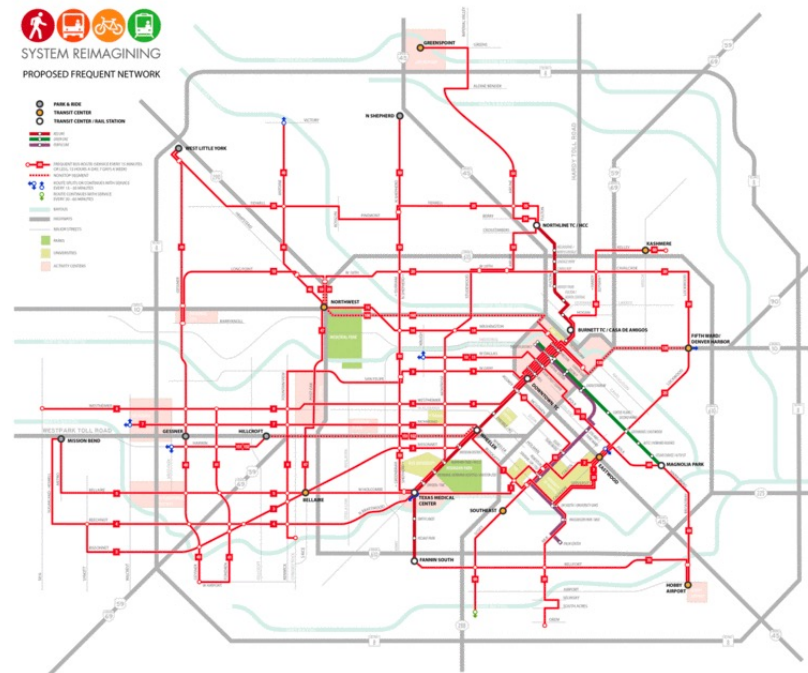


Carbon-neutral personal mobility: Is replacing cars with electric cars the best path forward?

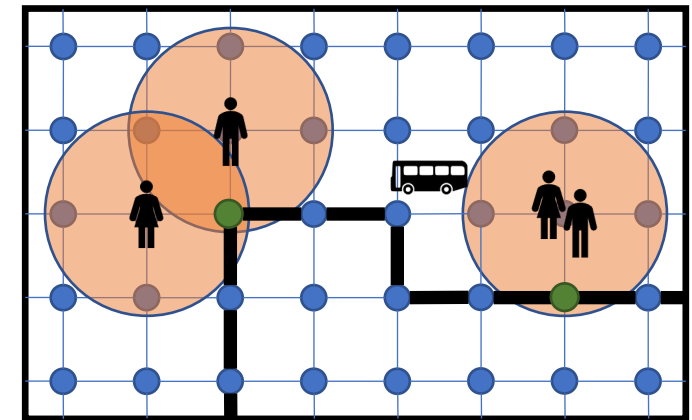
Samitha Samaranayake
Cornell University

NSF Workshop on Carbon-neutral
Electricity and Mobility

April 24th, 2023



[Image from Houston Metro]



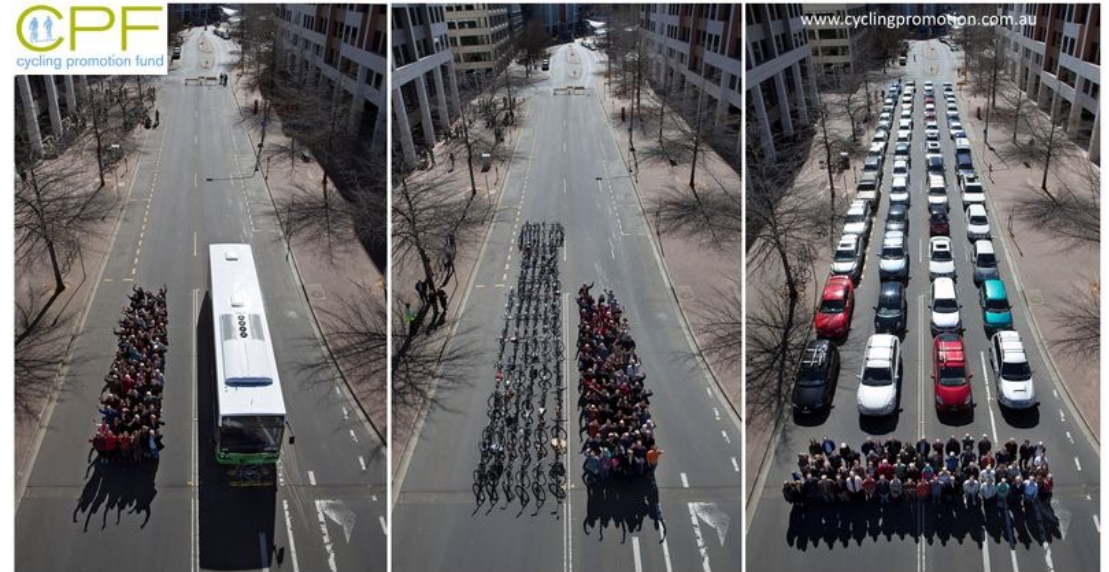
[Image by: Juan Carlos Martinez Mori]

Is replacing cars with electric cars the best path forward?

- Incentives for EV adoption are encouraging the purchase of more new vehicles---perpetuating a car centric mobility culture and related externalities.



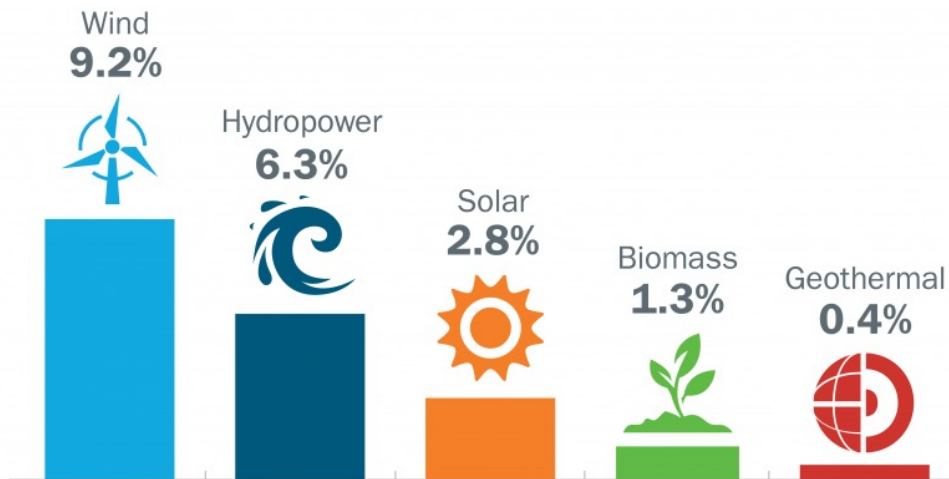
https://commons.wikimedia.org/wiki/File:Miami_traffic_jam,_I-95_North_rush_hour.jpg



Is replacing cars with electric cars the best path forward ?

- Ramping up renewable energy will be slow. New electrified mass-transit modes would allow more PMT per unit of clean energy---speeding up the clean energy transition.

Renewable Energy in the United States



<https://www.energy.gov/eere/renewable-energy>



<https://www.wxxinews.org/local-news/2022-07-05/electric-buses-are-all-the-buzz-but-rtt-thinks-hydrogen-might-be-better-for-rochester-winters>

Electrified multi-modal mass transit systems

Multi-modal transit system

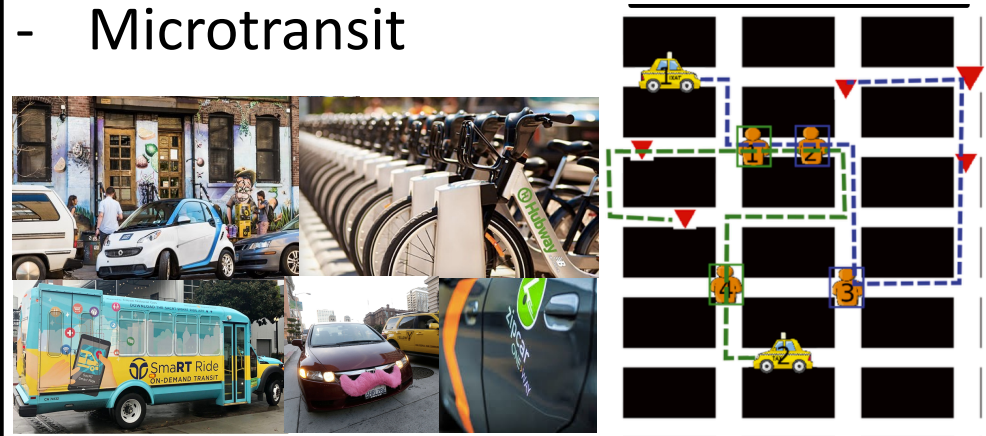
Fixed-line transit



+

Complimentary services

- Ride-hailing/ridepooling
- Bikesharing/micromobility
- Microtransit



Energy efficiency

Network externalities

Equity

Developing electrified multi-modal transit systems will require different investments and research