

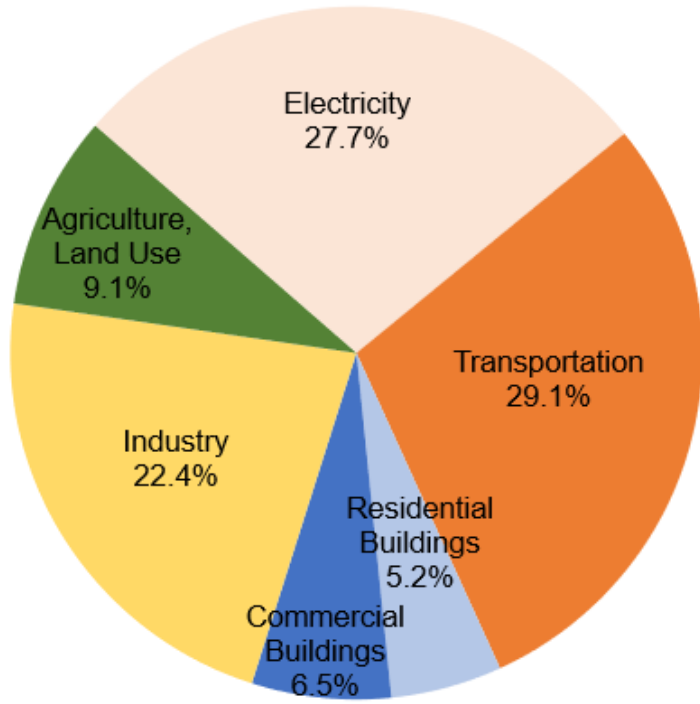


Harvard-Radcliffe Class of 1970 - 50th Reunion

**“There is no Planet B: What we can do about the climate crisis”
May 27, 2020**

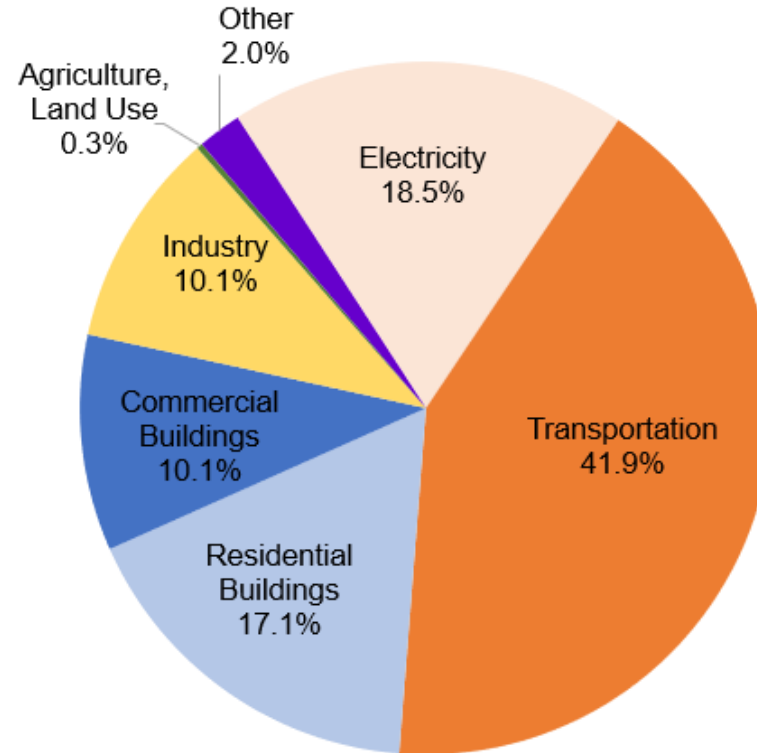
- See related bios and resources at class website:
1970.classes.harvard.edu or hr70.org
- Send email to climate@hr70.org to join discussion group
- Web site has latest event information, Zoom details
- Next session tomorrow at 4 PM: Democracy with David Riemer

U.S. Emissions by Sector



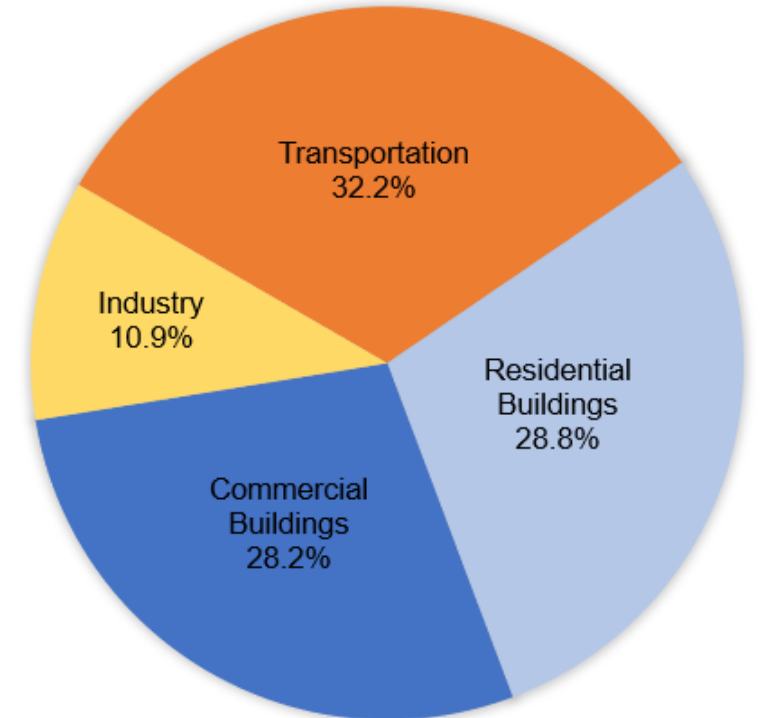
Data from 2017 U.S. Inventory of Greenhouse Gas Emissions and Sinks, 1990-2017

MA Emissions by Sector



Data from 2017 Massachusetts GHG Emissions Inventory, MA DEP
Other : Solid Waste and Natural Gas Systems

MA Emissions by Sector, with Electricity Emissions distributed across sectors*



Data from the U.S. Energy Information Administration, State Energy Data System
*Agriculture, Land Use emissions (not shown) are less than 1%.

Making a difference...

Addressing the Climate Crisis

Claire Broome, M.D.

HR 1970

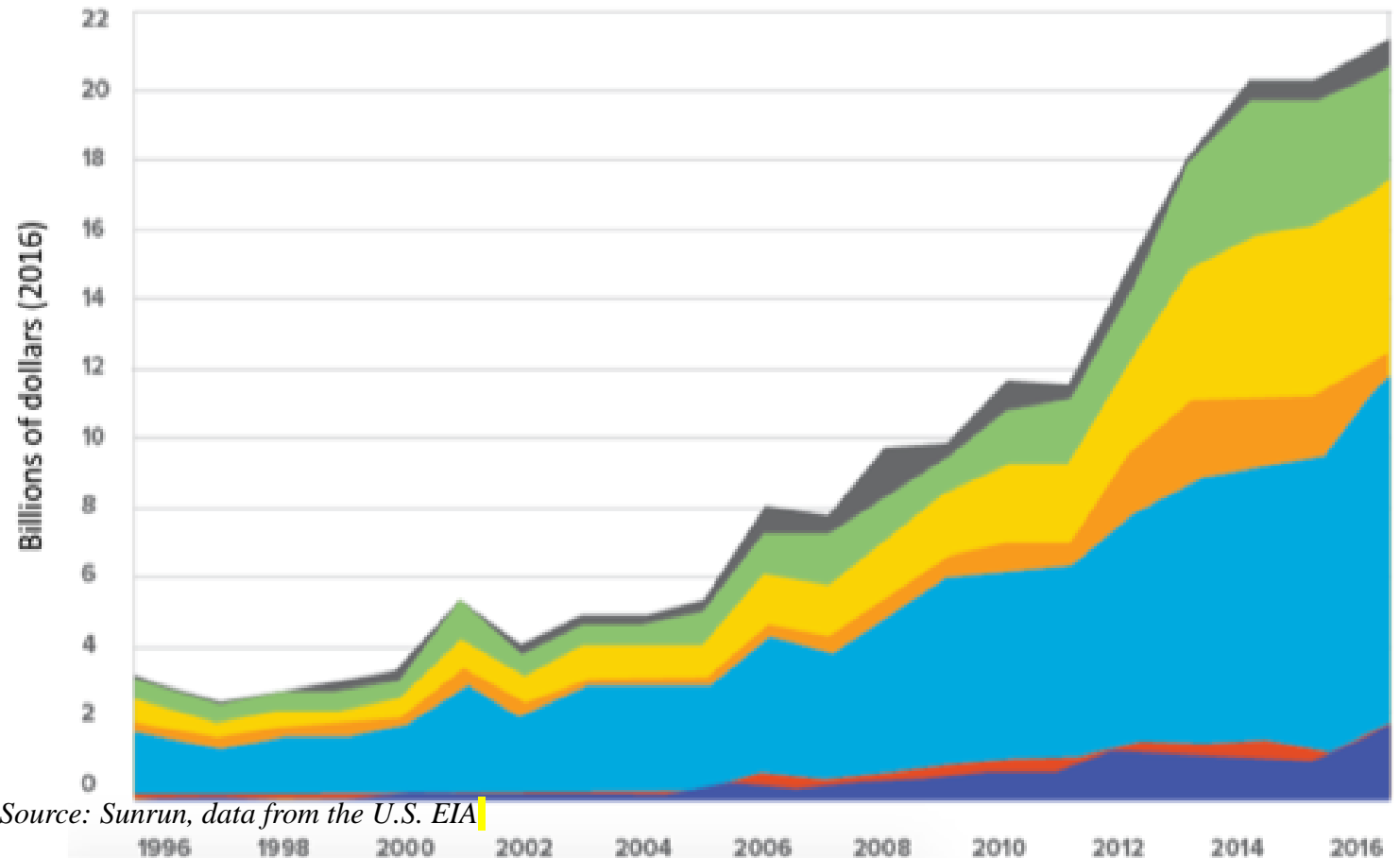
There is no Planet B



Success story: Decreasing building emissions by banning gas connections in new construction

- California –2020 target--zero net energy buildings
- Strategy to transition buildings away from methane gas— NOT a “bridge fuel”
- 2019 Berkeley City Council passed first ban on gas connections in NEW construction
 - Strategically smart
 - Over 20 other cities, California and elsewhere, in process
 - Success required: technical and legal grounding, champion, allies, supporters, coordination

The explosion in transmission spending by major utilities, 1996 - 2016



Source: Sunrun, data from the U.S. EIA

Underground lines and devices Poles and fixtures Station equipment Other
 Overhead conductors and devices Towers and fixtures RTO infrastructure

Success story: “right sizing” long distance transmission grid

- ❑ In 2018 California cancelled or modified \$2.6 billion of planned transmission projects—energy needs had fallen due primarily to energy efficiency and rooftop solar generation
- ❑ Current accounting at CA Public Utility Commission “hides” transmission costs of distant generation
- ❑ Allies succeeded (2020) in crediting local generation for avoiding transmission cost

Toolboxes for your creativity

- Project Drawdown-- <https://drawdown.org/>
 - describes and ranks interventions in different sectors from global perspective
- Energy Innovations—<https://us.energypolicy.solutions/>
 - feasible policies targeted for maximal impact. Includes customizable simulation model
- Sierra Club—
<https://content.sierraclub.org/grassrootsnetwork/teams/climate-emergency-mobilization-team>
 - policies that have been implemented somewhere, with projected impact on climate crisis, and contacts

Buildings have major impacts on our physical, emotional and financial well being.

In the 20th Century changed from simple to complex mechanical systems

Fixing It - Economically

Low Hanging Fruit – Cut Energy Use:

1. Proper insulation and sealing
2. LEDs
3. Properly maintained and operated mechanical systems

Ventilation – the Critical Health Problem

Moisture =
Damage,
Poor air
quality,
infestation



Stack effect:
air enters low,
leaves high



Lowest 1st Cost = Highest TCO

HVAC:

1. Geothermal
2. High efficiency heat pumps

Hot water heaters:

1. Solar
2. Heat pump

Photovoltaic – now 10% of price 20 yr.s ago

Building Sector Policies to Reduce GHG

1. Building efficiency codes and standards – **mandates**
2. Policies to increase awareness, information, and market transparency
3. Financial incentives
4. Utility programs – **mandates**

Upgrade buildings!