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Importance of bat conservation alongside wind energy development

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:

Michael Whitby
mwhitby@batcon.org
512.327.9721 ext. 129

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

Bat Conservation International

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?

Wind energy causes unsustainable level of fatalities to bat populations, including the hoary bat and silver-haired bat in California. The level of fatality is high enough to cause population declines and has led to the protection of at least 3 species across Canada. In the United States, the hoary bat is scheduled to undergo a species status assessment by the US Fish and Wildlife Service in 2028 – primarily due to concerns about wind energy mortality.

Research into bat population trends and fatality minimization techniques is necessary for the continued expansion of wind energy as a part of decarbonization goals.

4. In accordance with Senate Bill 96ⁱ, 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)?

The listing of the hoary bat and/or other bat species impacted by wind energy under the US or CA endangered Species Act will lead to large barriers developing wind-energy in California. Hoary bat fatalities occur at nearly all wind-energy turbines, including areas that are not typically considered bat habitat. Shutting wind energy can reduce the level of fatalities but will not avoid take or create sustainable bat populations.

Currently, the only proven minimization technique includes various forms of curtailment – reducing the amount of time a wind turbine spins during high risk periods. In addition to reducing bat fatalities, curtailment also reduces energy production. Therefore, research is needed into how to minimize bat fatalities while maximizing energy production.

Understanding bat population trends, especially of solitary foliage roosting bats that are most impacted by wind energy is an important part of understanding wind energies' impact on bat populations. This information will further identify if minimization techniques are effective in reducing population impacts and the level of minimization required.

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,ⁱⁱ reliability,ⁱⁱⁱ affordability,^{iv} environmental sustainability,^v and equity?^{vi}

Monitoring wind energy's impact on bats and researching minimization techniques will improve the environmental sustainability and affordability of wind energy.

Monitoring bat population trends will help ensure that populations of hoary bats and silver-haired bats are sustainable. Furthermore, it will help identify if more, or possibly less, minimization is needed.

Minimization efforts effect the affordability of wind energy. Identifying the appropriate level of minimization and reducing its impact on energy production will directly impact the cost of wind energy.

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

It is standard practice to evaluate bat fatality minimization techniques by examining the percent fatality reduction and its impact on annual energy production.

The impact of population monitoring research can be identified by the number of sites monitored and amount of data collected. Furthermore, the identification of population trends and confidence in those trends can be used to evaluate the impacts of the project.

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.

Frick, W. F. *et al.* Fatalities at wind turbines may threaten population viability of a migratory bat. *Biol Conserv* **209**, 172–177 (2017).

Friedenberg, N. A. & Frick, W. F. Assessing fatality minimization for hoary bats amid continued wind energy development. *Biol. Conserv.* **262**, 109309 (2021).

COSEWIC. *COSEWIC Assessment and Status Report on the Hoary Bat Lasiurus Cinereus, Eastern Red Bat Lasiurus Borealis and Silver-Haired Bat, Lasionycteris Noctivagus, in Canada.* xxi + 100 <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/hoary-bat-eastern-red-bat-silver-haired-bat-2023.html> (2023).

USFWS. National Domestic Listing Workplan. [National Listing Workplan | FWS.gov](#)

Maclaurin, G. et al. National-scale impacts on wind energy production under curtailment scenarios to reduce bat fatalities. *Wind Energy* 25, 1514–1529 (2022).

Whitby, M., O'Mara, M., Hein, C., Huso, M. & Frick, W. A decade of curtailment studies demonstrates a consistent and effective strategy to reduce bat fatalities at wind turbines in North America. *Ecological Solutions and Evidence*.

8. The EPIC 5 Investment Plan must support at least one of five Strategic Goals:^{vii}
 - 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.

Our project will support the EPIC 5 Investment plan goals of building decarbonization and achieving 100 percent of net zero carbon emissions.

Wind energy is an important part of a diverse renewable energy portfolio. Bat fatalities at wind energy facilities have the potential to cause biodiversity impacts that delay or even cancel projects. Minimization techniques can limit the energy production at wind energy facilities and directly impact the price of wind energy – resulting in increased rates for energy consumers.

Our concept to study minimization techniques and monitor bat populations will help determine techniques that assure sustainable bat populations while minimizing impacts to wind energy costs.

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>

i See section (a) (1) of Public Resources Code 25711.5 at:

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC§ionNum=25711.5.

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

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

iv 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.

v 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.

vi 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.

vii 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>