By Tom Schuman

# Building a Reliable Energy Future

## Indiana Facility Part of Nuclear Revival

Darren Gale has been involved with the nuclear energy industry for nearly 30 years. He's seen the highs and the lows – including the early 1990s when the fear was that most nuclear power plants were going to be shut down.

Currently the vice president of product development for Babcock & Wilcox (B&W) mPower Inc., which is commercializing small modular reactors (SMRs), Gale terms the project a "game changer. It takes the excitement to a completely different level. I'm really looking forward to the chance to change how energy can be delivered over the next 150 years."

A large reactor pressure vessel that is manufactured at the Mount Vernon facility.

A leading international provider of energy products and services, B&W has approximately 12,000 employees around the world. Its Indiana plant (in Mount Vernon in the southwest corner of the state) celebrated its 50th anniversary in 2012 and is part of the company's nuclear operations group.

"The Mount Vernon facility has obviously been very important to B&W for many, many years with the machining of large reactor vessel components," Gale notes. "The large vessel itself that will become the mPower module is what we have planned for Mount Vernon at this point in time. That is very much what it has been known for and what it has done in the past."

All SMR components can be made in the United States. Safety is enhanced with the reactors using lower-level material than the highly-enriched fuel in traditional nuclear plants. Capable of generating 180 megawatts of energy, they can be manufactured before being transported to their ultimate destination. Although production is at least a few years down the road, there is strong potential for new jobs at both the Mount Vernon facility as well as for in-state suppliers.

B&W is partnering with Bechtel International and the Tennessee Valley Authority (TVA) on a specific SMR project that has the support of the Obama administration. It was announced in late November that the Energy Department will provide up to half of the total project investment as part of a five-year agreement. The goal is to deploy the first plant in the early part of the 2020s; concept work on the project began in 2007.

The federal funds will help keep the program on track, Gale says. Current work is taking place in three areas – final design in order to prepare a licensing document to go to the Nuclear Regulatory Commission in 2014; preparing the site location in conjunction with the TVA; and getting facilities ready for the manufacturing process.

In a follow-up to the Energy Department announcement, Christofer Mowry, president of B&W mPower, wrote that "hundreds of engineers, technicians and operators across the United States are working on all aspects of the development program."

Discussions have been ongoing with a number of major electricity providers, including Duke Energy, Gale reports. But the ultimate customer base is expected to be broad.

"We also have a lot of utilities that are not necessarily nuclear right now, but sure would like to be able to have that nuclear option in their generation portfolio," he offers. "Ultimately, we want to bring some of those smaller utilities into the nuclear foray."

**INFORMATION LINK**

**Resource: Babcock & Wilcox at www.babcock.com**

## It's All About the Transmission

When the topic is energy, the conversation typically focuses on the source of the power – coal, natural gas, renewables and more. No matter the type of generation, the transmission system makes it possible for business and residential customers to

receive the electricity.

Jennifer Curran, vice president of asset management for Carmel-based MISO (Midwest Independent Transmission System Operator), offers a transportation comparison: "The highway for the electrons is the transmission system." The MISO role, she says, is to keep the electricity "reliable for the customer" and "provide it as economically as possible."

MISO oversees approximately 50,000 miles of transmission. Its market includes 11 states and one Canadian province. In addition to managing energy distribution, it has a strong focus on planning for the future. Seventeen projects approved in December 2011 are categorized as part of the Multi-Value Projects (MVPs) portfolio.

**Substantial planning and permitting precedes development of any new transmission lines.**

Among ongoing transmission expansion efforts with a presence in Indiana:

- Pioneer Transmission, a joint venture formed by Duke Energy and American Electric Power to build and operate 240 miles of 765-kilowatt transmission lines and related facilities. A 66-mile line from Greentown west to New Reynolds (north of Lafayette) is part of the 2011 MVP class. The remainder – south through Sullivan and to Rockport – will be evaluated as part of the next MISO planning cycle.
- NIPSCO's Reynolds-Topeka Electric System Improvement Project, also included in the MVP designation, is a 345-kilowatt line connecting the two cities included in the name. The final route has yet to be determined.
- The Grain Belt Express Clean Line (700 miles of overhead, high-voltage direct current) is expected to deliver wind energy from Kansas through Missouri and Illinois, with the line ending in Indiana at Sullivan. Clean Line Energy is based in Houston.

These projects require major investments: $2 billion for Clean Line and approximately $1 billion for Pioneer, according to published documents. Timeframes are also lengthy for completion: potentially 2017 for Clean Line and 2018 for Reynolds-Topeka, although those dates are subject to change.

Curran relays that many of the MVP projects required between three to five years of evaluation before receiving MISO approval. What follows next are state and local permitting processes, obtaining rights-of-way, land acquisition, etc. The long path from idea to being in service is necessary.

"We know that the future is uncertain. There will be a number of shifts in energy policy, but this transmission is going to be there for a long time," Curran shares. "We do a significant amount of work to try to ensure that this is robust – that this transmission will be needed and provide value no matter what the future holds."

And while we noted several projects that include new transmission infrastructure in Indiana (which provide construction and other jobs within the state), energy doesn't stop at state lines or other borders. Reliability and affordability are regional in nature.

"It's an across-the-Midwest plan," Curran says. "Indiana benefits by being a part of that entire service area. The projects in Indiana are part of an overall system that reduces the congestion or electric traffic that exists in other parts of our footprint that might keep less expensive generation from being available."

**INFORMATION LINK**

**Resource: MISO at www.midwestiso.org**

## Program Seeks to 'Energize' Energy Savings

In December 2009, the Indiana Utility Regulatory Commission ordered the state's electric utilities to create demand-side management (DSM) programs to achieve annual energy savings of 2% by 2019. One tool in helping achieve that goal is the Energizing Indiana initiative.

The first full year of the program in 2012 resulted in Hoosier businesses receiving more than $5.1 million in rebates for energy-efficient upgrades to lighting and equipment. Over 37,000 homeowners benefitted from home energy assessments and Indiana saved more than

Audits can help determine the next steps to potential energy savings.

420 million kilowatt hours of energy.

April Paronish, senior utility analyst with the Indiana Office of Utility Consumer Counselor (OUCC), says, "No one in the country has an initiative like this with the utilities, third-party administrators and consumer groups."

The five investor-owned utilities (Duke Energy, Indiana Michigan Power [I&M], Indianapolis Power & Light, NIPSCO and Vectren) and the Indiana Municipal Power Agency are involved. Each has its own DSM efforts in addition to the five core programs. One of those five is the commercial and industrial (C&I) outreach that features incentives for lighting, HVAC equipment, high-efficiency motors and other energy-saving technologies.

The C&I portion ended nearly 37% short of its goal in 2012. I&M achieved the top results – 86% toward its incremental savings goal. Paronish indicates the longer budget cycles of commercial and industrial companies may have been a factor in the less-than-desired-for participation.

Who wins if Energizing Indiana and the overall efficiency efforts realize their goals? Everyone, according to Paronish and Barbara Smith, director of the resource planning and communications division with the OUCC.

"C&I customers in most programs get a pretty substantial rebate, which changes the payback period (for investments). That is important, especially when they also have ongoing energy savings," Smith contends.

Looking at the big picture, Paronish adds, "It's the prevention of needing to build power plants or delay in building power plants. In the long run, it saves everybody on their energy bills."

A new twist will be facility assessments for some of the C&I customers, delivering specific recommendations for energy savings. Representatives from Energizing Indiana and the utilities will continue to enhance contact with facility managers. OUCC will be among those evaluating whether companies go from assessment to implementation.

"It's important for us to see how the money is being used and making sure those dollars are being used wisely," Smith offers. "We're pretty passionate about this. It's good for the environment, and we make sure it's economical so we're kind of the watchdog in that respect."

## Getting to the 2% Energy Savings Goal

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| 2013 | 0.9% |
| 2014 | 1.1% |
| 2015 | 1.3% |
| 2016 | 1.5% |
| 2017 | 1.7% |
| 2018 | 1.9% |
| 2019 | 2.0% |

**INFORMATION LINK**

**Resources: Indiana Office of Utility Consumer Counselor at www.in.gov/oucc/2612.htm**

**Energizing Indiana at www.energizingindiana.com**