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# Reducing Carbon Emissions Through Local Climate Policy: Recent Progress and Persistent Challenges

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*CMS Policy Speaker Series*



C2ES.ORG

# Agenda



- C2ES Introduction
- Why Cities?
- Implementation
- Tracking Progress



- Independent, nonpartisan, nonprofit organization
- Mission: To advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts.
- Brings city, state, and national policymakers together with businesses and other stakeholders.
- Ranks regularly among the top environmental think tanks in the world.

# Business Environmental Leadership Council (BELC)



JPMORGAN CHASE & Co.



RioTinto

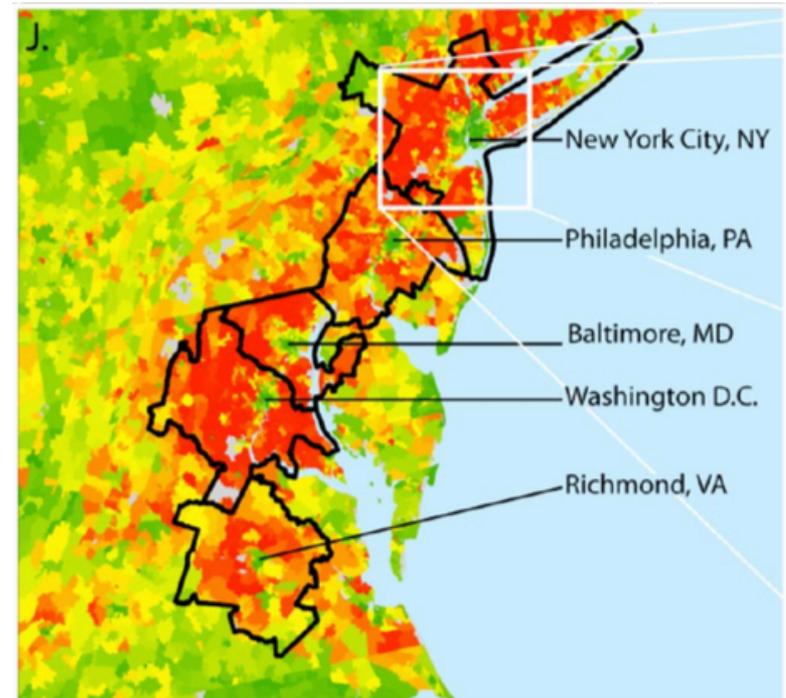


- By April 6, 2017, there were **5 weather and climate disaster events with losses exceeding \$1 billion** each across the U.S.
- 1 flooding event, 1 freeze event, and 3 severe storm events led to 37 deaths and significant economic effects on the areas impacted.
- Billion dollar weather disasters:
  - The 1980–2016 annual average: 5.5 events
  - The 2012–2016 annual average: 10.6 events

<https://www.ncdc.noaa.gov/billions/>



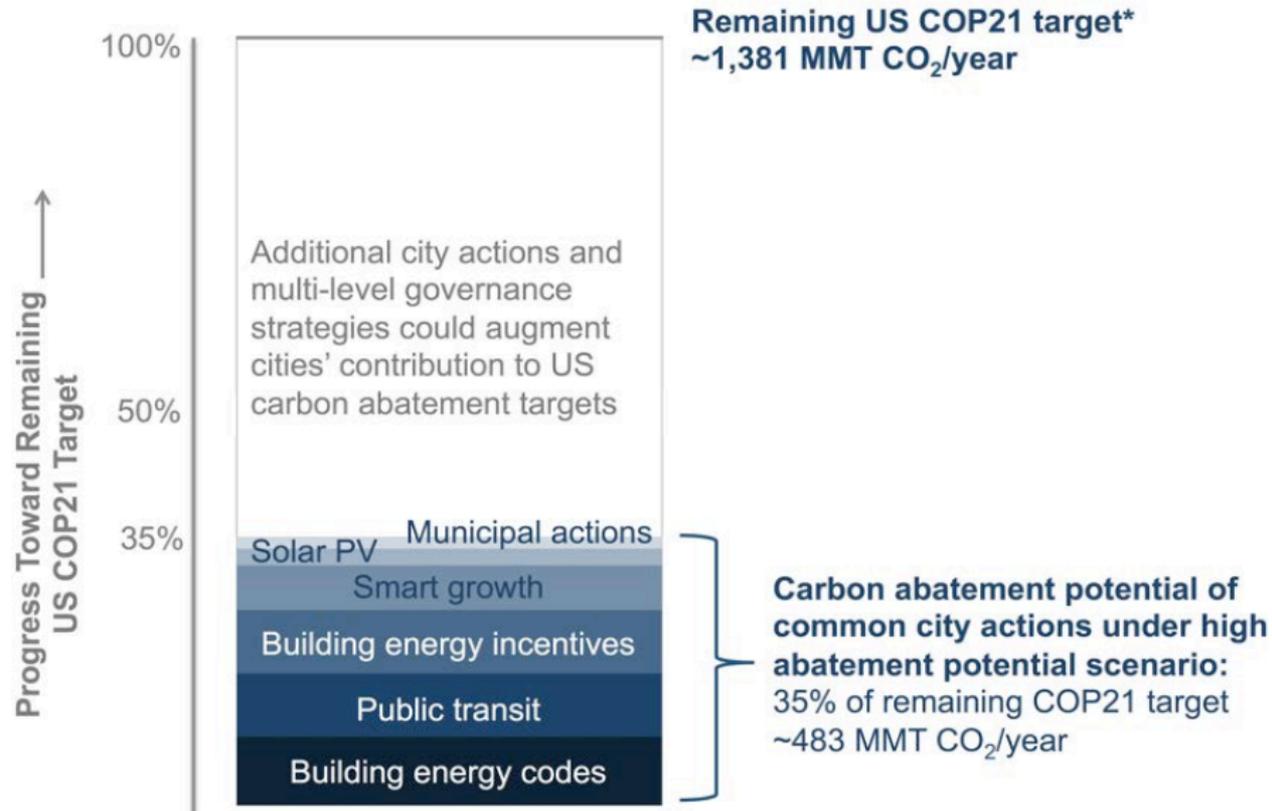
- Globally, cities occupy only 2% of planet's landmass but consume 2/3 of world's energy and account for 70% of global emissions.
- Metropolitan areas drive the U.S. economy. They were home to 86% of the nation's population and generated 91% of GDP in 2015.
- Urban households have lower carbon footprints than suburban neighbors.



[http://www.c40.org/why\\_cities](http://www.c40.org/why_cities)

<https://www.usmayors.org/2016/01/20/u-s-metro-economies-gmp-and-employment-report-2015-2017/>

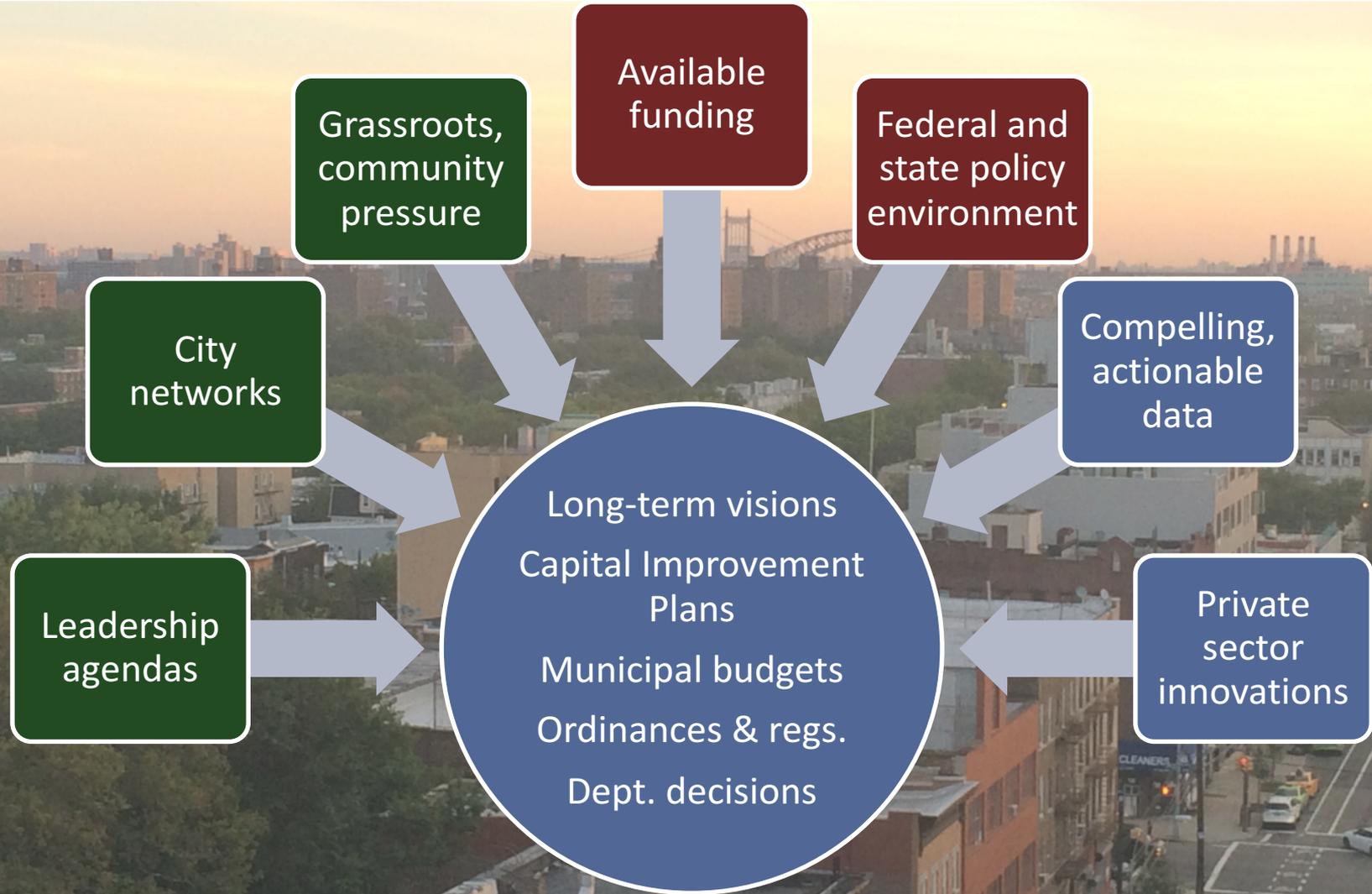
Jones and Kammen, "Spatial Distribution of U.S. Household Carbon Footprints Reveals Suburbanization Undermines Greenhouse Gas Benefits of Urban Population Density," *Environmental Science and Technology*, 2014.



\* COP21 target is a 28% reduction below 2005 levels (about 2,058 MMT CO<sub>2</sub>/year). Annual U.S. emissions fell by about 677 MMT CO<sub>2</sub> between 2005 and 2013. The remaining target is the difference: 2,058-677=1,381 MMT CO<sub>2</sub>/year. (Emissions based on EPA 2015)

*"Estimating the National Carbon Abatement Potential of City Policies: A Data Driven Approach" Eric O'Shaughnessy, et al., NREL*  
<http://www.nrel.gov/docs/fy17osti/671101.pdf>

# Implementation: Local Decision-Making



# Implementation: The Direction of Local Climate Action



- **Best practices**
  - Climate change commitment
  - “Green” municipal activities: efficiency, solar panels, green vehicles, anti-idling
  - Pilot projects
  - GHG inventory
- **Persistent challenges**
  - Scaling up solutions
  - Local buy-in (NASA data visualization products can be helpful here)
  - Consistent tracking/ making use of available data
  - Staff capacity
- **Emerging trends**
  - Increasingly ambitious climate and energy goals
  - “Smart” city projects
  - Electrification and renewable energy
  - Resilience
- **Emerging approaches**
  - Leveraging public-private partnerships & city-city networks
    - Aggregated buying power
    - Better information
  - Performance tracking
    - energy and water use, square footage covered, number of transit riders
  - Community-centric policies
- **NEW Challenge:** Loss of federal resources

# Implementation: Alliance for a Sustainable Future



## The Alliance for a Sustainable Future

- Inform and engage city and business leaders to identify and explore strategic opportunities
- Empower local leaders to contribute to state climate plans and other supporting federal, state, and local initiatives
- Build new public-private partnerships
- Raise the profile of city and business contributions in accelerating sustainable development, resilience, and climate action to help implement international commitments



The Alliance for a Sustainable Future



## How can more collaboration accelerate progress in:

- **Energy efficient buildings**
  - cities have experience improving efficiency of municipal buildings – and are now turning attention to commercial and residential performance
- **Low-emission vehicles/transportation:**
  - nearly all cities surveyed are acting to support EV deployment, but the fleet vehicles only represent a small amount and most cities are doing little to promote private adoption
- **Low-carbon electricity:**
  - cities have ambitious goals for renewable energy, but currently only use marginal amounts for their own demand

# Tracking Progress: International Climate Platforms



- **NAZCA: Non-State Actor Zone for Climate Action**
  - global platform that brings together the commitments to action by companies, cities, subnational regions, investors and civil society organizations to address climate change

The screenshot displays the NAZCA website interface. On the left, there is a search bar with the text "See who's taking action" and a magnifying glass icon. Below the search bar is a "Browse" section with a grid of buttons: "CITIES" (highlighted in blue), "REGIONS", "COMPANIES", "INVESTORS", "CSOs", and "COOPERATIVE INITIATIVES" (highlighted in green). Below this is a "TOTAL COMMITMENTS" section and a "Join" button with the text "Register your commitments". On the right, a map of North America is shown with a dark background and orange landmasses. The map is covered with numerous blue location pins, indicating the presence of climate action commitments across various states and provinces. The map is titled "Home &gt; Cities".

[climateaction.unfccc.int/](http://climateaction.unfccc.int/)

# Tracking Progress: Global Covenant of Mayors



To commit to the Compact, a city must:



**REGISTER COMMITMENT.** A mayor may register on either of the Compact's standard reporting platforms—carbonn Climate Registry or CDP—or email a letter of intent to [info@compactofmayors.org](mailto:info@compactofmayors.org). Following its submission, a city will be contacted by the Compact support team.



**TAKE INVENTORY.** Within one year, a mayor must assess the current impacts of climate change in his/her city. To do so, the city must 1) Build and complete a community-wide GHG inventory with a breakdown of emissions for buildings and transport sectors, using the GPC standard; (2) Identify climate hazards; and (3) Report on both via the CDP or carbonn Climate Registry questionnaires.



**CREATE REDUCTION TARGETS AND ESTABLISH A SYSTEM OF MEASUREMENT.** Within two years, the registered city must update its GHG inventory to also include a breakdown of emissions from waste sector; set a target to reduce its GHG emissions; conduct a climate change vulnerability assessment consistent with Compact guidance; and report in its chosen platform.



**ESTABLISH AN ACTION PLAN.** Within three years, a city's strategic action plan must show how it will deliver on its commitment to reduce greenhouse gas emissions and adapt to climate change.



<http://www.globalcovenantofmayors.org/>

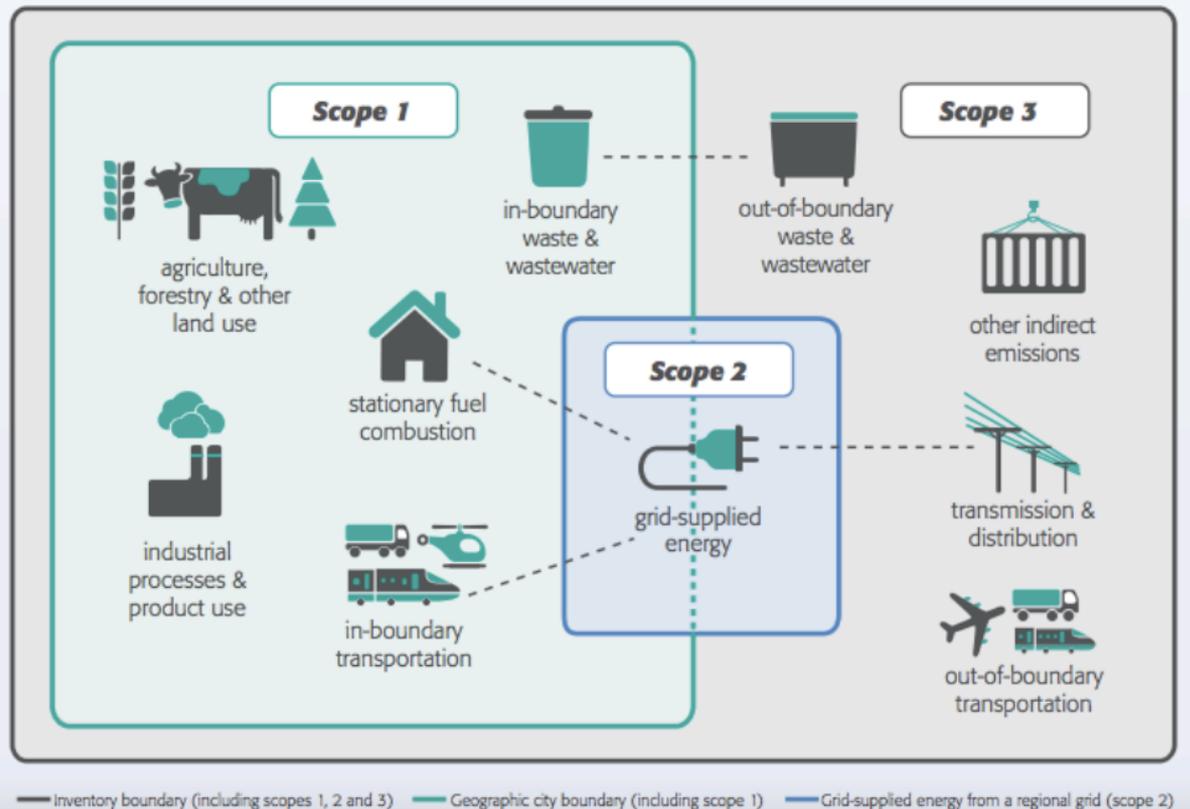
# Tracking Progress: Standardizing City GHG Inventories



- **Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC):** a “set of principles and rules,” not a methodology.

<http://www.ghgprotocol.org/>

**Figure 1 Sources and boundaries of city GHG emissions**

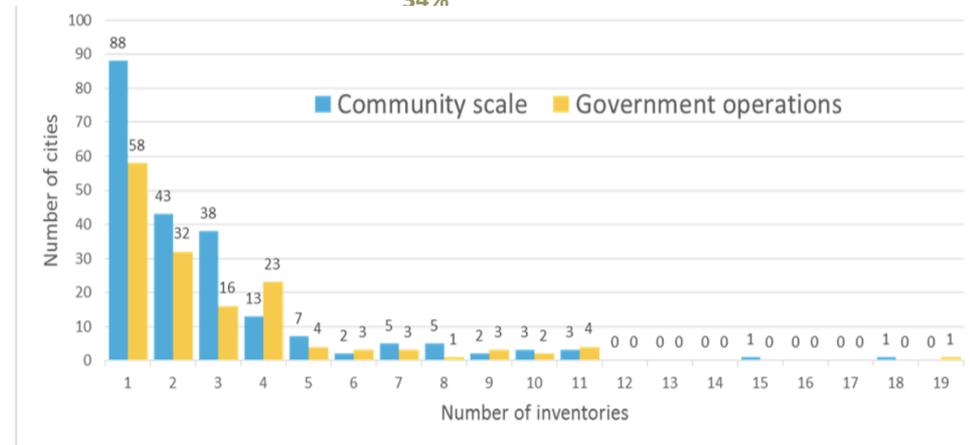
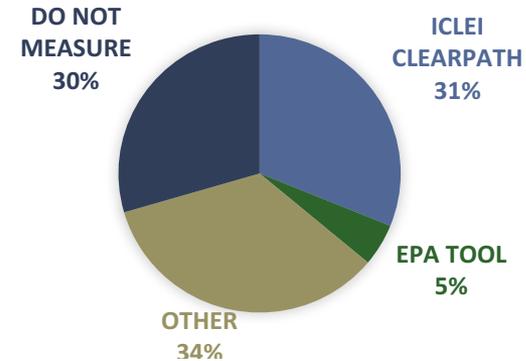


# Tracking Progress: Local Emissions Inventories



- Staggering variety in approaches, but this may improve with GPC
- Local government operations & community-wide
- Inventories published usually reflect emissions data from several years prior
- Monitoring, reporting and verification
- Activity-based; quantitative measure of activities that result in emissions
  - For Ex: Best available data about the amount and type of energy used, VMT, land-use
  - Can help guide action in certain areas
- Reports

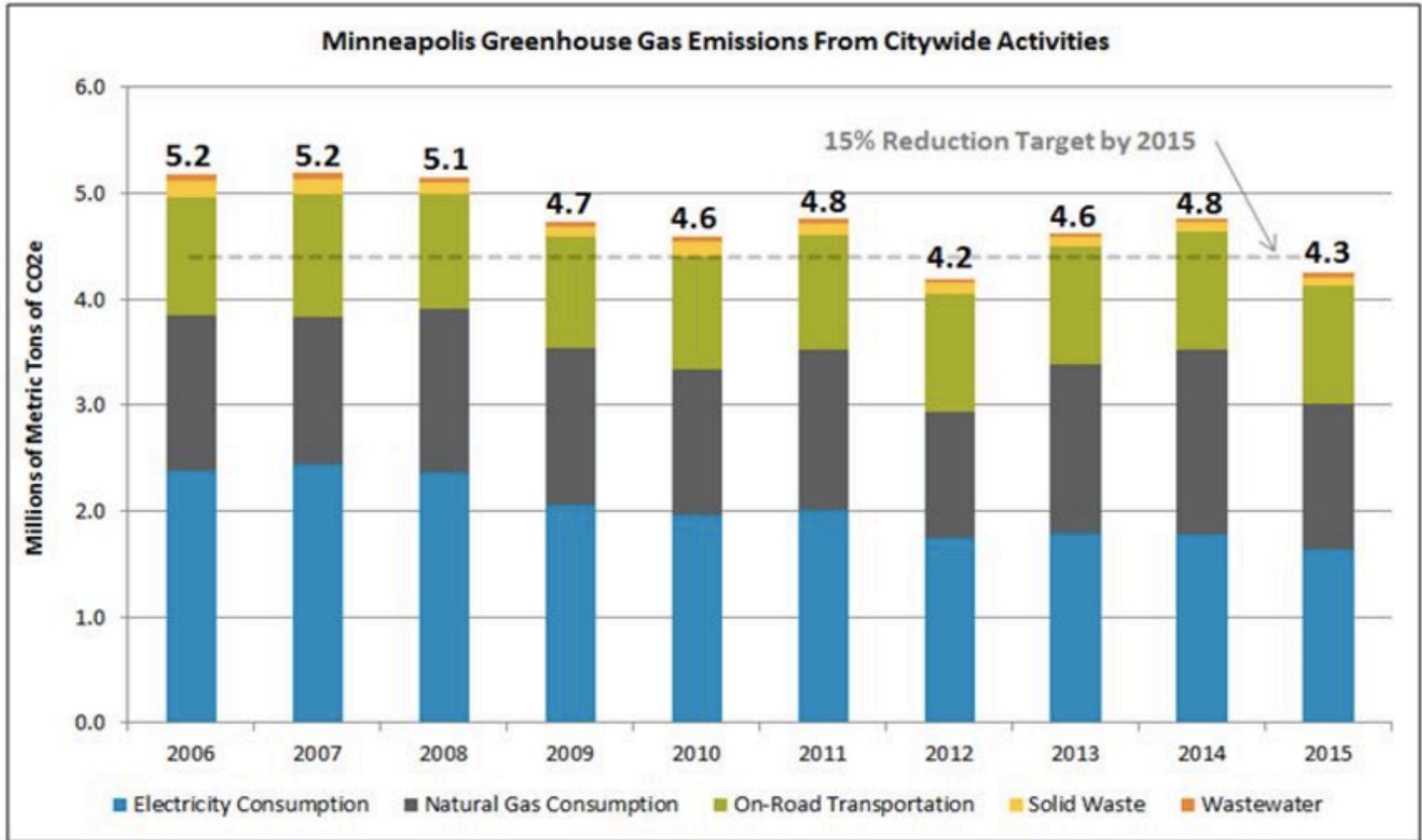
## TOOLS USED FOR INVENTORIES RESPONSES FROM 2017 ALLIANCE SURVEY



Number of cities with multiple greenhouse gas inventories

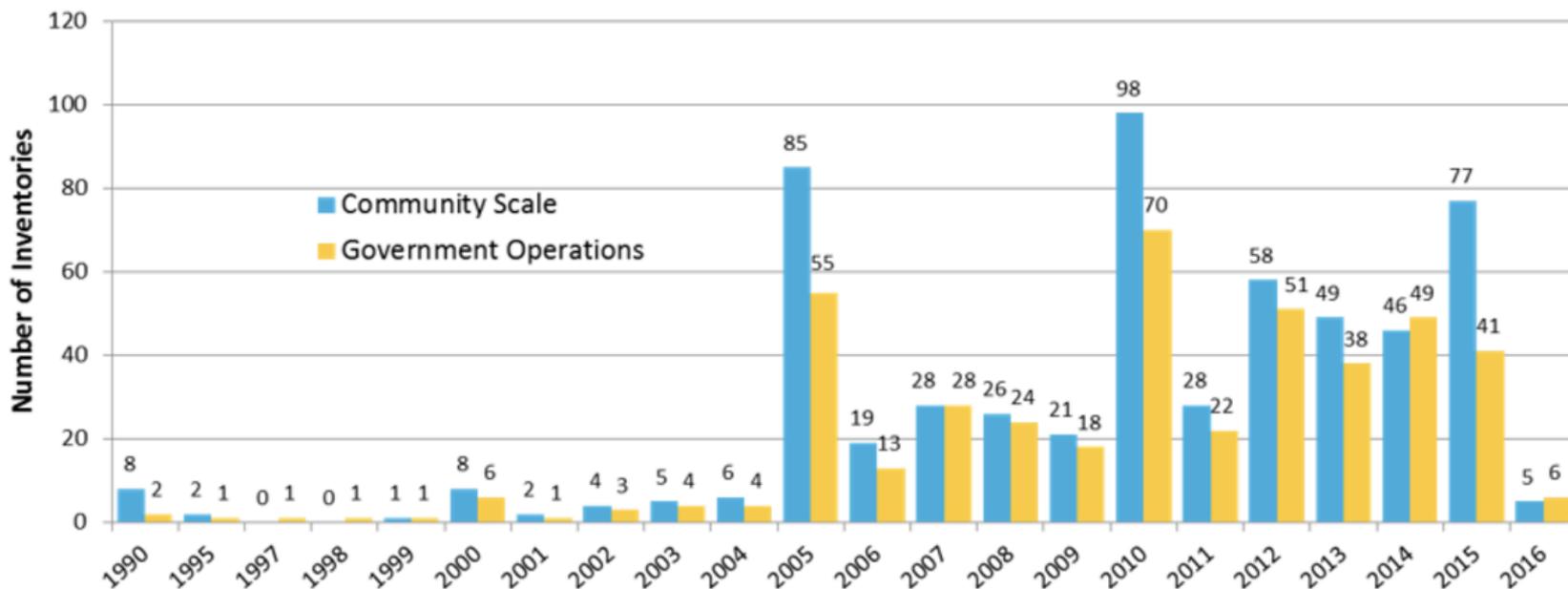
<http://icleiusa.org/visualizing-city-ghg-emissions-data-part-2/>

# Tracking Progress: Case example – Minneapolis, MN



<http://www.minneapolismn.gov/sustainability/climate-action-goals/ghg-emissions>

# Tracking Progress: Local Emissions Inventories



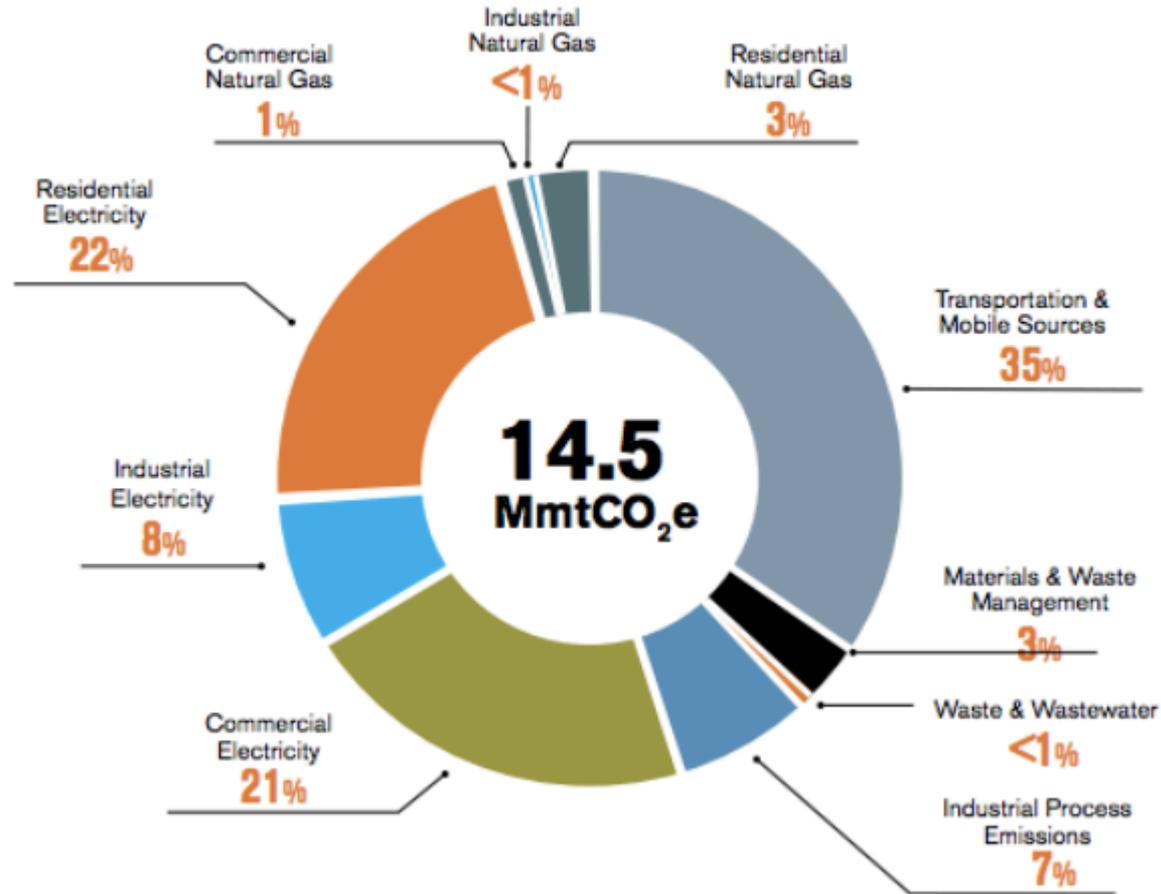
Number of GHG inventories by year

<http://iclei.usa.org/visualizing-city-ghg-emissions-data-part-2/>

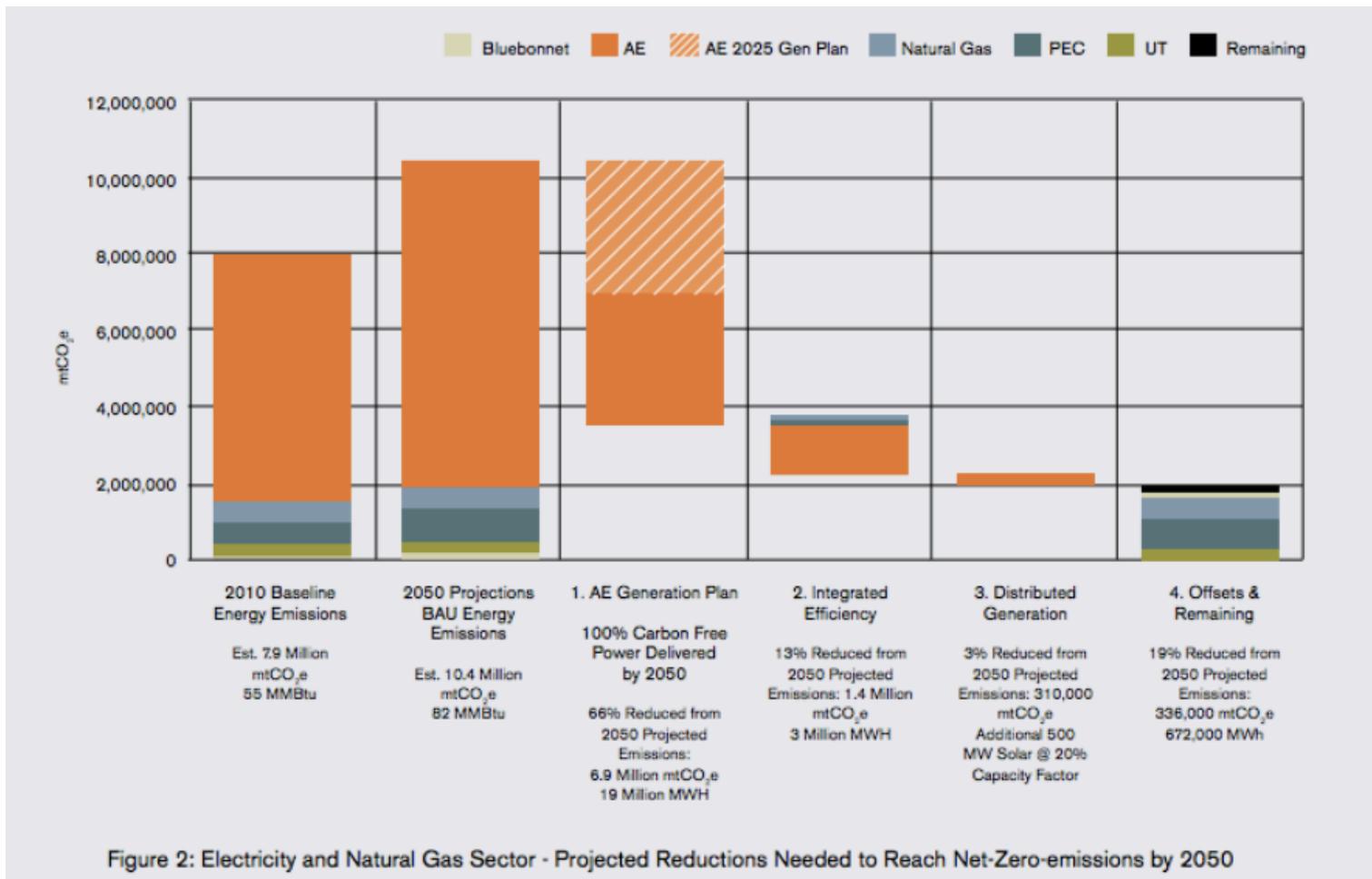
# Tracking Progress: Case example- Austin, TX



## 2010 Estimated Travis County GHG Inventory



# Case example- Austin, TX



Austin Community Climate Plan, 2015.

# Tracking Progress: Data Challenges, Gaps, and Needs



- Resource constraints often mean a city cannot do an inventory or update them
- Best available data leaves significant gaps:
  - upstream emissions from producing fossil fuels
  - impacts of goods created outside the city
  - air travel
  - clear data of building energy use
  - impacts of carbon sinks
  - emissions “hot spots”
- MRV is challenging
- Changing requirements
- Local decision-making for climate action might outpace the data to inform



CENTER FOR CLIMATE  
AND ENERGY SOLUTIONS

FOR MORE INFORMATION

[C2ES.ORG](http://C2ES.ORG)



## **Amy Morsch**

Senior Solutions Fellow  
Director, Sustainability and Engagement

Amy Morsch is a Senior Solutions Fellow and the Director of Sustainability and Engagement at the Center for Climate and Energy Solutions (C2ES). In this role, Ms. Morsch identifies and researches emerging approaches and solutions to climate and energy challenges and creates opportunities to increase information sharing between cities, states, and companies. Ms. Morsch joined C2ES from the Nicholas Institute for Environmental Policy Solutions, where her research focused on collecting and disseminating local climate and sustainability policies in the Southeast. She worked with local government staff throughout the region and provided guidance for state-level climate vulnerability assessment projects. She has also served as Secretary on the Board of Directors of Clean Energy Durham, and worked with the City of Atlanta's Division of Sustainability as well as the Sustainability Office for the city and county of Durham, North Carolina. Ms. Morsch has a master's degree in environmental management from Duke University's Nicholas School of the Environment and a bachelor's degree in zoology from Miami University.

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