CHAPTER 9
AMI PROJECT MANAGEMENT AND SYSTEM SELECTION PROCESS

JULY 14, 2006 AMENDMENT

Prepared Supplemental, Consolidating, 
Superseding and Replacement Testimony 
of
PATRICK CHARLES

SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

July 14, 2006
# TABLE OF CONTENTS

I. INTRODUCTION.................................................................................................................. 1

II. AMI PROJECT MANAGEMENT – COSTS AND CONSIDERATIONS .... 2
   A. Background .................................................................................................................... 2
   B. RFP Solicitation Process / SDG&E’s AMI ‘Sourcing Strategy’ ......................... 2
   C. AMI Project Management / Prime Services/Program Management RFP
      Specifics ......................................................................................................................... 4
   D. AMI Project Management Base Assumptions .......................................................... 6
   E. AMI Technology Evaluation and Assessment Related Tasks and Timing........... 12
   F. AMI Project Management - Summary of Costs and Benefits ............................... 13
   G. AMI Project Management - Conclusion ................................................................ 13

III. INCREMENTAL HUMAN RESOURCES COSTS AND INCREMENTAL
     FACILITIES COSTS ASSOCIATED WITH AMI ................................................. 13
     A. Background .............................................................................................................. 13
     B. Base Assumptions .................................................................................................... 14
     C. Summary of Costs and Benefits – HR and Facilities ........................................... 16
     D. HR and Facilities - Conclusion ............................................................................. 17

IV. QUALIFICATIONS OF PATRICK CHARLES ............................................................. 18

V. QUALIFICATIONS OF EnSPIRIA SOLUTION ......................................................... 19
   A. Enspria Solutions, Inc., Corporate Overview ......................................................... 19
   B. AMI Expertise ........................................................................................................... 19

VI. Project Experience ..................................................................................................... 20
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I. INTRODUCTION

The purpose of this amended testimony is to refresh my March 28, 2006 testimony to include material information which will impact my (Chapter 9) testimony in which I describe SDG&E’s approach to advanced metering infrastructure (AMI) project management, project management structure and related AMI project management costs, including risk contingency costs, Human Resources (HR) incremental costs, and incremental AMI facilities (office space) costs. With regard to AMI project management, I discuss the RFP process through which SDG&E has refined and updated its business case costs and benefits as well as describing activities related to SDG&E’s AMI sourcing strategy. The total direct capital dollars discussed in this chapter total approximately $65 million and the associated Operations & Maintenance (O&M) direct dollars discussed total approximately $26 million. This testimony consolidates, supersedes, and replaces all previous direct and supplemental testimony filed by me or by any other SDG&E witness testifying in this docket, on the topics covered herein.

Specifically, this testimony corrects the allocation of contingency costs such that approximately $9 million is now included as O&M, and approximately $39 million as Capital (direct dollars). Additionally, AMI Project Management costs have been slightly modified and the allocation of these costs has slightly changed. AMI project management costs are allocated according to the overall O&M and Capital spending in the case. Because these costs have changed in various areas (such as Mr. Pruschki’s Chapter 11 testimony and Mr. Gaines’ Chapter 5 testimony), the allocation of the AMI project management costs has also changed accordingly. Additionally, minor FTE count
corrections are included that result in very small changes to HR and Facilities costs.
Other areas of my testimony remain unchanged.

II. AMI PROJECT MANAGEMENT – COSTS AND CONSIDERATIONS

A. Background

SDG&E’s AMI project is large and complex and reflects more than a year of IT system development and integration work followed by a two and one half year deployment and installation phase. Moreover, the AMI project will touch each and every customer premise that has a gas and electric meter over the deployment period. Due to the size and complexity of the project, SDG&E has developed a ‘Sourcing Strategy’ for AMI and AMI related services, and designed and executed an RFP solicitation process that addresses the various components and activities of the AMI project.

B. RFP Solicitation Process / SDG&E’s AMI ‘Sourcing Strategy’

As detailed in D.05-08-018, the Commission granted SDG&E $9.3M in AMI pre-deployment funding as described in the multi-party settlement agreement. Activities included in SDG&E’s AMI Sourcing Strategy are those included and approved in SDG&E’s pre-deployment funding request (included in the budget and settlement are 1) AMI Sourcing Strategy Development / Refinement / Implementation, 2) AMI Technology Evaluation and Assessment, 3) AMI Project Initialization, 4) AMI Beta Phase Design and Implementation, and 5) AMI Regulatory and Financial Planning Support). The primary objective of these activities was to issue solicitations for AMI-related products and services and to develop a ‘Solution Implementation Roadmap’ for AMI deployment.

Development of this roadmap involved the following steps:

1. Benefit Identification, Requirements Definition and RFP Issuance

As indicated in Mr. Reguly’s testimony (Chapter 8) the overarching strategy of SDG&E’s business case development approach is to utilize a
benefits-driven approach ensuring attainment of the State's six policy goals,\(^1\) the demand response benefits included in the case, as well as the utility operational benefits. Therefore, initial activities in SDG&E's AMI Sourcing Strategy focused on identification and quantification of AMI related benefits. This was achieved over several months of subject matter expert interviews and follow-up analysis. These subject matter expert (SME) interviews were conducted by the project team facilitated by SDG&E's consultant,\(^2\) retained in recognition of the scope and complexity of this project, and to specifically help guide the utility through the selection process. SME interviewees represented over 20 impacted departments within SDG&E.

Based upon the potential benefits identified during these sessions, SDG&E documented the necessary business requirements to achieve these benefits. In addition, a gap analysis between these requirements and the current business processes were identified including key process changes that will be necessary to realize the operational benefits. This was achieved through a series of Business Process Design (BPD) sessions with impacted stakeholders. The output of these BPD sessions was a list of the functional, system, information, and technical requirements. These requirements were then included in vendor solicitation documents or RFPs.

Concurrent with this activity, another aspect of the Sourcing Strategy was to determine the approach SDG&E would take in the solicitation, ultimately leading to the issuance of five Request for Proposals (RFPs) in the areas of 1) AMI Technology, 2) Meter Installation, 3) Information Systems, 4) Systems Integration, and 5) Prime Services / Program Management. The RFPs were issued on October 20, 2005, and responses were due and were received on December 1, 2005.

2. **RFP Response Evaluation Process and Selection of 'Solution Sets'**

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\(^1\) The CEC's six policy goals or functional requirements are described in the 'Joint Assigned Commissioner and ALJ's Ruling Providing Guidance for the Advanced Metering Infrastructure Business Case Analysis' of February 19, 2004.

\(^2\) Further information regarding Enspirea can be found following my qualifications.
SDG&E received in excess of 60 proposals from more than 30 interested vendors across the five RFPs. Once these responses were received, SDG&E began extensive bid assessment activities which continued over a three month period. Evaluation teams assessed the functional and technical requirements and based upon the results of those evaluations, the teams ranked the vendor offerings in each of the RFP areas.

Independent from this technical and functional scoring and ranking process, SDG&E conducted a vendor pricing analysis which included coupling the ‘external’ costs represented by the vendor bids with a representative set of ‘internal’ costs developed by the SDG&E AMI teams. Based upon the results of these activities, a short list of bidders was formulated, from which SDG&E developed a series of “solution sets”\(^3\) which represents the most promising and cost effective implementation alternatives. Field tests of the selected technologies will begin in the late spring of 2006.

Based on these solution sets, SDG&E estimated the overall total costs to achieve the benefits of the AMI initiative. As part of this process, SDG&E requested clarification and refinement of external vendor costs, and developed related internal cost estimates for the identified solution sets (rather than the generic set used initially). Additionally, trade-off analysis was conducted for optional requirements to determine whether they should be included in the AMI business case.

C. AMI Project Management / Prime Services/Program Management RFP Specifics

SDG&E issued a prime services / program management (PS / PM) Request for Proposal (RFP) on October 20, 2005 as part of the larger RFP solicitation. The PS / PM solicitation was included with the other RFP solicitations because SDG&E believes that selecting an experienced and proven PS/PM will reduce overall project management risks. The purpose of the prime service program management solicitation was to allow SDG&E to evaluate and select an

\(^3\) A ‘solution set’ consists of a unique grouping of vendor offerings across the five RFP areas. That is, vendor ‘A’ is included for AMI technology, vendor ‘B’ for meter installation, vendor ‘C’ for information systems, vendor ‘D’ for systems integration and vendor ‘E’ for prime services / program management. This solution set would be referred to as the ‘A-B-C-D-E’ solution set.
experienced and proven AMI project management service provider. The PS / PM RFP provided four acceptable options for managing the overall AMI effort:

**Option 1:** Program Management with Service Level Agreement (SLA) Requirements. Under this option, the ‘Prime’ (or vendor selected to manage the overall effort) is responsible for the management of all aspects of the project and is expected to contract with other firms for other aspects of the project under a ‘Service Level Agreement’ arrangement. SDG&E would likely have two contracts to manage in this option, one with the ‘Prime’ and one with the vendor providing Operational Services.

**Option 2:** Operational Services. Under this option, the vendor chosen would manage the installation of meters, gas modules, AMI communication system components and would be responsible for activation of the system during deployment working for an SDG&E Program Management Office (PMO). Under this option, SDG&E would potentially need to manage multiple contracts depending on the vendor mix selected to carry out project implementation.

**Option 3:** Program Management with SLAs and Operational Services. This option is very similar to option one, however, in this case, the Prime is also responsible for Operational Services, that is, the Prime service provider would contract with other firms under an SLA arrangement. The Prime would also manage the installation of meters, gas modules, AMI communication system components, be responsible for activation of the system during deployment and would also act as the overall management agent or PMO. Under this option, SDG&E would have the advantage of managing a single contract with the Prime contractor.

**Option 4:** Prime Aggregator. Under the Prime Aggregator option, the vendor would take complete legal and financial responsibility for the delivery of all components of the AMI solution in accordance with SDG&E’s specifications and includes the PMO with SLA responsibilities as well. Like Option three, under this option SDG&E would have the advantage of managing a single contract.
Option 5 (Alternative Offerings): Open ended. Under this option, the vendors could propose other, original PS / PM approaches.

SDG&E will complete the PS / PM selection process in Q3 2006 and, as discussed in Mr. Reguly’s testimony (Chapter 8), once this selection is made, SDG&E will file the executed contract(s) by Advice Letter.

D. AMI Project Management Base Assumptions

SDG&E’s AMI RFP responses were due on December 1, 2005 and 11 vendors responded to the PM / PS RFP under these various options. At this point, SDG&E has not made a final vendor or option decision regarding the PM / PS function. However, after reviewing the RFP responses of the various vendors and reviewing the associated external (vendor) and internal costs associated with the PM / PS function, SDG&E can, at this point, describe how project management and risk mitigation fundamentals will be handled and can also provide cost estimates associated with AMI Project Management on a ‘not to exceed’ basis.

In order to determine what costs to include related to AMI Project Management / PM/PS, the various vendor responses to the PM/PS RFP were examined and internal costs associated with the most promising approaches were developed. In examining the multiple approaches available, ‘solution sets’ were developed (as described above). Cost estimates are based on, and will not exceed, the higher of the solution set costs derived from the RFP process. The final costs may, however, be less than the higher of the solution set costs depending on negotiation outcomes and final vendor and option choices.

1. Project Management and Risk Mitigation

SDG&E is currently considering multiple vendors to fulfill the roles described above. In all cases, the vendors under consideration have well qualified personnel, extensive experience and a wide range of tools that will be brought to the SDG&E AMI effort. Each vendor under consideration also has impressive certification and training levels. Additionally, each vendor has a proven framework with which to manage such things as overall program planning and execution to include work plan development, stakeholder web...
portal availability, schedule development, resource assignment, dependency
development, financial / budget reporting tools, logistics management
frameworks and tools and development of overall monitoring/continuous
improvement loops. Other areas such as scope management, overall
flexibility/adaptability and communications are also noted as strengths of the
various vendor teams under consideration.

Additionally, costs for a joint SDG&E / vendor project management office
(PMO) are included. The focus and structure of the PMO varies by project
phase and focuses on various aspects of the project depending on the phase.
For example, in the early stages, program management personnel are brought
in and ‘as is’ process flows are examined. Post implementation process
designs are also refined and “change management” issues are examined and
plans for addressing these issues are put in place. In later stages of the
project, installation ramp-up, customer communication development and issue
resolution, system commissioning and transition become the focus.

a. Risk Mitigation

Risk mitigation is also cornerstone of SDG&E’s approach to the AMI
project. Due to the critical role that vendors will play in the project, an
early and carefully considered aspect of risk mitigation is the contracting
approach to the project. Due to the type and number of responses received
to the PM / PS RFP, SDG&E anticipates that one or more contracts with
major vendors may be necessary. As shown by the PM / PS RFP response
options, this would mean that the PM / PS vendor could potentially
contract with multiple sub-contractors for whom SDG&E requires specific
SLAs to be put in place.

SDG&E anticipates selecting a contracting structure that will protect
the interests of both the company and our customers. For example,
SDG&E intends to combine the contract obligations of the PM / PS with
the systems integration and information systems development functions.
For purposes of risk mitigation, a single fixed price contract with a single
point of accountability is the goal for the PM / PS, systems integration (SI)
and information systems area, along with as many of the other contracting areas as possible. SDG&E anticipates that the PM / PS, SI and information systems contract will be signed in the latter part of 2006 contingent on CPUC approval of SDG&E’s case-in-chief. As part of this contract, SDG&E will employ financial structures and instruments to share aggregated project risks and rewards. These financial structures and instruments may include performance and milestone based fees, incentives, limitations of liability, consequential damages, liquidated damages, performance bonds, and warranties.

In concert with SDG&E risk mitigation approaches, SDG&E expects the PM / PS vendor to bring proven risk mitigation approaches to the project. Many of these vendors have managed far larger projects than SDG&E’s AMI effort and, in some cases, across multiple industries and even across multiple countries. SDG&E believes vendor experience and the accompanying tools the vendors compliment and fortify SDG&E’s risk mitigation and program management efforts. These tools include proven project management frameworks, planning methodologies, techniques, risk profile development approaches, monitoring tools, as well as AMI specific risk identification insights that are expected to complement the experience of SDG&E management.

As also discussed in Mr. Fong’s testimony (Chapter 2) and Mr. Reguly’s testimony (Chapter 8), SDG&E has set in place plans to address both the reducible and irreducible risks involved with the AMI project. In general, prudent business practices and prudent management can address the reducible risks. Such things as bringing in a recognized project management partner / vendor, planning for and conducting extensive field tests and carrying out an effective ‘design, build, run, transfer’ approach to the deployment (discussed further in Mr. Pruschki’s testimony (Chapter 11) address the reducible risks associated with the project. As for the irreducible risks, the prudent addition of contingency costs is our primary mitigation approach.
b. Contingency Costs

Another aspect of risk management is the prudent inclusion of contingency costs. Experienced managers recognize the need to build in reasonable contingency costs into project plans and budgets. Large organizations that carry out construction project implementations have very sophisticated methods of determining a reasonable level of contingency to include in project budgets, usually based on the level of confidence associated with requirement definitions and/or the ‘stage’ of the project / estimate (the earlier the stage, the larger the contingency).\(^4\) The more confident one is that project requirements are fully and accurately developed and the later the planning stage, the less contingency is necessary. Conversely, the less well defined the requirement or the earlier the stage, the greater the contingency requirement. As the CPUC observed, “[w]e do not know a priori the particular mix of rates, programs, and customer service functions that will meet this cost effective ideal.”\(^5\) Thus it makes sense to analyze an AMI system that supports a wide variety of potential rate structures and customer service options that the Commission may approve over the useful life of the AMI system.”

Some of the risks SDG&E considered when developing the overall contingency included:

i. Unforeseen disruptions in the supply chain.

ii. Unforeseen equipment issues (manufacturing or design defects).

iii. Unforeseen scalability issues related to IT systems.

iv. Unforeseen data or system compatibility issues between vendors and / or between vendors and SDG&E.

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v. Unforeseen / additional testing required to achieve quality requirements for hardware and / or software components.

vi. Unforeseen regulatory changes.

Risk based allowances or contingency costs are a well recognized component of an overall project cost estimate or budget to provide for these sorts of uncertainties. In fact, the United States Department of Energy (DOE) has described a project cost contingency as ‘an integral part of the total estimated costs of a project.’ The DOE further refines the definition of a contingency as follows:

‘Covers costs that may result from incomplete design, unforeseen and unpredictable conditions, or uncertainties within the defined project scope. The amount of the contingency will depend on the status of design, procurement, and construction; and the complexity and uncertainties of the component parts of the project. Contingency is not to be used to avoid making an accurate assessment of expected cost.’

The American Association of Cost Engineers also recognizes the requirement for cost contingencies and provides the definition of a risk-based cost as ‘a specific provision for unforeseeable elements of cost within the defined project scope. This is particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur.’

In establishing the overall amount of the contingency to include, each phase and component of SDG&E’s AMI project was considered, as well as the stage of the procurement cycle / system selection. After reviewing these items, the AMI project management team’s professional judgment resulted in the addition of approximately 15% of the overall projected cost.

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7 ibid, Chapter 11, pg 11-1.
8 ibid, Chapter 11, pg 11-1.
capital outlay for the 2007 – 2011 period (which equates to approximately $57M) as a prudent contingency amount. If one compares this amount to the overall anticipated expenditure (O&M and Capital) during this period, this contingency amount represents approximately 12.6% of project costs during this period. Based on the preceding discussion, SDG&E believes that adding this amount to the overall AMI project cost estimate is appropriate and reasonable.  

C. Contingency Cost Controls

Risk contingency fund expenditures will be controlled using SDG&E’s standard project change management process, whereby the project manager (Director, AMI Program Office) is responsible for managing the risk contingency. When changes to scope are identified, the project manager will ensure that a thorough analysis of the proposed change is conducted, including impacts to costs, resources and schedule. Based on the results of this analysis, the project manager will approve or deny the use of the risk contingency funds. The project manager will track all expenditures of contingency funds and will report these expenditures to the executive project sponsors (Senior Vice President, Customer Services and Senior Vice President, Information Technologies). However, should the proposed expenditure be of such a magnitude that inclusion of the change would result in a significant budget variance (in excess of 10% of the overall project budget), approval is required from utility senior management.

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9 If one refers to the United States Department of Energy, Cost Estimating Guide DOE G 430.1-1, of March 28, 1997, Chapter 11 (Contingency), it is clear that the stage of cost estimate development helps in the determination of the appropriate level of contingency to include. As shown in figure 11-1 on page 11-6 of this reference, 40% of the overall cost of the project as contingency is the upper limit at the ‘budget estimate’ stage moving downward to 15% as the recommended upper limit for the ‘final design estimate’ stage. As of March 28, 2006, SDG&E is somewhere between these two stages since the AMI technology choice will not be finalized until Q2, 2007.
d. Transformational Technology Advances

Another aspect of AMI project planning that SDG&E has considered is that a "transformational" technology could come to market during the planning, deployment or post-deployment stages of the AMI business case time horizon. If this occurs, a financial evaluation of the incremental costs of analyzing, selecting and implementing such a technology would have to be weighed against the benefits of such an approach. Given that this could occur during the AMI deployment period, this process would likely delay the deployment for 12-18 months, however, given the state of the marketplace/technology, SDG&E has not included a specific cost associated with this in this business case.

E. AMI Technology Evaluation and Assessment Related Tasks and Timing

An investment of this magnitude requires an extensive level of due diligence. The AMI Technology Evaluation and Assessment phase of the project allows SDG&E to mitigate risks to the company and our customers. This phase provides the opportunity to take the results of the RFP process and field test the meters and communication network to ensure system and technical performance.

These AMI technology field test activities are scheduled to start during the second quarter 2006 and be completed by the second quarter 2007. The duration of this project activity is significantly longer than was previously estimated as part of our pre-deployment settlement. SDG&E determined that the most prudent approach would be to conduct as much due diligence in this area as the overall schedule permits. Specifically, SDG&E will be able to simultaneously move forward with the IT related activities required to support AMI while these field tests are being conducted. The IT activities require 18 months for systems development and integration of legacy system changes as well as implementation of a meter data management system.

10 A ‘transformational’ technology might include a cost effective, technically proven Broadband over Powerline (BPL) or other communication solution not available or considered previously in the SDG&E’s RFP process. See Mr. Paul Pruschki’s Chapter 11 testimony for a further discussion on this issue.
12 The ultimate goal is project completion by December 31, 2010.
F. AMI Project Management - Summary of Costs and Benefits

The estimated costs included in table PC 9-1 below are based on internal SDG&E costs and external vendor costs included in a 'not to exceed' solution set. However, because vendors have not been selected or actual contracts put in place, these estimates may change depending on contract negotiation outcomes. These estimates are seen as reasonable as of March 2006 and will provide a sound, fundamental project management and risk mitigation framework as described above.

G. AMI Project Management - Conclusion

As stated, SDG&E expects the AMI project to be complex and far reaching. Accordingly, this testimony describes the costs associated with project management organization and methodology commensurate with the project scope and risks. SDG&E recognizes the project risks involved and has developed a reasonable plan and included reasonable contingency costs to mitigate these risks. The RFP process through which SDG&E has refined its business case and provided the updated costs and benefits represents over ten months of effort involving some twenty departments at SDG&E. Additionally, the AMI technology evaluation and assessment process also represents a necessary and prudent step before choosing a specific AMI technology.

III. INCREMENTAL HUMAN RESOURCES COSTS AND INCREMENTAL FACILITIES COSTS ASSOCIATED WITH AMI

A. Background

SDG&E recognizes that the AMI project will have widespread impact across the company in terms of work areas that will no longer be necessary, modifications to existing work processes and creation of completely new processes and activities. Additionally, SDG&E is planning to work with multiple vendors and contract employees as a result of the project (most notably during the roll-out / deployment of the equipment), and recognizes the associated challenges as well.

SDG&E recognizes the value of our employees and has developed an approach to manage these labor force impacts (most notably the FTE reductions
associated with the project) as effectively and efficiently as possible. SDG&E’s approach to this issue and the zero layoff policy is described in detail in Mr. Teeter’s testimony (Chapter 3).

Along with the automation-driven FTE reductions, AMI will also bring new areas of work for the utility. AMI network operations, trouble-shooting and maintenance functions, as well as load research and customer interface personnel will be required once the system (and a ‘demand response’ rate structure) is put in place. Along with these long term work force implications, there will also be labor issues associated with the IT system development and implementation and meter and module installation. That is, many short term primarily contractor / vendor full-time employee (FTE) additions, as well as some SDG&E FTE short term additions, will be required.

Incremental costs that are anticipated to accrue to SDG&E’s Human Resources (HR) organization associated with these FTE additions are included in this chapter. That is, the incremental impact to our HR organization for the administration, recruiting, hiring, reassignment, and job progression / bidding activities as a result of the AMI project are included herein. The vast majority of the incremental labor costs themselves are included elsewhere (for example, the incremental contract labor costs associated with meter installations are included in Mr. Carranza’s testimony (Chapter 12). The incremental HR costs included here reflect the addition of one recruiter early in the roll-out period, advertising costs, and relocation expenses associated with a reasonable fraction of the incremental number of management employee hires.

Facilities costs are also included here as they relate to incremental office space requirements brought about by the project. Given the volatility of property values in Southern California, it is difficult to predict facility costs into the future. However, SDG&E used conservative estimates based on actual, historical data and reasonable projections.

**B. Base Assumptions**

The estimates that follow are as of March, 2006 and are subject to change as project timing, vendor selection and other issues are pending at this point.
Short run job function additions (which are anticipated to be necessary prior to and during the roll out) will occur within the AMI Project Management, Information Technology (IT) and meter, module and AMI communication installation areas and are envisioned to be vendor / contractor employee additions for the most part. Along with this relatively large group of short-term vendor / contractor additions, company employee additions are also envisioned in these areas to fulfill liaison, quality assurance and communications functions. Additionally, short term resource additions are anticipated in the Mass / Major Markets area (to fulfill project coordination functions), the Customer Contact Center (CCC), the meter reading department (Meter Route Analysts to assist in re-routing during system cut-over), the billing department (Associate Billing Analysts needed due to more complex rates), meter revenue protection or MRP group (MRP Analyst/Field personnel needed due to the additional bypass/theft situations that will be identified during the roll-out), and the measurement data operations (MDO) area (MDO Analysts need to manage the data flow produced by the network).

Longer term job additions (phased in during the roll-out and existing thereafter) will need to be made in the electric metering operations area (Single Phase Meter Technicians and Electric Meter Technicians), the measurement data operations (MDO) (Analysts, Specialists and Supervision), the MRP group (MRP Analyst/Field personnel) the billing department (Associate Billing Analysts), the IT / network communications area (AMI communications system analysts, engineers, and various maintenance personnel), the load research area (Load Research Analysts), the Mass and Major Markets area (Rate Analysts, Account Representatives, and a Project Coordinator) and within the customer service field department.

Facilities (office space) incremental costs associated with the AMI project are also included in this chapter and are associated with the estimated FTE additions / reductions and consider the anticipated timing of the project, space requirements and other facilities needs of these groups (such as parking). Also included in the facilities assumptions is the termination of a leased site dedicated to Meter
Reading and Meter Reading Training. The site is a 10,000 square foot modular structure with parking for employee and company vehicles. The decrease in lease and ongoing operational costs for that site are netted against assumptions which include the addition of 35,000 square feet of suburban office space to house the incremental FTEs during rollout (short term labor additions). A space reduction in 2012 reflects the decrease in FTEs, but allows for the ongoing longer term job additions. Vacancies at the current SDG&E headquarters location in the Kearney Mesa area of San Diego (Century Park campus) are currently less than 5%, necessitating the lease of similar type office space to accommodate the incremental rollout and long run functional positions that AMI requires.

C. Summary of Costs and Benefits – HR and Facilities

Costs included in this chapter relate to incremental costs to SDG&E’s Human Resources area and the net incremental facilities costs related to additional office space required due to the AMI project. HR costs associated with the addition of one FTE during the roll-out period to help manage issues associated with the large contractor work-force will be necessary to support the AMI roll-out and to manage the internal work force attrition and churn. Additional incremental funds associated with employee relocation expenses and advertising expenses anticipated for hard-to-fill positions such as network communication engineers / AMI communications and System Analyst positions are included in the HR cost estimates. Incremental facilities / office space costs consider timing issues (ie: ramp up of additional personnel / timing and other issues with work group displacements) and are net numbers (additions less reductions).
Table PC 9-1
AMI Proj Mgmt, Contingency, HR & Facilities
Direct Dollars (Dollars in Thousands)

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<th>Costs</th>
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<tr>
<td>Total AMI Proj Mgmt O&amp;M Costs</td>
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<td>1,279.1</td>
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<tr>
<td>Total Facilities O&amp;M Costs</td>
<td>11,412</td>
<td>1,014.9</td>
<td>1,050.6</td>
<td>1,050.6</td>
<td>1,050.6</td>
<td>7,245.4</td>
</tr>
<tr>
<td>Total HR O&amp;M Costs</td>
<td>744</td>
<td>284.4</td>
<td>275.2</td>
<td>184.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total O&amp;M Costs</strong></td>
<td><strong>25,981</strong></td>
<td><strong>3,145.0</strong></td>
<td><strong>4,625.8</strong></td>
<td><strong>5,255.8</strong></td>
<td><strong>5,056.5</strong></td>
<td><strong>7,897.5</strong></td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>91,014</strong></td>
<td><strong>14,581</strong></td>
<td><strong>18,910</strong></td>
<td><strong>23,299</strong></td>
<td><strong>23,323</strong></td>
<td><strong>10,902</strong></td>
</tr>
</tbody>
</table>

D. HR and Facilities - Conclusion

AMI is an enormous undertaking for the utility and SDG&E fully recognizes that it will carry with it an equally large impact for many of our employees. SDG&E is committed to managing this impact as carefully, effectively and efficiently as possible.

This concludes my testimony.
IV. QUALIFICATIONS OF PATRICK CHARLES

My name is Patrick Charles and I am employed by San Diego Gas & Electric Company (SDG&E). My business address is 8326 Century Park Court, CP62C, San Diego, CA. 92123.

My present position is Planning and Analysis Manager within the AMI, Remittance Processing and Special Projects Department of the Customer Operations Division at SDG&E. I have been employed by SDG&E since 1999. I was the SDG&E witness that sponsored the AMI ‘pre-deployment’ costs in the March, 2005 application (revised in supplemental testimony in May, 2005). Previous positions relevant to my testimony include Project Manager of SDG&E’s participation in the CPUC / CEC facilitated, WG3 sponsored Statewide Pricing Pilot (SPP) and prior to that I was Customer Services Manager within SDG&E’s Major Markets / Federal Accounts department.

I received a bachelor's degree in Business Administration (marketing) from the University of Colorado at Boulder in December, 1989 and a Masters Degree in Business Administration (finance) from the University of Missouri at Kansas City in 1999.
V. QUALIFICATIONS OF ENSPIRIA SOLUTION

A. Enspira Solutions, Inc., Corporate Overview

Enspira Solutions, Inc.™ — a company dedicated to the energy and utility marketplace — offers a unique combination of experience, strategy, and implementation expertise. Enspira Solutions helps utilities improve operational effectiveness, asset performance, customer service, and energy efficiency.

Enspira Solutions experts provide business and technology consulting, systems integration and implementation, data services, lifecycle data management, and maintenance/upgrade services. Headquartered in Denver, Colorado, the company is backed by the financial strength of parent company Osmose Holdings, Inc., with $550 million in revenue.

Enspira offers solutions based on proven industry software products, integration standards, and business models. Providing rapid delivery through integration frameworks and configurable solutions, we deliver complete business solutions, not just enabling technology. These services enable utilities to fully realize the benefits of past, current, and future technology investments. We specialize in:

- Advanced Metering Infrastructure/Automated Meter Reading (AMI/AMR)
- Substation/Distribution Automation
- Geographic Information Systems (GIS)
- Outage Management Systems (OMS)
- Mobile Work Management and Field Force Automation
- Work Management
- Asset Management

B. AMI Expertise

Enspira Solutions personnel are experienced across the full spectrum of Advanced Metering Infrastructure (AMI) planning and implementation including:

- AMI visioning and strategic planning
- Formal AMI requirements specification
- AMI business structure options and business case development
- AMI technology assessment
- Development of AMI-enabled to-be business process models
AMI competitive solicitation development and administration

Technology/vendor selection and negotiations

AMI enterprise architecture design and solution implementation roadmap

AMI system deployment and integration

AMI system operations and benefits realization

Ensiria brings unique knowledge and experience in realizing AMI benefits across the utility enterprise – from customer service, metering and billing, revenue and energy management to Transmission and Distribution system planning and operations, outage and asset management.

Ensiria Solutions personnel have supported the Automatic Meter Reading Association ("AMRA") for many years through session coordination, papers, presentations, and courses. Ensiria Solution is also a member of the Advisory Committee of DistribuTECH, which has a strong focus on AMI and enterprise integration of AMI and related technologies.

VI. Project Experience

The Ensiria Solutions staff has worked at utilities across the U.S. Each member of our technical staff has been extensively involved in the conception, development, implementation, and integration of utility and business technology systems. Representative client organizations that our staff has recently supported are presented in Table 1. We met and/or exceeded client expectations with regards to budget and schedule performance on all projects.

AMI Project Experience

<table>
<thead>
<tr>
<th>Client</th>
<th>Project Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>JEA (Jacksonville, FL)</td>
<td>Conducted Network Meter Reading (NMR) consulting engagement to develop project implementation plan, business case, system integration and data requirements, and business process alignments. Also played key role in implementation project to deliver a new meter data management system repository for NMR data to serve as a single source for metering and billing related analysis and business intelligence.</td>
</tr>
<tr>
<td>Exelon Energy Delivery/ComEd</td>
<td>Supported Exelon’s AMR Strategy Project, evaluating and recommending the implementation of AMR in the ComEd service territory. Developed AMR system architecture, assessing costs and benefits, and evaluated candidate AMR technologies with respect to customer segmentation. Provided visionary AMR strategy, solid implementation plan, and sound business case for management approval.</td>
</tr>
<tr>
<td>Client</td>
<td>Project Summary</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FirstEnergy</td>
<td>Assisted FirstEnergy with the development of an AMI Pilot Strategy. The project included defining business requirements, associated benefits, and building a business case for justification of an Enterprise AMI deployment across FirstEnergy’s service territory.</td>
</tr>
<tr>
<td>TXU Electric Delivery</td>
<td>Supporting TXU’s AMI project, including requirements gathering, documenting requirements, and assisting in defining the system/integration architecture.</td>
</tr>
<tr>
<td>Kansas City Power and Light (KCP&amp;L)</td>
<td>Assisted KCP&amp;L to realize benefits of its AMR investments and to increase the return on investments of the other related information technologies. Developed an enterprise integration strategy, implementation roadmap and business case for enhancing the benefits of KCP&amp;L’s investments in AMR and related information technologies.</td>
</tr>
<tr>
<td>Puget Sound Energy</td>
<td>Designed, developed, and deployed Puget Sound Energy’s Personal Energy Management (PEM) customer portal to PSE’s 1.3 million customers. The project won the “Performed By Schlumberger” Gold award for 2001 and was shown to President Bush by the CEO of Puget Sound Energy.</td>
</tr>
<tr>
<td>Alliant Energy</td>
<td>Pilot AMI project planning including: Cost/benefit review, prioritization, and refinement; Defining high-level enterprise requirements in three categories: AMI technology (communication network and meters), information systems and systems integration, and business process impacts; Developing overall total cost of ownership (TCO) model for implementing and operating AMI at Alliant Energy, enterprise wide. Supporting the Alliant project team in recommending pilot project charter, goals, requirements, recommendations, and costs/benefits to senior management.</td>
</tr>
<tr>
<td>Colorado Springs Utilities</td>
<td>Supporting the development of AMI/meter data management system requirements, architecture, and system design.</td>
</tr>
<tr>
<td>Indianapolis Power &amp; Light Company (IPL)</td>
<td>Defined high-level functional and integration requirements for outage management and mobile workforce management, including integration with SCADA and Automated Meter Reading systems. Developed a phased implementation plan. Facilitated vendor selection and supported contract negotiations with the selected vendor.</td>
</tr>
</tbody>
</table>