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Electric Integrated Resource Planning and
Related Procurement Processes

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REPLY COMMENTS OF THE GREEN POWER INSTITUTE
ON THE RULING ON MID-TERM PROCUREMENT

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Introduction

GPI reviewed opening comments from 44 parties. GPI is concerned with numerous comments advocating for specific resources and the market role of supporting parties, as well as inaccurate descriptions of the net benefits of biomass generation. We provide reply comments on the following topics:

- The PRM should not be an arbitrary value based on the RESOLVE/SERVM calibration adder, but rather should be based on an agreed upon reliability target and/or extreme weather planning threshold.
- Eliminating resource specific carveouts and establishing procurement requirements based on resource attributes (i.e. baseload capabilities) is aligned with the combined top-down/bottom-up planning and procurement approach the IRP 2-year cycle is designed to achieve.
- Mid-term reliability procurement should not lead to fossil fuel generation procurement of any kind.
- Shortening resource procurement lead time in favor of backstop procurement risks impacts to resource diversity. The IRP should be aligned and designed to promote front-stop procurement.
• Biomass generation is a qualified renewable baseload resource that provides net emissions reductions for conventional pollutants, net biogenic greenhouse-gas reductions, and biomass residue management benefits compared to conventional biomass management options such as landfill disposal or open burning.

The PRM should not be an arbitrary value based on the RESOLVE/SERVM calibration adder, but rather should be based on an agreed upon reliability target and/or extreme weather planning threshold.

Of the opening comments we reviewed, 26 commenting parties agree that raising the PRM to 20.7 percent is fundamentally flawed, and requires alterations or reanalysis based on LOLE, forecast weather event occurrence assumptions (e.g. 1-in-2 weather event or another planning target), other reliability planning metrics or a combination of these planning targets. These parties include: TURN; Hydrostor; SBUA; Shell; PGE; LDESAC; SCE; CAISO; PAO; CalCCA; Middle River Power; CESA; CEERT; Calpine; PCF; SEIA/LSA/VS; SVCA; ARm (say changing PRM is outside IRP scope); UCS; CCSF; CEJA; EDF; Form Energy; Watson CoGen; L Jan Reid; and GPI. The common theme is that a planning target with a physical basis (e.g. loss of load frequency, or weather-event based) is needed to ultimately establish a reliability expectation and/or inform the determination of the PRM. The fact remains that the current 15 percent PRM was an easy-to-apply planning assumption that was based a formally established reliability target of 0.1 LOLE. While the analysis and associated PRM approved in 2004 is out of date on account of climate change impacts, which include changes in average weather patterns as well as extreme weather events (frequency and intensity), arbitrarily changing the PRM without a proper analysis constitutes bad planning.

Some commenting parties, such as SEIA/LSA/VS, CESA, Middle River Power, and Shell (list not exhaustive) support the use of the increased PRM for the current mid-term reliability analysis, noting that it is not appropriate for long-term planning and must be reassessed via robust modeling methodologies. Other parties support the PRM increase outright, with no conditions, including: Ormat; Independent Energy Producers; Golden State Clean Energy (recommend with more stringent weather forecasting); ACP (state there is not enough time to develop a new planning standard); Adv Energy Economy
GPI is concerned that the majority of the parties in support of the proposed 20.7 percent PRM are resource or transmission developers. These parties have specific market interests in renewable and non-renewable generation resources that stand to benefit from increased procurement, and possibly, especially from just-in-time procurement. The justification for adopting an ill-informed reliability planning target based on what is essentially a model alignment fudge-factor adder should not be adopted for future application.

In the absence of sufficient time for more robust analyses, the currently proposed mid-term procurement should either be informed by existing reliability standards or, as GPI proposed, a smaller, more conservative “least-regrets” increase in the PRM to 18.75 percent. As the mid-term procurement gets underway, the state must prioritize selecting and agreeing upon a new reliability standard/target that is the basis for procurement planning going forward from 2021. This selection and agreement process must include acceptance that the reliability planning standard is only intended to achieve its statistically defined outcome. For example, an approved 0.1 LOLE reliability standard should be expected to result in a loss of load event once every 10 years over a long-term service horizon, and according to stochastic principles.

If the IRP and/or RPS proceeding can drive forward the necessary transparent discussions and modeling to determine an accepted reliability planning standard going forward (e.g. a model-derived updated PRM or otherwise), then the next IRP cycle can integrate this into both IRP RSP modeling and procurement track mandates. Including updated and accepted reliability planning standards in the RSP planning phase will give the proper signals to guide LSE front-stop procurement decisions even before a procurement mandate is issued. This should ultimately reduce the capacity required under each procurement mandate, lead to more resources already under development/contract that could count towards a procurement mandate, and/or reduce the need for just-in-time front-stop and back-stop procurement requirements. In the present situation, approving a slightly higher, 18.75 percent PRM will still launch a substantial procurement requirement, yet afford the time to
complete the necessary analysis over the next year and release additional mid-term procurement mandates in 2022 (e.g. for 2025, 2026 and beyond) as needed based on the updated planning standards.

**Eliminating resource specific carveouts and establishing procurement requirements based on resource attributes (i.e. baseload capabilities) is aligned with the combined top-down/bottom-up planning and procurement approach the IRP 2-year cycle is designed to achieve.**

At least 20 commenting parties do not support resource specific carve-outs. These parties include: Shell; PG&E; SCE; CalCCA; Diamond Gen Corp; Independent Energy producers; Middle River Power; Golden State Clean Energy; CEERT; PCF; SEIA/LSA/VS; SVCA; ARMe; ACP; Adv Energy Ecoomy; BAC; CalWEA; EDF Renewables; CBEA; GPI. These parties are comprised of three general categories of parties: (1) Companies that are not engaged in Long Duration Energy Storage (LDES) or Geothermal development; (2) LSEs; and (3) advocacy organizations. Seventeen parties supported the proposed carve-outs as is, or with modifications: CESA (pro LDES); LDESAC (supports minimum 1000 MW of LDES, 20 year contracts); Hydrostor (Compressed air storage company, supports LDES); Ormat (Out of state [OOS] geothermal company supports geothermal and firm imports); Calpine; ECE (supports LDES but says timeline is too short to build/procure); SWPG (Tx and resource developer); Fervo (geothermal company); Geothermal Rising (OOS Geothermal company also supports imports); Form Energy (LDES company supports LDES); GLW (Tx company that serves geothermal generation); PAO (supports but reduced to 500 MW each); NRDC; UCS (supports so long as mitigates env impact); CEJA/Sierra Club (support with precautions); and EDF. These supportive parties generally fall into two categories: (1) Developers, companies, and organizations that stand to benefit from LDES or geothermal development; and (2) environmental advocacy organizations.

First, support for the proposed LDES and geothermal carve-outs is clearly dominated by those who would benefit financially from the technology-specific requirements. It should be taken into account how resource-specific procurement requirements could alter market power for LDES and geothermal developers that overrides bottom-up LCBF assessments.
Of course, on the other side of the debate are those for-profit entities that could lose business on account of technology specific mandates. This should be viewed as a proxy for how the proposal will actually reduce resource procurement diversity as well as market participant diversity by eliminating other eligible technologies and skewing market participation. Notably LSEs who must procure the proposed generation, and who perform the bottom-up, real-time market procurement assessments, do not support technology specific requirements and prefer resource-attribute-based requirements.

The majority of support for carve-outs from environmental advocacy organizations such as CEJA, UCS, NRDC and others is based on and/or accompanied with concerns regarding a resource’s environmental impacts and greenhouse-gas emissions. As explained in our response to CEJA/Sierra Club opening comments below, their concern for greenhouse gas production from biomass generation (a renewable baseload resource) is not based on a comprehensive or objective scientific assessment of the net benefits of biomass generation or alternate biomass management pathways and their associated greenhouse-gas emissions (e.g. open burning, landfill accumulation, wildfire consequence).

Technology-specific requirements and environmental considerations and greenhouse-gas emission targets are not mutually exclusive. All new generation facilities must adhere to environmental assessments and standards. Reducing the rushed nature of procurement and using the standard application process can also provide more time for party protests that help ensure alignment with environmental preservation goals and that lead to a well conceived resource build-out strategy. All new procurement, in all proceedings, should also align with and lead to a 38 MMT greenhouse gas emissions reduction target for the electric sector in 2030. That is, environmental protections and greenhouse-gas emission-reduction goals can and should be achieved with a technology-agnostic, attribute-based baseload renewable resource procurement carve-out, rather than technology-specific carve-outs.

The IRP proceeding has repeatedly explored the option of resource-specific procurement via the RSP and PSP 2-year cycle. The standing method, which GPI generally supports, is that the RSP is not a prescriptive portfolio in regards to technology specific procurement
requirements. The basis for this is to support a combined top-down system planning approach with the needs, planning insights, and real-time market knowledge of granular, LSE-specific bottom-up procurement. The proposal for geothermal and LDES specific procurement carveouts is therefore in direct conflict with existing IRP principles, methodologies, and modeling outputs, and the identified procurement need and expectations established for LSEs. Eliminating resource specific carve-outs is in-line with the IRP’s existing methods, expectations, and signals, can actually increase resource type diversity, will not create market advantages or disadvantages, leverages bottom-up procurement insights, and does not constitute compromising environmental protections or greenhouse gas emission targets.

Going forward, we reiterate our long-standing recommendation to perform additional top-down modeling and sensitivities which evaluate the value of and need for increased renewable baseload resources. There is no basis on which to continue overlooking this recommendation given that the present ruling all but agrees that there is insufficient renewable baseload generation planned or currently online.

**Mid-term reliability procurement should not lead to fossil fuel generation procurement.**

GPI is concerned with numerous comments and the market role of the commenters supporting the expansion of fossil thermal generation. Commenting parties that support or do not oppose the Ruling’s allowances for fossil fuel generation expansion in some form include: PG&E; SCE (does not oppose, apply restrictions to all LSEs); Shell (does not oppose, establish fuel GHG basis); SBUA; Diamond Generating Corp; Independent Energy Producers; Middle River Power (says limitations on fossil generation are not needed because procurement will be so minimal); Golden state clean energy; Calpine (Rejects limiting gas in DACs; require facility efficiency improvements); SEIA/ LSA/VS (only as last resort); AReM (all incremental fossil-fueled resources at existing sites should be eligible); Electrochea (renewable natural gas company); EDF (with conditions to eliminate fossil fuel in long-term); Watson CoGen (focus on retaining existing fossil). Many of these supporters stand to benefit financially from allowing new fossil fuel
capacity. It is possible that they will take advantage of fossil fuel capacity expansion opportunities via a mid-term procurement mandate or for associated backstop procurement. It is also important to note that fossil fuels allowances were created in the emergency reliability proceeding and are being taken advantage of.

Middle River Power (MRP), who’s portfolio is largely comprised of natural gas facilities, calls for a removal of all proposed restrictions to fossil fuel resource (FFR) capacity expansion options, stating:

Given current environmental pressures, opportunities to expand FFR capacity are unlikely to attract the kind of capacity expansions that would displace any meaningful portion of the proposed 7.5 GW of procurement. Given the relatively small amount of repowering capacity that is likely to be offered to satisfy these proposed procurement targets, none of the proposed conditions are necessary [Middle River Power Opening Comments, p. 13].

It is clear that MRP and other commenting parties have a market stake in the outcome of fossil fuel capacity expansion restrictions. GPI asserts that there is no room, or justification to gamble on how much fossil fuel generation the proposed mid-term reliability procurement mandate could lead to. Rather, all IRP modeling results say there is no allocation for additional fossil fuel resources in order to meet the established greenhouse gas emission targets.

Procuring any fossil fuel generating resources to meet mid-term reliability breaches many existing agreements, guidelines, and standards. This includes the agreement that DCPP retirement would be replaced with greenhouse gas free capacity and would not lead to an increase in greenhouse gas emissions. It is also not in compliance with the loading order. All RESOLVE/SERVM modeled RSP outcomes indicate no new fossil fuel generation, and/or that fossil fuel capacity should not exceed existing capacity for all tested greenhouse gas emission targets (i.e. 46 MMT, 38 MMT and 30 MMT) and planning timeframes (2030 and 2045). The mid-term procurement mandate should not abandon the single most consistent finding of the IRP modeling outcomes. Comments supporting new fossil fuel capacity expansion do not provide adequate justification for breaching the DCPP retirement agreement, loading order, or disregarding the numerous RSPs and
sensitivities entirely. GPI recommends contracting with and delaying existing fossil fuel facility retirements in order to help bridge any anticipated mid-need procurement gaps. This will provide time to develop new renewable baseload capacity that supports permanently retiring aging fossil fuel resources.

**Shortening resource procurement lead time in favor of backstop procurement risks impacts to resources diversity. The IRP should be aligned and designed to promote front-stop procurement.**

PG&E proposes triggering backstop procurement as soon as March 1, 2022, and September 1, 2022, for “tranche 1.” They further propose backstop triggers for Tranche 2 in September 1, 2022, and March 1, 2023. SCE recommends setting Milestone 1 backstop triggers on February 1, 2022, and February 2, 2023, for 2024 and 2025 procurement. We agree that procurement for mid-term capacity should begin as soon as possible. However, the IOUs’ proposed early trigger dates favor IOU backstop procurement over self-procurement by the incumbent LSE. As previously debated in the follow up to D.19-11-016, missing a Milestone and triggering backstop due to relatively small delays (e.g. months) does not necessarily imply an LSE’s inability to self-procure. This is particularly the case if a small delay occurs with 2 years and 4 months prior to the online date as proposed by SCE’s first backstop trigger. Furthermore, if the commission utilizes backstop procurement as a “threat” and enforcement mechanism, there will be less ability to make informed case-by-case decisions at each backstop trigger regarding whether a delay constitutes a likely failure to procure on-time or is within an acceptable delay window.

Seeing front-stop procurement through with some interim delays is surely more cost effective for ratepayers than triggering backstop procurement. GPI urges that the focus in the procurement track of the IRP be on supporting successful front-stop procurement. Backstop procurement should ideally only be needed to close small gaps in front-stop procurement, as backstop procurement efforts will always have less time to contract with and/or build new resources, therefore leading to higher costs and/or less resource diversity (e.g. facility add-ons, DR, EE).
Backstop procurement has the intrinsic challenge of constricting the timeline for both front-stop and back-stop procurement, which can affect resource selection and diversity. A system needs to be developed to minimize using backstop procurement as much as possible. To achieve this, the IRP must sync the IRP planning track (e.g. RSP and PSP) and the procurement track. The planning track should give all LSEs ample warning regarding anticipated procurement need and expectations for procurement including established and transparent system reliability standards. The goal being to begin voluntary procurement far in advance of any procurement mandate or need, such that procurement mandates are smaller, or so that there are numerous contracts/facilities in progress at the time of the mandate that can count towards the need. This could tip the scales in favor of successful front-stop procurement and only call for backstop procurement in limited instances.

Planning and procurement track misalignment has also probably led to a front-stop DCCP replacement shortfall. GPI noted a potential DCPP replacement shortfall in our comments on the 2020 IIRPs’ due to CCA statements that they were procuring to replace DCPP based on load share. Since IOUs stated they were long on procurement through the mid-term it was clear that their substantial load share of DCPP replacement was not being pursued. The CCAs load share procurement assumptions for future procurement mandates were likely based on the load share procurement allocations in D.19-11-016. In addition, LSEs were also likely making reasonable procurement need assumptions based on the standard 15 percent PRM. These reasonable assumptions based on planning standards and IRP signals have likely contributed to the large mid-term reliability procurement need that is quickly becoming and systematically being rendered as near-term need. LSEs are being sent mixed signals between the planning track and the procurement track, including procurement track accounting and system reliability planning standards. Getting the planning track aligned with the procurement track is foundational to promoting front-stop procurement, reducing reliance on backstop procurement, and ensuring a diverse portfolio at a reasonable cost to ratepayers.
Biomass generation is an RPS-qualified renewable baseload resource that provides net emissions benefits, greenhouse-gas reductions, and biomass residue management benefits, especially when compared to alternative biomass management options such as landfill disposal or open burning.

In their answer to question no. 10, CEJA/Sierra Club argue in favor of a Common Resource Valuation Methodology (CRVM):

As described above, LSEs should consider air quality and GHG impacts of its procurement pursuant to this procurement decision. In addition, the Commission should continue to develop a common resource valuation methodology to further consider procurement. In addition to considering a clean resource standard, the Commission needs to better consider a Common Resource Valuation Methodology that includes non-energy benefits. [CEJA/Sierra Club Comments, pg. 23.]

We strongly agree with this position, but only if it is based on sound science. Inexplicably, CEJA/Sierra Club immediately follow up their argument in favor of a CRVM with a two-page argument against any biomass or biogas procurement under the mid-term-needs procurement that flies in the face of sound science. They argue:

New biomass capacity should not be procured because the climate and air quality impacts of biomass plants are so severe that the Commission should not include biomass and biofuels facilities in any procurement order. Biofuel facilities have extremely high emissions factors, meaning that they emit enormous amounts of pollutants per megawatt-hour of generation. [CEJA/Sierra Club Comments, pg. 24.]

This statement is only true if the analyst intentionally ignores the alternative fate of the biomass material that is used as fuel. In fact, ignoring the alternative fate of the biomass fuel completely misrepresents the environmental impacts associated with biomass and biogas energy production. For example, CEJA/Sierra Club state that the cleanest of biomass power plants emits more than 190 percent of the particulate matter compared to a

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1 We say intentionally because the literature is replete with examples of studies that include an assessment of avoided emissions, and we have pointed out this analytical deficiency previously in both the RPS and the severe weather reliability proceedings.
coal plant. We strongly question the veracity of this statement, since biomass fuel has a much lower mineral (ash) content than coal, and biomass power plants employ the same kinds of emissions controls for particulates that coal power plants use. But far more importantly, biomass plants emit only about 1-5 percent as much particulate pollution as the open burning of the biomass that the biomass power plant avoids. There are similar reductions in other criteria pollutants, such as NOx, VOCs, and CO. In other words, the biomass power plants greatly reduce the net pollution associated with the disposal of biomass residues that can be used for renewable energy production but would otherwise be open burned. This includes agricultural biomass residues, such as orchard prunings, and forest residues, such as residues resulting from fire-risk-reduction treatments. In fact, by reducing the risk of wildfires, forest treatment operations cumulatively reduce the episodic emissions associated with California wildfires, which in the summer and fall of 2020, caused large areas of the state to experience the worst air quality in the world for several weeks at a time.

The same considerations discussed above regarding conventional air pollutants apply equally to greenhouse-gases. When the avoided emissions of alternative disposal of biomass are properly accounted for, biomass energy production actually reduces the net emissions of greenhouse gases associated with the alternative disposal of the biomass. For biomass that is diverted from open burning the emissions of biogenic greenhouse gases are roughly cut in half when the biomass is combusted in a controlled power plant boiler, due to the fact that controlled combustion virtually eliminates the emissions of methane and hydrocarbons that is associated with open burning. Although the emissions of methane and hydrocarbons are a small fraction of the carbon that is emitted from open burning, the much greater global warming potential of these gases compared to carbon dioxide significantly increases the global warming potential of the resulting emissions.

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In addition to open burning, the other major conventional disposal option for biomass residues is landfill burial. Biogenic carbon that is buried in landfills is converted into a roughly 50/50 mixture of methane and carbon dioxide. Most California landfills are required to capture and combust their landfill gases, converting the methane into carbon dioxide, but they typically collect less than 80 percent of the total gases generated by the landfill. The net result is that even in controlled landfills methane makes up more than 10 percent of the total biogenic carbon emissions, and that produces an emissions mixture that has a dramatically greater global warming potential compared to emitting all of the carbon in the form of carbon dioxide. Even taking into account the lag time between burial of biomass in a landfill and emissions of the biogenic carbon to the atmosphere compared to their immediate emissions from a biomass plant, landfill burial leads to greater emissions of greenhouse gases than energy production.

With respect to the use of residues from forest treatments again there is a lag time between the treatment operation and its immediate removal and combustion of biogenic carbon, and the time at which the now reduced-risk forest stand either avoids a wildfire altogether, or experiences far less loss in the event a fire does occur. The CEJA/Sierra Club comments assert that it can take “several decades” before the benefits turn positive. They cite several references to document this assertion, but none of these references are germane to the California situation. For example, one of the references is based on Canadian forests, which are much wetter and less fire prone than California forests. Analytical work performed in California suggests that the lag time between forest treatments and positive greenhouse-gas benefits is less than a decade,\(^4\) and with climate change this lag time is surely shrinking.

California’s forests are dry and fire prone, and with climate change they are becoming drier and more fire prone. Fire is a recurring occurrence in California’s forests. In forest stands that are overgrown, which are widespread in the state, and in areas like the

wildland-urban interface, forest treatments reduce the probability of ignitions, and reduce the severity of fires in the event that they do occur. In addition, there is an enormous stock of dead standing trees in the state as the result of past droughts, infestations, and wildfire, and these dead trees are especially fire prone. PG&E, for example, has reported that it is having trouble delivering biomass residues from their vegetation management activities to biomass power facilities because the biomass facilities are being inundated with residues from post-wildfire cleanup operations. The bottom line is that biomass power production in California contributes positively to the state’s air quality, and reduces the frequency and extent of wildfire.

The CEJA/Sierra Club comments on biomass conclude with a paragraph that posits that: “Allowing additional procurement of biomass is also inconsistent with SB 350’s requirement to minimize emissions with a priority for DACs.” Their rationale is that many of the state’s biomass facilities are located in or near to DACs, and that the air breathed by the people in the DACs is therefore compromised by the operations of the biomass facility. It is important to understand that air pollution in California is not highly localized. Rather, it is a regional problem. As discussed above, diverting biomass residues from open burning to energy production reduces the emissions associated with the disposal of the residues by factors of 10 to 100 times. In addition, the biomass facilities distribute their emissions throughout the year, whereas open burning is usually conducted seasonally, leading to acute pollution episodes. Indeed, wildfires produce the most severe air quality impacts that are ever experienced in California, with long periods during which air quality is considered to be unhealthy. The bottom line is that biomass energy production improves rather than degrades the air quality in many rural regions of the state that have multiple DACs, providing these communities with clear public-health benefits. Biomass energy also provides quality jobs to residents of rural DACs in both the fuels production and power plant operations sectors.

In our March 26 Comments, GPI argued that the procurement set aside for geothermal in the February 22, 2021, Ruling and staff proposal on mid-term procurement should be recast as a set aside for baseload renewable generators. CEJA/Sierra Club would make
biomass and biogas ineligible for procurement under the IRP’s mid-term procurement track. Their argument is based on unsound science and should be rejected. Opening this mid-term procurement up to biomass not only produces renewable energy from waste and residue material that would otherwise have to be disposed of, it also promotes other important California policy objectives such as energy diversity, wildfire reduction, air quality improvement, the diversion of organics from disposal in the state’s landfills, and a reduction of overall greenhouse-gas emissions.

**Conclusion**

GPI supports this effort to replace the power that will be lost when Diablo Canyon and the remaining OTCs are retired, as well as to fill other mid-term generation needs. We are concerned that the Ruling’s basis for determining near-term capacity need based on a greatly increased PRM is not justified. Setting aside a portion of the identified mid-decade need for baseload renewables will have multiple benefits for the state’s energy system. Fossil fuel generators should not be able to participate in this procurement.

We urge the Commission to adopt our recommendations herein.

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Respectfully Submitted,

[signature]

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