Climate Conversations: Energy

Introduction

Land Acknowledgement

Opening Prayer

Etch out a future of your own design

Well tailored to your needs.

— Thomas Dolby, *Wind Power*

Energy: Topics

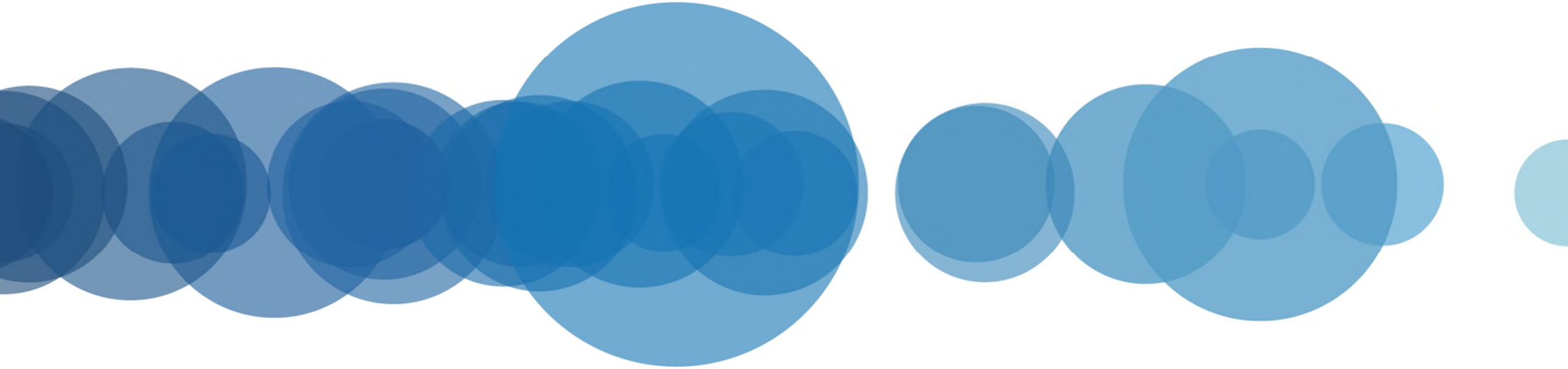
Home:

- Heating and Cooling
- Envelope
- Hot Water
- Clothing
- Cooking
- Dishes
- Entertainment

Electricity:

- Solar and Batteries
- Lighting
- Electrical Panels
- Green Electricity
- Efficiency

Home: Everyday Life



Home: Heating and Cooling

Heap Pumps
- Two-way refrigerator
- Heating *and* **Cooling**
- No indoor **Combustion**

Temperature **settings**
- 64°F to 78°F

Home: Envelope

Insulating can reduce energy usage
- Ceilings and Walls
- Windows
- Doors
- Pipes

How to find issues?
- Home Energy **Audits**

Rebates and **programs**
- Seattle City Light

https://www.seattle.gov/city-light/residential-services/home-energy-solutions#rebates

Home: Hot Water

Electric Tank
- Simple but **not very efficient**

Electric Tankless (“Instant”)
- Continuous
- **Multiple units** required

Heat Pump Water Heaters
- **Hard to integrate** with HVAC
- Cools interior!

Home: Clothing

Washing

- Mostly just **hot water**

Drying

- Air drying is preferable, but…
- Air drying is difficult in Seattle(!)
- Common **240V/40A device**
- **Outlet** can be used for EVs

Home: Cooking

Combustion is **Unhealthy**
- Linked to asthma etc.
- NOx, CO, CO2

Induction Ranges
- **Precise control**
- Energy efficient
- “Hard to burn things”

Electric Ranges
- Not as efficient
- At least **no combustion**

Home: Dishes

Dishwasher

- **Greener** than hand washing!
- **Uses less** water, less heat
- **Safer** for dishes too!
- Less work, but $$

Hand washing

- Wash, rinse basins
- Dish drainer

Home: Entertainment

Video

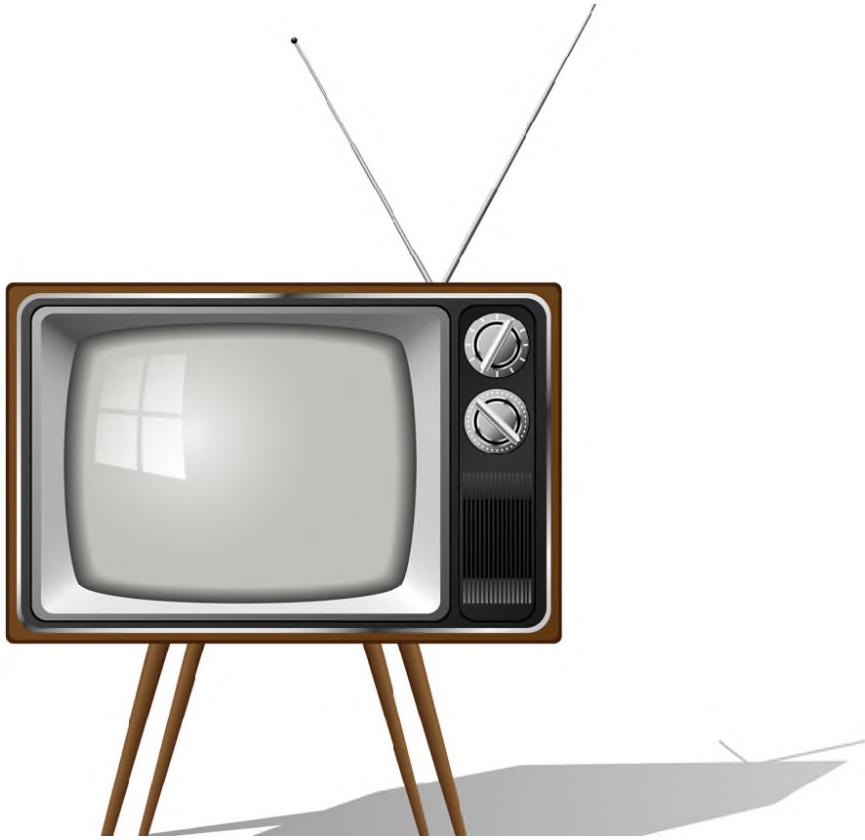
- Plasma, LED all **energy hogs**
- **Smaller** is better.
- Phones best (but painful!)
- Disconnect when not in use

Audio

- **Very low** energy use

Paper

- No energy, reusable, cheap!



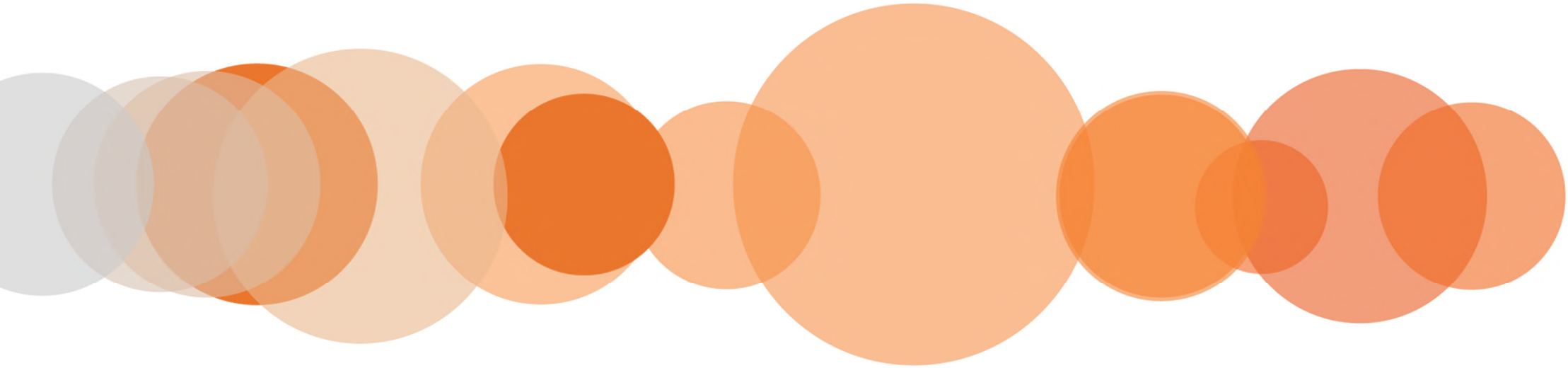
Home: Break Out Session!

What changes might **reduce** heating, cooling and water heater energy use and costs?

What can you do about **appliances**?

What are the benefits and disadvantages or **difficulties** with making changes?

Electricity: Powering Your Home



Electricity: Solar and Batteries

Batteries
- **Resilience**
- Reduce grid stress
- Some **limits** (HVAC)

Solar Panels
- Resilience
- Long term **savings**

EV battery alternative

Electricity: Lighting

LEDs
- Many varieties
- **2700°K** is “warm”
- Few toxic contents (unlike CFDs)

Compact Fluorescent Devices (CFDs)
- Low energy use
- Hard to dispose of (**Mercury**)
- Hg release < incandescent + coal

Use daylight and **fewer lights**

Electricity: Panel

Electrification **increases load**

Many **40+ Amp** circuits
- Heat pumps (50A!)
- Dryer
- Water heater
- EV Charging

May be able to **share outlets**
- Dryer and EV similar
- Widgets, EV cable adapters

Electricity: Green Energy

Not a big concern in Seattle
- Over **95% non-emitting**
- Hydro and Fission mostly

Some other locations let you sign up
- Encourages development
- **Prods utilities**

Community Solar
- Shared panels

Electricity: Efficiency

Works for any source of energy
- Generally **reduces consumption**
- And hence emissions

Also **increases comfort**!
- No drafts
- No rooms to avoid
- **Better sleep**

Electricity: Break Out Session!

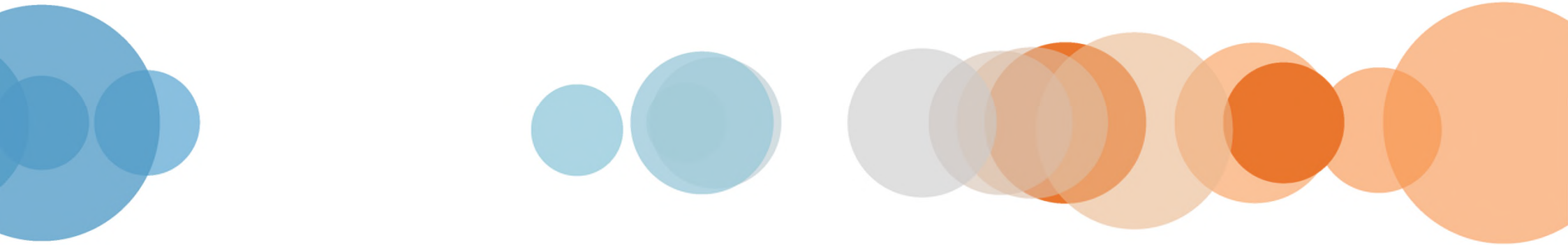
What did you **like or dislike**?

What might be **possible** relating to the electricity supply for your home?

What lighting changes might be most **effective** for you?

What can you see yourself **trying**?

Taking Action



Taking Action: Carbon Tracker

Analyse your carbon emissions
Insights on what to change

Suggestions are on the Tracker
Specific actions on energy
Shows your energy savings

Taking Action: St. Mark's Initiatives

Completed

- Replaced Cathedral and St. Nicholas boiler controls
- Replaced 85% of St. Nicholas steam traps
- New thermostatic controls
- Lights retrofitted with LED's
- Electric Vehicle charging station
- Decommissioned gas furnace on Level 5 of Cathedral House

Taking Action: St. Mark's Initiatives

In Progress / Planned

- Replace gas water heaters in Bloedel kitchen and Leffler house (July/August 2022)
- Replace Thomsen Chapel gas boiler with air source heat pump (in design, installation expected 2022-2023)
- Rehab of boiler system vacuum pump at St. Nicholas (in bid phase, installation expected August 2022)
- Installation of water/chemical treatment systems for Cathedral and St. Nicholas boilers (expected installation 2022)
- Cathedral boiler Tear down, inspection, interior cleaning (August 2022)


CLIMATE
CONVERSATIONS
FROM SAINT MARK'S
CREATION CARE MINISTRY

Closing Prayer