
Appendix 5.23

Energy Appendices



Appendix 5.23A



Utilities Technical Report
ENVIRON International Corporation
February 2015



Utilities Technical Report

Entrada South
Los Angeles County, California

Prepared for:
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Valencia, California

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Date:
February 2015

Project Number:
03-17245K

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Acronyms and Abbreviations

BARBD	Building America Research Benchmark Definition
BTU	British Thermal Units
BTU/hr	British Thermal Units Per Hour
CalEEMod [®]	California Emissions Estimator Model
CEC	California Energy Commission
CEUS	California Commercial End-Use Survey
DU	Dwelling Unit
GHG	Greenhouse Gas
HVAC	Heating, Ventilation, and Air Conditioning
kW	Kilowatt
kWh/yr	Kilowatt Hours Per Year
MMBTU/yr	Million British Thermal Units Per Year
PDF	Project Design Feature
SCE	Southern California Edison
SCAQMD	South Coast Air Quality Management District
SCGC	Southern California Gas Company

Executive Summary

The Entrada South Project includes 339 single-family units, 1,235 multi-family units, and 730,000 square feet of commercial uses anticipated to be comprised of approximately 435,000 square feet of office uses and approximately 295,000 square feet of commercial retail uses. In addition, the Project includes a 9.4-acre elementary school, a 5.6-acre public neighborhood park, 92.2 acres of open space areas, two private recreational centers within 2.9 acres, and a 27.2-acre preserve for spineflower. Facilities and infrastructure proposed as part of the Project consist of a network of roads and trails, drainage and water quality improvements, dry utilities systems, a potable water system, a recycled water system, and a sanitary sewer system. The construction of Entrada South is assumed to occur between 2015 and 2024.

In this report, ENVIRON summarizes the overall electricity and natural gas use for Entrada South reported in the Greenhouse Gas Emissions Technical Report (GHG Emissions Technical Report), dated October 2014. The GHG Emissions Technical Report provides additional background regarding the energy use estimations presented below.

Buildout of Entrada South would place new demands on electrical and natural gas services provided by Southern California Edison (SCE) and Southern California Gas Company (SCGC). Tables 1 and 2 show the estimated Project's annual electricity and natural gas usage for two scenarios:

Project without Project Design Features (PDFs)

This scenario assumes:

- The standard energy use associated with buildout of residential and non-residential buildings in compliance with the 2013 Title 24 standards;¹
- Indoor water consumption in compliance with the California Green Building Standards Codes;²
- Standard operation of the recreational center swimming pool (i.e., natural gas heating);
- Commitment to use recycled water to satisfy a portion of its demand for outdoor, irrigation-related water; and
- CalEEMod[®] default number of residential dwelling units with fireplaces.³

Project

This scenario assumes:

- The standard energy use associated with buildout of residential and non-residential buildings in compliance with the 2013 Title 24 standards;⁴

¹ Title 24 - California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code.

² California Building Standards Commission. 2010. California Green Building Standards. Available at: http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf. Accessed: April 2014.

³ CalEEMod[®] version 2013.2.2, assumes a default 90 percent of the total residential units to have fireplaces.

- Indoor water consumption in compliance with the California Green Building Standards Codes;⁵
- Use of solar water heaters to provide 100 percent of the heating needs for the public pool at the community recreational center;
- Commitment to produce or cause to be produced renewable electricity, or secure greenhouse gas offsets or credits from a public agency (e.g., CARB, SCAQMD) endorsed market, equivalent to the installation of one photovoltaic (i.e., solar) power system no smaller than 2-kilowatt (kW) solar panel for every single family home (SFH) dwelling units, and for every 1,600 square feet (ft²) of nonresidential roof area;
- Commitment to use recycled water to satisfy a portion of its demand for outdoor, irrigation-related water; and
- No more than 80 percent of all residential units shall contain natural gas-fired fireplaces.

The Project without PDFs scenario results in future electricity and natural gas use of 24,844,848 kWh/yr and 38,840 MMBTU/yr, respectively. The Project results in future electricity and natural gas use of 24,844,848 kWh/yr and 32,489 MMBTU/yr, respectively. In this Utilities Technical Report, ENVIRON did not account for electricity generation from the renewable energy, as it is uncertain if the renewable energy commitment made by the Project applicant would come from the offsite carbon offsets or from the local distributed generation (i.e., onsite solar panels). If this renewable energy was to come from the offsite carbon offsets, the transmission and distribution systems needed to deliver the electricity would be the same as if there were no renewable electricity. Therefore, in an effort to be conservative, ENVIRON estimated the electricity use assuming the renewable portion of the electricity generation would come from the utility provider. While some of the electricity reported here, for both the Project and the Project without PDFs scenarios, is for water conveyance that may not occur in SCE's jurisdiction; this analysis assumes that SCE's emission factors are approximately equal to those other jurisdictions.

⁴ Title 24 - California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code.

⁵ California Building Standards Commission. 2010. California Green Building Standards. Available at: http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf. Accessed: April 2014.

1 Estimation of Annual Electricity and Natural Gas Usage

ENVIRON calculated annual electricity and natural gas use for each building type as described in the GHG Emissions Technical Report. In this Utilities Technical Report, ENVIRON did not account for electricity generation from the renewable energy, as it is uncertain if the renewable energy commitment made by the Project applicant would come from the offsite carbon offsets or from the local distributed generation (i.e., onsite solar panels). If this renewable energy was to come from the offsite carbon offsets, the transmission and distribution systems needed to deliver the electricity that would be the same as if there were no renewable electricity. Therefore, in an effort to be conservative, ENVIRON estimated the electricity use assuming the renewable portion of the electricity generation would come from the utility provider.

1.1 Residential Buildings

Residential buildings include single-family homes, apartments, and condominiums. This section describes the methods used to estimate the electricity and natural gas use associated with activities in those buildings.

To calculate overall electricity and natural gas usage, the number of dwelling units for each housing type is multiplied by the annual electricity and natural gas usage per dwelling unit as provided in the California Emissions Estimator Model (CalEEMod[®] version 2013.2.2)⁶. CalEEMod[®] provides default electricity and natural gas energy intensity per dwelling unit based on the 2008 Title 24 standards. The 2013 Title 24 standards are anticipated to be 25 percent more efficient than previous standards for residential construction⁷. Therefore the CalEEMod[®] default 2008 Title 24 energy intensity factors for the residential land uses were appropriately adjusted to estimate the energy demand of the Project residential buildings.

In addition, the natural gas usage associated with fireplaces within the residential dwelling units were estimated. This natural gas usage is reported separately from natural gas energy use by CalEEMod[®]. All fireplaces were assumed to be natural gas burning (and not wood burning), based on the South Coast Air Quality Management District (SCAQMD) Rule 445. The Project without PDFs assumes the default percentage of dwelling units (90%) will contain fireplaces while the Project assumes 80% of the residential dwelling units will contain fireplaces as a PDF. The average heating rate in British Thermal Units (BTU) per hour for fireplaces in homes is 60,000 BTU/hr. Natural gas is assumed to have 1,020 BTU per standard cubic foot.

The total electricity and natural gas usage from these three housing types is given in Tables 1 and 2. The total electricity and natural gas use for residential dwelling units under the Project without PDFs scenario is estimated to be 7,770,480 kWh/yr and 28,703 MMBTU/yr, respectively. The Project total electricity and natural gas use for residential dwelling units is estimated to be 7,770,480 kWh/yr and 27,994 MMBTU/yr, respectively.

⁶ CalEEMod[®] version 2013.2.2. Available at: www.caleemod.com. Accessed: April 2014.

⁷ Information Available at: http://www.energy.ca.gov/releases/2012_releases/2012-05-31_energy_commission_approves_more_efficient_buildings_nr.html. Accessed: April 2014.

1.2 Non-Residential Buildings

Non-residential buildings include all structures, except residences, that may exist in a development, such as government, municipal, commercial, retail, office space, parking, schools, parks, open spaces, and recreational areas. This section describes the methods used to estimate the electricity and natural gas use associated with activities in these buildings.

As detailed in the GHG Emissions Technical Report, the overall electricity and natural gas use for the Project non-residential buildings were calculated based on default electricity and natural gas energy intensity data from CalEEMod[®] and adjusted to be reflective of the 2013 Title 24 standards. CalEEMod[®] provides default electricity and natural gas energy intensity for non-residential buildings based on the 2008 Title 24 standards. The 2013 Title 24 standards are anticipated to be 30 percent more efficient than the previous 2008 standards for non-residential construction⁸. Therefore the CalEEMod[®] default 2008 Title 24 energy intensity factors for the non-residential land uses were appropriately adjusted to estimate the energy demand for the Project non-residential buildings. To calculate overall electricity and natural gas usage, the building type-specific annual electricity and natural gas usage per square footage were multiplied by the total square footage for that building type. The total electricity and natural gas usage from non-residential buildings is given in Tables 1 and 2.

The total electricity and natural gas use for the Project and Project without PDFs scenario is estimated to be 12,611,459 kWh/yr and 4,494 MMBTU/yr, respectively.

1.3 Off-site Electricity and Natural Gas Usage

The supply, treatment, and distribution of water and wastewater for the Project will require electricity, but is not assumed to require natural gas. The GHG Emissions Technical Report calculates electricity usage for the water and wastewater usage based upon default electricity intensity factors from CalEEMod[®], and water usage from the Entrada South Water Demand Report.⁹ The CalEEMod[®] default assumptions for energy intensity factors for Southern California are based on a study commissioned by the CEC¹⁰. This study published recommended electricity intensities for the supply and conveyance, treatment and distribution of water, as well as treatment of wastewater, for Northern and Southern California. As discussed above, these factors account for the energy embodied in water use. The CalEEMod[®] default embodied energy for the transportation of the waste water for the Project is a conservative estimate since the water reclamation plant will be within the NRSP area, and not outside the Project as assumed by the default electricity intensity factor for wastewater treatment.

The Project will use 4,263,296 kWh/yr for electricity related to water and wastewater usage. The Project without PDFs will use the same amount of electricity. While some of the electricity reported here, for both the Project and the Project without PDFs scenarios, is for water

⁸ Information Available at: http://www.energy.ca.gov/releases/2012_releases/2012-05-31_energy_commission_approves_more_efficient_buildings_nr.html. Accessed: April 2014.

⁹ GSI Water Solutions, Inc. 2014. Water Demand Projections for Entrada Village South. May 16.

¹⁰ CEC. 2006. Refining Estimates of Water-Related Energy Use in California. Available at: <http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>. Accessed: July 2014.

conveyance that may not occur in SCE's jurisdiction; this analysis assumes that SCE's emission factors are approximately equal to those other jurisdictions.

1.4 Recreational Center Swimming Pool

As described in the GHG Technical Report, ENVIRON estimated that the outdoor recreational center swimming pool would also require electricity and natural gas use. The Project has committed to using solar heating to heat the pool (i.e. the pools will not use natural gas for heating), as a PDF The natural gas and electricity usage for the Project scenario is estimated to be 0 MMBTU/yr and 199,613 kWh/yr, respectively. The natural gas and electricity usage for the recreational swimming pool for the Project without PDFs is estimated to be 5,643 MMBTU/yr and 199,613 kWh/yr, respectively.

2 Overall Electricity and Natural Gas Use

Tables 1 and 2 show the Project's electricity and natural gas use. These tables present the Project and Project without PDFs scenarios. The Project without PDFs total electricity and natural gas use are 24,844,848 kWh/yr and 38,840 MMBTU/yr, respectively. The Project total electricity and natural gas use are 24,844,848 kWh/yr and 32,489 MMBTU/yr, respectively. The Project uses the same amount of electricity and 16% less natural gas than the Project without PDFs.

3 Uncertainties in Electricity and Natural Gas Calculations

It should be noted that the calculations presented in this report rely on assumptions made in the GHG Emissions Technical Report. These assumptions, and the uncertainties that result from them, are restated below:

Residential

Although all buildings in the development will be Title 24 compliant, Title 24 does not specify building dimensions (e.g., size, height, or orientation). Title 24 also provides significant flexibility for design considerations such as, window types, window amounts, insulation choice, and other parameters. This uncertainty is expected to neither over- nor underestimate emissions. For example, Title 24 grants enough flexibility that if a designer puts in more windows than is “allowed” under the prescriptive measures, the energy efficiency losses can be offset by improving the window quality, or installing a more efficient heating, ventilation, and air conditioning (HVAC) system. Although it is unknown how exactly the buildings will be designed, each home will be Title 24 compliant, and thereby all design features of the home that make it less energy efficient will be offset by design features that make it more energy efficient.

Energy use will vary considerably depending upon the design of the home. The residential units to be built will vary considerably in size, layout, and overall design. The parameters used here are intended to represent the upper quartile of homes relative to sizes in each category. As such, energy use from the homes that will actually be built are anticipated to be lower.

Built environment energy use will vary considerably depending upon the homeowners’ habits regarding energy use. For instance, homeowners determine the set point of thermostats, the duration of showers, the usage of lights, if they are to have a second refrigerator, and the temperature of the refrigerator, among other things. The Project will have little, if any, influence over homeowner behavior. Current median behavior attributes are presented here. To the extent that individuals are becoming more energy conscious, this analysis likely overestimates energy use.

Plug-in energy use will vary considerably depending upon the appliances, lights, and other plug-ins installed by the homeowner. The Project will have little, if any, influence over these choices made by the homeowner. As above, the current median behavior attributes are presented here. To the extent that individuals are becoming more energy conscious, or appliances are becoming more energy efficient, this analysis will likely overestimate energy use.

Non-Residential

For new developments, the exact types of buildings are typically unknown. As such, not all building categories that may be built are represented in this analysis. However, all of the non-residential building area is accounted for and the best available assessment of the building type composition of the Project was used. The tables provided in this section present the differences in energy intensities from building type to building type.

Although it is unknown exactly how the buildings will be designed, each building will be Title 24 compliant. Therefore all design features of the building that make it less energy efficient will be offset by design features that make it more energy efficient.

Off-site

The electricity intensity factors associated with convey, treat and distribute water and wastewater was for average embodied energy¹¹ for Southern California, which is based on analyses by the California Energy Commission. This embodied energy is likely a conservative estimate for the transportation of the waste water for the Project since the water reclamation plant will be relatively close to the Project site.

Recreational Center Swimming Pool

The natural gas and electricity usage associated with the swimming pool was derived by the energy consumption of filter pumps and water heaters of 5 pools in Oakland, California. The characteristics of the water heater and filter pump for the Project pool may be different from that used for the Oakland pools. As a result, the estimated natural gas and electricity usage may be slightly different from that for the Project.

¹¹ Embodied energy refers to the amount of energy that was used in delivering water to the specific land use.

Table 1. Summary of Electricity Usage

Entrada South
Los Angeles, California

Source	Annual Electricity Usage			Improvement with PDFs
	Unit	Project without PDFs	Project	
Residential ¹	kWh/yr	7,770,480	7,770,480	0%
Non-Residential ¹		12,611,459	12,611,459	0%
Off-site ²		4,263,296	4,263,296	0%
Recreational Center Swimming Pool ³		199,613	199,613	0%
Total		24,844,848	24,844,848	0%

Notes:

¹ Annual electricity usage for Project without PDFs reflects the electricity usage from residential and non-residential buildings, which are compliant with 2013 Title 24 standards. The Project annual electricity usage incorporates the Project's commitment to be compliant with 2013 Title 24 Standards, and produce renewable energy or purchase carbon offsets equivalent to no smaller than 2-kilowatt (kW) panel for every 1,600 square feet of commercial rooftop and on every single family home. ENVIRON did not incorporate the electricity savings from the renewable energy in this Utilities Technical Report, as it is uncertain if the renewable energy commitment made by the Project applicant would come from the offsite carbon offsets or from the local distributed generation (i.e., onsite solar panels).

² Project and Project without PDFs scenarios reflect the electricity required to supply, treat, and distribute water and wastewater as per the Entrada South Water Demand Report. Project and Project without PDFs scenarios both assume compliance with the California Green Building Standards Code. In addition, electricity usage of both scenarios accounts for the use of 378 afy of recycled water to satisfy a portion of the Project's total outdoor, irrigation-related water demand of 668 afy. The electricity usage associated with recycled water was calculated using CalEEMod® electricity intensity factors for the treatment and distribution of water, and excluding the electricity intensity factor for water supply.

³ Recreation center swimming pool electricity usage reflects the amount of electricity required to run the pool filter pumps. The Project electricity usage is expected to be equivalent to the Project without PDFs electricity usage.

Abbreviations:

afy - acre-feet/year

kW - kilowatt

PDF - Project Design Feature

Title 24 - California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code

yr - year

References:

California Building Standards Commission. 2010. California Green Building Standards. Available at http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf. Accessed April 2014.

GSI Water Solutions. 2013. Water Demand Projections for Entrada South Village.

Title 24 – California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code

Table 2. Summary of Natural Gas Usage

Entrada South

Los Angeles, California

Source	Annual Natural Gas Usage			Improvement with PDFs
	Unit	Project without PDFs	Project	
Residential ¹	MMBTU/yr	28,703	27,994	2%
Non-Residential ¹		4,494	4,494	0%
Off-site		0	0	0%
Recreational Center Swimming Pool ²		5,643	0	100%
Total		38,840	32,489	16%

Notes:

¹ Annual natural gas usage for Project without PDFs reflects the natural gas usage from residential and non-residential buildings which are compliant with 2013 Title 24 standards. Project annual natural gas usage incorporates The Project's commitment to be compliant with 2013 Title 24 standards for residential and non-residential buildings, and an additional 10 percent of the residential units with no fireplaces.

² Project annual natural gas usage for Project without PDFs reflects the amount of natural gas required to heat the Recreation Center swimming pool using traditional heaters. Project annual natural gas usage incorporates the Project's commitment to using solar heating rather than natural gas heating for the Recreation Center swimming pool.

Abbreviations:

MMBTU - Million British Thermal Units

PDF - Project Design Feature

Title 24 - California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code

yr - year

Appendix 5.23B

Will Serve Letters

Southern California Edison and
Southern California Gas Company
October 2014



Will Serve Letter Only



DATE: 10/15/14

COMPANY: Newhall Land

SUBJECT: Tract 53295, Entrada South.

Your project is located in Southern California Edison (SCE) service territory. SCE will serve the above subject project's electrical requirements per the California Public Utilities Commission and Federal Energy Regulatory Commission tariffs.

SCE may need to conduct utility studies, where applicable, to assess whether additions or modifications to the existing electric infrastructure are required to serve this project as indicated in Appendix (B) attached hereto. This Will-Serve letter does not imply that either: (i) these studies have been completed, or (ii) that any required California Environmental Quality Act (CEQA) analysis of project-related electric utility impacts has been conducted.

I am the SCE Representative currently assigned to this project. SCE or Applicant will design and construct all required electrical infrastructure to serve this project provided you enter into the applicable contractual agreements with SCE identify scope of electrical utility work required, and supply the following information:

- Site plans as required
- Required contracts and agreements (fully executed)
- Applicable fees
- Local permits
- Required easement documents

Your project will be scheduled for construction once SCE has all the necessary information for your project and you have submitted or agreed to the applicable requirements as stated above, and paid any necessary fees.

If your project will not require SCE services, please notify us so that we can update our records.

SCE appreciates your business. If you have any questions, please feel free to call me at (661) 607-0512.

Sincerely,


SCE Design Service Representative

Enclosure: Appendix B



Tim Bruce
Planning Associate

The Gas Company
PO Box 2300
Chatsworth, CA 91313

818-701-3335
FAX: 818-701-3380
tbruce@semprautilities.com

October 28, 2014

NEWHALL LAND
25124 Springfield Court Suite 300
Valencia, CA. 91355

RE: Will Serve Letter Request for Job I.D. # 44C-2014-10-00017

Project Location: Entrada South Tract 53295 County of Los Angeles

Dear Newhall Land,

Thank you for inquiring about the availability of natural gas service for your project. We are pleased to inform you that Southern California Gas Company (SoCalGas) has facilities in the area where the above named project is being proposed. The service would be in accordance with SoCalGas' policies and extension rules on file with the California Public Utilities Commission (Commission) at the time contractual arrangements are made.

This letter should not be considered a contractual commitment to serve the proposed project, and is only provided for informational purposes only. The availability of natural gas service is based upon natural gas supply conditions and is subject to changes in law or regulation. As a public utility, SoCalGas is under the jurisdiction of the Commission and certain federal regulatory agencies, and gas service will be provided in accordance with the rules and regulations in effect at the time service is provided. Natural gas service is also subject to environmental regulations, which could affect the construction of a main or service line extension (for example, if hazardous wastes were encountered in the process of installing the line). Applicable regulations will be determined once a contract with SoCalGas is executed.

If you need assistance choosing the appropriate gas equipment for your project, or would like to discuss the most effective applications of energy efficiency techniques, please contact our area Service Center at **800-427-2200**.

Thank you again for choosing clean, reliable, and safe natural gas, your best energy value.

Sincerely,

A handwritten signature in blue ink that reads "Tim Bruce".

Tim Bruce
So. Cal. Gas Company
Planning Associate
818-701-3335
e-mail: tbruce@semprautilities.com