BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to Consider Alternative-Fueled Vehicle Tariffs, Infrastructure and Policies To Support California's Greenhouse Gas Emissions Reduction Goals.	Rulemaking R.13-11-007

GREEN POWER INSTITUTE AND COMMUNITY ENVIRONMENTAL COUNCIL COMMENTS ON SCOPING MEMO QUESTIONS

August 21, 2014

Gregory Morris, Director
Tam Hunt, Consulting Attorney
The Green Power Institute
a program of the Pacific Institute
2039 Shattuck Ave., Suite 402
Berkeley, CA 94704
ph: (510) 644-2700
fax: (510) 644-1117
gmorris@emf.net
tam@communityrenewables.biz

Michael Chiacos
Energy and Transportation Manager
Community Environmental Council
26 W. Anapamu St. 2nd Floor
Santa Barbara CA 93101
(805) 963-0583, ext. 110
mchiacos@cecmail.org

GREEN POWER INSTITUTE AND COMMUNITY ENVIRONMENTAL COUNCIL COMMENTS ON SCOPING MEMO QUESTIONS

The Green Power Institute and the Community Environmental Council (GPI/COUNCIL) respectfully submit these comments on the **Assigned Commissioner's Ruling and Scoping Memo,** mailed July 16, 2014.

The Green Power Institute (GPI) is the renewable energy program of the Pacific Institute, a non-profit environmental and social advocacy group. Under the direction of Dr. Gregory Morris, the Green Power Institute performs research and provides advocacy on behalf of renewable energy systems and the contribution they make to reducing the environmental impacts of fossil-based energy systems. The Green Power Institute is located in Berkeley, California.

The Community Environmental Council (COUNCIL) is a member-supported environmental non-profit organization formed in Santa Barbara in 1970 and is the leading environmental organization in the Central Coast region of California. The Council is a member of the steering committee of the Plug in Central Coast (PCC), one of the EV Readiness regions funded by the Department of Energy and the California Energy Commission. The Council provided significant input into PCC's forthcoming EV Readiness Plan, and works frequently with local businesses, governments, and residents as they purchase EVs, build charging infrastructure, and develop EV friendly policies. The Council's state policy work is directly informed by experience with what has worked, or is likely to work, at the local level. The Council is almost unique in combining on-the-ground work on a number of energy and climate change-related issues with concurrent work on state and federal policy issues. The Council is also pioneering a number of on-the-ground activities to promote alternative transportation and EVs. In 2004, the Council shifted its primary focus to energy and transportation issues and is spearheading a regional effort to

wean our communities from fossil fuels, on a net basis, during the next two decades. More information on the Council and its energy programs may be found at www.cecsb.org.

I. Discussion

a. Smart charging

GPI/COUNCIL fully support the Commission's direction on Vehicle-Grid Integration (VGI) and, in particular, smart charging (V1G). We remain very intrigued by the grid benefits that smart charging can provide, as discussed in the staff white paper, and we urge the Commission to look into the possibility that smart charging can provide grid benefits sufficient to cover the cost of EV charging by ratepayers who agree to smart charging of their EVs. Some manufacturers are now offering free charging for their EVs, at least on a limited basis, and this is a powerful incentive for EV ownership. If the Commission can demonstrate that smart charging benefits can sustain free charging more broadly, in whole or in part, this alone could provide a major boost to EV adoption in California.

This issue seems to be scoped for Phase 1 of this new proceeding (Scoping Memo, p. 10), but is not made explicit. We urge the Commission to address this issue specifically in Phase 1.

b. Scoping Memo questions

The Scoping Memo asks parties to address the following questions (in italics):

1. *Should the Commission adopt the proposed AFV Guiding Principles? What modifications, if any, are appropriate?*

The Scoping Memo proposes the following guiding principles (p. 6):

- Promote the deployment of safe and reliable AFV grid infrastructure designed to meet transportation and energy service needs while maximizing ratepayer benefits and minimizing costs to all utility customers.
- Target near-term solutions that complement the use of preferred energy resources and utilize the grid efficiently.
- Incorporate and enhance policies from other, related Commission proceedings to promote efficient program implementation and use of ratepayer funding.
- Enable and incorporate the full range of values from VGI in a new program as part of the Commission's overall AFV efforts while remaining technology neutral and allowing for business model innovation.

GPI/COUNCIL support these proposed guiding principles. We also recommend adopting the following additional principles:

- Promote utility-financed PEV infrastructure solutions that can be shown to be cost-effective, regardless of whether such facilities are owned by the utilities or third parties [this is similar but more specific than the Commission's first principle above]
- Leverage utility resources and networks to maximize ratepayer education on PEVs, regardless of whether utilities or third parties manage such activities

2. *Should the Commission consider an increased role for the utilities in PEV infrastructure deployment and, if so, what should that role be? If the Commission should consider utility ownership of PEV charging infrastructure, how should the Commission evaluate "underserved markets" or a "market failure" pursuant to D.11-07-029? What else should the Commission consider when evaluating an increased role for utilities in EV infrastructure deployment?*

Similar to the GPI/COUNCIL joint Prehearing Conference Statement comments on SDG&E's proposed EVSE pilot (A.14-04-014, filed Aug. 8, 2014), GPI/COUNCIL believe that IOU ownership of PEV infrastructure should be considered pursuant to

the rules sketched by the Commission in D.11-07-029, but expanded per our suggestions below. D.11-07-029 prohibited IOUs from owning EVSE, but added the following clarification (p. 45):

> Should utilities present evidence in an appropriate proceeding of underserved markets or market failure in areas where utility involvement is prohibited, we will revisit this prohibition. Should the Commission revisit this issue, we will revisit the concerns outlined above, among others, including the potential cost-subsidization implications of any utility proposal to own public electric vehicle service equipment.

A.14-04-014 will give the Commission a chance to flesh out what kinds of evidence of "underserved markets or market failure" is required, as will the current proceeding. Some parties suggested in Prehearing Conference statements in A.14-04-014 that SDG&E had not presented sufficient evidence of underserved markets or market failure. We generally agree that SDG&E needs to show more evidence to clear the Commission's general prohibition against IOU ownership.

CESA, for example, stated that to its knowledge at least 18 companies are already working in the San Diego area on workplace or MUD charging (CESA Prehearing Conference Statement, p. 4, fn 6). However, this fact alone in no way contradicts SDG&E's arguments for complementary IOU ownership or financing of charging stations because the relevant data are installed charging stations and use of those charging stations, rather than a simple accounting of how many companies are working on this transformation to our transportation system. Additionally, many of these companies are small start-ups that may not be around in future years. It is also not clear to what degree these companies have been or will be successful on a scale that the Governor's 1.5 million ZEV goal requires. This ambitious goal requires many companies working all over the state, as the number of parking lots, MDUs, workplaces, etc., are an extremely large market that will likely take decades to reach saturation.

Nor is SDG&E's application mutually exclusive of a thriving third party market for PEV infrastructure. For example, GPI/COUNCIL suggested in our PHC Statement in A.14-04-014 that the Commission consider allowing SDG&E to own half of the proposed 5,500 charging stations and allow third parties to own the other half (but financed by SDG&E with ratepayer funds). If half of these stations are owned by third parties, this would provide a very substantial boost to the PEV infrastructure market in the San Diego region. Moreover, even under SDG&E's current proposal to own all of these stations, the third party market will also be involved in building and operating the large majority, if not all, of these stations, thus providing a very significant boost to the local EVSE industry.

The Commission asked in A.14-04-014 for party comments on the degree to which R.13-11-007 and A.14-04-014 should be coordinated. The utility ownership issue is queued up now in both proceedings and GPI/COUNCIL urge the Commission to address this issue early in this proceeding so that A.14-04-014 can proceed.

We suggest the following additional guidance for the Commission to determine whether adequate evidence has been presented by a utility to overcome the general prohibition against utility ownership of PEV infrastructure:

- "Underserved markets": when presented with an application by a utility to own PEV infrastructure, the Commission should look to growth rates for PEV adoption in the utility territory at issue, with the help of consultants if required, and make a determination regarding the likelihood of current growth rates to meet the Governor's 1.5 million ZEV goal. If a utility proposal for PEV infrastructure ownership is likely to provide material support to reach the Governor's goal in a market that is not currently on track to meet the

Governor's goal and can be shown to be cost-effective, the Commission should lean in favor of allowing IOU ownership. If parties can present good evidence to rebut these two determinations (adoption trajectory and cost-effectiveness), the Commission should deny the utility's request for ownership

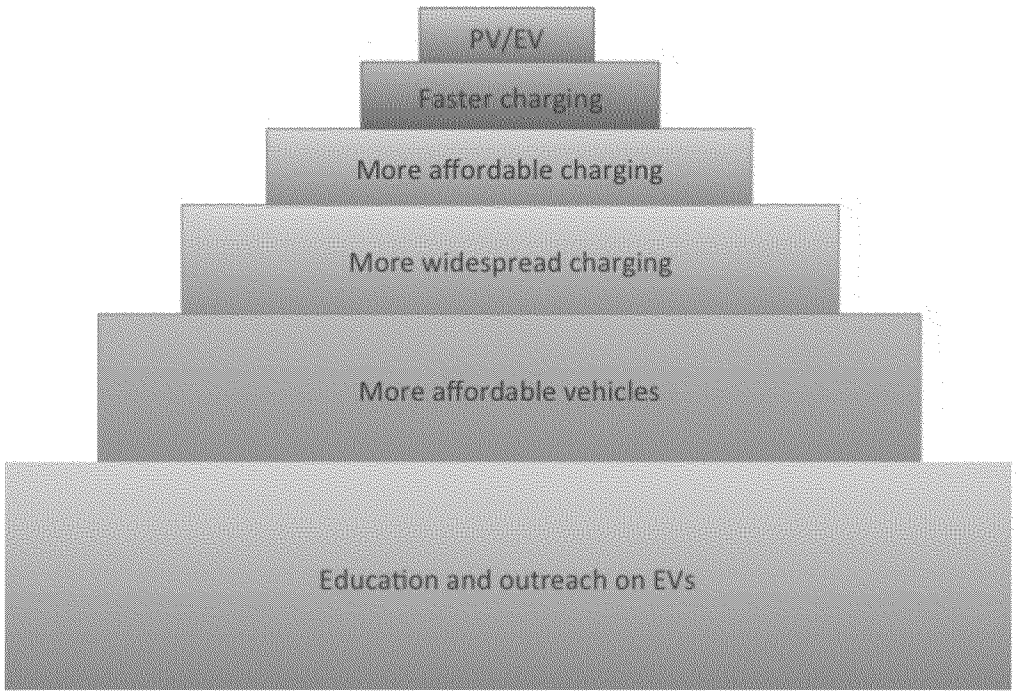
- "Market failure": the test for market failure should refer to a more specific problem in a defined market. For example, SDG&E's application focuses on workplace and MUD charging. SDG&E has not suggested that there is a market failure; rather, they suggest that these markets are underserved. If, however, a utility were to make a case for outright market failure, it would need to show that there is almost no chance that current market forces are addressing, or will address in the future, a specific niche or a specific market need. For example, if the market in the San Diego region was not installing DC Fast Chargers at all, or in very low numbers, SDG&E could argue that IOU ownership and intervention would substantially help the market. In such a case, the Commission should seriously consider allowing IOU ownership. In sum, the "market failure" test should be more of a "bright line" test than the "underserved markets" test above. It will likely be the case that a market failure argument will have to be made at a later date than an underserved market argument because it will necessarily require more data to show true market failure.

3. *What education and outreach activities must the utilities provide to support further customer PEV adoption? What existing resources are available for these activities and what additional resources are needed?*

GPI/COUNCIL have expressed our view previously that education and outreach are the key hurdles to greater adoption of PEVs by the market. We maintain this position and again urge the Commission to focus on third party education and outreach

(E&O) efforts in this proceeding, in addition to or instead of IOU efforts. Figure 1 reproduces our proposed "prioritization ziggurat."

Figure 1. *GPI/CEC's proposed "prioritization ziggurat" to spur higher adoption of EVs in California.*



The diagram is designed to show quickly and simply the largest barriers to more widespread EV adoption. While we acknowledge that EV adoption rates are growing fast at this point (tripling in 2012, almost doubling in 2013, and likely up 30-50% in 2014), growth is occurring from a very small base. Early in the adoption curves of most technologies, rapid adoption rates are quite common. We also often see a substantial slowdown in adoption as the technology at issue becomes more widespread. The Governor's 1.5 million ZEV goal by 2025 requires a consistent exponential growth rate. We calculate that EVs (BEVs and PHEVs) need to grow at an average 30% annual rate and FCVs need to grow at an average annual rate of 52% from a base of 1,000 vehicles sold in 2014, in order to reach 1.4 million and 100,000

vehicles on the road by 2025, respectively. While we are currently on, or even above, the required growth curve to reach the 2025 goal for EVs, we need to do what we can to prevent major obstacles from slowing the growth rate.

Third party E&O efforts are generally far more cost-effective than IOU efforts. We urge the Commission to look closely at the degree to which third party E&O efforts can help educate ratepayers on the benefits of PEV ownership. In terms of what existing resources are currently available for IOU E&O efforts, we will allow the IOUs to respond.

GPI/COUNCIL recommendations on Education and Outreach

There are more than a dozen EV models on the market today, from the very affordable $15,700 Smart ForTwo EV, (after Federal tax credits and California rebates), to high-end luxury models like the Tesla Model S. Customer satisfaction for EVs is extremely high and there are many "perks" of EV ownership in California, including carpool lane access, low refueling costs, and in some locations, free charging. That said, customer awareness of the EV options, and other alternative fuel vehicles, is still extremely low and the Commission has the authority to do much to mitigate this major obstacle.

The EV value proposition for ratepayers is quite good, particularly with available leasing options and the California $2,500 rebate in addition to the federal $7,500 tax credit. Increasing sales of EVs is now in large measure a matter of spreading the word about the economic, environmental, and energy security benefits of EVs, which will only increase with time as new and better models enter the market. For example, many long distance commuters are saving significant money with EVs, by using the California rebate to obtain an effective zero down payment on a new EV, and

offsetting the monthly lease payment in part or whole by fuel savings.

Utilities and third parties, such as local EV Readiness Teams, part of a Department of Energy and California Energy Commission-funded effort to increase EV adoption, play a critical role in raising awareness of EVs. Educational efforts that third parties and/or utilities could initiate as part of ratepayer-funded programs include:

- Raising general awareness about electric vehicles, and featuring this information on websites, on social media, bill inserts, in special mailings, and other avenues. Messages about the affordability of driving electric, convenience of home recharging, environmental and energy security benefits, can all help raise awareness of the benefits of driving EVs. Utilities have massive audiences, and are trusted sources of information, thus are well positioned to get the word out about EVs to the mass market. It is not clear, however, how many people read utility bill inserts, and whether utility-branded messages are the most effective at reaching ratepayers. Third party efforts can, at the least, complement IOU efforts in this area.

- Educating residential and other customers about Time-of-Use rates, which allow EV drivers to refuel for the equivalent of $1/gallon at current rates. Third parties or utilities could develop marketing materials as bill inserts or standalone mailings that compared the cost of refueling with gasoline vs. electricity. These messages could also be featured sliders and stories on websites and on social media.

- Targeted mailings to commercial accounts about specific ways to offer low cost workplace charging. From our experiences, the high cost of installing networked, level 2 chargers is a major barrier to workplaces that have employees requesting EV charging. The information packet would include information specific to 120 volt low cost chargers, sharing level 2 chargers and non-network solutions like

EV parking permits. Lower cost workplace chargers are relatively easy to install, and are critical to mass market adoption, but many workplaces are being led into high-cost solutions that may be overkill and thus costly by third party charging infrastructure vendors. Utility help could be essential in this arena as many employers don't have the technical knowledge on staff to develop a lower cost solution.

- Developing and distributing information about how to keep EV charging costs as low as possible. This would include alternative, lower cost business models for workplaces, such as the ideas discussed above.

- Additional outreach to make sure EV chargers are on the correct rate schedule, to ensure lowest cost for charging station operators and thus EV owners. Two level 2 chargers can be placed on a TOU-EV-3 billing schedule at each location (this example uses SCE's rate schedules, but these general concepts can be applied to all IOUs). This entails an average fixed billing amount of about $25 plus the cost of the actual electricity used. The electricity would cost a few hundred dollars each month. There are indications that utilities are choosing to place some chargers on TOU-EV-4 or more likely a TOU-GS-2 billing schedule. Those schedules come with basic monthly billing rates that start at $450 and go up to $1,000, depending on the details. The electricity cost is an additional and relatively small amount. TOU-EV-3 is much more affordable if there are two chargers and nothing else on that meter. The difference in cost is considerable and can lead to lower overall cost for many EV charger operators and thus EV drivers. Accordingly, choosing the right rate schedule is key to having affordable charging rates. The other key is to use non-networked billing, including for credit card payments, and integrating fees into the parking system, including parking meters.

- Utilities can contribute to education and outreach by identifying the best locations

for affordable DC fast charge rates. High-voltage industrial supplies like at universities, large employers, and industrial facilities may be best positioned to offer lower cost DC Fast Charging. Local PEV Readiness Teams have identified roughly the best locations for DCFCs around the state. Utilities should survey these identified locations for parking lots and electrical capacity where it would be lowest cost to add DCFC, and give this information to local PEV Readiness Teams and private charging station developers. PG&E is already doing this and we urge the other IOUs to do the same, or, alternatively, for the Commission to require this during the course of this proceeding.

- Utilities should prioritize using EVs in their own fleets. A recent study by the Edison Electric Institute "Transportation Electrification: Utility Fleets Leading the Charge" found that only 1.7% of vehicles purchased by utilities in the last five years were EVs. While some California utilities are purchasing and piloting EVs, California IOUs could do much more to prioritize fleet EV purchases, especially as more medium- and heavy-duty EVs come to market. While light-duty vehicles are small parts of utility fleets, there are many light-duty EV options and these vehicles should be prioritized. Purchasing EVs also allows utility employees to gain experience with EVs. Utilities are also large employers and can encourage employees to commute in EVs by providing workplace charging, preferential parking, preferred pricing, and other incentives.

While utilities can do more to educate their customers about EVs, third party collaborative groups, such as the regional EV Readiness Teams are well-positioned to engage in robust education and outreach efforts. Around 10 regional EV Readiness Teams, funded by the Energy Commission and the Department of Energy, are active in most areas of California and can play a critical role in education and outreach. These collaborative groups consist of EV champions from Air Pollution Control Districts, cities and counties, environmental non-profits, businesses, and

other stakeholders, and bring local knowledge and relationships to bear on regional EV Readiness. While the EV Readiness Plans are being completed for various regions, these plans may well sit on a shelf and gather dust unless additional resources are brought to bear to continue implementation and educational efforts. Potential actions that regional EV Readiness Teams could take include:

- Working with cities to adopt EV-friendly policies described in the appropriate EV Readiness Plans. While local cities are often broadly supportive of EVs, they lack technical expertise and staff resources to adopt the EV-friendly policies outlined in plans. Regional EV Readiness Teams can serve as a constant outside champion urging them to adopt EV-friendly policies and add charging infrastructure, while providing support through the process and connecting them with resources.

- EV Readiness Teams can serve as a clearinghouse for information, for local governments, businesses, and the public. They can serve as resources to the community regarding EV incentives, local charging stations, and more. By taking a public role as a regional resource, entities wanting to add charging infrastructure and purchase EVs come out of the woodwork to contact the regional team. Regional teams can then match potential local charger sites with companies wanting to install charging infrastructure or learn about grant opportunities. Air Pollution Control Districts often have local funding sources that can provide grants for new EV charging infrastructure. Additionally, local champions often have broad local networks, and can constantly be championing EVs and identifying new EV supporters in their respective communities. This peer-to-peer knowledge sharing and championing of EVs in the community is a critical strategy for mass awareness and deployment of EVs.

- EV Readiness Teams can also act as catalysts for helping employers install workplace charging. Local Air Pollution Control Districts already have many

contacts with large employers. Accordingly, APCDs can help workplaces add EV chargers, as well as provide education to employees about the benefits of EVs.

- Regional EV Readiness Teams are best positioned to hold EV 101 events like Green Car Shows and National Plug-in Day events, which are critical in helping the public to see and test drive vehicles, and meet local residents that own them. This provides locals with a peer-to-peer experience that may persuade them to make an EV their next car purchase. Media coverage generated by these events can also increase awareness of EVs in the mass market.

- Finally, these Teams can have a strong web and social media presence, including dedicated websites that can serve as an information portal, regional Facebook pages that post on new charging infrastructure and other EV-related information, and blog entries on local residents that drive EVs, have solar, use EVs in fleets, or many other angles. Using early adopter community members to push out their stories to their personal networks is an extremely effective way to use new media, and local EV Readiness Teams are best positioned to facilitate this story telling.

In line with these activities and concerns about education of potential EV buyers, we recommend that the Commission add a sub-track to this proceeding to focus on education and outreach efforts pertaining to EVs. This sub-track should review the effectiveness of IOU efforts on education and outreach and identify potential improvements. As importantly, this sub-track should consider ways in which third parties could leverage ratepayer investments to further expand education and outreach efforts on EVs.

4. *How should the Commission mitigate the impact of demand charges, if at all, on entities pursuing transportation electrification?*

GPI/COUNCIL support as a first step in addressing demand charges the three-year elimination of demand charges for transportation agencies seeking to use electric buses, as PG&E requested in its pilot program in draft Res. E-4628 for a specific agency.

As we wrote in our comments on draft resolution E-4628 (comments filed July 22, 2014), GPI/COUNCIL support PG&E's request but we urged PG&E and the Commission to consider at the same time the next steps beyond the three-year pilot. Transit agencies, to seriously consider electric buses, will need more than a three-year pilot to induce such a significant change.

We suggest the following additional steps to mitigate the impact of demand charges on entities (any entity, not just transit agencies) pursuing transportation electrification:

- Consider a longer-term waiver of demand charges for transit agencies; five years or more, for example.
- Specific to DC Fast Chargers, GPI/COUNCIL have previously requested a temporary waiver (perhaps 3-5 years, to be revisited when actual cost data is available) or reduction of demand charges. Demand charges are currently inhibiting market adoption of this critical tool[1] for allowing EVs to expand their range and reduce "range anxiety" for new and existing owners. For example, NRG is the leading DCFC provider and is required in their settlement with the State of California to build at least 200 DCFCs. Drop in rates for a 20 minute charge session cost $9 http://www.nrgevgo.com/los-angeles-basin/, which may give an EV owner 40-60 miles of range, depending on their state of charge at arrival. This is around double the cost of driving this

[1] See this recent report discussing the importance of DCFCs in EV adoption: http://www.greentechmedia.com/articles/read/fast-charging-key-to-electric-vehicle-adoption-study-finds

distance in a hybrid vehicle. While NRG does offer cheaper rates with an annual subscription, many EV drivers or potential EV drivers are instantly turned off by these high rates (the COUNCIL has surveyed owners on this) and won't use these DCFCs, hindering mass market EV adoption. PG&E has rates that eliminate demand charges while SCE and SDG&E still offer high charges that can comprise the majority of monthly costs for DCFC operators. SCE and SDG&E should explore offering a rate similar to PG&E's A-1 rate schedule. Hawaii has recently started offering EV rates without demand charges and we urge the Commission to consider Hawaii as a good model.[2] DCFCs are not only costly to procure and install, they can be costly to operate due to their impact on local utility infrastructure. However, if California is to reach our EV goals, it is reasonable to temporarily waive or reduce demand charges for DCFCs, especially until more EVs are on the road and using the charging network, which will then allow operators to spread these costs among more charging sessions. While tariffs vary, many commercial site hosts find that DCFC electricity loads have dramatic impacts on their bill, reflecting utility demand charges to deliver the high power output to Fast Chargers that utilize 480 volt three-phase DC power. (Note that an emerging class of Fast Chargers can operate with 208 volt single phase power which pull less than 20 kW from the grid, which typically falls below the threshold for demand charges.) The demand charges can be prohibitively costly for site owners, particularly when DCFC utilization is relatively infrequent. For example, when a Fast Charger is utilized only once in a summer month, the demand charge will be a substantial portion of the overall bill. Summer costs are significantly higher than winter costs, and both winter and summer should be

[2] http://www.heco.com/heco/_hidden_Hidden/CorpComm/Hawaiian-Electric-Companies-offer-new-rates-for-public-EV-charging?cpsextcurrchannel=1.

taken into account when setting rates across the whole year (there are no fall or spring rate variations).

- The Commission should also consider rate-basing of upgrade costs that would otherwise be covered by demand charges. This topic could be considered in this proceeding or in the new proceeding looking at the AB 327 Distributed Resource Plans (DRP) that are required from each IOU by July 1, 2015. The new DRPs require each IOU to consider distributed generation development in their distribution grid upgrade plans, which has not previously been required by the Commission. AB 327 also authorizes the IOUs to rate-base distribution grid upgrades in accordance with their DRPs (P. U. Code section 769(d)). For example, DCFC upgrades could be rate-based through inclusion in the DRPs in such a manner that demand charges are not necessary. The Commission could also consider a higher Rule 15 and 16 allowance amount in perpetuity, and rate-basing these costs (when reasonable), as part of the DRP process. The Commission just issued an OIR in the AB 327 DRP proceeding, but has not issued a proceeding number yet.

5. *How should the Commission identify and consider in this proceeding best practices achieved and lessons learned from current AFV pilot project results?*

We recommend that Energy Division complete a report on each pilot, entitled "Best Practices Achieved and Lessons Learned," and then circulate each report to parties for comment. Energy Division should, in the short-term, develop a template report in order to ensure a similar standard of review across different pilots. Pilots are, by definition, unique and not easily comparable. However, having a standardized evaluation protocol will help the Commission and parties derive the most benefit from existing and new pilots.

II. Conclusion

GPI and CEC urge the Commission to adopt the recommendations discussed above.

Dated: August 21, 2014, at Berkeley, California.

Respectfully Submitted,

Gregory Morris, Director
The Green Power Institute
a program of the Pacific Institute
2039 Shattuck Ave., Suite 402
Berkeley, CA 94704
ph: (510) 644-2700
e-mail: gmorris@emf.net

Michael Chiacos

Energy and Transportation Manager
Community Environmental Council