BPU STRATEGIC INITATIVE

DATE APPROVED:	January 20, 2016
TITLE:	Strategic Policy for Electrical Energy Resources
Status Update:	August 22, 2019

The Board of Public Utilities adopted, as part of a strategic policy, the following resource recommendations adapted from the 7 July 2015 "Future Electrical Energy Resources" report:

1. The definition of "carbon-neutral electrical energy provider" adopted by the Board of Public Utilities on January 20, 2016 should accompany or be included in board's "carbon neutrality" goal.

Complete

2. Incorporate "environmental impact, specifically greenhouse gas production," as a factor to be considered in all resource decisions.

Environmental Impacts, including greenhouse gas production was considered in the Development of the Integrated Resource Plan.

3. Encourage more efficient use (conservation) of electrical energy by Los Alamos County consumers.

This effort is accomplished through a contractual agreement with the Pajarito Environmental Education Center. DPU Engineering provides quarterly updates to BPU.

4. Support replacement of petroleum-fueled motor vehicles with all-electric vehicles. Consider locating more electric vehicle charging stations around the County or at LANL.

In July of 2018, staff provided a recommendation on where to locate charging station around the community with an estimated cost for each location. At that time, DPU anticipated a grant opportunity from the NMED. In July 2019 the New Mexico Environment Department announced the application period for the second round of funding through the 2017 Volkswagen (VW) settlement is open. The application period is open through Nov. 15, 2019. DPU is in the process of completing the applications. NMED anticipates announcing projects selected for funding before the end of the calendar year.

Based on the grant application results, staff will return to BPU with a recommended project scope and budget with an anticipated schedule for construction in the 2nd and 3rd quarter of 2020.

DPU is working with Atomic City Transit on the installation of two electric bus charging stations at Pajarito Cliffs. DPU will also be purchasing an electric vehicle to replace Electric Production vehicle No. 1111 in FY2020.

5. Maintain and operate the Abiquiu and El Vado hydroelectric plants as the backbone of the Los Alamos County long-term future electrical supply.

Electric Production staff will continue to operate and maintain the Abiquiu and El Vado hydroelectric generating facilities as long as they are economically viable.

6. Plan to exit San Juan Generating Station share ownership in the mid-2020's, under the most opportune circumstances.

Los Alamos County notified the Public Service Company of New Mexico (Operator of the San Juan Generating Station) that Los Alamos will exit the station at the end of the current Project Participation Agreement in June of 2022.

7. Explore sale of the Laramie River Station purchased power agreement. Sell if and when economically feasible and consistent with the needs of the Electric Coordination Agreement Pool, considering the continued carbon production and increasing regulatory risks associated with that plant.

Electric Production staff continue to explore opportunities to exit the coal fired Laramie River Station or potentially swap the power generated with a firm renewable resource. Another option being evaluated is a Power Purchase Agreement for firm renewable energy leaving LRS available for contract negotiations with DOE-LANL to support their load forecast.

8. Continue to explore participation in the UAMPS nuclear power project as a replacement source of base power, carefully considering plant safety, realistic life-cycle costs, and potential for a cooperative power-sharing arrangement with DOE/LANL after 2025.

DPU continues to participate in the development of the Carbon Free Power Project. On July 17, 2019 the UAMPS Board of Directors adopted and approved a resolution declaring the Power Sales Contracts to be effective and to terminate the Study Phase Siting Agreement which was approved by BPU in August 2015 with a budget of $145,540.00 which included a 20% contingency. The Study Phase Siting Agreement was approved by the Operating Committee for the Electric Coordination Agreement to be shared approximately at 20% LAC and 80% DOE-LANL. FY2016 through FY2019 the Power Pool share of this phase was $128,643.32.

Most recently the Board and Council approved the Joint Use Module Plant (JUMP) resolution. The resolution increases the County's entitlement share by 2.974 MW, up to 10 MW for a total capacity interest of 10.974 MW to 18 MW. UAMPS will issue Schedule I to the Power Sales Contract showing the entitlement shares in the project on August 21, 2019.

The JUMP Resolution expressly identifies that each Participant signing up for a JUMP allocation will have the unilateral right to fully rescind or lower its JUMP allocation upon reviewing the final terms and conditions of the JUMP agreement (anticipated to be finalized in October 2019).

The ten year average generation from the Abiquiu and El Vado hydroelectric facilities, and the initial 8 MW allocation in the CFPP, is expected to generate approximately 128,000 MWh per year. Based on our most recent load forecast, LAC electric demand will be approximately 136,000 MWh per year in 2030 and approach 150,000 MWh in 2040. The additional 3 MW of capacity will help meet our current load projections in 2040 by supplying an additional 25,000 MWh annually.

These load projections do not account for the electric demand associated with the electrification of automobiles and the possible reduction in generation from the County Owned hydroelectric facilities due to operational changes.

UAMPS expects to exhaust the $6 million budgeted under the current phase of the project by November of this year. At this time an updated Budget and Plan of Finance will be approved by the Project Management Committee and the participants will have another opportunity to consider if the project is right for their community.

9. Pursue access (transfer or long-term lease) to suitable utility-scale photo-voltaic generation sites presently owned by DOE/LANL.

Prior to this initiative becoming a policy, the Operating Committee for the Electric Coordination Agreement had been exploring sites on DOE/LANL property. On August 12, 2015 the National Renewable Energy Laboratory (NREL) completed a DOE Los Alamos National Laboratory PV Feasibility Assessment. The study identified several areas of the Laboratory suitable for a solar array. DOE-LANL proceeded with the environmental review process and found cultural artifacts eliminating several of the preferred sites for development. DOE-LANL has pursued one site approximately 50 acres which has been previously disturbed making it the preferred site. The environmental review process has been completed. LANL's Utilities and Infrastructure division is awaiting for TRIAD to make the final decision on whether to proceed with the project. It was reported that the earliest commitment would push the project into calendar year 2020. The Operating Committee for the ECA is currently in discussion on a post-2025 contract and will consider how this project will be treated.

10. Monitor feasibility and costs for battery storage, including at least Li-ion and Vd-flow batteries.

DPU continues to monitor the feasibility and cost of Battery Energy Storage Systems (BESS). The Integrated resource plan analyzed the Vd-flow battery in conjunction with a solar PV resource. Staff continues to look at the options for firming a renewable resource with an emphasis towards a Power Purchase Agreement with a large utility scale project for the benefits associated with the economies of scale and third party firming.

11. Explore feasibility (including access to present DOE/LANL lands) and estimate costs of pumped hydro storage somewhere within Los Alamos County.

Staff has explored the cost of Pumped Storage assuming the land could be acquired from DOE and will present their findings at the August 2019 BPU meeting.

12. Evaluate feasibility, including market interest, for a community solar garden if bandwidth or other limits are not being approached by individual installations.

Staff is scheduled to present a Power Purchase Agreement for the 2nd MW at the closed landfill site in August of 2019. Staff has done some preliminary planning with the community solar garden concept. There are two primary reasons community solar gardens are attractive to interested participants. First; taking advantage of the economies of scale with a utility scale project over that of a residential installation, and second; is that many interested participants do not have a suitable site at their residence.

With the limited public land availability for Los Alamos County, currently the closed landfill was the only option for a utility scale solar project. Because of the landfill cap requirements, any solar PV array is the ballasted type. The capped landfill also has a methane extraction system which developers must consider in their design and operation of the array. For these reasons the cost per kilowatt hour is in the six cent range eliminating the lower cost typically seen with a 1 MW capacity solar array.

13. Explore current interest in a hydroelectric project at Cochiti Dam with the Pueblo.

Staff has not made any efforts with this initiative for several reasons. First; is respecting the wishes of the Cochiti Pueblo along with seven other pueblos who collectively went to congress after the Dam was constructed to make legislation to ensure that hydro would not be added at a later date. Second reason is the cost associated with building a new hydro facility relative to other options available to the County and third; the generation profile of a run-of-the-river plant does not match the County's load profile particularly when added to the Abiquiu and El Vado generation profiles.

With the wind and solar renewable options available today along with the progress made with BESS and the evolving markets associated with large utility scale projects, staff recommends this initiative be tabled to a later time.

BPU STRATEGIC INITATIVE

DATE APPROVED:	March 16, 2016
TITLE:	Strategic Policy for Distributed Energy Resources (DER) and Rate Structure
Status Update:	August 22, 2019

The Board of Public Utilities adopted, as part of a strategic policy, the following recommendations from the 7 July 2015 "Future Electrical Energy Resources" report:

1. Complete smart meter implementation for all customers.

The BPU approved the AMI project in September 2018. The contract allows for an 18 month implementation period. Staff is currently working with the AMI contractor (Ferguson) and Tyler Munis to coordinate the interface between the AMI and DPU's billing system. Staff is working closely with Tyler Munis to see if the upgrade to version 19 will have an impact on the data interface. If it is determined to wait until after the Munis upgrade, Ferguson will not mobilize until the first quarter of 2020. In the meantime, Ferguson is working on finalizing the propagation study for Town site and White Rock. The materials for the base stations (repeaters) are scheduled to be delivered mid-August 2019 at which time DPU Electric Distribution crews can begin setting the base stations per the propagation study results. It is anticipated that Ferguson will begin work after the upgrade so they only need to mobilize once. Ferguson earliest project completion is 6 months after mobilization.

2. Develop an engineering model of the distribution system that will indicate how much DER generation can safely be absorbed.

The electric distribution modeling efforts have not progressed since the Deputy Utilities Manager for Electric Distribution resigned in January 2019. The department has been unsuccessful filling this position. This position is being advertised for the second time and will close August 29, 2019. Modeling will resume shortly after we are fully staffed. Based on the rate of roof top solar installations there are no immediate concerns for power quality issues on any of the feeders related to solar installations.

3. Complete studies to determine how much DER generation can be tolerated before causing an unacceptable number of bandwidth exceedances.

4. Establish limits, based on DER generation absorption and bandwidth exceedance considerations, on how much DER generation can be tolerated in the system. Update these limits as necessary. Make it clear that permit issuance will be suspended once those limits have been reached pending expansion of system tolerance of increased DER generation.

Items 3 and 4 are closely related and best considered together, even though implementation will be a multi-step initiative.

DPU staff coordinated with DOE-LANL on a grant opportunity funded through the New Mexico Small Business Association (NMSBA) on Solar PV Firming Options for Los Alamos County. The study was completed November 16, 2016 for Positive Energy Solar who shared the results with the County. The report concluded agile operations of the landfill battery can reduce the risk of regulation bandwidth exceedances up to 5,400 kW of installed solar PV capacity. The report concluded 244 exceedances could potentially occur, but firming actions could reduce this risk to 4 exceedances related to roof-top solar intermittency annually.

Currently there is 1 MW of Utility Scale solar PV with a total of 777.5 kW of roof-top solar in service or under construction. Power operations manages the intermittency using ancillary service Schedule 3 (+/- 2 MW bandwidth) from the Public Service Company of New Mexico and as needed by manually calling on the BESS. When DPU moves forward with the 2nd MW at the landfill the combined installed capacity of solar will be approximately 50% of the 5,400 kW identified in the study. Staff will continue to monitor bandwidth exceedances and take the necessary steps to mitigate the problem.

5. Require smart inverters (at least “Phase 1”) on new DER systems as they become available. After smart inverters are available, all DER system inverter replacements should be of the smart type.

The requirement for smart inverters (Phase 1) has been incorporated in the Application for Operation of Customer-Owned Generation and DPU Construction Standards. The Phase 1 smart inverters comply with the testing protocols of UL 1741-SA. (voltage and frequency ride-through, soft start reconnection, ramp rate controls, fixed power factor, dynamic Volt-VAR management, and updated anti-islanding requirements).

Staff is currently monitoring the industry development of advanced inverter functions such as standards for communication requirements, data monitoring, remote connection and disconnection and maximum power controls and will modify the permit application and construction standards to reflect these requirements as they mature.

6. Make it clear in DER installation permits that rates and rate structures are not guaranteed to any point in the future.

DPU needs to confirm with the County Attorney if this language belongs in the Application for Operations of Customer-owned Generation, DPU Rules and Regulation, Electric Rule E-5 or in the rate ordinance adopted by Board and Council.

7. Determine whether utility-scale, circuit, or neighborhood scale DER storage, or combination(s) of these approaches make the most sense technically and economically for firming DER generation. Take that determination into account in any rate structure.

This initiative has not been explored in detail since it’s not currently an issue for LAC and BESS are currently not an economical resource for firming intermittent resources. Staff will continue to monitor the development and economics of battery storage both at the utility scale and residential level.

8. For large customers, require or encourage (via rates) that at least large loads be dispatchable. County government and the Department of Public Utilities can and should lead by example.

9. For large DER producers, require or encourage (via rates) dispatchable storage and generation and Phase 2 or 3 inverters as they become available. The County government and the Department of Public Utilities can and should lead by example.

These two items (8 – 9 above), are all closely related and need to be considered together, even though implementation will be a multi-step initiative.

To have dispatchable loads, Power Operations will required partial control of the customers energy demand such as HVAC, EV charging, utility pumping loads etc. This will require mutually agreed upon terms and conditions for curtailing load.

At the January 17, 2018 BPU meeting staff recommended waiting at least two years before revisiting this initiative based on the cost of implementing a Distributed Energy Resource Management System. Staff believe this initiative is still several years away from being practical for LAC.

10. All DPU customers (DER and non-DER) should be charged the same appropriate rate(s) for all services and energy (not just net energy) supplied by the utility.
11. Implement Time-of-Use pricing for both consumption and generation once smart meters are available to do so.
12. DER producers should be paid for the power they supply to the utility based on at least the average estimated avoided cost for the time period in which it is supplied. The rate(s) should reflect whether the power is firm and whether it is dispatchable.
13. Consider whether or not a non-economic Value-of-Solar Tariff should be a part of the reimbursement rate structure for DER generation and how it should be phased out as solar benefits relative to other non-carbon sources decline.

These four items (10 – 13 above), are all closely related and need to be considered together, even though implementation will be a multi-step initiative.

The Utilities Department plan is to devise and implement appropriate rate structures addressing time of use options, appropriate compensation to the Utility for customer connection to the power distribution system, energy consumption, and customer service or connection charges (“unbundling of rates”), and appropriate compensation to distributed energy producers for excess energy produced and fed back into the power grid. Rate options and implementation has been under consideration and adoption/implementation is planned to coincide with deployment and implementation of our Advanced Metering initiative.