What is the Bethel Clean Energy Project?

Partners

Beyond Toxics, EWEB, Active Bethel Community, VertueLab, Business Oregon

Participants

Bethel residents living north of JH Baxter that have been impacted by air pollution and dioxin contamination

The Goals of the Bethel Clean Energy Project

Supporting Bethel!

Benefits for a community harmed by the illegal practices of a large polluter.

Your Voice is Heard!

Community decision-making about energy systems to improve your health and property values

Benefits!

- **Phase I - Choose what is best for you!**
- **Phase II - Get beneficial clean energy benfits for <u>little or zero cost!</u>**

Overview of Upcoming Meetings

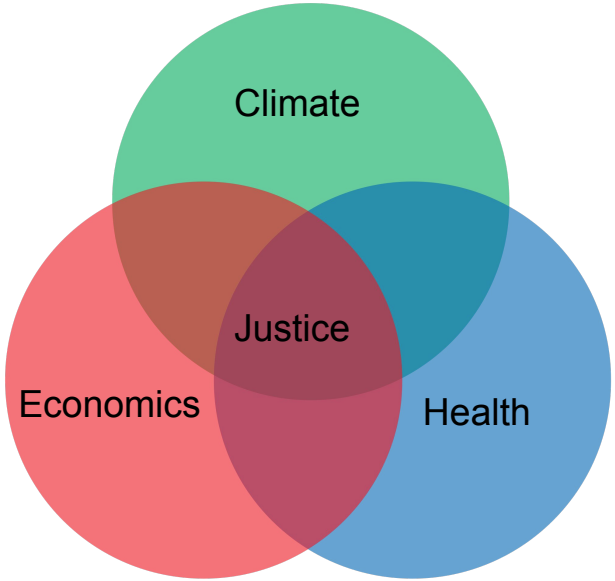
- **Meeting 2 (May 18th):**
  - **Purpose:** Learn what EWEB offers as your utility and what are the Incentives and Financing Opportunities?
    - Learn about the costs and incentives (and benefits) of obtaining clean energy in your home from a EWEB & Beyond Toxics
    - Ask Questions & Discuss Choices in Breakout Groups

- **Meeting 3 (May 25th):**
  - **Purpose:** EWEB Presents on Home Energy Audits
  - Example of Community Energy in Corvallis
  - Discussion on What Clean Energy Project is Feasible

- **Exit Interviews by phone to prepare for Phase II**

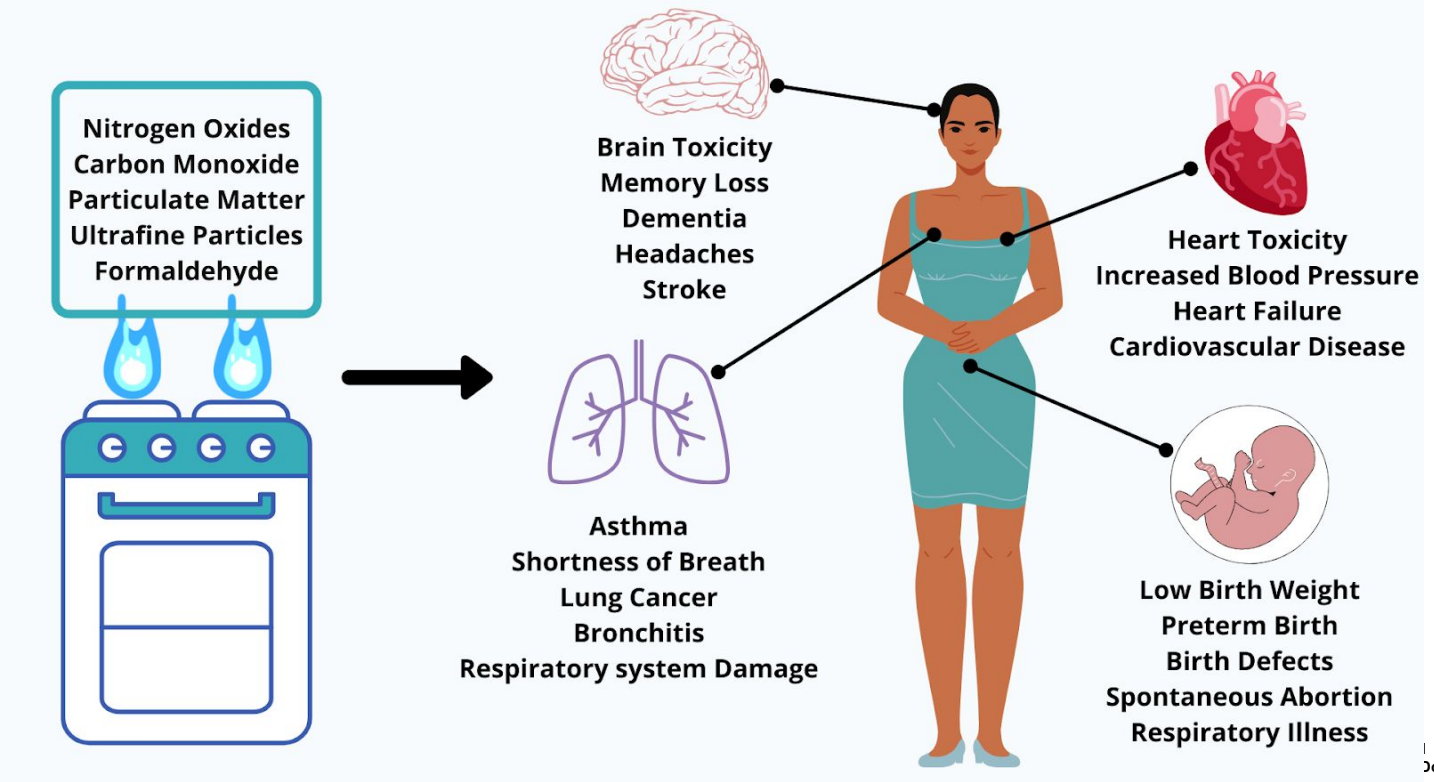
The Benefits of Electrification

Why Building Electrification?



- It reduces greenhouse gas emissions and is an achievable way to fight climate change
- By changing building and city codes it is easier to regulate the emissions that come from buildings than it is from many other sectors.
- It has many benefits that contribute to a just transition

Health Impacts of Gas



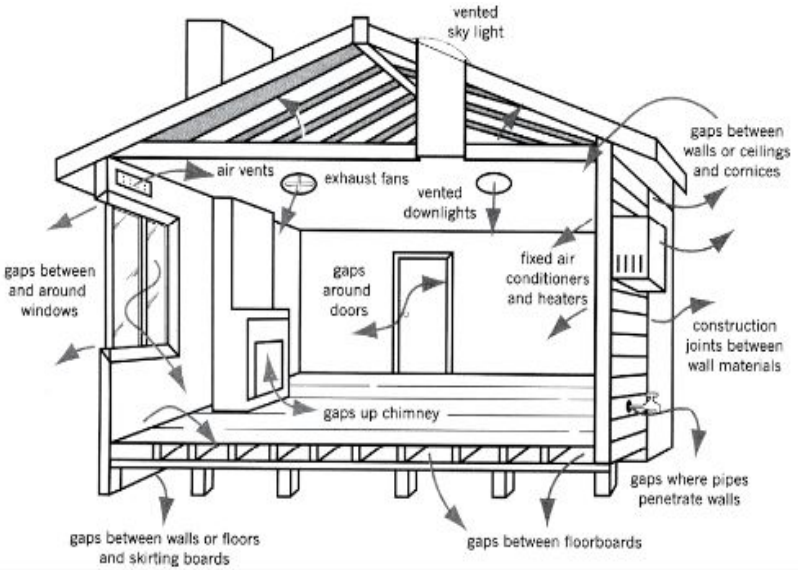
Health Impacts of Gas cont.

- Homes with gas stoves have 50 percent to over 400 percent higher nitrogen dioxide levels in their indoor air than homes with electric stoves, which can lead to heart failure and asthma.
- One hour of cooking on a gas stove produces nitrogen dioxide levels that would be illegal if found outdoors.
- 12% of all US childhood asthma cases can be attributed to gas stove use

NW "Natural" is not so natural
https://youtu.be/NDVpNSTBNDo

Economics of Energy Efficiency

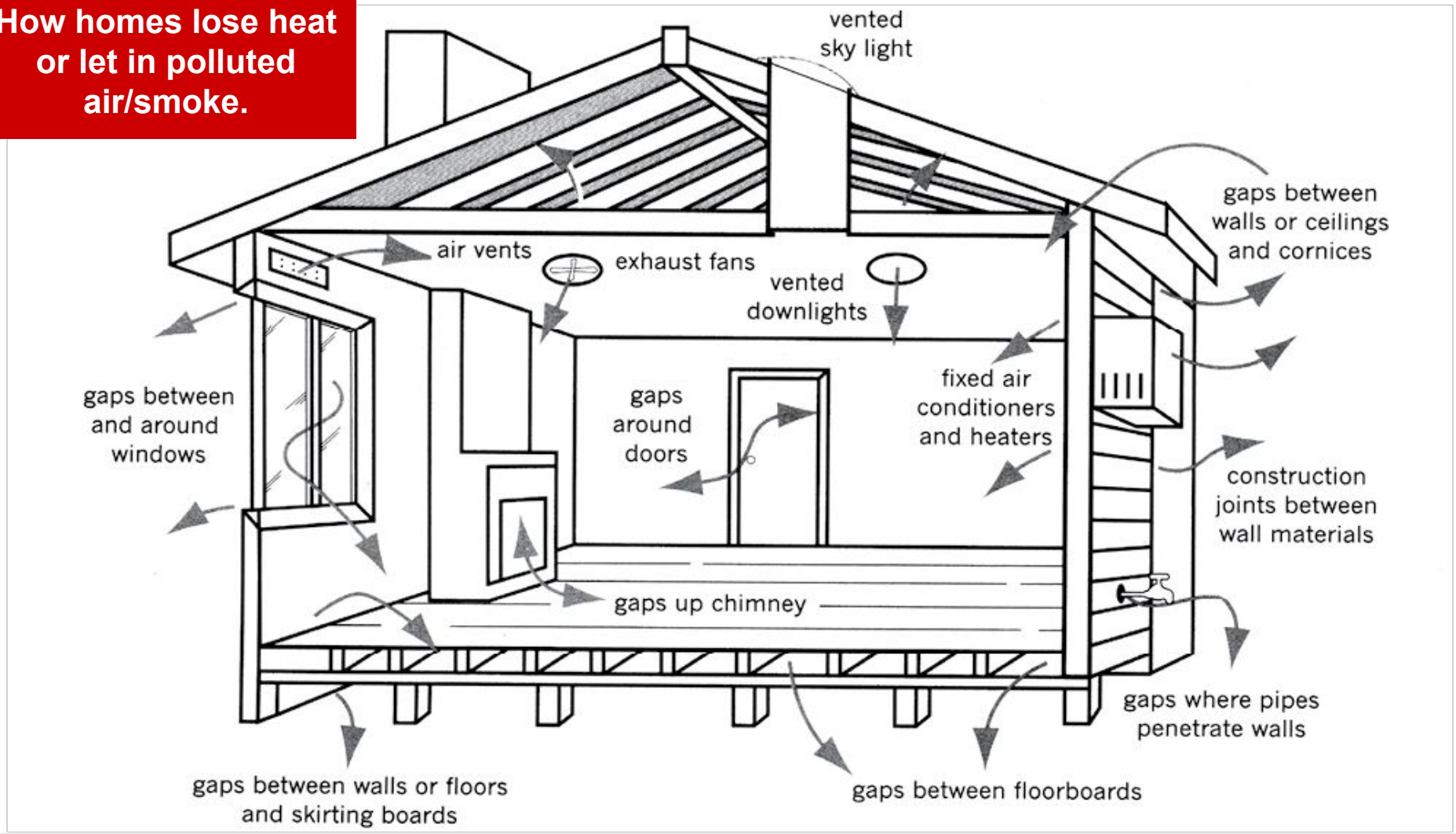
- The average American household spends about 3.5% of their income on utilities; this spikes upwards of 10% for low-income households.
- Low-income households have the least access to energy-efficient appliances or other clean energy technologies
- Oregon state agencies estimate that energy efficiency improvements such as improved heating, cooling, and weatherization in homes can save $113 million per year in utility costs for low-income households.



From the American Council for an Energy-Efficient Economy

Image via Build/Shift Collective

How homes lose heat or let in polluted air/smoke.



VertueLab

Bethel Clean Energy Project

Community Meeting 2023

The Climate Crisis Demands New Systemic Solutions

Climate change is a global and systemic problem that demands scalable and systemic solutions.

VertueLab is deploying an often overlooked climate action strategy – harnessing the passion and ingenuity of climate tech innovators and entrepreneurs.

Mission & Vision

MISSION & CORE PURPOSE

To unleash innovation and entrepreneurship that will solve environmental challenges and catalyze shared economic prosperity.

VISION

The Pacific Northwest region will be a hub for developing and deploying innovative and equitable solutions for averting the climate crisis.

VertueLab is working to overcome the systemic environmental, social, and economic challenges we face.

We want to capture a once-in-a-generation opportunity to make the Pacific Northwest region a hub for developing and deploying innovative and equitable solutions.

*EQUITY

Frontline communities will lead the solutions and reap the benefits.

*ECOSYSTEM

Building a vibrant regional ecosystem to support entrepreneurs from concept to market

*PIPELINE

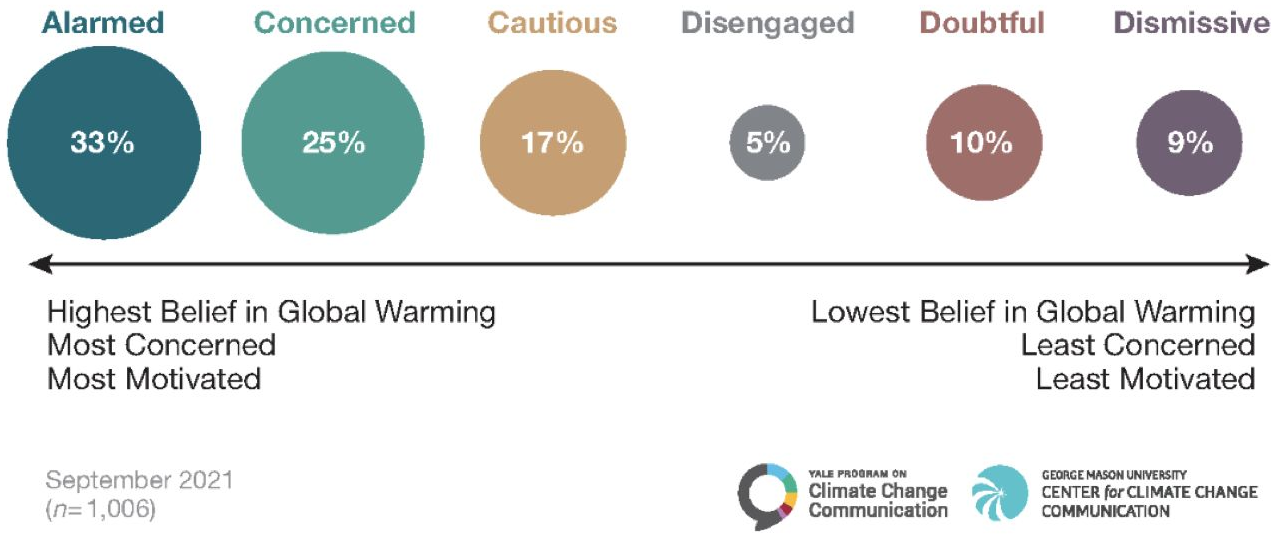
Promising climate tech companies lead a clean energy transition

*RESULTS

Falling emissions, a regenerative economy, and balance between people and nature

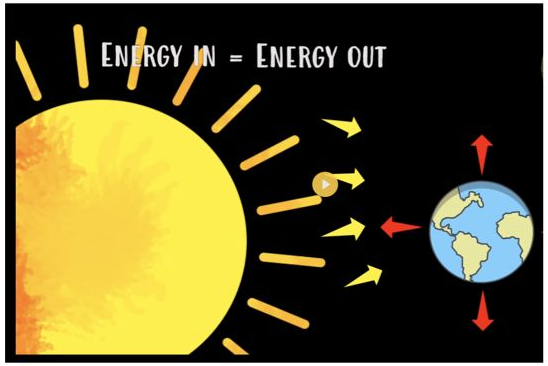
VertueLab

Where are You in this Spectrum?



Why do We Need Renewable Energy?

Greenhouse Gases like carbon dioxide trap energy near the surface of the Earth, providing a blanket that doesn't let the energy of the sun bounce back to space. This is a natural phenomenon and the earth balance that exchange to ensure life on earth as we know it.

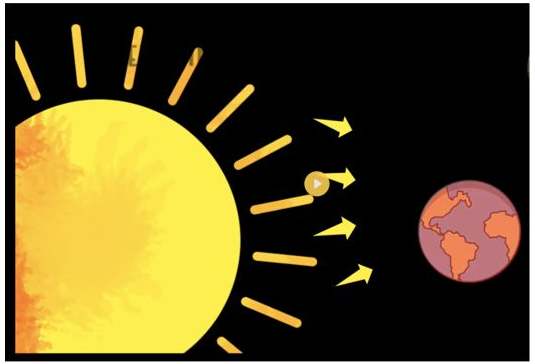


Terra.do/class

Why do We Need Renewable Energy?

Humans have dramatically increased greenhouse gas concentrations in the atmosphere over the last two centuries. Climate scientists call these human-caused emissions

Higher levels of CO_2 and other greenhouse gases increase in the atmosphere result in Earth's average temperature to rise.

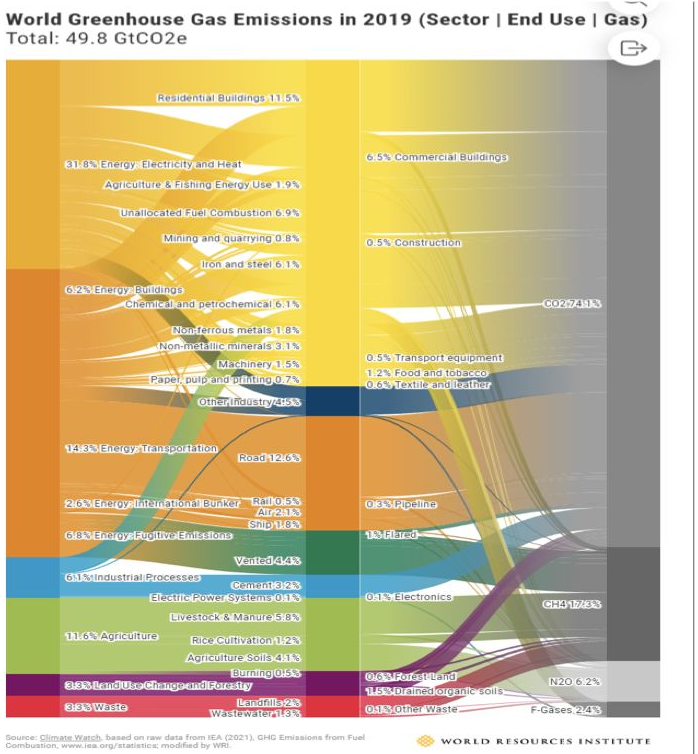


Terra.do/class

Why do We Need Renewable Energy?

Human activity such as the burning of fossil fuels for energy (electricity, heat and transportation) has increase the concentration of methane, carbon dioxide and other greenhouse gases. This is what we call Global Warming.

According to the [World Resource Institute]() in 2019, Electrifying and Heating Residential Buildings is the cause of 11.5% of emissions.



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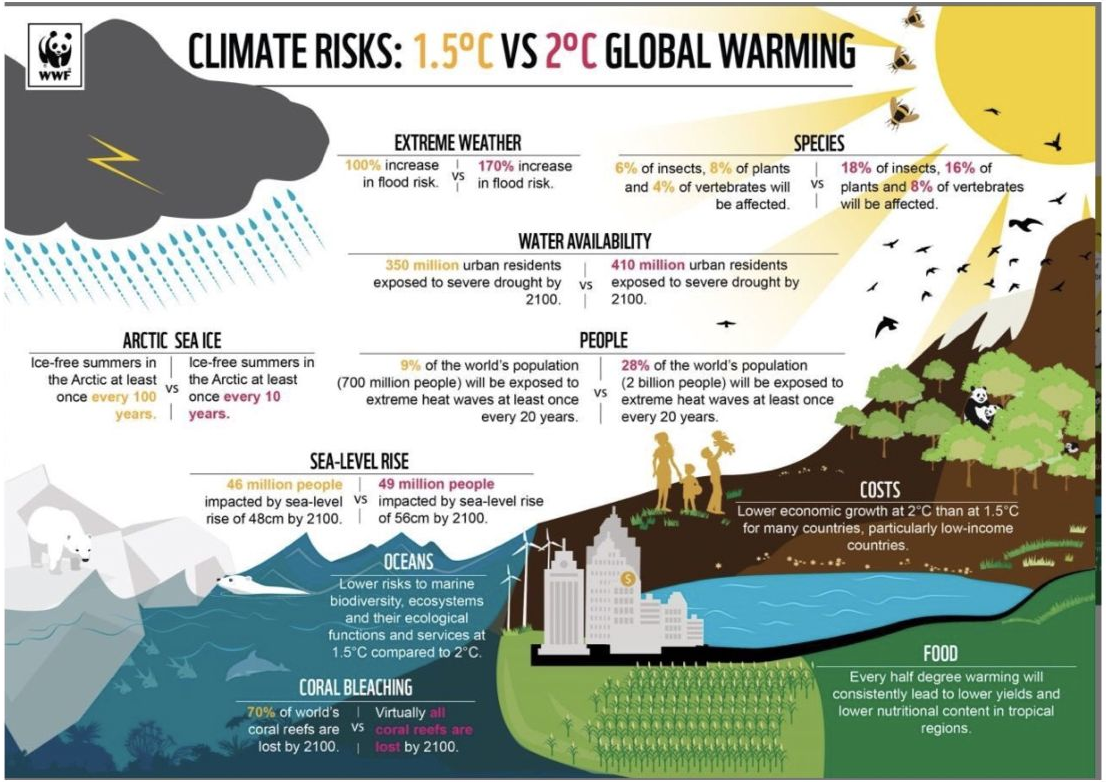
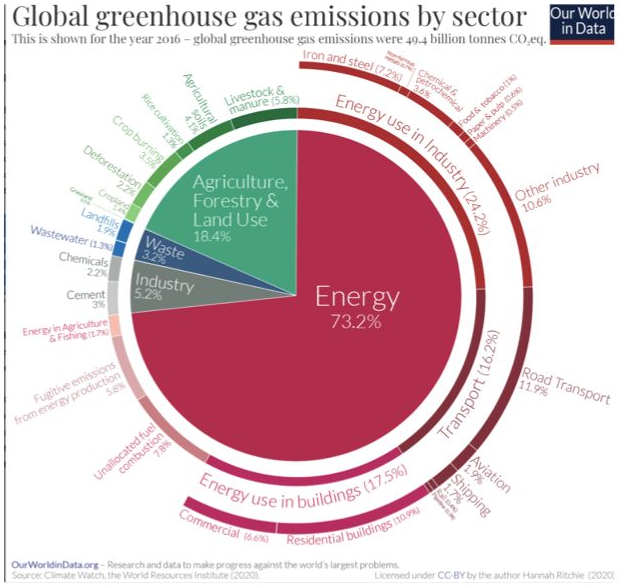
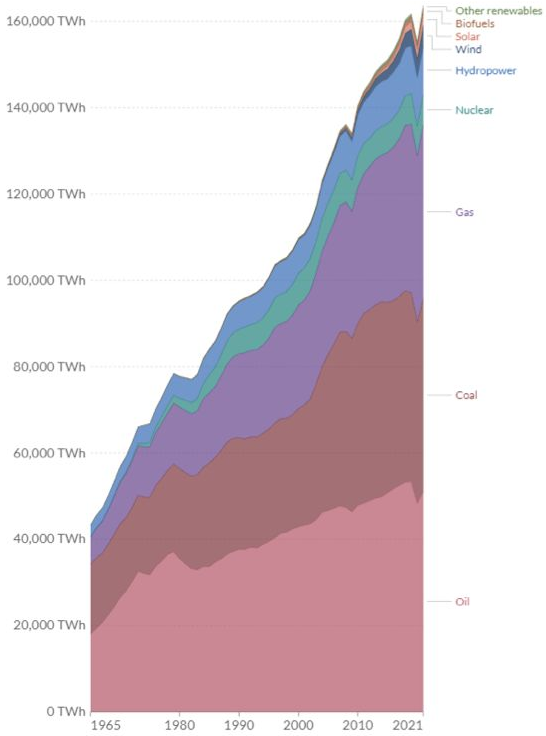


Renewable Energy

The reason we care about energy so much when it comes to climate change is that it's the dominant source of our greenhouse gas emissions. That's because the great bulk of our energy comes from burning fossil fuels: chiefly coal, oil, and natural gas

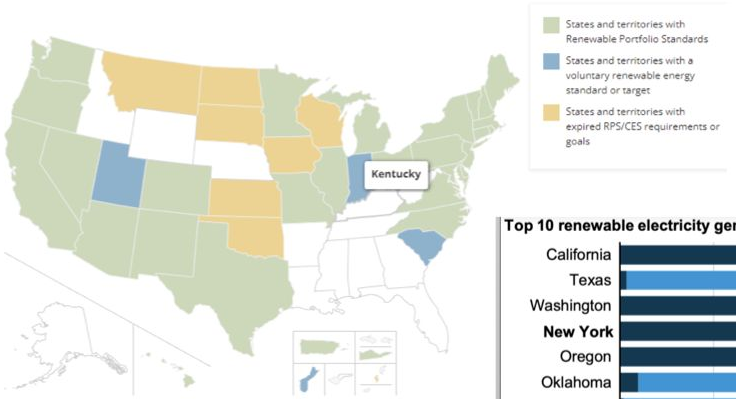


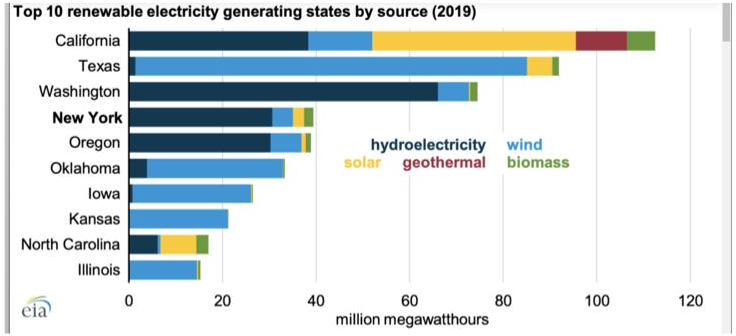


Renewable Energy Transition

Fourteen U.S. states have clean electricity goals of 50 percent or higher over the next three decades, and one in three Americans live in a state or city with a 100 percent clean electricity commitment.

The U.S. is not on track to meet the goals of the Paris Agreement. That is, it is not doing its fair share to keep global average temperature increase to no more than 2 degrees C.





Sources of Clean Energy

Solar Photovoltaics or PV

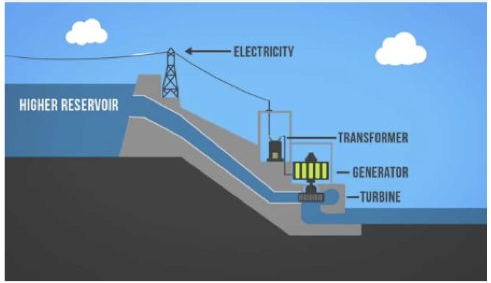
- Solar PV systems convert photons of light directly into *electricity*. These panels are typically on rooftops (individual) and in solar farms “utility scale” (Large Scale)
- Ownership models can also vary: Utilities, solar companies, individuals and communities can all own solar PV systems, depending on local policy and regulatory contexts.

Wind Turbines

- Globally, wind is the primary non-hydro renewable technology, generating almost as much electricity in 2020 as all other renewables combined.
- A single turbine is capable of powering approximately 12,000 homes. Wind turbines can be “onshore” (on land) or “offshore” (out on the ocean).

Hydropower

- Water flows through a pipe, or penstock, then pushes against and turns blades in a turbine that spin to power a generator to produce electricity



Sources of Clean Energy

Geothermal

- Energy derived from the earth's crust.

Nuclear Energy

- All commercial nuclear power is produced through fission, which involves the splitting of atoms to release energy.
- Nuclear waste management continues to be a challenge in some countries, like the U.S., for a range of political and historical reasons.
- Globally, however, nuclear energy is losing popularity. This is partly due to costs—nuclear plants take considerable time and funding to build

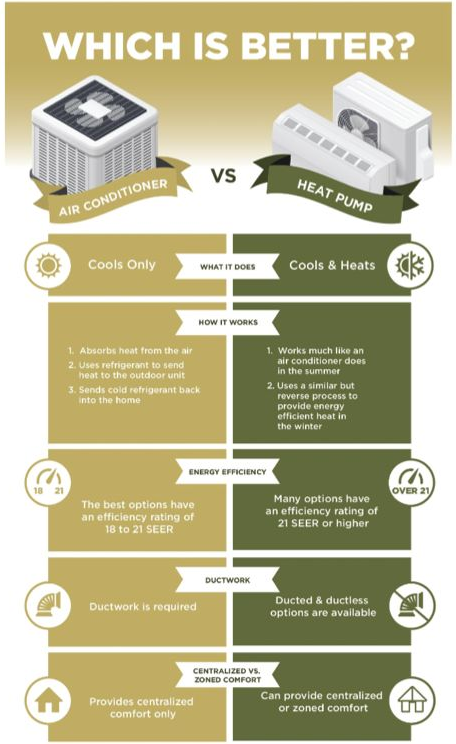
Biomass Energy

- Biomass energy is energy from organic matter—both plant materials and animal waste.
- The bio mass is burned to create energy

Heat Pumps

- New research shows that heat pumps costs are now on par with other central heating systems, making them a smart economic choice.
- Heat pumps save more than 70% on gas use compared to other central heating systems.
- Heat pumps can run in both heating and cooling mode filling the role of both air-conditioned and a furnace.
- Heat pumps moves heat rather than creating it through fossil fuel combustion or electric resistance. This key differentiator enables heat pumps to reach far greater levels of efficiency.

Switching to a heat pump is a win today for household energy savings, human health and comfort, and the climate, and those benefits will only increase as the electric grid gets greener and more populations require clean heating and cooling solutions.



Home Improvements to Make it More Efficient

Building Envelope

- One of the key features of an energy efficient home is a tight and properly insulated building envelope.
- Adding insulation, sealing air leaks, and improving window features provide simple and affordable measures that often do not require a professional contractor.

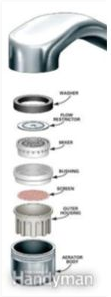
Save Water at Home

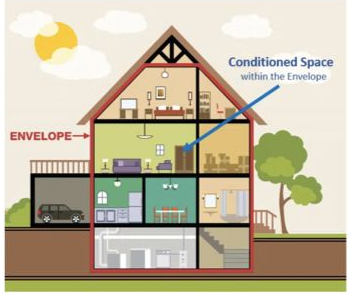
- The truly energy efficient home will also have the most efficient shower heads and taps. By reducing water use by 60%, the lower flow eco models help to reduce the amount of energy consumed in heating and pumping the water.

Energy Efficiency Appliances - Same Service, Less Energy

Energy efficient appliances contribute to reduced air pollution along with improved health and generally better wellbeing in the home, as well as cost savings.

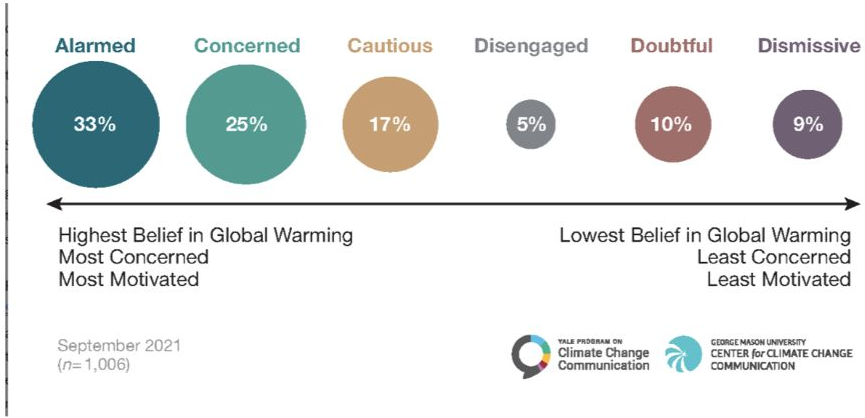
Washing machines, dishwashers and tumble dryers account for 14% of a typical energy bill.





https://www.bpcgreenbuilders.com/

How to Talk About Global Warming




Questions?
VertueLab