145	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	205	360	153	277	575	288	341	301	170	259	235	273	302	273	189	293	189	213	228	165	146	83	5518
	2	29	74	61	52	93	50	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	408
	3	30	75	46	54	97	51	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	397
	4	241	383	169	296	566	441	358	378	179	201	238	276	306	300	189	332	206	226	235	179	134	76	5909
	5	188	159	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	355
	6	192	174	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	387
TOTAL		885	1225	458	679	1331	830	792	679	349	460	473	549	608	573	378	625	395	439	463	344	280	159	12974

		1,3 Butadiene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	7	10	5	10	21	11	11	10	6	7	7	8	11	8	5	7	5	6	8	5	5	3
	2	1	3	2	2	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	2	1	2	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	3	7	4	8	19	16	8	8	5	4	4	5	7	4	4	7	4	4	3	3	2	1
	5	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	8	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	39	70	32	51	106	53	64	57	32	50	45	52	56	53	37	58	37	41	43	31	28	15
	2	5	14	8	9	17	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	6	14	9	10	18	10	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	50	79	34	57	107	81	71	76	35	40	48	56	61	62	38	67	41	46	49	37	28	16
	5	34	28	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	35	32	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	46	80	37	61	127	64	75	67	38	57	52	60	67	61	42	65	42	47	51	36	33	18	1226
	2	6	17	10	11	21	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87
	3	7	16	10	12	21	12	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88
	4	53	86	38	65	126	97	79	84	40	44	52	61	68	66	42	74	45	50	52	40	30	17	1309
	5	42	35	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79
	6	43	38	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86
TOTAL		197	272	102	149	295	184	175	151	78	101	104	121	135	127	84	139	87	97	103	76	63	35	2875

		DEOG (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	76	112	60	122	247	125	131	115	67	82	84	99	127	90	61	83	62	67	89	60	41	24
	2	4	9	6	7	13	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	2	7	5	6	10	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	32	71	42	93	201	291	88	86	51	51	52	59	78	47	45	82	51	53	38	37	21	9
	5	81	88	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	91	72	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	319	576	262	507	1251	625	764	648	364	599	484	515	603	519	419	685	433	470	460	310	230	127
	2	15	38	26	30	53	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	16	40	28	33	58	31	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	366	643	279	568	1147	937	845	900	398	430	479	557	654	565	378	785	487	519	442	363	253	130
	5	381	298	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	316	366	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	395	688	322	629	1498	750	895	763	431	681	568	614	730	609	480	768	495	537	549	370	271	151	13194
	2	19	47	32	37	66	35	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	271
	3	18	47	33	39	68	36	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	272
	4	398	714	321	661	1348	1228	933	986	449	481	531	616	732	612	423	867	538	572	480	400	274	139	13703
	5	462	386	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	869
	6	407	438	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	895
TOTAL		1699	2320	779	1366	2980	2049	1894	1749	880	1162	1099	1230	1462	1221	903	1635	1033	1109	1029	770	545	290	29204

		Diesel PM (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	99	146	78	124	221	112	118	117	69	84	97	114	129	117	71	96	63	78	103	78	70	41
	2	9	24	16	19	33	18	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	6	17	12	15	26	14	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	50	103	48	84	163	94	72	70	41	46	53	60	70	61	46	73	46	54	44	38	27	15
	5	129	101	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	105	94	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	554	1000	455	805	1442	720	777	845	474	609	702	819	876	825	546	789	499	613	668	492	399	220
	2	37	95	66	77	136	72	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	40	101	72	84	149	79	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	638	1117	485	903	1666	841	860	915	519	624	761	885	949	956	601	905	561	677	748	577	427	227
	5	497	433	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	535	478	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	653	1146	533	929	1663	832	895	962	543	693	799	933	1005	942	617	885	562	691	771	570	469	261	17354
	2	46	119	82	96	169	90	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	691
	3	46	118	84	99	175	93	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	695
	4	688	1220	533	987	1829	935	932	985	560	670	814	945	1019	1017	647	978	607	731	792	615	454	242	18200
	5	626	534	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1189
	6	640	572	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1282
TOTAL		2699	3709	1331	2111	3836	1950	1996	1947	1103	1363	1613	1878	2024	1959	1264	1863	1169	1422	1563	1185	923	503	39411

		Formaldehyde (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	25	37	20	40	82	42	44	37	22	27	27	32	41	30	20	27	20	22	29	20	17	11
	2	4	10	6	7	13	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	3	8	5	6	10	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	12	25	14	31	72	66	31	31	18	17	17	19	26	16	15	27	17	17	12	12	7	4
	5	31	29	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	30	24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	143	258	117	191	406	203	248	217	122	194	170	195	212	196	140	222	140	157	162	117	103	57
	2	17	44	26	30	54	29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	19	46	29	33	59	31	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	183	288	125	215	404	313	274	292	133	151	181	211	230	231	143	255	158	174	181	137	103	58
	5	128	105	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	129	123	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	168	295	137	231	488	245	292	254	144	221	197	227	253	226	160	249	160	179	191	137	120	68	4642
	2	21	54	32	37	67	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	283
	3	22	54	34	39	69	37	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	287
	4	195	313	139	246	476	379	305	323	151	168	198	230	256	247	158	282	175	191	193	149	110	62	4946
	5	159	134	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300
	6	159	147	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	323
TOTAL		724	997	366	553	1100	697	665	577	295	389	395	457	509	473	318	531	335	370	384	286	230	130	10781

		Naphthalene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	79	117	62	97	167	85	89	91	53	65	77	91	100	94	56	76	49	62	82	63	54	31
	2	12	31	21	24	43	23	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	7	22	15	19	34	18	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	39	82	38	63	117	57	51	50	29	35	41	47	53	49	36	56	35	42	35	29	22	11
	5	101	80	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	83	75	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	415	748	341	634	1144	571	605	676	379	474	560	645	699	650	437	626	396	490	533	388	298	165
	2	47	120	84	98	174	92	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	51	127	92	108	190	100	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	461	836	362	711	1329	636	669	713	415	498	600	698	757	736	473	718	445	542	576	454	329	170
	5	398	345	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	412	382	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	494	865	403	731	1311	656	694	767	432	539	637	736	799	744	493	702	445	552	615	451	352	196	13614
	2	59	151	105	122	217	115	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	883
	3	58	149	107	127	224	118	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	885
	4	500	918	400	774	1446	693	720	763	444	533	641	745	810	785	509	774	480	584	611	483	351	181	14145
	5	499	425	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	947
	6	495	457	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1007
TOTAL		2105	2965	1093	1754	3198	1582	1630	1530	876	1072	1278	1481	1609	1529	1002	1476	925	1136	1226	934	703	377	31481

		Polycyclic Organic Matter (POM) (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	11	16	9	14	23	12	12	13	7	9	11	13	14	13	8	11	7	9	11	9	8	4
	2	2	4	3	3	6	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	3	2	3	5	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	6	12	5	9	16	8	7	7	4	5	6	7	7	7	5	8	5	6	5	4	3	2
	5	14	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	12	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (POM) (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	58	105	48	89	161	80	85	95	53	67	79	91	98	91	61	88	56	69	75	55	42	23
	2	7	17	12	14	24	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	7	18	13	15	27	14	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	65	118	51	100	187	89	94	100	58	70	84	98	107	104	67	101	63	76	81	64	46	24
	5	56	49	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	58	54	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	69	121	57	103	184	92	97	108	60	76	90	104	112	104	69	99	63	78	86	64	50	27	1913
	2	9	21	15	17	30	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124
	3	8	21	15	18	32	16	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	125
	4	71	130	56	109	203	97	101	107	62	75	90	105	114	111	72	109	68	82	86	68	49	26	1991
	5	70	60	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133
	6	70	65	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	143
TOTAL		297	418	154	247	449	221	229	215	122	151	180	209	226	215	141	208	131	160	172	132	99	53	4429

2015 8+4

		Acrolein (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	2	4	2	13	5	3	2	2	1	2	2	2	3	3	2	2	2	2	2	2	2	1
	2	0	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
	3	0	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	0	0	0	0	0	0
	4	0	4	2	5	6	7	4	3	1	1	2	2	2	2	2	3	2	2	2	1	1	0
	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	8	14	14	12	27	17	13	11	6	8	9	11	11	12	7	9	6	7	9	7	6	3
	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
	3	1	2	2	2	3	2	4	2	1	1	1	2	2	2	1	1	1	1	1	1	1	0
	4	9	17	7	12	21	17	18	11	6	8	2	13	12	13	7	11	6	7	11	8	6	3
	5	7	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	6	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	10	18	16	25	32	20	15	13	7	10	11	13	14	15	9	11	8	9	11	9	8	4	288
	2	1	3	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	0	0	41
	3	1	3	3	3	4	3	5	3	1	1	1	3	3	3	1	2	1	1	1	1	1	0	45
	4	9	21	9	17	27	24	22	14	7	9	4	15	14	15	9	14	8	9	13	9	7	3	279
	5	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
	6	7	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
TOTAL		38	62	31	47	67	49	44	32	17	22	18	33	33	35	21	29	19	21	27	20	16	7	688

		Benzene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	43	71	32	56	105	51	42	44	25	30	37	45	49	50	34	46	29	36	40	31	30	12
	2	7	26	19	23	34	18	22	19	11	15	18	20	20	20	14	20	13	13	16	9	7	3
	3	5	14	10	14	27	14	15	11	7	8	9	11	12	12	8	12	7	5	8	4	4	2
	4	30	69	31	97	116	127	68	56	28	29	34	40	41	44	31	55	35	34	30	22	18	9
	5	48	32	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	21	23	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	160	259	259	257	513	318	258	208	118	143	171	213	217	238	131	174	111	141	165	124	113	48
	2	10	35	27	26	42	22	25	25	15	17	21	23	24	23	14	19	12	12	16	10	8	4
	3	16	41	29	35	62	33	37	32	19	22	27	32	36	35	22	28	16	13	25	14	12	6
	4	171	317	132	228	407	325	335	211	121	155	34	243	235	250	139	208	123	131	212	146	111	59
	5	124	160	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	106	121	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	203	330	291	313	618	369	300	252	143	173	208	258	266	288	165	220	140	177	205	155	143	60	5277
	2	17	61	46	49	76	40	47	44	26	32	39	43	44	43	28	39	25	25	32	19	15	7	797
	3	21	55	39	49	89	47	52	43	26	30	36	43	48	47	30	40	23	18	33	18	16	8	811
	4	201	386	163	325	523	452	403	267	149	184	68	283	276	294	170	263	158	165	242	168	129	68	5337
	5	172	192	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	372
	6	127	144	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	292
TOTAL		741	1168	568	736	1306	908	802	606	344	419	351	627	634	672	393	562	346	385	512	360	303	143	12886

		1,3 Butadiene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	10	16	7	12	23	11	9	10	6	7	8	10	11	11	8	10	6	8	9	7	7	3
	2	2	6	4	5	8	4	5	4	2	3	4	4	5	4	3	4	3	3	4	2	2	1
	3	1	3	2	3	6	3	3	2	1	2	2	2	3	3	2	3	2	1	2	1	1	0
	4	7	15	7	21	26	28	15	12	6	6	8	9	9	10	7	12	8	8	7	5	4	2
	5	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	5	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	36	57	57	57	113	70	57	46	26	32	38	47	48	53	29	39	25	31	37	28	25	11
	2	2	8	6	6	9	5	6	6	3	4	5	5	5	5	3	4	3	3	3	2	2	1
	3	4	9	7	8	14	7	8	7	4	5	6	7	8	8	5	6	4	3	6	3	3	1
	4	38	70	29	51	90	72	74	47	27	34	8	54	52	56	31	46	27	29	47	33	25	13
	5	28	36	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	24	27	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	46	73	64	69	136	81	66	56	32	39	46	57	59	64	37	49	31	39	46	35	32	14	1171
	2	4	14	10	11	17	9	11	10	5	7	9	9	10	9	6	8	6	6	7	4	4	2	178
	3	5	12	9	11	20	10	11	9	5	7	8	9	11	11	7	9	6	4	8	4	4	1	181
	4	45	85	36	72	116	100	89	59	33	40	16	63	61	66	38	58	35	37	54	38	29	15	1185
	5	39	43	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
	6	29	32	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66
TOTAL		168	259	126	163	289	200	177	134	75	93	79	138	141	150	88	124	78	86	115	81	69	32	2865

		DEOG (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	87	156	69	133	274	133	100	96	51	66	75	91	99	91	62	93	58	73	81	63	55	22
	2	5	19	13	15	24	13	14	13	8	9	11	12	13	12	8	12	8	8	10	6	4	2
	3	3	10	7	10	19	10	11	7	4	5	6	7	7	7	5	7	4	3	5	3	3	1
	4	55	125	68	247	304	412	174	148	73	63	75	81	90	88	73	145	91	89	60	44	34	17
	5	125	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	38	50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	291	568	662	672	1348	812	677	495	280	340	375	427	477	433	263	382	263	310	332	250	206	88
	2	6	22	17	16	26	14	15	16	9	11	13	15	15	15	9	11	7	7	10	6	5	3
	3	10	25	18	22	38	20	23	20	12	14	17	20	22	22	14	17	10	8	15	9	8	4
	4	311	577	265	542	1025	831	857	502	266	311	75	442	472	456	279	417	270	288	385	267	202	108
	5	226	410	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	171	195	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	378	724	731	805	1622	945	777	591	331	406	450	518	576	524	325	475	321	383	413	313	261	110	11979
	2	11	41	30	31	50	27	29	29	17	20	24	27	28	27	17	23	15	15	20	12	9	5	507
	3	13	35	25	32	57	30	34	27	16	19	23	27	29	29	19	24	14	11	20	12	11	5	512
	4	366	702	333	789	1329	1243	1031	650	339	374	150	523	562	544	352	562	361	377	445	311	236	125	11704
	5	351	487	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	840
	6	209	245	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	459
TOTAL		1328	2234	1126	1657	3058	2245	1871	1297	703	819	647	1095	1195	1124	713	1084	711	786	898	648	517	245	26001

		Diesel PM (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	147	249	110	192	316	153	145	153	87	106	126	154	168	159	108	157	98	124	137	107	95	38
	2	13	48	34	37	63	33	35	35	20	23	28	31	32	31	21	31	20	20	26	14	11	5
	3	7	25	18	26	48	26	27	17	10	12	15	17	19	18	13	19	11	8	13	7	6	3
	4	95	217	107	222	310	200	156	151	84	100	119	138	143	148	106	167	105	102	101	74	58	30
	5	145	111	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	66	79	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	506	902	594	775	1371	728	689	719	406	493	596	722	758	752	445	607	382	493	560	422	358	153
	2	16	54	42	40	65	35	39	39	23	27	33	37	37	37	22	29	19	19	24	15	13	6
	3	26	64	46	54	96	51	58	50	30	35	43	50	56	55	34	44	24	20	39	22	19	10
	4	541	1002	448	787	1337	746	769	729	422	526	119	768	799	791	472	705	429	458	669	463	350	187
	5	392	368	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	298	340	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	653	1151	704	967	1687	881	834	872	493	599	722	876	926	911	553	764	480	617	697	529	453	191	16560
	2	29	102	76	77	128	68	74	74	43	50	61	68	69	68	43	60	39	39	50	29	24	11	1282
	3	33	89	64	80	144	77	85	67	40	47	58	67	75	73	47	63	35	28	52	29	25	13	1291
	4	636	1219	555	1009	1647	946	925	880	506	626	238	906	942	939	578	872	534	560	770	537	408	217	16450
	5	537	479	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1045
	6	364	419	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	853

TOTAL	2252	3459	1498	2133	3606	1972	1918	1893	1082	1322	1079	1917	2012	1991	1221	1759	1088	1244	1569	1124	910	432	37481

		Formaldehyde (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	35	59	26	47	89	43	35	36	21	25	31	37	41	41	28	38	24	30	33	26	25	10
	2	5	19	13	17	25	13	16	14	8	11	13	14	15	14	10	14	9	9	12	6	5	3
	3	3	10	7	10	19	10	11	8	5	5	7	8	9	8	6	9	5	4	6	3	3	1
	4	25	56	26	83	99	111	58	48	24	24	28	33	34	36	26	47	29	29	25	18	15	8
	5	41	27	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	17	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	130	214	221	218	437	271	220	174	98	120	142	175	180	194	108	144	93	117	136	102	92	39
	2	7	25	19	18	30	16	18	18	11	12	15	17	17	17	10	13	9	9	11	7	6	3
	3	12	29	21	25	44	24	27	23	14	16	20	23	26	25	16	20	11	9	18	10	9	4
	4	139	258	108	191	343	278	286	177	100	127	28	198	193	204	114	171	102	109	172	119	90	48
	5	101	137	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	86	98	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	165	273	247	265	526	314	255	210	119	145	173	212	221	235	136	182	117	147	169	128	117	49	4405
	2	12	44	32	35	55	29	34	32	19	23	28	31	32	31	20	27	18	18	23	13	11	6	573
	3	15	39	28	35	63	34	38	31	19	21	27	31	35	33	22	29	16	13	24	13	12	5	583
	4	164	314	134	274	442	389	344	225	124	151	56	231	227	240	140	218	131	138	197	137	105	56	4437
	5	142	164	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	313
	6	103	117	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	237

TOTAL	601	951	465	609	1086	766	671	498	281	340	284	505	515	539	318	456	282	316	413	291	245	116	10548

		Naphthalene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	113	196	87	154	251	121	116	120	67	83	97	119	130	119	81	121	76	95	105	82	71	29
	2	17	61	43	46	80	42	44	44	26	29	36	39	40	39	27	39	26	26	32	18	14	7
	3	9	32	23	33	62	33	35	22	13	15	18	22	24	23	17	24	13	11	17	9	8	4
	4	71	163	85	168	241	133	118	117	67	78	94	106	113	114	84	133	83	81	78	57	44	22
	5	115	89	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	50	62	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	379	710	449	615	1067	551	536	573	324	393	469	557	597	562	343	478	305	388	432	325	268	114
	2	20	69	53	51	83	44	49	50	29	34	42	46	47	46	28	37	24	24	31	19	16	8
	3	32	80	58	69	122	65	73	63	38	44	54	63	71	70	43	55	31	26	49	28	24	12
	4	404	749	345	628	1069	564	582	582	333	405	94	575	615	592	364	543	338	361	501	346	262	140
	5	294	278	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	215	246	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	492	906	536	769	1318	672	652	693	391	476	566	676	727	681	424	599	381	483	537	407	339	143	12868
	2	37	130	96	97	163	86	93	94	55	63	78	85	87	85	55	76	50	50	63	37	30	15	1625
	3	41	112	81	102	184	98	108	85	51	59	72	85	95	93	60	79	44	37	66	37	32	16	1637
	4	475	912	430	796	1310	697	700	699	400	483	188	681	728	706	448	676	421	442	579	403	306	162	12642

	5	409	367	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	799
	6	265	308	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	628
TOTAL		1719	2735	1221	1764	2975	1553	1553	1571	897	1081	904	1527	1637	1565	987	1430	896	1012	1245	884	707	336	30199

		Polycyclic Organic Matter (POM) (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	16	28	12	22	35	17	16	17	9	12	14	17	18	17	11	17	11	13	15	12	10	4
	2	2	9	6	6	11	6	6	6	4	4	5	6	6	5	4	5	4	4	5	2	2	1
	3	1	4	3	5	9	5	5	3	2	2	3	3	3	3	2	3	2	1	2	1	1	1
	4	10	23	12	24	34	18	17	16	9	11	13	15	16	16	12	19	12	11	70	8	6	3
	5	16	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	7	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (POM) (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	53	100	63	86	150	77	75	81	46	55	66	78	84	79	48	67	43	55	61	46	38	16
	2	3	10	7	7	12	6	7	7	4	5	6	6	7	6	4	5	3	3	4	3	2	1
	3	5	11	8	10	17	9	10	9	5	6	8	9	10	10	6	8	4	4	7	4	3	2
	4	57	105	49	88	150	79	82	82	47	57	13	81	87	83	51	76	48	51	81	49	37	20
	5	41	39	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	30	35	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	69	128	75	108	185	94	91	98	55	67	80	95	102	96	59	84	54	68	76	58	48	20	1810
	2	5	19	13	13	23	12	13	13	8	9	11	12	13	11	8	10	7	7	9	5	4	2	227
	3	6	15	11	15	26	14	15	12	7	8	11	12	13	13	8	11	6	5	9	5	4	3	229
	4	67	128	61	112	184	97	99	98	56	68	26	96	103	99	63	95	60	62	151	57	43	23	1848

	5	57	51	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111
	6	37	44	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89
TOTAL		241	385	171	248	418	217	218	221	126	152	128	215	231	219	138	200	127	142	245	125	99	48	4314

2030 No Build

		Acrolein (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	1	0	1	2	2	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0
	5	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	5	9	4	6	13	6	7	7	4	5	5	6	7	6	4	7	4	5	5	4	4	2
	2	1	2	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	2	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	7	10	4	7	13	9	8	9	4	5	6	7	7	8	8	8	5	5	6	5	4	2
	5	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	6	10	5	7	15	7	8	8	5	6	6	7	8	7	5	8	5	6	6	5	5	2	147

	2	1	2	1	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	3	1	2	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	4	7	11	4	8	15	11	9	10	5	6	7	8	8	8	8	9	6	6	6	5	4	2	163
	5	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	6	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
TOTAL		15	35	20	17	35	20	19	18	10	12	13	15	16	15	13	17	11	12	12	10	9	4	348

		Benzene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	15	22	12	23	47	24	25	22	13	15	16	19	24	18	12	16	12	13	17	12	11	7
	2	3	7	5	6	10	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	2	5	4	4	8	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	7	15	8	18	41	37	18	18	10	10	10	11	15	9	8	16	10	10	7	7	4	2
	5	0	19	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	17	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	94	170	78	120	238	119	143	129	73	89	104	122	129	123	84	130	82	94	99	73	68	37
	2	13	34	20	23	41	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	14	36	22	25	45	24	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	125	190	83	134	246	180	158	169	79	92	113	132	140	149	89	149	92	104	116	86	66	39
	5	0	76	64	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	83	73	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	109	192	90	143	285	143	168	151	86	104	120	141	153	141	96	146	94	107	116	85	79	44	2793
	2	16	41	25	29	51	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	216

	3	16	41	26	29	53	28	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	217
	4	132	205	91	152	287	217	176	187	89	102	123	143	155	158	97	165	102	114	123	93	70	41	3022
	5	0	95	81	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181
	6	0	100	87	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197
TOTAL		273	674	400	368	676	415	395	338	175	206	243	284	308	299	193	311	196	221	239	178	149	85	6626

		1,3 Butadiene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	3	5	3	5	10	5	5	5	3	3	4	4	5	4	3	3	3	3	4	3	2	2
	2	1	2	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	2	3	2	4	9	8	4	4	2	2	2	2	3	2	2	3	2	2	2	2	1	0
	5	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	21	37	17	26	52	26	31	28	16	19	23	27	28	27	18	28	18	20	22	16	15	8
	2	3	7	4	5	9	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	3	8	5	6	10	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	27	42	18	29	54	39	35	37	17	20	25	29	31	33	20	33	20	23	25	19	15	8
	5	0	17	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	18	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	24	42	20	31	62	31	36	33	19	22	27	31	33	31	21	31	21	23	26	19	17	10	610
	2	4	9	5	6	11	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47

	3	3	9	6	7	12	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
	4	29	45	20	33	63	47	39	41	19	22	27	31	34	35	22	36	22	25	27	21	16	8	662
	5	0	21	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
	6	0	22	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
TOTAL		60	148	88	80	148	90	86	74	38	44	54	62	67	66	43	67	43	48	53	40	33	18	1450

		DEOG (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	55	81	43	86	170	86	91	82	48	58	61	71	89	65	44	60	44	48	64	43	28	15
	2	2	6	4	5	8	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	4	3	4	7	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	22	51	30	65	133	207	58	57	34	35	37	42	54	34	32	57	35	37	28	26	15	6
	5	0	57	63	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	65	52	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	207	374	170	359	898	449	539	468	262	322	349	365	435	368	302	491	311	339	332	219	149	82
	2	9	24	16	19	34	18	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	10	25	18	21	37	19	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	228	418	181	402	827	648	597	636	287	310	339	395	471	388	268	564	349	375	303	257	173	85
	5	0	275	215	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	217	264	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	262	455	213	445	1068	535	630	550	310	380	410	436	524	433	346	551	355	387	396	262	177	97	9222
	2	11	30	20	24	42	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	171

	3	11	29	21	25	44	22	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
	4	250	469	211	467	960	855	655	693	321	345	376	437	525	422	300	621	384	412	331	283	188	91	9596
	5	0	332	278	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	626
	6	0	282	316	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	637
TOTAL		534	1597	1059	1016	2114	1434	1327	1243	631	725	786	873	1049	855	646	1172	739	799	727	545	365	188	20424

		Diesel PM (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	86	127	68	104	181	92	96	99	58	70	84	98	108	102	61	82	53	67	88	68	61	35
	2	8	21	14	16	29	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	5	14	10	13	23	12	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	44	90	42	68	126	62	55	54	32	37	44	50	57	53	38	60	37	45	38	32	24	13
	5	0	113	87	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	90	82	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	479	863	393	707	1237	618	653	735	413	506	616	719	769	724	475	677	428	534	586	432	345	190
	2	32	82	57	66	118	62	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	35	87	62	73	128	68	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	544	965	418	793	1461	687	722	769	451	547	669	778	833	835	528	777	481	589	653	506	374	196
	5	0	433	380	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	467	416	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	565	990	461	811	1418	710	749	834	471	576	700	817	877	826	536	759	481	601	674	500	406	225	14987
	2	40	103	71	82	147	77	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	597

	3	40	101	72	86	151	80	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	599
	4	588	1055	460	861	1587	749	777	823	483	584	713	828	890	888	566	837	518	634	691	538	398	209	15677
	5	0	546	467	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1038
	6	0	557	498	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1115
TOTAL		1233	3352	2029	1925	3303	1616	1672	1657	954	1160	1413	1645	1767	1714	1102	1596	999	1235	1365	1038	804	434	34013

		Formaldehyde (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	12	17	9	18	37	19	20	17	10	12	13	15	19	14	9	12	9	10	13	9	8	5
	2	2	5	3	4	7	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	3	2	3	5	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	6	12	6	14	32	31	14	14	8	8	8	9	12	7	7	12	8	8	6	6	3	2
	5	0	15	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	14	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	70	126	57	91	187	93	113	101	57	69	80	93	100	93	65	102	65	73	76	56	50	28
	2	9	23	13	15	27	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	10	24	14	17	30	16	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	91	141	61	102	190	141	125	133	62	71	86	100	108	111	68	117	73	81	87	65	50	29
	5	59	49	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	62	57	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Formaldehyde (g/day)																						
	Segment																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	SUM

Link	1	82	143	66	109	224	112	133	118	67	81	93	108	119	107	74	114	74	83	89	65	58	33	2152
	2	11	28	16	19	34	18	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	143
	3	11	27	16	20	35	19	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144
	4	97	153	67	116	222	172	139	147	70	79	94	109	120	118	75	129	81	89	93	71	53	31	2325
	5	59	64	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	140
	6	0	76	68	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
TOTAL		260	491	249	273	515	321	305	265	137	160	187	217	239	225	149	243	155	172	182	136	111	64	5056

		Naphthalene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	77	115	61	95	163	83	87	89	52	64	76	89	98	92	55	74	48	60	80	61	53	30
	2	12	30	20	24	42	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	7	21	15	19	33	18	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	39	81	38	62	113	54	50	49	29	34	40	46	52	48	35	54	34	41	34	29	21	11
	5	0	100	79	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	82	74	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	407	734	334	624	1122	561	592	664	373	457	551	634	687	639	429	614	388	482	524	381	293	161
	2	46	118	83	97	172	91	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	50	126	91	107	188	99	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	451	820	356	699	1307	621	655	698	408	489	590	686	745	724	465	705	437	532	566	447	324	166
	5	0	391	340	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	405	376	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (g/day)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

Link	1	484	849	395	719	1285	644	679	753	425	521	627	723	785	731	484	688	436	542	604	442	346	191	13353
	2	58	148	103	121	214	113	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	870
	3	57	147	106	126	221	117	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	875
	4	490	901	394	761	1420	675	705	747	437	523	630	732	797	772	500	759	471	573	600	476	345	177	13885
	5	0	491	419	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	933
	6	0	487	450	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	991
TOTAL		1089	3023	1867	1804	3140	1549	1598	1500	862	1044	1257	1455	1582	1503	984	1447	907	1115	1204	918	691	368	30907

		Polycyclic Organic Matter (POM) (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	11	16	9	13	23	12	12	13	7	9	11	13	14	13	8	10	7	9	11	9	7	4
	2	2	4	3	3	6	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	3	2	3	5	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	5	11	5	9	16	8	7	7	4	5	6	6	7	7	5	8	5	6	5	4	3	2
	5	0	14	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	12	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (POM) (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	57	103	47	88	158	79	83	94	53	65	78	89	97	90	61	87	55	68	74	54	41	23
	2	6	17	12	14	24	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	7	18	13	15	26	14	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	64	116	50	99	184	87	92	98	58	69	83	97	105	102	66	99	62	75	80	63	46	23
	5	0	55	48	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	57	53	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Polycyclic Organic Matter (g/day)

		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	68	119	56	101	181	91	95	107	60	74	89	102	111	103	69	97	62	77	85	63	48	27	1885
	2	8	21	15	17	30	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	123
	3	8	21	15	18	31	16	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124
	4	69	127	55	108	200	95	99	105	62	74	89	103	112	109	71	107	67	81	85	67	49	25	1959
	5	0	69	59	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131
	6	0	69	63	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	140
TOTAL		153	426	263	255	442	218	225	212	122	148	178	205	223	212	140	204	129	158	170	130	97	52	4362

2030 8+4

		Acrolein (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	1	2	1	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	2	0	1	1	1	1	1	1	1	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	2	1	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	5	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	4	7	4	6	12	6	5	6	3	4	5	6	6	7	4	5	3	4	5	3	3	1
	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
	3	1	2	2	2	4	2	2	2	1	1	2	2	2	2	1	2	1	0	1	1	1	0
	4	5	9	4	6	11	8	9	6	3	4	5	7	7	7	4	6	3	4	6	4	3	2
	5	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Acrolein (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	5	9	5	8	15	8	6	7	4	5	6	7	7	8	5	6	4	5	6	4	4	1	135
	2	1	3	3	3	3	2	2	2	1	1	2	2	2	2	1	2	1	1	1	1	0	0	36
	3	1	2	2	2	5	2	2	2	1	1	2	2	2	2	1	2	1	0	1	1	1	0	35
	4	6	11	5	8	14	11	11	7	4	5	6	8	8	8	5	7	4	5	7	5	4	2	151
	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	6	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
TOTAL		13	36	26	21	37	23	21	18	10	12	16	19	19	20	12	17	10	11	15	11	9	3	379

		Benzene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	26	37	25	32	60	35	28	22	12	15	18	24	24	27	16	24	14	18	21	17	16	6
	2	4	14	10	13	19	10	5	10	6	8	10	11	11	11	8	11	7	7	9	5	4	2
	3	3	7	5	8	15	8	8	6	4	4	5	6	7	7	5	7	4	3	5	2	2	1
	4	16	37	16	47	57	63	33	28	14	15	18	21	21	23	16	28	17	17	16	12	10	5
	5	0	24	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	11	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Benzene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	76	134	82	113	219	111	97	108	66	74	95	112	121	128	79	97	62	79	87	66	61	26
	2	11	39	30	29	47	25	28	28	16	19	24	26	27	26	16	21	13	14	17	11	9	5
	3	18	46	33	39	69	36	41	36	22	25	31	36	40	40	24	31	18	0	28	16	14	7
	4	92	171	70	116	205	159	164	108	63	82	99	131	124	135	73	110	64	68	114	81	60	32
	5	0	67	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	68	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Benzene (g/day)

		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	102	171	107	145	279	146	125	130	78	89	113	136	145	155	95	121	76	97	108	83	77	32	2610
	2	15	53	40	42	66	35	33	38	22	27	34	37	38	37	24	32	20	21	26	16	13	7	676
	3	21	53	38	47	84	44	49	42	26	29	36	42	47	47	29	38	22	3	33	18	16	8	772
	4	108	208	86	163	262	222	197	136	77	97	117	152	145	158	89	138	81	85	130	93	70	37	2851
	5	0	91	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	186
	6	0	79	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	191
TOTAL		246	655	478	397	691	447	404	346	203	242	300	367	375	397	237	329	199	206	297	210	176	84	7286

		1,3 Butadiene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	6	8	6	7	13	8	6	5	3	3	4	5	5	6	4	5	3	4	5	4	4	1
	2	1	3	2	3	4	2	3	2	1	2	2	2	3	2	2	2	2	2	2	1	1	0
	3	1	2	1	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	4	4	8	3	10	12	14	7	6	3	3	4	5	5	5	3	6	4	4	3	3	2	1
	5	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		1,3 Butadiene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	17	29	18	25	48	24	21	24	14	16	21	25	26	28	17	21	14	17	19	14	13	6
	2	2	9	7	6	10	5	6	6	4	4	5	6	6	6	3	5	3	3	4	2	2	1
	3	4	10	7	9	15	8	9	8	5	6	7	8	9	9	5	7	4	0	6	3	3	2
	4	20	37	15	25	45	35	36	24	14	18	22	29	27	30	16	24	14	15	25	18	13	7
	5	0	15	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	19	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	1,3 Butadiene (g/day)

		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	23	37	24	32	61	32	27	29	17	19	25	30	31	34	21	26	17	21	24	18	17	7	572
	2	3	12	9	9	14	7	9	8	5	6	7	8	9	8	5	7	5	5	6	3	3	1	149
	3	5	12	8	11	18	10	11	9	6	7	8	9	10	10	6	8	5	1	7	4	4	2	171
	4	24	45	18	35	57	49	43	30	17	21	26	34	32	35	19	30	18	19	28	21	15	8	624
	5	0	20	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
	6	0	21	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
TOTAL		55	147	105	87	150	98	90	76	45	53	66	81	82	87	51	71	45	46	65	46	39	18	1603

		DEOG (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	57	111	92	122	226	127	106	75	41	52	55	63	73	59	42	64	47	54	55	43	36	14
	2	3	12	8	9	15	8	9	9	5	6	7	8	8	8	5	8	5	5	6	4	3	1
	3	2	6	4	6	12	6	7	4	3	3	4	4	5	5	3	5	3	2	3	2	2	1
	4	36	81	48	171	215	285	120	104	52	44	53	56	64	60	52	104	65	64	41	30	22	11
	5	0	90	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	25	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	198	402	245	379	829	420	327	325	171	223	248	293	315	281	172	252	161	205	227	171	134	57
	2	8	27	21	20	33	17	19	20	12	14	17	19	19	18	11	15	9	10	12	8	6	3
	3	13	32	23	27	49	25	29	25	15	18	22	25	28	28	17	22	12	0	20	11	10	5
	4	202	375	182	390	740	575	593	362	188	213	257	287	324	296	191	286	191	204	250	177	131	70
	5	0	147	283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	160	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		DEOG (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	255	513	337	501	1055	547	433	400	212	275	303	356	388	340	214	316	208	259	282	214	170	71	7649
	2	11	39	29	29	48	25	28	29	17	20	24	27	27	26	16	23	14	15	18	12	9	4	490
	3	15	38	27	33	61	31	36	29	18	21	26	29	33	33	20	27	15	2	23	13	12	6	548
	4	238	456	230	561	955	860	713	466	240	257	310	343	388	356	243	390	256	268	291	207	153	81	8262
	5	0	237	338	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	575
	6	0	185	218	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	403
TOTAL		519	1468	1179	1124	2119	1463	1210	924	487	573	663	755	836	755	493	756	493	544	614	446	344	162	17927

		Diesel PM (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	131	218	97	168	274	135	128	132	73	91	108	135	144	137	91	137	83	106	119	93	82	33
	2	11	41	29	31	54	29	30	30	17	20	24	27	28	27	18	27	18	18	22	12	9	5
	3	6	21	16	22	42	22	23	15	9	10	13	15	16	16	11	16	9	7	11	6	6	3
	4	82	188	94	181	260	144	127	126	72	87	105	120	126	129	93	143	90	88	89	65	50	26
	5	0	124	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	57	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	426	792	482	670	1141	579	578	640	369	439	534	631	679	649	398	544	347	442	490	369	310	132
	2	27	94	72	69	113	60	66	68	39	47	57	63	65	63	38	50	32	32	42	26	22	11
	3	44	109	79	94	166	86	99	86	52	60	74	86	96	95	59	75	42	0	67	38	33	17
	4	467	865	391	690	1163	610	628	640	371	460	555	663	698	683	412	616	377	402	578	409	302	162
	5	0	339	301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	381	435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Diesel PM (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	557	1010	579	838	1415	714	706	772	442	530	642	766	823	786	489	681	430	548	609	462	392	165	14356
	2	38	135	101	100	167	89	96	98	56	67	81	90	93	90	56	77	50	50	64	38	31	16	1683
	3	50	130	95	116	208	108	122	101	61	70	87	101	112	111	70	91	51	7	78	44	39	20	1872
	4	549	1053	485	871	1423	754	755	766	443	547	660	783	824	812	505	759	467	490	667	474	352	188	14627
	5	0	463	399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	862
	6	0	438	505	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	943
TOTAL		1194	3229	2164	1925	3213	1665	1679	1737	1002	1214	1470	1740	1852	1799	1120	1608	998	1095	1418	1018	814	389	34343

		Formaldehyde (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	19	28	20	25	47	28	22	17	9	12	14	18	19	20	12	18	11	14	16	12	12	5
	2	3	10	7	9	13	7	8	7	4	13	7	7	8	7	5	7	5	5	6	3	3	1
	3	2	5	4	5	10	5	5	4	2	3	3	4	4	4	3	4	3	2	3	2	2	1
	4	12	27	12	37	45	51	26	22	11	11	13	16	16	17	12	22	14	13	12	9	7	4
	5	0	19	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	8	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	57	102	62	87	172	87	75	82	49	56	71	84	91	95	58	73	46	59	65	49	45	19
	2	8	26	20	19	31	17	18	19	11	0	16	18	18	17	10	14	9	9	12	7	6	3
	3	12	30	22	26	46	24	27	24	14	17	20	24	27	26	16	21	12	0	19	10	9	5
	4	68	126	52	90	160	125	129	83	48	61	74	97	93	100	55	82	48	52	84	60	44	24
	5	59	49	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	64	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Formaldehyde (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	76	130	82	112	219	115	97	99	58	68	85	102	110	115	70	91	57	73	81	61	57	24	1982
	2	11	36	27	28	44	24	26	26	15	13	23	25	26	24	15	21	14	14	18	10	9	4	453
	3	14	35	26	31	56	29	32	28	16	20	23	28	31	30	19	25	15	2	22	12	11	6	511
	4	80	153	64	127	205	176	155	105	59	72	87	113	109	117	67	104	62	65	96	69	51	28	2164
	5	59	68	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202
	6	0	72	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154
TOTAL		240	494	356	298	524	344	310	258	148	173	218	268	276	286	171	241	148	154	217	152	128	62	5466

		Naphthalene (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	112	193	88	152	248	122	116	118	65	82	95	117	127	117	79	119	74	93	103	81	70	28
	2	17	60	43	46	79	42	44	44	25	29	35	39	40	39	26	39	25	26	32	18	14	7
	3	9	31	23	33	61	33	34	22	13	15	18	21	23	23	16	23	13	11	17	9	8	4
	4	70	160	83	164	236	128	115	115	65	77	92	104	111	112	83	130	81	79	77	56	43	22
	5	0	113	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	49	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	369	698	425	599	1035	525	516	564	320	387	463	547	589	552	338	471	301	383	424	320	263	112
	2	39	136	104	100	163	86	96	98	57	68	83	92	94	92	55	72	47	47	61	38	32	16
	3	64	159	114	136	241	125	144	125	75	87	107	125	140	138	85	109	61	0	97	55	47	24
	4	397	735	339	617	1051	551	568	572	327	398	481	564	605	581	357	534	332	355	491	347	257	137
	5	0	288	272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	316	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Naphthalene (g/day)																						
		Segment																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	481	891	513	751	1283	647	632	682	385	469	558	664	716	669	417	590	375	476	527	401	333	140	12600
	2	56	196	147	146	242	128	140	142	82	97	118	131	134	131	81	111	72	73	93	56	46	23	2445
	3	73	190	137	169	302	158	178	147	88	102	125	146	163	161	101	132	74	11	114	64	55	28	2718
	4	467	895	422	781	1287	679	683	687	392	475	573	668	716	693	440	664	413	434	568	403	300	159	12799
	5	0	401	359	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	760
	6	0	365	422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	787
TOTAL		1077	2938	2000	1847	3114	1612	1633	1658	947	1143	1374	1609	1729	1654	1039	1497	934	994	1302	924	734	350	32109

		Polycyclic Organic Matter (POM) (peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	16	27	12	21	35	17	16	17	9	12	13	16	18	16	11	17	10	13	15	11	10	4
	2	2	8	6	6	11	6	6	6	4	4	5	5	6	5	4	5	4	4	4	2	2	1
	3	1	4	3	5	9	5	5	3	2	2	3	3	3	3	2	3	2	1	2	1	1	1
	4	10	22	12	23	33	18	16	16	9	11	13	15	16	16	12	18	11	11	11	8	6	3
	5	0	16	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	7	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (POM) (off peak)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Link	1	52	99	60	84	146	74	73	80	45	55	65	77	83	78	48	66	42	54	60	45	37	16
	2	6	19	15	14	23	12	14	14	8	9	12	13	13	13	8	10	7	7	9	5	5	2
	3	9	22	16	19	34	17	20	18	11	12	15	18	20	19	12	15	9	0	14	8	7	3
	4	56	104	48	87	148	78	80	81	46	56	68	79	85	82	50	75	47	50	69	49	36	19

	5	0	41	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	45	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Polycyclic Organic Matter (g/day)																					
		Segment																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	**SUM**
Link	1	68	126	72	105	181	91	89	97	54	67	78	93	101	94	59	83	52	67	75	56	47	20	1775
	2	8	27	21	20	34	18	20	20	12	13	17	18	19	18	12	15	11	11	13	7	7	3	344
	3	10	26	19	24	43	22	25	21	13	14	18	21	23	22	14	18	11	1	16	9	8	4	382
	4	66	126	60	110	181	96	96	97	55	67	81	94	101	98	62	93	58	61	80	57	42	22	1803
	5	0	57	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107
	6	0	52	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112
TOTAL		152	414	282	259	439	227	230	235	134	161	194	226	244	232	147	209	132	140	184	129	104	49	4523