Tab 7

Effect on Electric Transmission System in Kentucky

7. **EFFECT OF PROJECT ON TRANSMISSION SYSTEM – SB 257, Section 4(2)(i) (Contact Dwight Lockwood)**

East Kentucky Power Cooperative (EKPC) has contracted to receive 100% of the generated electricity under a long-term contract. They will receive the power directly at the KPE step-up transformers in the project facility. EKPC intends to transmit the energy throughout its own system to its COOP members for use by their respective customers.

Under the power purchase agreement EKPC will receive power directly at the Kentucky Pioneer Energy bus-bar. As such there is no "Interconnect Agreement", in the conventional sense, rather the interconnect agreement is inherent in the power purchase contract. KPE does not have any contractual electric transmission responsibilities nor will it be involved with transmission issues. EKPC has indicated to KPE and the Public Service Commission that it can accommodate KPE generation without changes to its transmission system. However, EKPC has determined, based on other system load and growth planning considerations, that they will install additional transmission capacity in the future. Transmission is entirely an EKPC responsibility.

The US DOE Environmental Impact Statement, based on information received by them from EKPC and noted in the Summary section, addresses transmission capacity that is being considered by EKPC.

Tab 8

Economic Impact on Region

8. ECONOMIC IMPACT ON THE REGION – SB 257, Section 4(2)(j)

The region surrounding the project in Trapp is predominantly rural and agricultural in nature, but with existing commercial operations in the area.

KPE believes the economic impact in the region surrounding the Clark County project is potentially significant. Investment of this magnitude in the region can serve to strengthen the economic foundation and serve as a catalyst for economic growth if desired.

Significantly too, adding low cost electricity to the capacity of EKPC and its Cooperative members is seen to benefit its customers in Kentucky.

US DOE, in its Environmental Impact Statement (EIS Chapter 5.3.4.1), in its discussion of Socio-Economic effects of the project makes these points:

Construction Phase

Several hundred workers over 30-36 months of construction results in approximately two times that in local indirect employment. This is estimated to generate approximately $57 million of direct and $53 million of indirect income in the Region. Additional direct employment, at peak periods could add a further $3 million in each such month.

Unemployment in the Region is quite low at about 2%. The construction labor pool is readily available in the Region.

Rental housing is most commonly used by construction workers that travel to an area. Vacancy rates are in the 9% range.

Operational Phase

The 100-120 permanent workers at the site are estimated to result in approximately 250 indirect jobs in the Region and about $12 million annual income.

Tab 9

Disclosure of Past

Environmental Violations

9. DISCLOSURE OF PAST ENVIRONMENTAL VIOLATIONS – SB 257, Section 4(2)(k)

Kentucky Pioneer Energy, LLC, is a project company of Global Energy Inc., a privately held corporation. The principal of Kentucky Pioneer Energy has no violations of federal or state environmental laws, rules, or administrative regulations, regardless of magnitude of the penalty. Further, there are no judicial or administrative actions pending.

Tab 10

Site Assessment Report

10. SITE ASSESSMENT REPORT, SB 257, Section 4(2)(l), Section 5(1)

10.1 National Environmental Policy Act (NEPA) Alternative

US Department of Energy (DOE) has completed an Environmental Impact Statement (EIS) as required by the National Environmental Policy Act (NEPA). Kentucky Pioneer Energy, therefore, qualifies for use of the NEPA Alternative provided in SB 257, Section 4(2)(l), in lieu of the required Site Assessment Report.

The Final Environmental Impact Statement (EIS) has been approved by US DOE, and published and submitted to USEPA for final review. A copy of this Final EIS is included in Tab 13, as an Appendix to this application. The single volume includes the main EIS document as well as Public Comments and DOE Responses to those comments.

To facilitate review of the Site Assessment requirement with respect to the NEPA document, KPE has provided EIS citations, and summary discussion of the EIS findings, for each of the required elements in the Site Assessment requirement.

10.2 Description of Facility, SB 257, Section 5(3)(a)

Kentucky Pioneer Energy, LLC (KPE) proposes to develop a 540 MW_e (net) electric power generation facility at the East Kentucky Power Cooperative (EKPC) JK Smith site in Trapp, Clark County, Kentucky; where EKPC operates approximately 400 MW_e of existing combustion turbine based power generation capacity. The facility will be on a parcel leased from EKPC, jointly utilize existing buildings, roads, rail facilities and other infrastructure. KPE will lease approximately 300-acres wholly within the approximate 3200-acre EKPC JK Smith property.

EKPC graded and partially developed the site for an energy complex. Little if any new site development work is required. KPE will be able to immediately begin site layout and foundation development for its facility. Space within the existing buildings is suitable for office and project management.

The Integrated Gasification Combined Cycle (IGCC) plant essentially integrates a gasification process area, a combined cycle power island and a feedstock handling area. The gasification process area converts solid feed into SG (synthesis gas or syngas) which is then purified by removing sulfur compounds and other contaminants before use as a fuel in the power island. The power island will consist or two GE 7FA combustion turbines driving electric generators, two heat recovery steam generators and a steam turbine also driving a generator. The feedstock receiving,

storage and handling facility will receive feedstock materials by rail, store and handle them. All feedstock handling will be in enclosed structures.

Gasification is an oxygen-blown chemical conversion process requiring an Air Separation Unit to provide the oxygen for gasification and nitrogen for process and SG uses. The facility will have a new operations control building, including chemical analysis and other laboratory capabilities, which will be developed during plant design.

While SG is the primary fuel for the combustion turbines, natural gas will be the start-up and back-up fuel. The computer controlled fuel control module at the gas turbines is capable of automatic blending of the two fuels in various proportions.

Water for the facility will be received from EKPC under its Withdrawal Authorization using the existing large capacity pipeline originally installed by EKPC. KPE will install a new intake structure at the Kentucky River to support the volume requirements of both KPE and EKPC. EKPC will meter the flow to KPE. Any wastewater will be treated by Kentucky Pioneer Energy and discharged to the Kentucky River under a Discharge Permit via the existing large capacity discharge line installed by EKPC.

10.3 Surrounding Land Uses, SB 257, Section 5(3)(a)1

10.3.1 EIS Chapter 4.2 Land Use – refers to the Clark County "Comprehensive Plan and Zoning Ordinance, noting that while the area is rural/agricultural, the project site is excluded from zoning constraints because utility structures (i.e. electric power generation) are excluded from zoning considerations.

It also notes that the host site has three existing gas turbine driven generators (since increased to five) of similar type as those intended for this project.

EIS Chapter 5.2.4 – Land Use Environmental Impact – concludes that no effects on surrounding land are expected during construction or operation.

10.3.2 Legal boundaries of the proposed site, SB 257, Section 5(3)(a)2

EIS Chapter 4.2 – notes that the proposed facility is a 300-acre parcel 'fully within' the host 3120-acre parcel owned by EKPC. The facility legal boundaries are defined by the site-lease with EKPC. There are no "public" property owners adjacent to the project site.

10.3.3 Proposed access control to the site, SB 257, Section 5(3)(a)3

Public access to the facility is already limited by the existing fence, gates, and security guard for the JK Smith site owned by EKPC. The gate is at State Highway 89, at the back of a large vehicle turn-out area.

10.3.4 Location of facility buildings, transmission lines and other structures, SB 257, Section 5(3)(a)4

KPE, as part of its lease arrangement with EKPC, will have joint use of existing buildings at the JK Smith site. Detailed KPE site layout plans for structures are not yet developed, though all will be within the parcel leased from EKPC.

A covered feedstock storage structure is planned and reflected in the air permit. An operations control and office building is planned, but its location within the parcel is undecided.

The gasification process and power generation facilities will be generally centrally located within the 300-acre lease parcel, but specific layout plans have not yet been developed, except to support permitting.

Transmission lines are not included in the KPE scope for the project because they are the contractual responsibility of EKPC, who has contracted to receive 100% of the generated power. EKPC transmission lines are separately subject to PSC approval.

10.3.5 Location and use of access ways, internal roads and railroads, SB 257, Section 5(3)(a)5

EIS Chapter 4.11.1 (Traffic and Transportation): The access road to the KPE leased project site within the EKPC owned property extends approximately one-mile from Kentucky Highway 89 at Trapp. EKPC earlier constructed a number of service roads, some currently unpaved, within their property. These provide ample existing access to the KPE facility area.

EIS Chapter 4.11.2 (Railroads): The site is approximately one-half mile from the 123-mile freight line segment between Winchester and Typo, Kentucky. The line is identified as C-273, and is owned and operated by CSX Transportation, Inc. Existing traffic averages 13.1 trains per day. A 3.1-mile rail loop connects this main freight line to the JK Smith site, and actually helps define the KPE 300-acre lease parcel. Extensive rail yard capacity exists within the JK Smith site, and is connected to the above-mentioned loop.

10.3.6 Existing or proposed utilities to service the facilities

Construction and back-up general service power will be obtained from Clark Energy. Site load will normally be self-generated. Start-up power during operations will be obtained from Clark Energy.

The site will have its own sanitary and process wastewater treating systems and discharge via a KPDES permit, to be issued by the Natural Resources and Environmental Protection Cabinet.

Water supply will by from EKPC, under its Withdrawal Authority. KPE will install a new water intake structure at the Kentucky River, to replace the existing one, which is of insufficient capacity. KPE has already made application to the US Army Corp of Engineers (USACE – Louisville) for this permit. USACE - Louisville has been waiting for the EIS process to completed, before considering the application.

10.3.7 Compliance with applicable setback requirements, SB 257, Section 5(3)(a)7

See Tab 5 for discussion of Setback exemption for co-location with an existing generating facility with output greater than 10 MW.

10.3.8 Evaluation of noise levels expected

EIS Chapter 4.10 (Noise): Existing noise at the JK Smith site ranges from 39 to 55 dBA. Highway levels range from 52 to 69 dBA. Noise data taken at the JK Smith site were not affected by the combustion turbines already existing at the site, whether they were in operation or not.

EIS Chapter 5.10: Notes that noise during construction may range to 92 dBA. These would be attenuated to 71 dBA at 1000 feet, 61 dBA at 2500 feet, 50 dBA at 1-mile, and 44 dBA at 1.5miles. Terrain and vegetation are expected to further attenuate these values. Very few residences exist within one-mile of the site. Nighttime construction noise will approximate background.

Operational noise, based on studies at similar sites estimated at 63 dBA at the site perimeter, 57 dBA at the EKPC property line, 54 dBA at the closest structure, and 45 dBA at Trapp. These are compatible with rural residential land use.

10.4 Scenic Evaluation, SB 257, Section 5(3)(b)

EIS Chapter 5.5 (Aesthetic and Scenic Resources):
DOE notes that the turbine exhaust stacks, at 213-feet tall, could be visible from Winchester and Pilot Knob, both approximately 8-miles distant. Hilly and irregular terrain is however likely to prevent visibility from Winchester, or even Trapp, which is approximately 2-miles distant.

FAA will require strobe lighting on the stacks to mitigate the potential for harmful bird strikes. Safety required structure lighting will be hooded and point downward, thereby minimizing stray light. DOE views these lighting issues as posing minimal impact at night.

DOE also states that there are no impacts to the aesthetic and scenic resources of the Daniel Boone National Forest and Red River.

DOE notes that cooling tower plume visibility will depend on meteorological conditions. Infrequent flare use would be visible in the same manner that the stacks are visible.

Construction dust may also be periodically apparent.

10.5 Property Value Evaluation, SB 257, section 5(3)(c)

EIS 5.3.3 – Socio-Economic: States that negligible property value impacts are expected due to the very sparsely populated region; with the closest residence is more than one-mile distant from the facility.

10.6 Peak and Average Noise Evaluation, SB 257, Section 5(3)(d)

EIS Chapter 4.10 (Noise): As described in Section 10.3.8, existing noise at the JK Smith site ranges from 39 to 55 dBA. Highway levels range from 52 to 69 dBA. Noise data taken at the JK Smith site were not affected by the combustion turbines already existing at the site, whether they were in operation or not.

EIS Chapter 5.10: Notes that noise during construction may range to 92 dBA. These would be attenuated to 71 dBA at 1000 feet, 61 dBA at 2500 feet, 50 dBA at 1-mile, and 44 dBA at 1.5miles. Terrain and vegetation are expected to further attenuate these values. Very few residences exist within one-mile of the site. Nighttime construction noise will approximate background.

Operational noise, based on studies at similar sites estimated at 63 dBA at the site perimeter, 57 dBA at the EKPC property line, 54 dBA at the closest structure, and 45 dBA at Trapp. These are compatible with rural residential land use.

10.7 Traffic Evaluation, SB 257, Section 5(3)(e)

EIS Summary Section and Chapter 5.11.4: Notes that operational staff of 100-120 will be in three shifts resulting in 30-40 per vehicle movements per shift per day. Due to the existing traffic being light, little impact on traffic due to normal operation of the project site is expected. Shift change periods may affect the relatively low traffic volume and flow at Highway 89 in Trapp. Other periods will experience insignificant impacts.

Truck traffic is difficult to predict, but is expected to be occasional enough to have minimal impact along Highway 89. A large area turnout is in place at the EKPC entrance, with the gate displaced from the highway.

Rail traffic can be fully handled within the EKPC property and is not expected to significantly impact the mainline rail operation.

10.8 Mitigation Measures, SB 257, Section 5(4)

The EIS also suggests consideration of certain mitigation measures.

10.8.1 **EIS 5.18.2:** A fugitive dust control plan during construction and operation will be developed and implemented.

10.8.2 **EIS 5.18.3:** A soil erosion control plan during construction will be developed and implemented. Further mitigation is unlikely to be necessary.

10.8.3 **EIS 5.18.6:** Landscaping in this private property well away from public access is not expected to be required, but will be considered as appropriate following construction.

10.8.4 FAA does require stack lighting to minimize bird strike mortality. This structure lighting will be minimized as far as safe operation will allow, and unnecessary illumination of the atmosphere avoided. Structure lighting will be designed to conform to US Fish and Wildlife Service recommendations.

10.8.5 **EIS 5.18.7:** Noise enclosures are already planned for the gas turbines and air separation unit compressor. DOE suggests 95 dBA within one-meter outside the enclosure (the standard measurement point) should be required. Similarly, DOE suggests that 65 dBA outside the gasifier environment should be required.

10.8.6 DOE also states that distance, terrain, and vegetation will also serve to attenuate and mitigate noise levels at the EKPC property line.

10.8.7 **EIS 5.18.8 (Traffic):** KPE has already met with Kentucky Department of Transportation officials to understand their typical areas of concern. KPE will work with KDOT as the project is developed, to consider whether traffic controls or turning lanes, for example, during construction or operations are appropriate.

10.8.8 Kentucky Department of Transportation (KDOT) officials also attended the June 28, 2001 public meeting at Trapp Elementary School, at the request of local elected officials. KDOT was asked to be available to respond to traffic related questions and concerns. There were none expressed.

KDOT has informally suggested early consultation with the agency for their guidance and direction. Specifically, KDOT has the authority to require implementation of any measures they deem appropriate, during any phase of the project.

Such aspects as traffic control during construction, especially during shift change, and operation, Highway 89 maintenance and refurbishing if damaged during construction, would be considered.

As requested by KDOT, KPE will submit a project description and implementation plan to KDOT, and work with them to meet their requirements.

KPE proposes that the Board defer to KDOT for oversight of this issue.

Tab 11

Permit Status

11. PERMIT STATUS – SB 257, Section 3(1) (Contact Dwight Lockwood) .....

11.1 Federal Permits – SB 257, Section 3(1) .....

ITEM	PERMIT OR APPROVAL	RESPONSIBLE AGENCY	REGULATED ACTIVITY	PERMIT STATUS
1	Phase II Acid Rain	US EPA & Kentucky Division of Air Quality	Operational compliance with Acid Rain Regulations	Issued June 7, 2001
2	Exempt Wholesale Generator (EWG)	Federal Energy Regulatory Commission (FERC)	Sale of Wholesale Electricity	EG01-132-000 Issued May 24, 2001
3	Nationwide Permit	US Army Corp of Engineers – Louisville	Discharge Line and Associated Intake Structure	Application Pending US DOE EIS
4	Environmental Impact Statement (EIS)	US DOE and USEPA under National Environmental Policy Act (NEPA)	Kentucky Pioneer Energy Gasification Facility	EIS Approved by DOE and Pending USEPA Review followed by Record of Decision (ROD)
5	Determination of Obstruction Hazard	Federal Aviation Administration	Construction of Tall Structures	Application not yet made.

11.2 State Permits – SB 257, Section 3(1) ……..

ITEM	PERMIT OR APPROVAL	RESPONSIBLE AGENCY	REGULATED ACTIVITY	PERMIT STATUS
1	Declaratory Order of Non-Jurisdiction	Public Service Commission	Concurrence facility is not a regulated utility	Issued July 13, 2000
2	New Source Review (PSD) and Title V Permits	Kentucky Division of Air Quality	Construction and Operation of a Major Source.	Issued June 7, 2001; Extended to June 7, 2004
3	National Pollution Discharge Elimination System (NPDES)	Kentucky Division of Water	Discharge of cooling or process waste waters into surface waters	Application not yet made.
4	NPDES General Storm Water Operating Permit	Kentucky Division of Water	Discharge of Storm Water runoff during operation of facility	Application not yet made.
5	NPDES General Storm Water Permit for Construction (Notice of Intent)	Kentucky Division of Water	Discharge of storm water runoff during construction	Application not yet made
6	Water Withdrawal Permit	Kentucky Division of Water	Withdrawal of Water for Utility Use	Not required.
7	Wastewater Facility Construction Permit	Kentucky Division of Water	Construction of wastewater treatment facility	Application not yet made
8	Section 401 Water Quality Certification	Kentucky Division of Water	Required for USACE Permit	Pending DOE EIS and USACE action on Federal Permit
9	Determination of Obstruction Hazard	Kentucky Airport Zoning Commission	Construction of Tall Structures	Application not yet considered

11.3 Local Permits – SB 257, Section 3(1) ……..

ITEM	PERMIT OR APPROVAL	RESPONSIBLE AGENCY	REGULATED ACTIVITY	PERMIT STATUS
1	No local permits needed.			

11.4 Cumulative Environmental Assessment Notification And NEPA Alternative – SB 257, Section 10(1)(a) …….

11.4.1 SB 257, Section 10(2) Provides that documentation of compliance with the National Environmental Policy Act NEPA) is an acceptable alternative for meeting the requirements of a cumulative environmental assessment under Section 4(2)(l).

Kentucky Pioneer Energy qualifies for this alternative by virtue of the Department of Energy prepared Environmental Impact Statement (EIS), included as the Appendix at Tab 13.

11.4.2 SB 257, Section 10(3)

While the NEPA documentation is provided by the EIS in Tab 13, summary discussion and information is provided here by KPE as well.

11.4.2.1 Section 10(3)(a) Air Pollution

Kentucky Natural Resources and Environmental Protection Cabinet issued the permit to construct {V-00-049} for this facility on June 7, 2001.

Section 10(3)(a)1. The two major sources of emissions from the facility are the stacks associated with the gas turbine driven electric generators. There are no stacks associated with the gasification process area, which produces the SG (synthesis gas) fuel for the turbines. Minor levels of particulate emissions will result mostly from feedstock handling and storage.

Section 10(3)(a)2. Combustion turbine emissions are commonly minimized by lowering the firing temperature by moisturizing the fuel as well as steam injection into the fuel combustor in the turbine. Sulfur is removed from the fuel after it is produced in the gasification system, and before it is used in the turbines, by conventional gas clean-up processes. Very stringent limits have been placed on the plant by the air permit. Solid materials receipt, storage and handling will be utilize enclosed equipment and structures, with particulate filtration on vents associated with storage structures.

11.4.2.2 Section 10(2)(b) Water Pollution

KPE has estimated that it will utilize approximately 4 MGD (million gallons per day) of water for various plant operations. Most of the water will be used in the gasification process, while some is used in the combustion turbine.

Section 10(2)(b)1. Water is extensively used and reused in various process operations, minimizing the quantity of wastewater produced. Approximately 0.4 MGD has been estimated as wastewater, comprising relatively normal constituents for a process plant, for treating and discharge. KPE has met with the Kentucky Division of Water and been advised as to the general expectations for wastewater treating and discharge to the Kentucky River under a National Pollution Discharge Elimination System (NPDES) permit. Discharge, upon approval of the Division of Water, will utilize the existing discharge line into the Kentucky River; though requirements of the Division of Water may necessitate modification discharge end of the line. A permit application will be prepared and submitted once more of the process design is completed and well before operations are scheduled to begin.

11.4.2.3 Section 10(2)(c) Wastes

Section 10(2)(c)1. The facility expects to generate solid wastes in fairly modest quantities and similar in nature to many manufacturing operations. These are not expected to be of significant quantity or problematic nature. Little hazardous waste is anticipated.

Section 10(2)(c)2. While coal is generally expected to produce ash that has regulated disposal aspects, the gasification technology being employed produces a vitrified frit or slag, from the “ash” content of the feedstock. This material has commercial market value, and is therefore not a waste.

11.4.2.4 Water Withdrawal, SB 257, Section 10(2)(d)

Section 10(2)(d)1. KPE will receive water from East Kentucky Power Cooperative (EKPC) under its Withdrawal authority. Kentucky Division of Water has informally advised KPE that the water will be metered from EKPC to ensure proper accounting of flows from the Kentucky River.

KPE currently plans to utilize existing capacity during construction. A new intake structure and pumping capacity will be installed to supply the new volumes planned by both EKPC and KPE. This intake will connect to the existing large capacity line to the project site.

Section 10(2)(d)2. As noted above, water is extensively reutilized in process area, primarily in heat exchange. Steam is also supplied by the steam turbine to the gasification process, taking optimum advantage of both its availability and its temperature.

Tab 12

Certification of Compliance

12. CERTIFICATIONI OF COMPLIANCE and SETBACK, Section 4(2)(d)

Statement certifying plant will be in compliance with all local ordinances and regulations concerning noise control, planning, zoning, and disclose setback requirements established by the planning and zoning commission as provided under Subsection (3) of Section 3 of this Act.

The plant will be designed, installed, and operated in compliance with any local ordinances and regulations affecting planning, zoning, noise, and set-back.

There are no Setback requirements imposed by Clark County Planning and Zoning Commission.

Dwight N. Lockwood

Original Signed

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Dwight N. Lockwood, PE, QEP
Vice-President Regulatory Affairs

Tab 13

Appendix

US DOE

Environmental Impact Statement

(NEPA Compliance)