



**CALIFORNIA
ENERGY COMMISSION**



**California Energy Commission
May 10, 2023 Business Meeting Backup
Materials for Agenda Item No 03c:
Guidehouse Inc.**

The following backup materials for the above-referenced agenda item are available in this PDF packet as listed below:

1. Proposed Resolution
2. Contract Request Form
3. Scope of Work

STATE OF CALIFORNIA
STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: Guidehouse Inc.

RESOLVED, that the State Energy Resources Conservation and Development Commission (CEC) adopts the staff CEQA findings contained in the Agreement or Amendment Request Form (as applicable); and

RESOLVED, that the CEC approves Agreement 800-22-007 with Guidehouse Inc. for a \$1,499,555 contract to provide technical support on energy efficiency methodologies, electrification and decarbonization analyses, demand response and demand flexibility, behavioral impacts on energy efficiency and other decarbonization strategies, decarbonization impacts to energy systems, and enhancing CEC's analytical products and processes; and

FURTHER BE IT RESOLVED, that the Executive Director or their designee shall execute the same on behalf of the CEC.

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the CEC held on May 10, 2023.

AYE:
NAY:
ABSENT:
ABSTAIN:

Dated:

Liza Lopez
Secretariat



CONTRACT REQUEST FORM (CRF)

A. New Agreement Number

IMPORTANT: New Agreement # to be completed by Contracts, Grants, and Loans Office.

New Agreement Number: 800-22-007

B. Division Information

1. Division Name: Energy Assessments Division
2. Agreement Manager: Brian Samuelson
3. MS-Not Applicable
4. Phone Number: 916-891-8749

C. Recipient's Information

1. Recipient's Legal Name: Guidehouse Inc.
2. Federal ID Number: 36-4094854

D. Title of Project

Title of project: Energy Efficiency Technical Support 2023

E. Term and Amount

1. Start Date: July 1, 2023
2. End Date: June 30, 2026
3. Amount: \$1,499,555.00

F. Business Meeting Information

1. Operational agreement to be approved by Executive Director? No
2. Are the ARFVTP agreements \$75K and under delegated to Executive Director? No
3. The Proposed Business Meeting Date: 05-10-23
4. Consent or Discussion? Discussion
5. Business Meeting Presenter Name: Brian Samuelson
6. Time Needed for Business Meeting: 5 minutes.
7. The email subscription topic is: Efficiency Topics, Decarbonization Topics

Agenda Item Subject and Description:

Guidehouse Inc. Proposed resolution approving Agreement 800-22-007 with Guidehouse Inc. for a \$1,499,555 contract to provide technical support on energy efficiency methodologies, electrification and decarbonization analyses, demand response and demand flexibility, behavioral impacts on energy efficiency and other decarbonization strategies, decarbonization impacts to energy systems, and enhancing CEC's analytical products and processes. (COIA Funding) Contact: Brian Samuelson (Staff Presentation: 5 minutes)

G. California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a "Project" under CEQA?

No

If yes, skip to question 2.

If no, complete the following (PRC 21065 and 14 CCR 15378) and explain why Agreement is not considered a "Project":



Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because: Work under contract is to provide technical support to CEC staff with forecasting and tracking energy efficiency savings, demand response and demand flexibility analysis and modeling.

2. If Agreement is considered a "Project" under CEQA answer the following questions.

a) Agreement **IS** exempt?

No

Statutory Exemption?

No

If yes, list PRC and/or CCR section number(s) and separate each with a comma. If no, enter "None" and go to the next question.

PRC section number: None

CCR section number: None

Categorical Exemption?

No

If yes, list CCR section number(s) and separate each with a comma. If no, enter "None" and go to the next question.

CCR section number: None

Common Sense Exemption? 14 CCR 15061 (b) (3)

No

If yes, explain reason why Agreement is exempt under the above section. If no, enter "Not applicable" and go to the next section.

Not applicable

b) Agreement **IS NOT** exempt.

IMPORTANT: consult with the legal office to determine next steps.

No

If yes, answer yes or no to all that applies. If no, list all as "no" and "None" as "yes".

Additional Documents	Applies
Initial Study	No
Negative Declaration	No
Mitigated Negative Declaration	No
Environmental Impact Report	No
Statement of Overriding Considerations	No
None	Yes

H. Subcontractors

List all Subcontractors listed in the Budget (s). Insert additional rows if needed. If no subcontractors to report, enter "No subcontractors to report" and "0" to funds. **Delete** any unused rows from the table



Subcontractor Legal Company Name	Budget
TRC Energy Services, Inc.	\$ 282,485
Jai John Mitchell dba Jai J. Mitchell Analytics	\$ 45,425

I. Key Partners

List all key partner(s). Insert additional rows if needed. If no key partners to report, enter "No key partners to report." **Delete** any unused rows from the table.

Key Partner Legal Company Name
No key partners

J. Budget Information

Include all budget information. Insert additional rows if needed. If no budget information to report, enter "N/A" for "Not Applicable" and "0" to Amount. **Delete** any unused rows from the table.

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
COIA	2023-2024	BL#370.800	\$500,000
COIA	2024-2025	BL#370.800	\$500,000
COIA	2025-2026	BL#370.800	\$499,555

TOTAL Amount: \$1,499,555

R&D Program Area: Enter R&D Program Area. Example: EDMFO: EDMF

Explanation for "Other" selection Enter explanation for "Other"

Reimbursement Contract #: Enter Reimbursement Contract Number

Federal Agreement #: Enter Federal Agreement Number

K. Contractor's Contact Information

1. Contractor's Administrator/Officer

Name: Amul Sathe

Address: 101 California Street, Suite 4100

City, State, Zip: San Francisco, CA 94111

Phone: 415-399-2180

E-Mail: amul.sathe@guidedhouse.com

2. Contractor's Project Manager

Name: Neil Podkowsky

Address: 101 California Street, Suite 4100



STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

Contract Request Form
CEC-94 (Revised 01/2023)

City, State, Zip: San Francisco, CA 94111

Phone: 602-528-8028

E-Mail: npodkowsky@guidehouse.com

L. Selection Process Used

There are three types of selection process. List the one used for this CRF.

Selection Process	Additional Information
Competitive Solicitation #	RFP-22-801, 2, Not Applicable
Non Competitive Bid (<i>Attach DGS-GSPD-09-007</i> https://www.dgs.ca.gov/PD/Forms)	Not Applicable
Exempt	Not Applicable

M. Contractor Entity Type

Contractor Entity Type	Yes or No?
Private Company (<i>including non-profits</i>)	Yes
CA State Agency (<i>including UC and CSU</i>)	No
Government Entity (<i>i.e. city, county, federal government, air/water/school district, joint power authorities, university from another state</i>)	No

N. Is Contractor a certified Small Business (SB), Micro Business (MB) or Disabled Veterans Business Enterprise (DVBE)?

The contractor is a certified: Enter "SB", "MB", or "DVBE".

O. Civil Service Considerations

- Not Applicable (Agreement is with a CA State Entity or a membership/co-sponsorship)?
Enter Yes or No
- Public Resources Code 25620, et seq., authorizes the Commission to contract for the subject work. (PIER) Enter Yes or No
- The Services Contracted: Yes.

If no, go to the next question. If yes, which of the following applies to the contract? More than one can apply, list each answer choice, and separate them with a comma:

- are not available within civil service
- cannot be performed satisfactorily by civil service employee



- are of such a highly specialized or technical nature that the expert knowledge, expertise, and ability are not available through the civil service system

The following applies to the contract: are of such a highly specialized or technical nature that the expert knowledge, expertise, and ability are not available through the civil service system.

- d. The Services are of such an urgent, temporary, or occasional nature that the delay to implement under civil service would frustrate their very purpose?

Urgent.

Justification:

Work for this contract is highly specialized and technical nature that the expert knowledge, expertise, and ability are not available through the civil service system.

P. Payment Method

1. Is the payment method Reimbursement, Advanced Payment, or Other?

Reimbursement.

If Other, explain: Enter explanation for "Other" payment method.

2. If Reimbursement, is it in arrears based on Itemized Monthly, Itemized Quarterly, Flat Rate, or One-time?

Itemized Monthly.

Q. Retention

Is Agreement subject to retention? Yes.

If Yes, Will retention be released prior to Agreement termination? Yes.

R. Justification of Rates

Based on expected hours by task and classifications required to perform the tasks.

S. Disabled Veteran Business Enterprise Program (DVBE)

Provide requested additional information.

1. Exempt (Interagency/Other Government Entity) No.

2. Meets DVBE Requirements DVBE Yes.

Amount: \$ 45,425 DVBE %:3

3. Is the Contractor Certified DVBE or Subcontracting with a DVBE? If subcontracting with a DVBE, provide the name of the DVBE company. If none applies, enter "Not Applicable".

Jai John Mitchell dba Jai J. Mitchell Analytics

4. Contractor selected through CMAS or MSA with no DVBE participation No.

5. Requesting DVBE Exemption (attach CEC 95) No.

T. Miscellaneous Agreement Information

1. Will there be Work Authorizations? Yes.

2. Is the contractor providing confidential information? No.

3. Is the contractor going to purchase equipment? No.

4. What is the check frequency of the progress reports? Monthly, Quarterly, or Other? If Other, please provide explanation.



Monthly

5. Will a final report be required? Yes.

6. Is the Agreement, with amendments, longer than three years? If yes, why?

No

U. The following items should be attached to this CRF (as applicable)

List all items that should be attached to this CRF by entering "Yes" or "No".

Item Number	Item Name	Attached
1	Exhibit A, Scope of Work/Schedule	Yes
2	Exhibit B, Budget Detail	Yes
3	DGS-GSPD-09-007, NCB Request	No
4	CEC 95, DVBE Exemption Request	No
5	Awardee CEQA Documentation	No
6	Resumes	Yes
7	CEC 105, Questionnaire for Identifying Conflicts	Yes

Approved By

Individuals who approve this form must enter their full name and approval date in the MS Word version.

Agreement Manager: Brian Samuelson

Approval Date: Agreement Manager's Approval Date

Office Manager: Quentin Gee

Approval Date: Office Manager's Approval Date

Deputy Director: Aleecia Gutierrez

Approval Date: Deputy Director's Approval Date

EXHIBIT A

SCOPE OF WORK

TASK LIST

Task #	Task Name
1	Agreement Management
2	Improve Analytical Methods For Forecasting Programmatic Energy Efficiency Savings, impacts from electrification programs and GHG reductions from decarbonization efforts
3	Electrification Potential and GHG Emission Analysis
4	Survey and Model Low Carbon Behavior to Inform Statewide Policy Improvements
5	Demand Response Potential and Demand Flexibility Modeling
6	Implement a Common Platform Roadmap and Implementation

ACRONYMS/GLOSSARY

Specific acronyms and terms used throughout this scope of work are defined as follows:

Acronym/Word	Definition
CAO	Commission Agreement Officer
CAM	Commission Agreement Manager
CPUC	California Public Utilities Commission
EM&V	Evaluation, Measurement, and Verification
CEC	State Energy Resources Conservation and Development Commission or as commonly called, the California Energy Commission
EE	Energy Efficiency
GHG	Greenhouse Gas
IEPR	Integrated Energy Policy Report
WA	Work Authorization

BACKGROUND

With the passage of SB 350 - the Clean Energy and Pollution Reduction Act, the CEC is required to establish annual targets for statewide energy efficiency (EE) savings and demand reduction that will achieve a cumulative doubling of statewide EE savings in electricity and natural gas final end uses by January 1, 2030. In addition, the CEC assesses the effects of EE savings, electrification, and demand response on electricity demand statewide in local service areas and on an hourly and seasonal basis. The CEC provides to the legislature

recommendations and an update on progress toward achieving this goal every two years in the *Integrated Energy Policy Report (IEPR)*.

CEC staff and consultants hired under prior RFPs are presently doing work on:

- Updating EE savings methodologies,
- Updating electrification and decarbonization analyses,
- Identifying cost effectiveness methods that could be applied to non-investor owned utility entities,
- Reviewing and making recommendations on improving California-specific evaluation, measurement, and verification (EM&V) studies and practices, and
- Researching demand response and demand flexibility challenges and potential demand side flexibility scenarios.

Additional work is still needed on the following areas:

- Energy efficiency, electrification, and demand flexibility analysis
- Behavioral impacts on EE and other decarbonization strategies
- Decarbonization impacts to energy systems
- Enhancing, streamlining, and integrating CEC analytical products

The Contractor shall provide technical assistance for the following tasks, as directed by the CAM

WORK AUTHORIZATIONS

No work shall be undertaken unless authorized by the CAM through a specific written document called a “work authorization (WA)”, except for Administrative Task 1.

The CAM will prepare and issue the written WAs and shall set a maximum price, budget, and schedule for the work to be performed. The CAM will work, in consultation with the Contractor, to assign work to either the Contractor or a Subcontractor.

GENERAL REQUIREMENTS OR GOALS AND OBJECTIVES

The objective of this WA contract is to provide technical assistance to the Energy Assessments Division (EAD) by employing analytical methods for forecasting EE savings mandated by Senate Bill 350 (SB 350, De León, Chapter 547, Statutes of 2015); tracking EE savings from market-based activities, electrification and greenhouse gas (GHG) emissions, end users’ response to decarbonization efforts, and demand response and demand flexibility analysis; developing a common platform for long term statewide energy demand scenarios; and managing the Subcontractor products.

ADMINISTRATIVE TASKS

TASK 1.1 KICK-OFF MEETING

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement

Expected Total Hours: 50

Expected General Classifications: Analyst, Scientist, Engineer, Project Manager, Director

The Contractor shall:

Attend a “kick-off” meeting with the Commission Agreement Manager (CAM), and the Contracts Agreement Officer (CAO). The meeting will be held in Sacramento, CA and the CAM will designate the specific location. The Contractor shall include their Project Manager, Contracts Administrator, Accounting Officer, and others designated by the CAM in this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting.

- If necessary, prepare an updated Schedule of Deliverables based on the decisions made in the kick-off meeting.

The CAM shall:

- Arrange the meeting including scheduling the date and time.
- Provide an agenda to all potential meeting participants prior to the kick-off meeting.

Deliverables:

- An Updated Schedule of Deliverables (if applicable).

TASK 1.2 INVOICES

Expected Total Hours: 200

Expected General Classifications: Accountant, Analyst, Scientist, Engineer, Project Manager, Director

The Contractor shall:

- Prepare invoices for all reimbursable expenses incurred performing work under this Agreement in compliance with the Exhibit B of the Terms and Conditions of the Agreement. Invoices shall be submitted with the same frequency as progress reports (task 1.4). Invoices must be submitted to the CEC’s Accounting Office.

Deliverables:

Invoices

TASK 1.3 MANAGE SUBCONTRACTORS

The goal of this task is to ensure quality products, to enforce Subcontractor Agreement provisions, and in the event of failure of the Subcontractor to satisfactorily perform services, recommend solution to resolve the problem.

Expected Total Hours: 200

Expected General Classifications: Project Manager, Director

The Contractor shall:

- Manage and coordinate Subcontractor activities. The Contractor is responsible for the quality of all Subcontractor work and the CEC will assign all work to the Contractor. If the Contractor decides to add new Subcontractors, they shall 1) comply with the Terms and Conditions of the Agreement, and 2) notify the CAM who will follow the CEC's process for adding or replacing Subcontractors.

TASK 1.4 PROGRESS REPORTS

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement.

Expected Total Hours: 200

Expected General Classifications: Project Manager, Director

The Contractor shall:

- Prepare progress reports which summarize all Agreement activities conducted by the Contractor for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due within 15 calendar days after the end of the reporting period. The CAM will provide the format for the progress reports.

Deliverables:

Monthly Progress Reports

TASK 1.5 WORK AUTHORIZATIONS

The goal of this task is to develop and manage all technical and budgetary aspects of WA in accordance with the requirements of this Agreement for work to be performed under Technical Tasks 2 through 6.

Expected Total Hours: 150

Expected General Classifications: Analyst, Scientist, Engineer, Project Manager, Director

The Contractor shall:

- Help prepare WAs in accordance with the contract requirements.
- The WA format and content shall be specified by the CAM.
- The WA end date should be no later than 60 days prior to the term end date of the Agreement.
- Submit all required WA Documents to the CAM.
- Administer WAs.
- Establish and maintain contractual agreements with entities performing work.
- Develop project schedules.

- Manage Subcontractor activities in accordance with the Agreement terms and conditions.
- Provide oversight and first-level review of reports and documentation, and comment on the content of deliverables.
- Review and approve all WA invoices.
- Provide audit and accounting services for all WAs.
- Immediately report any significant variances affecting performance of WAs and recommend mitigation actions for consideration by the Project Manager and CAM. Examples of significant variances include the inability to submit deliverables by key WA due dates, unavailability of key personnel that will affect timely submittal of deliverables, and key technical issues that would require change in scope, redirection of the effort, or discontinuation of the project.
- Coordinate with the CAM to close out completed WAs and remaining unallocated balances.
- Monitor and track each WA and the overall agreement.
- Provide updated WA project schedules, as needed, and determine if each WA is on schedule and deliverables are satisfactory.
- Determine the fiscal status of each WA and the overall Agreement.
- Prevent cost overruns.
- Track the start, progress, and closure of each WA.

Deliverables:

WA Documents

TASK 1.6 FINAL REPORT

Expected Total Hours: 150

Expected General Classifications: Project Manager, Director

The goal of this task is to prepare a comprehensive written final report that describes the original purpose, approach, results, and conclusions of the work completed under this Agreement. The final report shall be prepared in language easily understood by the public or layperson with a limited technical background.

The final report must be completed before the termination date of the Agreement in accordance with the schedule of deliverables.

The final report shall be a public document. If the Contractor has obtained confidential status from the CEC and will be preparing both a public and a confidential version of the final report, the Contractor shall perform the following subtasks for both the public and confidential versions of the final report.

Deliverables:

Final Reports

TECHNICAL TASKS

The Contractor shall be responsible for completing the tasks stated below, and shall provide extensive technical guidance and assistance to the Energy Commission throughout the duration of these tasks. The hours shown under each task would cover the term of the contract. With approval from the CAM through a WA, the Contractor will undertake the following tasks:

TASK 2: IMPROVE ANALYTICAL METHODS FOR FORECASTING PROGRAMMATIC ENERGY EFFICIENCY SAVINGS IMPACTS FROM ELECTRIFICATION PROGRAMS & GHG REDUCTIONS FROM DECARBONIZATION EFFORTS

Using the SB 350 and AAEE Tool Structure Report (2021), Integrated Energy Policy Report Volume I and IV (2021), EE and fuel substitution calculation workbooks (found in Reference Documents section), the contractor shall provide technical assistance to CEC staff in developing analytical strategies to update potential EE savings for electricity and gas end uses of retail customers that will achieve a cumulative doubling of savings at the statewide level relative to the baseline efficiency savings specified in SB 350 by January 1, 2030. The cost, energy, and emission impacts from these decarbonization programs must be examined, particularly with a focus on equity concerns. This work will require collaboration with the California Public Utilities Commission (CPUC), community choice aggregators (CCAs), publicly owned utilities, and local authorities. The work includes updating the tools, data inputs, and background research used in tracking SB 350 savings and generating projections, as well as other energy forecasting products on the following areas, including but not limited to:

- Integration of verification methods using EM&V reports from utilities and individual customer billing and metered data when available.
- Integration of eTRM (Electronic Technical Resource Manual) for documentation and all applicable measures including, but not limited to, deemed measures and other SB 350 measures in current tools.
- Evaluation of the extent to which more granular historic EE data can be obtained from the CPUC and other sources for use in developing demand forecasts including, but not limited to building vintage and technology types.
- Evaluation of the extent to which more geographically disaggregated data can be analyzed to reflect CCA and REN programs and local ordinances.
- Evaluation of potential savings from emerging EE and decarbonization programs in all covered sectors.
- Evaluation of new and updating potential savings from appliance and building standards at the state and federal level.
- Analyzing the impacts of changes in CPUC-regulated EE and other decarbonization programs as a consequence of CPUC's recent decisions.

- Assessing the current programmatic hourly analysis and offering improvements to incorporate improved load shapes, customer meter/billing data and programming. Improvements may include greater geographical or technology level disaggregation, and long-term climate projections as well short-term weather variability.
- Assistance assessing the long-term outlook for building and appliance standards beyond a 2030 time horizon, including savings decay and technology replacement.

TASK 3: ELECTRIFICATION POTENTIAL AND GHG EMISSIONS ANALYSIS

The Contractor shall assist with ongoing research and energy forecasting efforts in support of long-term decarbonization goals established by legislation and executive orders. The 2021 IEPR recommends a goal of installing 6 million heat pumps by 2030. The cost, energy, and emission impacts from such decarbonization measures must be examined, particularly with a focus on equity concerns. The contractor will leverage existing analytical tools and supplementary reports listed in the reference documents section.

The Contractor shall provide technical assistance in the following areas, including but not limited to:

- Identify methods to improve the current Fuel Substitution Scenario Analysis Tool (FSSAT) and make the necessary updates to the FSSAT. These improvements include but are not limited to generating inputs at greater levels of disaggregation and carrying that level of granularity throughout the FSSAT calculations where possible; tracking and differentiating vintages of newly constructed buildings; accounting for multiple cycles of equipment turnover; updating residential equipment stock; updating housing numbers; improved characterization of the decarbonization potential across various non-residential subsectors, including but not limited to panel upgrades, equipment, and labor; and incorporating variable electricity generation emissions factors.
- Detail the combined saturation of electrification measures, particularly the number of heat pumps installed, from Additional Achievable Fuel Substitution and Fuel Substitution Scenario Analysis Tool (FSSAT) scenarios. Produce detailed analysis that combines outputs resulting from programmatic and speculative fuel substitution scenarios.
- Propose improvements to staff's decarbonization modeling tools, products, and analyses using the CEC's interval meter data. Use such data for detailing the efficient and equitable targeting of potential customers and communities.
- Identify the implications of the costs of decarbonization when considering the near- and long-term impacts from decarbonization efforts on electric and (renewable) gas rates and the infrastructure costs occurring at and outside the scope of a building. Produce a tool that allows for detailed comparisons of energy cost impacts using various gas and hourly electric tariffs, including different rate designs.
- Identify improvements in understanding electrification measure impacts to load bus analysis and gas and electric infrastructure transmission and distribution (avoided) costs.

- Incorporate any proposed changes to energy demand forecasting practices within the CEC that can be made to take into account enhanced consideration of consumer behavior or historical electrification experience. Consider the use of backup fossil-gas technologies for electrified buildings.
- Review and propose methods to quantify the benefits of decarbonization, with a focus on equity indicators, using existing models and comparing them with existing marginal abatement cost estimates.
- Identify methods to enhance the analysis and characterization of electrification policies on new and existing buildings in the near and long term.
- Identify and implement methods to improve the ability to observe hourly load impacts from electrification and the potential of load management strategies. Implement methods that improve the analysis of using different hourly emission factors.
- Prepare a modeling structure that improves the analysis of the long-term costs of electrification that considers efficiency and cost improvements stemming from market transformation.
- Identify leakage components in the natural gas system that should be considered volumetric, constant, and thus predicted by fuel combustion in buildings connected to the natural gas distribution system. Devise methods for projecting each type of leakage component as part of demand forecast.
- Analyze how measures that mitigate non-combustion GHG sources reduce GHG emissions and change energy demand impacts.

TASK 4: SURVEY AND MODEL LOW CARBON BEHAVIOR TO INFORM STATEWIDE POLICY IMPROVEMENTS

The goal of this task is to create robust behavioral and adoption models, workflows and scenarios that will demonstrate a reduction in statewide GHG emissions. This will align with previous staff work to support behavioral change toward lower-carbon lifestyles.

The Contractor shall work with CEC staff to create and implement this functionality and capability using an ontology-based common platform including, but not limited to, the following tasks:

- Develop and implement a specific market-based data collection scheme to inform the behavioral model.
- Translate results of scheme to enable improved energy models.
- Propose changes to energy models within the CEC that can be made to consider consumer behavior.

TASK 5: DEMAND RESPONSE POTENTIAL AND DEMAND FLEXIBILITY SCENARIOS ANALYSIS

Demand response and demand flexibility programs have been identified as an important source of electricity reliability, and cost and GHG emission reductions. The CEC seeks to further explore how supply-side and demand-side load modifying and event-based programs can support increased renewable energy consumption, distributed energy resource adoption, utility and customer cost reductions, and help the state meet mid-century climate targets.

The Contractor shall provide technical assistance to the CEC staff on topics including, but not limited to:

- Enhance an existing load flexibility and demand response scenario analysis tool. The tool should use inputs that include but are not limited to hourly end use load profiles, various time-varying rates, GHG emission profiles, different weather scenarios, varying rates of technology adoption and building retrofits, incremental technology costs, and labor costs.
- Update the tool to receive inputs from other CEC tools such as the FSSAT (see Task 3) and the programmatic SB 350 EE and FS data integration being updated and enhanced in Task 2.
- Improve tool outputs that could be leveraged by other CEC forecasting and scenario analysis efforts and utilized to support policy make decision and program development efforts
- Update the calculation of end-user operational costs using hourly outputs, time of use rates, and additional emerging rate designs as they developed
- Pilot the use of interval meter data to create control groups for third-party demand response programs.
- Publish end use load shapes informed by possible load shifting and shedding in the future.
- Develop additional functionality for the load flexibility and demand response tool based upon lessons learned after the initial launch.
- Update the load flexibility and demand response tool output formats to enable use by internal and external stakeholders and policy makers

TASK 6: COMMON PLATFORM ROADMAP AND IMPLEMENTATION

A common platform is used to develop complex energy models needed to support the CEC's analytical efforts to investigate options and costs to achieve California's energy policy goals and GHG emission reduction targets established through SB 350, SB 32, SB 1383, AB 3232, SB 100 and various Executive Orders. This common platform would provide unified and transparent access to various data sources and carrying that through to staff workflows using ontology-based knowledge graphs to produce energy models.

The Contractor shall work with CEC staff to create and implement the functionality and capability of an ontology-based common platform including, but not limited to, the following tasks:

- Organize, manage, and integrate data
- Develop Models and Modeling Framework
- Generate Case Study Workflows and Workflow Management
- Construct Case Study Scenarios and Scenario Management
- Develop Case Study Data Interaction and Visualization
- Document Case Studies and Literature
- Create Case Study Repository
- Conduct Marketing and Outreach
- Facilitate Internal and External User Interaction

SCHEDULE OF DELIVERABLES AND DUE DATES

Note: Actual deliverables will be specified in each WA.

Task Number	Deliverable	Due Date
1.0	Agreement Management	
1.1	Kickoff Meeting, including meeting notes and next steps summary	Summer 2023
1.2	Prepare Invoices	Monthly
1.3	Manage Subcontractors	Ongoing
1.4	Monthly Progress Reports	Monthly
1.5	Work Authorizations	Ongoing
2	Improve Analytical Methods for Forecasting Energy Efficiency Savings mandated by SB350	TBD- based on WA timeline
3	Electrification and GHG Emissions Analysis	TBD- based on WA timeline
4	Survey and Model Low Carbon Behavior to Inform Statewide Policy Improvements	TBD- based on WA timeline
5	Demand Response and Demand Flexibility	TBD- based on WA timeline
6	Implement a Common Platform for Ontology Based Modeling	TBD- based on WA timeline