The leader, the company and the ‘it’ project
Just like the methodical lead up to the Darlington refurbishment itself, Ontario Power Generation’s Senior Vice President of Nuclear Projects Dietmar Reiner spent much of his career preparing to lead Canada’s big show.

In a 2013 speech to the Clarington Board of Trade, then Ontario Power Generation president and CEO Tom Mitchell explained the company’s approach to the Darlington refurbishment. The company had already been working on the project for six years at the time, though it would not begin execution for another three years.

In that time, OPG had been doing feasibility studies including extensive plant condition assessments, benchmarking at other stations, costing the project, procurement and contracts for the work ahead, including selection of their engineer-procure-construct (EPC) partners – SNC-Lavalin and Aecon. It constructed facilities to support the project and was pre-engineering parts in anticipation of execution. It had also built a full-scale mock up for training and tool testing to ensure all systems and people were ready when the day came to enter the first reactor. There was planning - lots and lots of planning.

“But as Abe Lincoln used to say; 'Give me six hours to chop down a tree, and I'll spend the first four sharpening the axe,' Mitchell told the Clarington business audience that day. "Lincoln knew the value of preparation…and so do we."

It was back in 2007 when the Ontario government gave OPG the go-ahead to study the fate of the Darlington station and to prepare a business case for whether to move forward with a life extension.

In 2010, with sufficient studies completed, the government announced OPG would move forward with the refurbishment project.

The announcement came from the government like a bride on the day of her second wedding: excited but skittish. In one breath the government heralded the project. In the second, it added exit ramps if OPG could not deliver as promised.

In the early 2000s, the first unit of a major overhaul of the Pickering station significantly exceeded budget and schedule. OPG learned important lessons from it, paused and did an extensive lessons learned. As a result, the company successfully brought the next unit, Unit 1, back to the grid on-time and on-budget to a newly constructed cost and schedule based on a much better understanding of plant condition,
part availability and activity synchronization for each step of the project. In the next several years, on both nuclear and hydro projects and outages, OPG refined and strengthened its project management skills and built internal bench strength.

Today, the Darlington refurbishment project and the Bruce Power life extension projects sit at the top of Canada’s list of top infrastructure projects at about $13 billion each. Their economic reach spreads across the country, and is especially felt throughout Ontario where they currently account for about 50,000 jobs in construction and manufacturing activities. The projects contribute about $5 billion annually to the national economy.

In Clarington, execution of Darlington Unit 2, the first unit out of the gate, has rounded the halfway mark and with some systems already returned to service, home is clearly in sight. And, while OPG continues the necessary work on Unit 2, it is already taking the lessons learned there and feeding them into the work packages and plans for the next unit to enter execution, Unit 3.

In 2015, Mitchell passed the CEO torch to Jeff Lyash at an ideal hand-off spot as the project began to transition from preparation and moved toward the 2016 start of execution. But at the project face, the steady hand at the wheel remained. Senior Vice President of Nuclear Projects Dietmar Reiner joined the project right when it got the 2010 go-ahead.

Out of the gate, Reiner’s job was to get the team built, select the partners, negotiate and manage the multi-million dollar contracts. He brought expertise to the project team through the most complex aspects to get the project infrastructure built, the training done, the people ready and the engineering completed. And since October 2016, Reiner, with SVP of Refurbishment Mike Allen, has seen the project through the first year and a half of project execution. This was accomplished under the intense scrutiny saved for mega-projects of the nuclear kind, and through some of Ontario’s most tumultuous provincial elections, without missing a beat.

So far, so good.

“I have a very high degree of confidence we will finish the refurbishment of Unit 2 either on or ahead of schedule and on or ahead of budget,” Reiner said, earlier this spring from an interview in his office at the Darlington Energy Complex. “And, we are far enough into the schedule now to be able to say that with some certainty.”

The leader and the company

Reiner is not the kind of leader who speaks from the cuff. He is an engineer by trade and by temperament, much like the company he works for. He defines problems. He develops solutions and executes on them, measuring, course correcting and reporting as he goes. His thinking and his processes are purposefully transparent.

His appearance is equally methodical and consistent: Shirts always crisp. He has a well-scrubbed, affable look that suggests no corners are cut in any area of his life. One would guess his bed is always made, birthdays are not forgotten and despite being the leader of a $12-billion project, he has figured out work-life balance the way an accountant remembers to put money to the savings account first. If he was a train, he would be Swiss. So, when he says he has confidence something will happen, you take comfort that it will.

If he is the living embodiment of OPG in demeanor, it is equally hard to separate the history of the man from the company. His career trajectory has been instrumental to many Ontario Hydro/OPG milestones of the past 30 years, which is probably how he came to be the right person at the right time to lead the Darlington refurbishment.

A 1985 University of Waterloo engineering grad, Reiner started his career at then Ontario Hydro as a systems engineer at Pickering Nuclear. There, he cut his teeth on CANDU technology, nuclear safety culture and the practical application of any radiation knowledge learned in university.

He says he loved the work and the chance to apply technical skills. But, when he started to use the same honed skills on different projects, it was time to move to a new position where he could learn more.

“I made a conscious choice. I said, ‘what business is
this company in? We’re actually in the electricity business. I actually don’t know a whole lot about the electricity business,” he recalls.

Reiner moved into Power Systems Operation (today the separate organization known as the Integrated Electricity System Operator) where he learned about transmission and distribution, eventually becoming involved with the Ontario Energy Board hearings where the company’s rates are decided. He got the lay of the land, spending time working with and in the other generation units and eventually moved into supply forecasting and energy trading. As the company and its political direction evolved, he helped restructure the company into standalone business units.

In the late 1990s, he helped the company prepare for self-sufficiency in a deregulated market becoming vice president of commercial systems in 1999. During this time, Reiner was assigned to a government committee working on open market rules as part of the then-government’s plan for privatization of the system. He worked with McKinsey to determine the value of the company’s assets. While the open market never materialized quite as envisioned, by this point Reiner had received a deep education in business strategy, negotiation and contracts. It made him an ideal candidate to spin off OPG’s IT department and he spent 2000 to 2008 as OPG’s chief information officer.

Reiner’s attention in the years since he had left nuclear were focused on business transformation. In a way, he was still a systems engineer only on a corporate level using the new set of skills he had hoped to gain.

In 2008, he got the chance to combine his nuclear technical knowledge with these business skills when he was promoted back into the nuclear business as senior vice president of Inspection, Maintenance and Commercial Services to oversee the Bruce site lease, OPG’s isotope business and to negotiate the separation of the IMS services between OPG and Bruce Power. The job gave him ample negotiation practice and it also provided a chance to work intimately with tooling and gain familiarity with the large outage activities and resourcing.

Two years later, when the government announced refurbishment would move forward, it must have seemed as if Reiner’s entire career had been preparation for the role he would take leading the Darlington project.

The project

The story of the Darlington refurbishment has been well documented. In fact, every quarter, the project...
publishes a public update with metrics and detailed reporting on the work, the lessons and the steps to come.

The early jitters have given way to mostly praise. Competence is the new expectation based on consistent and predictable performance and reporting of the project over the last several years. Where there have been challenges, they have been openly reported and addressed.

It has helped that the industry as a whole has been outperforming itself these last several years. Pickering Nuclear, the province’s oldest plant, has landed some of its best performance thanks to continued innovation that has helped the industry manage and excel in aging asset management.

Research, such as that conducted through the CANDU Owners Group on fuel channel life management (FCLM), has demonstrated component fitness that allowed OPG to extend planned operation of Pickering to the end of 2024. And, the company was able to push back project execution by a year to a 2016 start, allowing OPG to gain more production from the plant pre-refurbishment. The same research will allow Bruce Power to operate longer before its major component replacement project execution. The innovation of the FCLM project has given the two companies the flexibility to optimize timing of their work to best manage the challenges of resourcing two mega projects simultaneously and to best serve the needs of Ontario’s electricity system.

For those close to it, the past 20 months of project execution may have felt like the intense paddling a duck does under water. But, the results have mostly provided the picture of serenity above the surface, especially for a mega-energy project. Execution has gone well.

Which is not to say there is any room to let up on the urgency, the focus or the oversight, Reiner emphasizes. There is the long schedule, and then there is the one right in front of you, every single day. And, there are still many years ahead.

But, with the benefit of having now lived the project day in and day out for eight years, Reiner elaborates the point made that day five years ago by Mitchell to the Clarington business crowd. Planning, he emphasizes, lays the groundwork for success in execution.

“You cannot underestimate the effort it takes to plan, and the amount of detail you need to get into in the planning process to be ready for execution. Industry had to learn the hard way. You need to be able to assess all the risks you’re going to run into and not just technical risks. There are your commercial risks with your partners, risks that you face externally with stakeholders who have a key influence on what you do. Also, the technical risks you are going to run into in execution,” he says.

“You need to be able to model that and understand it in a way you can quantify it. You can start looking at, ‘if I put a plan together what do I need to have in my plan for contingency to deal with potential schedule impacts and potential cost impacts?’. And then, where is the place to draw the line? There are external factors we are not going to put into our plans but we are going to ensure everybody understands they are not in the plan. There needs to be clarity where that line gets drawn and we need to be comfortable to ensure we can manage all those risks.”

Reiner says the effort put into the modeling helps guide execution because both the work and the risks have been pre-considered. Solutions are already thought through before the issue arises. And, he adds, in the planning process, the team turned those assumptions and models into timelines, dollars and strategies to manage them.

“You need to ensure the project has the resources to deal with it, and that you have the team and the partners and the access to the experts in the industry to help you through all of that.”

The road back to restart

The long-term planning helped the team structure the execution in a way that is paying off now that the Unit 2 refurbishment is heading into the restart phase, says Reiner. With a lot of the non-critical path work frontloaded into the schedule, the team is now able to focus on the
next phase of work, reassembling the reactor, where human performance becomes particularly critical, without the distraction of added scope.

“The work takes on a very significant shift. It’s less hazardous from a radiation protection perspective. The logistics are less impactful. There’s less automated tooling so some of those tooling complexities disappear. But there’s a new thing that emerges. The job is far more dependent on human performance, people performance. The quality with which the work gets done becomes critical.”

At this point, the focus is on quality assurance and the nuclear safety standard of both OPG and the regulator. As systems are brought back on line, they must come back clean without any foreign materials introduced that could create a hazard for future operation.

“It takes a mind-shift for people to understand we are now much more people performance dependent,” says Reiner. “This is going to be the tone from now until we are done reassembling the reactor.”

A key learning from prior projects was the value of a prompt restart. The team has separated the plant into 58 systems, a number of which have already been brought back to avoid the challenges that can come when components sit idle too long. With that come hold points, internally set and those set by the regulator. At each point, the work is validated to confirm the quality of the work and the accuracy of documentation that will provide the blueprint for the future operators and maintainers.

In execution it is all about communication, transparency, tracking, course correcting, problem solving. It is all about people, says Reiner.

“At the end of the day, these projects – it’s people that execute the work. Even where a tool does the job, it’s a person that sets up the tool, it’s a person that operates the tool, it’s a person that sets the parameters of the tool. It does come back to people and it comes back to how effectively these people work. It goes all the way up to the supervision, communication, management, and the oversight. That all becomes a critical element.”

Face time is everything:
It’s easy to underestimate the effort it takes to communicate effectively especially to a large number of people. Nothing works as effectively as face-to-face dialogue. Managers in the field doing observation and coaching, including one or two levels removed, must happen regularly. In a busy project, it is easy to find reasons you can’t get there and to rely on emails and signs, says Reiner. “These are all good tools but face-to-face is important.”

In partnership, everyone needs to feel the win:
“You can’t let commercial relationships and commercial requirements stand in the way of creating good productive, collaborative environments,” says Reiner. Project owners have a set of objectives that are not necessarily the same as those of the commercial partners. If one party doesn’t achieve their objectives, things are going to break down. “There need to be victories for everyone. It’s important to align everyone on a set of goals… but then the relationships and the collaborations become important.”

Open the lines of communication throughout the organization:
You need a means for people who execute the work to tell you what’s working and what’s not and it needs to be easy, says Reiner. “Someone welding in the field doesn’t drive their activities around email,” he says. The Project now has boxes with cards that workers can fill out at a break area or on their way out the door. The feedback can be anonymous. The learnings can be huge, says Reiner, who noted that even seemingly obvious things like where cooling stations are located can miss the mark if the feedback loop doesn’t exist. Often, he add, they are so easily resolved once the feedback is received.

Transparent reporting:
The people of Ontario have a huge stake in the refurbishment project, as do many other external and internal stakeholders. Setting up clearly-defined and reported metrics not only helps the project team track progress, do timely course correction and seek expert oversight; it provides a window into the project for external stakeholders to judge for themselves how the project is tracking. “They don’t have to take my word for it. It is all there.”