

Application of San Diego Gas & Electric Company
(U-902-E) for Adoption of an Advanced Metering
Infrastructure Deployment Scenario and Associated Cost
Recovery and Rate Design.

A. 05-03-015

CHAPTER 20

Prepared Rebuttal Testimony

of

IVO STEKLAC

SAN DIEGO GAS & ELECTRIC COMPANY

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

SEPTEMBER 7, 2006

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Chapter 20
Prepared Rebuttal Testimony
of
IVO STEKLAC
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ON BEHALF OF
SAN DIEGO GAS & ELECTRIC COMPANY

10 **I. Introduction**

11
12 The purpose of my rebuttal testimony is to respond to several unfounded
13 assertions made by the Utility Consumers’ Action Network (UCAN) and the Division of
14 Ratepayer Advocates (DRA) witnesses in their prepared testimony submitted on August
15 14, 2006. My testimony specifically addresses SDG&E’s AMI Technology strategy.

16
17 **II. Summary of Rebuttal Testimony**

18
19 The testimonies of UCAN and DRA are contradictory. UCAN asserts that
20 SDG&E’s technology selection fails to integrate emerging Smart Grid technologies,
21 while DRA asserts that SDG&E’s chosen technology is “next generation” with more
22 demanding specifications than are necessary to achieve the Commission’s policy goals.
23 In fact, the technologies that SDG&E is evaluating provide the necessary foundation for
24 emerging Smart Grid technologies, thus satisfying UCAN’s concern, and are well proven,
25 existing technologies, which satisfies DRA’s concern. My testimony rebuts, point by
26 point, the claims made by UCAN and DRA in order to demonstrate clearly that
27 SDG&E’s AMI technology selection is rational, reasonable and sound.

28
29 **III. Rebuttal of UCAN Testimony**

30
31 **A. “Real Residential Customer Benefits Can Be Realized in a Smart Grid**
32 **Proposal”**

33
34 UCAN describes a number of useful end-user products and services, the offering
35 of which could be facilitated if broadband communications capabilities were added to an
36 electric distribution grid. While ubiquitous high-bandwidth broadband certainly could
37 facilitate such products and services, it has yet to be shown that ubiquitous high-

1 bandwidth broadband can be developed and deployed cost-effectively. The cost to
2 provide any communications infrastructure increases with decreasing customer density. It
3 is for this reason that broadband Internet access is not universally available everywhere in
4 the United States. UCAN’s contemplated “solution” falls victim to the same economies
5 of scale. Utilities today cannot justify the universal deployment of broadband for AMI
6 and Smart Grid alone, and must rely on additional investors who can provide other
7 services such as those UCAN describes. Nevertheless, as noted in SDG&E witness
8 Reguly’s direct testimony (Chapter 8, dated July 14, 2006 (TMR-8:1-11), SDG&E will
9 continue to monitor technology developments and, should a cost justifiable technology
10 develop, SDG&E may pursue it. As an illustration of SDG&E’s commitment to monitor
11 technology developments, I would note that SDG&E continues to pilot, at shareholder
12 expense, numerous BPL technologies. That being said, and based on the data available
13 today, SDG&E will continue on the path outlined in SDG&E’s business case.

14 15 **IV. Rebuttal of DRA Testimony**

16 17 **A. “Perspective on attributes of the Process and the System”**

18 19 **1. “Function & Benefits Driven”**

20
21 DRA witness Hadden’s testimony postulates that SDG&E erred by employing a
22 benefits driven process that included the 99% daily accuracy and bi-directional metering
23 requirements. Mr. Haden is misinformed. SDG&E’s RFP was comprised of critical, or
24 must have, specifications, non-critical, “like to have”, specifications, and optional
25 specifications. Neither the 99% daily accuracy specification, nor the bi-directional
26 metering specification was defined as “critical.” Vendor elimination took place only with
27 respect to the critical specifications. All other specifications were scored according to
28 pre-determined evaluation criteria rigorously vetted with respect to SDG&E’s quantified
29 and intangible benefits.

30 While SDG&E did employ a rigorous, benefits-driven process in determining the
31 technical, functional, and performance requirements for the AMI technology RFP, not all
32 benefits identified by SDG&E could be quantified with respect to hard dollar savings.
33 Some benefits were deemed strategic and included as either non-critical specifications, or

1 optional specifications. The 99% daily data delivery (or more exactly 99.5% availability
2 and 99.5% accuracy) was considered one such strategic benefit that could yield additional
3 operational and customer service benefits during the operating life of the AMI system,
4 but for which these benefits were impossible to quantify today. For example high
5 availability and accuracy of AMI information will enable substantially more flexible
6 billing options in the future. It is envisioned that such flexibility will be needed to
7 incorporate potential customer needs that could arise out of demand response, however,
8 for such options, substantial evolution of today's CIS systems is required as well.
9 Similarly the same data availability and accuracy are essential to tomorrow's Smart Grid,
10 where data from end-point distribution nodes will be integrated with additional
11 measurement and control devices. However, most of the additional Smart Grid
12 technology needed to realize these benefits, such as advanced grid components and
13 control methodologies, are currently still in development today. Cost benefit evaluation
14 of such capabilities is, therefore, very difficult. However, a detailed pre-RFP evaluation
15 of the AMI technology marketplace revealed that AMI systems with this level of data
16 availability and accuracy are available within the timeframe of SDG&E's program
17 schedule. The specifications, therefore, were included in order to ensure a system that
18 met today's needs without sacrificing tomorrow's expectations.

19
20 **2. "Most Cost-Effective, Least risk – Diminishes Technology and**
21 **Functional Risks"**
22

23 Mr. Hadden in his testimony polarizes the AMI technology market into two
24 distinct groups, current AMI technology and next generation technology. The former is
25 implicitly defined as existing, installed and operational technology, while the latter is
26 defined as enhanced technology from either existing AMI technology vendors or new
27 market entrants. Mr. Hadden then claims (at page 8-6, line 20), "[a]ll benefits identified
28 by SG&E in its Application 05-03-015 are supported by some available current
29 generation AMI systems," but does not provide any quantified or qualified support for
30 these claims.

31 Mr. Hadden further claims (at page 8-6, line 28), "[w]hen configured consistent
32 with currently prevailing practice, existing, proven AMI systems are probably less

1 expensive and almost certainly less risky in interval 1 [defined as the deployment interval
2 of the AMI system’s operating life]”.

3 As previously stated, these “two demanding requirements” were not defined by
4 SDG&E as critical requirements. These were strategic requirements that aided in “future
5 proofing” a system with an expected 17-year operating life. No vendors were eliminated
6 from contention based on their ability, or inability, to meet these requirements. Several
7 vendors did not meet the 99% daily delivery of data requirements and even more vendors
8 did not meet the bi-directional metering requirement and their pricing reflected the
9 performance and functional specifications they could meet.

10 SDG&E’s vendor selection was based on RFP evaluation, total-cost-of-ownership
11 evaluation, and risk assessment. Thus, the two vendors being field tested have the lowest
12 risk-adjusted total-cost-of-ownership and have met all of SDG&E’s critical requirements.
13 These two vendors claim to support bi-directional metering and both have included this
14 capability in the pricing provided to SDG&E. Both of the vendors selected for field
15 testing also claim the ability to meet the 99% daily delivery performance. Finally both
16 vendors meet these requirements, and all others, at a lower risk adjusted total cost of
17 ownership (TCO) than vendors offering reduced performance. Therefore, vendors who
18 did not even provide these non-critical requirements, identified by DRA, are at a higher
19 risk adjusted TCO than the two vendors being field tested by SDG&E.

20 Finally the terms “current” and “next generation” are themselves misnomers.
21 Advanced Metering Infrastructure (AMI) is an evolution of Automatic Meter Reading
22 (AMR), just as AMR evolved from Off-site Meter Reading (OMR), and thus, AMI is the
23 latest technology in a long evolutionary chain. The industry, from either an expectation or
24 requirements standpoint, as well as from a technology standpoint, continues to advance.
25 Rarely can one find the exact same technology in subsequent deployments, even
26 deployments by the same vendors. Therefore, “current technology” refers to what
27 vendors are commercially offering in response to present market needs, and “next
28 generation technology” is what is yet to be offered based on tomorrow’s needs.

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1 **B. “SDG&E Process May Incur Cost and Risk without Benefit”**

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3 Mr. Hadden states (page 8-8, paragraph beginning on line 3); “[t]he new systems
4 may be more capable than needed. SDG&E has not shown that the ability to meet its
5 most demanding requirements contributes to its projected AMI benefits. It appears that
6 existing, more mature systems are able to meeting the requirements that support the
7 projected benefits.”

8 Mr. Hadden’s fundamental contention is that SDG&E’s requirements for daily
9 data delivery at 99% and bidirectional metering eliminated existing systems from
10 contention by either setting the bar too high for these systems to meet, or by forcing them
11 to incur substantial costs that made them non-competitive with respect to newer systems.
12 This premise is flawed for the following reasons:

- 13
- 14 i) None of the daily data delivery requirements were critical requirements. Only
15 the billing cycle requirements were critical. Most vendors understood that
16 identical specifications for billing-cycle and daily data delivery requirements
17 can only mean that the former is critical; otherwise, the former is superfluous.
18 Some vendors did fail the billing-cycle critical requirements, even though the
19 required performance has been relatively common in the industry for several
20 years, but none failed the daily delivery requirements.
 - 21
 - 22 ii) Similarly bi-directional metering was not a critical requirement. No vendors
23 were eliminated for not being able to provide bi-directional metering. This
24 strategic requirement was developed to ensure SDG&E’s ability to support the
25 emerging solar and co-generation initiatives in California. Furthermore, the
26 bi-directional requirement was followed by a net metering requirement which
27 is a subset of bi-directional functionality. Logically both could not be critical
28 requirements as the second would be superfluous to the first.
 - 29

30 Thus SDG&E did not set the bar too high, because no vendor elimination
31 occurred based on these requirements. As for forcing existing technologies into a
32 non-competitive price range, the responses received by SDG&E show that other
33 technologies scored lower overall and yet had higher TCOs.

34

35 **1. “Two Key Technical Requirements Should Be Re-Examined”**

36

37 Mr. Hadden states (page 8-10, line 14), “[i]f the requirements are relaxed to, for
38 example, 97% of data daily and one channel of interval data, AMI systems by several
39 other prominent suppliers will be capable of meeting these requirements, and may be
40 cost-effective. I say “may” because SDG&E has not obtained quantitative commitments

1 from suppliers to either confirm or refute this, and its application is therefore lacking that
2 information.” Mr. Hadden then further states (page 8-16, line 3), “[i]t is entirely possible
3 that direct costs for AMI Technology could have been reduced by 15% by relaxing these
4 two requirements.” Notwithstanding the fact that Mr. Hadden has not provided any
5 substantiation to these statements, SDG&E can demonstrate, via the responses received,
6 that systems meeting more relaxed requirements do not, in fact, do so at lower cost, even
7 when that cost takes into account adjustments for risk.

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9 **2. “These Two Technical Requirements May Have Increased**
10 **Costs Unnecessarily”**

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12 Mr. Hadden states (page 8-12, line 11), “[t]o illustrate the point, one vendor did
13 not bid to provide AMI to serve the entire SDG&E service territory and was eliminated
14 from contention on that basis.” The SDG&E territory was segregated into seven (7)
15 combinations of meter densities and commodities called segments in the solicitation.
16 Vendors were required only to respond to one of these segments. This segmentation
17 approach was designed to allow SDG&E to potentially develop a cost optimized mix of
18 technologies if a hybrid approach resulted in a lower overall cost. Some vendors did
19 respond to only select segments, and SDG&E evaluated all such responses. SDG&E can
20 demonstrate that no vendor was eliminated based on the claimed limited response.
21 Moreover, no vendor was eliminated because it did not bid on SDG&E’s entire service
22 territory. Vendors were eliminated, however, if they failed to meet SDG&E’s critical
23 requirements and/or by failing to provide a sufficiently low risk adjusted TCO.

24 Mr. Hadden describes a vendor who, according to Mr. Hadden, was eliminated
25 from contention because it did not bid on the entire service territory. (Page 8-12, line 14),
26 “This vendor is active and successful in the marketplace, but recognized that it did not
27 have a good chance of winning. It was reasonable for the vendor to decide not to incur
28 the substantial cost of a full proposal to serve SDG&E customers.” SDG&E refutes this
29 claim. The technical requirements for all segments were identical; therefore, any vendor
30 responding to the entire service territory or to just a single segment would incur the same
31 basic cost to provide a proposal. The only additional costs of preparing a full service
32 response would be the costs associated with estimating and pricing the communications

1 infrastructure for the entire service territory. In comparison to the rest of the detailed RFP
2 response, these incremental costs are trivial.

3 This concludes my prepared rebuttal testimony.

1 **V. Qualifications**

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3 My name is Ivo Steklac and I am the founder and President of Enspiria Solutions,
4 Inc. My business address is 6560 South Greenwood Plaza Blvd., Suite 500, Greenwood
5 Village, CO 80111. Enspiria Solutions, Inc. was retained to develop a Solutions
6 Implementation Roadmap for AMI for San Diego Gas & Electric Company (SDG&E) .

7 My position during this effort was that of consulting lead of the overall solution
8 implementation roadmap. In addition my specific consulting responsibilities included all
9 aspects of the AMI technology requirements development and evaluation facilitation. I
10 have been employed by Enspiria Solutions, Inc. from 2003. Prior to founding Enspiria
11 Solutions, Inc. I was employed by Schlumberger Ltd, in a number of operating divisions
12 and roles starting as a design engineer, and ending as President the U.S. Utility consulting
13 and systems integration division. My relevant experience during those years includes:
14 Design Engineer, Engineering Manager, and Director of Engineering for Schlumberger
15 electricity metering, where I was involved in the design some of the first solid-state
16 electricity and gas meters in the world; Director of Schlumberger Industries world-wide
17 Research Center, where I was involved in fundamental research into measurement,
18 sensing, communications, and real-time reactive control systems; Director of
19 Schlumberger Systems Engineering, where I was involved in the development of data
20 acquisition and processing systems for some of the first fixed network AMR systems and
21 lead the technical integration of Schlumberger's acquisition of Cellnet Data Systems;
22 Director of AMR Advanced Services Marketing, where I was involved in the
23 development of the Edison Electric Institute's 2001 Utility of the Year awarding winning
24 Personal Energy Management program for Puget Sound Energy; V.P. Marketing
25 Schlumberger Energy & Utilities, where I lead the development of a portfolio of
26 solutions spanning from utility generation to distribution; and V.P. of Energy & Utilities
27 Consulting and Systems Integration Practice, where I lead the delivery of utility
28 consulting and systems integration engagements across North America. I have been
29 involved in energy and utility businesses since 1987.

30 I received a Bachelor of Science degree in Electrical Engineering and Computer
31 Science from Queen's University at Kingston in 1987. I have not previously testified
32 before the California Public Utilities Commission.