

Decision 10-04-028 April 8, 2010

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric Company for Approval and Recovery of Costs Associated with its Fuel Cell Project.

Application 09-02-013  
(Filed February 20, 2009)

Application of Southern California Edison Company for Authority to Implement and Recover in Rates the Cost of its Proposed Fuel Cell Installation Program for State Universities.

Application 09-04-018  
(Filed April 27, 2009)

**DECISION AUTHORIZING FUEL CELL PROJECTS**

**1. Summary**

This decision approves, with modifications, the applications of Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) for approval of each utility’s Fuel Cell Project to install utility-owned fuel cells on several University of California and California State University campuses. The decision finds it reasonable for the utilities to proceed with their respective Fuel Cell Projects, as long as the projects are modified in two respects. First, PG&E and SCE shall each reduce their project capital costs to reflect a lower contingency percentage. Second, PG&E shall remove contingency costs and education and outreach labor costs from its estimated non-fuel operations and maintenance costs.

In response to protests to the applications, the decision finds the following:

1) the applications comply with Commission guidance for competitive solicitation of utility-owned generation, as set forth in Decision 07-12-052; 2) the decision rejects SCE's suggested treatment of its Fuel Cell Project stranded costs; and 3) the decision denies SCE's request to use excess Self-Generation Incentive Program funds to pay for half the capital costs for its Fuel Cell Project.

## **2. Background**

### **2.1. Pacific Gas and Electric Company's Application**

In its February 20, 2009 application, Pacific Gas and Electric Company (PG&E) seeks approval of its proposed Fuel Cell Project, which consists of the installation and operation of three utility-owned fuel cell generating facilities with a total capacity of 3.0 megawatts (MW) at two California State University (CSU) campuses - CSU East Bay and San Francisco State University (SF State). Two of the facilities would be located at SF State, namely a 1.4 MW molten carbonate fuel cell and a 200 kW solid oxide fuel cell. CSU East Bay would host a 1.4 MW molten carbonate fuel cell. The molten carbonate fuel cells would be designed to output waste heat to the universities to serve campus thermal load, such as heating the Olympic-sized swimming pool at CSU East Bay, as well as water for landscape irrigation. The plants have an estimated useful life of 10 years.

PG&E claims the project will advance acceptance of fuel cell technologies in California, provide electricity to the grid, and provide fuel cell by-products to the host campuses, namely waste heat to serve campus thermal load and discharged water for landscape irrigation. After selecting sites for the fuel cells, PG&E issued an Request for Proposal to select an engineering, procurement and

construction contractor for each site. PG&E plans to coordinate with the two universities to implement educational outreach programs to maximize the educational benefits of the fuel cell facilities. For example, PG&E would install an educational kiosk at each campus, coordinate signage and educational material, help develop class curriculum, host tours of the facilities, and facilitate educational and community outreach. The application describes how CSU East Bay plans to develop multi-disciplinary curriculum and research-based learning opportunities utilizing the fuel cell system, while SF State intends to use the fuel cell project on its campus to enhance its graduate and undergraduate business, engineering, and environmental studies programs in sustainability.

PG&E requests the Commission authorize recovery of \$21.5 million in capital costs for the project, as well as recovery of actual operations and maintenance (O&M) costs and fuel costs.<sup>1</sup> According to PG&E, the \$21.5 million in capital costs includes a confidential contingency factor in the event of scope modifications during the development and engineering of the Fuel Cell Project.<sup>2</sup> If actual capital costs exceed \$21.5 million, PGE proposes it be allowed to begin recovery of the approved \$21.5 million once the Fuel Cell Project becomes operational. PG&E would then file an application for recovery of amounts in excess of \$21.5 million, allowing the Commission to determine the

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<sup>1</sup> PG&E's original application requested \$21.3 million in capital costs for 2.9 MW in fuel cell generating capacity. PG&E revised its project to 3.0 MW and \$21.5 million in capital costs in its Supplemental Testimony of August 10, 2009 (Exhibit 2).

<sup>2</sup> Both PG&E and SCE requested confidential treatment of the contingency percentage in their applications, noting that public release of the contingency rate could compromise utility negotiations with fuel cell vendors. Confidentiality granted by ruling of February 22, 2010.

reasonableness of those excess costs. If total capital costs are below \$21.5 million, PG&E will only recover the actual amount of capital costs, and ratepayers will receive the benefit of the lower cost.

Regarding O&M costs, PGE proposes it be allowed recovery of an estimated \$5.79 million in non-fuel O&M for the initial four years of operation. PG&E proposes that it record a total initial revenue requirement of \$6.2 million for both capital and O&M costs in its Utility Generation Balancing Account and remain in effect until superseded by rates to be established in a general rate case following commercial operation of the facilities. (Exh. 2, PG&E Supplemental Testimony at 5-2.) PG&E would establish a memorandum account to track actual O&M expenses and file an advice letter each year of operation to collect actual O&M expenses.

The fuel cell facilities will need natural gas as fuel. PG&E proposes fuel costs be recovered through the Energy Resource Recovery Account (ERRA) mechanism following commercial operation of the fuel cells. PG&E's application does not estimate fuel costs for the Fuel Cell Project, but during hearings, PG&E's attorney and witness Mr. Loveless estimated these costs at \$1.34 million per year. (Hearing Tr, 12/10/09 at 204:6.)

PG&E proposes that revenues for the fuel cell facilities will be collected in generation rates, and that PG&E would recover any stranded costs associated with the Fuel Cell Project through a non-bypassable charge (NBC) for a 10-year period following commercial operation of the fuel cells, consistent with Commission determinations regarding which customers must pay such costs in Decision (D.) 04-12-048, D.06-06-035 and D.06-11-048.

Protests to PG&E's application were filed by the Commission's Division of Ratepayer Advocates (DRA), The Utility Reform Network (TURN), and jointly

by the Western Power Trading Forum and Alliance for Retail Energy Markets (WPTF/ AReM). Responses to the application on the issue of stranded cost recovery were filed by the California Clean DG Coalition (CCDC) and jointly by the Merced Irrigation District and Modesto Irrigation District (the Districts). A prehearing conference (PHC) on the PG&E application was held April 27, 2009.

## **2.2. SCE's Application**

SCE's application, filed on April 27, 2009, bears great similarity to the PG&E application in that SCE requests Commission approval to install, own, and operate three fuel cell units with a combined capacity of up to 3.0 MW on three separate California state university campuses. Specifically, SCE proposes two systems of 1 to 1.4 MW each, located at CSU San Bernardino and CSU Long Beach and one 200 kW solid oxide fuel cell at UC Santa Barbara. The two larger systems would demonstrate combined heat and power (CHP, or cogeneration) applications and the smaller, 200 kW system at UC Santa Barbara would demonstrate an electricity-only high efficiency fuel cell where the waste heat is used in the generation process. Similar to the PG&E application, SCE seeks recovery of approximately \$21.6 million in capital costs and \$89 million in non-fuel O&M costs over the 10-year life of the fuel cells. In contrast to PG&E's application, SCE requests authorization to use \$10.8 million in unspent and uncommitted Self-Generation Incentive Program (SGIP) funds to pay for 50 percent of the fuel cell programs capital costs.

SCE's proposed fuel cells would interconnect and operate in parallel with SCE's distribution system. The connection would be on the customer side of the meter so SCE can verify the reliability of the fuel cell operation and examine load characteristics such as local power quality and voltage stability.

SCE proposes to issue a competitive solicitation for engineering, procurement and construction bids to install the fuel cell facilities to be owned by SCE. SCE notes that D.07-12-052 provides for very limited circumstances where utilities can pursue utility-owned generation (UOG) outside of a competitive process. SCE contends that the fuel cells it proposes qualify as preferred resources as they are both distributed generation (DG) and clean fossil fuel generation because the natural gas used to fuel the fuel cells will produce a small amount of carbon dioxide, and there will be only minimal greenhouse gas (GHG) emissions from the fuel cells. Thus, SCE believes that its application falls within the limited circumstances allowed by D.07-12-052 for utility generation outside of a competitive process.

With regard to ratemaking for the project, SCE's requests authorization of \$21.6 million in estimated capital costs. As in the PG&E application, SCE's capital cost estimate includes a confidential contingency factor in case of scope modifications during the development and engineering of the program and unique site characteristics that could cause unforeseen costs. Regarding O&M costs, SCE estimates total 10-year non-fuel O&M costs of \$8.9 million.<sup>3</sup> In addition, SCE explains that on-going costs for the mechanical systems that use waste heat, including back-up thermal systems for use during fuel cell outages, will be borne by the host campuses in exchange for use of the waste heat from the two CHP fuel cell systems.

Also similar to PG&E, SCE proposes a reasonableness review if capital costs or O&M expenses are higher than its estimates. Specifically, if capital costs

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<sup>3</sup> SCE's application does not provide an estimate for fuel costs for the project.

or O&M expenses are in excess of its estimates in this application, SCE shall file testimony in the annual ERRA reasonableness proceeding to seek recovery of any excess amounts. If capital costs and O&M expenses are less than estimated, SCE shall only recover actual recorded costs from its ratepayers.

A unique feature of SCE's application is its proposal to use a portion of existing uncommitted SGIP funds to "buy-down" 50 percent of the estimated capital costs, or \$10.8 million, to reduce initial project costs to a level that approaches market prices. SCE contends its proposal to use SGIP funds, although not expressly allowed by the Commission in D.01-03-073 that established SGIP, is appropriate because of lack of progress in fuel cell development in California.

Another unique feature of SCE's application is its request to diverge from the NBC guidance set by the Commission in prior decisions. SCE proposes that the above-market costs of its Fuel Cell Project be the responsibility of all of SCE's customers, including Direct Access, Departing Load, and Community Choice Aggregation customers. The estimated above-market costs of the annual fuel cell program revenue requirements would be included in the calculation of the vintaged Cost Responsibility Surcharge applicable to Direct Access, Departing Load, and Community Choice Aggregation customers.

SCE's application was protested by the California Energy Storage Alliance (CESA), Debenham Energy, DRA, TURN, and WPTF/AReM. The California Municipal Utilities Association (CMUA) filed a response to the application to provide information and clarify SCE statements in its application regarding cost recovery for the project from certain "departing load" customers.

### **2.3. Procedural History and Consolidation**

Following a motion for consolidation by DRA, the PG&E and SCE applications were consolidated by the Administrative Law Judge (ALJ) at a PHC on June 22, 2009. A scoping memo for the consolidated cases was issued on June 25, 2009.

The scoping memo set forth 6 issues to be examined in the consolidating proceedings as follows:

- Are the applications by PG&E and SCE reasonable from a ratepayer perspective and should the Commission approve the Fuel Cell Projects proposed by PG&E and SCE, as well as each utility's proposed ratemaking for its respective project, either as presented in the applications or with modifications?
- Do the applications meet the Commission's criteria for utility-owned generation as set forth in D.07-12-052 and other relevant Commission orders?
- Did PG&E and SCE perform competitive solicitation for the Fuel Cell Project according to applicable Commission guidance?
- Should the Commission grant requests by PG&E and SCE for recovery of any stranded costs associated with each utility's Fuel Cell Project through a non-bypassable charge for a 10-year period following commercial operation? Should municipal departing load and distributed generation customers be exempt from such stranded costs as set forth in D.08-09-012?
- Should SCE be allowed to use uncommitted SGIP funds to pay for a portion of the Fuel Cell Project?
- The Commission has or is currently developing a number of programs that ostensibly support development of fuel cells. These include the SGIP, as well as a feed-in tariff for CHP plants in Rulemaking (R.) 08-06-024. Given this policy context, what additional benefits do ratepayers receive from the installation and utility ownership of fuel cells as proposed by PG&E and SCE when compared to these other programs?



Hearings on the consolidated applications were held on December 9, 2009 and December 10, 2009. The Energy Producers and Users Coalition (EPUC) was granted party status so that it could file a brief on stranded cost recovery issues. Opening briefs were filed on December 30, 2009 and the case was submitted with the filing of reply briefs on January 13, 2010. Bloom Energy Corporation (Bloom) filed a motion for party status on March 22, 2010 so it could file comments on the proposed decision in these consolidated cases. Bloom's motion was granted on March 29, 2010.

### **3. Reasonableness of the Proposed Projects**

As set forth in the Scoping Memo, a threshold issue is whether the SCE and PG&E Fuel Cell Projects are reasonable from a ratepayer perspective, and whether the Commission should approve the projects, including the proposed ratemaking, as proposed or with modifications. A secondary issue, as indicated by the scoping memo, pertains to what additional ratepayer benefits, if any, result from utility ownership of fuel cells compared to private investment in fuel cells through the SGIP and feed-in tariffs for CHP plants.

#### **3.1. Parties' Positions**

PG&E and SCE claim their projects will advance acceptance of fuel cell technologies in California, provide clean, reliable, low emission electricity to the grid, and provide fuel cell by-products to the host campuses, namely waste heat to serve campus thermal load and discharged water for landscape irrigation. According to both utilities, fuel cells generate electricity through an electrochemical process rather than through combustion, and therefore, the fuel cell power plants emit low amounts of pollutants such as nitrogen oxides and sulfur oxides, as well as fewer emissions of GHGs than conventional power plants.

SCE maintains the project is reasonable because it has the full endorsement of the Governor's Office and is consistent with the Governor's Green Building Action Plan, which directs the Commission to facilitate ratepayer supported efficiency programs for commercial and industrial buildings, and Assembly Bill (AB) 32, which calls for reductions in GHG emissions. Moreover, SCE states that the universities are not in a financial position to pay any premium over their otherwise applicable tariff to locate the fuel cell facilities on their premises. Thus, the universities have indicated they will only participate in the project if SCE owns and operates the fuel cells as utility assets, allowing the state to incur no additional costs. (Exh. 100 at 6.) PG&E provides a similar statement that the State has indicated its preference that PG&E own and operate the fuel cell facilities, and therefore it was infeasible for PG&E to conduct a competitive Request for Offer (RFO) for the project. (Exh. 2 at 1-6.)

Both utilities argue that their projects will advance fuel cell technologies by contributing to a better understanding of fuel cell operations and processes, and by sharing the benefits of fuel cell technology through community outreach and education. SCE alleges that fuel cell installations have lagged behind other forms of clean technologies due, in part, to lack of understanding by the general public of this advanced technology. PG&E plans to monitor fuel cell performance in comparison to performance of conventional power plants and to evaluate the use of fuel cell by-products by the universities. Through the community outreach that PG&E will coordinate at the universities, PG&E believes the project will enhance the university sustainable instructional programs in business, engineering, and environmental studies. Likewise, SCE asserts that a key benefit of the project is that the universities will be able to incorporate the fuel cell applications into their educational curriculum, "offering visual demonstrations

of the technology to students and the public, and making available, as permitted, the operating and performance characteristics of the fuel cell systems for public knowledge.” (Exhibit 102, SCE Rebuttal Testimony at 5.)

In addition, PG&E and SCE claim their projects do not conflict with other Commission programs supporting fuel cells and will advance fuel cells in addition to efforts in SGIP and the feed-in tariff program. PG&E notes that although the SGIP provides financial incentives to fuel cells, fuel cells have not significantly penetrated the market. SCE claims that while over 1300 projects have been installed under SGIP since its inception in 2001, only 20 projects and 12 MW of capacity are fuel cell based. (SCE Brief, 12/30/09 at 17.) PG&E maintains that only 11 fuel cells projects, comprising 6.1 MW have been installed in its service area under SGIP since 2001. (PG&E Brief, 12/30/09 at 7.) Moreover, PG&E claims even though the Commission has implemented a CHP Feed-in Tariff in R.08-06-024, in accordance with AB 1613,<sup>4</sup> it is unclear whether this feed-in tariff will accelerate the installation of fuel cells since the price paid under the tariff appears to be lower than the expected levelized cost of energy from PG&E’s proposed fuel cell projects.

DRA and TURN oppose the PG&E and SCE Fuel Cell Projects, arguing that the capital costs of both projects are unreasonable, the projects have questionable educational benefits, and the Commission should instead focus on other renewable generation and DG programs.

Regarding project costs, TURN contends SCE’s forecasted capital costs of \$7.20 per watt (5/29/09 at 3) and PG&E’s forecasted capital costs of \$7.35 per

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<sup>4</sup> AB 1613 charges the Commission with requiring electrical corporations to purchase excess electricity from certain new CHP systems.

watt (3/27/09 at 2) are unreasonable for a project that cannot be classified as renewable generation. According to TURN, the funds proposed to support the Fuel Cell Projects could be used more effectively to advance renewable generation or used to promote private installation of fuel cells through SGIP. TURN argues that although the proposed fuel cells may be considered clean generation, they are, nevertheless, fossil fuel based because they use natural gas as the hydrogen source. Thus, scarce ratepayer funds should not be spent on expensive non-renewable generation sources that do not advance the state's Renewable Portfolio Standard (RPS) goals.

Similarly, DRA notes that fuel cells are an extremely expensive way to produce non-renewable electricity, at a levelized cost of over 30 cents/kWh, when the average cost of energy in the state is 7 cents/kWh. DRA notes this levelized costs is more than three times the current Market Price Referent (MPR) rate of 10 cent/kWh that the Commission uses as a reasonableness benchmark for renewable energy solicitations under its RPS program. DRA contends that costs of this magnitude should be examined in the context of alternatives to accomplish the same goals.

Both DRA and TURN question the educational value of the projects and whether they will result in advancement of fuel cell technologies. DRA claims that the educational value of the projects is speculative because applicants provide little evidence how the fuel cells will be used to further class work. DRA contends it would be more economical to transport students to visit an installed fuel cell at another site, which does not need to be on a college campus. TURN claims that the high cost of fuel cells is the primary barrier to their market penetration and that utility ownership of fuel cells, although it could provide

educational value and raise public awareness, will do little to affect this cost barrier and achieve “market transformation” in the fuel cell industry.

In response to utility claims that the projects enhance state policy to promote fuel cell development, TURN maintains that although the Legislature has created ratepayer subsidy programs such as SGIP to promote private installations of fuel cells facilities, this does not translate into a state policy to provide 100 percent ratepayer support for utility-owned fuel cells. DRA claims the projects are unnecessary given that the SGIP encourages investment in fuel cells. In addition, DRA questions the need for the Fuel Cell Projects given the Commission’s implementation of the AB 1613 CHP Feed-in Tariff in R.08-06-024.

### **3.2. Discussion**

The question of reasonableness of the proposed Fuel Cell projects comes down to a comparison of the cost for these two projects with the benefits that might be achieved from the projects. The parties do not dispute the levelized costs of the projects, but PG&E and SCE claim the costs are warranted based on alleged educational and market transformational benefits, while DRA and TURN assert the costs are unreasonable given the speculative nature of those benefits.

DRA and TURN are both correct that the fuel cell projects are expensive on a levelized cost per kWh basis. They are also correct that the Commission established the SGIP to support the advancement of fuel cell and other technologies by providing up-front ratepayer incentives to leverage private capital and promote investment. Furthermore, we agree that projects pursued under SGIP use less ratepayer funds per MW than projects paid for entirely by ratepayers, such as the Fuel Cell Projects proposed here.

Nevertheless, we find that DRA’s and TURN’s arguments regarding the high cost of fuel cells relative to conventional and some renewable technologies,

while factually accurate, are not a sufficient reason to reject the proposed projects. These projects can help advance industry learning and maturation of fuel cell technologies. The comparison to conventional resources is particularly irrelevant as it implies that the motivation for these projects is energy procurement, when, in fact, the point is to help advance the market and technology of a preferred resource. The fact that these technologies are more expensive than conventional and other resources is precisely why additional support is required. Similarly, the mere fact that there are other renewable resources that are lower cost does not mean that we should not seek to support fuel cells to the extent we believe such investments can advance a technology that the State has deemed as having an important role to play in California's future energy mix, as evidenced by the Governor's support for these projects, the eligibility of fuel cells for incentives under SGIP, and the state's loading order.

Nor does the current availability of incentives through SGIP obviate the need for these Fuel Cell Projects, which can serve as a complementary effort to advance this technology given the relatively low participation rates we have seen for fuel cells in SGIP. The data provided by both PG&E and SCE regarding participation in SGIP, specifically regarding the limited number of fuel cell projects and the amount of installed fuel cell capacity, strongly suggests that the proposed projects can provide a much needed boost to this technology and help support the goals of SGIP. If a substantial number of projects were being developed under the current incentive regime there would be little reason to support the applicants' proposal. At this time, however, that does not appear to be the case.

In comments on the proposed decision, TURN argues that that the existence of SGIP and the eligibility of fuel cells not only makes the approval of

the proposed projects duplicative, but illegal.<sup>5</sup> This argument is without merit. The fact that the legislature has established one mechanism for supporting a given technology or preferred resource, does not, in and of itself, limit the authority of the Commission to establish complementary efforts to support the same technology. TURN also argues that as a research and development (R&D) program, approval of these projects must meet the criteria identified in Pub. Util. Code Section 740.1.<sup>6</sup> We disagree with TURN's premise that this is an R&D program. The current SGIP guidelines require technologies to be "commercially available." Furthermore, the technologies proposed by SCE and PG&E in their applications are eligible under SGIP, as noted by TURN. It follows that they are commercially available technologies, which directly contradicts TURN's assertion that the proposed deployments constitute R&D and are therefore subject to Section 740.1.

Furthermore, we discussed in D.09-12-047 that SGIP currently has spent significantly less than its authorized annual budget and has a significant carryover budget, estimated at \$310 million. (D.09-12-047 at 8.) The persistent and high levels of unspent monies in SGIP mean these monies are not being deployed to support the advancement of SGIP eligible technologies and thus, are not advancing the specific goals of the program. To this end, ratepayers are not receiving the various market transformation benefits intended through the creation of SGIP in terms of the development of a viable market for clean, distributed generation technologies. As the extensive unspent carryover

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<sup>5</sup> TURN Comments, 3/22/10 at 1.

<sup>6</sup> *Id.*

amounts imply, the incentive levels in SGIP have not been sufficient to drive significant uptake of SGIP eligible technologies. The reasons for this are unclear and could be due to the relative expense of eligible technologies, the global economic downturn, or possibly the California budget crisis. Regardless of the reasons why SGIP funds are not fully deployed, we believe the proposal before us can serve to supplement SGIP and further prime the market for adoption of fuel cell technologies.

In comments on the proposed decision, a number of parties argue that the market transformation benefits of the proposed projects are speculative and/or unsupported and because of this, the applications should be denied.<sup>7</sup> We reject these arguments. SGIP was established to support the deployment of clean and ultra-efficient generation. In doing so the program seeks to help these emerging technologies achieve scale and gain practical market experience as a way to drive costs down over the longer term. The proposed projects here would provide additional support for SGIP eligible technologies by increasing the amount of deployed capacity. With the Fuel Cell Projects as a complementary effort to SGIP, we do not feel there is a need to revisit the fundamental market-development premise on which SGIP is founded. When constructed, the proposed Fuel Cell Projects will represent up to 6 MW of additional fuel cell capacity, compared to an existing fuel cell capacity of 12 MW in California.<sup>8</sup> The Fuel Cell Projects will increase this capacity by as much as 50 percent. It is reasonable to conclude that this substantial increase in deployed capacity will

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<sup>7</sup> See TURN Comments, 3/22/10 at 5; WPTF Comments, 3/22/10 at 3, DRA Comments, 3/22/10 at 5.

<sup>8</sup> Exh. 100 (SCE Direct Testimony) at 5.



facilitate market transformation for fuel cell technologies consistent with the goals of SGIP.

Accordingly, we approve the Fuel Cell Projects proposed by PG&E and SCE in their separate applications, subject to modification of the capital cost contingency rate in both applications and removal of PG&E's education and outreach specialist, which we discuss in further detail below. Additionally, we will require that each fuel cell deployed pursuant to this program be equipped with metering and monitoring equipment sufficient to provide the following information:

- Electrical output (15 minute interval basis)
- Thermal output (15 minute interval basis)
- Fuel consumption (15 minute interval basis)
- System electrical efficiency
- Overall system efficiency

In addition to installing metering and monitoring equipment for these purposes, we shall also require that PG&E and SCE each submit annual compliance reports to Energy Division providing summary performance information for each of the installed projects. These compliance reports should provide information for each of the fuel cells deployed including each project's annual capacity factor, system availability during system peak hours, annual fuel consumption, annual electrical and thermal output, overall electrical efficiency for the year, and overall system efficiency for the year, as well as any other information that PG&E and SCE believe would be useful in helping the Commission assess the performance of these systems. The costs of metering, monitoring and reporting shall be deemed part of the projects' costs and will not be recovered separately.

Regarding capital cost contingencies, we agree with TURN and DRA that the amounts requested by PG&E and SCE, which are more than double those recommended by TURN and DRA, are unreasonable. As TURN notes, the contingency rates proposed by PG&E and SCE are significantly higher than other contingency rates, generally in the 5 to 8 percent range, previously approved by the Commission. (*See* D.06-11-048 at 21-22 and fn. 12.)

TURN suggests a contingency on the fuel cell equipment component of capital costs of five percent equivalent to the 5 percent contingency the Commission approved in D.06-11-048 for PG&E's Humboldt power plant and in D.03-12-059 for SCE's Mountainview Power Project. (*Ibid.*) For the installation component of capital costs, TURN proposes the Commission adopt PG&E's proposed contingency, which is lower than SCE's proposed rate. DRA suggests no contingency allowance for equipment costs, and at most a 10 percent contingency on remaining capital costs.

SCE responds that its contingency is necessary to cover scope modifications required during the final development and engineering phase of the project, and to accommodate site specific construction and design requirements. Further, SCE contends that its "Fuel Cell Program is in the conceptual design phase, which means that a larger contingency is required." (SCE Opening Brief at 14.) PG&E claims the contingency factor is within normal levels for construction projects where the final scope of the project is not yet defined, and it received a similar contingency for its Diablo Canyon steam generator replacement project, but provides no citation to any decision for verification of this claim. (Exhibit 4, PG&E Rebuttal Testimony at 3-2.) In D.06-11-048, the Commission discussed the various contingency rates adopted in D.05-02-052 for the Diablo Canyon steam generator replacement and why the

different factors for discrete portions of that nuclear project where not applicable to the Humboldt project. (D.06-11-048 at 22, fn. 12.) Based on that same reasoning, we will not base our contingency for this fuel cell project on the Diablo Canyon steam generator replacement case.

We agree with TURN that approval of large contingencies for capital costs sends an improper incentive to the utilities and vendors that they can enhance the project scope within the limits of the contingencies. A large contingency also suggests that the applicant should further define the project scope before seeking approval. We will reduce the contingency rates on capital costs for the PG&E and SCE Fuel Cell Projects in line with the 5 to 10 percent contingencies proposed by TURN and DRA and supported by prior Commission decision. We will not reveal the actual percent of the contingency that we incorporate because the utilities requested confidential treatment of the contingency percent so that fuel cell bidders would not be able to calculate competitor's bid prices. We provide the final capital cost number adopted for each utility, which incorporates a substantial reduction in the proposed contingency rates. For PG&E, we adopt reduced total project capital costs of \$20.3 million and for SCE, we adopt reduced total project capital costs of \$19.1 million. Both of these reduced capital cost figures include a new, lower contingency factor.

In addition to a capital cost contingency factor, PG&E requests a contingency for non-fuel O&M expenses as well. SCE does not request a contingency for non-fuel O&M. DRA suggests reducing PG&E's proposed O&M contingency to 0 percent for fixed O&M costs, which are the majority of O&M costs, and 10 percent for the small portion of variable O&M costs. In considering PG&E's requested contingency, we note that PG&E's estimated O&M costs are considerably higher than SCE's estimated O&M costs, in large part due to higher

costs for labor and vendor service agreements. This results in PG&E requesting \$5.79 million for the first four years of non-fuel O&M costs, while SCE requests \$8.9 million in non-fuel O&M for the life of the fuel cell. Given PG&E's already higher O&M costs, we will not approve a contingency for PG&E's non-fuel O&M. Plus, we note that if actual non-fuel O&M costs exceed the figure we adopt without a contingency, PG&E may apply for reasonableness review of the difference.

Second, TURN recommends the Commission disallow from PG&E's project costs approximately \$80,000 per year in fixed O&M labor costs for an "education and outreach specialist." PG&E's testimony indicates it has included several hundred thousand dollars in education and outreach labor in its four year estimate of total fixed O&M costs for the Fuel Cell Project. (Exhibit 1-C at 4-10, Table 4-10.) PG&E justifies this cost by stating it will coordinate with the two universities in implementing a community outreach program to maximize the educational benefits of the fuel cell facilities both on campus and in the community as a whole. PG&E plans to install an educational kiosk at each campus, update signage and educational material, help develop class curriculum, host tours of the facilities, and facilitate other educational and community outreach actions. We agree with TURN that these types of community education and outreach are not properly funded by ratepayers and we direct PG&E to remove all education and outreach labor costs from its O&M costs for its Fuel Cell Project. The combined effect of removing education and outreach labor costs and the contingency factor from PG&E's non-fuel O&M costs is to reduce these non-fuel O&M costs to \$4.71 million for the first four years of plant operation. For later years, PG&E must seek its non-fuel O&M costs in its general rate case.

Parties suggested other modifications which we decline to adopt. First, TURN recommends that if the Commission approves the Fuel Cell Projects, it eliminate the 200 kW “electric-only” fuel cell plants included in both the PG&E and SCE applications, thereby reducing capital installation costs for the two projects by over \$6 million. According to TURN, the electric-only units cost about twice as much on a per unit basis as the other fuel cells, their GHG emissions are almost identical to combined cycle natural gas plants, and their educational value is not justified by their price. The utilities defend the electric only plants, maintaining that the demonstrative attributes of their projects are greatly enhanced by the installation of this distinct technology which operates at a much higher efficiency by recycling the heat exhaust from the fuel cell to generate electricity. We will not disallow the electric-only projects, agreeing that it will be worthwhile for utilities and students to study the attributes of these plants alongside the other fuel cell technologies, as well as to provide important support for an emerging technology.

Second, DRA suggests numerous disallowances to the capital and O&M costs for both projects. Generally, DRA advises the Commission to limit the pre-approved expenses to the lower of either a) what the other utility proposes for similar work, or b) what the United States Environmental Protection Agency published as typical capital and O&M costs for fuel cell installations in its Energy and Environmental Analysis Inc (EEAI) Report. Altogether, DRA proposes to reduce PG&E capital costs by \$4.4 million and SCE’s capital costs by \$5.2 million. (Exhibit 202 at 26.) Similarly, DRA suggests reductions in annual O&M costs of approximately \$635,000 for PG&E and \$94,000 for SCE. (Exh. 202 at Table DRA-12 and DRA-13.)

The utilities object that DRA's disallowances are based on an outdated EEAI Report which provides cost estimates in 2007 dollars, whereas the applications are stated in 2009 dollars. According to SCE, when DRA's proposal is adjusted to 2009 dollars, the difference between the DRA and SCE cost estimates are minimal. Moreover, PG&E argues that the costs in its application are based on competitive proposals provided by fuel cell manufacturers for the selected locations, and are therefore more reliable as an estimate of actual project costs than the EEAI report which states that fuel cell prices "can vary significantly depending on the scope of the plant equipment, geological area, competitive marketing conditions, special site requirements, prevailing labor rates and whether the system is a new or retrofit application." (Exhibit 4 at 3-3.) We agree with SCE that it would be improper to disallow project costs based on a comparison of costs in different dollar terms, and we agree with PG&E that it is reasonable to rely on actual vendor cost estimates. Therefore, we decline to adopt DRA's proposed disallowances.

Finally, another modification we decline to accept relates to potential future GHG emission credits from the projects. TURN contends that it is possible that within the ten-year life of the fuel cells, the State or federal government will enact a cap and trade program that includes offsets and that the avoided GHG emissions due to waste heat production by the fuel cells will qualify as an offset mechanism. TURN suggests that because ratepayers will fund these fuel cells and provide the campuses with free waste heat, it is reasonable and fair to assign any potential value for avoided GHG emissions to ratepayers. Therefore, TURN asks the Commission to order PG&E and SCE to include terms in the contracts to ensure that such future value will be retained by ratepayers.

We will not require PG&E and SCE to renegotiate their contracts with the campuses to obtain value for potential future GHG emission offsets because it is highly doubtful that the waste heat itself will ever create a GHG emissions offset that can be sold into a GHG compliance market. Rather, the waste heat would more likely be classified as an emissions reduction within the emissions regime. Thus, we find that any future value of potential offsets is highly speculative and most likely minimal.

A similar issue arose in our recent decision on a CHP feed-in tariff, D.09-12-042. In that decision, we stated:

According to the contract, a CHP facility will convey all "green attributes" associated with the excess electricity delivered to the grid, including emissions reductions. However, the GHG emissions reductions that the facility experiences (compared to generating heat and electricity separately) cannot be isolated to delivered electricity but must be calculated on a facility-wide basis. For accounting purposes only, the utility will need to track the entire facility's avoided GHG emissions that occurred as a result of the installation of the new CHP facility. This information will be used for tracking purposes with the [Air Resources Board] Scoping Plan target for avoided GHG emissions from CHP. Thus, while there is no monetary value to the GHG reduction itself, for program accounting purposes the utility will count the avoided GHG emissions for any facility that signs up under this tariff.

In order to stay consistent with D.09-12-042, we will require the same tracking, for accounting purposes only, by PG&E and SCE for fuel cells deployed under this order that combine heat and power. This does not apply to the electric-only fuel cells, as these projects are not combined heat and power applications. As such, they should not be included in any accounting or tracking for CHP-related emission reductions.

#### **4. Criteria for Utility Owned Generation**

A second issue we must address in this proceeding is whether the applications meet the Commission's criteria for UOG and whether the utilities conducted or needed to conduct competitive solicitations for the Fuel Cell Projects according to applicable Commission guidance.

In D.07-12-052, the Commission stated its preference that the utilities competitively procure new generation, and discussed specific circumstances for UOG outside the competitive solicitation, or Request for Offer (RFO), process. The decision describes five categories that might warrant UOG outside of competitive procurement, which are market power mitigation, preferred resources, expansion of existing facilities, unique opportunities resulting from a settlement or bankruptcy, and reliability. The decision further states:

Because the Commission has a strong preference for competitive solicitations, in all cases, if an IOU proposes a UOG outside of a competitive RFO, the [investor-owned utility] must make a showing that holding a competitive RFO is infeasible. (D.07-12-052 at 210-211.)

For the Fuel Cell Projects, the most applicable category for UOG outside the competitive RFO process is "preferred resources" which the decision describes, in order of preference, as:

. . . energy efficiency, demand response, renewables, distributed generation and clean fossil-fuel. However, a utility may only develop a clean fossil-fuel UOG outside of the RFO process if it utilizes an advanced or emerging technology that the market is unlikely to develop. (*Id.* at 211, n. 240.)

In allowing for UOG outside the RFO process, the decision states the Commission's competitive market first principle:



We want to make it clear that we continue to believe in a “competitive market first” approach. As such we believe that all long-term procurement should occur via competitive procurements, rather than through preemptive actions by the IOU, except in truly extraordinary circumstances. (*Id.* at 209, emphasis in original.)

WPTF/AReM urge the Commission to reject the applications on the grounds that both PG&E and SCE have failed to demonstrate their projects meet these criteria for UOG projects, as established in D.07-12-052. Specifically, WPTF/AReM contend the applications conflict with the Commission’s “competitive market first” principle, PG&E and SCE have failed to demonstrate the Fuel Cell Projects are warranted as truly extraordinary circumstances, and the utilities have failed to prove that holding a competitive solicitation, or RFO, is infeasible.

In addition, WPTF/AReM allege the Fuel Cell Projects do not meet the strict requirements in D.07-12-052 that clean fossil fuel be an advanced or emerging technology that the market is unlikely to develop. According to WPTF/AReM, there is a vigorous and active fuel cell market with numerous manufacturers and suppliers. Therefore, the projects do not qualify for an exception under this definition. WPTF/AReM assert the utilities should procure the proposed fuel cells through competitive solicitations to independent power producers rather than as UOG.

In response, both utilities maintain that the UOG requirements in D.07-12-052 do not apply in this case. PG&E contends the requirements in D.07-12-052 may not apply to this application because the UOG requirements section of that decision states up front that the UOG requirements primarily address “conventional generation resources,” and that there may be “additional

factors associated with utility-ownership of renewable and other loading order or non-conventional resources that have not been fully vetted in this proceeding.” (*Id.* at 197, n. 233.) SCE asserts that the UOG requirements do not apply because its Fuel Cell Project is not a procurement project with the objective of serving load, but a demonstration project.

Even if the requirements of D.07-12-052 do apply, PG&E and SCE assert that the Fuel Cell Projects fall under the exception for preferred resources because they are distributed generation and clean fossil fuel. SCE contends fuel cells meet the definition of an advanced or emerging technology that the market is unlikely to develop, based on the scarcity of fuel cell projects in the state. According to SCE, only 20 fuel cell projects representing 12 MW of capacity have been installed in California. (Exh. 100 at 5.) Moreover, PG&E and SCE contend that holding a competitive RFO is infeasible because the State has indicated a preference for utility ownership of the facilities. (Exh. 2 at 1-6; Exh. 100 at 6.) In response, WPTF/ AReM counter that the site owners’ desire for utility ownership does not meet the criteria for a truly extraordinary circumstance or infeasibility of holding a competitive solicitation.

#### **4.1. Discussion**

The parties debate whether the criteria for UOG in D.07-12-052 apply to these applications. PG&E and SCE claim that the discussion in D.07-12-052 regarding when the Commission would allow UOG without a competitive solicitation does not apply to these two proposed UOG projects. This is puzzling given that D.07-12-052 contains a lengthy discussion of when a utility could pursue UOG without a competitive solicitation, such as to install preferred resources including DG and clean fossil fuel. We find that the criteria in D.07-12-052 do apply to these applications to install and operate utility-owned

fuel cells. Therefore, we will review whether the applications meet the criteria for exemption from competitive solicitation.

First, we agree with PG&E and SCE that the Fuel Cell Projects are preferred resources because they are distributed generation and clean fossil fuel. This means that, as preferred resources, the projects fit into one of the five categories for UOG outside of a competitive RFO. Next, we agree with the utilities that the Fuel Cell Projects involve an advanced and emerging technology that the market is unlikely to develop. Even with support through SGIP incentives, the installation of fuel cells has lagged in California. Plus, both PG&E and SCE propose to include electric-only fuel cells within their projects, which are novel, high efficiency designs that have not yet been studied to the same degree as larger fuel cell cogeneration options.

Finally, we find that an RFO is infeasible for the Fuel Cell Projects because the circumstances of both applications involve a unique partnership between either SCE or PG&E and the state universities for educational and demonstration purposes. To achieve these educational and demonstration benefits, the state universities and the State's Department of General Services prefer the utilities retain ownership of the fuel cell facilities and the State and utilities enter into a simple ground lease agreement, thereby avoiding the complex State acquisition process. (Ex. 2, Attachment 1B; Ex. 100, Attachment A at A-5.) While we agree with WPTF/AReM that an RFO should not be considered infeasible simply because the site owner does not want one, we find that in this case, the unique partnership between the utilities and the state universities warrants an exception in this limited circumstance. Numerous letters from campus officials speak to the partnership, collaboration and utility ownership envisioned by this project.

We agree with PG&E that to require third-party ownership by an unknown third-party would essentially kill the projects.

In summary, we find that both applications have complied with the criteria for UOG in D.07-12-052.

## **5. Non-Bypassable Charges**

Several parties express concern with how the applications propose to handle any stranded costs resulting from the Fuel Cell Projects.

PG&E proposes that consistent with several prior Commission decision, it be allowed to recover any stranded costs associated with the Fuel Cell Project through an NBC for a ten-year period following commercial operation of the plants.<sup>9</sup> Merced Irrigation District, Modesto Irrigation District, and CCDC responded to PG&E's proposal by requesting that the Commission confirm that according to D.08-09-012, customer generation departing load (CGDL) and municipal departing load (MDL) will not have to pay any NBCs to collect stranded costs resulting from the Fuel Cell Projects. In its reply, PG&E agreed that any recovery of stranded costs would be subject to the limitations and conditions of D.08-09-012.

In contrast to PG&E's proposal, SCE suggests that all customers, including MDL and customers otherwise excluded from NBCs associated with new generation, such as CGDL customers, should pay for stranded costs from its fuel cell project. SCE reasons that since the project is a demonstration of an emerging technology and will provide educational and market transformative effects for

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<sup>9</sup> PG&E cites D.04-12-048, D.06-06-035, and D.06-11-048 as providing guidance on stranded cost recovery.

all customers, all customers should pay any stranded costs, i.e. above-market costs, associated with the project.

CMUA and EPUC oppose SCE's proposal to charge the cost of the fuel cell program to all customer classes. According to both parties, the Commission established in D.08-09-012 that there are two categories of NBCs associated with new generation resources, those arising from D.04-12-048 relating to most new generation added by the utilities, and those arising from D.06-07-029 relating to generation resources that are predominantly for reliability purposes. CMUA and EPUC further assert the Commission established in D.08-09-012 that MDL and CGDL customers are excluded from paying any NBCs under D.04-12-048 and D.06-07-029 that arise from the utilities' "new generation resources."<sup>10</sup> CMUA and EPUC contend the Fuel Cell Projects fall within the definition of new generation resources and it is improper for SCE to suggest deviation from D.08-09-012 in this application and attempt to create a new category of generation for demonstration and educational purposes that would deviate from the mandates of D.08-09-012.

WPTF opposes recovery of any stranded costs related to either the PG&E or SCE Fuel Cell Projects. WPTF argues that the projects are ineligible for stranded cost recovery under D.08-09-012 because 1) there was no competitive procurement process for these UOG projects; and 2) the projects do not qualify as costs to meet resource adequacy requirements under Pub. Util. Code

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<sup>10</sup> D.08-09-012 states, "New generation includes generation from both fossil fueled and renewable resources contracted for or constructed by the investor-owned utilities subsequent to January 1, 2003." (D.08-09-012 at 1, n. 1.)

Section 380(g). As a result, WPTF argues that PG&E and SCE shareholders should bear any above-market, or stranded costs of these projects.

CMUA and EPUC are correct that MDL and customers otherwise excluded from new generation NBCs, such as CGDL customers, should be exempt from any stranded costs of the Fuel Cell Projects. In D.08-09-012, the Commission is clear that CGDL and MDL customers are excluded from paying D.04-12-048 and D.06-07-029 NBCs. (D.08-09-012, Ordering Paragraph 2.) The Fuel Cell Projects are new generation resources as defined in D.08-09-012, even if the utilities' major reason for pursuing the project is for demonstrative and educational purposes. Therefore, we reject SCE's suggested treatment of Fuel Cell Project stranded costs. We will not deviate from D.08-09-012 here and create a new category of "demonstration project" that would allow SCE to charge stranded costs from this project on MDL and other customers exempt from NBCs according to D.08-09-012. We agree with CMUA that any deviation from the guidance set forth in D.08-09-012 is more appropriately considered as a petition to modify that decision.

That said, we understand SCE's concerns and believe they raise a legitimate issue, albeit one that is better raised via a petition to modify. In comments on the proposed decision, WPTF argues that because the primary benefits of the project accrue to society at large, the costs should be broadly applied either via taxation or some other means.<sup>11</sup> In many respects, WPTF's arguments stem from the same concern SCE raises to support its proposal to share the stranded costs across all bundled and departing load customers. Again

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<sup>11</sup> WPTF Comments, 3/22/10 at 4-5.

we do not believe changes to determinations made in D.08-09-012 are appropriately made here, but we encourage parties who believe changes are warranted to file a petition for modification on these issues. In addition, we reject WPTF's argument that shareholders should bear the stranded costs of these projects because we have already found that PG&E and SCE met the requirements for competitive solicitation of these projects. Again, we will treat these projects as new generation resources and follow the NBC guidance in D.08-09-012 for cost recovery.

## **6. Use of SGIP Funding**

In its application, SCE suggests that it use \$10.8 million in uncommitted SGIP funds to "buy down" half of the \$21.6 million in capital costs for its fuel cell project. According to SCE, participation in SGIP has been lower than anticipated and there are excess funds collected from ratepayers for SGIP that have not been needed to date for that program. TURN supports the use of uncommitted SGIP funds, and goes further to suggest that both utilities fund all the capital costs of both Fuel Cell projects from excess, uncommitted SGIP funds. TURN argues that using these funds will allow the Fuel Cell Projects to be funded without increasing rates.

WPTF/AReM, CESA, Debenham, and DRA oppose SCE's request to use uncommitted SGIP funds. According to Debenham, SCE's proposal to use SGIP funds would create a conflict of interest by allowing SCE to administer SGIP and compete for funds with other applicants. Debenham notes the Commission explicitly barred IOUs from receiving incentives through SGIP in D.01-03-073. CESA opposes use of SGIP funds by SCE due to the unknown demand for SGIP funds created by the Commission's recent addition of advanced energy storage

to the SGIP eligible technology list in D.08-11-044. CESA claims it is premature for SCE to lay claim to alleged underutilized funding.

As described above, we believe the Fuel Cell Projects can serve as a valuable complement to the existing SGIP by ensuring the deployment of a number of fuel cell projects. However, using SGIP funds to support UOG projects is a significant departure from the manner in which SGIP funds have been used to date. In particular, pursuant to D.01-03-073, the Commission established SGIP to provide incentives for the deployment of “self-generation” technologies, which was specifically defined as “distributed generation technologies . . . installed on the customer’s side of the utility meter that provide electricity for a portion or all of that customer’s electric load.” (D.01-03-073 at 4.) In D.04-12-045, the Commission revisited the topic of utilities receiving SGIP incentives and once again, found them ineligible. (D.04-12-045 at 23.)

In comments on the proposed decision, TURN argues that despite the Commission’s determinations in these prior decisions, the concept of distributed generation has changed to encompass both behind the meter applications as well as distributed wholesale generation, in which the energy from a distributed resource is delivered to the utility system rather than used to offset onsite load. This, in TURN’s view, allows the Commission to use SGIP monies to support these projects.<sup>12</sup> While we agree that the notion of distributed generation in general has evolved to include wholesale applications, we do not believe this change allows for repurposing of SGIP monies to support utility owned projects

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<sup>12</sup> TURN Comments, 3/22/10 at 11-12.



as TURN suggests. The enabling legislation<sup>13</sup> and prior Commission decisions are clear that SGIP is fundamentally an incentive program to support the installation of eligible technologies on the customer side of the meter. Although the proposed projects clearly supplement SGIP by supporting an SGIP eligible technology, that fact alone does not mean that we can use SGIP monies for these utility owned projects. We also agree with Bloom that allowing SGIP monies to be used for utility owned projects may create a conflict of interest given the role of the utilities as the SGIP administrators.<sup>14</sup> The proposed Fuel Cell Projects will be owned by PG&E and SCE, rather than by a utility customer, and electricity generated by the fuel cells will go to the grid and not to the reduction of customer load. For these reasons, we will not depart from our prior policy of prohibiting utilities from receiving SGIP incentive funds for their own projects.

## **7. Compliance with Notice Requirements**

DRA contends PG&E's application should be dismissed because it was not properly noticed, as required by Rule 3.2. According to DRA, while Rule 3.2 requires notice of the application to be published within 10 days of the filing of the application, PG&E's notice was not published within the 10-day timeframe. In addition, DRA claims the notice did not include the statement that the application and related exhibits could be examined at any Commission or PG&E office, the notice did not provide the address of the Commission's Los Angeles office or PG&E offices, and it failed to give a Commission e-mail address and the mailing address for PG&E where customers could obtain further information on

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<sup>13</sup> See Pub. Util. Code 379.6(a)(2) and legislation referenced therein.

<sup>14</sup> Bloom Comments, 3/22/10 at 4.

the application. Finally, DRA maintains PG&E's filing lacks all pertinent information needed to verify proper notice was given.

In response, PG&E contends the notices were given consistent with long-standing Commission practice and were approved by the Commission's Public Advisor. PG&E asserts the notice adequately informed customers that the proposed facilities would increase electric revenue by \$44.5 million over 10 years and would result in an increase that is less than one percent of PG&E's revenues. According to PG&E, DRA quibbles with details of the notice, such as mailing and e-mail addresses, or a delay of one or two days in the notices' publication, and such details are not grounds for the Commission to dismiss the application.

We agree with PG&E that any defects with the notice are not material. We will not dismiss the application solely because of the minor defects in PG&E's notice and there was ample time in this proceeding for interested customers to comment on the applications after notice appeared. PG&E should correct these defects in future applications, ensuring that notice is timely given and that the notice provides all required information, including e-mail and mailing addresses and locations where the application may be viewed by the public. We appreciate DRA's diligence in ensuring that notice under Rule 3.2 is fulfilled, and its attention to this matter should improve the timeliness and completeness of future notices by PG&E.

## **8. Comments on Proposed Decision**

The proposed alternate decision of Commissioner Peevey in this matter was mailed to the parties in accordance with Section 311 and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed by Bloom, CESA, CMUA, DRA, EPUC, PG&E, SCE, TURN, and WPTF. Reply comments were filed by CMUA, DRA, EPUC, PG&E

and SCE. Minor corrections and clarifications in response to comments are incorporated throughout the decision.

## **9. Assignment of Proceeding**

Michael R. Peevey is the assigned Commissioner and Dorothy J. Duda is the assigned ALJ in this proceeding.

### **Findings of Fact**

1. Fuel cells generate electricity through an electrochemical process that emits lower amounts of pollutants, such as nitrogen and sulfur oxides and, depending on waste heat utilization, less GHGs than conventional power plants.
2. Fuel cells are a preferred resource consistent with the State's loading order and as indicated by their inclusion as an eligible DG technology in the SGIP.
3. The proposed fuel cell projects have an estimated 10-year life and would output waste heat to the universities to serve campus thermal load and discharged water for landscape irrigation.
4. Each utility's Fuel Cell Project includes an electric-only, high efficiency fuel cell, where waste heat is used in the generation process.
5. The electric-only high efficiency fuel cells enhance the demonstrative and educational aspects of the Fuel Cell Projects.
6. PG&E and SCE plan to monitor fuel cell performance, reliability, and load characteristics in comparison to performance of conventional power plants.
7. The Fuel Cell Projects will enhance the universities' educational curriculum, particularly sustainable instructional programs in business, engineering, and environmental studies.
8. The universities have indicated they will only participate in the Fuel Cell Projects if PG&E and SCE own and operate the fuel cells.

9. Fuel cell installations have lagged behind other forms of clean technologies and have not significantly penetrated the market.

10. The Fuel Cell Projects are estimated to produce electricity at a weighted average levelized cost of 28 to 30.4 cents per kWh.

11. The Commission approved a 5 percent contingency rate for PG&E's Humboldt power plant and SCE's Mountainview Power Project in D.06-11-048 and D.03-12-059, respectively.

12. The Fuel Cell Projects contain contingency rates for capital costs that are significantly higher than the contingency rates recently approved by the Commission for power plant projects.

13. PG&E's O&M costs include several hundred thousand dollars in education and outreach labor costs.

14. PG&E requests \$5.79 million for the first four years of non-fuel O&M costs, while SCE requests \$8.9 million in non-fuel O&M for the 10-year life of its fuel cells.

15. DRA's proposed disallowances are based on an EEAI Report, which provides fuel cell cost estimates in 2007 dollars.

16. The fuel cell cost estimates in the applications are based on competitive proposals, in 2009 dollars, provided by fuel cell manufacturers and vendors.

17. In D.07-12-052, the Commission stated its preference that the utilities competitively procure new generation and set forth five categories that might warrant UOG outside a competitive procurement process, including procurement of "preferred resources."

18. The criteria in D.07-12-052 for procurement of new generation apply to the Fuel Cell Projects.

19. The Fuel Cell Projects are preferred resources because they are distributed generation and clean fossil fuel.

20. The Fuel Cell Projects involve an advanced and emerging technology that the market is unlikely to develop absent additional support.

21. A competitive RFO is infeasible for the Fuel Cell Projects because the projects involve a unique partnership between the utilities and the state universities for educational and demonstration purposes.

22. In D.08-09-012, the Commission established that CGDL and MDL customers are excluded from paying NBCs under D.04-12-048 and D.06-07-029 that arise from the utilities' new generation resources.

23. The Fuel Cell Projects are new generation resources as defined in D.08-09-012.

24. In D.01-03-073, the Commission barred utilities from receiving SGIP incentives.

25. The Fuel Cell Projects will be UOG and the electricity generated by the projects will go to the grid and not to the reduction of customer load.

26. PG&E's notice of its application was not published within the 10-day timeframe required by Rule 3.2 and excluded certain information such as mailing and e-mail addresses for the Commission and PG&E.

### **Conclusions of Law**

1. Fuel cells can play an important role in California's future energy mix.
2. The Commission should support the advancement of fuel cell technologies through the Fuel Cell Projects because investment in fuel cells through SGIP has lagged.
3. The Fuel Cell Projects can supplement the Commission's SGIP efforts to advance fuel cell technologies in California.

4. It is reasonable to rely on the fuel cell cost estimates in the applications because they are based on actual vendor cost estimates.

5. The large capital cost contingencies requested by PG&E and SCE are unreasonable and send an improper signal to utilities and vendors to enhance the project scope and costs up to the level of the contingencies.

6. The capital cost contingencies in the Fuel Cell Projects should be reduced in line with the 5 to 10 percent contingencies approved for other generation projects.

7. PG&E's Fuel Cell Project capital costs should be reduced to \$20.3 million and SCE's Fuel Cell Project capital costs should be reduced to \$19.1 million.

8. PG&E's non-fuel O&M costs should not include a contingency factor.

9. Ratepayers should not support the education and outreach labor costs proposed by PG&E.

10. PG&E's non-fuel O&M costs should be reduced from \$5.79 million to \$4.71 million for the first four years of plant operation.

11. PG&E and SCE should each track, for accounting purposes only, their respective Fuel Cell Project's avoided GHG emissions, as described in D.09-12-042. This tracking applies only to fuel cells deployed as a CHP application and not to electric-only fuel cells.

12. The applications comply with the criteria for UOG in D.07-12-052.

13. With respect to the Fuel Cell Projects, the Commission should not deviate from the NBC guidance established in D.08-09-012 for CGDL and MDL.

14. PG&E and SCE should not use SGIP funds for the Fuel Cell Project.

15. The ratemaking treatment proposed by PG&E and SCE for capital costs, O&M costs, and fuel costs for the Fuel Cell Projects should be approved, although if capital or O&M costs exceed estimates approved in this decision, the

utilities may seek recovery of any difference in either a petition to modify this decision or a separate application.

16. PG&E should correct notice defects in future applications and ensure notice is timely given and provides all information required by Rule 3.2.

## **O R D E R**

**IT IS ORDERED** that:

1. The application of Pacific Gas and Electric Company for approval of its Fuel Cell Project, is approved as modified to reduce capital costs to \$20.3 million and reduce non-fuel operations and maintenance costs from \$5.79 million to \$4.71 million to remove any contingency and to exclude costs for education and outreach labor.

2. The application of Southern California Edison Company for approval of its Fuel Cell Installation Program is approved as modified to reduce capital costs to \$19.1 million, to clarify that stranded costs shall be recovered in accordance with Decision 08-09-012, and to prohibit Southern California Edison from using Self-Generation Incentive Program funds for the project.

3. The ratemaking for Pacific Gas and Electric Company's Fuel Cell Project is approved as follows:

- a. Pacific Gas and Electric Company may accrue the initial revenue requirement, as adjusted in this decision based on capital costs and operations and maintenance cost reductions, in its Utility Generation Balancing Account on the commercial operation date of the Fuel Cell Project.
- b. Pacific Gas and Electric Company shall file an advice letter within 90 days of this decision to establish a Fuel Cell Project Memorandum Account to track the difference between

estimated and actual capital costs and estimated and actual operations and maintenance costs.

- c. After the commercial operation date of the Fuel Cell Project, if actual capital costs are less than \$20.3 million, Pacific Gas and Electric Company shall file an advice letter to update the revenue requirement to reflect actual capital costs.
- d. After each year of operation, Pacific Gas and Electric Company shall file an advice letter to adjust the previous year's Utility Generation Balancing Account entries to reflect actual operations and maintenance expenses, as long as they are no higher than \$4.71 million for the first four years of plant operation.
- e. Pacific Gas and Electric Company may seek recovery of reasonably incurred amounts above the estimated capital costs and operations and maintenance costs approved in this decision through either a petition for modification or a separate application.
- f. Pacific Gas and Electric Company may seek recovery of fuel costs for the Fuel Cell Project through the Energy Resource Recovery Account.

4. The ratemaking for Southern California Edison Company's Fuel Cell

Installation Program is approved as follows:

- a. Southern California Edison Company shall file an advice letter within 90 days of this decision to establish a Fuel Cell Program Memorandum Account.
- b. Southern California Edison Company shall record actual capital costs and operation and maintenance costs in the Fuel Cell Program Memorandum Account and transfer the balance monthly to the generation sub-account of Base Revenue Requirement Balancing Account, as long as the amounts are no higher than the estimates approved in this decision. If actual capital expenditures and actual annual operations and maintenance expenses are less than approved in this decision, then the recorded direct capital expenditures and operations and maintenance expenses are reasonable.



- c. If capital costs are less than or equal to \$19.1 million, and total operations and maintenance costs are less than or equal to \$8.9 million, review of Southern California Edison Company's Fuel Cell Program Memorandum Account shall occur in Southern California Edison Company's annual Energy Resource Recovery Account Reasonableness proceeding. If costs exceed these amounts, Southern California Edison Company may file either a petition for modification or a separate application to seek recovery of the excess.

5. Pacific Gas and Electric Company and Southern California Edison Company may each recover stranded costs associated with their respective Fuel Cell Projects through a non-bypassable charge for a 10-year period following commercial operation of the fuel cells, consistent with Commission determinations in Decision 08-09-012.

6. Pacific Gas and Electric Company and Southern California Edison Company shall install metering and monitoring equipment at each project sufficient to provide the following project-specific information: electrical output (15 minute interval basis); thermal output (15 minute interval basis); fuel consumption (15 minute interval basis); system electrical efficiency; and overall system efficiency.

7. Beginning April 30, 2011 and every year thereafter, Pacific Gas and Electric Company and Southern California Edison Company shall each submit annual compliance reports to Energy Division providing an overview the performance of each project deployed pursuant to this decision. The information provided in these reports should include each project's annual capacity factor, system availability during system peak hours, annual fuel consumption, annual electrical output, annual thermal output, overall electrical efficiency for the year, and overall system efficiency for the year, as well as any other information that

Pacific Gas and Electric Company and Southern California Edison believe would be useful in helping Energy Division assess the performance of these systems.

8. Applications (A.) 09-02-013 and A.09-04-018 are closed.

This order is effective today.

Dated April 8, 2010, at San Francisco, California.

MICHAEL R. PEEVEY

President

JOHN A. BOHN

TIMOTHY ALAN SIMON

NANCY E. RYAN

Commissioners

I will file a concurrence.

/s/ TIMOTHY ALAN SIMON

Commissioner

I reserve the right to file a dissent.

/s/ DIAN M. GRUENEICH

Commissioner

**Concurrence of Commissioner Timothy Alan Simon**  
**Decision Authorizing Fuel Cell projects**  
**A.09-02-013/D.10-04-028**

I support this Decision authorizing six megawatts (MW) in proposed fuel cell projects, which are to be installed and maintained on various university campuses in PG&E and Edison's territories.<sup>15</sup> These projects are consistent with our Assembly Bill 32 objectives and the Governor's Green Building Action Plan.<sup>16</sup> Nevertheless, certain interested parties have raised relevant concerns regarding the costs and ratepayer benefits of these assorted projects relative to other generation alternatives. I believe that this is an opportunity to make a small, targeted investment in a sensible technology in order to stimulate market development.

There are a number of benefits to be gained from the maturation of the fuel cell market. For instance, fuel cell electrochemical processes yield clean electricity with low nitrogen oxide (NO<sub>x</sub>) and sulfur dioxide (SO<sub>x</sub>) emissions, and relatively fewer greenhouse gas (GHG) emissions than conventional generation sources.<sup>17</sup> In addition, there are potential university research benefits to be gained through their installation and management on the designated college and university campuses. A careful examination of required performance metrics for the electric-only and combined heat and power (CHP) fuel cells will stimulate greater efficiency of this distributed generation (DG) resource. I would also like to see further investigation of utilizing renewable natural gas<sup>18</sup> as a relatively cleaner fuel substitute as these technologies develop further.

It is also my hope that by incrementally moving these technologies forward in a competitively neutral fashion, this Decision is sending the

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<sup>15</sup> Decision Authorizing Fuel Cell Projects (D.10-04-028), March 2, 2010, at 2.

<sup>16</sup> *Id.* at 9.

<sup>17</sup> See Finding of Fact 1 at 34.

<sup>18</sup> Renewable natural gas sources could include dairy biogas, wastewater biomethane, and other sources of environmentally benign biofuels.

appropriate signals to the clean technology investment community that California will take global leadership in this critical energy source. It is widely known that our Self Generation Incentive Program (SGIP) has a substantially underutilized budget, and that we have a relatively small statewide fuel cell capacity of 12 MW. Thus, while the SGIP program would use less ratepayer funding for such DG projects, it has clearly not supported the kind fuel cell deployment that we had envisioned.<sup>19</sup> Fuel cells are clearly not a new technology, but improvements in design, efficiency, and application should result in increased uptake and hopefully in cost reductions in the long run.

Dated April 13, 2009, at San Francisco, California.

/s/ TIMOTHY ALAN SIMON  
TIMOTHY ALAN SIMON  
Commissioner

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<sup>19</sup> *Id.* at 13-17.