Exhibit No. 379
Issue: submission of documents
Witness: Julia Kisser
Type of Exhibit: Supplemental Rebuttal
Sponsoring Party: MO Landowners Alliance
Case No.: EA-2016-0358
Date Testimony Prepared: Dec. 2018

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. EA-2016-0358

SUPPLEMENTAL REBUTTAL TESTIMONY OF

JULIA KISSER

ON BEHALF OF

MISSOURI LANDOWNERS ALLIANCE

December 3, 2018

Q. Please state your name.

A. Julia Kisser.

Q. Where do you reside?

A. In Caldwell County, Missouri.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the Missouri Landowners Alliance (MLA).

Q. Have you done any work in the past on behalf of the MLA?

A. Yes. For the past several years I have assisted in a para-legal capacity in retrieving documents from the internet, and in helping our attorney with formatting issues in MLA testimony and documents filed with this Commission and in the courts in cases related to Grain Belt.

Q. What is the purpose of your testimony?

A. At the request of our attorney, Paul Agathen, I am submitting certain documents as Schedules to this testimony.

Q. Please describe what is included as your Schedule JK-1.

A. That Schedule is a copy of an order from the Kansas Corporation Commission in docket 13-GBEE-803-MIS, dated October 4, 2018, titled "Order Granting Limited Extension of Sunset Provision."

Q. What is the source of that Order?

A. I obtained this document directly from the Kansas Commission's website, which includes at least for some cases a list and copies of documents somewhat similar to this Commission's EFIS system.

Q. Please describe what is included as your Schedule JK-2.

A. Schedule JK-2 consists of the Summary of Responsive Testimony of Mr. Mario Hurtado at the Oklahoma Corporation Commission in docket number 201700267, which involved what is commonly referred to as the "Wind Catcher project." Mr. Hurtado's original testimony could not be located.

Q. Please describe what is included as your Schedule JK-3?

A. Schedule JK-3 consists of the Testimony of Mr. Andrew Rawlins from that same proceeding, docket number 201700267, at the Oklahoma Corporation Commission.

Q. What is the source of the testimony included at your schedules JK-2 through JK-3?

A. I obtained these documents directly from the Oklahoma Corporation Commission's website, which includes a list and copies of documents somewhat similar to this Commission's EFIS system.

Q. Does this complete your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Grain Belt Express Clean Line LLC for a Certificate of Convenience and Necessity authorizing it to Construct, Own, Operate, Control, Manage, and Maintain a High Voltage, Direct Current Transmission Line and an Associated Converter Station Providing an interconnection on the Maywood-Montgomery 345 kV Transmission Line	)))))))	Case No. EA-2016-0358

Affidavit of Julia Kisser

STATE OF MISSOURI)
Clinton) SS
COUNTY OF ~~CALDWELL~~)

Julia Kisser, being duly sworn on oath states:

1. My name is Julia Kisser.

2. Attached hereto and made a part hereof for all purposes is my testimony submitted to the Missouri Public Service Commission.

3. I hereby swear and affirm that my answers contained in the attached testimony to the Questions therein asked are true and accurate to the best of my knowledge, information and belief.

Julia Kisser

Subscribed and sworn before me this 3rd day of December, 2018

Angela T. Hogan
Notary Public

ANGELA T HOGAN
Notary Public, Notary Seal
State of Missouri
Daviess County
Commission # 07058253
My Commission Expires September 28, 2021

THE STATE CORPORATION COMMISION
OF THE STATE OF KANSAS

Before Commissioners: Shari Feist Albrecht, Chair
Jay Scott Emler
Dwight D. Keen

In the Matter of the Application of Grain Belt Express Clean Line LLC for a Siting Permit for the Construction of a High Voltage Direct Current Transmission Line in Ford, Hodgeman, Edwards, Pawnee, Barton, Russell, Osborne, Mitchell, Cloud, Washington, Marshall, Nemaha, Brown, and Doniphan Counties Pursuant to K.S.A. 66-1,177, et seq.	)	Docket No. 13-GBEE-803-MIS

ORDER GRANTING LIMITED EXTENSION OF SUNSET PROVISION

This matter comes before the State Corporation Commission of the State of Kansas (Commission) for consideration and decision. Having reviewed its files and records, the Commission finds:

1. On July 15, 2013, Grain Belt Express Clean Line LLC (Grain Belt) filed an Application pursuant to the Kansas Electric Transmission Siting Act (Siting Act), K.S.A. 66-1,177 *et seq.*, for a siting permit to construct in Kansas approximately 370 miles of the approximately 750-mile HVDC transmission line that continues to Missouri, Illinois, and Indiana, a converter station in Ford County, Kansas, and facilities to interconnect the converter station with the Southwest Power Pool (SPP).[1]

2. On November 7, 2013, the Commission issued its Order Granting Siting Application (Order), finding that the Grain Belt Express line is necessary because "[w]ithout this project, hundreds of millions of economic development dollars would not be spent in Kansas, and

[1] Application, July 15, 2013, ¶ 5.

the potential for large scale wind farm development would be lost" and "this project will have significant short- and long-term economic development benefits for the state of Kansas."[2]

3. In addition to finding a proposed transmission line necessary, before issuing a siting permit, the Commission must also determine the reasonableness of the location of the proposed electric transmission line.[3]

4. After considering comments from landowners, the Commission found the modified proposed route, is reasonable and in the public interest.[4] The Commission granting of a siting permit was conditioned on Grain Belt submitting quarterly reports detailing the progress and costs of the project, and beginning construction of the of the Grain Belt Express Project (Project) within five years from the date of the Order[5] If construction did not state within five years, Grain Belt would be required to submit a new application.[6] Since the Order was issued November 7, 2013, Grain Belt would need to start construction in Kansas by November 7, 2018 or reapply.

5. Before starting construction in Kansas, the Order required Grain Belt to obtain approval from the other states where the Grain Belt Express would be built, namely Missouri, Illinois, and Indiana.[7]

6. The Illinois Courts have issued decisions requiring Grain Belt to acquire property in Illinois before it can submit a new application to the Illinois Commerce Commission for a certificate to build the Illinois portion of the transmission Project.[8] Grain Belt is working to acquire property in Illinois to enable it to file a new certificate application with the ICC.[9]

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[2] Order Granting Siting Application (Order), Nov. 7, 2013, ¶ 36.
[3] *Id.*, ¶ 38.
[4] *Id.*, ¶¶ 46, 52.
[5] Order, ¶ 55.
[6] *Id.*
[7] *Id.*, ¶ 53.
[8] Joint Motion of Grain Belt Express Clean Line LLC and Commission Staff for Extension of Sunset Term, Sept. 6, 2018, ¶ 8.
[9] *Id.*

7. In July 2015, the Missouri Public Service Commission (MPSC) denied Grain Belt's application for a certificate to build the Missouri portion of the line.[10] Grain Belt appealed the MPSC decision, resulting in a unanimous decision by the Missouri Supreme Court, issued on July 17, 2018, finding the MPSC erred and remanding the matter back to the MPSC to determine whether the Missouri portion of the Project is necessary or convenient for the public service.[11] Once the Missouri Supreme Court issues its mandate, Grain Belt will urge the MPSC to promptly issue a certificate to build the Missouri portion of the Project.[12]

8. On September 6, 2018, Grain Belt and the Commission Staff (Staff) filed their Joint Motion for Extension of Sunset Term (Joint Motion), explaining that the litigation delays in Illinois and Missouri makes it unlikely Kansas construction would begin by November 7, 2018, and requesting extending the sunset date be extended to November 7, 2023.[13] The Joint Motion is limited to a request to extend the sunset date by five years,[14] to allow Grain Belt an opportunity to complete the permitting process and pre-construction activities required prior to beginning construction of the Project in Kansas.[15]

9. The Joint Motion was served electronically to all the parties in the Docket, including those landowners who had intervened to oppose Grain Belt's Application.[16] On September 17, 2018, Matthew Stallbaumer filed his Protest to the Joint Motion.

10. Stallbaumer argues the proposed extension is not in the public interest because: (1) the sunset provision protects landowners from having their lives placed on hold for a project that

[10] *Id.*, ¶ 9.
[11] *Id.*, at 11.
[12] *Id.*
[13] *Id.*, ¶ 17.
[14] *Id*, ¶ 16.
[15] *Id.*, ¶¶ 16-18.
[16] *Id.*, ¶ 18.

may never be built;[17] (2) the route selection study is five years old and may need to be reconsidered;[18] (3) Grain Belt's financial ability to build the line and its managerial ability to run the line need to be reevaluated;[19] and (4) Grain Belt may not get approval from Illinois or Missouri.[20]

11. On September 24, 2018, Nemaha-Marshall Electric Cooperative, Inc. (NMEC) filed its Reply to the Joint Motion of Grain Belt Express Clean Line LLC's and Kansas Corporations Commission Staff and Proposed Order, expressing its concern about the Project and points to a transmission line collapse in Haskell County, Kansas.[21] NMEC urges the Commission to deny the proposed extension and instead require Grain Belt to pay it to bury its facilities.[22]

12. NMEC is improperly attempting to relitigate the necessity and convenience of the Project. Therefore, the Commission denies the request to review the actual route of the facilities and safety procedures.

13. On September 26, 2018, Staff filed its Response to the Protest of Matthew Stallbaumer to the Motion of Grain Belt Express Clean Line LLC and Commission Staff for Extension of Sunset Term, claiming Stallbaumer's Protest erroneously interprets the purpose of the five-year sunset provision.[23] According to Staff, the purpose of the sunset provision was not to protect landowners, but to prevent the Project for stalling at the border.[24]

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[17] Protest of Matthew Stallbaumer to the Motion of Grain Belt Express Clean Line LLC and Commission Staff for Extension of Sunset Term (Stallbaumer Protest), Sept. 17, 2018, ¶ 11.
[18] *Id.*, ¶ 12.
[19] *Id.*, ¶ 13.
[20] *Id.*, ¶ 14.
[21] Reply to the Joint Motion of Grain Belt Express Clean Line LLC's and Kansas Corporations Commission Staff and Proposed Order, Sept. 24, 2018, ¶¶ 3-4.
[22] *Id.*, ¶ 5.
[23] Staff's Response to the Protest of Matthew Stallbaumer to the Motion of Grain Belt Express Clean Line LLC and Commission Staff for Extension of Sunset Term, Sept. 26, 2018, ¶ 7.
[24] *Id.*

14. In addressing Stallbaumer's concerns that Grain Belt may no longer have the financial, managerial and technical ability to complete the Project, Staff explains Grain Belt's quarterly status reports filed in the 14-GBEE-527-CPL Compliance Docket demonstrate that Grain Belt Express continues to meet the requirements of the Kansas Siting Act, K. S .A. 66-1, 177 *et seq.*[25] Therefore, Staff recommends denying Stallbaumer's Protest.

15. On September 27, 2018, Grain Belt filed its Response to Protest of Matthew Stallbaumer, explaining that extending the Sunset Provision would not alter its obligations to work with all affected landowners to restore any affected land to its pre-construction condition when possible.[26] Grain Belt also advises that personnel changes happen routinely and do not impact the Commission's finding that the Project was necessary and convenient.[27]

16. The Commission finds Stallbaumer's concerns regarding Grain Belt's financial, managerial and technical ability to complete the Project compelling based on Stallbaumer alleging: (1) many of Grain Belt's employees have left the company[28] and (2) Grain Belt has recently sold its non-transmission assets to ConnectGen LLC.[29] To allow the Commission time to evaluate Grain Belt to submit evidence of its financial, managerial and technical ability to complete the Project, the Commission grants an extension of the sunset provision until March 1, 2019.

17. Therefore, by November 29, 2018, the Commission directs Grain Belt to submit evidence of its financial, managerial and technical ability to complete the Project.

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[25] *Id.*, ¶ 9.
[26] Response of Grain Belt Express Clean Line LLC to Protest of Matthew Stallbaumer, Sept. 27. 2018, ¶ 1.
[27] *Id.*, ¶ 2.
[28] Stallbaumer Protest, ¶ 13.
[29] *Id.*

18. Stallbaumer and NMEC can file pleadings limited to Grain Belt's financial, managerial and technical ability to complete the Project. Stallbaumer's and NMEC's pleadings are due by December 21, 2018.

19. The Commission directs Staff to file a Report and Recommendation by February 6, 2019, evaluating Grain Belt's financial, managerial and technical ability to complete the Project. Upon review of Staff's Report and Recommendation, the Commission will determine whether a hearing is necessary. If a hearing is necessary, the Commission may extend the Sunset deadline to enable it to conduct a hearing.

THEREFORE, THE COMMISSION ORDERS:

A. The Sunset Term is extended until March 1, 2019 to allow Grain Belt to advise the Commission of its financial, managerial and technical ability to complete the Project.

B. By November 29, 2018, Grain Belt shall submit evidence of its financial, managerial and technical ability to complete the Project. Stallbaumer's and NMEC's responses to Grain Belt's submission are due by December 21, 2018. Their responses are limited to Grain Belt's financial, managerial and technical ability to complete the Project.

C. Staff is directed to file a Report and Recommendation by February 6, 2019, evaluating Grain Belt's financial, managerial and technical ability to complete the Project.

D. Any party may file and serve a petition for reconsideration pursuant to requirements and time limits established by K.S.A. 77-529(a)(1).[30]

E. The Commission retains jurisdiction over the subject matter and the parties to enter further orders as it deems necessary.

[30] K.S.A. 66-118b; K.S.A. 77-503(c); K.S.A. 77-531(b).

BY THE COMMISSION IT IS SO ORDERED.

Albrecht, Chair; Emler, Commissioner; Keen, Commissioner

Dated: 10/04/2018

Lynn M. Retz
Secretary to the Commission

BGF

CERTIFICATE OF SERVICE

13-GBEE-803-MIS

I, the undersigned, certify that the true copy of the attached Order has been served to the following parties by means of electronic service on 10/04/2018.

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/S/ DeeAnn Shupe
DeeAnn Shupe

BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

APPLICATION OF PUBLIC SERVICE COMPANY OF OKLAHOMA ("PSO") FOR APPROVAL OF THE COST RECOVERY OF THE WIND CATCHER ENERGY CONNECTION PROJECT; A DETERMINATION THERE IS A NEED FOR THE PROJECT; APPROVAL FOR FUTURE INCLUSION IN BASE RATES COST RECOVERY OF PRUDENT COSTS INCURRED BY PSO FOR THE PROJECT; APPROVAL OF A TEMPORARY COST RECOVERY RIDER; APPROVAL OF CERTAIN ACCOUNTING PROCEDURES REGARDING FEDERAL PRODUCTION TAX CREDITS; WAIVER OF OAC 165:35-38-5(e); AND SUCH OTHER RELIEF THE COMMISSION DEEMS PSO IS ENTITLED	)	CAUSE NO. PUD 201700267

SUMMARY

OF THE

RESPONSIVE TESTIMONY OF

MARIO HURTADO

ON BEHALF OF

PLAINS AND EASTERN CLEAN LINE OKLAHOMA LLC

INTRODUCTION

On December 4, 2017, Mario Hurtado filed Responsive Testimony on behalf of Plains and Eastern Clean Line Oklahoma LLC ("Plains and Eastern"). Mr. Hurtado is employed by Clean Line Energy Partners LLC ("Clean Line") as Executive Vice President and is a co-founder of the company. He also serves as the lead project developer of the Plains and Eastern Clean Line transmission project ("Plains & Eastern Project" or the "Project"). Clean Line is the ultimate parent company of Plains and Eastern, the Intervenor in this proceeding.

For the past eight and a half years, Mr. Hurtado has been responsible for managing all aspects of development of the Plains & Eastern Project, including public outreach, siting, regulatory and environmental permitting, and technical studies. He is ultimately responsible for project budget and schedule. He oversees the efforts of the project development team and functional specialists in legal, financial, environmental, and technical groups, and makes sure that they are aligned towards achieving the Project's objectives. As part of his role he engages often with local officials, community representatives, landowners, transmission planners and engineers, and other stakeholders in the Project's area.

Mr. Hurtado received his Bachelor of Arts from Columbia University with a major in Political Science. For over twenty years he has developed and managed power plants and other energy infrastructure in the electric power and natural gas industries. He headed all development and operations in Central America and the Caribbean for Globeleq, a successful power developer and operator focused on the emerging markets. While at Globeleq, he oversaw the acquisition and development of thermal and renewable electric generating plants and managed a portfolio of

traditional and renewable electric generating plants. As an executive at Reliant Energy and Duke Energy, he led corporate transactions teams and managed commercial issues involving large electric and natural gas utilities and generating plants. While at Duke Energy, he worked on the completion and commercialization of the McClain Energy Facility in Oklahoma, a 500 MW combined cycle natural gas generating plant currently owned by Oklahoma Gas & Electric and Oklahoma Municipal Power Authority. He has also worked in the development of liquefied natural gas terminals in the United States and Europe.

PSO's Wind Catcher proceeding concerns the development of long-haul electric transmission infrastructure to deliver new wind generation from the Oklahoma Panhandle region to load centers to the east. He stated that Clean has spent more than eight years focused on a very similar goal. Mr. Hurtado's responsive testimony provides an update on the Plains & Eastern Project's progress. The development of the Plains & Eastern Project is virtually complete. Given Plains and Eastern's extensive experience developing high-voltage transmission to accommodate the build-out of renewable energy in Oklahoma, Plains and Eastern believes it is important to participate in the Wind Catcher proceeding.

Furthermore, the Plains and Eastern team has received many questions from landowners and other stakeholders in Oklahoma about the Wind Catcher project. The team has been asked if Plains and Eastern can be involved or assist in the Wind Catcher project given that Plains and Eastern has a construction-ready, long-haul transmission project that runs from the Oklahoma Panhandle to the east and has acquired easements on more than 750 parcels in Oklahoma. After being approached

by representatives of PSO, Oklahoma landowners have asked the Plains and Eastern team if they should work with PSO even though they have already signed an easement with Plains and Eastern. Mr. Hurtado stated that he was testifying to convey two key points to the Oklahoma Corporation Commission ("Commission"), PSO, and the other parties in the proceeding: (1) the Plains & Eastern Project is primed to begin construction in 2018, and (2) the Plains & Eastern Project is available to deliver power to interconnection points in eastern Oklahoma for PSO or other load serving entities in the region. Plains and Eastern believes that the Plains & Eastern Project can be extremely helpful for PSO to accomplish the laudable objectives of the Wind Catcher project.

The power markets have evolved substantially since Plains and Eastern received its order from this Commission in the past eight years and eastern Oklahoma is now a strong delivery point for the Plains & Eastern Project. The Project could be utilized to accommodate high-voltage either direct current ("HVDC") and alternating current ("AC") transmission solutions to accomplish this interconnection in eastern Oklahoma and Plains and Eastern is willing to engage to consider either option. Mr. Hurtado stated that he would explain that Plains and Eastern is open to building a first phase of the Project that is located solely in Oklahoma. Finally, Mr. Hurtado stated that he would describe why using the Plains & Eastern Project would greatly benefit ratepayers and consumers in Oklahoma as compared to other solutions.

As detailed in Mr. Hurtado's testimony, it is Clean Line's position that the Plains & Eastern Project could and should be utilized by PSO to deliver energy from the panhandle to load centers in eastern Oklahoma, as it would reduce risk from a development and scheduling perspective, and would achieve savings for Oklahoma ratepayers.

Clean Line is supportive of wind energy and transmission development in Oklahoma, and Clean Line is very supportive of the objectives enunciated by PSO in its application and as highlighted in the testimony of Paul Chodak. Oklahoma is highly advantaged in being the home to vast resources of low-cost renewable energy. Specifically, the Oklahoma Panhandle is home to a highly competitive environment where multiple wind generators have worked for years with landowners and others to make available the cheapest source of energy for consumers. Construction of wind farms in the Oklahoma Panhandle and delivery to PSO's customers provide a number of benefits:

- Wind farm investments provide years of financial support for Oklahoma farmers, ranchers, landowners, school districts and communities.
- Purchasing wind energy at costs below market power prices to lower customer bills and hedge against future fuel cost increases is both economically advantageous and prudent.
- Customers of PSO and other utilities are demanding greater amounts of cleaner, renewable energy. Many leading commercial and industrial companies have set ambitious goals for sustainability and will only locate new facilities where they are guaranteed sources of low-cost, 100% renewable energy. Consequently, greater supply of lower-cost renewable energy resources will enable economic development.
- Finally, current U.S. tax policy, through the phase-out of the wind production tax credit, provides a unique but time-sensitive opportunity to satisfy demand for renewable energy at the lowest possible cost.

Nonetheless, as PSO's Robert Bradish notes in his testimony, without additional transmission infrastructure, these benefits cannot be fully realized for PSO's customers or other Oklahomans. Congestion costs in the Southwest Power Pool ("SPP") have grown dramatically, and they will continue to grow as more wind farms are installed. SPP has no plans to build new transmission lines in the next decade, making independent transmission necessary to enable large amounts of new wind farms to be built in the Oklahoma Panhandle.

As a company focused on providing transmission solutions to connect renewable generation sources to communities that have a need for low-cost renewable power, Clean Line wants to ensure that new transmission that is developed to unlock these wind resources is done responsibly, and with the public interest in mind. The manner in which Oklahoma builds out the grid to accommodate renewables will have a lasting impact on the future of energy prices and energy security in Oklahoma and around the nation. Utilizing the progress made by the Plains & Eastern Project to deliver Oklahoma Panhandle wind resources to interconnection points in eastern Oklahoma will lower the risks markedly of cost overruns and schedule delays, and hence increase the benefits for ratepayers and the Oklahoma public.

PLAINS AND EASTERN CLEAN LINE OKLAHOMA LLC

Plains and Eastern, an Oklahoma limited liability company, was designated as a transmission only public utility in Cause No. PUD 201000075, Order No. 590530. As a transmission only public utility, Plains and Eastern is developing the Plains & Eastern Project.

Since receiving public utility status in Oklahoma, Plains and Eastern has pursued the development activities that will allow it to construct, own, and operate electric transmission in the state. As discussed in more detail below, Plains and Eastern engaged in a multi-year, stakeholder driven siting process for the Project that culminated in a well-vetted, approved route in Oklahoma. Plains and Eastern has also secured all key regulatory approvals necessary for construction on that route. The U.S. Department of Energy ("DOE") served as the lead federal agency in a multi-year environmental review process that culminated in a Final Environmental Impact Statement ("EIS") under the National Environmental Policy Act ("NEPA"). Plains and Eastern has obtained the environmental permits from the U.S. Army Corps of Engineers and the U.S. Fish & Wildlife Service necessary to commence construction of the Project. Plains and Eastern has also worked closely with tribes in Oklahoma to avoid impacts on cultural resources.

To date, Plains and Eastern has acquired nearly sixty percent of the required easements in Oklahoma—more than 750 parcels—and easement acquisition continues in the state. Plains and Eastern carried out environmental surveys for biological, aquatic and cultural resources on a majority of the route in Oklahoma. And the company completed major engineering activities, including preliminary geotechnical studies, structure design and testing, and technical studies to firm up interconnection and construction costs and schedule. Completion of this pre-construction work provides for a high degree of certainty around project cost and schedule. Plains and Eastern is the most advanced project for new transmission to deliver wind from the Oklahoma Panhandle.

In the Oklahoma Panhandle there is a widely undifferentiated, high-quality wind resource where multiple companies have signed leases with landowners and stand poised to build new wind

generation projects at a low cost. In a 2013 Request for Information, Clean Line Energy documented more than 11,000 MW of projects. The large majority of these projects have not yet come on-line due to the lack of available transmission.

Clean Line Energy received an overwhelming response to its 2014 open solicitation process for transmission capacity. Fifteen potential customers submitted 29 service requests totaling 17,091 MW of transmission service, or 392% of the project's total 4,355 MW of West-East transfer capacity.

Mr. Hurtado believes that the Plains & Eastern Project is the most studied transmission line project in Oklahoma. Since the Project was started, Plains and Eastern has focused on how best to connect wind farms in the Panhandle and how to find the best route to transport that power to the eastern part of the state and beyond. Plains and Eastern engaged in a lengthy and thorough multi-step process spanning more than five years to identify the location of the Project right-of-way and other facilities. Many Oklahoma agencies and organizations provided input during the Plains & Eastern routing process through pre-permitting meetings. Plains and Eastern also met with landowners and other stakeholders during several rounds of meetings to gather geo-specific information about local areas and potential siting opportunities. This information was used to modify and refine possible routes for the transmission line and to create alternatives that would reduce impacts on key community and landowner resources.

Plains and Eastern used geographic information systems models and other tools to analyze and compare alternative routes using over 70 siting criteria. Plains and Eastern convened a multi-

disciplinary team of subject matter experts in engineering, environmental science, land use, and other disciplines to review the model outputs and stakeholder comments, and identify the proposed route. The DOE independently analyzed the proposed route and several alternative routes in its EIS and ultimately approved a preferred route through its Record of Decision. Based on engineering and environmental studies that included input from the public as well as from local, state, and federal agencies, the selected route meets the goals of the Project while best minimizing overall impacts.

Following the finalization of the approved route from DOE and the release of the EIS, Clean Line has worked with landowners to make dozens of modifications to the route (micro-siting) where technically feasible and reasonable. These adjustments include consideration of routes along or parallel to existing divisions of land (e.g., roads, transmission lines, and pipelines) with the intent of reducing the impact of the right-of-way on private properties. In summary, the proper development of a transmission route is a lengthy process that should not be rushed. The Plains & Eastern Project took on these tasks for more than five years and is truly construction-ready.

Stakeholder outreach is the foundation of the development process for the Project. Engaging all stakeholders – landowners, local businesses, public officials and conservation groups – to gather feedback is paramount to Plains and Eastern's success in Oklahoma. Plains and Eastern engages with stakeholders directly in person and through direct mail, phone calls, a detailed website and a 1-800 number available 24 hours a day. During the NEPA review of the Project, Plains and Eastern delivered more than 4,000 letters to Oklahoma landowners with an interest in property along the proposed route, alternative routes and route study areas, and met with over a thousand Oklahoma

stakeholders. Most importantly, Plains and Eastern has had thousands of one-on-one meetings between Plains and Eastern representatives and individual Oklahomans. Plains and Eastern held dozens of public meetings to introduce the Project, present and receive feedback on the route, and seek information from Oklahoma businesses to assist with development, construction and maintenance of the Project.

Plains and Eastern also engaged early and repeatedly with Oklahoma-based agencies and organizations who provided input on the Project's routing process. These agencies and organizations include:

- Oklahoma Conservation Commission
- Oklahoma Department of Environmental Quality
- Oklahoma Department of Transportation
- Oklahoma Department of Wildlife Conservation
- Oklahoma Tourism and Recreation Department
- U.S. Environmental Protection Agency (Region 6)
- U.S. Fish and Wildlife Service (Sequoyah National Wildlife Refuge [NWR], Deep Fork NWR, Ozark Plateau NWR, OK Ecological Services Field Office)
- U.S. Department of Agriculture Natural Resources Conservation Service
- Oklahoma Association of Conservation Districts
- National Wildlife Federation
- The Nature Conservancy
- Land Legacy
- Sierra Club

As a result of this outreach and consultation, Plains and Eastern was able to incorporate specific input from stakeholders to inform construction methods, agricultural mitigation and financial compensation into final plans and processes for development, construction and operation.

Plains and Eastern's efforts to work with landowners began around the time the company sought formal recognition as a public utility in 2010. Plains and Eastern's careful and open approach to landowner interaction and easement acquisition established the company as a solid partner and good neighbor in Oklahoma. Through discussions during the OCC process and through additional consultation with landowners, Clean Line developed and presented to Oklahoma landowners a compensation package comprised of three components:

1. An easement payment valued at 100% of the fair market value of the land within the easement area;
2. Payment for each transmission structure located on a landowner's property, which will be paid as a one-time payment or annually at the landowner's selection; and
3. Payment for damages, if any, including compensation for marketable timber, lost crops, and other damages specific to a property and its use.

Plains and Eastern conducts landowner communications in a transparent and open manner that seeks to foster direct and productive negotiation and respect for private property rights. Following the approval of the Project's route by DOE, Plains and Eastern engaged two Oklahoma right-of-way services companies to begin in earnest the right-of-way acquisition activities. Clean Line estimates that the Project will make payments valued at over $35 million to Oklahoma landowners who grant easements for the transmission line. Many landowners are exercising their option to receive annual payments as part of the compensation package and will receive these payments every year, escalating at 2% annually, for the life of the Project. Plains and Eastern has acquired easements on more than 750 parcels for the Project in Oklahoma, or nearly 60% of the right-of-way in the state. Plains and Eastern has had more than 4,300 in person meetings with Oklahoma landowners and has logged more than 15,000 phone conversations. Many landowner conversations are on-going, and Plains and Eastern is highly confident that all right-of-way

necessary to start construction could be completed in time to allow for construction to start in 2018 and an on-line date in 2020.

The Project was subject to a thorough environmental review, resulting in selection of the route. DOE served as the lead agency on a NEPA review process over the course of more than three years that developed an approximately 100,000-page administrative record, including an EIS that was released in November 2015. Additionally, the U.S. Fish and Wildlife Service issued a Biological Opinion for the Project on November 20, 2015, and Plains and Eastern executed the Programmatic Agreement with several state and federal agencies on December 12, 2015. These two documents fully contemplate potential impacts to listed threatened or endangered species and cultural resources, respectively. Following selection of the route, Clean Line deployed dozens of teams of biologists and cultural resource specialists to conduct field surveys, including tribal monitors in designated areas of the state to oversee some of the cultural resource survey work. A majority of the Project's right-of-way has been surveyed for biological, aquatic and cultural resources, and Plains and Eastern has secured all necessary environmental permits for construction. Permitting and environmental issues on other transmission projects have caused delays and cost increases. Those risks are largely mitigated for the Plains & Eastern Project.

Plains and Eastern has completed significant engineering and design work necessary for construction of the Project, some of which could not be initiated until a final route was identified. For example, a construction access plan designating existing and new roads necessary for the construction crews and equipment to reach the ROW cannot be properly developed until a final route is ascertained.

Plains and Eastern has worked closely with Quanta Services and Power Engineers for several years on route review and construction planning for the Plains & Eastern Project. The focus of this work has been to develop a route that minimizes construction and engineering challenges while also reducing impacts to landowners' existing land uses and to the existing environmental and cultural resources along the route. Engineering and design work for major equipment, including transmission structures and conductors, has been completed. Additionally Plains and Eastern has completed extensive construction plans, including structure spotting, as well as construction and operations access.

Plains and Eastern worked with GE Energy Connections ("GE") as the provider of the HVDC converter stations in Oklahoma, Arkansas, and Tennessee. GE completed preliminary engineering design work for all converter stations including: site layout, single line diagrams, noise studies, site preparation plans, site specific geotechnical investigations, transformer specifications, and valve hall and control building specifications and layout.

Plains and Eastern has conducted preliminary geotechnical investigations in several locations in Oklahoma as well as an extensive review of existing geotechnical data for areas along the approved route. This work will expedite the construction process and reduce risk. Notably, much of the transmission line engineering work completed to date will work not only for HVDC technology, but also can used for an AC transmission alternative.

FUTURE PLANS FOR OKLAHOMA

The Plains & Eastern Project has an approved final route for a transmission line in Oklahoma that has been thoroughly studied and vetted by Plains and Eastern, several outside parties, and the public. The route has been surveyed for biological, aquatic and cultural resources and a majority of the necessary easements have been acquired and even more are being acquired today. The significant environmental review and engineering work that has been completed on the Project provides for a level of schedule and cost certainty that no other proposed transmission solution in Oklahoma can come close to claiming. Plains and Eastern continues to advance discussions with several potential customers and construction could begin very shortly after firming up these necessary commercial agreements.

Until recently, commercial discussions centered around the Project's proposed delivery stations in Arkansas and Tennessee. However, the market has seen significant changes as more wind energy has been built in the western SPP region well-ahead of new transmission line construction, resulting in increased congestion costs. Utilities in Oklahoma, such as PSO, have expressed a desire for large amounts of renewable energy from the best wind resources, which tend to be in areas that are already transmission-constrained. Plains and Eastern is focused on meeting the demands of the market, and thus is now prepared to include an interconnection point that would allow for delivery to eastern Oklahoma load and other loads in SPP. If there is a demand for Oklahoma Panhandle wind in eastern Oklahoma, the Project's first phase could be built solely in Oklahoma. Subsequent phases could be built at a later date if market demands warranted such action. This type of transmission build-out is not uncommon in the U.S. grid, where an initial link is built, and that link is upgraded or extended at a later date. In short, Plains and Eastern is

proposing that the Project can be utilized by PSO to deliver wind power from the Panhandle to the PSO system.

While Plains and Eastern's efforts have been focused on HVDC transmission, other technical solutions could be constructed in the Project's right-of-way, such as 345kV AC or 765kV AC. All of these high-voltage transmission technologies are feasible in the right-of-way that Plains and Eastern has developed, surveyed, permitted and acquired in Oklahoma. Plains and Eastern's easements generally allow for a right-of-way up to 200 feet wide and would allow for use of AC or DC technologies and differing voltage levels. Plains and Eastern is open to modifying the Project to a different technology or voltage level if it offers the best value to customers. It is important to note that use of DC technology offers the option of greater power transfer—at a voltage of ±600 kV, the Project could deliver about 4000 MW, or double the proposed capacity of the AEP-PSO proposed GenTie. This is an important consideration given the great potential for wind generation in the Panhandle and the probable demand from other utilities and customers. Doubling the line's capacity would in turn greatly increase the potential economic impact in the Panhandle region by enabling the construction of additional wind farms.

The Project begins near Wind Catcher's generation position in the Panhandle and the route runs within 50 miles of PSO's Tulsa North substation, the proposed interconnection point for the Wind Catcher line. Plains and Eastern already designated a transmission corridor to the Wind Catcher wind facility. This corridor was studied in the routing process and approved in the environmental review described previously. In eastern Oklahoma, there are also other potential interconnection points in PSO's service territory that are even closer to the Plains & Eastern Project's route than

the Tulsa North substation and could be utilized to serve PSO load and other loads. A map of the Plains & Eastern Project in Oklahoma in relation to the PSO transmission system is attached as Exhibit "A."

Development work completed on the Plains & Eastern Project provides for cost and schedule certainty for a transmission line running from the Oklahoma Panhandle to the eastern part of the state. One of the largest challenges in developing long-distance electric transmission is the sheer number of people involved – thousands of landowners and hundreds of other Oklahoma stakeholders. Because of this, it must be done methodically and with care for those along the line. The quality of the work undertaken during development of the project can determine the timing of and methods used in construction as well as the type and magnitude of impacts. Until a route is determined and substantial progress is made in securing that route, many questions remain unanswered about the design and ultimate construction of a transmission line. Only very rough cost and schedule estimates can be made before the route is known, studied and permitted. As Andrew Rawlins testified, without a route there is no price or schedule certainty. Once a route is in hand, decisions can be made about the location of transmission structures and the plans for mobilizing crews to execute the work can be completed. Uncertainty over route conditions drive risk that activities could take longer than estimated. If a project begins to run behind schedule, costs can escalate very quickly.

It is no secret in the transmission industry that projects are often delayed and take much longer than originally anticipated. Plains and Eastern has a finalized route that is permitted and has secured approximately 60% of the necessary easements. To Mr. Hurtado's knowledge, the Wind

Catcher project only has conceptual corridors, little to no survey work completed, only initial landowner interaction, and little or no easements acquired. With only this initial level of development work completed, there is no way to provide more than an estimated cost or schedule based on comparable data, not a bankable budget and firm schedule. Delays will only increase costs. As PSO notes in its testimony, schedule delays could jeopardize the size of the benefit to ratepayers from the production tax credit and even the applicability of the tax credit in its entirety. The Plains & Eastern Project could substantially mitigate the cost and schedule risks for Wind Catcher.

In general, Plains and Eastern is open to discussing the best commercial and technical implementation model that will accomplish the lowest risk and cost for customers. Plains and Eastern is open to PSO or other utilities customers owning all or a portion of the transmission line, commensurate with their transmission needs. In addition, Plains and Eastern is open to PSO or other utilities managing part or all of the Plains & Eastern Project's construction.

Fundamentally, Plains and Eastern believes that the Wind Catcher proposal is a good idea. AEP-PSO building and owning a transmission line that directly delivers some of the world's cheapest renewable energy to PSO's customers offers many benefits. However, it only makes sense to use the eight plus years of progress already made by Plains & Eastern.

BENEFITS TO OKLAHOMA FROM USING PLAINS & EASTERN PROJECT TO DELIVER OKLAHOMA PANHANDLE WIND TO EASTERN OKLAHOMA

In addition to the market-leading compensation package detailed earlier in this testimony, Oklahoma landowners benefit from certainty of the route developed by Plains and Eastern. Not

only was the route developed with significant landowner input, but information on the location and characteristics of the Project and landowner compensation have been public in Oklahoma for more than three years. Through concerted work over several years, Plains and Eastern has been able to address key issues, such as the opportunity for landowners to receive annual payments, and the ability to make route adjustments to minimize impacts to landowners, without the limitations imposed by an expedited and compressed schedule. Plains and Eastern representatives have sustained a dialogue with Oklahoma landowners over an extended period of time.

Many Oklahoma landowners will also receive the benefit of lower rates through receiving the state's lowest cost energy source – wind from the Panhandle delivered by the Project. Further, the Project can assure that Oklahomans receive the benefit of a 100% of the value of the federal production tax credit.

Plains and Eastern believes that energy infrastructure should benefit not only energy consumers but also local communities that host infrastructure projects. The Plains & Eastern Project and the wind farms it will enable will produce substantial economic benefits for Oklahoma. A substantial portion of these benefits will accrue at the local level, in and around the communities where the transmission line and other facilities will be located. The Project is expected to contribute more than more than $300 million in ad valorem taxes to local communities over the first 25 years of operation. Most of these funds will support education.

The Project's $1 billion direct investment in Oklahoma will create thousands of jobs during construction and a $1.9 billion economic impact on the Oklahoma economy according to a 2017

study performed by Dr. Kyle Dean and Dr. Russell Evans of Economic Impact Group and released through Oklahoma City University. The new energy investments in the Oklahoma Panhandle region, will themselves result in a significant increase in ad valorem tax taxes, landowner payments, and direct economic benefits to rural communities in the state. Based on research done by Dr. Shannon Ferrell of Oklahoma State University, at the current wind capacity in Oklahoma, royalties from wind generators to landowners in Oklahoma are estimated to total nearly $34 million annually. Each new wind turbine could add approximately $10,000 per year in royalties to landowners. Oklahoma wind farms are forecasted to pay approximately $1 billion in ad valorem taxes through 2043. These tax revenues from wind energy could take schools in the Oklahoma Panhandle completely off of school formula funding, allowing funds to go back to the state and ultimately support schools across Oklahoma. Additionally, the economic impact from operations and maintenance for the Project will result in another $34 million impact annually and support more than 100 jobs in Oklahoma.

SUMMARY

The Plains & Eastern Project will provide PSO with the use of a finalized and permitted route that has undergone extensive landowner scrutiny and on which easements for more than 750 parcels have been obtained. The Project can give PSO much greater schedule and cost certainty and will result in lower costs for Oklahoma ratepayers with less disruption to landowners along the route. Wind Catcher and the Plains & Eastern Project together can take advantage of seven-plus years of transmission line development while accomplishing the goal of delivering affordable wind energy to eastern Oklahoma and allowing the state to take advantage of several billion dollars of energy investment.

CERTIFICATE OF SERVICE

On this 11th day of December, 2017, the undersigned caused a true and correct copy of the above and foregoing document to be transmitted to the following:

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BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

APPLICATION OF PUBLIC SERVICE COMPANY OF OKLAHOMA ("PSO") FOR APPROVAL OF THE COST RECOVERY OF THE WIND CATCHER ENERGY CONNECTION PROJECT; A DETERMINATION THERE IS A NEED FOR THE PROJECT; APPROVAL FOR FUTURE INCLUSION IN BASE RATES COST RECOVERY OF PRUDENT COSTS INCURRED BY PSO FOR THE PROJECT; APPROVAL OF A TEMPORARY COST RECOVERY RIDER; APPROVAL OF CERTAIN ACCOUNTING PROCEDURES REGARDING FEDERAL PRODUCTION TAX CREDITS; WAIVER OF OAC 165:35-38-5(e); AND SUCH OTHER RELIEF THE COMMISSION DEEMS PSO IS ENTITLED	)	CAUSE NO. PUD 201700267

RESPONSIVE TESTIMONY OF

ANDREW RAWLINS

ON BEHALF OF

PLAINS AND EASTERN CLEAN LINE OKLAHOMA LLC

REDACTED

December 4, 2017

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EXHIBITS

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Andrew Rawlins. My business address is 1120 South York Street, Denver, Colorado 80210.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I own a private consulting firm, Rawlins Transmission Consulting, through which I provide transmission line consulting services to electric utilities and private developers.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of Plains and Eastern Clean Line Oklahoma LLC ("Plains and Eastern").

Q. PLEASE PROVIDE A SUMMARY OF YOUR EDUCATIONAL BACKGROUND.

A. I graduated from Purdue University with a Bachelor's of Science Degree in Civil Engineering.

Q. DO YOU HOLD ANY PROFESSIONAL LICENSES?

A. Yes, I am a registered Professional Engineer with the State of Colorado, the State of California, and the State of Texas.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.

A. I have 39 years of experience in the electric utility business: five years at the Bureau of Reclamation, six years onsite at Western Area Power Administration's ("WAPA") headquarters with two consulting firms as a project engineer, 18 years with Black & Veatch (a global engineering, procurement, and construction firm) as a project engineer and a

project manager, and 10 years as a private consultant working primarily with Black & Veatch. In addition to design experience, I have extensive experience in developing schedules, cost estimates and construction specifications for transmission lines. My experience includes these activities for high voltage projects including AC (345 and 500 kV) and DC lines (+/- 400, 500 and 600 kV).

Q. HAVE YOU PREVIOUSLY TESTIFIED IN ANY ADMINISTRATIVE OR JUDICIAL PROCEEDINGS?

A. Yes. I testified before the Arizona Power Plant and Transmission Line Siting Committee in Docket No. L-00000AAA-16-0370-00173, Case No. 173, concerning Southline's Application for Certificate of Environmental Compatibility. I testified before the New Mexico Public Regulation Commission in Case No. 17-00040-UT, concerning Southline's Application for Approval of Transmission Facilities. I have also testified before the Colorado Public Utilities Commission in the Docket No. 03A-192E.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. First, I will provide my view of the status of Plains and Eastern's development work on their transmission project running east from the Oklahoma Panhandle. I then will review the development work to date and cost estimate of Wind Catcher's proposed transmission line and highlight how using the Plains and Eastern project as the Wind Catcher transmission link could mitigate some of the risk of cost overruns. I will review the proposed schedule of the development and construction of the Wind Catcher transmission line and describe how using the Plains and Eastern project would mitigate schedule risk and make it much more likely that the project comes on-line on time. Finally, I will describe

how the Plains and Eastern project could be utilized to deliver power to PSO's service territory in eastern Oklahoma.

II. ANALYSIS OF PLAINS AND EASTERN'S DEVELOPMENT WORK

Q. HOW WOULD YOU CHARACTERIZE THE STATUS OF DEVELOPMENT OF THE PLAINS AND EASTERN PROJECT?

A. The development of the project is essentially complete. Plains and Eastern went through the full NEPA (National Environmental Policy Act) process to determine the best route based primarily on environmental factors and stakeholder concerns. They obtained public input at various stages of the multi-year process via a series of public meetings. During and since that process was completed, Plains and Eastern held thousands of meetings with landowners resulting in routing adjustments to help alleviate landowner concerns. Key environmental permits have been obtained so that the route can be considered fully developed, permitted and approved.

Pre-construction activities are well along for the potential first phase of the project that extends from the Oklahoma panhandle to the Tulsa area. Approximately 60% of the right-of-way("ROW") easements have been obtained and access road plans have been developed. Environmental field surveys have been completed on the majority of the route. Plains and Eastern has completed most of the structure design required and has performed structure spotting along the alignment and several geotechnical investigations and studies. Interconnection studies have been completed and Plains and Eastern has agreements with several Oklahoma businesses to provide goods and services for the project.

Q. WHAT ARE THE LONGER LEAD TIME ITEMS THAT ARE KNOWN TO DELAY CONSTRUCTION AND TO INCREASE COSTS THAT HAVE BEEN ACCOMPLISHED?

A. Several major activities can wreak havoc on a schedule, including acquiring enough right-of-way to begin construction, environmental permitting, and survey activities. Additionally, conversing with the affected landowners requires a lot of back and forth effort to come up with a final right-of-way that addresses landowner concerns without unduly affecting engineering and cost concerns. It took over five years to obtain an approved route on one project I am involved with (not Plains and Eastern) and that route is still being adjusted due to the concerns of landowners, gas pipeline owners, and county road departments. Property surveys have found additional easements that have forced the ROW to shift and the design is being affected by ongoing environmental surveys. The delays and changes are affecting not only the cost of development but the capital cost of the project due to the addition of angle and dead-end structures needed to avoid conflicts. The development and control of a definitive route is Plains and Eastern's biggest accomplishment. The NEPA process takes a long time but results in a selected corridor that is defensible.

Q. WHAT ARE THE BENEFITS OF HAVING ACHIEVED THESE DEVELOPMENT MILESTONES?

A. Simply, these milestones provide much more cost certainty and schedule certainty. Schedule and cost in transmission line construction are inter-related. The less that is known about a route, the greater the potential for increased project costs. Schedule delays in one area can perpetuate schedule delays in other areas and costs can continue to escalate. A right-of-way with less certainty typically can mean more conflict with landowners which

translates into higher costs and more scheduling risk. In my experience it is unusual for a fixed price contract to be signed with a construction contractor before the route is known.

III. ANALYSIS OF WIND CATCHER TRANSMISSION LINE DEVELOPMENT WORK AND COST ESTIMATE

Q. HAVE YOU REVIEWED THE INFORMATION PROVIDED ABOUT THE STATUS OF DEVELOPMENT OF THE WIND CATCHER TRANSMISSION LINE?

A. Yes. I've reviewed PSO's Wind Catcher testimony, the data requests and responses, and many of the exhibits they have produced including the EPC contract and other Confidential and Highly Sensitive attachments.

Q. HOW WOULD YOU CHARACTERIZE THE STATE OF DEVELOPMENT OF THE WIND CATCHER TRANSMISSION LINE?

A. Wind Catcher's transmission line development is nowhere near as far along as Plains and Eastern's. Wind Catcher has completed a desk-top study of preliminary routes, though they characterized it as, "purely for the purpose of developing an EPC contract." Wind Catcher signed an EPC contract with Quanta in late July 2017, and Quanta is responsible for performing their own routing analysis. Per the EPC contract, final route selection is to occur by December 22, 2017, though it appears that Quanta is not required to have any contact with landowners prior to that date except for a set of open houses held in October 2017 that presented their preliminary route corridors. As Plains and Eastern experienced, I expect many landowners will want to modify the final route, and even more so if they feel they weren't given ample opportunity to voice their concerns. In my experience, the public's buy-in is much easier if people feel their opinions were seriously considered in the routing phase. Many people won't get involved until a preferred route is chosen, at which

point, oftentimes, landowners only learn that their land will be impacted by word of mouth from their neighbors. That is why I feel the affected landowners need to be given the opportunity to weigh in before the preferred route is finalized.

Q. HAVE YOU REVIEWED THE COST ESTIMATE FOR THE TRANSMISSION LINE?

A. I reviewed the detailed cost estimates provided as part of DR-OIEC-3-13, Attachment 2. The values for Wind Catcher's "Central Route" cost estimate appear to be similar to the values contained in the EPC contract.

Q. HOW WOULD YOU DESCRIBE THE LEVEL OF PRECISION OF THE COST ESTIMATE?

A. I can only assume that the unit pricing utilized came from AEP's experience on 765 kV projects. PSO's transmission line cost estimate worked out to about $[redacted]/mile which appears to be on the low end of the scale when compared to published cost estimates I found for 765 kV. Even AEP's own "Transmission Facts" published in 2008 estimated the cost of 765 kV transmission at $2.6M to $4M/mile. PSO-provided costs for two recent 765 kV projects that were competitively bid were listed at $[redacted]/mile and $[redacted]/mile, excluding ROW and financing costs. I suspect one reason the Wind Catcher number is low is because they assumed that about 95% of the structures would be tangents and only the remaining 5% would be angles and dead-end structures. I would expect there will be a much higher percentage of angles and dead-ends, which are often necessary to satisfy the legitimate concerns of landowners. DR-OIEC-3-13, Attachment 2 also included an alternatives comparison footnoted with, "Cost estimates based on central line route with few angles/dead-ends." It also showed Quanta's estimate for the total project cost using

the central route to be 99.74% of AEP's cost estimate. Though the basis of the EPC contract is not well defined in its attachments, I expect the 95%/5% ratio is assumed and that the contract price would increase as more turning structures are added.

The estimate did not include a contingency line item and I was unable to tell if a contingency was included in the individual line items. Due to the accelerated schedule and the degree of uncertainties, a large contingency is warranted. Transmission line schedules developed early in project development are rarely kept and typically see significant delays. Early cost estimates often utilize optimistic assumptions and are susceptible to change. Construction costs always go up when schedules are dragged out due to changes in the assumed work plan.

Q. WHAT LEVEL OF CERTAINTY COULD YOU PUT AROUND THE COST ESTIMATE?

A. That is very hard to assess given the large number of unknowns, but I wouldn't be surprised to see the final EPC price come in 20% above the contract price.

Q. HOW COULD PLAINS AND EASTERN'S DEVELOPMENT WORK REDUCE UNCERTAINTY ON COSTS?

A. Utilizing a route that has been fully vetted would provide certainty on the number and types of structures required. It would also reduce cost uncertainties due to schedule risk. Plains and Eastern's extensive environmental permitting work would also reduce the risk of added costs from environmental issues that could arise. It does not appear that PSO has performed much or any right-of-way acquisition nor any environmental surveys. These unknowns could raise project costs substantially.

Q. DID YOU REVIEW THE WIND CATCHER TRANSMISSION LINE PROJECT SCHEDULE? HOW WOULD YOU DESCRIBE THE LEVEL OF CERTAINTY IN THE SCHEDULE?

A. Yes, I reviewed the schedule and the revised schedule. I noted that the schedule has already begun to get pushed out and has leaked into 2021. This is not surprising since the schedule is extremely aggressive leading up to the start of construction. In particular, their right-of-way acquisition plan looks overly optimistic compared to the time period most owners would allocate to a project of this size. Based upon the language in Exhibit U of the EPC contract, it appears they may be mitigating this risk by limiting the number of contacts made to landowners before beginning eminent domain legal proceedings. Per the contract, those proceedings begin within [redacted] days if [redacted] Based upon these limited attempts to work with landowners, it appears there may need to be a significant number of land parcels acquired through condemnation, which can also create some additional uncertainty.

Q. WHAT WOULD GIVE SOMEONE MORE COMFORT THAT THE SCHEDULE CAN BE MET?

A. Route certainty and a reasonable level of right-of-way acquisition would go a long way toward making sure construction could begin on time.

Q. CAN YOU THINK OF EXAMPLES WHERE COSTS HAVE ESCALATED SUBSTANTIALLY, OR SCHEDULE PUSHED DRAMATICALLY FROM WHAT WAS INITIALLY PREDICTED?

A. Transmission line construction often results in schedule delays and cost increases, especially when there is a tight schedule from the outset. Delays occur due to things like landowner/ROW issues, material delivery issues, construction labor/equipment issues,

environmental restrictions, weather delays, etc. Initial problems tend to have a cascading effect because everyone's plans are thrown out of whack. Construction labor contracts are particularly susceptible to change orders because delays cause workers to stand around with nothing to do or keep them from moving on to the next job that the contractor has committed to. These delays usually leads to a lot of overtime pay and premiums paid to bring in additional labor. Failure to complete pre-construction activities on time can also delay the overall schedule.

IV. TECHNOLOGY CHOICE/ENGINEERING SPECIFICATIONS

Q. WHAT TYPE OF TECHNOLOGY HAS WIND CATCHER CHOSEN FOR ITS TRANSMISSION SOLUTION?

A. AEP-PSO is proposing to build a 765 kV alternating current transmission line.

Q. WHY DID THEY CHOOSE THIS TECHNOLOGY?

A. AEP has been using 765 kV for many years for its largest transmission lines. To my knowledge they are the only ones in the country using 765 kV. In the western U.S., the maximum AC voltage utilized is 500 kV, while the maximum voltage used in SPP is 345 kV. Other utilities have shied away from using 765 kV in large part because it puts "too many eggs in one basket". For system reliability purposes, they typically prefer two smaller lines rather than one big line to reduce the impact of a single line outage.

Q. WHAT OTHER TECHNOLOGIES DO YOU BELIEVE SHOULD BE CONSIDERED GIVEN THE WIND CATCHER PROJECT'S GOAL OF DELIVERING 2,000 MW OVER A DISTANCE OF AROUND 350 MILES?

A. As shown in DR-AG-8-6, Attachment 1, AEP also considered using double-circuit 345 kV transmission lines or ±600 kV HVDC. Their analysis showed the 765 kV alternative to be

the most cost effective. From my experience ±600 kV HVDC may be more suited for a higher capacity line. I suspect the HVDC suppliers could have provided costs for a more optimum, lower voltage, HVDC line had they been asked. On the other hand, the design with a ±600 kV HVDC could allow for about 4,000 MW of transfer capability, double the amount that is proposed by AEP. Double circuit 345 kV is a viable option and could result in lower costs, easier interconnection and reliability benefits.

V. THE ROLE OF PLAINS AND EASTERN IN WIND CATCHER

Q. IS IT YOUR UNDERSTANDING THAT THE PLAINS AND EASTERN PROJECT COULD BE UTILIZED TO SERVE AS THE TRANSMISSION LINK TO DELIVER WIND POWER FROM THE PANHANDLE TO PSO AND OTHER UTILITIES IN EASTERN OKLAHOMA?

A. Yes. My understanding from Plains and Eastern is they are open to using the project to deliver power from the Panhandle to eastern Oklahoma. The Project's route could be adjusted in eastern Oklahoma to reach the desired interconnection points in PSO's service territory and a short link could be constructed to connect Wind Catcher's generation site to the Plains and Eastern Project.

Q. FROM AN ENGINEERING PERSPECTIVE, IS THERE ANY REASON THE PLAINS AND EASTERN PROJECT COULDN'T BE USED FOR THE PURPOSES WIND CATCHER SEEKS TO ACCOMPLISH.

A. No. My understanding is that Plains and Eastern is also willing to consider an AC line if that is desired and what the customer wants. A large majority of the development work that has been completed could be used for any type of transmission lines, whether it is AC or DC. Plains and Eastern's easements are typically for up to 200 feet in width which should be sufficient to build AC or DC.

Q. WOULD USING THE PLAINS AND EASTERN PROJECT MITIGATE THE RISKS OF COST OVERRUNS AND SCHEDULE DELAYS PREVIOUSLY DESCRIBED?

A. Yes it would.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

Independent Consultant

Project Engineering and Project Management

Education
Bachelors, Civil, Purdue University, 1978

Professional Registration
PE, Texas, 2012
PE, California, 1992
PE, Colorado, 1982

Total Years Experience
39

Andrew G. Rawlins is an independent consultant specializing in conceptual design, permitting, cost estimating, and project management of high voltage transmission line projects.

Rawlins' engineering experience includes various assignments on high voltage overhead and underground transmission lines and substations at voltages ranging from 69 kV through 500 kV. His current responsibilities include technical studies, feasibility analyses, cost estimating, conceptual design, route selection, permitting support, technical review of engineering designs and specifications, and construction support.

Rawlins formed his own company in July 2007 after being employed by Black & Veatch (B&V) for nearly 18 years, and worked as a consultant in B&V's offices through September 2017. Prior to joining B&V, he was employed for six years by two other consulting firms and for five years by a federal agency.

Project Experience

Southline 345/230 kV Transmission Project – Southline Transmission LLC: Arizona and New Mexico 2011-2017
B&V Transmission Line Engineering Manager. Transmission Line Engineering Manager for permitting and design of approximately 220 miles of double-circuit 345 kV transmission line. The project also includes rebuilding 120 miles of single circuit 115 kV to double circuit 230 kV. B&V services included conceptual design, routing/permitting support, public meeting attendance, expert testimony, and detailed design. Ongoing support is being provided directly to the owner, Hunt Transmission Services. Construction is scheduled to begin in 2018.

CREZ 345 kV 2nd Circuit – Sharyland Utilities: Texas 2016-2017
B&V Transmission Line Engineering Manager. Transmission Line Engineering Manager for design of 2nd circuit addition to four existing 345 kV transmission lines totaling 166 miles. Services included detailed design, material procurement support, development of construction specifications, and construction support. Construction started in 2016 and is scheduled to be completed in 2018.

North Edinburg - Palmito 345 kV Transmission Line – Sharyland Utilities: Texas 2014-2016
B&V Transmission Line Engineering Manager. Transmission Line Engineering Manager for design of a 48-mile 345 kV steel pole transmission line near the Texas gulf coast. Services included detailed design, material procurement support, development of construction specifications, and construction support.

AEEC-White River 345 kV Transmission Line – Sharyland Utilities: Texas 2014-2016
B&V Transmission Line Engineering Manager. Transmission Line Engineering Manager for design of a 51-mile 345 kV steel pole and lattice tower transmission line in the Texas panhandle. Services included detailed design, material procurement support, development of construction specifications, and construction support.

HVDC Feasibility Analyses – Various Clients: USA 2008-2015
B&V Engineering Manager. Engineering Manager providing engineering support and cost estimating on five proposed HVDC transmission projects for confidential clients:

- 105 mi. in eastern TX, 1000-1250 MW, ±320 or ±400 kV, 2014-2015;
- 480 mi. in upper Midwest, 2400 MW, ±320 or ±400 kV, 2009-2013;
- 160 mi. in southeastern TX, 1000 MW, ±320 kV, 2011;
- 220 mi. in southern CA, 2000-3000 MW, ±500 kV, 2009-2010;
- 730 mi. in western US, 2500-3000 MW, ±500 or ±600 kV, 2008-2012;

Services included cost estimating and conceptual design of overhead, underground, and submarine segments. Specialty services included route assessments, loss analyses, conductor size optimization, and construction details for railroad ROW.

CREZ 345 kV Transmission Project – Sharyland Utilities: Texas 2007-2013
B&V Transmission Line Engineering Manager. Transmission Line Engineering Manager for conceptual studies and detailed design of 300 miles of double-circuit 345 kV transmission line in the Texas panhandle. Services included conceptual design, detailed cost estimating, routing/permitting support, public meeting attendance, design of a new 345 kV double circuit lattice tower family, development of procurement specifications for all major materials, development of construction specifications, bidding support, and construction support.

Various Projects – Multiple Clients: Western USA 2001-2007
Project Manager. Black & Veatch. Project Manager on multiple high voltage transmission line and substation projects. Responsible for project planning/scheduling and managing engineering teams from the conceptual stage through construction. Projects included both design-only and EPC scopes.

DREP 500 kV Transmission Line – Desert Rock Energy Project: New Mexico and Arizona 2006-2007
B&V Project Manager. Project Manager for the conceptual design and development of EPC specifications for 42 miles of new 500 kV transmission line alignment and 172 miles of alignment previously permitted as the Navajo Transmission Project. The project included aerial and ground survey subcontracts, permitting support, title insurance support, and development of detailed specifications for an engineering, procurement, and construction contract.

Eastern Interconnection Feasibility Study – EPG/San Diego Gas & Electric: California 2003-2004
B&V Project Manager. Project Manager for the feasibility study of a new 500 kV interconnection on the eastern side of San Diego. B&V, acting under a subcontract to Environmental Planning Group (EPG), performed the technical evaluations and detailed cost estimates for new 500 kV substations and transmission lines as well as for new and upgraded 230 kV facilities.

Various Projects – Multiple Clients: Western USA 1989-2001
Transmission Line Project Engineer. Black & Veatch. Responsible for routing, conceptual design, cost estimating, detail design, development of procurement and construction specifications, management of geotechnical and surveying subcontracts, and construction support for high voltage transmission line projects.

Navajo Transmission Project – Diné Power Authority Navajo Nation: New Mexico, Arizona, and Nevada 1994-2002
B&V Transmission Line Project Engineer. Responsible for the conceptual design and spotting of 462 miles of 500 kV transmission line.

Marketplace-Allen 500 kV Transmission Line – Nevada Power Company: Nevada 1992
B&V Transmission Line Project Engineer. Responsible for routing, conceptual design, and cost estimating for two proposed 500 kV transmission lines approximately 53 miles in length each. Included extensive routing reconnaissance and right-of-way cost investigations.

Various Projects – Western Area Power Administration: Western USA 1986-1989
Senior Structural Engineer. Lee Wan & Associates. Performed civil-structural design on high voltage transmission line projects.

California-Oregon Transmission Project, Olinda-Tracy 500 kV Transmission Line Uprate – Western Area Power Administration: California 1986-1989
Senior Structural Engineer. Lee Wan & Associates. Responsible for all structural design services including joint detailing, required to modify 171 miles of double-circuit 230 kV lattice towers to single-circuit 500 kV towers for six different tower designs. Tower types modified include 437-foot and 358-foot high river crossing towers and the adjacent deadends. Designs also included converting a medium-angle deadend design to a 6-legged medium and an 8-legged heavy angle design.

Various Projects – Western Area Power Administration: Western USA 1983-1985
Senior Structural Engineer. J. F. Sato & Associates. Performed civil-structural design on high voltage substation and transmission line projects.

Various Projects – US Bureau of Reclamation: Western USA 1978-1983
Senior Structural Engineer US BUREAU OF RECLAMATION. Civil-structural design and construction inspection of high voltage substation and transmission line projects.