

AGENDA**ASSEMBLY BUDGET SUBCOMMITTEE No. 3
ON CLIMATE CRISIS, RESOURCES, ENERGY, AND TRANSPORTATION****ASSEMBLYMEMBER RICHARD BLOOM, CHAIR****WEDNESDAY, MARCH 9, 2022
9:30 A.M. – STATE CAPITOL, ROOM 447****NON-PRESENTATION CALENDAR**

ITEM	DESCRIPTION	PAGE
0971	CALIFORNIA ALTERNATIVE ENERGY & ADVANCED TRANSPORTATION FINANCING AUTHORITY (CAEATFA)	2
ISSUE 1	EXTENDED ADMINISTRATION OF THE CA HUB FOR ENERGY EFFICIENCY FINANCING PILOT PROGRAMS AND USE OF THE PLATFORM FOR NON-RATEPAYER FUNDED PROGRAMS	2
3360	CALIFORNIA ENERGY COMMISSION	2
ISSUE 2	ASSESSING FIRM ZERO-CARBON RESOURCES TO SUPPORT GRID RELIABILITY (SB 423)	2
ISSUE 3	BUILDING ELECTRIFICATION AND ELECTRIC VEHICLE CHARGING WEBSITE (SB 68)	3
8660	PUBLIC UTILITIES COMMISSION	3
ISSUE 4	ADMINISTRATIVE LAW JUDGE DIVISION MANAGEMENT AND PROCEEDING SUPPORT	3
ISSUE 5	AUTHORIZATION FOR PERMANENT FUNDING OF KEY LIMITED-TERM POSITIONS IN SUPPORT OF ENERGY POLICY STATUTES	4
ISSUE 6	BIOENERGY MARKET ADJUSTING TARIFF PROGRAM: COMMUNITY CHOICE AGGREGATORS (AB 843)	4
ISSUE 7	BROADBAND INFRASTRUCTURE DEPLOYMENT (AB 41)	4
ISSUE 8	CALIFORNIA LIFELINE – STATE OPERATIONS AND LOCAL ASSISTANCE ESTIMATE	5
ISSUE 9	COMMUNICATION: UNIVERSAL SERVICE: LIFELINE PROGRAM (AB 74)	5
ISSUE 10	COMMUNICATIONS LICENSING AND COMPLIANCE SECTION PERMANENT POSITION AUTHORITY	6
ISSUE 11	COMMUNICATIONS: BROADBAND SERVICES: CALIFORNIA ADVANCED SERVICES FUND (AB 14)	6
ISSUE 12	COMMUNICATIONS: CALIFORNIA ADVANCED SERVICES FUND (SB 4)	6
ISSUE 13	DIGITAL INFRASTRUCTURE AND VIDEO COMPETITION ACT OF 2006: DEPLOYMENT DATA (SB 28)	7
ISSUE 14	INFORMATION TECHNOLOGY SERVICES DIVISION—SECURITY ENHANCEMENTS	7
ISSUE 15	PHYSICAL AND CYBER SECURITY SECTION	7
ISSUE 16	STRENGTHEN INTERNAL OPERATIONS CORE	8
ISSUE 17	TRANSPORTATION LICENSING AND ENFORCEMENT BRANCH	8
ISSUE 18	WATER AND SEWER SYSTEM CORPORATIONS: CONSOLIDATION OF SERVICE (AB 1250)	8

ITEMS TO BE HEARD		
ITEM	DESCRIPTION	PAGE
	VARIOUS	9
ISSUE 1	CLEAN ENERGY INVESTMENTS AND TRAILER BILL	9
3860	DEPARTMENT OF WATER RESOURCES	28
ISSUE 2	CALIFORNIA ELECTRIC GRID EMERGENCY GENERATOR SUPPORT	28
8660	PUBLIC UTILITIES COMMISSION	30
ISSUE 3	CPUC AUDIT TRAILER BILL	30

Public Comment

The public may attend this hearing in person or participate by phone. It is strongly recommended that any member of the public attending this hearing wear a mask at all times while in the building location. This hearing can be viewed via live stream on the Assembly’s website at <https://assembly.ca.gov/todaysevents>.

We encourage the public to provide written testimony before the hearing. Please send your written testimony to: BudgetSub3@asm.ca.gov. Please note that any written testimony submitted to the committee is considered public comment and may be read into the record or reprinted.

*A moderated telephone line will be available to assist with public participation. The public may provide comment by calling the following toll-free number: **877-692-8957 / Access Code: 131 54 47.***

NON-PRESENTATION ITEMS

0971 CALIFORNIA ALTERNATIVE ENERGY & ADVANCED TRANSPORTATION FINANCING AUTHORITY (CAEATFA)

ISSUE 1: EXTENDED ADMINISTRATION OF THE CA HUB FOR ENERGY EFFICIENCY FINANCING PILOT PROGRAMS AND USE OF THE PLATFORM FOR NON-RATEPAYER FUNDED PROGRAMS

The Governor's budget requests additional reimbursement and expenditure authority in the amount of \$27.4 million for FY 2022/23 and available through FY 2026/27 to: (1) continue to appropriately carry out its functions as the administrator of the California Hub for Energy Efficiency Financing (CHEEF) programs on behalf of the California Public Utilities Commission (CPUC); and, (2) allow for the incorporation of non-ratepayer funds to expand the reach of the programs. To support the continued administration, scaling and expansion of the CHEEF programs, CAEATFA requests authority to hire five (5) new permanent staff positions: one (1) Staff Services Manager I, three (3) Associate Governmental Program Analysts (AGPAs), and one (1) Office Technician (OT).

This request aligns CAEATFA's reimbursement and expenditure authority with the CPUC's August 5, 2021 Decision 20-08-022, which grants up to \$75.2 million in additional ratepayer funding to support the CHEEF programs through FY 2026-27 and beyond, and allows for the incorporation of non-ratepayer funds. To support the expansion of the CHEEF to non-IOU customers or for energy saving projects not related to an IOU fuel, CAEATFA is pursuing other sources of funds.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

3360 CALIFORNIA ENERGY COMMISSION

ISSUE 2: ASSESSING FIRM ZERO-CARBON RESOURCES TO SUPPORT GRID RELIABILITY (SB 423)

The Governor's budget requests \$780,000 and 3.0 permanent positions to develop the report to be submitted to the legislature on zero-carbon resources by December 31, 2023 and to conduct ongoing analysis for the Integrated Energy Policy Report (IEPR) as required by Chapter 243, Statutes of 2021 (SB 423). This includes \$780,000 from the Energy Resource Programs Account (ERPA) in 2022-23 to develop the report to the legislature, and \$594,000 in 2023-24 and annually thereafter to generate subsequent analyses for IEPR. This corresponds to three permanent positions starting in 2022-23 plus funding for one temporary position in 2022-23 only.

Staff Recommendation: Hold Open.

ISSUE 3: BUILDING ELECTRIFICATION AND ELECTRIC VEHICLE CHARGING WEBSITE (SB 68)

The Governor's budget requests \$150,000 annually from the Energy Resources Programs Account (Fund 0465) and 1.0 permanent position to implement the requirements of Chapter 720, Statutes of 2021 (Senate Bill 68), which directs the CEC to post guidance on its website to help stakeholders overcome barriers to electrifying existing buildings and installing electric vehicle (EV) charging equipment to existing buildings.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

8660 PUBLIC UTILITIES COMMISSION**ISSUE 4: ADMINISTRATIVE LAW JUDGE DIVISION MANAGEMENT AND PROCEEDING SUPPORT**

The Governor's budget requests \$1,223,000 ongoing from various special funds (Distributed Administration) for eight (8.0) permanent positions to address deficiencies in management resources and proceeding support for the Administrative Law Judge (ALJ) Division.

The positions include:

- One (1.0) permanent full-time Assistant Chief Administrative Law Judge (ACALJ)
- One (1.0) permanent full-time Staff Services Manager (SSM) I
- One (1.0) permanent full-time SSM II
- Four (4.0) permanent full-time Associate Governmental Program Analyst (AGPA)
- One (1.0) permanent full-time Legal Secretary

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 5: AUTHORIZATION FOR PERMANENT FUNDING OF KEY LIMITED-TERM POSITIONS IN SUPPORT OF ENERGY POLICY STATUTES

The Governor's budget requests position authority and \$4,124,000 ongoing funding from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) to convert 19.5 existing limited-term to permanent positions to continue implementing numerous statutes concerning microgrids, bioenergy, energy efficiency, and storage including interconnection of storage.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 6: BIOENERGY MARKET ADJUSTING TARIFF PROGRAM: COMMUNITY CHOICE AGGREGATORS (AB 843)

The Governor's budget requests \$865,000 limited-term funding from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) for four (4.0) three-year fulltime temporary positions to implement new work resulting from Chapter 234, Statutes of 2021 (AB 843). This legislation requires the CPUC to develop and adopt processes for contract approval and cost recovery to administer the state's Bioenergy Market Adjusting Tariff (BioMAT) program for community choice aggregators (CCA).

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 7: BROADBAND INFRASTRUCTURE DEPLOYMENT (AB 41)

The Governor's budget requests \$159,000 ongoing for one (1.0) new permanent fulltime position; \$105,000 one-time funding in 2022-23 for computer hardware, software, and training; and \$30,000 ongoing starting in 2023-24 from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) to develop, implement, and administer the new requirements mandated by Chapter 659, Statutes of 2021 (Assembly Bill (AB) 41).

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 8: CALIFORNIA LIFELINE – STATE OPERATIONS AND LOCAL ASSISTANCE ESTIMATE

The Governor's budget requests \$371,354,000 for fiscal year 2022-23 from the Universal LifeLine Telephone Service Trust Administrative Committee Fund (0471) to provide low-income California households with basic, high-quality wireless and wireline services at affordable rates in accordance with the Public Utilities Code section 871 et seq.

Specifically, the California LifeLine Program requests:

- \$342,267,000 for local assistance funding to reimburse claims from participating service providers that offer discounted phone service to program participants.
- \$29,087,000 for state operations funding to administer the Program.

The above request would represent an overall funding decrease of \$30.042 million and 7.5 percent from the amounts appropriated in the 2021 Budget Act for California LifeLine.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 9: COMMUNICATION: UNIVERSAL SERVICE: LIFELINE PROGRAM (AB 74)

The Governor's budget requests \$171,000 from the Universal Lifeline Telephone Services Trust (Fund 0471) for one (1.0) two-year full-time temporary position to implement Chapter 410, Statutes of 2021 (Assembly Bill 74) by modifying the California LifeLine (Program) application and recertification process to minimize barriers for customers to apply to the Program and recertify eligibility. Also requested are one-time funding of \$309,000 for Third-Party Administrator system changes and two-year funding of \$196,000 per year for outreach and communication efforts.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 10: COMMUNICATIONS LICENSING AND COMPLIANCE SECTION PERMANENT POSITION AUTHORITY

The Governor's budget requests permanent position authority and \$286,00 for fiscal year 2022-23 and \$284,000 ongoing funding from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) to convert two (2.0) temporary blanket positions to permanent in the CPUC Licensing and Compliance Section (L&C).

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 11: COMMUNICATIONS: BROADBAND SERVICES: CALIFORNIA ADVANCED SERVICES FUND (AB 14)

The Governor's budget requests \$564,000 ongoing from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) and the California Advanced Services Fund (Fund 3141) for three (3.0) three-year full-time temporary positions to develop, implement, and administer program changes to the California Advanced Services Fund (CASF), the Deaf and Disabled Telecommunications Program (DDTP), and surcharges, as mandated by Chapter 658, Statutes of 2021 (AB 14), in addition to one-time costs of \$1,950,000 for the Telecommunications User Fee Filing System (TUFFS) and \$1,250,000 for the Program Claims Management System (PCMS), as well as \$382,000 ongoing for contracts, equipment, and cloud subscriptions.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 12: COMMUNICATIONS: CALIFORNIA ADVANCED SERVICES FUND (SB 4)

The Governor's budget requests \$1.25 million for six (6.0) three-year temporary positions; and \$2.55 million per year for three years, \$30,000 one-time, and \$10,000 per year for two subsequent years for consultant services, training, and licenses from the California Advanced Services Fund (Fund 3141) to implement Chapter 671, Statutes 2021 (Senate Bill (SB) 4). The legislation makes numerous changes to the California Advanced Services Fund (CASF) program and extends the program to December 31, 2032.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 13: DIGITAL INFRASTRUCTURE AND VIDEO COMPETITION ACT OF 2006: DEPLOYMENT DATA (SB 28)

The Governor's budget requests \$846,000 from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) for four (4.0) three-year temporary positions; as well as \$42,000 one-time and \$18,000 per year for two additional years for computer equipment, software, and training to implement the mandates of Chapter 673, Statutes of 2021 (Senate Bill (SB) 28). SB 28 makes changes to the Digital Infrastructure and Video Competition Act (DIVCA) affecting households reporting and customer service requirements.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 14: INFORMATION TECHNOLOGY SERVICES DIVISION—SECURITY ENHANCEMENTS

The Governor's budget requests \$1,858,000 from various special funds (Distributed Administration) for ten (10.0) new permanent full-time positions in the Information Security Office (ISO) to improve its cyber security posture; consolidate enterprise information technology security, risk, and compliance activities; achieve compliance with State Administrative Manual (SAM) 5300 requirements; and address issues identified by both the State Auditor and by Independent Security Assessments performed by the California Military Department and California Department of Technology's (CDT) Office of Information Security.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 15: PHYSICAL AND CYBER SECURITY SECTION

The Governor's budget requests \$638,000 from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) for three permanent positions to augment the capabilities of a CPUC safety and cybersecurity utility regulatory group in response to significant increases in global cyber threats and attacks, and in support of Chapter 327, Statutes of 2009 (SB 17).

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 16: STRENGTHEN INTERNAL OPERATIONS CORE

The Governor's budget requests \$1,696,000 from various special funds (Distributed Administration) for position authority and funding to convert eight (8.0) existing full-time blanket positions, one (1.0) existing full-time intermittent position, and one (1.0) existing full-time temporary position to permanent to strengthen its internal operations core and improve support, oversight, and reporting of the Accounting Services Section, Human Resources Division, and Legal Division.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 17: TRANSPORTATION LICENSING AND ENFORCEMENT BRANCH

The Governor's budget requests \$2,264,000 from the Public Utilities Commission Transportation Reimbursement Account (Fund 0461) including \$1,482,000 for fiscal year 2022-23 and \$1,473,000 ongoing for eight (8.0) new permanent positions, and position authority and funding to convert one (1.0) existing full-time blanket position to a permanent position; \$673,000 one-time funding for contracts and equipment; and \$109,000 for fiscal year 2022-23 and ongoing for subscription licensing costs for the Consumer Protection and Enforcement Division transportation branch.

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ISSUE 18: WATER AND SEWER SYSTEM CORPORATIONS: CONSOLIDATION OF SERVICE (AB 1250)

The Governor's budget requests \$2,796,000 from the Public Utilities Commission Utilities Reimbursement Account (Fund 0462) for five (5.0) new permanent positions and nine (9.0) three-year full-time temporary positions to address an increasing number of utility applications and advice letters requesting consolidations of small community water systems and small state water systems under the expedited processes mandated by Chapter 713, Statutes of 2021 (Assembly Bill (AB) 1250).

Staff Recommendation: Absent member questions or input from the public at this hearing, Staff recommends this item be considered for a vote-only calendar when the Committee takes action.

ITEMS TO BE HEARD

VARIOUS

ISSUE 1: CLEAN ENERGY INVESTMENTS AND TRAILER BILL

The Governor's budget requests a \$2.035 billion one-time investment from the General Fund over two years, a \$1.5 million one-time investment from the Energy Resources Program Account (ERPA), and a \$1.3 million ongoing investment from the Public Utilities Commission Utilities Reimbursement Account (PUCURA) to support clean energy investments and equitable building decarbonization.

This funding includes: General Fund (In Millions)

Program	Department	2022-23	2023-24	Total
Equitable building decarbonization	CEC	\$323	\$600	\$922
Incentives for long duration storage projects	CEC	140	240	380
Oroville pump storage project	DWR	100	140	240
Industrial decarbonization	CEC	110	100	210
Green hydrogen projects	CEC	100	—	100
Food Production Investment Program	CEC	85	—	85
Offshore wind infrastructure	CEC	45	—	45
Incentives for low GWP refrigerants	CARB	20	20	40
Energy modeling	CEC	7	—	7
AB 525 implementation	Various	4 ^a	—	4
Staffing to support energy reliability	DWR	3	—	3
Distributed energy staffing	CPUC	1 ^b	1 ^b	3
Totals		\$938	\$1,101	\$2,039

This also includes an associated trailer bill to implement these new programs. The trailer bill outlines some of the programs, including definitions, and provides broad exemptions from existing law including the Administrative Procedure Act (APA) and public contracting codes. It also authorizes staff to approve funding instead of by vote of the Commission during a public business meeting. Lastly, it provides an APA exemption for the funding provided in last year's budget to create a new program for all electric or battery powered new homes.

BACKGROUND**Energy Commission**

Industrial Decarbonization Incentives- \$210 Million. California's industrial sector is responsible for over 35 percent of the state's natural gas use and contributes approximately 100 million metric tons of carbon dioxide equivalent emissions (MMT CO₂e), which is more than 20 percent of the state's GHG emissions. Process heating accounts for about 85 percent of industrial sector's natural gas use. Assuming this program results in a conservative 5 percent reduction in natural gas use for process heating, the resulting GHG emission reduction would be approximately 20 million metric tons of CO₂ equivalent emission over a 20-year period (equivalent to removing 215,000 passenger vehicles from the road each year). There are over 40,000 industrial facilities in California. This is one-time funding for the CEC to provide and administer a grant program for the purchase and deployment of commercially available advanced technologies and equipment and to also develop and deploy novel decarbonization technologies and strategies for the industrial sector. Grants will target primary emitters of GHGs, such as chemicals, metals, and nonmetallic minerals including cement, glass, and pharmaceuticals (not including petroleum and gas production). Heating is the most common process across the industrial sector, accounting for more than half of industrial GHG emissions. These industries use high-temperature heating that is hard to electrify.

The grant program would award funds to industrial facilities, researchers, equipment manufacturers/vendors, and project aggregators to: (1) electrify processes, including high temperature heating, that use natural gas and other fossil fuels; (2) incorporate energy storage, solar, wind or other renewable energy sources into industrial processes; (3) increase energy efficiency; (4) develop and deploy carbon capture for use in products, such as carbonate mineralization, and carbon curing of concrete to reduce or eliminate GHG emissions and not carbon capture for the purposes of geologic storage; and, (5) develop and deploy other decarbonization strategies such as use of zero carbon heat sources, fuel switching to zero carbon fuels and use of alternative raw materials and processes that can reduce GHG emissions or facilitate electrification. This can include use of renewable gas, green hydrogen, or solar thermal, or changing material inputs and process methods to reduce carbon dioxide emissions. The focus of the CEC efforts in this proposal is on carbon capture and utilization and not on geologic storage or sequestration.

Food Production Investment Program (FPIP) - \$85 million. FPIP is an existing program at the CEC that funds energy efficiency upgrades and renewable energy at food processing facilities. FPIP has awarded \$116 million since its inception and has not been funded since 2018. FPIP has funded 50 grant awards at 66 project sites. Fifty-six of these sites, approximately 85 percent, are in and benefitting disadvantaged or low-income communities. Approximately half of these project sites are in the San Joaquin Valley. There are a total 7,262 food and beverage processing facilities in California emitting about 3.2 million MT CO₂e annually.

Long Duration Energy Storage- \$380 Million. Incentives to deploy long-duration storage technologies that are on the verge of commercialization and, with incentives, would position these technologies to scale-up and move from demonstration-scale to commercial deployment

in the next 5 to 10 years. Analyses indicate that there is a need for a minimum of about 1,000 MW of long-duration storage by 2030 and 4,000 MW by 2045. This funding would support early-stage deployment of these technologies that could include but would not be limited to advanced technology batteries based on new materials and metals such as zinc, nickel, magnesium, and others that offer the benefit of lower costs compared to today's average costs, safer operations because they do not have thermal overheating challenges, and longer operational performance. The primary research target for demonstrations will be in the 3- 10 MW range with a stretch goal for reaching as much as 30 MWs. For energy storage duration, the focus is on 8 hours or more with a stretch goal of reaching 20 to 100 hours of duration. Many short duration energy storage systems have operational limits on the number of cycles per day and over a lifetime. The benefit of many of these long duration technologies is that they do not have this same limitation. Also, these long duration technologies offer a better global supply chain to support a rapid growth in future demand because they employ minimal use of rare earth minerals. Example technologies are:

- Flow batteries (5 to 10 MWs of capacity and durations of 8 or more hours) that have potential to reduce cost per MW as they scale in size and offer higher daily cycles, longer life and significantly less degradation over time compared to current technologies.
- Mechanical systems and gravity feed technologies (5 MWs or more of capacity and durations of 8 or more hours) that offer higher efficiencies, the ability to perform well in a wider range of outside air conditions and can support industrial and remote field operations better than current technologies.
- Thermal storage and aqueous battery systems (5 MWs or more of capacity and durations in the range of 20 to 100 hours) that provide some of the lowest price per kilowatt hour available and can support both short term grid challenges and seasonal energy storage needs.
- Compressed air and liquid air technologies (10 MWs or higher of capacity and durations of 8 or more hours) that offer high power and an existing base of systems that have decades of performance data. The technologies rely heavily on proven technologies and the newer technologies provide reduced environmental challenges.
- Pumped hydro technologies are not included in this list because the industry considers this technology already commercially available with a large global database of operating systems. Normally, environmental and siting issues are the key challenges this technology faces rather than the technical challenges experienced by the other emerging technologies on this list.

This funding would support the development of a range of long duration energy storage projects throughout the state and would occur in phases with the goal of continuously scaling up the size of the projects. The first phase of projects is expected to include 12 to 16 different demonstration projects. The second phase will include fewer projects (7 to 10), of a much larger scale than the first phase. The knowledge gained and the experience from both phases is expected to move these long duration energy storage technologies into commercialization for rapid deployment without the need for ongoing public funding. This will enable these technologies to compete commercially for future utility and other contracts. The two-phase approach also allows for reduced public funding in phase 2 as the technologies mature.

This one-time funding is designed to provide the resources necessary to sponsor the demonstration efforts to advance several of the emerging long duration energy storage technologies. The first phase will target initial power ratings in the range of 3 to 5 MWs and durations in the range of 8 hours or more. The second phase will advance these technologies to provide 5 to 10 MWs or higher and durations in the range of 8 hours or more. Some research will focus on stretch goals for much longer durations in the range of 20 hour to 100 hours range.

Green Hydrogen Grants to Scale Electrolyzers- \$100 Million. Currently, grey hydrogen, or hydrogen generated from fossil gas, represents over 95 percent of the worldwide use of hydrogen. This funding will demonstrate the scaling green hydrogen production in 10 to 15 commercial scale projects with these focus areas:

- Electrolyzers: Provide grants to support the production of lower cost green electrolytic hydrogen for delivery/use in California. Approximately two thirds of this funding will focus on this element of cost reduction and efficiency improvements for electrolyzers.
- Provide grants to support the transportation, storage, and conversion of green hydrogen to the site where needed. Alternative configurations will be evaluated and demonstrated:
 - One demonstration option will be to generate the hydrogen and transport it for storage a local storage facility on or near the same conversion site.
 - A second demonstration option will be to generate the hydrogen, centrally store it, and then transport it longer distances to various site locations. This hub and spoke may prove more cost-effective.

Equitable Building Decarbonization- \$922 Million. California has an estimated 14 million existing homes and 7 billion square feet of built commercial space that are responsible for 25 percent of the state's GHG inventory. Emissions from combustion appliances contribute to indoor air pollution and exacerbate existing poor air quality. In addition, as the effects of climate change become more common and pronounced with extreme heat and wildfires, older buildings with minimal or shedding insulation, air gaps, and non-existent or low-performing space heating and cooling are not equipped to fully withstand and protect occupants.

In contrast to the progress being made in newly constructed buildings where regulatory tools are most effective, the decarbonization of existing buildings is more challenging and greatly lags behind the pace required to meet California's climate goals. While retrofits to existing buildings offer the greatest potential for emission reductions, they also face more barriers, such as equipment installation requirements, upfront costs, space constraints, structural issues, deferred maintenance, scheduling around occupant presence, split incentives between tenant and owner, and building upgrade requirements for a construction permit. Resources – in the form of installed equipment and building infrastructure upgrades, available cash, or technical assistance – can significantly accelerate decarbonization and improve quality of life, particularly for low to moderate income Californians. Reducing climate impacts from buildings will primarily come from efficiency, electrification, and ultra-low global warming potential (GWP) refrigerants in equipment.

As California pushes for greater decarbonization of buildings and the electricity system, grid reliability issues during the summers of 2020 and 2021 highlighted the need for technologies

and buildings to provide improved grid resiliency and reliability during times of extreme heat events, wildfires, and other unplanned and unavoidable grid events. Reliable and affordable energy services are particularly important for low to moderate income households and disadvantaged communities. In its first annual affordability report released in April 2021, the California Public Utilities Commission (CPUC) found that 13.3 percent of California's lower income households spend more than 15 percent of their income on electricity service. The CPUC also found that 6 percent of lower income households spend more than 10 percent of their income on gas service. These households and communities require direct investment to remedy the systemic inequalities, environmental hazards, and energy burdens affecting them. The COVID-19 pandemic and related recession have only exacerbated these issues and made investments all the more urgent. There is a real risk that without thoughtful and intentional prioritization, the state's most vulnerable and underserved will become the last to receive the benefits of a clean energy future due to lack of capital, credit, and access to infrastructure.

California needs to stimulate significant private market investment into existing building decarbonization if it is to achieve energy efficiency doubling by 2030 and be on track for 2045 clean electricity and GHG reduction goals. As modeled in the 2021 Building Decarbonization Assessment, to reduce buildings share of GHG emissions and meet 2030 and 2045 climate goals, a range of 15 to 90 percent of installed combustion equipment in homes and businesses would need to be replaced at burnout with efficient electric equipment and a range of 5 to 70 percent of installed combustion equipment would need to be replaced before end of life with efficient electric equipment. Replacing these existing equipment stocks with low carbon emission alternatives would take more than 15 years -- well beyond 2030. More aggressive efficiency and decarbonization is needed from programs and the private market to get on track for 2030 given the rate of equipment replacement needed. The key space and water heating equipment that drives the bulk of on-site GHG emissions have expected lifetimes of 10-20 years. That makes the market transformation of new equipment sales a key priority. Each replacement of major equipment presents an opportunity to achieve long-term energy and GHG savings and make additional improvements to the building in support of public health and safety.

Residential Building Decarbonization Direct Installs and Statewide Rebates. Funding would be allocated over two separate programs: (1) direct installs for low income homeowners and renters; and, (2) statewide rebates for low emission appliances.

The direct install program would provide low-carbon equipment to reduce GHG emissions that would improve indoor air quality, health, safety and comfort for occupants; increase resiliency to extreme heat events; and facilitate the ability to respond to electricity grid price, GHG, and reliability signals. The direct install program would focus on building decarbonization measures with a primary focus on decreasing GHG emissions and advancing market transformation through a large volume of small, fast, and highly replicable direct install projects, on the scale of \$2,000 to \$40,000 per building. Based on these cost estimates, a projected 13,000 to 274,000 existing buildings would be decarbonized with modeled energy savings of 200-5,000 Giga British Thermal Unit (GBTU) per year and flexible load potential of 5-98 gigawatt-hours (GWh) per year. Eligible measures would include energy efficiency measures such as insulation, high-performance windows, LED lighting, and air sealing to reduce building envelop leakage; smart thermostats; electrical panel and related infrastructure (wiring) upgrades needed for electric

equipment and electric vehicles; and replacement of fossil fuel equipment with flexible, efficient electric, and/or low and ultra-low global warming potential equipment. While replacing older appliances with highly efficient electric equipment provides most of the climate benefit, energy efficiency and flexible demand measures are imperative to saving households money, improving comfort, shifting energy usage to off-peak rates, and enhancing grid reliability. The program would also include contractor and consumer education, outreach, and technical assistance related to new decarbonization technologies for existing buildings and the direct install program, which would complement and add to CEC's responsibilities under SB 68 (Becker, Chapter 720, Statutes 2021).

The statewide rebate program would be administered through a third-party implementer, partnering with local governments as appropriate. Rebates for low-carbon technologies would be made available statewide with consideration given to product availability of these new technologies and other factors such as climate zone. Based on costs of \$1,000 to \$8,000 per building, an estimated 40,000- 313,000 buildings would receive rebates with energy savings of 530- 5,600 GBTU/year and flexible load potential of 16-130 GWh/yr. The CEC would leverage rebates being offered by other state and local governments, as well as utilities. The CEC would conduct competitive solicitations for third-party implementers to run direct install and statewide rebate programs. CEC staff is needed to conduct a public process to gather stakeholder and public input on program allocations, program design, funding distribution and, if appropriate, prioritization; develop, conduct, and award a competitive solicitation for third-party implementers; conduct education, outreach, and technical assistance to installation contractors and consumers; manage program implementation and the third-party implementers; and monitor, track, and report program metrics and progress to others.

Advancing Offshore Wind- \$45 Million. The 2021 SB 100 joint agency report presents the results modeling of future electric system scenarios and different combinations of resources to meet the 2045 policy. Under an assumption that 10 gigawatts of offshore wind energy is deployed by 2045, the model estimated \$1 billion in reduced total resource costs compared to other technology options of eligible renewable and zero carbon technologies. The state is continuing to assess offshore wind (OSW) energy, and engage in the federal process, and is building on key information to inform upcoming regulatory processes and decision-points. At the same time the state is engaging in these regulatory process, by June 30, 2023, the CEC is required to develop a five-part strategic plan for offshore wind energy off the coast of California that meets the requirements of Assembly Bill (AB) 525. Beyond assessing and planning for OSW energy, to realize the potential benefits of an offshore wind energy industry, California's waterfront facilities will require investments to upgrade and expand their existing infrastructure in-time to meet OSW energy deployment opportunities.

As offshore wind energy develops off the California coast, California ports, harbors, and other waterfront facilities have the potential to serve as strategic hubs, playing a key role in the floating offshore wind supply chain, if they can meet the needs of the offshore wind industry. However, to maximize the environmental and economic benefits of an offshore wind energy industry, California's waterfront facilities today would require significant investments to upgrade and expand their existing infrastructure.

The \$45 million is proposed for a program to make investments in facility planning and development activities that will advance the capabilities of deploying offshore wind energy in federal waters off California. The program will include three categories that target different phases of preparing waterfront facilities in California to support offshore wind energy development:

1. Developing individual or regional facility retrofit concepts and investment plans.
2. Supporting final design, engineering, environmental studies and review, as well as construction of retrofits.
3. Providing cost share funding to applicants that apply for and receive a federal award that includes activities consistent with those identified above.

Department of Water Resources

Oroville Pump Storage- \$240 Million. The Oroville Dam complex (Hyatt-Thermalito hydroelectric facility) has 925 MW generation and 480 MW pumping capacity. In the late summer and fall, generation is drastically curtailed because of temperature considerations in the Feather River. In addition, Department of Water Resources (DWR) has a federal requirement to reduce temperatures further. The Hyatt-Thermalito hydroelectric facility has been constructed with the ability to operate in “pumpback” mode whereby energy is used during times of the day when renewables energy is in excess to pump water up into Lake Oroville and then release that water in order to generate clean energy during times of the day when it is needed most. This pump-back operation provides needed support to the State’s energy grid and facilitates allowing further integration of renewable resources. However, this ability to conduct pump-back operations is constrained by downstream water temperature considerations. Contingent on complying with CEQA, DWR would use \$240 million General Fund to build a temperature management project to address temperature issues at the Oroville complex. This would enable the State to restore pumpback operations at the Oroville complex and use the 925 MW generating facility and 480 MW pumping capacity to its full potential, serving as a very much needed long duration energy storage facility to support the electric grid’s reliability needs. Moreover, this would ensure needed temperatures and flow are maintained for spawning salmon in the Feather River. The Oroville complex includes generation and pump back facilities. Since 2006, the facility has been operating under temperature constraints that severely limit its potential to supply power to the State’s grid during key hours. To optimize the facility, and contingent on complying with CEQA, DWR would use \$200 million of this capital outlay funding to provide for the planning, design, permitting, and construction of a project that would modify one of the Oroville Dam outlets (the Palermo Outlet) to allow it to reliably access and release the colder water that exists at the lower elevations of Oroville lake. This project would also include a five- to six-mile-long pipeline to move the cold water downstream to where it is needed, and enables restoration of the pumpback operations. Finally, this project would include a flow control facility with a potential for additional 20 MW hydroelectric generation estimated to cost \$40 million.

Resources to Support Energy Reliability- \$3 Million. Using an interagency approach, this funding would support actions that expand energy supply and storage in California directed by studies and assessments by the CEC, CPUC, and the California Independent System Operator (CAISO). DWR would provide consultation for engineering support to perform comprehensive site assessments, site prioritization, site selection, and site outreach to inform decisions as to

the capability and practicality of making clean power generation commercially available to mitigate energy shortages. In addition, DWR would support CEC, CPUC, and CAISO as needed relating to electric grid reliability due to energy shortages, as well as meeting the state's decarbonization goals with engineering expertise regarding commercially available or emerging technologies for power production or energy/fuel storage. As needed, DWR would support identifying and evaluating recommendations to streamline processes with respect to electric grid interconnectivity and network upgrades needed, permitting, and efficient and effective construction management.

California Air Resources Board

Accelerating Adoption of Ultra-low Global Warming Potential (GWP) Refrigerants- \$40 million This would expand the existing program to accelerate the deployment of next generation ultra-low GWP refrigerants in existing building equipment at grocery and corner stores. Most refrigeration and air conditioning systems deployed in California utilize high GWP refrigerants that are so potent that their leakage and disposal make up roughly 3-4 percent of the state's GHG inventory, with some systems using ozone depleting refrigerants that will transition over time to hydrofluorocarbons (HFCs). These funds would be used as incentives to drive equipment replacement and retrofits in existing buildings that would utilize new ultra-low GWP refrigerants that are 100 times less potent. Accelerating this transition and driving market transformation is key to meeting the SB 1383 (Chapter 395, Statutes 2016) mandate, which requires these emissions be reduced by 40 percent of 2013 levels by the year 2030, and to help meet carbon neutrality goals. The department intends to work with CDFA and CPUC on existing programs that provide energy efficient refrigeration to local corner stores and community grocery stores.

Various Departments

Assembly Bill 525 Implementation Resources (\$2.6M General Fund and \$1.5M ERPA). A total of \$4.1 million is requested to support an interagency approach to fulfill the statutory requirements of AB 525 to develop a strategic plan for offshore wind energy development in federal waters off the coast of California. The funds would support the CEC, Ocean Protection Council, State Lands Commission, and the Governor's Office of Planning and Research. AB 525 requires the CEC to establish 2030 and 2045 planning goals, as specified, for electricity generated by offshore wind energy. Additionally, the bill requires the CEC, in coordination with specified agencies, to develop a five-part strategic plan, with phased deliverable deadlines, for offshore 14 wind energy development and to submit the plan to the California Natural Resources Agency and the Legislature by June 30, 2023.

- California Energy Commission: \$1.5 million in one-time ERPA funding for technical assistance to support CEC's lead role in all aspects of developing the strategic plan, including robust coordination and collaboration with other agencies, stakeholders, and tribal governments. The funding request includes \$400,000 to support fishing industry engagement, and \$1.1 million for other outreach, spatial mapping, and other technical analyses (e.g., transmission, stakeholder engagement, wind resource assessments, permitting, and tribal/cultural resources).
- Ocean Protection Council: \$1 million in one-time General Fund to support environmental research and meeting the requirements of AB 525, including understanding and

addressing the requirements to develop strategies for addressing potential impacts of offshore wind energy on coastal resources, fisheries, and Native American and Indigenous peoples. The funding would be used for contracts and/or grants for environmental research that help fulfill the requirements of AB 525.

- State Lands Commission: \$1.2 million in one-time General Fund for technical assistance to support completion of a study of ports and other waterfront facilities as required by AB 525.
- Governor’s Office of Planning and Research: \$354,000 in one-time General Fund for technical assistance to support a study of supply chain, economic development strategies, and workforce development assessments to meet the requirements of AB 525.

California Public Utilities Commission

Planning for a High Distributed Energy Resource Future (\$1.3M PUCURA ongoing).

Funding for this initiative will provide for six new permanent full-time positions to support the safe integration of distributed energy resources into the state’s electric distribution system.

PANEL

The following individuals will participate virtually in the discussion of this issue:

- Damien Mimnaugh, Principal Program Budget Analyst, Finance
- Drew Bohan, Executive Director, Energy Commission
- Ted Craddock, Deputy Director, Water Resources
- Michael FitzGibbon, Air Resources Supervisor II, California Air Resources Board
- Ross Brown, Principal Fiscal & Policy Analyst, Legislative Analyst's Office

LAO COMMENTS

Proposal

Governor Proposes \$2 Billion Clean Energy Package. The Governor proposes \$2 billion over two years—almost all General Fund—for a package of programs related to clean energy, building decarbonization, and emission reductions from industrial sources. Most of the funding would go to new programs and activities. Some of the new programs, specifically, long-duration storage, Oroville pump storage, industrial decarbonization, and green hydrogen, were proposed by the Governor as part of last year’s May Revision for 2021-22, but ultimately were not adopted as part of the final budget package. In the rest of this section, we describe the major new programs proposed.

Equitable Building Decarbonization. The Governor’s budget provides a total of \$922.4 million General Fund over two years (\$323 million in 2022-23 and \$600 million in 2023-24) to CEC for two new residential building decarbonization programs. These two programs include: (1) \$622.4 million for a program to directly install energy efficient and electric appliances in low- and

moderate-income households; and, (2) \$300 million for a statewide rebate program for electric appliances that replace natural gas appliances.

Under the direct install program, contractors would undertake a variety of energy efficiency and building electrification changes (such as heat pumps and electrical panel upgrades) at no cost for eligible households. Eligible households would include households in disadvantaged communities (as measured in CalEnviroScreen), at or below 80 percent of statewide median income, or with income limits of moderate or below as identified by the California Housing and Community Development. CEC estimates that the program could reach 13,000 to 274,000 existing buildings at an estimated cost ranging from \$2,000 to \$40,000 per building. The statewide rebate program would provide incentives to purchase electric appliances, such as heat pump space and water heaters. Based on estimated costs of \$1,000 to \$8,000 per building, about 40,000 to 313,000 buildings would receive rebates under this program.

Long-Duration Storage Projects. The proposed budget includes a total of \$380 million General Fund (\$140 million in 2022-23 and \$240 million in 2023-24) for demonstrations and early stage deployment of long-duration storage technologies—defined as technologies that can store energy for eight hours or more—that are on the verge of commercialization. According to the administration, the goal of the program is to help support the advancement of promising technologies from the demonstration phases to commercial deployment in the next five to ten years. Examples of technologies that might receive funding include flow batteries (batteries that use a different chemical process than traditional batteries), thermal storage, and compressed air technologies. (Pumped hydroelectric storage and lithium-ion batteries would not be eligible technologies because they are not considered emerging technologies.)

The proposed program would be implemented in two phases. The first phase would include 12 to 16 demonstration projects ranging from three megawatts (MW) to five MW of capacity. The second phase would include fewer projects—roughly seven to ten—but most projects would range from five MW to ten MW. Some projects will also focus on much longer durations in the range of 20 to 100 hours. For context, a recent analysis from the state’s energy agencies found that there is a need for a minimum of about 1,000 MW of long-duration storage by 2030 and 4,000 MW by 2045 to meet the state’s SB 100 goals of 100 percent zero-carbon electricity.

Oroville Pump Storage Project. The Governor proposes a total of \$240 million General Fund (\$100 million in 2022-23 and \$140 million in 2023-24) to modify the Oroville Dam complex so it can use its existing pump back operations to provide long-duration energy storage without adverse impacts on spawning salmon in the Feather River. Funding would support the planning, design, permitting, and construction of the modifications necessary for the dam to use its existing 480 MW pumping capacity. The proposed funding would also support the construction of a flow control facility with a potential for an additional 20 MW hydroelectric generation.

Industrial Decarbonization. The Governor proposes a total of \$210 million General Fund (\$110 million in 2022-23 and \$100 million in 2023-24) to deploy advanced technologies or develop novel strategies to reduce emissions at industrial facilities. According to the administration, eligible projects could include electrification of heating processes that now use natural gas, energy efficiency projects, and deploying carbon capture for use in products (such

as concrete). Carbon capture projects with geologic storage and petroleum and gas production facilities would be ineligible.

Green Hydrogen Projects. The proposed budget includes \$100 million General Fund in 2022-23 to advance green hydrogen technology and explore different end uses. Green hydrogen is produced by splitting water into hydrogen and oxygen using renewable electricity. The administration estimates that the funding would support 10 to 15 commercial demonstration projects. About two-thirds of the funding would focus on lowering the cost of electrolyzers used to produce green hydrogen. Other eligible projects include those that demonstrate the use of green hydrogen for industrial activities, power plants, and energy storage.

Overarching Issues for Legislative Consideration

In this section, we identify overarching comments for the Legislature to consider as it evaluates the Governor's overall clean energy package.

Package Generally Targets a Reasonable Set of Activities to Promote Deep Decarbonization. In our view, the Governor's proposed package reflects a reasonable set of activities to help the state achieve deep decarbonization. First, funding would support key areas where substantial technological progress could help lower the cost of achieving long-term GHG goals. This includes technologies that can provide zero-carbon electricity at times when renewable resources are not sufficient to meet electricity demand (such as long-duration storage and green hydrogen) and technologies that can help reduce emissions from industrial activities (such as green hydrogen and carbon capture and storage). In general, we think there is a reasonable policy argument for government funding to promote the development of newer technologies because the private sector will likely underinvest in these activities. One-time state funding to support demonstration projects to explore different technology options as proposed by the Governor could help advance these technologies, which in turn could help the state achieve some of its long-term GHG goals at lower cost. In addition, since these technologies could also be used in jurisdictions outside of California, any advancements and cost reductions could have broader GHG benefits if these low-carbon technologies get adopted in other jurisdictions.

The other largest pieces of funding—the equitable building decarbonization programs—target one of the largest sources of statewide GHG emissions. Furthermore, these programs would focus on *existing* buildings, which represents the vast majority of building-related emissions and pose some of the most significant challenges to building decarbonization. For example, the long lifespan and slow turnover of major appliances in buildings means a transition to newer technologies in existing buildings can take decades. As a result, some near-term actions could be important for meeting long-term GHG goals.

Allocating State General Fund, Rather Than Ratepayer Funds, Has Merit. Many of state's clean energy programs historically have been paid for by IOU ratepayers through higher electricity rates, even though some of the primary goals of these programs (such as GHG reductions) accrue to the broader public. We think there is a strong rationale for using General Fund for programs that aim to provide broad societal benefits. Additionally, the costs for clean energy programs are one factor that contributes to California's relatively high retail electricity

rates. (There are many other factors that impact electricity rates, which we do not discuss in this brief.) Electricity rates in California are more than twice as much as the estimated marginal social costs of providing electricity in California, even after accounting for environmental damages. These higher rates have a variety of adverse effects, including:

- **High Electricity Rates Discourage Electrification.** As discussed above, one strategy for deep decarbonization is electrification, including switching from natural gas appliances to electric appliances. Household and business decisions about appliance purchases depend, in part, on how much they would have to pay for electricity to operate the electric appliances. As a result, high electricity rates can discourage adoption of electric appliances.
- **Electricity Rates Are a Regressive Approach to Raising Revenue.** On average, lower-income households tend to spend a greater share of their income on electricity than higher-income households. As a result, collecting revenue through electricity rates is a relatively regressive approach to funding clean energy programs.

Balancing Long-Term Benefits Against Near-Term Priorities. Much of the proposed funding is focused on activities intended to meet long-term, deep decarbonization goals. Although the proposed programs could have merit in the long run, some of these newer technologies and projects might take at least five to ten years to be commercially available, and even longer to become cost-competitive. Some ultimately may not ever achieve commercial viability. As a result, the GHG reduction benefits are likely to be relatively modest over the next several years. The Legislature will want to balance the potential long-term benefits of the programs in the Governor's package with other near- and medium-term priorities. For example, some alternative spending options include:

- **Programs Aimed at Meeting 2030 GHG Goals.** The state's 2030 GHG goals will be difficult to meet. The Legislature could redirect some of the proposed funding to other programs that likely do more to help meet the state's 2030 goals, such as methane reduction programs. In determining whether to prioritize General Fund resources for these such programs, the Legislature will want to consider the availability of other fund sources such as the Greenhouse Gas Reduction Fund.
- **Other Energy-Related Programs.** The Legislature could prioritize funding for other energy-related issues, such as grid resilience and reliability.
- **Other Statewide Priorities.** There might be other near-term statewide issues outside of the energy and climate policy area that the Legislature considers a higher priority use of General Fund.

Significant Federal Funding Available for Similar Activities. As shown in Figure 6, the federal Infrastructure Investment and Jobs Act (IIJA) that was enacted in November 2021 includes funding for a wide range of energy-related activities. Notably, there is a significant amount of funding available for clean hydrogen hubs, carbon capture demonstration projects, industrial emissions demonstration projects, long-duration storage demonstrations, and energy efficiency activities in low-income households.

Select Federal IIJA Funding for Energy-Related Activities (In Millions)

Program	Description	22-26 Funding	Eligible Entities	Est. Date
Clean Energy Demonstrations				
Regional Clean Hydrogen Hubs	Development of at least four regional clean hydrogen hubs.	\$8,000	Private, state/local, NGO	Summer 2022
Regional clean direct air capture hubs	Development of four regional direct air capture hubs.	3,500	Industry	2nd quarter 2022
Carbon capture demonstration projects	Development of six facilities to demonstrate carbon capture technologies.	2,537	Private, state/local, NGO	TBD
Carbon storage validation and testing	Research, development, and demonstration for carbon storage.	2,500	Industry	2nd quarter 2022
Clean Hydrogen Electrolysis Program	Research, demonstration, and deployment program for technologies that produce clean hydrogen using electrolyzers.	1,000	Industry	2nd quarter 2022
Carbon capture large-scale pilot projects	Develop carbon capture technologies, electricity generation facilities, and industrial facilities.	937	Industry, state/local, NGO	TBD
Industrial emissions demonstration projects	Demonstration projects that test technologies that reduce industrial emissions.	500	Industry, state/local, NGO	2nd quarter 2022
Energy Storage Demonstrations	Grants for three energy storage demonstration projects.	355	Industry, state/local, NGO	3rd quarter 2022
Long-duration Demonstration Initiative and Joint Program	Demonstration projects focused on development of long-duration storage technologies.	150	Private, state/local, NGO	3rd quarter 2022
Energy Efficiency				
Weatherization Assistance Program	Formula based program for energy efficiency upgrades for low-income households.	\$3,500	States, tribes	Initial funds 1st quarter 2022

Program	Description	22-26 Funding	Eligible Entities	Est. Date
Energy Efficiency and Conservation Block Grants	Assist states, local governments develop programs to improve energy efficiency.	550	State/local, tribes	Fall 2022
Electric Grid				
Upgrading Electric Grid Reliability and Resiliency	Demonstrate innovative approaches to transmission, storage, and distribution infrastructure.	\$5,000	States/local, tribes	4th quarter 2022
Preventing Outages and Enhancing Grid Resilience	Activities that supplement existing grid hardening efforts and reduce the risk of wildfire or reduce disruptive events.	5,000	States, tribes, grid operators, private industry	4th quarter 2022
Smart Grid Investment Matching Grant Program	Investments that allow buildings to engage in demand flexibility and Smart Grid functions.	3,000	Utilities	By end of 2022
Energy Improvement in Rural or Remote Areas	Increased environmental protection from impacts of energy use and improve reliability, safety, and availability of energy in rural areas.	1,000	Private, state/local, NGO	Fall 2022
IIJA = Infrastructure Investment and Jobs Act; NGO = nongovernmental organization; and TBD = to be determined.				

In many cases, detailed federal guidance about how the funding can be used and how it will be allocated is not yet available. As a result, it is unclear how the Governor’s clean energy package strategically targets funding in a way that best complements the federal IIJA funding. For example, are there opportunities to use state funding to leverage federal funds in a way that helps further the state’s goals? Some of the major federal programs—such as funding to prevent outages and enhance grid resilience—require a state match, but the Governor’s budget does not allocate funding for the state match. Another question is: Are there key gaps in federal funding that state funding can help fill? The Legislature might want to direct the administration to develop a strategy for using state funds in a way that best complements federal funding.

Expanding Scope of Certain Programs Could Improve Outcomes. The Governor’s proposal targets certain types of technologies and sectors, while excluding others. For example, although long-duration storage and green hydrogen could be important technologies needed to meet the state’s SB 100 goals, other technologies that could potentially achieve similar goals would not receive funding under the proposal, such as geothermal energy. As another example, carbon capture projects that store carbon in products (such as cement) would be eligible for the industrial decarbonization program, but carbon capture projects with geologic storage would not. Finally, the proposal provides funding to an existing program for GHG reduction projects at food processing facilities, instead of making that funding available to a broader set of industrial facilities.

Limiting the types of eligible projects and sectors that qualify for funding creates a risk that the funds are not used to support the most promising emission-reduction projects and technologies. A more technology- and sector-neutral approach can be especially important when there is uncertainty about which technologies will prove to be most feasible and cost-effective in the long run. The Legislature could consider modifying the programs and funding in ways that make a broader range of technologies and businesses eligible for the funding, while directing the administration to select projects based on their potential to help achieve long-term GHG reductions in a cost-effective manner. For example, the Legislature could create a program that focuses on a broad range of technologies that help the state achieve its SB 100 goals, which could include long-duration storage and hydrogen power, as well as other technologies such as geothermal. Also, it could shift funding from the Food Production Incentive Program to the broader industrial decarbonization program. This could provide greater flexibility to fund the mix of industrial decarbonization projects that have the most GHG-reduction potential.

Reporting Requirements Needed to Facilitate Legislative Oversight. The administration does not propose any formal reporting to the Legislature on program outcomes. We recommend the Legislature consider adopting requirements that the administration report annually on key program outcomes, such as estimated emission reductions, technological progress, key lessons learned, and key challenges. The Legislature could use this information when making future policy and budget decisions in this area, including whether to continue any of the proposed programs after the two-year funding expires.

Some Proposed Spending Is Excluded From State Appropriation Limit. The California Constitution imposes a limit on the amount of revenue the state can appropriate each year. The state can exclude certain spending—such as on capital outlay projects—from the SAL calculation. The Department of Finance estimates that \$644.5 million of the proposed spending is for activities that are excludable from the SAL. In constructing its final clean energy package, we recommend the Legislature be mindful of SAL considerations. For example, if the Legislature were to approve a lower amount of spending on the proposed activities that the administration excludes from SAL, it would generally need to repurpose the associated funding for other SAL-related purposes, such as tax reductions or an alternative excluded expenditure.

Assessment of and Recommendations on Specific Programs

In this section, we provide comments that are specific to a few of the new programs and projects that are included in the Governor’s clean energy package.

Equitable Building Decarbonization

Focus on Decarbonization of Existing Buildings Has Merit. As discussed above, buildings are a substantial source of GHG emissions and a large-scale effort to reduce building emissions is likely needed to achieve long-term deep decarbonization goals. Pursuant to Chapter 373 of 2018 (AB 3232), CEC assessed the potential to reduce GHG emissions in residential and commercial buildings by at least 40 percent below 1990 levels by 2030. This assessment identified expanding use of electric heat pumps and investing in electrification of existing

buildings as key areas for building decarbonization efforts. Furthermore, in addition to GHG reductions, building electrification can have other important benefits, including reducing indoor air pollution from natural gas combustion and potentially reducing household energy bills.

Proposal Raises Key Questions About Statewide Building Decarbonization Strategy. The state has undertaken some analysis and planning related to building decarbonization efforts. In addition to the AB 3232 assessment discussed above, CPUC has an open rulemaking that aims to, among other things, establish a building decarbonization policy framework. However, CPUC has not yet adopted a long-term policy strategy for statewide building decarbonization. Some key questions the Legislature might want to consider when evaluating this proposal:

- **What Is the Role of Rebate and Direct Install Programs Relative to Other Building Decarbonization Policy Changes?** For example, how much should the state focus on rebates and direct install programs compared to other building electrification options, such as changes to the structure of electricity rates that lower the volumetric (cost per kilowatt hour) rates?
- **What Impact Will Electrification Efforts Have on Remaining Natural Gas Costs for Customers?** The natural gas system has substantial fixed infrastructure costs. As a result, during a transition from natural gas appliances to electric appliances, remaining natural gas customers could be left paying much higher natural gas rates to cover a greater share of the fixed infrastructure costs. How will the state manage this transition in a way that does not result in substantially higher energy costs for households, especially low-income households and renters who might be less likely to switch to electric appliances?
- **Why Is CEC the Most Appropriate Agency to Administer the Direct Install Program?** There are a wide variety of state entities in California that administer building energy efficiency programs. Notably, CSD operates several different programs that provide direct install energy efficiency services for low-income households. The Legislature might want to ask why CEC—and not CSD—is the best state entity to administer this new program. If the main goal of the program is to ensure the funds are reaching low-income households, CSD likely has the most experience administering these types of programs and working with third-party contractors that can conduct this work. We are working with CSD to better understand: (1) how the specific components of the proposed program and CSD’s ongoing weatherization programs are similar and how they are different; (2) whether CSD’s local service providers could ramp up to provide the augmented level of service; and, (3) whether there would be administrative costs at the department to oversee the additional funds.

Recommend Legislature Direct Administration to Provide Additional Detail on Equitable Building Decarbonization Programs. We recommend the Legislature direct the administration to provide additional detail on how these proposed programs fit in the state’s overall building decarbonization strategy and responses to the questions identified above. If, after these responses, it is still unclear why the proposed approach is the most cost-effective or equitable, then the Legislature could scale back the amount of funding and/or focus funding in ways that help the state evaluate different options and develop a long-term strategy. For example, funding could be used to pilot building decarbonization efforts in a limited (but diverse) number of communities. This might help the state better evaluate the benefits, costs, and challenges of a

large-scale building decarbonization effort, and help inform future legislative budget and policy decisions.

Oroville Pump Storage Project

Project Could Have Merit, but No Details on How Project Compares to

Alternatives. This proposal has potential merit as a way to integrate renewable energy onto the grid by providing long-duration energy storage. As discussed above, long-duration energy storage will likely play an important role in meeting the state's SB 100 goals. Additionally, according to the administration, this specific project is less costly than other pumped hydroelectric storage projects because the Oroville dam complex already has existing infrastructure for pump back operations. However, the administration has not provided a more detailed analysis that shows this project is more cost-effective than other options, including alternative pumped hydro projects, other long-duration storage technologies, transmission capacity upgrades and expansion, and/or other zero-carbon technologies that could be used to balance the grid (such as geothermal or green hydrogen).

General Fund Would Pay for Project, but Future Financial Benefits Would Accrue to

State Water Project. Once operational, the pump storage facility would use electricity to pump water uphill when electricity prices are relatively low and generate hydroelectricity when electricity prices are relatively high. As a result, the revenue from electricity sales is expected to exceed the electricity costs related to pumping the water and the higher maintenance and operations costs related to running the equipment. Although there is significant uncertainty about the net revenue associated with the project, the Department of Water Resources (DWR) projects that the project could generate a few million dollars in annual net revenue once it is operational. Under the current proposal, the project would be developed using state General Fund, but the net operating revenue would go to support the State Water Project and/or reduce costs for water users.

Recommend Legislature Direct Administration Provide Additional Justification. First, we recommend the Legislature direct the administration to provide additional information about the cost-effectiveness of this project approach relative to other technologies and projects that might be able to provide similar types of benefits to the electricity grid. This could allow the Legislature to better evaluate whether the proposed project is the most cost-effective approach to achieving the state's SB 100 goals.

Second, if the Legislature provides General Fund for this project, we recommend it adopt budget trailer bill language requiring DWR to estimate the net annual revenue generated from the pump storage project once it is operational and transfer this amount of funding to the General Fund. In our view, if state taxpayers are providing the funding for this project, it would be reasonable for state taxpayers to receive the financial benefits from the project, rather than users of the State Water Project.

DWR Resources to Support Energy Reliability

\$3 Million to Support Energy Reliability Efforts at DWR. The Governor's package includes \$3 million General Fund in 2022-23 for DWR to support energy reliability activities. According to the administration, this funding would support actions that expand energy supply and storage in California in coordination with CEC, CPUC, and the California Independent System Operator.

Department Does Not Identify Specific Energy Reliability Efforts to Justify Request. It is unclear what specific activities this funding would support. The budget change proposal provides very little detail on what activities would be conducted. According to DWR, the funding would be used to support energy reliability efforts as needs arise, but DWR has not identified any specific activities yet.

Recommend Legislature Reject Proposal. We recommend the Legislature reject this request because DWR has not adequately described how the proposed \$3 million would be used or justified the need for these resources.

STAFF COMMENTS

As the LAO noted, roughly half of these programs were proposed in the may revise last year. There are a few new proposals that are continuations of existing efforts, like the CARB low GWP refrigerant grant program and implementation funding for AB 525 that the Legislature passed last year; however, some of these proposal are new, like the equitable building decarbonization program and the advancing offshore wind investments at ports.

To further understand these proposals, the Subcommittee may wish to ask:

CEC

- Why is an APA exemption necessary for all these programs?
- How will staff approval of this funding ensure transparency and public input as opposed to approval at a business meeting?

Equitable Building Decarbonization

- Will there be cost sharing for the CEC efficient building programs? We understand that low income customers have limited ability to pay, and some of this will include replacements to existing appliances, so low income customers may end up paying for replacements on their own.
- Will there be tenant protections for renters to ensure rents are not raised or that they are not evicted for no fault of their own?
- Will the program have one statewide administrator or regional implementation?
- How much will you work with existing programs or departments that have similar type programs, like Department of Community Services and Development?

Large Industrial Decarbonization/FPIP

- Why is General Fund funding these projects when these businesses already have an economic driver to do them on their own, under cap and trade, in order to save on their utility bills, or funded by investor owned utility energy efficiency programs? Are we funding compliance? Will these entities continue to receive free cap and trade allowances when taxpayers are paying for their emission reductions?
- Is there emissions data or cost effectiveness data on carbon capture and utilization projects in California or elsewhere?

Green Hydrogen

- Does direct combustion of hydrogen significantly reduce CO₂ or NO_x when compared to natural gas? If so, how significant?

DWR

Oroville Pumped Hydro

- Why is this not funded by state water project contractors since it deals with temperature control to comply with existing law?
- Will the revenue go back to the general fund as suggested by the LAO?
- How much additional energy will this provide (in an average/non drought year)? Would it be more cost effective to procure batteries or geothermal?

This Subcommittee may wish to: (1) add reporting requirements and accountability metrics for these new programs; and, (2) narrow the exceptions provided in the trailer bill or more clearly define which exemptions are applicable for which program, especially in regards to staff delegation authority to award funds to private businesses

For specific programs, the Subcommittee may wish to:

Green Hydrogen

- The subcommittee may wish to avoid defining green hydrogen, which is debated frequently in policy committee and just list the eligible projects.
- According to the Union of Concerned Scientists, direct burning of hydrogen has significant CO₂ and NO_x emissions, the Subcommittee may wish to prohibit these funds from funding direct combustion like powerplant blending.

Industrial Decarbonization/FPIP

- In the prioritization language, remove the references to jobs created because all of these programs will increase jobs and the language is currently “or” which undermines the other prioritization categories of grid benefits and emissions reductions.
- In the prioritization language, amend the category for most energy saved to energy saved during net peak times, when the grid needs to most conservation.

Staff Recommendation: Hold Open.

3860 DEPARTMENT OF WATER RESOURCES

ISSUE 2: CALIFORNIA ELECTRIC GRID EMERGENCY GENERATOR SUPPORT

The Governor's budget requests \$30.3 million General Fund over two years (\$15.5 million in FY 22-23 and \$14.8 million in 23-24) to support the operational costs for generators that have been procured, upon direction from the 2021 Energy Emergency Proclamation, to support the California electric grid.

BACKGROUND

On July 30, 2021, the Governor proclaimed a state of emergency to safeguard the state's energy system. In accordance with the emergency declaration, the Department of Water Resources procured four 30 megawatt (MW) natural gas generators. Two were installed at Roseville Electric Park (operated by Roseville Electric) which is not part of the California Independent System Operator (CAISO). According to CalEnviroScreen 4.0, this location has a pollution burden of 59 (out of 100), placing it in the 29th percentile of the State's most polluted communities. The other two were installed at Yuba City Energy Center (operated by Calpine). According to CalEnviroScreen 4.0, this location has a pollution burden of 95 (out of 100), placing it in the 95th percentile of the State's top disadvantaged communities. These units are capable of being powered by 75% hydrogen in the future. These generators have not been utilized yet.

The generators will be called upon during a designated CAISO stage 2 emergency. One stage 2 emergency was declared in 2021, six in 2020, one in 2002, and 65 during the 2001 energy crisis. A CAISO emergency could be triggered by persistent heat, equipment failure, weather events or a natural disaster such as a wildfire. Each 30 MW generator can provide enough energy for approximately 20,000 typically sized homes (80,000 total). Any revenue generated by these generators bidding into the CAISO market will be returned to the general fund for future appropriation.

In August 2021, the Department of Finance allocated \$171.5 million from the Disaster Response Emergency Operations Account (DREOA) to purchase the generators. The Administration also used \$10 million of emergency funding in February of this year. Additionally, the Legislature passed SB 115 as an early action budget bill that included another \$30.3 million. The previous expenditures combined with this request total \$242.1 million. The generators are currently under a three year contract.

This request will fund Operating Expenses and Equipment which include site agreement commitments for annual lease fees, Operations and Maintenance of facilities which include labor and reimbursable costs, power scheduling and settlements, fuel management and associated costs for \$5 million per site totaling \$10 million. There are additional program administrative costs such as regulatory and compliance activities, Original Equipment Manufacturer (OEM) maintenance agreements, and specialized services for \$2.1 million per site totaling \$4.2 million. Additionally, ongoing staffing for DWR will cost \$1.41 million.

PANEL

The following individuals will participate virtually in the discussion of this issue:

- Joel Ledesma, Deputy Director, Water Resources
- Scott Flake, Principal Engineer, Water Resources
- Sergio Aguilar, Assistant Program Budget Manager, Finance
- Ross Brown, Principal Fiscal & Policy Analyst, Legislative Analyst's Office

STAFF COMMENTS

The Subcommittee may wish to ask:

- What will DWR do with these generators at the end of the contracts? Does the department plan to extend the contracts or sell the generators to the partnered utility or someone else? Will future plans increase emissions due to operating them more than only during a stage 2 emergency?
- Why did DWR locate the generators in a community with significant air quality issues?
- What efforts has the state (including utilities under the regulatory authority of the CPUC) taken to address energy shortages?
- Has the state implemented any policy changes to increase demand, response or energy efficiency to address these short term challenges?
- How much has the state (including CPUC regulated entities) funded or required for new zero-emission energy resources and storage since the blackouts of 2020, that is expected to be online in the next few years?

Given ongoing energy shortages and reliability issues exacerbated by climate change, this Subcommittee may wish to allocate funding to help the hardest hit communities install zero-emission back up power.

Staff Recommendation: Hold Open.

8660 PUBLIC UTILITIES COMMISSION

ISSUE 3: CPUC AUDIT TRAILER BILL

The Governor's budget requests a budget trailer bill that amends the Public Utilities Commission's audit requirements for regulated utilities from every three to five years (depending on utility) to a risk based methodology.

PANEL

The following individuals will participate virtually in the discussion of this issue:

- Rachel Peterson, Executive Director, Public Utilities Commission
- Damien Mimnaugh, Principal Program Budget Analyst, Finance
- Ross Brown, Principal Fiscal & Policy Analyst, Legislative Analyst's Office

STAFF COMMENTS

This Subcommittee may wish to ask:

- Why are we reducing oversight of utilities at a time when utilities are proposing significant rate increases?
- Does CPUC need more resources to comply with existing requirements?
- Given that CPUC is a constitutional agency that can sponsor legislation with a vote of the Commission, why is this not a stand-alone policy bill?

This Subcommittee may wish to narrow the scope of this trailer bill to allow risk based audits for smaller utilities where regular audits have not found issues and are not cost effective for ratepayers, but keep the existing statutory audit intervals for larger utilities that have had substantial audit findings.

Staff Recommendation: Hold Open.

This agenda and other publications are available on the Assembly Budget Committee's website at: <https://abgt.assembly.ca.gov/sub3hearingagendas>. You may contact the Committee at (916) 319-2099. This agenda was prepared by Shy Forbes.