

Building a Culture of Conservation

beyond the utilities

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Demand Side Management (DSM)

What are we talking about? Why?

CONSERVATION = consuming/using **LESS**

EFFICIENCY = using **BETTER/SMARTER**

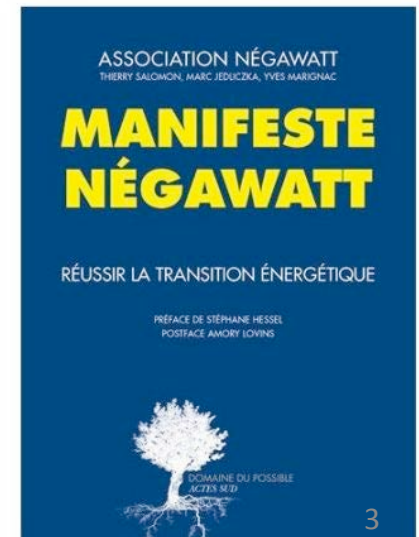
All sources of energy (even “green”) have impacts.

The best solution – reduce our demand for energy and use of resources.



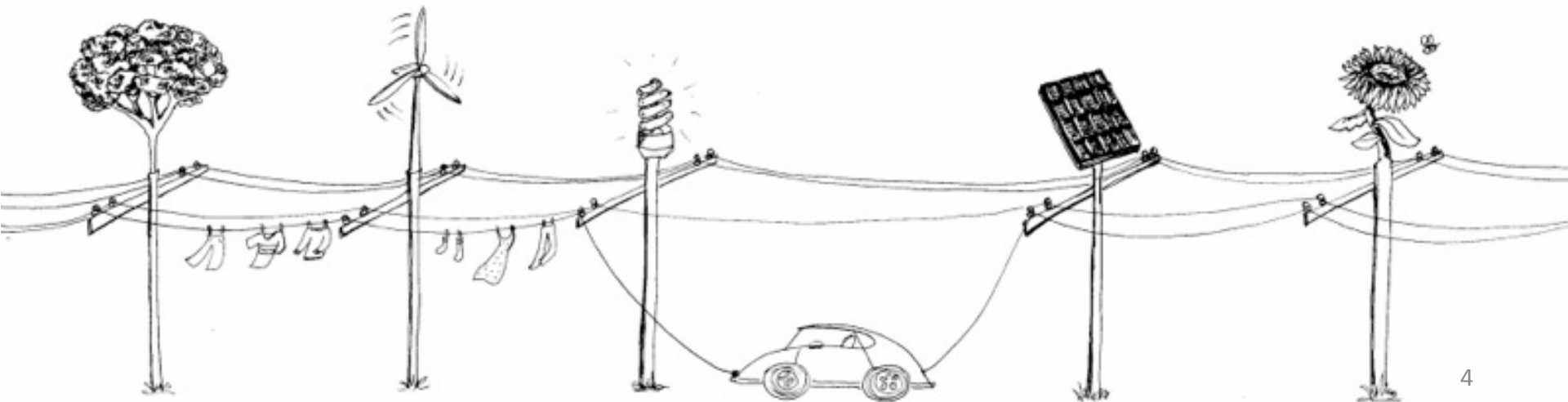
negawatt.... negawhat?

- Negawatt is a theoretical unit of power representing the amount of energy saved.
- The conserved energy is a negawatt, **the measure of power that is not used.**
- For example, Earth Hour.



NEGAWATTS before MEGAWATTS

- Meet growing demand through DSM before new infrastructure
- Implement all strategies for reducing waste of energy regardless of perceived economics (YUB requirement)
- Let's aim for the technical potential, not just economic or achievable.
- If ratepayers don't pay for DSM programs, Government has to.
- Combination of stick and carrot (currently, more stick needed)



GOVERNMENT role and responsibility versus UTILITIES

Utilities – directed by Yukon Utilities Board to investigate/implement DSM, but should DSM be led by utilities?

- seems counterintuitive for businesses to want to spend money to sell less and earn less money.

but the Yukon Government on the other hand...

- Energy Strategy for Yukon
- Climate Change Action Plan

Energy Strategy for Yukon

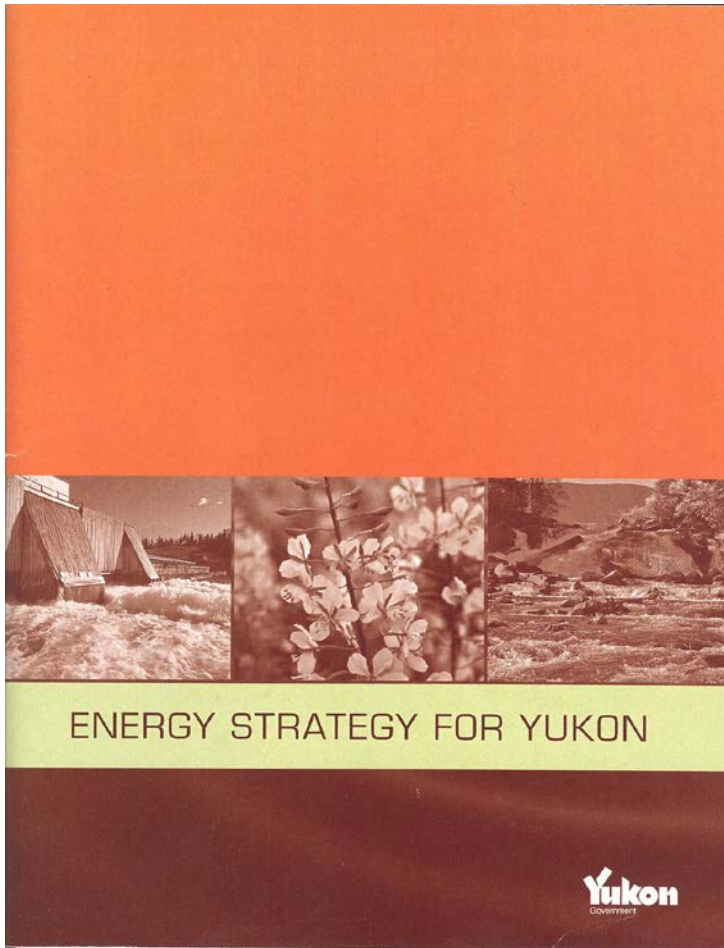
NUMBER ONE:

EFFICIENCY and CONSERVATION (E&C)

Goal

Energy efficiency and conservation will be a priority to reduce energy consumption, energy costs and emissions.

- Develop policies for E&C
- Deliver programs for E&C
- Incorporate E&C into decisions
- Improve E&C in communities
- Incentives for building retrofits
- Promote efficiency in new buildings
- Make industry more energy efficient



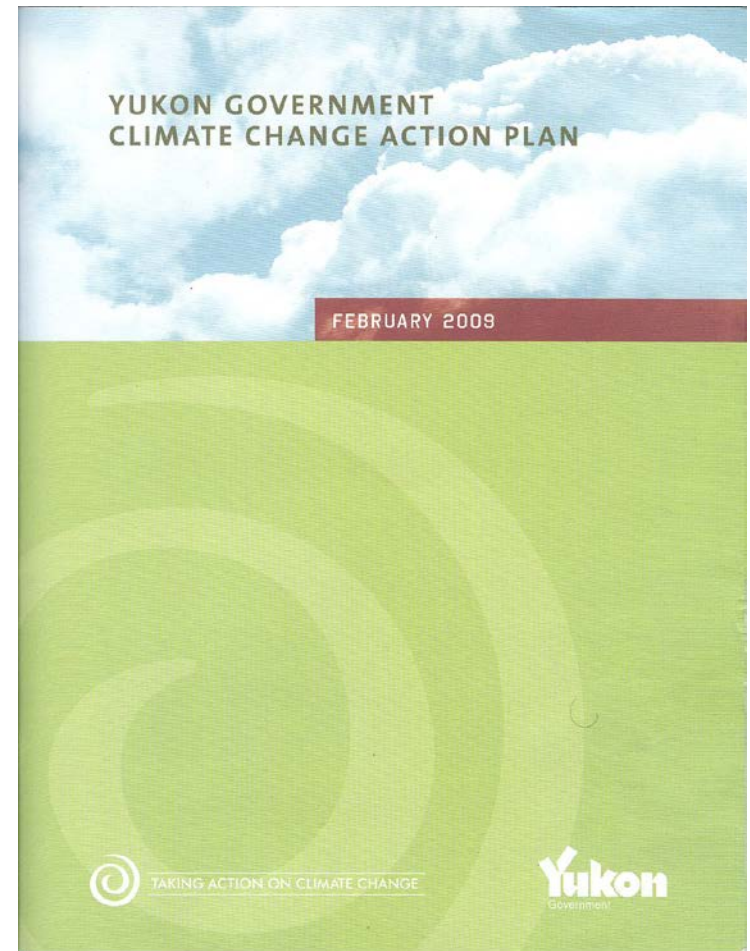
Climate Change Action Plan

Goal 3:

REDUCE OUR GREENHOUSE GAS EMISSIONS

Lead Yukon Action in Response to Climate Change

- Yukon Government operations to be carbon neutral by 2020.
- Emissions Targets – “...develop a Yukon-wide reduction approach.”
- The target will be developed in a manner that shows our commitment to reducing our contribution to climate change...



Build a Culture of Conservation

- Individual/household behavioral change (not only to encourage a reduction in use of electrical energy, but all consumption of energy and resources (water, driving, buying etc.)



2011 Energy Diet Challenge Champions, the Kitchen-Kuiack family.

Shell-Canadian Geographic

Smart Meters – the power to save

- Empower individual and household consumers to manage their energy use and make smart choices.
- Start with a pilot project for interested people, monitor, publish results, implement broadly.



Price Signals – (stick!)

- Once people have a better understanding of their consumption, price signals can reduce/shift demand and recompense for the costs of producing more electricity.
- Ontario, Nova Scotia, have **time of use (TOU)** rates in place (costs more/pay a premium to use electricity in peak times, cheaper to consume off-peak)

off-grid diesel communities

- overhaul Rate Structure to encourage renewables
- ramp up all DSM programming

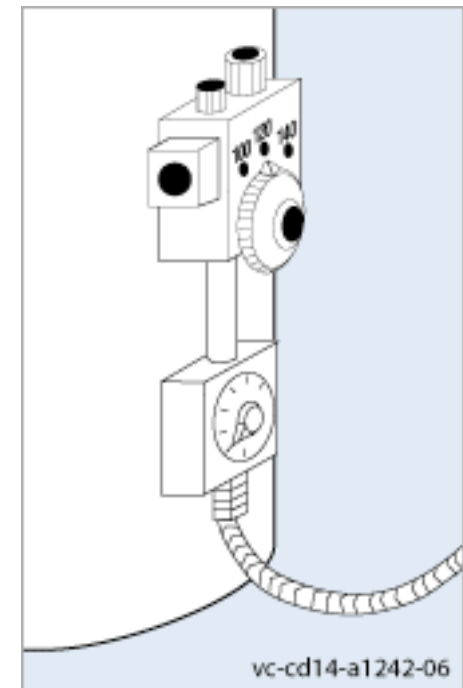


Old Crow Research Facility

photo Kobayashi and Zedda Architects

Demand Shift – leveling the peaks

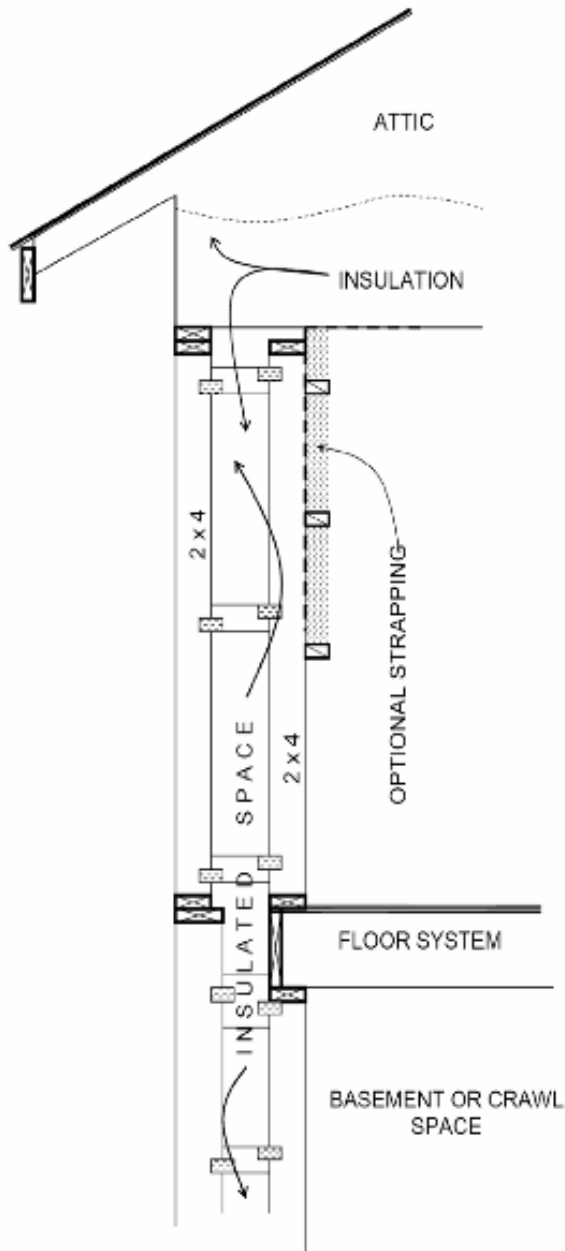
In 2002, Yukon Development Corporation completed a successful pilot program on hot water tank timers (“penguins”).



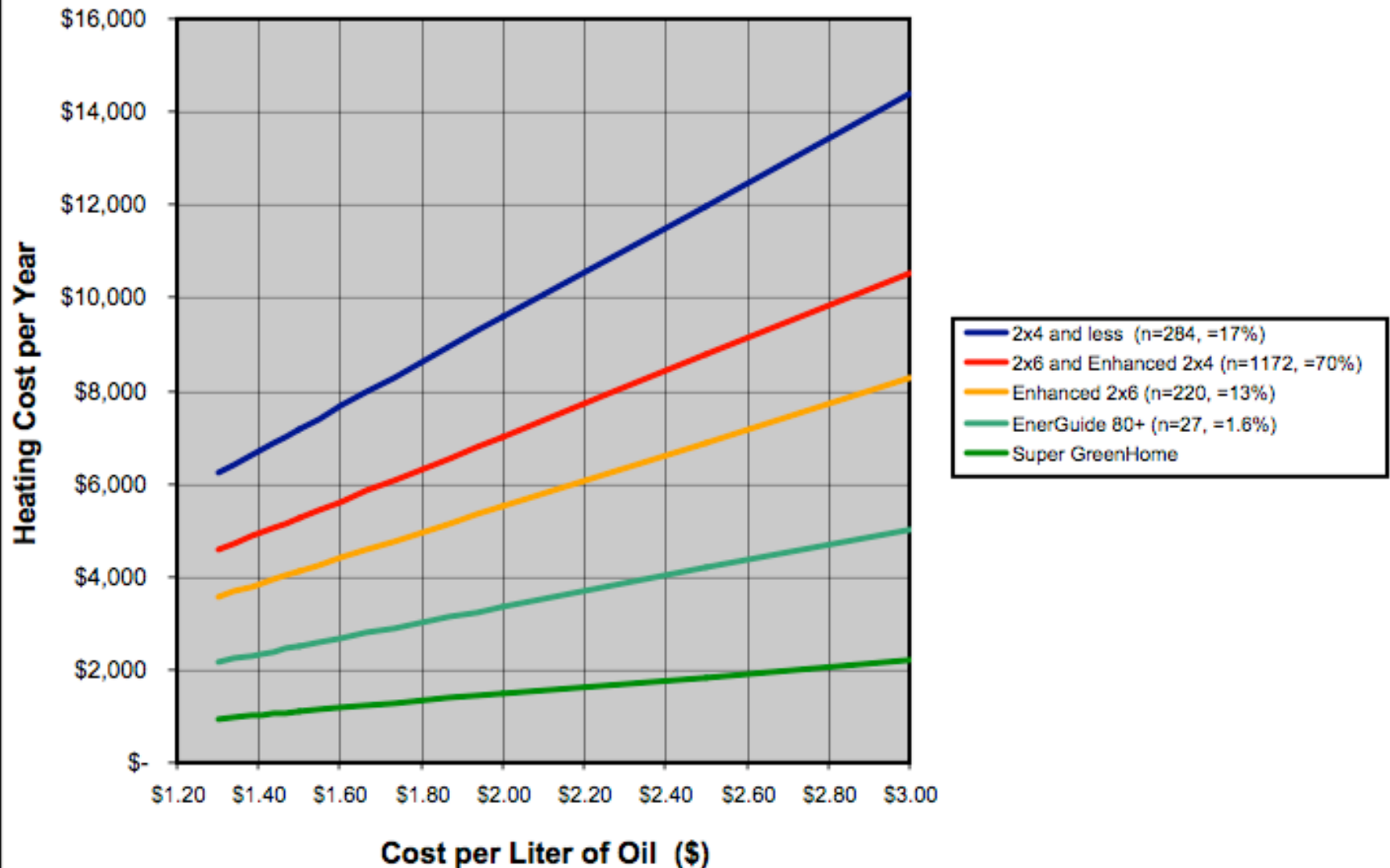
Strengthen Building Codes

— and serious investment in improving existing buildings

- Superinsulation (supergreen, doublewall) for comfort and safety
- Heat Recovery Ventilators (HRV) for healthy homes
- Retrofit existing building stock for safety and efficiency
- Improved code should allow for alternative construction and local materials, but restrictions for electric heat unless demonstrated efficiency

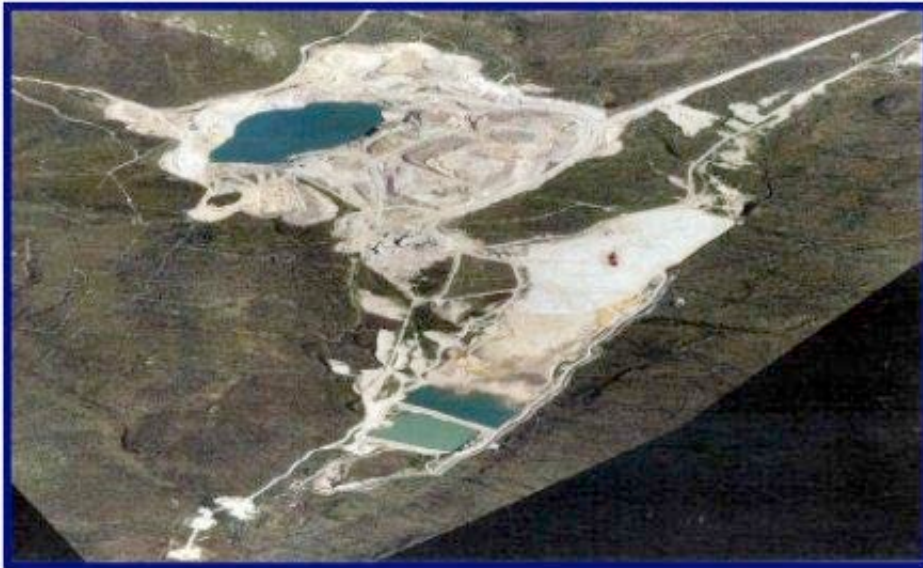


Heating Costs for Average 1800 sq.ft. Home in Yuko for Various Wall Construction (n=1676, Furnace Eff. = 80%)



Industrial Demand Management

- Required energy audits/improvement for all existing and proposed mines
- Rate structure for power down incentive (peak and winter rates)
- Cost of Service (mines pay more than it costs to serve them? Really? Hmm.)
- Obligation to Serve (we *have* to serve them? Really? Hmm.)



Faro Pit and Rose Valley
Tailings at the Faro Mine.

Supply Side to encourage conservation

NET-METERING help consumers become producers of green electricity
(premium rates for export after household use of produced power)



Riverdale Net-Zero House in Edmonton

etcetera

- Commercial, Institutional, Industrial, Government.
- Net Metering/IPP/overbuild renewables to enable fuel switching (reduce emissions from transportation and space heating)
- Street lights, lighting, hot water, etc
- STORAGE/load management: batteries, heat sinks, heat recovery systems, Electrical Thermal Storage (ETS)
- Alternative heat (to oil or electricity) via district heating, ground/air source heat pumps
- cogeneration
- PUBLIC EDUCATION



THANK YOU

