A GREENER, GREATER NEW YORK

New York City
Economic Development
Corporation

Energy

- **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**

Topics for Discussion

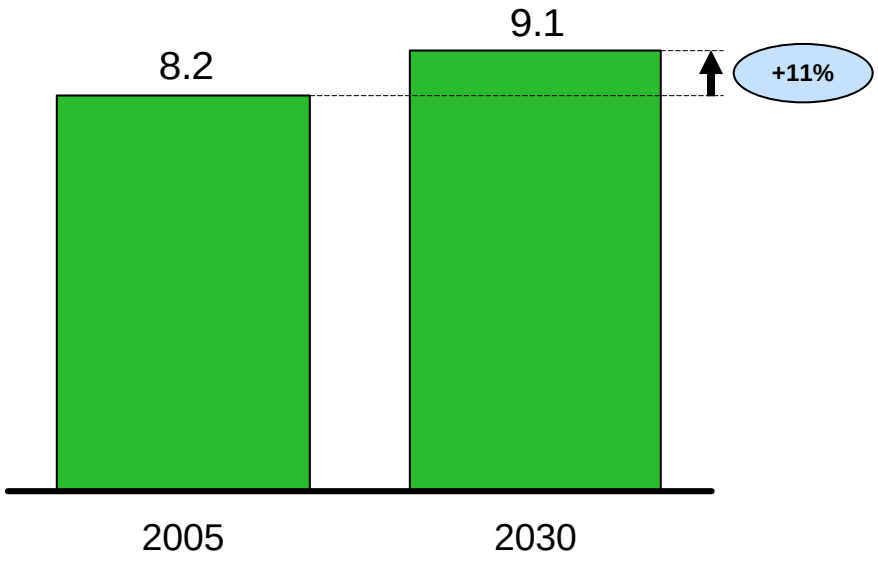
1. **The case for action – improving the long-term consequences of NYC's growth on power and heat infrastructure**

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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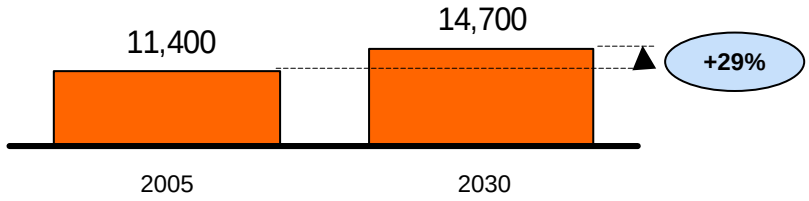
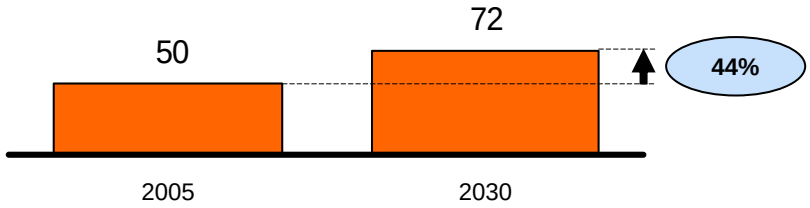
Increased use of appliances and air conditioning

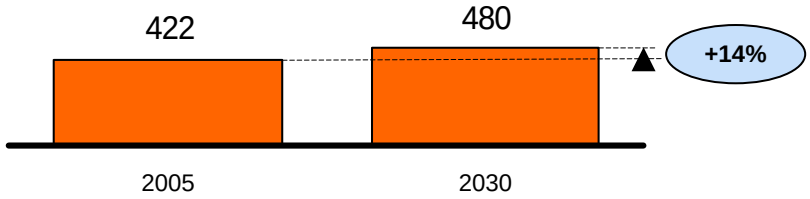
Electrical capacity requirement forecast
Summer peak load, MW



Electrical consumption forecast
Millions of MWh per year



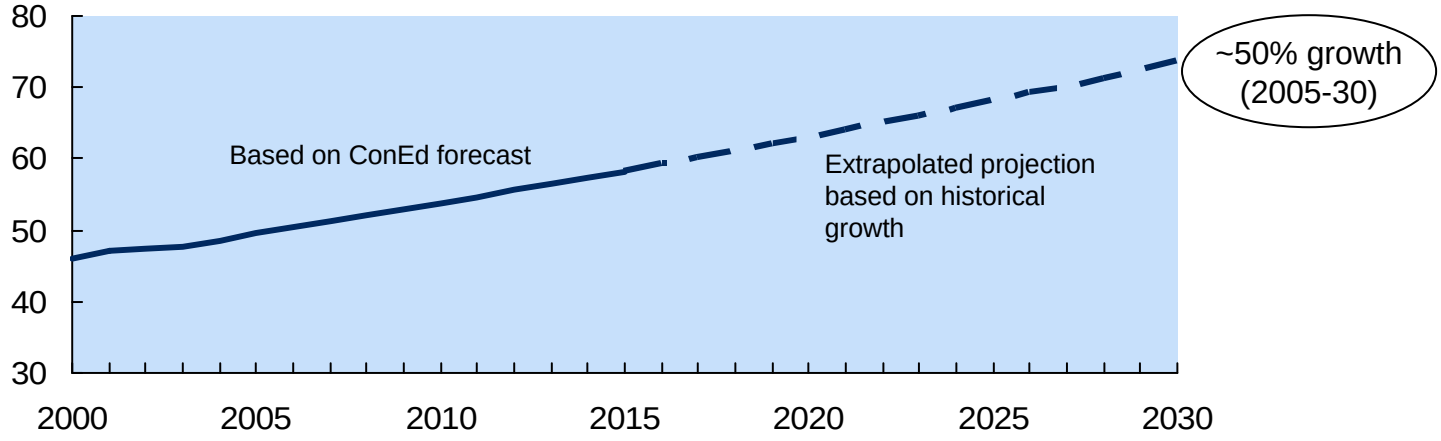
Heating fuels demand forecast
Million MMBtu per year



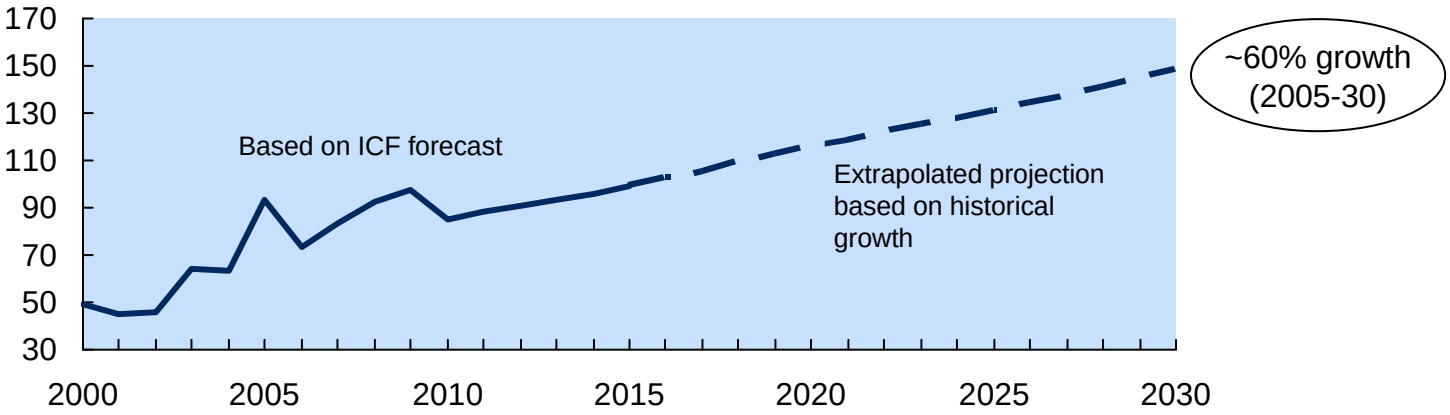
Wholesale electricity costs will increase by ~60%

ILLUSTRATIVE POWER EXAMPLE

NYC Power demand
Millions of MWh



Wholesale power prices
$/MWh (nominal) – assuming constant real gas price after 2009



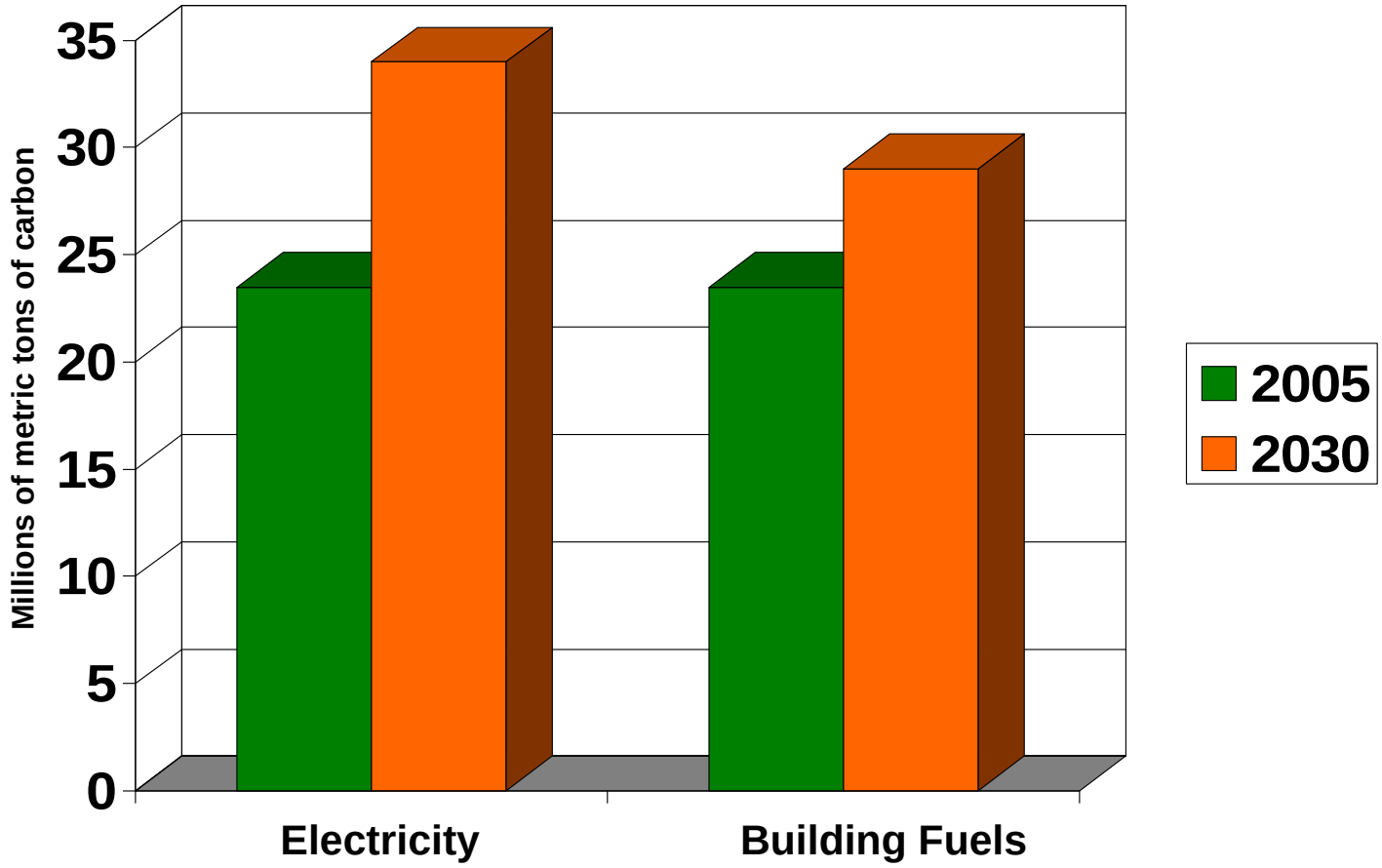
Could represent a 125-175% increase in City power expenses alone (4% CAGR)

And CO_2 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



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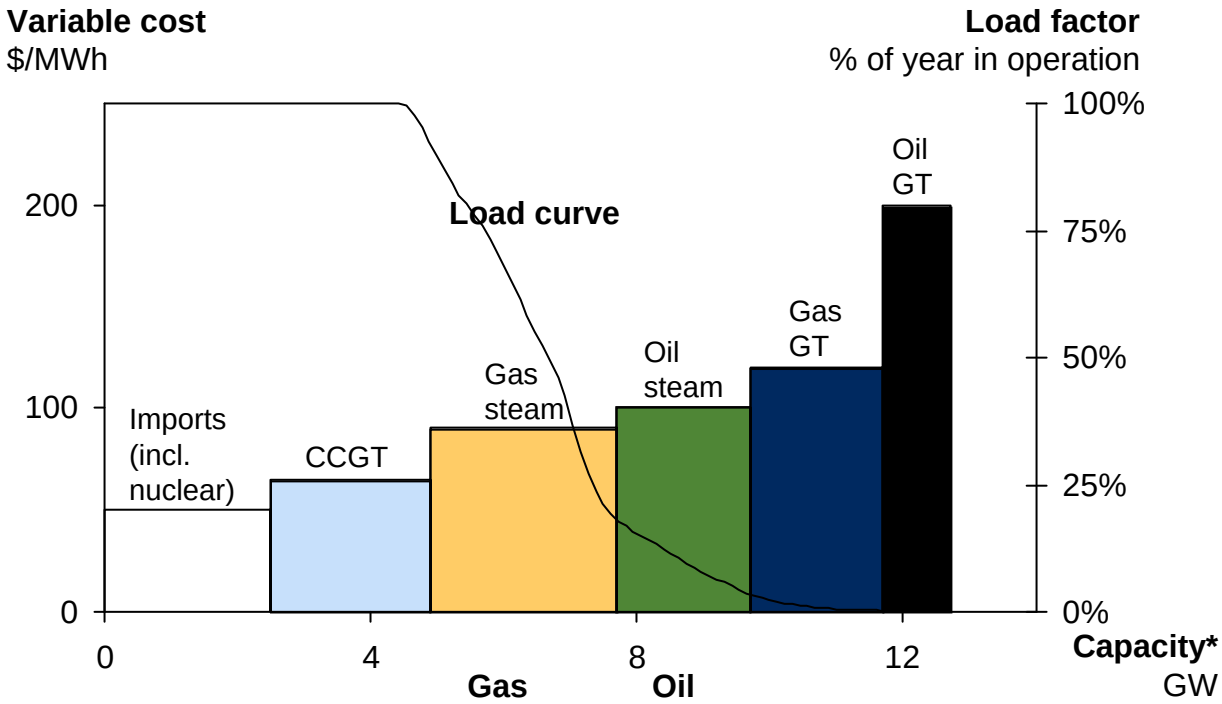
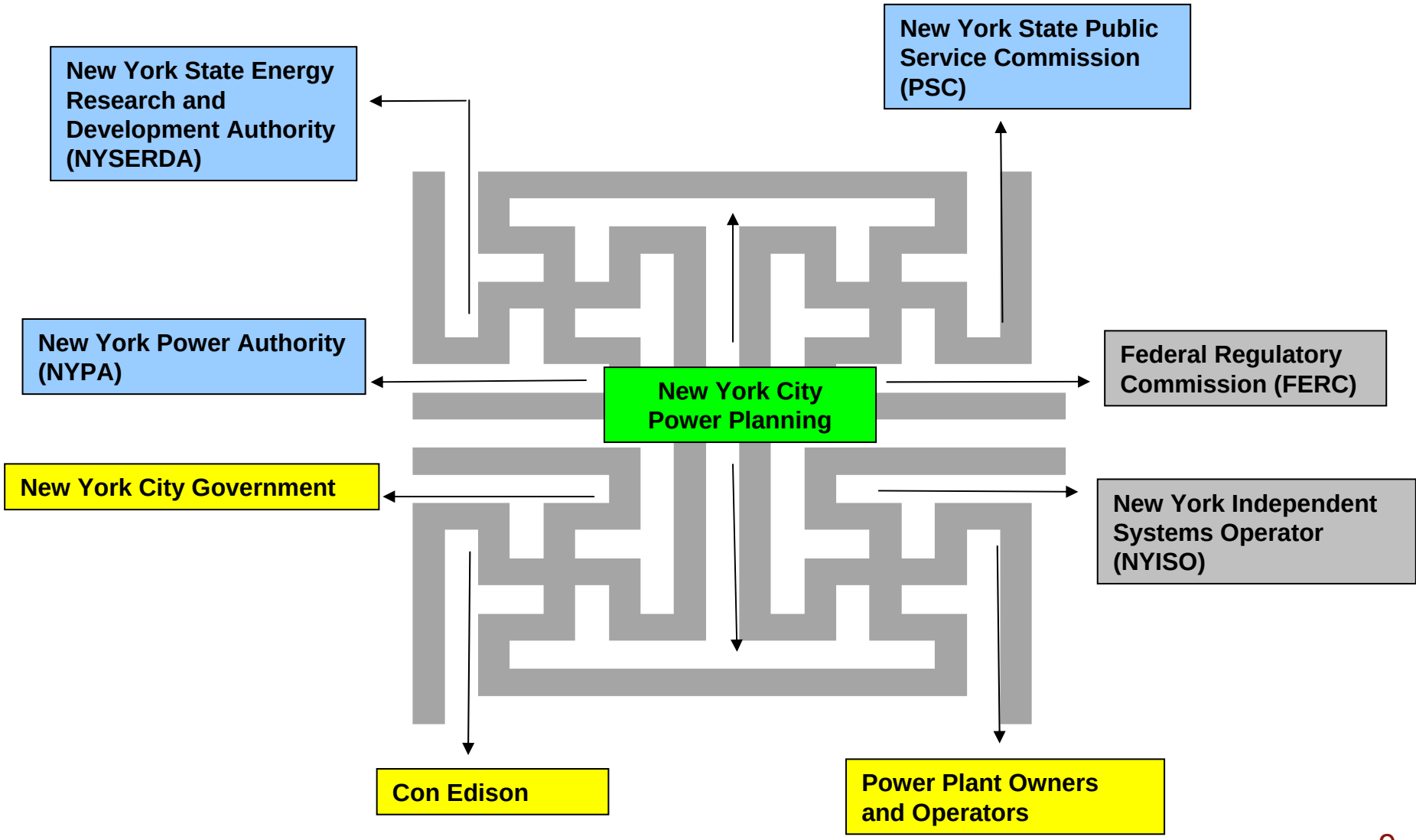
Reducing power prices and CO2 requires displacing inefficient plants



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

	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	
Split incentives	• Different parties "own" capital investments and savings	"I won't fund new appliances, my tenants reap all the savings!"
Fragmentation of consumer base	• Consumers highly dispersed and partially hidden behind master-meters	
Transaction costs/ Capital constraints	• Capital constraints on big-ticket investments • Competing investment priorities	"Before I spend money on this, I need to keep my business running"
Consumer education	• Lack of information on energy efficiency programs • Low consumer awareness of CO_2 impact	"Who knows how much I can save with retro-commissioning?"
Inconvenience	• 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	• Costs of climate change incurred by next generation	

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The Energy Plan

1 **Improve Energy Planning – Establish a New York City Energy Planning Board**

Reduce NYC's energy consumption

2 **Reduce energy consumption by City government**

3 **Strengthen energy building codes for NYC**

4 **Create an energy efficiency authority for NYC (NYCEEA)**

5 **Prioritize five key areas for targeted incentives**

6 **Expand peak load management**

7 **Launch an energy awareness and training campaign**

Expand NYC's clean power supply

8 **Facilitate repowering, construct power plants and dedicated transmission lines**

9 **Expand Clean Distributed Generation**

10 **Support expansion of natural gas infrastructure**

11 **Foster the market for renewable energy**

Modernize electricity delivery infrastructure

12 **Accelerate reliability improvements to the city's grid**

13 **Facilitate grid repairs through improved coordination and joint bidding**

14 **Support Con Edison's efforts to modernize the grid**

Key: Energy Consumption Energy Supply Energy Infrastructure


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