Electric Transportation

Additional submitted attachment is included below.

Electric Program Investment Charge 2026–2030 (EPIC 5) Research Concept Proposal Form

The California Energy Commission (CEC) is currently soliciting research concept ideas and other input for the Electric Program Investment Charge 2026–2030 (EPIC 5) Investment Plan. For those who would like to submit an idea for consideration, please complete this form and submit it to the CEC by **August 8, 2025**. More information about EPIC 5 is available below.

To submit the form, please visit the e-commenting link: https://efiling.energy.ca.gov/EComment/ECommentSelectProceeding.aspx and select the Docket **25-EPIC-01**. Enter your contact information and then use the "choose file" button at the bottom of the page to upload and submit the completed form. Thank you in advance for your input.

1. Please provide the name, email, and phone number of the best person to contact should the CEC have additional questions regarding the research concept:

Jamie Dunckley, Electric Transportation Program Manager
jdunckley@epri.com
206-354-1461

2. Please provide the name of the contact person's organization or affiliation:

Electric Power Research Institute, Inc. (EPRI)

3. Please provide a brief description of the proposed concept that you would like the CEC to consider as part of the EPIC 5 Investment Plan. What is the purpose of the concept, and what would it seek to do? Why are EPIC funds needed to support the concept?

EPRI has been working for the past two years on identifying and creating solutions to aid in the electrification of transportation. One of the barriers identified in this process was quantifying the energy and power needs of an electrified fleet for both light duty and medium and heavy duty. To address this need EPRI has built eRoadMAP (https://eroadmap.epri.com/), a first of its kind data set and public tool that shows energy and power needs over time of electrified transportation. Additionally, this tool also pulls together all the public load capacity information

available from utilities to show where there is (and is not) current available capacity on the grid that may be available to serve transportation loads.
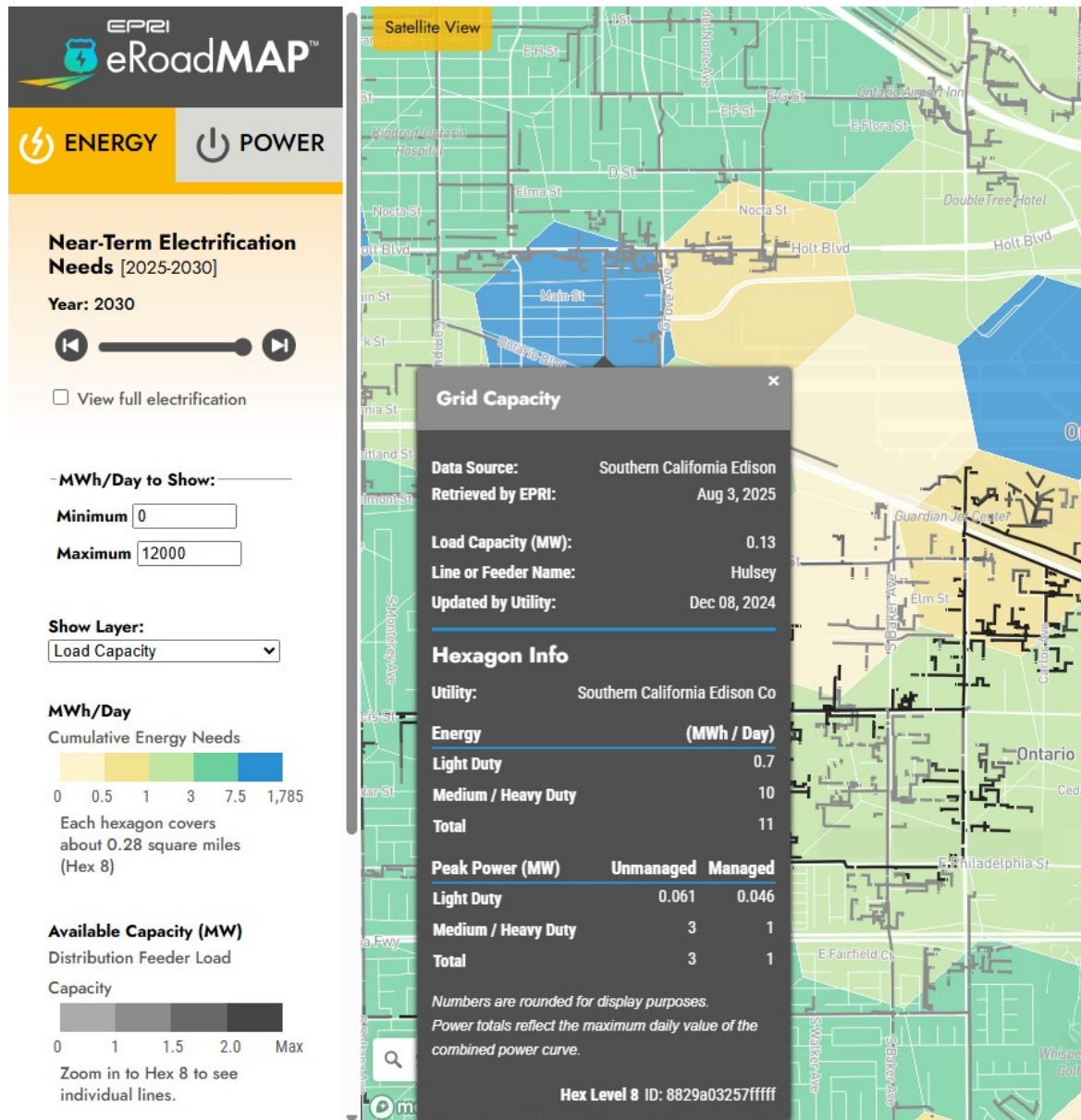

Figure 1: Snapshot of load capacity information from eRoadMAP of Southern California Edison's overlayed with the energy needs of electrified transportation in 2030. This specific location shows a current available capacity of 0.13 MW and a power need of ~ 1MW in 2030.

The public tool and underlying data set supports electrification of transportation from a few different aspects. From the utility perspective, it provides granular estimates of energy and power needs at a feeder level over time. Using this data, utilities are able to incorporate these needs into their load forecasting. It also

serves to identify areas where lots of electrification is projected, and therefore where early engagement with customers to discuss plans are imperative to meet customer timelines. From a fleet perspective, in addition to reflecting electrification needs of the fleets, fleets can use eRoadMAP to identify areas where there is current available capacity on the grid and there where fleet electrification may be easier (or faster) than areas where no capacity is available.

Additional to the use cases described above, the public nature of eRoadMAP allows city planners and state agencies, to use a common map and align on common areas where additional electrification planning will be needed. All of the assumptions and methods used in the tool are available online in order to ensure full transparency and increase confidence. eRoadMAP also has additional layers such as 'Justice40[i]', public charging station location (AFDC)[ii], and air pollution information. Including these layers together with electrified transportation needs allows eRoadMAP users to make data driven decisions that weigh multiple aspects. EPRI will continue to add layers where they help in the decision making processes. As of now, eRoadMAP has been cited in 14 state filings, thus showing the power of a public dataset that anyone can access.

While useful now, eRoadMAP only stays useful if it stays current. EPRI is continuing to engage with fleets on their electrification plans and incorporate their data, watch sales trends, and keep a tab (and incorporate changes) on emerging technologies. EPRI would like to engage with the CEC and EPIC Investment Plan to ensure that eRoadMAP is reflective of the needs of California and to ensure that there is funding to support the data set and public website moving forward. While the tool and data set is not specific to California, transportation (especially long-haul movement) is dependent on nationally supported electric transportation. Keeping this tool relevant and in the public space will enable users to align with common data and assumptions and therefore a common baseline for transportation electrification planning.

4. In accordance with Senate Bill 96[iii], please describe how the proposed concept will "lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory energy goals." For example, what technical and/or market barriers or customer pain points would the proposed concept address that would lead to increased adoption of clean energy technology or innovation? Where possible, please provide specific cost and performance targets that need to be met for increased industry and consumer acceptance. For scientific analysis and tools, provide more information on what data and information gaps the proposed concept would help fill, and which specific parties or end users would benefit from the results, and for what purpose(s)?

Continued support of eRoadMAP will allow everyone to have access to the energy and power needs of electrified transportation. This will provide clear signals to utilities, policy makers and cities as to what additional infrastructure whether grid or charging stations will be needed to support the transition to electric transportation. The more utilities and pertinent agencies can align to using eRoadMAP, the more planning that can be done together using a common baseline.

5. Please describe the anticipated outcomes if this research concept is successful, either fully or partially. For example, to what extent would the research reduce technology or ratepayer costs and/or increase performance to improve the overall value proposition of the technology? What is the potential of the innovation at scale? How will the innovation lead to ratepayer benefits in alignment with EPIC's guiding principles to improve safety, [iv] reliability, [v] affordability, [vi] environmental sustainability, [vii] and equity?[viii]

eRoadMAP provides a dataset that allows utilities, policy makers, and fleets to plan for electrified transportation together. eRoadMAP can benefit ratepayers in a couple ways;

- ***Flagging areas that need more planning and attention for electrification.*** This increased communication and can potentially reduce timelines associated with bringing power to a location. This careful planning will also help increase the resiliency of the grid as peak transportation needs will be planned for or managed with more insight on where and when the loads will be emerging.
- ***Highlighting (through load capacity information) areas where there is available capacity on the grid for electrification.*** This can put downward pressure on rates and increase grid utilization as existing infrastructure will be used for electrification.
- ***Industry alignment on assumptions and strategies.*** EPRI's continued engagement with OEMs, fleets and industry experts as well as incorporation of this information into eRoadMAP keeps all users engaged with the latest information allowing more accurate planning which benefits utilities, customers and fleets together.

6. Describe what quantitative or qualitative metrics or indicators would be used to evaluate the impacts of the proposed research concept.

The impact of eRoadMAP is already starting to get realized through utility data incorporation for forecasting and through inclusion through state filings. While this will take time, utilities use of eRoadMAP to enable increased investment in infrastructure is the ultimate goal. Overtime, comparing estimated forecasts from eRoadMAP with actual load growth due to EV demand will help refine the models that estimates future EV growth across the state. Quantifying the accuracy of the forecast not only at the state level but also at the finer granularity that eRoadMAP will only improve the model and increase confidence from grid planners to leverage it. Furthermore, eRoadMAP provides a high spatial granularity that could ultimately be used not only for state-wide forecast but also for day-to-day tactical decisions from planners.

7. Please provide references to any information provided in the form that supports the research concept's merits. This can include references to cost targets, technical potential, market barriers, equity benefits, etc.

Currently, cities or utilities often contract with consultants in order to estimate electric transportation energy and power needs. Many areas cannot afford to engage with consultants and don't have access to these planning tools. The public nature of eRoadMAP allows all cities and utilities to plan together with a common data set, which is imperative for a load such as transportation that moves from one jurisdiction to another. Additionally, eRoadMAP has identified other data layers that may help prioritization of one electrification hub over another. These currently include, Justice40 communities, areas of high pollution, and areas with a transportation disadvantage. EPRI will continue to add to these layers as other data sets become available.

8. The EPIC 5 Investment Plan must support at least one of five Strategic Goals:[ix]
    a. Transportation Electrification
    b. Distributed Energy Resource Integration
    c. Building Decarbonization
    d. Achieving 100 Percent Net-Zero Carbon Emissions and the Coordinated Role of Gas
    e. Climate Adaptation

Please describe in as much detail as possible how your proposed concept would support these goals.

Continued support of our eRoadMAP tool will enable all interested parties to understand the loads coming for electric transportation. This will support planning for transportation electrification.

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[1] EPIC innovations should increase the reliability of California's electric system while continuing to decarbonize California's electric power supply.
[1] EPIC innovations should fund electric sector technologies and approaches that lower California electric rates and ratepayer costs and help enable the equitable adoption of clean energy technologies.
[1] EPIC innovations should continue to reduce greenhouse house gas emissions, criteria pollutant emissions, and the overall environmental impacts of California's electric system, including land and water use.
[1] EPIC innovations should increasingly support, benefit, and engage disadvantaged vulnerable California communities (DVC). (D.20-08-046, Ordering Paragraph 1.) DVCs consist of communities in the 25 percent highest scoring census tracts according to the most recent version of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts with median household incomes less than 60 percent of state median income, and census tracts that score in the highest 5 percent of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.

About EPIC

The CEC is one of four EPIC administrators, funding research, development, and demonstrations of clean energy technologies and approaches that will benefit electricity ratepayers of California's three largest investor-owned electric utilities.

EPIC is funded by California utility customers under the auspices of the California Public Utilities Commission.

To learn more about EPIC, visit: https://www.energy.ca.gov/programs-and-topics/programs/electric-program-investment-charge-epic-program

EPIC 5 documents and event notices will be posted to: https://www.energy.ca.gov/proceeding/electric-program-investment-charge-2026-2030-investment-plan-epic-5

Subscribe to the EPIC mailing list to stay informed about future opportunities to inform the development of EPIC 5: https://public.govdelivery.com/accounts/CNRA/signup/31897

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i https://19january2021snapshot.epa.gov/ejscreen_.html

ii https://afdc.energy.gov/

iii See section (a) (1) of Public Resources Code 25711.5 at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC&sectionNum=25711.5.

iv EPIC innovations should improve the safety of operation of California's electric system in the face of climate change, wildfire, and emerging challenges.

v EPIC innovations should increase the reliability of California's electric system while continuing to decarbonize California's electric power supply.

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vii EPIC innovations should continue to reduce greenhouse house gas emissions, criteria pollutant emissions, and the overall environmental impacts of California's electric system, including land and water use.

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ix In 2024 the CPUC adopted five Strategic Goals to guide development of the EPIC 5 Investment Plan. A description of the goals can be seen in Appendix A of CPUC Decision 24-03-007 available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M527/K228/527228647.PDF