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**Proposed Changes to
Final 2022 Integrated Energy Policy Report Update**

**For Consideration at the February 28, 2023
California Energy Commission Business Meeting**

Page numbers refer to the clean version of the report posted February 10, 2023 (docket number 22-IEPR-01, TN# 248735).

Please Note: Proposed language appears in bold underline (**example**) and proposed deletions appear in strikethrough (~~example~~). To effectively include access to the marked-up language for all users, please refer to the following key codes:

- “(bbu)” means begin bold underline text.
- “(ebu)” means end bold underline text.
- “(bst)” means begin strikethrough text.
- “(est)” means end strikethrough text.

Executive Summary, page 1:

(bbu)California is an international leader in energy policy and is transitioning(ebu) ~~(bst)The state is transforming(est)~~ its energy system away from fossil fuels to achieve a reliable, clean, affordable energy future that benefits *all* Californians. ~~(bst)California is an international leader in energy policy, and in(est)~~ In September 2022, Governor Gavin Newsom signed a number of laws that ~~(bst)will(est)~~ accelerate California’s bold commitment to reduce greenhouse gas (GHG) emissions through world-leading climate action.

Updated text will read:

California is an international leader in energy policy and is transitioning its energy system away from fossil fuels to achieve a reliable, clean, affordable energy future that benefits *all* Californians. In September 2022, Governor Gavin Newsom signed a number of laws that accelerate California’s bold commitment to reduce greenhouse gas (GHG) emissions through world-leading climate action.

Executive Summary, page 4:

The increase can be attributed in most part to the increased levels of transportation electrification resulting from the inclusion of CARB’s Advanced Clean Cars II **(bbu)regulation(ebu)** (requires that all new passenger cars, trucks, and sports utility vehicles sold in California be zero emissions by 2035) and the proposed Advanced Clean

Fleets regulation (to achieve a medium- and heavy-duty zero-emission truck and bus fleet in California by 2045 and earlier in specific market segments).

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The increase can be attributed in most part to the increased levels of transportation electrification resulting from the inclusion of CARB’s Advanced Clean Cars II regulation (requires that all new passenger cars, trucks, and sports utility vehicles sold in California be zero emissions by 2035) and the proposed Advanced Clean Fleets regulation (to achieve a medium- and heavy-duty zero-emission truck and bus fleet in California by 2045 and earlier in specific market segments).

Executive Summary, page 6:

Given concerns about energy reliability, Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022) preserves the option to extend operation of the Diablo Canyon nuclear power plant, which serves about 6 percent of California’s electricity, for five years beyond the ~~(bbu)2024 retirement date for Unit 1~~(ebu)2025 retirement date (bbu)**for Unit 2**(ebu).

Building on the success of the WEIM, the California ISO will implement an Extended Day-Ahead Market, or EDAM, to coordinate energy scheduling in the Western Interconnection up to a day ahead rather than 5 to 15 minutes ahead. EDAM holds the ~~(bst)potential(est)~~ prospect for significantly greater benefits than the WEIM, ~~(bbu)from \$543 million to \$1.2 billion annually~~(ebu) and is spurring further market coordination efforts.

Updated text will read:

Given concerns about energy reliability, Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022) preserves the option to extend operation of the Diablo Canyon nuclear power plant, which serves about 6 percent of California’s electricity, for five years beyond the 2024 retirement date for Unit 1 and 2025 retirement date for Unit 2.

Building on the success of the WEIM, the California ISO will implement an Extended Day-Ahead Market, or EDAM, to coordinate energy scheduling in the Western Interconnection up to a day ahead rather than 5 to 15 minutes ahead. EDAM holds the prospect for significantly greater benefits than the WEIM, from \$543 million to \$1.2 billion *annually*, and is spurring further market coordination efforts.

Executive Summary, page 8:

CEC staff identified hard-to-electrify industrial processes, transportation, and grid reliability as key areas with a high potential for increased use of low-carbon hydrogen made directly from renewable resources. Other opportunities include use as a replacement for fossil-fuel based hydrogen used in refineries — (bbu)**for as long as**

petroleum products are used to power vehicles while the state transitions to an electrified transportation sector(bbu) (bst)while the state phases out oil refining as it electrifies the transportation system(est) and in the production of low-carbon chemicals such as green ammonia for fertilizer production. (See Figure ES-4.)

Updated text will read:

CEC staff identified hard-to-electrify industrial processes, transportation, and grid reliability as key areas with a high potential for increased use of low-carbon hydrogen made directly from renewable resources. Other opportunities include use as a replacement for fossil-fuel based hydrogen used in refineries — for as long as petroleum products are used to power vehicles while the state transitions to an electrified transportation and in the production of low-carbon chemicals such as green ammonia for fertilizer production. (See Figure ES-4.)

Chapter 1, page 32:

The (bst)2022(est) (bbu)**updated**(ebu) Energy Equity Indicators will be a tool developed and maintained by the CEC that:

- Helps enable and empower individuals and communities to retrieve, understand, and use their data.
- Supports communities pursuing strategies and investments to aid in a clean energy transition.
- Addresses gaps and creates opportunities to direct resources to the communities that need it the most.
- Increases data availability and usability.

Updated text will read:

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- Helps enable and empower individuals and communities to retrieve, understand, and use their data.
- Supports communities pursuing strategies and investments to aid in a clean energy transition.
- Addresses gaps and creates opportunities to direct resources to the communities that need it the most.
- Increases data availability and usability.

Chapter 2, page 37:

Rather than (bbu)**focusing on**(ebu) a particular group or organization, the CEC has prioritized serving a diverse group of stakeholders.

Updated text will read:

Rather than focusing on a particular group or organization, the CEC has prioritized serving a diverse group of stakeholders.

Chapter 3, page 45:

No updates were made to the additional achievable energy efficiency (AEE) component. The additional achievable fuel substitution (AAFS) component was updated to layer the impacts of the CARB State Implementation Plan strategy for zero-emission space and water heater sales on top of (bst)Scenario-4(est)(bbu)**the AAFS scenario used in the Local Reliability Scenario.**(ebu)

Updated text will read:

No updates were made to the additional achievable energy efficiency (AEE) component. The additional achievable fuel substitution (AAFS) component was updated to layer the impacts of the CARB State Implementation Plan strategy for zero-emission space and water heater sales on top of the AAFS scenario used in the Local Reliability Scenario.

Chapter 3, page 53:

This point is underscored by the September 6, 2022, heat event that gave rise to a peak load (bbu)**of 52,061 MW**(ebu) on the California ISO system far surpassing all previously recorded loads.

Updated text will read:

This point is underscored by the September 6, 2022, heat event that gave rise to a peak load of 52,061 MW on the California ISO system far surpassing all previously recorded loads.

Chapter 4, page 78:

The analysis did not consider other potential impacts to supply, such as further supply chain issues, and coincident events such as extreme heat and a wildfire affecting transmission. (bbu)**The CEC notes that the analysis is predicated on load serving entities being able to secure sufficient resources to meet their resource adequacy requirements. Multiple load serving entities have commented in the 2021 and 2022 IEPR proceedings that the resource adequacy market is very tight in California making it difficult for load serving entities to meet their obligations.**(ebu)

Updated text will read:

The analysis did not consider other potential impacts to supply, such as further supply chain issues, and coincident events such as extreme heat and a wildfire affecting transmission. The CEC notes that the analysis is predicated on load serving entities

being able to secure sufficient resources to meet their resource adequacy requirements. Multiple load serving entities have commented in the 2021 and 2022 IEPR that the resource adequacy market is very tight in California making it difficult for load serving entities to meet their obligations.

Chapter 4, page 80:

Through Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022), the Governor and Legislature preserved the option to extend operation of the Diablo Canyon nuclear power plant for five years beyond the (bbu)**2024 retirement date for Unit 1 and**(ebu) the 2025 retirement date (bbu)**for Unit 2.**(ebu)

Updated text will read:

Through Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022), the Governor and Legislature preserved the option to extend operation of the Diablo Canyon nuclear power plant for five years beyond the 2024 retirement date for Unit 1 and the 2025 retirement date for Unit 2.

Chapter 4, page 81:

Separately, the bill requires the CEC to develop two additional products: a Clean Energy Reliability Investment Plan and a goal for load shifting. The (bbu)**CEC staff made available for public comment the Draft**(ebu) Clean Energy Reliability Investment Plan (bbu)**to be considered for adoption on February 28, 2023.**¹ **The report identifies**(ebu)(bst)will identify(est) investments that (bbu)**could**(ebu) accelerate the deployment of clean energy resources, support demand response, assist ratepayers, and increase energy reliability. The load-shifting goal will focus on reducing net peak electrical demand(bbu)_(ebu)(bst), and the(est) (bbu)**The accompanying report is due to the Legislature on June 1, 2023, and** (ebu)will include recommended policies to increase demand response and load shifting without increasing greenhouse gas emissions or electric rates.

Updated text will read:

Separately, the bill requires the CEC to develop two additional products: a Clean Energy Reliability Investment Plan and a goal for load shifting. The CEC staff made available for public comment the Draft Clean Energy Reliability Investment Plan to be considered for adoption on February 28, 2023.² The report identifies investments that could accelerate the deployment of clean energy resources, support demand response, assist ratepayers, and increase energy reliability. The load-shifting goal will focus on reducing net peak

1 (bbu)**Erne, David, CEC. 2023. *Draft Clean Energy Reliability Investment Plan*. CEC. Publication Number: CEC-200-2023-003.**(ebu)

2 Erne, David, CEC. 2023. *Draft Clean Energy Reliability Investment Plan*. CEC. Publication Number: CEC-200-2023-003.

electrical demand. The accompanying report is due to the Legislature on June 1, 2023, and will include recommended policies to increase demand response and load shifting without increasing greenhouse gas emissions or electric rates.

Chapter 4, page 82:

Since the reporting requirements of AB 205 overlap with the reliability analysis required by SB 846 (next section), the CEC is combining the results, including the emission analysis, into one report (bst)expected to be(est)issued to the Legislature in February 2023.³

Updated text will read:

Since the reporting requirements of AB 205 overlap with the reliability analysis required by SB 846 (next section), the CEC is combining the results, including the emission analysis, into one report issued to the Legislature in February 2023.⁴

Chapter 4, page 86:

~~(bst)The Western Power Pool (formerly the Northwest Power Pool), Powerex, and other major western utilities/states have developed and filed a tariff at the Federal Energy Regulatory Commission (FERC) for the Western Resource Adequacy Program (WRAP) to help address resource adequacy concerns. The program covers much of the Western Interconnection (north and east of California), and the Western Power Pool has engaged a wide range of WI stakeholders in the program development.(est)~~

(bbu)The Western Power Pool⁵ (formerly the Northwest Power Pool), Powerex, and other major western utilities/states have developed and filed a tariff⁶ at the Federal Energy Regulatory Commission (FERC) for the Western Resource Adequacy Program (WRAP), requesting an effective date of January 1, 2023. The program address resource adequacy concerns for much of the WI (north and east of California). In early December 2022, 11 WRAP members, featuring several WEIM participants including PacifiCorp, committed to full participation in the program. FERC approved the tariff for the WRAP, the first region-wide reliability program, on February 10, 2023.

3 (bbu)**Kootstra, Mark, and Nathan Barcic (CPUC). 2023. [Joint Agency Reliability Planning Assessment](#). CEC. Publication Number: CEC-200-2023-002.**(ebu)

4 Kootstra, Mark, and Nathan Barcic (CPUC). 2023. [Joint Agency Reliability Planning Assessment](#). CEC. Publication Number: CEC-200-2023-002.

5 The [Western Power Pool](https://www.westernpowerpool.org/) is a nonprofit corporation promoting voluntary association among its membership consisting of major generating utilities serving the western United States, British Columbia, and Alberta. <https://www.westernpowerpool.org/>.

6 (bbu)**The WRAP FERC filing, which includes transmittal letter, supporting affidavits, and the tariff, is available at <https://www.westernpowerpool.org/private-media/documents/ER22-2762 WRAP Tariff Filing.pdf>.**(ebu)

With tariff approval, participating entities can move into the next stages of program implementation and eventually to participating entities' performance filings with mandatory penalties for non-compliance. WEIM and WRAP participants are committed to addressing seams between markets and resource adequacy to ensure compatibility.(ebu)

Updated text will read:

The Western Power Pool⁷ (formerly the Northwest Power Pool), Powerex, and other major western utilities/states have developed and filed a tariff⁸ at the Federal Energy Regulatory Commission (FERC) for the Western Resource Adequacy Program (WRAP), requesting an effective date of January 1, 2023. The program address resource adequacy concerns for much of the WI (north and east of California). In early December 2022, 11 WRAP members, featuring several WEIM participants including PacifiCorp, committed to full participation in the program. FERC approved the tariff for the WRAP, the first region-wide reliability program, on February 10, 2023. With tariff approval, participating entities can move into the next stages of program implementation and eventually to participating entities' performance filings with mandatory penalties for non-compliance. WEIM and WRAP participants are committed to addressing seams between markets and resource adequacy to ensure compatibility.

Chapter 4, page 87:

~~The WRAP stakeholders and developers have elected to retain SPP as program operator. (bst)In August and December 2022 filings to the Federal Energy Regulatory Commission (FERC), the Western Power Pool requested a WRAP implementation effective date of January 1, 2023.⁹ In early December 2022, 11 WRAP members, featuring several WEIM participants including PacifiCorp, committed to full participation in the program. A decision from FERC on the WRAP filing is expected in the first half of 2023.(est)~~

Updated text will read:

The WRAP stakeholders and developers have elected to retain SPP as program operator.

7 The [Western Power Pool](https://www.westernpowerpool.org/) is a nonprofit corporation promoting voluntary association among its membership consisting of major generating utilities serving the western United States, British Columbia, and Alberta. <https://www.westernpowerpool.org/>.

8 The [WRAP FERC filing](https://www.westernpowerpool.org/private-media/documents/ER22-2762_WRAP_Tariff_Filing.pdf), which includes transmittal letter, supporting affidavits, and the tariff, is available at https://www.westernpowerpool.org/private-media/documents/ER22-2762_WRAP_Tariff_Filing.pdf.

Chapter 4, page 91:

The CEC hosted a workshop on western electricity market integration December 2, 2022. The workshop was attended by all CPUC and CEC commissioners, the (bbu)**president and**(ebu) CEO of California ISO, chair of CARB, and leaders of several other western states.

Updated text will read:

The CEC hosted a workshop on western electricity market integration December 2, 2022. The workshop was attended by all CPUC and CEC commissioners, the president and CEO of California ISO, chair of CARB, and leaders of several other western states.

Chapter 4, page 91:

Highlights of the workshop, including key takeaways warranting consideration in 2023, are summarized below.^{(bbu)10(ebu)}

Updated text will read:

Highlights of the workshop, including key takeaways warranting consideration in 2023, are summarized below.¹¹

Chapter 4, page 92:

Benefit estimates for EDAM, *incremental to WEIM*, suggest potential savings (bst)for California of more than \$300annually and more than \$880 million annually for the larger West.(est)(bbu)**from \$543 million to \$1.2 billion annually when considering the operational benefits in addition to potential capacity benefits.**^{12(ebu)}

Updated text will read:

10 (bbu)**For a more complete summary, see Anderson, Grace and Christopher McLean. 2023. [Western Electricity System: Progress Toward Integration](https://efiling.energy.ca.gov/GetDocument.aspx?tn=248916). California Energy Commission Staff. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=248916>.**(ebu)

11 For a more complete summary, see Anderson, Grace and Christopher McLean. 2023. [Western Electricity System: Progress Toward Integration](https://efiling.energy.ca.gov/GetDocument.aspx?tn=248916). California Energy Commission Staff. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=248916>.

12 (bbu)**Anna McKenna Memo to Governing Entities. January 26, 2023. [Decision on the Extended Day Ahead Market](http://www.caiso.com/Documents/DecisiononExtendedDay-AheadMarket-Memo-Feb2023.pdf). <http://www.caiso.com/Documents/DecisiononExtendedDay-AheadMarket-Memo-Feb2023.pdf>. *Capacity benefits* generally refers to avoiding the need to build new generation because participants share use of existing powerplants that have excess capacity.**(ebu)

Benefit estimates for EDAM, *incremental to WEIM*, suggest potential savings from \$543 million to \$1.2 billion *annually* when considering the operational benefits in addition to potential capacity benefits.¹³

Chapter 4, page 104:

The statute also requires the CEC to model the potential growth of hydrogen and the role of hydrogen in decarbonizing the electrical and transportation sectors as part of the 2023 and 2025 IEPRs. (bbu) **Similar assessments are being done at the federal level, with the U.S. DOE releasing a draft *DOE National Clean Hydrogen Strategy and Roadmap* in September 2022.¹⁴ This document provides a snapshot of hydrogen production, transport, storage, and use in the United States and explores the potential roles of low-carbon hydrogen in several sectors, and state agencies can leverage DOE’s research and analysis when doing similar state-level work.**(ebu)

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13 Anna McKenna Memo to Governing Entities. January 26, 2023. [Decision on the Extended Day Ahead Market](http://www.caiso.com/Documents/DecisiononExtendedDay-AheadMarket-Memo-Feb2023.pdf). <http://www.caiso.com/Documents/DecisiononExtendedDay-AheadMarket-Memo-Feb2023.pdf>. *Capacity benefits* generally refers to avoiding the need to build new generation because participants share use of existing powerplants that have excess capacity.

14 (bbu) **U.S. Department of Energy. September 2022 (Draft). [DOE National Clean Hydrogen Strategy and Roadmap](https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf)**. <https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf>.(ebu)

15 U.S. Department of Energy. September 2022 (Draft). [DOE National Clean Hydrogen Strategy and Roadmap](https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf). <https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf>.