



EPIC STRATEGIC OBJECTIVES WORKSHOP PROCESS

Virtual Technical Working Group Meetings – May 2024



This program is funded by California utility customers under the auspices of the California Public Utilities Commission



CALIFORNIA PUBLIC UTILITIES COMMISSION

EPIC Strategic Objectives Technical Working Groups



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May 2024

- I. Welcome, Introduction, Agenda and Draft Strategic Objectives Presentation
- II. Stakeholder Q&A (clarifying questions)
- III. Technical Working Group Presentations
- IV. Stakeholder Q&A
- V. Break (~ 11:15)
- VI. Technical Working Group Comments
- VII. Wrap-up and next steps

STRATEGIC OBJECTIVES SUPPORT EPIC STRATEGIC GOALS (D.24-03-007)



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Transportation Electrification

The Electric Program Investment Charge (EPIC) Program will invest in research, development, and demonstration (RD&D) that supports the planning, integration, scaling, and commercialization of innovation that promotes the state's climate goals to: (1) transition all medium- and heavy-duty vehicles in the state to zero-emission vehicles (ZEV) by 2045; (2) realize 100 percent ZEV in-state new car sales by 2035; and (3) significantly reduce pollution from the transportation sector in disadvantaged, low-income, Environmental and Social Justice (ESJ), and tribal communities, and Environmental Protection Agency non-attainment air districts as soon as possible, by addressing identified gaps for this goal.

Building Decarbonization

EPIC will invest in the rapid acceleration of comprehensive, cost-effective, and equitable building decarbonization technologies and strategies to help achieve the state's goal to be carbon neutral by 2045 economy-wide, including achieving and sustaining a three percent annual building electrification retrofit rate (3.6 percent for affordable housing) by and beyond 2030, by addressing identified gaps for this goal.

Achieving 100% Net-Zero Carbon Emissions and The Coordinated Role Of Gas

EPIC will seek to identify cost-effective opportunities for reaching the "last 10%" of the state's goal to be carbon neutral by 2045 economy-wide, through investment in California-specific strategies for hard-to-decarbonize energy-consuming sectors that could be decarbonized through electrification and coordination with other California RD&D programs to align investments and activities for emerging strategies, by addressing identified gaps for this goal.

DER Integration

EPIC will invest in the cost-effective integration of high penetrations of distributed energy resources to support the state's goal to achieve a renewable and zero-carbon power sector by 2045, in part by building on the state's goal to deploy 7,000 megawatts of flexible load by 2030, by addressing identified gaps for this goal.

Climate Adaptation

EPIC Plans will seek to identify cost-effective, targeted research opportunities for improving grid resiliency and stability, particularly for adaptability of and impacts on ESJ and tribal communities during severe weather events, including preventing and mitigating the effects of wildfires, floods, and other climate-driven events; hardening the grid and improving resiliency especially in the most remote grid edge locations; reducing the number of customers experiencing long-duration outages; and reducing the duration of these outages, by addressing identified gaps for this goal.



EPIC will seek to identify cost-effective opportunities for reaching the “last 10%” of the state’s goal to be carbon neutral by 2045 economy-wide, through investment in California-specific strategies for hard-to-decarbonize energy-consuming sectors that could be decarbonized through electrification and coordination with other California RD&D programs to align investments and activities for emerging strategies, by addressing identified gaps for this goal.

EPIC STRATEGIC OBJECTIVES PROCESS SCHEDULE



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Working Group Meeting	When	Where
Impact Analysis Framework and Metrics Kickoff	April 2, 2024	Virtual workshop
Transportation Electrification #1	April 10, 2024	In-Person: CPUC Offices San Francisco
Building Decarbonization #1	April 11, 2024	In-Person: CPUC Offices San Francisco
Achieving 100% Net-Zero Carbon Emissions... #1	April 12, 2024	In-Person: CPUC Offices San Francisco
Distributed Energy Resource Integration #1	April 30, 2024	In-Person: San Diego Foundation
Climate Adaptation #1	May 1, 2024	In-Person: San Diego Foundation
Transportation Electrification #2	May 13, 2024	Virtual Technical Working Group
Building Decarbonization #2	May 14, 2024	Virtual Technical Working Group
Achieving 100% Net-Zero Carbon Emissions... #2	May 15, 2024	Virtual Technical Working Group
Distributed Energy Resource Integration #2	May 29, 2024	Virtual Technical Working Group
Climate Adaptation #2	May 29, 2024	Virtual Technical Working Group
Wrap-Up Workshop	June 2024	Hybrid Workshop



TODAY'S GOAL

Gain stakeholder comment and proposed edits to the Draft Strategic Objectives for the Achieving 100% Net-Zero Carbon Emissions and The Coordinated Role Of Gas Strategic Goal that focus on:

- Achieving a target;
- By a specific date;
- With example strategies;
- Including key considerations;
- Outlining the path to market for innovation; and
- Identifying ways to measure success.

Technical Working Group Workplan



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Kick-Off

Review CPUC
Strategic Goals

Identify priority
Gaps from Fall
2023 Workshops

Impact Analysis Framework

Identify methods
for measuring
success and
impact

In-Person Technical Working Groups

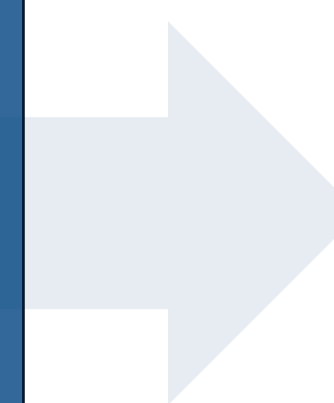
Collaborative
effort to develop
draft strategic
objectives based
on prioritized
gaps

Virtual Technical Working Groups

Stakeholder
feedback and
comment on
draft Strategic
Objectives

Post-Workshop Comments

Stakeholder
written
comments on
draft Strategic
Objectives due
June 21





- **Focus on addressing the gaps:** Is what you are proposing a/the key ingredient to overcoming the gap(s)?
- **Fall in love with the problem, not any particular solution.**
- **Don't try to do everything:** CPUC has established this process to narrow and focus EPIC investments.
- **Focus on the specific role of EPIC:** What can EPIC be doing specifically within its domain (electricity RD&D) that isn't being done already elsewhere (federal funds, other state funds, private market)?
- **Stay out of the trap of new programs:** EPIC itself does not have the power to create new laws, new regulations, stand up new incentives, or create market signals.

3.1 Impacts Research for New Generation and Storage Technologies



Strategic Objective: This program will create publicly understood, comprehensive impacts research on new generation and storage technologies (including biomass) with early inclusion of DVC communities.

WILL TAKE INTO CONSIDERATION:

- Cumulative impacts
- Other California policies and funding sources;
- Locational findings from other grid needs studies;
- Focusing on knowable impacts and the scariest knowledge gaps;
- Quality of data resulting from the scale of the project;
- Organizational capacity to engage;
- Difficulty identifying who needs what level of data;
- Barriers to assessing others' research; and
- Need for trusted messengers.

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Showing that impacts research enables adoption of new technologies; and
- Careful choice of communication channels.

SUCCESS WILL BE MEASURED THROUGH:

- Greater consensus on what impacts will be from new generation and storage technologies;
- Impacts research projects include early inclusion of community voices;
- Positive feedback from DVC communities on impacts research process;
- Engagement and outreach metrics such as downloads, citations, journal impact factors;
- Quantitative numbers attached to community concerns;
- Communities use language from impact research when discussing new technologies;
- Improved support for some new generation and storage technologies;
- Short summaries and storytelling materials available for all major impact research;
- Third party EM&V plans for EPIC projects;
- Lifecycle impacts assessments completed for each technology or project before construction;
- Whether project staff can discuss projects in a way family members can understand;
- Communities identify some metrics from projects that affect their community; and
- Greater trust in CA agencies work and decisions.

3.2 Electricity and Gas System Coordination



Strategic Objective: This program will support the creation and enablement of an electrification strategy which supports the state’s overall decarbonization goals by 2035.

WILL TAKE INTO CONSIDERATION:

- The need to prioritize and complete the electrification strategy or roadmap by 2029 to align subsequent strategies, allowing some to commence in tandem;
- There are data inputs and data sources that come from various agencies;
- The work being done in the long term gas planning rulemaking R.20-01-007, and specifically a gas forecast that should be available by 2026 as directed by that rulemaking;
- That work is coordinated and not being duplicated or repeated across stakeholders and agencies;
- Cost effectiveness of the strategy and the impact on rates;
- The need to focus on DVC’s so they aren’t “stranded” customers;
- It takes a long time to change customer attitudes;
- Cities and communities often act as champions with customer engagement;

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Employing uniform assumptions and data inputs for models and forecasts across all stakeholders and agencies; and
- Developing mapping tools to be used by planning agencies and communities to further electrification and decarbonization efforts.

SUCCESS WILL BE MEASURED THROUGH:

- Number of successful pilots
- Knowing the Number of heat pumps that customers have behind-the-meter
- Customer satisfaction
- Quantification of the tradeoffs to any benefits
- Amount of ratepayer buy-in
- Community participation
- Number of DVC’s/tribal/LI participants
- % Visibility of equipment behind-the-meter
- Consistent assumptions being used in models and forecasts across agencies, communities, and utilities

3.3 Alleviate Grid Constraints to Spur Industrial Electrification



Strategic Objective: The program will identify and deploy technologies that alleviate 80% of forecasted grid constraints to be caused by the industrial electrification of GHG emitting high-heat processes by 2033-2035 timeframe.

WILL TAKE INTO CONSIDERATION:

- Identify RD&D on electrification solutions in hard-to-abate sectors.
- Prioritization of pilots and demonstration projects based on EPIC cross-cutting goals.
- Consider market oversight.
- Minimize unintended consequences to California's industrial sector and its growth.
- Different outreach and engagement strategies for utilities and the industrial sector.
- Analyze impacts of electrification for industrial subsectors to inform grid needs.
- EPIC funds deployed to de-risk grid innovation technologies and accelerate adoption.

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Identification of novel and viable grid solutions to be funded as pilots and demonstration projects (such as aggregated DERs, both demand and supply side solutions, demand load management, long duration energy storage technologies).
- Support market facilitation with commercialization pathways for utility and industrials.
- Utilities and the industrial sector co-investment strategies.
- Pilots of experimental rate structures and/or tariffs.
- Utility aggregation platform for technologies to spur commercial viability.

SUCCESS WILL BE MEASURED THROUGH:

- Deliver on CPUC EPIC cross-cutting goals.
- GHG emission reductions.
- Grid load alleviation.

3.4 Increase Predictability in Intermittent Resources and Load Management Modeling and Utilization



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Strategic Objective: The program will achieve X% certainty in anticipating seasonal, day ahead and real-time renewable generation, demand profiles & flexible load performance and design signals to support better DER and storage deployment to meet gaps cost-effectively by 2035.

WILL TAKE INTO CONSIDERATION:

- Cost-effective resiliency and reliability;
- Changing demand.

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Developing data and modeling tools that can be used by the distribution and transmission grid operators and other stakeholders.

SUCCESS WILL BE MEASURED THROUGH:

- \$/bill savings in avoided grid investments;
- Reductions in forecasting errors and mismatch with actual load;
- Changes in the resilience and reliability metrics (established systems reliability metrics, including System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), and Customer Average Interruption Duration Index (CAIDI));
- ½ reduction in variability between service areas, particularly in DVCs;
- Reduced generation volatility from geographic and technology diversity;
- Reduced risk of loss of load, reduced load shed events.

3.5 Maximize Local Benefits of New Transmission



Strategic Objective: The program will design a reliable model to maximize local benefits of new transmission to shorten time to approve transmission & increase community benefits by 2030.

WILL TAKE INTO CONSIDERATION:

- Existing rights of way;
- Coordinating with broadband/telecom and existing undergrounding efforts;
- Fire and emergency risks management and planning needs;
- Cost-effective approaches;
- Costs impacts on local communities;
- California goals of conserving 30% of lands and coastal waters by 2030 (30x30).

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Developing replicable models.

SUCCESS WILL BE MEASURED THROUGH:

- Increase in the nature-based solutions;
- Cost savings in synergies in transmission maintenance and fire safety;
- Shorter time to approve transmission and related costs savings;
- Increased community benefits from transmission projects;
- Reduction in fire risks;
- Adoption rates of the developed models.

Poll Questions – Strategic Objectives



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3.1 Impacts Research for New Generation and Storage Technologies

This program will create publicly understood, comprehensive impacts research on new generation and storage technologies (including biomass) with early inclusion of DVC communities.

3.2 Electricity and Gas System Coordination

This program will support the creation and enablement of an electrification strategy which supports the state's overall decarbonization goals by 2035.

3.3 Alleviate Grid Constraints to Spur Industrial Electrification

The program will identify and deploy technologies that alleviate 80% of forecasted grid constraints to be caused by the industrial electrification of GHG emitting high-heat processes by 2033-2035 timeframe.

3.4 Increase Predictability in Intermittent Resources and Load Management Modeling and Utilization

The program will achieve X% certainty in anticipating seasonal, day ahead and real-time renewable generation, demand profiles & flexible load performance and design signals to support better DER and storage deployment to meet gaps cost-effectively by 2035.

3.5 Maximize Local Benefits of New Transmission

The program will design a reliable model to maximize local benefits of new transmission to shorten time to approve transmission & increase community benefits by 2030.



EPIC will seek to identify cost-effective opportunities for reaching the “last 10%” of the state’s goal to be carbon neutral by 2045 economy-wide, through investment in California-specific strategies for hard-to-decarbonize energy-consuming sectors that could be decarbonized through electrification and coordination with other California RD&D programs to align investments and activities for emerging strategies, by addressing identified gaps for this goal.

Comments and Input



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- Proposed edits and clarifications
- Critical missing elements
- Key considerations
- Methods for achieving a path to market
- Ways to measure success

EPIC Strategic Objectives

Achieving 100% Net-Zero Carbon Emissions and the Coordinated Role of Gas

Rachel McMahon

Vice President, Policy

May 15, 2024



3.1 Impacts Research for New Generation and Storage Technologies

- **Strategic Objective:** This program will create publicly understood, comprehensive impacts research on new generation and storage technologies (including biomass) with early inclusion of DVC communities.
- **Are there particular new generation and storage technologies or kinds of impacts from new generation and storage technologies that communities most want to see information about?**
 - LDES technology is evolving to include multiple technologies with different performance characteristics and local impacts. There are a wide variety of products to consider (Li-ion, flow batteries, iron-air, zinc based, mechanical energy storage, etc.). Impacts research should show LDES technology development aligns with community objectives.
- **The following considerations should be clarified :**
 - Focusing on knowable impacts ~~and the scariest knowledge gaps~~
 - LDES can displace fossil gas generation and capacity, reducing local air pollution in disadvantaged communities
- **The following success measures should be applied/edited:**
 - Improved support for ~~some~~ new generation and storage technologies

3.4 Increase Predictability in the Intermittent Resources and Load Management Modeling and Utilization

- **Strategic Objective:** The program will achieve **X50% certainty improvement** in anticipating seasonal, day ahead and real-time renewable generation, demand profiles & flexible load performance and design signals to support better DER and storage deployment to meet gaps cost effectively by 2035.
 - **Considerations** should include the current seasonal, day ahead, and real-time renewable generation and demand profile forecast errors as a baseline where possible.
 - **Considerations** should recognize that LDES can reduce renewable curtailment and makes portfolios more robust to inter-annual renewable variability
 - **Success measures** should measure the percentage improvement over the baselines in local resiliency impacts and renewable curtailment studies
 - **Success measures** should include measuring the efficiency of CAISO's dispatch of long duration energy storage
 - **An example strategy** would be to perform studies, pilots, and demonstrations on the impact and the value of co-locating long duration energy storage with resilience needs
- **Considering the objective to design signals to support better DER and storage deployment, some thought should be given to coordinating/streamlining wholesale and retail price signals for dispatchable technologies**
 - Ensure ultimate price signal and structure is sufficient to encourage deployment
 - Study, pilot, and demonstrations that the price signal and structure is sufficient

3.5 Maximize Local Benefits of New Transmission

- **Strategic Objective:** The program will design a reliable model to maximize local benefits of new transmission to shorten time to approve transmission & increase community benefits by 2030.
- **Aligned with stated considerations of risk management and planning needs, and aligned with increasing community benefits**
 - ***Success measures*** should include a metric to minimize community electric service down-time due to new transmission facility fire risk mitigation practices
 - ***An example strategy*** would be to perform studies, pilots, and demonstrations on the impact and the value of strategically locating long-duration energy storage with new transmission
- **Packaging new transmission with long duration energy storage resiliency increases community benefits**



SDG&E Comments on 3.2 “Electricity and Gas System Coordination”

Wednesday, May 15, 2024

Moriah Saldaña



Question 1

As we aim to support the state's decarbonization goals by 2035 through electrification, what specific, quantifiable targets should we establish for system electrification and gas infrastructure decommissioning? For example, should we aim for X% of the system to be electrified or Y% of outdated gas infrastructure to be decommissioned by specific dates? How can we phrase this objective to include these measurable metrics for clear evaluation of progress and success?

- The Electric Program Investment Charge (EPIC) supports the development of new, emerging, and pre-commercialized clean energy innovations in California; establishing targets for the state is beyond the scope of this program.
- EPIC is not the appropriate program to establish targets.
- Other proceedings, including like the Long-Term Gas Planning Rulemaking, may be more appropriate venues.
- Feedback from EPIC administrators is that the results of EPIC 5 are unlikely to be available prior to 2035 due to the timing of funding cycles.

Question 2



Is this strategic objective an appropriate use of rate-payer funded electric RD&D money?

The strategic objective under consideration is, “This program will support the creation and enablement of an electrification strategy which supports the state’s overall decarbonization goals by 2035.”

- Rate-payer-funded electric RD&D money can support future electrification strategies through the development of new technology.
- A question that arose is how ratepayer funding should be allocated when dealing with issues that are at the nexus of electric and gas.
- EPIC feedback can help inform an electrification strategy, but ultimately, the strategy must be broadly coordinated across key agencies including CPUC, CEC, CAISO, CARB, and others.

Question 3

What specific roles should community-based organizations (CBOs), environmental justice groups (EJs), and disadvantaged communities (DVCs) play in shaping and achieving this strategic objective? How can their input and needs be more effectively integrated into this strategic objective?

- Electrification strategies must consider customer choice, privacy, effects on lower-income customers, and the utility's obligation to serve.
- Engagement with the communities most impacted is necessary to ensure the energy transition remains affordable and equitable.

Question 4

What are ways that success and benefits of this Strategic Objective can be measured that are not currently listed?

- It is vital that, across the board, the assumptions managed by the joint agencies reflect each other and contribute to overall successful planning.
- Work must not be done in isolation but rather coordinated across agencies.

Question 5

Do you have thoughts on how to bring strategies to market after the EPIC program activities are complete?

- Cities and local governments can be important conduits for pilot programs.
- Coordinating with utilities to pilot programs leverages expertise and strategic planning.
- Uniform assumptions and data inputs for models and forecasts across all stakeholders and agencies.



Thank you!



Achieving 100% Net Zero Carbon Emissions and the Coordinated Role of Gas

Energy for What's Ahead®



Achieving 100% Net Zero Carbon Emissions and the Coordinated Role of Gas

3.1 Impacts Research for New Generation and Storage Technologies

- There is no definition of “publicly understood” or “comprehensive”
- This proposed strategic objective should be refocused on EPIC RD&D innovation and the results that are generated from that work for public benefit.

Achieving 100% Net Zero Carbon Emissions and the Coordinated Role of Gas

3.3 Alleviate Grid Constraints to Spur Industrial Electrification

- This objective should include RD&D of innovative technologies.

Achieving 100% Net Zero Carbon Emissions and the Coordinated Role of Gas

3.4 Increase Predictability in the Intermittent Resources and Load Management Modeling and Utilization

- This strategic objective proposal needs to be refined, as certainty is not defined.
- Grid management results in near precise matching of generation and load.
- The proposed objective focuses on “better DER and storage deployment” as ends in themselves rather than focusing on GHG reduction and other public benefits

Achieving 100% Net Zero Carbon Emissions and the Coordinated Role of Gas

3.5 Maximize Local Benefits of New Transmission

- It is not apparent in this proposal what is being advanced.
- There are already models for transmission.
- The apparent focus is on reliability of a model, but it is not an accepted premise that existing models are not reliable.
- A second premise is to shorten approval time, but this is not within the scope of EPIC



California Energy Commission

Initial Feedback on EPIC 5 Draft Strategic Objectives for the Strategic Goal: *Achieving 100% Net-Zero Carbon and the Coordinated Role of Gas*

Presenter: Mithra Moezzi, Ph.D.
May 15, 2024





Initial Feedback Summary

- Modify four workshopped strategic objectives
- Add strategic objective to capture crucial missing element
- Adopt modernized framework suited to deeper research on systems-level characteristics of energy transition as it unfolds
- Avoid setting arbitrary targets, and strive for measurable, relevant metrics



Proposed Revisions [Objective 1]: Impacts Research for Generation and Storage Technologies

Restatement of Objective:

This program will advance understanding of **environmental and other** impacts of generation, storage, and related technologies through **applied research and technology demonstration and deployment**, including dialogue with **relevant communities**, and ensure that research results are broadly accessible.

Additional considerations:

- Investments in ARD and TD&D for new, emerging, and existing innovative technologies are included (e.g., biomass)
- Limitations of data resulting from studies and models, compared to data resulting from demonstrations
- Broadly encompass communities, with an emphasis on disadvantaged communities
- Highlight opportunity in the Salton Sea Geothermal Field to advance geothermal power production while recovering critical minerals for domestic battery production

Success metrics should address:

- Specific impact/performance characteristics of new and emerging technologies, including locational considerations
- Improvements to technologies to reduce negative impacts
- Increased certainty in understanding technology characteristics and impacts
- Increased availability of high-quality independent assessments and relevant data on lifecycle costs and performance characteristics of technologies



Proposed Revisions [Objective 2]: Electricity and Gas System Coordination

Restatement of Objective:

This program will support the development and implementation of electrification strategies that support the state's overall decarbonization goals by 2035 through research, development, and demonstration, **including technology manufacturing, adoption, and integration phases.**

Additional considerations:

- Safety, reliability, affordability, environmental benefits, and equity
- Coordination with Gas R&D research to create a viable long-term strategy for a clean energy transition
- Pathways for efficiently replacing gas-fired power plants with decarbonized generation
- Decommissioning versus replacing high-risk pipelines to facilitate zonal electrification and reduce total energy system costs
- Developing accompanying planning paradigms and supporting resources

Success metrics should address:

- Lower net carbon emissions from the grid, including progress addressing periods of high carbon intensity, carbon capture, demand flexibility
- Energy reliability, including grid reliability and reliability provided by alternatives (e.g., storage, efficiency) and grid vulnerability
- Economic and social benefits of increased reliability and evaluating the equitable distribution of reliability/resilience investments



Proposed Revisions [Objective 3]: Technology Innovation for Hard-to-Decarbonize Processes

Restatement of Objective:

This program will **identify, develop, and advance technologies to address hard-to-decarbonize processes** and **support** their more widespread deployment.

Additional considerations:

- Behind-the-meter solutions including distributed energy resources that enable electrification while reducing need for infrastructure upgrades
- Pairing electrification with pilots of innovative rate structures that favor increased electrical use, load shifting, etc.
- Comprehensive solutions to promote electrification while reducing overall electric usage during peak periods

Success metrics should address:

- Marked progress in overcoming challenges in hard-to-decarbonize applications (i.e., high temperature industrial processes)
- Reductions in associated pollutant emissions
- Increased real-world data on technology performance
- Improvements in technology readiness, deployment feasibility, and adoptability



Proposed Revisions [Objective 4] : Addressing Intermittency and Increasing Flexibility to Achieve a Carbon-Free Power Sector

Restatement of Objective:

Improve ability to predict and **manage** seasonal, day-ahead, real-time, and **longer-term** generation profiles and **demand particularly during peak, high net peak, and other critical periods.**

Additional considerations:

- Integrating localized climate change and environmental data, contributing to improved resource portfolios as transition proceeds
- Fostering demand load shaping, flexibility, DER, and storage
- Improving understanding of end use and overall demand profiles and their influences
- Ability to deploy resources under critical circumstances.
- Approaches to identify more equitable resilience, reliability, and distribution of benefits and costs

Success metrics should address:

- Resilience, reliability improvement including reflecting social costs of outages
- Reductions of net costs for creating a carbon-free power sector
- Improvements in unlocking and understanding demand flexibility & grid flexibility
- Reductions in net demand under normal and critical conditions



Proposed Revision [5]: Recommended *Additional* Strategic Objective

Proposed Additional Objective:

Develop technology, management, and analytical advances that contribute to delivering cost-effective low-carbon energy resources, reliability, and resilience throughout the planned transition, including research that informs technology scale-up.

Additional considerations:

- Study range of promising technologies, including tech not already identified in CPUC Staff Proposal, to harness untapped potential
 - Include: tidal and wave energy, carbon capture, and geothermal technologies
- Strategically reducing demand overall
- Coordinating demand and supply
- Energy reliability, including grid reliability and reliability provided by alternatives (e.g., storage, efficiency)

Success metrics should address:

- Increased certainty in technology characteristics, performance, & impacts
- Reduced environmental impacts and economic costs
- Improved performance (efficiency, durability, reliability)
- Increased feasibility of deployment (TRL, as well as systems and integration readiness)
- Improved management of risks and uncertainty
- Improved affordability of clean energy resources & financial viability of community-level deployment



General Remarks & Recommendations



Quantitative metrics



Helping bring technologies to market



Technology advancement



Special attention to DVCs



Community engagement



Public education and listening



THANK YOU

Point of contact: Mithra.Moezzi@energy.ca.gov

Presentations



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1. Rachel McMahon California Energy Storage Alliance
2. Moriah Saldaña SDG&E
3. Mithra Moezzi CEC