

BC Hydro Utility Update

Whistler Builder Breakfast

Presented by: Bertine Stelzer & Gary Hamer

New Construction Market Transformation, BC Hydro

Topics for discussion today

1. BC Hydro's Plan to meet BC's growing electricity needs

- Our Electrification Plan
- Our Integrated Resource Plan

2. Key changes we are making right now to support Electrification

- Our distribution system
- Our customer connection process

3. Considerations and best practises to manage panel sizing

- Design and Technology
- Demand Side Management

Market Transformation

- CleanBC targets to reduce GHG emissions
 - Growth in new light- and medium duty EVs
 - Fuel switching (existing homes)
 - New construction
- Utility targets – energy efficiency & electrification
- Population growth and economic recovery from COVID 19



The Electrification Plan

BC Hydro's Electrification Plan

A clean future powered by water

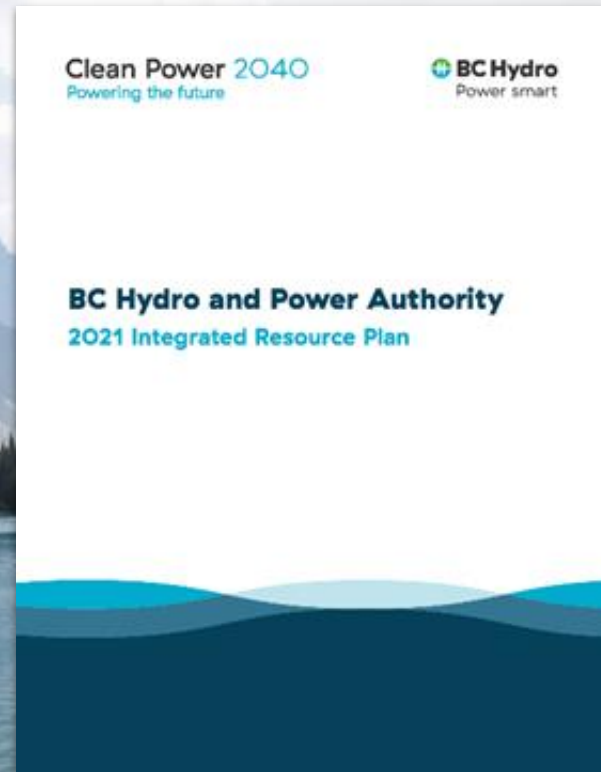
SEPTEMBER 2021

 **BC Hydro**
Power smart

 **cleanBC**
a coalition of regional governments

A roadmap to Our Electrified Future

- 2023 Sing-post UPDATES include:
- Need for new resources has moved up about 3 years, starting as early as 2028
- Estimates indicate the need to procure approx. 3,000 GWh per year of new renewable electricity
- First call for power planned for spring 2024 – utility-scale projects (wind and solar)



Conservation is still important

- Continue to encourage energy efficiency
- Annual savings = 5,400 gigawatt hours
 - Equivalent of powering 540,000 homes per year

Changes we are making to support Electrification



Distribution System

- Increasing our Capital Budget by \$100 in 2023-34
- Implementing Demand Side Management
- Advancing Voltage conversion work to 25kV in 12 kV areas
- Advancing construction of new feeders and major underground distribution
- Consultation on the update of our Extension Fee Policy




What does an upgrade of electric supply physically look like?

Is a new hydro “kiosk” needed for every new home built to the RMOW's new Zero Carbon Step Code?



Customer connections process

- 
- Improve our communication with customers
 - Reduce timelines for connecting customers
 - Increase the number of connections each year
 - Improve the end-to-end customer experience

Connecting our Customers

Every year BC Hydro completes about 55,000 distribution connections

Express Connections

- Simple overhead or underground connections, alterations, disconnections or relocations up to and including 200 amps
- 40,000 express connections

Design Connections/Projects

- Routine & complex connections, 400 amps and greater
- 15,000 customer design projects
- **More of your projects may fall into this category.**

Online Electrical Connection Requests -

MyHydro

Search the web for “[Electrical Connections BC Hydro](#)”

- ✓ Installation of a new meter to get electricity at a location not yet connected to BC Hydro
- ✓ Changes to an existing connection
- ✓ Reconnection of a disconnected service
- ✓ Temporary or permanent removal of a connection

Check to see that your requested connection meets [BC Hydro requirements](#). If it doesn't, please call us at 1 877 520 1355.

More information, see [Using our MyHydro online application for electrical service connection requests](#)

Online Electrical Connection Requests

What type of property is it?

☐ Express Connection (Residential / Commercial) 200 Amps or less

Choose this option if your request is for:

- Residential or Commercial connections with no meter room
- Overhead Services that are within 30 meters (100 feet) of a powerline
- Underground Services with a utility pre-serviced lot

[Read more +](#)

☐ Design Connection (Residential / Commercial / Industrial / Subdivisions)

Choose this option if your request is for:

- Residential or Commercial connections with a meter room
- Overhead Services that are further than 30 meters (100 feet) from a powerline
- Underground Services with no utility pre-servicing
- New Subdivisions

[Read more +](#)

[Start Request](#)

What if there's no capacity? What do I do?

What we've heard from you

- Lack of grid capacity is creating connection delays
- High and unpredictable connection costs can be a challenge to projects.
- In most areas we have sufficient capacity to connect new customers in a reasonable timeframe.
- However, there are certain high growth areas where load is increasing faster than the time required to complete distribution capital projects to add capacity.
- Depending on load, location, and timing of a customer project, distribution system capacity may not be readily available.



Process Improvements

- Reviewing our internal processes over the entire customer project lifecycle
- Partnering with municipalities in our high-volume areas to improve permitting and approval processes

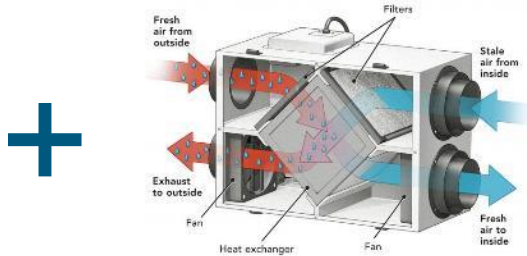
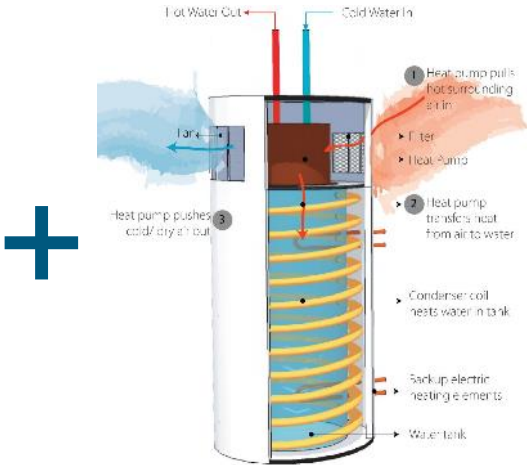


Managing Panel Sizing

- New demands on electrifying home services
- Strategies to minimize service sizing
 - Design solutions
 - Technology solutions
 - Demand side management solutions



Electrifying Home Services



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- Higher continuous load demand
- Potentially, larger service sizes

Typical Panel* under Strong Carbon (Level 3)

ASHP (and electric furnace)

Supplemental heating (baseboard)

Water heating

EV charger

Heated driveway



Lighting

Washer & Dryer

Electric Range

HRV / ERV

Hot tub

Pool

Patio heaters

*Base load, Zero carbon step code, additional services

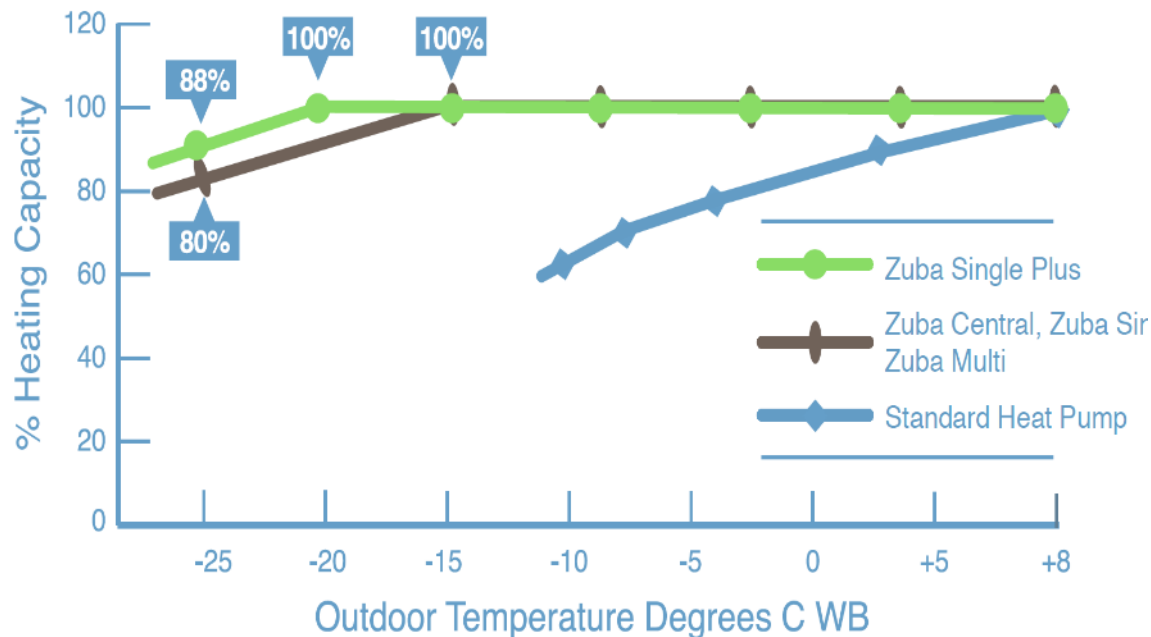
Consider Design Solutions

Integrated Design Process

Mechanical System Design

Electrical Design

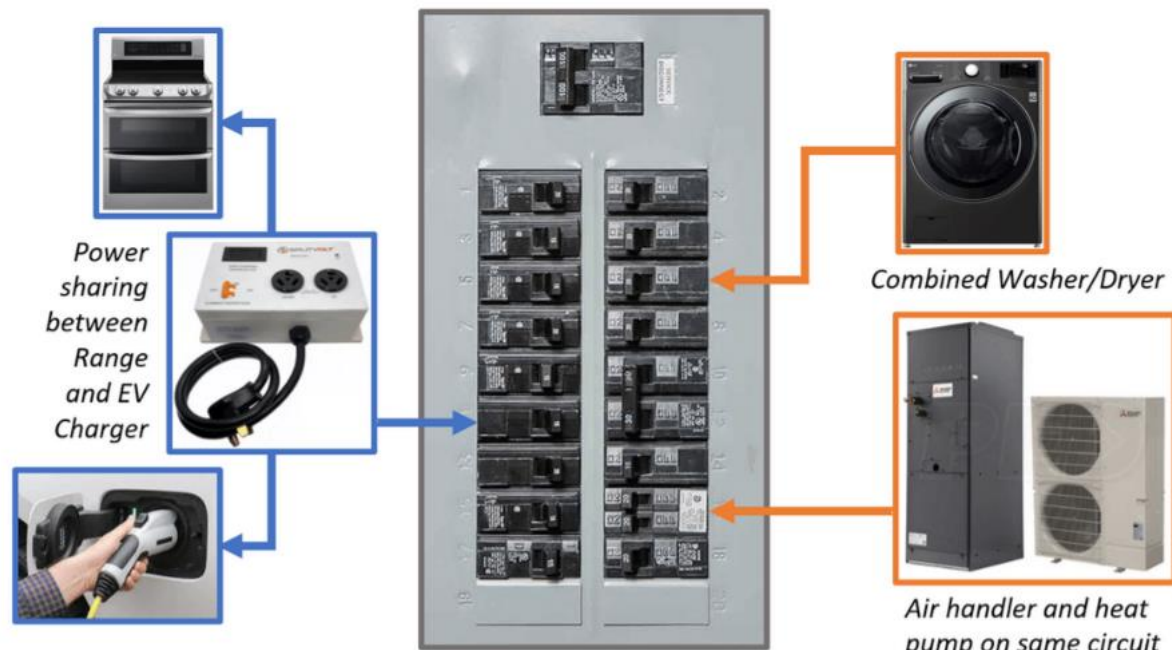
Careful Heat Pump Selection



Temperature operating range can be extended with cold climate heat pumps

Supplementary electric heat may not be needed – depending on climate zone

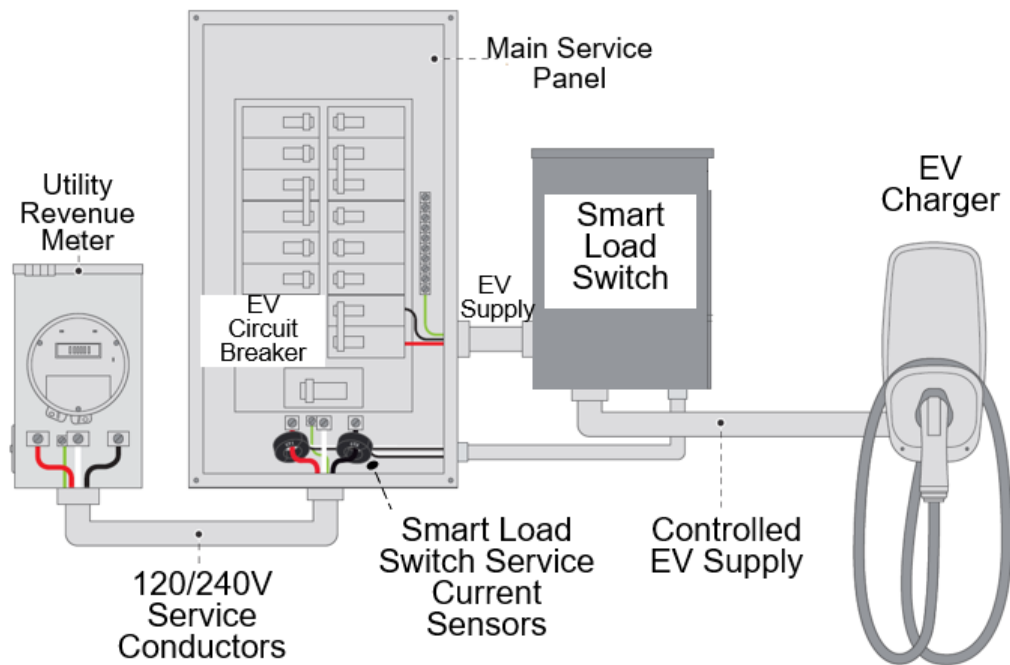
A few thoughtful selections can save you thousands of dollars and months of waiting for service upsizing.



Share amperage between major appliances to better allocate circuit panel breaker capacity

Source: redwoodenergy.net/watt-diet-calculator

Load Limiting – Smart Load Switch



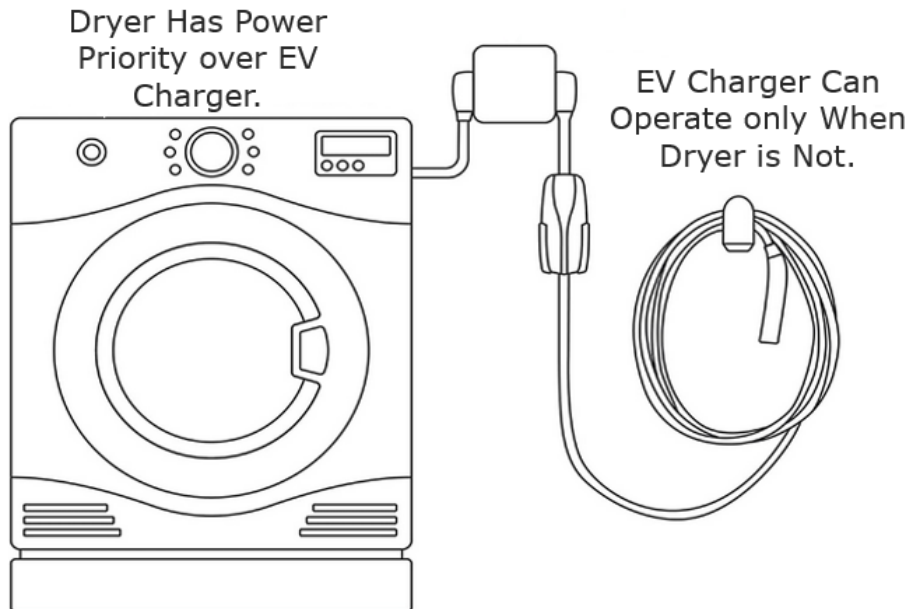
Smart Load Switches measure service currents, and decide when a load can be powered without overloading service.

EV charger can operate only when charging will not exceed the service rating.

By **Rule 8-106, 11)**, EV charger load can be neglected.

Load Limiting – Splitter

Plug-in Smart Splitter on 240VAC Outlet

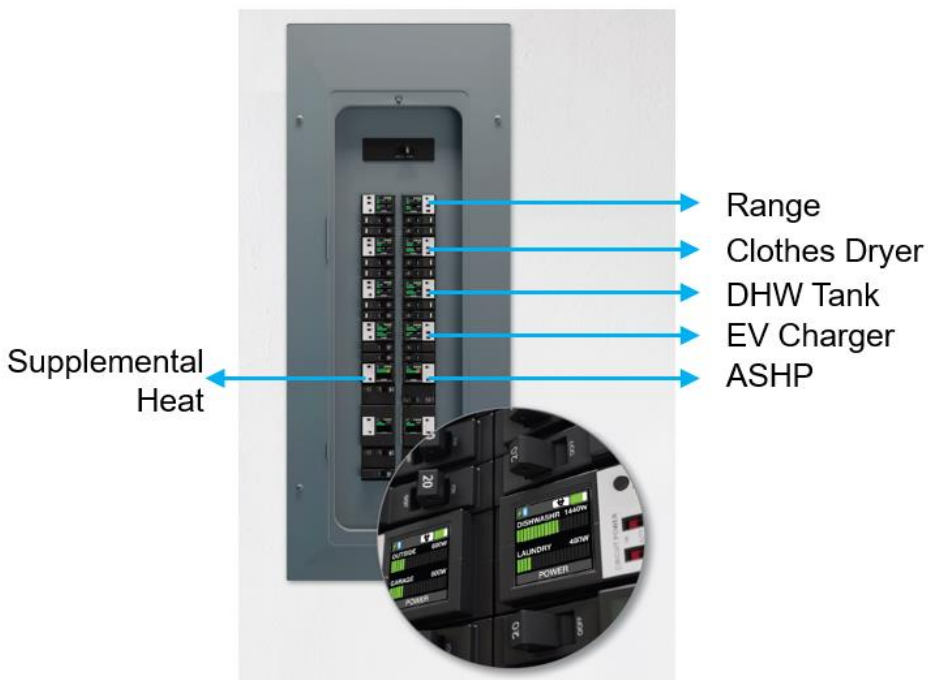


Smart Splitter selects one load over another on a single shared supply circuit.

EV charger can operate only if the electric dryer is not operating.

Rule 8-106, 2) 3) requires only the larger of the two loads to be considered.

Load Limiting – Smart Panel can Shed Loads

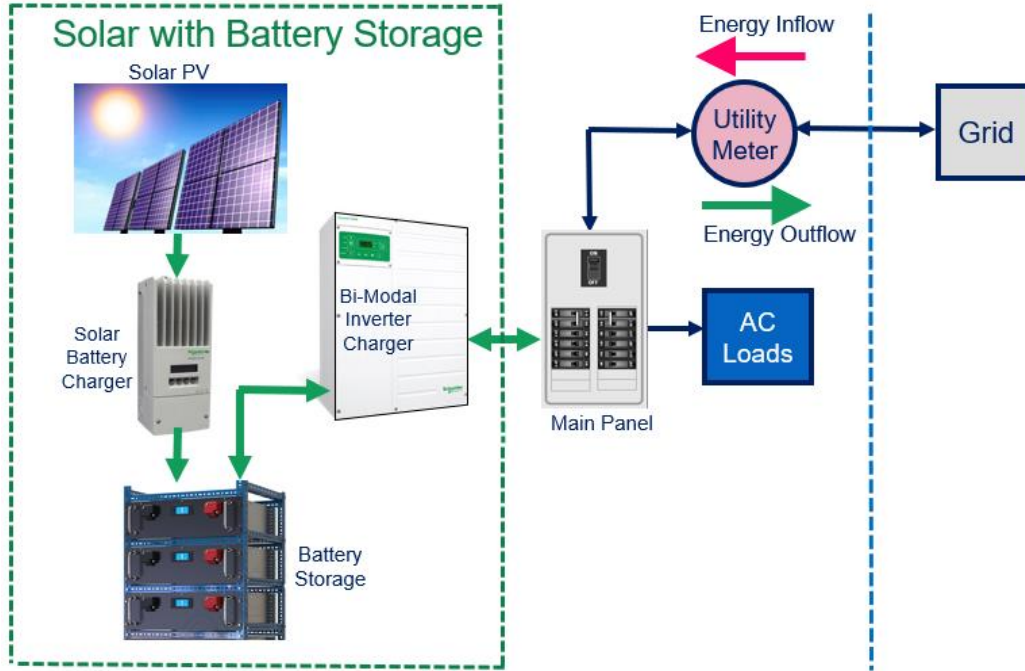


Continuous electrical loads enabled/disabled based on real-time service current measurement.

Loads prioritized based on available service current margin and programmed load shedding.

Rules 8-106 2) 3) and 8-106 11).
Not widely endorsed by safety authorities but holds future promise.

Load Shifting – Battery Storage



Battery charged via grid or PV.

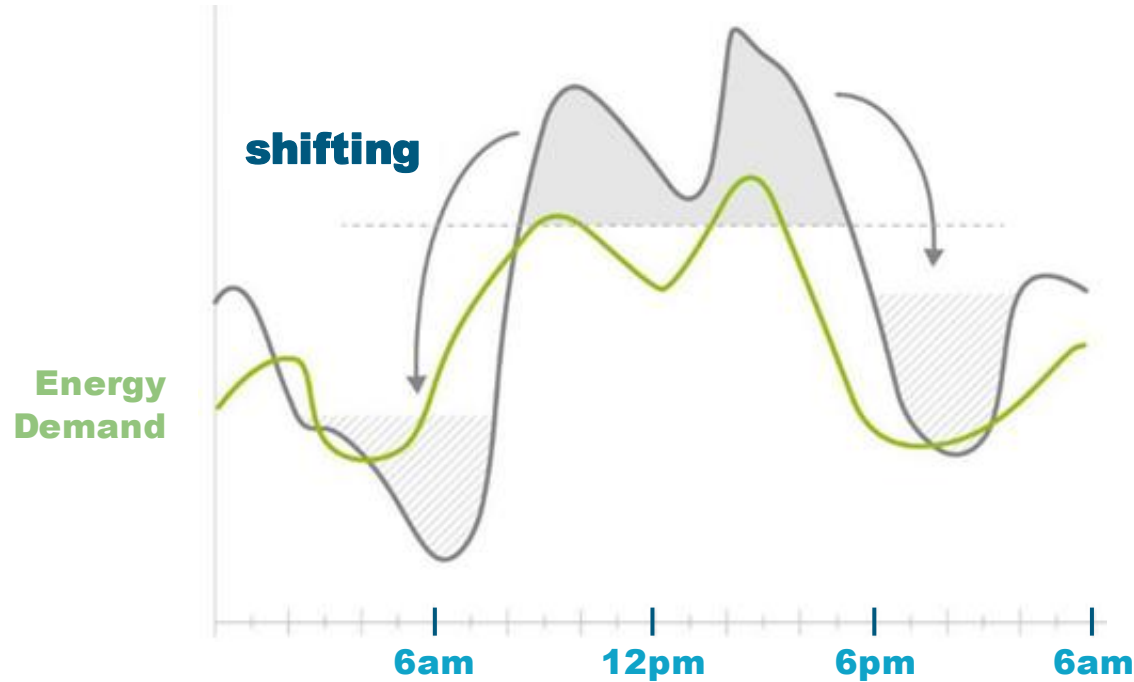
Stored energy used to limit service demand in real time.

Not widely endorsed by safety authorities but holds future promise.

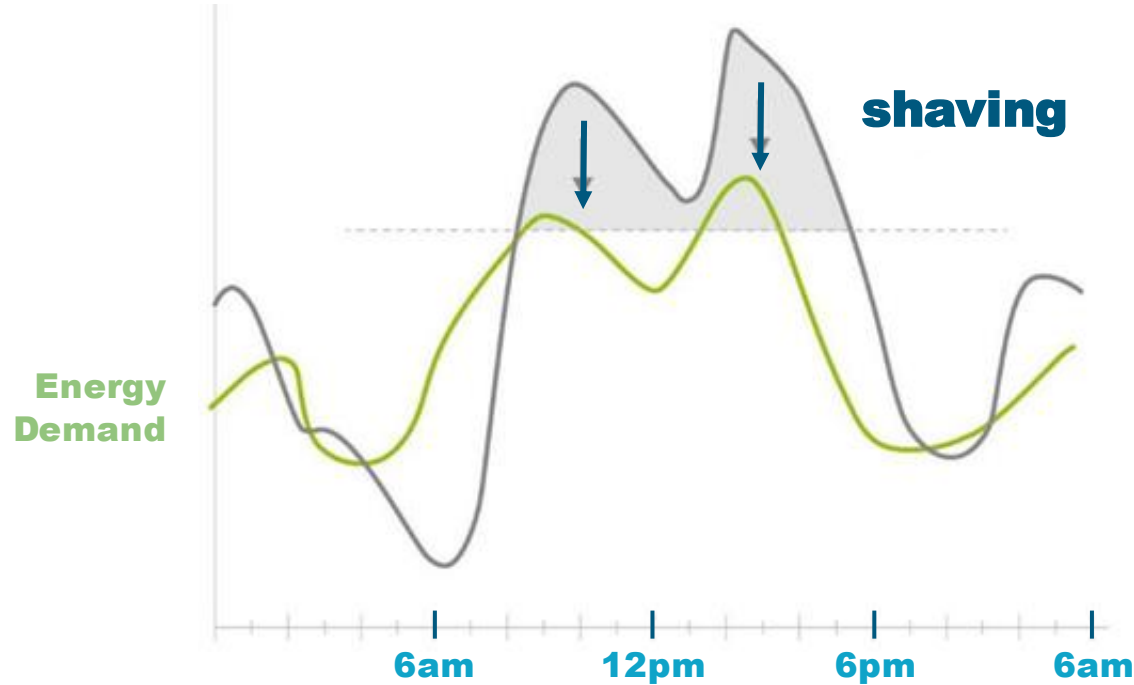
Also provides:

- Essential services in grid outages
- TOU rates leveraging

Balancing the grid: Load shifting



Balancing the grid: Peak shaving



Key take aways

- BC Hydro has enough electric capacity until the end of this decade to meet rising demands due to fuel switching and electrification activities
- BC Hydro is investing into existing infrastructure and demand side management initiatives today, to allow for sustained growth of electricity demand in the short term
- BC Hydro will start investing in new generation as early as 2024 to be ready for accelerated electrification demand beyond 2028, to meet CleanBC targets.
- Electrifying homes will create new demands and **smart** electrification will help minimize costs for builders and clients and to avoid stress on grid capacity

Next Steps

- Engage in our regulatory consultation processes: [Rate design workshops, November 2023 \(bchydro.com\)](https://bchydro.com) (next session November 29th!)
- Join community of practice and education session via your local CHBA, UDI, ZEBx and B2E: <https://b2electrification.org/b2e-and-industry-resources>
- Build relationships to leaders in the HVAC sector – consider finding your new HVAC contractor via the Home Performance Contractor Network or the MCABC.
<https://homeperformance.ca/find-a-contractor/>



Powering your Project

● Customer
● BC Hydro

The following steps outline the process for adding to or modifying your electrical connection for your new construction or renovation project.

1

Tell us about your request.

2

We'll confirm your project scope and tell you what we require.

3

Send us the requirements and a design deposit.

4

We'll design your project & provide you with an estimated In Service Date.

5

You confirm the plan and send us payment.

6

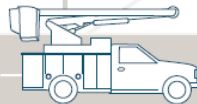
You complete your construction responsibilities.

7

We complete our construction responsibilities.

8

Project Completion.



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