ISO New England's CEO Gordon van Welie

Leadership Lyceum's Podcast Summary, hosted by Tom Linquist

I joined Gordon van Welie, President and Chief Executive Officer of ISO New England at his office just outside of Springfield, Massachusetts late in the summer of 2018. The general population would likely not be aware of the critical role that an independent system operator or regional transmission organization plays in the reliable delivery of electricity across large regions of the United States moment by moment, twenty-four/seven.

ISO New England Incorporated is the RTO responsible for the transmission of electricity across the six-state New England region that includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The company's power system engineers, economists, computer scientists, and other professionals ensure that the region has reliable, competitively-priced wholesale electricity today and into the future.

In the audio podcast we describe the origins of the ISO, but for brevity's sake we begin here in the middle of our conversation. We cover recent industry challenges and new policy questions that have emerged as the electric industry moves toward decarbonization.

Because clean energy and renewable resources produce carbon-free electricity, the prevailing thought across the country is that renewable generation is the stepping stone toward a decarbonized economy.

Policy issues have focused primarily on getting renewable resources built, while these resources have tended to be uneconomic in the context of the existing wholesale electricity markets.

Today, and with each passing day, ISO New England encounters the challenges of the brave new world.

LL's Tom Linquist: I see the ISO – by its very position and role – as deeply intertwined with policy and politics. You face a varied tapestry in New England among federal, regional, and state-by-state level policy direction. Let's take that tapestry apart and look at each one of those areas because it seems like each play into what you face in terms of leadership of the ISO.

Gordon van Welie: I'd be happy to. While our regulator, the Federal Energy Regulatory Commission and the ISO look at the purpose and design of wholesale electricity markets more narrowly, the states are looking at it more broadly.

ISOs/RTOs and FERC want a market to achieve the most efficient procurement of the reliability services needed to keep the lights on, but the states also want to see steady progress toward lowering carbon emissions. The states also have another objective, which is economic development, by creating jobs locally in their state. And this is even more difficult to capture in the wholesale market construct than the environmental objective.

FERC operates under the Federal Power Act. That includes interstate commerce, which gives them the platform to regulate the wholesale electricity markets run by the ISOs and RTOs. Essentially, FERC is the governing body with the ultimate say on the rules that govern wholesale markets.

ISO New England and our stakeholders produce a [market] proposal that goes to the federal regulator for approval. Ultimately, the final say happens at the FERC and, even then, there's always the courts if people are dissatisfied with the decision.

There are limits to what the FERC can do. FERC is going to focus on making sure markets produce an efficient economic and competitive outcome, and that market designs are effective in meeting reliability objectives. However, FERC isn't authorized to deal with the environmental objective. That would require an act of Congress.

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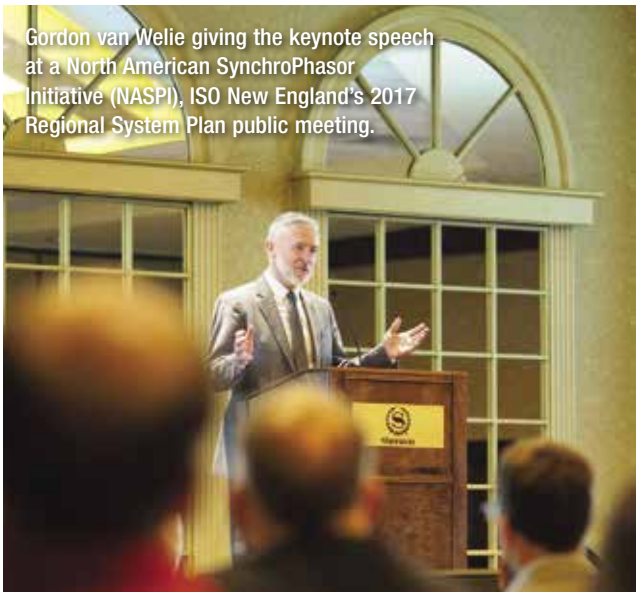
LL: Two missions reside at the federal level with FERC in this policy tapestry. One is the market and its robustness and fairness, while the other is reliability.

Gordon van Welie: That's the focus today and still is for both FERC and the ISO. As the states seek to meet environmental objectives including carbon reduction, as well as job creation, they're taking actions that result in resources being built.

The natural question is: If resources are built for reasons other than for reliability, but can provide reliable service, shouldn't we take them into account? But we don't want to over-build the system. From a societal point of view, it doesn't make sense to build twice as much relative to need.

Therefore, to be efficient, you want to build enough to keep the lights on. However, there is now a set of resources with long-term contracts that are arguably above market. These above-market contracts create economic distortions as we try to take them into account in the wholesale market.

In fact, the thing we risk is to unwind the very economic incentive that caused investment in the markets in the first place. Because if we allow resources into the market that have a



Gordon van Welie giving the keynote speech at a North American SynchroPhasor Initiative (NASPI), ISO New England's 2017 Regional System Plan public meeting.

separate revenue stream, they will suppress prices for the rest of the resources that don't have a contract.

It's a real catch twenty-two in some ways, and if you look at what is happening in the ISOs/RTOs that are trying to achieve resource adequacy through the market, it's become the huge topic over the last eighteen to twenty-four months.

It's probably worth mentioning that not all of the ISOs/RTOs are trying to achieve resource adequacy through the market. Southwest Power Pool and the Midcontinent Independent System Operator, for example, rely on the cost-of-service construct where the states, in conjunction with local utility companies, make the decision of what resources should be built. The states then guarantee recovery of those investment decisions from customers in those regions.

LL: Why are they able to do that in those regions? What's the distinction?

Gordon van Welie: Because some of the states never fully restructured. The majority of the generation in those regions is still owned by the electric utilities. Prior to the establishment of broader wholesale markets, many regions of the country did not have tight power pool arrangements, which have arisen particularly in the northeast after the blackouts in the late '60s and early '70s.

Through a market construct, FERC allowed for the optimization of daily energy production across much broader parts of the country, and now about two-thirds of the electrical output from generation in the U.S. is governed by FERC-regulated wholesale electricity markets. However, it's New York ISO, PJM, New England, and ERCOT (Electric Reliability Council of Texas) who are trying to achieve resource adequacy through the market.

LL: Let's go back a little bit more specifically into the regional versus the state level policy in New England. Are New England's six states aligned on policy, or do you find there's distinctions at the state-by-state level you have to consider?

Gordon van Welie: All the New England states have similar goals of achieving an eighty percent reduction in carbon emissions economy-wide by 2050, so that's the common theme. But if you drop down a level, you'll notice quickly that three of the six states have legislative mandates, while three are still aspirational.

They've made policy statements but haven't hardwired those policies into legislation yet. And that's where the departure starts – as to how quickly and at what cost should one advance along this path toward decarbonization. Because eighty percent carbon reduction economy-wide means that carbon will also have to be taken out of the electric sector and transportation and building sectors.

The region has made reasonably good progress on the electric sector. Carbon emissions are way down relative to where we started twenty years ago. But no progress has been made in the other two sectors.

It's becoming critical then, if the long-term goals are to be achieved within the next twenty-five years, to start making progress in these other two sectors. The logical thing is to leverage the electric industry because it offers the promise of supplying low-carbon energy to these other sectors.

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The debate amongst the states now is the level of cost. In some ways, it's easier for a single state ISO in New York or California because there's one legislature, one governor to respond to. In a multi-state ISO/RTO, it's more difficult because there are multiple states and multiple actors – and that's the world we live in here in New England.

LL: The general theme of our conversation is the transition to a clean energy future. Given the winter fuel security issues, there are constraints around instantaneously realizing our-zero carbon future in a reliable fashion. Is there a phased approach to our carbon-free future that assures power availability?

Gordon van Welie: The reality is that natural gas is going to be the bridging fuel [to a cleaner energy future]. To the extent we don't have enough [natural gas] when we need it, we're going to rely on other fossil fuels like oil.

There's not much coal left in New England, but the heavy oil is essentially New England's version of coal. New England has some five thousand megawatts of forty- and fifty-year-old steam units that look similar to coal units in their operation.

Gordon van Welie having an informal discussion with Gina McCarthy, the former Administrator of the Environmental Protection Agency.

The conundrum for the region is how do we let those resources retire? And how quickly?

Part of how we want a market to work is for the less efficient technologies to get displaced by new and more efficient technologies. Gas-fired, combined-cycle generation running off two dollars or three dollars per million BTU gas from the Marcellus Shale can easily displace an old coal or oil unit. Unfortunately, we don't have enough pipeline gas available to supply that unit in the wintertime.

LL: It comes back to sufficient gas pipeline infrastructure to supply the needs of gas-fueled power generators.

Gordon van Welie: That combined cycle unit in our example ends up having to either not run or switches to burning jet diesel fuel, which also has a high carbon emission profile. In the long run, the hope is to get along with less of these types of resources because renewable energy sources can be paired with electrical storage, which is the new technology starting to emerge.

However, electric storage in the form of lithium ion, for example, is still a fairly costly technology. It is much more expensive than, say, a comparably-situated, gas-fired power plant. So, the displacement of these resources by storage is going to take a while.

One dimension of energy storage that's still problematic [from a grid operator standpoint] is how long can storage operate before it needs to be recharged? A lot of the current storage technologies have two- three- and four-hour discharge periods before they need to be charged again. Until we can find a storage technology that can run without interruption for days and weeks, we're going to have these problems.

LL: What can policymakers do to solve this regional puzzle?

Gordon van Welie: The big question for policymakers in the region is to determine what kind of system we want in New England. Do we want the region to be exposed to a level of operational risk, or do we want something from an infrastructure point of view that hedges some of that risk? This broader topic of resilience is also playing out at a national level in Washington, D.C.

What makes the New England experience really interesting is that we seem to have the most extreme version of the same problem other regions are facing. There's a race to the exit sign for resources looking to retire because they can no longer make a living in the market. Then there's a race for entry by new energy sources that are being signed up by the states.

The question is how does one coordinate this entry and exit?

We're trying to coordinate that through a market where we don't have direct authority over investment decisions. We have to administer a market which, by its very definition, is supposed to be neutral and not favor one resource over the other. We're faced with having to make retirement decisions before the replacement resource has arrived. That makes it really tricky for us.

LL: You don't have a persuasion toward one resource over another.

Gordon van Welie: No – exactly. As the ISO, we have a persuasion toward reliability and efficient markets for achieving the reliable outcome. If you consider what is behind the ISO's system operations and the marketplace, it's made up of a complicated stew of physics, engineering, software, law, economics, and politics – with all of the associated limitations.

We grapple with things like what does the Federal Power Act say? Where do we derive our jurisdiction? Then, politics comes into play because politics is often about economics. As the ISO, we need to make sure market and system outcomes happen in the most economic and reliable fashion possible. All of this and more gets blended together to make for a very interesting world that we live in.

It is very important to point out that none of this would work were it not for the magnificent people we have here at the ISO. Across all the topics we just covered, we have cadres of people behind the scenes working on the engineering, the physics, the software, and the legal side of things.

These folks are working night and day and often under enormous pressure because the world is not waiting for the ISO to make up its mind. People are making decisions regardless of what we do, and we are running hard to stay abreast of it or, ideally, to anticipate where the world will move to next. PUF

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