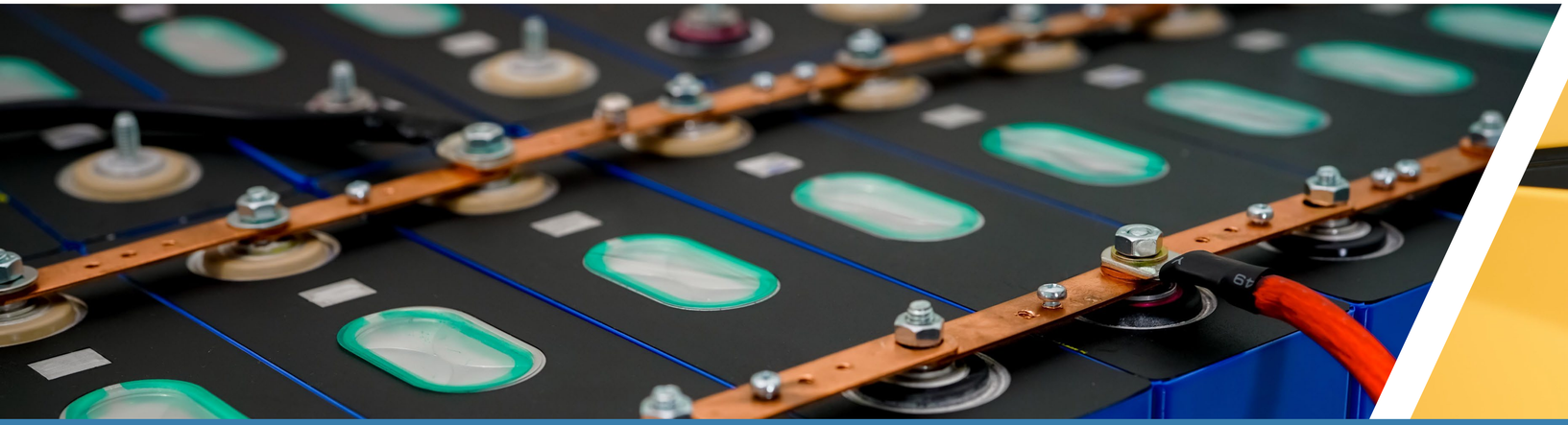
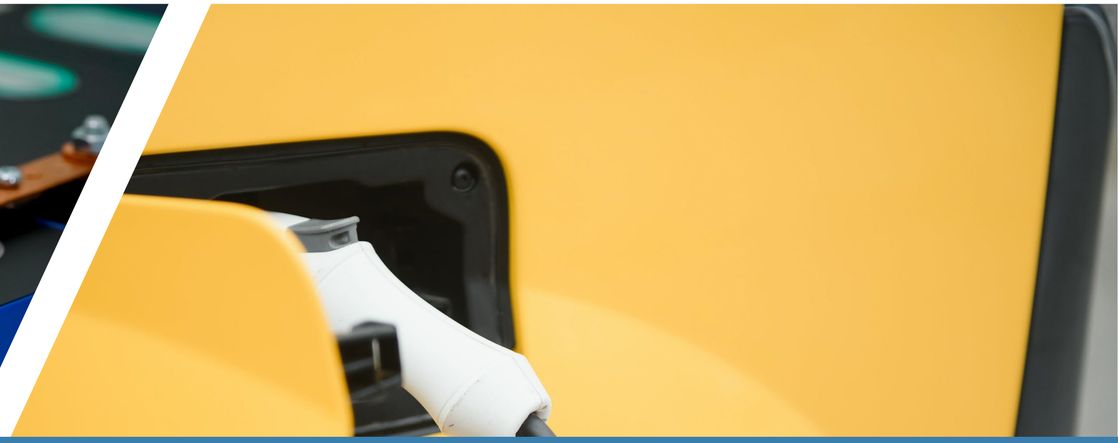
EPIC STRATEGIC OBJECTIVES WORKSHOP PROCESS

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

May 2024

CALIFORNIA PUBLIC UTILITIES COMMISSION

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.

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.

EPIC STRATEGIC OBJECTIVES PROCESS SCHEDULE

CALIFORNIA PUBLIC UTILITIES COMMISSION

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	July 2024	Hybrid Workshop

TODAY'S GOAL

Gain stakeholder comment and proposed edits to the Draft Strategic Objectives for the DER Integration 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

TIPS AND ADVICE

- **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.

4.1 Role of DERs for Grid and Community Resiliency

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Strategic Objective: The program will utilize and proactively deploy DERs to prevent grid outages, and make outages invisible for critical load by 2035.

WILL TAKE INTO CONSIDERATION:

- Critical load must be identified by and will be unique to individual communities;
- Critical load intends to serve a community and is not just critical facilities;
- Bandwidth constraints of communities;
- Already existing incentives and programs such as tax credits, or the utility community microgrid program;
- Technology costs and affordability for the community and ratepayers;
- The need to collaborate with multiple stakeholders including communities, utilities, developers, and industry;
- Communities have varying threats and climate risks;
- DERS are susceptible to cyberattacks; and
- Coordination with CPUC proceedings and processes such as the infrastructure deferral framework

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Integrated bi-directional information exchange to optimize resiliency investments for communities, developers, and utilities; and
- Replicable and scalable model to make outages invisible for critical loads across various communities.

SUCCESS WILL BE MEASURED THROUGH:

- Interruption Cost Estimate (ICE) Calculator 2.0;
- The number of outages mitigated;
- Duration (hours) of outages mitigated;
- The number of circuits that are proactively addressed;
- Percent of load and DERs identified as critical load that maintains during outage events;
- Amount of carbon intensive backup power replaced with DERs;
- Percent reduction of grid outages on specific circuits using DERs; and
- Operational and cost effectiveness of front of the meter (FTM) and behind the meter (BTM) solutions
- Social Burden Metric - Sandia's ReNCAT tool (or other novel and/or in-development metrics)

4.2 Maximizing DER Impacts for DVCs

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Strategic Objective: Ensure DER strategies make a measurable impact on pollution, energy burden, quality of life, health, resilience, and reliability by 2030-2035.

WILL TAKE INTO CONSIDERATION:

- The need for effective and respectful process in working with disadvantaged and vulnerable communities (DVCs), through:
- Focusing on multifamily housing, the grid edge, and constrained areas where overlap with DVCs is more prominent;
- Active engagement with the community;
- Recognition that communities want a sense of agency over programs;
- Considering the timing mismatch between EPIC projects and community needs and processes;
- Need to work with trusted messengers and researchers with cultural competence;
- Holistic and portfolio approaches to programs;
- Fact that community members may not realize that they are funding EPIC; and
- The need to use the communities' own definitions of "benefits."

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Technology demonstrations
- Standards

SUCCESS WILL BE MEASURED THROUGH:

- Progress on air quality nonattainment,
- Lower energy burdens in DVCs,
- Workforce availability and participation from DVC community members,
- Decreases in specific pollutant metrics in DVCs,
- Extent to which DVCs own priorities are reflected in decision-making,
- Improvements in health metrics in DVCs,
- Self-identified improvements in quality of life in DVCs, and
- Reductions in public safety power shutoffs, and other types of shutoffs, in DVCs.

4.3 Improving Access for DVCs

CALIFORNIA PUBLIC UTILITIES COMMISSION

Strategic Objective: Eliminate the adoption gap for DERs in DVCs by 2030-2035.

WILL TAKE INTO CONSIDERATION:	WILL ACHIEVE A PATH TO MARKET THROUGH:	SUCCESS WILL BE MEASURED THROUGH:
• The need for effective and respectful process in working with disadvantaged and vulnerable communities (DVCs), through: • Focusing on multifamily housing, the grid edge, and constrained areas where overlap with DVCs is more prominent; • Active engagement with the community; • Recognition that communities want a sense of agency over programs; • Considering the timing mismatch between EPIC projects and community needs and processes; • Need to work with trusted messengers and researchers with cultural competence; • Holistic and portfolio approaches to programs; • Fact that community members may not realize that they are funding EPIC; and • The need to use the communities' own definitions of "benefits."		• Determining whether DER adoption rates in DVCs are, at least, on parity with non-DVC communities; • Determining whether DVCs are enjoying the benefits of DERs at a level that is at least on parity with non-DVC communities; and • The reduction in centralization of the electric system.

4.4 Expediting and Streamlining Interconnection of DERs

Strategic Objective: Expedite and streamline interconnection of DERs to complete XX% of interconnection requests within XX days of application during the time period 2030-2035.

Sub-Objectives that can lead to accomplishing this objective:

- 100% utilization, coordination and control capabilities of new DER resources; and
- 100% visibility into DER value and performance on the grid.

CONTINUED

4.4 Expediting and Streamlining Interconnection of DERs (Cont.)

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WILL TAKE INTO CONSIDERATION:

- Affordability to DER resources and ratepayers (not increasing ratepayer energy burden);
- Safety and cybersecurity;
- Resilience;
- Power quality;
- Manufacturer specifications;
- Interoperability;
- DER control and coordination capabilities;
- Existing resources on the grid (need for updates to the resources and infrastructure); and
- Pace of technology change.

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Adoption in the CPUC rate cases (with respect to the utility expenses);
- Filing information and adopting mandates in relevant CPUC proceedings;
- Mandating inclusion of a commercialization plan in EPIC funding applications ;
- Future regulatory mandates;
- Refine Integrated Energy Policy Report (IEPR)to treat DERs as supply and not just a load; and
- Manufacturers developing products (DERs, inverters, grid devices) in line with the best industry standards, standards unification.

SUCCESS WILL BE MEASURED THROUGH:

- Reduction in the number of days of interconnection request processing;
- Reduction in the number of interconnection customer complaints;
- % of DERs interconnected with expedited timelines;
- % of DER utilization by utilities;
- Reduced costs & interconnection timelines for the interconnection customers and utilities; (including reduced gap between estimates vs actual);
- % of time the DER functions are available and perform as expected/predicted;
- Increased visibility into grid balancing events related to DERs and how DERs perform/contribute to handling them;
- Reduction in costs and timelines for utility studies into DER controls, performance and coordination during the interconnection processes;
- Number of projects that have utility verified control and coordination capabilities of DERs; and
- Reduction in the gap between the test value proposition estimates vs actual (for use cases).

4.5 Support Development of Value of DER framework

Strategic Objective: Support the development of a consensus evidence-based framework to identify the location-, time-, and performance-based value of grid services that is usable by grid operators, accessible by any DER or load, and includes a process to establish baselines, by 2030; and supporting the adoption of DER use cases under the framework that demonstrate benefits exceeding costs by 2032.

CONTINUED

4.5 Support Development of Value of DER framework (cont.)

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WILL TAKE INTO CONSIDERATION:

- The current lack of data on the value of grid services;
- A need to be technology-neutral;
- Conflicts with use of distributed energy resources for other purposes;
- Customer preferences, and the need for collection of data on opt-outs in real-world deployment;
- Ensuring adoption in hard-to-reach DVCs and remote parts of the system;
- The need for a process to update data on a regular basis;
- Lack of understanding / data on integration costs and process requirements;
- The costs and risks of underperformance;
- The need to operationalize the use of DERs for grid services at a utility;
- The distinct roles that behavioral, constraint management, and control play in providing value;
- The need to create a feedback loop to system- and statewide planning processes;
- Not all DERs need to be actively managed to provide grid services; and
- Implementation of FERC 2222 goals and coordination with customer programs.

WILL ACHIEVE A PATH TO MARKET THROUGH:

- Providing data and results into CPUC proceedings on DERs and rate cases;
- Coordination with Vehicle-Grid Integration processes;
- Achieving demonstration and deployment through a staged test-bed process; and
- Implementation of dynamic pricing rates for real-time DER optimization.

SUCCESS WILL BE MEASURED THROUGH:

- Whether a standard procedure to evaluate DER services, benefits, and baselines has been established;
- A public checklist review of grid services that are valued and accessible to DERs;
- A quantification of the contribution of different market segments to the 7,000 MW flexibility goal;
- Quantification of avoided capacity (and associated cost) of new grid upgrades; and
- Overall tracking: carbon intensity of supply for each load hour, percentage of capacity served by DER capacity.

4.6 Reducing Feeder/Circuit Peaks

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Strategic Objective: Reducing ratepayer costs due to grid upgrades by demonstrating capability and best practices to increase the utilization rate of a circuit from X% to Y%, and avoiding/minimizing grid upgrade costs due to peaks at the local level.

WILL TAKE INTO CONSIDERATION:	WILL ACHIEVE A PATH TO MARKET THROUGH:	SUCCESS WILL BE MEASURED THROUGH:
• The current lack of data on the value of grid services; • The need for granular data at the circuit level; • Coordination with Calfuse pilots; and • The need to root this operational capability in the process for investing in the grid.	• Coordination with long-term planning processes (IEPR, IRP, Resource Adequacy) to provide; visibility into behind-the-meter DERs; • Deploying through utility processes as an alternative to capacity expansion planning; and • Demonstration of capability in a staged test bed process.	• Changes in load factor for demonstrations projects; • Increases in flexible load capacity as a percent of peak power (grid-wide and locally); • Reduction in DER capacity-limited feeders/circuits; • Adoption of a planning model to compare leveraging DERs to a grid upgrade; • Decrease in CAGR; and • Perception of DVCs of whether they feel well-positioned to participate in and benefit from grid upgrades and additional DER integration activities.

Poll Questions – Strategic Objectives

CALIFORNIA PUBLIC UTILITIES COMMISSION

4.1 Role of DERs for Grid and Community Resiliency

The program will utilize and proactively deploy DERs to prevent grid outages, and make outages invisible for critical load by 2035.

4.2 Maximizing DER Impacts for DVCs

Ensure DER strategies make a measurable impact on pollution, energy burden, quality of life, health, resilience, and reliability by 2030-2035.

4.3 Improving Access for DVCs

Eliminate the adoption gap for DERs in DVCs by 2030-2035.

4.4 Expediting and Streamlining Interconnection of DERs

Expedite and streamline interconnection of DERs to complete XX% of interconnection requests within XX days of application during the time period 2030-2035.

4.5 Support Development of Value of DER framework

Support the development of a consensus evidence-based framework to identify the location-, time-, and performance-based value of grid services that is usable by grid operators, accessible by any DER or load, and includes a process to establish baselines, by 2030; and supporting the adoption of DER use cases under the framework that demonstrate benefits exceeding costs by 2032.

4.6 Reducing Feeder/Circuit Peaks

Reducing ratepayer costs due to grid upgrades by demonstrating capability and best practices to increase the utilization rate of a circuit from X% to Y%, and avoiding/minimizing grid upgrade costs due to peaks at the local level.

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.

Comments and Input

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

Presentations

1. Jimmy O’Hare PG&E
2. Eric Ritter CEC

Draft EPIC Strategic Objectives DER Integration

May 29, 2024

Together, Building a Better California

4.1 Role of DERs for Grid and Community Resiliency

CPUC Draft Strategic Objective:
The program will utilize and proactively deploy DERs to prevent grid outages, and make outages invisible for critical load by 2035

PG&E Feedback

1. Recommendation to update the Strategic Objective to:
    - The program will leverage DERs to prevent grid outages, make outages invisible for vulnerable customer groups, and **enable coordination of grid benefits during normal operations** through applied research and technology demonstration and deployment.
2. Recommendation to clarify “clean energy DER” to exclude GHG-intensive DERs, like fossil fuel generators, and GHG-emitting fuel cell technology.

4.2 Maximizing DER Impacts for DVCs & 4.3 Improving Access for DVCs

CPUC Draft Strategic Objective:
4.2 Ensure DER strategies make a measurable impact on pollution, energy burden, quality of life, health, resilience, and reliability by 2030-2035.

4.3 Eliminate the adoption gap for DERs in DVCs by 2030-2035

PG&E Feedback

1. **Recommendation to combine 4.2 and 4.3, and update to:**
   - This program will reduce barriers related to DER technology adoption or market participation in DVCs and measure local financial and non-financial impacts.
2. Additional considerations: To include new financial mechanism to enable DER adoption among low-income communities.

4.4 Expediting and Streamlining Interconnection of DERs

CPUC Draft Strategic Objective:
Expedite and streamline interconnection of DERs to complete XX% of interconnection requests within XX days of application during the time period 2030-2035.

PG&E Feedback

1. Recommendation to update the Strategic Objective to::
    - This program will identify, develop, and advance technologies related to **advanced computational modeling technologies to streamline interconnection of DERs.**

4.6 Reducing Feeder/Circuit Peaks

CPUC Draft Strategic Objective:
Reducing ratepayer costs due to grid upgrades by demonstrating capability and best practices to increase the utilization rate of a circuit from X% to Y%, and avoiding/minimizing grid upgrade costs due to peaks at the local level.

PG&E Feedback

1. Recommendation to update the Strategic Objective to::
    - This program will demonstrate increased rate payer affordability through the use of DER's shaping circuit load, combining increased energy capacity factor with infrastructure investment efficiencies.
    - Strategies could include a combinations of managed load, load shifting, generation and storage at the grid edge, new targeted load, and new infrastructure.

Initial Feedback on EPIC 5 Draft Strategic Objectives – DER Integration

Eric Ritter, Supervisor of the Renewable Integration Unit
Energy Research and Development Division

May 29, 2024

EPIC Background

Mission: EPIC invests in innovation to ensure equitable access to safe, affordable, reliable, and environmentally sustainable energy for electricity ratepayers.

- Applied research to bring ideas from concept, to the lab, to the field
- Demonstrations, particularly in disadvantaged and vulnerable communities (DVCs), to illustrate the value proposition of technologies and develop best practices for deployment
- Market facilitation to overcome non-technology barriers such as permitting, financing, customer education, workforce development, and others
- Providing data and analysis to inform related policies, proceedings, and programs, such as
  - CPUC proceedings
  - CEC planning processes
  - Deployment programs and incentive programs
  - UL codes and standards and other industry-led initiatives

Initial Feedback Summary

1. Strategic objectives should focus on EPIC's unique role as an RD&D program with a mission to "invest in innovation…"
2. Strive for ambitious but achievable objectives with metrics relevant to an RD&D program
3. Avoid overly prescriptive objectives that limit administrators' ability to develop high-impact initiatives and funding opportunities
4. Benefits to DVCs should be integrated into all strategic objectives
5. Success of the EPIC program should be measured by its ability to advance innovations rather than achieve market outcomes
6. Consider a single strategic objective that focuses on advancing the adoption readiness of DER technologies and strategies

Proposed Alternative Approach

Consider adopting a single strategic objective that focuses on innovation:

The EPIC program will **advance the adoption readiness of DER technologies and strategies** that

- directly benefit DVCs,
- streamline permitting and interconnection,
- maximize the value of ratepayer grid investments, and
- allow critical loads to ride through outages.

Measuring Success of the EPIC Program

CPUC can measure the success of the EPIC program based on the program's ability to innovate using metrics such as:

- Advancements in
  - Technology Readiness Level (TRL)
  - Adoption Readiness Level (ARL)
  - Commercial Readiness Level (CRL)
  - Manufacturing Readiness Level (MRL)
- Private-sector commercial offtake
- Coordination with related policies, proceedings, and programs

Measuring Success of Technologies and Strategies

Program administrators can measure success of initiatives by the ability of technologies and strategies to achieve market outcomes and address the gaps identified in the strategic goals process

Metric Categories	Example Metrics
DVC Benefits	pollution burden | energy burden | # of outages | length of outages | quality of life | public health | reliability |
Grid Benefits	utilization rate of circuits | revenue from grid services | deferred grid upgrades | hosting capacity | power quality |
Interconnection & permitting	interconnection speed | permitting speed |
Resiliency	# of outages | length of outages |

Detailed Feedback on Draft Strategic Objectives

4.1 Grid and Community Resilience

As Written:

4.1 The Program will utilize and proactively deploy DERs to prevent grid outages, and make outages invisible for critical load by 2035.

Feedback:

- Recommend focusing on innovation rather than describing deployment strategies

Suggested Rephrasing:

The program will **advance the adoption readiness of DER technologies and strategies** that increase resiliency and allow critical loads to ride-through outages

4.2 & 4.3 Benefits for DVCs

As Written

4.2 Ensure DER strategies make a measurable impact on pollution, energy burden, quality of life, health, resilience, and reliability by 2030-2035

4.3 Eliminate the adoption gap for DERs in DVCs by 2030-2035

Feedback:

- Recommend focusing on innovation
- Strive for ambitious but achievable objectives with metrics relevant to an RD&D program
- Focus on benefits to DVCs rather than adoption
  - This will improve agency of DVCs to employ strategies that meet the unique needs of each community
- DVC benefits should be integrated into all strategic objectives

Suggested Rephrasing

The program will **advance the adoption readiness of DER technologies and strategies** that measurably benefit DVCs

4.4 Interconnection

As Written:

4.4 Expedite and streamline interconnection of DERs to complete XX% of interconnection requests within XX days of application during the time period 2030-2035

Feedback:

- Recommend focusing on innovation
- Strive for ambitious but achievable objectives with metrics relevant to an RD&D program
- Include an objective related to streamlining permitting

Suggested Rephrasing:

The program will **advance the adoption readiness of DER technologies and strategies** that streamline *permitting* and interconnection

4.5 Value of DER

As Written:

4.5 Support the development of a consensus evidence-based framework to identify the location-, time-, and performance-based value of grid services that is usable by grid operators, accessible by any DER or load, and includes a process to establish baselines, by 2030; and supporting the adoption of DER use cases under the framework that demonstrate benefits exceeding costs by 2032

Feedback:

- Recommend objectives stay higher level and avoid being overly prescriptive
- Written more like a research initiative or project
- Should be developed in coordination with related proceedings

Suggested Rephrasing:

The program will **advance the adoption readiness of DER technologies and strategies** that reduce immediate need for grid upgrades and increase utilization of existing grid infrastructure

4.6 Increasing Utilization

As Written:

4.6 Reducing ratepayer costs due to grid upgrades by demonstrating capability and best practices to increase the utilization rate of a circuit from X% to Y% and avoiding/minimizing grid upgrade costs due to peaks at the local level

Feedback:

- Strongest draft strategic objective
- CPUC should measure success by advancing innovations
- Administrators can evaluate initiatives based on ability of technologies to defer upgrades and increase utilization rates of circuits, among other metrics

Suggested rephrasing:

The program will **advance the adoption readiness of DER technologies and strategies** that increase the utilization rate of existing infrastructure investments and minimize grid upgrade costs

Thank You

Eric Ritter

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Electric Program Investment Charge (EPIC)

EPIC Roles and Path to Market

Strategic Objectives Technical Working Groups Round 2
May 13-15, 2024
May 29, 2024

California Public Utilities Commission (CPUC)
Energy Division, Climate and Equity Initiatives Section
Fredric Beck, Senior Analyst

California Public Utilities Commission

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

EPIC Role in Applied R&D

Source: D.12-05-037, at 32, 36, and 99.

- Investment in applied science and technology that provides public benefits but for which there is **no current clear business case for deployment of private capital**.
- Activities supporting pre-commercial technologies and approaches that are designed to solve specific problems in the electricity sector.
- Included in this area are:

  (i) Any clean energy technologies,

  (ii) demand-side technologies,

  (iii) non-technology elements such as strategies and methods to enhance adoption of clean energy technologies,

  (iv) addressing the environmental and public health impacts of electricity-related activities,

  (v) clean transportation as long as there is a linkage to the electricity sector and ratepayer benefits, and

  (vi) building codes and appliance standards.

- Does not include basic research that is seeking to expand scientific knowledge for its own sake.

EPIC Role in Technology Demonstration and Deployment

Source: D.12-05-037, at 32, 39, 40, and 100.

- The installation and operation of pre-commercial technologies or strategies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments to enable appraisal of the operational and performance characteristics and the financial risks.
- Assists technology development through the "valley of death" and toward commercialization.
- Deployment means installations that are directly interconnected or located on the electricity grid of the IOUs.
- Deployment may also include strategies and other activities that are not specifically about the deployment of a technology itself **but are designed to test successful ways of encouraging customer adoption of clean energy technologies**, such as electric vehicles, energy efficiency, or renewable generation.

EPIC Role in Market Facilitation

Source: D.12-05-037, at 32, 61, and 100.

- **Activities to address nonprice barriers to adoption of clean technologies** that are consistent with the goals of EPIC and provide benefits to electric ratepayers by ensuring that other activities are successful including:
  - (i) Addressing regulatory barriers and lack of information,
  - (ii) regulatory assistance and streamlining,
  - (iii) market research,
  - (iv) tracking program results,
  - (v) education and outreach, and
  - (vi) workforce development to support clean energy technology and strategy deployment.
- These activities help ensure that products or strategies make it all the way through the technology development cycle and are delivering benefits to consumers.