BEFORE THE OHIO POWER SITING BOARD

In the Matter of the Application of

Lima Energy Company for a

Certificate of Environmental Compatibility

and Public Need for an Electric Power

Generating Facility in Lima, Ohio

Case No. 00-513-EL-BGN

Case No. 04-1011-EL-BGA

RESPONSE TO INFORMATION REQUEST FROM OHIO POWER SITING BOARD IN SUPPORT OF MOTION FOR EXTENSION OF DURATION OF LIMA ENERGY COMPANY'S CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

In response to the Order issued by the Administrative Law Judge on May 4, 2012 requesting additional information in support of Lima Energy's request for an extension of the certificate issued for the construction of a Lima Energy Center, certificate holder Lima Energy has prepared the attached detailed responses to each of the information requests contained in the Order. The specific responses were prepared by the project manager, Mr. Dwight Lockwood, on behalf of Lima Energy.

Pursuant to the terms of the Order, these responses are being filed electronically with the Board, which will provide notice of these responses to all parties in these proceedings. In addition, Lima Energy will provide a copy of these responses to counsel for the Sierra Club and Natural Resources Defense Council, who although not parties to these proceedings, have filed comments with the Board regarding the request to extend the certificate. Lima Energy remains willing to provide any additional information that the Board may request, and if the Board or Administrative Law Judge so desires, counsel and Lima Energy can be available for a status

conference to discuss any additional information requests at the convenience of the Administrative Law Judge.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing "Response to Information Request in Support of Motion for Extension of Duration of the Lima Energy Company Certificate of Environmental Compatibility and Public Need" was served upon the following persons by electronic service and by mailing a copy, postage prepaid, on June 20, 2012, addressed to:

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Lima Energy Company Responses to ALJ Order For OPSB In Consideration of Certificate Extension Request 00-513-EL-BGN 04-1011-EL-BGA

On May 4, 2012, the Administrative Law Judge in these proceedings issued an Order to Lima Energy Company requesting responses to specific questions posed by the Board to more fully update the Board on the status of the project, including certain specific conditions stipulated in the original Certificate. Finding (6) of the Order directs that the requested information be provided to the Board by June 29, 2012. Each of the nine questions is repeated verbatim here and in the same order as presented in the Order. Responses to each immediately follow the request statement.

a) A detailed discussion of the status of the electric grid interconnection for the proposed project, including interconnection studies that have been performed and the validity of such interconnection studies, any interconnection studies to be performed and system upgrades.

Response:

The Project originally executed an Interconnect Agreement (IA) with AEP in May 2002, following AEP's standard study process (feasibility→short circuit & stability→facility). These studies were based on the two by one GE 7FA combined cycle generation, exporting 540MW, as planned for the facility at that time. Following the Federal Energy Regulatory Commission (FERC) mandate that AEP join PJM, PJM required that the Project execute a new Interconnect Service Agreement (ISA), which was initiated with appropriate documents and fees in July 2005. PJM expeditiously completed the "feasibility study", based on 600MW of export generation, which confirmed the original AEP results and cost estimate. The short circuit & stability study was timely initiated with documentation and payment of its relevant fee. PJM issued a notice of delay of this study in February 2007 and advised that the analysis was complete in October 2007. However, the short circuit study was not actually delivered until March 2009. Because of the delay, and the doubling of the interconnect cost estimate without explanation, the Project elected to discontinue the process and not implement the facility study until Project development was further advanced and the cost increase explained adequately. Lima Energy withdrew its queue position on March 20, 2009.

Lima Energy provided copies of both AEP and PJM studies to OPSB Staff when they were received.

The original AEP interconnection study, confirmed by the PJM study activity, called for certain modifications of AEP's West Lima Substation to accommodate the Lima Energy 138 kV connection. Based on the short circuit and stability studies, PJM also

anticipated capacity and protection upgrades in the area of south-central Pennsylvania.

The Project will initiate a completely new interconnection application when sufficient funding is available, which we are anticipating in the second half of 2012. According to PJM guidance, a full ISA can be executed and funded once a new feasibility study is completed. We expect that the new application to PJM will reflect export generation quite similar to the earlier work and, therefore, do not expect materially altered results.

We are not, however, aware of changes to the PJM system that may have occurred since 2009, that may or may not affect the design of the interconnection when studies are recommenced. Any new studies or application will also reflect any changes that may have occurred at West Lima Substation since the original studies were completed.

b) A list and detailed description of the initial site preparation activities that have been completed and the activities to be undertaken prior to construction activities (Condition 5).

Response:

As requested, following is a list of the significant tasks and activities completed at the site. Following the list is additional discussion and descriptive information:

- ✓ Prior to mobilizing, the project held the initial "pre-construction" kick-off meeting with OPSB staff on October 4, 2005.
- ✓ The contractor surveyed the four remaining structures and concrete foundations to be removed.
- ✓ Three of the four structures were demolished and much of the wood elements turned into mulch for third party use. The fourth structure will be removed later
- ✓ The contractor had piping in those three structures assessed by a specialty contractor for asbestos insulation and that material was removed in accordance with OEPA procedures. The fourth structure does not have asbestos present.
- ✓ The contractor removed the in-ground concrete foundations footers and slabs the obstructed the location of the new feedstock storage building.
- ✓ Based on this activity, the quantity of in-ground concrete across the entire site was estimated at over 70,000 cubic yards, which will result in over 141,000 tons of stone once it is crushed for recycle and reuse.
- ✓ The contractor also surveyed the quantity of railroad rail on site and estimated it at eight miles. It, and the reinforcing steel in the foundations, will be sold for salvage value.
- ✓ The contractor removed the existing brush and plant growth but did not grade the site.

- ✓ The contractor installed several hundred auger cast piles and completed installation of the 100,000 square foot engineered concrete feedstock storage building base on the pile foundation.
- ✓ The contractor sampled the water in the concrete boiler feedwater pond and a pit before both were drained. The waters were determined not to be hazardous and were properly disposed.
- ✓ The contractor researched state requirements for the fish found in the pond and learned that they could not be released into the wild. Several Blue Gill fish were transferred to a local pond and the few gold fish (non-native carp) did not survive the draining and capture process.
- ✓ The contractor removed approximately 10% of the foundations associated with the previously demolished buildings and structures, including the boiler pond, and staged the concrete for future crushing.
- ✓ Soil excavated for the feedstock storage foundation was stockpiled well inside the 57-acre property and well away from the perimeter. OPSB staff agreed that, owing to the remoteness of the stockpile from the perimeter erosion runoff was not a concern. Owing to the extensive coverage of the site by buildings, there has yet been no significant disturbing of the ground.
- Periodic visits and monitoring of the idle site demonstrate that specific erosion control measures continue not to be necessary.

Going forward, some of the above activities will need to be repeated, including:

- ✓ Work with OPSB staff to schedule and conduct a new "pre-construction" demolition and site preparation kickoff meeting with OPSB staff. This will be followed by the also required major kickoff meeting with OPSB staff before additional major construction mobilization.
- ✓ Remove new plant and brush growth.
- Remove existing in-ground foundations and crush and stockpile stone, while salvaging the steel.
- Remove the remaining fourth structure and its foundation.
- ✓ Clear the site of all demolition debris that may remain.
- ✓ Survey the cleared site for elevations and general layout of yard railroad track and facilities and underground infrastructure in order to finalize building permit discussions with the City of Lima.

Approximately \$7 million dollars were spent in contractor activities on engineering and on-site activities during the initial field work in 2005-2007 when the pile foundation and base for the feedstock storage building was constructed. The 100,000 sq ft engineered concrete structure, including the several hundred auger cast piles supporting it, cost approximately \$4 million of the \$7 million. When completed, the building will provide weather protected storage of over 70,000 tons of feedstock, as well as serve to control fugitive dust and prevent soil contamination associated with on-ground stockpiling of feedstock. The foundation design includes first-in first-out use of feedstock by utilizing an "under pile" reclaim and conveyor system.

Preliminary design and layout of the solid material handling systems was also completed, with layout adjustments made as recommended by the construction contractor, to better accommodate rail deliveries and yard railroad track and conveyor layout.

As for demolition, the 57-acre Lima Locomotive Works steam engine manufacturing site, dating to 1885, was extensively covered by buildings and yard railroad track. The contractor estimates that there are over 70,000 cubic yards of steel reinforced concrete foundations in the ground, largely consisting of 12 inch thick footers and slabs. This represents over 141,000 tons of crushed stone intended for reuse onsite. The contractor also estimates that there are over eight miles of railroad track rails within the site. We plan for the contractor to remove, crush and reuse all concrete and sell all steel at salvage. The contractor has removed perhaps 10% of the in-ground concrete and staged it for future crushing. Once mobilized, the demolition subcontractor will take approximately five months to remove and crush the concrete.

The Lima Locomotive Works facility had a small concrete boiler feedwater pond, which the Siting Board Staff noted had accumulated a small fish population over the years (from unknown sources). The contractor has removed this structure and filled the depression. As stipulated in the Certificate (Staff Finding B 17), as the pond was drained prior to demolition, the fish were inventoried and a disposition plan determined. Depositing of any of these fish in the Ottawa River was prohibited, even if any of them were native species. Therefore, the contractor found a pond in the local community willing to accept the blue gill. The relatively few gold fish, a non-native carp, did not survive the draining and collection effort.

During this early construction activity, the contractor also cleared the site of brush and trees and demolished three of the four remaining buildings. Demolition of these three structures, included inspection, identification, removal and appropriate disposal of the minor amount of asbestos insulation found by a licensed specialty contractor. Going forward, the general contractor will again clear the site of brush and other plant growth, as well as remove the remaining equipment storage building.

Finally during demolition and site preparation, foundation location and engineering will be advanced which will inform layout for underground infrastructure. These steps will, in turn, inform the requirements of site grading and yard rail bed preparation.

c) A complete list of the federal, state, and local permits necessary to construct the proposed facility, along with a discussion of the status of each permit, related compliance requirements and the date when the permit will expire, expired, or when Lima Energy expects to obtain the permit.

Response:

There are four permits required to construct the facility. Others are required to operate the facility. These are as follows:

Construction

- ✓ Ohio Environmental Protection Agency (OEPA) Air Permit to Install
- ✓ Ohio Power Siting Board Certificate of Need and Environmental Compatibility
- ✓ City of Lima or OEPA issued Construction Stormwater Control Permit (City controls if project is within city and stormwater will not affect waters of the state)
- ✓ City of Lima Building Permit for each building and structure planned

Operation

- ✓ Title V Operating Permit from OEPA, application for which is part of the construction permit but approval of which follows required performance tests once operations begin after construction is completed.
- ✓ City of Lima issued Pretreatment Permit, with OEPA oversight, for sending any waste water to the City Publically Owned Treatment Works (POTW). Application is not required until 18 months prior to commencement of operation. While this timing is approximately halfway through construction, we will plan to submit the application well before that deadline (Condition 11).
- ✓ The facility will <u>not</u> require an NPDES permit as it is not proximate to, and will not affect any, waters of the state (Condition 11).
- ✓ While Lima Energy aggressively intends to capture, recycle and reuse as much process and stormwater as possible, the City Engineer for the City of Lima will provide guidance and requirements for on-site stormwater retention and control. At the present time, Lima Energy anticipates use of in-ground large capacity tiles with controlled flow release to the city storm water system, rather than a retention pond. Decisions in this area will be coordinated with the City Engineer (Condition 11).
- ✓ An agreement with Husky Energy Lima Refinery, or suitable alternative, for routing the transmission line from the facility to the West Lima Substation for the PJM interconnection. This is discussed further in (d) below.

✓ Interconnection Service Agreement (ISA) issued by PJM, as discussed above.

As requested, following is discussion of the four permits required to begin construction.

Air Permit to Install

The original Permit To Install was issued in March 2002. An extension was subsequently approved that would have expired September 26, 2004, when the authorized period of the extension had elapsed. The Project executed a contract with Roberts and Schaeffer on September 16, 2004, and directed it to begin work immediately. The project also submitted a "Commencement of Construction Notice" to OEPA advising it that Roberts and Schaeffer had begun work required to install the solid material handling facilities, beginning with the feedstock storage building. Following necessary engineering and construction planning, R&S bid construction of the first increment of their scope in June 2005, and a contact was issued to Industrial Construction Company (ICC) to install the foundation for the feedstock storage building in September 2005. A building permit also was approved by the City of Lima. Following the required "preconstruction" meeting with OPSB Staff on October 4, ICC began work to install the foundation. Lima Energy awarded a contract to ICC to design and build the entire facility in April 2006, and ICC continued active site work into mid-2007, and continued construction related engineering and finance support for the project into 2010. OEPA generally allows for a temporary cessation of actual field construction activity, while construction related engineering and finance tasks are ongoing, before needing to consider whether a permit is deemed to have expired.

USEPA issued a Section 114 Request to Lima Energy Company in August 2011. Following telephone and written responses to the "114 Request", Lima Energy affirmed on October 12, 2011, that it considered the OEPA Permit To Install to have expired and that a new permit would be required.

We anticipate that approximately two months will be needed to draft a new permit application for submission to Ohio EPA. As the agency is already familiar with the Project, we do not anticipate that the review will be unusually lengthy. It remains to be seen how the public comment period unfolds, but we are confident that the entire permit approval process will be reasonable and timely.

Ohio Power Siting Board

Following the initial "pre-construction" meeting, OPSB staff visited the site from time to time in order to monitor construction progress. Lima Energy also provided staff with construction progress photos and reports while the feedstock storage building foundation was being constructed. The project also provided staff with updates of

the engineering and project finance efforts, from time to time, as they continued into 2010 and 2011. While Lima Energy believes it is still within the five year continuous course of construction, and construction related activity, that window is currently approaching its end. During this time, Lima Energy developed an agreement with a customer to deliver synthetic natural gas (SNG) once the plant became operational. This would entail additional gasification capacity and processing scope, and planning for an appropriate amendment of the certificate has begun. Lima Energy also believes, in consideration of the OEPA permit status discussed above, that an amendment of the certificate is appropriate, but that the certificate is still in effect.

We anticipate approximately two months would be required to prepared and file this Amendment, which will be done concurrently with the air permit application to OEPA.

Construction Stormwater Permit

Prior to mobilization of ICC, Lima Energy applied for and received a Construction Stormwater Permit from OEPA. We believe this permit is still in effect, and will remain so. We also know that, since the facility is within the City of Lima and no waters of the state will be affected by the facility, the state permit is not required and any renewal that may be necessary will be with the City of Lima.

City Building Permit

The City Building Department has already approved the permit for the feedstock storage building foundation. This permit will be updated to reflect the entire structure, including fire safety requirements, once that design is complete. Other buildings and structures will each have applications once they are prepared over the course of design and construction of the facility.

d) A list of the electric and gas facilities the proposed facility will interconnect to and a discussion of the extent to which Lima Energy has made preparation for construction of such facilities and the status of the associated necessary filings with the Board (Condition 13).

Response:

Two interconnection agreements are involved in this item, one natural gas and one electric. We are also providing updating information on other Certificate Condition items that may be of interest to the Board.

Natural Gas

The Project executed an interconnect agreement with Columbia Gas Transmission Company (CGTC) on April 14, 2004. This included a preliminary routing of the line between the facility and the interconnect point. CGTC has designated the Project line as D-666, and it includes a meter located at the Point of Delivery (POD). D-666

will connect to the CGTC D-500 trunk approximately three miles from the facility. The D-500 trunk has sufficient capacity and pressure to supply the maximum required 84,000 decatherms per day on a continuous basis. We understand from CGTC that the preliminary routing intends to take advantage of an idle railroad right of way. While CGTC updated the cost of the pipeline in 2008, Lima Energy considers the agreement to have been placed in abeyance. Although this agreement needs to be updated, we believe this can be readily accomplished with new dates and cost information in a relatively short period of time. Lima Energy anticipates seeking renewal of the CGTC agreement once project development is complete. CGTC anticipated an expeditious FERC approval process for the route, and a construction period well within the project timeline.

Electric Transmission

Lima Energy plans a pole route for electric transmission from the facility to the West Lima Substation, utilizing two circuits for redundancy and lower transmission losses, as recommended by the engineer. These plans include crossing the adjacent refinery, owned by Husky Energy. Preliminary discussions have been held with Husky and preliminary routing shared and discussed. Husky has requested that further discussion be deferred until project development is further advanced and project timing more certain. Construction of this pole route is expected to be well within the project timeline. This line will allow backflow of energy from the West Lima Substation for commissioning and startup of the facility.

Raw Water Supply

Condition 13 also addresses water supply plans and supply pipeline routes. While this Order does not request information at this time, we are taking this opportunity to update the Board on the status of this topic.

First, the facility will receive raw water from the City of Lima system, a commitment which, for the original Certificate, the City certified to the OPSB Staff that it is able to fulfill. At the same time, in consideration of its vision for long term growth, the City began exploring expansion of its reservoir storage capacity.

Lima Energy and the City of Lima have executed a raw water supply agreement and pricing structure. The agreement is open-ended and, therefore, has not expired. Under this agreement, the City will construct the raw water supply line to the facility, as well as the separate waste water line between the facility and the POTW. The City Utility Department has not yet selected a route for the lines, which will generally approach the facility from the north.

The City of Lima recently commissioned and began filling its new five billion gallon reservoir adjacent to the existing Bressler Reservoir west of the city. The project included new pumping capacity at the Auglaise River and supply line capacity to the new reservoir. This new capacity assures the City ample capacity to supply all

current and new growth customers as envisioned, including the Lima Energy Project in its entirety.

Rail Traffic and Noise Abatement

Although also not requested by the Board, we are taking this opportunity to update the Board on events addressed in Conditions 15 and 26.

Staff Finding B (11) and Condition 15 call for the project to coordinate with the City in an effort to minimize and mitigate vehicle access, pedestrian and vehicle traffic in proximity to the facility during construction and operation. With Lima Energy support, the City studied several locations for a new grade separation, motivated by the anticipated increase in rail traffic. The CSX and Norfolk Southern mainline tracks parallel each other just north of the Lima Energy facility and the Vine Street Crossing was chosen for construction of a new grade separation. The City arranged state and federal economic development funding and negotiated design approvals with the two railroads. The new grade separation was dedicated in late 2011 and, importantly, enables public safety vehicles (fire and police) north-south access that did not previously exist. It also enhances safe movement of school age children.

Condition 26 seeks to control noise levels emanating from the facility, with the Staff noting potential adverse impacts at homes adjacent to the facility on the east side. With Lima Energy support, the City obtained "Job Ready Site" funding from Ohio Department of Development to create a research and development non-profit center. The homes adjacent to Main Street between Third and Fourth Streets were purchased and demolished and Third Street vacated to form a 14-acre R&D Campus when combined with the Lima Energy 6-acre parcel location of our Technology Center and Administration building. While the noise abatement conditions in the certificate will remain, the residences that motivated them no longer exist.

e) A discussion of the erosion and sedimentation control activities to be undertaken prior to and during construction, and the status of those activities at the construction site (Condition 16 & 17).

Response:

Two pre-construction kick-off meetings with OPSB staff were anticipated in the original certificate. The initial meeting was held October 4th, 2005. In that meeting, staff noted that surface gradients and excavated soil stockpile plans, placing any excavated soil well away from the property perimeter, would essentially preclude erosion and sedimentation offsite – and therefore, perimeter controls would not be required for this initial activity. Periodic surveillance of the site confirms that there has been no runoff, or risk of runoff, from the site. Excavated soil is clayey and not amenable to being windblown. Brush and plant overgrowth at the site and on the excavated soil has also significantly mitigated the potential for windblown soil

movement and any need for seeding with grass at this time. Again periodic surveillance confirms ongoing conformity with these certificate conditions.

Once a contractor is mobilized, these requirements will be retained in an updated document, and discussed during a new "pre-construction" kick-off meeting with staff and the contractor.

f) A discussion of the hazardous soils, water, or debris encountered, to date, and any knowledge of the likelihood of encountering such materials during future construction activities at the construction site (Condition 18).

Response:

As noted in the application for the original certificate, the City of Lima conducted a Phase 2 environmental investigation under the Ohio Voluntary Action Program (VAP). The investigation found a single small area of petroleum contaminated soil. This was removed and the entire site has a Covenant Not to Sue (CNS) from Ohio EPA and companion Comfort Letter from USEPA Region V. The risk based process allows industrial development of the site under a deed restriction filed in Allen County.

On the basis of the CNS, neither the City of Lima nor Lima Energy anticipate contaminated or hazardous soils or water. Any that may be found during the course of site prep or construction will be managed in accordance with OEPA requirements. Lima Energy issued a "Contingency Environmental Response" procedure to the contractor and will reissue that when the project moves forward. To date this procedure was used to initiate testing of water in the former boiler feedwater pond before it was drained. The procedure was also used to manage water found in a concrete pit that was being removed. In both cases, a qualified testing lab determined both of these waters to be non-hazardous, and they were managed in an appropriate manner.

The only "debris" anticipated will be concrete foundations being removed with the concrete reused. While we do not anticipate contaminated concrete, any found will be segregated and a determination made as to disposal or reuse onsite, as well as any required actions to enable the decision. Steel reinforcing bars and railroad rails will be salvaged as usable steel. Some piping may be in below ground pipeways, which will also be salvaged as usable steel. While we do not anticipate other types of debris, any found will be managed appropriately — as demolition debris or management practice depending on its nature and condition.

g) Association standards since issuance of the certificate and Lima Energy's coordination with fire, safety, and emergency personnel during all stages of the project (Conditions 21 & 22).

Response:

First, the Order omitted the "(g)" associated with the requested item, and we believe, based on syntax that the beginning of the sentence may also have been omitted. We, however, believe we are able to infer the intended wording and are responding accordingly. To the extent we have not correctly interpreted the Board's request, we are willing to provide additional information in a timely manner upon request.

The City of Lima Building Department will issue building permits that include consideration and requirements for NFPA fire protection systems. These requirements also will be incorporated during design to reflect federal and state requirements for safe plant operation.

The contractor has an enforceable safety plan and policy. This will be the subject of regular discussion and enforcement with construction personnel. Once the project development is complete and construction has begun, the scope and nature of the facility will be shared with local public safety and industry organizations. This education process is intended to foster cooperative support, to gain lessons learned from those that have been in Lima longer and to enable mutual aid and response.

These plans and practices will be shared with OPSB Staff from time to time and upon request.

Facility staffing will include EH&S personnel capable of coordinating interactions and preparing policy and procedure documentation.

h) A discussion of the arrangements made, to date, to assure necessary backup pressure is provided to the local natural gas system prior to the proposed facility's connection to the system (Condition 24).

Response:

As noted above, Lima Energy executed an interconnect agreement with Columbia Gas Transmission Company in 2004. The allowable operating pressure of the D-500 trunk is over 700 psia. The fuel delivery pressure for the gas turbines in the IGCC is approximately 375 psig. The CGTC diagram associated with the Interconnect Agreement stipulates a facility delivery pressure of 450 psig. This agreement thereby affirmed CGTC's ability to assure both capacity and pressure of

delivered gas on a continuously reliable basis. This assurance requirement will be incorporated into the renewed interconnection agreement when executed. Moreover, we believe that considering the current high availability of natural gas in the marketplace, including new pipeline and compressor station capacity, there is little risk of loss of capacity or pressure in the pipeline system.

i) In its motion to extend it certificate, Lima Energy states that "...the facility may have to be reconfigured." Provide a thorough discussion of the extent to which and why Lima Energy makes this statement including an explanation of how the proposed facility will be reconfigured.

Response:

The original project was envisioned as an Integrated Gasification Combined Cycle (IGCC) facility generating 540MW. This facility would use four fixed bed gasifiers to convert solid feedstock into synthetic gas for fueling the combustion turbine portion of the combined cycle. Natural gas was the back-up fuel. The facility was also issued an air permit to install by Ohio EPA (OEPA) based on this plan. Later, as requested by financial underwriters, the gasification technology was changed to entrained flow gasifiers. Two of these are required in place of the original four fixed bed units. The first Amendment (04-1011-EL-BGA) was issued for this change; but the change had no effect on the air permit issued by OEPA because the gasifiers themselves are not emission units, and the change did not affect the balance of plant.

Switch to SNG from IGCC

Subsequently, the Project concluded that selling pipeline quality Synthetic Natural Gas (SNG) instead of power from an IGCC would be more commercially viable. The Project also concluded that additional gasification capacity, and the associated additional volume of SNG, would improve the project economics. At this point Lima Energy planned two additional gasifiers, one to be operational with the first two and the other (fourth unit) would be a connected spare, rotating with the other three. Thus, three operating and one spare would significantly improve availability and reliability. The primary feedstock would be petroleum coke, with high sulfur coal as a viable alternative. The original air permit anticipated use of both feedstocks.

Steam turbine-generated power is inherent in the manufacture of SNG, utilizing the high pressure superheated steam produced during the methanation process and the high pressure saturated steam from the gasifiers. The steam turbine generators associated with the methanation process to manufacture SNG would support site load and allow for export of approximately 100MW.

Lima Energy discussed the change from IGCC to SNG with OEPA and requested guidance with respect to permit modifications that may be necessary. OEPA, in reply to the guidance request, noted that while a new permit for expanded cooling

tower capacity would be needed, since the actual capacities of the balance of plant were not affected, that operational issues could be address less formally than by permit modification.

Carbon Dioxide (CO₂) will be produced and captured during the manufacture of SNG. Lima Energy intends to fully utilize this CO₂ in enhance oil recovery (EOR) opportunities in central and eastern Ohio or sequester this CO₂ in the Mt. Simon Sandstone that is suitably located beneath Lima and the surrounding region. Carbon sequestration in this manner should put the carbon footprint associated with production of SNG on par with production of conventional natural gas.

Switch to Transportation Liquids from SNG

More recently, with the decline of natural gas prices, the Company believes that production of Ultra Clean Synthetic Liquids (crude oil, or products such as diesel and jet fuel) would have superior economics. The Fischer-Tropsch (FT) technology has been well known and used commercially for many decades. The catalytic process is sufficiently similar to that of SNG production that the change to liquids is expected to be straightforward. As with SNG, capture and sequestration of CO₂ should put the carbon footprint of the facility roughly on par with production and manufacture of petroleum based products. Including a modest portion of biomass in the feedstock should enhance the products' market value and improve the carbon footprint versus conventional petroleum products. The primary feedstock continues to be petroleum coke, but coal, including high sulfur coal, is viable also.

Phased Project Plan

Due to continued caution within the Investment community as the economy continues its tentative recovery from the economic challenges that began in 2008, we propose to implement the Project in phases to better manage costs and financing. The Project now consists of three primary phases.

- Phase 1 will consist of the installation of one gasifier designed to produce approximately 6,000 barrels per day of synthetic liquids.
- Phase 2 will consist of the installation of three additional gasifiers (two operating and one spare) and is expected to begin construction once Phase 1 is completed, though, if market conditions are favorable, Phase 2 construction may overlap that of Phase 1 somewhat. Phase 2 is designed to produce approximately 15,000 barrels per day of synthetic liquids. Phase 2 will also enable the Phase 1 gasifier to operate more continuously, bringing the combined product yield to approximately 22,000 barrels per day

 Phase 3 is currently expect to include the construction of a natural gas fueled 2x1 combined cycle unit with gross generation of approximately 515 MW (Frame 7 Size). Phase 3 would proceed based on market interest in the generation and is intended to operate on pipeline natural gas. This takes advantage of both the low cost of natural gas and the growing interest in gas turbine based power generation.

The above discussion can be summarized in bullet form as follows:

Certificate - IGCC

- Four fixed bed gasifiers producing synthetic gas fuel
- 540 MW combined cycle based on GE 7FA
- Natural Gas Back Up fuel
- OEPA Air Permit Basis

First Amendment – IGCC

- Two entrained flow gasifiers to fuel the combined cycle
- No air permit modification required as gasifiers are not emission units

Second Amendment – Planned and Drafting Begun

- Two additional entrained flow gasifiers
- Three operational and one connected spare available to either operating unit
- Pipeline Quality Synthetic Natural Gas (SNG) production instead of IGCC
 - o Catalytic methanation process is exothermic
 - Steam Turbine power generation not combustion turbine
 - Site load with some export potential, especially in second phase
- Enhanced Oil Recovery (EOR) and Carbon sequestration of CO₂ (CCS) produced during SNG manufacture
 - Enhanced Oil Recovery to be explored and implemented in central and eastern Ohio
 - Mt Simon Sandstone beneath Lima and region is has been demonstrated to generally be suitable for this purpose principally by stratigraphic coring and seismic evaluation.
- Third phase would be natural gas fueled CCGT
 - Carbon capture from CCGT (post-combustion capture) as such technology is developed
 - o EOR & CCS of the captured CCGT CO₂ stream in addition to that produced in the manufacture of SNG as well

Market Change Plan to Adjust Second Amendment

- Ultra Clean Synthetic Crude instead of SNG
- Fischer-Tropsch catalytic technology
 - o Catalytic process is also exothermic
 - o Steam Turbine power generation not combustion turbine
 - Site load and some export from each phase
- · Carbon Sequestration and EOR as above
- Third phase to be natural gas fueled CCGT
 - CCS from CCGT when post-combustion technology enbles

Discussion

As the first phase of the Lima Energy Project is expected to include sufficient steam turbine power generation to support facility operation, with relatively little available for export, we may defer any export of power until the second phase. If necessary, this approach would also afford ample opportunity for the PJM process to be completed before significant export capacity in the grid is needed.

At a minimum, the project anticipates interconnection with the West Lima Substation will be necessary in order to back-flow commissioning and start-up power. Portable generators for startup power are a contingent alternative. Also, if timing of the CCGT is advanced, the facility could use the combustion turbine power for starting up the Phase 1 gasification plant (about 50 MW air separation unit and BOP).

The first two phases are being designed to consist of gasification and synthetic product manufacture. As these are closed systems without primary emission points, the permit application to Ohio EPA is expected to be a state level permit and <u>not</u> rise to Federal PSD/NSR requirements. The third phase will be a combined cycle unit fueled by natural gas. The permit for this phase will require a PSD/NSR application. USEPA has signaled strong support for natural gas fired combined cycle power generation. Therefore, we do not believe this permit will be particularly challenging to obtain. The air permit for these three phase will be responsive to current and emerging carbon dioxide (CO₂) requirements, as they exist at the time of application.

Carbon Capture and Sequestration (CCS) is being incorporated into this Project. The Mt. Simon Sandstone lies beneath Lima and the surrounding region, and has been demonstrated by previous testing and current use, to be well suited for this purpose. Seismic and stratigraphic studies have been completed in the immediate vicinity of Lima, with the reports and records kept by Ohio Department of Natural Resources. Ultimately, a CO₂ pipeline to central and eastern Ohio is envisioned to support enhanced oil recovery (EOR), and will be the subject of other permit application(s).

The first two phases at Lima are being designed to produce and capture CO_2 as an aspect of synthetic product manufacture. Current plans call for this captured CO_2 to be used for EOR applications or to be injected into the local deep saline aquifer in accordance with USEPA requirements for UIC Class VI wells. We are aware that the local Mt Simon Sandstone has already been demonstrated to have the requisite geologic integrity for this purpose. Further, preliminary plume migration and capacity modeling has also shown it to have more than sufficient capacity for the quantities involved.

Finally, in closing, we appreciate that the amendment described here is significant and from a purely regulatory standpoint is similar in scope to a new application. We believe, however, that there is value in maintaining the continuity of the existing process, including the amendment of the existing certificate, rather than submitting a new application. In particular, since the original certificate considered the preferred and alternate locations for the power block - and that will not be changed by the intended amendment, the amendment process is better suited to providing the Board with the opportunity to review and approve the material changes in the Project without having to reconsider elements of the Project that will not change. The established location of the power block in turn affects the general arrangement of the entire facility. As the planned amendment will not materially alter utilization of the site, we believe that the continuity of the process is best served by extending the certificate and allowing the amendment process. Siting Board Staff and community involvement in the amendment process, in our view, will achieve the same objectives as the termination of the existing certificate and subsequent submittal of a new application without disrupting the other project development tasks and financing necessary to complete this project. Positive progress toward project finance has been made in recent months, with sufficient funding to prepare Amendment and Air Permit applications imminent and full funding to follow later this year. We respectfully request your forbearance for the work yet to be done and that the Board extend the Certificate for an additional 30 months.

Respectfully Submitted,

Dwight N. Lockwood, PE, QEP

Lima Energy Company

Project Director

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Summary: Response to Request for Additional Information in Support of Motion to Extend Certificate electronically filed by Mr. Robert J Schmidt on behalf of Lima Energy Company