

A 12-Step Process for Achieving 100% Fossil Fuel Reduction in British Columbia, Canada.

Population: 4 million
Size: 949,000 sq km

Larger than
California, Oregon, &
Washington State
combined



by Guy Dauncey, BC Sustainable Energy Association



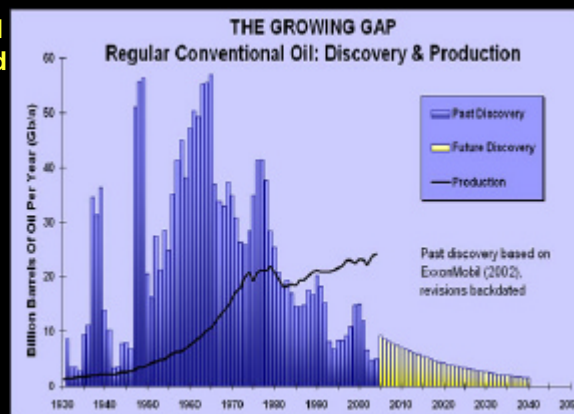
Non-profit society, launched in 2004.
600+ Members, 6 Chapters

To help BC become a world leader in the generation and use of sustainable energy.

Why? Climate change,
Oil and gas prices,
Impact of peak oil.

On Oct 1st 2005, Sweden adopted a national target to break its dependence on fossil fuels by 2020.

We believe British Columbia should do the same.



Step 1:

Examine BC's current energy patterns

2.7 million vehicles: oil and diesel

Heating: Electric, gas, wood

Industrial process: wood wastes, electric, gas, diesel

Electricity: 90% hydroelectric, 10% thermal

How will BC cope, when oil and gas cost too much to use?



Step 2:

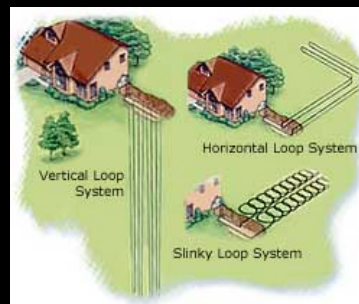
Can we heat our homes without oil or gas?

- Super-efficiency
- Ground-source heat
- Water source heat
- Sewer source heat
- Year round solar hot water heating
- Biomass cogeneration, district heating
- Passive solar design
- Zero energy buildings



The Challenge:

Training trades people fast enough
Retrofitting existing homes



Step 3:

Can we travel without oil or gas?



(a) Electric Vehicles: City car = \$7 to \$30 a month



(b) Plug-in Hybrid Electric Vehicles (PHEV)

Electric for local travel
+ fuel for long distance

Toyota Prius conversion team
www.calcars.org



Step 4:

Can we travel without cars?

- Telecommute; stay home
- Urban designs for easy walking
- Bicycle lanes, trails everywhere
- Complete new approach to transit



Boulder, Colorado, USA

Curitiba, Brazil



Step 5: What about trucks, and ships?



Hybrid truck = 50% less fuel
Could also be PHEV

Long-term solution:

- Stronger local economies
- More local production

Long-distance shipping?

- Stronger local economies
- More local production



Step 6: How much power will Electric Vehicles and Plug-in Hybrids need?

Fleet average: 0.25 kWh per mile
2,708,000 vehicles in BC
Includes buses and heavy trucks



Assume 10,000 miles (16,000 km) a year
Assume efficient, lightweight cars

BC's current electrical power use: 56,000 GWh/yr

Total EV power demand: 8,000 GWh/yr

The Challenge: full fleet conversion

Step 7:

How much new green power could BC produce?

Wind:	11,000 GWh a year	(5,000 MW*)
Microhydro:	11,000 GWh	(2350 MW)
Geothermal:	9,000 GWh	(1070 MW)
Tidal:	13,000 GWh	(2225 MW)
Solar PV:	12,000 GWh	(6,000 MW)
Other:	2,000 GWh	(230 MW)

Efficiency: 12,000 GWh saved
Solar hot water: 10,000 GWh saved
Groundsource: 4,000 GWh saved

Total new green = 84,000 GWh/year

* 5,000 to 50,000 MW



Step 8:

How much biofuel could BC produce?

All Plug-In Hybrid EVs will also need liquid fuel.



Full answer: ??



Biodiesel car



Compost car, Zurich

Step 9:

Build a stronger local economy

**The rising price of oil will shrink long-distance trade
Local production will become more competitive**

**Jobs in exports and imports will be lost
Jobs in local production will replace them**

Ask all businesses to

- **Examine their fuel vulnerabilities**
- **Explore their capacity to substitute for imports**
- **Form industry sector task forces to plan for the future**

- **Heavy Industry:**
- **What are its fuel needs?**
- **What are industry's plans for power substitution?**



Step 10:

Grow much more local organic food

**Our existing food industry needs lots of oil,
and lots of natural gas to make nitrogen fertilizer.**



Step 11:

Use the best policies, to accelerate progress

Eg Advanced Renewable Tariff (Feed Laws)

1. All renewable energy providers given guaranteed access to grid
2. Each form of energy is paid a guaranteed price per kWh
3. The tariffs are secure for 20 years
4. There's a possible size limit for each technology
5. The increased cost is shared by all ratepayers

ART has been adopted by 17 European nations, and by China.
Germany's law has led to the development of:

- 110,000 PV systems
- 2,000 biomass plants
- 6,000 small hydro plants
- 16,500 wind turbines
- 135,000 new power generators = 40,000 GWh/yr
- 45,000 jobs in the wind industry (110,000 jobs by 2010)

For details, see www.wind-works.org

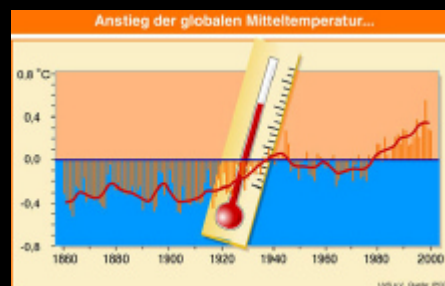
Step 12:

Promote the economic benefits

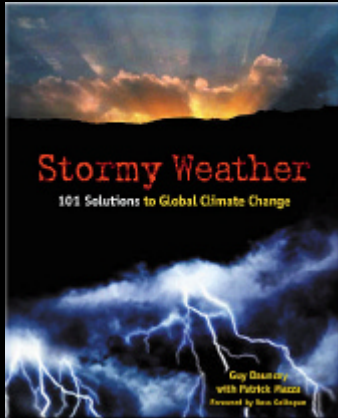
In BC, 84,000 GWh/year of new green power
= 400,000 new jobs (permanent and temporary)

Show the impact of NOT making the transition out
of fossil fuels:

- Business losses
- Bankruptcies
- Food shortages
- Economic recession
- Cost of coping with global climate change



**Thankyou.
This is not just about energy.
It is about the whole future of our planet.**



**“Stormy Weather: 101 Solutions
to Global Climate Change”
by Guy Dauncey with Patrick
Mazza
New Society Publishers**

**www.earthfuture.com
www.bcsea.org**