

BUILDING CLIMATE RESILIENCY: PlaNYC's Climate Change Adaptation Efforts

July 2009

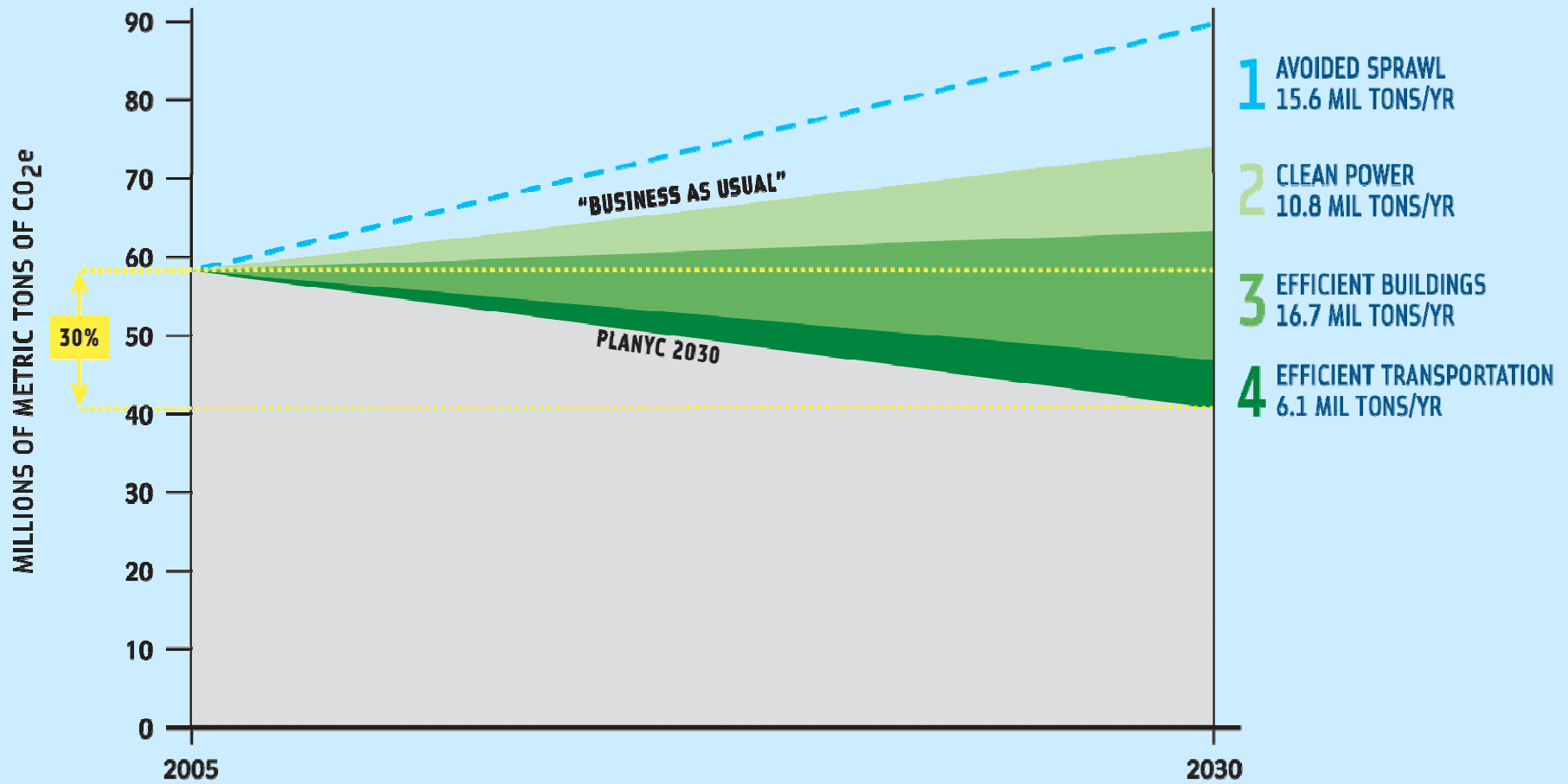
On Earth Day in 2007, Mayor Bloomberg released a comprehensive sustainability plan to create a greener, more sustainable city



PlaNYC is a roadmap to achieve 10 goals:

- 1 Create enough housing for our growing population
- 2 Ensure all New Yorkers have parks within a 10-minute walk
- 3 Clean up all contaminated land in New York City
- 4 Develop water network back-up systems
- 5 Open 90% of our waterways and protect natural areas
- 6 Improve travel times by adding transit capacity for millions
- 7 Achieve "State Of Good Repair" on our transportation system
- 8 Upgrade our energy infrastructure to provide clean energy
- 9 Achieve the cleanest air of any big city in America
- 10 Reduce global warming emissions by 30%

Projected GHG reduction in PlaNYC



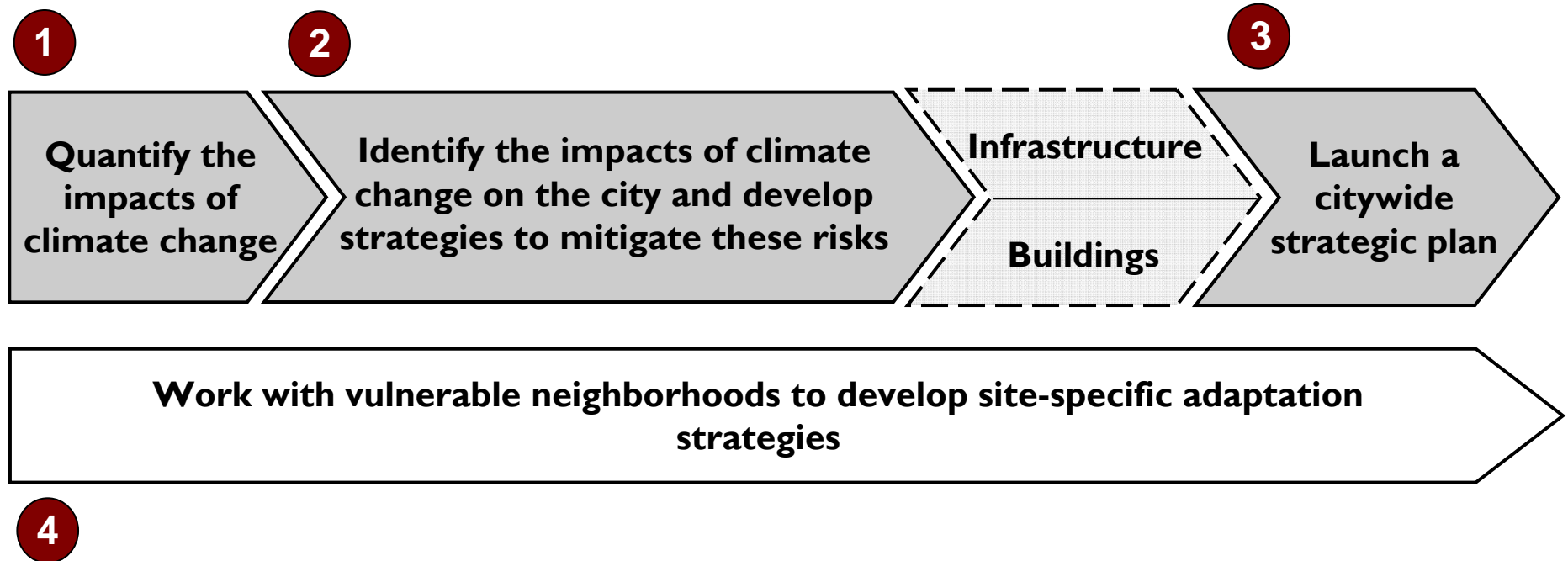
Cities face a number of challenges in attempting to adapt to climate change



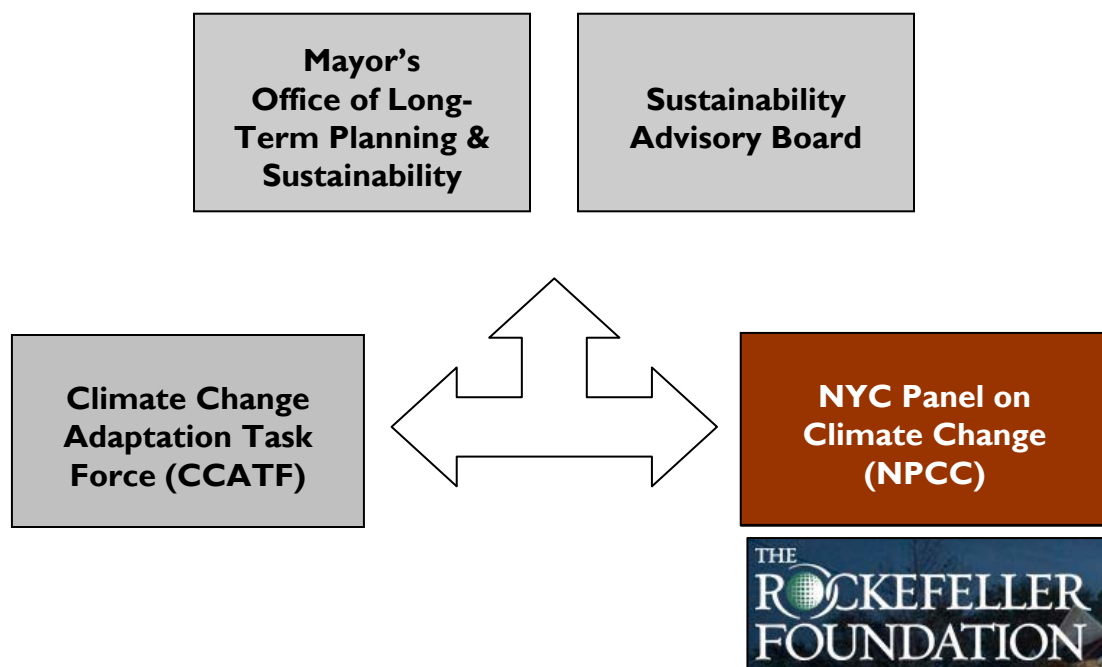
- Availability (or over-availability) of climate change projections
- Frequent disconnect between research and practitioners
- Overlapping jurisdictions
- Need to build beyond current specifications
- Getting stakeholders to focus on incremental individual actions as well as “big fixes”
- “Day After Tomorrow” syndrome
- Confusion over what it means to adapt



PlaNYC has a four-step approach to climate change adaptation



1 Quantify the impacts of climate change



NPCC

Academia

- NASA/Columbia
- CISC/CUNY
- City Tech/CUNY
- Columbia – Lamont
- Columbia University
- NYU
- Rutgers University
- SUNY-Stony Brook
- Wesleyan/UCS

Private Industry

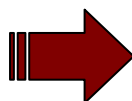
- AIG
- Hoguet Newman Regal & Kenney, LLP
- Oliver Wyman
- Swiss Re



TABLE 1.

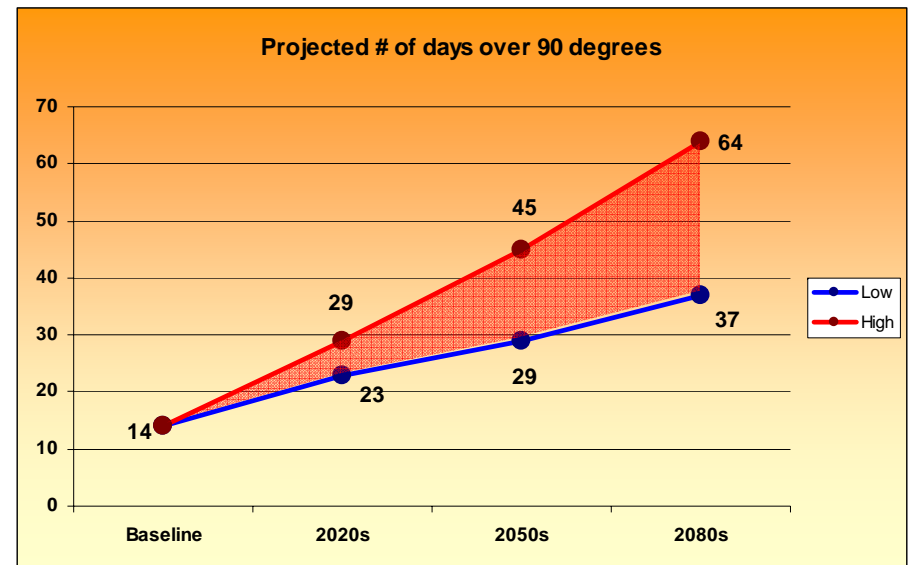
*Baseline Climate and Mean Annual Changes
(Relative to Baseline Years for New York City)¹*

| | Baseline 1971-2000² | 2020s | 2050s | 2080s |
|---|---|---------------|---------------|---------------|
| Air temperature Central range ² | 55° F | + 1.5 to 3° F | + 3 to 5° F | + 4 to 7.5° F |
| Precipitation Central range ² | 46.5 in | + 0 to 5 % | + 0 to 10 % | + 5 to 10 % |
| Sea level rise³ Central range ² | NA | + 2 to 5 in | + 7 to 12 in | + 12 to 23 in |
| Rapid Ice-Melt Sea Level Rise⁴ | NA | ~ 5 to 10 in | ~ 19 to 29 in | ~ 41 to 55 in |

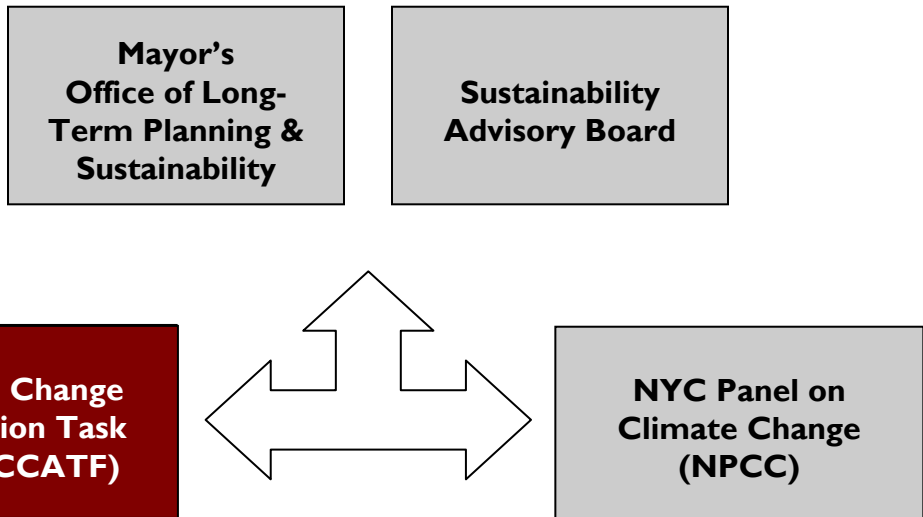


By the end of the century, New York City could experience:

- Approximately 3 to 4 times more days per year over 90 degrees.
- Approximately 3 to 4 times more heat waves a year – lasting up to 7 days each
- More frequent, intense rainstorms
- A current 1-in-10 year coastal flood about once every 1 to 3 years
- A current 1-in-100 year coastal flood about once every 15 to 35 years



2 Identify the impacts of climate change on the city and develop strategies to mitigate these risks



CCATF

- 12 City agencies
- 5 Regional public authorities
- 6 State agencies
- 2 Federal agencies
- 15 Private companies

The Task Force is the first effort of its kind to include representatives from the local, state, and federal government and the private sector



City Agencies

- Dept. of Buildings
- Dept. of City Planning
- Dept. of Design & Construction
- Dept. of Environmental Protection
- Dept. of Health
- Dept. of Law
- Dept. of Parks & Recreation
- Dept. of Sanitation
- Dept. of Transportation
- Economic Development Corp.
- Office of Emergency Management
- Office of Management & Budget

State Agencies/Authorities

- Dept. of Environmental Conservation
- Dept. of State
- Dept. of Transportation
- Governors Island Preservation and Education Corporation
- Hudson River Park Trust
- Metropolitan Transportation Authority
- NY Power Authority
- NYS Public Service Commission
- NJ Transit
- Port Authority of NY/NJ
- State Emergency Management Office

Federal Agencies

- Amtrak
- National Park Service

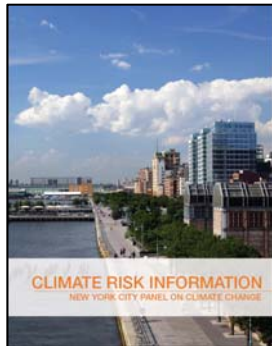
Private Companies

- Astoria Energy LLC
- AT&T
- Cablevision
- Con Edison
- CSX
- National Grid
- NRG Energy
- NY Independent System Operators
- Sprint Nextel
- Suez Energy, NA
- Time Warner Cable
- T-Mobile
- TransCanada
- USPowerGen
- Verizon

The Task Force engaged in an 18-month multi-stepped process



NYC-specific climate change projections



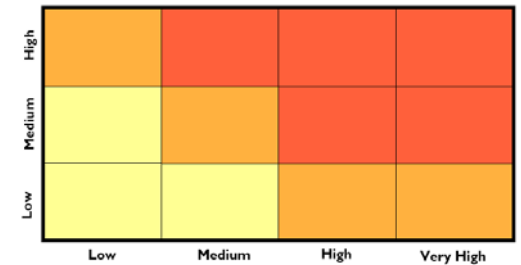
Stakeholder's use projections to identify vulnerabilities



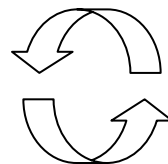
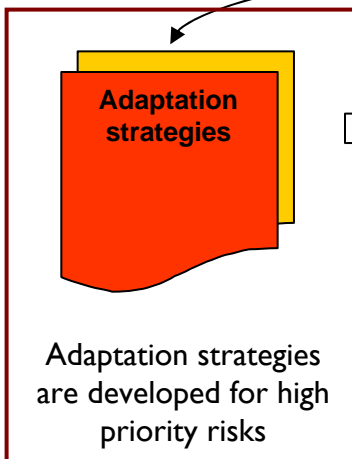
Inventories normalized by sector through the working groups and policies and regulations identified for Policy Working Group review



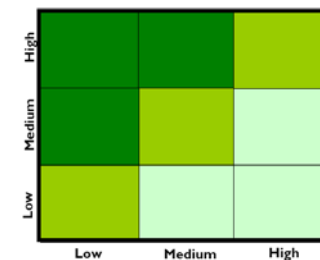
Stakeholder vulnerabilities are prioritized using Risk Matrix



WE ARE HERE



Strategies are coordinated among Task Force members



Strategies are prioritized using Prioritization Matrix



Adaptation plans are developed, including recommendations for policy and regulatory changes

- **All elements of NYC's infrastructure could be effected by climate change to varying degrees**
- **Stakeholders are already taking steps to help them adapt (even if they don't call it adaptation)**
- **Many Task Force members already operate infrastructure in climates similar to NPCC projections**
- **Many adaptation actions will take place in the next generation of equipment**
- **Incremental changes can have as large an impact as extreme events**
- **Initial adaptation planning can occur without precise projections**

- **Update mapping tools to account for climate change (i.e., FEMA FIRMs)**
- **Provide localities with localized/regional climate change projections**
 - (or standardized guidelines on how this should be done)
- **Empower cities to play a role in adaptation planning**
- **Provide risk-based funding to cities for local adaptation planning and actions**
- **Review federal regulatory processes to determine the impact of climate change**