

## **LF Energy Virtual Power Plant/Neighborhood Microgrid Working Group**

### **19 June 2020**

#### **Attendees**

Teff Reed, Daniel Lazaro, Jefro Osier-Mixon, Greg Thomson, Shuli Goodman, Scott from Pecan Street, Gianluca Dianese, Gabor Karsai, Hao Tu, Andrey Bernstein

#### **Agenda**

- 1. General Update**
- 2. VPP/NMG Architecture Diagram**
- 3. Integration with other Platforms**
- 4. Use Cases for July 8 Meeting**

#### **Minutes**

1. General updates from Teff and Shuli.
  - a. Teff reported on the Use Case/Architecture subgroup meeting. Ken suggested following the format of IEEE 2030.7, Standard for the Specification of Microgrid Controllers to give us a common vernacular.
  - b. Shuli reported on meetings with Siemens and Target. Both companies are very interested in LF Energy and Shuli wants to invite them to these meetings. Gabor knows the group at Siemens since they are using RIAPS.
  - c. Ken reported that he reached out to IEEE regarding sharing of the 2030.7 standard but has not heard back. Teff bought several copies and referenced the IEEE fair use rules. After some discussion, Jefro agreed to reach out to Mike Dolan for guidance. Shuli said LFE is already engaged with IEC and might start the MOU process with IEEE.
2. Architecture Diagram
  - a. Teff shared his google sheet of the architecture diagram. He added some figures from IEEE 2030.7 as an overlay and changed "layers" to "blocks" to follow the IEEE nomenclature.
  - b. The Packaging and Grouping diagram (Figure C1 from 2030.7) was a little confusing but is meant to show options for MG controller designs. It does not indicate best practices.
  - c. This led to a long discussion of price signals at Block 4: grid interactive control functions. Shuli suggested based on her conversation with Bruce Nordman at LBNL that we use the term "price based grid coordination" to capture all market cost functionality including rates, spot pricing, etc.
    - i. She posted these references from Bruce in the chat:
    - ii. [Rethinking Grids with Local Power Distribution, Keynote address to ACM e-Energy, Bangalore, India, July 2015.](#)
    - iii. ["The Fit Grid"-Principles for a better electric future, submission for the SEPA 51st State Process, Phase 2, March 2016.](#)

- iv. [Grid Architecture for Buildings, prepared for GMLC Grid Architecture project, December 2019](#)
3. Integration with other platforms
    - a. Shuli suggested that this group connect to [GXF, another LF Energy project](#) which targets substation management. They have demonstrated its use in a microgrid setting. She also posted [a link to an upcoming article on GXF](#) (do not share since unpublished).
    - b. [ONAP just released their newest version called Frankfurt](#). It may have some functionality we can consider.
    - c. Teff recalled discussions with [LO3](#). They view transactive energy as only possible with VPPs. They have had success with their microgrid demos in Brooklyn and now Vermont. But with proprietary software they will eventually reach point of de facto standard or lose advantage if they don't adopt open source. Teff will invite them to the July 8 meeting.
  4. Use Cases for July 8
    - a. [Greg shared the document listing out all the use cases](#) from 2030.7 and other references. It also includes VPP use cases shared by Sunrun. Greg noted that MG cases focus on single site whereas VPP cases address multiple sites and locations. VPP is essentially a cluster of MGs or perhaps an "Internet of Microgrids."
    - b. Teff suggested we select use cases from customer perspective, utility/DSO perspective and perhaps developer perspective. Use case selection depends on our goal for the July 8 discussion.
    - c. We briefly discussed connections with standards and Open Source. Shuli noted that a group in Europe may contribute their version of OpenADR to LF Energy. She strongly encouraged us to work on Block 4 for utility and market interactions. This area needs more attention and standardization. Teff noted Sunruns projects use a custom interface for each utility despite their encouragement to use OpenADR. He agreed this area needs more attention. Greg compared this to work on internet standards that opened the market.
  5. Actions
    - a. Jefro will ask Mike Dolan about IEEE standard usage
    - b. All to send their suggested use cases for July 8 to Teff as soon as possible.