

DOCKETED

Docket Number:	24-FDAS-02
Project Title:	Load Flexibility Policy & Planning
TN #:	257593
Document Title:	Landis+Gyr Response Comments to RFI and Consultant Report for Load Flexibility Signaling Options
Description:	N/A
Filer:	System
Organization:	Landis+Gyr
Submitter Role:	Public
Submission Date:	7/3/2024 3:21:26 PM
Docketed Date:	7/3/2024

*Comment Received From: Landis+Gyr
Submitted On: 7/3/2024
Docket Number: 24-FDAS-02*

Landis+Gyr Response Comments to RFI and Consultant Report for Load Flexibility Signaling Options

Additional submitted attachment is included below.

July 3, 2024

California Energy Commission
Re: Docket No. 24-FDAS-02
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Re: Docket No. 24-FDAS-02, Load Flexibility Policy & Planning

Dear Commissioners:

Landis+Gyr is pleased to provide comments on the California Energy Commission (CEC)'s Load Flexibility Policy and Planning docket. Landis+Gyr is a leading global provider of integrated energy management solutions for the utility sector. Offering one of the broadest portfolios of products and services to address complex industry challenges, the company delivers comprehensive solutions for the foundation of a smarter grid, including smart metering, distribution network sensing and automation tools, load management, analytics, and electric vehicle charging. Landis+Gyr operates in more than 30 countries across five continents. With sales of approximately USD \$1.7 billion, the company pursues the sole mission of helping the world manage energy better.

Senate Bill 49 (2019) mandates the CEC to set minimum standards for appliances sold or leased within California to promote flexible demand, support grid operations, and reduce greenhouse gas emissions by scheduling, shifting or curtailing appliance operations with customer consent, while maintaining feasibility and cost-effectiveness. The CEC staff was directed to consider technical feasibility, cost-effectiveness, cybersecurity, reliability, consumer consent, and ease of use when evaluating proposals. Staff was also directed to coordinate with the California Public Utilities Commission, load serving-entities, and the California Independent System Operator to align flexible demand appliance standards with other demand response programs administered by the State and load-serving entities.

Landis+Gyr supports the CEC's incremental efforts to expand demand flexibility. The release of the May 29, 2024 *Consultant Report Expanding Flexible Demand in California through the Statewide MIDAS Data Delivery* ("Report") is part of this effort. The development of Flexible Demand Appliance Standards (FDAS) will advance California's clean energy and affordability goals by improving the coordination of assets on the distribution grid equitably. While Landis+Gyr is supportive of the overall demand flexibility initiatives, the Report makes several assumptions that may not reflect the market today or overall costs to consumers. The following comments primarily address RFI question #11, responding to recommendations and conclusions in the Report.

Respectfully submitted,

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Response to the Report

1. Foundational Principle #1 does not reflect today's market. Smart meters provide additional benefits to California's demand flexibility goals.

The Report argues that AM/FM communications are the best method to communicate signals to devices in part because, per the first of the six foundational principles, it is “available to every customer in the state.” This statement is inaccurate because AM/FM signals vary significantly according to geography, as anyone on a long road trip knows. The variability in AM/FM channels may result in complications in deployment. Additionally, excluding smart meters from consideration is premature and overlooks the market direction of many utilities in the United States. Projections indicate that by 2029, 182 million AMI meters will be deployed¹ with 90% penetration² rate into homes and businesses. AMI meters provide other benefits that support California's CalFUSE initiative, clean energy goals, wildfire safety plans, and other initiatives. While smart meters may not be deployed ubiquitously in California today, California's robust regulatory requirements will continue to drive the adoption of this foundational technology.

2. The Report does not consider feasibility and cost effectiveness. Recommended delivery methods will prompt new costs to manufacturers and further isolate California's market.

The Report estimates over 30 million FDAS-compliant appliances by 2035, contributing 6 GW of demand resources. While these numbers are promising, the Report neglects to consider the holistic cost of implementing the recommended protocol, conflicting with SB 49's mandate to consider feasibility and cost effectiveness. The proposed FM/AM protocol, not currently used by any other state or country, would require significant changes to manufacturers of appliances. Other smart grid equipment would be impacted as well, including smart meters, DERMS, load management programs, and other utility systems that will need to interact with the appliances. The Report does not consider the total cost to implement its recommendations, and this is likely to lead to higher costs for compliant appliances, further placing inequitable burden on low-income Californians. Furthermore, if smart meters were utilized as the communication protocol for FDAS, implementation costs may be spread out amongst utility customers instead of through the devices themselves, avoiding higher individual costs. Higher device costs may contribute to a slower adoption pace of FDAS-enabled appliances.

3. New protocols should reflect the time value of information.

Integration of MIDAS signals into demand response programs will require two-way communication in order for customers to be actively engaged in an educational, consent-driven feedback loop. While the Report cites some benefits associated with one-way communication, the novel approach proposed by the CEC will not integrate utility-specific grid conditions without interactivity with other assets, such as customer meters. Importantly, the information communicated by MIDAS must integrate with the key policy goals of the CPUC CalFUSE. Consider the figure below, from the Energy Division White Paper on Advanced Demand Flexibility management 2022³, which illustrates how CalFUSE principles align with this initiative.

¹ <https://www.smart-energy.com/industry-sectors/smart-meters/smart-meter-penetration-surpasses-80-in-north-america/amp/>

² <https://www.grid4c.com/guidehouse-insights-report-ai-utilities-grid-edge-analytics>

³ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/demand-response/demand-response-workshops/advanced-demand-flexibility-management/ed-white-paper---advanced-strategies-for-demand-flexibility-management.pdf>

The Figure 1-1 below illustrates the overall policy roadmap described above, referred to as the “CalFUSE” framework in this paper.

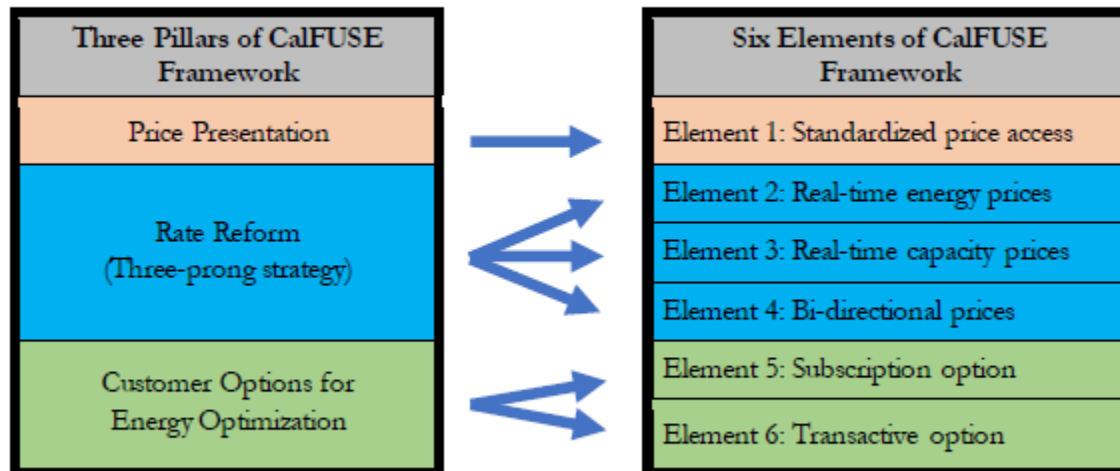


Figure 1-1: The CalFUSE Framework

California’s demand flexibility and clean energy goals rely on the integration of real-time data into utility operations and customer choices. The next generation of AMI meters provides real-time data to grid operators and customers alike using edge computing and continuous waveform analysis. This technology allows consumers to visualize their live, disaggregated energy usage on a device-by-device level. Per the RFI’s Question #6 on maximizing participation in load flexibility programs, the ability for customers to visualize and compare appliance loads in the home will enable customers to make more informed decisions to buy and enroll FDAS appliances into third party programs. Integration of FDAS into future smart metering platforms would allow customers to utilize this integrated software platform to enable a more seamless load flexibility process.

4. Other market-developed solutions for device communications exist (and California shouldn’t be unique)

Variety communication standards have been developed or are under development today to address household load management needs. Some leading examples include:

- IEEE 2030.5
- Matter
- OCPP

These standards are utilized by utilities, national laboratories, and flexibility vendors across the U.S. driving next generation home energy management systems. Developed by a diverse group of stakeholders, these standards represent modern approaches to device communications. While broadband access is not ubiquitous in California, many appliances today are already shipped with Wi-Fi compatibility.

5. A “one size fits all” approach may not work for MIDAS.

Historical evidence suggests that a one-size-fits-all approach in the energy market is unrealistic. The innovation of the market participants over the past 5 years should be allowed to continue, benefiting Californians in their transition to an electrified future.

Conclusion

The demand flexibility communication standards under consideration are critical to achieving California’s policy goals. While the Report on MIDAS data delivery outlines pathways to developing an important broadcast protocol, the CEC should consider other pathways that reflect the dynamic California market, the time-value of information, total cost to consumers, and flexibility for technological solutions. Landis+Gyr looks forward to further discussions at the CEC.