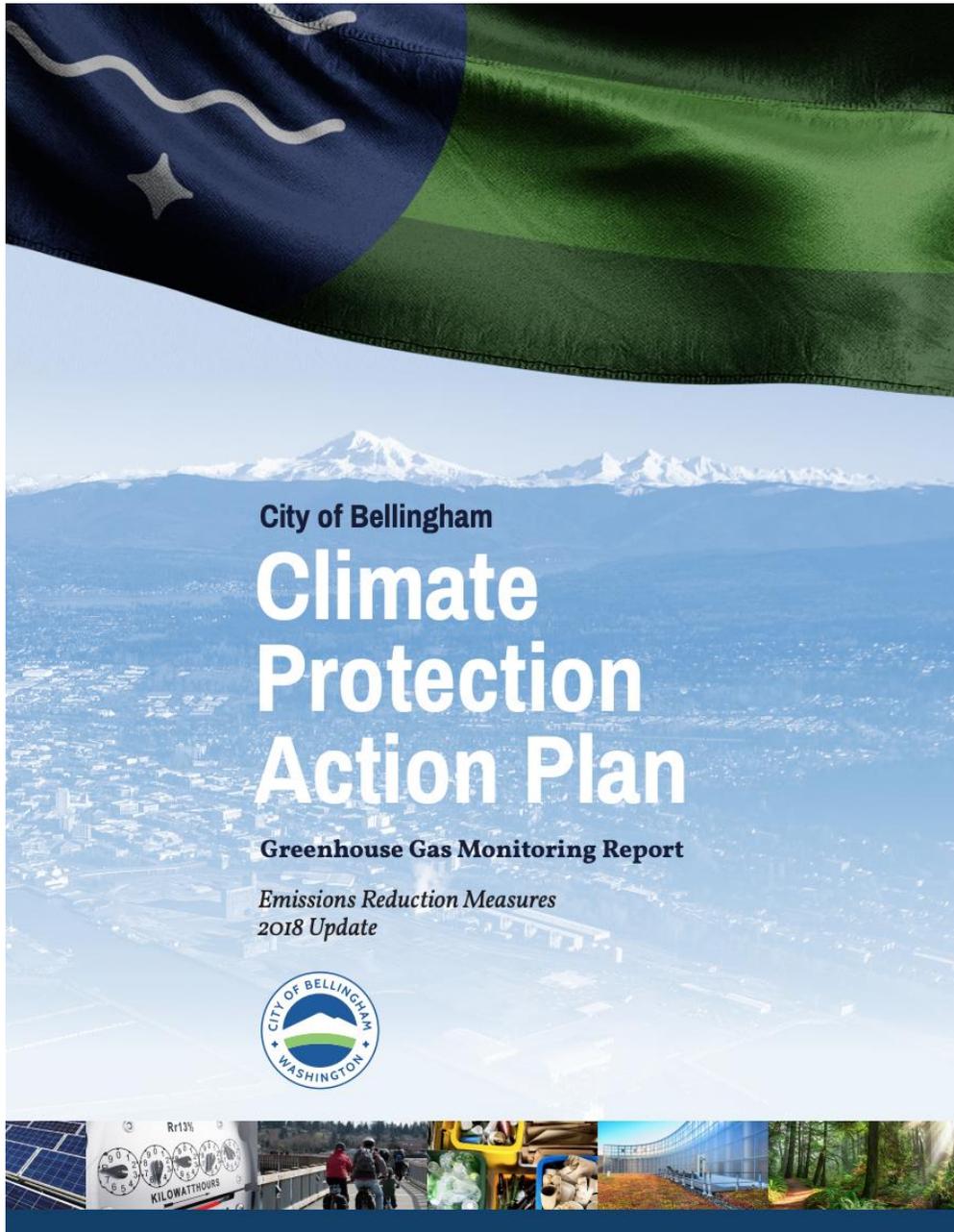


BUILDINGS WORKING GROUP



Community Emissions Analysis by Sector

Transportation accounted for an estimated 32% of Bellingham community greenhouse gas emissions in 2015 (Figure 13). A significant portion of transportation emissions come from Interstate 5 traffic passing through Bellingham, which is outside the influence of City climate policies. Bellingham community transportation emissions are difficult to estimate over this time period because transportation models changed from a state-level model to a more accurate local model. For consistency, the local model was backcast to 2005 and 2000, though this represents

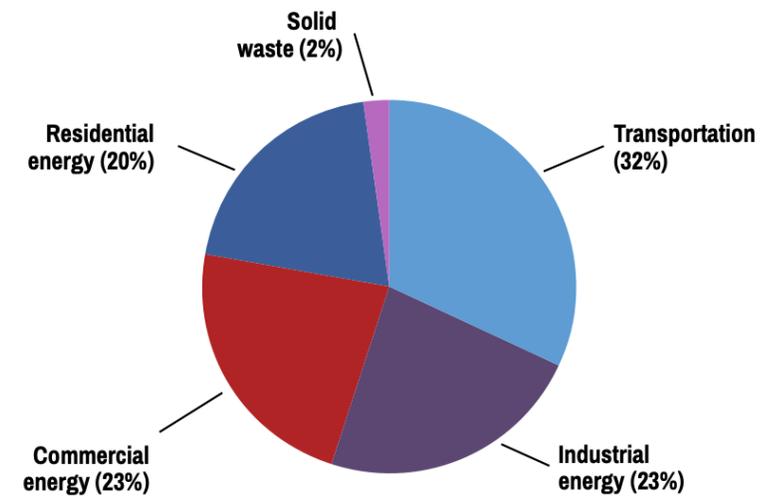


Figure 13. 2015 Bellingham community CO₂e emissions by sector

BUILDING SECTOR

43% OF EMISSIONS

Greenhouse Gas Monitoring Report

Emissions Reduction Measures
2018 Update

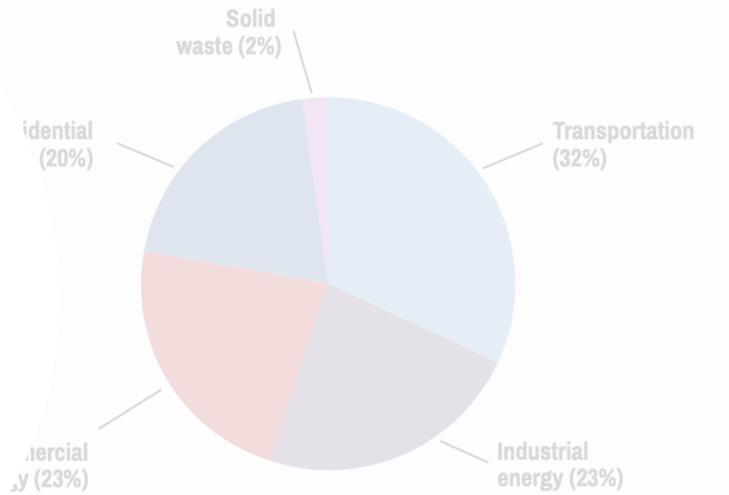
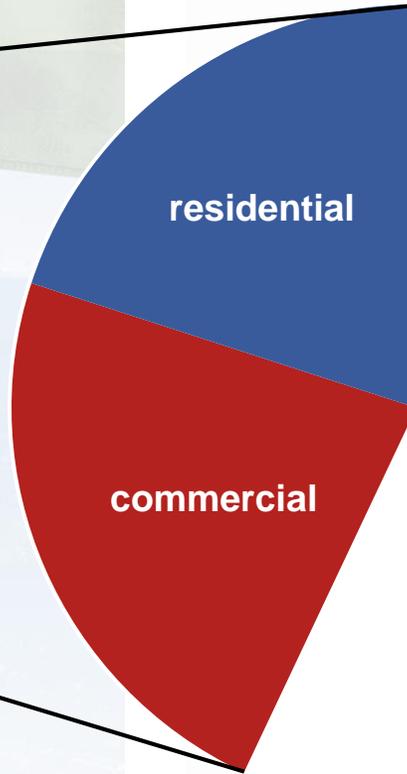
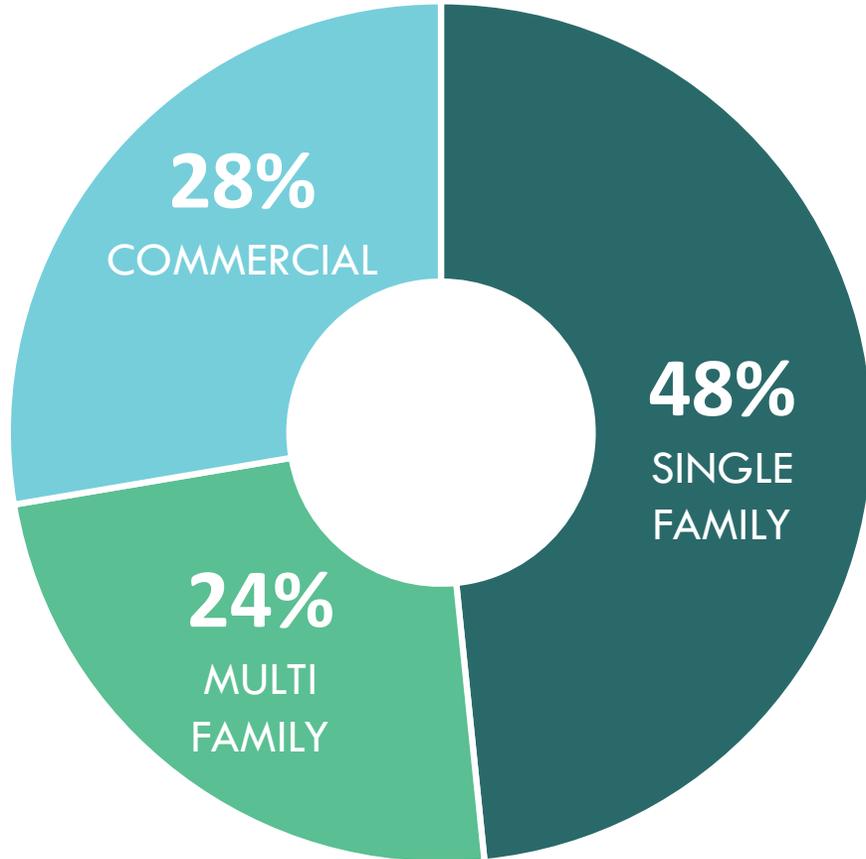


Figure 13. 2015 Bellingham community CO₂e emissions by sector

2005
presents

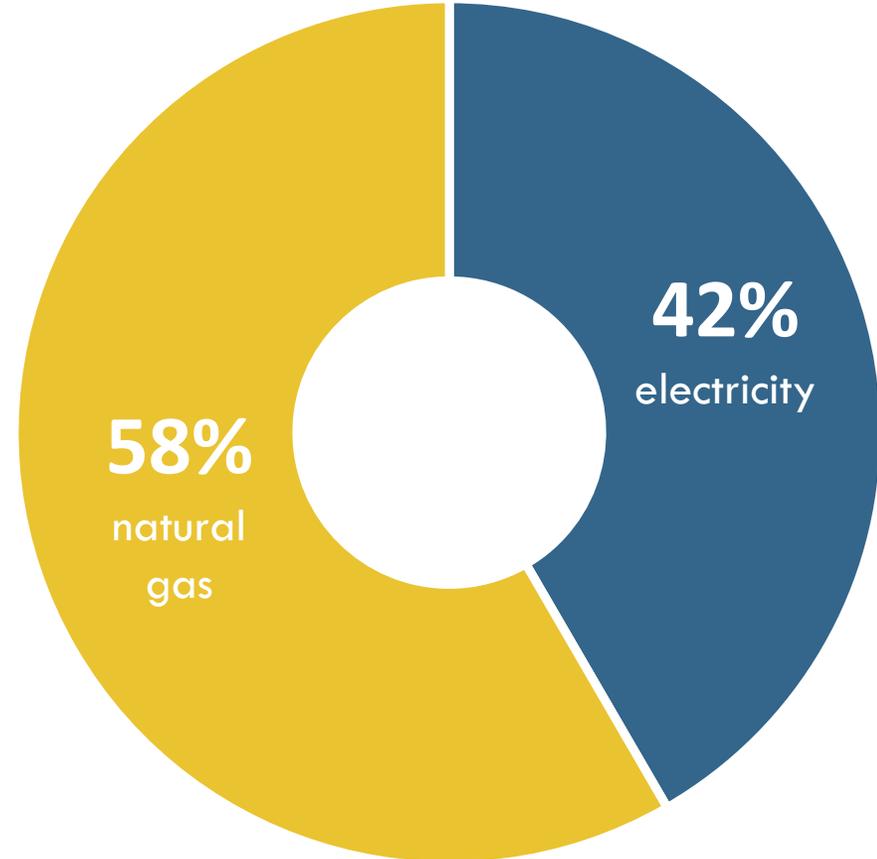
Building Area by Type



Building Stock

23,000 residential buildings
2,400 commercial buildings

Total Building Sector GHG Emissions in 2035: Business-as-Usual



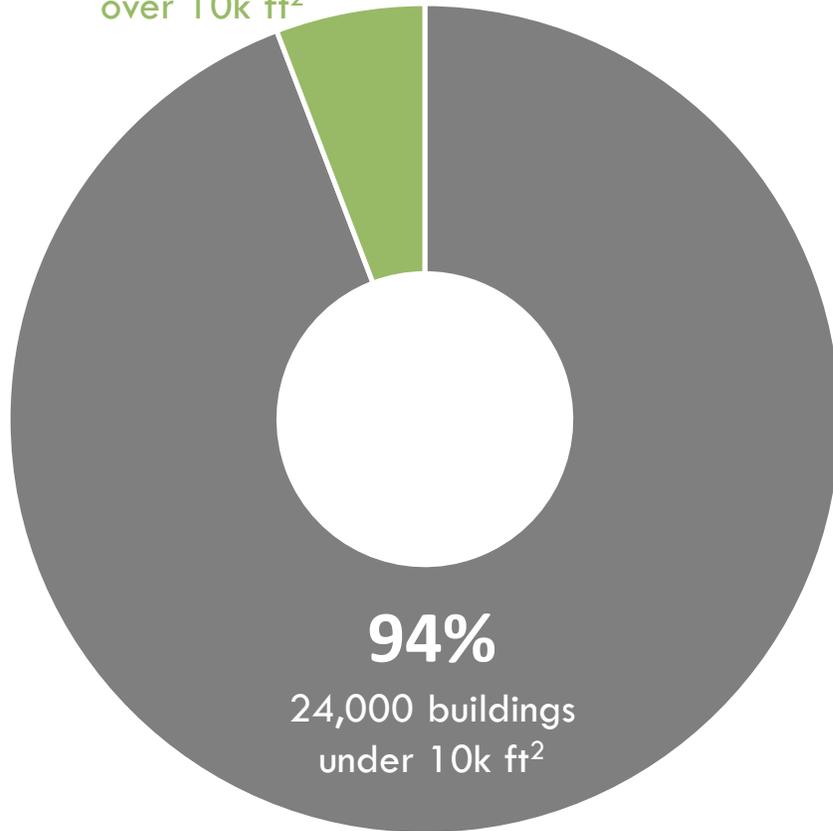
Current Natural Gas Customers

26,000 residential buildings
3,300 commercial buildings

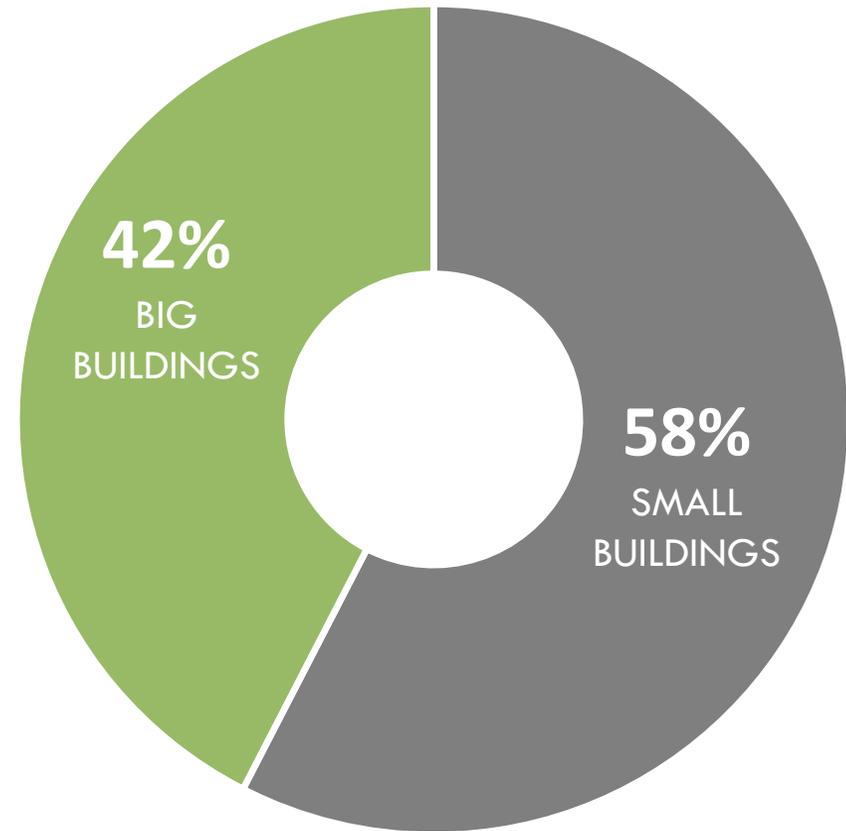
Number of Buildings by Size

6%

1,500 buildings
over 10k ft²



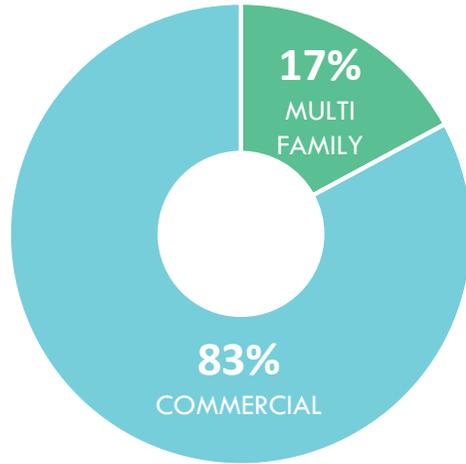
Total Building GHG Emissions in 2035 by Size: Business-as-Usual



DECARBONIZATION PROPOSALS

BIG BUILDINGS

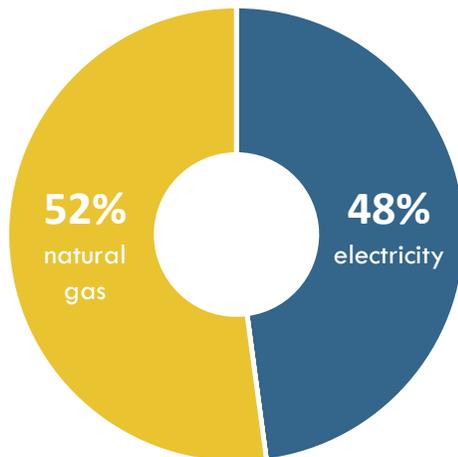
Big Buildings GHG Emissions in 2035
by Type



KEY CONSIDERATIONS

1. Typically have long-term, planned capital improvement budgets and cycles around which anticipated energy upgrades can be aligned.
2. Relatively small cohort of buildings for which incentives, financing mechanisms, and implementation toolkits can be designed and targeted.

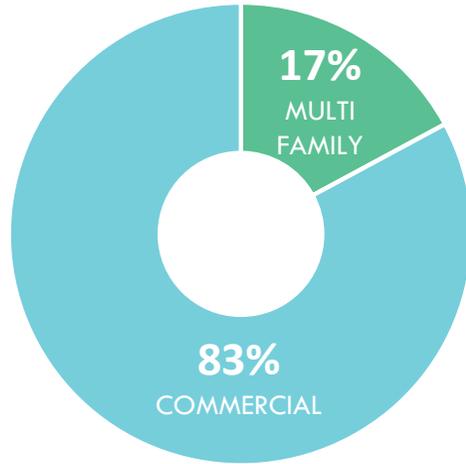
Big Buildings GHG Emissions in 2035
by Fuel



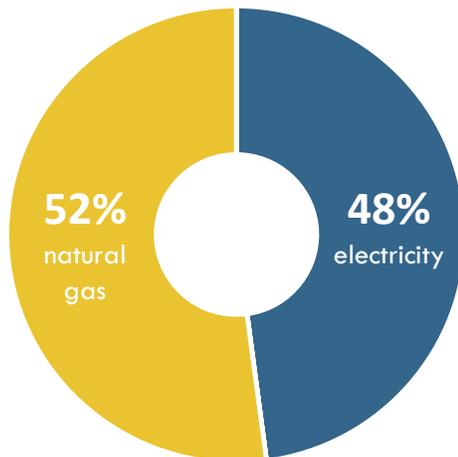
**Charts showing business-as-usual, no action scenario*

BIG BUILDINGS

Big Buildings GHG Emissions in 2035
by Type



Big Buildings GHG Emissions in 2035
by Fuel



Decarbonization Proposal

Building owners choose 1 of 2 pathways:

1. All buildings >10k ft² :
 1. Electrify space and water heating systems** by 2035, and
 2. Install solar PV coverage equivalent to at least 50% of building footprint – or equivalent off-site community solar purchase

OR

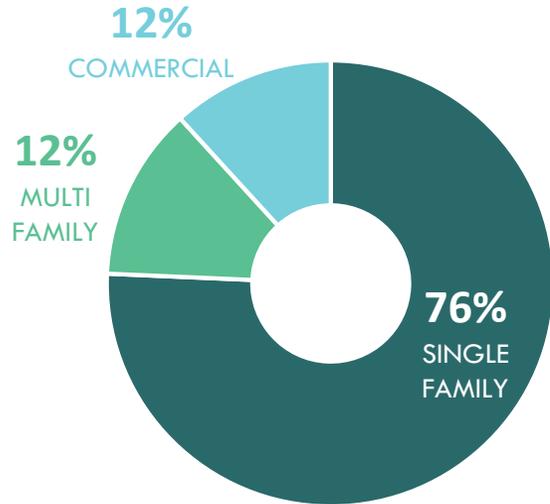
2. All buildings >10k ft² reduce GHG emissions by:
 - 35% by 2025
 - 65% by 2030
 - 100% by 2035

***Installed electric space and water heating systems must be above a certain efficiency threshold*

**Charts showing business-as-usual, no action scenario*

SMALL BUILDINGS: Renter Occupied (Single Family 18%, Multifamily 72%)

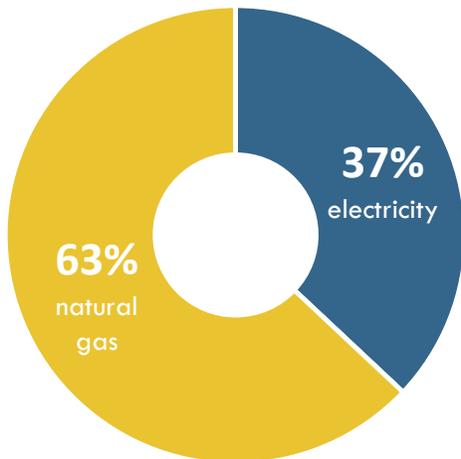
Small Buildings GHG Emissions in 2035
by Type



KEY CONSIDERATIONS

1. Compliance for residential rentals can be verified during inspections through the city's existing Rental Registration and Safety Inspection Program
2. Costs must be heavily subsidized so that rents aren't increased, especially for lower-income housing

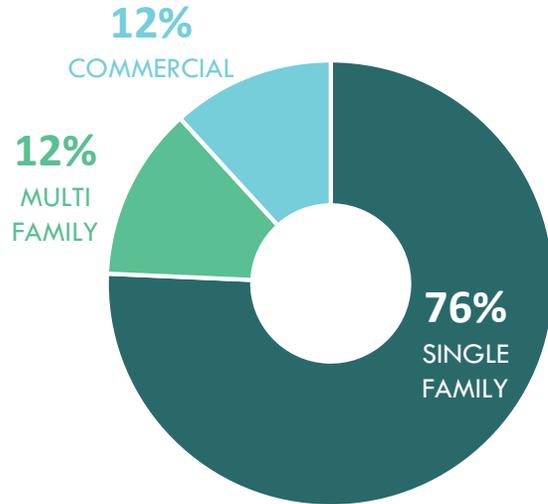
Small Buildings GHG Emissions in 2035



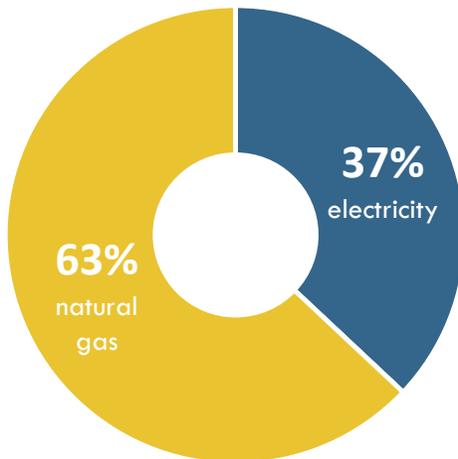
**Charts showing business-as-usual, no action scenario*

SMALL BUILDINGS: Renter Occupied (Single Family 18%, Multifamily 72%)

Small Buildings GHG Emissions in 2035
by Type



Small Buildings GHG Emissions in 2035



Decarbonization Proposal

Building owners choose 1 of 2 pathways:

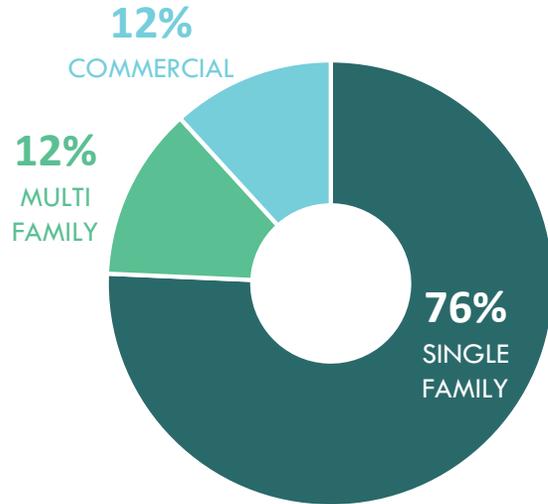
1. All renter-occupied buildings <10k ft²:
 1. Ensure building meets specified efficiency threshold by 2035
 2. Electrify space and water heating systems** by 2035, and
 3. Install solar PV coverage equivalent to at least 50% of building footprint – or equivalent off-site community solar purchase
- OR**
2. All renter-occupied buildings <10k ft² reduce GHG emissions by:
 - 35% by 2025
 - 65% by 2030
 - 100% by 2035

***Installed electric space and water heating systems must be above a certain efficiency threshold*

**Charts showing business-as-usual, no action scenario*

SMALL BUILDINGS: Owner Occupied (Single Family 82%, Multifamily 28%)

Small Buildings GHG Emissions in 2035
by Type



KEY CONSIDERATION

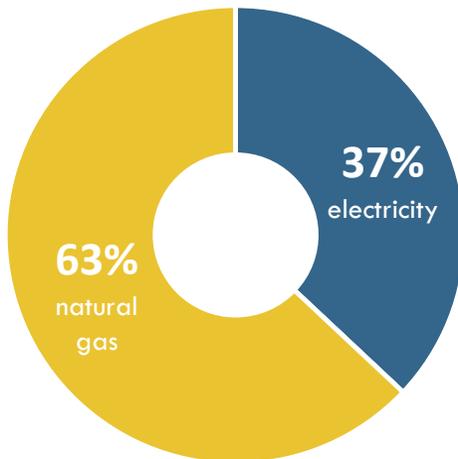
Question:

How do we decarbonize ~20,000 buildings in 15 years with least economic and social impact?

Answer:

Require upgrades at sale (and potentially renovation): impact thousands of buildings annually and tie upgrades to purchase financing to eliminate upfront costs

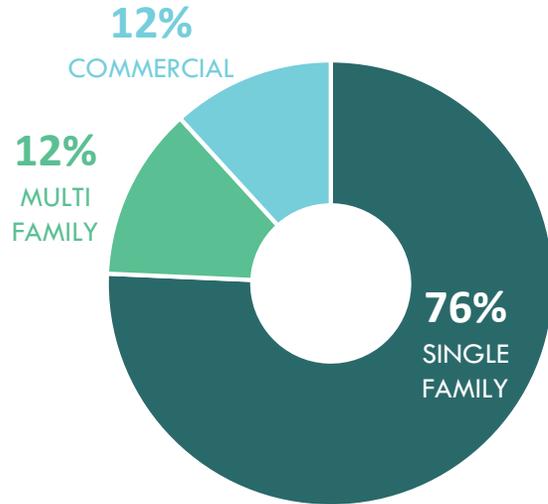
Small Buildings GHG Emissions in 2035



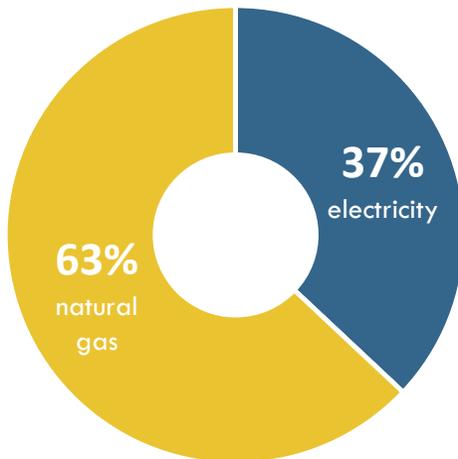
**Charts showing business-as-usual, no action scenario*

SMALL BUILDINGS: Owner Occupied (Single Family 82%, Multifamily 28%)

Small Buildings GHG Emissions in 2035
by Type



Small Buildings GHG Emissions in 2035



Decarbonization Proposal

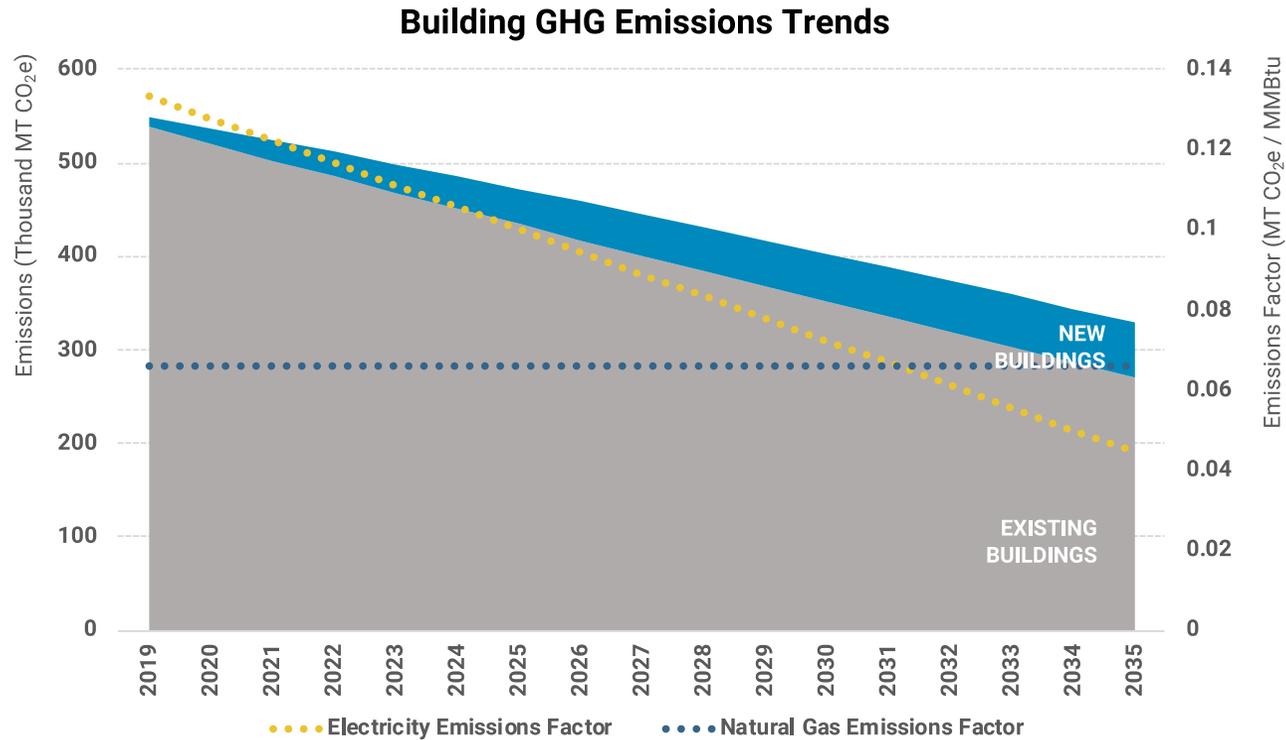
All owner-occupied buildings <10k ft²:

1. Ensure building meets specified efficiency threshold within 12 months of purchase
2. Install solar PV coverage equivalent to at least 50% of building footprint or buy into PSE Green Direct within 12 months of purchase
3. Electrify space and water heating systems** within 24 months of purchase
4. Upgrades paid for by buyer, not seller
5. All upgrade costs wrapped into mortgage financing, on-bill financing, etc.

***Installed electric space and water heating systems must be above a certain efficiency threshold*

**Charts showing business-as-usual, no action scenario*

NEW BUILDINGS: 17.5% of total emissions in 2035



Decarbonization Proposal

All New Buildings:

1. Meet state building code efficiency standards
2. Install solar PV coverage equivalent to at least 50% of building footprint – or equivalent off-site community solar purchase
3. Have fully electric space and water heating systems
4. Fully offset natural gas used for any other purpose by producing or procuring renewable energy

KEY CONSIDERATION

Not adding to building sector GHG emissions

**Charts showing business-as-usual, no action scenario*

FINANCING & TECHNICAL ASSISTANCE

Finance Tools and Technical Assistance

Technical Assistance and Design Services Program

Goal: Support residents and commercial customers with immediate and appropriate assistance to help them with energy upgrades regardless of the complexity of their project.

- City hires a Green Building specialist or cross-trains its building permit center staff for a program that educates and directs customers to outside resources.
- Simple projects could be referred directly to qualified contractors.
- More complicated residential or commercial: Referred to CEC
- The costs of design work could be subsidized to reduce project costs.
- Technical assistance would include information on financing mechanisms, incentives, and rebates to ensure that costs are not a barrier.

Finance Tools and Technical Assistance

Bellingham Clean Energy Fund

Goal: Bellingham can create a Bellingham Clean Energy Fund to catalyze substantial and rapid investments, capitalized with funds from a variety of possible sources. Possible funding sources:

- **State Department of Commerce Clean Energy Fund**
- **Private Philanthropy**
 - Example: Bloomberg gave \$1 million to supporting Fort Collin's rental efficiency program.
- **Community Foundation**
 - Example: the Whatcom Community Foundation is working to raise \$5 million to create a revolving fund that reduces the cost of financing for low income housing projects.
- **Raise City Gas Utility Tax**
 - The City could put a measure on the ballot to phase in an increase in the current rate over time, with lower income households exempted from paying the tax.

Finance Tools and Technical Assistance

Bellingham Clean Energy Fund (continued)

What could it do?

- **Provide cash incentives for major projects**, particularly for low and moderate income households.
- **Capitalize a revolving fund for energy projects.** A community revolving loan fund could be used to support energy upgrade projects, with recipients paying back into the fund over time.
- **Provide assistance with solar investments.** The Bellingham Clean Energy Fund could support residential or community solar with grants or loans.

Finance Tools and Technical Assistance

Other Financing Mechanisms:

- **Federal 203 K Mortgage**

This program supports point-of-sale requirements for energy upgrades, allowing buyers to roll the costs of renovation, including energy investments, into a home mortgage.

- **Fannie Mae Green Financing Loan program**

The federal loan refinancing agency has a series of products that help finance energy upgrades.

- **On-Bill Financing**

On-bill financing is not required by the legislature in Washington, although a utility can opt to provide one. Example: OPALCO in the San Juan Islands offers such a program. Bellingham could explore using its own utilities for billing.

- **Tax Credits**

Credits against costs tied to energy upgrades. Example: a Berkeley seismic retrofit program allows owners to deduct a proportion of project costs from a 1.5% real estate transfer tax. If a local program were structured similarly, this would mean a credit against REET for qualified projects.

EQUITY AND COMMUNITY BENEFITS

Equity and Other Social Considerations

Principles to guide building-related policies:

- Acknowledge both the up-front implementation costs *and* long-term economic, social and health benefits
- Provide a clear timeline as well as adequate incentives, subsidies and/or financing options
- Ensure low- and moderate-income households are not unfairly burdened with costs related to compliance – provide appropriate exemptions as well as access to programs that reduce energy burdens

Communication Needs re: Accelerated Goals

Two Basic Communication Needs:

1: Communicating the Policies

- Requirements/pathways for existing small, existing large, and new buildings
- Timelines for implementation
- Available resources (e.g. technical support, financing options)

City may utilize a variety of communication methods, e.g. mailings to city residents, outreach at community events, interactions with building owners during permitting/inspection.

Communication Needs re: Accelerated Goals

Two Basic Communication Needs:

2: Communicating the Co-Benefits

- Co-benefits of **electrification**:
 - A more sustainable path to powering buildings as WA's electrical grid gets progressively cleaner and less carbon intensive (SB 5116)
 - Eliminates a potentially significant source of indoor air pollution
- Co-benefits of **on-site renewables** and **energy efficiency**:
 - Reduced energy usage and therefore a reduced energy burden
 - Improved indoor air quality and home health
 - Local job creation and business expansion in the home improvement, energy efficiency and renewable energy sectors