

# THE ENERGY DAILY

Business and Policy Coverage of the Power, Natural Gas, Oil, Nuclear and Renewables Industries

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## Westinghouse, Holtec Jump Into Small Reactor Market

BY JEFF BEATTIE

Westinghouse Corp. and Holtec Inc. unveiled new small reactor designs this month meant to compete in the promising but increasingly crowded market for cheaper and more easily deployed nuclear generation, with Westinghouse introducing a 200-megawatt light water design based on its larger AP1000 reactor.

In a February 17 announcement, Westinghouse said it will seek funding for its new small modular reactor (SMR) design under the Energy Department's planned cost-share program designed to advance new SMRs for Nuclear Regulatory Commission licensing.

Meanwhile, Florida-based Holtec Inc. earlier this month announced successful results from "proof of principle" studies for its smaller SMR design, the 140 megawatt (MW) Holtec Inherently Safe Modular Underground Reactor, or HI-SMUR 140.

Holtec, a privately held energy technology firm spe-

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## Drillers Suing EPA Alleging Stealth Action To Regulate Fracking

BY JOHNATHAN RICKMAN

Saying the agency improperly bypassed public notice and comment requirements in a stealthy regulatory action, oil and gas industry groups have sued the Environmental Protection Agency over a notice quietly posted by the agency on its Web site last summer that informed drillers that they would have to obtain permits to use diesel fuel in hydraulic fracturing operations, *The Energy Daily* has learned.

The suit targets initial efforts by EPA to adopt federal permitting and environmental protection standards for the use of diesel fuel or diesel-containing fluids in hydraulic fracturing operations some five years after Congress passed legislation that exempted hydraulic fracturing from regulation under the Safe Drinking Water Act (SDWA)—except when diesel or diesel-infused fluids are used.

The lawsuit also comes as EPA is conducting a two-year study to review the potential environmental impacts of hydraulic fracturing, a controversial drilling practice in which producers inject additive-laced fluids, water and sand into underground rock formations to break

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## Seattle Firm Putting Floating Wind Turbine Offshore Portugal

In a breakthrough for the Seattle startup, Principle Power Inc. has signed a deal with Energias de Portugal, a venture capital firm and Vestas Wind Systems to deploy a 2 megawatt wind turbine off the coast of Portugal using Principle's floating support structure.

Principle says its WindFloat system will enable wind operators to put turbines in previously inaccessible locations at water depths of more than 150 feet, enabling them to take advantage of the stronger, steadier winds found further out to sea.

The project calls for Principle to deploy a full-scale WindFloat with a 2 MW

Vestaswind turbine off the Portuguese coast in 2011. The system will be tested in Agucadoura, where Energias de Portugal (EDP), a major utility, will provide grid connections for no less than 12 months.

The goal of the project is to validate the integration of the turbine with WindFloat and assess operational performance. Principle claims its WindFloat system can dampen wave and turbine-induced motion that might affect output. The project also will evaluate commissioning and decommissioning operations and maintenance.

Also participating in the project are

InovCapital - Sociedade de Capital de Risco SA, A. Silva Matos, Marine Innovation & Technology, Houston Offshore Engineering, Bourbon Offshore, Smith Berger Marine, Vryhof, Solidal and Fundo de Apoio a Inovacao, which is providing a grant.

The American Bureau of Shipping has been selected as an independent certification agency.

"EDP has selected offshore wind energy as one of its five innovation priorities and the WindFloat is one of the most promising technologies in this area," said EDP Chief Executive Officer Antonio Mexia in a February 18 statement. "Pending results of this key demonstration stage, EDP will be better positioned to tackle offshore wind challenges worldwide."

## California Biomass Power Plants Fined For Emissions Violations

Two biomass power plants in California have agreed to pay a combined civil penalty of \$835,000 under proposed settlement agreements that resolve alleged violations of the Clean Air Act and San Joaquin Valley Air Pollution Control District rules, the Justice Department announced.

The department, acting on behalf of the U.S. Environmental Protection Agency and the control district, lodged a consent decree for the settlement with the U.S. District Court for the Eastern District of California on February 15.

The enforcement action comes as the biomass power industry is growing rapidly, with many generators touting the clean energy attributes of biomass in comparison to coal. Biomass plants have lower emissions than coal-fired power plants and

also help utilities meet state requirements to use renewable energy resources.

However, EPA and local air pollution regulators say the two biomass power plants at issue in the enforcement case—Ampersand Chowchilla Biomass LLC and Merced Power LLC—emitted sulfur dioxide, nitrogen oxides, carbon monoxide and fine particulates in excess of limits set forth in their air permits.

Under the settlement, Ampersand has agreed to pay a fine of \$328,000 and Merced will pay \$492,000. Ampersand also must pay an additional \$15,000 to the control district for an alleged district-only violation.

The settlements require the facilities to install devices to improve monitoring and reporting of air pollutants; enhance

automation of the control systems for nitrogen oxides emissions and prepare more stringent control plans to minimize emissions of air pollutants.

As a part of the settlements, the companies have installed controls that reduce emissions of nitrogen oxides by up to 180 tons per year and carbon monoxide by up to 365 tons per year. The EPA and the control district will continue to monitor both facilities for an additional two years to ensure completion of all requirements.

After undergoing refurbishments in 2007, the two plants began operations in 2008. A joint investigation by the EPA and local air regulators found that the units violated the air permits issued to them by the control district by failing to perform timely source testing to measure emissions of various air pollutants; failing to properly install and operate emissions control systems for nitrogen oxides, a precursor to ozone; and failing to certify the continuous emissions monitoring systems.

## Westinghouse, Holtec Jump Into Reactor Market...(Continued from p. 1)

cializing in nuclear fuel services, says it has sufficient internal capital to fund “design, analyses, licensing, and other activities needed to bring the HI-SMUR 140 to pre-construction.”

That means the Holtec project will not need to chase venture capital funding, which has proven a hindrance for some other SMR designers of late.

Holtec says it plans to submit the HI-SMUR by the end of 2012 to NRC for design approval.

The Westinghouse and Holtec designs are part of a new breed of smaller reactors that have attracted considerable industry interest as a cheaper, more easily deployed alternative to the large reactors in use today.

Among other advantages, SMRs are designed to be built in factories and rail-shipped ready for deployment. Most are intended to run for long periods of time without refueling, some for their entire operating life, creating “plug and play” options for military bases, remotely located industrial projects and smaller communities that lack the money or expertise to build and operate traditional reactors.

Like Holtec’s design, several SMRs are designed to be built underground to reduce public safety and security concerns.

Westinghouse’s 200 MW reactor has certain clear advantages, primarily its roots in Westinghouse’s AP1000 design and sharing of many of the same passive safety features. From among a new class of larger reactors on the market today, the AP 1000 is one of only two under construction.

Additionally, the AP1000 is the most popular reactor choice among U.S. utilities that are considering new reactor projects, and Westinghouse has a storied name in the U.S. nuclear industry that few other vendors can match.

Other major developers of light water SMR designs include Babcock & Wilcox, whose 125 MW design the Tennessee Valley Authority is considering for its Clinch River Site in Tennessee; and Oregon-based NuScale Power Inc., which is devel-

oping a 45 MW design.

NuScale, however, has been hobbled of late by a federal investigation into its primary venture capital funder, which has reduced NuScale’s spending ability.

Other vendors are building more advanced SMR designs as well, which are generally seen as farther from deployment than light-water designs that are more similar to commercial reactors in use today.

Among others, General Electric is developing a 311 MW fast-neutron design called the PRISM that uses liquid metal as a coolant; GE says it hopes to apply to NRC for certification early next year. Hyperion Power Generation inc. is also developing a 70-MW liquid metal-cooled fast reactor.

Among other features, fast reactors can burn plutonium, spent nuclear fuel and high-enriched uranium, which has made the GE and Hyperion designs attractive to officials at DOE’s Savannah River Site in South Carolina. SRS officials in recent months have signed preliminary agreements towards possible deployment of either or both designs at the DOE site based partly on the idea that the reactors could help in managing those radioactive stockpiles.

Westinghouse, owned by Toshiba, is also developing a metal-cooled fast reactor, in conjunction with Japanese government research agencies. That design—the so-called “Super Small, Safe and Simple,” or 4S, reactor, is smaller than most other SMR designs however, at 10 MW.

In introducing its new SMR design, Westinghouse said it was “fully-engaged and actively preparing for” a planned DOE program designed to boost SMRs.

Under the program, announced in the Obama administration’s fiscal 2012 budget proposal earlier this month, DOE would competitively select two designs for cost-share support—so long as the program receives congressional funding.

## Drillers Suing EPA Alleging Stealth Action... (Continued from p. 1)

open seams so they can more easily suck out oil and natural gas.

"Fracking" has raised concern about groundwater contamination in many communities near U.S. shale gas and unconventional oil fields that have attracted a stampede of drillers.

The suit, lodged in the U.S. Court of Appeals for the District of Columbia Circuit August 12, requests judicial review of EPA's Web "decision," saying it represents a new position established without any public notice or comment and constitutes "final agency action."

The suit also challenges EPA's intention to require drillers that use diesel fuel in fracking operations to obtain a so-called "Class II" permit under the SDWA's Underground Injection Control (UIC) program—typically applied to enhanced oil recovery wells—saying EPA historically has not applied the UIC program to fracking activity of any kind.

The court challenge, brought by the Independent Petroleum Association of America (IPAA) and the U.S. Oil and Gas Association, raises concerns that EPA's regulatory approach in the matter will have "serious" legal and economic consequences for drillers and state regulators, which typically take the lead in approving or denying UIC permits.

EPA responded to the lawsuit with an October 29 motion asking the appeals court to dismiss the case, arguing its Web-based statement is only a "description of existing legal obligations under the [SDWA] statute, [and] not the source of new requirements."

However, the court rejected EPA's motion and called for a panel of the court's judges to more thoroughly review the case. The court is expected to issue a request for briefs from both sides in the coming months.

The case stems from an investigation launched last year by Democrats into the use of diesel fuel in fracking. The investigation built on an initial probe begun by Rep. Henry Waxman (D-Calif.) in 2007 when he was chairman of the House Oversight and Government Reform Committee.

Waxman and two other House Democrats announced last month that their probe found that some 32 million gallons of diesel fuel or diesel-infused fluids were used in hydraulic fracturing operations at oil, natural gas and coal methane wells in 19 states between 2005 and 2009—all without drillers or service companies getting required permits or conducting environmental reviews to ensure the fluids posed no threat to underground drinking water supplies.

In a letter to EPA Administrator Lisa Jackson January 31, Waxman and Reps. Edward Markey (Mass.) and Diana DeGette (Colo.) said 12 drilling service companies have acknowledged using diesel fuel in fracking operations without ensuring that benzene and other toxic chemicals in those fluids would not migrate into nearby water supplies.

While citing no evidence of groundwater contamination, the lawmakers said the continued use of diesel fuel without permits appeared to violate explicit statutory language enacted by Congress in the Energy Policy Act of 2005.

"This appears to be an area of significant noncompliance with the requirements of the Safe Drinking Water Act," said the Democrats in their letter to Jackson.

The Democrats' probe appears to have prompted EPA to clarify its oversight role in the matter. Without notice last summer, the agency updated its Web site to say that "the use of diesel fuel during hydraulic fracturing is still regulated by the UIC program.

"Any service company that performs hydraulic fracturing using diesel fuel must receive prior authorization from the UIC program. Injection wells receiving diesel fuel as a hydraulic fracturing additive will be considered Class II wells by the UIC program."

In response to the Democrats' letter, an EPA spokesperson

said the agency had begun "an expeditious effort to clarify the [UIC] permitting process" and "put in place a clear framework... so that fracturing operations using diesel receive the review required by law."

However, the oil and gas industry groups say EPA violated federal administrative law by moving to impose "new," potentially costly requirements on drillers without allowing any industry or public comment.

"Congress clearly left the door open in the 2005 act for EPA to regulate hydraulic fracturing operations involving the use of diesel in the future," said the industry groups in a November 8 court filing opposing EPA's motion to dismiss the case.

"However, Congress did not establish that such operations must be regulated or how they should be regulated and EPA cannot use the 2005 act as a post hoc rationalization for its recent Web site statements.

"EPA chose not to undertake a rulemaking to establish these requirements as mandated by the SDWA and the Administrative Procedures Act; in fact, the agency did not consult with or even notify any members of the regulated community that it was taking this very significant step, but instead quietly announced this determination on its website.

"Moreover, EPA's action will have serious consequences not only for the regulated community but for states as well. Operators of oil and gas wells—who already obtain permits from state regulatory authorities for their production wells—will now have to obtain separate UIC permits for those wells if hydraulic fracturing activities will involve the use of diesel fuel.

"In addition, states that have obtained approval from EPA to administer the UIC program for Class II wells will have to modify their programs and demonstrate to the agency that their programs meet any requirements related to hydraulic fracturing in order to maintain the authority to administer the Class II program.

"In the meantime, because EPA has imposed these requirements without any notice or opportunity for input by affected parties, its Web site statements have created considerable confusion about the scope and impact of these new requirements. As a result, EPA's statements have significant legal and practical consequences....," said the groups.

The lawsuit also takes issue with EPA claims that its actions are authorized under a 2001 ruling by the U.S. Court of Appeals for the 11<sup>th</sup> Circuit, which in 2001 ruled that Alabama's UIC program was required to regulate fracking operations. The industry says the 11<sup>th</sup> Circuit ruling concerned only Alabama's program and did not authorize EPA to impose nationwide permitting programs for fracking operations.

The suit does not directly raise concerns shared by some drilling firms that EPA may move to retroactively require permits for past fracking operations using diesel fuel.

However, a top IPAA official said EPA's action clearly raises the prospect of a "possible crisis" in state permitting programs for Class II underground injection wells.

"We're sensitive to those [retroactivity] concerns," Lee Fuller, vice president of government relations for IPAA, told *The Energy Daily* Thursday. "However, since there has been no rulemaking with respect to diesel fuel, I think it would be a difficult case for EPA to make."

However, he added: "[EPA] needs to consider how to modify the regulatory structure to avoid disrupting the state systems and U.S. production of oil and natural gas. The state Class II rules are not the regulations that manage fracturing and certainly do not address diesel fuel use in fracturing, thereby creating a possible crisis" for states to update their permitting programs to meet any new EPA rules on fracking.



# Puerto Rico Shaking Oil Habit, Pricey Power With Green Energy, New Gas Pipe

## COMMENTARY

BY JOSÉ R. PÉREZ-RIERA

Energy prices are a major problem in Puerto Rico. In fact, at roughly twice the U.S. average, they are one of the main obstacles to restoring the island's competitiveness.

So it isn't hard to see why the cost of energy is an important issue for companies considering putting a stake down on the island for the first time or for those weighing an expansion of current operations.

To put energy prices in further perspective, Puerto Rico currently has among the highest electricity rates in the world. The Island keeps company with Denmark, the United Kingdom and Ireland for the world's highest electricity rates. These rates, propelled by the high cost of imported oil, stymie economic growth and hurt Puerto Ricans working to make ends meet in a difficult economy.

But to residents of Puerto Rico and businesses pondering investment here, I say this loud and clear: help is on the way.

Governor Luis Fortuño, in a bid to reverse his predecessors' over-reliance on oil, has signed into law two landmark pieces of legislation aimed at diversifying the island's portfolio for energy production, while at the same time laying the foundation for Puerto Rico's rise as a renewable energy haven. These two laws create the necessary legal framework to spearhead the development of renewable energy sources in Puerto Rico.

One of the laws--the Energy Diversification by Means of Sustainable and Alternative Renewable Energy Act--sets a hard target of 12 percent renewable energy production by 2015 and 15 percent by 2020, with a requirement for retail energy providers to establish a plan to reach 20 percent renewable energy production by 2035.

It establishes renewable energy certificates (REC) as legally recognized assets that can be purchased, sold, traded, and transferred. This will enable Puerto

Ricans to participate in existing stateside REC markets, with no capital gains taxes on the initial acquisitions.

The other law--the Green Energy Incentives Act--creates a Green Energy Fund through which the government of Puerto Rico plans to invest \$290 million in renewable energy projects over the next 10 years, funding an initial \$20 million beginning in July. In addition, through the Green Energy Fund, the island's Energy Affairs Administration will supply cash rebates of up to 60 percent on the cost of installing Tier 1 small energy projects up to 100 kilowatts (kW) for residences and small businesses and up to 50 percent on the cost of Tier 2 projects (100 kW – 1 megawatt) for commercial or industrial use.

Guided by this framework, our new energy program promotes energy conservation and efficiency, diversifies electrical energy sources, and stimulates the creation of power through alternative and renewable sources.

What's more, Puerto Rico's energy program will have considerable economic ripple effects. We anticipate that we will generate 10,000 new green jobs over the next five years and a combined public-private investment of \$3.6 billion over the next decade. Curtailing our island's dependence on oil also will mean \$8 billion in energy savings for residents and businesses. That in turn will result in huge economic benefit by freeing up the savings for more productive uses.

In the near term, a key part of the island's energy program is a vital new natural gas artery known as Via Verde, which will supply less costly fuel across Puerto Rico. When fully up and running, the Via Verde program will save Puerto Rico citizens more than \$1 billion in energy costs annually, and it will cut carbon emissions by an average of 64 percent.

To be sure, natural gas is a bridge fuel for us. In the near term it will wean us off of costly imported oil—70 percent of our electricity currently is produced by oil—while we switch to domestic sources of less costly and greener alternatives. In the long run, we envision Puerto Rico relying increasingly on alternative energy sources such as wind and solar.

For example, the Puerto Rico Electric Power Authority (PREPA) has agreed to purchase the power output of a 75 MW wind energy project planned in Santa Isabel on southern Puerto Rico. At the same time, AES Solar Energy is set to build on the Island a 20 MW electricity generation facility that uses solar photovoltaic technology to provide renewable energy. All told, PREPA so far has signed four wind energy contracts, three solid waste contracts and one solar power contract to expand its renewable energy portfolio, with a total generation capacity of 324 MW and the potential to create around 2,000 jobs.

Down the road, Puerto Rico hopes to make strides in other renewable energy technologies. University of Puerto Rico scientists in a 2008 study sponsored by the island's Energy Affairs Administration concluded that energy derived from capturing the movement of ocean waves off our coast has vast potential.

In Puerto Rico, we believe that to continue importing foreign oil not only penalizes consumers, businesses and the environment, it also bankrolls foreign governments that at times are downright hostile to American interests.

So we are pulling the plug on our oil habit and laying the groundwork for a Puerto Rico that is an energy provider to its Caribbean neighbors with power produced from green sources and with an energy infrastructure that is affordable, viable and, above all, sustainable.

—Jose R. Perez-Riera is Puerto Rico's secretary of economic development and commerce.

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