STRATEGEN

Infrastructure Working Group #1

Hosted by Strategen Workstream Support:

- Collin Smith

Agenda

Overview and Introductions	10 min
Review of Working Group Charter and Schedule	10 min
Presentation and Discussion of Initial Geospatial Analysis	40 min

Infrastructure Working Group Charter Overview

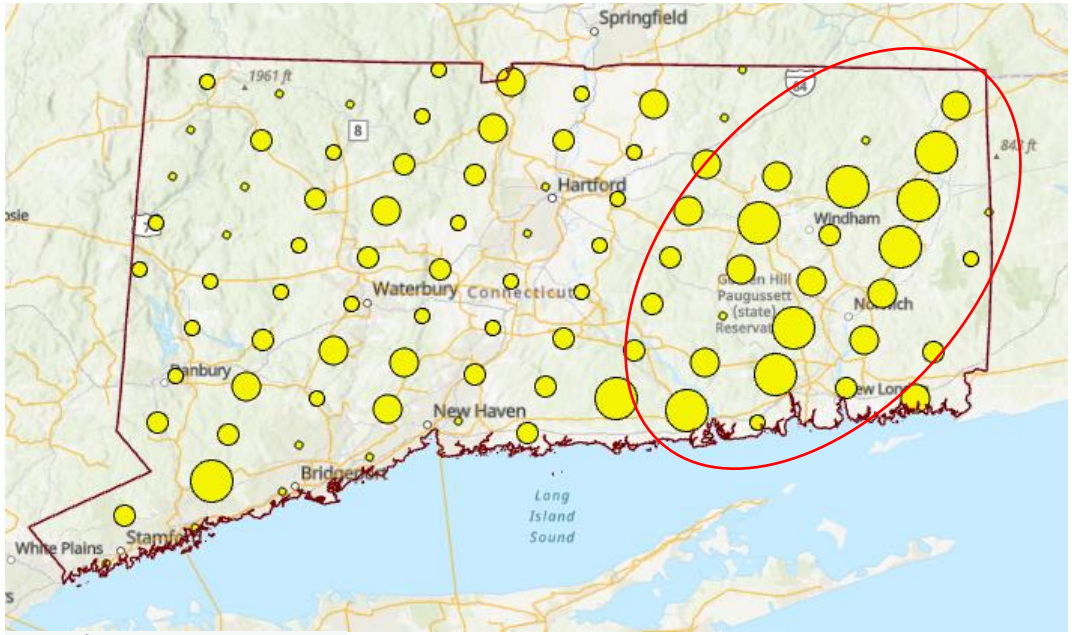
+ **Co-Chairs –** Adolfo Rivera (Avangrid), Chris Capuano (Nel)
+ **Strategen Support –** Collin Smith
+ **Proposed Deliverables**
  1. Geographic analysis detailing the locations of existing infrastructure and proximity to hydrogen production and offtake sites.
  2. High-level assessment of needed infrastructure and associated costs.
  3. Identification of priority areas for hydrogen infrastructure development, taking into account environmental justice and economic development objectives.

Infrastructure is a key enabler of low-cost delivered hydrogen

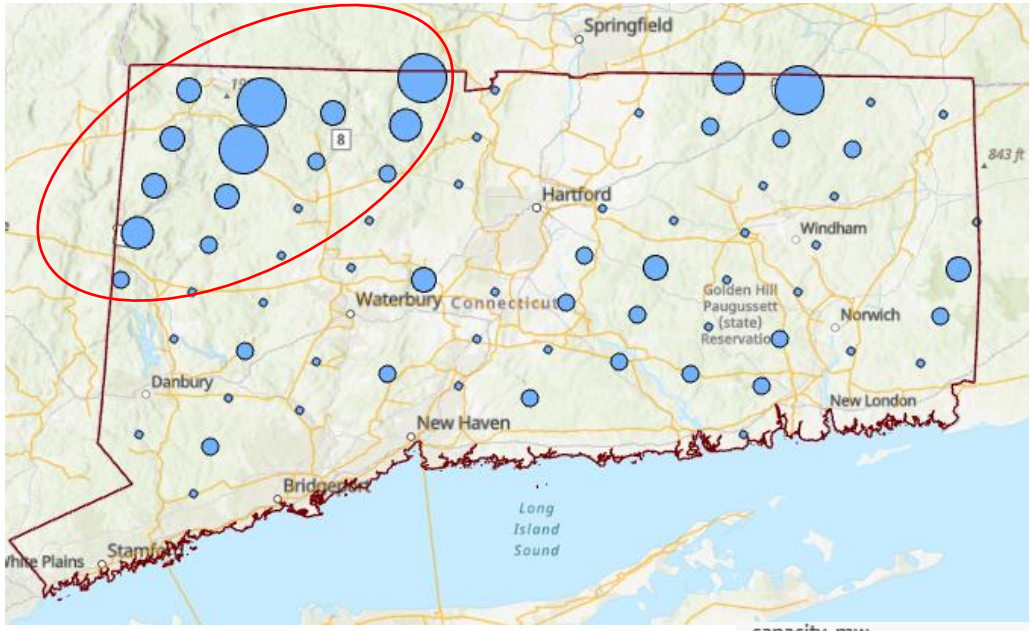
+ Pipelines, storage, etc. can significantly reduce the cost of transporting H2 compared to other delivery methods (e.g. trucking)
+ Infrastructure development requires significant demand so that costs can be spread over larger unit deliveries
+ Co-locating hydrogen production and demand is a key strategy to reduce infrastructure costs

Solar has highest onshore production capacity and is primarily located on the eastern side of the state

Solar Potential in CT

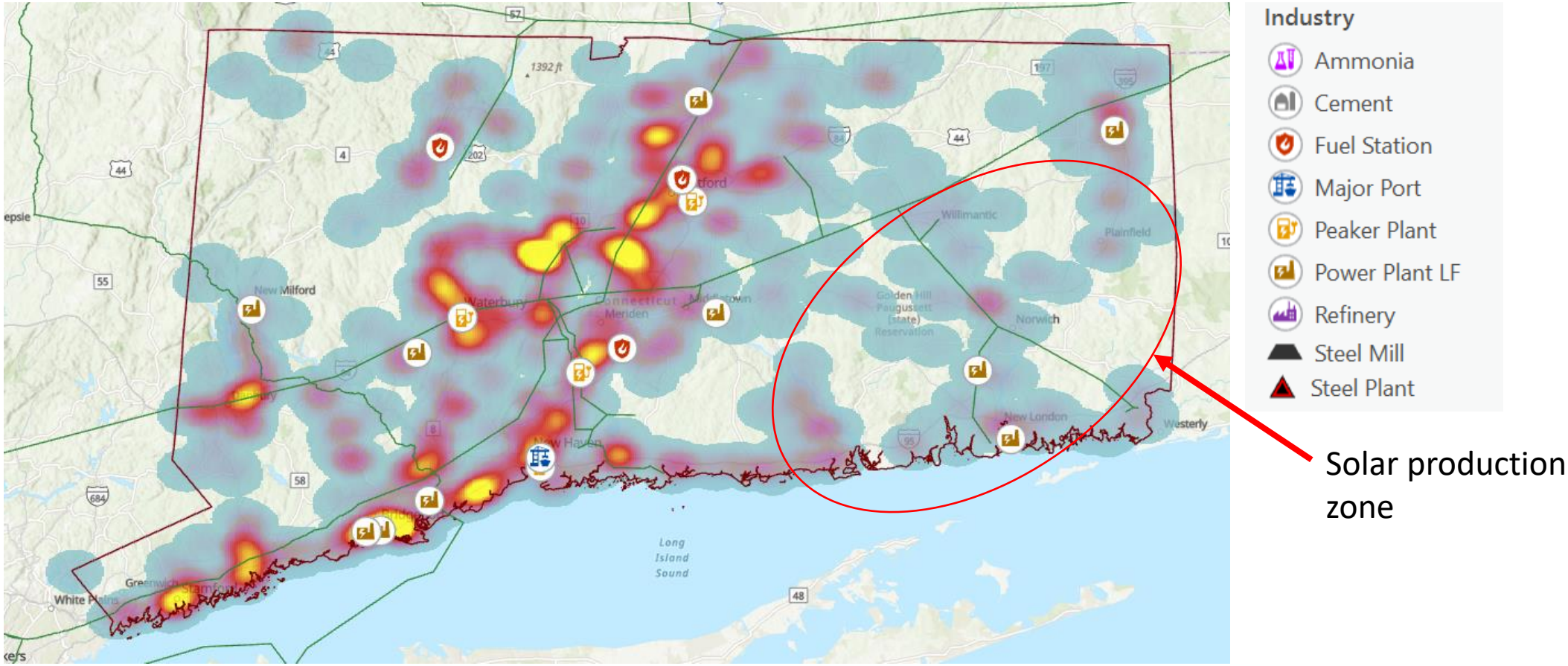


Onshore Wind Potential in CT



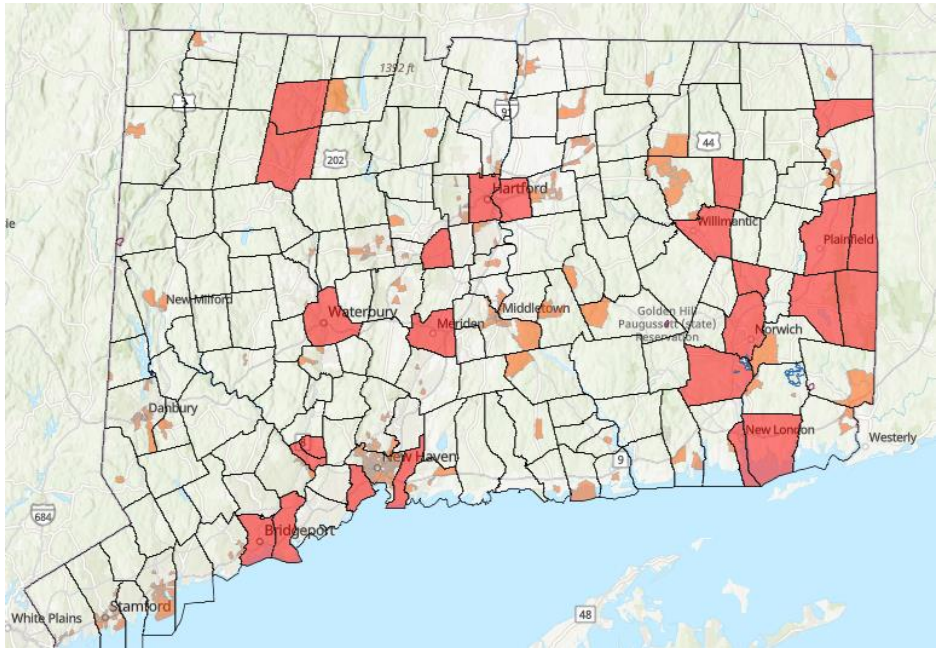
Orange lines indicated major electrical transmission infrastructure

Offtaker locations match up well with gas infrastructure but not necessarily renewable energy production zones

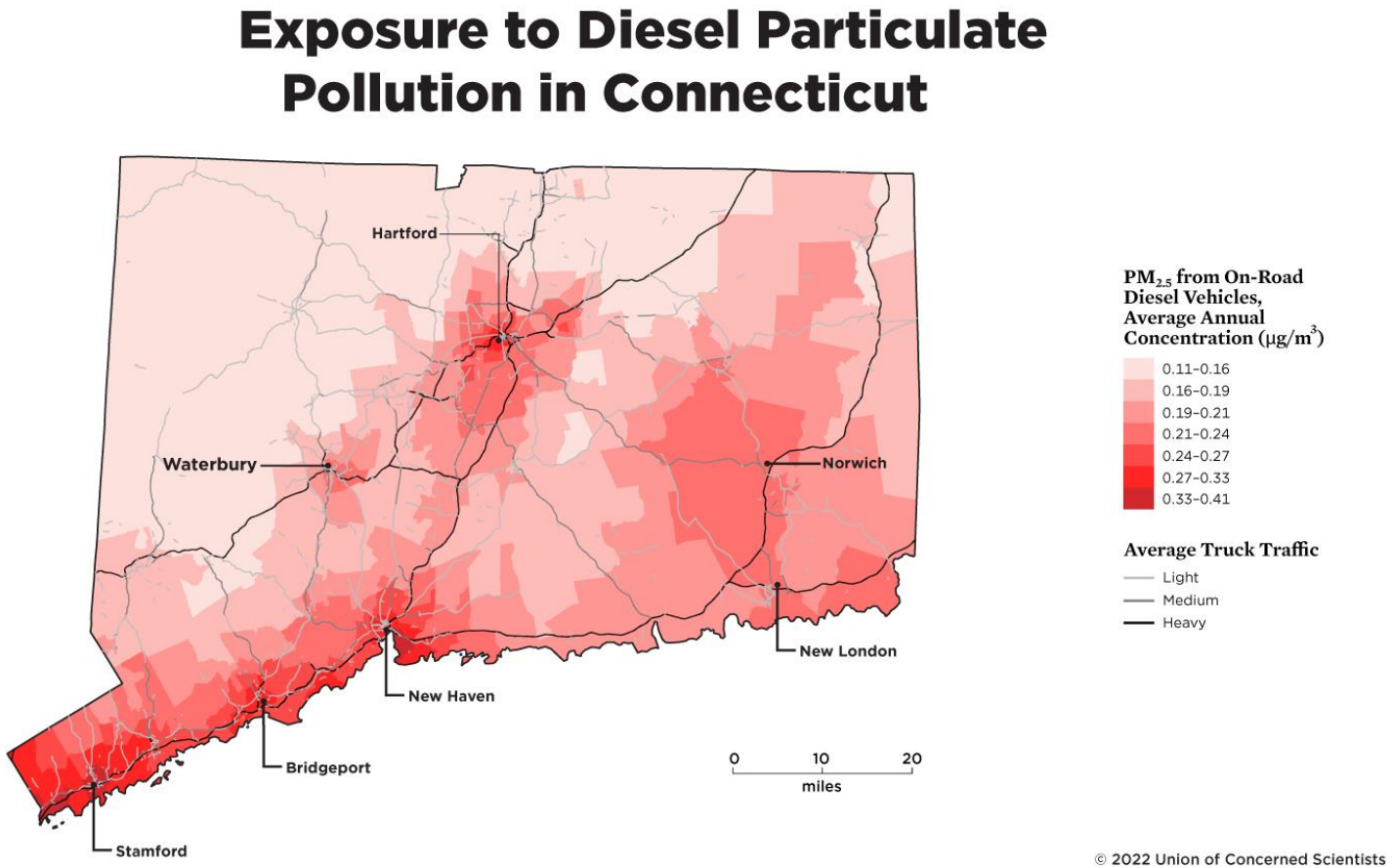


Green lines indicate gas transmission pipelines. Red/yellow heat map indicates presence of smaller manufacturing facilities

Location of solar-produced hydrogen could support reductions in transport-related air pollution

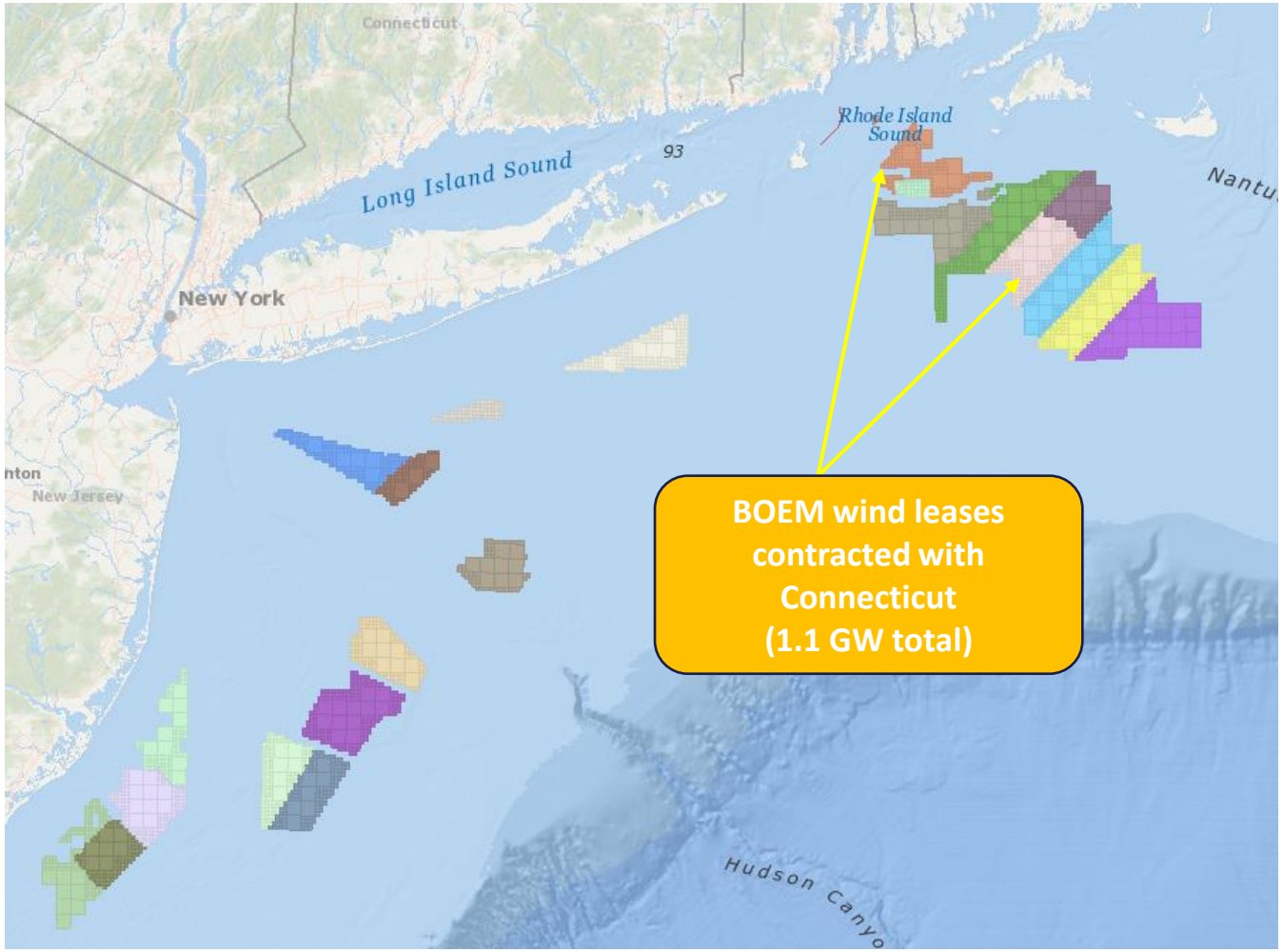


Environmental Justice Communities in Connecticut (DECD data)



Offshore wind potential is significant but lack of direct connections to CT could hinder regional clustering

Production potential from offshore wind limited by available lease areas and connection points with Connecticut



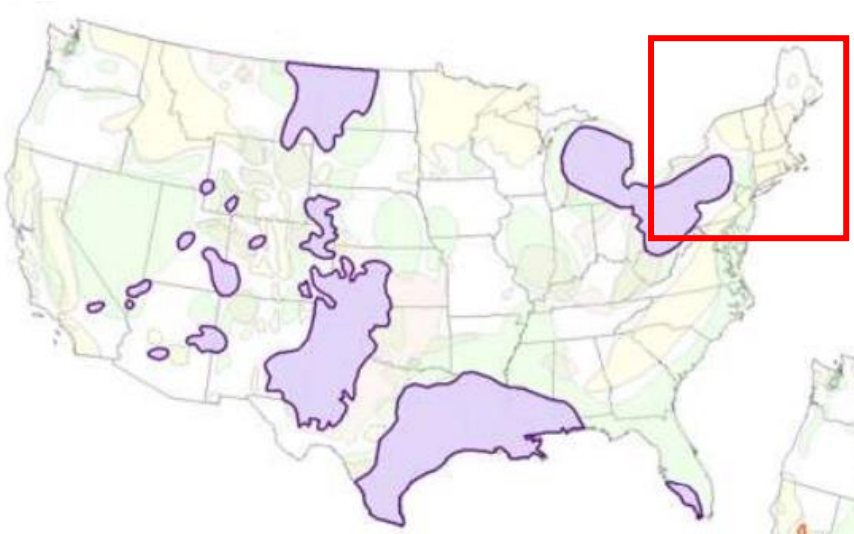
Potential for geological hydrogen storage in Connecticut is primarily limited to caverns in hard-rock formations

CT near-surface geology characterized by hardrock

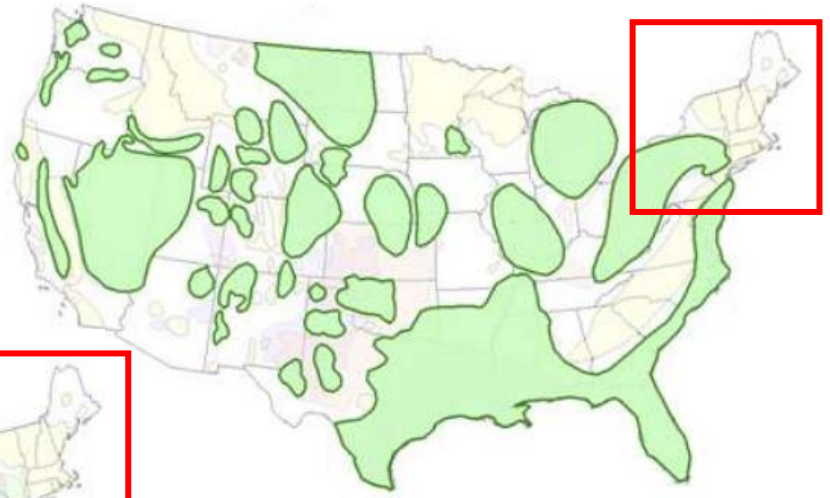
Source: Lord et al. (2014). Geologic storage of hydrogen: Scaling up to meet city transportation demands. Int. J. Hydrogen Energy, 39, 15570-15582

Nearby states in Northeast region have potential for geological hydrogen storage

Salt Deposits in United States



Sedimentary Basins in United States



Oil and Gas Fields in United States

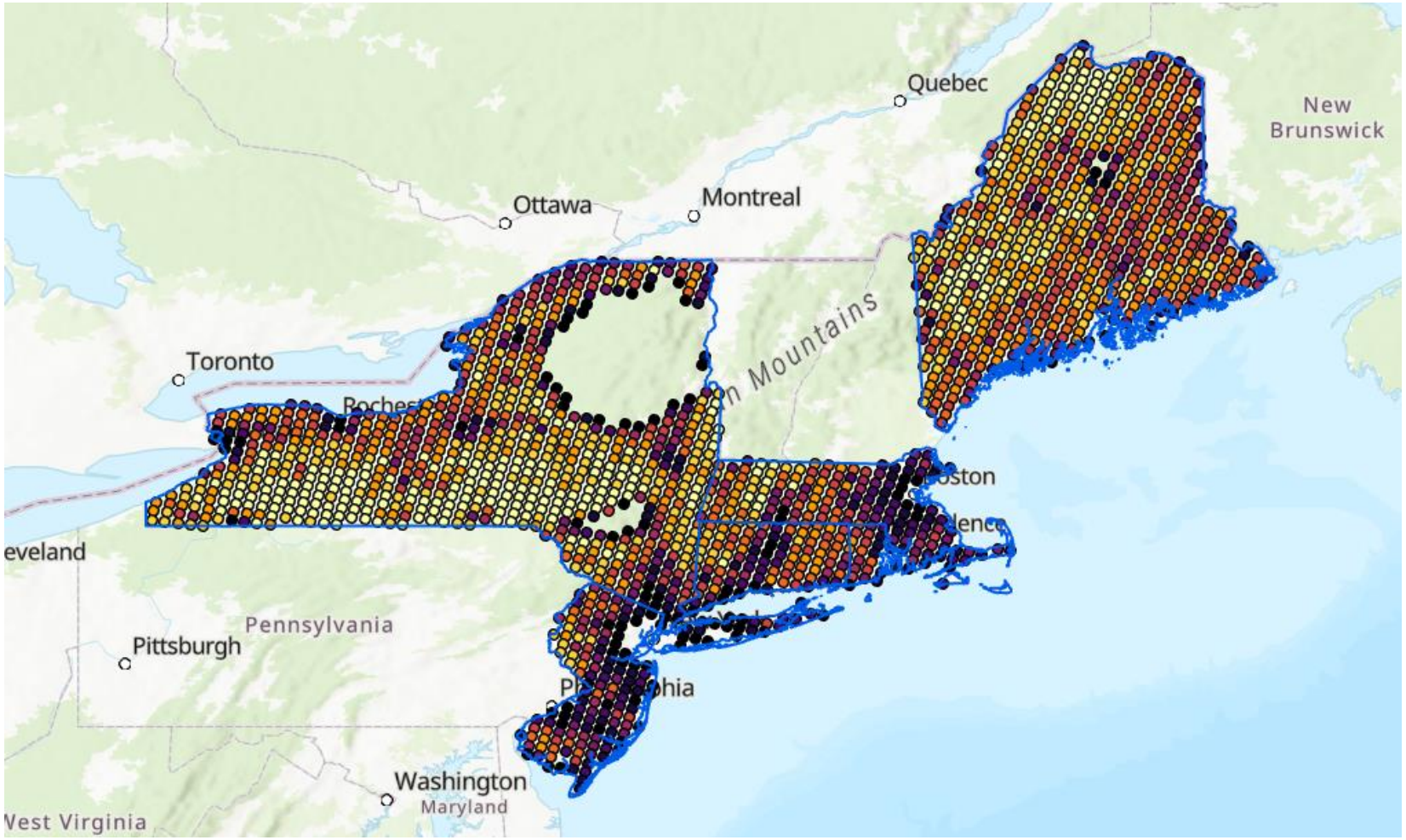
Source: Lord et al. (2014). Geologic storage of hydrogen: Scaling up to meet city transportation demands. Int. J. Hydrogen Energy, 39, 15570-15582

Discussion Questions

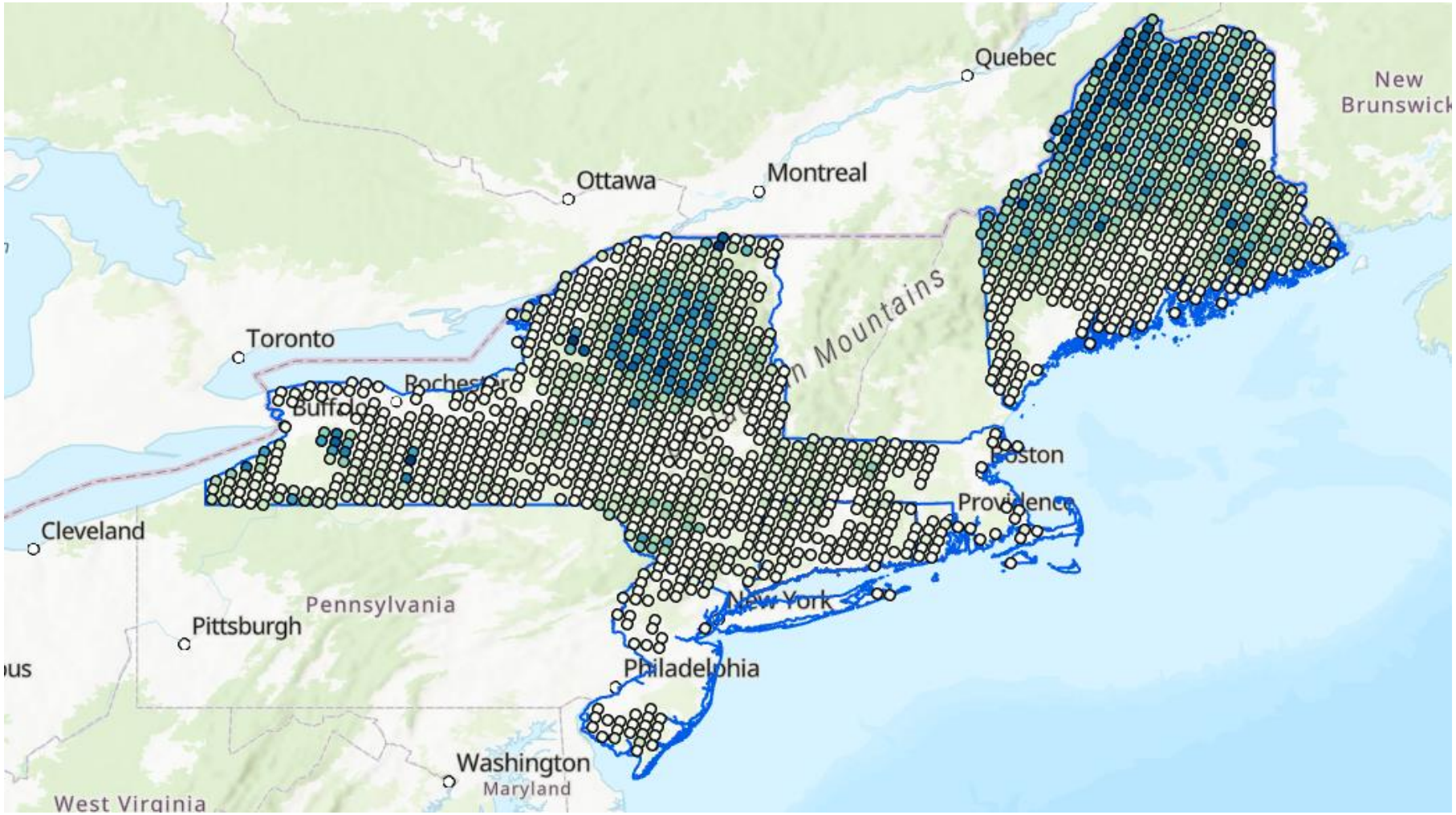
+ What other infrastructure or demographic information is important to include
+ What are some potential priority areas for infrastructure development?
+ How could offshore wind developments best be incorporated into regional hydrogen production? What infrastructure would be needed to enable this?
+ How should this team's work be coordinated with other working groups? (e.g. sources, uses, policy & workforce developments)

Appendix

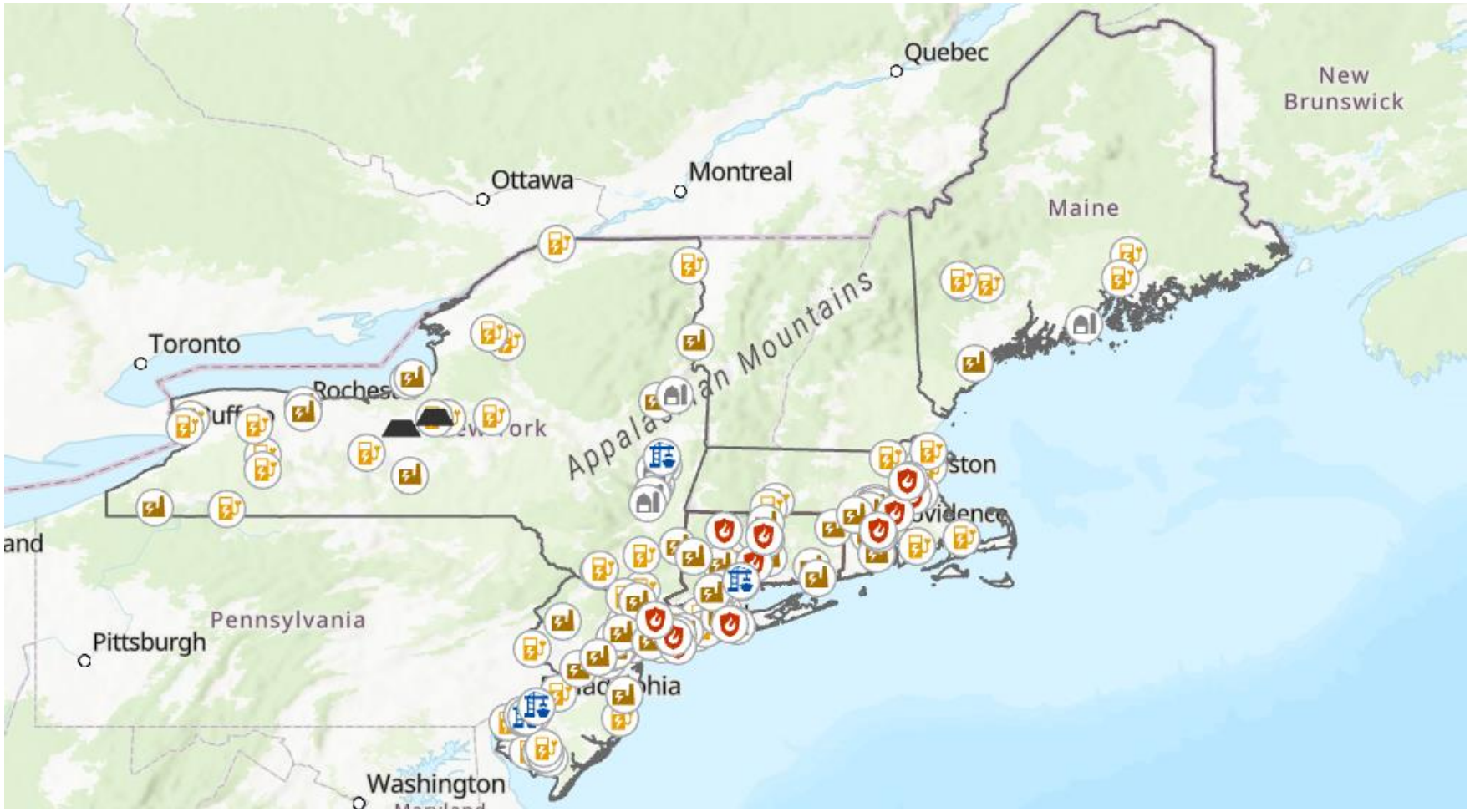
Northeast Regional Hub – Solar Production Potential



Northeast Regional Hub – Wind Production Potential

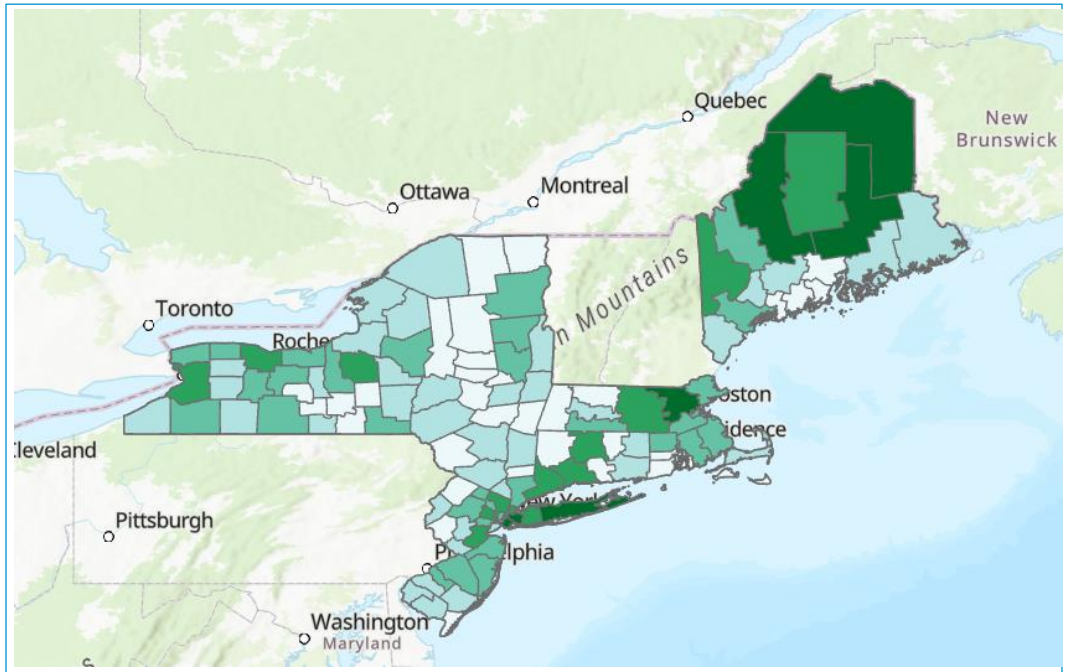


Northeast Regional Hub – Major Offtakers

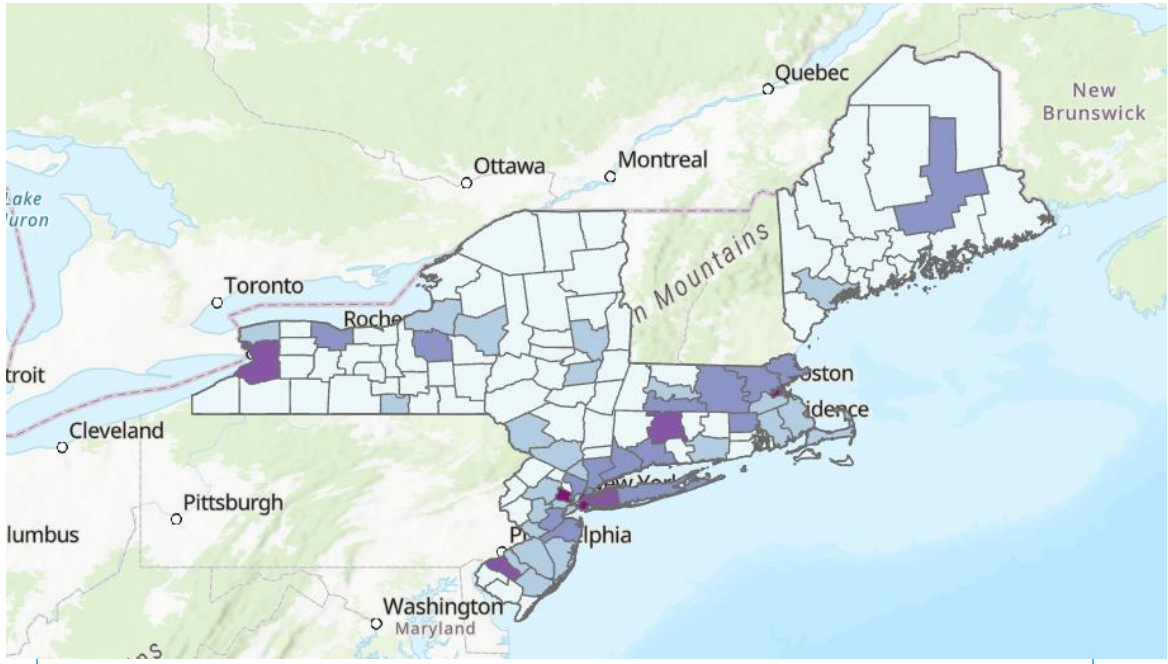


Biomass and Biomethane Heat Maps

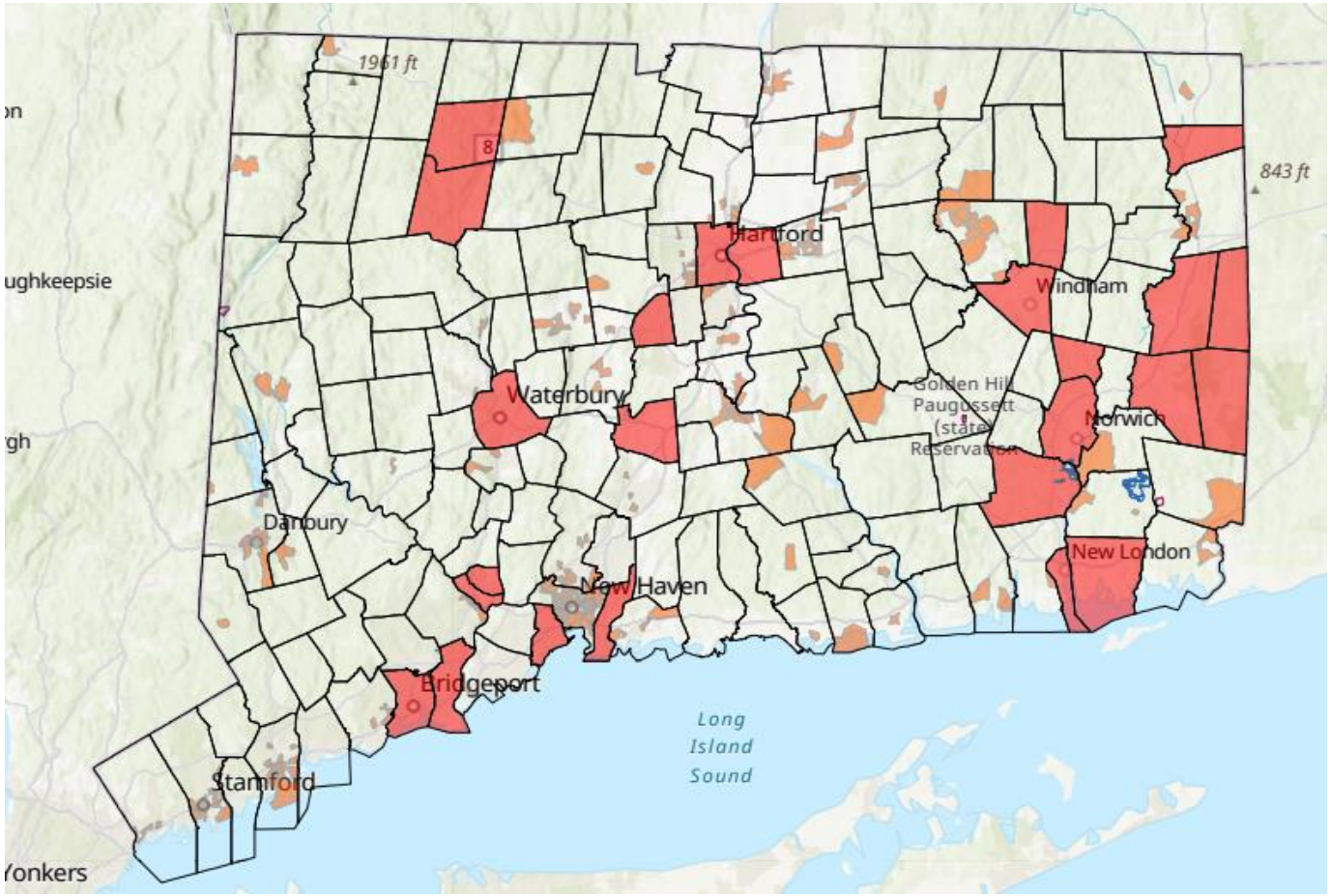
Biomass



Biomethane



Environmental Justice Communities in 2021



Distressed Municipalities

EJ Block Groups

Towns

Tribal Lands

AIANNHR

Federally Recognized

State Recognized

Source: https://portal.ct.gov/DECD/Content/About_DECD/Research-and-Publications/02_Review_Publications/Distressed-Municipalities

Major trucking corridors and air quality impacts