

HILO

From Zero to 200,000 connected devices working together for better energy management, province-wide



Achieving carbon neutrality

Over 100 TWh of additional clean electricity are required to achieve energy transition and carbon neutrality in Quebec by 2050. In this perspective, Hydro-Quebec aims at making significant energy efficiency efforts that will make it possible to curtail 8.9 TWh by 2032.

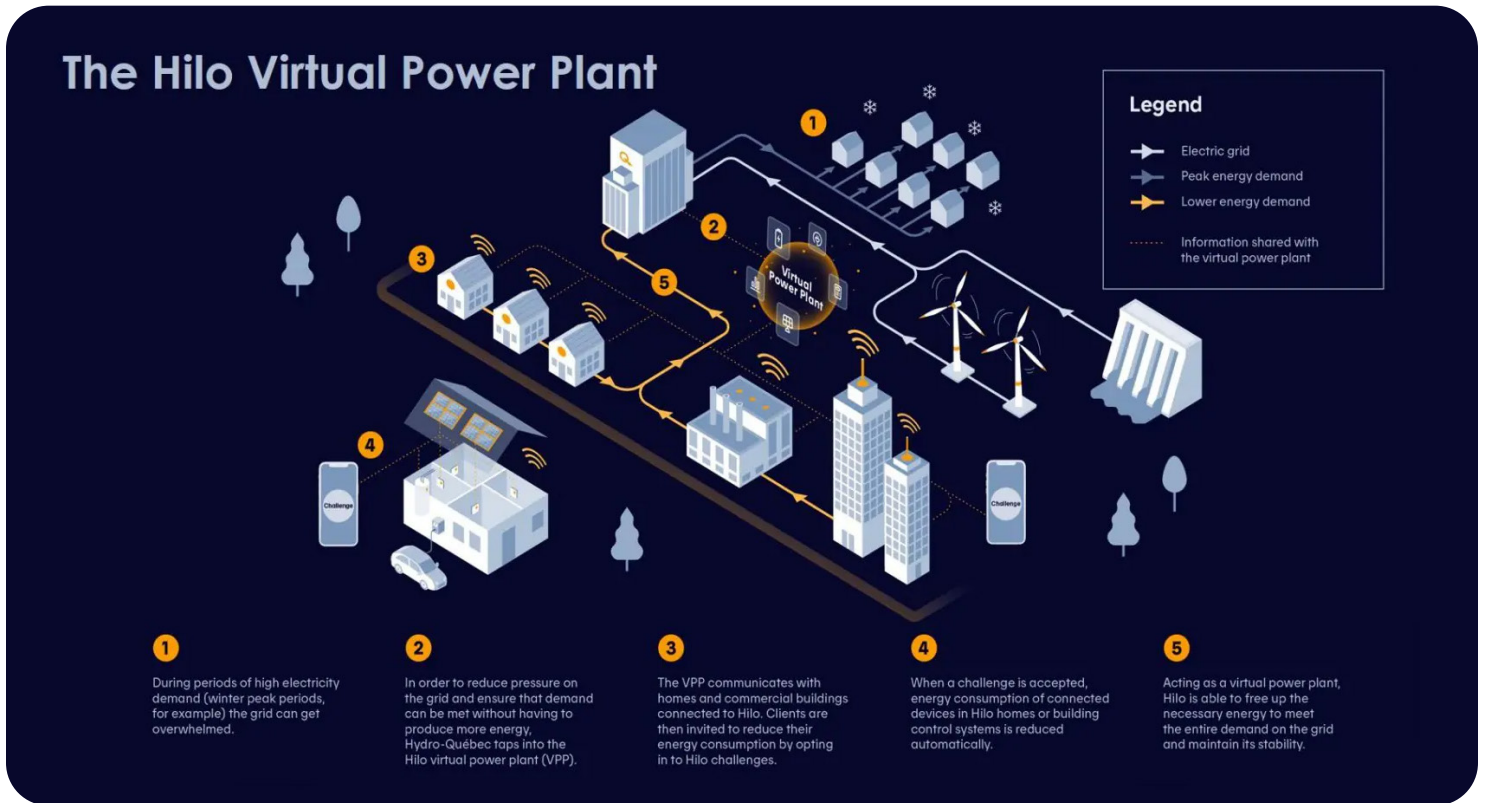
For that purpose, it has created **Hilo**, a subsidiary, with the mandate to look into automating demand management. Hilo is aiming to act as a virtual power plant and generate 621 megawatts annually by 2028.

In 2019, in its early days, the organization was determined to be a leader and to quickly design and bring to market the concept of smart homes.

The Ambitious Goal of Hilo

The Hilo team was looking at handling this massive project and started looking into ways to deliver the expected megawatts that the utility needed.

Axceta joined the project in the fall of 2019. The first contribution early on was to eliminate non-viable possibilities and narrow the focus on achieving the Hilo objectives. With its expertise in embedded technology, connected objects, and the cloud, Axceta had already worked on similar projects for other industries. They brought in the agility and flexibility that Hilo was looking for. Their collaboration and ability to fit in allowed Hilo to leverage their resources as an integral part of the bigger team, adding the highly specific skills in IoT that they were lacking.



One of the key challenges was to orchestrate these ecosystems at the scale of a provincial grid so that it could help achieve Hydro-Québec's peak management goals.

Designing Smart Homes' Connectivity to the Grid

The entire home ecosystem needed to be connected to the grid, including thermostats, water heater controllers, electric vehicle charging stations, and more. New devices were also designed and developed. One of the key challenges was to orchestrate these ecosystems at the scale of a provincial grid so that it could help achieve Hydro-Québec's peak management goals.

Hardware design, software development and the ingestion of big data in the cloud were some of the project components that Axceta participated in, along with the architecture and design of very advanced solutions. Intelligent thermostats were developed specifically with Hilo, as well as connectivity to existing devices already in the homes and needing to be brought into the grid.

A Rapid and Successful Roll-Out

After only a few months, during the winter of 2019, one thousand clients were already up and running, contributing to the Hilo Virtual Power Plant. The solution had to run 24/7, under high-quality service expectations, with strong performance and reliability standards. Since then, the solution has been scaled-up, managing more than 200,000 connected devices.

Axceta's collaboration acted as a bootstrap for Hilo, allowing the teams to accelerate the delivery of the project while ensuring an architecture that would allow it to scale very rapidly. During the high-growth period, Axceta's guidance brought consistency and alignment within the hardware, software, and cloud teams.



Scaling up in the IoT space requires a very specific set of technical and architectural skills. Still, as in any start-up, it also requires a good eye for evolving team structures, conducting cost/benefit analysis to decide whether to do things now or later and not over-engineering before you understand your product/market fit.

Axceta brought all these elements to the table, adapting to our evolving organizational needs.

They were instrumental in scaling up Hilo, and I would warmly recommend them to any company entertaining an IoT project.

David Saint-Germain, ex-CTO, Hilo

The Hilo cloud environment is hosted on Microsoft Azure

Collaborating with Axceta on client innovation in the energy sector has proven to be a game-changer in driving the transition towards sustainable energy solutions.

Julie Morin, Dir Solution Specialist, Building Energy Management & Sustainability



Axceta provides engineering services to accompany organizations in their digital transformation journey.

For more information
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