About Me

Pilar Botana Martinez
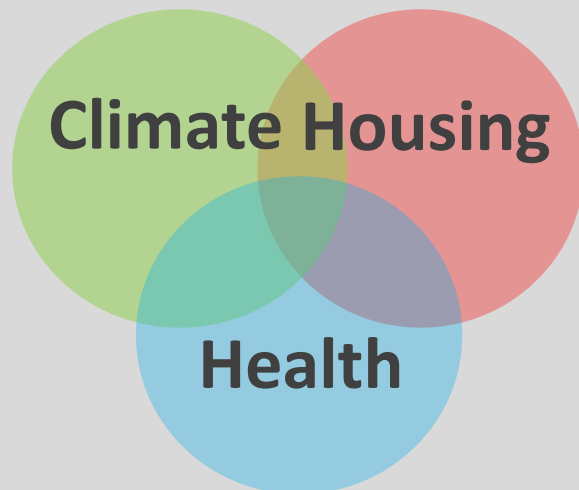
3rd year PhD student, BUSPH EH

Non-traditional trainee
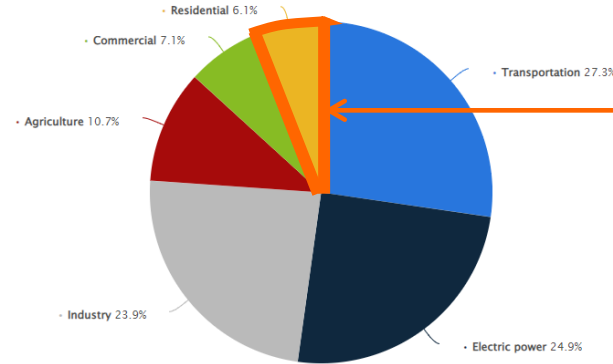
20 years

Architecture/Urban Planning

Advisor: Patricia Fabian

Research Interests

Climate Housing

Health

Climate – Housing – Health

- Residential 6.1%
- Commercial 7.1%
- Transportation 27.3%
- Agriculture 10.7%
- Industry 23.9%
- Electric power 24.9%

Residential buildings are responsible for **6.1%** of US GH emissions

Decarbonization of housing is key to slow down climate change

https://www.statista.com/statistics/1200954/ghg-emissions-breakdown-by-sector-us/
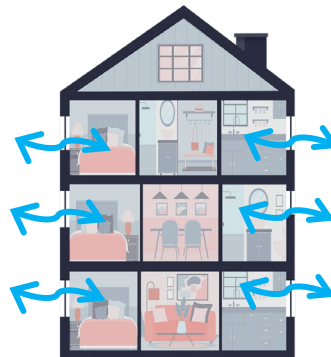Souce link: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020, pg 119

In MA, **66%** of housing was built before 1980 – Old housing stock (OHS)
-*Two-families and triple-deckers-*

OHS – **Leaky, energy inefficient. Here to stay**
OHS – Acts as **naturally occurring affordable housing** (NOAH) **for vulnerable populations**(VP)
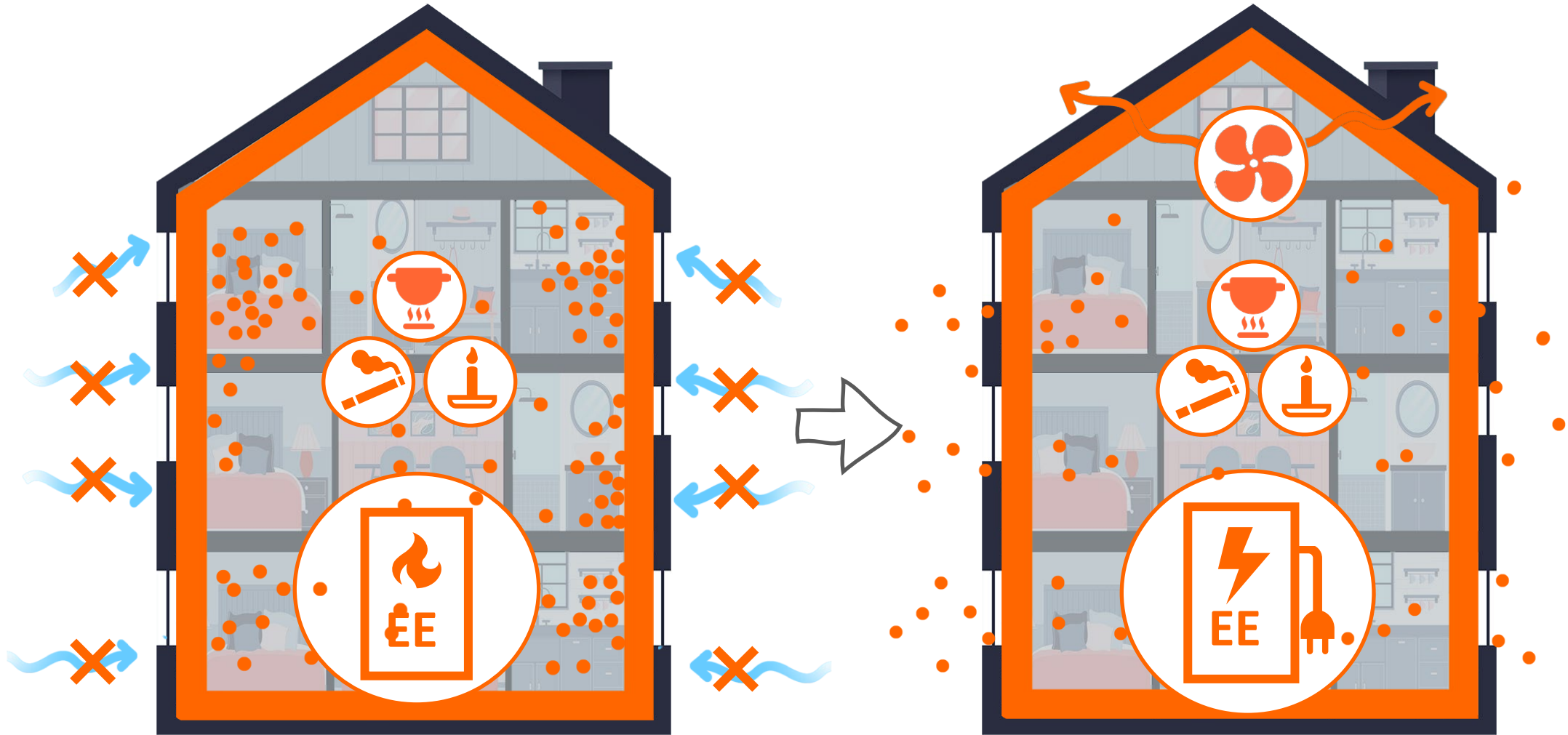
NOAH VP – **Energy overburdened** with **higher energy bills** and **uncomfortable homes**

How are we tackling this problem?

Modified from: https://www.freepik.com
https://www.bostonglobe.com/2021/06/28/opinion/triple-deckers-were-once-an-affordable-solution-bostons-housing-crunch-can-be-again/
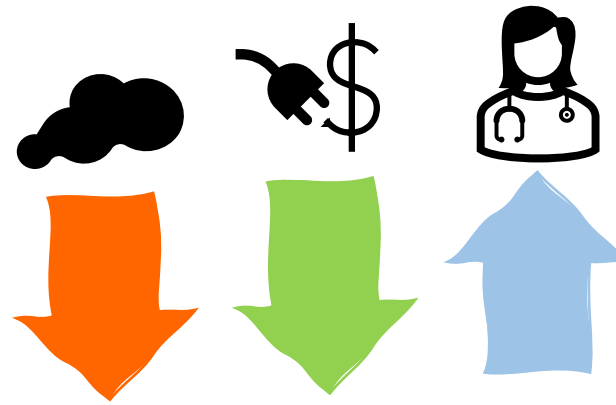https://boston.curbed.com/2020/3/6/21162105/boston-triple-deckers-three-own-renovate

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Climate – Housing – Health

WEATHERIZATION

DECARBONIZATION

Modified from: https://www.freepik.com

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How can we accelerate equitable residential decarbonization?

Barriers to weatherization
-Old housing stock-

Information barriers: Lack of knowledge about incentives
Building pre-conditions: Structural, electrical issues
Landlords concern for code violations
Split barrier: Landlord pays retrofit, tenants enjoy it
Lack of trust: Legitimacy of incentive programs

Barriers to decarbonization
-Old housing stock-

?

Who are the decision makers?

Tenants don't have a saying regarding energy retrofits in the homes they rent. Landlords' reticence to investing in decarbonization may hamper access to the financial and health benefits associated with these interventions for vulnerable populations

Most relevant in Environmental Justice communities- larger % rental

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Key Informant, In-depth Interviews

MA Landlords

MassLandlords.net

MASSACHUSETTS CLEAN ENERGY CENTER®

N=20

+

Image Elicitation
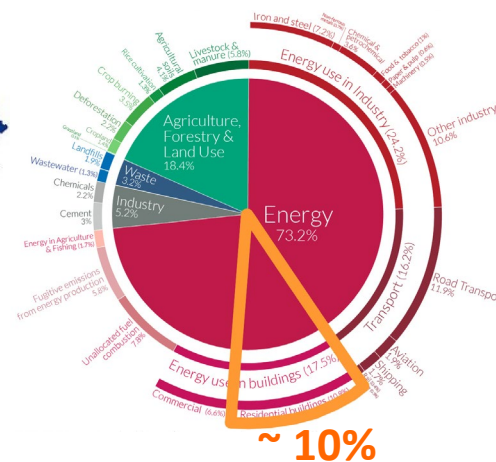
➤ Summary of existing decarbonization programs and incentives

➤ Barriers and facilitators: Salient themes

➤ Policy recommendations

Identifying *barriers* and *facilitators* to decarbonization for landlords of old housing stock in MA

Massachusetts ➤ ➤ ➤

~ 10%

Energy 73.2%

Agriculture, Forestry & Land Use 18.4%

Waste 3.2%

Industry 5.2%

Energy use in Industry (24.2%)

Other industry 10.6%

Iron and steel (7.2%)

Chemical & petrochemical

Livestock & manure (5.8%)

Agriculture

Crop burning

Deforestation

Landfills

Wastewater (1.3%)

Chemicals 2.2%

Cement 3%

Energy in Agriculture & Fishing (1.7%)

Fugitive emissions from energy production 5.8%

Unallocated fuel combustion 7.8%

Energy use in buildings (17.5%)

Commercial (6.6%)

Residential buildings

Transport (16.2%)

Road Transport 11.9%

Aviation

Shipping

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Thank you

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