SMART GRID

The term “Smart Grid” refers to a modern, automated, intelligent power delivery system that supports additional services and benefits to customers, the environment and the economy.

What makes a smart grid smart?

20th Century Grid	21st Century Smart Grid
• No communications capability	• Integrated two-way communications between the customer and BC Hydro
• Customer cost/consumption feedback provided through bills only	• Customer cost/consumption feedback provided near real-time and via multiple choices
• No outage detection (customer must call in)	• Automated outage detection and notification
• Limited ability to support conservation rates and then, only simple rate structures	• Full ability to support multiple types and complex conservation rates
• No tamper detection capability	• Automated meter tamper alarms, support for theft detection strategies
• Built for centralized generation	• Accommodates distributed generation
• Few sensors to provide information on system status	• Self-monitoring with sensors throughout
• Manual restoration	• Semi-automated restoration and eventually self-healing
• Few consumer choices	• Many consumer choices

Source: Global Environment Fund, Center for Smart Energy, “The Emerging Smart Grid: Investment and Entrepreneurial Potential in the Electric Power Grid of the Future (October 2005); and PJM Interconnection 2007

Why do we need to modernize the grid now?

Customer demand for electricity continues to grow and the grid needs to continue to adapt to meet customers’ changing needs, the increasing demand for multiple clean sources of electricity, and to ensure reliability.

What are the benefits to customers?

- **Information and tools** to help customers use energy more efficiently and save money.

- **Distributed generation** will enable the integration of clean, renewable power sources such as solar and wind, along with energy storage technologies. Customers will be able to **sell excess power** back to BC Hydro, or **store power** for personal use during an outage.

- Faster identification of trouble spots, including the extent of an outage and its location, will contribute to **shorter outage restoration times.**

- **Seamless integration of electric vehicles** will allow customers to choose whether to charge or sell the power in their batteries, and use their vehicle as a back-up power source during outages.

- **Microgrids** will allow a group of customers to isolate themselves from the grid and operate autonomously providing more options for sustainable energy solutions and saving money.

- **Energy loss from system inefficiency and theft will be reduced** creating the ability to monitor and respond to power quality issues, and isolate losses more accurately.

- **A more reliable system** will ensure critical services are more consistently available, such as health care systems, streetlights, traffic lights, and service to homes and business.

- **Adaptability for the future** will continue to enable customer choice.

Together BC Hydro's Smart Metering Program and initial Smart Grid Program will provide some of the foundational infrastructure for a Smart Grid at a cost of $930 million. The programs will deliver a positive net present value of approximately $500 million over the next 20 years helping to keep rates low.