MEMORANDUM

Date: March 6, 2020

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Pima County Consolidated Energy Concerns**

The University of Arizona and Tucson Electric Power (TEP) recently announced a significant renewable energy agreement whereby a portion of the energy generated from upcoming TEP community scale renewable wind and solar projects will be allocated to the University to aid them in achieving their clean energy goals. I met with Mr. Bob Smith, Vice President for University Planning, Design and Operations, to learn more about this agreement and it was suggested that the County develop a list of our energy concerns related to County operations as a way to begin a similar discussion with TEP. Attached is a consolidated list of County energy concerns. These include:

- Board mandates to reduce greenhouse gas emissions from County operations in line with the US Commitment to the Paris Climate agreement;
- The need to reduce ground-level ozone air pollution to protect public health and avoid unnecessary regulatory impacts to business relocations and expansions;
- Cost control;
- Reliability;
- Permitting and building code requirements;
- Communication.

As you are aware, Pima County has been participating as an intervener in the TEP rate case before the Arizona Corporation Commission. The public comment and evidentiary hearings before the Commission's Administrative Law Judge concluded last month. The Judge who provides a recommendation to the Commission requested additional testimony from Commission staff. I will update the Board on the TEP rate case as it stands after this last testimony is heard. A recommendation by the Judge may occur by mid-summer, with subsequent Commission decision by the fall.

In addition to the rate case, I have been representing the County on TEPs Integrated Resource Plan (IRP) Advisory Council. The IRP is a 15-year plan required by the Commission that identifies the mix of energy resources TEP will use to meet demand. By the end of this calendar year, TEP will double the scale of their renewable wind and solar resources. This investment, plus a diminishing use of coal resources, means they anticipate reducing greenhouse gas emissions 33 percent from 2005 levels, by 2021. As the County's main

energy utility, this could aid the County in substantially attaining Board mandates to similarly reduce greenhouse gas emissions. I will continue to advocate on TEP's Advisory Council for additional renewables beyond those already planned, locally sited renewables on State Trust land within the Davis-Monthan Approach/Departure Corridor, and additional TEP incentives to accelerate electric vehicle adoption to reduce ground-level ozone air pollution. The final IRP must be filed with the Commission by June 2020.

I have also directed staff to share our concerns with the City of Tucson as the City has a similar total energy demand and common goals in several areas.

CHH/lab

Attachment

c: Jan Lesher, Chief Deputy County Administrator
Carmine DeBonis, Jr., Deputy County Administrator for Public Works

MEMORANDUM

Date: February 28, 2020

To: C.H. Huckelberry
County Administrator

From: Nicole Fyffe
Executive Assistant to the
County Administrator

Re: **REVISED - Pima County Consolidated Energy Concerns**

Attached is a list of Pima County energy related concerns that may aid Tucson Electric Power (TEP) and Pima County in developing a renewable energy contract, or may serve to improve upon partnerships in other areas. The list was developed primarily by Patrick O'Leary, Pima County's Energy Manager, with input from departments. The majority of these items fall within the following topic areas:

Reduce Greenhouse Gas Emissions and Improve Air Quality

The Pima County Board of Supervisors has mandated the reduction of carbon emissions from County facilities by 50 percent as measured between 2018 and 2025. TEP is Pima County's largest energy provider. Pima County may largely achieve this mandate by way of TEP's investments in community scale renewable solar and wind projects planned to be on line by the end of 2020. To determine this, TEP staff are in the process of estimating TEP's Scope 2 emissions for Pima County for 2021. In addition, we would like to discuss how else TEP can assist Pima County in achieving this mandate. Opportunities to shift energy demand off peak to better take advantage of solar and wind over generation may also be a worthwhile discussion, as well as energy storage.

Pima County is very close to exceeding the federal air quality standard for ozone. Increased ozone pollution can make breathing more difficult for those with asthma and other lung and airway diseases, and can lead to increased hospitalization. Exceeding the federal air quality standard can also lead to costly regulatory mitigation requirements. Since the largest contributors to increased ozone pollution are cars, trucks and other gas burning vehicles, TEP is uniquely situated to assist our community in transitioning to more electric vehicles (EV). We would like to see TEP's Integrated Resource Plan better reflect an increased investment in improving access to EV charging infrastructure and other incentives. Pima County's Fleet Services and Facilities Management are working on a EV pilot project with TEP. We recommend also discussing additional ways we can collaborate to move more quickly on this issue.

Cost Control or Reduction

As you know, TEP's rate case is currently before the Arizona Corporation Commission (ACC) and Pima County is actively involved as an intervener. Even after the rates are approved there should be opportunities to continually assess how we can reduce energy costs, better forecast costs for the purposes of annual budgeting, and improve energy efficiency. In addition, the Regional Wastewater Reclamation Department (RWRD) is currently negotiating a short-term contract to sell methane to Southwest Gas as the value to the County of selling the gas is currently greater than using it internally. For the longer-term, however, RWRD and Facilities Management will be evaluating the significance of this resource and its ability to contribute to internal RWRD/County energy needs.

Reliability

Reliability of power supply at Tres Rios Wastewater Reclamation Facility, primarily, but also at a few other sites, continues to be an issue. At Tres Rios, power outages have major operational impacts. We need TEP to work with us to address this issue, especially as they continue to tout reliability as their key strength.

Permitting and Building Code Requirements

Pima County's Development Services Department (DSD) is concerned about TEP's energy efficiency program and an apparent lack of permitting requirements for certain energy efficiency installs. DSD also has recommendations to improve the proposed battery storage program.

Communication

Pima County is a large organization with dispersed facilities and new facilities coming on line regularly. TEP has several departments with a variety of personnel communicating on separate issues with County personnel. Communication could be improved if coordinated through one point of contact for the County and TEP. We recommend that Pima County Energy Manager Patrick O'Leary be the main point of contact for the County. This is not to say other County staff should not contact TEP directly, but coordination with Mr. O'Leary would be helpful, especially as we try to find common solutions to a variety of energy related issues.

Please let us know if this list is sufficient to begin a more comprehensive conversation with TEP regarding our energy issues. As you heard from the University of Arizona (UA), their relationship with TEP has greatly improved as a result of their new renewable energy agreement that also addressed a number of other energy related issues – so much so that UA saw no need to intervene in the current rate case. TEP's recent past and current rate

cases before the ACC have garnered a significant amount of public backlash. Much of the outcry has focused on TEP's perceived weak commitment to cutting carbon emissions and addressing the core challenges of climate change. A substantial renewable energy contract between TEP and Pima County could ease public concerns in this regard, much in the way that the TEP-UA contract and the recent announcement by Arizona Public Service to deliver 100 percent clean energy by 2050 have generated positive media coverage and strong support from an array of stakeholders.

NF/dr

Attachment

c: Jan Lesher, Chief Deputy County Administrator
Carmine DeBonis, Deputy County Administrator for Public Works
Yves Khawam, PhD, Assistant County Administrator for Public Works
Jackson Jenkins, Director, Regional Wastewater Reclamation Department
Lisa Josker, Director, Facilities Management
Ursula Nelson, Director, Environmental Quality
Linda Mayro, Director, Office of Sustainability and Conservation
Ray Ochotorena, Director, Fleet Services
Patrick O'Leary, Energy Manager, Facilities Management
Julie Robinson, Manager of Sustainability Programs, Office of Sustainability and Conservation
Diana Durazo, Special Projects Manager, County Administrator's Office
Sandi Garrick, Utility Liaison, Public Works Administration

PIMA COUNTY CONSOLIDATED ENERGY CONCERNS

Pima County's total typical TEP energy use is about 120,000,000 kWh per year for all rate classes. Demand for LPS, LGS, and MGS rates is approximately 20,000 kW. Demand for other rates is unknown as the data is not provided by TEP in billing files and not complete or downloadable on TEP's website. Pima County continues growth in building and other facility inventory to meet constituent demand. New libraries, service centers, and specialty buildings are under construction or under development.

No.	Department or General	Item	Status / Ideas
1.	OSC/General	Sustainable Action Plan for County Operations (SAPCO)	Board of Supervisors mandated Sustainable Action Plan FY 2018-2025 requires County to reduce projected 2025 carbon emissions from County facilities 50% by 2025 (reduce by 78,832 MtCo2e or below, assumes 2% increase in annual emissions from growth based on historical trends, TEP emission factor used in calculating target). • County uses TEP's emission factor in our annual GHG calculations. • The fastest and most cost-effective way for the County to meet its GHG target would be through TEP reducing its carbon emissions through increasing renewables in its portfolio. • County's options to increase solar on rooftops and parking structures is constrained by space limitations and some site specific costs • The clock is ticking in terms of the County meeting its carbon goals for the Paris Agreement commitment (by 2025 or within five years).
2.	DEQ	Air Quality	County is very close to the federal air quality standard for ozone. Reductions in emissions leading to ozone formation are important in order to ensure public health and environmental protection. Since most of our air pollution comes from cars and trucks, actions that promote the use of lower emitting vehicles such as electric

			vehicles will benefit the health of our community. This includes the installation of charging stations to encourage EV purchase and use.
3.	General	Solar PV Adding Solar PV to existing and new construction sites	a. Locations for Solar PV are limited in the downtown area. Public Service Center (completed) and Public Works Garage (re-bid) are only two available areas with adjacent load to serve. b. Currently evaluating 10+ sites for next bid process. c. TEP review process is contractor driven, have not received positive feedback to make owner centric for County
4.	General	Solar PV DMAFB Corridor	a. County has been lobbying the AZ State Land Department to incentivize a portion of the thousands of acres within the Davis-Monthan AFB (DMAFB) Approach/Departure Corridor (ADC) to attract utility scale solar energy production as solar farms are a compatible use within the ADC. b. County owns over 350 acres within the DMAFB ADC, which were acquired to prevent urban encroachment on the base. As part of the current DM REPI program the County has partnered on, these County lands are being used as match for the REPI grant awarded to DM. While we are placing restrictive easements on these lands, some will allow potential solar facilities onsite.
5.	General	Load shifting use to off peak times	a. Thermal (ice)or battery storage type systems b. Landlocked for space in applications where sufficient demand / load exists but need room for storage equipment. c. Juvenile Court Complex, Main Jail, Government Complex, Public Service Center. d. Battery storage for solar PV or general application (night time

<table>
<tr><td></td><td></td><td></td><td>charging) for day use requires space and is cost challenging</td></tr>
<tr><td>6.</td><td>General</td><td>EV Infrastructure

County and public use

Currently have 51 compact EVs deployed.

Electrification of the County fleet will begin with the replacement of approximately 105 gasoline powered compact
vehicles. After the compact vehicles, the focus will be on 1/2-ton pick-up trucks. Pima County currently has 154 1/2-ton
pick-up trucks in the fleet. The replacement schedule for the trucks is based on the tentative release date of the electric
truck model from the manufacture.

<table><tr><th colspan="3">Electric Vehicle Replacement Schedule</th></tr><tr><th>Fiscal Year</th><th>Compact</th><th>½ Ton Truck</th></tr><tr><td>2020</td><td>26</td><td>0</td></tr><tr><td>2021</td><td>30</td><td>20</td></tr><tr><td>2022</td><td>30</td><td>30</td></tr><tr><td>2023</td><td>19</td><td>30</td></tr><tr><td>2024</td><td>0</td><td>40</td></tr><tr><td>2025</td><td>0</td><td>34</td></tr></table></td><td>a. County is planning on building out EV charging infrastructure for County vehicles (Level 2 and Level 3). Locations where there are larger number of EVs currently stored (Fleet, Government Complex, Public Service Center, Public Works Building, Abrams) have been prioritized. There are some smaller sites with one or two chargers (WW) where there is capacity at the site and a secure location to install.
b. Many sites are either limited in electrical capacity for any EV charger installation or are limited to Level 2 chargers (120/230 Volt service). Level 3/Fast chargers are 480V minimum service.
c. Need to consider public use of EV chargers & where appropriate, who owns, and how service & cost (separate from County) are provided.
d. TEP has ‘admitted’ us to their Pilot EV Program but is lacking on details of rebates for chargers we purchase that need to meet their communication requirements.</td></tr>
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		Pima County Electric Vehicle Fleet	

Year	Make	Model	Charging Connection	Count
2017	Nissan	Leaf	Level 2	2
2018	Chevy	Bolt	Level 2	20
2019	Chevy	Bolt	Level 2	20
2020	Chevy	Bolt	Level 3	23
			Total	**65**

7.	General	TEP Rate Case	a. TEP's rate case is currently before the Commission, increases are for all rate classes from 4% at the WW treatment plants to 8.7% residential. Final numbers may change a little bit. b. The Commission ordered TEP to create a buy-through program with customer aggregation, but TEP originally excluded County from the program, revised proposal is not clear how much of County consumption qualifies or if we could participate based on program size and possible lottery to participate.
8.	RWRD	Rates – Note: TEP current rate case is in review by ACC. TEP will not predict any specific future rate change impacts outside of a rate case.	Provide a detailed list of how each rate/tariff will be impacted by current and future rate changes (specifically for our large RWRD accounts). This is important information as we try to budget energy/electricity each fiscal year.
9.	RWRD	Rates	Assistance at helping determine the likely best tariff for each of our current meters and/or recommendation on how to improve electrical costs for our utility.
10.	NRPR	Sports Park at Ina	300+kw demand, moving from small general service rate to Large General Service rate based on demand from ball park lighting. Went from $32 monthly fee and $0 demand charge to $40 monthly fee on MGS and averages $1700/mo in demand charges.

			TEP has indicated based on demand this site will move to the LGS rate at $950 monthly fee and approximately $6,000 in demand charges. Initial estimate of $2.1 million to replace all site lighting with LEDs
11.	NRPR / Kino Sports District	Lighting driven loads	General concern for facilities with a large lighting design & appropriate rate structure. Unlike street lighting ball field or event lighting is not dusk-to-dawn on a daily basis and can fall into SGS, MGS, or LGS rate classes based on usage & demand.
12.	DOT	Street Lighting Conversion	DOT recently created a 3-year plan to convert the remaining 1250 street lights from HPS or MH to LED.
13.	RWRD	Tres Rios methane processing	RWRD is currently negotiating a short-term contract to sell methane to SW gas. REC value for selling gas is currently greater value than using internally. For the longer term, RWRD and FM will evaluate the significance of this resource and its ability to meet internal RWRD/County energy needs.
14.	RWRD	Tres Rios consumption and demand, on peak/off peak	Annual cost is currently about $2,770,000 per year with about 34,000,000 kWh consumed. Typical max demand is during off peak hours. On peak demand average is roughly 4,800 kW (4.8 MW), off peak demand average is roughly 5,080 kW (5.1 MW).
15.	RWRD	Tres Rios power quality/supply In the event of a power loss on one feeder TEP switches power from one feeder to another. The switching is not instantaneous and can leave Tres Rios without power for up to 2 hours or more. What can TEP do to improve upon the switching from one sub-station to the other (I believe one is DeMoss-Petrie and the other is Twin Peaks) with regard to feeding the	Have had multiple power spikes that have taken out equipment at the site. Averaging about one full outage per year now. The problem in the past three years have been disturbance on the industrial feeder circuit (46kV) that have disrupted the plant's rotating equipment. These disturbances may be due to bird strikes, substation switches, etc. Three such disturbances due to voltage sag have occurred since the first of the year. Restarting

		electrical leg coming into the Tres Rios WRF? Ideally, we would like such a switch to occur seamlessly and automatically when power is lost from whichever one is feeding our leg. However, even improved switching BMPs and SCADA monitoring could reduce the switching delays which can sometimes exceed two hours or more.	Tres Rios after a power outage is a hectic, all-hands on deck type of event; especially, if it isn't just a brief power bump. We purposely didn't include emergency backup generators in the Tres Rios WRF ROMP because we were under the impression that the TEP 46kv loop that feeds the electrical leg to Tres Rios did not need such generators because the 46 kv loop could be fed from either direction (DeMoss-Petrie/ North Loop-Twin Peaks). However, the two source substations do not act like backup generators by replacing power almost immediately, but rather over some potential longer time period (up to two hours) after TEP recognizes the outage and the usually performs a field check. The longer the power outage, the more sewage gets diverted to emergency overflow basins (EOBs) which then requires additional work to empty the EOBs and additional odor control activities.
16.	RWRD	Agua Nueva consumption and demand, on peak/off peak	Annual cost is currently about $1,550,000 per year with about 18,000,000 kWh consumed. Typical max demand is during off peak hours. On peak minimum demand per contract is 3,000 kW (3.0 MW), off peak demand average is roughly 2,800 kW (2.8 MW) with an occasional max of 3.1 MW.
17.	RWRD	Agua Nueva power quality	Have had multiple power spikes that have taken out equipment at the site
18.	KSD	Kino Sports District	Historically has had bad power at the facilities. May have been coal related but will keep an eye on with the conversion to RICE units.
19.	FM / Kino Sports District	AJO WAY CORRIDOR	Have had multiple power spikes that have taken out equipment at various sites along ajo way
20.	FM	Main Jail consumption and demand, on peak/off peak	Annual cost is currently about $947,000 per year with about 8,640,000 kWh consumed.

			Typical max demand is during off peak hours. On peak minimum demand is about 630 kW (0.6 MW), 450 kW (0.45 MW), and 275 kW (0.275 MW) for a total of 1,355 kW (1.35 MW) for the 3 main meters. Off peak demand average for the one meter TEP provides data for is roughly 463 kW (0.463 MW) with an occasional max of 0.633 MW.
21.	FM	Main Jail power quality	Have had multiple power spikes that have taken out equipment at the site
22.	FM	Public Service Center	Annual cost is currently about $470,000 per year with about 3,100,000 kWh consumed. Typical max demand is during off peak hours. On peak demand average is roughly 694 kW (0.69 MW) with a max of 0.95 MW, off peak demand average is roughly 700 kW (0.7 MW) but data is not consistently provided by TEP.
23.	FM	Downtown Energy District	Long term plan to connect chilled water loop from Government Complex to PSC. Have already connected 33 N Stone and LSB to main Central Plant.
24.	FM	Downtown Government Complex	a. Power quality and supply issues, had recent low-amp supply where fan coil units were not able to provide heating in some areas of the complex. b. One point of service (Central Plant) for the Central Plant, Admin West (including NOC), Admin East, Superior Courts, El Presidio Garage, and the Historic Courthouse. Power loss and power quality affect all buildings. c. NOC is powered through the Central Plant. Loss of power for an extended period of time will disable NOC operations. d. Annual cost is currently about $1,200,000 per year with about 10,100,000 kWh consumed. Typical max demand is during off peak hours. On peak

			demand average is roughly 2,200 kW (2.2 MW) with a max of 2.4 MW, off peak demand average is unknown as it is not reported by TEP.
25.	SD	Sheriff/Property & Evidence	When power is out for extended period of time rental refrigerated trucks are needed to preserve evidence. Note – site has generator hookup but no generator. Reliability is key for preserving refrigerated evidence County is required to keep for active and historical cases.
26.	General	Sites with 13.8kv delivery from TEP typically have largest loads	Tres Rios, Agua Nueva, Public Service Center, Government Complex
27.	DSD	TEP energy efficiency program (Demand Side Management) & wildcat construction	a. TEP's energy efficiency program's short rebate process incentivizes wildcat construction (work without a permit from DSD of any authority having jurisdiction) and/or code violations b. Preference for TEP to require permit id & to check w/DSD prior to issuing rebate for any project. c. TEP's next DSM implementation plan is due June 2020 & will include requested program for non-profits owning historical buildings & is based on TEP having an over-collection of funds –address historic building requirements, permitting, and coordination of funding with DSM adjustor changes
28.	DSD	Proposed battery storage program, amendment to 2019 REST IP, recommend intervention	a. Installation of a battery storage system already requires a permit and inspection by all of the local Authorities Having Jurisdiction (AHJs) in TEP's service area. Any TEP review of customer applications for a battery storage system of any type should involve ensuring that the proper permitting and inspection process of the applicable AHJ has been followed.

			b. We would support a standard set of interconnection requirements addressing safety aspects of battery storage in general and to protect utility and other workers from hazards associated with a loss of power supply from the grid. c. Installation by a licensed electrical contractor is not required. Part of the plan and permitting process for residential work requires identification of the contractor performing the installation and may be the homeowner, a licensed contractor, or someone else (including electricians performing side jobs).
29.	DOT	Roadway Projects	Need greater timeliness regarding utility relocations associated with DOT roadway projects

30.	General	Communication	Lack of communication a. In general, more streamlining TEP's process would be helpful. Examples include topics that affect the public health, or general discussions for topics such as EVs that involve multiple TEP personnel from different departments and different levels of knowledge communicating with various County employees so different information is conveyed without other County employees realizing it. b. On planned outages – need sufficient notice to coordinate with user groups and constituents c. Unplanned power outages – need to know why and status, if repairs will require a planned outage to correct d. New construction / renovation work coordination e. Energy Efficiency (DSM), we hear more from contractors than TEP (zero communication from TEP). Rebate process has been changed & not a partnership so to speak.