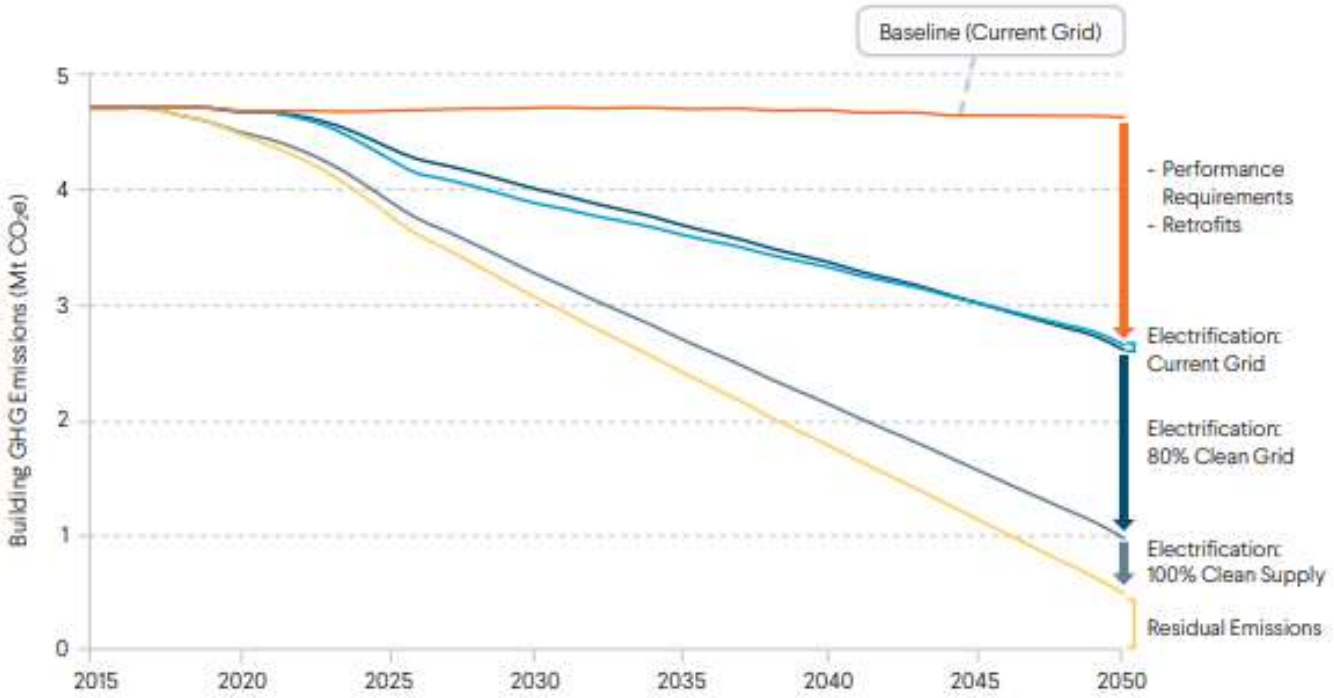
Carbon Free Boston

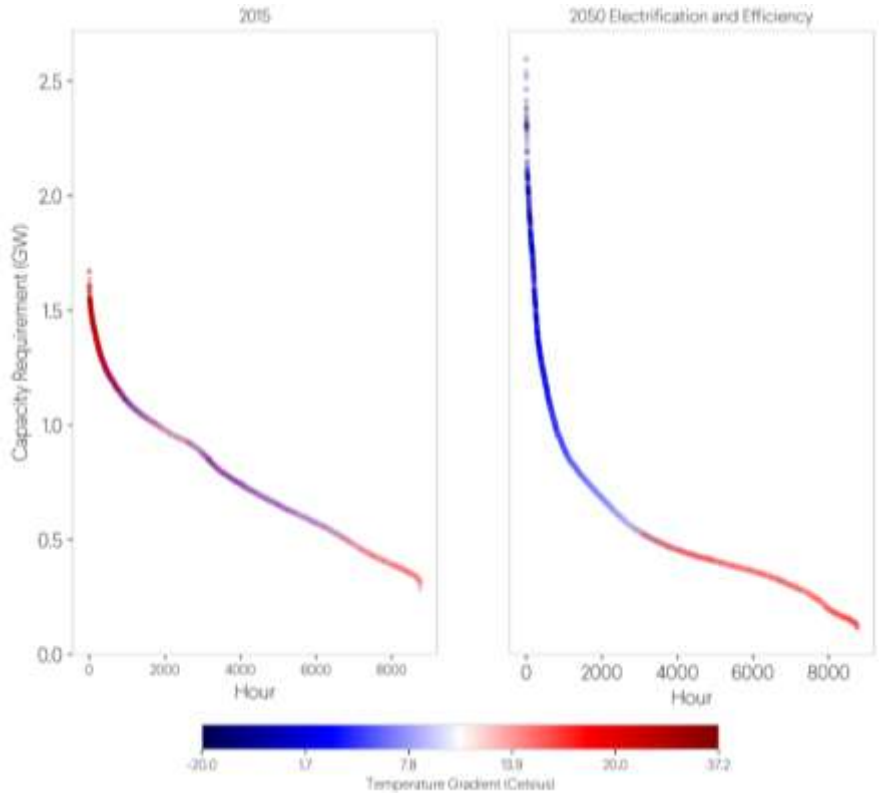
How will we get to carbon neutrality?
efficiency + clean supply + electrification



Pathways to Eliminating Carbon Emissions in the Building Sector

Source: https://www.greenribboncommission.org/wp-content/uploads/2019/01/FINAL_CFB_SummaryRpt_FEB19.pdf

…but there's a challenge associated with electrification



2015 vs. 2050 Electrification Scenarios by Outdoor Temperature

Source: http://sites.bu.edu/cfb/files/2019/05/CFB_Energy_Technical_Report_190514.pdf

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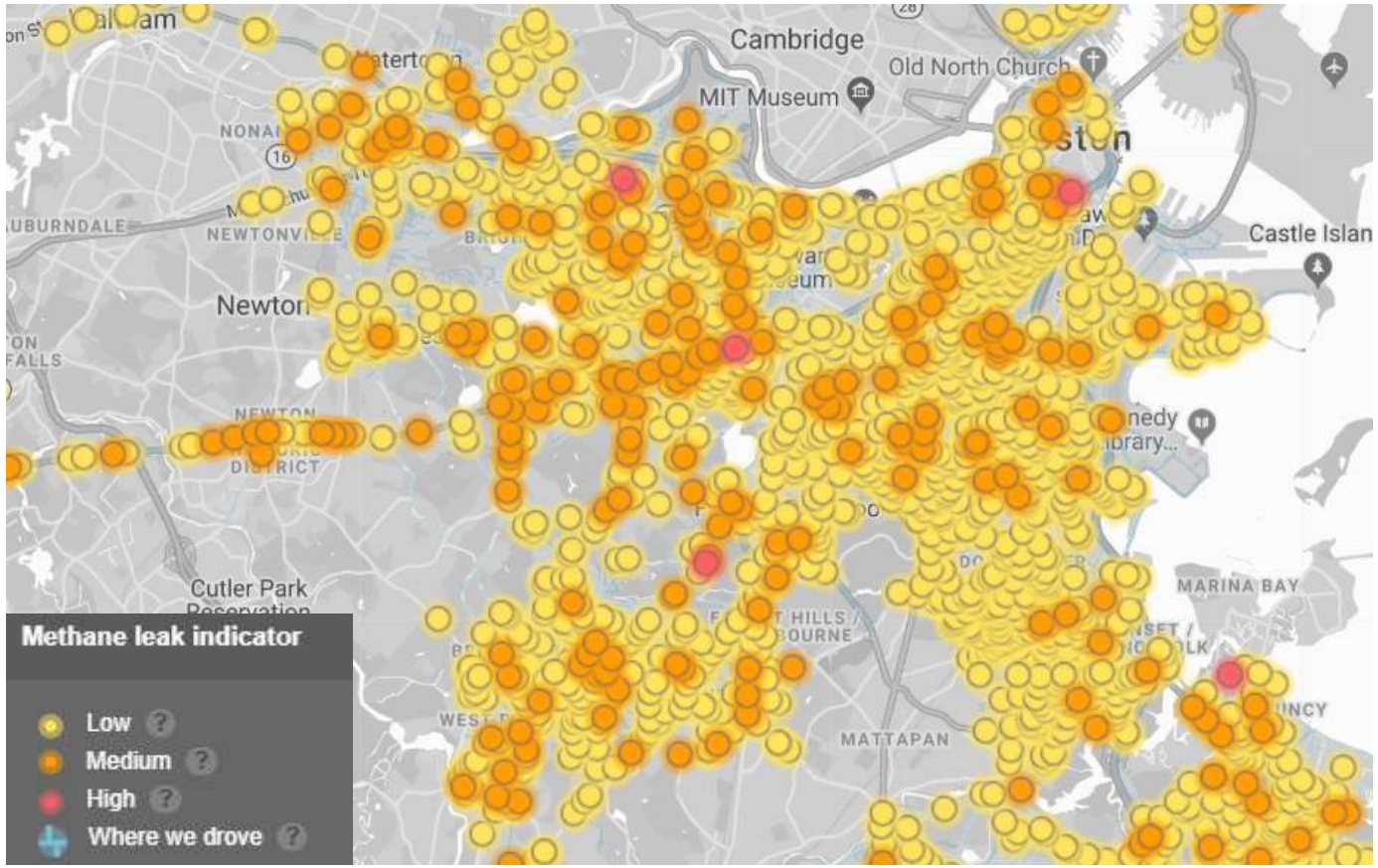
The challenge and opportunity associated with Boston's existing infrastructure



Methane Gas Leaks in Boston

Source: https://www.edf.org/climate/methanemaps/city-snapshots/boston

- National Grid operates 11,098 miles of distribution mains in Massachusetts.
- It can cost $1 million per mile or more to replace aging pipe.
- Estimated ~$9 billion of infrastructure upgrades needed.
- Anticipated to take until 2039 for National Grid to remove all leak-prone infrastructure.

Sources:

https://www.mass.gov/files/documents/2018/05/01/National%20Grid%2017-GSEP-03%20Order.pdf

https://www.usatoday.com/story/news/2018/09/14/boston-merrimack-valley-cast-iron-natural-gas-pipes-aging-infrastructure/1300246002/

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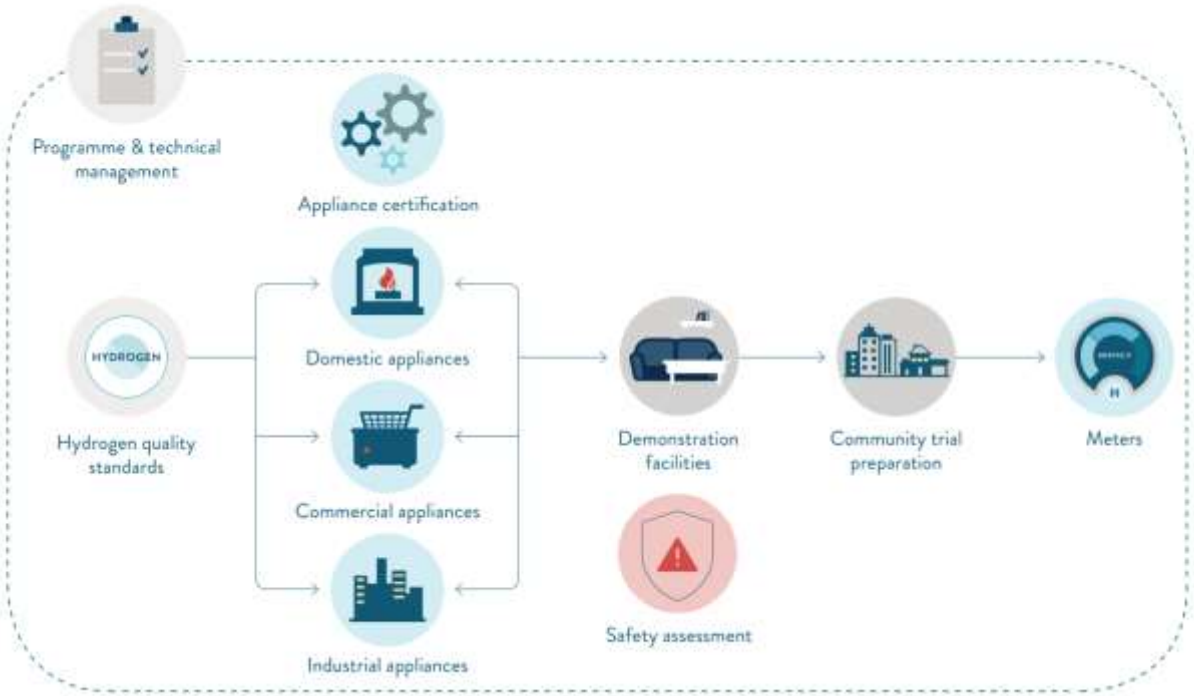
Hydrogen is coming…

UK Hydrogen for Heat Programme



Source: https://static1.squarespace.com/static/5b8eae345cfd799896a803f4/t/5dfd08735fd18d29d9b794ef/1576863864314/Hy4Heat+2019+progress+report.pdf

A Vision for Hydrogen in New Zealand

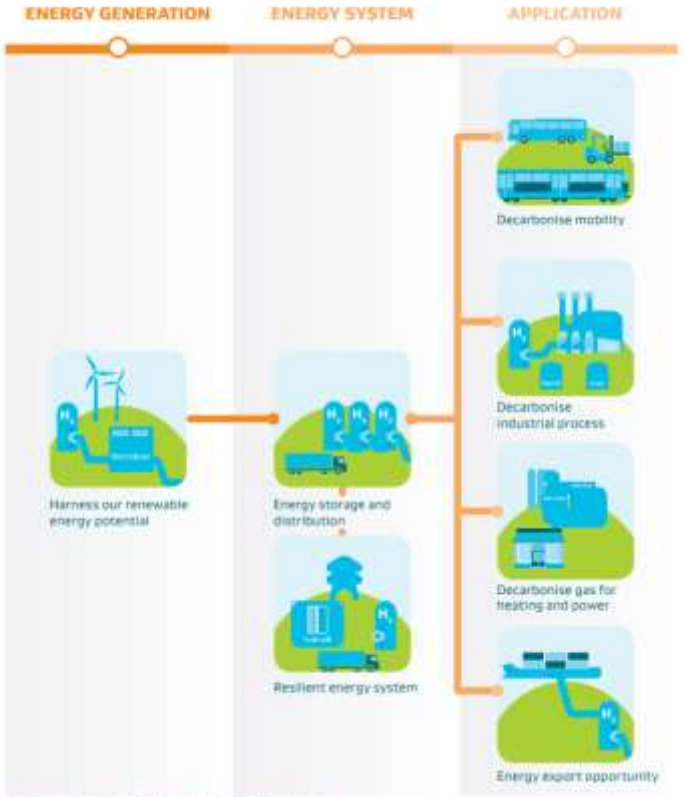


Figure 3: Hydrogen's role in the New Zealand economy

Source: https://www.mbie.govt.nz/dmsdocument/6798-a-vision-for-hydrogen-in-new-zealand-green-paper

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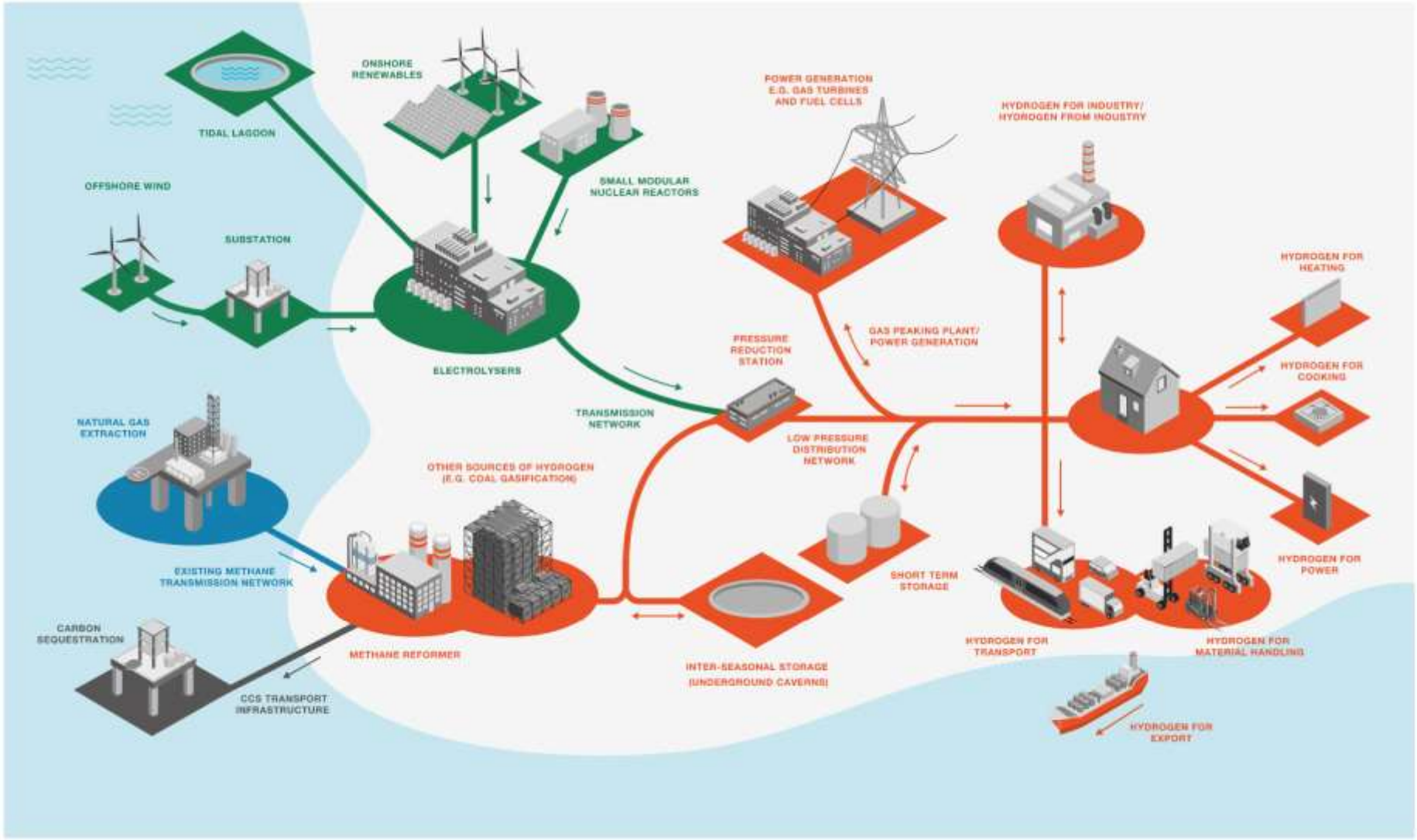
The hydrogen economy



Source: Establishing a Hydrogen Economy: The future of energy in 2035 https://www.arup.com/perspectives/publications/research/section/establishing-a-hydrogen-economy-the-future-of-energy-2035

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Regarding Critical Infrastructure, Resiliency & Microgrids, to enable a Carbon Free Boston, we must first address…

the viability of hydrogen as a future energy vector in Greater Boston.

Brian Swett, Boston Office Leader

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