

ACHIEVING A SUSTAINABLE ENERGY FUTURE , SAINT LOUIS

CITY-SCALE DISTRICT ENERGY STRATEGIES



THIS IS C40: 83 CITIES



The world's leading megacities working together to tackle climate change



Presentation Agenda



Using data to drive district energy opportunities

Amsterdam – Energy Atlas



London – Energy Decentralization Plan



Integrating district energy solutions as city solutions

Toronto – Building on existing infrastructure

London & Amsterdam – Challenges & Context

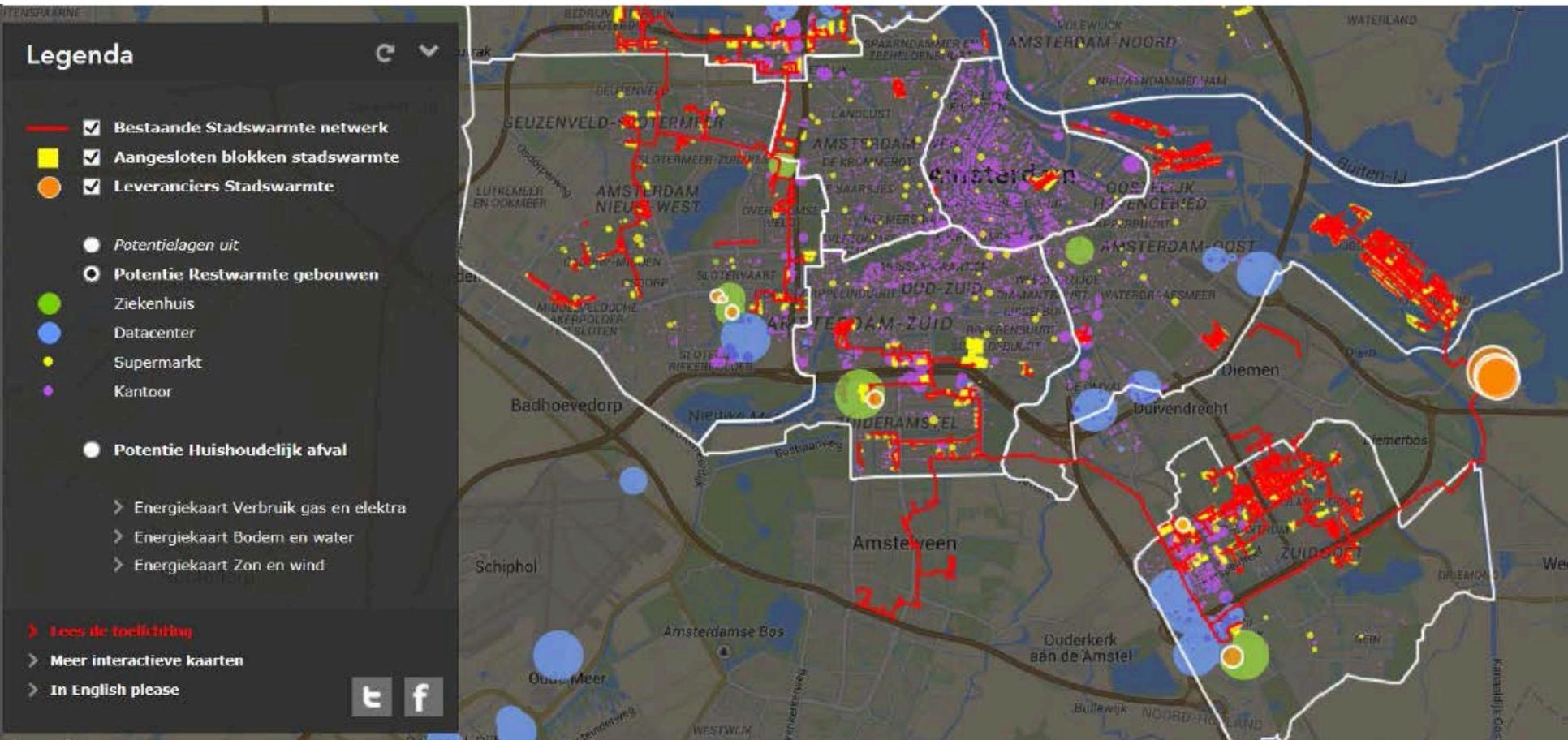


- Goal: 60% carbon reduction and 25% decentralized energy by 2025
- No history of district energy in the city
- 30% of CO2 emissions comes from heat
- Challenge of aging infrastructure



- Heating demand is supplied mostly by natural gas
- Found a challenge in lack of data to understand city opportunity to scale the use of district energy
- No policies incentivizing district energy

Amsterdam – Energy Atlas



London – Decentralization Plan



MAYOR OF LONDON

London Heat Map

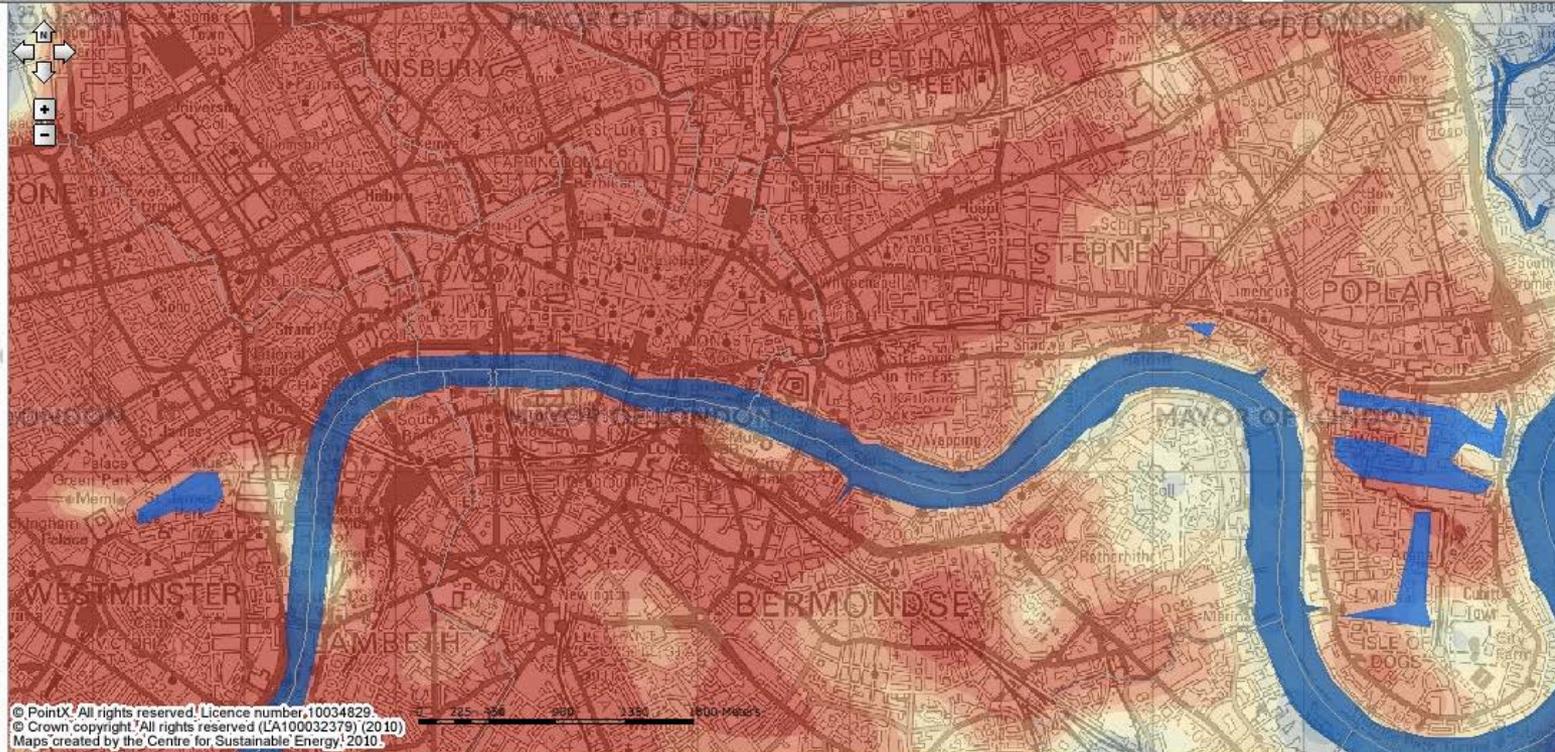
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Scale 1:35859 | Scale 1: 35859 | Zoom

Results

Map Contents

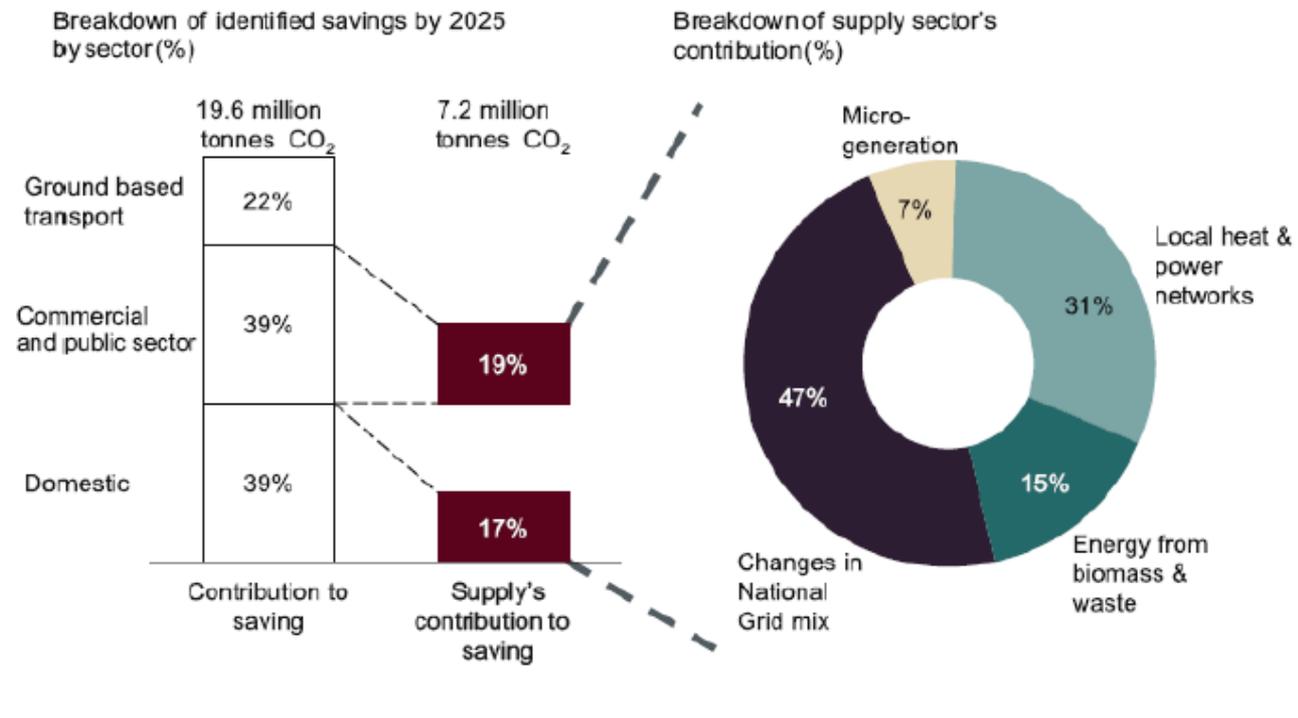
- 1 London geography
- 2 DH masterplanning layers
- 3 Ordnance Survey
- 4 Policy indicators
- 5 Base layers



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Maps created by the Centre for Sustainable Energy! 2010.

London – Decentralization Targets

- DE can deliver 12% of the total CO2 savings target of the city
- 30.5% and 21.2% of London’s demand for electricity and heating can be met by DE by 2030
- Unlock 8 billion pounds of investment opportunities

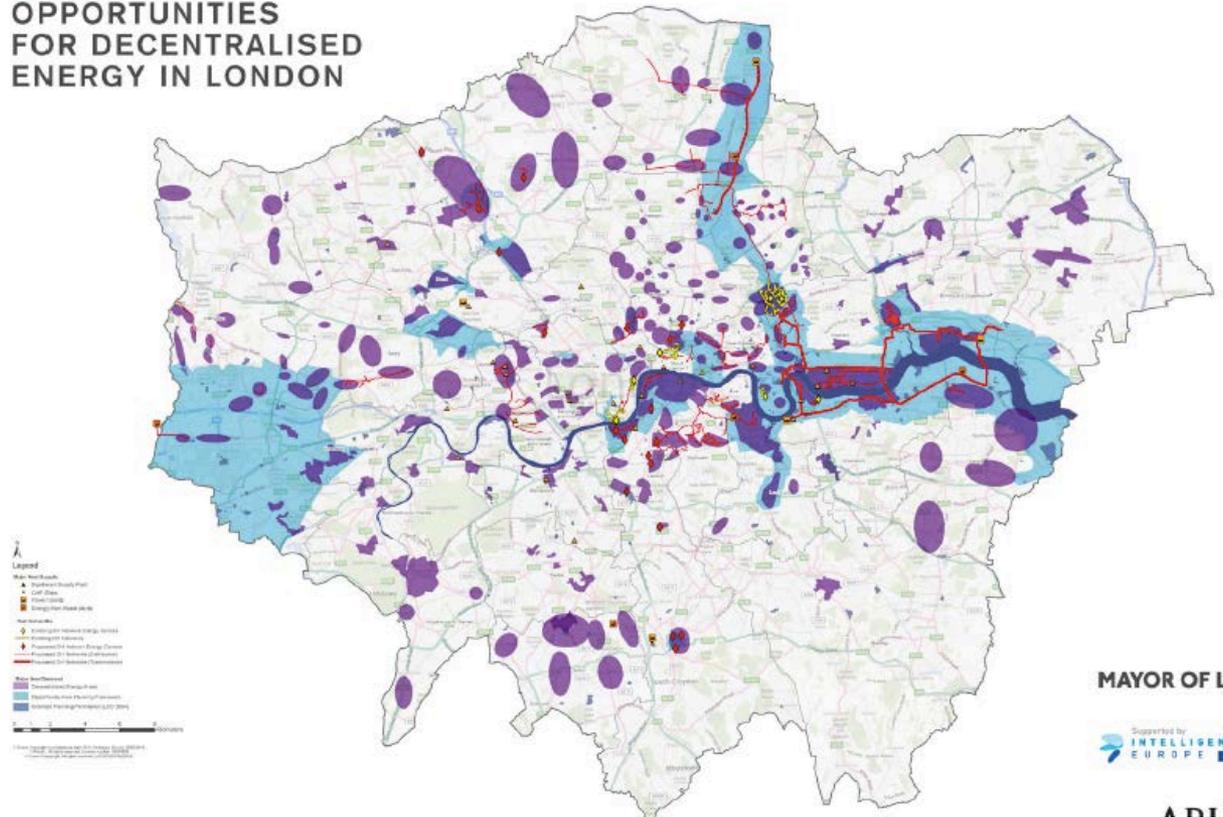


London – Decentralization Plan



- Three schemes for decentralization:**
- Single sites with CHP up to 3MWe
 - Multi-site, mixed use with CPH units up to 3-40 Mwe
 - Area-wide heat transmission networks

VISION MAP
OPPORTUNITIES FOR DECENTRALISED ENERGY IN LONDON

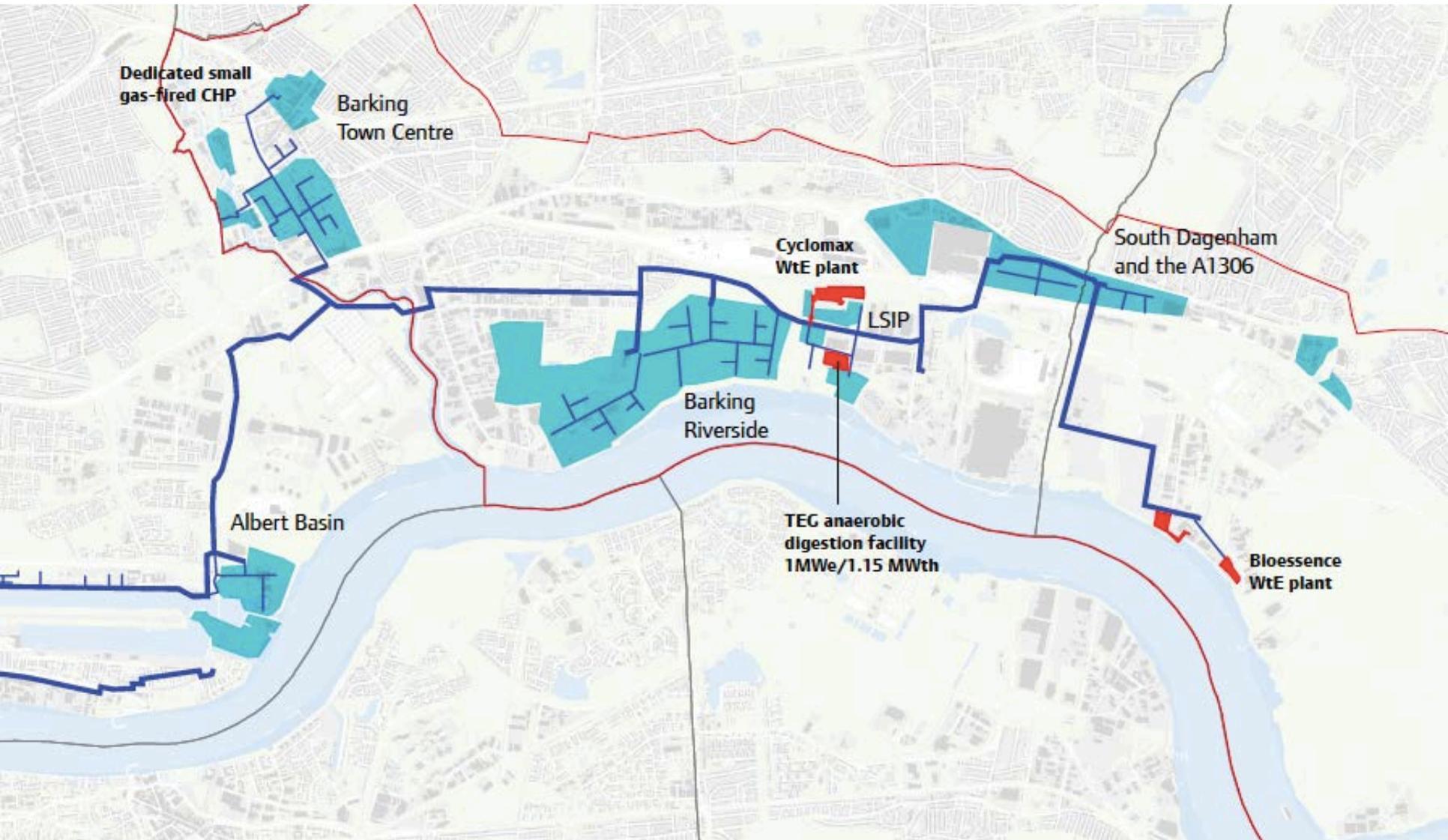


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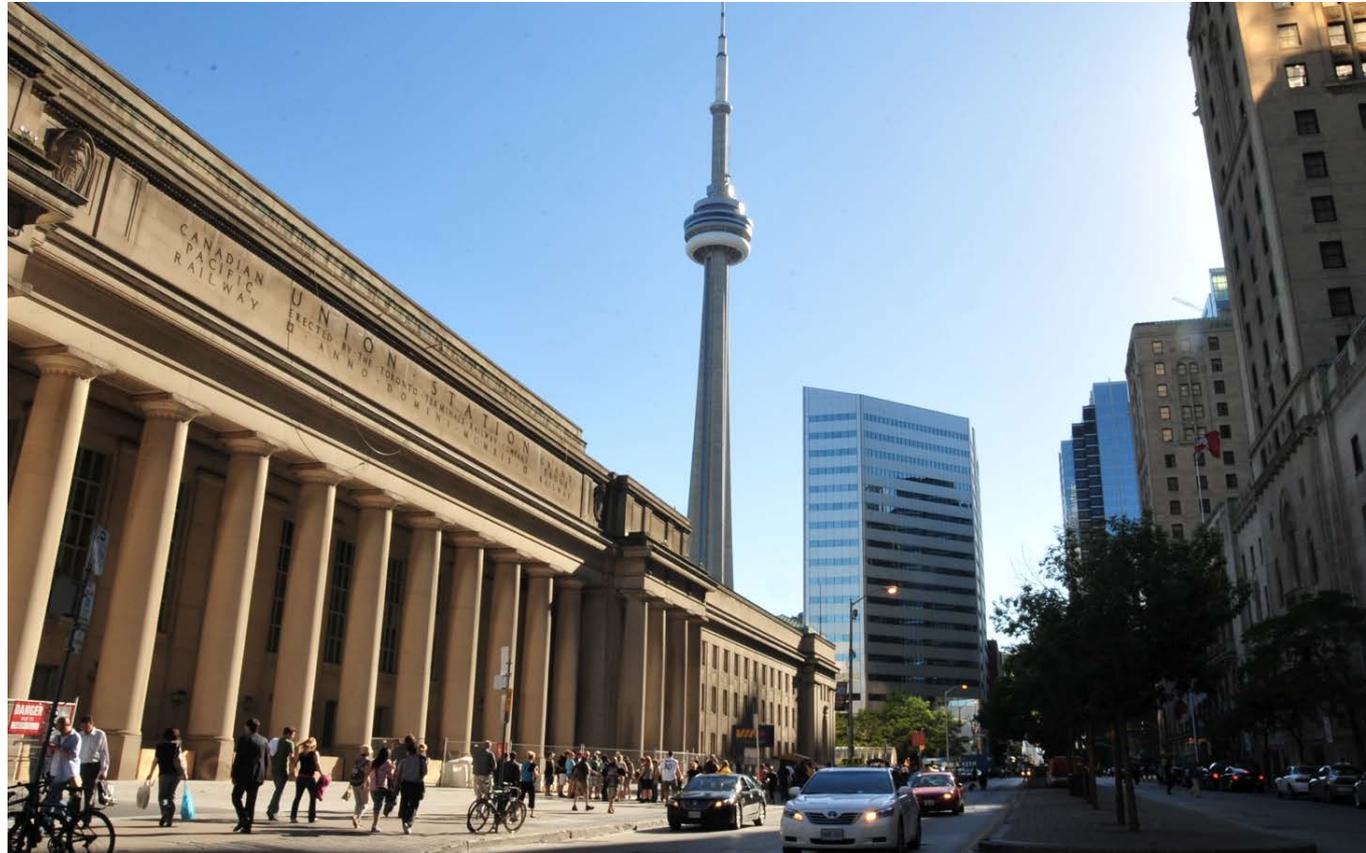
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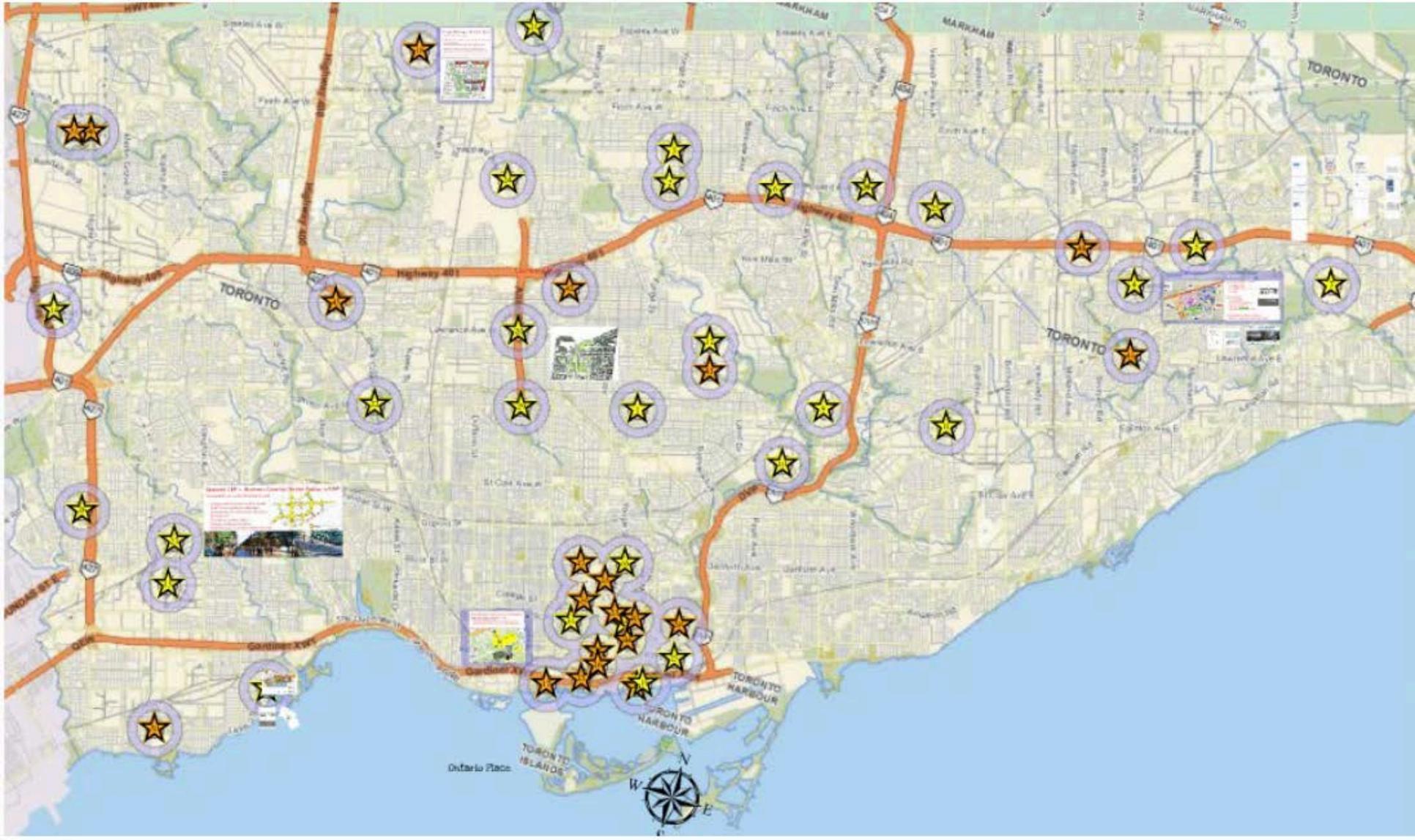
London – Borough Energy Master Plans



- Industry has moved out of downtown over the last 30 years and residential is moving in
- Increase in extreme weather impacts on the grid
- Energy is cheap: peak 16 c kw/hour and 8 c kw/hour off peak



Toronto – Identified 30 DE Priority Areas



Toronto – Leading by Example



- Using existing energy assets to connect a CHP system to a hotel development
- Creating community development plans in growth centers integrating in district energy

Trends in City-Scale Sustainable Energy Solutions

- Set up district systems now and then integrate more sustainable energy solutions
- Use economies of scale to make renewable solutions affordable
- Utilize local resources to the best of your advantage
- Be opportunistic in connecting potential low carbon energy solutions with users
- Ambitious goal setting to drive action
- Partnerships and stakeholder collaboration is key to all successful solutions



THANK YOU!

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