

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

APPLICATION OF PUBLIC SERVICE)	
COMPANY OF OKLAHOMA (PSO) FOR)	
APPROVAL OF THE COST RECOVERY OF THE)	
SELECTED WIND FACILITIES (SWFs); A)	
DETERMINATION THERE IS A NEED FOR THE)	
SWFs; APPROVAL FOR FUTURE INCLUSION)	
IN BASE RATES COST RECOVERY OF)	CAUSE NO. PUD 201900048
PRUDENT COSTS INCURRED BY PSO FOR)	
THE SFWs; APPROVAL OF A TEMPORARY)	
COST RECOVERY RIDER; APPROVAL OF)	
CERTAIN ACCOUNTING PROCEDURES)	
REGARDING FEDERAL PRODUCTION TAX)	
CREDITS; AND SUCH OTHER RELIEF THE)	
COMMISSION DEEMS PSO IS ENTITLED)	

OKLAHOMA SUSTAINABILITY NETWORK’S STATEMENT OF POSITION

Oklahoma Sustainability Network (OSN), by and through its undersigned counsel, respectfully submits the following Statement of Position in the above-captioned Cause. OSN serves to connect and educate the people of Oklahoma concerning the many aspects of sustainability and to contribute practical ideas that link a prosperous economy with a healthy environment and thriving Oklahoma communities.¹

OSN has carefully reviewed the application, testimony, and discovery responses provided by Public Service Company of Oklahoma (PSO) in this Cause, and OSN participated in PSO’s 2018 IRP review process and meetings. OSN commends PSO for proposing to significantly diversify its generation portfolio and capture Oklahoma’s abundant, low-cost wind energy. PSO’s testimony demonstrates that the Selected Wind Facilities (“North Central”) should be cost-effective under each of the considered scenarios and expected levels of performance,² but OSN believes that important benefits were left out of PSO’s analysis and should be included in

¹ OSN is a 501(c)(3) registered non-profit, non-partisan organization. More information at <http://oksustainability.org>.

² Errata Testimony of John F. Torpey - Errata Exhibit JFT-4

consideration by the Commission. If these additional non-quantified benefits were included and monetized, the proposed North Central facilities are likely to be even more cost-effective.

1. North Central Will Help Attract and Support Oklahoma Business

PSO witness Peggy I. Simmons noted that many potential commercial and industrial customers have carbon reduction or renewable energy goals.³ Oklahoma certainly has witnessed and benefitted from these goals, with Google’s facilities in Mayes County representing one prominent example. Other very recent Oklahoma examples include Walmart’s 200 MW PPA for ENGIE’s King Plains project,⁴ Honda’s agreement for energy from the Boiling Spring Wind Farm,⁵ and Anheuser-Busch’s agreement with Enel Green Power for 152.5 MW at the Thunder Ranch wind farm in Garfield, Kay and Noble counties. Anheuser-Busch has a corporate goal of achieving 100 percent of purchased electricity from renewables by 2025.⁶

But some of these major corporations have stated that corporate procurement of renewables is not enough, and they’re asking utilities to match their efforts for low-carbon energy. Google’s Robert Parker expressed it this way recently: “What we’ve been doing we’re very proud of, but it’s not necessarily the scale or the answer long-term. We’re not a utility, we’re not a power company.” Facebook’s Peter Freed, head of energy strategy, commented on the importance of working with utilities: “We’ve done a huge amount of work with regulated utilities, really trying to partner with them to figure out how we can use their existing toolbox to put together rate structures that allow individual companies to serve load with 100 percent

³ Errata Testimony of Peggy I. Simmons, p 9, lines 11-12.

⁴ See “ENGIE Secures Another Wind Deal With Walmart” - <https://nawindpower.com/engie-secures-another-wind-deal-with-walmart>

⁵ See “Securing a Carbon-Free Future through Virtual Power” - <https://medium.com/@hondaofficial/securing-a-carbon-free-future-through-virtual-power-1cdb123df2e9>

⁶ See “Anheuser-Busch and Enel Green Power Announce Renewable Energy Partnership” - <https://www.anheuser-busch.com/newsroom/2017/09/anheuser-busch-and-enel-green-power-announce-renewable-energy-pa.html>

renewable energy while making sure that we insulate other customers from the costs of doing so.”⁷

For potential or existing PSO business customers that don’t have the capacity to pursue a power purchase agreement, the knowledge that one third of their default power from the utility is generated by renewable, local sources could be enough to satisfy their internal goals and the demands of their customers.⁸

Testimony from Walmart⁹ and OIEC requests the addition of language in PSO’s Green Energy Choice Tariff that would specify an option for large customers to purchase RECs from North Central. OSN submitted comments for the original Green Energy Choice Tariff in 2010 and for revisions to the tariff in 2013, and OSN supports supplemental language that would encourage participation from all customers. OSN believes that Oklahoma-generated RECs that aren’t otherwise under contract should be retired or sold within Oklahoma.

2. North Central Will Provide Hundreds of Millions of Dollars in Air Quality Benefits

Renewable energy projects avoid and displace significant amounts of criteria air pollutants,¹⁰ and OSN expects that a value should be attached to these benefits.¹¹ OSN has acknowledged that determining a specific value for these avoided emissions is not always simple, but OSN also notes that there are a number of respected studies on the subject that do include an estimated price per kilowatt hour for the benefits associated with air quality improvements. A 2017 report funded by the Department of Energy found average marginal

⁷ See “Facebook and Google: Utilities Must Take Lead” - <https://www.greentechmedia.com/articles/read/facebook-and-google-voluntary-renewables-deals-wont-clean-up-the-grid>

⁸ Estimated at the 675 MW level for PSO.

⁹ Responsive Testimony of Lisa V. Perry, P 5, lines 4-6.

¹⁰ NOx is one of the primary criteria pollutants likely to be displaced by North Central. NOx is one of the precursors for the formation of ozone and particulates. More information here: <https://www.epa.gov/criteria-air-pollutants>

¹¹ OSN’s energy policy director was a member of Oklahoma Department of Environmental Quality Air Quality Council from 2010-2019, serving a full term representing the general public on rulemakings for the Clean Air Act.

benefits of 4.3 cents/kWh (with a range of 2.3–8.4 cents/kWh) for air pollution reductions from wind power in the Lower Midwest.¹² This figure doesn't even include additional benefits from reduced greenhouse gases.

Slightly higher values for the air quality benefits of renewable energy were shown in very recently published research. An October 2019 study looked at avoided emissions of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and fine particulate matter (PM_{2.5}), and it concluded that the health benefits from wind power in the Lower Midwest are \$48/MWh.¹³

The U.S. Environmental Protection Agency (EPA) published their own analysis in 2019, “Public Health Benefits per kWh of Energy Efficiency and Renewable Energy in the United States.”¹⁴ The report lists the following groups as intended stakeholders:

- State and local energy, air quality, or public health agencies;
- Public utility commissions;
- Energy efficiency and renewable energy project developers;
- Industry organizations;
- Nongovernmental organizations; and
- Other researchers.

This EPA report notes that their benefits estimates may have several uses. “For example, state public utility commissions (PUCs) and state energy offices (SEOs) may use estimates of the monetized public health benefits of EE as an input to portfolio-level, cost-benefit analyses; or program-specific, cost-effectiveness tests.”

EPA finds a value range of 2.35 - 5.32 cents per kWh for wind power, with the range based on low/high sensitivity of people to changes in PM_{2.5} levels and ozone.¹⁵ OSN asked PSO

¹² “The Climate And Air-Quality Benefits Of Wind And Solar Power in the United States,” Millstein, et al, August 2017, Nature Energy, Article Number 17134; p 5, Table 3 and P 7, Fig 5 - <https://www.nature.com/articles/nenergy2017134>

¹³ “Climate And Health Benefits of Increasing Renewable Energy Deployment in the United States,” Buonocore, et al, 2019 Environ. Res. Lett. Volume 14, Number 11, P 5, Fig 3. *Midpoint of \$48/MWh (range of ~\$40-\$56) does not include climate benefits.* - <https://iopscience.iop.org/article/10.1088/1748-9326/ab49bc/pdf>

¹⁴ “Public Health Benefits per kWh of Energy Efficiency and Renewable Energy in the United States: A Technical Report”, July 2019, EPA, <https://www.epa.gov/sites/production/files/2019-07/documents/bpk-report-final-508.pdf>

¹⁵ EPA, Page 3, Table ES.1.

to run its base case Cost/Benefit analysis for the North Central facilities using EPA's lowest impact value of 2.35 cents/kWh. PSO's results showed \$1.837 billion of additional benefits for their share of the facilities (2021 through 2051), or \$711 million on a net present value basis.¹⁶

Using PSO's P50 annual energy share for North Central,¹⁷ OSN calculates first year benefits of \$61 million with EPA's low value of 2.35 cents/kWh. EPA's higher value of 5.32 cents per kWh represents sensitive populations, defined by EPA as children, the elderly, people with heart or lung disease, and people who work outdoors. Using this higher value, North Central's annual avoided emissions would add \$138 million of public health benefits per year.¹⁸

3. North Central Will Help with Ozone Planning and Attainment

Oklahoma City is very close to violating federal air quality standards for ozone, and Tulsa is in only a slightly better position.¹⁹ Both metro areas are making considerable efforts to address this challenge, including participation in EPA's Ozone Advance program. Wind energy projects are recognized and encouraged by EPA for inclusion in Ozone Advance plans, and these plans are utilized by air quality staff at Association of Central Oklahoma Governments ("ACOG") and the Indian Nations Council of Governments ("INCOG").²⁰

NOx is one of the main precursors for ground-level ozone formation. OSN asked PSO to calculate the PSO share of North Central's annual avoided NOx emissions. PSO's response to

¹⁶ PSO Response to Data Request No. OSN 1-7.

¹⁷ 2,601 GWh per year. Direct Testimony of Jay F. Godfrey, p 24, lines 20-21 - p 25, line 1.

¹⁸ EPA provides the following guidance: "States and communities interested in having screening-level estimation of outdoor air quality-related health impacts of energy efficiency or renewable energy can multiply the BPK values, presented in Table ES. 1 in cents per kilowatt hour, by the number of kWh saved from EE or generated from RE to estimate potential health benefits from projects in dollars saved." (P 4, para 6)

¹⁹ See "ACOG: More Emissions Reduction Efforts Needed as Ozone Season Begins in Central Oklahoma" - <http://www.acogok.org/2019-ozone-kickoff/>

²⁰ "Ozone Advance Emission Reduction Projects," ACOG, 2018 - <http://www.acogok.org/wp-content/uploads/2018/08/Ozone-Advance-Emission-Reduction.pdf>. "Tulsa Area Ozone Advance Program Annual Update," INCOG, 2018 - http://www.incog.org/Environmental_Planning/Documents/Final%202018%20Tulsa%20Ozone%20Advance%20Update.pdf.

Data Request No. OSN 1-6 indicates that North Central will avoid a substantial 1.2 million pounds of NOx per year.

4. North Central Will Help Conserve Oklahoma's Fresh Water Resources

Oklahoma's Water for 2060 Act²¹ established that "the public policy of this state is to establish and work toward a goal of consuming no more fresh water in the year 2060 than is consumed statewide in the year 2012", but the Oklahoma Water Resources Board reports that at current levels of consumption we will exceed that target by 33%.²² OSN asked PSO to estimate the annual avoided water consumption of North Central versus thermoelectric generation. PSO's calculations (provided by PSO in response to Data Request No. OSN 1-5) using National Renewable Energy Laboratory data showed 1.33 billion gallons of avoided water evaporation for PSO's share of the wind facilities. NREL's water consumption rate - 0.51 gallons per kWh - is from 2003, so OSN reviewed newer data, from the U.S. Geological Survey, that reflects plant retirements and gains in water efficiency.²³ Using this newer data, OSN calculated a consumption rate of 0.32 gallons/kWh for Oklahoma. This number matches the rate used by Oklahoma Gas & Electric for reporting their avoided water consumption from energy efficiency programs to the Commission. Using a 0.32 gallon rate with PSO's share of North Central's generation shows savings of more than 833 million gallons of Oklahoma's fresh water per year.

While there is insufficient data to attach a dollar value to this considerable water savings, it's certain that the value is greater than \$0.

²¹ Water for 2060 Act, 82 O.S. § 1088.11 *et. seq.*

²² OWRB Status Report, May 2017, p 2 - <http://www.owrb.ok.gov/reports/Updates/2017.pdf>

²³ "Estimated Use of Water in the United States in 2015", U.S. Geological Survey, Circular 1441, 2018 - <https://pubs.usgs.gov/circ/1441/circ1441.pdf>

5. North Central Will Provide Millions of Dollars of Avoided Carbon Benefits

OSN commends PSO for including a value for avoided carbon risk (referred to as “CO2 dispatch burden”) in its Fundamentals Forecast. OSN believes it is appropriate and prudent to estimate the financial risks associated with actions to encourage a lower-carbon economy.

OSN also notes that utility systems potentially face significant risks associated with a failure to effectively mitigate climate change, including higher than expected peak demand, diminished cooling water capacity, and more frequent and longer-lasting power outages.²⁴

Just as it’s reasonable to consider a range of natural gas price forecasts, including the risk that gas will be less expensive than forecasted, OSN believes that it’s reasonable to discuss the risk that carbon compliance cost will be higher than estimated. AEP-PSO’s 2019 Fundamentals Forecast includes an avoided carbon risk of \$15 per ton starting in 2028, with 3.5% per annum escalation. OSN notes that other businesses, regulatory agencies, and internal carbon pricing models utilize a higher value and an earlier commencement date. OSN recognizes that determining an appropriate proxy value for carbon is challenging, but one option for guidance is looking to the federal Section 45Q tax credit, which includes a \$50/ton credit for CO2 capture. The 45Q Tax Credit, approved as part of the Bipartisan Budget Act of 2018, received broad support in Congress, from governors and other state leaders, and a diverse coalition of industry, labor, and environmental supporters.

North Central will displace more than a million tons of carbon per year at the current CO2 emission rate from generators in SPP.²⁵ A higher carbon compliance value, an earlier commencement date, or a regulatory cap or target to limit carbon emissions clearly would add millions of dollars of additional benefits to North Central. OSN believes that instead of

²⁴ See “Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment,” 2018, Volume II, Ch 4: “Energy Supply, Delivery, and Demand” - <https://nca2018.globalchange.gov/chapter/4/>

²⁵ For more discussion, see PSO's response to Data Request No. OSN 1-8.

evaluating carbon costs starting in 2028, PSO's avoided carbon cost should commence earlier, with the in-service dates of the wind facilities. This would incorporate the full benefits into PSO's analysis.

6. A Societal Discount Rate Shows Substantial Additional Benefits from North Central

PSO utilized its weighted average cost of capital, 7.09%, as the discount rate in its customer benefits analysis for North Central.²⁶ For additional perspective, OSN asked PSO to review the benefits with a lower, "societal" rate of 3%. PSO, OG&E, ONG, and CenterPoint each utilize a lower discount rate for the Societal Cost Test when evaluating their energy efficiency and demand-side programs. OSN prefers to see specific values for public interest benefits, including emissions reductions as discussed above, but OSN notes that a lower discount rate can also help capture the longer-term value of benefits that are difficult to monetize, like climate damages or conservation of fresh water.

PSO's response to Data Request No. OSN 1-9 shows that applying a 3% discount rate to the North Central base case increases the net present value of the benefits to customers from \$463M to \$835M.

7. Conclusion and Recommendation

It might be argued that the values discussed above represent societal benefits, not customer benefits, but OSN notes that the distinction between the two groups is almost entirely artificial; the overlap between the two groups is nearly complete. When consideration is given to these additional benefits - emissions reductions, public health, water conservation, avoided carbon risk - North Central is easily cost-effective, even in scenarios with low-cost gas.

²⁶ Direct Testimony of Noah K. Hollis, p 5, lines 14-16

OSN recommends that the Commission approve PSO's purchase of the North Central wind facilities at either the 675 or 1000 MW level.

Respectfully submitted,

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CERTIFICATE OF SERVICE

This is to certify that a true and correct copy of the above and foregoing document was delivered via e-mail on the 6th day of November 2019, to the following persons:

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