DRAFT

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ENERGY DIVISION

ID #11515
RESOLUTION E-4527
September 13, 2012

R E S O L U T I O N

Resolution E-4527. Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric Company (SDG&E).

PROPOSED OUTCOME: This Resolution directs PG&E, SCE, and SDG&E to revise their respective "Home Area Network (HAN) Implementation Plan" filings to satisfy the intent and requirements of Ordering Paragraph 11 of CPUC's Customer Data Access & Privacy Decision (D).11-07-056.

ESTIMATED COST: None

By PG&E Advice Letter 3956-E filed on November 28, 2011, SCE Advice Letter 2662-E filed on November 29, 2011, and SDG&E Advice Letter 2307-E filed on November 29, 2011.

SUMMARY

This Resolution addresses PG&E Advice Letter 3956-E, SCE Advice Letter 2662-E, and SDG&E Advice Letter 2307-E (collectively referred to here as "Home Area Network (HAN) Implementation Plans" -HIPs) filed in response to Ordering Paragraph 11 of the Customer Data Access & Privacy Decision (D).11-07-056 (the Decision) issued in California Public Utilities Commission's (CPUC's) Smart Grid Rulemaking R.08-12-009, and it resolves the protests to the Advice Letters filed by several Parties.

This Resolution directs PG&E, SCE, and SDG&E (the Utilities) to incorporate certain specified implementation requirements into a supplemental filing within 30 days of the adoption of this Resolution modifying their respective HAN Implementation Plans.

The implementation requirements are (described here in summary form, - the complete text can be found in the Ordering Paragraph of this Resolution):

1. By November 1, 2012, the Utilities shall begin accepting HAN activation requests from customers through a common process and establish support for initially accommodating 5,000 HAN activation requests and gradually increasing to 100,000 requests, and thereafter unrestricted, on a specified timetable.
2. By November 1, 2012, the Utilities shall collaborate to establish and publish common requirements to validate interoperability between commercially available HAN devices and their electric smart meters.
3. By November 1, 2012, each Utility shall validate at least five commercially available HAN devices as interoperable with their smart meters, publish a list of the validated devices, and continue to expand the list based on additional device testing.
4. By October 15, 2012, the Utilities shall collaborate to begin providing basic education to their customers about the HAN functionality available with their smart meters and other details.

The HAN Implementation Plans filed by the Utilities do not sufficiently address the requirements set by the CPUC in Ordering Paragraph 11 of D.11-07-056 for 1) initiating the HAN deployment, 2) making the HAN functionality and benefits generally accessible to customers on a consistent, statewide basis, and 3) enabling a third party market that allows customers to utilize HAN devices of their own choice, independently of the Utility, to monitor their energy consumption.

This Resolution's directive to the Utilities to address the above specified implementation requirements in their HIP filings is necessary to correct the deficiencies and achieve, in a timely manner, CPUC's objectives set forth in Ordering Paragraph 11. The Utilities' execution of this Resolution's directive will remove uncertainty and confusion from the marketplace and establish a clear roadmap for the rollout of the HAN functionality to customers on a statewide basis in a consistent manner, allowing the Utilities and third parties to plan their investments and development in support of the rollout.

Access to the HAN function will allow customers to, in near real-time, monitor their energy consumption measured continuously by the smart meter and/or, in the future, receive and respond to load control signals (also referred to as demand response events). These capabilities enable customers to manage and optimize their energy consumption by identifying conservation opportunities and shifting/reducing peak hour demand to achieve bill savings. Such customer actions can yield system level demand reduction in aggregate which benefits the ratepayers in the form of avoiding future electricity supply costs, a key benefit driving California's investment in the Advanced Metering Infrastructure (AMI), also referred to as smart meters.

BACKGROUND

The following is a summary of the Background section. An expanded discussion of these points is provided immediately after the summary.

1. The Utilities currently ongoing deployments of electric smart meters pre-equipped with HAN function are a key step in providing timely, actionable information to customers about their energy consumption.
2. The activation of the HAN function to provide near real-time access to energy consumption data or demand response signaling is key to achieving certain ratepayer benefits planned for in the AMI business cases.
3. It has been CPUC's policy to have the Utilities collaborate to ensure statewide consistency in HAN communication standards and deployment.
4. It has been CPUC's policy to have the Utilities collaborate to educate customers about HAN capabilities and encourage adoption of HAN technologies.
5. It has been CPUC's policy to encourage development of a competitive, third-party retail market that allows consumers operate HAN devices of their own choosing, independently of the utilities.
6. The current state of the HAN industry and standards appears suitable to begin a controlled rollout of HAN capabilities in California.
7. The funding necessary to support the Utilities activation of the HAN function has been authorized in prior CPUC decisions directing AMI deployments.

8. In Ordering Paragraph 11 of D.11-07-056, the CPUC reiterated its goal to have the Utilities demonstrate tangible progress toward its HAN-related objectives.
9. In response to the above directive, the Utilities filed their respective HAN Implementation Plans via Tier 3 Advice Letters.

The following is an expanded discussion of the above summary.

1. The Utilities' AMI deployments of electric smart meters pre-equipped with the HAN function are a key step in advancing California's goals of providing timely, actionable information to customers about their energy consumption to encourage energy conservation and demand response.

The role of AMI deployment in achieving California's energy objectives was noted by the CPUC in its decision D.08-09-039 approving SCE's AMI deployment program (p.45, *emphasis added*):

> The settlement agreement is consistent with law and state policy and is in the public interest, providing for adoption of a cost effective AMI system that meets the Commission's minimum functionality requirements and can reasonably be expected to *support state energy policy objectives such as increasing demand response, energy conservation, and load control, and providing near-term energy usage information to customers, and increasing the availability of dynamic rate options.*

The HAN function of an electric smart meter is a communications interface that is managed by the Utility and can be accessed wirelessly by a customer's HAN device located on the customer's premise to monitor, in near real-time, the customer's energy usage[1] measured continuously by the smart meter. The customer may also receive load control signals (also referred to as demand response events) that may be transmitted by the utilities via the smart meter to

[1] PG&E's AMI/Smart Meter Upgrade Decision D.09-03-026, at 9:

> A key feature of the new communications technology will be to give customers near real-time access to their energy usage data.

the customer's HAN device to indicate high wholesale energy price or adverse grid reliability conditions. The wireless communication between the smart meter and the customer's HAN device is enabled when the smart meter's HAN function is activated by the Utility to recognize and securely communicate only with a particular customer HAN device that has been authorized by both the customer and the Utility.

2. The activation of electric smart meters' HAN function to provide near real-time access to energy usage data or demand response signaling is key to achieving certain ratepayer benefits planned for in the AMI business cases underlying the CPUC decisions to approve the Utilities' AMI deployments.

The CPUC approved the Utilities' deployment of the AMI infrastructure, including installation of electric smart meters pre-equipped with the HAN function, based on a finding of positive business cases for all three Utilities from the ratepayer's perspective (specifically, the benefits to ratepayers exceeded the costs of each Utility deploying and operating the AMI infrastructure over its projected life). The benefits enabled by the AMI systems in these cases included 1) operational benefits realized by the utilities in achieving more efficient operations and improved system reliability and 2) demand side benefits (such as energy conservation and demand response) realized by the ratepayers through avoidance of future electricity supply costs due to the demand reduction achieved by customers receiving timely information about their energy consumption generated by smart meters and time-differentiated price tariffs and load control signals supported by smart meters.

The demand side benefits constituted a significant portion of the overall AMI business cases, as acknowledged by the CPUC in D.08-09-039 in SCE's AMI proceeding (p.16, *emphasis added*):

> According to DRA and SCE, the AMI plan recommended in the settlement is reasonably expected to generate $1,174 million in operational benefits and *$816 million in energy conservation, load control, and demand response-related benefits.*

Some fraction of the demand side benefits in the approved AMI business cases was predicated, in turn, on customers leveraging the near real-time usage

monitoring and event signaling enabled by their smart meter HAN function to drive demand reduction via energy conservation, demand response and automated load control capabilities. As an example of the potential benefits enabled by the HAN, the reduction in energy consumption achieved by customers monitoring their usage through a HAN device was projected to be more than three times the reduction achieved by customers accessing only a web portal to monitor their usage.[2]

Hence, the activation and widespread use of the HAN function is a key step in advancing California's energy policies and maximizing the benefits and return on the state's investment in the AMI infrastructure.

3. It has been the CPUC's policy to have the Utilities collaborate to ensure statewide consistency in HAN communication standards and deployment.

In support of achieving this objective, the CPUC has issued various directives to enable the activation and use of the smart meter HAN function through implementation of *standards-based* communication protocols.

In Ordering Paragraph 4 of SDG&E's AMI deployment decision D.07-04-043, the CPUC directed:

> "SDG&E shall work with the other major California utilities to strive for statewide, clearly defined and commercially available open standards for Home Area Network (HAN) communications systems."

The CPUC recognized the importance of coordination between the Utilities to ensure statewide consistency in HAN standards and deployment and to allow efficient development of HAN technology and the associated marketplace in its decision D.09-03-026 approving PG&E's AMI/Smart Meter Upgrade Program (p.12):

[2] D.08-09-039, Appendix A (SCE's AMI Settlement Agreement), Attachment A, at A-1 & A-2.

> "We have already authorized such [HAN] deployment for both SDG&E and SCE, and to do for PG&E would ensure statewide consistency as long as their efforts are coordinated. We feel such consistency is important in providing a basis on which the HAN technology can efficiently develop and for providing a large market force that can be influential in developing appropriate standards."

4. It has been the CPUC's policy to have the Utilities collaborate to educate customers about HAN capabilities and encourage adoption of HAN technologies by consumers to help them manage their energy consumption.

The CPUC directly addressed this goal in Ordering Paragraph 5 of D.09-03-026 (p.195):

> "To facilitate the HAN concept, PG&E should work with the other major California energy utilities to strive for statewide, easily understandable information and other resources, as appropriate, to increase consumer awareness of commercially available HAN technologies and HAN-enabled benefits and to promote the adoption of such HAN technologies by consumers in order to facilitate their ability to understand their energy consumption and costs and to optimally utilize their discretionary options."

5. It has been the CPUC's policy to encourage development of a competitive, third-party retail market that allows consumers to choose and deploy their own HAN devices independently of the utilities.

In D.09-03-026, the CPUC described its expectation that third party vendors in the private industry would have the primary responsibility in introducing HAN devices to customers (p.85):

> "Laboratory testing and product demonstrations [of HAN devices] should first be the responsibility of those in private industry who will in the end profit from the [sale of] various HAN related devices."

In D.08-09-039 in SCE's AMI proceeding, the CPUC noted its expectation regarding customers choosing their own HAN devices through the retail market

by acknowledging the understanding reached by Parties that HAN devices, such as in-home display devices, will be sold "through, big-box retailers, online outlets, others;"[3]

In D.09-03-026, the CPUC again confirmed its expectation that customers will bear the responsibility for selecting and managing their own HAN devices by stating (p.86):

> "…the cost of the IHD [in-home display] is the customer's responsibility."

6. The funding necessary to support the Utilities activation of the HAN function consistent with CPUC policies detailed above has been authorized in prior CPUC decisions directing the Utilities to deploy AMI.

The CPUC's decision D.07-04-043 approving SDG&E's AMI deployment noted:[4]

> "1. The total project cost is increased…to include the additional cost of adding Home Area Network (HAN)…"

The CPUC's decision D.08-09-039 approving SCE's AMI deployment stated (p.45):

> "The settlement agreement …[provides] for adoption of a cost-effective AMI system ["including interface with a Home Area Network (HAN)"[5]] that can reasonably be expected to support state energy policy objectives such as … load control, and providing near-term energy usage information to customers [enabled by HAN]…"

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[3] D.08-09-039, Appendix A SCE's AMI Settlement Agreement, Attachment A, at A-1.

[4] D.07-04-043, Appendix A (Settlement Agreement Regarding SDG&E's AMI Application A.05-03-015) at 3.

[5] D.08-09-039 at 43.

The CPUC's decision D.09-03-026 approving PG&E's AMI/Smart Meter Upgrade Program stated (p.12):

> "This is an appropriate time to authorize deployment of HAN gateway devices for PG&E. We have already authorized such [HAN] deployment for both SDG&E and SCE, and to do for PG&E would ensure statewide consistency …Also, as part of this decision, we authorize funds for PG&E to continue to work with the other utilities in California and throughout the United States to establish standards for HAN technology and applications."

7. The current state of the HAN industry and standards appears suitable to begin a controlled rollout of HAN capabilities in California.

Since the approval of various CPUC decisions authorizing deployment of smart meters equipped with the HAN interface, the Utilities have made substantial progress in the implementation of the overall AMI infrastructure. To date, the combined deployment of about 10 million electric smart meters is over 90% complete; and the Utilities are expected to achieve full deployment by the end of 2012 (with some exceptions involving customers with special situations yet to be resolved).

In contrast, the HAN-related progress has been lagging. To some extent, this can be attributed to challenges associated with an early stage innovative technology, including delays in the standards development process, the meter and HAN device vendors striving to achieve interoperability, and industry experimentation with business models that successfully address the needs of customers, utilities, device vendors and service providers.

However, a recent review by the Energy Division found an active ecosystem of HAN device suppliers and third parties focused on delivering HAN capabilities to consumers. SCE reported it has been able to test over 20 HAN devices. Although many of these were found to have interoperability issues in initial testing, SCE indicated that it was able to "successfully" work with the device

manufacturers to solve the interoperability issues for most devices.[6] A recent report published by the Public Utility Commission of Texas, which initiated its HAN rollout in 2011, listed over 25 different HAN devices from over 15 different suppliers that have successfully passed HAN interoperability testing performed by Texas utilities as of April 30, 2012.[7] Additionally, approximately 9,000 HAN devices have already been supplied by third parties to customers and provisioned to communicate with customers' smart meters in Texas, and the number of active HAN devices in Texas is increasing by several hundred per week.[8]

8. More recently, in the Decision D.11-07-056, the CPUC re-iterated its goal to have the Utilities demonstrate tangible progress toward its HAN-related objectives by requiring the Utilities to submit detailed plans for 1) actually initiating the HAN deployment, 2) making the HAN functionality and benefits generally accessible to customers on a consistent, statewide basis, and 3) enabling a third party market that allows customers to utilize HAN devices of their own choice, independently of the Utility, to monitor their energy consumption.

Ordering Paragraph 11 of the Decision states (the following has been re-formatted for clarity, with certain elements that are the focus of this Resolution highlighted for emphasis):

> "Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company must each file a Tier 3 advice letter

[6] SCE's presentation to Energy Division ("Interim HAN Solution Phase 1 CPUC Update") dated February 13, 2012, at 6.

[7] http://www.puc.state.tx.us/industry/projects/electric/34610/Texas_HAN_Device_Test_Report.pdf

[8] http://www.puc.state.tx.us/industry/projects/electric/34610/AMITMtg071912/SMT_HAN_Report.pdf.

within four months to develop Smart Meter Home Area Network (HAN) implementation plans specific to each.

Each implementation plan should include an estimated rollout implementation strategy, including a timetable, for *making HAN functionality and benefits generally accessible to customers in a manner similar across all three companies*.

The implementation plans shall include an *initial phase with a rollout of up to 5,000 HAN devices, which would allow for HAN activation for early adopters upon request*, even if full functionality and rollout to all customers awaits resolution of technology and standard issues.

The implementation strategy for HAN activation should discuss key issues, such as:

- costs,
- expanded data access and data granularity,
- current and evolving national standards & security risk mitigation and best practices,
- *responsibilities for secure HAN connection,*
- outcomes from working on HAN device interoperability,
- *security testing and certification methodologies developed in collaboration with interested third parties (e.g. LBNL or CSU-Sac),*
- customer needs and preferences,
- a strategy for learning from the initial rollout, and
- *provisions for accommodating customers' efforts to utilize HAN functionality independent of the utility.*

The full rollout shall require smart meters to transmit energy usage data to the home so that it can be received by an HAN device of the consumer's choice."

9. In response to the above directive, the Utilities filed their respective HAN Implementation Plans via Tier 3 Advice Letters.

A brief summary of each Advice Letter filing follows.

SCE's HIP filing[9] describes a two-phased approach to deploy the HAN functionality and provide customers with HAN-enabled capabilities. The first phase began in December 2011 and incorporated the currently available SEP (Smart Energy Profile) 1.0 standard for HAN communications. In this phase, SCE has established back office support for accommodating 5,000 HAN activations and can scale up to 10,000 participants.[10] Also, during this phase, SCE will conduct its own pilot to identify improvements (for example, back office system automation and customer behavior) and incorporate those improvements into the second phase of the HAN functionality rollout.[11] The second phase rollout will commence in the fourth quarter of 2012 with additional back office system automation and introduction of demand response functionality and represents the HAN functionality that, according to SCE, was authorized by D.08-09-039 in SCE's AMI deployment proceeding.[12] Phase 2 will continue through December 2014, after which point the HAN rollout will be incorporated into normal utility operations.

PG&E's HIP filing[13] describes a three-phase approach to rollout the HAN capability. Phase 1, the "Initial Rollout Phase" beginning March 1, 2012, includes a pilot conducted by PG&E for up to 500 customers & employees receiving HAN devices (provided by PG&E) with "full, end-to-end customer registration and technical support."[14] Contingent on a satisfactory outcome of the pilot phase, PG&E plans to begin Phase 2, the "Early Adopters Phase," and expand its HAN program to support up to 5,000 HAN activations in late 2012/early 2013, including compatibility testing of a limited number of commercially available

[9] SCE AL 2662-E.

[10] *Id*. at 2.

[11] *Id*.

[12] *Id*.

[13] PG&E AL 3959-E.

[14] *Id.* Attachment 1 at 3.

third-party HAN devices, which could be registered by customers for HAN use.[15] If the second phase is "successful" and contingent on "sufficient" development of the device market based on the HAN SEP 2.0 standard yet to be adopted by the industry, PG&E will be prepared to launch Phase 3, the "Mass Market Phase" (estimated to be sometime in the 2014-2015 time period), enabling "the HAN platform to support broader mass market adoption" and opening it up to "all third-party HAN devices that meet PG&E's certification and registration standards."[16]

SDG&E's filing[17] notes that it has already completed four HAN pilots in 2011 involving approximately 700 customers and devices using the HAN SEP 1.0 standard.[18] With expiration of funding authorized for these pilots, SDG&E plans to explore other options to extend the pilots[19] and eventually enable the 5000 HAN activations. The filing speculates that the timing for HAN "retail enablement" could be sometime in 2014.[20]

PROTESTS & COMMENTS

Seven parties filed protests: Division of Ratepayer Advocates (DRA), TechNet, MyEnersave (now called Bidgeley), Direct Access Customer Coalition (DACC) and Alliance of Retail Energy Markets (AReM), Demand Response and Smart Grid Coalition (DRSG), Ember Corporation, and Zigbee Alliance. All protests were filed on December 19, 2011, except Bidgeley, which filed on December 18, 2011.

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[15] *Id.* Attachment 1 at 5.

[16] *Id.*

[17] SDG&E AL 2307-E.

[18] *Id.* at 3.

[19] *Id.* at 11.

[20] *Id.* at 12.

The protests are summarized briefly here, with details discussed in the Discussion section below.

The protests by DRSG, TechNet, Bidgeley, and Ember argued that certain revisions or additions (described later below) are required in the Utilities' HIPs to fully comply with the Decision.

DRA's protest raised a variety of issues, essentially arguing that the Utilities should be directed to provide additional information generally required for R&D or demonstration programs; such as project costs & benefits, milestones, metrics, and customer education plans.

The joint protest by DACC and AReM contended that the CPUC should restrict the scope of the Utilities HAN efforts and establish principles for allocating HAN related costs incurred by the Utilities that promote competition.

Zigbee Alliance offered general advice and support to the CPUC to help advance the HAN rollout and the third party HAN market.

The Utilities filed their replies on December 27, 2011. The replies did not directly address many issues raised by the protests. Where relevant, some aspects of the replies are described further in the Discussion section below in relation to specific protests.

DISCUSSION

We discuss next the protests by Parties in further detail.

This Resolution agrees with some elements of the protests by Parties and finds other elements of the protests to be outside the scope of the Utilities filings.

DRSG's Protest

The protest by DRSG (Demand Response & Smart Grid Coalition) argued that to achieve compliance with the Decision, the CPUC should be require the Utilities to:

1. Eliminate limits on the number of HAN devices installed,

2. Clarify when third parties will be able to work with customers to install devices independent of the utility,
3. Clarify what process will be used by the utilities for evaluating HAN devices,
4. Clarify utilities' role in the HAN deployment (in the immediate time frame and on an ongoing basis),
5. Clarify how utilities and third parties will work together on security testing and registration,
6. Accelerate the HAN deployment,
7. Clarify how and when meters for Commercial & Industrial customers (with over 200 kW demand) will be subject to the "same open-access policy," and
8. Provide for expanded data access beyond usage.

The Utilities did not directly address most elements of DRSG's protest in their replies. To explain the general lack of details in its HAN Implementation Plans (HIP) filing regarding the above issues relating to timelines and implementation, SDG&E's reply suggested that it cannot provide such details at this time because "SDG&E's experience over the past year [with its four HAN pilots] has shown that there are still many unknowns in this arena and vendors differ on what they can provide and support at what costs."[21]

We largely agree with the first six elements of DRSG's protest and this Resolution's directives are designed to address them. In line with CPUC's policy already noted encouraging development of a robust, competitive, third-party retail market that allows consumers to select HAN devices of their own choice independently of the Utilities, we believe the uncertainties described by SDG&E are best sorted out in the marketplace, with industry participants and customers conducting their own experimental trials of new technologies and services (such as, HAN suppliers performing "pilots" of their offerings with interested

[21] SDG&E's Reply (dated December 27, 2011) to Protests of AL 2307-E, p.2

customers) or third parties initiating HAN-based service offerings at their own risk. This is best facilitated, we believe, by implementing a controlled HAN rollout with the utilities in a support role, as described in this Resolution's order, enabling HAN activations upon customer requests and allowing customers, HAN vendors and service providers to engage directly with each other to sort out successful technologies and business models.

We find the last two elements of DRSG's protest to be outside the scope of the HIP filings. Regarding the protestor's issue with addressing data access for Commercial & Industrial customers with greater than 200 kW demand, we agree with SCE's argument in its reply that the scope of the AMI deployment authorized by prior CPUC decisions, including the HAN interface capability, was limited to customers with less than 200 kW demand.[22] Regarding DRSG's issue with providing for expanded data access beyond usage, we note that Ordering Paragraph 11 of the Decision specifically required access to only energy usage data at this time but directed the HIPs to discuss expanded data access as a future service.

TechNet's Protest

TechNet's protest argued that the Utilities HIP filings were not in compliance with the Decision and that compliance requires that the HIPs should:

1. Include a clear plan to enable HAN activation for up to 5,000 HAN devices,
2. Clarify that customers may connect HAN devices of customer's choice, including those with internet connectivity,
3. Allow early adopters to have the opportunity to transact with third parties during early phase and full deployment,
4. Provide for expanded data access beyond usage data (other data that may be recorded by smart meter), and

[22] SCE's Reply (dated December 27, 2011) to Protests of AL 2662-E, p.4.

5. Address meter data access for customers with greater than 200kW demand.

Again, the Utilities did not directly respond to the first three points made by TechNet, which are similar to the points made by DRSG. We agree with TechNet on these points and believe the implementation requirements described in this Resolution's directive address TechNet's concerns. We find the remaining two points offered by TechNet to be similar to the last two points made by DRSG discussed above and, thus, to be outside the scope.

DRA's Protest

DRA's protest argued that the CPUC should:

1. Require the Utilities to comply with PUC Section 740.1 and provide information required for RD&D programs, such as project costs/benefits, milestones, metrics, and customer education plans,
2. Require the Utilities to provide anticipated costs/benefits associated with HAN plans (and identify & list any additional future funding requests that may fall within the scope of the plans), and
3. Clarify that any approval of HAN plans is not approval of any future incremental funding requests related to the plans.

We agree with SCE's reply that DRA's first two objections are outside the scope or not relevant. As SCE argues, the HAN rollout is not a new proposal or RD&D program with cost implications because it was already authorized in prior CPUC decisions directing deployment of AMI smart meters,[23] including the costs associated with implementation of the HAN function.[24] Further, we note that the Decision directing the filing of the HIPs was not a rate-setting proceeding and did not authorize any incremental ratepayer funding for the plans. Additionally, the cost & benefit analysis for the HAN deployment was already considered by

[23] SCE's Reply (dated December 27, 2011) to Protests of AL 2662-E, p.3.

[24] *Id.*

CPUC in its prior AMI deployment decisions. On the last point, we concur with DRA that neither the Ordering Paragraph 11 of the Decision nor this Resolution authorizes any incremental ratepayer funding related to the implementation of the HIPs, beyond those already approved in the AMI deployment decisions or other proceedings.

Joint Protest by AReM & DACC

The joint protest by AReM & DACC argued that CPUC should:

1. Require the Utilities to facilitate and enable HAN access by customers and third parties,
2. Restrict the Utilities proposals for extensive infrastructure and personnel resources devoted to their HAN efforts,
3. Defer action on HIP filings until CPUC defines the long-term role of the Utilities with regard to HAN in the Smart Grid proceeding, and
4. Establish principles for allocation of HAN related costs that promote competition and customer involvement as proposed.

We find the first contention to be similar to the points already addressed via this Resolution's directives. We find the remaining contentions to be outside the scope of the HIP filings as they relate to policy matters that the CPUC has already addressed in prior decisions or are otherwise not appropriate to an Advice Letter protest per CPUC's General Order 96-B.

Protests by Ember, Zigbee Alliance, and Bidgeley

Ember argued that:

1. The Utilities HIPs do not meet the required rollout of 5,000 units by March 1, 2012,
2. The Utilities HIP schedules to accommodate customer efforts to utilize HAN independently of the utilities until 2013/2014 are unreasonable,
3. The Utilities HIPs should not pursue "extra" services at the expense of rollout schedule for basic data access,

4. The ownership/functionality of the HAN devices should be shifted to device providers and the Utilities should focus on meter functionality required to support HAN devices, and
5. The CPUC should consider test events to validate that the Utilities back-end systems can support third party HAN devices.

Zigbee Alliance contended that:

1. The Utilities HIPs should reference joint work by the utilities to facilitate a smooth market transition, and
2. The Utilities HIPs should build on HAN deployment related progress already achieved in Texas.

Bidgeley (filed as MyEnerSave) suggested that CPUC should:

1. Require the Utilities to clarify which HAN devices are available to consumers, cost of the devices, etc.,
2. Require the Utilities to select and make available to consumers a variety of HAN devices, including low-end basic devices, and
3. Require the Utilities to publish open APIs [Application Programming Interfaces] to make smart meter data available to [authorized] third party service provider via HAN devices in real time.

We note that Ember's first contention is a mis-reading of CPUC's order (and also a mis-characterization of SCE's filing). We find Bidgeley's protest and the last contention in the protests by Ember and Zigbee Alliance to be outside the scope of the Decision's Ordering Paragraph 11 and the HIP filings. Beyond that, we find that the remaining issues raised by Ember and Zigbee Alliance are similar to those discussed in earlier protests that we have already agreed with and addressed via this Resolution's directives.

This Resolution finds that the Utilities HAN Implementation Plan filings do not reasonably address key aspects of Ordering Paragraph 11 of the Decision relating to the HAN rollout and enablement of an independent third party HAN market.

Our review of the protests and the Utilities HIP filings found multiple deficiencies that include lack of clarity or a clear plan regarding, but not limited to:

- when and how customers, particularly "early adopters," could contact the Utilities to request HAN activation on their smart meters;
- how customers would become aware of the availability and capabilities of the HAN function;
- how customers would determine which commercially available HAN devices are interoperable with their smart meters;
- how HAN device vendors would determine whether their devices interoperate with each Utility's smart meters; and
- when and how the HAN functionality would be generally accessible to customers.

The absence of such details, in effect, amounts to a failure by the HIPs to reasonably address the Ordering Paragraph's requirement to discuss provisions to 1) support "an initial phase" (starting March 1, 2012) that allows "up to 5,000 … HAN activation[s] for early adopters upon request," and eventually, make the HAN function "generally accessible to customers", 2) accommodate "customers' efforts to utilize HAN functionality independently of the utility," (that is, enable a third-party/retail HAN market) and 3) allow "an HAN device of consumer's choice."

Additional deficiencies in the filings found by our review with respect to other elements of the Ordering Paragraph include (but not limited to):

- the filings do not demonstrate that the Utilities collaborated to ensure that the smart meter HAN capability is "accessible to customers in a manner similar across all three companies[,]"
- the Utilities do not address HAN "testing and certification methodologies developed in collaboration with interested third parties[,]"
- the timetables proposed in some plans to execute the initial phase of 5,000 HAN activations by early adopters and to make the HAN generally

accessible (including enabling the third party market) are undefined or unreasonably long

We note that not all HIPs were deficient to the same degree; that is, some plans addressed some elements of Ordering Paragraph 11 more effectively than others. For example, SCE's HIP does describe support for 1) far more than the 5,000 early adopter HAN activation requests specified by the Decision, 2) phone registration of HAN devices by customers, and 3) a strategy to launch a retail channel partnership by the third quarter of 2012. However, on the whole, as argued by several Parties, we found much ambiguity or lack of specificity, coordination, or timely schedules in the Utilities HIP filings regarding important details required to address key aspects of Ordering Paragraph 11, as discussed above.

To determine how to correct the deficiencies discussed above in meeting the requirements of Ordering Paragraph 11, the Energy Division engaged in extensive dialogue with the Utilities, Lawrence Berkeley National Laboratory, Parties, and other industry participants during the first half of this year. Through this process, the Energy Division identified several specific implementation steps necessary to reasonably satisfy the Decision's order. The implementation requirements are (described here in summary form – the complete text can be found in the Ordering Paragraphs of this Resolution):

1. By November 1, 2012, the Utilities shall begin accepting HAN activation requests from customers through a consistent process and establish support for initially accommodating 5,000 HAN activation requests and gradually increasing to 100,000 requests, and thereafter unrestricted, on a specified timetable.
2. By November 1, 2012, the Utilities shall collaborate to establish and publish common requirements to validate interoperability between commercially available HAN devices and their electric smart meters.
3. By November 1, 2012, each Utility shall validate at least five commercially available HAN devices as interoperable with their smart meters, publish a list of the validated devices, and continue to expand the list based on additional device testing.

4. By October 15, 2012, the Utilities shall collaborate to begin providing basic education to their customers about the HAN functionality available with their smart meters and other details.

This Resolution directs the Utilities to incorporate the implementation requirements ordered herein into a supplemental Advice Letter filing within 30 days of the adoption of this Resolution, modifying their respective HAN Implementation Plans.

The implementation steps detailed in this order are necessary to remedy deficiencies in the Utilities filings to satisfy Ordering Paragraph 11, and achieve, in a timely manner, CPUC's objectives of 1) initiating the HAN rollout, 2) allowing customers to access their smart meters' HAN functionality on a consistent, statewide basis, and 3) enabling a competitive, third party retail market for HAN devices that allows customers to select a HAN device of their choice. The execution of this Resolution's directive by the Utilities should reduce uncertainty and confusion from the marketplace and establish a clear roadmap for the rollout of the HAN functionality to customers on a statewide basis in a uniform manner, allowing the Utilities and third parties to plan their investments and development in support of the rollout.

COMMENTS

Public Utilities Code section 311, subdivision (g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311, subdivision (g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments, and will be placed on CPUC's agenda no earlier than 30 days from today.

FINDINGS

1. The Utilities' AMI deployments of electric smart meters pre-equipped with HAN function are a key step in advancing California's goals of providing timely, actionable information to customers about their energy consumption.
2. The activation of electric smart meter's HAN function to provide near real-time access to energy consumption data or demand response signaling is key to achieving certain ratepayer benefits included in the AMI business cases approved by the CPUC.
3. It is the CPUC's policy to have the Utilities collaborate to ensure statewide consistency in HAN communication standards and deployment.
4. It is the CPUC's policy to have the Utilities collaborate to educate customers about HAN capabilities and encourage adoption of HAN technologies by consumers to help them manage their energy consumption.
5. It is the CPUC's policy to encourage development of a robust, competitive, third-party retail market that allows consumers to access the electric smart meter's HAN functionality through customer-owned HAN devices of their own choosing independently of the utilities.
6. The funding necessary to support the Utilities activation of the HAN function has been authorized in prior CPUC decisions directing AMI deployments.
7. The current state of the HAN industry and standards appears suitable to begin a controlled rollout of HAN capabilities in California.
8. In Ordering Paragraph 11 of D.11-07-056, the CPUC reiterated its requirements to have the Utilities demonstrate tangible progress toward its HAN-related objectives by requiring the Utilities to submit detailed plans for, among other elements, 1) actually initiating the HAN deployment, 2) making HAN functionality and benefits generally accessible to customers on a consistent, statewide basis, and 3) enabling a third party market to allow customers to utilize HAN devices of their choice.
9. The HAN Implementation Plans filed by the Utilities via Tier 3 Advice Letters do not sufficiently address the requirements set by the CPUC in Ordering Paragraph 11 of D.11-07-056.

10. Some aspects of Parties protests calling for the HAN Implementation Plans to be revised, as discussed above, in order to comply with the Decision are reasonable.

11. Some aspects of Parties protests, as discussed above, are out of scope of the HAN Implementation Plan filings.

12. The implementation requirements ordered herein are reasonable and necessary to address the intent and requirements of Ordering Paragraph 11 of D.11-07-056.

THEREFORE IT IS ORDERED THAT:

1. To correct the deficiencies in the HAN Implementation Plan filings in complying with the intent & requirements of Ordering Paragraph 11 of the Decision D.11-07-056, PG&E, SCE, and SDG&E (collectively, the Utilities) shall incorporate the following implementation requirements into a supplemental filing within 30 days of the adoption of this Resolution and the Utilities shall execute their HAN Implementation Plans accordingly:

    a. By November 1, 2012, each Utility shall begin accepting requests from its customers, via phone or a web portal through a process consistent across the Utilities, for activating the HAN function of the customer's electric smart meter to allow the customer to use a commercially available HAN device (of customer's choosing and obtained by the customer from the marketplace independently of the Utility) to monitor in near real-time the household electricity usage recorded by the customer's smart meter.

        i. Each Utility shall establish an applicable infrastructure sufficient to support a cumulative number of activation requests meeting or exceeding the following levels: 5,000 per utility before December 31, 2012, 25,000 per utility before June 30, 2013, and 100,000 per utility before December 31, 2013; thereafter, the number of activation requests shall be unrestricted.

        ii. For a industry standards-based HAN device obtained by the customer independently of the Utility, the Utility shall make the electric smart meter available for secure pairing to the customer's

HAN device but shall not be responsible for the performance or quality of the customer's HAN device. For a HAN device obtained by the customer not previously validated by Utility testing for interoperability, the Utility need not provide further support in case of the device's inability to interoperate with the smart meter.

b. The Utilities shall collaborate with each other, other third parties and relevant standards-related organizations as appropriate, facilitated by CPUC Staff as needed, to develop 1) a common set of reasonable requirements and testing process for validating interoperability between the Utilities' electric smart meters and commercially available HAN devices offered by third parties for the purpose of monitoring in near real-time the electricity usage recorded by smart meters, and 2) a common set of requirements to be satisfied by a HAN device supplier for its device to be eligible for interoperability validation testing by the Utility.

   i. The interoperability validation requirements and testing process and the eligibility criteria shall be published by the Utilities in a joint Advice Letter (Tier 1) filing by November 1, 2012.

   ii. The validation process may be exercised by the Utilities to validate commercially available third party HAN devices for interoperability relative to their respective smart meters on a non-discriminatory, first come–first serve basis until a robust standards-based interoperability certification process by independent third-party laboratories becomes available and is applicable to the Utilities smart meters.

   iii. The Utilities shall not be held liable for any market-related impact on the HAN device vendor due to the Utilities' interoperability testing process or outcome.

   iv. The Utilities shall collaborate with each other, the CPUC Staff, other third parties, the CEC and relevant standards-related organizations as appropriate to establish independent third-party laboratories that can conduct HAN device interoperability testing

relative to the Utilities smart meters, alleviating the need for testing by the Utilities.

c. By November 1, 2012, each Utility shall publish on its website a list of at least five commercially available HAN devices that have been validated by the Utility for interoperability with their respective smart meters.

   i. The set of validated HAN devices shall be diversified in terms of: functionality (at least one must be an in-home display, and at least two must be able to communicate with the internet independently of utility involvement), cost (at least one device with internet capability must be below $100 manufacturer's suggested retail price), and suppliers (at least three different suppliers must be represented).

   ii. The Utilities shall make a reasonable effort to expand the list of validated HAN devices within six months as described above (in part b).

   iii. The Utilities may exercise discretion, in consultation with CPUC Staff, in terminating the list when alternative means become available to communicate information about interoperable HAN devices to customers via third parties.

d. Beginning October 15, 2012, the Utilities shall collaborate with each other and third parties, in consultation with CPUC Staff, to provide basic education to customers about the HAN function available with their electric smart meters, its potential applications and benefits, potential interoperability risks associated with HAN devices that have and have not been subjected to interoperability validation tests, and the respective responsibilities of the Utility, the third party HAN device supplier and the customer in 1) achieving device pairing with the smart meter, 2) meeting device performance and quality expectations, and 3) protecting customer's usage data, network and appliances.

2. CPUC Staff shall monitor the progress in the execution of the HAN Implementation Plans and provide additional guidance and recommendations as needed to address the objectives set forth in Ordering Paragraph 11 of the Decision D.11-07-056 and in this Resolution.

3. This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on September 13, 2012; the following Commissioners voting favorably thereon:

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PAUL CLANON
Executive Director