Workforce Development for the Future Grid

- The US Dept. of Labor (DOL) projects that there will be an increase of ~14,000 jobs for electrical power-line installers and repairers from 2014 to 2024. A large part of the growth will be due to upgrading the interstate power grid (Fig. 1).
- Global battery-making capacity is set to more than double by 2021. It has been reported that a large battery production plant could create 7,000 jobs during construction and require 300 full-time jobs after start up.
- Energy storage is not considered an occupational field by the DOL.
- Storage Battery Tester description hasn’t been updated since 2001.
- Figure 2 is an actual job posting sent to SG in Aug 2017.
- There has been ZERO response for a $25-30/hr position.
- This journeyman does not currently exist.

![Figure 1: Schematic of generalized occupation categories for smartgrid technicians.](image)

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- Local grid and energy storage industry is growing rapidly, but the line workers and technicians of today do not possess the skill sets for these new jobs and this aging workforce is unlikely to undertake the training required to acquire these new skills.
- SFCC is a HSI that is 80% energy sovereign and has developed a new 2-yr Certificate in Electrical, Smart Grid and Micro Grid Technologies (22 hrs) embedded in the Engineering Technologies AAS degree.
- Courses have been developed in generation/transmission/distribution and management (ELEC 151, ELEC 201), but not in energy storage.
- Curriculum for an energy storage class developed during a summer faculty sabbatical at SNL for a 16-week class directed towards the 2-yr technical student is shown in Fig. 3.

![Figure 2: Job posting sent to SG in Aug 2017.](image)

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- Energy/Electricity/US Generation Mix/Trends
- North American Grid/Reliability/Security/Faults/Ideal grid
- Conservation/Efficiency/Line loss/HVDC transmission
- Energy Storage (overview and types of storage, details later)
- Microgrid/Intelligent overview (how storage makes it possible)
- "Local Grid" Workforce

- "Inside"  
  - SCADA Analyst
  - Cyber Analyst
  - Network Tech

- "Outside"  
  - Field Tech

Figure 3a. 16-week curriculum for Energy storage at the 2-yr technician level.

![Figure 3b: Example of 15' lecture modules for a single day’s lecture.](image)

Figure 3b. Example of 15’ lecture modules for a single day’s lecture. Modules are designed to be readily convertible to on-line courses.

This work was the result of a summer faculty sabbatical funded by Sandia National Laboratories to S.G.