CPUC Staff Ex Ante Review

CPUC Staff Project ID Number	PGE_20_C_I_536_PRJ - 01182396_Process
CMPA Directory Link	https://deeresources.info/cmpa/projects/18627
PA	PGE
PA Application ID	PRJ - 01182396
PA Application Executed Date	
PA Program ID	a0n3600000NcViT
PA Program Name	Industrial Calculated Incentives - Customized Incentive Program
PA Program Year	
Date of CPUC Staff Review:	Revised 8/6/2021
PA CMPA Upload Dates Included in this review:	
First PA Upload	7/29/2020
Second PA Upload	8/18/2020
Third PA Upload	9/1/2020
Fourth PA Upload	11/6/2020
Fifth PA Upload	2/8/2021
Sixth PA Upload	3/26/2021
Seventh PA Upload	5/6/2021
Eighth PA Upload	
PA Measure Description(s):	
Measure 1	PROCESS RETROFIT/NEW-OTHER GAS-MODIFY PROCESS
Measure 2	
Measure 3	
Measure 4	
Measure 5	
Measure 6	
Measure 7	
Measure 8	
Measure 9	
Measure 10	
PA Project Description:	0
Bi-Monthly Upload kW Demand Reduction	0.0
Bi-Monthly Upload Annual kWh Impacts	0.0
Bi-Monthly Upload Therm Impacts	12,421,561.0
PA Proposed Incentive $ (to Customer)	$3,780,000.00
Project Documentation kW Demand Reduction	0.0
Project Documentation Annual kWh Impacts	0.0
Project Documentation Annual Therm Impacts	12,421,561.0
CPUC Staff Primary Reviewer Name	[redacted]
CPUC Staff Primary Reviewer Firm	SBW
CPUC Staff Review Supervisor Name	[redacted]
CPUC Staff Review Supervisor Firm	BMI
PA Primary Reviewer Name	[redacted]
PA Primary Reviewer Firm	
CPUC Staff Project Manager	
CPUC Staff Policy Authorization (as needed)	
CPUC Staff Recommendation:	**Application ready to proceed with exception(s), as noted**
For rejection, action required:	N/A
M&V Review:	Post M&V Review (M&V Results and Final Calculations) Required

Action Number:	Summary of CPUC Staff Required Action by the PA:	Action Category	Due Date	PA Response	ED Resolution
1	Program influence documentation did not provide a compelling argument that PG&E caused [redacted] to adopt this measure.	Program influence	At conclusion of RP2.0 Pilot study and prior to submission of final savings claim.	First, this is a legacy project with project development starting as early as in 2002. The project applications were approved in 2010 and expired due to court orders causing construction delays until 2016, while ex ante review and requirement for program influence documentation became a mandatory starting in late 2011. Between 2006 and 2016, the CPUC EE policies have evolved significantly, while personnel changes - including decision-makers participating in this project development between different project development phases (for the customer as well as for PG&E/KEMA). Despite of our effort to document program influence going back to inception, we believe that a good amount of relevant evidence was lost and can't be recovered to fully document customer's decision-making processes, especially in the early development stages interrupted by the legal battles. Nevertheless, with available EE incentives factually considered during the customer's 2016 NPV modeling and economic analysis, PG&E staff is confident that the customer had been encouraged to go above and beyond in selecting more costly and higher energy efficient equipment. While the evidence documented isn't sufficient to claim the cause-and-effect relations (i.e., PGE caused the customer to fully replace the H2 plants), we believe the incentives presented were positive in facilitating the customer's choice of more costly and more efficient equipment during their deliberation of a complex set of factors. In fact, during the customer's re-run of the financial analysis in 2016 - after it got court approval to proceed - the reduced incentive of $12 million presented by PGE staff was included in the customer's calculation. Although this incentive amount wasn't the only or most dominant determinant for the customer to decide on a brand new H2 plant, it's reasonable to conclude that the availability of the incentive (even with a reduced amount) was an essential element of the customer's decision-making on the vastly complex system and equipment choices. Second, program influence isn't limited to a cause-and-effect relationship, as a simple cause-and-effect relationship would probably deserve a NTGR value to be one. PGE's engagement and provisions of technical assistance (e.g., estimating savings) and financial assistance (e.g., incentives) are among many factors considered by the customer in its decision-making process. Based upon how the customer perceived, used, and reacted to the incentive information communicated by PGE/KEMA staff in the course of the project, we believe that, in addition to technical assistance provided, the incentives communicated to the customer did assist, encourage, or facilitate their pursuit of more efficient and more costly options in their thought process. Third, absence of evidence in 2006 is not evidence of absence of program influence. This is especially true as this legacy project started in 2002, with an exodus of numerous staff coupled with changing requirements for documenting program influence and archival practices. Given that the current staff and the customer were unable to gather all relevant information to substantiate a strong influence claim, we'd accept that the available evidence can only serve to validate or infer some lower level of influence per today's custom policies and regulations. In this regard, we accept the CPUC Staff's recommendation to assess a customized NTGR using the RP2.0 pilot testing and look forward to the upcoming pilot testing for this legacy project. PG&E will assess NTGR for this project and submit to CPUC Staff for your review. PG&E staff will also submit the ISP Study Final Report: PRJ - 01182396 ISP Study Report.docx.	Commission staff agrees to defer the program influence decision pending the results of the RP2.0 pilot study of this project. We are willing to negotiate a final savings claim and customer incentive at the conclusion of the RP2.0 analysis of this project. See note 2 below.
2	This project was claimed as normal replacement of the existing hydrogen plant. The measure baseline for new industrial process measures is established through an informal industry standard practice (ISP) study. Data were supplied to support an ISP baseline, but the process did not conform to the ISP Guidelines v. 2.0 for establishing ISP for a unique industrial process.	Baseline	Prior to submission of final savings claim	Per the request of the CPUC Staff Reviewer Supervisor, PG&E has produced a final report on the custom ISP study to establish standard practice baseline, which is being uploaded to the CMPA. The filename is "PRJ - 01182396 ISP Study Report.docx". The report is built on the highlights provided in the project documentation narrative (including interviews with subject matter experts and the [redacted] staff), and recent research on design and measured data on energy use intensity (EUI) for refurbished plants as well as new plants exhibiting similar attributes to that of the customer's new H2 plant. We did follow the process defined in the CPUC resolution E-4939 and ISP Guidance 3.0 in selecting the Standard Practice baseline. In this report, we also include additional research to quantify the measured EUI of refurbished plants (and a third-party new plant that supplies the same product); we also conducted additional interviews with the customer and obtain additional evidence showing documented practices in H2 plant refurbishment vs. new plants in customer's California location. In summary, the customer's confirmation of their common practice is refurbishing plants with capacity expansion, PG&E staff's interviews with hydrogen vendors, and interviews with [redacted] staff all support that both options (i.e., new replacement and refurbished plant with possible capacity expansion) were viable, technologically feasible and functional options that would also meet the customer's need. Per E-4939 and ISP Guidance 3.0, refurbished plants is the appropriate SP baseline for the savings calculation.	Commission staff agrees the information supplied in the ISP Study Final Report PRJ - 01182396 ISP Study Report.docx justifies a baseline of "plant refurbishment with expansion." See discussion of ISP efficiency value in the resolution of Action Item 4 below. Please revise the project gross savings using a "refurbishment plus expansion" baseline prior to submitting the final savings claim.
3	The steam reforming process for hydrogent production is considered commont practice for new hydrogen plants. [redacted] "H2 production is inherently an energy-intensive process and quite matured technology. ...various advanced technological design features ***have been generally incorporated*** in modern H2 plants for improving net energy efficiencies, while also enhancing reliability and (health and safety)... The features included in the new [redacted] hydrogen plant (enhanced heat recovery and advanced steam-power synergy) are features that are "generally incorporated" in new plants.	Baseline	Prior to submission of final savings claim	For establishing appropriate SP baseline, please see "PRJ - 01182396 ISP Study Report.docx" including measured EUI and updated savings calculation outcome.	Commission staff agrees the information supplied in the ISP Study Final Report PRJ - 01182396 ISP Study Report.docx justifies a baseline of "plant refurbishment with expansion." See discussion of ISP efficiency value in resolution of Action Item 4 below. Please resubmit the project using a "refurbishment plus expansion" baseline.

4	From the [redacted] net specific efficiency for new hydrogen plants ranges from 315 to 438 Btu/SCFM. The common practice baseline submitted for this project of 373 Btu/SCFM is taken from an average of a range of values from 2 sources ([redacted] The ranges contained in the cited references are considered to be approximate and are not sufficient to establish a point estimate of common practice net specific efficiency.	Baseline	Prior to submission of final savings claim	The EUI values in [redacted] are generic without information comparable to the customer's new plants in [redacted] or refurbished plant. For establishing appropriate SP baseline, please see "PRJ - 01182396 ISP Study Report.docx" including measured EUI, and updated savings calculation outcome.	The ISP study report "PRJ - 01182396 ISP Study Report.docx" Appendix D presents measured data for several hydrogen production facilities. The measured efficiencies provided in the report appendix are summarized below: [redacted] The operating efficiencies of plants 2 and 3 are less efficient than the original [redacted] and represent a regressive baseline. Commission staff believe the appropriate ISP baseline is a combination of plants 1 and 4 which represent "*an appropriate composite of the commonly implemented feasible options*" per ISP Guidance 3.0. The average of the efficiency of plants 1 and 4 (398 Btu/SCF) is approved as ISP for this project. Please recalculate the gross savings for this project using 398 Btu/SCF as the baseline efficiency.
5	The measured net specific efficiency for the [redacted] plant is 350 Btu/SCFM, which is in the range of values cited by hydrogen plant experts (340 - 380) for the design used at the plant. The plant is designed according to common practice for new hydrogen plants.	Baseline	Prior to submission of final savings claim	The design data conveyed by the reviewer can be misleading without measurement validation for comparable new plants. Our study shows that measured EUI can deviate from the design EUI. For example, the design EUI of the new plant was 308 BTU/SCF, whereas the measured EUI was 350 BTU/SCF. The design EUI of another new CA plant producing the same H2 product was 370 BTU/SCF, but the average measured daily EUI was 376 BTU/SCF (over a year of daily data) to 383 BTU/SCF (eight years of daily data). For establishing appropriate SP baseline, please see "PRJ - 01182396 ISP Study Report.docx" selection, including measured EUI and the updated savings calculation outcome.	ISP baseline for this project is estabilised from the measured operating efficiency data supplied in Appendix D of "PRJ - 01182396 ISP Study Report.docx." Note the ISP study report reached ***the same conclusion*** based on ***a different set of data*** . The ISP study report used the average of the efficiency of plant [redacted] hypothetical refurbishment options, resulting in a proposed ISP baseline efficiency of 398 Btu/SCF. Commission staff analyzed the measured performance data presented in the ISP report appendix and came up with the same numerical value but based the calculation on a different set of source data as described in action item 4 resolution above. Please recalculate the project gross savings using 398 Btu/SCF as the baseline efficiency.

Note or Instruction Number:	CPUC Staff Notes or Instructions:	Instruction Category	Due Date	PA Response	ED Resolution
1	Disposition changed from "Application Rejected" to "Application ready to proceed with exception(s), as noted" based on additional information supplied by PG&E in responste to the disposition.	Other -1	N/A	1. Regarding the SP baseline value 398 BTU/SCF approved by the CPUC reviewer and the associated gross savings, PG&E technical reviewer has updated the documents accordingly to reflect the approved SP baseline value and the associated gross savings, i.e., 25,923,258 therms. The customer incentive remains capped at $3.78 million due to project incentive cap in place at the time of the original application approval in 2010. This incentive amount doesn't increase with the increase in gross savings (25,923,258 therms). The filenames of the updated documents are "PRJ - 01182396 FINAL Post Tech Review New H2 Plant-CONF.docx" and "PRJ - 01182396 POST Calculation rev3-CONFIDENTIAL.xlsb".	Gross savings of 25,923,258 therms are approved. The incentive cap of $3.78 million will remain in place. Final net savings and incentives based on the RP2.0 pilot analysis are described below.
	Ex-ante net to gross ratio and ex-ante net savings updated based on RP2.0 analysis.	Net to gross ratio	N/A	2. Regarding the determination of net savings claim through the RP2.0 Pilot Program, PGE reviewers have performed an assessment of the program influence (PI) to calculate customized NTGR, using the RP2.0 template approved for the RP2.0 Pilot Program based upon additional research and investigation. In the PI assessment, PGE reviewers provided "for/against" ratings to assess the degrees of incremental impacts relevant to the customer's decision-making point in 2006 that corresponded to the approved SP baseline. Based upon the RP2.0 Pilot analysis, the customized NTGR is calculated as 0.19, resulting in an assigned NTGR value of 0.13 per the Table 5 prescription for the RP2.0 Pilot Program. Please refer to "PRJ - 01182396 Customized NTGR RP2.0 Pilot-CONFIDENTIAL.xls" for the RP2.0 scoring. Because the assigned NTGR is at the lower end (less than 0.40), PGE staff performed cost effectiveness tests for portfolio control. The TRC for this project is calculated as 5.40 when the default input value for PA cost (i.e., $42k for PGE) is applied to the cost-effectiveness tool, and 5.22 when the PA cost input is adjusted to be a hypothetical PA cost of $500k. PGE staff concluded that with the assigned NTGR of 0.13 that indicates weak program influence, this project exhibits a very high TRC value (no less than 5.22). For EE portfolio control (i.e., cost effective net savings), PGE's reviewers recommend for an approval of this project because of positive contributions to the PGE's EE portfolio goals (not only net savings, but also high cost effectiveness for the project and for the portfolio). Please refer to "PRJ - 01182396 CET input output-CONFIDENTIAL.xlsx" for the input and output data of the TRC calculations. In summary, corresponding to the NTGR of 0.13, the net savings claim would be 3,370,024 therms with the TRC of no less than 5.22; corresponding to the calculated NTGR of 0.19, the net savings claim would be 4,925,419 therms with an even higher TRC. In either case, the incentive amount remains the same as $3.78 million. Based upon the RP2.0 Pilot template Table 5 to assign NTGR, the assigned NTGR of 0.13 is recommended for the project for the purpose of this Pilot testing, resulting in net savings claim of 3,370,024 therms with the TRC of no less than 5.22	An ex-ante net to gross ratio of 0.13 is approved. An ex-ante net savings claim of 3,370,024 therms with the incentive capped at $3.78 million is approved.

CPUC Staff Recommendation Definitions	
CPUC Staff Recommendation	**Definition**
Application ready to proceed without exception	The PA will continue to upload application documents to the CMPA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. A project is waived from further review at the post-installation stage by CPUC staff, but the PA is responsible for post-installation (IR) review. There will not be conditional approval
Application ready to proceed with exception(s), as noted	The PA must make revisions or changes as noted in CPUC Staff's review comments. The PA will continue to upload application documents to the CMPA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. If CPUC Staff decides to perform IR review of a project, CPUC Staff will notify the PA. The scope will be limited to determine if the project was carried out consistent with the application and notes provided during pre-installation review and to obtain information pertaining to whether the eligibility criteria or metrics should be revised. Unless the scope of work presented in project application has changed at IR review, the project will not be reviewed again in the areas specified below. Scope change is defined by substantial changes include significant modifications to the proposed equipment type, size, quantity, configuration, the expansion of a project to include additional retrofits, or the splitting of a project into multiple phases. The following areas will not be reviewed again by CPUC Staff: • Calculation Tool • Calculation Methodology • M&V Plan • Baseline • Eligibility • EUL/RUL • Measure Type • Program Influence
Application rejected.	The application is rejected as submitted. The PA shall promptly inform the applicant as to the reasons why the project was rejected and the specific recommendations for the conditions under which the project would be approved. CPUC Staff shall provide the reasons for the rejection or request for modification, including each basis as to why the project is rejected, or modification is requested. In addition, CPUC Staff shall provide specific recommendations for the conditions under which the project would be approved. If any party to the project is unsatisfied with the Commission's directions for the project, a dispute resolution process may be initiated by that party. The Commission shall adopt rules for the conduct of the dispute resolution process. – Section 381.2 (g) (3) (F)