



## World's Largest Post-Combustion Carbon Capture-Enhanced Oil Recovery Project to be built by NRG Energy and JX Nippon Oil & Gas Exploration

July 15, 2014

— Construction begins at WA Parish plant near Houston —

PRINCETON, N.J. & TOKYO--(BUSINESS WIRE)--Jul. 15, 2014-- NRG Energy, Inc. (NYSE:NRG), through its wholly owned subsidiary Petra Nova Holdings LLC, has formed a 50/50 joint venture (together, the Company) with JX Nippon Oil & Gas Exploration Corporation (JX Nippon), through its wholly owned subsidiary JX Nippon Oil Exploration (EOR) Limited, to build and operate the Petra Nova Carbon Capture Project (the Project). Using proven technology, the Project will be a commercial-scale carbon capture system that captures 90% of the carbon dioxide (CO<sub>2</sub>) in the processed flue gas from an existing unit at the WA Parish power plant in Fort Bend County, southwest of Houston. The Company has begun construction on the Project and when complete, the Project is expected to be the world's largest post-combustion carbon capture facility on an existing coal plant.



The WA Parish plant showing the carbon capture facility that will be part of the world's largest post-combustion carbon capture-enhanced Oil Recovery project. The project is expected to be operational by the end of 2016. (Photo: Business Wire)

Through Enhanced Oil Recovery (EOR), the captured CO<sub>2</sub> will create a revenue stream for the Project by increasing domestic oil production at the West Ranch oilfield, jointly owned by the Company and Hilcorp Energy Company. EOR is expected to boost oil production at the field from

around 500 barrels per day to approximately 15,000 barrels per day. The West Ranch oilfield is currently estimated to hold approximately 60 million barrels of oil recoverable from EOR operations. NRG and JX Nippon each hold a 25% interest in the oil field through the Company.

"Our objective is simple: we want to continue to provide safe, affordable and reliable power to our customers, but without risking the health of the planet as a result of our activities," said David Crane, President and CEO of NRG Energy, "This project is an enormous step in that direction, plus it continues the trend of enhancing domestic oil production; thus further reducing our national dependence on foreign sources of oil."

"We are very excited and proud to participate in this epoch-making project in the U.S. which will be able to vitalize the legacy oil fields and to produce a significant amount of oil that might not have been produced without this Project, while reducing the footprint to the global environment at the same time," said Shunsaku Miyake, President and CEO of JX Nippon Oil & Gas Exploration Corporation.

Previously the Project was selected by the United States Department of Energy (DOE) to receive a grant of up to \$167 million as part of the Clean Coal Power Initiative Program (CCPI), a cost-shared collaboration between the federal government and private industry.

"As part of the President's all-of-the-above approach to American energy, the Department is advancing the technologies that will help ensure we can continue to develop all of our abundant energy resources responsibly and sustainably," said Secretary Ernest Moniz in today's DOE release. "With coal expected to remain a significant part of the energy portfolio in the U.S. and internationally, first-of-a-kind projects like Petra Nova will move us towards a low-carbon energy future."

### The Petra Nova Carbon Capture Project

The Project is expected to capture approximately 1.6 million tons of CO<sub>2</sub> annually from an approximately 240 megawatt (MW) slipstream of flue gas from WA Parish Unit 8, which has a total net capacity of 610 MW. At this scale, the Project can prove the ability to apply coal-based carbon capture technology to existing coal-fueled power plants in the U.S. and around the world. The CO<sub>2</sub> will be compressed and piped through an 82-mile long pipeline to the West Ranch oilfield, the initial field for the Project.

In the CO<sub>2</sub> capture system virtually all sulfur dioxide (SO<sub>2</sub>) will be removed from the processed flue gas. Particulate matter and nitrogen oxide controls are already on the unit and mercury controls will be installed by 2015 before the capture system becomes operational. The flue gas leaving the CO<sub>2</sub> capture system is expected to be among the cleanest fossil fuel emissions in the world.

The Project will be constructed under a fixed-price contract by a consortium of Mitsubishi Heavy Industries Americas, Inc. (MHIA) and TIC (The Industrial Company). It is expected that construction of the Project will take approximately two years and the facility will be operational by the end of 2016.

### Carbon Capture Technology

The Project will utilize the proven KM-CDR Process®, which was jointly developed by Mitsubishi Heavy Industries, Ltd. (MHI) and the Kansai Electric Power Co., Inc. and uses a proprietary KS-1 high-performance solvent for the CO<sub>2</sub> absorption and desorption. MHI leads the industry globally with a record of having installed 10 natural gas-fired CO<sub>2</sub> capture facilities currently in operation, plus one under construction, for chemical plant applications. MHI has also completed 3 years of operation at Southern Company subsidiary Alabama Power's Plant Barry, where the carbon capture facility captured over 500 metric tons of CO<sub>2</sub> per day from a pulverized-coal power plant.

### Project Financial Information

The overall cost of the Project, including costs already incurred, is anticipated to be approximately \$1 billion.

Financing for the Project will consist of:

- Up to \$167 million from the DOE CCPI grant of which approximately \$7 million has already been received from the grant in the initial design and engineering phase.
- Loans of \$250 million to be provided by the Japan Bank for International Cooperation (JBIC) and Mizuho Bank, Ltd., backed by Nippon Export and Investment Insurance (NEXI)
- Equity contributions from both NRG and JX Nippon of approximately \$300 million each. NRG's contribution will include investments already incurred during development of the Project which will become assets of the joint venture. This includes the 75 MW peaking unit that achieved commercial operation in June 2013 and the 50% equity interest in Texas Coastal Ventures, LLC (TCV), a joint venture with Hilcorp Energy. TCV holds the working interests in the West Ranch oilfield in Jackson County, Texas.

#### About NRG

NRG is leading a customer-driven change in the U.S. energy industry by delivering cleaner and smarter energy choices, while building on the strength of the nation's largest and most diverse competitive power portfolio. A Fortune 250 company, we create value through reliable and efficient conventional generation while driving innovation in solar and renewable power, electric vehicle ecosystems, carbon capture technology and customer-centric energy solutions. Our retail electricity providers serve almost 3 million residential and commercial customers throughout the country. More information is available at [www.nrg.com](http://www.nrg.com). More information about NRG's carbon capture project can be found at <http://www.nrg.com/business/wholesale/carbon-capture/>. Connect with NRG Energy on Facebook and follow us on Twitter [@nrgenergy](https://twitter.com/nrgenergy).

#### About JX Nippon Oil & Gas Exploration Corporation

JX Nippon Oil & Gas Exploration Corporation is a core business company that engages in oil and natural gas exploration and production (E&P) business in the JX Group. The JX Group is the leading "integrated energy, resources and materials business group" in Japan and has net sales of approximately \$120 billion. We are currently expanding crude oil and natural gas E&P business in 14 countries around the world. In the U.S., we hold assets in the Gulf of Mexico, which range from the continental shelf to deep water area, in addition, in Canada, participate in the Syncrude Project that produces synthetic crude oil from oil sand, and operate them at Houston office. More information is available at [www.nex.jx-group.co.jp/english](http://www.nex.jx-group.co.jp/english).

#### Safe Harbor Disclosure

This news release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Such forward-looking statements are subject to certain risks, uncertainties and assumptions and include NRG's expectations regarding the post-combustion carbon capture unit at NRG's WA Parish plant and forward-looking statements typically can be identified by the use of words such as "will," "expect," "believe," and similar terms. Although NRG believes that its expectations are reasonable, it can give no assurance that these expectations will prove to have been correct, and actual results may vary materially. Factors that could cause actual results to differ materially from those contemplated above include, among others, general economic conditions, hazards customary in the power industry, competition in wholesale power markets, the volatility of energy and fuel prices, failure of customers to perform under contracts, changes in the wholesale power markets, changes in government regulation of markets and of environmental emissions, and our ability to achieve the expected benefits and timing of the carbon capture-EOR projects. NRG undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. The foregoing review of factors that could cause NRG's actual results to differ materially from those contemplated in the forward-looking statements included in this news release should be considered in connection with information regarding risks and uncertainties that may affect NRG's future results included in NRG's filings with the Securities and Exchange Commission at [www.sec.gov](http://www.sec.gov).



Photos/Multimedia Gallery Available: <http://www.businesswire.com/multimedia/home/20140715005632/en/>

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