

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**PRELIMINARY STATEMENT**

1. These responses and objections are made without prejudice to, and are not a waiver of, SDG&E's and SoCalGas' right to rely on other facts or documents in these proceedings.
2. By making the accompanying responses and objections to these requests for data, SDG&E and SoCalGas do not waive, and hereby expressly reserves, its right to assert any and all objections as to the admissibility of such responses into evidence in this action, or in any other proceedings, on any and all grounds including, but not limited to, competency, relevancy, materiality, and privilege. Further, SDG&E and SoCalGas makes the responses and objections herein without in any way implying that it considers the requests, and responses to the requests, to be relevant or material to the subject matter of this action.
3. SDG&E and SoCalGas will produce responses only to the extent that such response is based upon personal knowledge or documents in the possession, custody, or control of SDG&E and SoCalGas, as set forth in the California Public Utilities Commission ("Commission or CPUC") Rules of Practice and Procedure. SDG&E and SoCalGas possession, custody, or control does not include any constructive possession that may be conferred by SDG&E's and SoCalGas' right or power to compel the production of documents or information from third parties or to request their production from other divisions of the Commission.
4. A response stating an objection shall not be deemed or construed that there are, in fact, responsive information or documents which may be applicable to the data request, or that SDG&E and SoCalGas acquiesces in the characterization of the premise, conduct or activities contained in the data request, or definitions and/or instructions applicable to the data request.
5. SDG&E and SoCalGas expressly reserves the right to supplement, clarify, revise, or correct any or all of the responses and objections herein, and to assert additional objections or privileges, in one or more subsequent supplemental response(s).
6. SDG&E and SoCalGas will make available for inspection at their offices any responsive documents. Alternatively, SDG&E and SoCalGas will produce copies of the documents.
7. Publicly available information and documents including, but not limited to, documents that are part of the proceeding record, newspaper clippings, court papers, and materials available on the Internet, will not be produced.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**GENERAL OBJECTIONS**

1. SDG&E and SoCalGas object to each instruction, definition, and request to the extent that it purports to impose any requirement or discovery obligation greater than or different from those under the CPUC Rules of Practice and Procedure, Statutes, and the applicable Orders of the Commission.
2. SDG&E and SoCalGas object to each request that is overly broad, unduly burdensome, or not reasonably calculated to lead to the discovery of admissible evidence.
3. SDG&E and SoCalGas object to each instruction, definition and data request to the extent that it seeks information protected from disclosure by the attorney-client privilege, deliberative process privilege, attorney work product doctrine, or any other applicable privilege. Should any such disclosure by SDG&E and SoCalGas occur, it is inadvertent and shall not constitute a waiver of any privilege.
4. SDG&E and SoCalGas object to each instruction, definition and data request as overbroad and unduly burdensome to the extent it seeks documents or information that are readily or more accessible to Southern California Generation Coalition (SCGC) from SCGC's own files, from documents or information in SCGC's possession, or from documents or information that SDG&E and SoCalGas previously released to the public or produced to SCGC. Responding to such requests would be oppressive, unduly burdensome, and unnecessarily expensive, and the burden of responding to such requests is substantially the same or less for SCGC as for SDG&E and SoCalGas.
5. SDG&E and SoCalGas object to each instruction, definition and data request to the extent that it seeks the production of documents and information that were produced to SDG&E and SoCalGas by other entities and that may contain confidential, proprietary, or trade secret information.
6. To the extent any of SCGC's data requests seek documents or answers that include expert material, including but not limited to analysis or survey materials, SDG&E and SoCalGas object to any such requests as premature and expressly reserves the right to supplement, clarify, revise, or correct any or all responses to such requests, and to assert additional objections or privileges, in one or more subsequent supplemental response(s) in accordance with the time period for exchanging expert reports set by the Commission.
7. SDG&E and SoCalGas incorporate by reference every general objection set forth above into each specific response set forth below. A specific response may repeat a general objection for emphasis or some other reason. The failure to include any general objection in any specific response does not waive any general objection to that request. Moreover, SDG&E and SoCalGas do not waive their right to amend any responses.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.1:**

To the extent that it has not already been provided in response to previous SCGC data requests, please provide a copy of every Excel workbook that has been used to prepare and support A.15-09-013. The Excel workbooks should include all formulas in working condition complete with all data relied upon and all intact references to any attached workbooks.

**RESPONSE 7.1:**

SDG&E and SoCalGas (Applicants) object to this request on the grounds that it is vague, ambiguous, overbroad and unduly burdensome, asking for “a copy of every Excel workbook that has been used to prepare and support A.15-09-013.” Applicants will construe this question to ask for a copy of the Excel workbooks that were used in preparing the cost estimates for the Proposed Project and Project Alternatives provided in the Amended Application. Subject to and without waiving their objection, Applicants respond as follows.

Some of the attachments contain **confidential information and/or protected materials provided pursuant to the Non-Disclosure Agreement between SDG&E/SoCalGas and SCGC**. Please refer to the attachments provided in response to SCGC DR 1-6. Additionally, please also refer to the attachments provided in this data response.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.2:**

With respect to the Applicants' response to SCGC-06, Q.6.1.2 and Q.6.1.4:

- 7.2.1. Please confirm that the Applicants' response to Q.6.1.4 lists "customers with firm capacity rights on the main pipeline" and the total of the capacity in that list appears to be 3,764,950 MMBtu/d.
- 7.2.2. Please confirm that the Applicants' response to Q.6.1.2 states that the mainline pipeline is capable of transporting 500 MMcf/d.
- 7.2.3. Please confirm that if the heat content of the gas flowing on the line is assumed to be about 1025 Btu/cubic foot, the capacity of the main pipeline identified in the response to Q.6.1.2 would be 512,500 MMBtu/d.
- 7.2.4. Please explain to the best of the Applicants' knowledge how the list of customers provided in response to Q.6.1.4, whose contractual rights appear to total 3,764,950 MMBtu/d of capacity on the pipeline, would share the contractual rights to a pipeline that only appears to have a capacity of 512,500 MMBtu/d.

**RESPONSE 7.2:**

Applicants object to this Question on the ground that the information requested is available to SCGC through the same publicly available sources utilized by Applicants to respond to the questions. Applicants only "confirm" what it shown in this publicly available information and nothing more. Subject to and without waiving their objection, Applicants respond as follows;

- 7.2.1. A copy of the table showing firm shippers from the Gasoducto Rosarito website is attached.

The 2015 IEnova Annual Report provides more information concerning the major shippers with rights to transport gas on the mainline. A translated copy of page 100 from the Annual Report is provided below.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

We have entered into 10 firm transportation services agreements with the Rosarito pipeline system's customers, which have 88% of the system's installed capacity (including compression) contracted on a fixed-capacity basis. The following table contains a summary of the principal terms of the firm transportation services agreements with the Rosarito pipeline system's key customers:

Customer	Purpose	Execution Date	Term	Contracted Capacity <sup>(1)</sup>
Shell	Transportation of natural gas from our LNG terminal to the interconnection point of the Rosarito Mainline with the North Baja Pipeline at the Mexico-U.S. border in Los Algodones, Baja California.	June 19, 2008	20 years	1,396 MMcfd (maximum daily quantity)
IEnova LNG (a subsidiary of ours) <sup>(2)</sup>	Transportation of natural gas from our LNG terminal to the interconnection point of the LNG Spur and the Rosarito Mainline in Tecate, Baja California.	May 1, 2008	20 years	1,260 MMcfd (maximum daily quantity)
Gazprom	Transportation of natural gas from our LNG terminal to the interconnection point of the Rosarito Mainline with the North Baja Pipeline at the Mexico-U.S. border in Los Algodones, Baja California.	April 14, 2009	20 years	204 MMcfd (maximum daily quantity)
IEnova LNG (a subsidiary of ours) <sup>(2)</sup>	Transportation of natural gas from the interconnection point of the Rosarito Mainline with the North Baja Pipeline at the Mexico-U.S. border in Los Algodones, Baja California to an interconnection point with our TGN pipeline near Tijuana, Baja California.	April 1, 2014 <sup>(4)</sup>	20 years	385 MMcfd (maximum daily quantity)
InterGen	Transportation of natural gas from an interconnection point of the Rosarito Mainline and the North Baja Pipeline at the Mexico-U.S. border in Los Algodones, Baja California to a point near Las Palmas, Mexicali, Baja California.	February 28, 2002	25 years	130 MMcfd (maximum daily quantity)
Termoeléctrica de Mexicali (a subsidiary of ours) <sup>(3)</sup>	Transportation of natural gas from the interconnection point of the Rosarito Mainline with the North Baja Pipeline at the Mexico-U.S. border in Los Algodones, Baja California to an interconnection point with our Termoeléctrica de Mexicali power plant.	February 26, 2002	20 years	101 MMcfd (maximum daily quantity)

- (1) In certain cases, the contracted capacity presented in this table may exceed the system's design capacity due to connection or other limitations in the different components of the Rosarito pipelines system.
- (2) Our indirect controlling shareholder Sempra Energy has provided credit support in respect of IEnova LNG's obligations under its contracts with our Rosarito pipelines system in an aggregate amount of US\$125.8 million. IEnova LNG currently utilizes its contracted capacity to transport natural gas it provides to its customers and to the Mexican Federal Electricity Commission's 1,300 MW Presidente Juárez power plant. See "-- Gas Segment - LNG Business - LNG and Natural Gas Purchase and Sale Operations."
- (3) Our indirect controlling shareholder Sempra Energy has provided credit support in respect of Termoeléctrica de Mexicali's obligations under this contract in the amount of US\$29.4 million. Termoeléctrica de Mexicali currently utilizes its contracted capacity to transport gas for operation of its generators.
- (4) The original date of execution of this agreement is February 15, 2002. It was last amended on April 1, 2014.

7.2.2. Yes

7.2.3. Yes.

7.2.4. Please see Response 7.2.1 above.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

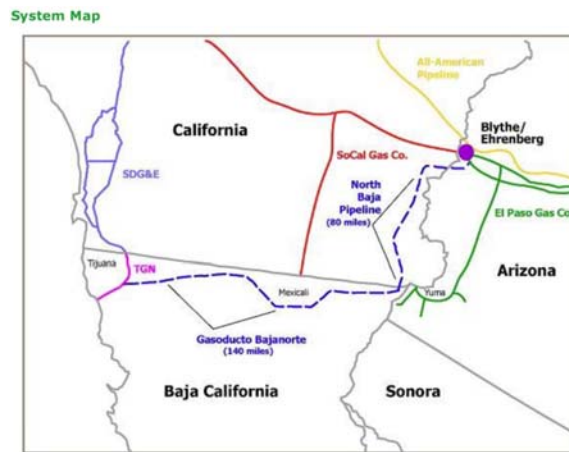
**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.3:**

With respect to the Applicants' response to SCGC-06, Q.6.1.2, which describes Gasoducto Rosarito:

- 7.3.1. Please confirm that the Applicants' response to Q.6.1.2 states: "The main pipeline is a 30-inch in diameter pipe capable of transporting 500 million cubic feet of gas per day begins with the interconnection with El Paso Natural Gas Co. near Ehrenberg, Arizona, crosses the border at Los Algodones, B.C., and ends at the interconnection with Transportadora de Gas Natural de Baja California (TGN), south of Tijuana."
- 7.3.2. Please confirm that the Applicants' response to SCGC-05, Q.5.16.3, provided a link to the following map, which appears to show that North Baja Pipeline is interconnected with El Paso Natural Gas Company at Ehrenberg, Arizona:



Copyright © 2016 TransCanada | [Legal Notice](#) | [Privacy Policy](#) | [Site Map](#) | [Webmaster](#)

- 7.3.3. To the best of the Applicants' knowledge is IEnova, the parent company of Gasoducto Rosarito, the owner of the North Baja Pipeline?
- 7.3.4. To the best of the Applicants' knowledge, does Gasoducto Rosarito operate the North Baja Pipeline?
- 7.3.5. To the best of the Applicants' knowledge, does Gasoducto Rosarito interconnect with North Baja Pipeline at the U.S./Mexico border at Los Algodones, B.C.?

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**RESPONSE 7.3:**

7.3.1. Yes.

7.3.2. Yes.

7.3.3. No.

7.3.4. No.

7.3.5. Yes.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.4:**

With respect to the Applicants' response to SCGC-06, Q.6.5.3:

- 7.4.1. What is the minimum amount of local gas fired generation that must be operating in order to avoid incurring the voltage stability limit?
- 7.4.2. Is the requirement for local gas fired generation locational in nature or can it be located anywhere within SDG&E's service territory in order to avoid the voltage stability limit?

**RESPONSE 7.4:**

- 7.4.1 As indicated in the response to SCGC DR 06, Question 6.5.3, a voltage stability limit exists at the 2,500 MW power import level for a scenario in which there is no local gas-fired electric generation in SDG&E's area. A minimum amount of local gas fired generation will not avoid incurring the voltage stability limit but it could increase the power import level at which a voltage stability limit occurs. The voltage stability limit can be calculated during operations based on system conditions, generation levels and locations at that time, but no one specific number can be provided in response to this question.
- 7.4.2 In general, gas fired generation can be located anywhere within SDG&E's service territory in order to avoid or mitigate the voltage stability limit, given that it is connected to the high-voltage transmission network.



**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.5:**

With respect to the Applicants' response to SCGC-06, Q.6.5.8, please state in MMcf/hr or MMBtu/hr the amount of natural gas that would need to be supplied to EG plants in SDG&E's service territory in order to keep the 1,886 MW identified in this response operating as required to meet N-1 standards.

**RESPONSE 7.5:**

At least about 15,720 MMBtu/hr of natural gas would be needed.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.6:**

With respect to the Applicants' response to SCGC-06, Q.6.5.10, please state in MMcf/hr or MMBtu/hr the amount of natural gas that would need to be supplied to EG plants in SDG&E's service territory in order to keep the 1,971 MW identified in this response operating as required to meet N-2 standards.

**RESPONSE 7.6:**

At least about 16,610 MMBtu/hr of natural gas would be needed.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.7:**

With respect to the Applicants' response to SCGC-06, Q.6.5.13, which states: "In the current planning cycle (2016/2017) SDG&E has not proposed any transmission expansion projects to the CAISO to increase SDG&E's import capability, but SDG&E has recently proposed a project to convert portions of SDG&E's existing 500 kV transmission system from AC to DC." Assume hypothetically that SDG&E's proposed conversion were in place today:

- 7.7.1. What would be the expected import capability into SDG&E's service territory?
- 7.7.2. Would that import capability vary by month?
- 7.7.3. Would that import capability still be limited if there were no local gas-fired generation available?
- 7.7.4. If the answer to the previous question is "yes," please state the limit that the Applicants would expect to see.
- 7.7.5. Would the limitation be expected to vary by month?
- 7.7.6. If the answer to the previous question is "yes," please state how much the limit would be expected to vary by month.
- 7.7.7. What is the minimum amount of electric power that would have to be generated by gas-fired EG plants within SDG&E's service territory in order to meet an N-1 electric reliability standard during each month of the year?
- 7.7.8. What is the minimum amount of electric power that would have to be generated by gas-fired EG plants within SDG&E's service territory in order to meet an N-2 electric reliability standard during each month of the year?

**RESPONSE 7.7:**

- 7.7.1 The proposed AC to DC conversion (Renewable Energy Express, or REX) is expected to increase import capability into the San Diego load center on the order of 500-1,000 MW.
- 7.7.2 The actual, real time import capability will vary based on system conditions (actual and forecast load, conventional and renewable generation output levels, planned and unplanned transmission outages, availability of reactive energy resources, etc.). The

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

import capability may vary by season; the degree of seasonal variation will be determined by operational studies once the proposed project is in service.

- 7.7.3 Yes, the lack of gas-fired local generation in the San Diego area will impact the ability to import energy into the San Diego load center.
- 7.7.4 The specific impact would be identified by operational studies once the project is in service. The unavailability of gas-fired local generation in the San Diego area could reduce import capability into the San Diego load center on the order of hundreds of megawatts.
- 7.7.5 The actual, real time import capability will vary based on system conditions (actual and forecast load, conventional and renewable generation output levels, planned and unplanned transmission outages, availability of reactive energy resources, etc.). The import capability may vary by season; the degree of seasonal variation will be determined by operational studies once the proposed project is in service.
- 7.7.6 See the response to Question 7.7.5 above.
- 7.7.7 See the response to Question 7.7.5 above.
- 7.7.8 See the response to Question 7.7.5 above.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.8:**

What is SDG&E's current estimate of the amount of existing behind-the-meter roof-top solar within its service territory during the year 2015?

**RESPONSE 7.8:**

The total approved behind-the-meter solar nameplate capacity at year-end 2015 in SDG&E's service territory was 495 MW.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.9:**

What is SDG&E's current projection of the amount of behind-the-meter roof-top solar likely to exist within its service territory during the years 2020 and 2025?

**RESPONSE 7.9:**

The California Energy Commission (CEC)'s current projection of total behind-the-meter solar nameplate capacity for SDG&E's service territory is 779 MW in 2020 and 1,209 MW in 2025. These projections are consistent with the CEC's California Energy Demand (CED) 2015 Report (Mid-Demand Case).

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

**QUESTION 7.10:**

Referring to the Applicants' response to SCGC-02, Q.2.1, workpapers to the Cost Effectiveness Analysis on the "Outputs100 yr" tab, here is an excerpt from that cost effectiveness comparison table:

<b>Alt No.</b>	<b>Project Name</b>	<b>Fixed Cost</b>
A	Proposed Project (Line 3602)	\$441.9 M
B	Hydrotest Alternative (Line 1600)	\$112.9 M
C1	Alt Diameter Pipeline 10"	\$297.6 M
C2	Alt Diameter Pipeline 12"	\$320.1 M
C3	Alt Diameter Pipeline 16"	\$337.1 M
C4	Alt Diameter Pipeline 20"	\$352.9 M
C5	Alt Diameter Pipeline 24"	\$361.2 M
C6	Alt Diameter Pipeline 30"	\$392.2 M
C7	Alt Diameter Pipeline 42"	\$527.5 M
D	Replace Line 1600 In-Place	\$556.1 M
E/F	Otay Mesa Alternative	\$977.1 M
G	LNG Storage (Peak-Shaver) Alternative	\$2669.7 M
H1	Alternate Energy Alternative: Grid-Scale Batteries	\$8415.1 M
H2	Alternate Energy Alternative: Small-Scale Batteries	\$10095.1 M
I	Offshore Route Alternative	\$1449.9 M
J1	Blythe to Santee Alternative 1	\$1377.5 M
J2	Blythe to Santee Alternative 2	\$1315.5 M
J3	Cactus City to San Diego Alternative	\$1143.4 M
K	Second Pipeline Along Line 3010 Alternative	\$595.2 M

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

7.10.1. Neil Navin’s PSRP ALT workpapers at page 2 present a “Proposed Project/Alternative” table, which has been reproduced in part below:

Proposed Project/ Alternative	Base Estimate	Contingency	Contingency	Base Estimate + Contingency	Base Estimate + Contingency + Total Derating Cost*
		\$	%		
<b>B. No Project</b>					
B. No Project Alternative (Hydrostatic Testing) (Testing 4/1-5/15 & 10/1-12/15)	\$ 90,308,094	\$ 22,577,024	25.0%	\$ 112,885,118	\$ 112,885,118
<b>C. Alternative Diameter Pipeline, Various Sizes, Proposed Route.</b>					
C1. Alternate Diameter 10"	\$ 251,977,246	\$ 30,555,897	12.1%	\$ 282,533,143	\$ 297,635,596
C2. Alternate Diameter 12"	\$ 272,218,118	\$ 32,775,184	12.0%	\$ 304,993,302	\$ 320,095,755
C3. Alternate Diameter 16"	\$ 287,704,583	\$ 34,243,808	11.9%	\$ 321,948,391	\$ 337,050,844
C4. Alternate Diameter 20"	\$ 302,452,879	\$ 35,331,820	11.7%	\$ 337,784,699	\$ 352,887,152
C5. Alternate Diameter 24"	\$ 309,909,053	\$ 36,233,033	11.7%	\$ 346,142,086	\$ 361,244,539
C6. Alternate Diameter 30"	\$ 337,741,285	\$ 39,377,286	11.7%	\$ 377,118,571	\$ 392,221,024
C7. Alternate Diameter 42"	\$ 461,735,039	\$ 50,706,817	11.0%	\$ 512,441,856	\$ 527,544,309
D. Replace Line 1600 in Place with a New 16-inch Transmission Pipeline.	\$ 427,746,400	\$ 128,323,920	30.0%	\$ 556,070,320	\$ 556,070,320
E/F. Otay Mesa Alternative.	\$ 687,115,205	\$ 274,846,082	40.0%	\$ 961,961,287	\$ 977,063,740
G. LNG Storage (Peak Shaver) Alternative.	\$ 2,042,000,000	\$ 612,600,000	30.0%	\$ 2,654,600,000	\$ 2,669,702,453
<b>H. Alternate Energy Alternatives</b>					
H1. Batteries - Grid Scale	\$ 5,600,000,000	\$ 2,800,000,000	50.0%	\$ 8,400,000,000	\$ 8,415,102,453
H2. Batteries - Small Scale	\$ 6,720,000,000	\$ 3,360,000,000	50.0%	\$ 10,080,000,000	\$ 10,095,102,453
I. Offshore Route Alternative	\$ 1,024,879,032	\$ 409,951,613	40.0%	\$ 1,434,830,645	\$ 1,449,933,098
<b>J. Cross-County Pipeline Route Alternatives.</b>					
J1. Blythe to Santee Alternative 1	\$ 1,048,025,756	\$ 314,407,727	30.0%	\$ 1,362,433,483	\$ 1,377,535,936
J2. Blythe to Santee Alternative 2	\$ 1,000,340,683	\$ 300,102,205	30.0%	\$ 1,300,442,888	\$ 1,315,545,341
J3. Cactus City to San Diego Alternative	\$ 867,956,368	\$ 260,386,910	30.0%	\$ 1,128,343,278	\$ 1,143,445,731
K. Second Pipeline along Line 3010 Alternative	\$ 446,191,300	\$ 133,857,390	30.0%	\$ 580,048,690	\$ 595,151,143

\* Derating cost not added to Option B - No Project Alternative (Hydrostatic Testing)

DERATING COST ESTIMATE:					
A1 Derating L1600	\$ 12,663,537	\$ 2,438,916	19.3%	\$ 15,102,453	N/A

For each project alternative, the table shows the base estimate, the contingency cost, the base estimate + contingency, and a total “Base Estimate + Contingency + Derating Cost.” Please confirm that this latter figure is used to represent the “fixed cost” associated with each of the Alternatives, B through K, including sub-alternatives such as C1 through C7, presented in the cost effectiveness comparison table shown above.



**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

- 7.10.2. If the Applicants are unable to make this confirmation, please provide an explicit derivation of the Fixed Cost figure for each of the Alternatives presented in the cost effectiveness comparison table shown above.
- 7.10.3. Please confirm that the “Base Estimate” amount for each of the Alternatives, B through K, including sub-alternatives such as C1 through C7, shown in “Proposed Project/Alternative” table shown above are derived in the capital workpapers shown on pages 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 22, 23, 24, 25, 26, 27, 28, and 29 of Neil Navin’s PSRP ALT workpapers.
- 7.10.4. If the Applicants are unable to make this confirmation, please provide an explicit derivation of the “Base Estimate” amounts shown in “Proposed Project/Alternative” table shown above for each of the Alternatives, B through K, including sub-alternatives such as C1 through C7.
- 7.10.5. Referring back to the Applicants’ response to SCGC-02, Q.2.1, workpapers to the Cost Effectiveness Analysis on the “Outputs100 yr” tab, and the cost effectiveness comparison table shown above. The fixed cost amount shown for the project (Alternative A) is presented as \$441.9 million, which deducting the amount of \$15.1 million for the derating of Line 1600 as shown in Neil Navin’s “Proposed Project/Alternative” table, from his PSRP ALT workpapers at page 2, is \$426.8 million. The \$426.8 million appears to have been derived for the direct costs of constructing proposed Line 3602 as shown below from Navin’s Project Cost and Schedule workpaper at page WP-4:

WORKPAPER TITLE	FERC ACCT.
Summary of Proposed L-3602 - Total Direct Cost	367
	IN SERVICE DATE
	12/31/2020

Testimony - Table 2: Estimated Proposed L-3602 Construction Costs  
(Direct Costs)<sup>\*1</sup>

Component	Estimated Cost
MATERIALS	\$90.3
CONSTRUCTION	\$256.0
ENGINEERING/DESIGN/PROJECT MGMT	\$10.1
ENVIRONMENTAL REVIEW & PERMITS	\$26.5
OTHER PROJECT EXECUTION ACTIVITIES	\$25.8
COMPANY LABOR	\$18.2
<b>TOTAL</b>	<b>\$426.8</b>

<sup>1</sup> Direct Costs excludes, Loaders, Escalators, Capitalized Property Tax, & Allowance for Funds During Construction Costs

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

Please confirm that the \$441.9 million from the Cost Effectiveness Analysis on the “Outputs100 yr” tab, cost effectiveness comparison table shown above is equal to \$426.8 million shown in the Navin’s Project Cost and Schedule workpaper plus the \$15.1 million for derating Line 1600 shown in the “Proposed Project/Alternative” table shown above.

- 7.10.5.1. Notably, Navin’s Project Cost and Schedule workpaper at page WP-4, as shown above, does not include any contingency amount in developing the total direct cost of \$426.8 million. By apparently using this figure in the cost effectiveness comparison table, are the Applicants claiming that there is no contingency required for the proposed project?
- 7.10.5.2. Navin’s Project Cost and Schedule workpapers pages WP-5 through WP-9 have contingency amounts for various elements of the proposed project. Please confirm that the total of these contingency amounts is \$44.4 million.
- 7.10.5.3. Should the Base Estimate + Contingency + Derating Cost for the Proposed Project (Alternative A) equal \$426.8 million + \$44.4 million + \$15.1 million = \$486.3 million?
- 7.10.5.4. If the answer to the previous question is “no,” please identify the correct amount and explain why that amount is different than \$486.3 million.
- 7.10.5.5. Please correct the Applicants’ cost effectiveness table to appropriately reflect the \$44.4 million contingency for Alternative A and provide the amended table and workpapers in the form of an Excel workbook.

**RESPONSE 7.10:**

- 7.10.1. Yes.
- 7.10.2. See response 7.10.1 above.
- 7.10.3. Yes.
- 7.10.4. See response 7.10.3 above.
- 7.10.5. Yes.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016**

**Date Responded: October 28, 2016**

---

7.10.5.1. No. Contingency amounts are included in each of the cost elements (e.g., materials, construction, engineering/design/project management, etc.) that together comprise the total cost for the Proposed Project.

For example, in Mr. Navin's supporting workpapers for Cost and Schedule, "Summary of Proposed L-3602 – Total Direct Cost" (WP-4), the \$90.3 million estimated cost for materials includes \$7.6 million for contingency. The detailed components that make-up the \$90.3 million are provided on WP-5 (Proposed L-3602 Line Material) and include contingency for each of the individual material cost elements.

The individual contingency amounts for each cost element are provided on the detailed workpapers that support WP-4.

7.10.5.2. Yes. Please see the response to 7.10.5.1 above and Navin's Direct Testimony Tables 6 and 7 which summarize the estimated contingency included in the Proposed Project.

7.10.5.3. No. The \$426.8 million base estimate already includes the \$44.4 million contingency (see response to 7.10.1.5.1 above). The total estimated cost for constructing Line 3602 is \$426.8 million plus \$15.1 million for de-rating Line 1600 ( $\$426.8 + \$15.1 = \$441.9$  total cost). The \$15.1 million estimate for de-rating also includes contingency (see workpapers supporting "Summary of L-1600 De-Rate, Total Direct Costs per Year").

7.10.5.4. See response to 7.10.1.5.3 above.

7.10.5.5. The \$441.9 million listed as the fixed cost for Alternative A – the Proposed Project – in Applicants' cost effectiveness analysis (see Table 8 and supporting workpapers, "Avoided Cost Model, 100 year output") already includes the \$44.4 million of estimated contingency and, therefore, no corrections are needed.

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

**QUESTION 7.11:**

With respect to Neil Navin's capital workpaper for Option G (p 22), which states in the forecasting methodology section: "Costs were based on a similar project, Energía Costa Azul (ECA). Each plant was compared to the ECA project and factored based on the 6/10th rule. Liquefaction costs were excluded and not used. Plant costs were factored based on Inside Battery Limits (ISBL), which included regasification and storage only, and did not include Outside Battery Limits (OSBL)."

- 7.11.1. Please state the "6/10th rule" and explain in detail what this rule is based upon.
- 7.11.2. Have the Applicants or other knowledgeable people in the industry actually tested this rule to see how accurate it is?
- 7.11.3. If the answer to the previous question is "yes," please provide documentation of this verification process.
- 7.11.4. Please explain in detail what Inside Battery Limits (ISBL) are.
- 7.11.5. Please explain in detail what Outside Battery Limits (OSBL) are.
- 7.11.6. What cost data for EGA did the Applicants examine?
- 7.11.7. Did the cost data breakdown the cost of storage by functional area within EGA?
- 7.11.8. What is the incremental cost of the regasification capability of the EGA in contrast to the storage capability of the EGA?
- 7.11.9. What is the size of the storage capability at EGA?
- 7.11.10. What is the size of the storage capability that the Applicants are considering under the LNG alternative?
- 7.11.11. What is the regasification capacity as EGA?
- 7.11.12. What is the regasification capacity that the Applicants are considering under the LNG alternative?

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

- 7.11.13. Please show the actual derivation of the cost figures that the Applicants have developed for the LNG alternative, including the formula that uses the 6/10th rule.

**RESPONSE 7.11:**

- 7.11.1. The "6/10<sup>th</sup> rule" is a common conceptual estimating technique. It is a capacity factored estimate in which the cost of a new proposed project is derived from the cost of a similar project of a known capacity.

Capacity factored estimating techniques can be applied to a wide range of industries and projects to prepare quick feasibility and project screening estimates. This technique is very common in the process industries where the exponent "e" typically has a value between 0.5 and 0.85, depending on the type of plant; and in fact yet another name for this estimating technique is the "six-tenths rule" because of a common reliance on using an exponent value of 0.6 if no better information is available.

In applying the capacity factoring cost estimating technique, we convert the algorithm used to explain the relationship between cost and capacity to the following cost estimating relationship:

$$\$B = \$A \times (CapB/CapA)^e$$

Where \$B is the estimated cost for a new project, \$A is the actual cost of a similar project, CapB is the capacity of the new project, CapA is the capacity of the similar completed project, and "e" is the capacity factor exponent.

- 7.11.2. It is a common industry estimating practice included in the recommended practice of AACE for developing factored cost estimates for the process industries.
- 7.11.3. The AACE Recommended Practice 56R-10 is attached. This document is **copyright protected and provided pursuant to the NDA between SDG&E/SoCalGas and SCGC and with the permission of AACE.**<sup>1</sup>

---

<sup>1</sup> Reprinted with the permission of AACE International, 1265 Suncrest Towne Centre Dr., Morgantown, WV 26505 USA. Phone 800-858-COST/304-296-8444. Fax: 304-291-5728. Internet: <http://www.aacei.org>; E-mail: [info@aacei.org](mailto:info@aacei.org)

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016**

**Date Responded: October 28, 2016**

- 
- 7.11.4. Battery Limit – Comprises one or more geographic boundaries, imaginary or real, enclosing a plant or unit being engineered and/or erected, established for the purpose of providing a means of specifically identifying certain portions of the plant, related groups of equipment, or associated facilities. It generally refers to the processing area and includes all the process equipment, and excludes such other facilities as storage, utilities, administration buildings, or auxiliary facilities. The scope included within a battery limit must be well-defined so that all personnel will clearly understand it. On drawings, this is often referred to in the phrase: inside/outside battery limits or ISBL/OSBL. Source: AACE International Recommended Practice No. 10S-90 Cost Engineering Terminology.
- 7.11.5. See response 7.11.4 above
- 7.11.6. In operation since May 2008, the \$975 million LNG receipt terminal is capable of processing up to 1 billion cubic feet per day of natural gas Source: <http://sempra.mediaroom.com/index.php?s=19080&item=39318>
- 7.11.7 No.
- 7.11.8 The source data used did not go into this level of detail, and therefore this information is not known to the Applicants.
- 7.11.9 The storage capacity of Energía Costa Azul (ECA) is 320,000 m<sup>3</sup> or approximately 6.78 BCF. Source: [http://www.energy.ca.gov/lng/documents/costa\\_azul/2006-07-25 Keller Costa Azul LNG Interagency.PDF](http://www.energy.ca.gov/lng/documents/costa_azul/2006-07-25_Keller_Costa_Azul_LNG_Interagency.PDF)
- 7.11.10 The storage capability of all four independent storage and regasification LNG facilities totals to 1.76 BCF.
- 7.11.11 The regasification capacity of ECA is 1,000 MMscfD. Source: <http://sempra.mediaroom.com/index.php?s=19080&item=39318>
- 7.11.12 The regasification capacity of all four independent storage and regasification LNG facilities totals to 351 MMscfd.
- 7.11.13 An example of the Carlsbad LNG plant is shown below:

Using the 6/10<sup>th</sup> rule as shown in 7.11.1:

$$\text{\$B} = \text{\$A} \times (\text{CapB/CapA})^e$$

**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

$\$A = \$975M * 75\%$  (discounted to 75% to account for the cost for the terminal port that is not utilized in this hypothetical example), CapB = 5.4M gallons, CapA = 72.6M gallons,  $e = 0.6$   
Process Facilities and Utilities Subtotal = \$153.5M 2008\$ (\$168.1 2015\$)

**LNG Plant (2015\$)**

30% for offsite (storage, flare & liquid blow-down, fire protection, etc.) [\$50.4M]  
15% for site infrastructure (roads, substation, telecommunication, etc.) [\$25.2M]  
LNG Plant Subtotal = \$75.6M

**Materials & Construction**

5 miles of underground pipeline per LNG plant [\$40M]  
15% Site prep, material handling on LNG plant plus pipeline cost [\$42.5M]  
Materials & Construction Subtotal = \$82.5M

Subtotal = \$326.0M

**Other Direct Costs** (on subtotal of Process Facilities, LNG plant subtotal, and materials & construction)

30% Engineering and procurement [\$97.8M]  
2% Permitting, ROW/Land acquisition [\$6.5M]  
6% Environmental [\$19.6M]  
Subtotal = \$123.9M

**Owner Cost**

15% of total [\$67.5M]

**Carlsbad LNG Total** = \$517M

**Other LNG Plants:** Pio Pico LNG (\$403M), Palomar LNG (\$552M), and Otay Mesa LNG (\$570M)

**LNG Alternative total** = \$2,042M

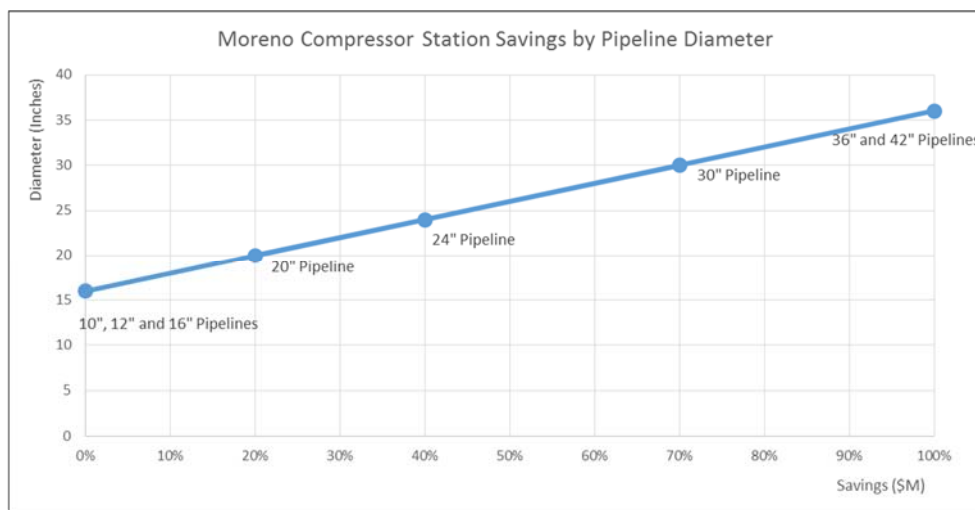
**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

**QUESTION 7.12:**

With respect to the Applicants' response to TURN-5, Q.1.a, which has been reproduced here for ease of reference:



7.12.1. The workpaper states: "Cost savings for smaller diameter pipe (20"-30") are factored based on the ratio of pipe diameter to the 36" pipeline - Proposed Project." Please show the derivation of each of the values shown in the chart corresponding to the following pipeline sizes: 10", 12", 16", 20", 24", 30", 36", and 42".

7.12.2. Did the Applicants use their flow model to develop this information?

**RESPONSE 7.12:**

7.12.1 The figure was developed to show how the Moreno cost savings for the pipeline diameter alternatives (C1-C7) were developed on a factored basis from the detailed savings estimate for the Proposed Project (36" pipeline).

The Applicants estimate approximately \$5.9 million per year in savings based on 95% reduction in operations at the Moreno Compressor Station if a 36-inch diameter gas transmission pipeline is installed, as identified in Table 9 on page 9 of the Moreno Compressor Station Report (See Prepared Direct Testimony of Neil Navin, Attachment A at Attachment XII). It was assumed that no change in Moreno



**SAN DIEGO GAS & ELECTRIC COMPANY  
SOUTHERN CALIFORNIA GAS COMPANY  
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)  
(A.15-09-013)**

**(7<sup>th</sup> DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)**

**Date Requested: October 12, 2016  
Date Responded: October 28, 2016**

---

Compressor Station operations or operating costs would be realized for gas pipelines 16-inches in diameter or less.

To determine the percent savings for the other pipeline diameters, the 0% savings for the 16-inch or less diameter pipelines and the 100% savings (\$5.9 million per year) for the 36-inch pipeline were plotted on a graph. Cost savings for smaller diameter pipe (20"-30") are factored and plotted based on the ratio of the pipe diameter to the 36" pipeline - Proposed Project.

The percent savings for the remaining alternative diameter pipelines were plotted on the graph. The resulting graph shows the estimated proportional savings on a percentage basis for the different diameter pipelines relative to the Proposed Project (36" pipeline).

7.12.2 No.