

Facilitated Woodstove Replacement Within the Commonwealth of Massachusetts



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Introduction

The current project is a collaboration between UMass Amherst, UMass Clean Energy Extension, Massachusetts Clean Energy Center and Massachusetts Department of Energy Resources to map out all the woodstove installations that have taken place in Massachusetts between the years 2013 and early 2017 as part of the Wood Stove Change-Out Program.

Methods

- The study map contains town layers, county layers and 2010 Census tract layers.
- The installations data was geocoded and added to the study area.
- The “high cost heating fuels” data was joined to the census tracts to obtain town-wise distribution.
- Massachusetts county layer was added to analyze the change-outs per county and the change-outs per capita, throughout the state.
- Tool “Spatial Join” was used to integrate installation data with each town and county.
- The tool “Point Density” was used to study which regions had more change-outs.

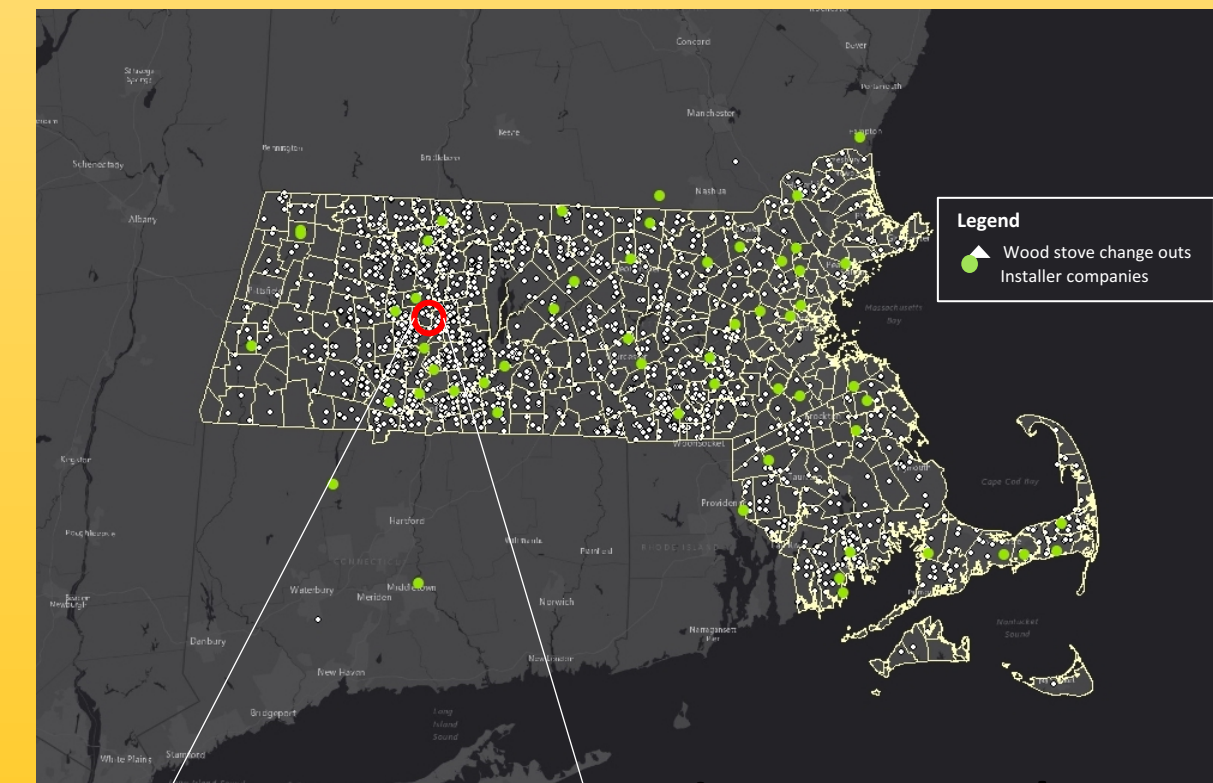


Figure4: Woodstove change outs across MA

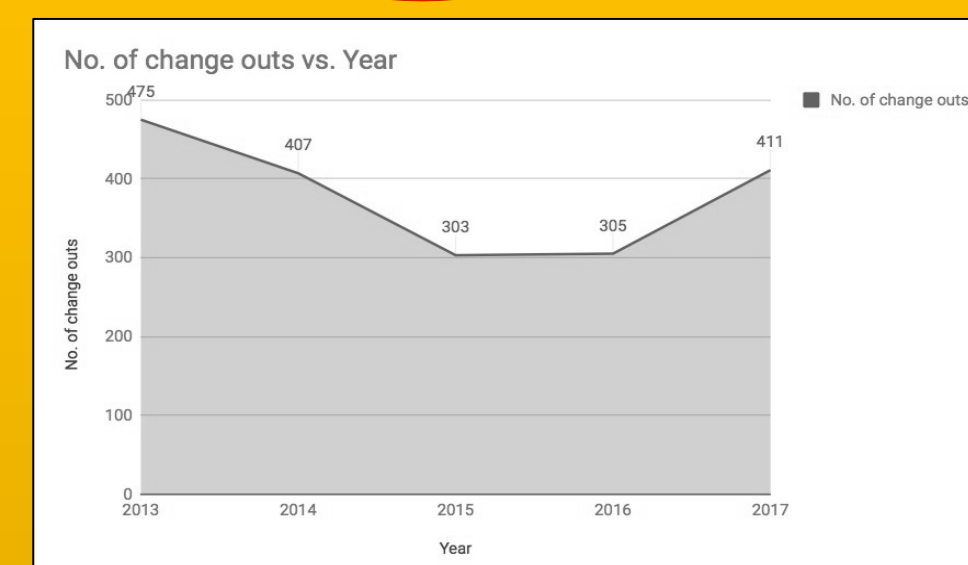


Figure5: No. of change outs per year

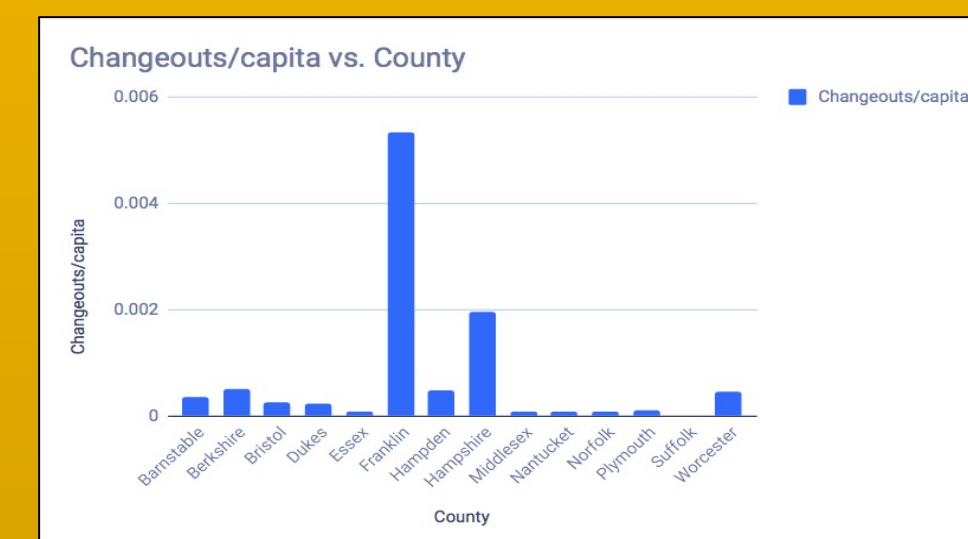


Figure6: Change outs/capita for each county

Results and Discussion

- The 2010 census data suggest that central and western Massachusetts homes are most likely to be heating with higher-cost fuels.
- Woodstove change-outs were most commonly located in the Western Massachusetts counties of Franklin, Hampshire and Hamden. Of the 14 counties statewide, Franklin County represented the highest per capita programmatic enrollment.

Future Scope: Future mapping efforts can include population information from the census data to represent the per capita distribution of change-outs.

Mapping of urban and rural areas to identify relation to change-outs.

Addition of latest pollution data to possibly study the effects of non- EPA approved stoves vs. EPA approved stoves after the change-outs.

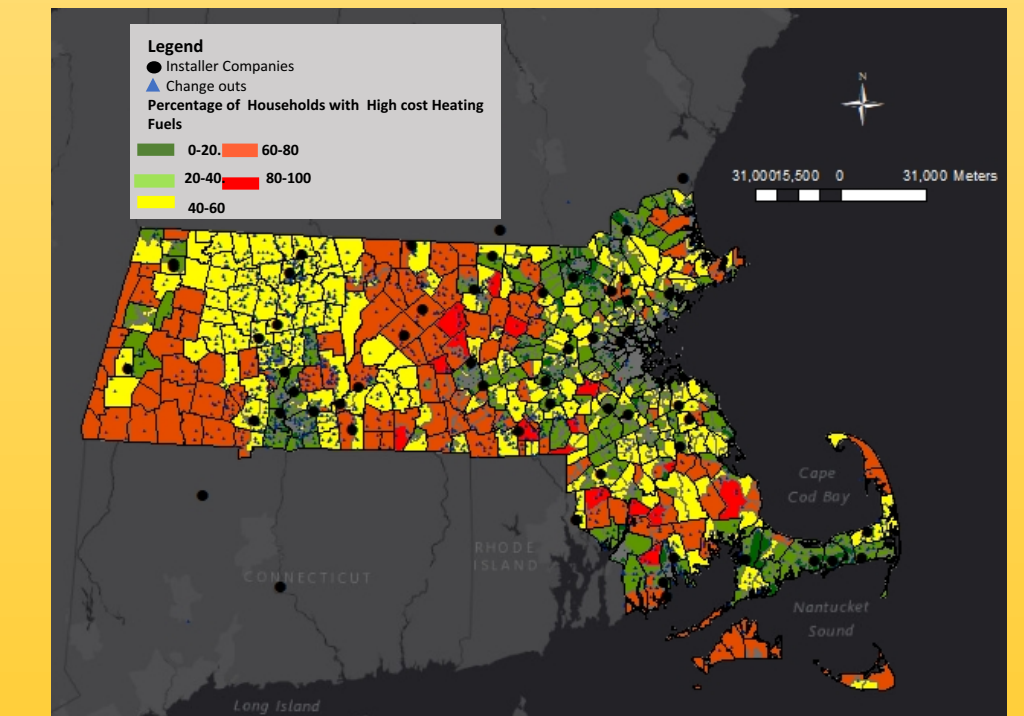


Figure1: Percentage of households utilizing high cost heating fuels across Massachusetts

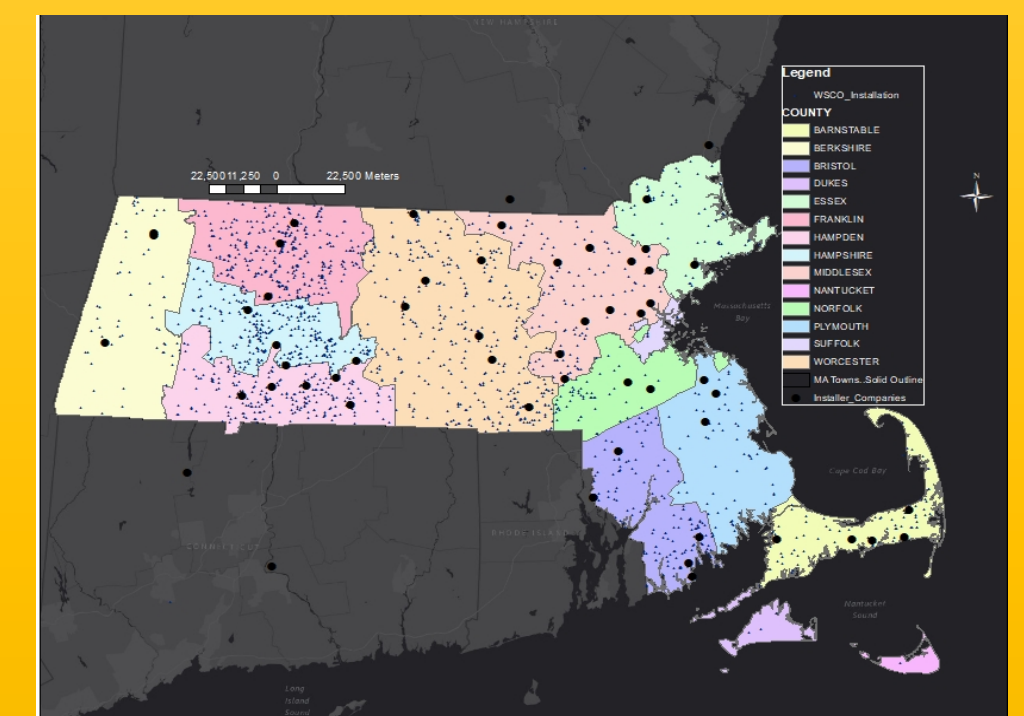


Figure2: Distribution of installations county- wise across Massachusetts

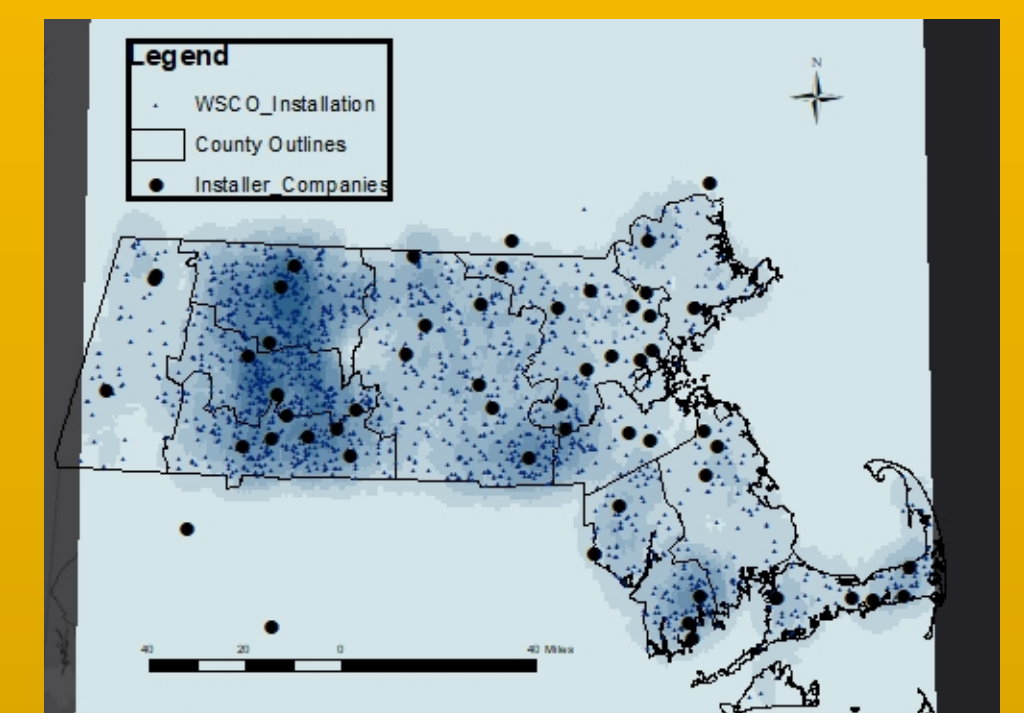


Figure3: Point density distribution of installations across Massachusetts

References

Data source: Massachusetts Clean Energy Center, UMass Clean Energy Extension
MA state & census layers: Mass GIS website
Software: ArcGIS by ESRI

Acknowledgements

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