The mix of electric power generation has changed dramatically over the past decade or so in much of the 11-state Midwest — more wind power and more natural gas plants, for example, and much less reliance on coal. Will the shift be even more dramatic in the years ahead?

That is the vision laid out in new legislative proposals this year in states such as Illinois and Minnesota, as well as in recent plans unveiled by some utility companies themselves.

“We have seen the cost of renewable energy drop dramatically in the state, and we see wind now outcompeting natural gas, and even existing coal plants,” Minnesota Rep. Jamie Long says. “So there is a strong economic case for moving toward clean energy.”

His state currently is one of six in the Midwest with some type of renewable energy portfolio standard, or RPS — typically a requirement that utilities get a certain percentage of their power from renewables such as wind, solar or other sources defined in law.

Most states in the region, including Minnesota, either have surpassed or are on track to meeting their RPS. A fall 2018 study from the Lawrence Berkeley National Laboratory reported that only Illinois had not met its interim RPS targets. Some legislators, though, say the time has come for their states to require more of their electric power providers and to start thinking bigger. Much bigger.

Long is among them.

“[It’s] an opportunity to create many more jobs in our state and also deal with climate issues,” he says. This year’s HF 2208 (of which Long was a lead sponsor) called for a new standard in Minnesota of 100 percent by 2050, meaning the state would get all of its electric power from renewable energy. The measure also would have set interim goals of 55 percent by 2030 and 80 percent by 2035.

Already under Minnesota law, when needing to add generation capacity, utilities must opt for energy efficiency and clean energy sources before turning to fossil fuel plants. Under this year’s legislative proposal, too, fossil fuel power only would have been added if the utility could prove that this was the only way to provide affordable, reliable electricity. And as is the case with Minnesota’s current RPS, the 2019 legislation would have set more-stringent mandates for the state’s largest utility, Xcel Energy.

HF 2208 did not pass this year, but even before it was introduced, Xcel Energy had announced a sweeping new plan of its own: End all coal use in the upper Midwest by 2030, cut carbon use by 80 percent by 2030, and deliver 100 percent carbon-free electricity by 2050. (The utility’s service area includes customers in Michigan, Minnesota, North Dakota, South Dakota and Wisconsin.)

That announcement, along with those of other utilities in the Midwest, signals the potential for a major shift in the
region’s mix of sources for electric power.

100% renewables by 2050?

Technology advances and lower costs are helping fuel this vision of an energy transformation, but state policies also have intentionally sought to foster renewable development — from the aforementioned portfolio standards, to financial incentives, to changes in how power is purchased.

Three years ago, Illinois legislators made major statutory changes (SB 2814 [5]) in an attempt to kick-start the development of homegrown renewable energy and to meet the state’s RPS, which requires that 25 percent of the state’s retail electric sales come from renewable sources by 2025.

That 2016 law offers some of the most aggressive renewable energy incentives in the country, and also has stood out for its focus on in-state production (rather than relying on out-of-state energy to meet the RPS) and for financing projects of smaller scale and in low-income communities.

Various bills this year in Illinois would take an even more aggressive approach to renewable-energy development. For example, under the Clean Energy Jobs Act (SB 2132 [6] and HB 3624 [7]), Illinois’ RPS would be increased to 45 percent by 2030 and 100 percent by 2050.

If a measure like this passes, Illinois would be the first Midwestern state with a clean-energy or RPS goal of 100 percent, but not the first in the country. California, Hawaii, New Mexico, New York and Washington have these laws in place (with target dates of 2040, 2045 or 2050), and an executive order calling for 100 percent clean electricity is in place in New Jersey (by 2050).

Illinois Sen. Cristina Castro, sponsor of SB 2132, says that along with setting a new, higher RPS, her goal is to have lower-income communities and communities of color be part of the state’s energy transformation — “giving them the tools to take part in the programs [to bring more renewables into the system].”

For example, “clean jobs workforce hubs” would be established in economically disadvantaged communities. These state-facilitated partnerships (with businesses, trade groups and others) would create apprenticeships and other career pipelines for individuals to secure jobs in the clean-energy sector.

The legislation also would create a contractor incubator program (helping businesses from disadvantaged communities compete for clean-energy projects) and expand programs such as Solar for All, which provides incentives to develop solar projects in low-income communities.

Illinois’ proposed Clean Energy Jobs Act also seeks to address one of problems with the shift to renewables — job losses in the coal industry and their impact on communities. Under the legislation, “energy empowerment zones” would provide funding and other resources to the communities and individuals impacted by plant closures (for example, targeted workforce training, a revitalization of the site of the closed power plant, and area-wide economic-development initiatives).

“It may take some time [to negotiate a final bill], but we have had positive conversations and I am optimistic that we will find some middle ground and negotiate a final product,” Castro says of the prospects for the Clean Energy Jobs Act or a like-minded bill.

Michigan’s ‘clean energy goal’

Along with Illinois, Michigan is the other Midwestern state that made a dramatic change in energy policy three years ago. “The 2016 law moved us away from a discussion about renewable targets and into a broader discussion about how reliability, affordability and sustainability all come together,” Dan Lauwers, chair of the Senate’s Energy and Technology Committee, says. (The bills were SB 437 [8] and SB 438 [9].)
The law established a new RPS (15 percent by 2021) and a broader “clean energy goal”: that at least 35 percent of Michigan’s electric needs be met through a combination of energy waste reduction (efficiency) and renewable energy by 2025. Along with these goals, the Legislature added a new set of incentives and cost-recovery mechanisms to help utilities invest in efficiency and renewable projects.

The state’s utilities, too, now must file long-term Integrated Resource Plans that are consistent with Michigan’s energy goals, Lauwers says. The Michigan Public Service Commission reviews and approves these plans, which include details on how the utilities will increase efficiency, deploy renewable sources of electricity, and meet demand and capacity needs (based on models and projections of needs for specific service areas).

Michigan’s economy and location mean the state has some unique energy challenges — lots of manufacturing activity with “significant baseload requirements,” Lauwers says, and limited transmission capabilities because the state is surrounded by water. That makes long-term planning essential, and also helps explain the state’s policy focus on reducing energy waste (via greater efficiency). But as in other states, there also is a push in Michigan for greater renewable energy use, among policymakers, utilities and consumers alike.

“Companies will pay a premium so that they can say, as a marketing tool, that ‘100 percent of our energy is coming from renewable sources,’ so utilities are responding to that,” Lauwers notes.

After passage of the 2016 law, Michigan’s two largest utilities, Consumers Energy and DTE, reached agreement with environmental groups to go beyond the clean-energy goal in statute (35 percent by 2025). They pledged to reach 50 percent by 2030. In return, the environmental groups agreed not to pursue a 2018 ballot proposal that would have sought a more-stringent renewable energy standard. These utilities believe they can reach the 50 percent goal through a combination of renewable development and energy-efficiency measures.

According to the Michigan Public Service Commission, the state’s focus on efficiency already has been paying off; in 2017, the energy waste reduction programs of utilities saved nearly 1.6 million megawatt hours of electricity. These utilities spent $308.6 million on these programs; for every dollar spent, customers will save $3.51, the commission says.

The utility-run programs include rebates for purchases of new appliances, lighting and windows, as well as customized assessments of a customer’s energy use. Consumers also have the chance to finance projects (in monthly installments on their utility bills) to make their homes more efficient.

On the renewables side, the state’s two largest utilities have signaled their intent to rely more on these sources in the years ahead. That is particularly true of Consumers Energy, which says it will eliminate coal-fired plants by 2023 and reduce carbon emissions by 90 percent by 2040. In addition, the utility says it does not plan to make new investments in natural gas plants and will increase solar capacity.

Illinois, Ohio proposals aim to ensure nuclear power is part of states’ energy futures

Nuclear power has long been an integral part of the energy mix in some Midwestern states, and completely absent in others (see table). Though a carbon-free source of electricity, nuclear generation has typically been seen as separate from “renewable sources” such as wind and solar.

But in seeking to achieve “clean energy” standards, and to save their existing sources of nuclear generation, states such as Illinois and Ohio have been re-examining their laws on this power source.

Illinois’ embrace of nuclear power

Three years ago, Illinois legislators passed a bill (SB 1585) classifying nuclear as “green energy” and creating “zero emission” credits for plants that produce this power source. The rationale: These plants should receive state support for providing a carbon-free source of energy. Further, these payments, which come from the bills of electric customers, were seen as necessary to keep two of Illinois’ nuclear reactors up and running. The state subsidies
amount to $235 million a year for 10 years.

This year in Illinois, the legislative focus has been on potential changes to how energy is procured in the wholesale market. Under HB 2861, the Illinois Power Agency, an independent state entity, would take over this process (in northern Illinois), which right now is handled by PJM, a multi-state, regional grid operator.

This switch, supporters of HB 2861 say, is necessary to ensure that procurement in the wholesale energy market reflects Illinois’ low-carbon goals. It would benefit producers of renewable energy and nuclear power.

Minus passage of a law handing authority to the Illinois Power Agency, new federal regulations and/or PJM policies threaten to undercut Illinois’ clean-energy push. That is because these rules/policies seek to level the playing field for natural gas operators and fossil fuel generators, who say wholesale markets have been distorted by policies such as Illinois’ zero-emission credits.

**New Ohio fund would help nuclear plants**

In May, the Ohio House passed legislation (HB 6) to create a Clean Air Fund and provide financial assistance to the state’s two nuclear plants. Without this state support, the operator of these two plants, which employ more than 4,000 people, has said the facilities will close by 2021.

Funding would come from a $1 surcharge on residential electric bills, raising a projected $198 million annually. Though most of this money would support the nuclear plants, six large-scale solar projects would receive assistance as well. As a protection for ratepayers, HB 6 includes language limiting the subsidies in the event of rises in electricity prices.

Natural gas production in the Utica and Marcellus shale plays has helped bring down prices in Ohio. Across the country, too, the availability of cheap natural gas has caused some utilities to shut down nuclear reactors in favor of gas plants, or to invest in new gas-fired plants rather than nuclear-generating facilities.

Even the newest nuclear plants in the United States have now been operating for more than 30 years, and only a few applications have been filed to build new ones. In the Midwest, Iowa’s only nuclear plant is scheduled to be shut down in 2020. Twelve nuclear reactors in the region have been or currently are being decommissioned.

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**On CSG-led trips, legislators learn challenges, policies behind Germany’s energy transformation**

Over the past four years, state legislators from The Council of State Governments’ Midwestern Legislative Conference (MLC) have participated in trips to Germany to study that country’s major transition in energy policy and use. This plan is known as *Energiewende*. Among its intermediate and long-term goals:

- reduce greenhouse emissions by 40 percent by 2020 (as compared to emission levels in 1990);
- phase out the use of nuclear energy by 2022;
- reduce overall greenhouse emissions by between 80 percent and 95 percent by 2050;
- increase the share of electricity consumption from renewable sources of energy to at least 80 percent by 2050; and
- reduce overall greenhouse emissions by between 80 percent and 95 percent by 2050.

Legislators on these CSG-led trips — hosted by the German Federal Foreign Office — get an on-the-ground look at changes in place or being planned under *Energiewende*.

“I was struck by how careful Germany’s approach to its energy transition appeared to be,” says Illinois Rep. Will Guzzardi, a part of the 2018 MLC delegation. “It was centralized and thorough, touching all sectors of the German energy economy, and it was moving at both an urgent and deliberate pace.”
Another distinguishing feature is the consensus among Germany’s political parties and consumers to make the switch to a low-carbon economy, and to do so without the use of nuclear energy.

“The transition was [rooted in] a grassroots movement and not a top-down directive,” says Kansas Rep. Mark Schreiber, a part of the 2017 study trip. “As a legislator, I appreciate the public being involved and advocating for resolution to an issue.”

For many years, Germany has relied on nuclear energy and, especially, coal for power production. The switch to renewable sources (wind, solar and biomass) continues to be a challenge. For example, despite big increases in the use of renewables, Germany will fall short of some of its intermediate goals under Energiewende, says Katharina Umpfenbach of Ecologic Institute, an environmental think tank in Germany.

“In 2018, Germany’s greenhouse gas emissions were 30.8 percent below 1990 levels,” she notes. “Unless another economic crisis of the kind seen in 2008 hits the country, we will miss the [40 percent reduction] target by a significant margin.”

Germany’s goals under Energiewende encompass three sectors: electricity, heating and transportation.

“Transport stands out as the key culprit [in not meeting reduction targets],” Umpfenbach says, noting that “transport emissions in 2018 were almost exactly at 1990 levels.”

She cites at least three reasons for the lack of progress in this sector: 1) the options for reducing emissions are more costly, 2) lobbying by the auto industry has slowed policy changes, and 3) there has been rising demand in Germany for mobility.

In the electricity sector, one big obstacle is the distance between where much of the country’s wind power is produced (in northern Germany) and where many industries are located (in the southern region).

Furthering the problem, Rep. Guzzardi notes, is Germany’s electricity grid, which wasn’t designed to transmit renewable power effectively. What’s needed, he says, “is some sort of scalable model for energy storage.”

For now, Germany still relies on coal-fired generation — some of it from lignite, the most carbon-emitting type of coal. In particular, lignite is mined in some poorer regions of the country, where jobs are scarce. Shutting down mines in these depressed areas has proven to be difficult.

Still, some coal plants in Germany have been shut down, and current plans call for a gradual end to the use of this energy source by 2038. The country’s recommendations for closing existing plants include very generous funds for coal-mining regions, as well as compensation schemes for industry to shield them from any electricity price hikes, Umpfenbach says.

Schreiber says these tough decisions about the future of coal reflect a broader point about implementation of Energiewende: Germany now is at the point “where the harder decisions [on energy policy] must be made which affect jobs and industries.”
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