

BC HYDRO'S SMART METERS

POWERING OUR FUTURE

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BC Hydro 
FOR GENERATIONS



WHY DO WE NEED TO MODERNIZE?



DEMAND ON OUR ELECTRICITY SYSTEM IS GROWING

- A 50% increase in electricity demand is projected over the next 20 years



OUR ELECTRICITY GRID IS AGING

- Most of our infrastructure was built in the 1950s, '60s and '70s
- Our system of electro-mechanical meters hasn't been upgraded in 50 years



WE HAVE A BIG, COMPLEX ELECTRICITY SYSTEM

- Our system includes 18,000 km of transmission lines, 56,000 km of distribution lines – almost enough to circle the globe twice – and 260 substations
- Our system serves 1.9 million customers



Technology's demands on B.C.'s electricity grid were easily met in the 1950s and 1960s

Today's technology is more reliant on electricity than ever before, but our grid remains unchanged

▶ POWERING OUR FUTURE

BC Hydro's system links us to the electricity we need, when we need it – in our mills, our offices, our schools, our hospitals, our small businesses and our homes.

However, our energy needs have changed and we use more power today than ever. To meet these needs, BC Hydro is upgrading to a more efficient electricity system that will save energy and help keep your rates among the lowest in North America.

Unlike so many parts of our economy that are using the latest digital technologies to become faster, more cost-effective and more responsive, much of today's electricity system is using technology from the 1950s. Our growing province and our growing communities have literally been plugging 21st century technology into a 20th century grid.

Ensuring our electricity system meets the needs of the future rests in the same digital technology that is transforming every other aspect of our daily lives.

By keeping B.C.'s grid in step with advances in technology, we can:

- Stop using more electricity than we need to
- Quickly detect where and when the lights go out in a storm and restore power faster
- Tell if someone is stealing electricity at the expense of the rest of us
- Identify opportunities to conserve more electricity, reduce costs, and protect our low electricity rates
- Take full advantage of a new generation of energy saving technologies



**BC HYDRO IS
INVESTING**

...now in projects that
will keep the lights on for
generations



➤ BC HYDRO'S SMART METERS



BY 2020

...90% of the world's utilities will be using smart meters

We are using more technology in our homes and businesses today than ever before. Yet the electricity system that powers our province has not changed significantly in 50 years, and has not kept pace with the rapid growth of technology and other demands on the system.

Updating BC Hydro's meters is a key step in modernizing our entire electricity system and keeping our rates low.

The new meters look similar to existing BC Hydro meters, but unlike the old meters that can only measure electricity consumption, they are part of an integrated system that:

- Measures the flow of electricity through the entire electricity system

- Measures the quality of power, such as voltage, being delivered to your home or business
- Records your consumption data on an hourly basis
- Automatically detects power outages

The new meters include measurement technology, a computer chip and two radios.

Combined with additional system meters throughout the grid, the new meters will help to manage the flow of electricity and track it like a store's inventory system. More information about the status of the electricity grid will ensure BC Hydro can deliver the right amount of electricity to homes and businesses across the province when it's needed.



▶ RESTORING YOUR POWER FASTER

The smart meters will help us to get your lights back on faster and safer in the event of an outage. Today, BC Hydro typically doesn't know that your power is out unless you call us. With the new meters, we will know exactly when the power goes out and where it has occurred – right down to the household.

Less time looking for the cause of a power outage means that we can locate and fix the problem quicker, getting your lights back on faster and safer.

The efficiencies achieved by faster outage restoration will help keep your rates among the lowest in North America.

The business case – available on BC Hydro's website: bchydro.com/smartmeters – provides the economic justification for the project, including the program benefits and an explanation of our plans going forward.



OUTAGE NOTIFICATION

In the event of a power outage, your new meter lets us know immediately, so we can restore your power faster



▶ SAVING ENERGY AND SAVING MONEY



GIVING YOU THE POWER TO CONSERVE

In 2012, you will be able to track your daily electricity consumption online to help you further reduce your energy use and save money

Research has shown that new conservation tools enabled by smart meters can help you conserve up to 15% of your energy.

BC Hydro's smart meters enable you to receive more timely information about your energy consumption. Once the new metering system is in place, you will be able to choose optional in-home feedback tools that allow you to better monitor your energy use, helping you and your family conserve in new ways and save money on your energy bill.

A free and secure BC Hydro website will display how much energy you have used, when it was used and at what cost – up to the previous day. BC Hydro will notify you when this tool is available in your community. Additional tools are expected to be available in 2013.

There are many other ways you can conserve electricity now and save money:

- Turn off lights that aren't being used
- Turn down the heat – every degree you lower your thermostat saves about 5% of your heating costs
- Switch from hot to cold water when doing your laundry – you could save up to \$27 a year (average three loads a week)
- Lower the energy draw of standard appliances by keeping them well maintained, using them efficiently and unplugging them when they're not in use
- Unplug or turn off electronic devices not in use, such as TVs and PVRs – many continue to use power if you don't



▶ KEEPING YOUR RATES LOW

The \$930 million investment in the smart metering program pays for itself by delivering \$1.6 billion in savings to our customers over the next 20 years.

The program will pay for itself without you doing anything. That's because there will be savings and efficiencies from reduced wasted electricity, reduced electricity theft, and operating efficiencies that will help to keep your rates amongst the lowest in North America.

BC Hydro currently transmits more electricity than needed by our customers to ensure there is acceptable power quality delivered to everyone. The smart metering program provides BC Hydro with the ability to more accurately measure and control the amount of electricity on the system. That means less electricity will be required on the system to maintain expected power quality, which means less electricity has

to be generated or purchased. Reducing wasted electricity benefits you through lower operating costs.

Electricity theft is a serious safety issue. In addition, the amount of electricity stolen every year is enough to power 77,000 homes. BC Hydro's existing system is unable to accurately detect where electricity is being stolen.

The new meters will help identify theft in two ways. First, they have a feature that automatically notifies BC Hydro if they have been tampered with. Second, new distribution system meters located at key points on the system will measure electricity supplied to specific areas. These meters, combined with software tools to enable electricity balancing analysis, will help us identify electricity theft more accurately and address it faster.



KEEPING RATES LOW

New meters create a more efficient power system and reduce loss; it's an investment that pays for itself



▶ YOUR SAFETY AND SECURITY

Safety is a top priority for BC Hydro and an important focus of the smart metering program.

BC Hydro also takes the responsibility to protect your privacy and security very seriously.



SAFE

Radio frequency exposure from a smart meter—over a 20-year period—is equivalent to a single 30-minute cell phone call

SECURE

Information collected will be handled in accordance with privacy legislation

The new meters communicate using radio frequency similar to radios, medical alert systems and other common electronic devices.

We have collected electricity consumption information for 50 years through safe, secure and regulated processes. The new metering system is no exception. The new meters cannot detect what appliances you are using or when. The information collected will be handled in accordance with the *Freedom of Information and Protection of Privacy Act* – just as it is now with your existing meter. BC Hydro does not sell or disclose personal information to third parties.

In fact, the new meters being installed across the province exceed the toughest safety regulations set for wireless signals in the world. The new meters are active for less than 1 minute per day and operate at a very low power. The radio frequency exposure from a new meter – over its entire 20-year lifespan – is the equivalent to a single 30-minute cell phone call.



➤ MORE ENERGY CHOICES FOR YOU

New BC Hydro meters will support new and future uses for the electricity system such as electric vehicles, community-based power generation and customer green energy generation. Clean renewable energy sources contribute to better air quality and improved energy sustainability for everyone in B.C. Investing in our electricity system is integral to a sustainable energy future.

For example, with a more modern electricity system, people who invest in solar panels or other clean sources of electricity could sell excess power back to BC Hydro, or draw electricity from their electric vehicles during a power outage.

Producing your own energy allows you to save money over the long term, and these clean, renewable energy sources also contribute to better air quality and improved energy reliability.



GRID MODERNIZATION

New meters will support our growing economy, the increasing demand for electricity, and create new opportunities and jobs in the green energy field



▶ WHAT YOU CAN EXPECT



74,000 HOMES

... could be powered
across B.C. each year with
electricity saved by the
new meters

The upgrade to new meters throughout the province will be completed by the end of 2012.

To help notify communities of the meter exchange, BC Hydro will place ads in your local paper with information about the smart meter program about eight weeks in advance. A few weeks before your meter is replaced, you will receive a letter with information about smart meters and the meter exchange. Installations will take place Monday through Friday, between 8 a.m. and 8 p.m. In most cases, the exchange will take less than 10 minutes and there will be a brief electrical outage, typically lasting 60 seconds.

Corix is the company contracted by BC Hydro to install your new meter. The installers are clearly identifiable by signs on their vehicles, logos on their uniforms, and photo identification badges. They'll knock on your door before starting any work. You don't need to be home for the exchange as long as they have safe, clear access to your old meter.



▶ QUICK FACTS

KEEP RATES LOW – New meters allow BC Hydro to operate more efficiently and cost-effectively by reducing wasted electricity in the system, reducing electricity theft and lowering operating costs through efficiencies.

A GLOBAL TREND – By the year 2020, 90% of the world's utilities will be using smart meters.

POWER SAVINGS – 74,000 homes could be powered across B.C. each year with the reduction in wasted electricity delivered by smart meters.

SAVES YOU MONEY – New meters will give you more tools to manage your energy use and reduce your bill. In the near future you will be able to track and monitor your energy use online, helping you reduce your energy use and save money.

SAFETY – Smart meters are safe, as confirmed by international, federal and provincial health and science authorities including B.C.'s Provincial Health Officer.



\$1.6 BILLION

... in savings over the next 20 years – savings that will be passed on to you – keeping your rates among the lowest in North America



FOR MORE INFORMATION...

Visit: bchydro.com/smartmeters
Contact: smartmeters@bchydro.com