Dynamic TOU rates
Enel X, Karim Farhat, VGIC

1.5 Establish EV TOU rates that don't require separate/submetering (significant customer cost). Allow vehicle data to be used as input to utilities for settlement to customer. Also- having a standardized TOU rate format across IOUs would be helpful. CPUC Comment: TOU time periods and costs are designed to recover the cost of specific utility service territories. Why is having it standardized preferred for this use case specifically?

1.6 Establish optional dynamic rate schedules for EV charging that pass through time- and location-specific price signals that reflect, at a minimum, energy, delivery, and GHG

1.7 To ensure effective capturing and realization of value from EV flexible load: the retail price signal received by the EV customers (drivers and/or site hosts) should be reflective of realistic, time-variant cost of energy. Unless proved necessary in select circumstances, all EV charging rates should be time-variant, and current TOU rate design (by IOUs, CCAs, and private entities) should continue to evolve and improve to be more reflective of realistic costs of energy and grid conditions. Importantly, time-variability of EV rates should never be too complex for customers to comprehend and use.

1.8 To ensure effective capturing and realization of value from EV flexible load: At any particular time the day, the pricing signal received by the EV customers (drivers and/or site hosts) should be relatively consistent (not necessarily identical) across different sectors and price-setting entities. For example, charging at 2pm within the same geogrsphical region should not be deemed "off-peak" on one IOU rate but "partial-peak" on another IOU rate or CCA rate. Harmonizing different EV rates by different entities, so they are consistent in any given time window, is important for customers to adjust their charging behavior and develop healthy, predicatable, and robust charging habits. At the very least, different price-setting entities should agree on the time window where "off-peak" rates apply. CPUC Comment: is the basic issue that an IOU T&D tariff could define TOU periods differently than a CCA energy tariff? Or are you also concerned that an IOU(s) does or could offer unbundled T&D and energy tariffs that could conflict with each other, and if the later are there specific customer classes - i.e. commercial - that you are concerned about?

1.10 Create an "EV fleet" commercial rate. Allows C&I customers to switch from a monthly demand charge to a more dynamic rate structure (e.g. average daily demand, dynamic TOU). CPUC Comment: would average daily demand facilitate VGI? I can see the benefit for EV adoption in general and it would be helpful to explain how moderating the impact of demand charges would facilitate VGI

NEM or other value for export
Karim Farhat, Nuuve, VGIC
Note: other recommendations also talk about access to markets

1.14 Credit for export for V2G/storage

1..16 NEM credit for V2G exports. CPUC Comment: combine with ""credit for export"" item above"

5.10 In order to both capture the value from currently ""favorable"" use-cases and unlock the value of currently ""unfavorable"" use-cases: Drastically simplify NEM tariffs and streamline NEM applications for EVs; explore possibility for (simplified) NEM tariff specifically for EVs. Along the same lines, strongly encourage better communication of EV TOU and NEM rates to the general public and other business entities. CPUC Comment: applications = IOU applications to CPUC?"

SGIP (or SGIP-type) incentives for V2G
Enel X, Energy Innovations, Fermata, Karim Farhat, Nuuve
Note: building inforastructure and 53 seem complementary; 63 and 64 reference SGIP as a relevant proceeding and may be worth also reading.

2.2 V2G systems become eligible for some form of SGIP incentives. One or several budget categories for V2G systems could be established along with residential, commercial, equity, etc. Large scale, commercial pilots could be used to develop the program. CPUC Comment: This overlaps with a several

2.13 SGIP-style battery rebate for pairing with high power DC fast charging. CPUC Comment: would be useful to consider consolidating SGIP-related recommendations.

5.1 Bring automakers to the table to agree to allow limited discharge activity for resilience purposes to be kept under warranty if customers are willing to pay for upgraded bi-directional charging hardware.

5.3 Pilot funding for V2H backup power solutions; Provide funding to test installation of gateway switches (or other solutions) for V2H backup at EV-owner homes in vulnerable communities

5.7 (1) Set a state goal (floor) of having EVs providing emergency backup generation during PSPS events: At least 100 EVs by mid 2021, and at least 500 EVs by mid 2022. This could be implemented as one pilot or a portfolio of pilots across California, with the requirement of interconnecting to the "main" grid (not microgrids) of one or more of the utilities.
(2) Utilities to consider the feasibility of EVs for emergency backup generation as part of their PSPS plans over the next 2-3 years. Per Recommendation 1, cost-effectiveness shall continue to be a major criteria for evaluating the feasiblity of EVs for backup generation.

Non generator resources (NGR)
Enel X, Karim Farhat, MD/HD team, Nuvve
Note: not sure whether recommendations talking about NGR overlap and could be consolidated or have some cross-references; not too familiar with NGR

3.3 Solve critical issues with DERP-NGR to enable MUAs and the economic integration of aggregated BTM V2G in CAISO markets: 24x7 market integration for DERPs; lack of coordination between DERPs and LSE, resulting in double payment for charging energy; clarify applicability of and standardize / streamline WDAT interconnection process. CPUC Comment: please spell out acronyms and say what you think should change; for instance what is unclear and what is ad-hoc or cumbersome with interconnection rules?Reply: same as Nuuve NGR recommendation?

3.9 CPUC develops accounting/operational standards governing retail versus wholesale charging for V2G applications. Utilities may need to develop subtractive billing to net out wholesale charging. Specifically pilot for electric school buses, which will have high idle time and may be full market participants for part of the year. This pilot can also inform how V2G should qualify for Resource Adequacy going forward. CPUC Comment: is the issue buy retail for storage and sell at wholesale rates and/or paying add-on when buying for storage and not recovering when selling wholesale? or having acces to wholesale markets at all (a CAISO issue?)

3.10 CAISO allows for BTM resources to participate in Frequency Regulation without 24/7 wholesale settlement. CPUC Comment: is the ask to sell for increments of time rather than 24/7 availability; or rates; or other payment issues?is this related to other comments re: NGR?

3.12 Resolve NGR issues for BTM aggregation market access. CPUC Comment: same as ENEL X, MHDV team recommendation re NGR? or do you recommend other specific actions?Reply: ,,, and if so what actions?

V2G powered microgrids
Enel X and VGI Council

5.2 Pilot funding for V2G backup power solutions; Provide funding to test an EV-powered microgrid at community centers in vulnerable communities

5.4 "Enable BTM V1G/V2G to provide supply, capacity, or other services in FTM sectionalized microgrids. CPUC Comment: what actions do you recommend that the CPUC/IOUs take? How would you prioritize them?"

Demand response/resource adequacy
Enel X, Energy Innovation, Nuuve, VGIC
Note: Some recommendations seem focused on DR/RA and others are more broad; so there may be different recommendations based on these different perspectives which is fine. Should these go in category 2 or 3?

2.14 Create an EV Demand Response (System RA) Portfolio of Programs: 1. "Rush hour rewards"-style peak time rebate incentive program for EV owners/fleets/EVSPs who respond to utility signal to limit charging during critical peak periods; 2. DRAM-style procurement for capacity 3. Critical Peak Pricing (reduced rate except during critical peak periods) 4. Public Charging incentive/payment - customers provided a payment (or future free charging session) for agreeing not to charge during critical peak periods. CPUC Comment: can you elaborate and what programs don't exist and should be created; and what programs exist and should be revised for these options? i.e. DRAM procurments for the later

2.16 Non-wires alternative competitive procurement issued (RFO) targeted to EVs/EVSPs that can limit demand during peak times. CPUC Comment: as part of an existing procurement? if so, what would need to change? or a new type of procurement process, and if so do you have suggestions on how to structure?

3.3 Solve critical issues with DERP-NGR to enable MUAs and the economic integration of aggregated BTM V2G in CAISO markets: 24x7 market integration for DERPs; lack of coordination between DERPs and LSE, resulting in double payment for charging energy; clarify applicability of and standardize / streamline WDAT interconnection process. CPUC Comment: please spell out acronyms and say what you think should change; for instance what is unclear and what is ad-hoc or cumbersome with interconnection rules?Reply: same as Nuuve NGR recommendation?"

3.4 Solve critical issues to enable aggregated BTM V2G to provide RA: storage exports receive no RA value, limiting value proposition; aggregated BTM V2G (+ all storage) lacks an NQC value. CPUC Comment: please explain NQC; is there a specific rule or policy that prevents storage from participating in RA? is that related to NQC?"

3.5 Incorporate V1G opportunities in the DRAM program, once reinstated permanently.

3.6 Enable aggregations of EVs on managed charging to participate as resources in real-time energy markets and ancillary services market. CPUC Comment: what policy actions are needed? I think that the barriers column identifies at least some.

3.7 Enable aggregations of EVs on managed charging to meet RA requirements. CPUC Comment: what change is needed? note that Nuvve has made recommendations re: allowing a 100 kW bid threshold."

3.11 Allow 100 kW threshold bid for A/S

3.12 Resolve NGR issues for BTM aggregation market access. CPUC Comment: same as ENEL X, MHDV team recommendation re NGR? or do you recommend other specific actions?Reply: ,,, and if so what actions?"

Rule 21 interconnection topics
Enel X, IOUs, Nuuve
69, 70, 72, 74, 75
Note: the IOU recommendation (8.8) seems broader while some of the others seem more specific, i.e. (8.5) and (8.7) seem closely related re: AC interconnection of EVs

8.2 Waive second interconnection of V2G. CPUC Comment: you mean that interconnection should be based on EVSE rather than EV, based on what you recommend as your vision of success, right? If so, you may want to clarify the recommended action. Please also explain whether you are commenting on an existing policy; and/or new policy under development that you would like to be shaped in this way?

8.4 Adopt interim procedures for validating current limiting functionalities in smart charging. CPUC Comment: Do you mean that you want interim procedures for interconnection of V2G capable systems with V2G turned off and only managed charging turned on? and then once V2G procedures are worked out, follow V2G procedures before turning on that capability? It seems that way from the rest of the info in other columns. I read the current ask as allowing smart charging.

8.5 Interconnection of mobile inverters. CPUC Comment: suggest "develop standards for interconnection of mobile inverters exporting AC power from vehicle and then update Rule 21", based on the other information provided, if that is what you recommend. Reply: I think that this is the same as ENEL X (8.7); overlaps w/ IOU recommendation (8.8)

8.7 Enable V2G AC interconnection pathway. CPUC Comment: I think this is the same as Nuuve recommendation (8.5); also overlaps with IOU (8.8)

8.8 Coordinate the development of interconnection and technical standards with the VGIWG effort. CPUC Comment: overlaps with all of the interconnection recommendations (8.2) (8.4) (8.5) (8.7). Are there other aspects as well in the IOU recommendation that aren't covered in those other recommendations? Reply: can we better coordinate between, for instance the Rule 21 efforts, with this workgroup?"

School bus V2G pilots
Karim Farhat, MHDV Team
Note: may want to collaborate with Energy Innovation re: other school bus recommendations

3.9 CPUC develops accounting/operational standards governing retail versus wholesale charging for V2G applications. Utilities may need to develop subtractive billing to net out wholesale charging. Specifically pilot for electric school buses, which will have high idle time and may be full market participants for part of the year. This pilot can also inform how V2G should qualify for Resource Adequacy going forward. CPUC Comment: is the issue buy retail for storage and sell at wholesale rates and/or paying add-on when buying for storage and not recovering when selling wholesale? or having acces to wholesale markets at all (a CAISO issue?)

2.10 Leverage existing pilots in the state to identify major bottlenecks for increasing deployment and reducing costs. Encourage utilties, in partnership with private entities, to establish dedicated programs or sub-programs (under MDHD) for School Bus charging solutions

5.9 Excplicitly prioritize these use-cases to be included in the next cycle of PRP submissions by one or more of the IOUs, as well in the next phase of EPIC funding.

Customer-side load management/energy management systems
Enel X, Nuuve
Note: suggest selecting a preferred category for this and others were recommendations fall into more than one

2.5 Enable customers to elect BTM load balancing option to avoid primary or secondary upgrades, either if residential R15/16 exemption goes away, or as an option for non-residential customers

7.5 Pilots demonstrating connection capacity sharing. CPUC Comment: i.e. "load management" or "energy managements" to optimize electrical panel and/or building electrical suppplyReply: I think also developing minimum safety standards such as currently under development by CSA; potentially also market understanding/acceptance and performance standards

Cost-benefit analysis
BMW-GM-Honda-Nissan-Ford, Karim Farhat
Note: (4.4) and (4.5) are post-hoc; and (6.8) is not specific about whether C/B would be used as approval criteria for specific applications/programs or post-hoc

4.4 Perform detailed cost-effectiveness analysis to quantify the impact on EV customer, ratepayer, utility, and society at large. This applies to use-cases under both Direct and Indirect approaches. For every use-case: Parties that scored the said use-case as ""favorable"" are strongly encouraged to support in the detailed cost-effectiveness analysis (while mindful of anti-trust concerns); not providing such support may risk de-favoring and therefore de-prioritizing the said use-case. CPUC Comment: how granular would you suggest? i.e. each one; or do you think that they could be aggregated?

4.5 For every transportation electrification plan, project, or program that (1) is supported or subsidized by public funds, (2) applied at commercial scale (200+ EVs or 100+ EVSEs); and is to be deployed in the next 1-5 years: Prioritize and properly document and implement one or more of the cost-effective use-cases. Every TE program or project meeting the three criteria above must include the deployment of one or more cost-effective VGI use-cases. CPUC Comment: 1) are you recommending just documenting what use case(s) are advanced? or other information, and if so do you have a template or example in mind?2) do you think that the same numbers would apply to all projects (i.e. passenger EVs/EVSE vs. MDHC EVs/EVSE)"

6.8 Establish cost-benefit evaluation framework for specific VGI programs/measures that are ratepayer funded. This should be considered in the larger context of TE programs as a whole (rather than evaluating individual VGI measures in isolation). CPUC Comment: I think that this overlaps at least in part with a recommendation from Karim Farhat