STATEMENT OF WORK
Request for Information

Advanced Integrated Meter (AIM) Development Program
Engineering Design Contractor (EDC)

Professional Services for Phase I Activities
1.1. BACKGROUND
The Southern California Edison Company (Edison) is an investor-owned electric utility located in Southern California, spanning 50,000 square miles with approximately 4.6 million customers. Edison has filed a proposal with the California Public Utilities Commission (CPUC) on March 30, 2005 to develop a next generation electric meter for use in an Advanced Meter Infrastructure (AMI) deployed system-wide. This infrastructure’s primary role is to facilitate the collection of interval data from all electric meters. In order to achieve our business objectives, we propose to design and develop a new metering system with an integrated package of features that incorporates functionalities that better support business operations and provide greater customer benefits at a lower overall cost than the discrete systems commercially available today. The goal of our “clean sheet” approach is to narrow the existing business gap between costs and benefits thereby improving the economic viability for wide scale deployment of AMI. Edison intends to create a new design and prototype by working with an experienced engineering design firm in collaboration with equipment and manufacturing firms. The new meter design is called the Advanced Integrated Meter (AIM). Once our design is completed, we anticipate that the AIM product will be manufactured by existing meter vendors through competitive bid. To clarify, Edison intends to include this meter design into a metering specification that Edison will provide to third parties that Edison believes are qualified to manufacture meters that conform to this design and Edison does not expect to obtain any additional authorizations or approvals from the creator of this meter design to do this. Further, Edison expects that the manufacturers selected by Edison to manufacture this meter design will be able to manufacturer meters for others in conformity with this meter design and the specifications created under this scope of work, with Edison not required to provide additional compensation to the designer in order to exercise these rights. Edison does not, however, intend to manufacture meters itself. The prospective EDC’s willingness to agree to these requirements will be an important factor in Edison’s evaluation of the responses submitted to this RFI.

Meter development and commercial testing is planned for a two-phase approach over three years. Phase 1 involves the initial product development from ideation through working prototype and design specification. Edison is soliciting qualifications for an engineering design firm for the design and prototype development of the AIM meter. Future contract award for a part or all of services defined in this Engineering Design Contractor (EDC) RFI may be dependent on CPUC approval of our AMI application dated March 30, 2005.

1.2. AIM DEVELOPMENT PLAN
Edison intends to use a phase-gate approach to develop the AIM meter. The stages are logically grouped into three distinct phases:

- Phase I - Design and Proof of Concept
- Phase II - Beta Development and Pilot
- Phase III - Commercialization and Full Deployment.

In Phase I of the project, the objectives will be to define and develop the product from concept, through working prototype, to final design. Phase I will also include a confirmation of product manufacturability, unit pricing, and initial feasibility.

Phase II’s objectives will focus on confirming the product’s commercial manufacturability through beta production and pilot field deployment. The Phase II pilot will also conduct limited
testing of product functionality and integration with various utility systems. This phase is necessary to demonstrate operability and performance on a reasonable scale of up to 5,000 meters over approximately six months. This period generally is deemed sufficient to assess end-to-end integration with utility systems to validate the business case, a pivotal precursor to seeking full deployment.

Phase III involves the initiation and implementation of a full AMI meter deployment throughout our service territory. This includes all required start-up and system development activities, system integration requirements, implementation of operational and organizational changes, and mass meter production and deployment.

We anticipate submitting a preliminary feasibility analysis report to the CPUC at the end of Phase I, based on the results of Phase I activities. The report will also provide an update of our initial cost estimates based on information learned in Phase I. At the end of Phase II, and upon completing the final business case analysis, we intend to file an application with the CPUC seeking authority to move forward with full deployment of the AIM meter. The overall program timeline is summarized in Figure 1, below.

Edison’s plans for the work, as described herein, may change. Edison reserves the right, in Edison’s sole discretion, to decide not to issue a contract for this work, eliminate some of the work described herein, or eliminate or change the Phases described above.

### Figure 1. AIM Program Timeline

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**1.3. PRODUCT DEVELOPMENT - ORGANIZATIONAL STRUCTURE**

We intend to use a formal product development team comprised of internal personnel and external contractors to assist with design and prototype development. We also recognize the value of collaboration with several key stakeholders, including the CEC, during the product development process and expect to engage in seeking input from key stakeholders, as described below.
1.3.1. EDISON PERSONNEL
We plan to utilize a mix of Edison and external resources to staff the AIM product development team. Edison personnel will manage the overall product development process. Functional expertise will be provided by Edison personnel in several areas such as customer preferences, metering and testing, load control systems, T&D operations, customer services and billing, communications, systems architecture, and utility software applications.

1.3.2. CONSULTING SYSTEMS ENGINEER
The Consulting Systems Engineer (CSE) will represent Edison’s interest, from a technical perspective, in the product development effort by working with the selected Engineering Design Contractor, vendors and other stakeholders. Additionally, the Consulting Systems Engineer will facilitate the process to define product requirements, guide design options, provide technical oversight and assist with the management of the product development process including meter manufacturing vendor selection. SCE has released a separate RFP for a Consulting Systems Engineer firm.

1.3.3. ENGINEERING DESIGN CONTRACTOR
We intend to contract the engineering design and prototype development activities to an Engineering Design Contractor firm with proven, product-development experience in the engineering design of electronic meter products, embedded systems, firmware and communications platforms. Such expertise will be required for the successful development of the new AIM product. The scope of the engagement will include the entire product development process including concept development, architecture development, detailed manufacturability design, testing, and prototype development. We anticipate that the selected firm will provide a product development team composed of a wide range of engineers experienced in product development. We anticipate this group to include metering engineers, mechanical engineers, electrical engineers, communications engineers, printed circuit board (PCB) designers, software engineers, human factors engineers, and test engineers.

1.3.4. METER VENDORS AND STAKEHOLDERS
We recognize the value that customers, vendors, and other key stakeholders can bring to this effort. We will also continue to incorporate the findings of our customer market research in developing our design. We will continue to participate and support the OpenAMI effort because of the promise it holds for the establishment of open standards and a reference design, one of our key design objectives. Additionally, we will collaborate with the CEC and industry manufacturers on the reference design for smart thermostats and other areas of common interest. We will also invite meter, load control and ancillary product vendors to collaborate and influence the AIM meter design to ensure achievement of a product design that meets our cost and design goals. To pursue this objective, we are exploring the development of an external Technology Advisory Board that would be comprised of leading technologists representing significant industry initiatives and research related to our design effort, such as OpenAMI, IntelliGrid, and CEC PIER initiatives. This information is provided to you as background information. We do not expect you to engage in any interface activities on our behalf, including the collaboration activities described, unless we specifically authorize you to do so. Further, we expect that you will maintain the confidentiality of our efforts to develop this technology unless we specifically direct you in writing to proceed in a different manner.
1.4. ENGINEERING DESIGN CONTRACTOR ROLE

The Engineering Design Contractor (EDC) will develop Edison’s AIM meter design. In this role, the EDC will develop a commercially viable AIM design specification that can be cost effectively produced and supported by more than one vendor based on Edison’s product development requirements. The EDC will work with Edison’s subject matter experts, the selected Consulting Systems Engineer firm tasked with facilitating product requirements and oversight of design development, the AIM program management team, potential meter manufacturers, as well as the Open AMI and CEC Reference Design efforts.

The selected EDC will initially be engaged to support Edison through Phase I and if we are successful in developing an effective design, working prototype and Beta meter manufacture RFP, we anticipate extending the EDC engagement into Phase II.

Edison expects that the role of the EDC will necessarily require a multi-disciplinary team to provide the engineering services defined below in Section 1.5, Scope of Work. Edison recognizes that to meet the scope and depth of expertise requirements for this engagement subcontractors and/or partners may be needed. Edison is open to responses that utilize subcontractors and/or partners in their proposed teams.

1.5. SCOPE OF WORK

The scope of the engagement will include the product engineering process including detailed manufacturability design, testing, and prototype development. We expect that the development process will include industry accepted methods including design for excellence. We anticipate that the EDC will provide a team composed of a wide range of engineers experienced in product development. We anticipate this group to include metering engineers, mechanical engineers, electrical engineers, load control engineers, communications engineers, printed circuit board (PCB) designers, software engineers, human factors engineers, and test engineers. Please refer to Edison’s March 30, 2005 AMI filing Volume 2, attached, for a description of the design objectives and range of functionality that will be explored through the design process.

1.6. CONSULTANT QUALIFICATIONS

Provide a statement demonstrating your firm or team’s ability to accomplish the scope of services in a comprehensive and thorough manner with an aggressive schedule in order to meet Edison’s goal of developing an AIM meter into Beta production within the earliest possible timeframe. Explain the firm’s design capabilities as they relate to:

A. Manufacturing design process best practices
B. Knowledge of the electric meter and automated meter reading industry and vendors
C. Knowledge of electric utility metering practices and needs
D. Electric meter data management
E. Knowledge of electric load control, technology, industry and vendors
F. WAN/LAN/HAN (Home Area Network) communications technologies and vendors
G. Knowledge of electronic embedded systems and related software development
H. AMI information systems end-to-end from meter to back-office integration
I. Product development and/or technology development processes
J. Technology project management
K. Technology product feasibility studies
L. Quality control/assurance procedures, including coordination of design disciplines, complying with program requirements and conformance with applicable code/standards requirements.
1.6.1 PROJECT TEAM

1. Identify the following key members within the firm and provide their biographies with qualifications especially as it relates to projects with similar scope as the AIM meter development:
   a. Engagement Lead
   b. Lead Engineer
   c. Project Manager

2. Project organization chart showing EDC and any subcontractors and/or partners, the proposed relationships between the key personnel and support staff who are expected to participate on the project, and which aspects of the work each person will be responsible for performing.

3. List of proposed personnel by responsibility, their experience and education; identify their home office location, tenure with the firm, and whether they have other current project responsibilities.

4. Provide a brief resume of each team member shown on the organization chart, noting any past work where similar experience was required. Resumes of people who are not shown on the organization chart will not be considered. Projects listed below must be projects which were worked on by people shown on the proposed project organization chart and whose resumes are provided.

1.6.2 PROFESSIONAL SERVICE FIRM PROFILE

1. Addresses of corporate headquarters and branch office that will lead engagement
2. Total number of employees
3. Depth of Expertise:
   a. Systems Engineers with electronic product manufacturing experience
   b. Utility Metering
   c. Load Control
   d. LAN/WAN/HAN Communications

4. List three (3) recent projects your firm has completed which are most similar in size, project type and scope of required services to Edison's requirement. Include brief description, project owner, point of contact, and telephone number of the person who can provide a reference.

5. Explain your firm's product/systems engineering and prototype development methodology and how it may be applied to this project.

6. Describe your firm's quality assurance and quality control processes and any related certifications, awards, etc.

7. Describe prototype meter production capabilities for up to ten prototypes suitable for testing.

1.7 CONFLICT OF INTEREST

The prospective EDC shall disclose any financial, business, or other relationship that may have an impact upon the outcome of this project. The prospective EDC shall also list current clients who may have a financial interests currently in conflict or likely to be in conflict with Edison’s interests related to the AIM program.

The successful EDC may compete for subsequent awards for AIM Beta meter development, any pilots and full deployment procurements. The EDC is not eligible to fulfill the CSE role and the successful CSE will not be eligible for the EDC role.
1.8. INTELLECTUAL PROPERTY

Edison expects to own all deliverables that result from work performed in response to this statement of work, including any intellectual property rights associated with the creation of these deliverables. However, Edison recognizes that significant intellectual property may already exist related to the AIM design objectives, and that this may mean that Edison will need to obtain a license from the prospective EDC (and/or from third parties), before Edison can fully benefit from ownership of these deliverables. In responding to this RFI, therefore, the prospective EDC must identify and describe intellectual property rights that Edison will need to obtain from the prospective EDC, or from a third party, in order to use these deliverables. Where the existing intellectual property is owned by the prospective EDC, or its affiliates, the prospective EDC needs to identify any additional terms and conditions that would apply to use of this existing intellectual property. Where the intellectual property is owned by a third party, the prospective EDC needs to state whether or not the prospective EDC can grant SCE rights to use this intellectual property and, if so, under what terms and conditions. As a condition to award of any contract for the work described in this RFI, the selected contractor will be required to agree to Edison’s ownership of all deliverables generated hereunder and that the selected contractor shall also secure and/or provide any rights to other intellectual property that are necessary in order for Edison to have full enjoyment and rights to use the deliverables (including rights for both commercial and internal use), and agree to maintain in confidence information related to this project, whether provided by or on behalf of Edison to Contractor or developed by Contractor in response to the RFI, except where contractor is authorized by Edison to provide this information to a third party.

The prospective EDC must describe how the prospective EDC proposes to address intellectual property issues with sufficient detail so Edison can determine that Edison’s design objectives and goal of creating a durable design that will be produced and supported by more than one vendor can be met if Edison were to elect to award a contract to the prospective EDC.

1.9. REQUIREMENTS FOR RESPONSE CONSIDERATION

The following is the minimum information necessary for a proposal to be considered:

- All elements addressed in proposal
- Edison procurement instructions followed
- Proposal shall include any and all rates and charges associated with work scope
- Clear identification of deviations from any Edison issued documentation
- Demonstrated understanding of consultant engagement in this project
- Affirmation of no conflicts of interest to perform work

1.10. RESPONSE CONTACTS

If further information regarding this RFI is needed, all commercial correspondence shall be addressed in writing to the Procurement Agent:

Edison Material Supply LLC
Attn: Jose Garcia-Barron
Procurement Division
125 Elm Avenue
Long Beach, CA 90802
(562) 491-2206
Technical questions regarding this RFI should be addressed to both the Procurement Agent and
the technical contact:

Paul Kasick  
AIM Project  
Q4C Miller Rm. 450D  
2244 Walnut Grove Avenue  
Rosemead, CA 91770  
(626) 302-4280  
E-mail: paul.kasick@sce.com

Edison’s Procurement Department will forward relevant questions to the appropriate Edison
personnel regarding this RFI, and return the response (and original question) to all parties in this
procurement process as soon as possible.

The response to this proposal is due to the Edison Material Supply LLC office by 2pm on
Wednesday, June 29, 2005.

1.11. SELECTION PROCESS

Those EDCs judged to be the best qualified, based on their submitted response, will be invited to
participate in a subsequent request for proposals (RFI). A final selection will follow the RFI.

The basis for evaluating the EDC’s Qualifications shall include:

1. Project Team - Overall organization, quality, and relevance of project team. Specialized
knowledge, familiarity and experience of Consultant and Sub-Consultants as it relates to
this Project.
2. Education and Experience of Lead Engineer and Key Personnel – Education (degree or
specialization, professional registration/certification, other professional qualifications),
relevant knowledge, familiarity and experience on similar projects, relevant experience to
role in this contract, years of relevant experience with current firm, and overall years of
relevant experience.
3. Example Projects (project experience) - Nature, quality, and relevance of recently
completed projects. Relevant experience working with project team.
4. Role of Key Personnel Participation in Example Projects
5. Agreement to key SCE requirements in this RFI, such as no conflicts of interest to
perform work for Edison on this project, and willingness to provide SCE with intellectual
property rights as described herein.
6. Additional Information - Staffing capability, workload, and record of meeting schedules
on similar projects. Flexibility to adapt to unexpected work. Feasibility of oversight,
ability and willingness to respond to Edison requirements, and accessibility to Edison’s
offices in Rosemead, CA.

1.12. TERMS AND CONDITIONS

1. AMI EDC RFI Professional Services Terms and Conditions, attached to this RFI,
will govern the Work in the subsequent Engineering Design Contractor RFI.
Special Note to Bidders

Brief responses to terms and conditions such as “Read and Understood” or “Will Comply” WILL NOT BE ACCEPTED BY Edison. Responders should state clearly if they fully agree with Edison’s specific contractual provisions and direct the reader to the specific page and section number of the draft contract that addresses the provision. If a responder is unwilling or unable to comply with a specific provision in the form of the attached terms and conditions, then the responder should describe its specific problem with the provision and submit alternative wording that is as close as you can come to addresses the language and/or spirit of the provision. Responders are scored based upon all responses and the closeness of each response to the suggested language is considered. The nature and extent of any exceptions taken to the terms and conditions are considered in the evaluation process.

1.14 RESPONSE FORMAT

To facilitate comparison of responses, the prospective EDC must strictly adhere to the following outline. Failure to prepare response in accordance with prescribed format may result in disqualification.

Note: For security and review reasons, only standard file formats of Microsoft Word and Excel will be accepted. No compressed, PDF, Zip, or executable files will be accepted from any supplier.

Section 1: Introduction

Should contain an overview of the response and how it meet’s Edison’s specific needs of the program goals and objectives, key deliverables and resources (team).

Section 2: Description of Proposed Methodology, Deliverables and Technical Discussion

Provide a detailed description of the approach/methodologies for deliverables that will meet the requirements of the Scope of Work in Section 1.5. Incomplete, inaccurate, or unclear descriptions will be considered non-compliant. Additional material may be included in the appendix.

Section 3: Qualifications of Firm and Project Personnel

Provide detailed description of qualifications as requested in the Consultant Qualifications, Section 1.6.

Section 4: Commercial Section

Complete and detailed listing of hourly labor rates for each of the proposed project team members and associated expenses (travel, mileage). Provide a
conceptual estimate for the production of working prototypes. Disclose any conflicts of interest or affirm that no conflicts exist as described in Section 1.7. Provide response to Section 1.8 Intellectual Property.

*Please refer to main RFI document for additional information.*

**Appendices:**

- Exceptions to the General Terms and Conditions, if any.

  *Please refer to main RFI document for additional information.*

- Previous examples of studies, reports, or test