

# PlaNYC 2030

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



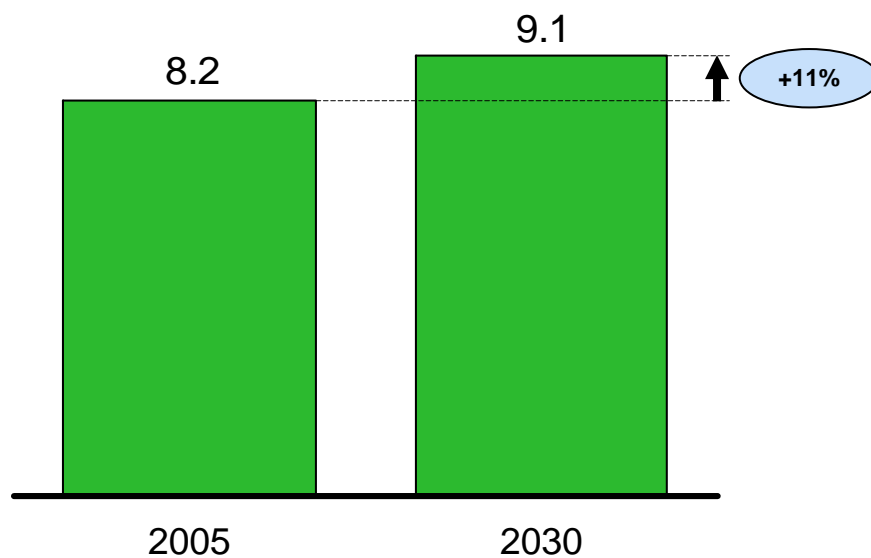
- **Population and economic growth will strain the City's energy infrastructure**
- **Three challenges must be overcome to improve the consequences of growth**
- **We're recommending an aggressive, integrated plan that puts PlaNYC's targets within reach**
- **This recommended plan requires significant 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
  - Improve energy planning
  - Reduce NYC's energy consumption
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  - Modernize electricity delivery infrastructure

# As NYC grows, power and heating needs will increase substantially

## New York City population forecast

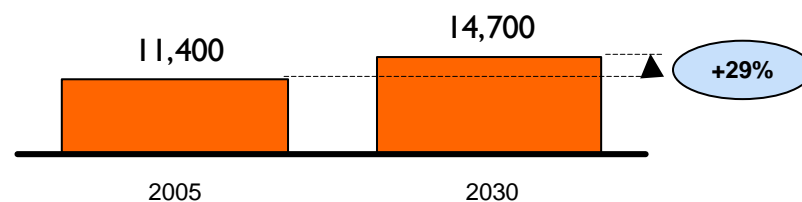
Millions of residents



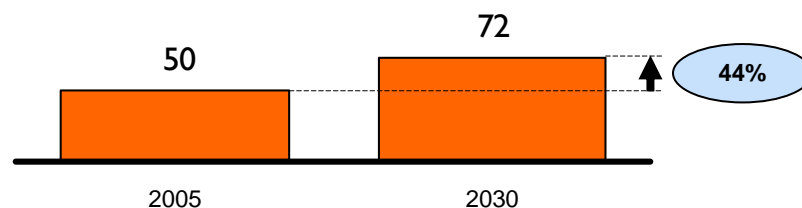
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Increased use of appliances and air conditioning

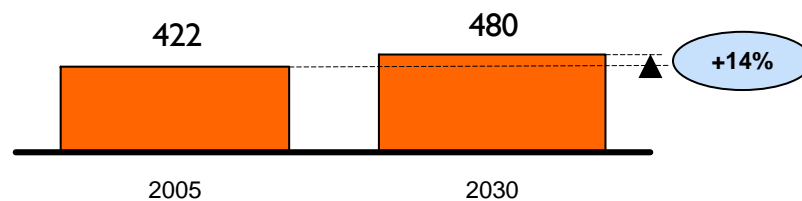
## Electrical capacity requirement forecast Summer peak load, MW



## Electrical consumption forecast Millions of MWh per year



## Heating fuels demand forecast Million MMBtu per year

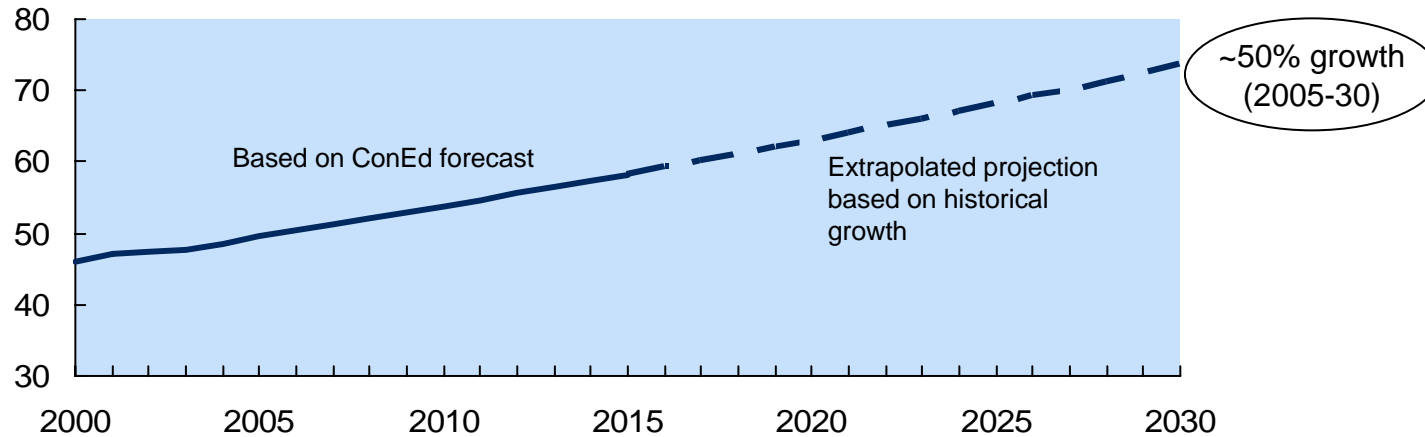


# NYC'S GROWTH LIKELY IMPLIES SUBSTANTIAL INCREASES IN CITY POWER AND HEAT EXPENDITURES BY 2030

ILLUSTRATIVE  
POWER EXAMPLE

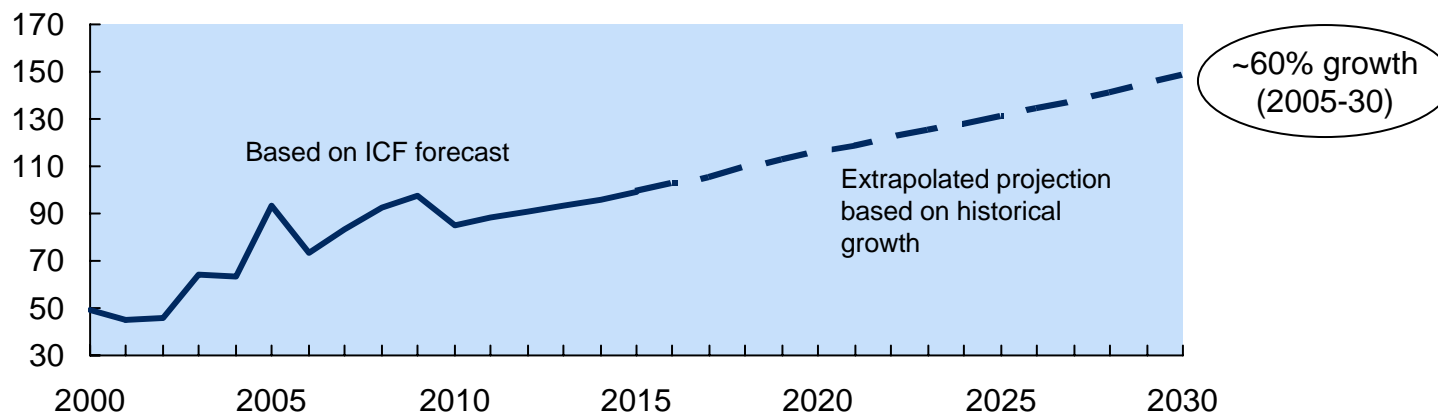
## NYC Power demand

Millions of MWh



## Wholesale power prices

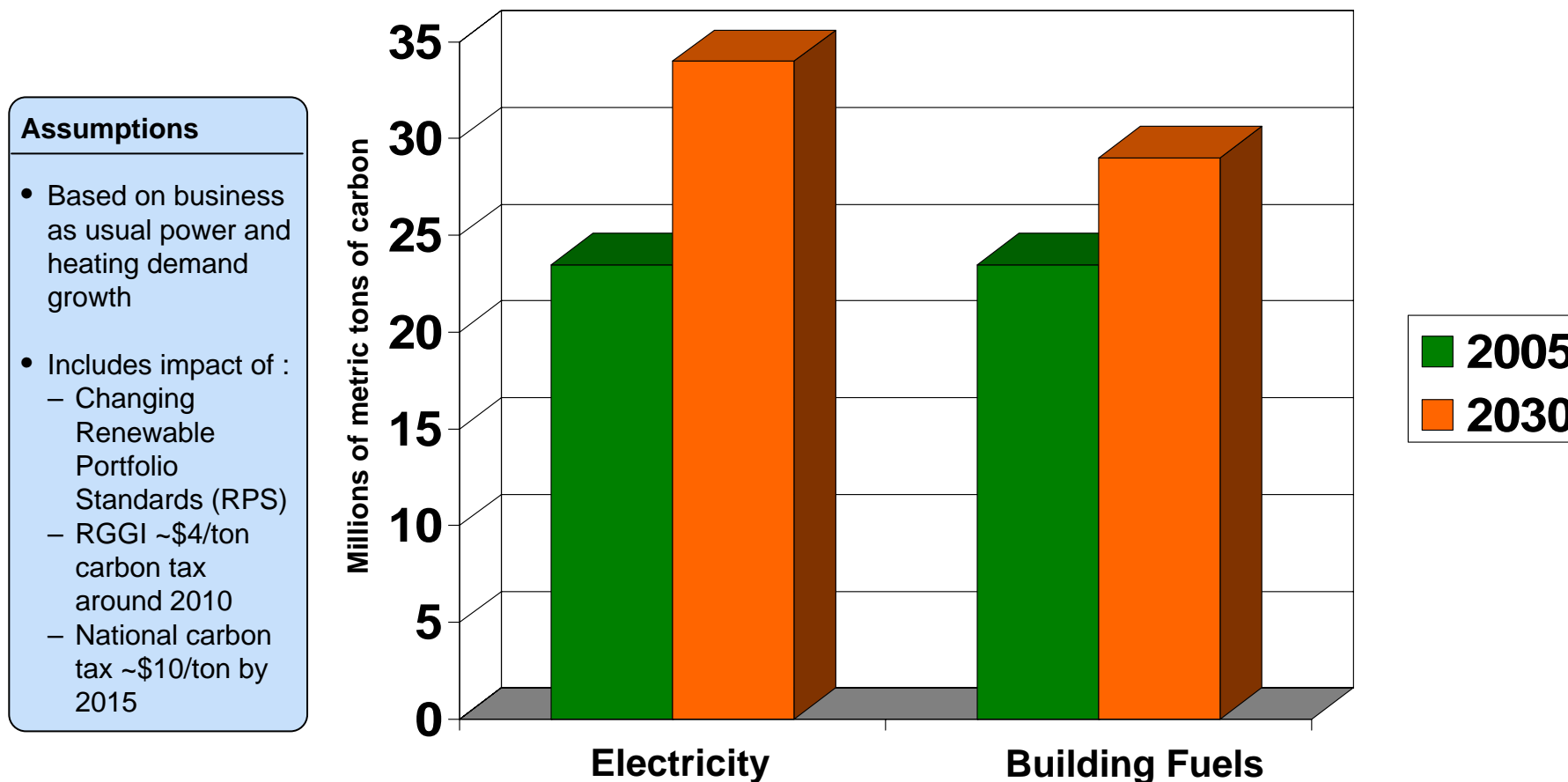
\$/MWh (nominal) – assuming constant real gas price after 2009



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

## ...AND EMITTING MORE CO<sub>2</sub>, EVEN WITH RGGI AND A NATIONAL CARBON TAX ON POWER

ESTIMATES



Note 1: Assumes hydro and nuclear generation remains the same (no closing of Indian Point, no new hydro facilities)

Note 2: Refers to the sum of CO<sub>2</sub> generated by New York City power plants plus all CO<sub>2</sub> related to power generated outside NYC then imported to NYC. CO<sub>2</sub> calculations were made based on reported plant-by-plant production, technology, heat rate and CO<sub>2</sub> efficiency statistics for 2004. Any CO<sub>2</sub> generated by plants located outside of NYC but dedicated to NYC (for UCAP purposes) were accounted 100% towards NYC's CO<sub>2</sub> power footprint. All other imports were accounted for by multiplying the imported power from PJM and Upstate NY by the weighted average CO<sub>2</sub> intensity of the non-NYC dedicated plants in those regions

Source: ICF Consulting IPM Model; Energy Velocity; EPA eGrid; NYC City Hall Planning; EDC; Mayor's Office of Operations; team analysis

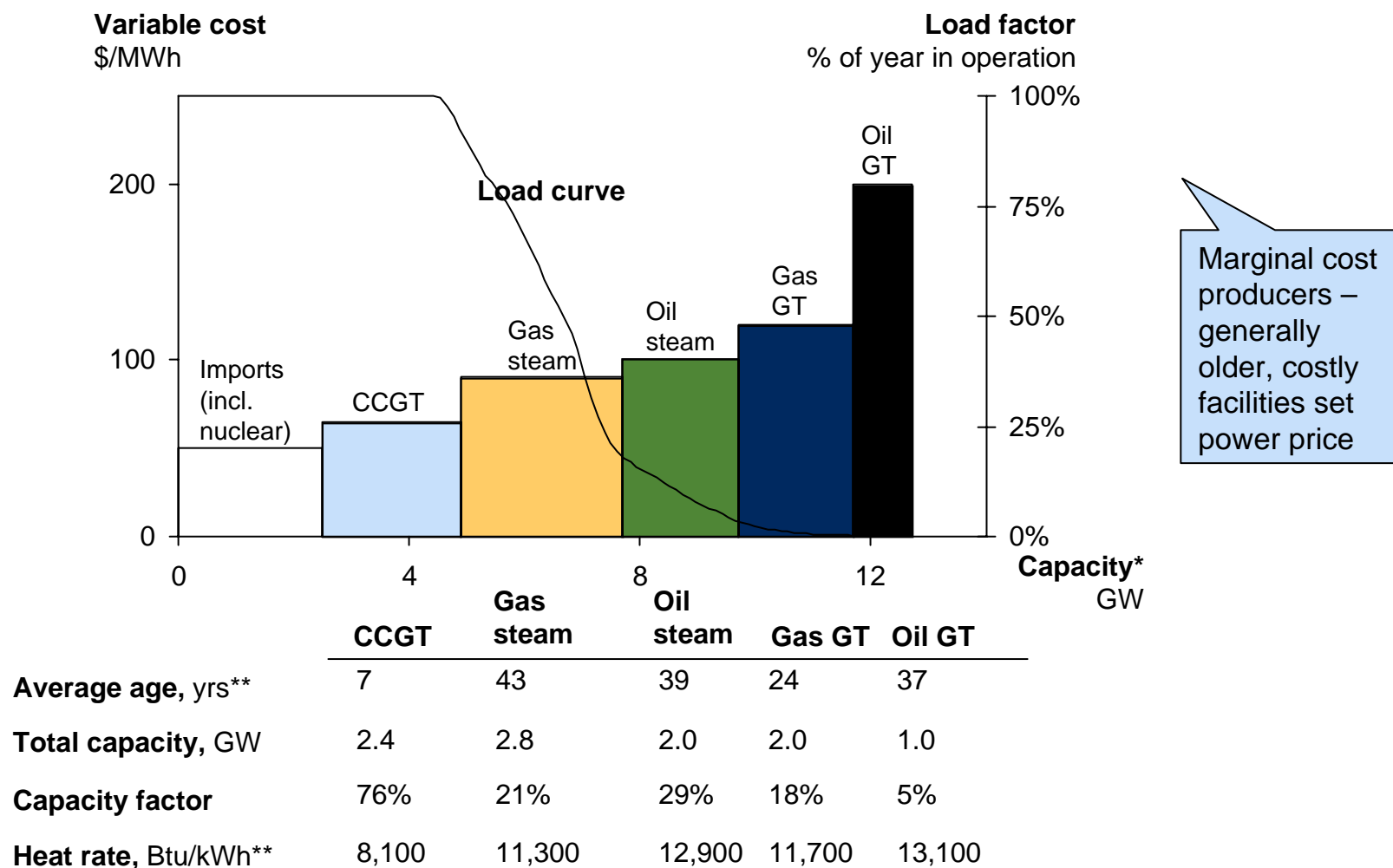
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# REDUCING POWER PRICES AND CO<sub>2</sub> REQUIRES DISPLACING HIGH COST, INEFFICIENT MARGINAL PLANTS...

ESTIMATES



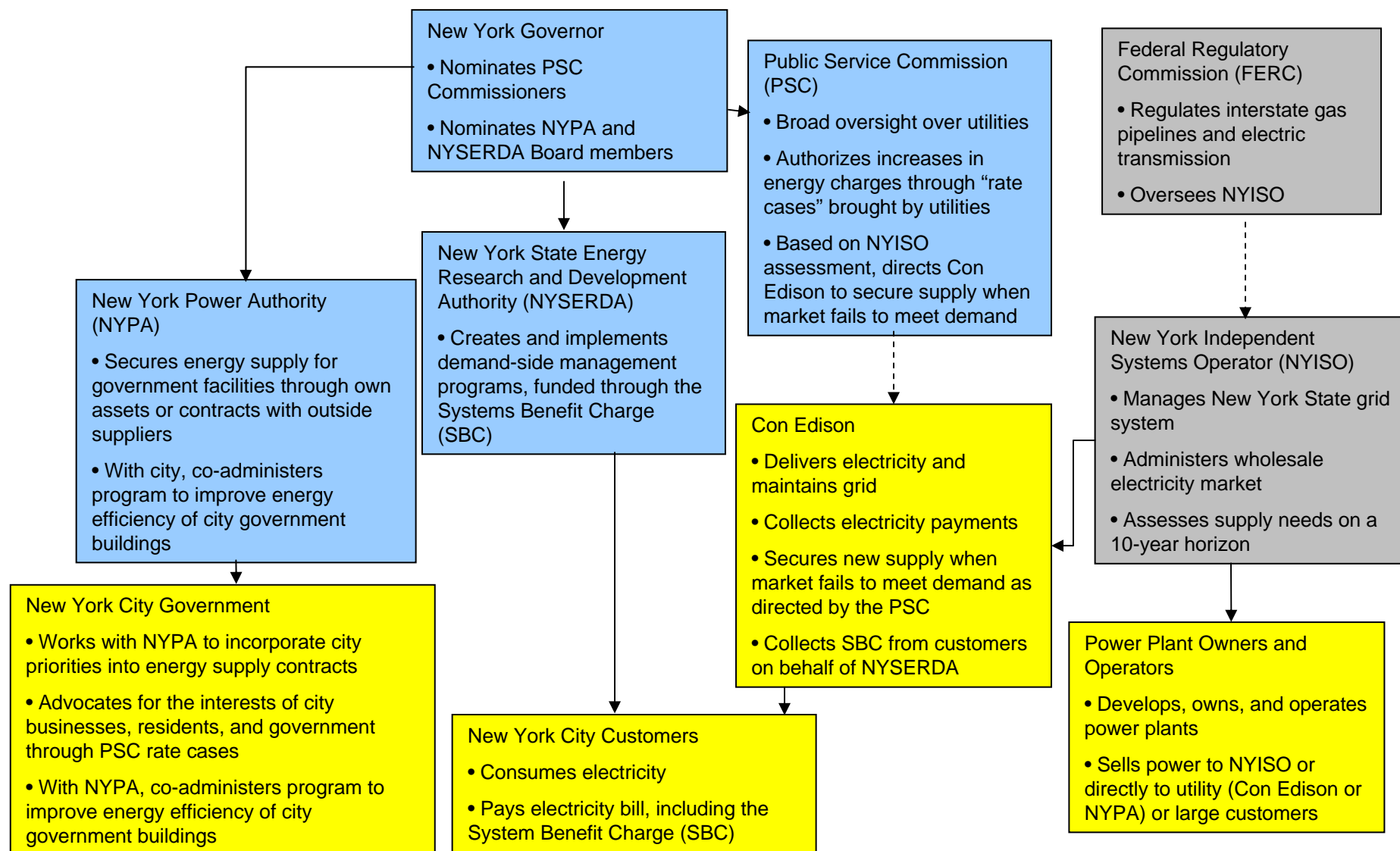
\* In-city resources include Linden Cogeneration Technologies

\*\* Weighted average of individual plants, averaged by estimated 2006 generation

Source: Energy Velocity; NYMEX; team analysis



# CURRENT POWER PLANNING PROCESS INVOLVES A MAZE OF STATE AND FEDERAL ENTITIES...



Source: Team analysis

# DEMAND SIDE MANAGEMENT (DSM) FACES SOCIAL AND STRUCTURAL BARRIERS

	Description	
Split incentives	<ul style="list-style-type: none"><li>• Different parties “own” capital investments and savings</li></ul>	“I won’t fund new appliances, my tenants reap all the savings!”
Fragmentation of consumer base	<ul style="list-style-type: none"><li>• Consumers highly dispersed and partially hidden behind master-meters</li></ul>	
Transaction costs/ Capital constraints	<ul style="list-style-type: none"><li>• Capital constraints on big-ticket investments</li><li>• Competing investment priorities</li></ul>	“Before I spend money on this, I need to keep my business running”
Consumer education	<ul style="list-style-type: none"><li>• Lack of information on energy efficiency programs</li><li>• Low consumer awareness of CO<sub>2</sub> impact</li></ul>	“Who knows how much I can save with retro-commissioning?”
Inconvenience	<ul style="list-style-type: none"><li>• Bureaucratic challenges with funding and contracting of work</li><li>• Energy efficiency products are often not the most convenient or readily accessible</li></ul>	“Dinner for two is more expensive than my monthly ConEd bill!”
Generational equity	<ul style="list-style-type: none"><li>• Costs of climate change incurred by next generation</li></ul>	

# THESE BARRIERS LIMIT CURRENT DSM EFFORTS, DESPITE THE CLEAR ECONOMIC, POLITICAL AND SOCIAL BENEFITS OF REDUCING DEMAND

## Individual benefits

### Sound investments

- **Payback periods** of 2-10 years, i.e. 10-50% rates of return
- Measures provide **continuing returns** after payback is reached

## Strategic & Societal benefits

### Economic growth

- Demand reduction often **cheaper than new supply**
- Reduction in energy demand can put downward pressure on electric prices
- **New jobs** from execution of energy-efficiency measures

### Energy security

- Energy not consumed **displaces energy imports from uncertain energy sources** outside the US

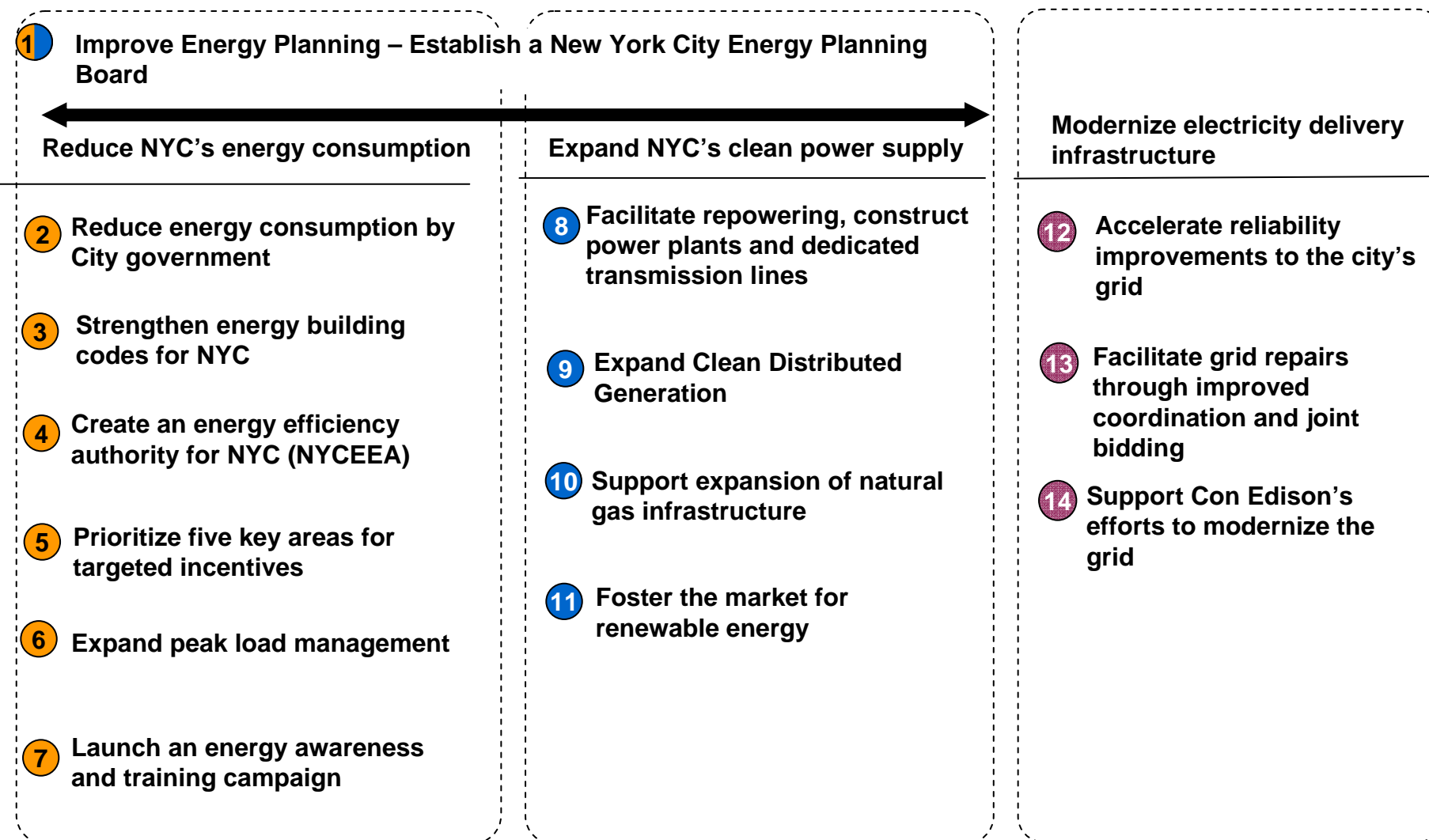
### Societal benefits

- US EPA estimates benefits of Clean Air Act above \$1.2 trillion, primarily from **reduced medical expenses and deaths**;

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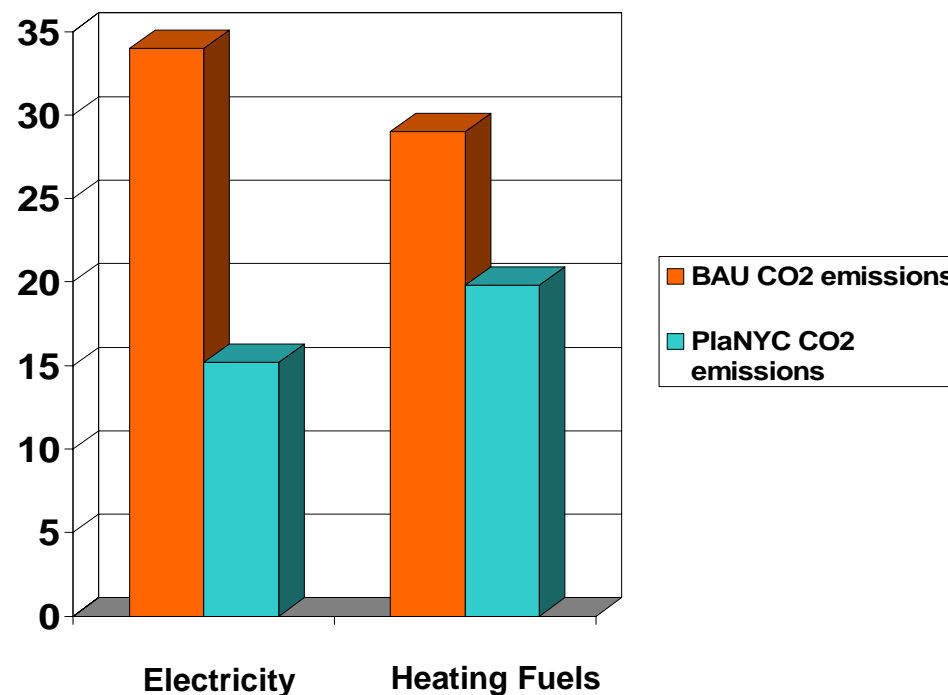
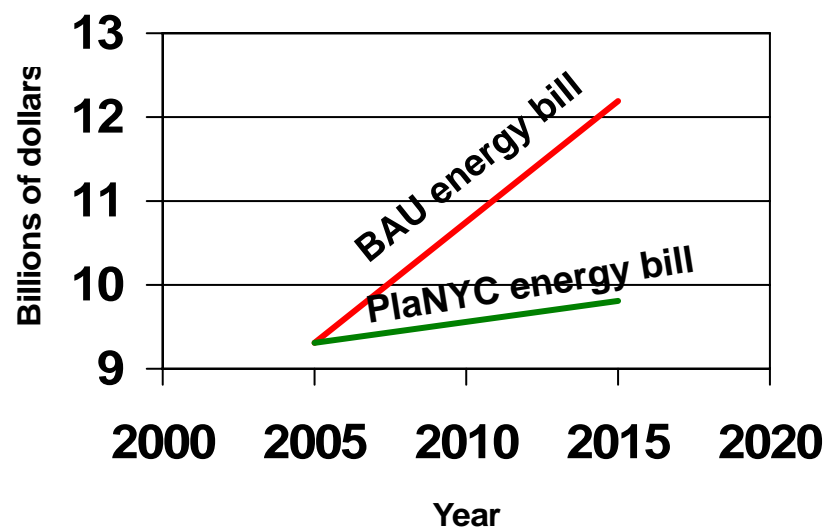
# THE PLAN: DRIVE INTEGRATED INITIATIVES TO REDUCE DEMAND, INCREASE SUPPLY AND UPGRADE ENERGY INFRASTRUCTURE



**Key:**      ● Energy Consumption      ● Energy Supply      ● Energy Infrastructure

## THE RESULT: COMBINED, THESE INITIATIVES COULD HELP TO SIGNIFICANTLY REDUCE CO2 EMISSIONS AND LOWER CITY ENERGY EXPENDITURES

- PlaNYC could result in
  - 10.8 million metric ton reduction due to a cleaner power supply
  - 16.7 million metric ton reduction due to cleaner and more efficient use of heating fuels



- City energy expenditures will be 20% less when compared to the business as usual (BAU) scenario by 2015

# PlaNYC 2030

[www.nyc.gov/planyc2030](http://www.nyc.gov/planyc2030)