



Docket 24226: 2024 Propane Construction Research and Data Collection Program

Propane Education & Research Council

APPLICANT INFORMATION

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Amount Requested: \$ 2,500,000

Total Project Cost: \$ 2,500,000

Other Funding Organizations/Amounts:

Start Date: 01/01/2024

End Date: 03/31/2025

Additional Vendors:

EXECUTIVE SUMMARY

Funding Request Priority Area

- Research & Technical Investigation– 100%

Project Summary

- *Briefly describe the proposed product or idea, its importance, its benefits, and the market and/or audience it serves. Briefly outline the scope of work.*

The 2024 Propane Construction Research and Data Collection Program is designed to collect carbon emissions data from homes built or remodeled in 2024. The Energy Planning Analysis Tool (EPAT) calculates the emissions comparisons for propane homes that are built versus their all-electric counterparts. This data is collected to compare these homes against each other. EPAT compares the grid emissions information from EGRID and the energy that will be consumed in a home based on the specific efficiencies of the appliances installed including, heating and cooling, water heating, clothes drying, etc. The tool allows for the comparison of the components of the home built on propane with a home that could have been built with all-electric appliances built in the same area. The program allows PERC to collect data from across the country and showcase the carbon and other emission reductions and the environmental benefits from these homes through an aggressive communications plan. There is not another available source for this data. This year's program will continue use of the Applicant Processing Portal developed in 2021 that is proprietary to PERC.

Strategic Importance

- *Describe how this initiative supports PERC's strategic plan including the strategic pillars.*
- *Describe how this initiative is important to the propane industry.*
- *Describe how this initiative helps achieve PERC's aspiration to increase uses and users.*

This project directly benefits the strategic pillar to increase propane's voice in the national energy conversation, educate consumers about propane's environmental benefits, and ensure its role as an alternative energy in the nation's wide path to zero emissions.

Through this program we are able to provide real life examples to construction professionals, architects, home buyers and renters, of the carbon footprint of their homes. Both their on site emissions and their off site emissions. The ultimate measure of success will be determined by survey responses when we remeasure the likelihood to specify propane in residential applications.

DETAILED BUSINESS CASE

Project Description

- *Describe the proposed product or project and the need for this project.*
- *Include product development and demonstration plans*
- *Explain the new knowledge and/or capability that the project will develop. Describe data to be collected.*

Residential builders and homeowners are bombarded with statements that installing and operating electric appliances is the answer to reducing carbon emissions and saving money. Through this program we will collect emissions and energy consumption data by geographic location. Additionally, through a newly established API between the Applicant Processing Portal and EPAT we will have the ability to report this dataset in real-time segmented by builder and marketer participants. This API will allow us to collect additional data including forecast operating and purchase costs for the equipment installed. Due to the customizable nature of the portal we have the capability to showcase new technologies, such as the Heat Pump Helper, Heat Pump Max and others, (through display ads and animated gifs) that have been added to the portal home screen. A follow-up survey will be distributed to all applicants to gather feedback on their decision to incorporate propane into their projects, the process of working with their propane provider and general feedback on the ease of importing their data.

The basic component of the project is to collect data from a builder. They may receive up to \$1000 for providing data on the appliances installed in the homes they build. \$500 for central heating, \$300 for water heating (one of these is required to qualify for the program) and then \$100 for each additional gas appliance or opening installed in the home (for example gas dryer stub out or grill outlet for customer supplied appliances). Regional bonuses are available based on the attached map in the current program. These bonuses are \$500.

After data collection the results are shared through the Residential and Homeowner communications campaigns and dockets. This aggressive campaign is focused to increase the likelihood to capture data from additional states and builders. This project only funds data collection.

Scope–

- *Outline project scope and describe what is not covered by this scope of work. Highlight areas of Propane Council involvement.*

Builders utilize the Applicant Processing Portal to submit these data points for research. The portal collects data on the location, appliances installed, and other details about the project. Builders are able to upload payment documents and the portal will capture data from EPAT with the newly designed integration. The portal calculates and reports real time data on the amount and types of emissions improvements or increases, appliances installed, operational savings, first cost differential, and other data points that can be segmented by state or region, as well as by builder and marketer participants. Other data points that will be available include home square footage and number occupants and additional details on multifamily or attached housing then we have previously captured. Additionally, the portal manages the funds availability process and functionality is being added to aid in the forecasting of demand for the available research dollars.

Rinnai is scheduled to release the Heat Pump Max (HPM) product in early 2024 and Bindus Manufacturing is offering the Heat Pump Helper (HPH) product to the market today. These products are critical to reduce emissions associated with the operation of electric resistance heating in a home. In order to capture builders willingness to adopt new technology and measure the technologies impact on the emissions profile, any HPM or HPH product installed will satisfy the regional bonus requirement. New modeling is being developed for EPAT to accurately measure the emissions of these hybrid systems.

In 2024, we will also test showing builders short videos, animated gifs and display ads to educate builders about new products and solutions in the residential space. Examples would be HPM/HPH product videos, micro combined heat and power products, residential fuel cells, gas heat pumps, and any other new products launched in 2024. A follow up survey of builders will measure their willingness to specify these new products.

After data collection, the results of the program are shared through the Residential and Homeowner communications campaigns. These promotions happen throughout the year. First quarter activity is focused on announcing the program for 2024, it's enhancements and improvements and is focused at educating new and existing participants about the program. Second quarter reports on the prior years results, and begins to tell the story of current year impacts. Focus continues on educating on the availability of the program to builders, and how building with propane can impact their business. Third quarter is planned to communicate with participants, educating them on new products and opportunities in residential construction. The Fourth quarter plans include a final push to new states and regions to drive data collection. All management costs and any creative, including maintenance of the portal and API connection to EPAT, are funded by the Residential Business Development docket. All funds in this docket are intended to fund the data collection from building professionals.

Vendor Capabilities

- *Describe why applicant is suited to complete this work including technical capabilities. Describe ability to commercialize the product (production, distribution, warranty). Discuss similar work completed. Identify personnel expected to work on this project.*

This program is managed by PERC staff and supported by our website development partners and accounting team. The improvements made to EPAT this year enable us to collect additional data points, including first cost, operating cost, building size, and number of occupants among those new data points. The API creation allows for greater benefit from this program.

Industry Engagement –

- *How will you engage industry stakeholders? Which stakeholders need to be engaged for this project to be successful and what sort of engagement is required?.*

The industry is directly involved in the design and planning for this project through the residential project team and the Market Growth and Commercialization Working Group. Sales teams from industry members are one of the primary ways this project gets communicated to builders. Promotion to the industry through the PERC update, and trade publications is a key way to communicate the program to the industry.

Cost/Benefit Analysis –

- *What is the potential impact? (i.e., NPV, new gallons, units sold, persons trained, propane industry resource savings, safety, consumer education, etc.)*
- *What are the potential risks to achieving the impact? (i.e. fuel price; regulatory, environmental, or legislative considerations; propane marketer support)*
- *Are other parties or organizations involved?*
- *For products:*
 - *Provide five-year estimated sales projections for the product (if applicable) and a list of factors that may influence the estimates.*
 - *How many gallons of propane does the product use per unit per year?*
 - *Provide best, worst, and intermediate projection scenarios and describe what variables contribute to each scenario*

The primary benefit of this program is the expanded data set. Collecting emissions data, but also first cost, operating cost, occupancy, size and other features of the homes increases the accuracy of the data set. This data is available for educating builders on the carbon footprint of their homes and the data set is very valuable for consumer education on emissions from home appliances.

Risk Assessment

- *Identify 3-5 potential risks to the successful completion of the project or inability to meet outcome targets, how likely those are to happen, impact on the project, and how to resolve those risks.*
- *Indicate low, medium, or high for “Likelihood” and “Impact.”*

Risk	Likelihood	Impact	Risk Resolution and/or Contingency Plan
Participation by builders exceeds available funding levels	High	Low	The goal of the program is to collect data from new and remodeled residential buildings. If all funds are expended then we have collected a full data set.
Lack of participation by builders	Low	High	Focused outreach to builders to seek their input of data for a complete and geographically significant data set

Budget

- *Outline cost per task, including estimated cost share (cash and in-kind).*
- *If applicable, indicate hourly rates, including overhead*

Based on previous years averages, we would expect to collect data from over 2100 homes across the United States. We have seen data submitted from five new states in 2023, and expect this program to increase that number by seven to ten responding states in 2024. Sampling participants willingness to incorporate emerging products into their homes will provide us with market size data manufacturers need to determine the release date of those new products. 100% of available funds are paid for data collection. All other support costs are managed through operations.

Timeline

- *Provide a detailed timeline of all activities, tasks, and milestones. Include commencement and completion dates. List most responsible person for each task.*

The program will open in Jan of 2024 and continue until funds are dispersed and data is collected. Additional forecasting tools are being developed for the Applicant Processing Portal to aid in monthly budgeting and run rate.

Market

Market – Geographical Reach

- *What is the geographical reach (national/regional?)*

National

Market – Target Audience

- *Who is the target audience?*
- *Why is the target audience important?*

The target audience are Residential Builders and Remodelers. This audience is key as they are front line specifiers to consumers for energy choices.

Market – Market Research

- *Have you conducted market research in support of this project?*

No

Market – Urgency

- *What is the urgency of this project?*

The need for real time, accurate data for residential appliance emissions can not be overstated. The data collected is deployed in consumer education and to specifiers. Educating them on the environmental benefits of building with propane.

Leverage and Synergies

Internal Strengths

- *What are the internal strengths leveraged to develop and deliver this program?*

This project provides the data set for marketing and communications efforts to educate consumers and building professionals on the environmental benefits of building with propane.

Other audiences–

- *How could the content be used by other markets or industry organizations?*
- *How could the contents be used with other audiences beyond the target audience?*

Other industry organization may use the data in ways they find appropriate. The data is primarily beneficial for the residential market.

Previous results–

- *What results have been achieved with previous, similar projects?*

The marketing and communications team has leveraged the results of previous data sets into dozens of earned media placements as well as provided the data set for usable claims in paid media.

**Development
Delivery**

Delivery – Delivery Channels –

- Describe the distribution channels
- What existing delivery channels will be used?
- Who is responsible for deploying/delivering product?

PERC delivers the program directly with builders who contribute to the data set. Results are delivered to industry, communications, and training partners.

MEASUREMENT & EVALUATION

Project Deliverables and Market Outcomes

- Detail how success will be measured for this project overall and by tactic, what the metric is, and when it will be achieved.

Goal/Milestone	Project Deliverable or Market Outcomes	Metric	By Date	Tied to Payment Y/N	Payment Due upon completion
Accurate data collection from EPAT	Verified that new API provides the increased data set desired	Yes/no	2025-02-28	No	
Increase participation of new builders and new states	Promotions of the availability of the research program expand reach	5 new states participating in 2024	2024-12-31	No	
Data collection from over 2000 projects	Varied and diverse data set across markets and climate zones.	Yes/no	2023-12-31	No	

Intellectual Property

Who owns the data and or intellectual property generated from this project? Describe:

PERC maintains ownership of the data set produced.

Is this a new contractor? No

Budget Impact

- Provide the budget market & activity this project will be impacting.

Market & Activity	Year Total	YTD Remaining	Remaining if Funded
2024 > Residential > Technical Research	\$2,500,000.00	\$2,500,000.00	\$0.00

Does this project have a past funding history? Yes

If not relevant then describe why: Activity in the program has grown in recent years and all funds have been dispersed to the builders who provided the data on their projects.

Five Year History for Similar Dockets

- Provide a five-year history for similar projects, including the project budget, final or current spend, and project results.

Year	Docket #	Project Budget	Project Spend
2023	23667	\$1,600,000.00	\$1,400,000.00

Results: As of September 25, 2023, PERC has collected data from more than 1,200 homes in 23 states at \$1,500 (maximum) per home for installing propane appliances. More than \$1.39 million was awarded to construction professionals who convinced their customers to choose propane equipment for their new or remodeled home instead of electricity.

Year	Docket #	Project Budget	Project Spend
2022	23156	\$1,000,000.00	\$985,739.00

Results: Data set of over 1000 homes demonstrated the reduction of 18,000,000 lbs. of CO2e.

2022 Propane Construction Incentive Program Results

2022 PROPANE CONSTRUCTION INCENTIVE PROGRAM RESULTS



**1,000+ HOMES
INCENTIVIZED**
by the program



Builders across
**19 U.S. STATES
PARTICIPATED**
in the program



**\$1,000,000
AWARDED**
to construction professionals

2022 Propane Construction Incentive Program Results

More Comfort and Fewer Emissions

Appliances powered by propane are more efficient, reducing home energy costs while increasing comfort. Plus, homeowners are comfortable knowing that propane is an environmentally friendly energy, producing far fewer emissions than other energy sources.



In 2022, the program helped to

**ELIMINATE
18,000,000 lbs.
OF CO₂e**



High-efficiency propane-fueled
fireplaces can achieve

**EFFICIENCY RATINGS
ABOVE 90%**



Propane appliances produce
**52% LESS GREENHOUSE
GAS EMISSIONS**
compared to electric equivalents



A propane-fueled furnace's
**EXPECTED LIFE IS
UP TO 50% LONGER**
than an electric heat pump's

Adding Up the Impact

Along with helping homeowners enjoy greater comfort and lower energy bills, the 2022 Propane Construction Incentive Program helped to eliminate more than 18,000,000 lbs. of carbon dioxide (CO₂) equivalent. **This is equal to greenhouse gas emissions from:**



1,839

gasoline-powered passenger
vehicles driven for one year



21,186,226

miles driven by an average gasoline-
powered passenger vehicle



1,038,249,446

smartphones charged



1,075

homes' energy use for one year

2023 Propane Construction Incentive Program Results YTD

2023 PROPANE CONSTRUCTION INCENTIVE PROGRAM RESULTS



**1,000+ HOMES
INCENTIVIZED**
by the program



Builders across
**18 U.S. STATES
PARTICIPATED**
in the program



**\$1,300,000
AWARDED**
to construction professionals

2023 Propane Construction Incentive Program Results YTD

THE IMPACT

More Comfort and Fewer Emissions

Appliances powered by propane are more efficient, reducing home energy costs while increasing comfort. Plus, homeowners are comfortable knowing that propane is an environmentally friendly energy, producing far fewer emissions than other energy sources.



In 2023, the program helped to
ELIMINATE
50,241,462 lbs.
OF CO₂e



High-efficiency propane-fueled
fireplaces can achieve
EFFICIENCY RATINGS
ABOVE 90%



Propane appliances produce
52% LESS GREENHOUSE
GAS EMISSIONS
compared to electric equivalents



A propane-fueled furnace's
EXPECTED LIFE IS
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