Potential Technical Support Needs

California Energy Commission

Energy Assessments Division

Date: September 2, 2022

Agenda

- Welcome and Introductions
- Technical Support Needs
- RFP Process
- Questions and Answers

Energy Assessments Division

- **Role**
  - Supports California energy policy development by assessing energy systems and trends
    - Electricity
    - Natural gas
    - Petroleum
  - Analyses inform Governor's Office, Legislature, other state entities, and the public
- **Organization**
  - Four matrixed branches
    - Advanced Electrification Analysis Branch
    - Data Integration Branch
    - Demand Analysis Branch
    - Supply Analysis Branch
  - ~100 staff, including policy analysts, economists, engineers, statisticians, modelers

Key Drivers for Analytics

- Demand Forecast – standard reference used for state planning
  - Assessing electricity demand for grid planning and procurement
- Demand Scenarios for input to SB 100 analyses
- SB 100 – evaluating multiple scenarios for meeting clean energy goals
  - Assessing reliability of scenarios
  - Assessing social costs and non-energy benefits
- Gas Decarbonization
  - Evaluating strategies to support decarbonizing the gas system
- Distributed Energy Resources
  - Assessing how DER can be more widely used to benefit customers and reliability

Technical Support Areas and Timeline

- CY2022
  - Demand Scenarios Modeling: September
  - SB100 Modeling: September
  - Clean Energy Analytical Support: October
  - Commercial Forecast Model Update: September
  - Distributed Energy Resource Assessments: October
- CY2023
  - Planning Library Support
  - Energy Efficiency Support
  - California Vehicle Survey
  - Distribution Model Development
  - Gas Decarbonization

Demand Scenarios Modeling

- Scenarios support SB 100 analyses and other infrastructure assessments
- Modify existing model OR develop an entirely new model
- Assess electrification, biofuel replacement of existing fossil fuels, and substitution of hydrogen for fossil fuels in selected sectors
- Project annual electricity consumption, hourly electric load, and GHG emissions
- Sectors and Fuels:
  - Residential & Commercial – Fuels other than electricity and natural gas
  - Industrial – Fuels other than electricity and natural gas
  - Agriculture – Fuels other than electricity and natural gas
  - Transportation – Aviation
  - Oil & Gas – All fuels
  - Petroleum Refining – All fuels

Est. Ceiling:	**$1.5M**
Est. Period:	**2022 - 2023**

SB 100 Modeling

- Capacity expansion modeling
  - Model development and validation to support reliability analysis
  - Support SB 423 and SB100 simulations
- Expand WECC Information
- Analytical approaches to DER representation
- Model inputs – renewable energy profiles, hydro characteristics, load shapes
- Strategic support on **integrating**
  - Capacity expansion modeling
  - Social costs and non-energy benefits
  - CEC's land use modeling

Est. Ceiling:	**$2M**
Est. Period:	**2022 - 2025**

Clean Energy Analytical Support

- Analysis of technical and market potential of emerging technologies (e.g., hydrogen, long duration storage) - project performance improvements and prices for multiple end uses
  - SB 423 report to legislature on firm, zero carbon resources
  - SB 100 modeling inputs
  - Demand forecasts
- Reliability related studies (e.g., analysis of resource performance, evaluation of potential supply chain issues impacting new resource deployment)
- Analysis of social costs & non-energy benefits of clean energy deployment
  - Utility scale
  - DER

Est. Ceiling: **$2M**
Est. Period: **2022 - 2025**

Commercial Forecast Model (CFM) Update

An End-Use Annual Energy Demand Forecasting Model

- Update annual energy consumption forecast model for the Commercial sector
  - Migrate the existing code from FORTRAN to Python or R
  - Establish default format for input and output data in Excel (based on the existing ASCII input & output file)
  - Allow to easily increase the number of building-types and forecast zones
  - Capability to generate hourly forecast by incorporating hourly load-shapes by building-type and forecast zone
- Incorporate the latest Commercial End Use Survey (CEUS) data
- Better incorporate recent codes and standards and other energy efficiency programs Savings
- Integrate with other forecasting models such as the Fuel Substitution Scenario Analysis Tool
- Provide documentation and training to CEC staff
- Provide tech-support for a period of one-year

Est. Ceiling:	**$300K**
Est. Period:	**2023**

Distributed Energy Resource Analysis*

- Leverage AMI data for DER analyses
- Refine hourly load shapes for building and transportation electrification technologies and assessing how these impact overall building and grid load shapes
- Identify categories of customers that may be good candidates for electrification technologies and assess statewide potential
- Assess changes in total on-site end-user consumption following adoption of PV or other behind-the-meter generating resources
- Identify BTM battery storage operational strategies and develop representative charge/discharge profiles for each

***Work will require utilizing CEC's AMI data via Snowflake. Additional Terms and Conditions will be added for handling PII and confidential data**

Est. Ceiling: $2M
Est. Period: 2022 - 2025

Planning Library Support

- Curate datasets
- Update existing datasets and reports
- Develop documentation describing datasets and methodologies
- Create and update Tableau dashboards

***Refer to https://www.energy.ca.gov/event/workshop/2022-04/iepr-commissioner-workshop-california-planning-library**

Est. Ceiling: $TBD
Est. Period: 2023 - 2025

Energy Efficiency Support

- Improve analytical methods for forecasting programmatic energy efficiency savings impacts from electrification programs & GHG reductions from decarbonization efforts
- Technical support for the next round of demand scenarios
- Electrification potential and GHG emissions analysis
- Survey and model low carbon behavior to inform statewide policy improvements
- Demand response potential and demand flexibility scenarios analysis
- Common platform roadmap and implementation plan

Est. Ceiling:	**$2.0 M**
Est. Period:	**2023 - 2026**

2023 California Vehicle Survey

- Consumer survey that generates data used in estimating the light-duty vehicle choice models for commercial and residential market segments.
- Updated models are used for the light duty vehicle demand forecast for both ICE vehicles and ZEVs, by fuel type and vehicle class.
- The 2023 survey will have increased emphasis on autonomous vehicles.

***Refer to https://www.energy.ca.gov/data-reports/surveys/california-vehicle-survey**

Est. Ceiling: $900K
Est. Period: 2023 - 2026

Distribution System Model Development

- Technical support to develop a distribution system modeling platform
  - Enable CEC to evaluate policy scenarios using available data
    - AMI
    - Distribution system configuration
    - DER deployment information

Est. Ceiling:	**$TBD**
Est. Period:	**2023 - 2025**

Gas Decarbonization Support

- Strategic support on evaluating policy options for decarbonizing the gas system
  - Improving demand and price/rate forecasting to enable improved planning and policy assessments
  - Supporting transmission and distribution hydraulic modeling to assess changes in demand and infrastructure
  - Improving the ability to assess scenarios, considering the interdependencies between gas and electric systems
  - Conduct reliability assessments
  - Analyzing the role of renewable gas and renewable hydrogen to support decarbonization

Est. Ceiling:	**$TBD**
Est. Period:	**2023 - 2026**

RFP Process

Typical Eligible Bidders

- Bidders must meet all solicitation requirements.

- Private entities and public sector entities that meet the solicitation requirements.
  - Private sector entities must agree to the Energy Commission's standard terms and conditions.
  - The University of California, California State University or U.S. Department of Energy National Laboratories must use either the standard or the pre-negotiated terms and conditions.
  - Public entities may participate as subcontractors if they cannot meet requirements or agree to the terms.
- All corporations, limited liability companies (LLCs), limited partnerships (LPs) and limited liability partnerships (LLPs) that conduct intrastate business in California are required to be registered and in good standing with the California Secretary of State prior to its project being recommended for approval at an Energy Commission Business Meeting.

Typical Proposal Requirements

- Prime contractor will be responsible for submitting the proposal.
  - Consists of Two Sections
    - Section 1 – Administrative Response
    - Section 2 – Technical and Cost Evaluation of Proposal

Typical Administrative Response

- Cover Letter
- Table of Contents
- Contractor Status Form
- Darfur Contracting Act Form
- Disabled Veteran Business Enterprise form
- Bidder Declaration form GSPD-05-105
- Contractor Certification Clauses
- Contractor References
- CA Civil Rights Laws Certification

Typical Technical Proposal

- Team Organizational Structure
- Relevant Experience and Qualifications
- Labor Hours by Personnel and Task
- Contractor References
- Previous Work Products
- Budget Forms

Typical Cost Proposal

Every Proposer must complete and include the budget forms found in Attachment 7 of the solicitation.

- Category Budget
- Direct Labor
- Fringe Benefits
- Travel
- Equipment
- Materials & Miscellaneous
- Subcontracts
- Indirect Costs and Profit

Potential Team Requirements

- May have requirements or preference for
  - Disabled Veteran Business Enterprise
  - Small Business
  - Non-Small Business

How To Submit The Proposals

Method of submission is the Energy Commission Grant Solicitation System, available at: https://gss.energy.ca.gov/

- Files must be in Microsoft Word (.doc, .docx), Microsoft Excel (.xls, .xlsx), and Adobe PDF formats.
- Attachments that require signature: check website for most up to date signature requirements https://www.energy.ca.gov/funding-opportunities/solicitations
- First-time users must register as a new user to access system.
- Application documents should meet formatting requirements, and page limits specified. See individual requirements for each attachment in Section III of solicitation manual
- "How to Apply" powerpoint: https://www.energy.ca.gov/funding-opportunities/funding-resources

Example Key Activities and Dates

Pre-solicitation Workshop	March 1, 2022
Deadline for Written Questions:	ch 16, 2022
Distribute Questions/Answers and Addenda (if any) to RFP-21-	March 18, 2022
Deadline to Submit Pr	**5:00 p.m. March 25, 2022**
Notice of Propo	April 8, 2022
Anticipate sion Business Meeting	May 11, 2022
Anticipated Contract Start Date	June 2022
Anticipated Contract Termination Date	December 2023

Example of Timing

Whom to Contact?

Name

Commission Agreement Officer

715 P Street, MS-18

Sacramento, California 95814

Telephone: (xxx) xxx-xxxx

E-mail: Name@energy.ca.gov

TBD

More Information

https://www.energy.ca.gov/funding-opportunities

Questions?