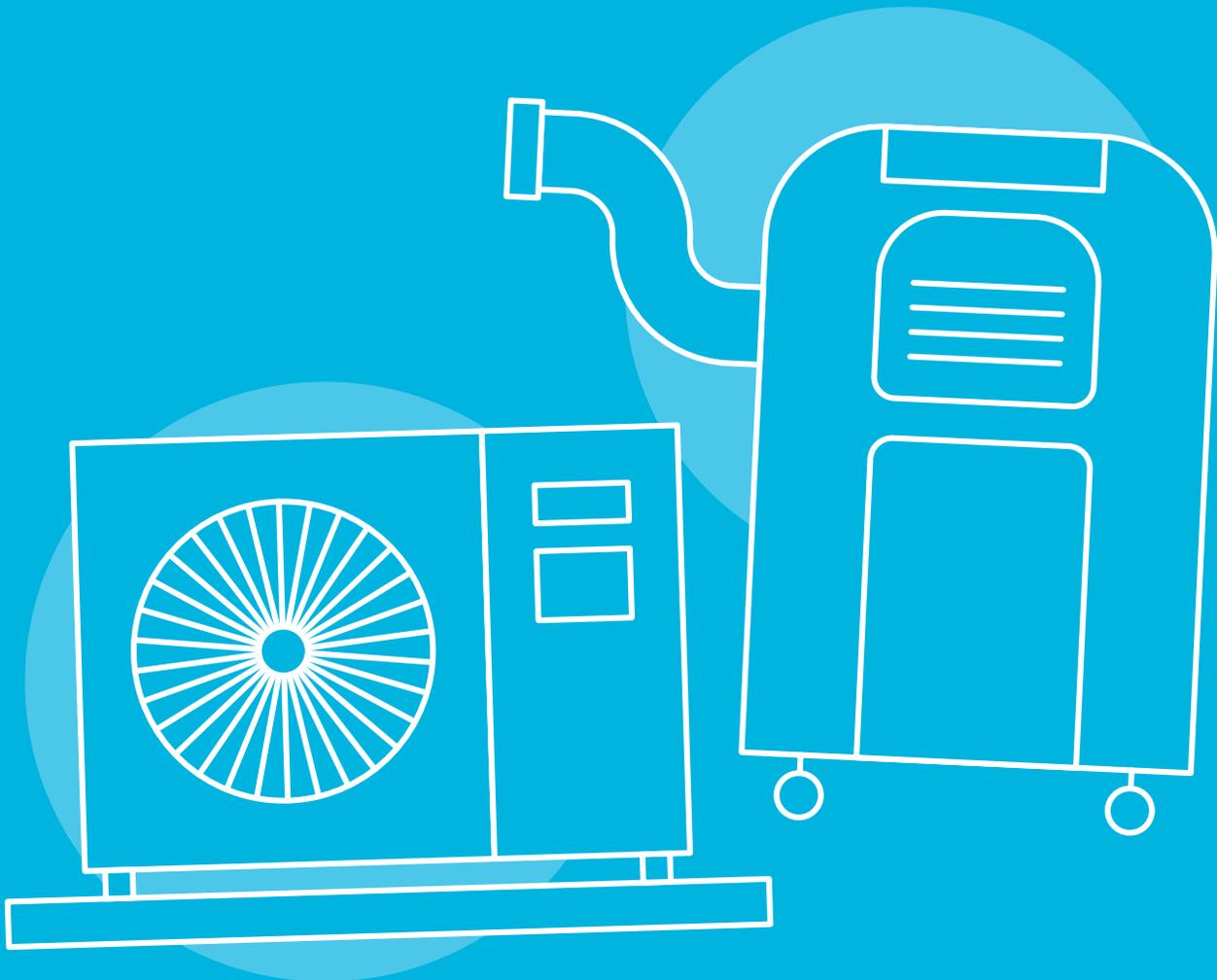


AC dependency:

Summer demand for electricity increasing with AC use



AC dependency: Summer demand for electricity increasing with AC use

Unlike utilities in Ontario and Quebec, BC Hydro has always been a winter peaking utility—meaning it sees the most demand for power in the winter months for things such as heating and lighting. However, as global warming accelerates, BC Hydro has seen an increase in demand for electricity in the summer months, as more British Columbians turn to air conditioning (AC) for longer periods of time to cool down during heat events. Although BC Hydro has more than enough clean power to supply, many British Columbians are relying heavily on their AC to get through the summer months, and they are not always using it efficiently leading to higher energy use.

Highlights

- BC Hydro data shows a rise in AC use in B.C. homes is driving increased demand for electricity in the summer and it is forecasting this upward trend will continue due to climate change.
- Since 2017, BC Hydro data¹ shows residential electricity demand has increased by 12 per cent over the summer months, and this upward trend is expected to continue as climate change has made access to AC increasingly vital.
- With record-breaking heat last summer, BC Hydro experienced 19 of its top 25 all-time summer daily peak records, including breaking its all-time summer peak hourly demand record—the time-of-day British Columbians use the most power—on June 28, when demand reached 8,568 megawatts.
 - Compared to summer 2017, summer 2021's peak hourly demand increased 13 per cent.
- A big part of this increase is because of AC—BC Hydro statistics show AC use has increased by about 50 per cent over the past decade from a quarter of British Columbians using it at home to nearly 40 per cent.²
- This summer, temperatures are forecast to heat up from July–September, and demand for electricity is expected to climb higher during that time mostly due to AC use.
- In fact, in a recent survey³ conducted on behalf of BC Hydro, 62 per cent of British Columbians with AC said their AC use has increased at home in recent years.
- Almost all British Columbians who had an AC in their home last summer had their AC on for more than three hours per day, with 63 per cent leaving it on for five hours or more.
 - This year, over half (54 per cent) said they expect to use their AC every day, and one quarter said they plan to, or already have purchased or upgraded an AC for summer.
 - Of those, 72 per cent said their main reason for making AC improvements is increasingly severe and frequent summer heat.
 - While most said they are prepared for high heat this year, 59 per cent said they are anxious about the potential for more heatwaves.
- And while BC Hydro has more than enough clean power to supply, many are relying heavily on their AC but not always using it efficiently leading to higher energy use.
 - Most (33 per cent) are cooling with a portable AC unit, often more than one, which uses much more energy to run than a central system, and twice as much as a window unit.

1 BC Hydro load analytics data

2 BC Hydro residential End Use Survey 2020

3 Online survey conducted by Majid Khoury from June 10 to 13, 2022 of 800 British Columbians, margin of error 3.5%.

Solutions

Increasing summer demand is something BC Hydro has been planning for. BC Hydro has a surplus of electricity and its 20-year **Integrated Resource Plan** maps out how it will meet future demand for electricity through a combination of energy conservation, system upgrades, and the development of additional generation resources. This summer, BC Hydro recommends British Columbians take the following measures to keep cool, save energy and stay safe:

- Cooling with a heat pump: Because BC Hydro generates 98 per cent of its electricity from clean, renewable resources that are mostly powered by water, using a heat pump to cool in the summer and heat in the winter is more environmentally friendly than a system powered by gas. It is also more energy efficient than using multiple portable AC units. BC Hydro offers up to \$3,000 in rebates for switching from a fossil fuel based system, which can be combined with provincial and federal rebates for a total savings of up to \$11,000 on cost and installation with some municipalities adding additional rebates on top of that.
- Going ductless: If a central heat pump system is not an option for your home, ductless units are a great choice while offering all the same benefits of a central system.
- Buying smart: If you are buying an air conditioner, opt for a window AC unit as opposed to portable units, as they are twice as energy efficient—especially if they are ENERGY STAR certified—ENERGY STAR models use about 30 to 40 per cent less power than standard units.
- Optimizing temperature: Cool homes to 25 degrees Celsius in the summer months when occupied, and the air conditioning should be turned off when unoccupied.
- Closing the drapes and blinds: Shading windows can block out up to 65 per cent of the heat.
- Using a fan: Running a fan nine hours a day over the summer costs just \$7.
- Tracking usage: Use MyHydro to track electricity usage and see how using air conditioning can impact costs.

Rise in AC use

With traditionally cooler summers compared to other parts of the country, especially in the Lower Mainland and on Vancouver Island, B.C. has always fallen below the national average when it comes to air conditioning (AC) use. However, with extreme temperatures becoming more frequent, BC Hydro data shows a rise in AC use in B.C. homes is driving increased demand for electricity in the summer.

Since 2017, BC Hydro data shows residential electricity consumption has increased by 12 per cent over the summer months, and this upward trend is expected to continue as climate change has made access to AC increasingly vital. This report will look at how summer demand for electricity is increasing, and how BC Hydro is prepared to meet that increased demand to ensure its customers stay safe and cool through the summer months.

Changes in demand

Unlike utilities in Ontario and Quebec, BC Hydro has always been a winter peaking utility—meaning it typically sees the most demand for power in the winter months for things such as heating and lighting. However, as global warming accelerates, BC Hydro has seen an increase in demand for electricity in the summer months, as more British Columbians turn to AC for longer periods of time to cool down during heat events.

AC use in residential homes in B.C. has increased by about 50 per cent over the past decade from a quarter of British Columbians using it at home to nearly 40 per cent. Besides climate change, AC use has gone up because of population growth and increased AC options on the market over the past decade or so.

In a recent survey conducted on behalf of BC Hydro, 62 per cent of British Columbians with AC said their AC use has increased at home in recent years—especially last year. Almost all British Columbians who had an AC in their home last summer had their AC on for more than three hours per day, with 63 per cent leaving it on for five hours or more a day.

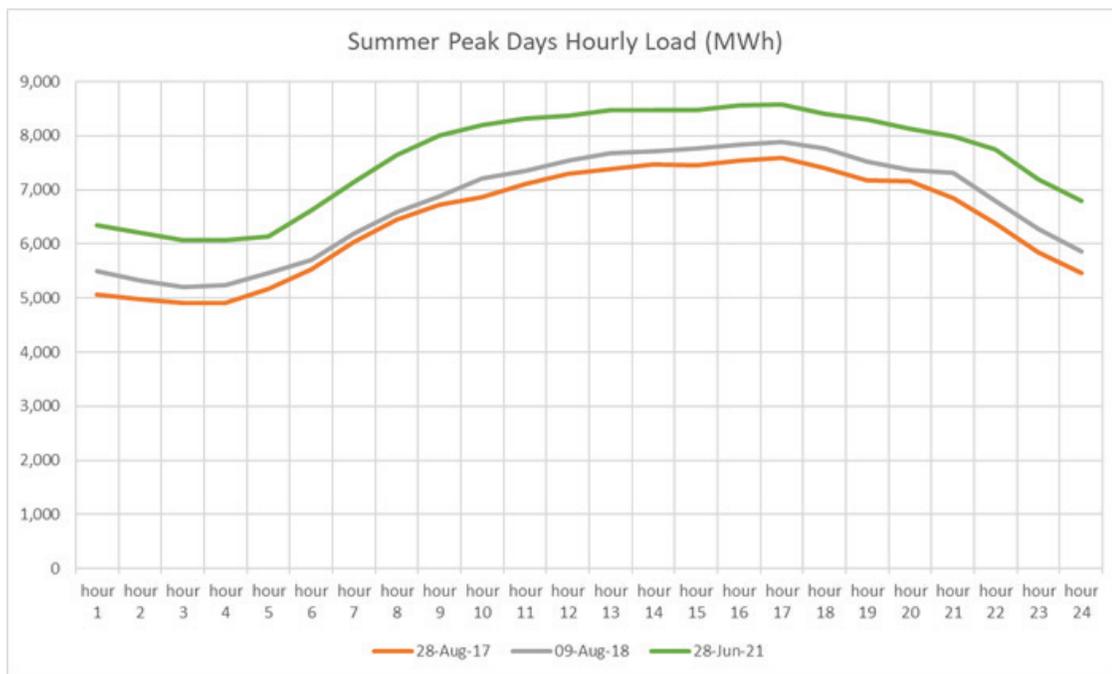
Although BC Hydro remains a winter peaking utility, with demand for electricity still significantly higher in winter than in the summer, it is forecasting summer demand to continue to grow in the years to come because of climate change.

Summer 2021

Summer 2021 was one of the hottest on record in B.C., and the unprecedented heat also caused record-breaking demand for electricity. For example, record-breaking temperatures and an increased number of air conditioning users drove summer peak hourly demand—the time-of-day British Columbians use the most power—to all-time highs.

In fact, last summer BC Hydro experienced 19 of its top 25 all-time summer daily peak hours for system load. This includes breaking its all-time summer peak hourly demand record on June 28, 2021 when demand reached 8,568 megawatts, shattering the previous record by more than 600 megawatts—the equivalent of turning on 600,000 portable air conditioners. Compared to summer 2017, summer 2021’s peak hourly demand increased 13 per cent.

SUMMER PEAK HOURLY DEMAND COMPARISON: 2017, 2018 AND 2021



Summer 2022

Although the start to summer 2022 has been cooler, temperatures up from July–September are forecast to trend back to near-normal, with the potential for heatwaves in some areas of the province. These months are when demand for electricity will likely climb higher.

After last year, the potential for more heatwaves is understandably worrisome for 59 per cent of British Columbians, and that is why many have been preparing. Almost one quarter plan to or already have purchased AC or upgraded their AC. Of those, 72 per cent said their main reason is increasingly severe and frequent summer heat.

This year, over half (54 per cent) of British Columbians with AC at home said they expect to use their AC every single day for many hours.

Although BC Hydro has more than enough clean power to supply, many British Columbians are relying heavily on their AC to get through the summer months, and they are not always using it efficiently leading to higher energy use. For instance, most (33 per cent) are cooling with a portable AC unit, often more than one, which can use about ten times more energy to run than a central system, and twice as much as a window unit.

HOW LONG BRITISH COLUMBIANS RUN THEIR AC PER SUMMER DAY



Meeting demand

The increasing demand for electricity over the summer months is something BC Hydro has been planning for. BC Hydro has a surplus of electricity and expects to have more than it needs until about 2030. BC Hydro's 20-year **Integrated Resource Plan** maps out how it will meet future demand for electricity through a combination of energy conservation, system upgrades, and the development of additional generation resources.

BC Hydro's flexible hydroelectric system can meet changes in demand quickly and BC Hydro's asset management and emergency management processes have continuously evolved to prepare for and effectively respond to increasingly severe weather-related events and changes in electricity demand.

BC Hydro has the tools and expertise to continue to manage the unpredictable weather and climate change. This includes in-house weather forecasting and ensemble runoff forecasting, operations planning optimization methods, and its own climate, water, and snow monitoring network. It is also a contributing partner in complementary networks in B.C. for water, climate, snow, and glacier monitoring.

Through its Electrification Plan, BC Hydro will mitigate the effects of climate change by significantly reducing greenhouse gas emissions, as 98 per cent of the power BC Hydro produces is from clean, renewable resources that are mostly hydroelectric.

Cool for the summer

As summers get warmer, BC Hydro recommends looking into cooling your home with a heat pump. Using a heat pump to cool in the summer and heat in the winter is more environmentally friendly than a system powered by gas, because 98 per cent of the power BC Hydro generates is from clean, renewable resources that are mostly hydroelectric. It is also more energy efficient than using multiple portable AC units. BC Hydro offers up to \$3,000 in rebates for switching from a fossil fuel based system, which can be combined with provincial and federal rebates for a total savings of up to \$11,000 on cost and installation with some municipalities adding additional rebates on top of that.

If a central heat pump system is not an option for your home, ductless units are a great choice while offering all the same benefits of a central system. If you are buying an air conditioner other than a central or heat pump system, opt for a window AC unit as opposed to portable units, as they are twice as energy efficient—especially if they are ENERGY STAR certified—ENERGY STAR models use about 30 to 40 per cent less power than standard units.

It is also important to optimize temperature when cooling. BC Hydro recommends cooling homes to 25 degrees Celsius in the summer months when occupied, and the air conditioning should be turned off when unoccupied.

OTHER WAYS TO STAY COOL AND SAVE ENERGY INCLUDE:

- Closing the drapes and blinds: Shading windows can block out up to 65 per cent of the heat.
- Using a fan: Running a fan nine hours a day over the summer costs just \$7.
- Tracking usage: Use MyHydro to track electricity usage and see how using air conditioning can impact costs.

For more information on AC options, heat pump rebates and ways to stay cool visit [bchydro.com](https://www.bchydro.com).

