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Montana Power Station Overview

December 8, 2012

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Project Description

EPE's Montana Power Station is a state-of-the-art generating facility designed to serve the region's growing energy needs

- Located in East El Paso County - the area of greatest growth in the region
- Uses natural gas, the cleanest fossil fuel available
- Features fuel-efficient turbine generation technology
- Designed with best available environmental control technology
- Capable of powering 80,000 homes
- Two units planned initially, with permit authorization for four total, depending on the region's growing energy needs

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Project Benefits

- Quick-start capability for increased power grid stability
  - Helps ensure system reliability during peak times (hot summer days)
  - Supports growing use of solar and other renewable energy sources
  - Reduces risk of outages due to transmission system failure
- State-of-the-art technology
  - Fuel-efficient turbine generation technology
  - Lower emissions
  - Minimizes noise and air quality impacts
  - Can be activated ahead of less efficient units
  - Allows EPE to retire older, less efficient generation units
- Economic benefits
  - Cost-effective operations
  - Local jobs during construction and operation
  - Significant property taxes to local authorities

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Site Selection

Strategic location in East El Paso to meet growing demand

- In 2010, EPE retained outside expert to identify potential areas for new generating facilities
- Study recommended Montana Avenue site
- Access to critical resources and infrastructure
  - Undeveloped land
  - Water
  - Electric transmission lines
  - Supplies of natural gas to fuel the power station
  - Roads / other infrastructure
  - Consistent with current land use
- Location strengthens overall system reliability by complementing other EPE generation facilities in West, Northeast and Central El Paso

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Preliminary Site View

View from East at Flager Street

This illustration is a preliminary rendering of how one generation unit would appear.

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Project Technology

Features fuel-efficient turbine generation technology

- Advanced simple cycle aero-derivative combustion turbines fueled by natural gas
  - Designed and built by General Electric with state-of-the-art environmental and noise control technologies
  - Similar to turbines for aircraft, except fueled by natural gas
- Capable of providing 176 megawatts of peak summer demand
- Quick-start capability will increase EPE's ability to meet fluctuations in customer demand
- Will support renewable energy sources being added in the region

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Air Quality

- Project will meet or exceed all air quality standards protective of human health and the environment, as established by:
  - U.S. Environmental Protection Agency (EPA)
  - Texas Commission on Environmental Quality (TCEQ)
  - U.S. Occupational Safety & Health Administration (OSHA)
- Project will meet or exceed National Ambient Air Quality Standards (NAAQS) which are required by the U.S. Clean Air Act and set by the EPA
  - Specifically, NAAQS are designed to protect the most sensitive populations (e.g., elderly, children, asthmatics)
- EPE retained Trinity Consultants, an internationally-recognized firm specializing in air quality issues, for air quality compliance

Air Quality Emissions Overview (1 of 2)

- Most air emissions come from combusting fuel (e.g., natural gas)
- Based on EPA definitions, "significant" emissions categories include:
  - Nitrogen oxides (NO_x)/Nitrogen dioxide (NO_2)
  - Carbon monoxide (CO)
  - Particulate matter (PM, PM_{10}, $PM_{2.5}$)
- "Significant" designation means only that it warrants agency review
  - Without a threshold, agency review would apply to household appliances
- Emissions of the following are below significance levels established by EPA:
  - Sulfur dioxide (SO_2) because sulfur content in natural gas is negligible
  - Volatile organic compounds (VOC)
- Carbon dioxide (CO_2) emissions will also occur
  - Handled under a separate permit with the EPA to promote selection of efficient technologies
  - CO_2 is a component of the air we breathe

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Air Quality Emissions Overview (2 of 2)

- Cooling towers also create a small source of air emissions
  - Cooling towers are used to remove heat from the combustion unit compressor section
- Water vapor from this source contains very small amounts of particulate matter
  - This comes from minerals naturally occurring in the water (e.g., components of hardness, like calcium)
  - Same minerals that would come out of an unfiltered water faucet in the home
- Ammonia will also be used on site to reduce air emissions

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Natural Gas

Project will use natural gas, the cleanest fossil fuel available

Fossil Fuel Emission Levels

Pounds per Billion Btu of Energy Input

Pollutant	Natural Gas	Oil	Coal
Nitrogen Oxides	92	448	457
Sulfur Dioxide	1	1,122	2,591
Particulates	7	84	2,744
Mercury	0.000	0.007	0.016
Carbon Monoxide	40	33	208
Carbon Dioxide	117,000	164,000	208,000

Source: U.S. Energy Information Administration

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Nitrogen Oxides (NO_x)

Average Annual NO_2 Concentrations in US	EPA NO_2 Standard to Protect Public Health (NAAQS Annual Average)	Montana Power Station Maximum Annual Average Concentration*
0.010 – 0.020 ppm	0.053 ppm	0.0001 ppm

Project will contribute <u>less than 0.15%</u> of NAAQS nitrogen dioxide standard

*Source: Trinity Consultants Modeling Report

Carbon Monoxide (CO)

EPA Standard to Protect Public Health (NAAQS 8-Hour Average)	Montana Power Station Maximum 8-Hour Concentration*
9 ppm	0.02 ppm

Project will contribute <u>less than 0.21%</u> of NAAQS carbon monoxide standard

*Source: Trinity Consultants Modeling Report

Particulate Matter (PM, PM_{10}, $PM_{2.5}$)

Comparing $PM_{2.5}$ – the most stringent PM standard

EPA $PM_{2.5}$ Standard to Protect Public Health (NAAQS Annual Average)	Montana Power Station Maximum Annual Average Concentration*
15 micrograms per cubic meter ($\mu g/m^3$)	0.14 micrograms per cubic meter ($\mu g/m^3$)

Project will contribute <u>less than 0.93%</u> of NAAQS particulate matter standard

*Source: Trinity Consultants Modeling Report

Ammonia

TCEQ Effects Screening Level (ESL Annual Average)	Montana Power Station Maximum Annual Average Concentration*
0.025 ppm	0.00021 ppm

Project will contribute <u>less than 0.82%</u> of the TCEQ ESL

EPA does not have a National Ambient Air Quality Standard for Ammonia

*Source: Trinity Consultants Modeling Report

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Air Quality Summary

Project emissions will contribute <u>less than 1%</u> of NAAQS on annual average basis and for shorter-term periods, comprise a small fraction of the allowable, safe standards

Pollutant	Averaging Period	Units of Measurement	NAAQS (ppm) ($PM_{2.5}$/PM_{10} in µg/m³)	Project Concentration as % NAAQS
CO	1-hour	ppm	35	0.14%
	8-hour	ppm	9	0.21%
NO_2	1-hour	ppm	0.100	3.98%
	Annual	ppm	0.053	0.15%
$PM_{2.5}$	24-hour	µg/m³	35	3.40%
	Annual	µg/m³	15	0.93%
PM_{10}	24-hour	µg/m³	150	1.11%
SO_2	1-hour	ppm	0.075	0.29%
	3-hour	ppm	0.5	1.11%
	24-hour	ppm	0.14	0.17%
	Annual	ppm	0.03	0.04%

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Site Proposed Emissions Summary

Project will contribute <u>less than 1%</u> of pre-project El Paso County background emissions

Summary of EPE emissions vs. 2008 Actual Emissions from El Paso County (tons/year)				
Pollutant	Description	2008 Annual Emissions from El Paso County	Potential Project Emissions	Project Emissions (% of El Paso County)
CO	Carbon Monoxide	91,655.34	147.41	0.16%
NO_x	Nitrogen Oxides	21,025.21	96.37	0.46%
PM_{10}	PM_{10} Primary (Filt + Cond.)	14, 521.69	60.50	0.42%
SO_2	Sulfur Dioxide	790.05	6.02	0.76%
VOC	Volatile Organic Compounds	31,655.66	21.92	0.07%
Total Criteria Pollutants		**159,647.95**	**332.22**	**0.21%**

2008 annual emissions (latest year available) obtained from EPA National Emissions Inventory

Project Water

- Water supply
  - No production wells are planned
  - EPE will purchase water from El Paso Water Utilities (EPWU)
- Water discharges
  - No surface water discharge from Montana Power Station property
  - Water will be placed in lined evaporation ponds
  - Any rain/storm water will be collected for evaporation

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Other Environmental Issues

- Noise
  - Study by SWCA* determined sound from construction and operations will be within City/County standards
  - Project noise levels will be consistent with existing local ambient sounds
- Lighting
  - Project will include area lights; perimeter lighting at entrances and elsewhere for security purposes only
- Landscaping/Vegetation
  - Currently exploring options and we are open to suggestions consistent with Texas Parks & Wildlife Department and EPWU requirements

*SWCA is a nationally-recognized environmental assessment consulting firm

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Public Outreach

- EPE announced plans for the Montana Power Station in April 2012
  - Community meeting held at the San Juan Diego Church on April 17
  - Press release issued April 20 – reported by local TV stations & El Paso Times
- Two TCEQ public notice periods (May 6 – June 7 & Oct. 15 – December 13)
  - Public notices in local newspapers (El Paso Times and El Diario)
  - Placement of air permit application copies at public library closest to site
    - Air permit application info also available on EPA website / local TCEQ office
- EPE's ongoing public outreach program has included:
  - Meetings with local elected officials and community leaders
  - In-person and phone outreach to area residents
  - Interviews with local radio, TV and print media
  - Established separate Project information contact number: 915-543-5887
  - Fact sheets and other information as handouts (English and Spanish)
  - Information on EPE's website (Quick Facts, FAQ, Environmental Risk Assessment)
  - Signs posted at the proposed site (English & Spanish)
- TCEQ plans to hold a public meeting on December 13

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Questions

If you have additional questions or concerns about the proposed Montana Power Station, please contact us at

915-543-5887

www.epelectric.com

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Appendix

Nitrogen Oxides (NO_x)

- NO_x is the group of gases known as "nitrogen oxides"
- Nitrogen Dioxide (NO_2) is the most common form of NO_x
- NO_x forms during combustion and is emitted in the exhaust of cars, trucks and buses, power plants, and off-road equipment
- About 10% is from non-manmade sources such as soils, lightning and natural fires
- EPA has set safe standards for NO_2

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Carbon Monoxide (CO)

- Carbon monoxide (CO) is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels
- Most CO in the environment comes from cars, trucks, tractors and other mobile equipment (85-90%); it also comes from power plants (<10%)
- It also comes from heating/cooking sources, such as from kerosene, propane, natural gas stoves
- Indoor CO levels in homes
  - Without a gas stove = 0.50 – 5 ppm
  - Near a properly adjusted stove = 5 – 15 ppm
  - Near a poorly adjusted stove = 30 ppm or more
- EPA has set safe standards to protect human health

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Carbon Monoxide Sources

Most CO emissions in the U.S. and El Paso County are from mobile, or vehicle, sources

Source Sector 2008	Total U.S. CO Emissions	Total El Paso County CO Emissions
Mobile	86.5%	96.5%
Fuel Combustion	6.3%	2.7%
Industrial Processes	2.7%	0.7%
Miscellaneous	2.4%	0.1%
Fires	2.1%	0.0%
Solvent	0.0%	0.0%
Dust	0.0%	0.0%

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Carbon Monoxide (CO)

- Project includes CO emissions reduction using a catalytic oxidizer
- Emissions of CO in the power station exhaust will be reduced using catalytic controls in a similar manner to the catalytic converters that clean the exhaust of cars

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Particulate Matter (PM, PM_{10}, $PM_{2.5}$)

- Particulate matter is anything that is suspended in the air. It can be caused by natural phenomena (weather events, fires, dust storms) or come from man-made sources

- Particulate matter is described in terms of the size of the suspended particles. The EPA and TCEQ measure and regulate particulate matter as follows:
  - in the range of 10 microns and smaller (known as PM_{10})
  - In the range of 2.5 microns and smaller (known as $PM_{2.5}$)

- For reference, a human hair is about 50 microns in diameter

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Particulate Matter (PM, PM_{10}, $PM_{2.5}$)

- Coarse particulates (PM_{10}) come from sources such as windblown dust from the desert or agricultural fields (sand storms) and dust kicked up on unpaved roads by vehicle traffic
- Fine particulates ($PM_{2.5}$) are generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Large-scale agricultural burning or sand storms can produce huge volumes of fine particulates.
- EPA has set safe standards for PM

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Ammonia

- Combustion does not generate ammonia
- Ammonia will be used at the project as an approved reaction chemical to reduce nitrogen oxide emissions
- The strength of the ammonia/water solution is 19%. This is a chemical commonly used as a household cleaner, typically at 2-3% ammonia

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