

September 27, 2012

**FPL's Post-Workshop Comments and Requested Additional Information for
the September 6, 2012 Electric Vehicle Charging Workshop**

Florida Power & Light Company (FPL) appreciates this opportunity to provide post-workshop comments and additional information requested by Commission Staff.

FPL believes the current forecasted impact of Plug-in Electric Vehicle (PEV) charging to the electrical grid is manageable. Currently, PEV adoption is occurring at a slow pace, and FPL believes this will continue to be the case through 2020. This slow rate of PEV adoption provides utilities ample time to understand and plan for higher penetrations of PEVs. FPL has included its forecasted load from PEVs in its Ten-Year Site Plan filed with the Commission since 2009 and has undertaken initiatives to continue providing reliable service to its customers, including FPL's PEV reliability study, tracking of vehicles and tracking of chargers.

1) Post-Workshop Comments

Slide 15 of Staff's Summary Presentation Titled "Clustering of Electric Vehicles"

FPL has concerns with the way data is being presented in Slide 15, especially the assumption that residential transformers can handle no more than a single PEV per transformer. This slide states that residential transformers have limited ability to support level two chargers, especially those over 3.3 kWh. FPL does not believe this to be the case, based on early indications from FPL's reliability pilot.

It is difficult, if not impossible, to conclude that a certain transformer size can handle a certain number of vehicles because there are unique factors associated with each location that determine a transformer's ability to handle the PEV load. Important factors include:

- Percent loading of the transformer without the PEV;
- Duration of the load(s) and load shape of the house(s) and the PEV charging;
- Coincident factor;
- When the PEV charges;
- Rated capacity of the transformer.

FPL does believe that at the end of its current, ongoing reliability study it may be able to better identify "at risk" transformers based on the number of PEVs added to the transformer. However, it will still not be possible to conclude that a certain size transformer can handle a fixed number of PEV chargers.

2) Additional Requested Information

a. **Cost data on energy storage**

FPL has not conducted research on small scale energy storage and therefore has no specific information on this issue. FPL has conducted research on much larger

scale energy storage and has developed some assumptions that may or may not be valid for small scale energy storage.

b. Additional data on distribution risks, especially related to “quick-charging” stations

As discussed at the September 6, 2012 workshop, FPL launched a PEV reliability study earlier this year. To date, most of the work that has been conducted across the country to assess PEV impact to the grid has been done by modeling various assumptions. The vast majority of those studies implies that impacts to the electrical grid will be minimal and that the electrical infrastructure closest to the customer, e.g., transformers, are at the greatest risk of being impacted. This is not unique to PEV load since the transformer is normally the most at risk when any new load is added at the customer’s premises. FPL’s current ongoing reliability study is using real world data to enhance the confidence in its current assumptions and conclusions. FPL’s reliability study is expected to conclude at the end of 2013.

FPL has not conducted a study on “quick charging” (defined as DC fast charging at over 50 amps); however, FPL has been tracking developments in this area. The potential for deployment of these stations is currently very much unknown since units, installation, and operations are costly. Often this level of charging will require 3 phase electrical service which can be costly and available in limited locations. FPL expects that “quick charge” stations will likely be separately metered at a location capable of servicing the voltage requirements of these chargers. In these cases, FPL fully expects to be notified by the installing party to evaluate the infrastructure needs and costs. FPL would expect to treat these charging stations just like the addition of any other new load whereby service upgrades may be required. Contribution in Aid of Construction (CIAC) is the most likely means to offset the additional costs associated with serving these charging stations. FPL also expects that demand charges would apply to these customer service accounts.

c. What size transformers are most common in residential neighborhoods?

FPL’s most common size for a residential transformer is 50 KVA. The breakdown of all residential sizes is listed below.

<u>KVA</u>	<u>Residential Transformers</u>
50	204,739
25	142,592
75	79,615
37.5	77,918
15	39,905
100	35,849
167	8,143
10	7,364