STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

Rock Island Clean Line LLC	**)**	
	)	
Petition for an Order granting Rock Island	**)**	
Clean Line a Certificate of Public Convenience	**)**	
and Necessity pursuant to Section 8-406 of the	**)**	
Public Utilities Act as a Transmission Public	**)**	**Docket No. 12-____**
Utility and to Construct, Operate and Maintain	**)**	
an Electric Transmission Line and Authorizing	**)**	
and Directing Rock Island Clean Line pursuant	**)**	
to Section 8-503 of the Public Utilities Act to	**)**	
Construct an Electric Transmission Line.	**)**	

DIRECT TESTIMONY OF

DAVID BERRY

ON BEHALF OF

ROCK ISLAND CLEAN LINE LLC

ROCK ISLAND EXHIBIT 10.0

OCTOBER 10, 2012

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Certain capitalized terms in this testimony have the meaning set forth in the Glossary included as **Attachment A** to the Direct Testimony of Michael Skelly, Rock Island Exhibit 1.0.

I. WITNESS INTRODUCTION AND PURPOSE OF TESTIMONY

Q. Please state your name, present position and business address.

A. My name is David Berry. I am Vice President – Strategy and Finance of Clean Line Energy Partners LLC ("Clean Line"). Clean Line is the ultimate parent company of Rock Island Clean Line LLC ("Rock Island"), the Petitioner in this proceeding. My business address is 1001 McKinney Street, Suite 700, Houston, Texas 77002.

Q. What are your duties and responsibilities as Vice President – Strategy and Finance of Clean Line?

A. I oversee and am responsible for the financing activities, accounting, transaction structuring, and market analysis for Clean Line and its subsidiaries. I am responsible for developing the transmission capacity products offered to Rock Island's potential customers and furthering relationships with those customers. I also am responsible for raising the capital necessary to fund the development and construction of Clean Line's projects.

Q. Please describe your education and professional background.

A. I received a Bachelor of Arts degree *summa cum laude* from Rice University with a major in economics and a second major in history. Prior to joining Clean Line, I was employed by Horizon Wind Energy as Finance Director. At Horizon Wind Energy, I was responsible for financing transactions, investment analysis, power purchase agreement pricing and acquisitions. I worked on and led over $2 billion of project finance transactions, including a non-recourse debt financing that was named North American

Renewables Deal of the Year by *Project Finance*, and several structured equity transactions for projects in development, construction, and operations.

Q. What is the purpose of your direct testimony?

A. I am testifying in support of Rock Island's request to be issued a Certificate of Public Convenience and Necessity pursuant to Section 8-406 of the Illinois Public Utilities Act ("PUA") to construct, operate and maintain the Rock Island Clean Line transmission project ("Rock Island Project" or the "Project") and to operate as a public utility in the State of Illinois, and to be issued an order under Section 8-503 of the PUA to construct the Project. I will first describe the market, environmental and policy benefits that led Rock Island to decide to pursue the Project. My testimony identifies government data and other publicly available information and studies that Rock Island has utilized in formulating its business plan to develop the Project. I will then address Rock Island's financial capabilities to finance construction and operation of the Project and to operate as a transmission-only utility in Illinois. I will demonstrate that Rock Island is capable of financing the construction of the Project without significant adverse financial consequences to Rock Island or its customers. I will set forth Rock Island's financing plan and explain why that plan is viable. Finally, I will address several accounting matters with respect to Clean Line's allocation of costs to Rock Island, Rock Island's maintenance of books and records in accordance with the Federal Energy Regulatory Commission ("FERC") Uniform System of Accounts, and Rock Island's request to maintain its books and records at the headquarters of Clean Line in Houston, Texas.

Q. In addition to your prepared direct testimony, which is identified as Rock Island Exhibit 10.0, are you presenting any other exhibits?

A. Yes, I am presenting additional exhibits identified as Rock Island Exhibits 10.1 through 10.11, which were prepared under my supervision and direction.

II. WHY ROCK ISLAND IS DEVELOPING THE PROJECT

Q. Can you please summarize the purpose of the Project?

A. The Project will connect Illinois and the 765 kilovolt ("kV") PJM network to the outstanding wind resources of northwest Iowa and nearby areas in South Dakota, Nebraska and Minnesota (collectively called the "Resource Area"). This transmission link will enable over 4,000 megawatts ("MW") of wind farms to be constructed, which otherwise would not be built due to limitations of the existing grid, and to have their electricity delivered to Illinois. These wind farms can provide low-cost, clean and renewable energy to Illinois.

Q. Why has Rock Island decided to pursue this Project?

A: Rock Island has decided to pursue this Project because it will result in the following benefits. These benefits are discussed in my testimony and the testimony of the other Rock Island witnesses in this proceeding.

- The Project will deliver to the Illinois market some of the highest capacity factor wind resources in the country. These resources are lower cost and more plentiful than resources located in Illinois and states farther east.

- The Project will provide access to renewable energy resources needed to meet state Renewable Portfolio Standard ("RPS") requirements and to allow Illinois and other states to comply with their RPSs in a cost-effective manner. By accessing a plentiful supply of high capacity factor wind energy, the Project reduces the risk of high RPS compliance costs and the failure to satisfy RPS requirements due to limitations of the existing transmission grid. Further, because prices for Renewable Energy Credits ("RECs") in different states are linked, the supply of RECs available to meet other states' RPS laws is relevant to Illinois.

- The Project will increase the supply of renewable energy to Illinois and the PJM Interconnection, LLC ("PJM") market. It will provide a substantial source of zero marginal cost energy, which will increase generator competition and exert downward pressure on wholesale energy prices.

- The wind resources enabled by the Project will reduce the need for energy from other sources and will therefore reduce emissions of carbon dioxide, sulfur dioxide, nitrogen oxides, and mercury. The Project will also reduce water usage otherwise required for cooling thermal power plants.

- The Project will create geographical diversity in the wind projects that deliver into Illinois and PJM, thereby reducing variability, facilitating wind integration, and improving reliability.

- The Project will provide a substantial number of Illinois jobs, both in the transmission line construction and in the manufacturing of components used in the wind industry.

A. <u>Project Wind Resource Potential</u>

Q. How much renewable energy will the Project deliver to Illinois and regional electricity markets?

A. The Project will deliver approximately 15 million megawatt-hours ("MWh") of renewable energy per year. This amount of energy is made possible by the outstanding wind resources of the Resource Area, where wind capacity factors now routinely exceed 40%.

Q. Does the Resource Area have untapped potential for the development of high quality wind resources?

A. Yes. The U.S. Department of Energy's National Renewable Energy Laboratory ("NREL") ranks Nebraska, South Dakota and Iowa as the states with the second, third and seventh highest wind capacity potential in the U.S., respectively. According to NREL, Nebraska and South Dakota have the potential for 777,000 MW and 766,000 MW, respectively, of wind generation facilities in areas with sufficient wind speeds to support gross capacity factors greater than 40%. The annual generation potentials of

these facilities are 3,084,000 GWh and 3,039,460 GWh, respectively.[1] However, according to the American Wind Energy Association, Nebraska and South Dakota had only 337 MW and 784 MW, respectively, of installed wind generation capacity as of June 30, 2012, meaning only a tiny fraction of these states' wind potential is currently utilized.[2] While wind generation capacity has been more extensively developed in Iowa, with 4,524 MW of capacity installed as of June 30, 2012,[3] an enormous, untapped development potential remains in the state. According to NREL, Iowa has the potential to install over 318,000 MW of wind projects with gross capacity factors above 40%.[4]

The Rock Island Project's western converter station will be located in O'Brien County, which is in the windiest part of Iowa. Within O'Brien County and the eight counties it borders, I estimate that there is at least 45,000 MW of high quality wind generation potential.[5] To create this estimate, I used the United States wind map developed by AWS Truewind and sponsored by NREL, included as Rock Island Exhibit 10.1. AWS Truewind is a leading wind energy meteorological firm with over 30 years of experience providing services to the wind industry. Their work is widely accepted by

[1] NREL, Estimates of Windy Land Area and Wind Energy Potential by State for Areas with a Gross Capacity Factor of 40% and Greater at 80 Meters (2010); available at: http://www.windpoweringamerica.gov/docs/wind_potential.xls (last visited September 12, 2012) [hereinafter "NREL Estimates of Wind Energy Potential"]. The NREL Estimates of Wind Energy Potential assume turbine technology prevalent in 2009. Therefore, NREL may understate the capacity factors that could be obtained using current or future turbines. However, improved turbine technology will not change the relative capacity factors between geographies. That is to say, the Resource Area will still support higher capacity factors and have more wind potential at a given capacity factor than less windy locations farther East.

[2] American Wind Energy Association, *AWEA U.S. Wind Industry Second Quarter 2012 Market Report*; available at: http://www.awea.org/learnabout/publications/reports/upload/2Q2012_Market_Report_PublicVersion.pdf (last visited September 13, 2012).

[3] *Id*.

[4] NREL Estimates of Wind Energy Potential.

[5] The nine county area includes O'Brien, Lyon, Osceola, Dickinson, Sioux, Clay, Plymouth, Cherokee, and Buena Vista Counties.

wind developers, investors, lenders, and utilities. The wind map is a standard tool used by wind developers and utility planners used to identify areas of high wind resource potential. The wind map was developed using computerized weather models pioneered by the National Weather Service. Working with Clean Line's Geographic Information Systems team, I measured the areas in O'Brien County and neighboring counties with estimated average wind speeds at 80 meters above ground of more than 8 meters per second (80 meters is a typical hub height of modern wind turbines). This is a level of wind speed that, applying current turbine technologies, I estimate could produce a net capacity factor of 40% or higher. To determine the capacity potential of this area in megawatts, I applied a ratio of 5 MW of installed wind generation capacity per square kilometer, *i.e.*, the amount of wind turbine capacity that can reasonably be installed per square kilometer. This ratio is used in the NREL Estimates of Wind Energy Potential. I consider this ratio to be appropriate based on my experience in wind development and based on typical turbine setbacks from other turbines, roads, residences and additional siting constraints. Rock Island Exhibit 10.2 shows the detailed calculations for the 45,000 MW estimate of high quality wind generation potential in O'Brien County, Iowa, and the eight surrounding counties.

In light of the preceding estimates and my own experience in developing wind farms in the Resource Area while with Horizon Wind Energy, I am confident that the amount of the available wind resources is not a constraining factor on the number of wind energy projects that can be built in the Resource Area. Rather, the key constraints are transmission infrastructure and market access. Without transmission paths to load centers and buyers of renewable energy, additional wind projects in the Resource Area will not

proceed. By creating these transmission paths, the Rock Island Clean Line will enable new, cost effective wind farms to be constructed in the Resource Area.

Q. Why are higher wind speeds and higher capacity factors important?

A. Higher wind speeds lead to a higher capacity factor, meaning that the wind generator runs at a higher average percentage of its maximum power output. For example, a wind turbine with a 2 MW capacity rating can produce a maximum amount of 2 MW of power under ideal circumstances. The actual power produced varies with wind speed; a wind turbine might produce at 50% of its maximum output if the wind speed at its hub height were 8.0 meters per second (m/s). The same turbine might produce at its full power rating with a wind speed of 15.0 m/s and might produce at no power with a wind speed of 4.0 m/s.

Even small differences in wind speed have important consequences for the amount of energy that can be produced. The kinetic power potential of wind varies with the cube of the wind velocity. Consequently, an 8.5 m/s average wind speed site will have, other things being equal, 1.79 times the power potential of a 7 m/s site. This effect substantially reduces the cost of wind energy produced by facilities located in areas with higher average wind speeds. As more energy is produced by a wind turbine, the unit cost of energy decreases, because the upfront capital cost can be recovered over a larger number of megawatt-hours. A market survey conducted by Lawrence Berkeley National Laboratory ("LBNL") found that from 2010-2011, wind farms in the Heartland region that includes South Dakota, Minnesota, Nebraska, and Iowa had average power purchase prices that were more than 20% lower than wind farms in the Great Lakes region

including Illinois, Indiana, and Ohio.[6] LBNL also found that in 2011, installed wind farms in the Heartland region had an average capacity factor of nearly 40%, compared to about 30% for wind farms in the Great Lakes region.[7] During my time as Finance Director for Horizon Wind Energy, I had broad responsibility for pricing power purchase agreement proposals, and my experience was consistent with LBNL's findings that high capacity factor sites result in the lowest cost renewable energy. Furthermore, because of high levels of competition among wind power developers, the savings from high capacity factors sites were not kept by the developers, but were instead passed on to power purchase customers and, ultimately, to consumers. My experiences at Horizon Wind Energy, and the experiences of other Rock Island management team members in wind development, have made clear to us the importance of building transmission to the windiest parts of the country in order to generate large volumes of renewable energy at affordable prices.

Q. How do the quality of the wind resources and the development potential in the Resource Area compare to Illinois?

A. In general, the wind resources are stronger in the Resource Area than in Illinois. Rock Island Exhibit 10.1, as I described earlier, is a wind map of the United States which illustrates that wind speeds at 80 meters (a typical hub height of modern wind turbines) are, on average, higher in northwest Iowa than in Illinois. According to NREL, potential projects with above 40% gross capacity factors in Iowa, South Dakota and Nebraska

[6] LBNL, "2011 Wind Technologies Market Report." p. 53. Available at: http://www1.eere.energy.gov/wind/pdfs/2011_wind_technologies_market_report.pdf (last visited August 31,2012). Hereinafter referred to as "2011 Wind Technologies Market Report."

[7] Id., p. 46.

could annually generate 7.4 billion MWh of renewable electricity. The same NREL analysis concluded that the potential wind farms in Illinois with above 40% gross capacity factors could annually generate only 15.9 million MWh, or about 0.2% as much as in the states of Iowa, South Dakota and Nebraska combined.[8] Furthermore, in my experience, due to lower population density in the Resource Area, more windy areas in the Resource Area are suitable for and supportive of wind energy development, as compared to sites in Illinois and farther East.

Despite the comparative abundance of wind potential and suitable land for wind projects in states to the west of Illinois, I do expect that the wind industry will continue to grow in Illinois and in other states farther east. However, increased transmission capacity from the windiest areas of the country, such as the Resource Area, to Illinois and markets to the east is still needed to assure that an adequate, competitive supply of renewable energy is available to these markets. Without new transmission, there may not be enough accessible high quality sites to meet demand, and those sites that do exist may have undue market power.

Q. Is there currently ample long-distance transmission capacity between the Resource Area and other areas in the Great Plains region with high quality wind resources and market areas such as northern Illinois?

A. No, there is not. Rock Island Exhibit 10.3 is a map showing the high voltage transmission grid in the United States.[9] A comparison of the U.S. wind map provided in Rock Island Exhibit 10.1 and the map of the U.S. high voltage transmission grid in Rock

[8] NREL Estimates of Wind Energy Potential.

[9] The source for the map in Rock Island Exhibit 10.3 is Ventyx's Energy Velocity database, which is a commonly used utility industry tool.

Island Exhibit 10.3 shows that the transmission capacity needed to bring electricity produced by wind generation facilities in the areas of the U.S. with the best wind resources, including the Resource Area, to load and population centers in Illinois and other eastern states, is limited or non-existent. No transmission lines above 345 kV, and no direct current ("DC") lines of any voltage, currently connect the Resource Area to northern Illinois. While it is theoretically possible to move power from the Resource Area to northern Illinois using 345 kV lines, this would: 1) entail substantially higher electric losses as compared to an HVDC solution, 2) expose the shipper to congestion costs on the AC system that result from transmission constraints, and 3) require the shipper to pay wheeling charges to both Midwest Independent Transmission System Operator, Inc. ("MISO") and PJM. These additional costs and complexities make it unrealistic and uneconomic from a practical standpoint for wind developers to move power from new wind facilities in the Resource Area to northern Illinois. Moreover, there are currently very limited opportunities to interconnect wind farms in the Resource Area to the existing grid. In O'Brien County, Iowa, and the eight bordering counties, due to transmission limitations, no new wind turbines have been installed since 2009, despite the 45,000 MW of high capacity factor resource potential in the same area, which I describe earlier in my testimony. MISO publishes a map of available interconnection capacity attached as Rock Island Exhibit 10.4, which shows that northwest Iowa and the other states in the Resource Area have very little available transmission capacity.[10]

[10] MISO Generator Interconnection Contour Map. Available at: https://www.midwestiso.org/Library/Repository/Study/Generator%20Interconnection/GI-Contour_Map.pdf (last visited September 26, 2012)

Q. Are wind developers actively pursuing wind farms in the Resource Area?

A. Yes. I am aware of 15 wind developers with active development projects in the Resource Area, and Rock Island has briefed each of these developers on its transmission project. As Rock Island moves closer to construction and obtains additional regulatory approvals, other developers are likely to undertake development efforts. As described above, there is no shortage of windy land suitable for wind farms in the Resource Area. Nonetheless, as Mr. Skelly testifies and as I know from my own experience in developing wind generation projects, development of new wind projects in the Resource Area will not proceed until the developers are reasonably confident that there will be adequate transmission capacity to connect their projects to load and population centers such as the northern Illinois market.

Q. Did you provide any information to any other Clean Line witnesses about the potential power production of wind farms connected to the Project?

A. Yes. I provided Clean Line witnesses Gary Moland and Leonard Januzik with ten-minute and hourly modeled production data for wind farms potentially connected to the Project. To prepare this data set, I selected eight potential wind farms in northwest Iowa, totaling 4,349 MW in capacity, that were included in the Eastern Wind Integration and Transmission Study ("EWITS study").[11] The EWITS study was sponsored by NREL, who hired a leading wind energy meteorology firm, AWS Truewind, to create production data for potential wind farms located throughout the Eastern Interconnection. These production data were created using detailed computer models of weather patterns and

[11] Though the Project's maximum delivery capacity is 3,500 MW, a higher capacity of wind farms is likely to be installed in the Resource Area. Because multiple wind farms rarely produce at their maximum output simultaneously, the additional wind farm capacity above 3,500 MW can increase utilization of the transmission line, and therefore lower delivered cost.

have been used by a number of utilities and regional transmission organizations in later wind integration studies, including studies performed by PJM, Southwest Power Pool, and the New England Independent System Operator.

Q. Can 4,350 MW of new wind farms be constructed within the time that it will take to construct the Rock Island Project?

A. Yes. The development and construction timeline of wind farms is much shorter than that of a transmission line. In my experience, it takes approximately two years to develop a wind farm in the Resource Area and other areas similar in their permitting requirements and land use. Construction, even for large wind farms, then takes between six months and a year. Rock Island is almost three years into a multi-year permitting and routing process and expects that land acquisition and construction and will take an additional three years once all key permits and approvals are obtained for the Project. Because of its longer timeline, Rock Island needs to obtain approvals to build the Project before the associated wind farms will begin construction. As I stated earlier, unless wind farm developers have reasonable assurances, such as will be demonstrated by the issuance of necessary permits and other authorizations for proposed transmission facilities, that their projects will have an adequate transmission outlet, these wind farm developers and their investors will not commence construction of their projects.

Installing a large number of wind turbines in a single geographic area is not new to the wind industry. When I began working in the wind industry in 2005, most projects were under 100 MW, and no turbines installed in the United States were larger than 2 MW. Now, 400 MW wind farms and 3 MW machines are common. According to the LBNL, the average capacity of wind turbines installed in the United States has increased

33% from 2005 to 2011.[12] Moreover, it is common for developers to locate multiple wind farms in close proximity. In the area surrounding Abilene, Texas, developers have constructed more than 2,500 MW of wind generation, while the in Columbia River Gorge region, there are currently more than 4,400 MW in service and additional projects are under construction.

Q. Will wind farms built in the Resource Area reduce the aggregate capacity of wind farms to be built in Illinois?

A. In my opinion, no. First, the size of the market for renewable energy, as I discuss further below, is sufficiently large to allow for the expansion of wind projects both in Illinois and in the states to the west of Illinois – assuming that sufficient transmission is built to bring the output of the wind farms in the western states to markets in Illinois and farther east. According to data published by the U.S. Energy Information Administration ("EIA"), Illinois' wind energy generation currently accounts for about 46% of the total wind energy generated within the PJM states.[13] Illinois generally has the highest capacity factor sites currently in operation in the PJM region. Consequently, both wind farms in the Resource Area and wind farms in Illinois will be cost advantaged relative to wind farms located farther east, solar projects, offshore wind farms, and other potential sources of supply that could meet the RPS requirements in the PJM states.

Second, state RPS targets are a key driver of renewable energy projects, but they are not the only driver, nor do they set a cap on wind energy development. For example,

[12] 2011 Wind Technologies Market Report, p. 24.

[13] U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report." (spreadsheet available on EIA website's "Form EIA-923 detailed data" section). Available at: http://www.eia.gov/electricity/data/eia923/ (last visited September 15, 2012).

more wind farms have been installed in Iowa and Texas than are necessary to meet the current requirements of their respective RPS. While the 2013 RPS targets were 105 MW for Iowa and 5,256 MW for Texas, as of June 30, 2012, Iowa and Texas had 4,524 MW and 10,648 MW of installed wind capacity, respectively.[14] Both states have many additional wind projects under development that are on hold pending further build out of the transmission grid. Further, as I describe below, the highest capacity factor wind sites are competitive with generation costs from thermal resources. As a result, RPS targets are not a ceiling for renewable energy development but a floor. Consumers stand to benefit if renewable energy supply exceeds RPS targets. A large supply of renewable energy will put downward pressure on the cost of RECs, and thus reduce the cost to load serving entities of complying with RPS targets. As further discussed in the testimony of Clean Line witnesses Dr. Karl McDermott and Gary Moland, the additional wind energy supply that the Rock Island Project will enable to access the Illinois market will reduce wholesale power prices, which creates further benefits for electric consumers.

B. Demand for Renewable Energy

Q. What factors will drive demand for renewable energy delivered by the Project?

A. Demand for renewable energy, such as the energy delivered by the project, will be high in coming years for a number of reasons. Over half of the 50 states have adopted renewable energy goals or targets to purchase a certain percentage of their electricity from renewable sources, and a number of customers and utilities voluntarily purchase renewable energy in excess of the applicable statutory goals and targets. Moreover, due

[14] American Wind Energy Association, *AWEA U.S. Wind Industry Second Quarter 2012 Market Report*; available at: http://www.awea.org/learnabout/publications/reports/upload/2Q2012_Market_Report_PublicVersion.pdf (last visited September 13, 2012).

to the age of the existing generation fleet and additional environmental regulation, the U.S. generation mix will continue to evolve towards cleaner sources. Finally, high capacity factor wind energy has become cost competitive with other power sources, and therefore is a compelling option for utilities as a part of their generation planning. I discuss each of these factors in detail below.

Q. Please describe the requirements of the Illinois RPS.

A. Illinois has established RPS requirements for electric utilities supplying "eligible retail customers" and for alternative retail electric suppliers ("ARES").[15] The RPS requirement specifies that a certain percentage of the total energy supplied by Commonwealth Edison and Ameren Illinois to their "eligible retail customers" must come from renewables. The RPS began at 2% of total supply by June 1, 2008, and has increased (and will continue to increase) incrementally to 25% of total supply to "eligible retail customers" by June 1, 2025).[16] These RPS requirements are also applicable to ARES with respect to the retail load they serve, although ARES are currently required to satisfy 50% of their RPS obligation, and may elect to satisfy up to 100% of their RPS obligation, by making alternative compliance payments to the Illinois Power Agency ("IPA") which the IPA is then to use to procure RECs.[17] For electric utilities serving "eligible retail customers," at

[15] As defined in §16-111.5(a) of the PUA, 220 ILCS 5/16-111.5(a), "eligible retail customers" are "those retail customers that purchase power and energy from the electric utility under fixed-price bundled service tariffs, other than those retail customers whose service is declared or deemed competitive under Section 16-113 [of the PUA] and those other customer groups specified in this Section [§16-111.5], including self-generating customers, customers electing hourly pricing, or those customers who are otherwise ineligible for fixed-price bundled tariff service."

[16] Specifically, the RPS increases by at least 1% per year from June 1, 2009, to at least 10% by June 1, 2015, and thereafter by at least 1.5% per year to at least 25% by June 1, 2025. The RPS is set forth in Section 1-75(c)(3) of the Illinois Power Agency Act (20 ILCS 3855/1-75(c)(3)) and is made applicable to ARES by Section 16-115D of the Public Utilities Act (220 ILCS 5/16-115D).

[17] Sections 16-115(d)(5) and 16-115D of the Public Utilities Act, 220 ILCS 5/16-115(d)(5) and 16-115D, and Section 1-56 of the Illinois Power Agency Act, 20 ILCS 3855/1-56.

least 75% of the renewable energy used to meet their RPS requirement must come from wind generation. For ARES, at least 60% of the renewable energy used to meet their RPS requirement must come from wind generation. As a result of these statutory requirements, Illinois will have a strong and growing demand for electricity generated from renewable resources, and from wind generation in particular, well into the future. Under the Illinois RPS law, beginning in 2012, a preference is given to cost-effective renewable energy generated in Illinois and "adjoining states,"[18] which include Iowa. Therefore, energy delivered by the Project from Iowa wind farms will be eligible to meet the Illinois RPS.

While the migration of Illinois customers from the electric utilities to ARES may affect the amount of wind required to meet the RPS, it will not change the total amount of renewable energy needed. Because wind is the low-cost renewable resource, as discussed below in my testimony, it should continue to capture most of the ARES' RPS demand. Therefore, ARES' gains in market share should not decrease the need for cost-effective wind energy, such as that delivered by the Project. In some circumstances, load switching to ARES can actually increase renewable energy demand. As allowed by Illinois law, numerous municipalities in Illinois have conducted referenda that authorized a municipal aggregation program whereby an alternative retail provider supplies electricity to residential and small business retail customers, other than those customers who opt out of the program or who are already served by an ARES.[19] A number of these municipalities have required the alternative retail provider to obtain a significant portion

[18] Illinois Power Agency Act, 20 ILCS 3855/1-75(c)(3).

[19] IPAA §1-92, 20 ILCS 3855/1-92.

of its electricity supply from additional renewable resources beyond the RPS minimum requirements, or to offer the retail customers an option to specify that a stated percentage of the electricity supplied must come from renewable resources above and beyond the RPS minimum requirements.

Q. Do other states, in addition to Illinois, also have RPS established by statutes or regulations?

A. Yes. Thirty states and the District of Columbia have renewable energy standards. Another seven states have voluntary renewable energy goals. Within the PJM footprint, the District of Columbia, Delaware, Maryland, Michigan, New Jersey, West Virginia, North Carolina, Ohio, and Pennsylvania all have enacted renewable portfolio standards, in addition to Illinois.[20] Because RECs could be used in any number of states to satisfy the state's RPS, the prices of RECs in states that have RPSs tend to be highly linked. A shortfall in the supply of RECs to satisfy the RPS in one PJM state will tend to cause supply shortfalls in other states as well and will push REC prices towards the price cap or alternative compliance payment limit that may be applicable under each state statute or regulation. This effect was observed in 2009, when RECs traded in both New Jersey and Illinois reached a high of over $10/MWh due to limited supply but declined in a highly correlated fashion throughout 2010 and 2011. The price declines in 2010 and 2011 were a result of additional wind installations and the associated increase in REC supply.[21]

[20] Indiana and Virginia have adopted voluntary renewable energy goals.

[21] See 2011 Wind Technologies Market Report, p. 54.

Q. What is the total demand for renewable energy under the RPS of Illinois and the other PJM states?

A. Taking the municipal aggregations mentioned above into account, I estimate that Illinois RPS demand will be 13.3 million MWh in 2015, 24.3 million MWh in 2020, and 36.2 million MWh in 2025. I estimate that the demand for renewable energy from states in the PJM footprint will be 82.7 million MWh in 2015, 131.0 million MWh in 2020, and 165.0 million MWh in 2025. These figures were determined by using the statutory requirements and load forecasts from the Energy Information Administration's 2012 Annual Energy Outlook.[22] The calculations to arrive at these figures are provided in Rock Island Exhibit 10.5.

PJM separately estimated 2025 RPS demand at 131.5 million MWh.[23] This figure is lower than Rock Island's estimate principally because it only includes the RPS obligations of load serving entities in the PJM service territory. For example, PJM's estimate only includes the portion of the Illinois RPS demand located in the PJM service area, and it excludes the Illinois RPS obligations of MISO members like Ameren from its calculation. However, electricity produced by Iowa wind farms connected to the Project will be able to meet the RPS requirement of both MISO and PJM entities in Illinois. My demand estimate includes RPS obligations from all load serving entities in PJM states, regardless of their RTO membership, but PJM's more conservative approach also

[22] EIA, "Annual Energy Outlook 2012." Available at: http://www.eia.gov/forecasts/aeo/ (last visited August 31, 2012).

[23] PJM 2011 Reliability Analysis Update. Available at: http://pjm.com/~/media/committees-groups/committees/teac/20110415/20110415-reliability-analysis-update.ashx. (last accessed September 17, 2012).

supports the conclusion that there will be a large future demand for renewable energy, such as the energy delivered by the Project, due to RPS targets.

Q. How does this total volume of renewable energy demand due to state RPS requirements compare with existing supply?

A. According to data published by the U.S. Energy Information Administration, in 2011, total renewable energy generation in the PJM states was about 27.8 million MWh. In Illinois, total renewable energy generation during that same time period was about 7.0 million MWh.[24] Thus, the current level of renewable energy supply in Illinois and the PJM states falls far short of the projected demand over the next 12 years based on state RPS requirements. By delivering 15 million MWh of renewable energy each year, the Rock Island Project presents an opportunity for PJM to increase its annual renewable generation by more than 50%, and the Project could deliver almost twice as much wind energy as is currently being produced in Illinois.

Q. How will the Project affect wholesale energy prices and REC prices?

A. By increasing the supply of energy bidding into the Illinois and PJM markets, the Project will result in a decrease in wholesale energy prices. This benefit is detailed in Gary Moland's testimony (Rock Island Exhibit 3.0) and is further discussed in Dr. Karl McDermott's testimony (Rock Island Exhibit 4.0), and has also been documented by the Illinois Power Agency in a recent report on the benefits of wind energy to Illinois.[25] The

[24] Includes energy generation from wind, solar thermal and photovoltaic, wood and wood-derived fuels and other biomass. U.S. Energy Information Administration, Electric Power Monthly. Available at http://205.254.135.7/electricity/monthly/index.cfm (last accessed September 17, 2012).

[25] Illinois Power Authority, "Annual Report: The Cost and Benefits of Renewable Procurement in Illinois Under the Illinois Power Agency and Illinois Public Utility Acts." Available at: http://www2.illinois.gov/ipa/Documents/April-2012-Renewables-Report-3-26-AAJ-Final.pdf. (last accessed on August 31, 2012).

Project will also provide an additional supply of RECs that can be bid into the Illinois procurement process and similar processes in other states. RECs are commodities that can be bought and sold between multiple parties and that allow their owners to claim that renewable electricity was produced to meet a renewable energy requirement. RECs provide their buyers with flexibility to meet renewable energy goals without having to purchase renewable energy from sources close to their load. The additional supply of RECs provided by the Project will reduce prices and reduce the risk of non-compliance with state RPS requirements, as I have described.

Q. What will happen if new transmission lines are not constructed to bring electricity from states with better wind resources to Illinois and the other PJM states?

A. If sufficient transmission to connect better wind resource areas, such as the Project's Resource Area, to Illinois and PJM markets are not developed, wind developers will be forced to develop wind farms at sites closer to load and the existing transmission grid, but with lesser wind resources than are available in more remote areas such as the Resource Area. This will lead to increased costs for RPS compliance and an overall increase in costs to consumers. A lack of transmission connecting the better wind resource areas may also force a higher percentage of RPS obligations to be met through solar or biomass projects, which are typically more expensive than comparable wind projects. If sufficient renewable energy resources are not available, utilities may have to make alternative compliance payments under state RPS laws. Both more expensive RECs and alternative compliance payments would increase retail rates relative to a case where there is a plentiful supply of RECs generated by the highest capacity factor wind energy projects.

Q. Does Illinois have an interest in other states having adequate resources available to meet their state RPSs?

A. Yes, for several reasons. First, shortfalls in other states in renewable energy resources to meet RPS requirements will tend to increase REC prices throughout the region, and therefore the cost of RPS compliance for suppliers to Illinois consumers. Historical evidence shows that tight supply tends to increase REC prices in multiple states, not just a single state. An LBNL report, for example, found a substantial correlation in REC prices between states.[26] In my experience as a developer and owner of wind farms, I saw that REC prices in the markets of different states that can access the same supply tend to move together in a highly correlated fashion. For example, I saw that the cost of RECs to meet the Illinois RPS had a strong link to the cost of RECs that could meet the Pennsylvania and New Jersey RPS. This observation is, of course, consistent with economic logic. If REC prices were higher in State A compared to State B, and a REC was eligible to meet both states' RPSs, owners of RECs would sell them in State A's market until the prices levelized with the prices in State B's REC market. Differences in REC pricing between markets where RECs can be traded across states are likely to be arbitraged away, leading prices to converge. Accordingly, Illinois' ability to meet its own RPS cost effectively depends on other states also having an adequate supply of renewable resources and RECs to do so.

Second, Illinois is a major player in the wind supply chain and benefits from manufacturing jobs driven by the construction of wind projects. Because the majority of a wind farm's costs come from turbine procurement, the economic benefit from

[26] See 2011 Wind Technologies Market Report, p. 54.

construction will be spread across those states that participate in the turbine supply chain, regardless of where the turbines are ultimately installed. As further addressed in the testimony of Dr. David Loomis, Illinois could realize substantial economic benefits from the wind farms that would be constructed as a result of the Rock Island Project.

Third, environmental benefits are regional or global due to the public nature of clean air and the ability of emissions from fossil-fueled generation sources in one area to migrate to another area. For example, carbon dioxide emissions contribute to the atmospheric concentration of greenhouse gases regardless of the location of their source. Additionally, particulate emissions from power plants can affect human health in downwind areas, as noted by the Environmental Protection Agency ("EPA") in its regulation of pollution in upwind states that contributes to downwind non-attainment areas.[27]

Q. In addition to state RPS demand, what other factors will drive demand for renewable energy?

A. With retirements of plants in the existing U.S. generation fleet due to age and environmental requirements, customers will demand clean and cost-effective sources of energy. Over the past four years, U.S. coal generation has decreased by 14%, while total generation has decreased by only 1%.[28] According to the EIA, utilities report that, over

[27] The contribution of upwind pollution to downwind states' air quality is reflected in the Clean Air Act, which requires that states' air quality plans must "(D) contain adequate provisions—(i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will—(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard." (42 U.S.C. § 7410(a)(2)(D)).

[28] EIA, "Electric Power Monthly." Available at: http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_1_1 (last accessed August 31, 2012).

the next four years, they intend to retire almost 26,000 MW of coal plants.[29] Over the next two decades, the total number of retirements of coal plants is likely to be much higher due to the limitations imposed by and costs of compliance with environmental regulations and the favorable economics of other generation sources such as natural gas. In its 2012 Annual Energy Outlook, the EIA performed detailed economic modeling of the US electric grid and projected the total amount of coal retirements across a number of future scenarios. In its Reference case, which is a "business as usual" case based on current laws, policies and market trends, the EIA forecasts almost 50,000 megawatts of coal capacity retirements by 2035, and in a scenario featuring greenhouse regulation, retirements before 2035 reach 70,000 megawatts.[30] The construction of any significant amount of new coal generating plant capacity is extremely unlikely due to high capital costs and the likelihood of additional environmental regulation being imposed. Several adopted or proposed rules of the EPA impact coal plants, including:

- The finalized Mercury Air Toxics Standard required by Section 112 of the 1990 Clean Air Act Amendments, which mandates that the maximum available control technology for limiting air pollutants such as mercury, acid gases, metals and organics be installed at coal- and oil-fired power plants with nameplate capacities greater than 25 MW.

- The Clean Air Interstate Rule ("CAIR"), covering 27 eastern states, including Illinois, implemented a cap and trade system for sulfur dioxide and nitrogen oxides. Though the EPA attempted to replace CAIR with the Cross State Air Pollution Rule ("CSAPR"), the D.C. Circuit Court of Appeals vacated CSAPR, but in doing so reinstated CAIR until a new rule is successfully promulgated.

- The Clean Water Act requires the EPA to implement rules requiring that "cooling water intake structures reflect the best technology available for minimizing adverse

[29] EIA, "Form EIA-860 detailed data." Available at http://www.eia.gov/electricity/data/eia860/index.html (last accessed September 16, 2012).

[30] EIA, "Annual Energy Outlook 2012." Available at: http://www.eia.gov/oiaf/aeo/. (last accessed August 31, 2012).

environmental impact."[31] Under a settlement agreement, the EPA is required to implement final standards for existing power plants by June 27, 2013.[32]

- A proposed Carbon Pollution Standard for New Power Plants, which would limit carbon dioxide emissions from new electric generation facilities larger than 25 MW to 1,000 pounds per MWh.[33]

As more coal plants retire, they will need to be replaced by other, cleaner sources of generation, including low cost wind energy, in order to keep rates from increasing and to maintain a secure electric supply. Additionally, the difficulty in constructing new coal plants will require utilities to turn to other sources of generation, such as wind energy, to meet load growth and replace retired generation.

Q. Is wind a cost effective resource?

A. Yes. In the windiest parts of the country, wind power purchase agreements are now routinely signed in the $30 per MWh range, and sometimes even below $30 per MWh.[34] The downward trajectory of wind energy costs is due to two factors. First, installation costs have declined by approximately 30% since their peak, which I estimate to have occurred in 2008. Second, the energy yield per wind turbine has improved due to better technology. The relevant technological innovations include taller towers, longer blades, advanced materials, and more sophisticated controls. Together these innovations have increased capacity factors by up to 30% at the same wind speed. In the $30 per MWh

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[31] Clean Water Act, Section 316(b), 33 U.S.C. §1326(b).

[32] *2nd Amendment to Settlement Agreement among the EPA, Plaintiffs In Cronin, et al. v. Reilly, 93 CIV. 314 (LTS) (SDNY), and Plaintiffs in Riverkeepter, et al. v. EPA, 06 CIV. 12987 (PKC) (SDNY).* Available at: http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/loader.cfm?csModule=security/getfile&PageID=627843 (last accessed September 17, 2012).

[33] Proposed amendments to 40 C.F.R. Part 60, 77 Fed. Reg. 22392-22441 (April 13, 2012); available at: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0660-0001 (last accessed September 26, 2012).

[34] See, for example, 2011 Wind Technologies Market Report, p. 52.

range, high capacity factor wind is cost effective compared to other new generation resources and is unquestionably the cheapest way to meet renewable and clean energy goals. As a point of comparison, NREL estimates the cost of new, utility-scale photovoltaic solar projects at $90-150 per MWh.[35] DOE's Energy Information Administration estimates the cost of a new combined cycle gas plant at $66 per MWh and the cost of a new conventional coal plant at $95 per MWh.[36] While these costs vary by location and project specifics, wind from the Resource Area clearly can compete with other generation alternatives.

C. Other Project Benefits

Q. In addition to responding to the demand for electricity from renewable resources and offering a clean, cost-effective energy source, what other benefits led Clean Line to pursue the Project?

A. The Project will increase geographic diversity in the wind resources available to Illinois and neighboring states, which can reduce the costs of integrating wind energy into the electric portfolio. Moreover, the Project will provide economic benefits in the form of decreased wholesale electricity and REC prices and environmental benefits through reduced emissions and water usage from non-renewable power generation sources.

Q. How is wind incorporated into the electric power grid?

A. Because wind output varies over time, it needs to be complemented with energy generation from more dispatchable sources, such as fossil fuel-fired power plants. These

[35] NREL. "2011 Solar Technologies Market Report," p. 52. Available at: http://www.nrel.gov/docs/fy12osti/51847.pdf. (last accessed August 31, 2012).

[36] EIA. "Levelized Cost of New Generation." Available at: http://www.eia.gov/oiaf/aeo/electricity_generation.html (last accessed August 31, 2012).

conventional sources step in whenever the energy output from renewable resources falls. Wind integration is a term used in the electric industry to describe the way that the bulk power system is run in order to accommodate the variable nature of wind generation. Ramping generation from conventional power plants up and down can have costs; it may reduce the operational efficiency of the plants, thus increasing the cost of energy produced by them. In addition, there are certain design limits to the speed with which these plants can be ramped up and down. However, the bulk power system has a great deal of built-in flexibility. Since load constantly increases and decreases, the generation fleet already has to adjust power levels to match supply and demand. Moreover, the costs of wind integration (such as the costs of ramping conventional generators up and down to support the variable generation) can be greatly reduced by a number of techniques, including the use of forecasting and geographic diversity in the portfolio of wind projects.

Q. How does geographic diversity of wind resources facilitate wind integration?

A. Dispersing the locations of wind farms is a very effective way of reducing the variability of their energy output. Because the wind does not blow heavily at the same time in all places, a diversified group of wind plants generates electricity in a more consistent manner than a geographically concentrated group. Meteorological events that cause an increase or decrease in wind speed and a corresponding increase or decrease in power output affect different areas of the country at different times. Consequently, the combined energy output of geographically diverse wind farms is less variable and has fewer wind integration costs than the output of geographically concentrated wind farms.

Several studies have corroborated the benefits of geographic diversity in a wind energy portfolio. Xcel Energy engaged Enernex, a leading electricity consulting firm, to

perform a study on the feasibility and cost of integrating two gigawatts ("GW") and three GW of wind into the Public Service Company of Colorado's electric system. The study compared multiple portfolios of wind farms with greater and lesser geographic diversity—a similar methodology to the analysis presented in my testimony below. The study found that "the degree of geographic diversity in the wind facilities added to grow the wind penetration level from 2 GW to 3 GW produced changes in average system operations integration cost [for all wind farms] in the range of 4-16%."[37] Additionally, a report by the Electric Power Research Institute summarized industry knowledge of wind integration. In this report, a team of experts reviewed wind integration studies conducted by utilities around the country. The report observed that "There are several options for increasing flexibility of power system [including]…increased transmission between regions, which allows greater sharing of flexibility and reduces the need for balancing due to geographic diversity."[38]

Q. How will the Rock Island Project affect the diversity of wind generation serving Illinois and the PJM system?

A. The addition of wind energy delivered by the Project will help increase the geographic diversity of Illinois' and PJM's renewable energy portfolios. The times when the wind is blowing in northwest Iowa, the western terminus of the Project, are, to a high degree, statistically independent from times when the wind blows in the best wind resource

[37] Xcel Energy, *Public Service Company of Colorado 2 GW and 3 GW Wind Integration Cost Study*, August 19, 2011, p. 20. Available at: http://www.xcelenergy.com/staticfiles/xe/Regulatory/Regulatory%20PDFs/11M-710E_2G-3GReport_Final.pdf (last accessed September 16, 2012).

[38] Electric Power Research Institute, *Impacts of Wind Generation*, April 2011, p. 4. Available at: http://www.uwig.org/EPRI-1023166.pdf (last accessed August 31, 2012).

locations in Illinois. The wind often blows in northwest Iowa when it is not blowing heavily in Illinois, and vice versa.

Rock Island Exhibit 10.6, which is a correlation analysis I created using data from the NREL's Eastern Wind Integration and Transmission Study (the "EWITS" study), demonstrates the diversification enabled by the Project. Using numerical weather models that capture the way weather patterns move across the United States, the EWITS study developed a time series of the output at wind farms across the United States. The exhibit shows the correlations between wind power generated at modeled wind farms situated near the Project's origination point in northwest Iowa and modeled wind farms situated in the best wind resource areas in Illinois and Indiana. A lower number implies a lower correlation between the geographic areas; i.e., wind blows and power is produced at one site when the wind is not blowing at the other site, and vice versa. A correlation coefficient of zero indicates complete statistical independence, whereas a correlation coefficient of 1.0 indicates a perfect correlation. As can be seen from the chart, the Iowa wind resource that will be connected to the Project has a very low correlation with wind in Illinois and Indiana, the two states where most of the wind farms in PJM are currently located and the two PJM states that are likely to see the highest number of installations in the future. The amount of electricity generated from wind farms in northwest Iowa is statistically independent from the amount of electricity generated from wind farms in Illinois and Indiana, and production from wind farms in Iowa will commonly occur in different hours than production at wind farms in Illinois and Indiana. Consequently, adding wind farms in Iowa to a portfolio of wind farms in Illinois and Indiana will create a geographically diverse portfolio that is likely to result in steadier production and

smaller ramps by fossil-fueled generation sources than a portfolio of wind farms all situated in the same geographic location.

Q. Please describe the environmental benefits of the Rock Island Project.

A. Generating electricity from wind resources is environmentally friendly because the process does not emit carbon dioxide or other by-products such as nitrogen oxide, sulfur dioxide, mercury, particulates, coal ash, scrubber sludge as in the case of coal-fueled generation, or radioactive waste as in the case of nuclear generation. According to the Energy Information Administration, the United States produces 5.4 billion metric tons of carbon dioxide annually, and 40% of those emissions are generated by the electric power sector.[39] Adding more renewable power to the energy supply mix will produce environmental benefits by inhibiting the growth of carbon emissions. Another environmental benefit of wind energy is found in water savings. Wind farms do not require the large amounts of water that are needed for producing electricity from coal or nuclear power plants.

By stimulating new wind energy development, the Rock Island Project will reduce carbon, sulfur, particulate and organic compounds emissions, and waste by-products and will also reduce water usage, as compared to the production of comparable amounts of electricity from fossil-fueled sources. The Rock Island Project will deliver up to 3,500 MW of carbon-free electric power into Illinois and will deliver approximately 15 million MWh of clean electric energy per year into the Illinois and PJM markets. That amount of electricity would, if generated by other generation resources in the year 2016, emit over nine million tons of carbon dioxide, over 7,000 tons of nitrogen oxide, over

[39] EIA, "Monthly Energy Review." Available at: http://www.eia.gov/totalenergy/data/monthly/#environment (last visited Sept. 17, 2012).

11,000 tons of sulfur dioxide, and over 130 pounds of mercury. These emissions reductions are the low values achieved across multiple future scenarios of environmental regulation, and therefore could be considerably higher under other scenarios with less future environmental regulation of other generation sources. These estimates of emissions reductions and the methodology used to develop them are described in the testimony of Gary Moland (Rock Island Exhibit 3.0). By reducing the utilization of fossil-fueled generation, Rock Island would also reduce the amounts of coal ash and (potentially) scrubber sludge that would need to be stored or disposed of, and substantially reduce water use for power plant cooling.

III. FINANCIAL CAPABILITIES AND FINANCING PLAN

Q. Please describe the ownership relationship between Clean Line and Rock Island.

A. The immediate parent company of Rock Island is Rock Island Wind Line, LLC, which is the sole member. Clean Line is the immediate parent company and sole member of Rock Island Wind Line, LLC. Therefore, Clean Line is the indirect parent company of Rock Island and owns 100% of the beneficial interest in Rock Island.

Q. Does Clean Line have equity investors?

A. Yes. The majority owner of Clean Line is ZAM Ventures, L.P. ("ZAM Ventures"), which is the principal investment vehicle for ZBI Ventures, L.L.C. ("ZBI Ventures"). ZBI Ventures is a subsidiary of Ziff Brothers Investments, L.L.C. Additional equity investors in Clean Line include Michael Zilkha of Houston, Texas.

Q. What is the nature of the equity investment in and the commitment to Clean Line that have been made by the equity investors?

A. The initial equity investors are providing capital to enable Clean Line to undertake the initial development and permitting work for its transmission line projects, including the Rock Island Project, which is to be constructed and owned by Rock Island, the Petitioner in this proceeding. I estimate that of the total cost of a transmission project, such as the Project, approximately 1% to 2% is spent in development activities (obtaining siting authority, interconnection studies, routing, permitting, and public outreach), approximately 10% is spent in pre-construction activities (ordering the DC converters and acquiring rights of way), and the remaining approximately 88% is spent in construction and commissioning activities. The funding provided by the equity investors will enable Clean Line and its subsidiaries to bring the Project, and the other transmission line projects being developed by other subsidiaries of Clean Line, to a point of development at which long-term transmission service agreements can be signed with transmission customers and, on the basis of these agreements, project-specific financing arrangements can be entered into with lenders, equity investors, and/or other partners. The additional capital obtained through these financing arrangements will allow Rock Island to construct the Project. The initial equity investors may participate in the project financings by making debt or additional equity investments along with new lenders, investors and/or partners.

Q. Please summarize Clean Line's financing plan for construction of the Project.

A. When the Project has completed the majority of its permitting and licensing process, Rock Island will enter into long-term contracts with customers for transmission capacity on the Project. Rock Island will then issue debt secured by the revenue stream from the transmission capacity contracts to raise the capital necessary in order to complete the

remaining development activities, construct the Project, and place it into operation. Additional equity capital may also be raised to help finance construction of the Project.

Q. How does project finance differ from the corporate finance approach that many utilities use to finance new transmission lines and other additions to their plant and equipment?

A. The key distinction between corporate and project finance is which revenues and assets investors rely upon to recover (and secure, in the case of secured debt) their investment and to earn a required return. When utilities issue corporate debt or equity to fund new construction, the issued securities typically are secured by, and the buyers typically rely on, all the assets and revenues of the issuer, not just the assets and revenues of the new project that is being financed. In the case of utility debt securities, the securities are typically secured by a mortgage on the entire assets of the utility. Project finance, on the other hand, relies principally on (and in some cases exclusively on) the assets and revenues of a particular project as the source of security.

Q. Is project finance a credible model for financing the development and construction of projects such as the Rock Island Project?

A. Yes. Many successful transmission projects have followed the same model in which initial equity investors fund development and the project is later refinanced at the project level to fund construction. Utilities and developers have applied this model to traditionally rate-based transmission lines like the Path 15 project in California and the Trans Bay Cable project crossing the San Francisco Bay. This model is also common for merchant transmission lines like the Rock Island Project. Other merchant transmission projects that have pursued or are pursuing this financing model include the Neptune

underwater HVDC project between New Jersey and Long Island and the Zephyr line from Wyoming to Nevada currently under development by American Transmission Company and Duke Energy. Many of the Competitive Renewable Energy Zone ("CREZ") transmission lines in Texas followed the project finance model as well.

Q. Are you confident that the project finance markets will support the construction of the Rock Island Project?

A. Yes. Large amounts of liquidity exist in the capital markets for transmission projects that have reached an advanced stage of development. The capital markets have a substantial history of supporting transmission projects, including merchant transmission projects, through debt and equity financings. Rock Island Exhibit 10.7 provides a list of precedent transactions in both the equity and debt markets. As I noted in my previous answer, a number of transmission line projects have entered into project finance arrangements to fund their construction. For example, in 2003, the Path 15 project, an 83 mile stretch of 500 kV lines in Southern California, closed $209 million in debt financing spread across the bank and bond markets. In 2005, the Neptune Project, a ±500 kV HVDC underwater transmission line, raised $600 million in a private placement at a competitive spread to LIBOR. In early 2008, Trans Bay Cable LLC successfully closed an approximately $500 million transaction in the project finance market to fund a 53 mile underwater HVDC project. In September 2008, the Trans-Allegheny Interstate Line project closed a $550 million senior secured loan, and in January 2010 that project closed an additional $800 million of financing, comprised of $350 million in floating bank debt and $450 million in fixed coupon bonds. Additionally, significant institutional investors such as the California Public Employees Retirement System (known as CalPERS), John Hancock

Financial Services, and TIAA-CREF have also made major equity investments in transmission lines, as have the private equity firms ArcLight Capital Partners, Energy Investors Fund, Energy Capital Partners and Starwood Energy. All of these examples confirm that debt and equity financing is in plentiful supply for projects like the Rock Island Project. Texas's recent experience with the CREZ lines provides further confirmation of the viability of project finance applied to transmission lines.

Q. What is the CREZ transmission program?

A. The CREZ transmission build-out program was established by the Texas legislature in 2005 to advance the construction of new wind farms in Texas. The CREZ projects are primarily designed to transport electricity generated by renewable energy resources to larger load centers in Texas, while simultaneously providing the infrastructure necessary to meet the long-term needs of the areas with the greatest growth potential. Transmission projects have been assigned to developers, both incumbent utilities and new entrants, through an application process. In March of 2009, the Texas Public Utility Commission ("PUC") issued an order approving projects comprising 2,300 miles of new 345 kV transmission lines pursuant to the CREZ legislation.

Q. Did the Texas PUC approve any CREZ projects to be constructed by independent transmission companies?

A. Yes. The Texas PUC awarded CREZ projects to eight transmission service providers: Oncor, Lower Colorado River Authority, South Texas Electric Cooperative, Sharyland Utilities, Electric Transmission Texas, Lone Star Transmission, Wind Energy Transmission Texas, and Cross Texas Transmission. Of these entities, Electric Transmission Texas, Lone Star Transmission, Wind Energy Transmission Texas, and

Cross Texas Transmission were new, independent entities established to pursue the CREZ projects. Like Rock Island, these new entities had strong investor backing and plans to use project financing to raise capital to construct their designated transmission lines.

Q. Were the CREZ transmission providers able to raise sufficient capital to proceed with their projects?

A. Yes. With several project finance loans oversubscribed – meaning more lenders wanted to participate than was possible based on the size of the loan or debt offerings – the CREZ projects enjoyed strong success in raising capital. The following examples all used project finance: In June of 2011, Sharyland raised over $730 million for its designated project in the bank and private debt markets; Sharyland's parent company Hunt Consolidated, Inc., subsequently announced plans for two Real Estate Investment Trusts totaling $2.1 billion that will invest in Sharyland's CREZ lines as well as other natural gas and electric transmission assets. In July 2011, Cross Texas Transmission raised over $430 million in bank debt; in August 2011, Wind Energy Transmission Texas raised over $500 million in debt financing; and in November 2011, Lone Star Transmission raised $386.6 million in bank loans for its CREZ line.

Q. Were the CREZ loans and other financing committed for the CREZ projects prior to the transmission service providers receiving key permits for their projects, including Texas PUC approval?

A. No. The CREZ transmission service providers provided information about their parent companies and plans to finance the lines as part of the selection process. However, the transactions I described in my previous answer did not occur until the respective project

sponsors had received one or more Certificates of Convenience and Necessity from the Texas PUC.

Q. Is it typical for energy projects using project finance to obtain full financing prior to obtaining the necessary permits and other regulatory approvals?

A. No. Project lenders always, in my experience, mandate that receipt of the necessary permits and approvals are a condition precedent to funding a project loan. Project-based equity investors also typically have the same requirement.

While I am aware of certain transactions in which debt and equity investors have made commitments conditioned on obtaining remaining permits and approvals, this model is not viable for most projects such as the Rock Island Project. First, banks and other lending institutions will not make conditional commitments until they have a very high degree of certainty that the project will actually be approved by the applicable regulatory agencies. Their economic interest is harmed by the opportunity cost of tying up financial resources that may never be deployed, as the same capital could earn a return in another investment. Second, the time horizon of the Rock Island Project is such that construction will not begin for at least two years, depending on the time frame in which this application is approved. Conditional commitments to project finance are made where there is a much shorter period of time anticipated between the commitment being made and the anticipated date of the event that will trigger the release of the funds. Third, lenders typically charge a commitment fee on future loan commitments, which can be quite costly to the project. In summary, I think it is highly unlikely that debt providers would make such a long-term commitment before key approvals are in place, or that project developers would accept the costs of such early commitments.

Q. How does the approach that Rock Island plans to employ compare to the financing methods used for other kinds of energy projects?

A. Developers of new independent power generation projects have long relied on project finance to fund their construction. For example, the U.S. wind power industry has raised tens of billions of dollars of project-level debt and equity over the last five years. Horizon Wind Energy (now EDP Renewables), which is one of the leading developers of wind generation facilities in the U.S., successfully used this approach to develop, finance, construct, and place into operation a number of significant wind generation projects throughout the U.S.

Q. At what point will Rock Island obtain financing for the construction of the Rock Island Project?

A. Our current plan is to obtain construction financing once we have obtained the major regulatory approvals to proceed with the Project and have sold a majority of the capacity on the Project. These approvals include the certificates and order that are the subject of this proceeding and a project approval from the Iowa Utilities Board for the portion of the line in Iowa, as well as negotiated rate authority from the FERC (which was granted in a FERC order issued May 23, 2012). In addition to obtaining these approvals, we will need to enter into contracts for the transmission capacity on the Rock Island Project prior to obtaining full financial commitments for the Project. The exact percentage of capacity that needs to be under contract prior to obtaining full financing commitments will depend on the price, counterparty creditworthiness, and term in years of the signed transmission contracts.

Q. Please describe the nature of the transmission capacity contracts and why they are necessary to support the Project's financing.

A. Rock Island intends to offer long term transmission capacity contracts. These contracts will provide for a reservation charge, meaning the transmission customer will pay regardless of what percentage of the time the customer uses the reserved capacity. This pricing arrangement is typical for transmission lines, including those operated by MISO and PJM. It is also similar to the contractual arrangements for natural gas pipelines. Rock Island will impose credit requirements on its transmission customers. The credit requirements will require that the transmission customer have investment grade or higher credit ratings or that the customer post additional security in the form of cash or a letter of credit, or a parent guaranty from an entity with investment grade credit ratings. These credit requirements will provide revenue certainty, which will allow lenders to be comfortable that Rock Island can repay its debt.

Q. How will lenders size the debt they lend to Rock Island?

A. Lenders typically look at project finance borrowing capability based on debt service coverage ratios, where the numerator is contracted cash flow available to service debt, and the denominator is principal and interest owed. As an example, if lenders were willing to make 20-year loans so long as contracted revenues provide a 1.25 times debt service coverage ratio, the Project would need to contract about 60% of its transmission service in order to raise 70% of its initial capital costs through debt. The detail behind this calculation is shown in Rock Island Exhibit 10.8.

Q. What conditions will project lenders place on Clean Line before they advance the money to build the Project?

A. Lenders will carefully scrutinize construction contracts and, as I have described, typically will only advance money when the appropriate conditions have been met, including (a) having all necessary permits, (b) having procured sufficient financing commitments to complete construction, and (c) having a high degree of certainty on budget and timeline. While this diligence creates an additional administrative burden for the transmission developer, it ensures that projects proceed prudently. Construction lenders will not release funds to begin construction unless Rock Island demonstrates it has commitments for sufficient financing to construct the entire Project. Lenders will not take the risk that additional necessary financing cannot be obtained, resulting in an incomplete project with limited collateral value. Therefore, Rock Island will not begin to install physical facilities until it has obtained adequate funding.

Q. If Rock Island is able to obtain the regulatory approvals and the transmission contracts as you describe, do you foresee any difficulty in obtaining the necessary financing to build the Project?

A. I do not. Several precedent transactions have demonstrated that project finance for transmission lines is a viable model. Further, Clean Line has developed an extensive database of lenders and equity investors who have either made past investments in transmission projects or have expressed an interest in investing in one of Clean Line's projects once it has secured the key permits and contracts. My colleagues and I have worked with many of these lenders and equity investors on prior transactions.

Q. Do the equity investors in Clean Line have the commitment and experience to support this plan?

A. In my opinion, yes. As Mr. Skelly describes, both ZAM Ventures and the Zilkha family have deep experience in the energy field, including in electric power and renewable energy. Both ZAM Ventures and its affiliates and the Zilkha family have previously made significant investments in start-up companies in the energy industry, including companies developing renewable resources projects, and are deeply experienced with our development and financing model. Mr. Neil Wallack, who is President of ZBI Ventures and a limited partner of ZAM Ventures, provides information on the perspectives and commitment of Clean Line's majority owner on this investment.

Q. Does Clean Line have the management expertise to successfully execute its development and financing model?

A. Yes. Along with several other members of our management team, including Mr. Skelly, our CEO, and Ms. Desai, our Executive Vice President – Commercial and Operations, I was previously employed by Horizon Wind Energy, where we helped bring a number of wind energy projects into operation using project financings. Additionally, other members of our management team, including Mr. Hurtado, our Executive Vice President and Mr. Shilstone, our Director of Development, have experience in developing independent power generation projects. Ms. Patton, our Vice President and General Counsel, while with Allegheny Energy provided legal advice concerning the financing of the Trans-Allegheny Interstate Line, which entailed $1.35 billion of external financings between September 2008 and January 2010. Mr. Kottler, our Project Development Director, was formerly a corporate attorney at a large law firm where he was involved in

a number of significant financial transactions encompassing many sectors of the renewable energy industry. More complete descriptions of the qualifications and experience of these members of Clean Line's management team are provided in Rock Island Exhibit 1.3 sponsored by Mr. Skelly.

Q. Please summarize why Rock Island's financing plan is viable.

A. Project finance is a time-tested and proven way to finance the construction of transmission lines. There are a significant number of precedent transactions that have set a framework for the terms, pricing, legal documentation, and interested parties. Clean Line has identified and developed relationships with a large number of potential financing parties. Finally, our staff has the experience and demonstrated capability to execute large project financing transaction, and our equity investors have the commitment and the experience to support our financing plan.

IV. FINANCIAL AND ACCOUNTING STRUCTURE

Q. Please identify Rock Island Exhibits 10.9 and 10.10.

A. Rock Island Exhibit 10.9 is the balance sheet of Rock Island at December 31, 2011 and August 31, 2012. Rock Island Exhibit 10.10 is the statement of income for Rock Island for the 12 months ending December 31, 2011 and eight months ending August 31, 2012. I note that because neither Clean Line nor any of its subsidiaries currently have any operational projects, neither Clean Line nor Rock Island had any operating revenues for the period covered by the statement of income in Rock Island Exhibit 10.10. Therefore, the historical operating results depicted on Rock Island Exhibit 10.10 are not meaningful.

Q. What will be Rock Island's sources of operating revenues?

A. Rock Island's sources of operating revenues will be the payments it receives from the transmission capacity customers of the Rock Island Project pursuant to the transmission services contracts that Rock Island enters into with these customers. As Mr. Skelly explains, the prices that Rock Island charges will be subject to the jurisdiction of FERC. Rock Island has been granted negotiated rate authority by FERC and expects to be able to charge negotiated rates that will recover the costs of developing, constructing and operating the Rock Island Project.

Q. Does Rock Island have its own, separate management and administrative staff?

A. No. At this time, Rock Island has only three officers and no employees. The three officers are Michael Skelly, President; Jayshree Desai, Executive Vice President; and Kathryn Patton, General Counsel. All three of these officers are employees of Clean Line. Rock Island does not expect to establish a separate management and administrative staff dedicated to the Rock Island Project. Rather, management and administrative functions will be performed for Rock Island by the management and administrative staff of its ultimate parent company, Clean Line. These management and administrative functions include, in addition to executive management, the accounting, treasury, finance, tax, payroll, employee benefits, human resources, procurement, accounts payable and receivable, engineering, real estate and property management, internal audit, regulatory, and legal functions.

Q. How will costs, including management and administrative staff time, incurred by Clean Line be charged to, and recorded as costs of, Rock Island?

A. Costs, including external costs, related directly to the development of a project are charged to the relevant subsidiary, in this case to Rock Island. Effective January 1, 2011, the cost of salary and benefits of Clean Line's employees are allocated to specific projects. Each project has a team of employees who dedicate all of their time to that project. For these employees, 100% of their salary and benefit expenses are allocated to the relevant project. Other Clean Line employees, such as management and administrative staff, work on multiple projects. These employees track and report their time spent on specific activities for the individual subsidiaries, so that the applicable portion of their salary and benefits expense for the period can be charged to the applicable subsidiary. Finally, Clean Line incurs some overhead expenses that benefit all its subsidiaries. These include tasks performed by management and administrative staff of Clean Line, such as treasury and benefits management, and external costs such as corporate office rent, office equipment, legal fees, and tax preparation fees. These general overhead costs are allocated in accordance with company policy.

Clean Line recognizes the importance of appropriately recording and charging costs to Rock Island and the other subsidiaries, even at relatively early stages of the development of the Rock Island Project and the other transmission projects. Accurate cost accounting and allocation to the subsidiaries is important so that the costs incurred in developing the individual subsidiaries' projects will be available to support financing activities, rate and tariff development, and regulatory reporting requirements.

V. MAINTENANCE OF BOOKS AND RECORDS OUT OF STATE

Q. Is Rock Island requesting approval from the Commission to maintain its principal office and its books and records at a location outside of the state of Illinois?

A. Yes. It is my understanding that the Public Utilities Act and the Commission's regulations require a public utility to maintain an office in Illinois and to keep its books and records at its office in Illinois, but that the Commission may authorize the public utility to keep its books and records outside the State. Rock Island is requesting approval to maintain its books and records at its principal office and that of its ultimate parent company, Clean Line, in Houston, Texas.

Q. What is the address of Rock Island's principal office?

A. The principal office is located at 1001 McKinney Street, Suite 700, Houston, Texas 77002.

Q. Why is it appropriate for Rock Island to be allowed to maintain its books and records at its office in Houston, Texas?

A. As I described earlier in my testimony, the accounting, financial and administrative management and staff of Clean Line will perform accounting, financial, treasury and other administrative services for Rock Island (and for the other subsidiaries of Clean Line), including maintenance of Rock Island's accounting and financial books and records. The management and administrative staff of Clean Line performing these functions will be located at the principal offices in Houston. Additionally, Rock Island, due to the nature of its business and operations, will be operating in, and potentially subject to the jurisdiction of regulators in, at least two states, Iowa and Illinois. For these reasons, it would be inefficient and unduly expensive, and could necessitate duplicative

efforts, for Rock Island to maintain its books and records in Illinois, or at any location other than the principal office of Rock Island and its parent company in Houston, Texas.

Q. Does Rock Island expect to maintain an office in Illinois?

A. Yes, Rock Island plans to maintain an office or offices within Illinois as it moves into the development, construction and operation of the Rock Island Project. However, this office or offices will support local development, right-of-way acquisition, construction and operating activities, not accounting and financial activities. Those activities will continue to be performed at the principal office of Rock Island and Clean Line in Houston, Texas.

VI. USE OF FERC UNIFORM SYSTEM OF ACCOUNTS

Q. What system of accounts will Rock Island use to maintain its books and records of account?

A. As a multi-state provider of transmission service in interstate commerce that will be subject to the jurisdiction of FERC as well as of this Commission and at least one other state commission, Rock Island will maintain its books and records of account in accordance with FERC's Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act, 18 C.F.R. Part 101. The FERC order issued May 23, 2012, granting Rock Island negotiated rate authority, directs Rock Island to maintain its books and records in accordance with the FERC Uniform System of Accounts.[40] Rock Island Exhibit 10.11 is a copy of the Chart of Accounts that Rock Island has adopted in accordance with FERC's Uniform System of Accounts at 18 C.F.R. Part 101.

[40] *Rock Island Clean Line LLC*, 139 FERC ¶ 61,142 (2012), at P 47.

Q. Please explain the request in Rock Island's Petition concerning the applicability of the Commission's regulation at 83 Illinois Administrative Code 415, Uniform System of Accounts for Electric Utilities.

A. It is my understanding that based on the nature of its operations, Rock Island will be a "public utility" but not an "electric utility" as defined in the Public Utilities Act. Because Rock Island will not be an "electric utility," based on a literal application of the Commission's regulation at 83 Illinois Administrative Code Part 415, Uniform System of Accounts for Electric Utilities ("Code Part 415"), Rock Island will not be subject to the Commission's regulations of Code Part 415. Nevertheless, Rock Island acknowledges that the Uniform System of Accounts in Code Part 415 would be the Commission's system of accounts that is the most closely relevant to Rock Island's operations. In Code Part 415, the Commission has adopted FERC's Uniform System of Accounts in 18 C.F.R. Part 101 as the Commission's Uniform System of Accounts for Electric Utilities, with certain deviations.

In any event, maintenance of Rock Island's books and records of account in accordance with FERC's Uniform System of Accounts at 18 C.F.R. Part 101 should provide appropriate, useful and sufficient accounting and financial information for this Commission's regulatory purposes. This is particularly the case given the great similarity and consistency between FERC's Uniform System of Accounts and this Commission's Uniform System of Accounts for Electric Utilities. Additionally, it would create undue and unwarranted burden and expense for Rock Island if it were required to maintain its books and records of account in accordance with both FERC's Uniform System of Accounts and, for Illinois regulatory purposes, this Commission's Uniform System of

Accounts for Electric Utilities. Accordingly, Rock Island requests that, to the extent the Commission deems necessary, it waive the applicability of 83 Illinois Administrative Code Part 415 to Rock Island so long as Rock Island maintains its books and records in accordance with FERC's Uniform System of Accounts at 18 C.F.R. Part 101.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.