

Towards a 'One Planet' Region: A Community Conversation Series

100% Renewable Energy by 2050 for Municipalities

Tom Hackney, Policy Director
BC Sustainable Energy Association

6 February 2017



My talk:

- 1. How do “sustainable” or “renewable” energy relate to the One Planet Region goal?
- 2. What is 100% Renewable Energy by 2050?
- 3. Summarize results and recommendations of *100% Renewable Energy by 2050 Pathway for the District of Saanich*



Cool It! Climate Leadership Training





BRITISH COLUMBIA

Sustainable Energy
ASSOCIATION

ENERGY CONNECTIONS 2017

Vancouver | SFU Centre for Dialogue | March 4,
2017

energyconnections2017.ca



Bill Andrews
Counsel

Tom Hackney
Case Manager

“sustainable/renewable” energy

- climate change the biggest motivator (there are others)
- burning fossil fuels the biggest driver of climate change (there are others)
- most critical thing: find alternatives to fossil fuels to power our civilization

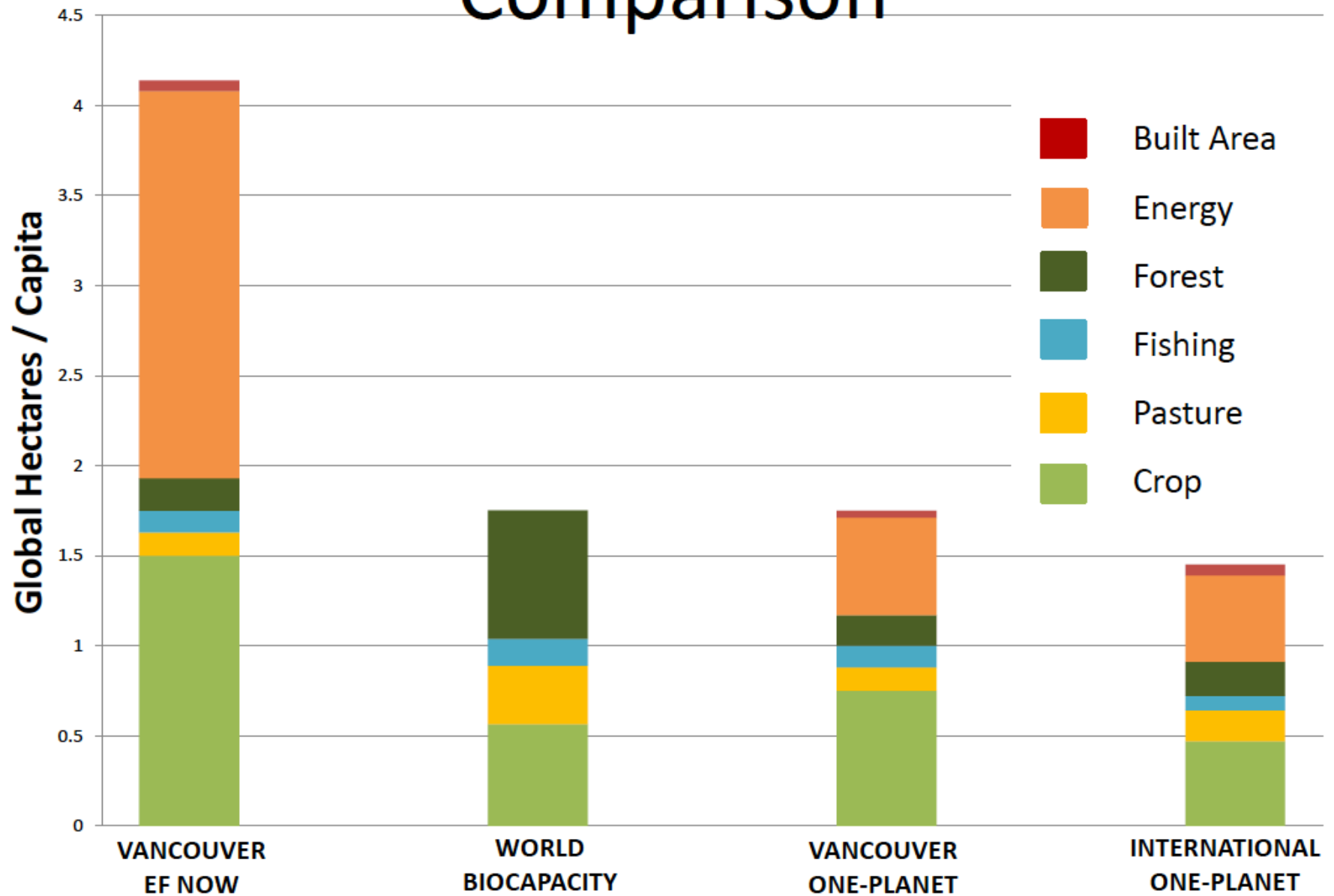
10 Principles of One Planet Living

- health and happiness
- equity and local economy
- culture and community
- land and nature
- sustainable water
- local and sustainable food
- travel and transport
- materials and products
- zero waste
- zero carbon energy

relevance of sustainable energy

- indirect
- indirect
- indirect
- direct & indirect; important
- mostly indirect
- direct & important
- direct & important
- direct & important
- mostly indirect
- direct & important

Comparison



What is 100% Renewable Energy by 2050?

- 100% Renewable Energy (RE) is the positively stated equivalent of 80% reductions of GHGs by 2050
- Cities all over the world are leading on climate action
 - C40 Cities Climate Leadership Group
 - Compact of Mayors
 - etc.

“Cities are home to 70% of the world’s energy related carbon dioxide emissions. ... With a continuing trend in urbanization for the upcoming decades, cities across Canada cannot afford to wait to increase climate change mitigation and adaptation efforts.”

– *Canada’s Mid-Century Long-Term Low-Greenhouse Gas Development Strategy*, Environment and Climate Change Canada, November 2016 (p. 7)

What is 100% Renewable Energy by 2050?

- Go 100% Renewable Energy (www.go100percent.org)
- informal group listing 164 entries worldwide, e.g.:
 - People's Republic of Bangladesh:
 - 100% ren. first-time electricity for 6 m households by 2017
 - 100% RE & net carbon neutrality (no target date)
 - Costa Rica:
 - 95% - 99% electricity
 - decarbonize by 2021
 - Vancouver; Victoria; Oxford County, Ontario:
 - 100% RE by 2050 (everything)

What is 100% Renewable Energy by 2050?

- means the *whole community*, not just municipal operations
 - for transportation, industry, electricity generation, instead of gasoline, diesel, natural gas, coal:
 - conserve energy
 - wind, solar PV, geothermal, etc.
 - biodiesel*
 - for buildings, instead of natural gas, propane :
 - conserve energy
 - heat pumps
 - biomethane*
- * if it can be made carbon neutral

Is it easy to get to 100% RE by 2050?

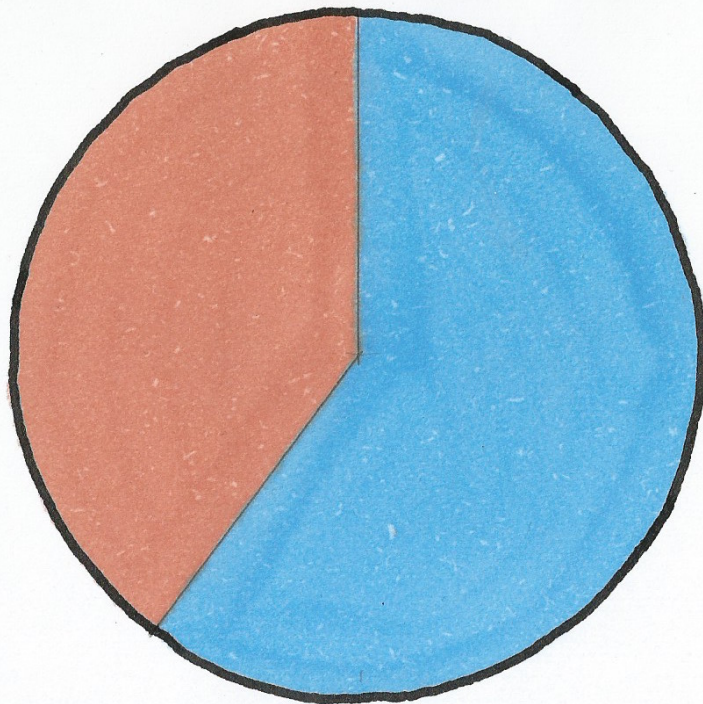
- No. It's a big challenge.

Is it worth doing?

- Yes!
- We will have to do everything we can.
- All over the world, people are rising to the challenge.

100% RE by 2050 Pathway for the District of Saanich – analysis & recommendations

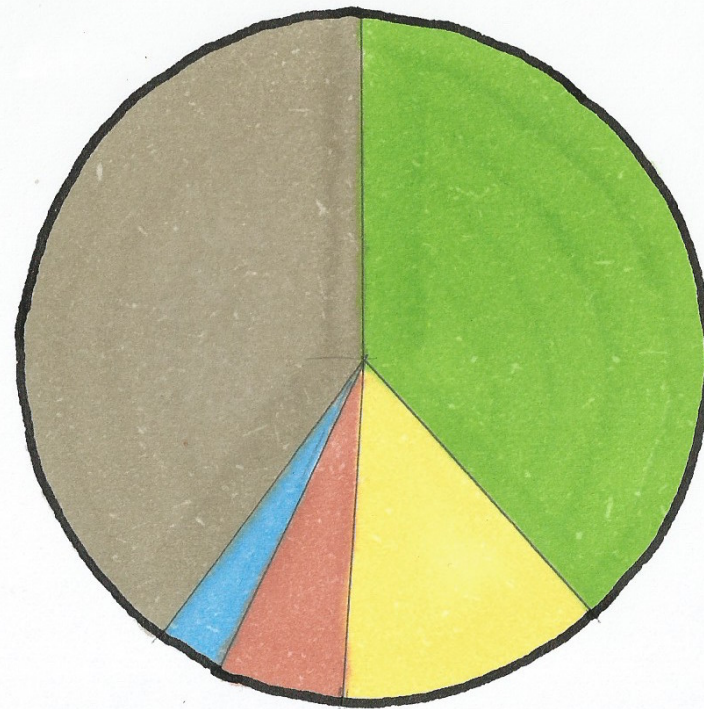
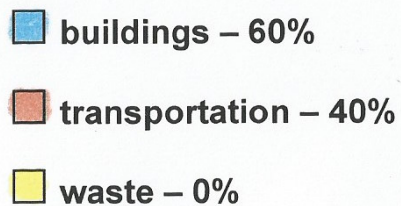
- Sustainability Grant from District of Saanich to BCSEA, Victoria Chapter
- results broadly applicable to southern Vancouver Island & beyond



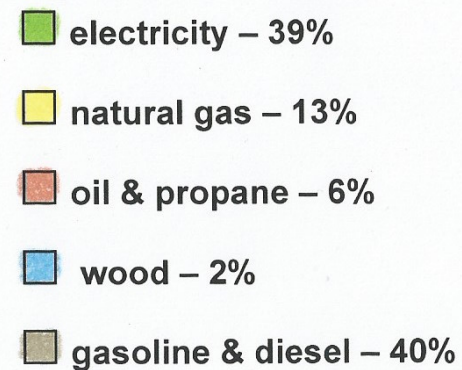
energy by end use

population: 111,000

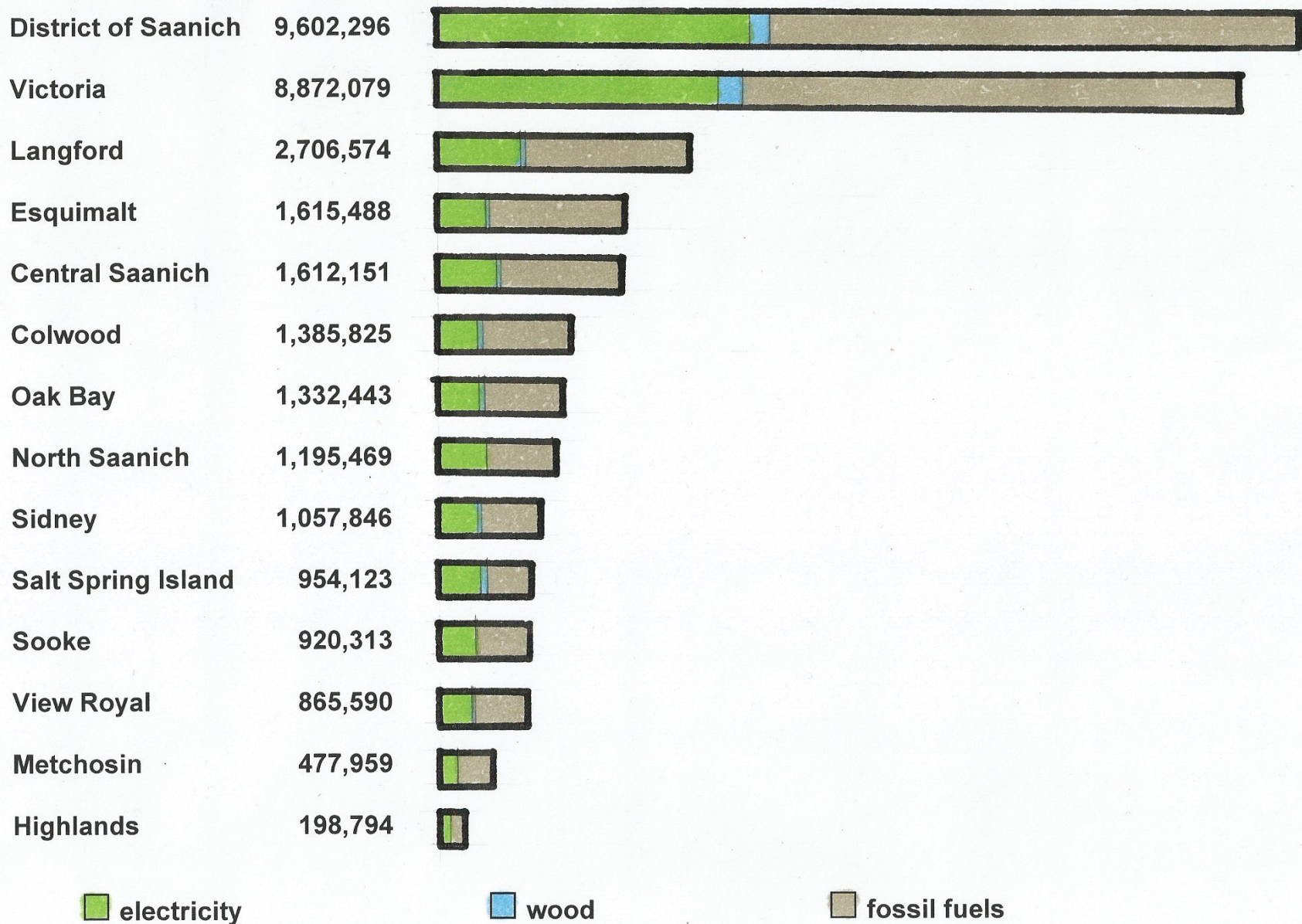
total energy use: 10.3 million GJ/year



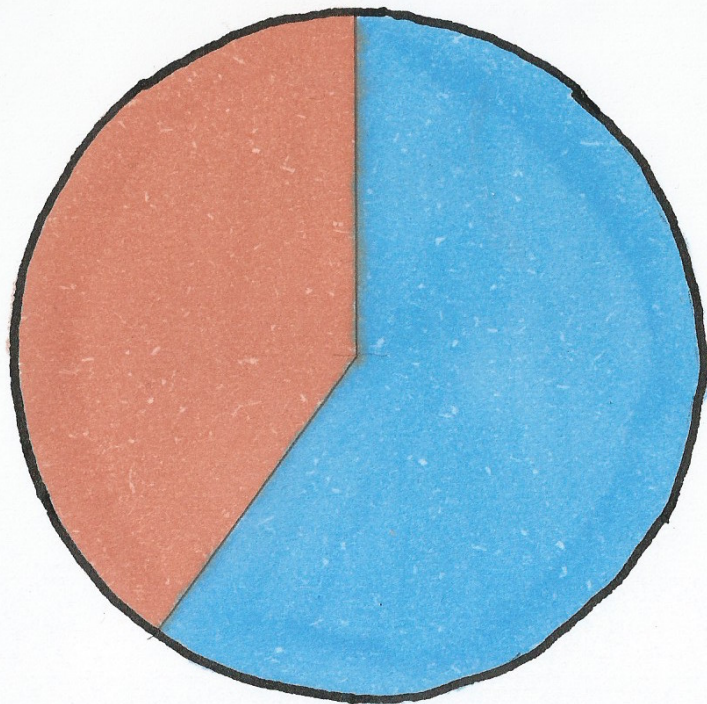
energy by source



District of Saanich – 2016 energy use

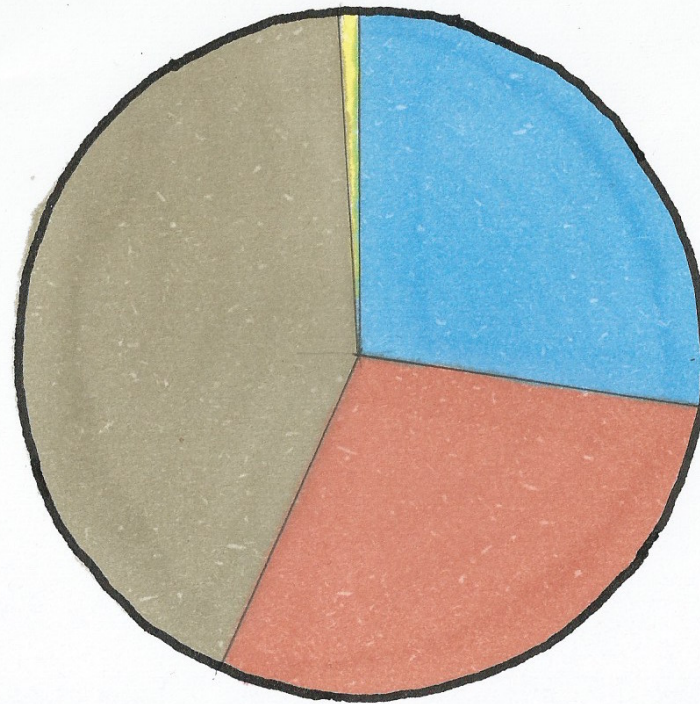


capital region municipalities 2010 energy use (gigajoules/year)



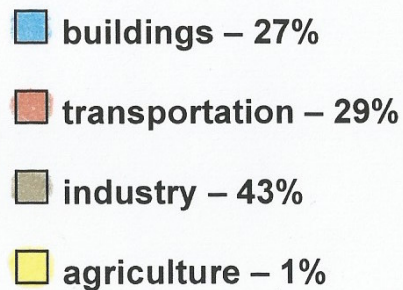
District of Saanich

total energy use: 10.3 million GJ/year

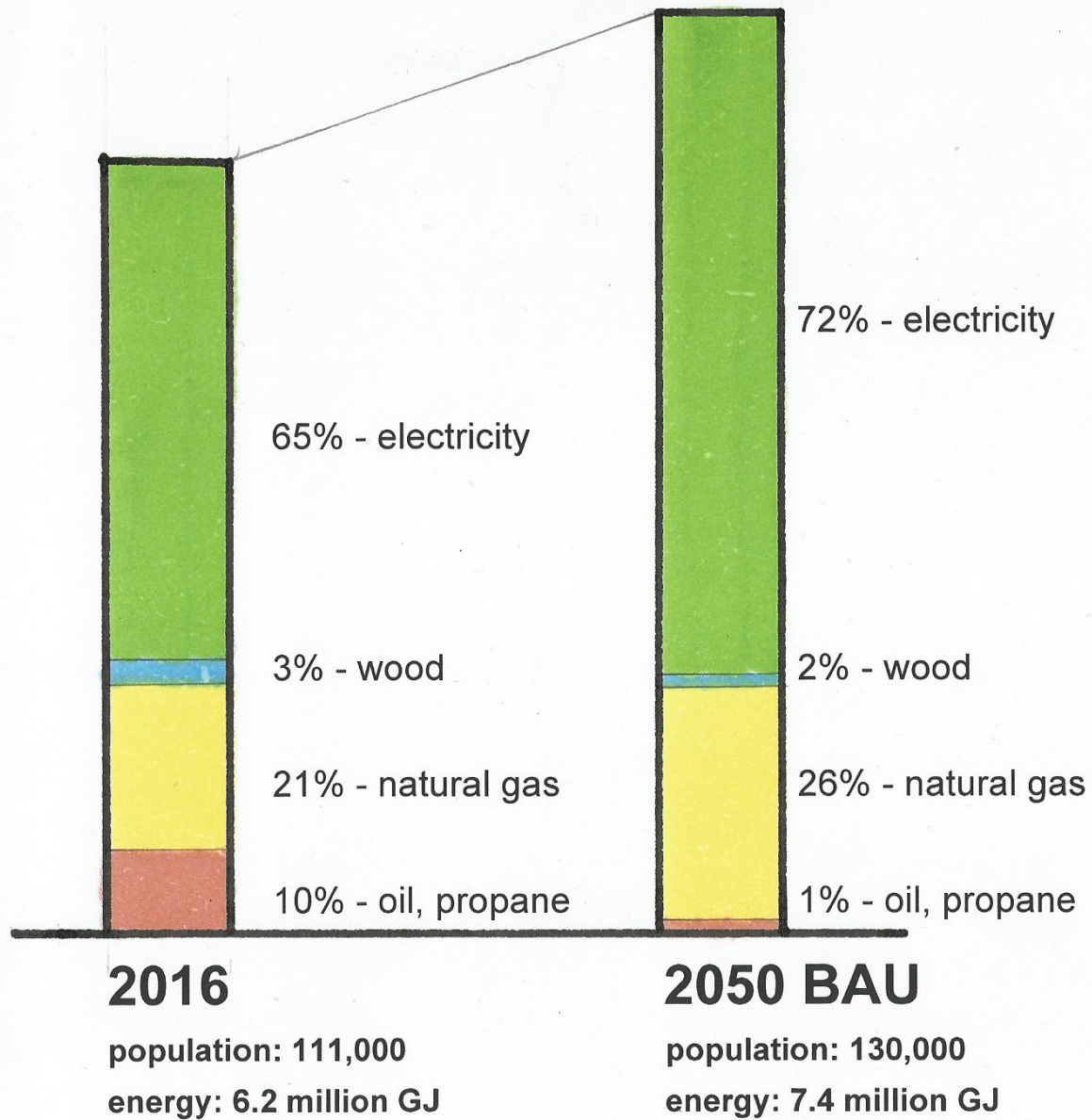


Province of BC

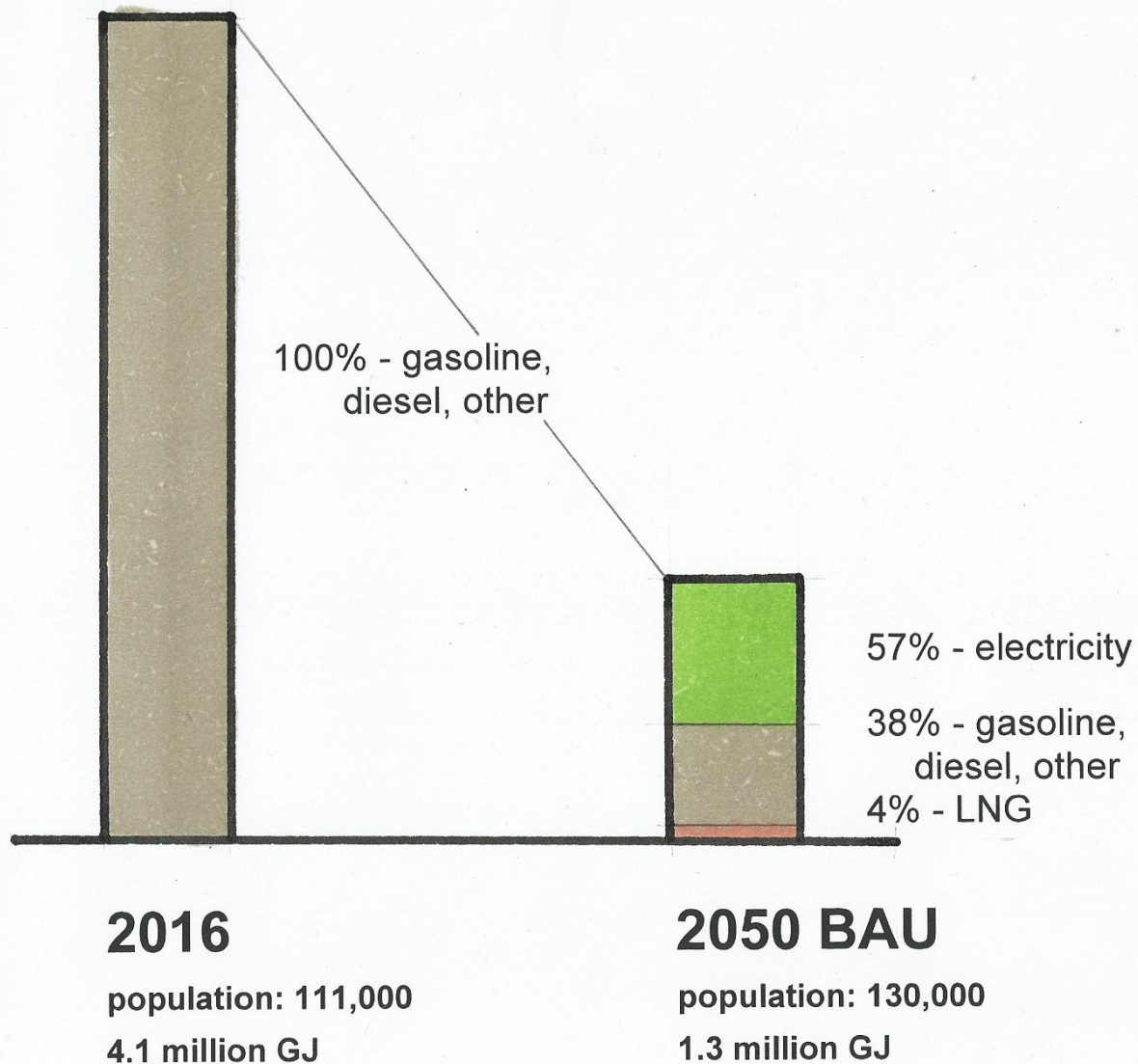
total energy use: 1,334 million GJ/year



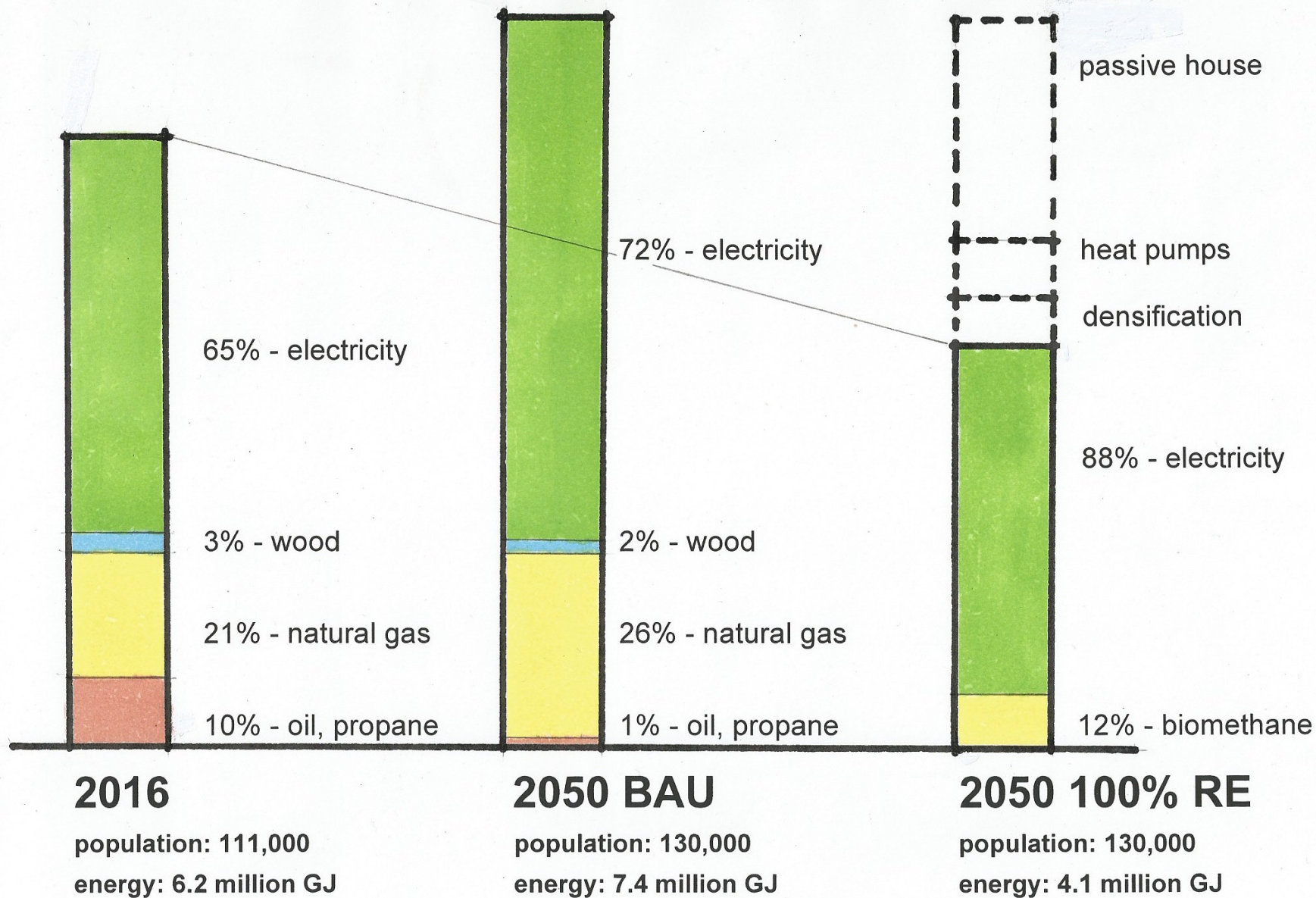
Saanich & BC energy use by end use



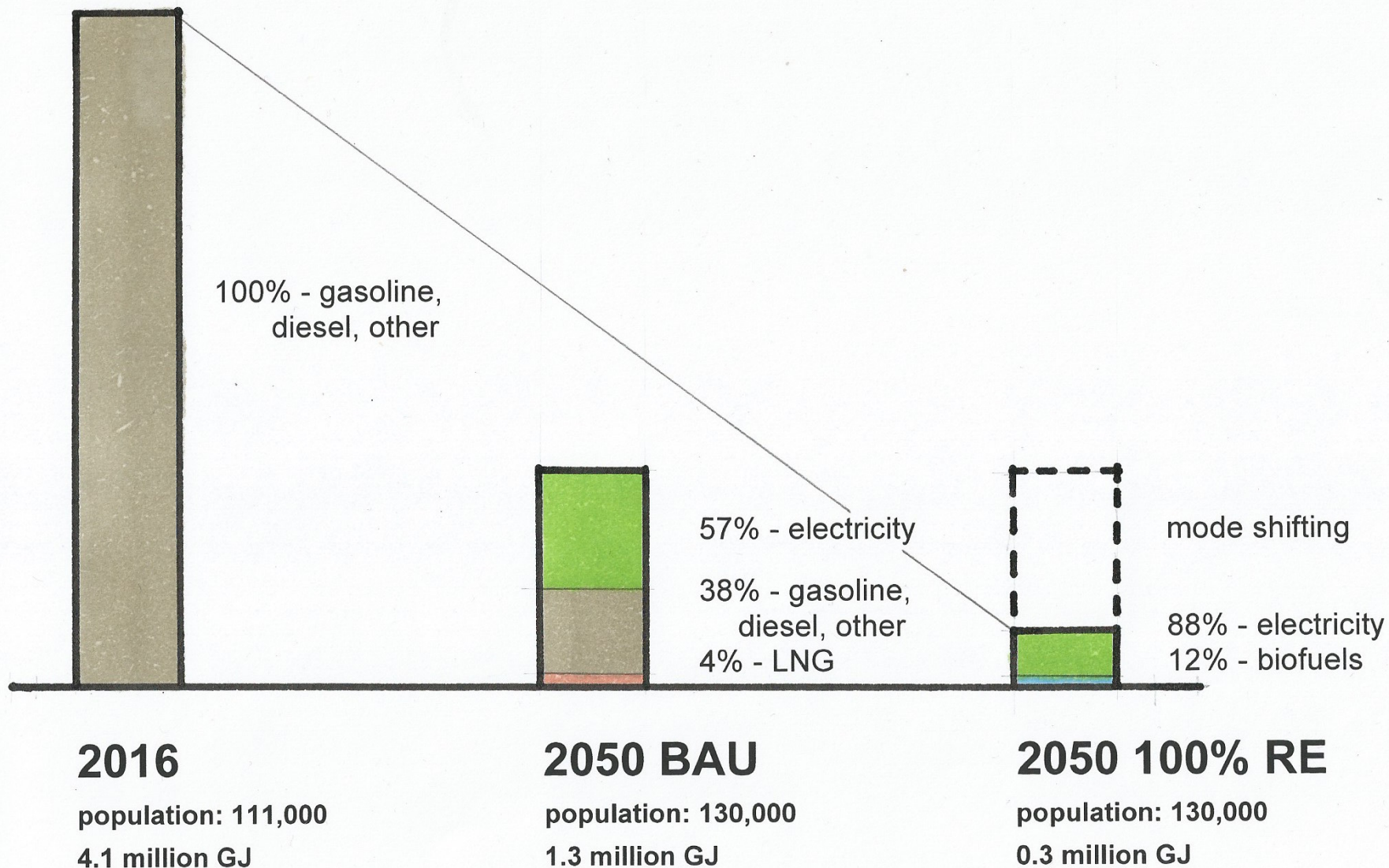
District of Saanich – energy use – buildings



District of Saanich – energy use – transportation



District of Saanich – energy use – buildings



District of Saanich – energy use – transportation

jurisdictional “buckets”

- municipality
 - zoning
 - development plans
 - streets
- regional district
 - transit planning
- province
 - highways
 - energy policy
 - emissions
 - building codes
- country
 - highways
 - vehicle standards

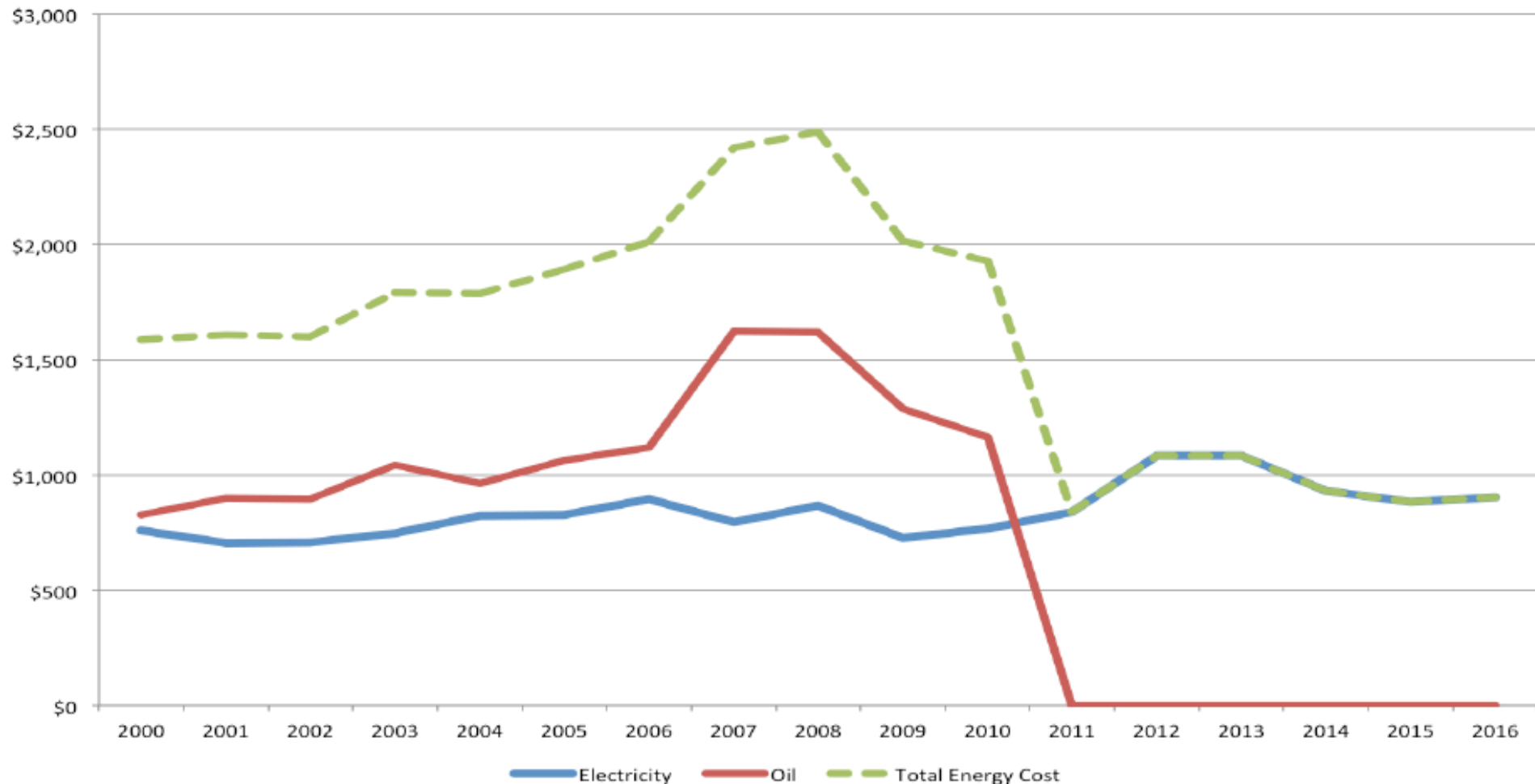
case study: Don Scott



- Victoria, BC
- 1967 2,400 sq. ft. split-level
- oil furnace to central heat pump
- upgraded insulation, doors, windows
- efficient appliances

case study: Don Scott

Chart 2 Total Annual Energy Costs



key recommended measures - personal

- live as close as possible to work & services
- switch to an electric vehicle – or better, switch to bicycle, transit or walking
- get an electric heat pump (central ducted or mini-split)
- insulate & air-seal your home or business; get efficient windows
- let your municipal and provincial governments know of your support for 100% RE

key recommended measures – government & society

- commit to 100% RE by 2050
- engage the public & all levels of government
- zone & plan for walkable communities
- plan for transit and cycling to be the main forms of regional transportation
- electrify transit & local freight; support EVs
- support community-wide upgrade of building efficiency (e.g. Osnabrück solar & thermal roof mapping)
- support district energy heat pumps & rooftop solar photovoltaic (PV) generation

helpful contacts

- your city hall:
 - mayor and council
 - sustainability staff (if any)
- your MLA & the BC government
 - BC Government Directory: <http://dir.gov.bc.ca>
- BCSEA Business Member Directory:
 - <http://www.bcsea.org/sed>
- Google search:
 - heat pump suppliers & contractors
 - new build & renovation contractors
 - Passive House builders
 - solar photovoltaic (PV) contractors
 - electric vehicle dealers
 - electricians who install EV chargers