

CONTRACT REQUEST FORM (CRF)



A) New Agreement 400-15-007 (To be completed by CGL Office)

B) Division	Agreement Manager:	MS-	Phone
400 Efficiency Renewable Energy Division	Adrian Ownby	37	916-651-3008

C) Contractor's Legal Name	Federal ID Number
Bruce A. Wilcox, P.E.	Federal I.D. # 533-46-8094 -

D) Title of Project
Residential Building Science Technical Support

E) Term and Amount	Start Date	End Date	Amount
	10 / 14 / 2015	6 / 30 / 2018	\$ 3,000,000

F) Business Meeting Information

Operational agreement (see CAM Manual for list) to be approved by Executive Director

ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	10 / 14 / 2015	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	Adrian Ownby	Time Needed:	5 minutes

Please select one list serve. Efficiency

Agenda Item Subject and Description

BRUCE A. WILCOX, P.E. Proposed resolution approving Agreement 400-15-007 with Bruce A. Wilcox, P.E., for a \$3,000,000 contract to provide technical support for the Residential Building Energy Efficiency Standards process.

G) California Environmental Quality Act (CEQA) Compliance

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

Yes (skip to question 2) No (complete the following (PRC 21065 and 14 CCR 15378)):

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 contract mostly involves engineering analysis and software development.

2. If Agreement is considered a "Project" under CEQA:

a) Agreement **IS** exempt. (Attach draft NOE)

Statutory Exemption. List PRC and/or CCR section number: _____

Categorical Exemption. List CCR section number: _____

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

Explain reason why Agreement is exempt under the above section:

b) Agreement **IS NOT** exempt. (Consult with the legal office to determine next steps.)

Check all that apply

Initial Study Environmental Impact Report

Negative Declaration Statement of Overriding Considerations

Mitigated Negative Declaration

H) List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)

Legal Company Name:	Budget	SB	MB	DVBE
See attached subcontractor list.	\$	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	\$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	\$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I) List all key partners: (attach additional sheets as necessary)

Legal Company Name:

**J) Budget Information**

Funding Source	Funding Year of Appropriation	Budget List No.	Amount
State - ERPA	2015-2016	400.001	\$1,000,000
State - ERPA	2016-2017	400.001	\$1,000,000
State - ERPA	2017-2018	400.001	\$1,000,000
Funding Source			\$
Funding Source			\$
R&D Program Area: Energy Efficiency		TOTAL:	\$3,000,000
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

K) Contractor's Administrator/ Officer

Contractor's Administrator/ Officer				Contractor's Project Manager			
Name:	Bruce Wilcox			Name:	Bruce Wilcox		
Address:	1110 Monterey Ave.			Address:	1110 Monterey Ave.		
City, State, Zip:	Berkeley, CA 94707			City, State, Zip:	Berkeley, CA 94707		
Phone:	510-528-4406	Fax:	510-588-4678	Phone:	510-528-4406	Fax:	510-588-4678
E-Mail:	bwilcox@lmi.net			E-Mail:	bwilcox@lmi.net		

L) Selection Process Used (For amendments, address amendment exemption or NCB, do not identify solicitation type of original agreement.)

Solicitation RFQ Solicitation #: RFQ-14-402 # of Bids: 1 Low Bid? No Yes
 Non Competitive Bid (Attach CEC 96)
 Exempt Select Exemption (see instructions)

M) Contractor Entity Type

- Private Company (including non-profits)
 CA State Agency (including UC and CSU)
 Government Entity (i.e. city, county, federal government, air/water/school district, joint power authorities, university from another state)

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

No Yes
 If yes, check appropriate box: SB MB DVBE

O) Civil Service Considerations

- Not Applicable (Agreement is with a CA State Entity or a membership/co-sponsorship)
 Public Resources Code 25620, et seq., authorizes the Commission to contract for the subject work. (PIER)
 The Services Contracted:
 are not available within civil service
 cannot be performed satisfactorily by civil service employees
 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 Services are of such an:
 urgent
 temporary, or
 occasional nature
 that the delay to implement under civil service would frustrate their very purpose.

Justification:

This architectural and engineering professional services technical support contract will provide the Energy Commission access to residential building energy science experts that are not available within state service. The Contractor will work under the direction of the Energy Commission to complete engineering and econometric analyses as well as software tool development.

P) Payment Method

- A. Reimbursement in arrears based on:
 Itemized Monthly Itemized Quarterly Flat Rate One-time
 B. Advanced Payment
 C. Other, explain:



Q) Retention		
1. Is Agreement subject to retention?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
If Yes, Will retention be released prior to Agreement termination?	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes

R) Justification of Rates		
Rates were negotiated under the RFQ process based on a salary survey of comparable entities for like work.		

S) Disabled Veteran Business Enterprise Program (DVBE)		
1. <input type="checkbox"/> Exempt (Interagency/Other Government Entity)		
2. <input checked="" type="checkbox"/> Meets DVBE Requirements	DVBE Amount:\$ _____	DVBE %: 3%
<input type="checkbox"/> Contractor is Certified DVBE		
<input checked="" type="checkbox"/> Contractor is Subcontracting with a DVBE:	DHS Associates	
3. <input type="checkbox"/> Contractor selected through CMAS or MSA with no DVBE participation.		
4. <input type="checkbox"/> Requesting DVBE Exemption (attach CEC 95)		

T) Miscellaneous Agreement Information		
1. Will there be Work Authorizations?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
2. Is the Contractor providing confidential information?	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
3. Is the contractor going to purchase equipment?	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
4. Check frequency of progress reports		
<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Other...		
5. Will a final report be required?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
6. Is the Agreement, with amendments, longer than a year? If yes, why?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
A multi-year contract is necessary to complete the software development, testing and deployment.		

U) The following items should be attached to this CRF (as applicable)		
1. Exhibit A, Scope of Work	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Attached
2. Exhibit B, Budget Detail	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Attached
3. CEC 96, NCB Request	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Attached
4. CEC 30, Survey of Prior Work	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Attached
5. CEC 95, DVBE Exemption Request	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Attached
6. CEQA Documentation	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Attached
7. Resumes	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Attached
8. CEC 105, Questionnaire for Identifying Conflicts		<input checked="" type="checkbox"/> Attached

_____	_____	_____	_____	_____	_____
Agreement Manager	Date	Office Manager	Date	Deputy Director	Date

400-15-007 Subcontractors

<i>Company Name</i>		<i>Office Location</i>
1.	Benningfield Group	Folsom, CA
2.	Benya Burnett Consultancy	Davis, CA
3.	Big Ladder Software	Denver, CO
4.	Building Science Corporation	Somerville, MA
5.	CalCERTS, Inc.	Folsom, CA
6.	Calthorpe Analytics	Berkeley, CA
7.	Charles S. Barnaby	Moultonborough, NH
8.	Chitwood Energy Management	Mt. Shasta, CA
9.	Davis Energy Group	Davis, CA
10.	DHL Consulting, LLC	Pagosa Springs, CO
11.	Drury B. Crawley	Washington, D.C.
12.	Enercomp, Inc.	Auburn, CA
13.	Energy and Environmental Economics, Inc. (E3)	San Francisco, CA
14.	Frank A. Bergamaschi, Architect	San Francisco, CA
15.	Hitchcock Consulting	Kelsey, CA
16.	James D. Lutz	Oakland, CA
17.	Keith A. Temple, Ph.D., P.E.	South Canaan, PA
18.	Kolderup Consulting	San Francisco, CA
19.	L'Monte Information Services	Ukiah, CA
20.	Philip Niles, Mechanical Engineering Consulting	Arroyo Grande, CA
21.	Proctor Engineering Group	San Rafael, CA
22.	RASENT Solutions, LLC	Mountain Ranch, CA
23.	Solar Consulting Services	New Smyrna, FL
24.	TRC Solutions	Gold River, CA
25.	University of Illinois at Urbana – Champaign, Illinois Sustainable Technology Center	Champaign, IL
26.	White Box Technologies	Moraga, CA
27.	Wrightsoft Corporation	Lexington, MA
28.	DHS Associates, Financial Management	Pioneer, CA
29.	Jennifer Roberts, Project Management and Communications	San Francisco, CA

EXHIBIT A

SCOPE OF WORK

PURPOSE

The purpose of this agreement is to contract with a team of consultants for technical support for:

- Updating the California Building Efficiency Standards for residential buildings
- Updating Compliance Tools and related materials to support the Residential Building Standards

Work on this contract will focus on the 2016 and 2019 Standards updates, but may also involve implementation of the 2013 Standards update or preliminary work on later Standards updates (2022 and beyond).

ACRONYMS/GLOSSARY

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

ACRONYMS & TERMS	DEFINITION
ASHRAE	American Society of Heating, Refrigeration and Air-conditioning Engineers
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CBECC-Res	California Building Energy Code Compliance application for low-rise residential buildings
CO ₂ e	Carbon Dioxide equivalent
Compliance Document	Any of the documents specified in Section 10-103(a) of the Building Energy Efficiency Standards utilized to demonstrate compliance with Part 6 (i.e., Certificate of Compliance, Certificate of Installation, Certificate of Acceptance, and Certificate of Verification).
Compliance Manual	The Residential Compliance Manual developed by the Energy Commission, under Section 25402.1(e) of the Public Resources Code, to aid designers, builders, and contractors in meeting the energy efficiency requirements for residential buildings.
CPUC	California Public Utilities Commission
CSE	California Simulation Engine
Energy Commission	California Energy Commission
HERS Whole House Rating	Whole House Home Energy Rating System for existing residential buildings, Public Resources Code, Sections 25942, Title 20, California Code of Reg., Section 16. 70 et seq.
HVAC	Heating, Ventilating and Air Conditioning
State	State of California
TDV	Time Dependent Valuation, used as the energy cost metric in the California Building Energy Efficiency Standards (Title 24, California Code of Regulations, Part 1, chapter 10, and Part 6)

EXHIBIT A

SCOPE OF WORK

WORK AUTHORIZATIONS

The Agreement that results from this solicitation shall be conducted as a “work authorization” Agreement. No work shall be undertaken unless authorized by the CAM through a specific written document called a “work authorization.”

The CAM will prepare and issue the written work authorizations 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.

Quality control activities:

- In work authorization budgets, all quality control work must be specified by line item; and
- Review of subcontractor work shall be billed to the individual technical work authorizations.

No WORK GUARANTEE

The Energy Commission does not guarantee any minimum or maximum amount of work to the prime Contractor or any Subcontractor under the Agreement.

WORKSHOPS & HEARINGS

All workshops and hearings are sponsored, organized, and facilitated by the Energy Commission. The Energy Commission is responsible for any costs associated with a workshop or hearing. Contractor will provide labor only.

INCIDENTAL SERVICES

Contractor shall provide incidental services to support the Building Standards technical tasks in the general topic areas listed below. Technical Tasks 2-7 provide more detailed task activities for these areas:

- Economic & Financial Analysis of the Building Standards Work
- Graphic Design/Document Support for reports and other deliverables
- Public Outreach & Communication/ Marketing/ Public Relations/ Program Development necessary to complete the goals of this agreement

APPLICATION USE & DEVELOPMENT

All application developed under this contract will be subject to open source licensing requirements, as described in Exhibit D, paragraph 8, unless the Energy Commission directs different ownership and licensing requirements in a work authorization. No pre-existing proprietary application will need to be modified in order to perform the tasks outlined in this Agreement. The Energy Commission owns or has open source license access to any application that the Contractor will modify under the terms of this Agreement.

DRAFT AND FINAL DELIVERABLES/REPORTS

The Contractor may be required to produce several iterations of draft deliverables in order to incorporate Energy Commission’s comments and edits. A deliverable is considered final when the CAM indicates in writing that the deliverable is considered final. When creating reports, the Contractor shall use and follow, unless otherwise instructed in writing by the Commission Agreement Manager (CAM), the latest version of the Consultant Reports Style Manual published on the Energy Commission’s website:

EXHIBIT A

SCOPE OF WORK

http://www.energy.ca.gov/contracts/consultant_reports/index.html

Each final hard copy deliverable shall be delivered as one original, reproducible, 8 ½” by 11”, camera-ready master in black ink, unless otherwise directed. Illustrations and graphs shall be sized to fit an 8 ½” by 11” page and readable if printed in black and white.

ELECTRONIC FILE FORMAT

The Contractor shall deliver an electronic copy (CD ROM or memory stick or as otherwise specified by the CAM) of the full text in a compatible version of Microsoft Word (.doc).

The following describes the accepted formats of electronic data and documents provided to the Energy Commission as contract deliverables and establishes the computer platforms, operating systems and application versions that will be required to review and approve all application deliverables.

- Data sets shall be in Microsoft (MS) Access or MS Excel file format.
- PC-based text documents shall be in MS Word file format.
- Documents intended for public distribution shall be in PDF file format, with the native file format provided as well.
- Project management documents shall be in MS Project file format.

PRIMARY TASKS

The major categories of work are divided into the following tasks:

TASK #	DESCRIPTION OF TASK
1	Agreement Management
2	Standards Update Measure Identification and Analysis
3	Residential Building Energy Efficiency Standards Public Domain Compliance Application Development and Maintenance
4	Enhance and Support Data Exchange Infrastructure for HERS Provider Data Registries
5	Residential Public Domain Compliance Application Deployment
6	California Climate Data
7	Contingencies and Additional Topic Areas for Building Standards Technical Support

TASK 1 – AGREEMENT MANAGEMENT

Each Work Authorization will reflect the maximum that can be spent for Agreement Management for each fiscal year. A maximum of 12% of the total Agreement budget will be allocated for this task. The Contractor will be required to perform contract management and administrative duties to manage the Agreement.

The Contractor’s responsibilities under this task include, but are not limited to the following:

EXHIBIT A

SCOPE OF WORK

Task 1.1 Kick-off Meeting

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

The Contractor shall:

- Attend a “kick-off” meeting with the CAM, the Contracts Agreement Officer, and a representative of the Accounting Office. 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 Program Meetings and Briefings

The Contractor and subcontractor shall:

- At the request of the Energy Commission’s CAM, be available for meetings or to provide written or verbal program briefings to the Energy Commission’s staff or others. The cost of meetings with local governments and public institutions will be included in each Work Authorization. The cost of meetings requested specifically by the Contractor shall be borne solely by the Contractor. The Energy Commission expects to hold no more than one (1) program briefing meeting per quarter.

Task 1.3 Invoices

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 Energy Commission’s Accounting Office.

Deliverables:

- Invoices

Task 1.4 Manage Subcontractors:

The goal of this task is to manage subcontractors. Quality control activities and review of subcontractor work shall be billed to the individual technical work authorizations.

EXHIBIT A

SCOPE OF WORK

The Contractor shall:

- At the direction of the CAM, review and prepare work authorization scopes and budgets
- Enter into subcontracts
- Enforce subcontract provisions
- In the event of subcontractor failure to perform, recommend solutions to resolve the problem
- When new subcontractors are added, the contractor shall ensure that: 1) the new subcontractors comply with the Terms and Conditions of the Agreement, and 2) notify the CAM who will follow the Energy Commission's process for adding or replacing subcontractors.

Task 1.5 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.

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 1.6 Final Meeting

The goal of this task is to discuss closeout of this Agreement and review the project.

The Contractor shall:

- Meet with Energy Commission staff prior to the term end date of this Agreement. The meeting will be held in Sacramento, CA and the CAM will designate the specific location. This meeting will be attended by the Contractor Project Manager and the CAM. The CAM will determine any additional appropriate meeting participants. The administrative and technical aspects of Agreement closeout will be discussed at the meeting.
- Present findings, conclusions, and recommended next steps (if any) for the Agreement.
- Prepare a written document of meeting agreements and unresolved activities.
- Prepare a schedule for completing the closeout activities for this Agreement, based on determinations made within the meeting.

Deliverables:

- Written documentation of meeting agreements
- Schedule for completing closeout activities
- Findings, conclusions, and recommendations.

EXHIBIT A

SCOPE OF WORK

TASK 2 – STANDARDS UPDATE MEASURE IDENTIFICATION AND ANALYSIS

At the direction of the CAM, the Contractor shall identify energy and peak load savings opportunities (measures) for residential buildings. The measures to be considered may include, but are not limited to, more energy efficient levels of the measures currently included in the Standards, measures that are options for compliance in the performance standards but are not required, and new measures proposed by stakeholders.

For each identified measure, this task will include development and documentation of plans for additional information about the measure required for completion of subsequent tasks. Contractor will document the proposal for each measure in a draft Measure Proposal (see example at:

http://www.energy.ca.gov/title24/2016standards/prerulemaking/documents/New_Measure_Proposal_Template_V1.docx). Contractor shall be prepared to complete the necessary research and analysis required by the appropriate Measure Proposal template. This draft will be submitted to the CAM for approval. Upon the CAM's approval of the draft, the CAM in consultation with the Contractor shall schedule the date and location for a workshop(s) for public review. The Contractor may be directed to present the measure(s) at the workshop and, working with Energy Commission staff subject matter experts, address issues raised at the workshop, and incorporate changes into a revised Measure Proposal. Additional workshop(s) to review the revised Measure Proposal will be held if the CAM deems it necessary. As directed, the Contractor will address additional measures or issues identified in later workshops or comments.

Work in this task may also include:

- Reviewing national or international energy conservation codes for their relevance to the Standards Update
- Updates to the Compliance Manual
- Development, research, and analysis of proposed or potential measures to meet the requirements for inclusion in the Building Energy Efficiency Standards

Deliverables:

- One or more Draft Measure Proposals
- One or more Final Measure Proposals
- Reports on research and analysis of proposed or potential measures, or other energy codes, as requested
- Compliance Manual updates
- Other deliverables to be defined as needed through Work Authorizations

TASK 3 – RESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS PUBLIC DOMAIN COMPLIANCE APPLICATION & MAINTENANCE

Update *CBECC-Res* to assist in developing the Standards and add additional user interfaces as necessary to translate building energy performance data and energy related building operational characteristics into an application that applies the performance standards requirements under consideration for the Standards to Residential building designs, calculating annual energy budgets and providing comparative results. The work in this task is expected to include but not be limited to the following:

EXHIBIT A

SCOPE OF WORK

- Create or obtain for use a parametric run generator(s) that allows multiple *CBECC-Res* analyses to be launched and results summarized
 - Evaluate whether there is already a parametric run generator developed and available.
 - If already available, obtain parametric run generator on an open source basis. If there is a cost to obtain this, the contract budget will allow for it.
 - If not already available, provide parametric run generator.
- Develop method of creating automatic modifications of rulesets used in the 2016 *CBECC-Res* for use in parametric analyses
- Pilot and beta test new versions of the *CBECC-Res* internally, and with the Energy Commission and building industry stakeholders
- Model building design scenarios appropriate for zero net energy buildings to include at least the following systems and compliance options under the Standards:
 - Photovoltaic and fuel cell systems
 - Solar thermal systems
 - Residential HVAC and water heating
 - Envelope modeling
 - Residential lighting
 - Quality Insulation Installation
- Modify the *CBECC-Res* application as needed to work with a parametric run generator and to model new efficiency technologies that need to be modeled for the next Residential Building Energy Efficiency Standards update
- Prepare instructions for users that explain how the *CBECC-Res* application should be used to demonstrate compliance with the Standards
- Prepare documentation that explains all significant modifications made to the Standards Data Dictionary, the Standards compliance ruleset and the *CBECC-Res* application. Provide support for the current *CBECC-Res* application to ensure a successful transition to future versions of the *CBECC-Res* application

Deliverables:

- Residential Building Energy Efficiency Standards Development Analysis *CBECC-Res* Application Functional Requirements
- Residential Building Energy Efficiency Standards Development Analysis Application Specifications
- Residential Building Energy Efficiency Standards Development Analysis Application
- Residential Building Energy Efficiency Standards Development Analysis Application Documentation
- Updates to the *CBECC-Res* application as needed
- Other deliverables to be defined as needed through Work Authorizations

EXHIBIT A

SCOPE OF WORK

TASK 4 – ENHANCE AND SUPPORT DATA EXCHANGE INFRASTRUCTURE FOR HERS PROVIDER DATA REGISTRIES

Provide technical support for the data exchange protocols and data dictionary that together provide the necessary infrastructure on which private parties develop HERS Provider Data Registry. This task is identical to work authorized in a previous contract, that the Energy Commission did not direct the contractor to perform. This task will include reviewing Standards compliance documentation, the current HERS Provider Data Registry functions and database architectures, and existing data exchange schema used to communicate Standards-related building energy performance. The work in this task is expected to include, but not be limited to, the following:

- Enhancing the data dictionary and data exchange protocols
- Updating the residential compliance document xml template infrastructure that is specified in the Standards
- Developing an automated process for testing Registry compliance forms
- Piloting new data exchange protocols to/from registries
- Reviewing and analyze the results of Energy Commission surveys of Compliance documentation
- Update the HERS Provider Data Registry Requirements Manual as needed

Deliverables:

- Updated Data Dictionary
- Updated Schema for Compliance Documents
- Updated Document Templates (xslt)
- Updated Report Generator programming based on the above deliverables
- Updated Data Exchange Protocols
- Updated Data Registry Requirements Manual
- Data Exchange Pilot with Standards Data Registries
- Other deliverables to be defined as needed through Work Authorizations

TASK 5 – RESIDENTIAL PUBLIC DOMAIN COMPLIANCE APPLICATION DEPLOYMENT

Support the Energy Commission's deployment of the California Building Energy Code Compliance (*CBECC*)-Res Standards compliance application. The work in this task is expected to include, but not be limited to, the following:

- Identify, update and track issues identified through project team and stakeholder reviews of the compliance application
- Develop the Envelope Trade-off Approach (specified in the 2013 Standards) which is a simplified compliance application ruleset specifically for roof replacement building projects

EXHIBIT A

SCOPE OF WORK

- Test applications internally at contractor and Energy Commission
- Pilot and beta test new versions of the *CBECC-Res* application with building industry stakeholders to identify and improve issues prior to release
- Provide technical support to third-party application vendors for their integration of the *CBECC-Res* Application Programming Interface (API) into third-party application tools
 - Document all updates to the compliance application data model and rulesets
 - Develop solutions to vendor issues as directed
- Establish a public website and host the *CBECC-Res* open source application and include a bug reporting mechanism on this public website
- Establish procedures for the Energy Commission to assume responsibility for this public website at the conclusion of the Agreement

Deliverables:

- Updated versions of the *CBECC-Res application*, including updates to its documentation
- *CBECC-Res* ruleset for the Envelope Trade-off Approach
- *CBECC-Res application* issue tracking reports
- *CBECC-Res* Compliance application source code posted to open source on-line repository
- Other deliverables to be defined as needed through work authorizations

TASK 6 – CALIFORNIA CLIMATE DATA

This task is identical to work authorized in a previous contract that the Energy Commission did not direct the contractor to perform. Determine if it is appropriate for the Residential Building Energy Efficiency Standards to include requirements for buildings to be designed based on climate data more specific to physical locations than what is provided by any of the 16 climate zones currently used in the Standards. Another goal of this task is to establish weather data for California that is representative of the expected changes in weather in the future due to global climate change. The work in this task is expected to include, but not be limited to, the following:

- Develop methods to use a finer resolution of weather data for areas of the State that have unique micro-climates not adequately captured by the 16 climate zones currently used in the Standards
- Analyze whether the resolution of climate data should be different for modeling renewable energy generation, versus modeling the thermal behavior of residential buildings
- Review all available research on the extreme weather events expected in the future from global climate change, as these relate specifically to California locations
- Based on the available research, develop revisions to California weather data to include extreme weather events most likely to occur over the next 50 years

EXHIBIT A

SCOPE OF WORK

Deliverables:

- Hourly weather data for each unique micro-climate identified
- Hourly weather data for multiple climate regions, as specified by the CAM, that incorporates expectations of global climate change
- Other deliverables to be defined as needed through Work Authorizations

TASK 7 – CONTINGENCIES AND ADDITIONAL TOPIC AREAS FOR BUILDING STANDARDS TECHNICAL SUPPORT

The Contract team shall assist with work to develop program components beyond what is specifically described in Tasks 2-6 related to Building Standards technical support. The work in this task is expected to include, but not be limited to, the following:

- Providing technical expertise to conduct unexpected research and analysis needed to develop program components as they arise throughout the agreement period.
- Attending Workshops and Hearings that support the Standards update.

Deliverables:

- To be defined as needed through Work Authorizations

DELIVERABLES

The following deliverables chart does not represent all deliverables necessary to complete the goals and objectives of this agreement. Additional deliverables will be outlined in work authorizations. For deliverables listed, work authorizations will specify exact due dates.

TASK #	DELIVERABLES	TENTATIVE DUE DATES
1.1		
	Updated schedule of deliverables (if applicable)	1 st quarter 2016
1.3		
	Invoices	Monthly
1.5		
	Monthly Progress Reports	Monthly
1.6		
	Written documentation of meeting agreements	1 st quarter 2018
	Schedule for completing closeout activities	1 st quarter 2018
	Findings, conclusions, and recommendations	1 st quarter 2018

EXHIBIT A

SCOPE OF WORK

TASK #	DELIVERABLES	TENTATIVE DUE DATES
2		
	One or more Draft Measure Proposals	4 th quarter 2016
	One or more Final measure Proposals	1 st quarter 2017
	Reports on research and analysis of proposed or potential measures, or other energy codes, as requested	TBD per Work Authorization
	Compliance Manual updates	3 rd quarter 2017
	Other deliverables to be defined as needed through Work Authorizations	TBD per Work Authorization
3		
	Residential Building Energy Efficiency Standards Development Analysis <i>CBECC-Res</i> Application Functional Requirements	1 st quarter 2018
	Residential Building Energy Efficiency Standards Development Analysis Application Specifications	1 st quarter 2018
	Residential Building Energy Efficiency Standards Development Analysis Application	1 st quarter 2018
	Residential Building Energy Efficiency Standards Development Analysis Application Documentation	1 st quarter 2018
	Updates to the <i>CBECC-Res</i> application as needed	TBD per Work Authorization
	Other deliverables to be defined as needed through Work Authorizations	TBD per Work Authorization
4		
	Updated Data Dictionary	TBD per Work Authorization
	Updated Schema for Compliance Documents	TBD per Work Authorization
	Updated Document Templates (xslt)	TBD per Work Authorization
	Updated Report Generator programming based on the above deliverables	TBD per Work Authorization

EXHIBIT A

SCOPE OF WORK

TASK #	DELIVERABLES	TENTATIVE DUE DATES
	Updated Data Exchange Protocols	1 st quarter 2016
	Updated Data Registry Requirements Manual	TBD per Work Authorization
	Data Exchange Pilot with Standards Data Registries	TBD per Work Authorization
	Other deliverables to be defined as needed through Work Authorizations	TBD per Work Authorization
5		
	Updated versions of the <i>CBECC-Res</i> application, including updates to application documentation	TBD per Work Authorization
	<i>CBECC-Res</i> ruleset for the Envelope Trade-off Approach	3 rd quarter 2017
	<i>CBECC-Res</i> application issue tracking reports	First update 1 st quarter 2016. Future updates TBD per Work Authorization
	<i>CBECC-Res</i> Compliance application source code posted to open source on-line repository	First update 3 rd quarter 2016. Future updates TBD per Work Authorization
	Other deliverables to be defined as needed through Work Authorizations	TBD per Work Authorization
6		
	Hourly weather data for each unique micro-climate identified	4 th quarter 2016
	Hourly weather data for multiple climate regions, as specified by the CAM, that incorporates expectations of global climate change	4 th quarter 2016
	To be defined as needed through Work Authorizations	TBD per Work Authorization
7		
	Other deliverables to be defined as needed through Work Authorizations	TBD per Work Authorization

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: BRUCE A. WILCOX, P.E.

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

RESOLVED, that the Energy Commission approves Agreement 400-15-007 with Bruce A. Wilcox, P.E., for a \$3,000,000 contract to provide technical support for the Residential Building Energy Efficiency Standards process; and

FURTHER BE IT RESOLVED, that the Executive Director or his/her designee shall execute the same on behalf of the Energy Commission.

CERTIFICATION

The undersigned Secretariat to the Commission 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 California Energy Commission held on October 14, 2015.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Tiffany Winter,
Secretariat