

**BEFORE THE PUBLIC SERVICE COMMISSION
OF MARYLAND**

**IN THE MATTER OF THE APPLICATION OF
CP CRANE, LLC FOR A CERTIFICATE OF
PUBLIC CONVENIENCE AND NECESSITY
AUTHORIZING THE MODIFICATION OF THE
CHARLES P. CRANE GENERATING STATION IN
BALTIMORE COUNTY, MARYLAND**

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Case No. _____

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DIRECT TESTIMONY OF JEFFREY L. MELING

ON BEHALF OF

CP CRANE, LLC

May 31, 2018

1 Direct Testimony of Jeffrey L. Meling

2 INTRODUCTION AND PURPOSE OF TESTIMONY

3 **Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?**

4 A. My name is Jeffrey L. Meling. I am employed by Environmental Consulting &
5 Technology, Inc. ("ECT"). My business address is 3701 Northwest 98th Street,
6 Gainesville, Florida 32606.

7 **Q. WHAT IS YOUR CURRENT POSITION?**

8 A. I am a Senior Vice President at ECT and a registered professional engineer.

9 **Q. PLEASE GENERALLY DESCRIBE YOUR EDUCATION AND PROFESSIONAL**
10 **BACKGROUND AND EXPERIENCE.**

11 A. I have almost 40 years of experience, specializing in power plant and transmission line
12 permitting and multidisciplinary permitting of large utility and industrial facilities. I have
13 a Master of Science degree in Environmental Engineering from the University of Illinois
14 and a Bachelor of Science in Civil Engineering from the University of Illinois. A statement
15 of my educational background and professional qualifications is attached to my direct
16 testimony at Exhibit JLM-1.

17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

18 A. Yes, I have testified in numerous proceedings on Certificates of Public Convenience and
19 Necessity, sponsoring Environmental Review Documents in my role as project
20 environmental consultant. Overall, I have been involved with approximately 20 projects
21 with Certificate of Public Convenience and Necessity ("CPCN") applications to this
22 Commission. A list of projects with associated case numbers is included with Exhibit JLM-
23 1; I managed all but three of the listed projects.

1 **Q. WHAT IS YOUR ROLE WITH RESPECT TO THE PRESENT APPLICATION?**

2 A. I was responsible for the development of the Environmental Review Document in Support
3 of an Application for a CPCN to modify the Charles P. Crane Generating Station (“Crane
4 Station”) by retiring its existing coal-fired units and adding combustion turbines (“CTs”)
5 fired primarily with natural gas (the “Repowering Project” or the “Project”) which was
6 attached to and incorporated into the Application of CP Crane LLC for a CPCN for the
7 Repowering Project.

8 **Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY IN THIS**
9 **PROCEEDING.**

10 A. The purpose of my testimony is to introduce the Environmental Review Document and
11 provide an overview of the conclusions of the Environmental Review Document regarding
12 the impacts associated with the Repowering Project.

13 **INTRODUCTION OF THE ENVIRONMENTAL REVIEW DOCUMENT**

14 **Q. WAS THE ENVIRONMENTAL REVIEW DOCUMENT PREPARED BY YOU OR**
15 **UNDER YOUR DIRECTION?**

16 A. Yes, the Environmental Review Document describing the activities that are the subject of
17 the Application and the analyses presented therein were conducted by me or by ECT
18 technical staff under my direct supervision.

19 **Q. WHAT IS THE PURPOSE OF THE ENVIRONMENTAL REVIEW DOCUMENT?**

20 A. The Environmental Review Document presents analysis and discussion of the Repowering
21 Project with respect to various subject matter required by Public Service Commission
22 regulations to be addressed in an application for a CPCN, including the environmental
23 information required by COMAR 20.79.03.02.

1 **DISCUSSION OF IMPACTS ASSOCIATED WITH THE REPOWERING PROJECT**

2 **Q. PLEASE DESCRIBE ANY AIR QUALITY IMPACTS ASSOCIATED WITH**
3 **CONSTRUCTION ACTIVITIES THAT ARE PART OF THE REPOWERING**
4 **PROJECT.**

5 A. Air quality impacts resulting from Project construction will be minimal. Three general
6 activities will temporarily generate air emissions during construction of the Repowering
7 Project. First, construction activities, including land clearing, site preparation, and vehicle
8 movement, will generate fugitive dust emissions. Open burning, if needed and if allowed
9 by local law, would also generate emissions. Second, internal combustion engines will
10 release NO_x, CO, and other combustion products. And third, construction worker travel to
11 the site will result in vehicular emissions. Fugitive dust emissions will be greater during
12 the land clearing and site preparation phases of construction and during the more active
13 construction periods due to increased vehicle traffic on the site. Fugitive dust emissions
14 from the construction site will be minimized using appropriate dust suppression control
15 methods, if and as needed.

16 Increased emissions from internal combustion engines will occur temporarily
17 during site preparation and Project construction due to the amount of onsite construction
18 equipment using engines for site excavation and grading, concrete placement, and
19 structural steel and major equipment installation. Potential minor sources of VOCs
20 include: (1) evaporative losses from onsite painting; (2) refueling of construction
21 equipment; and (3) application of adhesives and waterproofing chemicals.

22 Project construction will occur over an approximately 10 to 12 month period. There
23 will be an average of approximately 60 workers during that time with a peak employment

1 of approximately 75 construction workers. The number of employees currently operating
2 the existing coal-fired units is also approximately 60. There have typically been even more
3 workers onsite during a maintenance outage at the plant. Thus, the number of workers
4 present onsite during construction of the Repowering Project will be roughly the same as
5 has been the case for many years. In any case, most of these construction personnel will
6 likely be drawn from the Baltimore metro area and will commute to the job site. While not
7 readily quantifiable, the temporary net changes in vehicle-miles traveled in the area would
8 be insignificant, as would any temporary net changes in area-wide vehicular emissions.

9 Air quality impacts caused by construction activity will vary as a function of the
10 level of activity, the specific nature of the activity, weather conditions while the activity is
11 occurring, and the emissions controls applied to the activity. However, even under worst-
12 case conditions, the maximum ambient impacts caused by construction emissions are
13 expected to be small and limited to the specific area of the site under construction. Also,
14 potential emissions are not anticipated to have a significant adverse impact on ambient air
15 quality.

16 **Q. PLEASE DESCRIBE THE POTENTIAL IMPACTS TO AIR EMISSIONS AND**
17 **AIR QUALITY RELATED TO THE REPOWERING PROJECT.**

18 A. ECT conducted analyses, including a New Source Review (“NSR”) applicability
19 determination, to calculate the potential air quality impacts of emissions from the
20 Repowering Project. The operation of the facility (post-Repowering Project) will not cause
21 or contribute to a violation of any applicable National Ambient Air Quality Standards
22 (“NAAQS”). Based on NSR air permitting requirements, the Repowering Project will not
23 result in a significant net increase in emissions for any NSR pollutant. In fact, the Project’s

1 estimated maximum annual emissions are indicated to be much less than actual emissions
2 from the existing coal-fired units.

3 The principal sources of air emissions from the Repowering Project will be the
4 three newly installed CTs, a newly installed black-start generator, an existing 14-MW CT,
5 an existing emergency generator diesel engine, and an emergency fire water pump diesel
6 engine. The ultra-low-sulfur diesel ("ULSD") fuel oil off-loading and storage tanks will
7 constitute relatively minor sources of VOC emissions. Some fugitive particulate matter
8 (PM) emissions will also occur due to truck traffic. The pollutants emitted in the largest
9 quantities will be nitrogen oxides (NO_x), carbon dioxide (CO), PM, particulate matter less
10 than or equal to 10 micrometers (PM₁₀), and particulate matter less than or equal to 2.5
11 micrometers (PM_{2.5}); lesser amounts of sulfur dioxide (SO₂), VOCs, lead, and sulfuric acid
12 (H₂SO₄) mist will also be emitted from the CTs.

13 The design of the Project incorporates state-of-the-art technology at every step. The
14 Project CTs' high efficiency will reduce emissions per unit of output by producing each
15 megawatt-hour of electricity with less fuel. The use of low-sulfur fuels for the CTs also
16 has the benefit of reducing emissions relative to most other potential fuels. The use of low-
17 sulfur fuels, along with highly efficient combustion, will limit PM/PM₁₀/PM_{2.5} emissions
18 from the CTs. The CTs will also be equipped with water injection to reduce emissions of
19 NO_x to low levels. SO₂ and H₂SO₄ emissions will be controlled by use of pipeline quality
20 natural gas and ULSD fuel oil. The air quality impacts of the Repowering Project are
21 discussed in more detail in the Direct Testimony of Thomas Pritcher.

22 **Q. PLEASE DESCRIBE ANY IMPACTS TO GROUNDWATER RESOURCES**
23 **ASSOCIATED WITH CONSTRUCTION OF THE REPOWERING PROJECT.**

1 A. Impacts to groundwater resources during construction will be minimal. Approximately 8
2 acres of the Crane Station property will be affected during construction of the Project CTs
3 and related facilities. Systems for surface runoff and drainage from construction and
4 laydown areas will be designed in accordance with applicable soil conservation
5 regulations. The use of appropriate sediment and erosion control best management
6 practices (“BMPs”) in conjunction with a sediment basin will control the discharge of
7 suspended solids to adjacent surface waters. Stormwater runoff captured in this basin will
8 be discharged to surrounding surface waters, evaporate, and/or infiltrate (percolate) into
9 the groundwater system. The natural filtering action of soils and sediments above the water
10 table will prevent suspended solids from infiltrating the surrounding groundwater.

11 Some dewatering may be necessary for construction of the foundations for the CTs,
12 air exhaust stacks, generator step-up transformers, ULSD fuel oil tanks, and possibly the
13 natural gas compressors. This dewatering is expected to be minimal and occur over a short
14 period of time, with discharge to the temporary construction sediment basin, which would
15 allow recharge to the groundwater system. The relatively minor, temporary withdrawals
16 during construction, if required, would not be expected to result in brackish water intrusion
17 or other negative impacts. Therefore, no impacts associated with construction runoff to
18 groundwater are anticipated during construction of the Repowering Project.

19 **Q. PLEASE DESCRIBE THE POTENTIAL IMPACTS TO GROUNDWATER**
20 **RESOURCES RELATED TO OPERATION OF THE REPOWERING PROJECT.**

21 A. The proposed CTs will have no direct discharge to groundwater other than percolation from
22 an onsite stormwater bioretention pond. Other waste streams will be discharged directly

1 to the local municipal wastewater system. Therefore, no impacts to groundwater resources
2 are expected.

3 **Q. PLEASE DESCRIBE ANY IMPACTS TO SURFACE WATER DISCHARGES**
4 **ASSOCIATED WITH CONSTRUCTION OF THE REPOWERING PROJECT.**

5 A. Given the absence of plans to disturb existing wetlands and the establishment/modification
6 of effective stormwater quantity and quality controls as well as Spill Prevention, Control,
7 and Countermeasure (“SPCC”) procedures, no significant impacts on surface waters
8 resulting from site construction will occur. The existing Crane Station stormwater
9 management systems will be modified in association with Project construction. A
10 combination of a temporary sediment basin and sediment control BMPs will be developed
11 and installed to accommodate construction activities and achieve an acceptable transition
12 from existing conditions to the final, modified stormwater management system. The
13 implementation of the stormwater management and SPCC plans, in accordance with the
14 approved erosion and sediment control plans, and the application of BMPs will prevent
15 significant impacts from occurring to any onsite or nearby offsite surface waters or
16 wetlands during Project construction. The revised plan will be submitted to Baltimore
17 County for review and approval prior to initiation. There will be no impacts to the 100-
18 year floodplain, as no construction or other disturbances are proposed within this area.

19 **Q. PLEASE DESCRIBE ANY IMPACTS TO SURFACE WATER DISCHARGES**
20 **ASSOCIATED WITH THE REPOWERING PROJECT.**

21 A. The proposed CTs will be located in an existing developed area of the site, and no
22 disturbance to existing wetlands is proposed. Moreover, process wastewater generated by
23 Project operation will be discharged to a new oily water separator and ultimately the

1 municipal waste water system. Since there will be no direct discharge of process
2 wastewater to any surrounding surface waters, there will be no surface water impacts
3 associated with operations. If any surface water impacts result from this Project, they will
4 be positive, in that the shutting down of the coal-fired units' cooling system will eliminate
5 impingement and entrainment from cooling water intake as well as the thermal load from
6 the discharge.

7 The Repowering Project will also include a stormwater management system
8 designed and installed to ensure water quality volume, groundwater recharge, and channel
9 protection. The Project will be designed to include spill containment and control features
10 as developed under the overall SPCC plan, minimizing the opportunity for accidental spills
11 and identifying the appropriate and timely response procedures to be followed in case of
12 an accidental spill. Based on installation of a sound stormwater management system and
13 proper operations and maintenance of these facilities, no significant impacts to any
14 surrounding surface waters are expected because of Project operations.

15 **Q. HOW WILL THE PROJECT AFFECT THE AMOUNT OF SOLID WASTE AND**
16 **HAZARDOUS WASTE GENERATED BY CRANE STATION?**

17 A. The Repowering Project will produce significantly less solid waste relative to other types
18 of generation, especially the former coal-fired generating units. During operation of the
19 Repowering Project CTs, nonhazardous solid wastes will generally be limited to small
20 quantities of mixed office waste, inlet air filters for the CTs, and general plant refuse.
21 These wastes will be disposed of at an offsite, licensed landfill. The facility will also
22 produce maintenance and other wastes typical of power generation operations. Used oils

collected from the oil/water separator, spent lubricating oils, oily rags, and used oil filters from the CTs will be transported offsite by an outside contractor and recycled or disposed.

Minimal quantities of hazardous wastes and universal wastes will only be occasionally produced at the plant. Efforts will be made to select and use cleaners/degreasers, paints, and other maintenance chemicals to produce nonhazardous wastes. In circumstances where hazardous wastes are generated by the plant, the wastes will be managed in accordance with applicable federal and state requirements.

Q. DURING CONSTRUCTION, WHAT NOISE IMPACTS ARE EXPECTED?

A. Every reasonable effort will be made to minimize sound resulting from construction activities. Construction activities that produce significant sound will generally be limited to daytime hours. The construction of the Crane Repowering Project will require the use of equipment that may be audible from offsite locations. Project construction is expected to take approximately 10 to 12 months and will consist of site clearing, excavation, foundation work, steel erection, installation of Project equipment, and finishing work. Excavations for foundations would be relatively modest in size due to the simplicity of the peaking plant design. The need for piles would be determined during the geotechnical investigation of the site. If it were determined later that pile driving was required, such work would be limited to daytime working hours during which time pile driving is exempt from noise limits. *See* COMAR 26.02.03.02.C.

Only low-noise construction activities will be scheduled after 10 p.m. and before 7 a.m. to comply with the 55-dBA nighttime limits in Maryland's noise regulation. As the design of the Project progresses and construction scheduling has been finalized, CP Crane

will work with the community, if warranted, to determine and implement additional measures to minimize the effects of construction sound.

Q. DURING OPERATION, WHAT NOISE IMPACTS ARE EXPECTED?

A. The Repowering Project is being designed to limit sound effects on the surrounding area. The predominant sources of noise from the repowered Crane simple-cycle CT facility will be the CTs themselves. Sound is produced from three different areas of a CT: air inlet/filter, air exhaust stack, and CT casing. During normal operation, the newly installed black-start generator will not be in operation and is considered insignificant. Noise emanating from the CTs during normal operation will be steady, with little fluctuations in noise levels. Sound baffles will be employed to reduce sound levels from the air exhaust stacks from each CT. Sound baffles are used to reduce airborne sound and are commonly used in air exhaust sound attenuation. As applied to the air exhaust system for each CT, the baffles will be placed in a section of the air exhaust stack called the silencer, located just above the inlet portion or the breech opening. This will result in a noise level for each CT of no more than 60 dBA at 400 ft.

The closest residential noise receptor is located to the southwest on Seneca Park Road, approximately 1,300 ft. from the acoustic center of the Project's power block. The resulting noise level at 1,300 ft. is calculated to be 54.6 dBA. Therefore, the projected noise level at the closest residential receptor from the simultaneous operation of all three CTs is demonstrated to comply with both daytime and nighttime maximum allowable sound levels.

1 **Q. PLEASE DISCUSS ANY ANTICIPATED IMPACTS TO TERRESTRIAL AND**
2 **AQUATIC HABITATS ASSOCIATED WITH THE REPOWERING PROJECT.**

3 A. No significant ecological impacts are expected to occur due to Project operations. The
4 Project is located within developed or previously impacted land that has housed an
5 operational power plant since the early 1960s. Therefore, few ecological impacts will
6 potentially result. The Repowering Project will involve demolishing several existing plant
7 structures and adding the CTs and other associated facilities within Crane Station property.
8 This work will take place within the developed portion of the property, and none of it will
9 result in permanent ecological impacts.

10 There are no unique ecological communities or species including rare, threatened,
11 or endangered plant or wildlife species within a one mile radius of the Project site. No
12 significant impacts to federal- or state-listed terrestrial plants or animals known to occur
13 within the region are expected. The Project will not impact wetlands, water bodies, and
14 other aquatic ecological systems. Existing and additional erosion, sedimentation, and
15 runoff control measures will mitigate the potential for water quality degradation; therefore,
16 associated impacts to aquatic biological communities are not expected to be significant.
17 Importantly, environmental benefits will result from shutting down the existing coal-fired
18 units. Therefore, any impacts to ecological resources as a result of the Repowering Project
19 will be positive.

20 **Q. ARE THERE ANY IMPACTS ON HISTORIC RESOURCES ASSOCIATED WITH**
21 **THE REPOWERING PROJECT?**

22 A. No. There are no confirmed archeological or historical sites within the Crane site and there
23 are no expected visual impacts to off-site historic resources.

1 **Q. HOW WOULD YOU CHARACTERIZE THE OVERALL ENVIRONMENTAL**
2 **IMPACT OF THE REPOWERING PROJECT?**

3 A. Overall, I would characterize the environmental impact of the Project as beneficial. The
4 Repowering Project involves permanently shutting down the two existing coal-fired units
5 and replacing them with CTs fueled primarily with natural gas. This modification to Crane
6 Station will significantly reduce emissions of air pollutants from the power plant. In
7 addition, while construction and operation of the Project generating units will have some
8 other associated environmental impacts, these impacts can be characterized as minimal and
9 do not trigger any federal permit requirements. Therefore, the Repowering Project will
10 have minimal environmental impacts.

11 **Q. WHAT CONCLUSIONS CAN BE DRAWN FROM THIS TESTIMONY?**

12 A. The Repowering Project will provide an environmental benefit and meet applicable
13 permitting requirements.

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

15 A. Yes.

Exhibit JLM-1

JEFFREY L. MELING, P.E.
Senior Vice President/Senior Principal Engineer

Education

M.S., Environmental Engineering—University of Illinois, 1979

B.S., Civil Engineering—University of Illinois, 1977

Registrations

Professional Engineer, Texas, No. 56714

Mr. Meling is one ECT's most experienced project managers of large, multidisciplinary environmental assessment projects. Mr. Meling, an ECT senior vice president, has 35 years of experience in the environmental field and is a recognized leader in large, complex energy-related environmental assessment and permitting projects. He specializes in the licensing/permitting of electrical power-related and other energy-related facilities and has managed numerous such projects, and his experience in the area of utility plant and linear facility siting and licensing throughout the United States is extensive. Mr. Meling has successfully managed power generation projects totaling more than 25,000 MW, including one of the largest nonutility power plant permitting efforts in the United States: the Union Generating Station in Arkansas, a 2,700-MW, natural gas-fired, combined-cycle power plant. This project involved a natural gas supply pipeline from northern Louisiana to southern Arkansas. Mr. Meling has, over the past 10 years, managed a number of significant electrical transmission line licensing projects in Maryland. These projects have involved the preparation of comprehensive environmental study documents to accompany the license application. Mr. Meling has served as the lead expert witness on all of these projects.

Project Manager; Environmental Impact Statement (EIS) for Kemper Integrated Gasification Combined Cycle (IGCC) Project, Department of Energy (DOE)—Manager for the preparation of the three-volume EIS associated with proposed IGCC power generation system and related facilities. Working as a third-party contractor to DOE, ECT prepared the EIS to evaluate the potential impacts of the power generation project in Kemper County, Mississippi, along with a 31,000-acre lignite mine study area, new electrical power transmission lines and upgrades of some existing transmission lines, a natural gas supply pipeline, a reclaimed water supply pipeline, and CO₂ delivery pipelines to be constructed in connection with the power plant (total of approximately 180 miles of linear facility corridors). The draft EIS was published in November 2009, and the final EIS was released in May 2010. The EIS was reviewed by the U.S. Army Corps of Engineers (USACE)-Mobile and other federal and local agencies.

Project Manager; Northeast Transmission System Improvement (NETSI) 230-kV Transmission Line Project Licensing, Baltimore Gas and Electric (BGE)—Manager for environmental licensing associated with the 28-mile, three-segment transmission line upgrade project located in Harford and Baltimore counties, Maryland (Certificate of Public Convenience and Necessity [CPCN] Case No. 9323). Coordinated preparation of the environmental portions of the license application and provided expert testimony addressing

AREAS OF SPECIALIZATION

Power Plant and Transmission Line Licensing and Permitting, Multidisciplinary Permitting of Large Utility and Industrial Facilities

route selection, land use, visual impacts, and environmental aspects of the overall project.

Project Manager; Lamar Energy Center Expansion, NextEra (formerly FPL Energy)—Manager for all environmental permitting for a planned 600- to 900-MW expansion of the existing 1,000-MW, natural gas-fired combined-cycle (CC) power plant near Paris in Lamar County, Texas.

Project Manager; Wharton and Odessa CC Project Permitting, Navasota Energy—Manager for environmental permitting needed for two similar 550-MW projects: one located near Wharton, Texas, the other near Odessa, Texas. Permitting efforts addressed air emissions (prevention of significant deterioration [PSD]); groundwater appropriation, including detailed hydrogeological modeling; wastewater discharge (National Pollutant Discharge Elimination System [NPDES]), and USACE wetlands permitting (wastewater discharge and natural gas supply pipelines).

Project Manager; Deepwater Energy Center CC, Calpine—Manager for PSD/nonattainment new source review and other permitting for the 1x1 CC power block planned at Deepwater, Pennsville, New Jersey.

Project Manager; Liberty Gap Wind Energy Facility Project Licensing, U.S. Wind Force—Manager for environmental licensing associated with the proposed 80-MW wind turbine energy project located in Pendleton County, West Virginia. Coordinated field studies to assess potential for rare, threatened, or endangered species; map wetlands and other ecological and land use features; and preparation of environmental reports and applications in support of the six-mile long wind turbine site and 20 miles of associated transmission line interconnect and access roads.

Project Manager; Multiple 115- and 230-kV Transmission Line Licensing Projects, BGE—Manager for environmental licensing associated with multiple transmission line upgrade

projects located in Ann Arundel, Baltimore, and Harford Counties and Baltimore City, Maryland (CPCN Case Nos. 9009, 9050, 9141, 9246, 9246, 9251, 9274, and 9282). Coordinated preparation of the environmental portions of the license application and provided expert testimony addressing route selection, land use, visual impacts, and environmental aspects of the overall project.

Project Manager; Stanton Unit B IGCC Project—Licensing and National Environmental Policy Act (NEPA) EIS Support, Confidential Power Client—Manager for environmental licensing and permitting associated with the first proposed commercial-scale upgrade of the IGCC technology. Project funded in part by the DOE under the Clean Coal Power Initiative. Responsible for the preparation of the multi-volume site certification application (SCA) required under the Florida Electrical Power Plant Siting Act (FEPPSA). SCA described the existing environment, the proposed project, and the project's predicted environmental impacts. Also managed preparation of Environmental Information Volume used as primary basis for the federal EIS, which was required as a result of DOE funding.

Project Manager; Texas Power Plant Site Selection/Evaluation, Confidential Client—ECT manager for environmental issues associated with evaluation and selection of sites(s) for a planned coal-based power generating facility (pulverized coal and/or IGCC) of up to 3,000 MW. Issues included air quality, water supply and wastewater discharge, ecological resources, and cultural/historical resources. Tasks included site visits, data/information collection, and mapping of data using graphical information systems (GIS).

Project Manager; Savage Mountain Wind Energy Facility Project Licensing, U.S. Wind Force—Manager for environmental licensing associated with the 40-MW wind turbine energy project located in Allegany County, Maryland (CPCN Case No. 8939). Coordinated preparation of the environmental portions of the license application and provided expert testimony. Project received its license in February 2002.

Project Manager; Currant Creek Power Project Permitting, PacifiCorp—Manager for environmental permitting tasks associated with the planned 1,000-MW natural gas-fired powered facility in Juab County, Utah. Key permits including PSD and groundwater discharge associated with evaporation pond. PSD permitting effort involved rigorous Class I area modeling and testing of advanced meteorological algorithms for AERMOD. ECT also prepared design drawings for the evaporation pond. Other permitting efforts included groundwater discharge and ecology (wetlands and threatened and endangered species assessments). A study of background noise levels and projected noise impacts was completed.

Project Manager; Frederick Energy Facility Project Licensing, Confidential Power Client—Manager for environmental licensing and permitting tasks associated with the 640-MW natural gas-fired power plant located on a 761-acre site

in Frederick County, Maryland. The project was undergoing licensing through Maryland's CPCN process (Case No. 8891). Prepared the five-volume CPCN application addressing the statutory requirements. The application provided the regulatory context, described the baseline environmental conditions and the project's conceptual details, and presented assessments of potential impacts of project construction and operation. Other studies appended to the application addressed water supply options and pipeline route alternatives. ECT's permitting efforts also included air quality (PSD and nonattainment new source review), water appropriation, NPDES, and joint state/USACE wetlands permitting (power plant site, electrical interconnection, and water supply and wastewater discharge pipelines). Project also involved right-of-way permitting with the National Park Service and was subject to review under the NEPA. Other issues subject to intense review included noise, visual impacts, and land use/land preservation. Directed subcontractor that performed rigorous cultural resources investigations of the site and linear corridors. Coordinated application review with the Maryland Power Plant Research Program staff. Presented expert witness testimony at several administrative hearings and supported various public outreach and education efforts.

Project Manager; Vienna Generating Station Expansion Project Licensing, NRG Energy—Manager for environmental licensing and permitting tasks associated with the 350-MW natural gas- and oil-fired expansion of the Vienna Generating Station power plant located in Dorchester County (Maryland CPCN process [Case No. 8928]). The project involved the addition of two combustion turbines (CTs). ECT's permitting efforts also included air quality (PSD and nonattainment new source review), water appropriation, NPDES, and coastal zone.

Project Manager; Kelson Ridge Project Permitting, Free State Electric (Columbia Electric/Orion Power)—Manager for environmental licensing tasks associated with the phased 1,650-MW natural gas-fired power plant located in Charles County, Maryland. The key license was the CPCN (Case No. 8843). ECT's permitting efforts also included air quality (PSD and nonattainment new source review) and joint state/USACE wetlands permitting (power plant site, water supply and wastewater discharge pipelines, and natural gas pipeline). The project team also dealt with issues associated with a unique bog habitat adjacent to the plant site. Presented expert witness testimony at several administrative hearings. The Maryland Public Service Commission (PSC) issued the certificate for the Kelson Ridge Project in August 2001.

Project Manager; Union Generating Station Permitting, Panda Energy International (PEI)—Manager for 1,000-MW CC power plants in Oneta, Oklahoma; Montgomery County, Missouri; Mt. Vernon, Illinois; and Ottawa and Washtenaw Counties, Michigan. Responsible for all environmental permitting-related activities for each project.



Maryland Power Plants and Electrical Transmission Lines ... Maryland's Certificate of Public Convenience and Necessity Licensing Process

New or modified power generating stations and electrical transmission lines proposed in Maryland require rigorous review and ultimate approval granted by the issuance of a Certificate of Public Convenience and Necessity (CPCN) by the Maryland Public Service Commission (PSC). The legislative mandate for the CPCN process is contained in Maryland's Power Plant Siting Act of 1971 (Chapter 31 of the Laws of Maryland for 1971 and subsequent amendments). This enactment is codified in sections of Maryland's Public Utility Companies (PUC) and Natural Resources articles.

The regulatory mechanism for the PSC review and approval process is contained in the PUC article, and the corresponding regulations (Title 20, Subtitle 79, Code of Maryland Regulations [COMAR]). The PSC is required to consider, as a prerequisite to issuing a CPCN to construct or modify a power plant or transmission line, the effect of the proposed project on a number of specified aspects of the environment. COMAR requires that an applicant for a CPCN include in its application comprehensive environmental analyses, in addition to other information about a proposed project, such as socioeconomic impacts.

The Power Plant Research Program (PPRP) within the Maryland Department of Natural Resources manages the comprehensive review that must be undertaken as part of the CPCN process. The PPRP was established

under the Power Plant Siting Act and is responsible for managing the consolidated review of all issues related to power generation and transmission in Maryland. This role provides a framework for the comprehensive review of all electric power issues with the goal of balancing costs and impacts. Among PPRP's responsibilities with regard to new electric generating and transmission facilities, or modifications to existing ones, are the following:

- Consolidating issue analysis involving the seven state-level departments, including natural resources, environment, and agriculture.
- Evaluating potential impacts of the proposed facility on environmental resources, including air, surface and ground water, terrestrial, and cultural and historic, while assessing overall site suitability.

An application for a CPCN must include a comprehensive environmental review document (ERD) that is comparable to an environmental assessment under the federal National Environmental Policy Act. ECT has extensive experience, over many years, conducting multi-disciplinary studies, preparing ERDs and related environmental resource permit applications, providing expert witness testimony during the required PSC hearings, supporting large power-related projects through issuance of CPCNs and permits, and providing environmental engineering and support services through completion of construction.

| PSC Case Number | Client Company | Project | Dates | Linear Facilities (miles) | |
|-----------------|---------------------------|---|--------------|---------------------------|----------|
| | | | | Elec Tran | Pipeline |
| 8488 | Panda Energy | Brandywine Cogen | 1992-1996 | 5 | 25 |
| 8843 | Orion/Free State Electric | Kelson Ridge combined-cycle | 1999-2002 | - | 17 |
| 8891 | Confidential Client | Frederick combined-cycle | 2000-2002 | 2 | 10 |
| 8928 | NRG Energy | Vienna CT expansion | 2002 | 1 | 2 |
| 8939 | US WindForce | Savage Mountain wind | 2002-2003 | - | - |
| 9009 | BGE | Brandon Shores to Riverside 230-kV | 2003-2006 | 3 | - |
| 9050 | BGE | Northwest to Finksburg 115-kV | 2005-2007 | 3 | - |
| 9083 | Confidential Client | Wagner air pollution controls | 2006-2007 | - | - |
| 9084 | Confidential Client | Crane air pollution controls | 2006-2007 | - | - |
| 9129 | CPV Maryland | St. Charles combined-cycle | 2007-2009 | - | 18 |
| 9136 | Confidential Client | Perryman expansion | 2008 | - | - |
| 9141 | BGE | Raphael Road to Bagley 230-kV | 2007-2008 | 6 | - |
| 9164 | US WindForce | Dan's Mountain wind | 2004-2009 | - | - |
| 9243 | BGE | Bagley bypass | 2010-2011 | 1 | - |
| 9244 | BGE | Joppatowne supply | 2010 | <1 | - |
| 9246 | BGE | Graceton to Conastone 230-kV | 2009-2011 | 8 | - |
| 9251 | BGE | Bagley to Graceton 230-kV | 2009-2011 | 14 | - |
| 9274 | BGE | Perryman to Harford 115-kV | 2010-2011 | 1 | - |
| 9280 | CPV Maryland | St. Charles combined-cycle modifications | 2010-2012 | - | - |
| 9282 | BGE | Northwest to Deer Park 115-kV | 2011 | 5 | - |
| 9323 | BGE | Northeast Transmission System Improvement (NETSI) | 2012-2017 | 28 | - |
| 9330 | Panda Funds | Mattawoman Generating Station | 2013-present | 5 | 18 |
| 9411 | Apex Clean Energy | Mills Branch Solar | 2015-2016 | - | - |

Note: ECT application documents accessible at the Maryland PSC Website with entry of Case/Docket No. <http://www.psc.state.md.us/>.

