

Resource Adequacy, Entry and Current Electric Industry Trends

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March 3, 2008

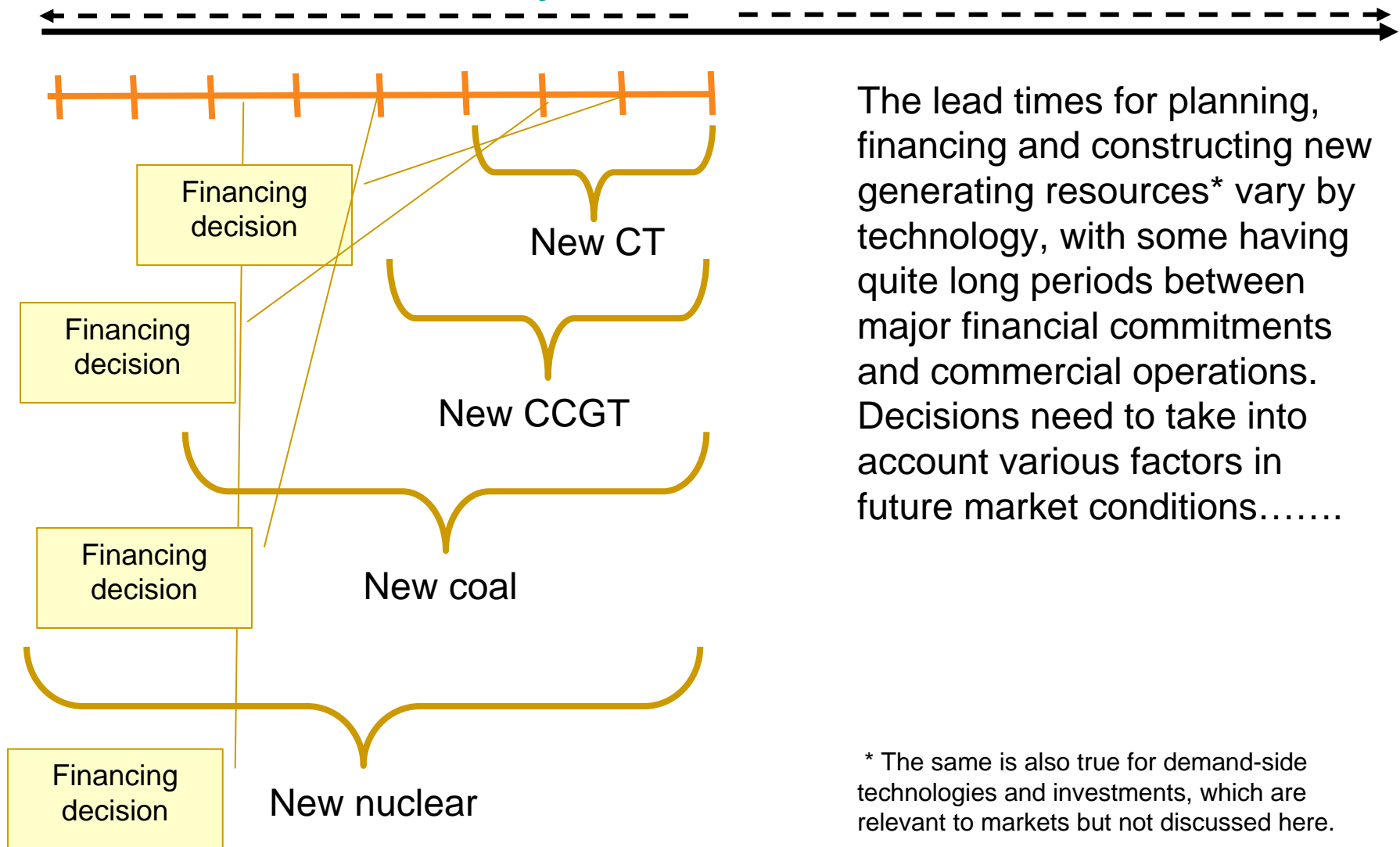
Presentation to American Antitrust Institute – Meeting on Resource Adequacy

Our assignment:

Some high-level policy trends affecting entry and resource adequacy

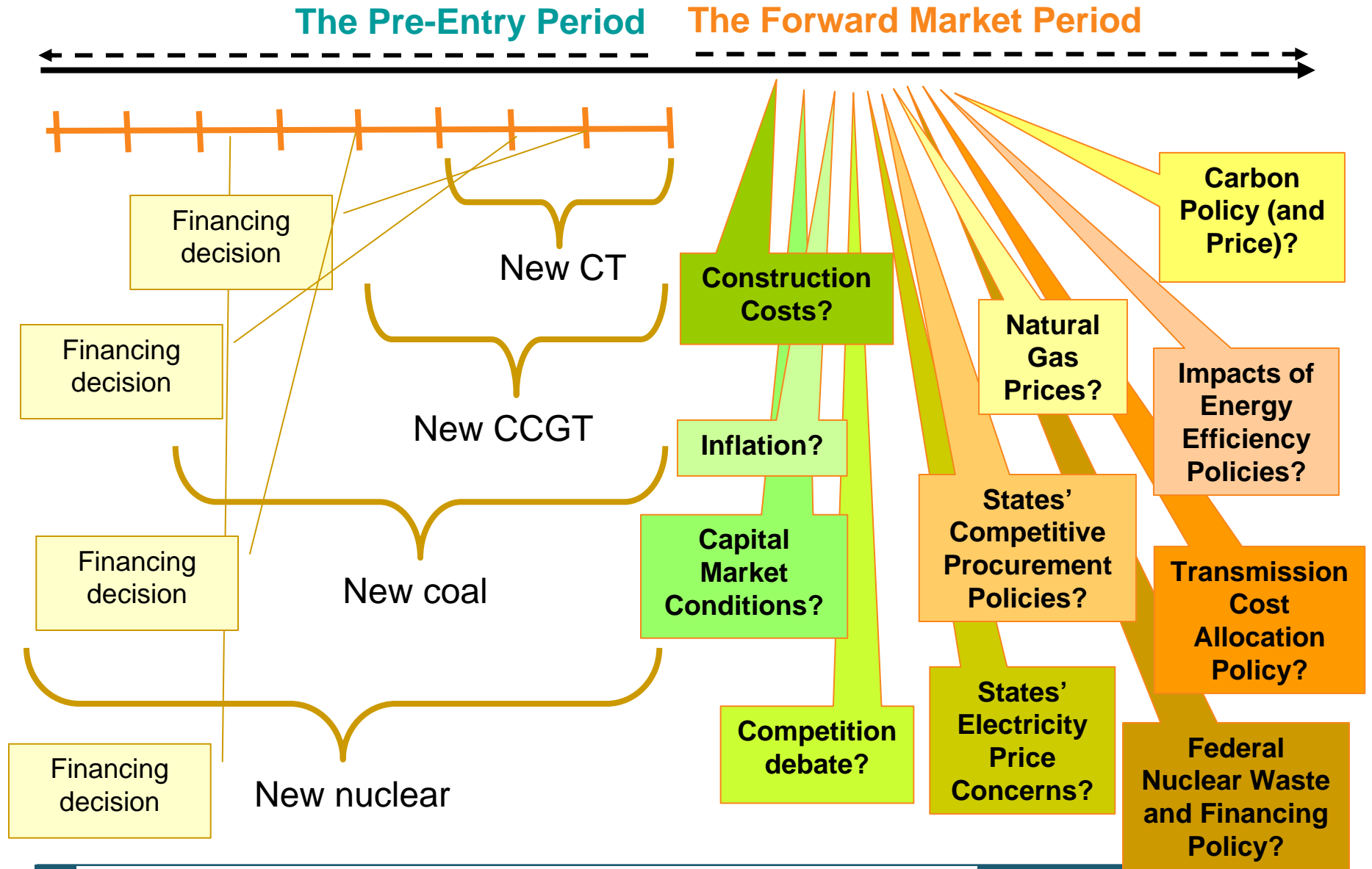
Identify the major issues associated with adding needed resources to the electric power system in the U.S. These issues will revolve around the constraints and opportunities created by regulatory and environmental initiatives, policies and market conditions governing centralized (i.e., RTO-based) and bilateral markets, and the accuracy of price signals and other market conditions that are critical in stimulating entry into electricity markets.

The Pre-Entry Period **The Forward Market Period**



The lead times for planning, financing and constructing new generating resources* vary by technology, with some having quite long periods between major financial commitments and commercial operations. Decisions need to take into account various factors in future market conditions.....

* The same is also true for demand-side technologies and investments, which are relevant to markets but not discussed here.



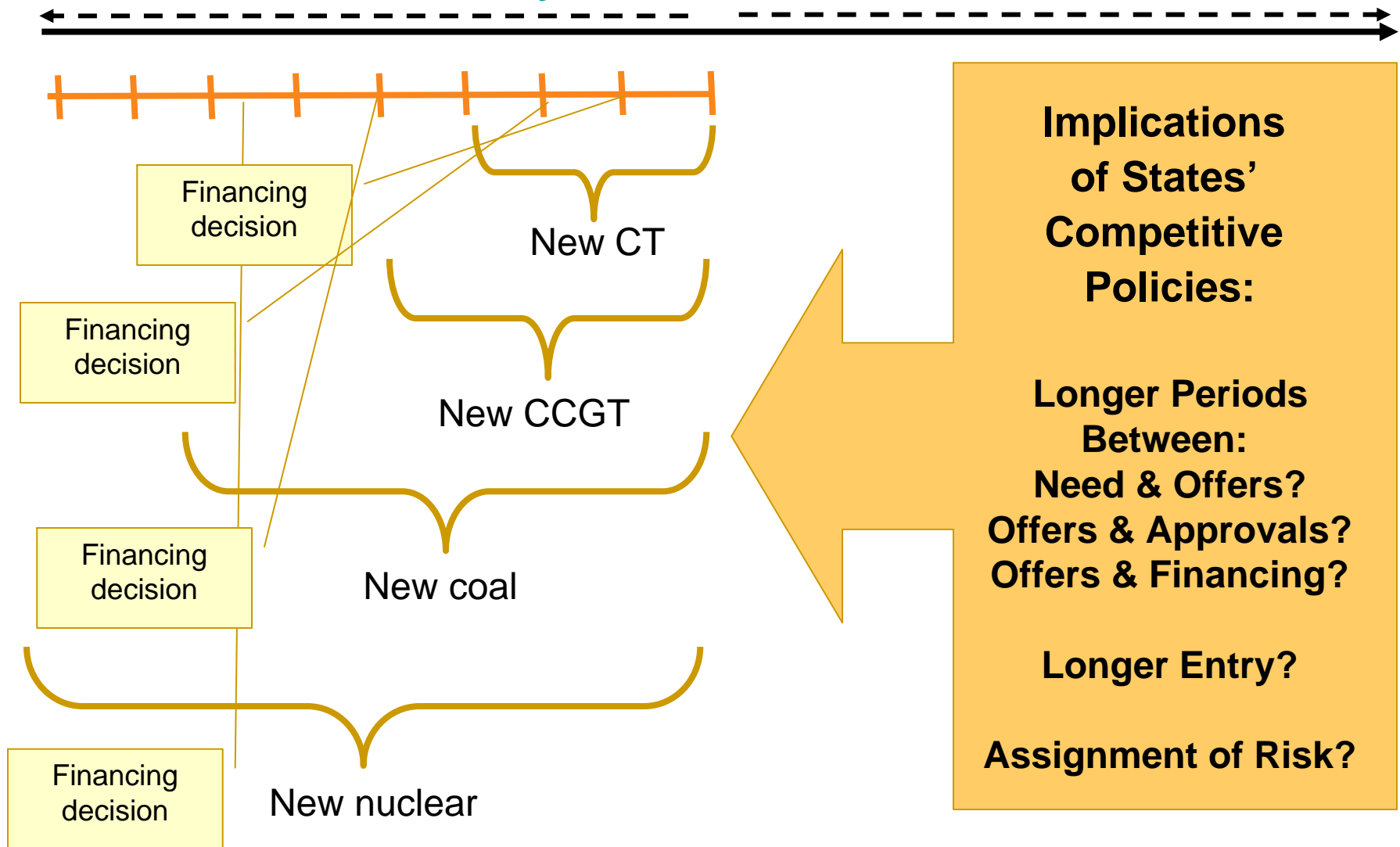
State Competitive Procurement Processes

Many states in traditional regions:

- Rely on competitive procurements for incremental supply
- Tie “need” and “product” to be procured to results of an IRP
- States vary on whether to allow self-build proposals, self-build offers
- Utility procurement cycles follow IRP cycles
- Process may result in negotiation/contracting for new resource
- PPA for new resource and/or self-build proposal then submitted to PUC for approval
- These processes may run in parallel with early stages of power-plant permitting, but prior to financing and construction of a new project

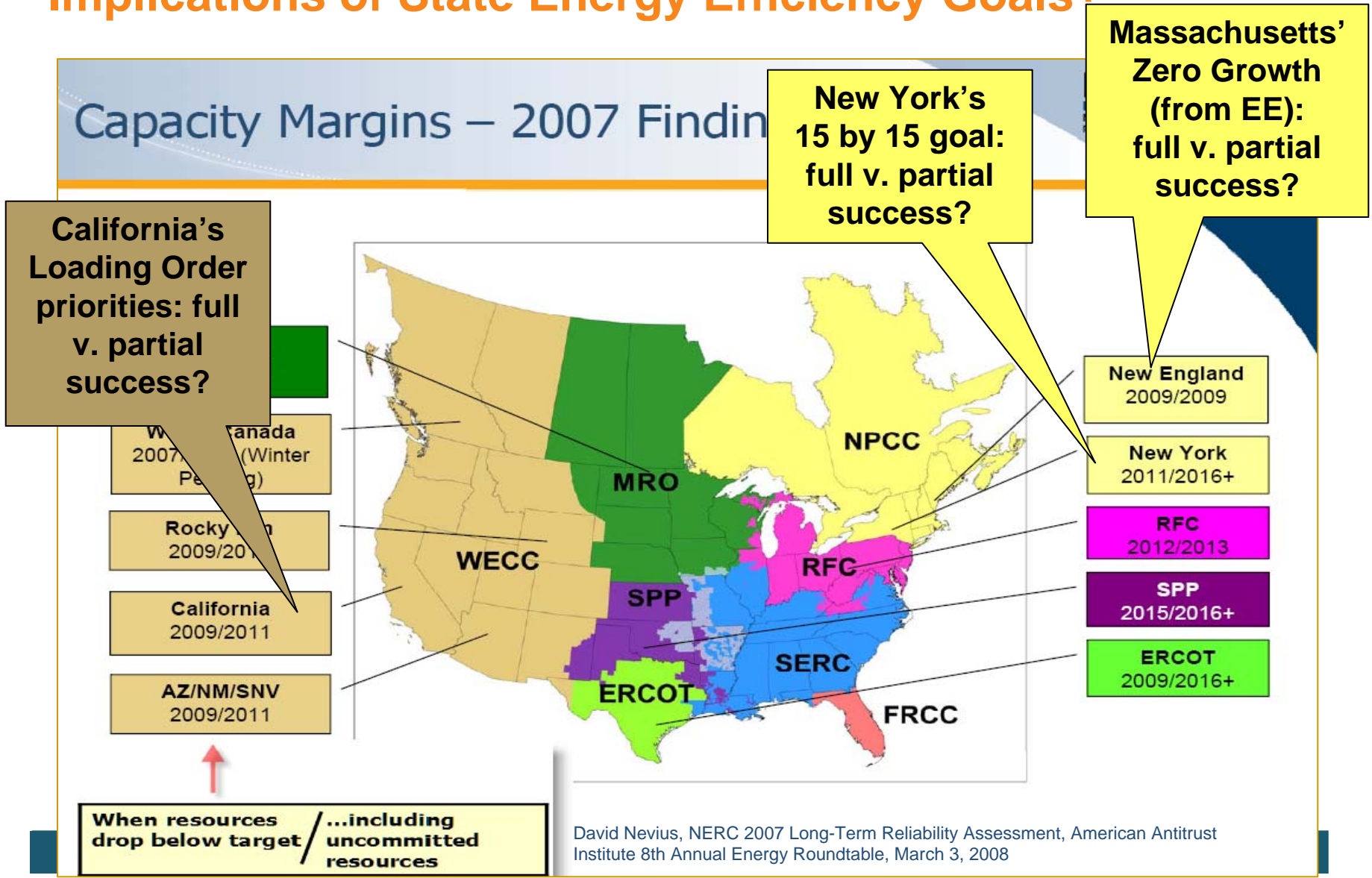
One implication: impact on timing of pre-financing period, due to competitive procurements, PUC reviews

The Pre-Entry Period **The Forward Market Period**



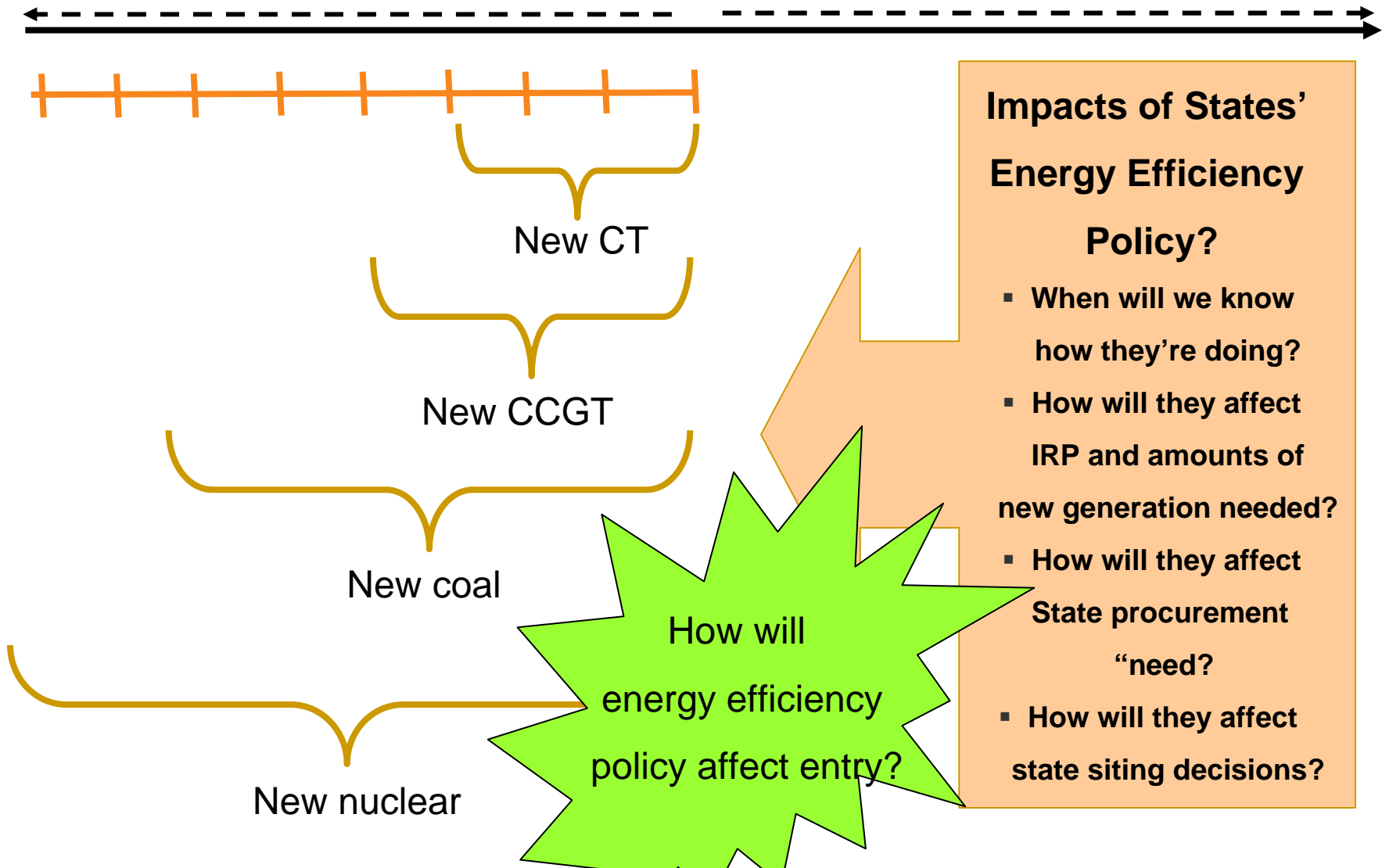
Implications of State Energy Efficiency Goals?

Capacity Margins – 2007 Findings

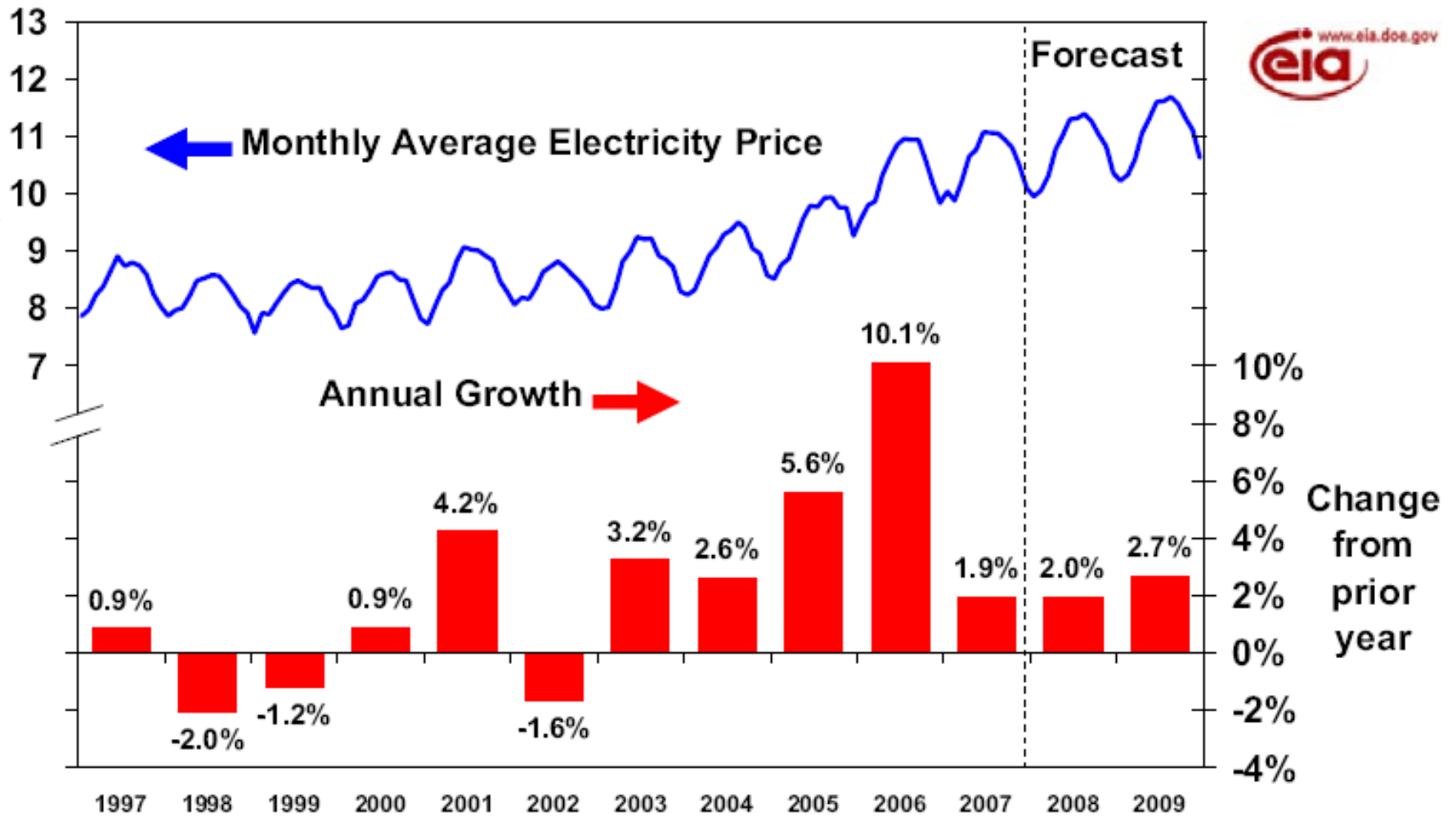


David Nevius, NERC 2007 Long-Term Reliability Assessment, American Antitrust Institute 8th Annual Energy Roundtable, March 3, 2008

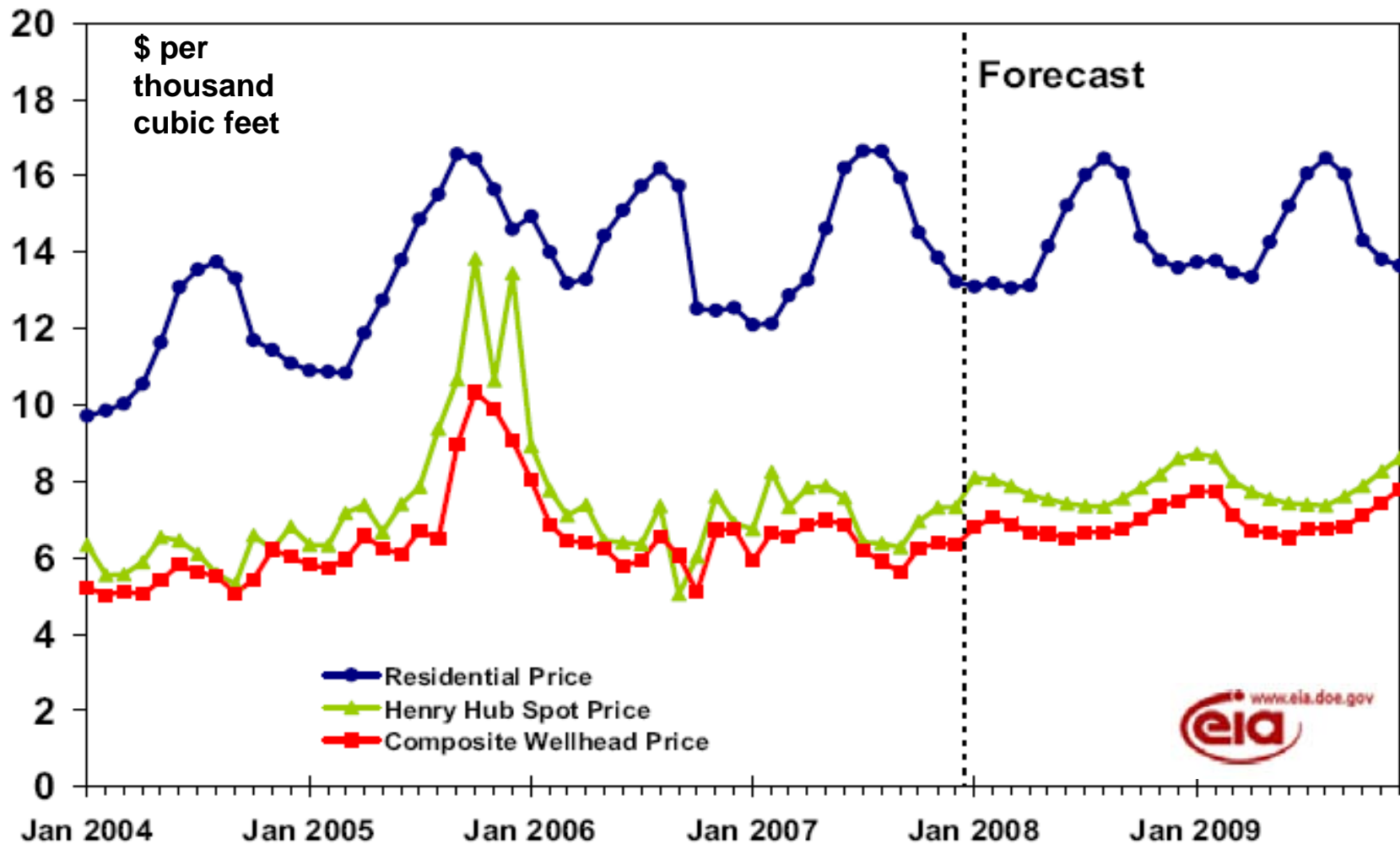
The Pre-Entry Period **The Forward Market Period**



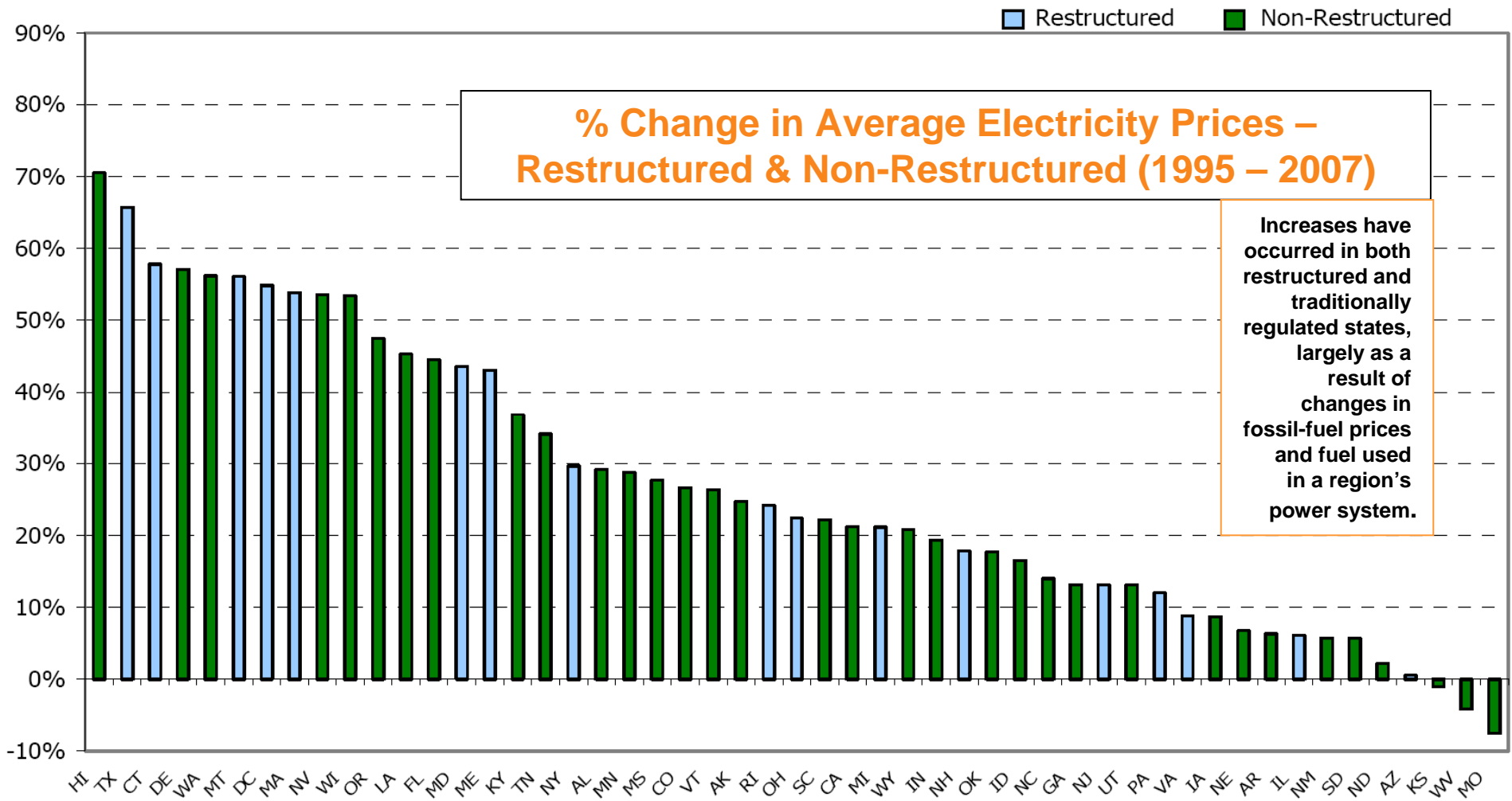
U.S. Residential Electricity Prices: Nominal Prices (cents/kwh) and % Change from Prior Year Price



Natural Gas Prices: 1-2004 – 1-2008 (actual) 1-2008 – 1-2010 (forecast)



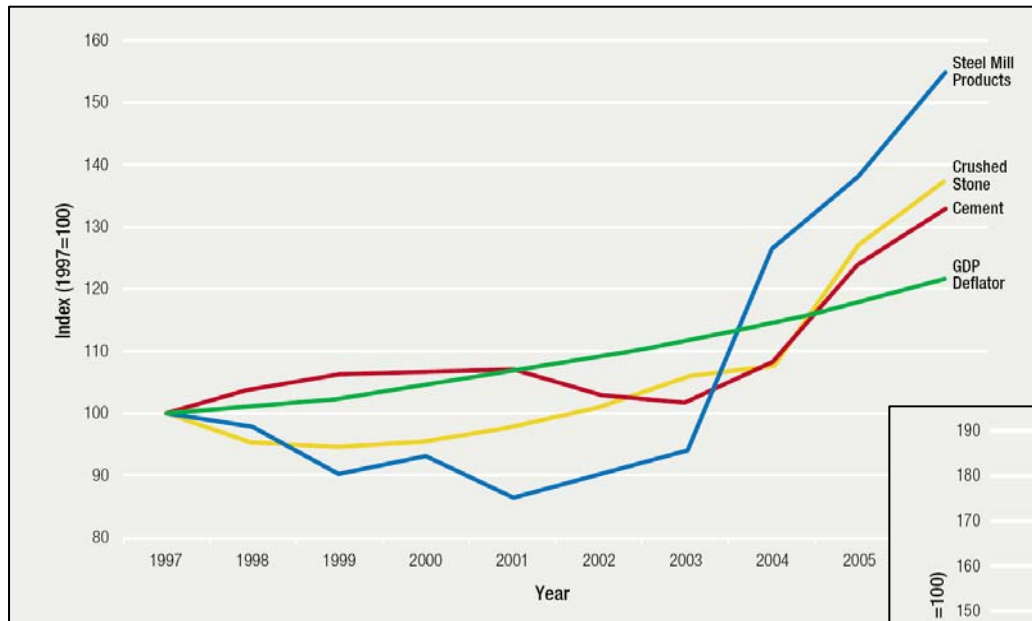
The “Competition-versus-Regulation” Debate:



Source: EIA.

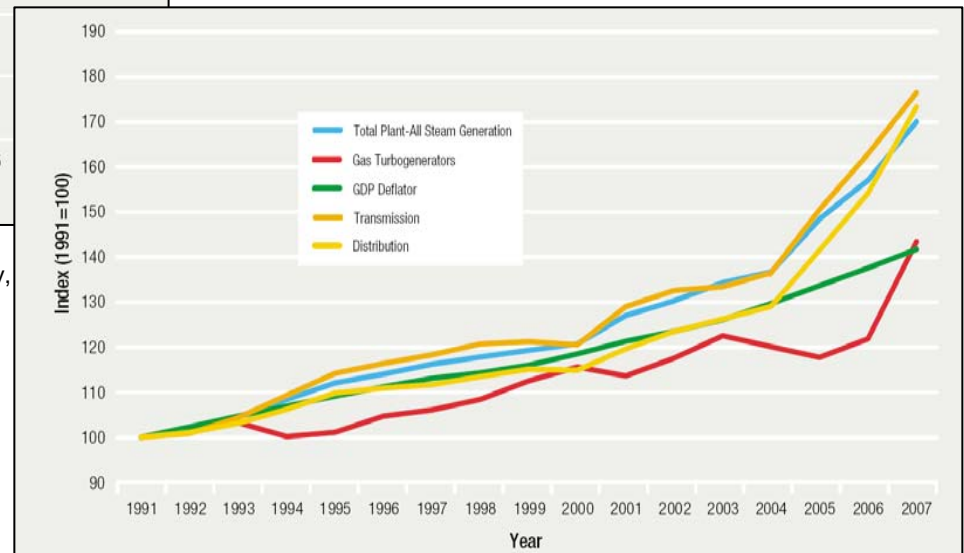
Rising Construction-Related Costs for Electric Industry

Raw Material Cost Trends (1997 – 2006)



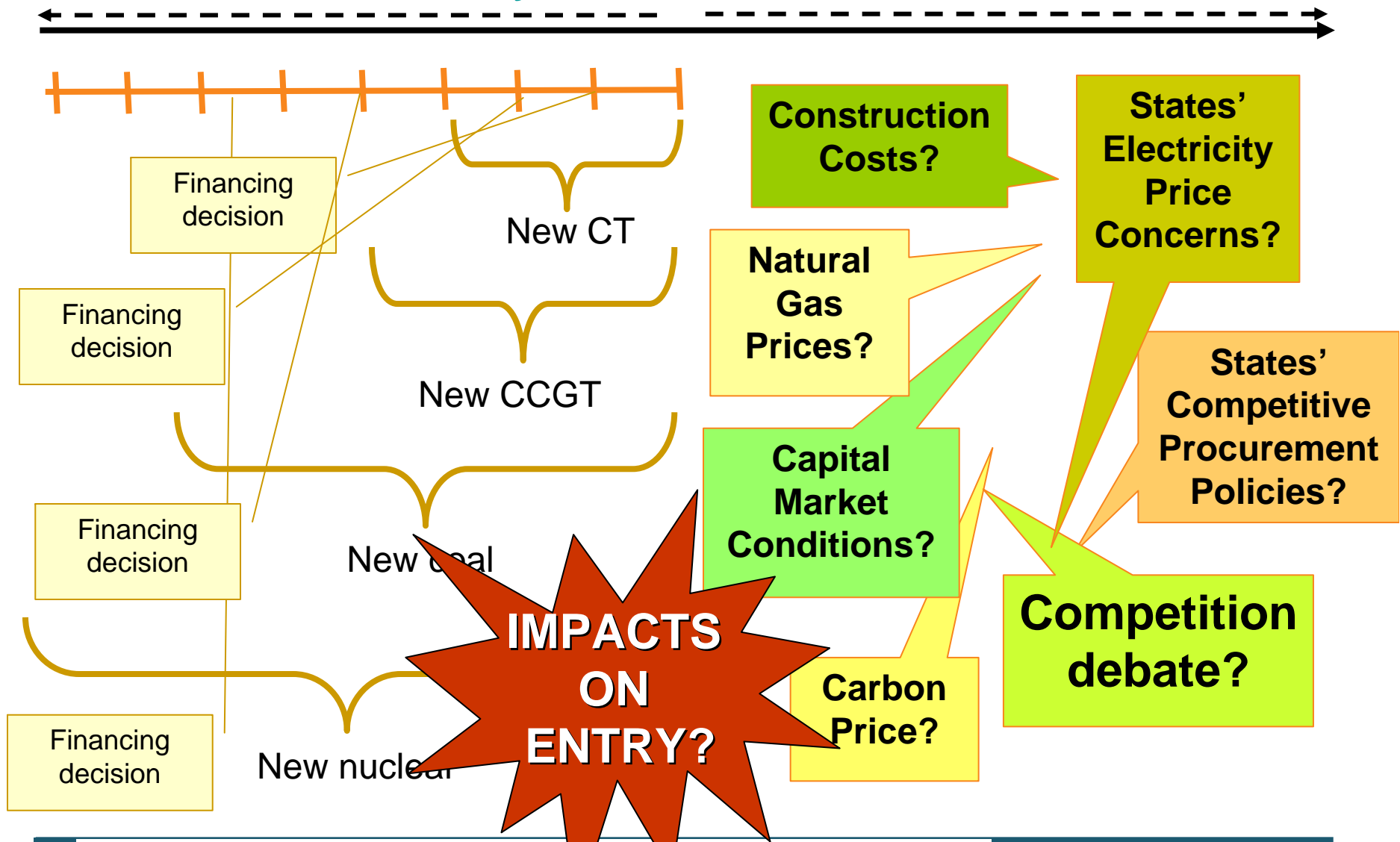
Source: Basheda and Chupka, Figure 2, using data from U.S. Geological Survey, Mineral Commodity Summaries and The Bureau of Economic Analysis

National Average Utility Infrastructure Costs (1991-2007)



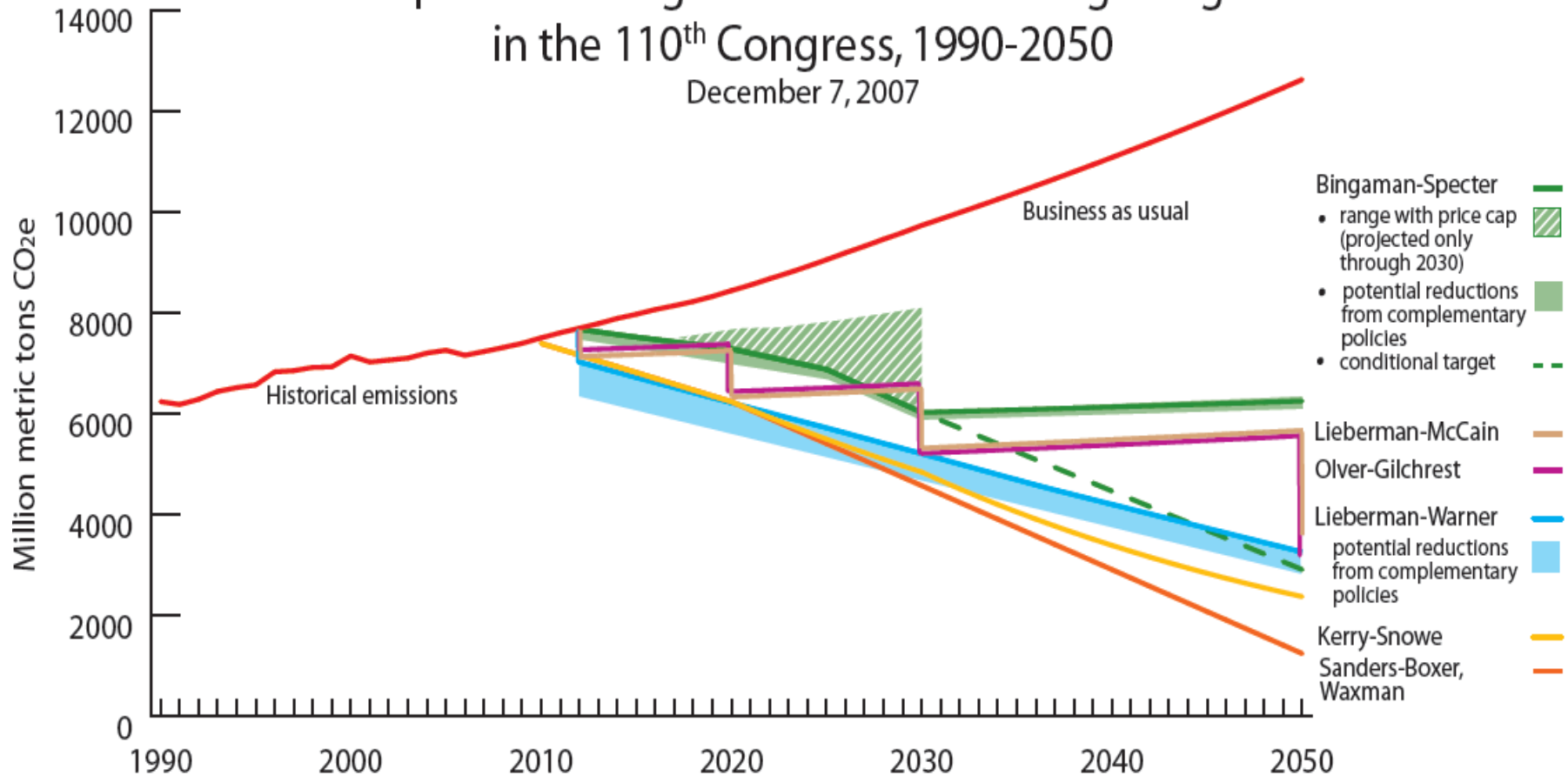
Source: Basheda and Chupka, Figure 1, using Brattle Group/Edison Foundation data.

The Pre-Entry Period **The Forward Market Period**



National Climate Bills in Congress – Emissions Caps

Comparison of Legislative Climate Change Targets
in the 110th Congress, 1990-2050
December 7, 2007



Climate Security Act of 2007 (Lieberman-Warner)

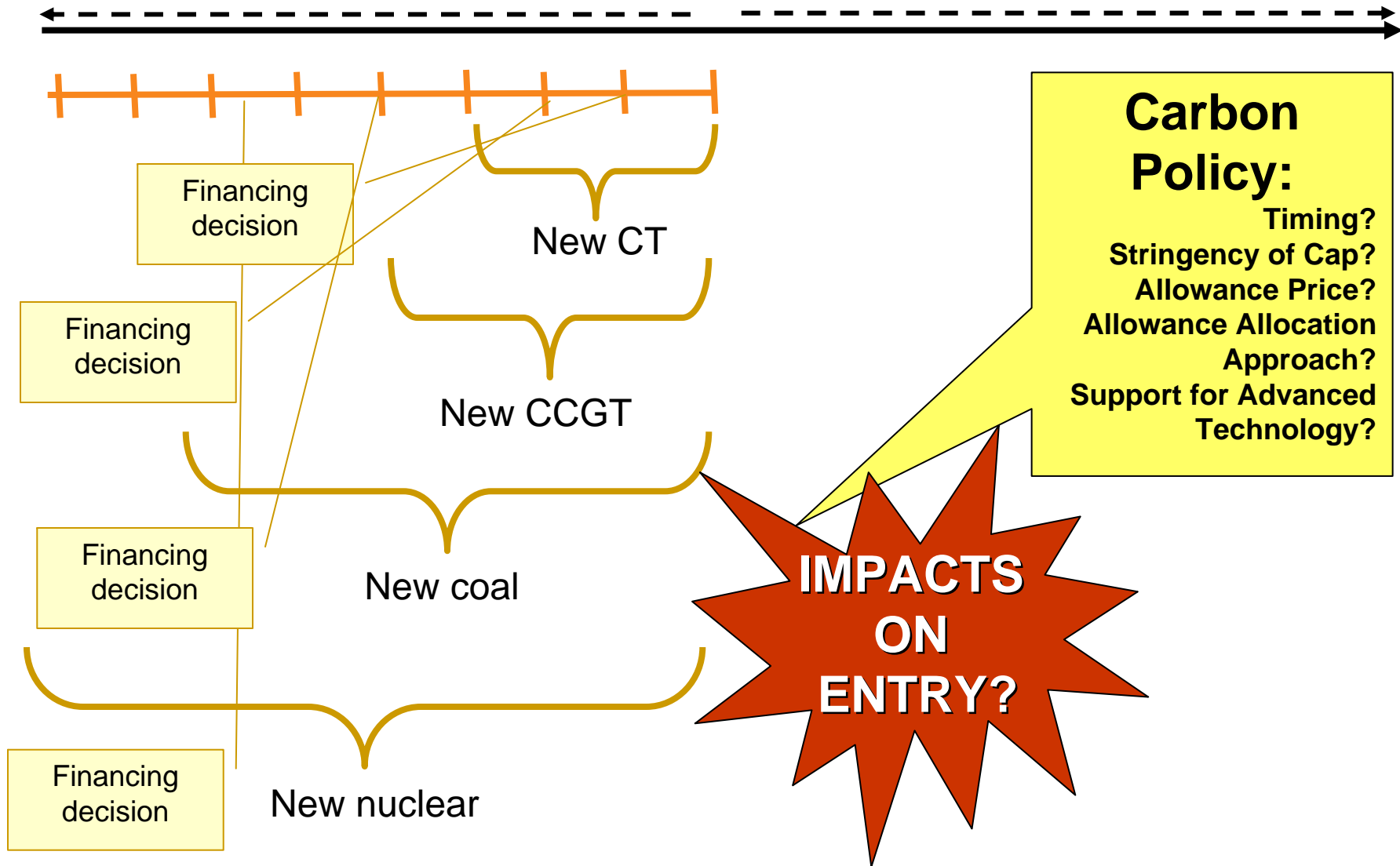
Allowance allocation:

- **Auction: starts at 18% in 2012, rising gradually to 73% by 2036**
- **Free distribution:**
 - **To covered entities: 20% to each of the following, declining to 0% (2035)**
 - Electric Power:
 - Industrial:
 - Transportation:
 - **To others – approximate mix**
 - Utility distribution companies: 10%
 - Regulated entities with early reductions (5% in 2012, down to 0% by 2017)
 - State governments: 5% -
 - States with prior stringent GHG reduction programs: 2%
 - Coal mining communities: 4%
 - Forestry, farming, etc: 7.5%

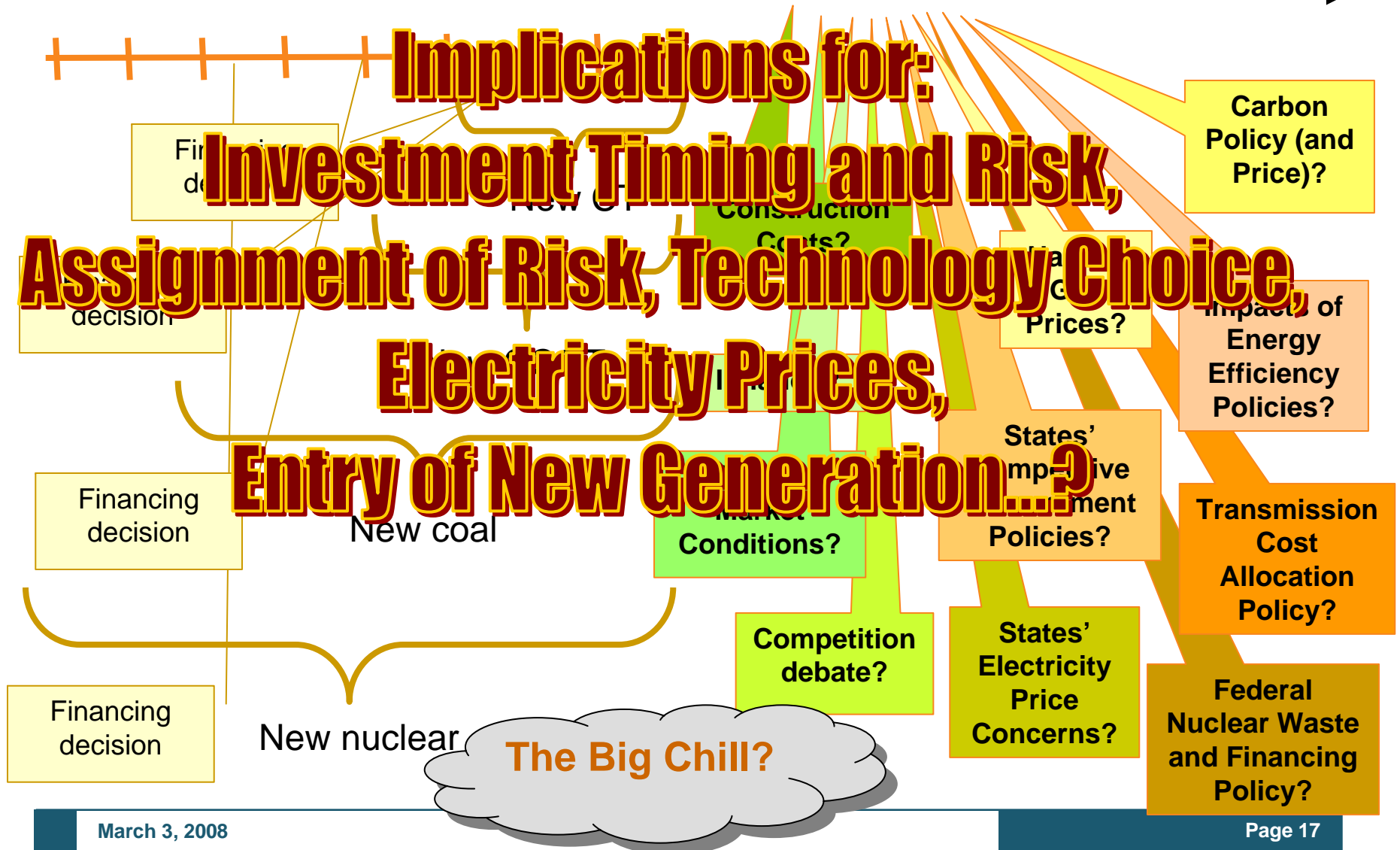
**ALLOWANCE
APPROACHES:**

- AUCTION?
- FREE DISTRIBUTION?
 - TO GENERATORS?
 - TO LOAD?

The Pre-Entry Period **The Forward Market Period**



The Pre-Entry Period The Forward Market Period



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