



MEMORANDUM

DATE: February 25, 2021
TO: Adam Norris, Acting City Manager
FROM: Jim Nail, Director – Power & Light
SUBJECT: FAQs – Generation and Winter Storm Event

1. **Overview of where we are today: Where does our power come from?**

Independence is a member of the Southwest Power Pool (SPP) Integrated Market. All energy supplied to Independence customers is purchased from the SPP Market. In return, Independence's generation assets sell energy to SPP when called upon. Independence's generation assets include six (6) wholly owned Combustion turbines, an ownership share of the Dogwood Generating Facility in Pleasant Hill, MO, and power purchase agreements with the Iatan and Nebraska City power plants, and two wind farms. Power generated from two solar energy sites in Independence is used to reduce our overall demand.

2. **Overview of how we got here: Key findings of the Energy Master Plan.**

Independence has a diverse portfolio of assets which has served the city well. The Blue Valley Plant was evaluated as at the end of its economic life and considered for shutdown. The six combustion turbines are near the end of their economically useful life. The turbines were evaluated in 2019 as having 5-10 years of use with minimal maintenance costs. The turbines useful life could be extended to 20 years or more, but would incur large expenses for required maintenance. At a minimum, Independence should pursue options for replacing the capacity of the turbines in order to meet our obligations to SPP.

3. **Overview of how SPP works.**

SPP is a cooperative pool of utilities across 14 states. SPP assumes responsibility for meeting federal regulations for balancing power across the region – ensuring that power generated matches power being consumed. SPP directs the operation of all the generating facilities of its members, scheduling the most economic resources across all periods of the day, and calling on additional generation as needed to meet demand. By doing so, SPP is able to supply power to its members at lower cost than if each member was purchasing that power on their own.

4. **Review of the past week and how things played out including cost items:**

The winter storms and extreme cold temperatures across the Midwest greatly impacted utility operations this week. Low wind speeds reduced the output of the wind farms. Snow and overcast skies impacted solar energy facilities. Cold temperatures froze air and water lines in multiple facilities. Also, very high demand for natural gas for fuel and for heating, as well as frozen valves and controls, limited

the availability of fuel for generating facilities which use natural gas for fuel. The combined effects of all of these factors resulted in SPP declaring an Energy Emergency across the region, with the risk that generating facilities would not be able to meet the demand for power. All members were directed to maximize energy generation, however operating costs were many times normal due to large increases in the cost of both natural gas and diesel fuel. During periods where sufficient generation was not available, SPP directed all members to shed load, temporary outages, to protect the system from more catastrophic losses.

5. What building a plant and going it alone would mean:

As a member of SPP, adding additional generating facilities would not eliminate Independence's obligation to shed load in a declared emergency. All members work together to protect the stability of the electric grid. Adding additional facilities and becoming an independent operator would not eliminate the risks of fuel supply shortages but would take away the mutual support that Independence receives from SPP and would also force us to purchase any additional energy needed from the open market, which was over 100 times normal during the crisis, and often not even available for purchase.

6. Revenue, costs and opportunities

Additional generation would have added opportunity for significant revenue. However, due to the rapidly changing prices for fuel, there were also periods where operating costs exceeded the sales price. The total impact of the high costs versus energy prices is yet to be determined. Due to the shortage of both natural gas and diesel fuel, it is not certain that additional generation facilities would have been able to operate.

7. Where we get power and how this storm impacted it

If Independence owned additional shares of Dogwood would we have had more energy for our customers? As a member of SPP we get all of our energy from the pooled generation assets, not directly from our own resources. The contract with ONETA is not for energy but only to meet capacity obligations with SPP. However, it should be noted that both ONETA and the Dogwood facility were unable to operate due to the problems with the gas supply.

8. What is the difference between Baseload and Peaking generation facilities?

In general, generation facilities designated as Baseload are designed to operate for long periods of time to meet the nominal energy demands from day to day. They are most efficient when operated in this manner. Peaking units are designed to start quickly, increase/decrease output quickly, and be able to run intermittently without losing efficiency. Peaking units are utilized to meet short-term spikes in energy demand or to fill the gap when other units are unexpectedly taken off-line.

9. What caused these outages?

The severe cold, fuel shortages, and soaring costs impacted generation facilities of all types.

10. Why were some outages longer than the 20-30 minute windows provided to our customers?

In addition to the temporary outages that were directed by SPP, there were also the typical accidents and equipment failures that we would expect to see during a winter storm. IPL repair crews responded through the crisis to make necessary repairs as quickly as possible.

11. How do we notify customers of outages in these situations?

SPP initiated their Energy Emergency protocols early in the weekend. Level 1 and Level 2 indicate increasing risk of demand exceeding generation resources. These announcements were published through various means the crisis. The Level 2

announcement includes information that the system is at risk of requiring Load Shedding. When SPP declares a Level 3 Emergency, there is no advance warning. They are responding to real-time conditions in the electric grid and taking necessary steps to prevent a region wide loss of power. Independence's System Operators must respond to those directions also in real-time, with no time available to notify hundreds of residents of the outage that is being initiated.

12. How do our emergency plans prepare for events like this? How do we evaluate these plans after an event?

Independence, SPP and all member utilities have emergency plans directing contingency actions in these events. These plans include directions to maximize generation capability to the extent possible prior to reaching a Level 3 condition. The plans also include the step of making public appeals to voluntarily reduce power consumption. Working together with SPP, we maximize our ability to balance demand and generation across the region rather than each utility trying to manage limited resources on their own.

13. How will the growth of electric cars impact local power grids and the SPP as a whole? Electric vehicles will introduce additional demand for power, but only when they are plugged in to recharge. Educating the public to charge the vehicles during periods of low demand will help to minimize any impact on the system.

14. How will the costs of this event impact customers in our area?

Utility rates are based on normally expected operating costs. When costs increase dramatically or unexpectedly as in this past week, utilities are allowed to adjust rates to recover those costs. This is referred to as a Fuel Cost Adjustment or Power Cost Adjustment. Utilities throughout our region are working closely with SPP to determine what those costs are and to ensure equitable compensation for our contributions to the energy supply.

15. Would additional generation protect Independence residents from blackouts?

During the Energy Emergency, SPP ordered Load Shedding by all member utilities. This was a necessary step to prevent widespread failure of the Transmission & Distribution system throughout the region. As a participating member of SPP, Independence was obligated to shed our portion of the energy imbalance regardless of how much power Independence generation assets were producing. If the Emergency conditions worsened and resulted in the collapse of service across a large area, referred to as a Blackout, that triggers a completely different set of emergency responses in order to restore the regional grid. In that scenario, Independence generation assets internal to the Independence service territory would be started up independent of SPP and begin restoring limited service to Independence customers while waiting for interconnections to be restored with our neighboring utilities.