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THE TOP 3 CHALLENGES FACING AMERICA'S SURPRISINGLY YOUNG NUCLEAR INDUSTRY

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Necessity is the mother of invention – and innovation. The genesis of nuclear energy came out of a national need, and now we might need its reliability and zero-emissions generation more than ever.

Nuclear energy has been powering the U.S. since the late 1950s. Exelon's own Dresden Generating Station in Illinois was the nation's **first nuclear plant** built without government funding. The industry was jumpstarted in **1973**, when the Organization of Petroleum Exporting Companies (OPEC) banned petroleum exports to the U.S., accelerating America's reliance on domestic sources of energy.

Today, 99 nuclear reactors dot America's landscape across 30 states; these plants, with their easily identifiable cooling towers, provide 60 percent of America's carbon-free energy while leading in reliability, safety and efficiency. Amidst the rising concerns surrounding climate change, nuclear stands to play a key role in delivering clean energy today. (If you need a quick refresher on nuclear's benefits, visit our **first blog** of the series).

Despite its benefits, the future of nuclear energy generation is in question. It is at risk of being replaced by carbon-emitting forms of energy, sending clean energy advancements backward.

How did we get here?

- 1. Falling Energy Prices Challenge Emission-Free Nuclear Energy:** In the past 10 years, advances in fracking technology have unlocked untold **supplies of natural gas**, causing natural gas prices to plummet. The catch is that natural gas sets the **wholesale price** of energy in many markets. Its lower price suppresses energy prices across the board, which has led to a roughly 70 percent decrease since 2008. This price decline makes it difficult for nuclear operators to recover the costs of safely operating, maintaining and upgrading the plants. These economic factors put the nation's leading clean energy source in danger.
- 2. Older Transmission Technology Caps Energy Delivery:** Nuclear plants are extremely efficient – Exelon's fleet runs at an annual 94.6 percent capacity factor, and energy from units is typically available on the grid 24/7. However, America's outdated transmission infrastructure cannot efficiently take on surplus energy from a single source. When too much energy floods the system, a traffic-like backup occurs, causing action from Regional Transmission Organizations, or RTOs, which manage the flow of energy through the grid. The RTOs curtail generation units that would otherwise be economic. For nuclear plants to be able to maintain efficiency levels and operating costs, the U.S. must update its transmission systems.
- 3. Lack of Carbon Policy Disadvantages Clean Nuclear Energy:** Clean energy policies at state and federal levels favor solar, wind, and other forms of clean energy, which has driven the expansion of these energy sources in the past decade. But such policies simultaneously fail to recognize the value of zero-carbon nuclear energy. It doesn't have to be this way.

As Exelon's Chief Nuclear Officer Bryan Hanson [put it](#),

“In the absence of coordinated federal policy, states have an important role to play.” In Illinois and New York, state governments have already enacted policies that put nuclear on a level playing field with other forms of clean energy, serving as a model for the rest of the nation.”

In short, preserving nuclear plants is essential if we are to meet our nation's clean energy goals and maintain a reliable electric grid.

As the largest operator of nuclear facilities in America, Exelon is already taking key steps to protect nuclear energy and its many benefits. We recently identified more than \$160 million in additional efficiencies, and our culture of innovation continues to incubate game-changing ideas and new [technologies](#) that will make operations more cost efficient. We're also working closely with other states to explore policies that put nuclear on equal footing with other clean energy sources.

These steps serve as an example for the entire industry, proving that together, we can ensure that the future of nuclear remains bright. And over the coming months, we will highlight in more detail the many ways we're working hard to protect America's largest source of clean energy.

Stay tuned.

WHAT'S NEXT
