



A GREENER, GREATER NEW YORK

A nighttime photograph of a city skyline, likely New York City, with numerous skyscrapers illuminated against a dark blue sky. The lights from the buildings create a vibrant, colorful scene. A semi-transparent blue box is overlaid on the top left, and a larger blue box with white text is overlaid in the center.

Energy

Provide cleaner, more reliable
power for every New Yorker by
upgrading our energy infrastructure

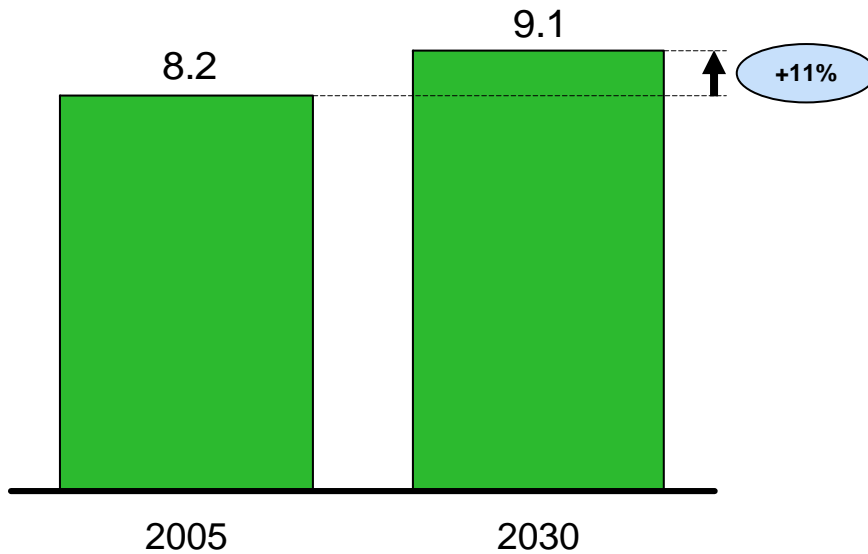
- **Population and economic growth will strain the City's energy infrastructure**
- **Three challenges must be overcome to improve the consequences of growth**
- **We're recommending an aggressive, integrated plan that puts PlaNYC's targets within reach**
- **This recommended plan requires significant effort, capital, and political will, but over the long-run, would provide significant and measurable City benefits**

- 1. The case for action – improving the long-term consequences of NYC’s growth on power and heat infrastructure**
2. Challenges the City faces in reforming energy supply and demand
3. Our plan for achieving PlaNYC energy goals

As NYC grows, energy needs will increase



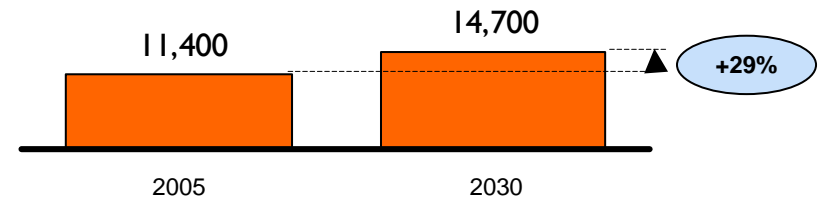
New York City population forecast
Millions of residents



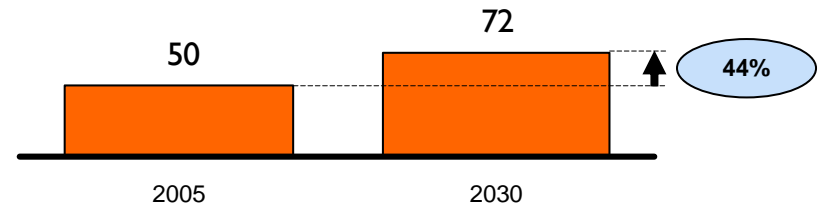
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Increased use of appliances and air conditioning

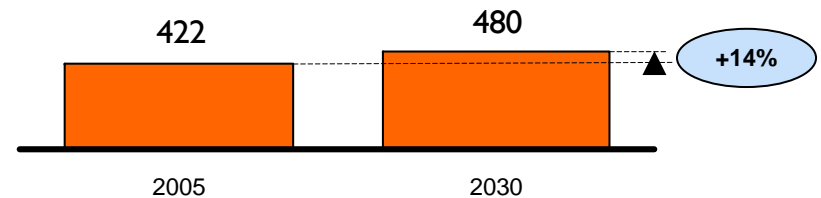
Electrical capacity requirement forecast
Summer peak load, MW



Electrical consumption forecast
Millions of MWh per year



Heating fuels demand forecast
Million MMBtu per year



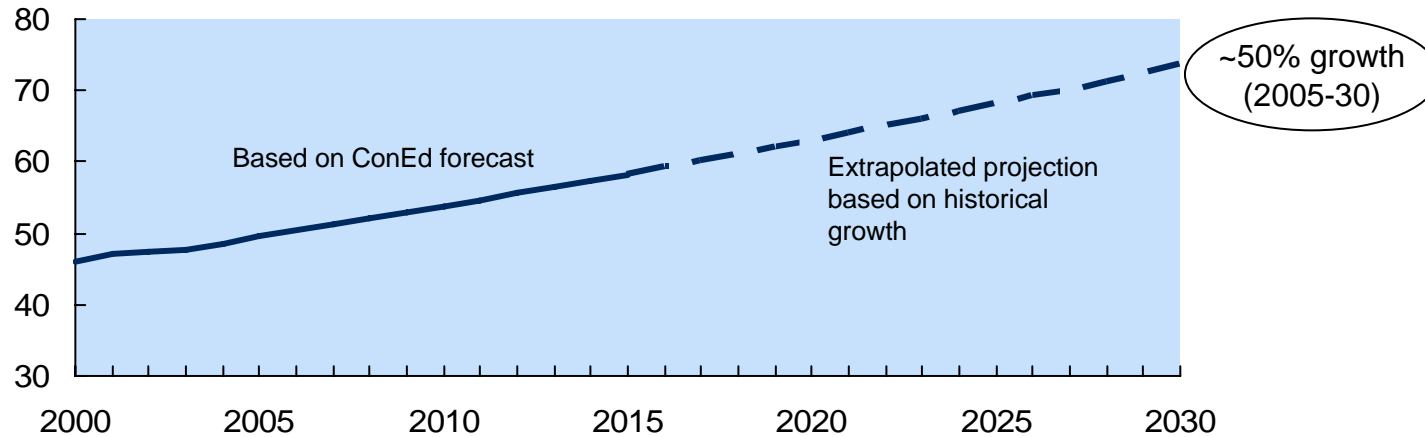
Wholesale electricity costs will increase by ~60%



ILLUSTRATIVE
POWER EXAMPLE

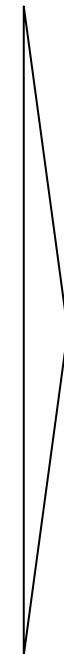
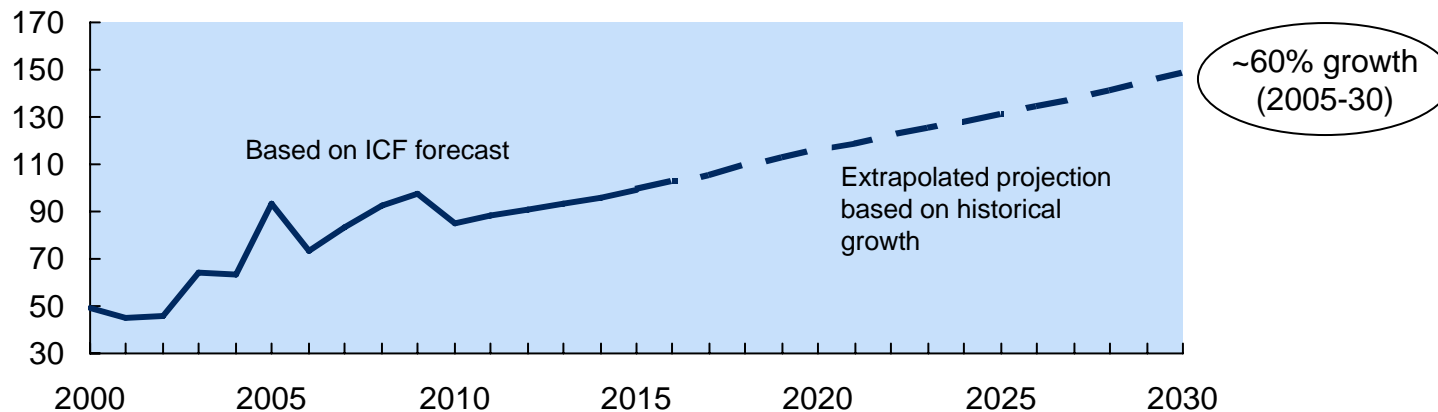
NYC Power demand

Millions of MWh



Wholesale power prices

\$/MWh (nominal) – assuming constant real gas price after 2009



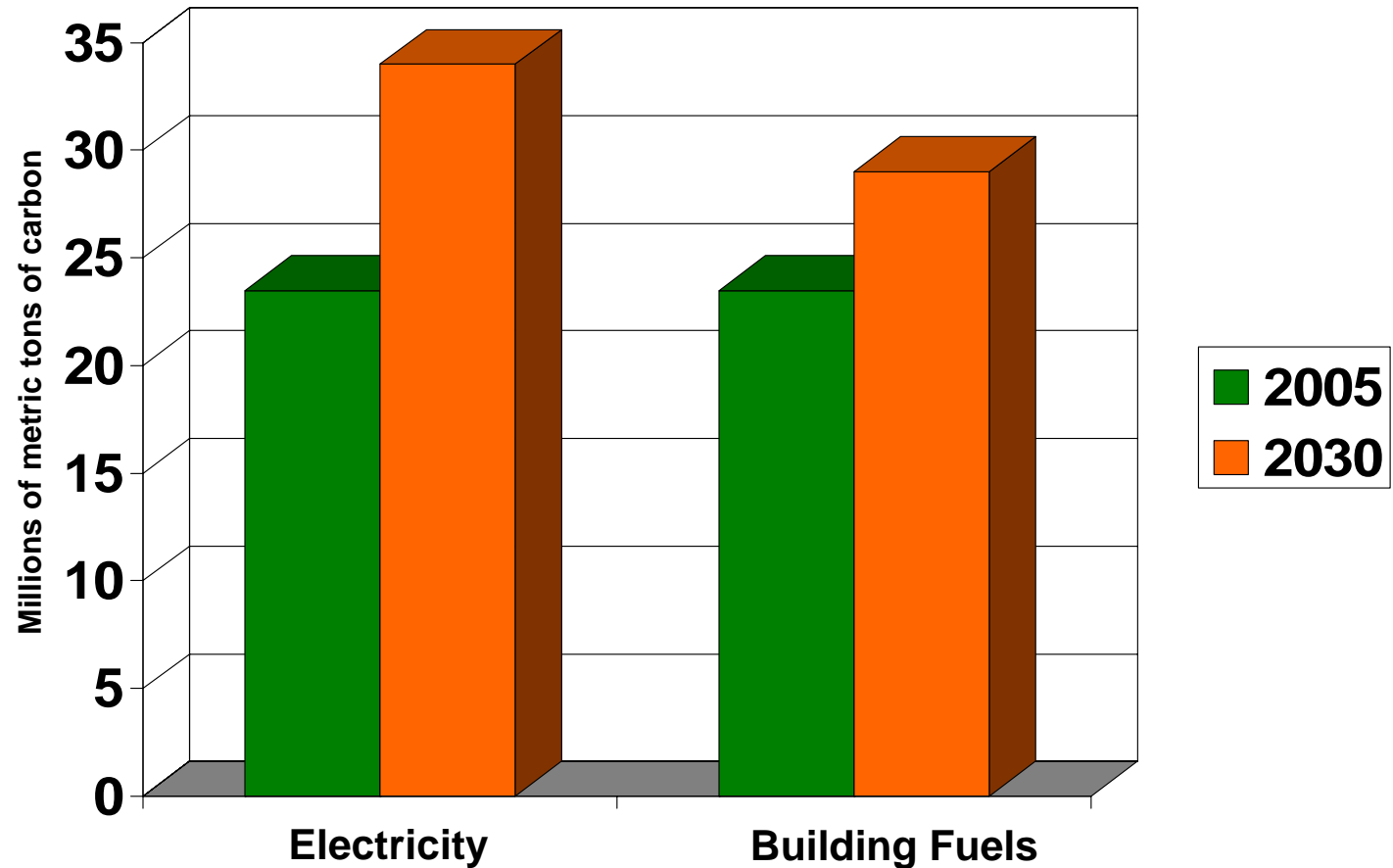
Could represent a 125-175% increase in City power expenses alone (4% CAGR)

And CO₂ and other pollutants will increase



ESTIMATES

- Assumptions**
- Based on business as usual power and heating demand growth
 - Includes impact of :
 - Changing Renewable Portfolio Standards (RPS)
 - RGGI ~\$4/ton carbon tax around 2010
 - National carbon tax ~\$10/ton by 2015

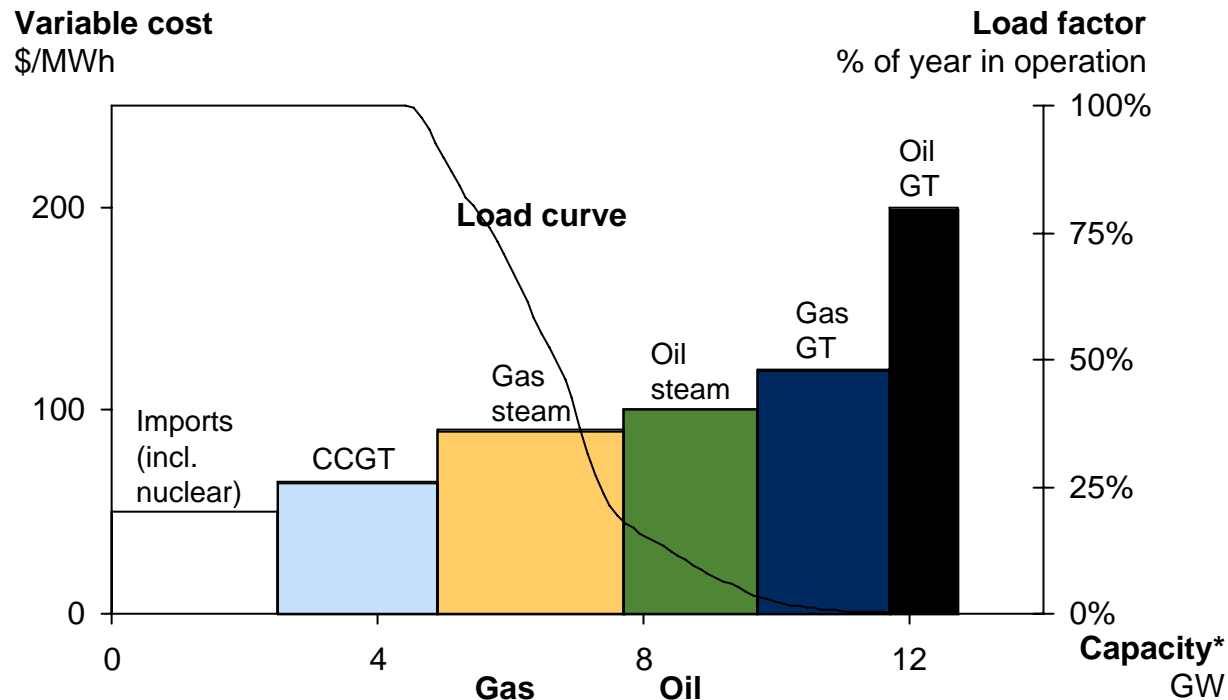


1. The case for action – improving the long-term consequences of NYC's growth on power and heat infrastructure

- 2. Challenges the City faces in reforming energy supply and demand**

3. Our plan for achieving PlaNYC energy goals

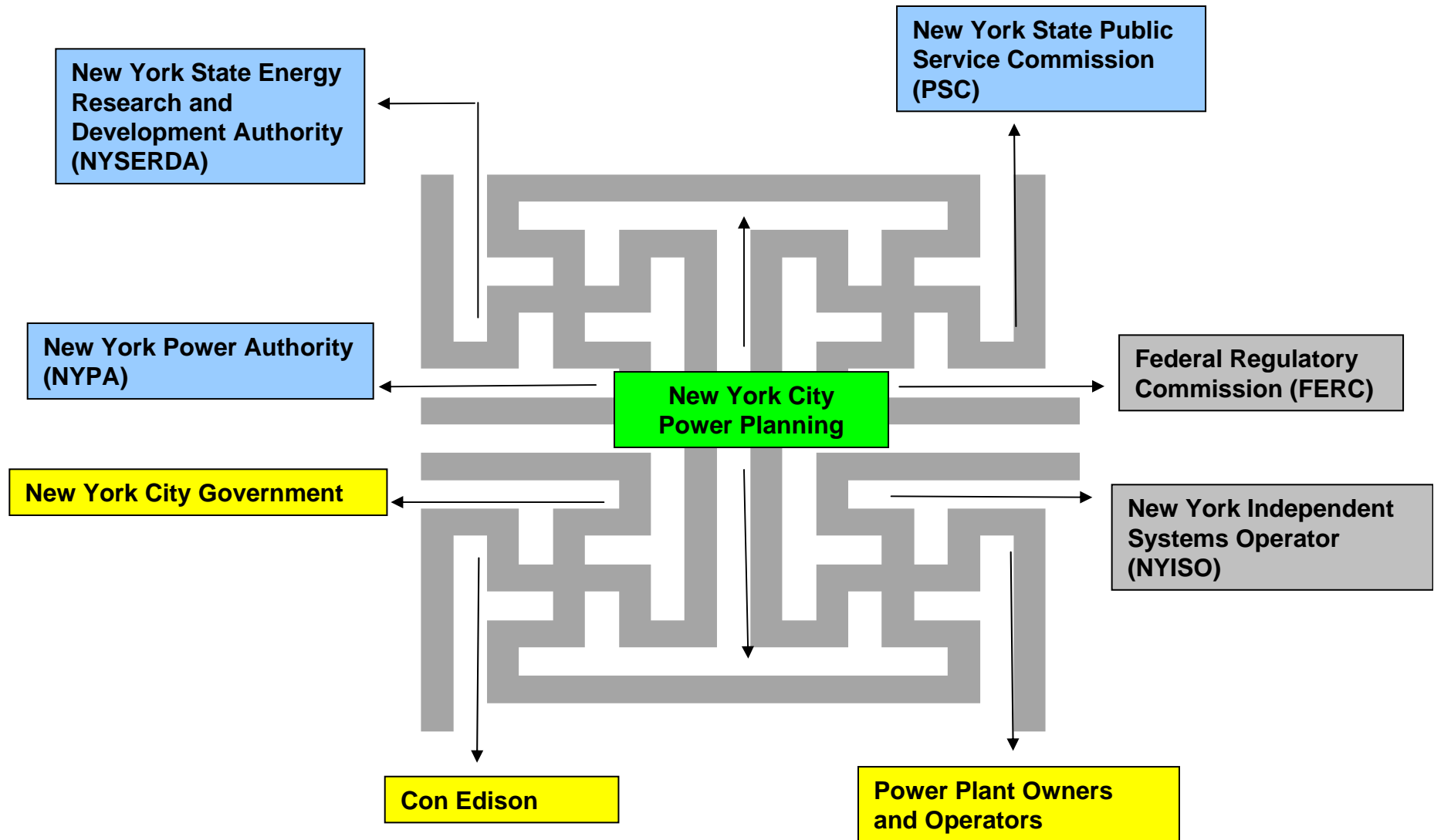
Reducing power prices and CO2 requires displacing inefficient plants



Marginal cost producers – generally older, costly facilities set power price

	Imports (incl. nuclear)	CCGT	Gas steam	Oil steam	Gas GT	Oil GT
Average age, yrs**		7	43	39	24	37
Total capacity, GW		2.4	2.8	2.0	2.0	1.0
Capacity factor		76%	21%	29%	18%	5%
Heat rate, Btu/kWh**		8,100	11,300	12,900	11,700	13,100

Power planning involves a maze of state and federal entities



Social and structural barriers limit widespread energy efficiency

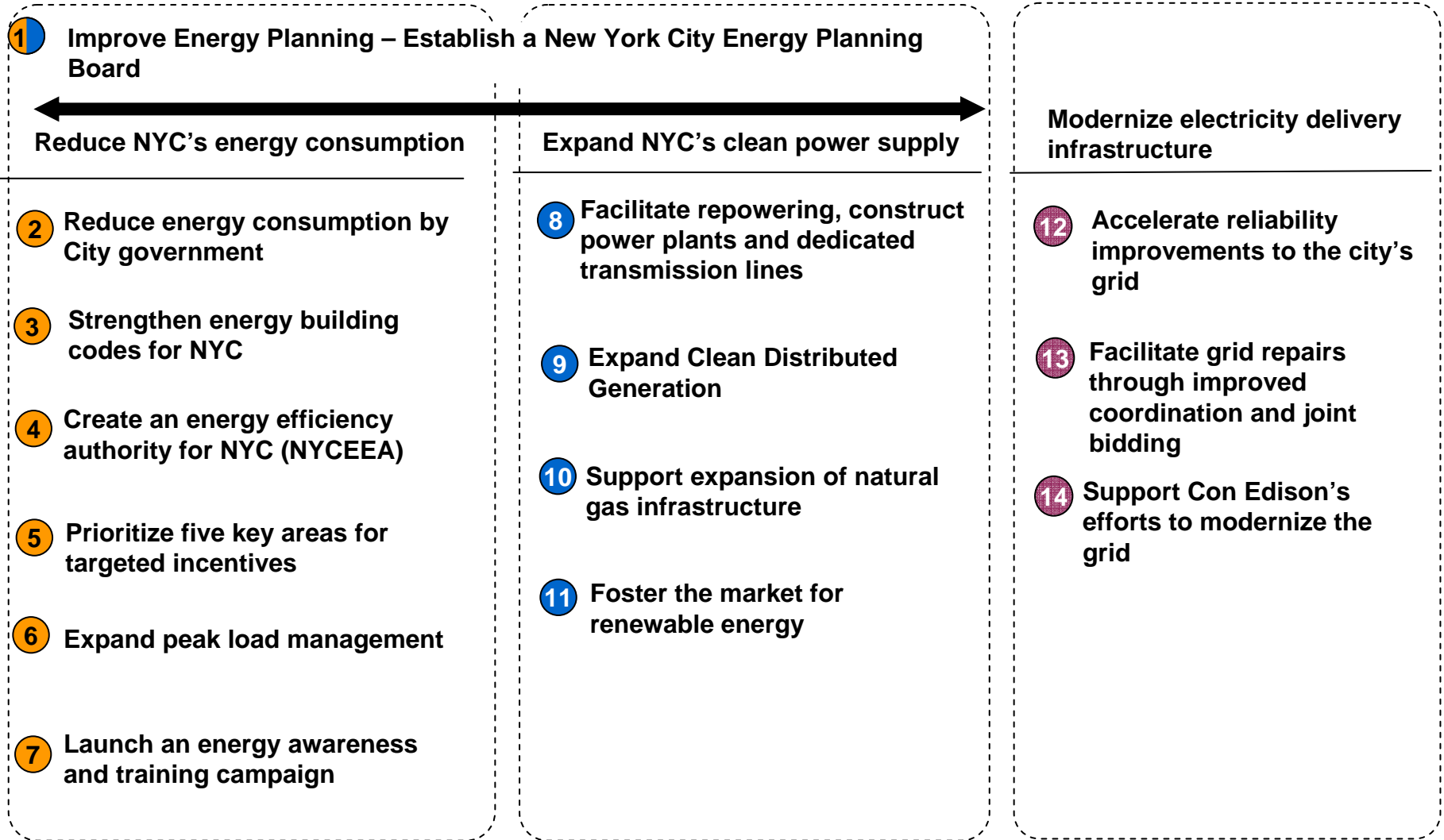


Description

	Description	
Split incentives	<ul style="list-style-type: none">• Different parties “own” capital investments and savings	“I won’t fund new appliances, my tenants reap all the savings!”
Fragmentation of consumer base	<ul style="list-style-type: none">• Consumers highly dispersed and partially hidden behind master-meters	
Transaction costs/ Capital constraints	<ul style="list-style-type: none">• Capital constraints on big-ticket investments• Competing investment priorities	“Before I spend money on this, I need to keep my business running”
Consumer education	<ul style="list-style-type: none">• Lack of information on energy efficiency programs• Low consumer awareness of CO₂ impact	“Who knows how much I can save with retro-commissioning?”
Inconvenience	<ul style="list-style-type: none">• Bureaucratic challenges with funding and contracting of work• Energy efficiency products are often not the most convenient or readily accessible	“Dinner for two is more expensive than my monthly ConEd bill!”
Generational equity	<ul style="list-style-type: none">• Costs of climate change incurred by next generation	

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Key: ● Energy Consumption ● Energy Supply ● Energy Infrastructure

ESTABLISH A NEW YORK CITY ENERGY PLANNING BOARD

Three member Planning Board with representatives of the Mayor, Governor and utilities

Comprehensive Planning

- Plans to be submitted to the Public Service Commission for regulatory approval and funding



Expanding Supply

- Long-term contracts through competitive RFP process that includes the City's priorities

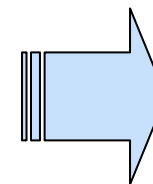
Increasing efficiency

- Set targets and allocate resources
- Monitor and review performance

FACILITATE REPOWERING, CONSTRUCT POWER PLANTS AND DEDICATED TRANSMISSION LINES

Enter into long-term contracts to enable 2,000-3,000 MW of new supply by 2015

- 1 Build new plants on new sites
- 2 Maximize existing power plant sites
- 3 Build power plants outside city limits that are completely dedicated to providing electricity to the New York City grid



- Retire 1,000-2,100 MW of dirty power
- Reduced price
- Reduced carbon emissions

EXPAND CLEAN DISTRIBUTED GENERATION

Achieve 800 MW of additional Clean DG in NYC by 2030



Steps to enable

- Develop District Energy Systems outside of Con Ed steam footprint
- Revise the building code to require analysis of CHP and/or district energy in new developments larger than 350,000 square feet
- Advocate for studies of Con Edison network and new technologies to safely increase amount of CHP on the grid
- Increase transparency on interconnection process
- Close to finalizing new rules on microturbines

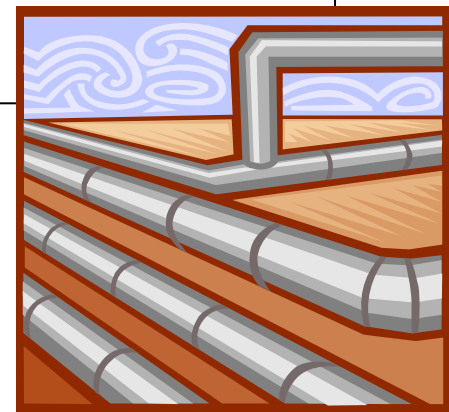
SUPPORT EXPANSION OF NATURAL GAS INFRASTRUCTURE

New power plants and expanded clean DG will both require the use of natural gas

Support critical expansions to the city's natural gas infrastructure:

- Support siting and permitting applications at FERC
- Support new infrastructure projects that are designed to be sensitive to environmental and to community needs

Expansion will reduce gas supply risks, mitigate price savings and potentially reduce overall prices



11 Expand NYC's Clean Power Supply

FOSTER THE MARKET FOR RENEWABLE ENERGY

35% investment tax credit for solar installations

2MW solar RFP for city government buildings

Work with the State to reduce existing barriers and limits on solar



ACCELERATE RELIABILITY IMPROVEMENTS TO THE CITY'S GRID

Advocate for implementation of the 53 recommendations from the city's Long Island City Blackout Investigation Report

City Report recommendations include:



- Expanding the installation of advanced meters
- Accelerating repairs to failure-prone components
- Completing the implementation of all recommendations from the 1999 Washington Heights blackout

13

Modernize the Electricity Delivery Infrastructure



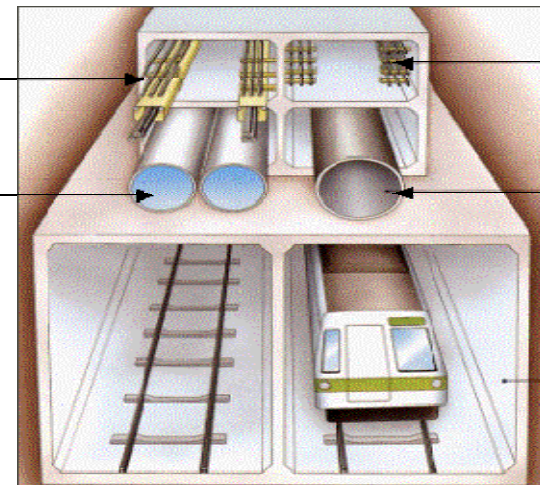
FACILITATE GRID REPAIRS THROUGH IMPROVED COORDINATION AND JOINT BIDDING

Pursue the passage of joint bidding legislation citywide

Study improvements to city policies on utility underground repairs

Support pilot for multi-utility tunnels

TEPCO Multi-Utility Tunnel
Tokyo, Japan



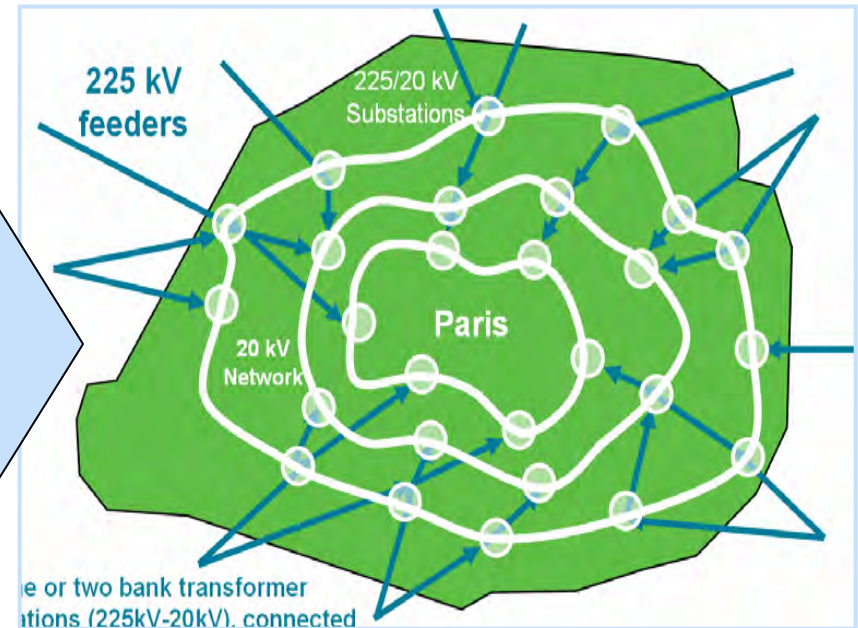
SUPPORT CON EDISON'S EFFORTS TO MODERNIZE THE GRID

Support Con Edison in obtaining full cost recovery for investments in 3G System of the Future

3G System of the Future

Research and development project to study how to transform our network into a 21st century grid.

- Integrate advances in communications, computing and electronics
- Respond faster and more effectively to localized network problems and demand fluctuations.



Schematic of Paris, France Transmission Network