



COMMERCIAL, RESIDENTIAL BUILDINGS & CLIMATE POLLUTION



WHAT IS THE PROBLEM?

- **Direct emissions**
 - Combustion of natural gas & petroleum for heating and cooking emits **carbon dioxide, methane & nitrous oxide**
- **Indirect emissions**
 - Includes electricity that is generated offsite to power homes and businesses
- Commercial & residential buildings were responsible for 30% of end-use electricity consumption in the U.S. (2021)

Residential units in the MRPC Region are emitting...

393,915 Metric Tons of Carbon Dioxide Annually

Commercial buildings in Worcester County are emitting...

184,055 Metric Tons of Carbon Dioxide Annually

According to the CMRPC's Priority Climate Action Plan (PCAP) GHG Inventory

WHAT ARE COMMON EFFECTS?

POOR AIR QUALITY



- Air pollution may cause premature death and illnesses such as asthma, lung cancer, heart disease and stroke (American Lung Association)

HIGH ENERGY COSTS FOR CONSUMERS



- Energy costs can present financial hardships for households, creating **energy burdens** such as:
 - High-interest short-term loans to pay their energy bills
 - Sudden disconnection of utilities

CONSTRUCTION IMPACTS ON NATURAL RESOURCES



- Construction, clearing, and excavation may cause biodiversity loss
- Artificial light and noise pollution can disrupt **natural human rhythms and systems**

About **75%** of commercial square footage in Massachusetts is heated with..



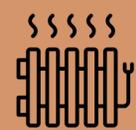
Natural Gas



Electricity



Petroleum



Direct Steam Systems

GENERAL GOALS TO CONSIDER FOR THE BUILDINGS SECTOR

1

POWER COMMERCIAL AND RESIDENTIAL BUILDINGS WITH RENEWABLY SOURCED ELECTRICITY

2

REDUCE ENERGY USE VIA ENHANCED ENERGY EFFICIENCY MEASURES

3

PROMOTE PASSIVE HEATING AND COOLING MEASURES THROUGH BUILDING DESIGN

4

IMPROVE DRINKING & WASTEWATER, AND WASTE MANAGEMENT EFFICIENCY