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Net Metered, Interconnected PV Review Challenges –

The growth of solar photovoltaic (PV) systems in LPEA's service territory is creating a variety of challenges. Often these challenges are tied to the size of a proposed system and their location on the grid. There is not a "one-size-fits-all" solution because the electrical grid differs at each location and is always dynamic in its behavior.

The review process for a proposed PV system is very comprehensive. LPEA's engineers model each proposed system in the grid, taking into account the minimum loading that is experienced during the day as well as the other PV systems already online. From this model LPEA then examines how the proposed PV system impacts the grid and how the grid would respond to the new PV system. If LPEA's engineers determine that there will be an issue, they develop a solution set for the member to consider. This information is presented to the member and their PV installer.

At this time, LPEA has noted the following set of challenges and solutions:

- Too large of a system/reduction in the size of the proposed PV array: The generation needs to match the local load. The further the energy has to "travel" down the power lines to find a load to serve, the greater the challenge due to voltage rise.
- High voltage/dedicated secondary: Most PV systems will increase the voltage on the secondary so that the voltage drop across the secondary will match the grid voltage at the transformer or just beyond. In the case where there are other members on the secondary (such as most Durango town circuits), this voltage rise impacts them in addition to the other members. By moving the PV system to a dedicated secondary, this eliminates the impact of the voltage rise to neighboring meters.
- Transformer is too small: LPEA has had a few requests for proposed systems where the array is larger than the load and requires a larger transformer than what was installed for the facility. A larger transformer must be installed in these cases.
- Local area PV saturation: LPEA is starting to have areas where there already is too much generation installed compared to the load. In these cases, additional base load in some form, such as a battery system at the PV site, must be installed or developed.
- Voltage already is at upper limits: On parts of LPEA's system the voltage already sits at the upper end of the voltage limits. Typically, these are areas where the system has a long underground cable with basically no load. Without energy flow, the cable actually raises the voltage instead of dropping it. Once there is some energy flow the voltage drops. This also requires an increase in base load.