STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF WHITING CLEAN ENERGY, INC., AND BP PRODUCTS NORTH AMERICA, INC., SEEKING TERMINATION OF ALTERNATIVE REGULATORY TREATMENT PURSUANT TO IND. CODE 8-1-2.5 AND ESTABLISHMENT OF ASSOCIATED SERVICE TERMS, IN LIGHT OF MATERIAL CHANGES IN CIRCUMSTANCES.	**CAUSE NO. 45071**

Verified Direct Testimony of

Gregory Martin

On behalf of

Whiting Clean Energy, Inc.
and
BP Products North America, Inc.

June 20, 2018

I. INTRODUCTION

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A My name is Gregory Martin, and my business address is 2155 Standard Avenue, Whiting, Indiana 46394.

Q BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A I am the Commercial Process Engineer at Whiting Clean Energy, which is located adjacent to the BP refinery in Whiting, Indiana.

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A I received Bachelor of Science degrees in both Mechanical Engineering and Aerospace Engineering from the University of Michigan in 2010. I am currently enrolled in the Master of Business Administration program at Northwestern University – Kellogg School of Management.

Q DO YOU HOLD ANY PROFESSIONAL LICENSES?

A Yes, I have been licensed as a Professional Engineer by the Texas Board of Professional Engineers since 2015.

Q WHAT POSITIONS HAVE YOU HELD WITH BP?

A I started with BP as a Subsea Engineer in 2009. I took on a subsea operations role in 2012 supporting the Atlantis asset in the Gulf of Mexico. I assumed my present position as Commercial Process Engineer at Whiting Clean Energy in January 2016.

Q WHAT ARE YOUR RESPONSIBILITIES AS COMMERCIAL PROCESS ENGINEER AT WHITING CLEAN ENERGY?

A I am accountable for both the commercial activities of the plant and to provide technical process engineering support. This includes daily natural gas nomination and daily power offerings as well as pursuing longer term power sales agreements and monthly natural gas hedges. This also includes overall plant fixed cost and gross margin management and performance. Regarding process engineering, I am responsible to line out plan efficiency optimization, technical troubleshooting, and overall operations support.

Q PLEASE SUMMARIZE THE SUBJECT MATTER OF YOUR TESTIMONY IN THIS PROCEEDING.

A I will describe the technical characteristics of the cogeneration facility at Whiting Clean Energy, provide an overview of its past and planned operations in connection with the Whiting Refinery, and discuss potential alternatives for transmitting power to the Whiting Refinery from Whiting Clean Energy and for sales of excess power and capacity.

II. CHARACTERISTICS OF COGENERATION FACILITY

Q PLEASE PROVIDE A GENERAL DESCRIPTION OF THE WHITING CLEAN ENERGY COGENERATION FACILITY.

A The facility is a topping-cycle cogeneration unit that is fueled with natural gas. It produces two outputs: steam and electric power. The electric generating capacity is about 545 megawatts, and the average net rate of steam production is about 493 million Btu per hour.

Q WHAT ARE THE PRIMARY COMPONENTS OF THE COGENERATION FACILITY?

A The Whiting Clean Energy facility consists of: two General Electric 7FA combustion turbine generators at 165 megawatts (gross) each; one General Electric condensing steam turbine generator at 215 megawatts (gross); two Aalborg heat recovery steam generators with duct burners and selective catalytic reduction at 1,100,000 pounds per hour of high pressure steam each; one 3,000 gallons per minute demineralized water treatment plant; and one ten cell induced draft cooling tower.

Q HOW DO THOSE COMPONENTS OPERATE TO PRODUCE STEAM AND ELECTRIC POWER?

A The two combustion turbines are equipped with dry low-NOx combustion systems, and each of those turbines has a heat input rating at ISO conditions of 1,735 MMBtu per hour. The hot combustion turbine exhaust is ducted to its associated heat recovery steam generator, where the exhaust heat is used to generate 1300 psig steam for electric power generation via the condensing steam turbine generator and refinery topping steam turbine generators. Auxiliary or supplemental duct firing is associated with each combustion turbine/heat recovery steam generator, and each duct burner has a rated heat input capacity of 821.3 MMBtu per hour. Auxiliary duct firing is used to increase electric power production during periods of peak electric demand, and to maintain sufficient steam supplies for refinery use in instances where one of the two combustion turbines is shut down. Steam production from each heat recovery steam generator is about 580,000

pounds per hour without duct firing and about 1,188,000 pounds per hour with duct firing.

III. CURRENT AND PLANNED OPERATIONS

Q HOW IS THE STEAM THAT IS PRODUCED BY THE WHITING CLEAN ENERGY FACILITY UTILIZED?

A The steam output is used to support the operational needs of BP at the Whiting Refinery. At the refinery, steam is used as thermal energy to heat process streams and in the reboilers of distillation columns for hydrocarbon separation. Steam is also used to drive turbines for compressors and pumps. In addition, high pressure steam is let down to 400 psi and 100 psi through turbine generators to produce electricity for internal refinery use.

Q HOW IS STEAM TRANSMITTED FROM WHITING CLEAN ENERGY TO THE WHITING REFINERY?

A The Whiting Clean Energy facility is located adjacent to the Whiting Refinery, across Standard Avenue to the northeast of the refinery. The steam output from Whiting Clean Energy is conveyed to the refinery through BP-owned facilities that pass over Standard Avenue.

Q HOW HAS THE ELECTRIC POWER GENERATED BY THE WHITING CLEAN ENERGY FACILITY BEEN UTILIZED?

A Historically, Whiting Clean Energy has marketed electric power as an Exempt Wholesale Generator (EWG) subject to Federal Energy Regulatory Commission (FERC) requirements. In connection with those functions, Whiting Clean Energy has been

subject to the standards of the North American Electric Reliability Corporation (NERC) and related entities, and has been registered as a market participant with the Midcontinent Independent System Operator (MISO).

Q HOW HAS THE ELECTRIC POWER GENERATED BY WHITING CLEAN ENERGY BEEN TRANSMITTED FOR SALE IN THE WHOLESALE MARKET?

A The Whiting Clean Energy facility is directly interconnected to the transmission grid. The electric output flows through the interconnection into the NIPSCO transmission system that is operated by MISO.

Q HAS BP TAKEN STEPS TO ALTER THE UTILIZATION OF THE ELECTRIC POWER GENERATED BY THE WHITING CLEAN ENERGY FACILITY?

A Yes. On March 29, 2018, Whiting Clean Energy, Inc. submitted a Form 556 with FERC that self-certifies the cogeneration facility as a Qualifying Facility under federal law. As a Qualifying Facility, the electric output as well as the steam output will be used by BP to support the industrial operations at the Whiting Refinery.

Q DOES THE WHITING CLEAN ENERGY FACILITY HAVE SUFFICIENT GENERATING CAPACITY TO SUPPLY THE ELECTRIC NEEDS AT THE WHITING REFINERY?

A Yes. The cogeneration facility has a generating capacity that substantially exceeds the electric requirements at the Whiting Refinery. BP already operates several other generating units at the refinery that are used to meet a portion of the energy needs. Those

units will continue to be used in conjunction with Whiting Clean Energy. In addition, BP will continue to receive electric service from NIPSCO, at a reduced demand level from its current level. The Whiting Clean Energy facility has enough electric generating capacity to supply the requirements of the Whiting Refinery, and will be able to produce excess electric power as well.

Q DO YOU BELIEVE THE WHITING CLEAN ENERGY FACILITY WILL BE ABLE TO SUPPORT THE ELECTRIC REQUIREMENTS OF THE WHITING REFINERY IN A RELIABLE AND EFFICIENT MANNER?

A Yes. The cogeneration facility is well-designed, is in excellent working condition, and has an established history of reliable operation. Like all facilities, Whiting Clean Energy has occasional outages for planned maintenance and there is always some risk of unexpected disruptions, but the two gas turbines can operate independently and therefore provide a degree of redundancy during planned outages or in the event of an issue affecting one but not the other.

Q IS BP CAPABLE OF COORDINATING WITH NIPSCO IN SCHEDULING MAINTENANCE AND PLANNED OUTAGES AT WHITING CLEAN ENERGY, IN ORDER TO MITIGATE ANY RISK OF ADVERSE IMPACT ON NIPSCO'S OPERATIONS?

A Yes. We expect to coordinate with NIPSCO with respect to any planned maintenance or scheduled events that are expected to affect power production at Whiting Clean Energy. In the event that BP anticipates a need for additional purchases from NIPSCO to support

operations at the Whiting Refinery in such instances, BP has strong incentive to work proactively with NIPSCO to avoid any constraints that could affect NIPSCO's ability to provide such services.

IV. ALTERNATIVES FOR TRANSMISSION AND EXCESS POWER

Q AT THE PRESENT TIME, IS THERE A DIRECT TRANSMISSION LINE IN PLACE CONNECTING THE WHITING CLEAN ENERGY FACILITY TO THE INTERNAL ELECTRIC SYSTEM AT THE WHITING REFINERY?

A No, there is not a direct transmission line between the cogeneration facility and the refinery. Whiting Clean Energy and the Whiting Refinery, however, are both separately interconnected with the transmission grid.

Q AS A MATTER OF ENGINEERING, IS A DIRECT LINE BETWEEN WHITING CLEAN ENERGY AND THE WHITING REFINERY NECESSARY TO TRANSMIT ELECTRIC POWER GENERATED BY THE COGENERATION FACILITY TO THE REFINERY?

A Not as a matter of engineering, no. The NIPSCO transmission system has existing connections to both of the adjacent locations. The transmission facilities already in place are capable of transmitting electricity generated at Whiting Clean Energy for consumption at the Whiting Refinery.

Q IS THE WHITING CLEAN ENERGY FACILITY AN INTEGRATED COMPONENT OF THE WHITING REFINERY OPERATIONS?

A Yes. Whiting Clean Energy and the Whiting Refinery are commonly owned by BP affiliates and are located on contiguous property. For years, the steam produced at Whiting Clean Energy has supplied a critical input to support refinery operations. There is an existing physical connection through the facilities that convey steam from the cogeneration facility to the refinery. The added function of supplying the electric power requirements at the Whiting Refinery significantly expands the role of the Whiting Clean Energy facility as a key asset dedicated to meeting BP's energy needs. Whiting Clean Energy is operated as a coordinated element of BP's operations at the Whiting Refinery.

Q IN THE EVENT THAT A DIRECT TRANSMISSION LINE IS REQUIRED TO TRANSMIT ELECTRIC POWER GENERATED AT WHITING CLEAN ENERGY TO THE WHITING REFINERY, IS BP PREPARED TO PROCEED WITH THE INSTALLATION OF A PRIVATE LINE?

A Yes. We have already conducted preliminary work to determine the design and location of the potential line. We have also engaged in information exchanges with NIPSCO in an effort to ensure that the configuration and operation of the private line will serve the intended function efficiently and without adverse impact on NIPSCO's operations. If the determination is made that a private line is necessary, our intention is to continue to coordinate with NIPSCO as the engineering and design work are completed and the installation schedule is established.

Q ONCE THE WHITING CLEAN ENERGY FACILITY IS SUPPLYING THE ELECTRIC POWER REQUIREMENTS OF THE WHITING REFINERY, WILL

THE COGENERATION FACILITY STILL BE CAPABLE OF PROVIDING CAPACITY AND ENERGY IN EXCESS OF BP'S NEEDS?

A Yes. Once the operation of Whiting Clean Energy as a Qualifying Facility is implemented, the electric capacity will be devoted first to support operations at the Whiting Refinery, but there will still be excess capacity available.

Q HOW DOES BP PLAN TO UTILIZE THE EXCESS CAPACITY AND ENERGY?

A Historically, Whiting Clean Energy has sold its electric output as an EWG into the wholesale market administered by MISO. A level of electric generation has occurred on a constant basis in connection with the operation of the facility to produce steam for the Whiting Refinery, and at times additional electric power has been generated in light of market conditions. Presently, in the absence of a direct transmission line and without an alternative transmission arrangement in place, the electric output is continuing to be sold into the MISO market. When the operation of Whiting Clean Energy as a Qualifying Facility is implemented, excess energy and capacity either can be sold into the MISO market or may be purchased by NIPSCO. To the best of my knowledge, NIPSCO has not announced any determination yet as to whether or not it wishes to make such purchases. If NIPSCO indicates an interest in doing so, BP is prepared to proceed under the applicable tariff and regulatory provisions. Otherwise, BP is also prepared to continue selling excess electric output into the MISO market.

Q DOES THAT COMPLETE YOUR TESTIMONY?

A Yes, at this time.

VERIFICATION

I, Gregory Martin, Whiting Clean Energy Commercial Process Engineer for BP Products North America, Inc., affirm under the penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Gregory Martin

June 20, 2018