

Backup for Discussion Item: “Initial discussion of setting objectives and policy for the Lake Worth Beach Electric Utility,” submitted by Commissioner McVoy.

Electric utilities around the world are experiencing great change, with competing pressures of maintaining revenues, advocating for consumers, and promoting environmental goals. Very rapid changes in technology, economics and the regulatory environment add to these pressures. The costs of energy generation from solar and wind are now comparable or cheaper than certain fossil fuels. Very significantly, the cost of grid-scale battery-based storage is also decreasing rapidly, offering new possibilities for enhancing end-user reliability and expanding the applicability of solar and wind. Lake Worth Beach, as owner and operator of a municipal utility which provides a significant financial contribution to our city budget, is feeling these pressures as well. As the City Commission, we have an important role to play in setting the objectives for our utility – objectives that will best benefit our residents in the broadest way and for the coming decades. The presentation today by Dr. Dan York, a national expert and Fellow of the American Council for an Energy-Efficient Economy, will provide a starting point for our discussions.

Glossary:

- ADR** - **Automated Demand Response** - Open Automated Demand Response (OpenADR) is a worldwide opensource standard for sending “fast, reliable and secure price and event messages to a wide variety of customer-installed equipment, such as building control systems, Zero Net Energy (ZNE) homes, smart thermostats, air conditioners, electric vehicle (EV) charging stations, water heaters, and advanced plug load controllers.” (solarbuildermag.com/news/openadr-alliance-tries-to-improve-demand-response-standards/).
- AMI** - **Advanced Metering Infrastructure** – the system we use in LWB to automatically and remotely read our electric “smart meters.” Some systems also support two-way communications, allowing information such as time-based pricing, demand-response actions or remote disconnects to be sent to the home or business.
- BESS** - **Battery Energy Storage Systems** – “an electrochemical device that collects energy from the grid or a power plant and then discharges that energy at a later time to provide electricity or other grid services when needed. Increasing needs for system flexibility, combined with rapid decreases in the costs of battery technology, have enabled BESS to play an increasing role in the power system in recent years. As prices for BESS continue to decline and the need for system flexibility increases with wind and solar deployment, more policymakers, regulators, and utilities are seeking to develop policies to jump-start BESS deployment.” (National Renewable Energy Laboratory; www.nrel.gov/docs/fy19osti/74426.pdf).

- CS** - **Community Solar** – “solar project in which the benefits flow to multiple customers such as individuals, businesses, nonprofits. Community solar customers can either buy or lease a portion of the solar panels in the array, and they typically receive an electric bill credit for electricity generated by their share of the community solar system—similar to someone who has rooftop panels installed on their home. ...can be a great option for people who are unable to install solar panels on their roofs because they don’t own their homes, have insufficient solar resources or roof conditions to support a rooftop PV system. Community solar is rapidly growing across the country. The National Renewable Energy Laboratory [tracks installation data on community solar](https://www.energy.gov/eere/solar/community-solar-basics).” (www.energy.gov/eere/solar/community-solar-basics).
- DR** - **Demand Response** – “Demand response provides an opportunity for consumers to play a significant role in the operation of the electric grid by reducing or shifting their electricity usage during peak periods in response to time-based rates or other forms of financial incentives. Demand response programs are being used by some electric system planners and operators as resource options for balancing supply and demand.” (U.S. Dept. of Energy; www.energy.gov/oe/activities/technology-development/grid-modernization-and-smart-grid/demand-response).
- DG** - **Distributed Generation** – “electricity generated from sources, often renewable energy sources, near the point of use instead of centralized generation sources from power plants. State and local governments can implement policies and programs regarding distributed generation and its use to help overcome market and regulatory barriers to implementation.” (U.S. Dept. of Energy; www.energy.gov/eere/slsc/renewable-energy-distributed-generation-policies-and-programs).
- DER** - **Distributed Energy Resources** – “Traditionally, DERs referred to small, geographically dispersed generation resources, such as solar or combined heat and power (CHP), located on the distribution system. Depending on their size and configuration, distributed energy generation resources could partially or completely offset consumer electrical demand. They could also feed surplus energy back into the distribution system or, in some cases, the transmission system. The definition of DERs has evolved to include not only generation resources, but also energy storage, energy efficiency and demand response resources.” (Federal Energy Regulation Commission; www.ferc.gov/sites/default/files/2020-05/der-report_0.pdf).
- DSM** - **Demand-Side Management** – See Load Management below.
- EE** - **Energy Efficiency** – “one of the easiest and most cost effective ways to combat climate change, clean the air we breathe, improve the competitiveness of our businesses and reduce energy costs for consumers.” (U.S. Dept. of Energy; www.energy.gov/eere/energy-efficiency).
- ES** - **Energy Storage** – technology for storing energy generated when the sun shines and the wind blows. See BESS above.

- LM** - **Load Management** (or “load control,” or “demand-side management”) – “is the process of balancing the supply of electricity on the network with the electrical load by adjusting or controlling the load rather than the power station output. ... Load management can also help reduce harmful emissions, since peaking plants or backup generators are often dirtier and less efficient than [base load power plants](#). ... In widespread use by 1948. The largest residential load control system in the world is found in Florida and is managed by FPL. It utilizes 800,000 load control transponders (LCTs) and controls 1,000 MW of electrical power (2,000 MW in an emergency). FPL has been able to avoid the construction of numerous new power plants due to their load management programs.”
(en.wikipedia.org/wiki/Load_management#Florida).
- LRAM** - **Lost Revenue Adjustment Mechanism** – “An LRAM is a rate adjustment mechanism that allows a utility to recover revenues that are reduced specifically as a result of energy efficiency programs.” (www.aceee.org/research-report/u1503#).
- NWAs** - **Non-wires Alternatives** (or “non-wires solutions”) – clean energy technologies used to address electric grid needs. They can include photovoltaics (PV), other types of renewable energy systems, energy efficiency and conservation, demand response, and energy storage. “Non-wires solutions can help the grid deliver electricity to homes and businesses when electricity demand is highest, sometimes at a lower cost than upgrading wires, transformers, and substations, the technique traditionally used to increase grid capacity.” (Rhode Island Dept. of Energy; <http://www.energy.ri.gov/policies-programs/programs-incentives/non-wires-solutions.php>). “They can be identified through least-cost planning and actions for managing electricity supply and demand using all means available and necessary, including demand response, distributed generation (DG), [energy efficiency](#), electricity and thermal storage, [load management](#), and rate design.”
(en.wikipedia.org/wiki/Non-wires_alternatives)
- - **Microgrids** – “A microgrid is a group of interconnected loads and distributed energy resources that acts as a single controllable entity with respect to the grid. It can connect and disconnect from the grid to operate in grid-connected or island mode. Microgrids can improve customer reliability and resilience to grid disturbances.” (National Renewable Energy Laboratory; www.nrel.gov/grid/microgrids.html).
- PPA** - **Purchase Power Agreement** – “a contractual agreement between energy buyers and sellers. They come together and agree to buy and sell an amount of energy which is or will be generated by a renewable asset. PPAs are usually signed for a long-term period between 10-20 years.”
- PV** - **Photovoltaic(s)** – solar panels that generate electricity from sunlight.

- RE** - **Renewable Energy** – “energy from sources that are naturally replenishing but flow-limited; renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Major types are biomass, hydropower, geothermal, wind and solar.” (www.eia.gov/energyexplained/renewable-sources).