

# Special Feature

## Cost Savings Case Study



### *By The Numbers*

How provincial energy programs and efficient solutions can reap big savings in a record time.

# BY THE NUMBERS

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“

Using high efficiency products is an easy energy solution at older gas plants,” explains Nick Agius of Motion Industries Canada. “It makes good economic sense for the owners and it helps reduce their carbon footprint, especially if they leverage the BC Hydro Power Smart Program.

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**T**his story is about an innovative engineering solution that Motion Industries Canada provided to AltaGas’ Younger facility in Taylor, BC. The return on investment (ROI) was immediate.

AltaGas’ Younger Gas Plant is called a “straddle plant” because it straddles the high-volume pipeline transmission system that transports natural gas to the end markets. This plant takes gas out of the line to process; the end product is then put back in the pipeline to head to market. The gas taken out of the line goes through a cryogenic turbo-expansion

process that recovers Ethane and heavier NGLs. AltaGas either delivers the Ethane-plus mix to customers or fractionates the gas into its respective components. This facility has over 40,000 HP, which adds a lot of heat, so the Younger gas plant needs to cool the gas to get it back into the pipeline under pressure. AltaGas has three separate processes at Taylor, BC, and they all have banks of larger cooling fans that are critical to their operation and profitability.

AltaGas hired Motion Industries Canada to help review the process at the plant. Motion Canada’s Rotating Equipment Specialist Nick Agius had come highly recommended to AltaGas as he has

special skills and experience related to air coolers, which was the center of attention for this project.

Nick spent a day on-site with one of his managers, Brent Sterling of Motion Canada Dawson Creek. They surveyed the process and the equipment, then interviewed AltaGas staff relating to the cooling. The following week Motion Canada provided AltaGas with a detailed engineering report with recommendations and action items. The report included some easy power savings calculations for the recommended upgrades, and identified betterments to the cooling process.





Above: Typical bottom view of a gas plant cooling bank

The power savings from the project turned out to be a real opportunity to reduce AltaGas Tier 2 energy costs with BC Hydro. The project that Motion Canada engineered used the existing HP, and AltaGas achieved their aggressive cooling goal without adding any additional HP to the Taylor gas plant. This meant a Tier 2 energy savings of over \$1M for the owners of the Taylor asset. The ROI, thanks to the BC Hydro rate savings and engineering help from Motion Canada, was measured in days, not years. AltaGas engineering worked directly with BC Hydro to build a solid business case. BC Hydro was very helpful in this process; they are willing to work with customers to help them manage these larger project initiatives.

After this job was completed, Nick advised his engineering contact at AltaGas how to avoid these upgrade costs in future projects. "If everyone knew what AltaGas now knows, I would be a Maytag repair man," says Nick with a chuckle. AltaGas now has internal data that clearly shows the efficiency gain by using more efficient fans and belts; they will now specify Hudson high efficiency fans and Gates Poly Chain timing belts at the start of a new project. Nick adds, "This issue is about being

a bit greener up front as well as the total cost of ownership, not just the cheaper up-front costs for fans and belts on new projects. I'm only kidding about the Maytag repair man gig, so if high-efficiency parts are specified up front, that is actually best for the owners of the equipment."

Elin Aasen is a Key Account Manager for Oil & Gas Sector at BC Hydro and when asked, offers the following advice, "The AltaGas project highlights how lucrative energy savings can be to your project's ROI and overall equipment life cycle costs. Efficient equipment lowers maintenance costs and improves processes so it's a great decision all around. If you are considering an upgrade project make sure to give us a call to learn more about how the Power Smart program can help your organization, or hire a Power Smart Alliance member to help with the process."

A great example of a Power Smart Alliance member that can help you with your project is the Vancouver-based firm Sacre-Davey Engineering (SDE). Chris Norman, who leads SDE's Energy Management Team, says, "It's a win-win-win situation. We're able to use Power Smart programs like the Plant Wide Audit to identify energy savings opportunities and their Feasibility Study Program to create a comprehensive plan for improvement. The study identifies the project's cost, saving and incentive. With the information in the report it's easier for companies to approve the project. Win-win-win: Hydro purchases inexpensive power, clients reduce operating and capital expenses, and energy waste is reduced."



Left: View of belt drive under larger air cooler fan

Right: The iconic "O" mile sign which marks the start to the Alaska Hi-Way is one block from the Motion branch that services NW BC and the Taylor gas plant.

In British Columbia, BC Hydro offers a comprehensive program to encourage energy efficiency in the industrial sector.

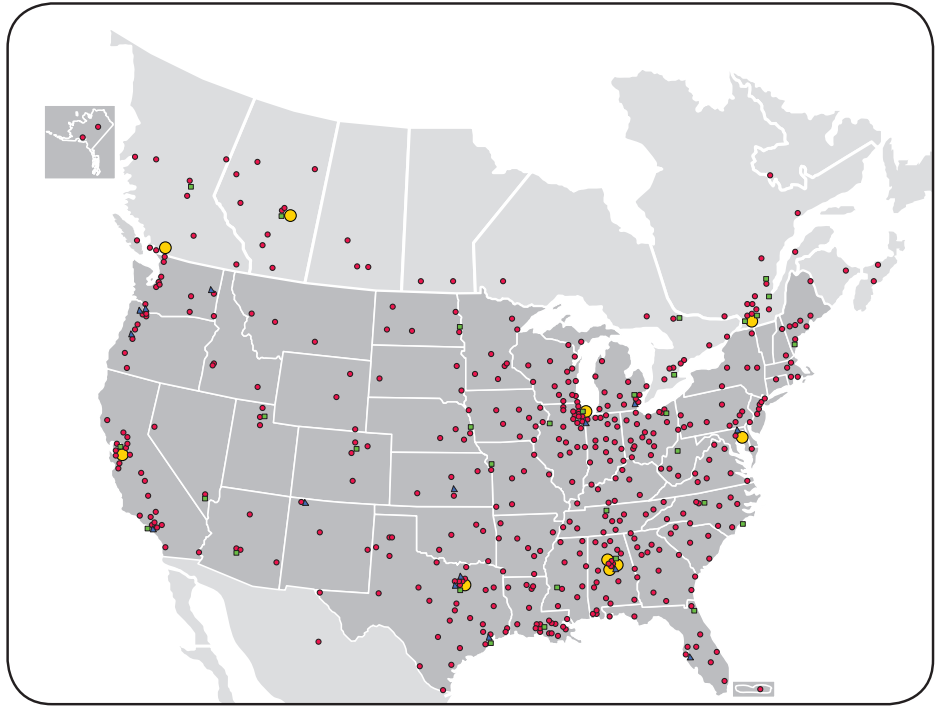
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Many other utilities across Canada offer lucrative financial incentives and/or resource support to help customers to identify and implement energy efficiency into their upgrade projects. In order to be eligible it is important that you talk to your utility early in the process and before you commence work on your project.



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