



CALIFORNIA ENERGY COMMISSION

Pre-Application Workshop

GFO-16-503

Novel Solutions to Accelerate Deployment of Small and Micro-Scale Combined Cooling Heating and Power Systems

Energy Research and Development Division
California Energy Commission

August 9, 2016

Kevin Uy



Agenda

| Time | Topic |
|----------|--|
| 10:00 am | Welcome and Introductions <ul style="list-style-type: none">• Housekeeping• Commitment to Diversity• Connect with Us |
| 10:15 am | Solicitation Information <ul style="list-style-type: none">• Program Background, Drivers, and Motivation• Purpose, Groups, and Funding• Key Dates• Application Requirements |
| 11:00 am | Questions and Answers |
| 12:00 pm | Adjourn & Networking |



Housekeeping

- In case of emergency
- Facilities
- Sign-in sheet / Business card sheet
- Updates on solicitation documents including this presentation will be posted at the Grant Funding Opportunity's webpage:
<http://www.energy.ca.gov/contracts/pier.html#GFO-16-503>



Commitment to Diversity

The Energy Commission adopted a resolution strengthening its commitment to diversity in our funding programs. We continue to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, Energy Commission staff conducts outreach efforts and activities to:

- Engage with disadvantaged and underrepresented groups throughout the state.
- Notify potential new applicants about the Energy Commission's funding opportunities.
- Assist applicants in understanding how to apply for funding from the Energy Commission's programs.
- Survey participants to measure progress in diversity outreach efforts.

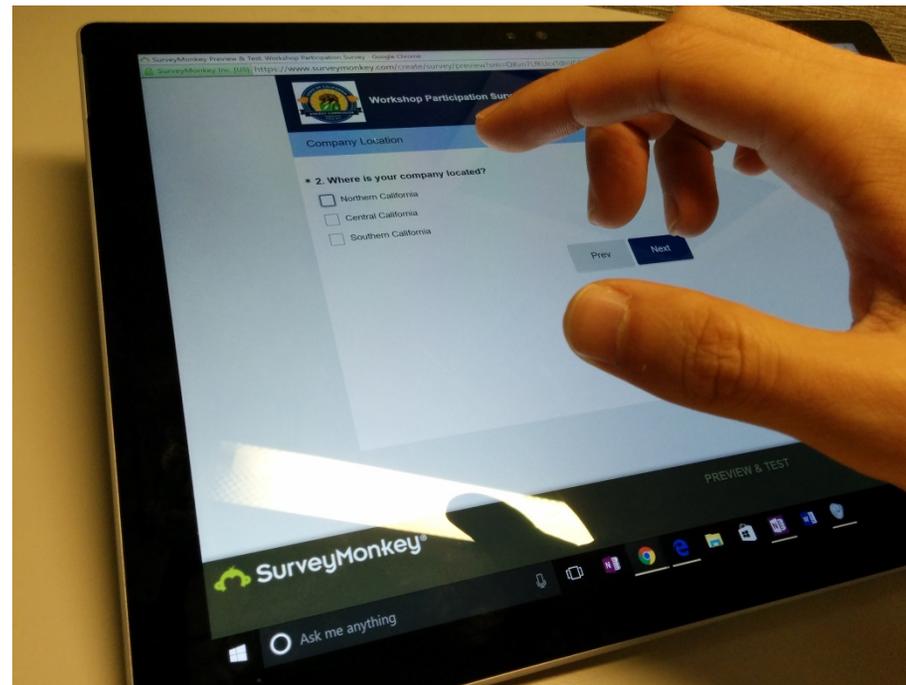


We Want to Hear From You!

1-Minute Survey

- The information supplied will be used for public reporting purposes to display anonymous overall attendance of diverse groups.
- iPads are being passed around the room
- Online SurveyMonkey for WebEx Participants:
<https://www.surveymonkey.com/r/CEC-08-09-2016>

Thanks for your time!





CALIFORNIA ENERGY COMMISSION

Connect with the Energy Commission!



<https://www.facebook.com/CAEnergy/>



<http://bit.ly/CalEnergyNetwork>



<https://twitter.com/CalEnergy>

...and the Energy
Commission's listserves
www.energy.ca.gov/listservers

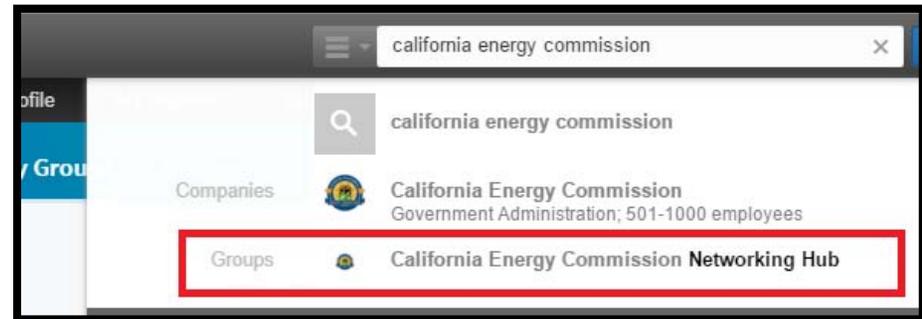


Find Partners via LinkedIn

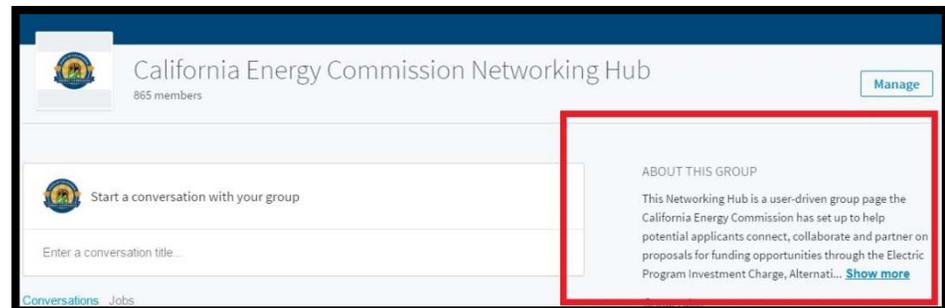
The Energy Commission created a user-driven LinkedIn group page to help potential applicants **connect, collaborate** and **partner** on proposals for funding opportunities.

Join the “California Energy Commission Networking Hub” using:

- The LinkedIn Search Box
- URL: [bit.ly/CalEnergyNetwork](https://www.linkedin.com/groups/7063580)



Then, use the ‘About this Group’ section on the LinkedIn group page to find funding opportunity specific subgroups.



Subgroup page for this GFO: <https://www.linkedin.com/groups/7063580>



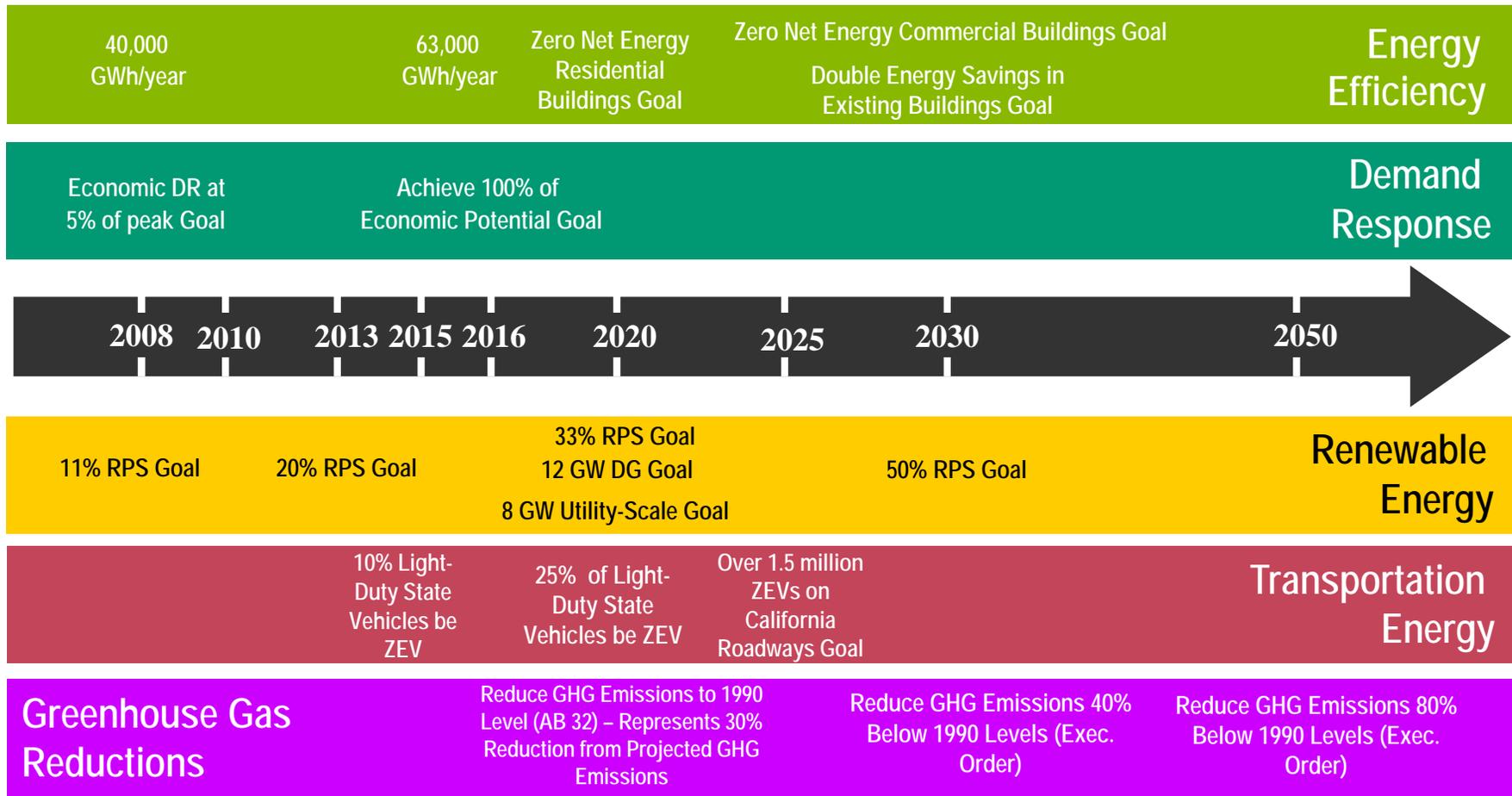
Natural Gas Program Background

- The Natural Gas Research, Development and Demonstration Program is funded by a natural gas ratepayer surcharge established by the California Public Utilities Commission (CPUC) in 2000
- The purpose of the Natural Gas RD&D Program is to benefit the ratepayers of natural gas investor-owned utilities*
- The Natural Gas RD&D Program funds clean energy technology projects that promote greater natural gas reliability, lower costs, and increased safety
- Funded projects must lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals.
- Annual program funds total \$24 million

* Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Gas Company



State Energy Policy Drivers





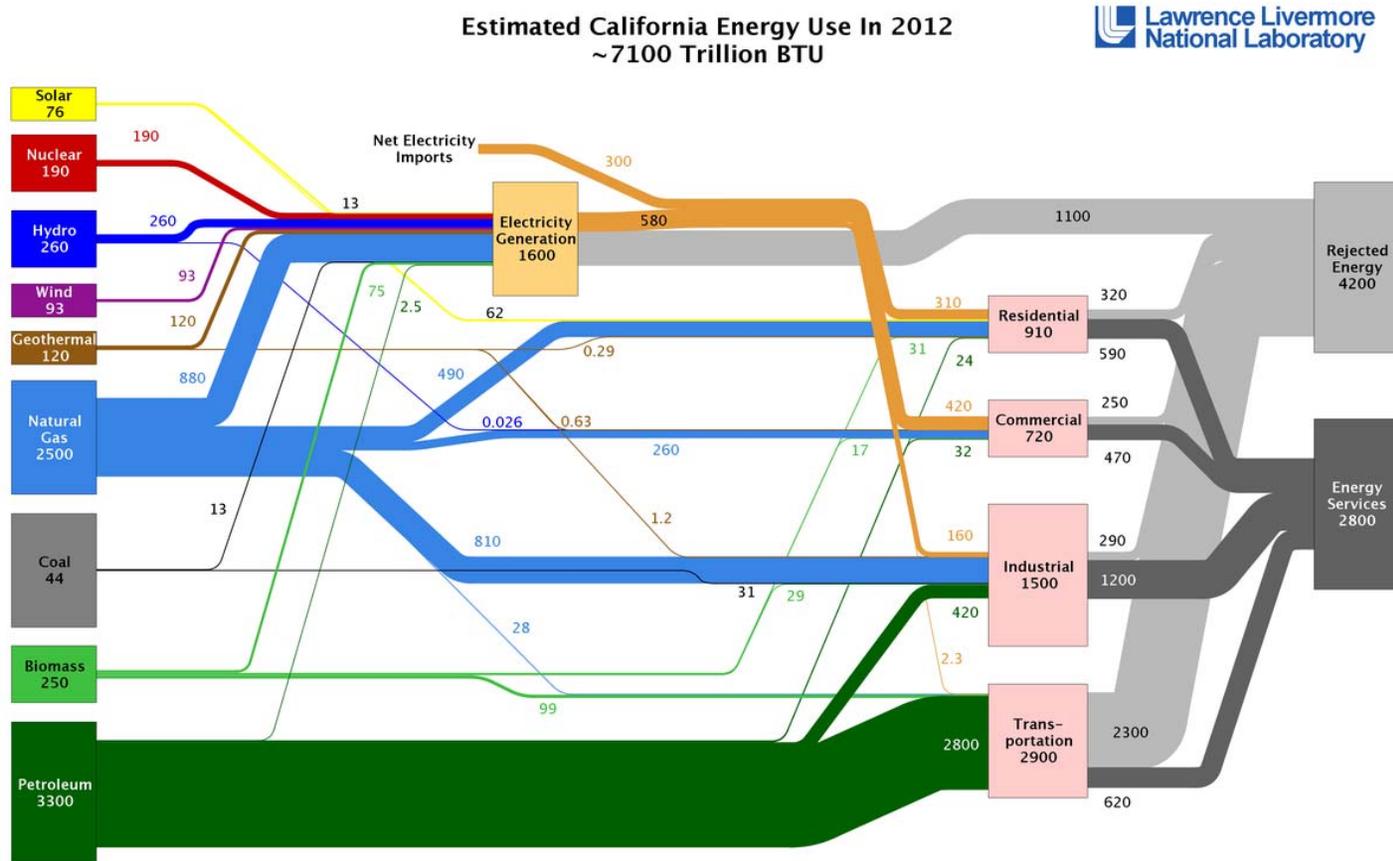
Solicitation Purpose

- Fund research, development, and demonstration projects that advance the state of technology of small and micro-scale combined heat and power (CHP) systems and complementary enabling technologies.
- Projects should focus on technology advancements which promote CHP systems no larger than 250 kWe of generating capacity for application in the commercial, light industrial, institutional, single family residential, and multifamily residential sectors.
- Additionally, recent events at the Aliso Canyon gas storage facility in Southern California emphasize the urgency in identifying, demonstrating and deploying technology solutions and strategies that can reduce natural gas consumption while simultaneously increasing electricity system reliability in the affected area.



Solicitation Motivation

- The majority of energy produced is rejected as waste heat.

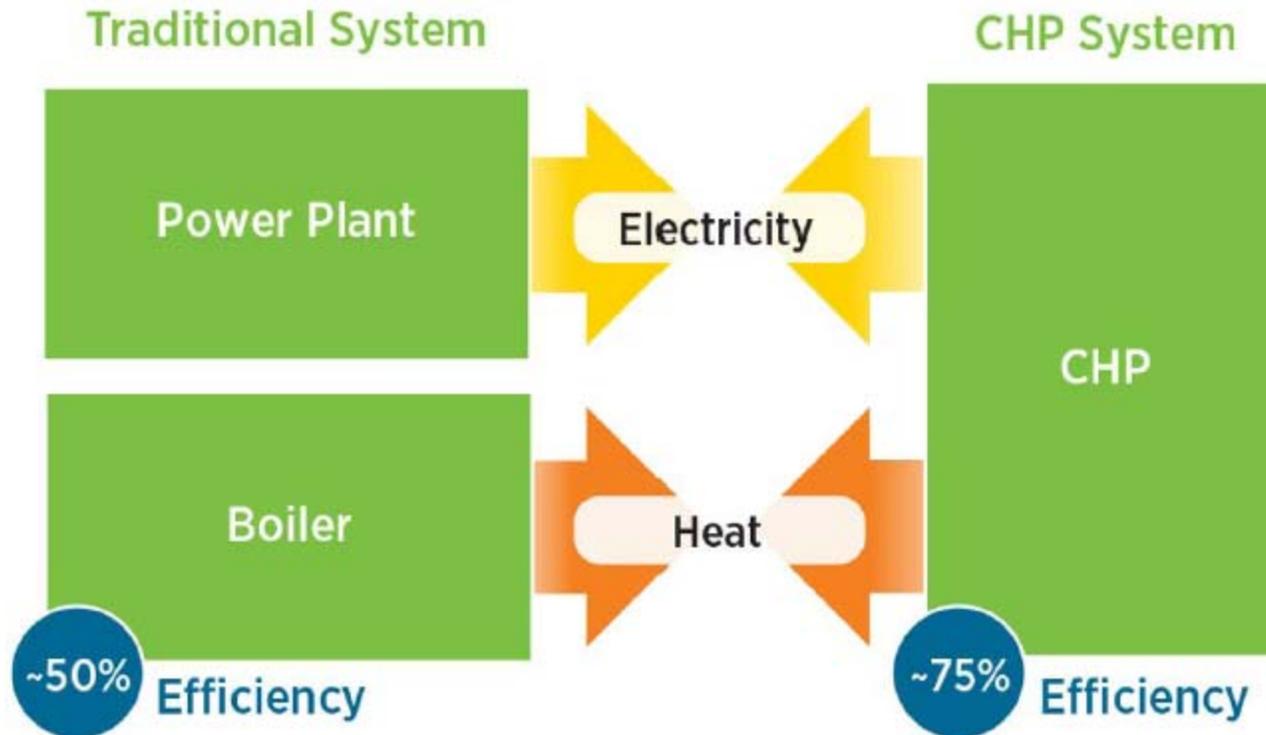


Energy Flow Charts. Lawrence Livermore National Laboratory.
<https://flowcharts.llnl.gov/commodities/energy>



Solicitation Motivation

- Combined heat and power (CHP) systems simultaneously generate electricity and capture waste heat for thermal loads.



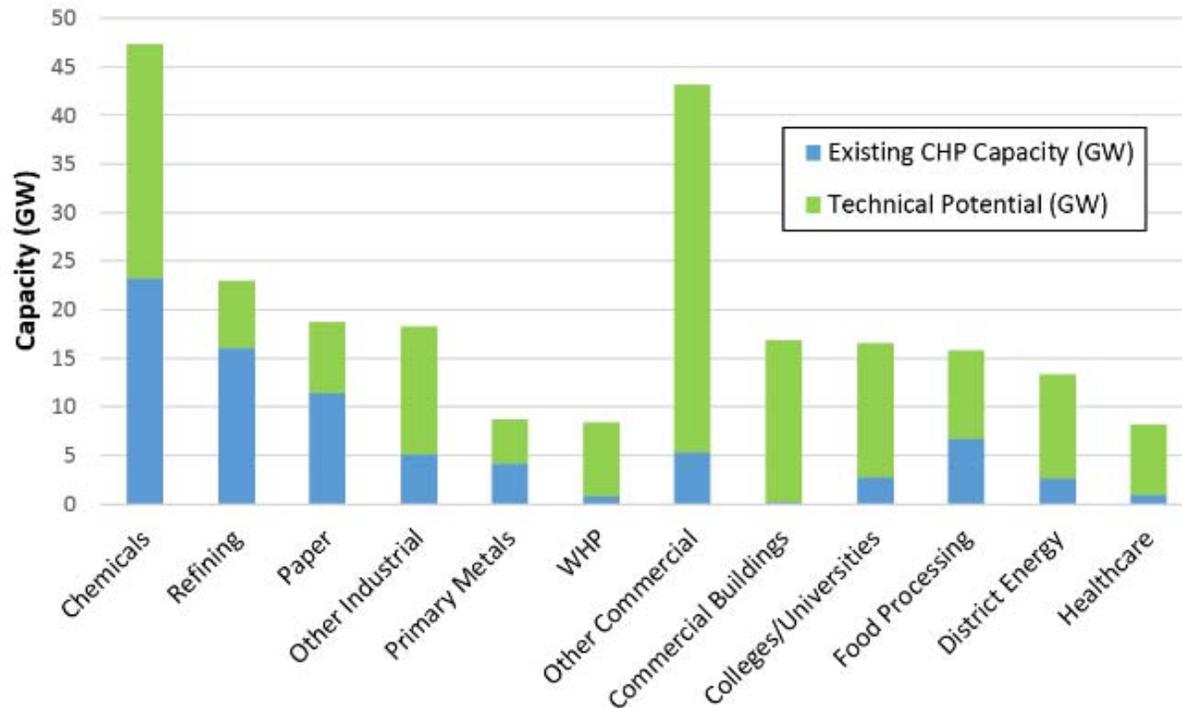
CHP Technical Potential in the United States. Department of Energy.

[http://energy.gov/sites/prod/files/2016/04/f30/CHP Technical Potential Study 3-31-2016 Final.pdf](http://energy.gov/sites/prod/files/2016/04/f30/CHP_Technical_Potential_Study_3-31-2016_Final.pdf)¹²



Solicitation Motivation

- A 2016 DOE study identified existing and potential CHP capacity in the US.*
- The majority of existing CHP capacity are large installations in the industrial sector.



*CHP Technical Potential in the United States. Department of Energy.

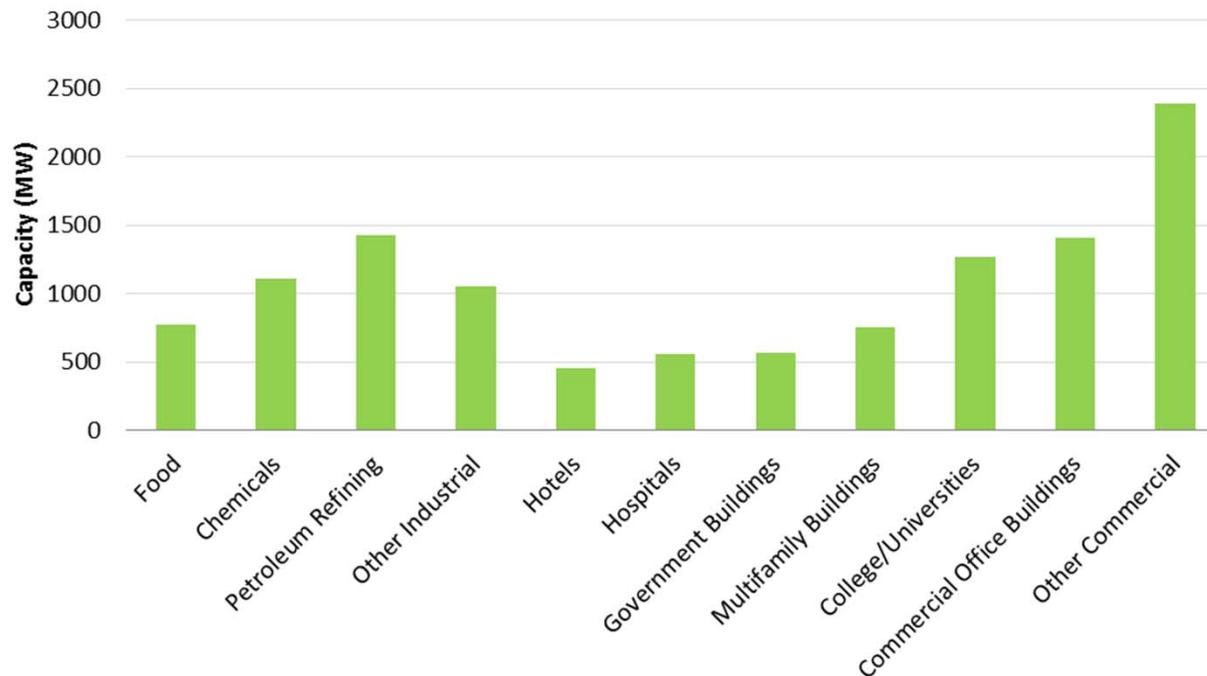
[http://energy.gov/sites/prod/files/2016/04/f30/CHP Technical Potential Study 3-31-2016 Final.pdf](http://energy.gov/sites/prod/files/2016/04/f30/CHP_Technical_Potential_Study_3-31-2016_Final.pdf)



Solicitation Motivation

- California has the second highest on-site CHP potential at 11,542 MW
- (4,362 MW Industrial and 7,179 Commercial)

California CHP Technical Potential (>50 kW_e)*



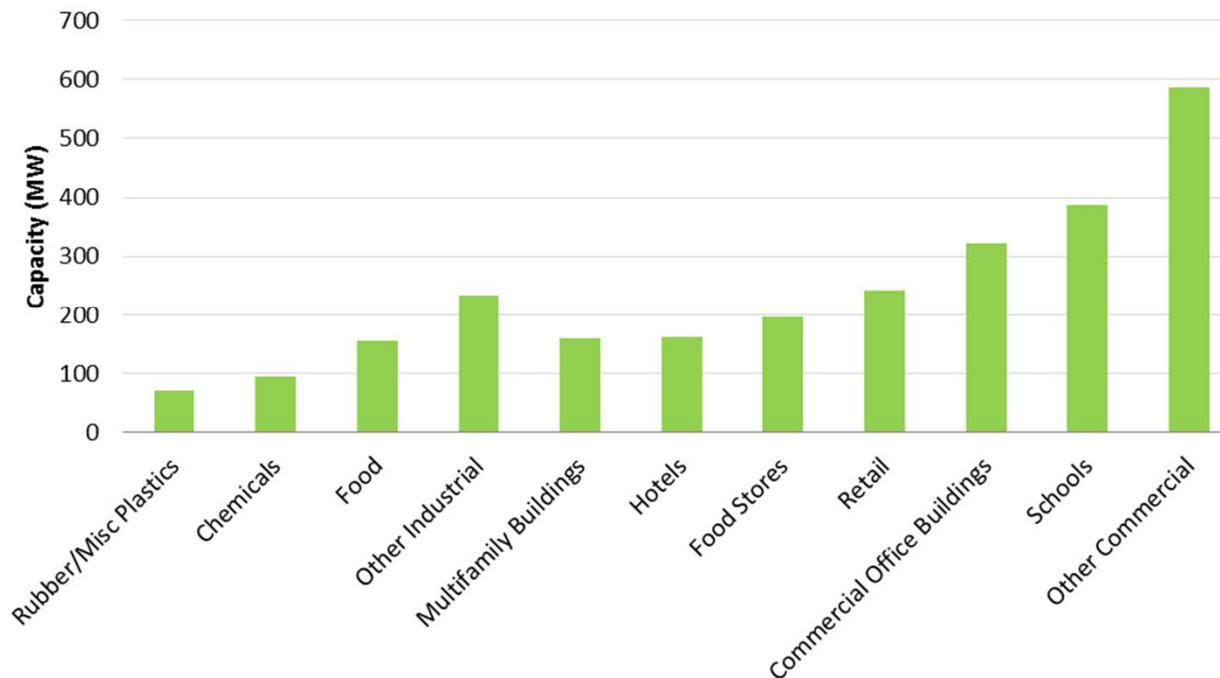
*Adapted using data from: *CHP Technical Potential in the United States*. Department of Energy. [http://energy.gov/sites/prod/files/2016/04/f30/CHP Technical Potential Study 3-31-2016 Final.pdf](http://energy.gov/sites/prod/files/2016/04/f30/CHP_Technical_Potential_Study_3-31-2016_Final.pdf)¹⁴



Solicitation Motivation

- Significant commercial potential exists at the small-scale
- (2,055 MW in the 50-500 kWe range, study did not consider <50 kWe systems)

California CHP Technical Potential (50-500 kWe)*



*Adapted using data from: *CHP Technical Potential in the United States*. Department of Energy. [http://energy.gov/sites/prod/files/2016/04/f30/CHP Technica Potential Study 3-31-2016 Final.pdf](http://energy.gov/sites/prod/files/2016/04/f30/CHP_Technical_Potential_Study_3-31-2016_Final.pdf)



Solicitation Motivation

- Aims to bolster reliability of Southern California’s electrical system following the Aliso Canyon gas leak.
- Timeline of events:
 - October 23, 2015, leak identified
 - January 6, 2016, Governor Jerry Brown issued a state of emergency
 - February 11, 2016, state officials announced the leak was permanently plugged.
- Estimated 97,100 tonnes of methane released into the atmosphere, making it the worst natural gas leak in U.S. history in terms of its environmental impact.
- The facility’s limited current operations create a possibility of electricity service interruptions this summer.

Average Days per Year Gas Withdrawn from Aliso (2012 - 2015)*

| | January | February | March | April | May | June | July | August | September | October | November | December |
|--|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| Average # of Days per Year Aliso Withdrawals | 31 | 21 | 18 | 7 | 3 | 6 | 13 | 18 | 12 | 12 | 26 | 31 |

**Aliso Canyon Action Plan to Preserve Gas and Electric Reliability. California Energy Commission.*
http://www.energy.ca.gov/2016_energy_policy/documents/2016-04-08_joint_agency_workshop/Aliso_Canyon_Action_Plan_to_Preserve_Gas_and_Electric_Reliability_for_the_Los_Angeles_Basin.pdf



Solicitation Motivation

- Aliso Canyon supplies gas to 17 power plants in Los Angeles and Orange Counties (10,000 MW total capacity)*



**Aliso Canyon Risk Assessment Technical Report. California Energy Commission.*
http://www.energy.ca.gov/2016_energypolicy/documents/2016-04-08_joint_agency_workshop/Aliso_Canyon_Risk_Assessment_Technical_Report.pdf



Solicitation Motivation

- Combined Heat and Power (CHP) systems have a number of benefits including:
 - Consumer cost savings
 - Increased local reliability, flexibility, and power quality
 - Reduced transmission and distribution losses
 - Reduced transmission congestion
 - Overall lower greenhouse gas emissions
 - Overall higher system efficiency
- CHP systems are predominantly deployed in large, industrial facilities, however there exists large, untapped potential in other sectors and applications
 - Technology improvement is required for small CHP systems
- Southern California faces reliability issues over the next few years in the wake of the Aliso Canyon gas storage facility leak



Group 1: Novel CHP Systems

Motivation:

- Small CHP systems are typically less efficient when compared to their larger counterparts, often resulting in longer than desired payback periods for prospective buyers.
- Technological advancements are required in order to increase the economic attractiveness of small and micro-scale CHP and CCHP systems.
- Breakthroughs in performance, efficiency, or cost-effectiveness could serve as a tipping point to allow access into previously untapped or underserved markets.



Group 1: Novel CHP Systems

Requirements:

- Projects submitted under this group should develop and demonstrate novel systems for small and micro-CHP application.
 - Potential solutions may fall outside the internal combustion engine, microturbine, and fuel cell paradigm often associated with CHP systems.
- Applicants must:
 - Describe how the proposed concept or technology is novel and/or innovative and its advantages when incorporated into a CHP/CCHP system; and
 - Describe how the proposed innovation or technological advancement would allow CHP/CCHP systems to access underserved or previously untapped markets
- Refer to the solicitation manual for example projects.



Group 2: Cooling CHP Systems

Motivation:

- Combined cooling, heating, and power (CCHP) systems utilize thermally-driven cooling technology to produce electricity and cooling energy.
- Many climate regions in California (e.g. southern, central, and inland) experience more cooling degree days (more air conditioning required) than heating degree days.
- Due to the high cost of electricity compared to natural gas, CCHP systems could produce high value cooling energy while offsetting peak demands.
- CCHP systems could also reduce emissions of fluorinated gasses (F-gasses) which possess a very high global warming potential.
- Improvements in cost and efficiency are required for small CCHP systems.

**Proposed Short-Lived Climate Pollutant Reduction Strategy*. California Air Resources Board.
<http://www.arb.ca.gov/cc/shortlived/meetings/04112016/proposedstrategy.pdf>



Group 2: Cooling CHP Systems

Requirements:

- Projects submitted under this group should develop and demonstrate efficient, innovative, and cost-effective small-scale, thermally-driven cooling technologies for integration with small and micro-scale CCHP systems.
- Applicants must:
 - Describe how the proposed thermally-driven cooling technology is innovative and its advantages when incorporated into a CHP/CCHP system; and
 - Describe how the proposed innovation or technological advancement would allow CHP/CCHP systems to access underserved or previously untapped markets
- Refer to the solicitation manual for example projects.



Group 3: CHP with TES

Motivation:

- In many residential and commercial applications, electric and thermal demands do not occur simultaneously (i.e. are not synchronized). Demands can also vary significantly depending on season, month, and even time of day.
- These variations can reduce the operating hours of a CHP system, or make it unsuitable to the application altogether.
- Thermal energy storage (TES) can allow CHP systems to be operated when loads are de-synchronized, increasing CHP system flexibility and capacity factor.
- Conventional TES (hot or cold water) are not appropriate for smaller applications due to their large size and slow dynamic response.*

*Water-based TES systems are not excluded, however their approach must be innovative and their application potential adequately justified.



Group 3: CHP with TES

Requirements:

- Projects submitted under this group should develop and demonstrate cost-effective, small-scale TES systems aimed at increasing CHP system flexibility and potential range of applications.
- Applicants must:
 - Describe how the proposed TES technology is innovative and its advantages when incorporated into a CHP/CCHP system; and
 - Describe how the proposed innovation or technological advancement would allow CHP/CCHP systems to access underserved or previously untapped markets
- Refer to the solicitation manual for example projects.



Groups 1, 2, and 3

Requirements:

- Projects must outline a measurement and verification plan to validate the technical specifications proposed.
- Projects must identify the target applications and assess future market potential.
- Projects must demonstrate both electricity generation and useful thermal energy production, at least at the bench-scale.
 - For example, projects focused only on developing absorption chiller technology or TES media, without a generation component, would not be eligible.
- Projects focused on waste heat-to-power, also known as bottoming cycle CHP, are **not** eligible for funding under this solicitation.



Technical Specifications

- Applicants must present proposed technical specifications and how the project will meet or exceed the following targets by the end of the agreement term

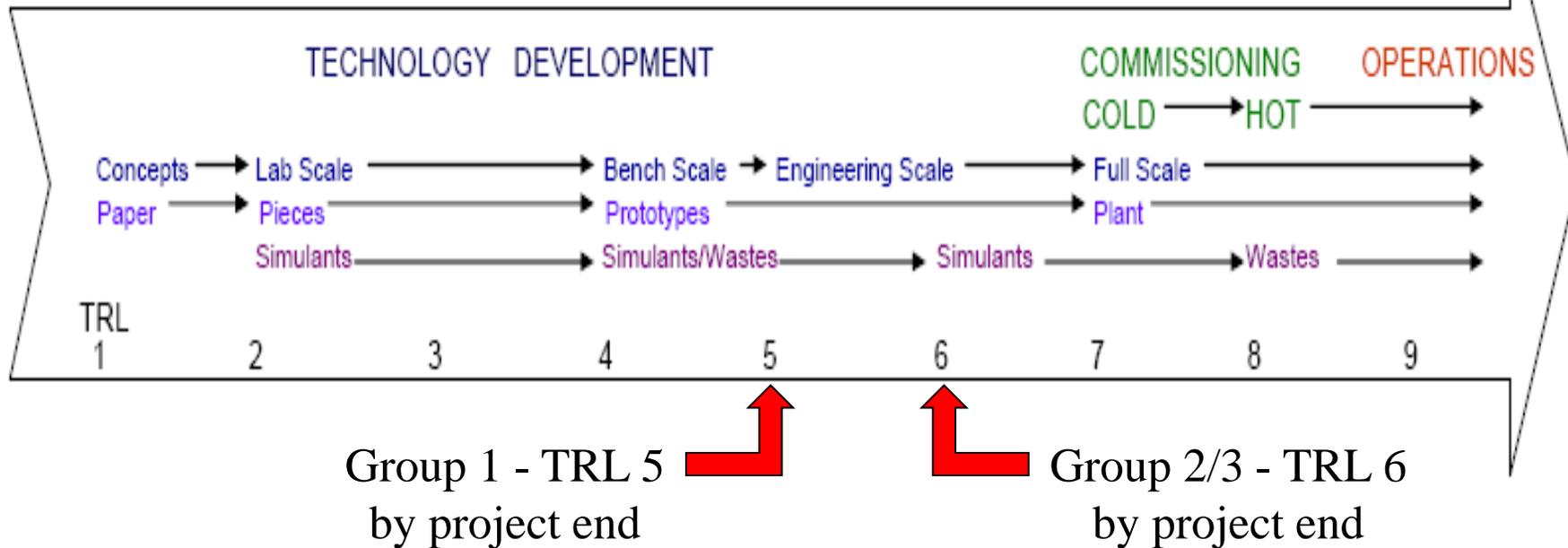
| | |
|------------|--|
| Capacity | No larger than 250 kWe |
| Emissions | CARB* and local air quality district compliant <ul style="list-style-type: none">• NO_x: 0.07 lb/MWh (31.8 g/MWh)• CO: 0.10 lb/MWh (45.4 g/MWh)• VOCs: 0.02 lb/MWh (9.1 g/MWh) |
| Efficiency | At least 80% overall efficiency (lower heating value basis) At least 0.4 (for non-fuel cell technologies) and 1.4 (for fuel cell technologies) power-to-heat ratio |
| Lifetime | At least 10 years |
| Payback | Between 5 and 10 years |
| Maturity | TRL 5 (Group 1), TRL 6 (Groups 2 and 3) |

**Distributed Generation Certification Regulation*. California Air Resources Board.
<http://www.arb.ca.gov/energy/dg/dg.htm> (page 5)



Department of Energy Technology Readiness Level*

- A key difference between Group 1 and Group 2/3 projects is the expected maturity level by the end of the project.



**Technology Readiness Assessment Guide*. Department of Energy
<http://www2.lbl.gov/dir/assets/docs/TRL%20guide.pdf>



Potential Overlap between Groups 1, 2, and 3

- Groups 1, 2, and 3 will be scored and ranked together.
- Applicants should determine which group best fits their project when applying and respond to the requirements of that group.
- Applicants will not be penalized for overlap between two groups.
 - For example, development of a packaged system which includes both an absorption chiller and thermal energy storage.
 - This overlap is allowed and encouraged due to the potential for synergistic benefits of both enabling technologies to the performance of an overall system.



Group 4: CCHP Technical and Market Assessment

Motivation:

- There is a need to better understand the technical and market potential for small CHP and CCHP systems in California.
- State goals and policies such as the Renewable Portfolio Standard and Zero Net Energy Action Plan have also created uncertainty regarding the role that CHP will play in California's energy future.



Group 4: CCHP Technical and Market Assessment

Requirements:

- Projects submitted under this group will perform technical and market analysis to determine available technologies for small and micro-scale CHP and CCHP systems less than 5 MWe, companion technologies, system economics, and sectors and application with highest deployment potential.
- Barriers to small and micro-scale CHP and CCHP system deployment should be identified along with potential solutions.
- Applicants should describe their technical approach including but not limited to:
 - Available databases, surveys, catalogs, and data collection methods to be utilized;
 - Technical and economic modeling to be performed;
 - Technical resources and vetting of results (e.g. to experts and the public through workshops);
 - Sectors and applications to be investigated for their CHP potential.



Available Funding

There is up to \$5,200,000 available for this solicitation.

| Project Group | Available funding | Minimum award amount | Maximum award amount | Minimum match funding amount |
|--|-------------------|----------------------|----------------------|-----------------------------------|
| Group 1: Novel Systems for Small and Micro-Scale CHP Application | \$5,000,000 | \$400,000 | \$1,000,000 | 10% of requested commission funds |
| Group 2: Advance Systems for Small and Micro-CHP with Thermally-Driven Cooling | | \$600,000 | \$1,500,000 | |
| Group 3: Advance Systems for Small and Micro-CHP with Thermal Energy Storage | | | | |
| Group 4: CHP Technical and Market Assessment | \$200,000 | \$200,000 | \$200,000 | \$0 |



Priority Funding for LA Basin

- Groups 2 and 3 applications which propose a pilot-scale demonstration* within the Los Angeles Basin** will receive prioritization of funding.

*A pilot-scale demonstration is defined as one which:

- Utilizes equipment and systems with at least 500 hours of performance testing;
- Is ready to be demonstrated in real-world operating conditions;
- Demonstrates the technology at the demonstration site for at least six months during the agreement term; and
- Employs independent, third-party measurement and verification of the installed equipment over the demonstration period to verify the associated benefits of the project.

**For the purpose of this solicitation, the Los Angeles Basin is defined as Southern California Gas Company customers in the following counties: Los Angeles and Orange.



Priority Funding for LA Basin

- Groups 2 and 3 applications which propose a pilot-scale demonstration within the Los Angeles Basin will receive prioritization of funding.
- The prioritization of funds will be as follows (solicitation manual, pg 8-9):

Groups 1, 2, and 3 projects scored and ranked together



The first \$2,000,000 awarded to groups 2 and 3 projects (highest ranked first) with a pilot-scale demonstration in the LA Basin



Remaining groups 1, 2, and 3 projects awarded based on rank



Eligible Applicants

- This is an open solicitation for public and private entities.
- Applicants must accept the PIER terms and conditions.
 - Standard T&Cs: <http://www.energy.ca.gov/research/contractors.html>
- Applicants are required to register with the California Secretary of State and be in good standing to enter into an agreement with the Energy Commission. <http://www.sos.ca.gov>
- Applicants must propose a team with proven ability to successfully complete similar projects.



Key Dates

| Activity | Action Date |
|---|---------------------------------|
| Solicitation Release | 7/28/2016 |
| Pre-Application Workshop | 8/09/2016 |
| <u>DEADLINE FOR WRITTEN QUESTIONS</u> | <u>8/15/2016 5:00 pm</u> |
| Anticipated Distribution of Questions and Answers | Week of 8/29/2016 |
| <u>DEADLINE TO SUBMIT APPLICATIONS</u> | <u>9/30/2016 5:00 pm</u> |
| Anticipated Notice of Proposed Award (NOPA) | November 2016 |
| Anticipated Energy Commission Business Meeting Date | March 2017 |
| Anticipated Agreement Start Date | April 2017 |
| Agreement Termination Date | March 2019/2020 |



GFO Application Requirements

(for Electronic Submission)

- Preferred method of Delivery is the Energy Commission Grant Solicitation System, available at: <https://gss.energy.ca.gov/>.
- Electronic files must be in Microsoft Office Word (.doc, .docx) and Excel (.xls, .xlsx) formats, unless originally provided in solicitation in another format.
- Attachments requiring signatures (Application Form and Support/Commitment Letters) may be scanned and submitted in PDF format.
- First-time users must register as a new user to access system.
- Live Demo Tutorial



Live Demo Tutorial *(for Electronic Submission)*



GSS How to Apply Video.mp4

“How to Apply” video will be posted at the Grant Funding Opportunity’s webpage: <http://www.energy.ca.gov/contracts/pier.html#GFO-16-503>



GFO Application Requirements

(for Hard Copy Submittal)

- Submit Applications with all attachments in the order specified by the due date and time listed in Section III of the manual.
- Application documents should meet formatting requirements, page limits, and number of copies specified on page 22.
 - **One** hard copy and **one** electronic copy* containing electronic files of the application.

* CD-ROM or USB memory stick



Application Requirements

Each Applicant must complete and include the following:

- | | |
|--|--|
| 1. Application Form (<i>requires signature</i>) (.pdf) | 7. Budget (.xls) |
| 2. Executive Summary (.docx) | 8. CEQA Compliance Form (.docx) |
| 3. Fact Sheet (.docx) | 9. References and Work Product (.docx, .pdf) |
| 4. Project Narrative (.docx) | 10. Contact List (.docx) |
| 5. Project Team (.docx, .pdf) | 11. Commitment and Support Letters (<i>letters require signature</i>) (.pdf) |
| 6. Scope of Work (.docx) | 12. California Based Entity Form (.docx) |
| 6a. Project Schedule (.xlsx) | 13a. CCHP Cost Calculator (.xlsx) |

Be consistent in your application!



Project Narrative (Attachment 4)

- This is your opportunity to tie everything together and explain the entirety of the project. The narrative should explain:
 - Why your project is important?
 - What you will be doing in your project?
 - How are you going to complete the project?
 - How will ratepayers benefit?
 - What it is going to cost ratepayers, and is it worth it?



Scope of Work (Attachment 6)

- Tell us exactly what you are proposing to do in your project.
- Identify what you will deliver to the Energy Commission.
- Please note there is a mandatory technical task for project preparation (projects with a demonstration portion only)
- Be sure to include in the tasks:
 - At least one product per task
 - At least one product per year
- Be sure to include Project Schedule (Attachment 6a)



Budget (Attachment 7)

- Identify how you will be spending Natural Gas funding and match funds to complete this project.
- Each Applicant and subcontractor receiving \$100,000 or more of Energy Commission funds must complete the budget forms.
- This must be submitted in the same format as it is provided.
- Do not delete sheets or rows, use the hide/expand functions.
 - Shaded cells are automatically filled or calculated.



Commitment and Support Letter Form (Attachment 11)

- This form provides guidelines for letters of support or commitment that are submitted with the application.
 - Commitment letter commits an entity or individual to providing the service or funding described.
 - Support letter details an entity's or individual's support for the project.
- All Applicants are required to submit **at least one** support letter from a project stakeholder.
- Any project partners that will make other contributions to the project must submit a commitment letter.
- Match funding for each Application must be supported by a match fund commitment letter.
- Limited to two pages per letter, excluding the cover page.



CCHP Cost Calculator (Attachment 13a - Groups 1, 2 and 3 only)

- Groups 1, 2, and 3 applicants should review the *CCHP Cost Calculator* (Attachment 13a) included in the solicitation files.
- Applicants should enter values requested into the model to provide an initial rate of return.
- Applicants must provide a copy of the completed calculator as part of their application package.
- If a calculator is not provided, clearly explain why it is not applicable and provide the requested measures and justifications for these measures in a separate attachment. Refer to the *Guidelines for Cost and Benefit Calculations* (Attachment 13) for methodology and input metrics.



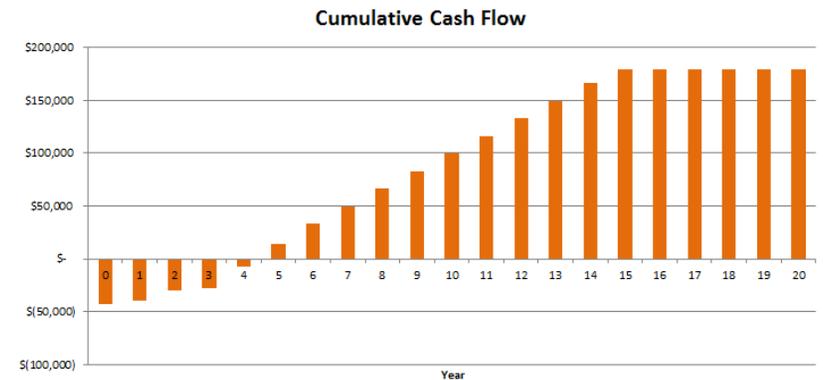
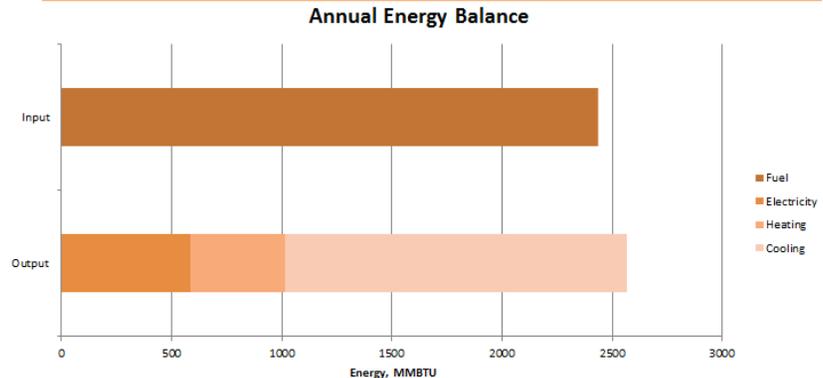
CCHP Cost Calculator

(Attachment 13a - Groups 1, 2 and 3 only)

- Tab 1: Color Codes
 - Provides a guide to the cell colors
- Tab 2: Engineering Data
 - Enter technical values to produce an annual energy balance
- Tab 3: Economic Data
 - Enter cost values to produce a cumulative cash flow

Color Codes

| | |
|--------------|--|
| Blue | For user-provided inputs. Any numbers currently in these fields are for the sake of illustration and may not represent reasonable assumptions. |
| Green | For CEC-provided default values. Modify them if you believe you have a more appropriate value, but be sure to cite your source. |
| Light Orange | For intermediate calculated values. Do not modify the formulas! |
| Dark Orange | For final calculated values. Do not modify the formulas! |





How will my Application be Evaluated? → Administrative Screening

Application Admin Screening Process

1. Energy Commission staff screens applications per criteria in the solicitation (page 33-34).
2. Criteria is evaluated on a pass/fail basis.
 - ✓ Applicants must pass all screening criteria or the application will be disqualified.

Some Reasons for Disqualification

- ✓ Application not submitted by the specified due date and time.
- ✓ Applicant did not address one of the eligible project groups.
- ✓ Requested funding is outside of the specified minimum/maximum range.
- ✓ Project completion date beyond the specified agreement end date.
- ✓ Application does not include one or more support letters.
- ✓ Application contains confidential material.



How will my Application be Evaluated?

- Evaluation Committee applies the scoring scale to the scoring criteria.
- Applications must obtain a minimum passing score of 70% for criteria 1-4 (or 49 points) in order to continue evaluation, and must also obtain a minimum passing score of 70% overall for criteria 1-7 (or 70 points), in order for an Application to be considered for funding. Passing applications will be considered for match funding preference points.
- Each Applicant must review the Evaluation and Award Process section of the solicitation and ensure that the application provides a clear and complete response to each scoring criteria in the project narrative.

| Scoring Criteria (pages 36-39) | Maximum Points |
|--|----------------|
| Technical Merit and Need | 20 |
| Technical Approach | 20 |
| Impacts and Benefits for CA IOU Ratepayers | 20 |
| Team Qualifications, Capabilities and Resources | 10 |
| Budget Cost-Effectiveness | 10 |
| Natural Gas Funds Spent in CA | 15 |
| Ratio of Direct Labor and Fringe Benefit Rates to Loaded Labor Rates | 5 |
| Total | 100 |
| Minimum points to pass | 70 |



What is the Technical Scoring Scale?

| % of Possible Points | Interpretation | Explanation for Percentage Points |
|----------------------|----------------------|---|
| 0% | Not Responsive | Response does not include or fails to address the requirements being scored. The omission(s), flaw(s), or defect(s) are significant and unacceptable. |
| 10-30% | Minimally Responsive | Response minimally addresses the requirements being scored. The omission(s), flaw(s), or defect(s) are significant and unacceptable. |
| 40-60% | Inadequate | Response addresses the requirements being scored, but there are one or more omissions, flaws, or defects or the requirements are addressed in such a limited way that it results in a low degree of confidence in the proposed solution. |
| 70% | Adequate | Response adequately addresses the requirements being scored. Any omission(s), flaw(s), or defect(s) are inconsequential and acceptable. |
| 80% | Good | Response fully addresses the requirements being scored with a good degree of confidence in the Applicant's response or proposed solution. No identified omission(s), flaw(s), or defect(s). Any identified weaknesses are minimal, inconsequential, and acceptable. |
| 90% | Excellent | Response fully addresses the requirements being scored with a high degree of confidence in the Applicant's response or proposed solution. Applicant offers one or more enhancing features, methods or approaches exceeding basic expectations. |
| 100% | Exceptional | All requirements are addressed with the highest degree of confidence in the Applicant's response or proposed solution. The response exceeds the requirements in providing multiple enhancing features, a creative approach, or an exceptional solution. |



What is Important?

| Scoring Criteria (pages 36-39) | The Question to Answer |
|--|---|
| Technical Merit and Need | Why should your project be funded? |
| Technical Approach | How you're going to do what you're going to do? |
| Impacts and Benefits for CA IOU Ratepayers | How will your project benefit ratepayers? |
| Team Qualifications, Capabilities and Resources | Who is going to make this project happen, and what resources are available to make it happen? |
| Budget Cost-Effectiveness | Are you spending money wisely? |
| Natural Gas Funds Spent in CA | This is a direct calculation based on budget forms. |
| Ratio of Direct Labor and Fringe Benefit Rates to Loaded Labor Rates | This is a direct calculation based on budget forms. |



Match Funding

- Groups 1, 2, and 3: At least **10 percent** of the requested Natural Gas R&D funds **is required** as match funding.
- Group 4: Match funding is not required.
- Scoring criteria and points only apply to match funding commitments **above minimum requirements**.
- Match funding contributors must submit match funding commitment letters that meets the requirements of Attachment 11. Failure to do so will disqualify the match funding commitment from consideration.



Match Funding Example

- Applicants may receive up to 10 additional points based on the criteria below:
 - Up to 5 points will be awarded based on the percentage of match funding that **exceeds the minimum match funding amount**. This ratio will be multiplied by 5 to yield the points.

For example: If requested Natural Gas funds are \$1,000,000, the Applicant must provide at least \$100,000 in match funding. If \$500,000 is provided in match funding, the amount that will be evaluated for additional points is \$400,000.
 - The remaining 5 points will be based on the level of commitment, type of match funding, dollar value justification, and funding replacement strategy described in the match funding commitment letter. See pages 39-40 for application scoring scale.



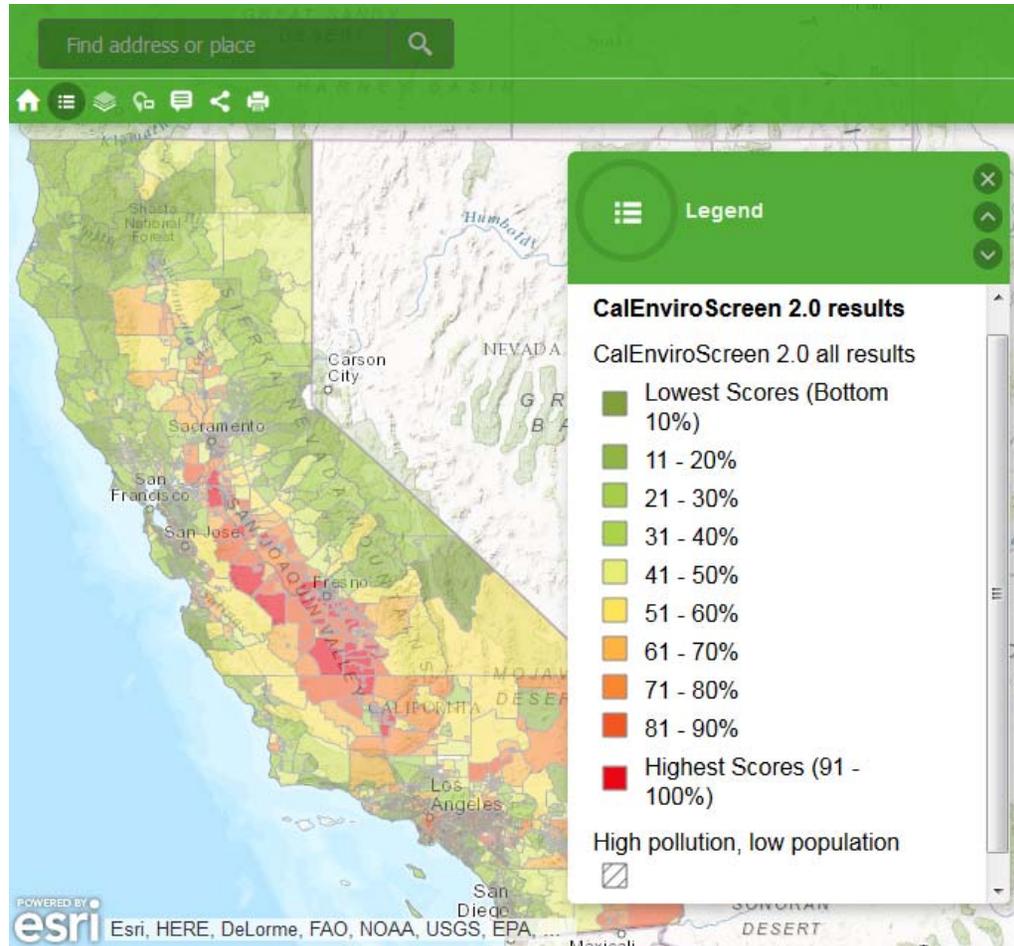
Disadvantaged Communities

- Projects with all test or demonstration sites located in disadvantaged communities (and justifies how the project will benefit the disadvantaged community) will receive additional points.
- A disadvantaged community is identified by census tract and represents the 25% highest scoring tracts in CalEnviroScreen 2.0 or later versions.*

**CalEnviroScreen 2.0 Maps and Data*. Office of Environmental Health Hazard Assessment.
<http://oehha.ca.gov/ej/ces2.html>



Disadvantaged Communities



**CalEnviroScreen 2.0 Maps and Data.* Office of Environmental Health Hazard Assessment.
<http://oehha.ca.gov/ej/ces2.html>



How can I receive optional bonus points?

- Applications must meet both minimum passing scores (Scoring Criteria 1-4 and 1-7) to be eligible for the additional points. Bonus point criteria include:
 - Match Funding
 - Groups 1, 2, and 3 - above 10%
 - Group 4
 - Disadvantaged Communities
 - California Based Entities

| Scoring Criteria (pages 39-41) | Maximum Points |
|--------------------------------|----------------|
| Match Funding | 10 |
| Disadvantaged Communities | 5 |
| California Based Entities | 5 |
| Total | 20 |



Questions and Answers



- Please state your name and affiliation as an introduction.
- Please keep questions within 3-5 minutes to allow enough time for others.
- Please note that our official response will be given in writing in the Q&A document. We encourage you to submit all questions in writing in addition to asking them today.



Questions and Answers

Please send all questions related to GFO-16-503 to:

Sandra Raymos

Commission Agreement Officer

1516 Ninth Street, MS-18

Sacramento, CA 95814

(916) 654-4584

(916) 654-4423 (fax)

Sandra.Raymos@energy.ca.gov

Deadline to submit questions:

Monday, August 15, 2016 5:00 PM PDT



Thank you!