

# Island Energy Plan 2020

## *Phase 1 Report – Energy Working Group*



# Energy Transformation Working Group

- **Working group members:**
  - Richard Andre
  - Marc Rosenbaum
  - Alan Strahler
  - Tom Soldini
  - Rob Hannemann
  - Kate Warner (emeritus)
- **Phase 1 activities**
  - Established energy and greenhouse gas (GHG) baseline
  - Sector working papers: defining the challenge
- **Phase 2 plans**
  - Update baseline (2019) and codify process
  - Completion of Island Energy Model
  - Scenario definition and analysis
- **Phase 3: master plan / roadmap**

# 100% Renewable MV

*Focus: responsible change, and development of a resilient infrastructure to protect and defend our Island home*

- **Reduce fossil fuel use on the Island, from a 2018 baseline:**
  - 50% by 2030
  - 100% by 2040
- **Increase the fraction of our electricity use that is renewable:**
  - To 50% by 2030
  - To 100% by 2040
- **Foster biosphere carbon capture through:**
  - Adoption of regenerative agriculture and landscaping
  - Protection and expansion of wetlands
  - Preservation of woodland resources

# 2018 Baseline

	Mixed Units	GWh	kTonne CO2	
<b>Electricity (GWh)</b>				
Eversource	197.7	197.7	75.01	
On-Island Renewables	16.6	16.6	0.00	
<i>Annual total</i>	<i>214.4</i>	<i>214.4</i>	<i>75.01</i>	<i>22.7%</i>
<b>Transportation (Mgal)</b>				
Gasoline	7.08	238.60	65.21	
Diesel	3.17	119.83	32.07	
Marine diesel (SSA ferry)	1.29	43.22	14.63	
Aviation fuel	0.80	28.56	7.48	
<i>Annual total</i>		<i>430.20</i>	<i>119.39</i>	<i>45.5%</i>
<b>Bldg HVAC (combustion; Mgal)</b>				
Heating oil	2.70	90.45	30.63	
Propane	7.88	209.61	45.41	
<i>Annual total</i>		<i>300.06</i>	<i>76.03</i>	<i>31.8%</i>
<b>Grand Total</b>		<b>944.66</b>	<b>270.43</b>	

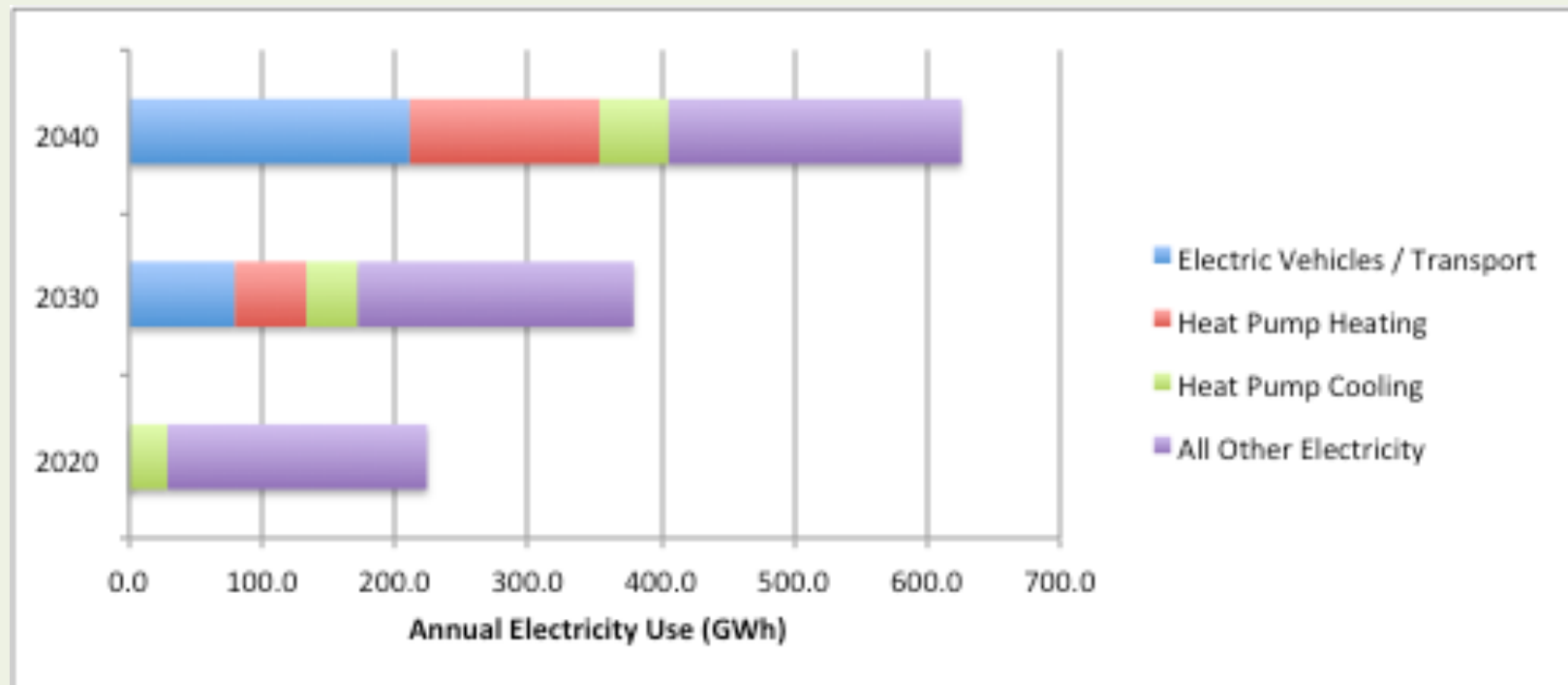
# Transformation Strategy

- **Simple to state, challenging to implement**
- **Starting point: there are no clean fossil fuels**
- **Step 1: Electrify all end uses of energy**
- **Step 2: Make both imported and on-Island electricity renewable**
- **Added feature of importance: increased resilience of supply and distribution**

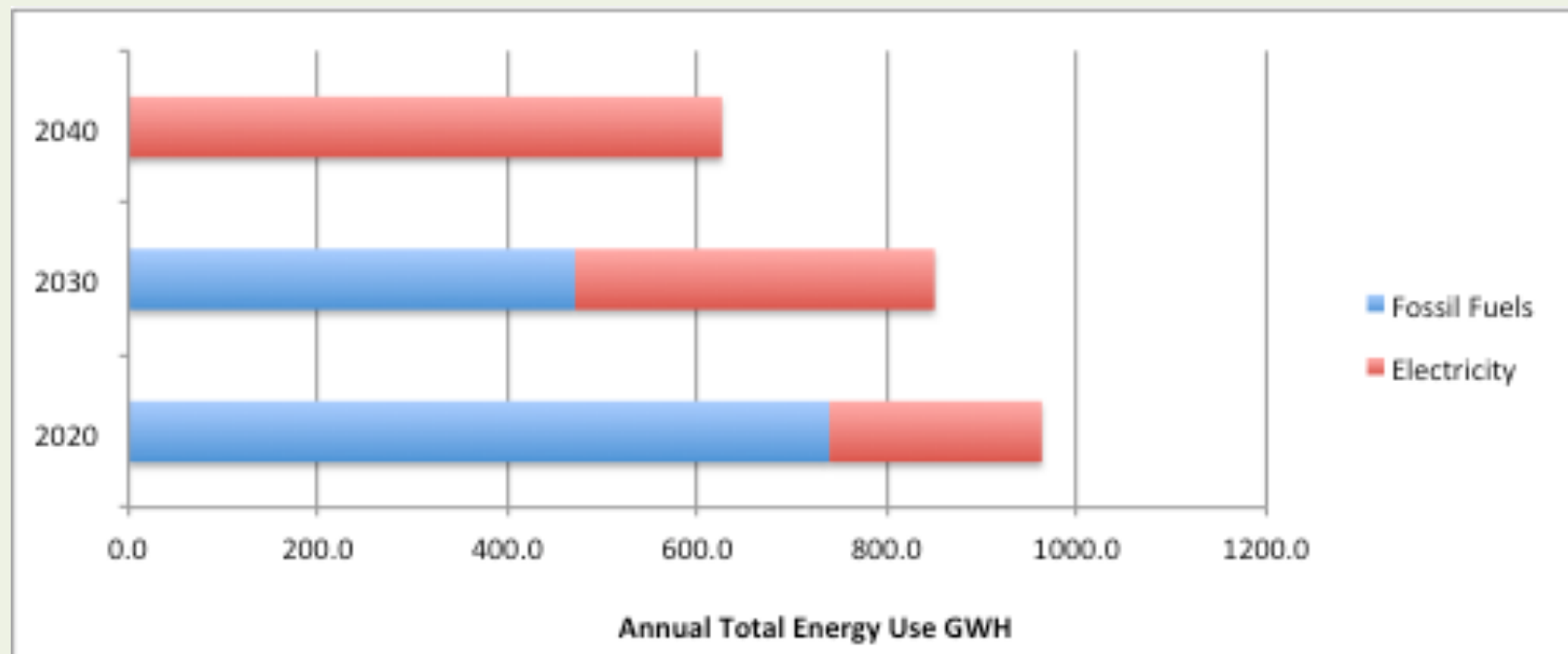
# Rough analysis: sizing the transformation

- **Overly-simple scenario analysis assumptions**
  - Island population growth of 0.6% / year
  - Constant transportation miles per capita per year
  - Housing unit growth identical to population growth
  - No major additional commercial buildings
  - Linear growth of EV and heat pump market penetration
- **Electricity requirements grow 2.8X by 2040**
- **On-Island energy use *declines* by 35%**

# Growth in electricity use




## Decline in total on-Island energy use





# Resilience and self-sufficiency

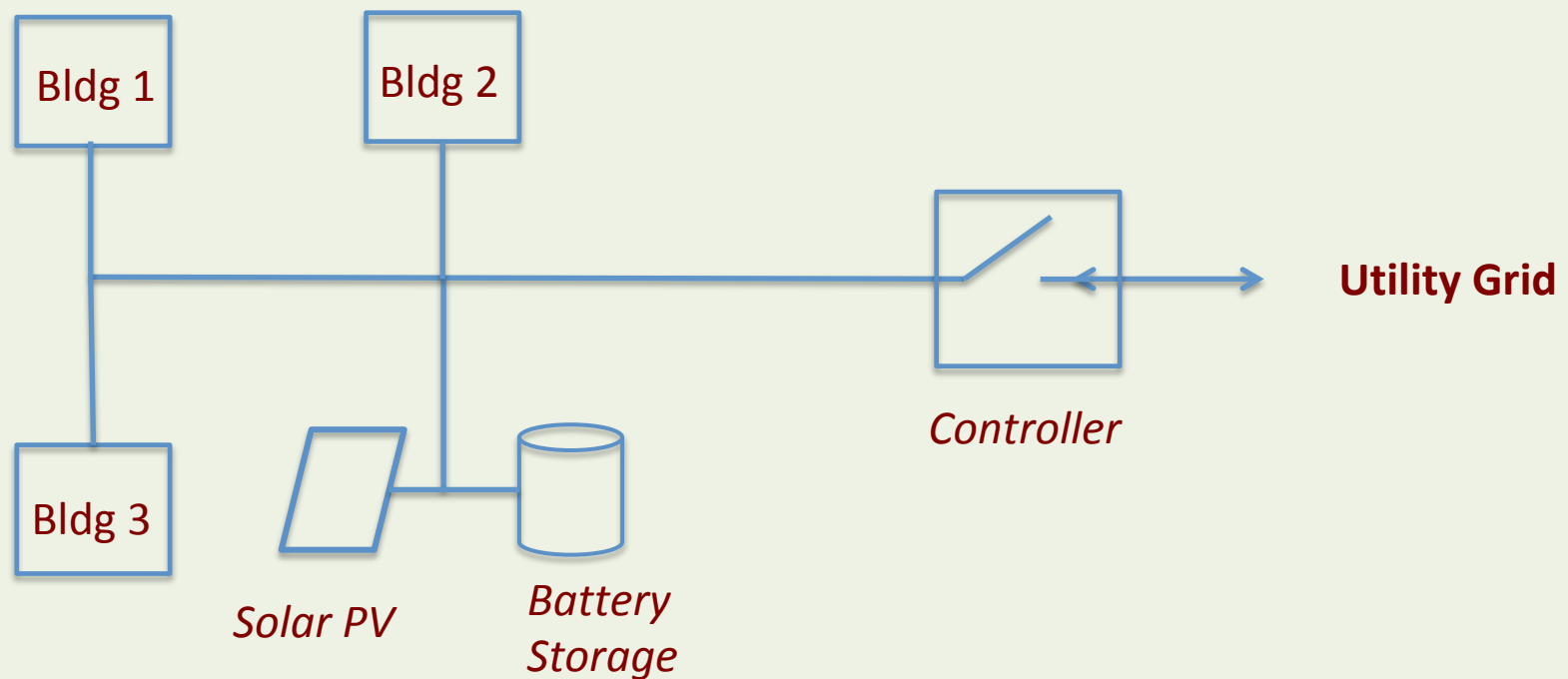
- **Microgrids for essential services**
- **Underground wiring**
  - “Last mile”
  - Distribution
- **Local renewable generation**
  - Individual users
  - Community solar
  - Right target? 50% ?



Offshore wind  
must happen!

# Microgrids

*microgrids: "the grid" :: wifi: internet*



# Key Strategy Areas

- **Education**
  - CATF
  - MVC
  - Stakeholders
  - Public
- **Policy**
  - Local: MVC, towns
  - Support for state initiatives
- **Partnerships**
  - Vineyard Power
  - CLC
  - Eversource
  - Island stakeholders

***We can do  
this!***