

# THE SIGNIFICANCE OF UWB TECHNOLOGY FOR INDUSTRIAL USERS

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FOR GENERATIONS

# ABOUT BC HYDRO

- British Columbia's electric utility
- Legacy of clean energy leadership
- Purpose to provide reliable power, at low cost, for generations

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500 kV Transmission System and Major Generating Stations



# STRATEGY TO MEET ELECTRICITY DEMAND

Conserving More



Buying More



Building More



# A COMPANY WITH A COMPELLING CAUSE



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**powersmart**

# WHAT A TIME TO BE IN THIS BUSINESS!

**Clean tech and the environment** are top of mind for energy policy makers and the general public alike.

- Household names in cool technology are making forays into the electricity industry:
  - Microsoft’s “Hohm” helps consumers lower their energy bill and reduce their impact on the environment.
  - Google’s “PowerMeter” allows homeowners to track their energy use on their iGoogle home page and eight utilities will be the first to try out the technology.
- Natural Resources Canada launched a \$1 billion Clean Energy Fund to support greater use of technologies that reduce CO<sub>2</sub> emissions from energy production
- “Smartening” the electricity grid will put many new technologies in play and promises to be one of most exciting opportunities of the next few decades
  - U.S. Department of Energy set aside \$4 billion to fund smart grid development and demonstration projects
  - Industry Canada allocated frequency spectrum solely for the management of electricity supply



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# CURRENT TECHNOLOGY PLATFORMS

Alternative  
& Emerging  
Energy



Distributed  
Energy  
Resources



Energy  
Efficiency



Safety &  
Security



# OCEAN ENERGY DEMONSTRATION



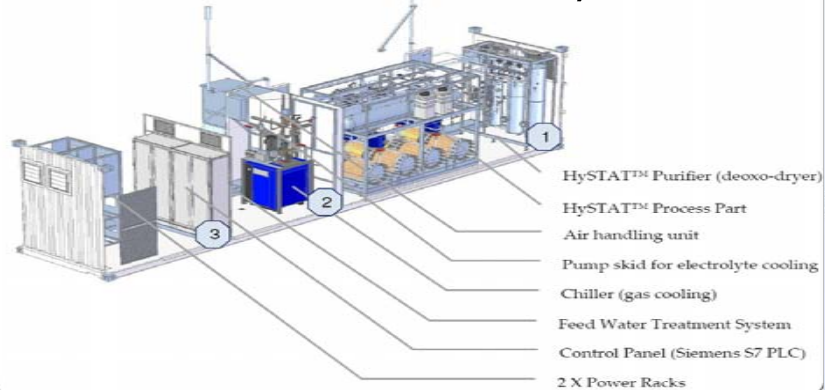
# XENI GWET'IN HYBRID SOLAR SYSTEM

- Central diesel generators for centre of community
- Experimenting with small hybrid solar systems to power houses remote from the central area
- Prepaid metering
- Looking to add more renewable energy sources to provide electricity to all dwellings and minimize use of gensets

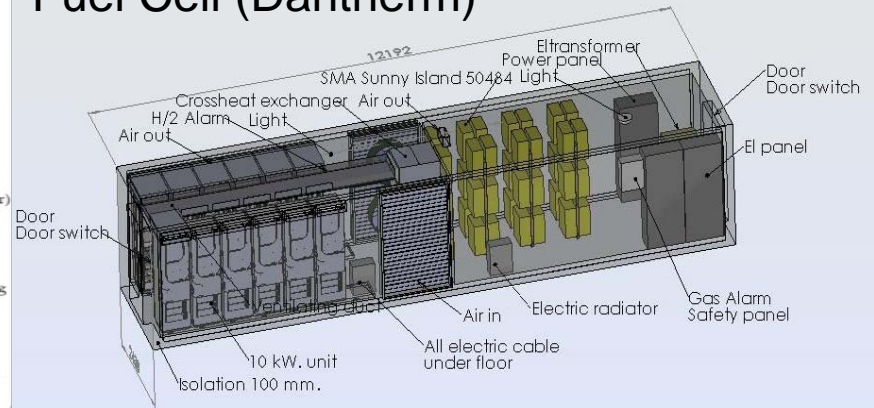


# HYDROGEN-ASSISTED RENEWABLE ENERGY PROJECT (HARP)

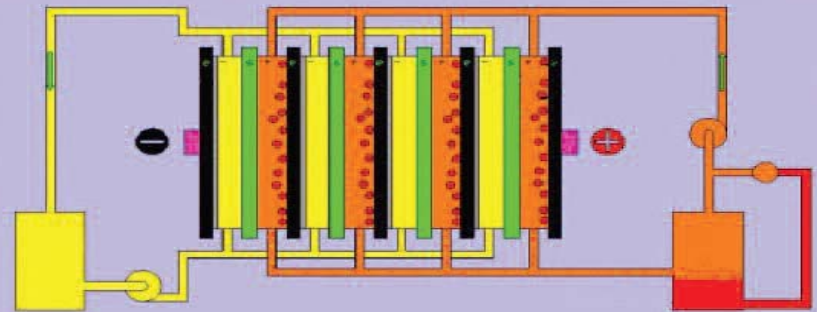
## Electrolyser (Hydrogenics)



## Fuel Cell (Dantherm)



## ZBB Flow Battery System



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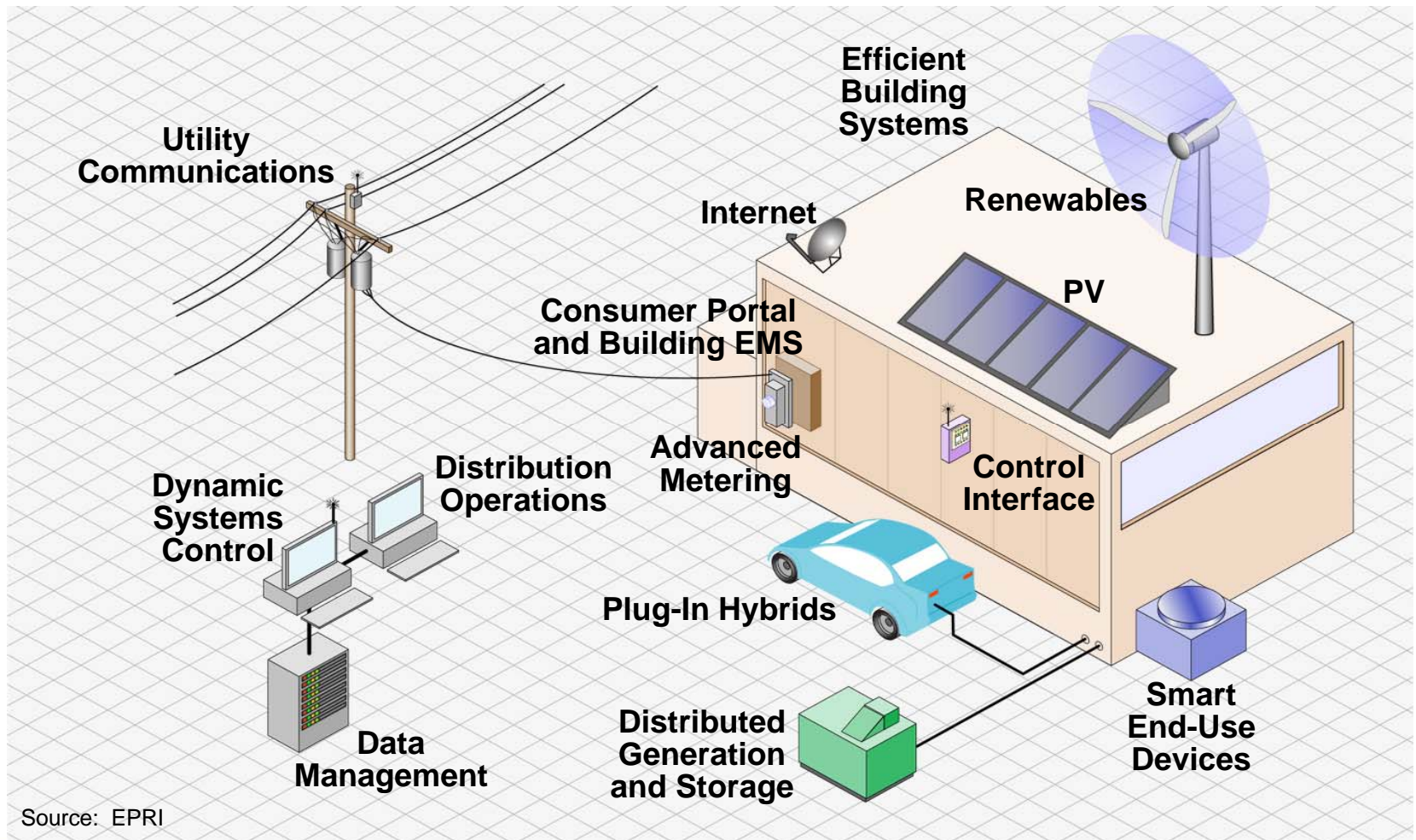
Energy  
Efficiency



Safety &  
Security



# SMART GRID – SMART HOME



# INTELLIGENT MICROGRID AND AFRESH HOUSE AT BCIT



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# EVs ARE HERE



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# CURRENT TECHNOLOGY PLATFORMS

Alternative  
& Emerging  
Energy



Distributed  
Energy  
Resources



Energy  
Efficiency



Safety &  
Security



# POWER POLE REPLACEMENT

## In an easement



**BC hydro**   
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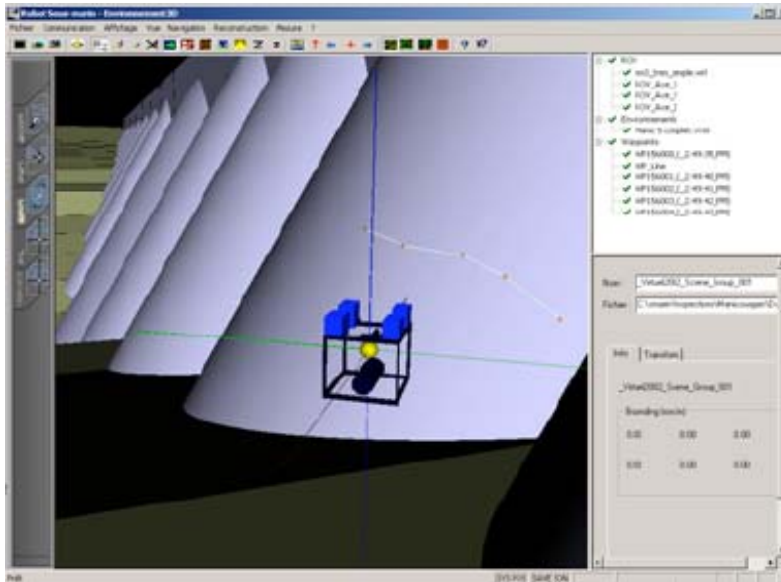
# INSPECTION OF SUBMERGED DAM STRUCTURES



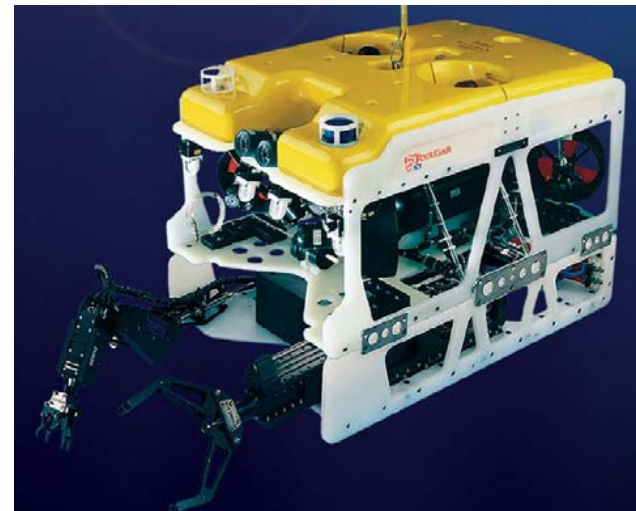
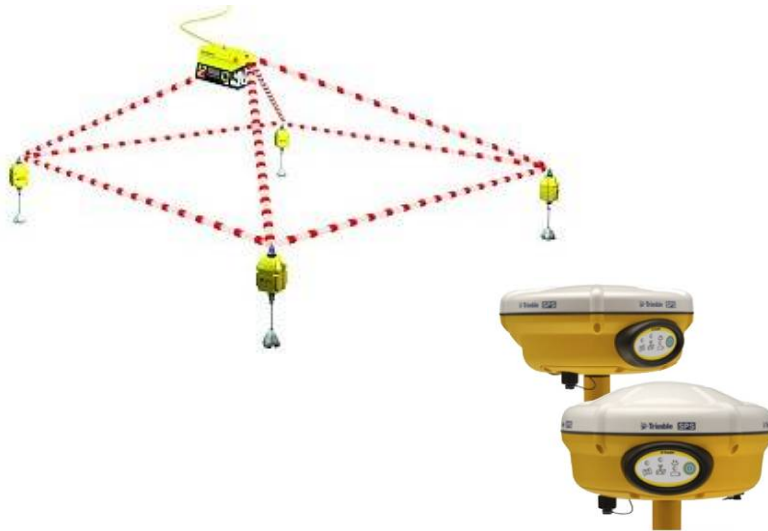
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# HYDRO QUEBEC'S ROV PROGRAM



# REMOTELY OPERATED VEHICLE FOR UNDERWATER INSPECTION



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# WHAT WE DO ... RESPOND TO EMERGENCIES



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# PAD-MOUNTED TRANSFORMERS



NOTICE THE CELL PHONE INSIDE



# BURNS TO WORKER'S SLEEVES

from electrical flash



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# OPPORTUNITIES FOR UWB IN OUR INDUSTRY

- Home energy management
- Locating underground services (other buried objects)
- Asset location
- Monitoring workers in hazardous situations
- Worker safety
- Sensor data collection
- Wireless power
- Energy harvesting
- ... and many others

# THANK YOU

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Keep making a difference.

Re-enrol in the  
Conservation Research  
Initiative today.

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