

# Brighter ideas for energy conservation.

Driven by rising energy costs and increasing demand for electricity, a global movement is transforming conventional power grids into “intelligent grids”. An intelligent grid links electricity with communications and computer control to create a highly automated, responsive and resilient power delivery system. At the consumer level, this involves linking smart in-home devices to a home area network that manages energy consumption. Customer benefits include greater flexibility and smarter management of energy resources and consumption. The benefits for utilities include greater efficiency and improved asset management.

## A smarter grid

New metering technology is one of the first steps towards a more intelligent power grid. Automated meter readers (AMR) have begun to replace manual meter data reading. Increasingly sophisticated AMR and communications technologies have enabled the development of a smart meter infrastructure (SMI), where advanced near-real-time communications are put in place to relay information to and from in-home meters and the corporate office. The SMI of today will help enable the smart devices of tomorrow.

### SMI 2 WAY COMMUNICATIONS EXAMPLES

#### Utility to Consumer

- Energy usage
- Energy savings
- Pricing: Real-time/Time-of-use
- Alerts



#### Consumer to Utility

- Energy measurement
- Tamper indications
- Connect
- Disconnect

This “smarter” grid encourages greater energy conservation by giving consumers the ability to better monitor and manage their electricity use. When combined with near real-time and/or time-of-use (TOU) billing programs (e.g. higher power prices during peak periods), consumers have both the awareness and the tools to dramatically decrease their overall power costs.

For power utilities, the smarter grid is an environmentally friendly solution that has many large-scale benefits: reduced peak demand, avoided facility construction costs, recovered costs (e.g. theft), improved system reliability, and new sources of revenue.

SMI is also expected to enable the increased use of alternative energy such as solar and wind power. The smart grid and in-home monitoring capabilities should make it easier for consumers to sell some of their excess power back into the grid. This will help manage loads on an already constrained system, delay capital-intensive investments required for new generation facilities, and support a reduced carbon footprint strategy.

## The home area network

A home area network (HAN) allows homeowners to remotely connect to and control many different automated digital devices. The first application for the HAN is demand management – where the smart meter, communicating over the smart grid, acts as the entry point into the home. An in-home display then allows the consumer to see their power usage and monitor their consumption patterns.

As HAN technology and digital devices continue to evolve, increased control of smart devices in the home will allow consumers to actively manage their energy costs and make more informed decisions on reducing the cost and environmental impacts of their electrical usage.

## TELUS as a strategic partner

The foundation of any SMI or HAN project is a strong communications network. TELUS is Canada’s leader in innovative communications technology, nationwide networks, and data centre capabilities. As SMI and HAN technology evolves, TELUS is working with leading industry consortia to define the standards around security, technology and devices. We have the size and experience required to partner with device manufacturers on large-scale infrastructure projects.

TELUS also has critical experience in the consumer space. Our TELUS Future Friendly Home® capabilities demonstrate our ability to link devices in the home through our high speed Internet, wireless network, home entertainment and security services. We expect all of these to eventually link into the HAN.

Another area of expertise for TELUS is our portfolio of green business solutions, which enable the movement of ideas and information, not people, vehicles or paper. Our vision is for Canadians to reduce their environmental impact through the use of communications technology solutions. As such, TELUS is strategically aligned as a partner in the journey to deploy an SMI solution that supports environmental stewardship.

As a thought leader in unified communications, TELUS is moving towards a future where the HAN is a reality and customers can access their home through a wireless network. For example, a homeowner on vacation could use a phone or the Internet to log into their HAN and switch appliances on or off, arm a home security system, control temperature gauges or control lighting. As part of the HAN, a smart meter could communicate peak times to digital devices and alert them to reduce energy consumption.

TELUS sees itself as a key enabler of this vision. Of course, we won’t do this all on our own. An SMI project is a journey that requires strong partnerships to meet the challenges. Given TELUS’ network capabilities and our HAN vision, we are the strategic partner of choice to overcome obstacles and deploy ground-breaking SMI projects. We are interested in supporting energy efficiency programs across Canada, as well as establishing the model that will be emulated by utilities across North America.

For additional information on TELUS capabilities for utilities, visit these Web sites:

- **Energy Solutions:** [telus.com/energysector](http://telus.com/energysector)
- **Green Solutions for Business:** [telus.com/green](http://telus.com/green)
- **Unified Communications:** [telus.com/innovation](http://telus.com/innovation)
- **Future Friendly Home:** [telus.com/futurefriendlyhome](http://telus.com/futurefriendlyhome)

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