The session started with networking, refreshments and introductions. We had 11 participants; some new to the SEI session and all had interesting and diverse backgrounds in the energy industry sector.

**Participants:**

1. **Chris Martin** (Independent)
2. **Mark King** (Independent)
3. **Jerry McFarlane** (Energy Management Systems) Sub- metering, measuring, future advisory consultants,
4. **Jim Lauckner** (CCEDC, SEI, HireOne)
5. **Tony Cotton**  (Energy Conscious LLC)
6. **Tom Timmins** (Energy Efficiency Solutions)
7. **Liz Hahn** (Pennoni and Greater Philadelphia Passive House Association)
8. **Theo Hunt** (Department of Commerce-Global Markets)
9. **Steve Krug** (Krug Architects, SEI Executive Committee)
10. **Katie Poppiti** (CCEDC, SEI, AgConnect)
11. **Nancy Kunkle** (CCEDC, SEI)

**I. Update on State Grant Training Funds**

The group reviewed the list of training courses that are eligible for reimbursement if state grant funds are made available. We encouraged the group to identify training of interest to them and their companies. We discussed the status of funding; noting that when funds are released, we have until June 30 to spend funds.

**II. SEI Event Updates**

We reviewed the list of upcoming SEI hosted events; notably the May 18th tour of the CCIU Brandywine Campus; the June 22 PECO Smart Ideas seminar; and the September 18 Saint-Gobain Tour. Detailed information can be found on the website [www.smartenergypa.org](http://www.smartenergypa.org), and via mailings if individuals are signed up for emails from SEI.

**III. Smart Grid/ Micro Grid Discussion.** We had a robust discussion around the smart grid, micro grid and nano grid needs and technologies. It was clear that the group was passionate about the topic either from the perspective of learning more and/or as a contributor to new technologies. The group continued to network and share ideas well after the session officially ended.

* Hand outs included: Micro Grid Infographic and a Smart Grid Primer
* Participants shared their own interest in the topic and projects on which they are currently working.
* Discussion included challenges, barriers and solutions to technology.
* Overview of Micro Grid was based on the info graphic; Steve Krug lead a discussion on supporting reasons to create the micro grid.
* Highlights of discussion are listed below
	+ Battery technologies
	+ Re-development opportunities for development, colleges, neighborhoods,
	+ National Security- DOD has gone to micro grids, national security issues and grids would go down and have no defense, backup power
	+ Los Angeles air force base, McGuire Air Force base, centered around Nissan Leaf, non-tactical vehicles, legislation, generally if somebody starts about electric grid, antidotes like “largest machine ever created” North America (3 grids) continental divide and taxes, 60 cycles in N. America
	+ The whole topic is a hugely complicated machine, legislative hurdles, entirely different, wholesale price of electricity at wholesale, PGM federally mandated
	+ Big changes in legislative front, [PUC (Public Utility Commission)](http://www.puc.pa.gov/), De-commissioning coal, power plants, fees could help
	+ Energy is regulated every hour, 100 MG generator, electricity rate is set by state, PA has competition, consumers can pick, PJM buys it to provide; although it is traded on an hourly basis as a commodity, the consumer rate is set once a month (essentially guessing once a month) set minimums on commercial properties
	+ PJM: Frequency regulation- alternating current, 60 currents per second,
	+ PUC oversees all regulations in PA for electricity
	+ Federal government ties wholesale price to retail price. As solar and mircogrides increase, the electric companies lose; the fixed fee on our electric bill is supposed to pay for improving the grid.
	+ You could buy electricity at 2AM and store it, large commercial can already do this but residences cannot
	+ Demand response and load shedding are essentially the same thing.
	+ Google is getting into micro-grids too
	+ PECO-SMART AC saver, $20 AC receiver credit, calculate energy costs…
	+ If we go nano grids/micro grids where will the lost tax revenue come from? Today customer sur-charge and fees are supposed to pay for maintenance for existing grid
	+ Transition steps- how to monetize it… package of equipment 10K-20K or more per resident, how are you going to make a financial viable,
	+ Prediction is wealthy will take care of themselves, middle class will deal with older grids, passing onto consumer
	+ Brazil is moving ahead with that but lax tax code, some kind of fee and taxing, de-coupling buzzword, as solar increases and microgrids, generation companies make less $$
	+ Co-op.- example from Steve Krug
	+ Last 8-10 yrs. Use of batteries, 100 mg of service either direction, $40/ mw, down to $20, recently PJM vs. utility, PJM responsible for keeping everything at 60 cycles, uses electricity off of grid to charge battery, too slow goes opposite direction, only way to run regulation service is net metering
	+ According to PA law net metering is only for solar, you are cheating or so says PJM… its not legislative, it’s just PJM
	+ What does that mean for the future? No one knows….
	+ Are they promoting some kind of aggregator for the net metering? New German model, residence talking to residence
		- Kempton? [Community solar concept](http://www.seia.org/policy/distributed-solar/shared-renewablescommunity-solar) - PA (not yet allowed) power purchase agreement legal, community solar is not in Pennsylvania
		- [Brooklyn- Micro-grid](http://brooklynmicrogrid.com/), panels
		- NYSERDA Grant? - so much interest in Brooklyn that is off of the ground: <http://www.nyserda.ny.gov/Funding-Opportunities>
		- Cornell- passive house city on island in NY, passive house conference in June in NY: <http://tech.cornell.edu/news/cornell-tech-announces-construction-of-first-passive-house-residential-high>
		- [Phipps Conservatory](https://phipps.conservatory.org/green-innovation/at-phipps/center-for-sustainable-landscapes/), LEED platinum building, sustainable sites, using well water, Energy Star
		- Under 8 yrs. ROI- much less, much better to have integrated system all at once to get best ROI
		- [Green leasing](http://www.greenleaselibrary.com/)- share back, tenant, more incentive for tenants.. can require changes

**IV. In their own words:** We wrapped up the session with a Round table Sharing on “what can be done?”; the group shared what they think the key obstacles and challenges are and the viable solutions

* Need for grass roots to build momentum e.g., solar, electric cars
* Challenges, research project funds, economics, converting heat pump, individual momentum, Tesla (400,000 orders) range awareness, charging stations, can get points
* Need for Regulation- group on Congress, how taxes can be derived to get legislation done and happening
* The DOE has efficiency projects that are funded for the first 3 years to incubate the technology; but after 3 yrs. they cut them loose, due to $ cuts. So how can we help incubators go from month 37 to success and not get scooped up by foreign investors? A lot of disruptive technology, increasing efficiency of bulbs to grids; we need to get a group of consultants together to help companies nationally, some are local, some are west coast, how can we find a centralized group or committee to get grounded in reality? The technology and regional companies are the future of energy in the US and we don’t want to them to fail.
* Ex, efficiency and technology, market is demand driven, hit the market, make some $$, and continue the technology development, could be mean partnering with innovation centers, architecture companies, because these companies are future of energy sector, where do you invest resources? Funds to get to next level so it may mean 6 months before get consultants to work from them
* Need for innovation center in SE PA.
* High-tech hub is Hawaii right now… everyone is watching them, fix a tech. problem with rates incentives
* We need rate incentive, solar needs to be repurposed and paired with electric vehicles and packs
* When you can offset gasoline with solar production, triple value solar proposition, putting them together will help them get through the market
* We need localized resiliency and nano grid level
* Energized early adopters, micro-grids made “sexy” where is the value? Or perceived value? Just think about Elon Musk and the “well healed early adopters” It’s all about perception, eg. The Tesla power wall.
* LEED does not necessarily mean efficiency and Energy efficiency doesn’t always mean LEED
* Micro-grid: battery plus PV, necessary for reducing carbon footprint, alleviate 2 problems at once, Greenworks Philly Reports, and Drexel reports, office of Greenworks
* What to do with the batteries? Make sure pieces are not obsolete; ITC covers solar but the batteries + solar are not included in ITC
* Lumin? cash system runs of CAT 5- lights DC port solar or battery can, new loads in houses are D.C.
* We must connect the dots: ultimately the problem is a systems issue, getting on systems functioning together
* It’s all about awareness on the waste of energy and what it costs us.
* Climate change has been so politicized; we have many infrastructure issues in our cities; micro grid legislation is needed.
* Drexel Univ commissioned reports are a good read – find on Phila.gov