

waterpower

The Real Value of Waterpower

When we hear about the challenges facing the electricity sector these days, commentators normally focus on capacity (i.e. megawatts). When the term “supply” is used, the average person tends to think of electricity as a commodity, of which we simply need more.

The electricity system is much more complicated than that. Customers use electricity at virtually the same time as it is generated. The system operators at the Independent Electricity System Operator are charged with the task of matching the amount of generation on line at every instant in time, with the collective load requirements of everyone who is making steel, enjoying air conditioning or making toast.

Most dispatchable waterpower facilities are used every day to help ramp generation up quickly to match rapidly rising loads. Waterpower units are able to respond much more rapidly to changes in load than our other major generation sources; so they are used to compliment the attributes of the overall system mix. In short – all generation is not created equal – and waterpower’s ability to follow load is provincially significant.

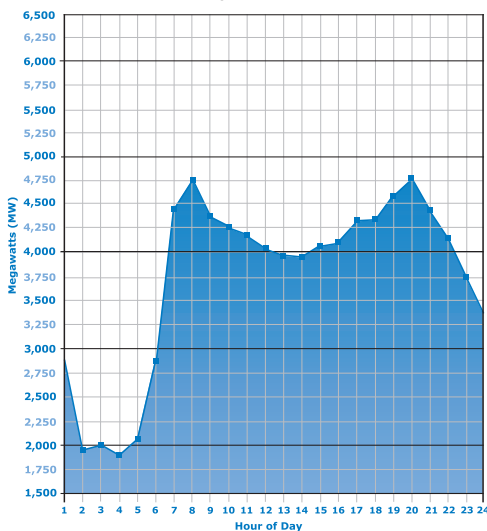
These three daily dispatch graphs show the profile of waterpower energy production:

- On Example A the system operators dispatched 2,500 MW of waterpower between 5:30 and 7:00 a.m. Waterpower was backed off somewhat through the day, and then ramped up again between 5:00 and 8:00 p.m. A similar profile takes place in the fall.
- The Example B graph reflects the difference in season, with peak loads handled by waterpower generation in the late afternoon, when air conditioning loads are highest. On a weekday in August, waterpower generation can vary between 2,600 MW and 5,400 MW.
- The Example C graph indicates the most dramatic shift in daily generation, from 2,500 MW in the wee hours of the morning up to 6,300 MW in the early evening.

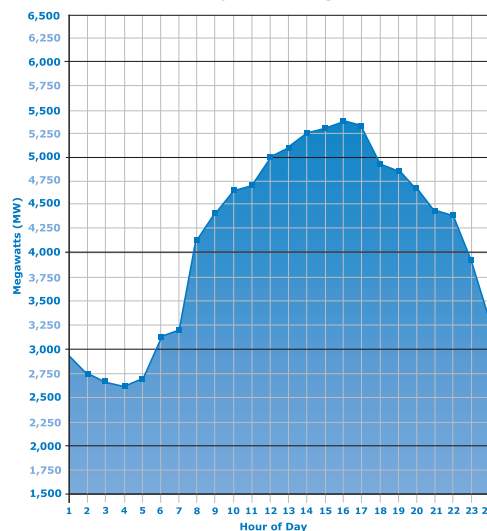
The real value of waterpower to the provincial system is its flexibility – its owner’s ability to store water and vary flows quickly to respond to system needs.

Real Value – Hourly Waterpower Energy

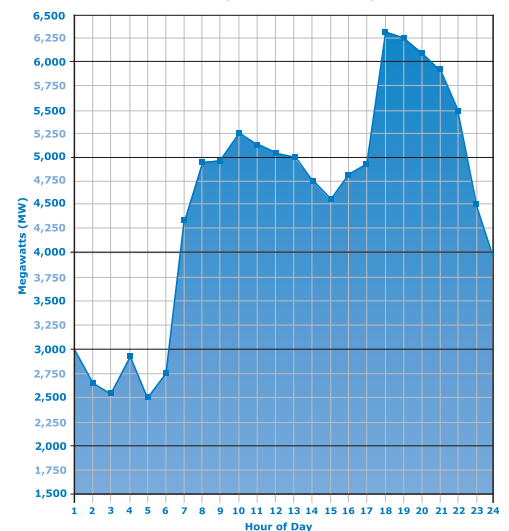
Example A – Typical April



Example B – Typical August



Example C – Typical January



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What we do

A part of Ontario's history.

Waterpower was Ontario's first source of electricity. Since the days before confederation, waterpower has helped fuel Ontario's growth. The durability of waterpower facilities ensure that future generations will benefit from affordable, reliable electricity.

A part of our lives, today.

Approximately one quarter of Ontario's current energy supply comes from clean, renewable waterpower. More than 200 facilities across the province provide us with energy security.

Bringing investment and jobs to Ontario.

Ontario waterpower producers invest \$250 million annually in operating and maintenance costs. Today, Ontario's waterpower producers directly employ more than 1,600 people and support an additional 2,000 jobs. Recent and current investment has resulted in an investment of \$5B in the next few years creating more than 10,000 direct and indirect jobs.

A part of the community.

Waterpower facilities are distributed across the province and provide many local benefits. Water level and flow management often contribute to public safety by helping to minimize flooding and erosion, while benefiting cottagers, anglers and canoers.



A northern economic engine.

It is no accident that northern economic development centers around waterpower production facilities. Waterpower still accounts for more than 80% of the electricity generation in the north. Manufacturing companies, mining, and forestry companies locate where they find a stable supply of energy; near clean, renewable waterpower.

The province's battery.

Renewable waterpower is strategically important to the province's energy mix – providing the unique ability to store energy and produce it when needed. Electricity demands and supply change hourly, daily, weekly and seasonally – and waterpower responds.

Generating revenue for the Ontario government.

Ontario's waterpower industry contributes more than \$140 million a year in resource royalties to the Ontario government. Waterpower is often the largest single source of natural resource-based revenue for the province of Ontario; contributing directly to Ontario's health care system, public education, and other government programs and services.



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