

Insights from Modeling Analyses of the Lieberman-Warner Climate Security Act (S.2191)

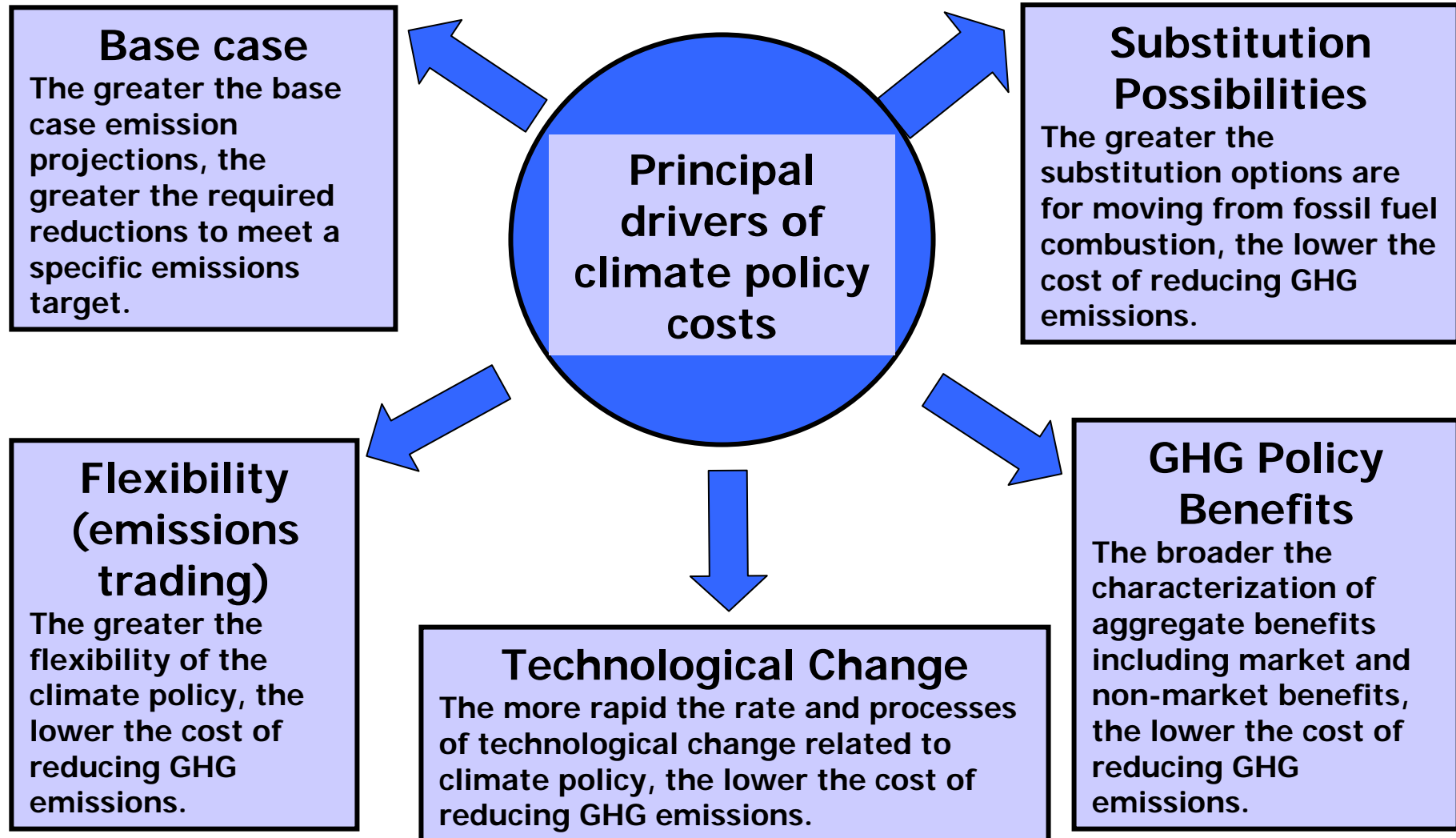


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1. EIA, NEMS model
2. EPA, ADAGE and IGEM models
3. Clean Air Task Force, NEMS model
4. American Council for Capital Formation and the National Association of Manufacturers, NEMS model
5. MIT, EPPA model
6. CRA International, MRN and NEEM models

Drivers of Economic Costs

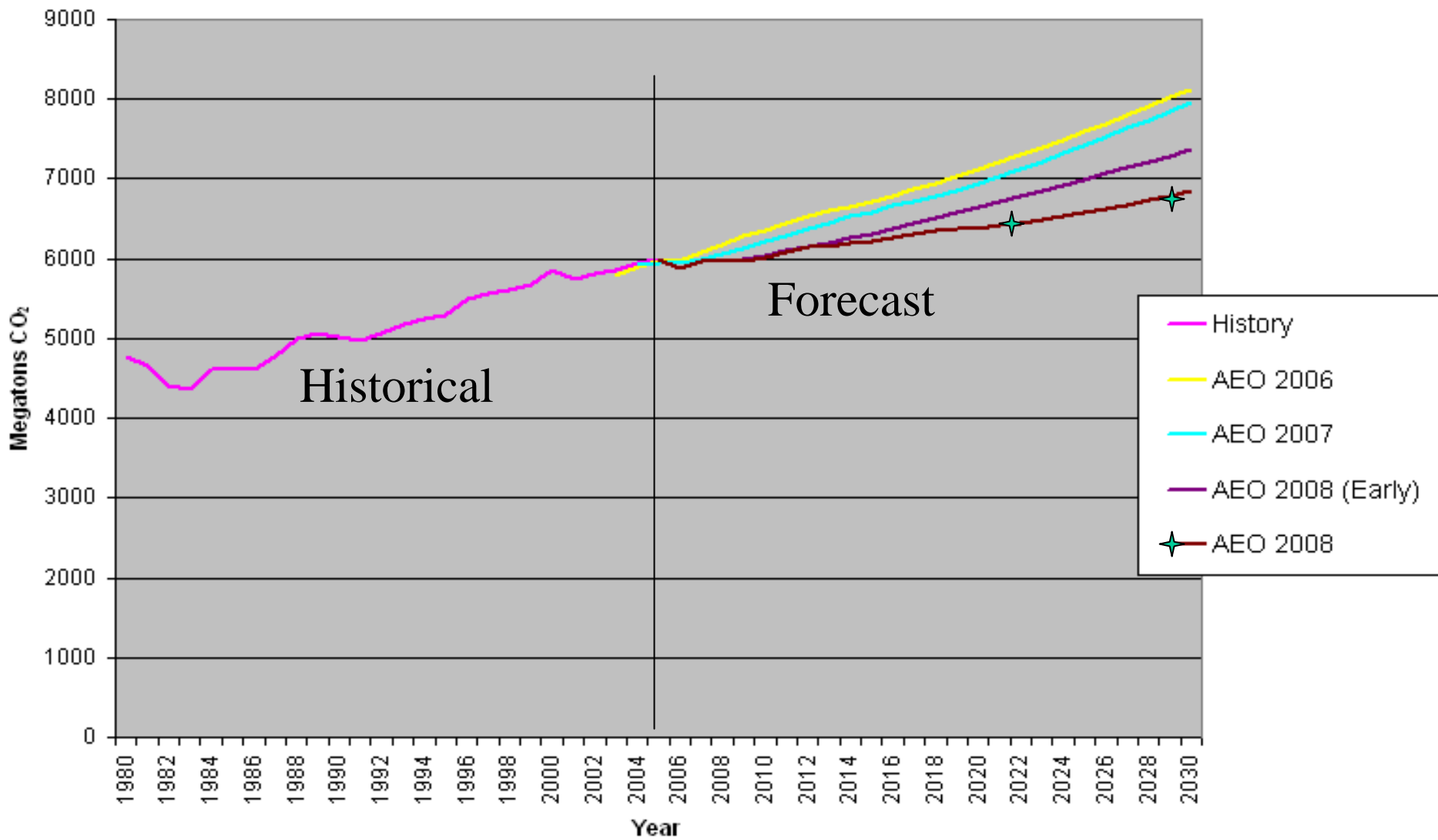


The Base Case

Analysis	Base Case Forecast
EPA	AEO 2006
CATF	AEO 2007
MIT	AEO 2007
ACCF/ NAM	AEO 2007 (with 2008 economic growth forecast)
EIA	AEO 2008
CRA	AEO 2008 (early release)

The Base Case Matters

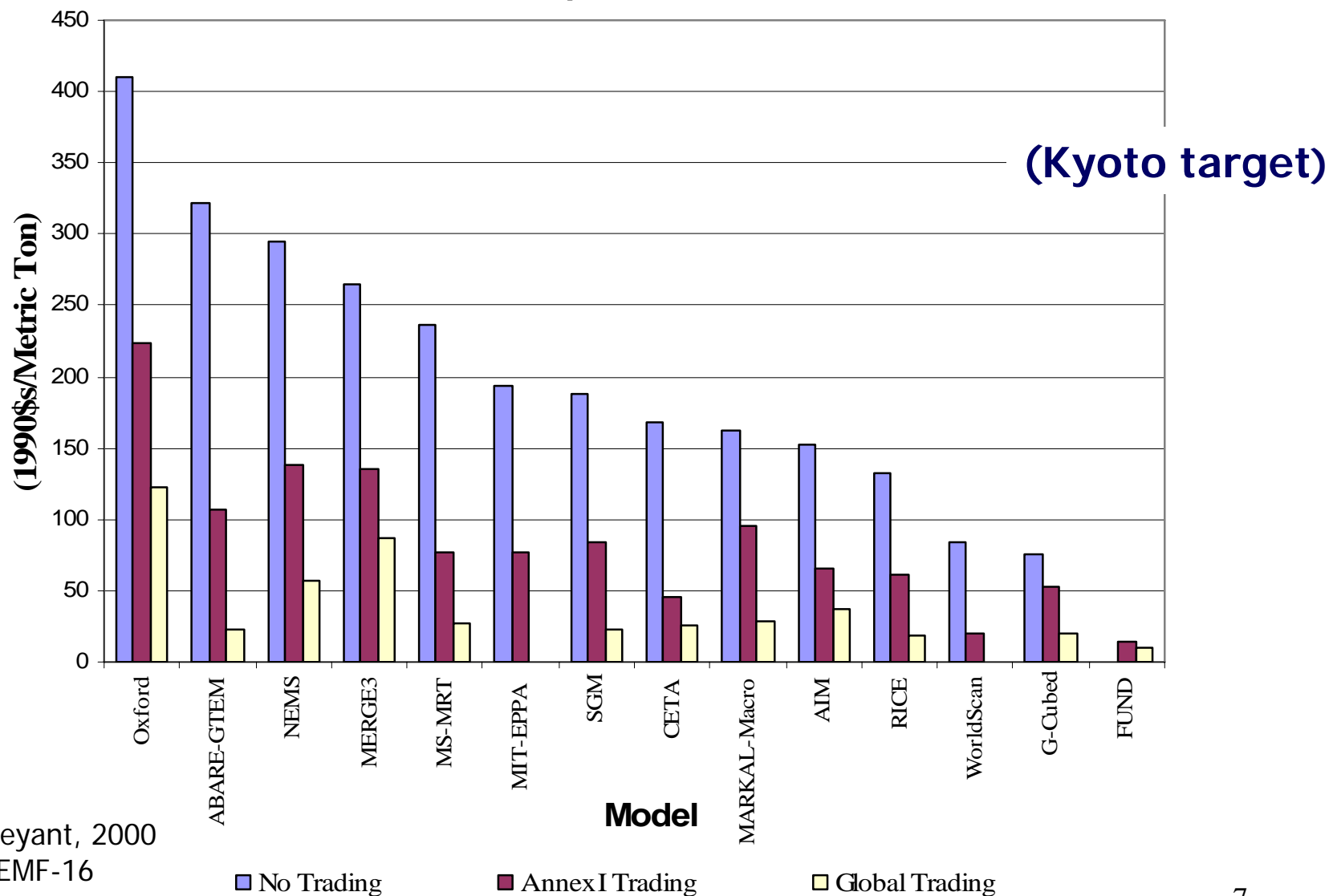
EIA CO₂ Emissions Projections



Flexibility of Options

Analysis	Offsets	Banking
EPA	15% domestic 15% international	Yes
CATF	15% domestic 15% international	Yes
MIT	15% domestic No international	Yes
ACCF/NAM	14% (high cost) 17% (low cost)	No
EIA	15% domestic 15% international	Yes
CRA	15% domestic No international	Yes/No

Policy Assumptions Matter



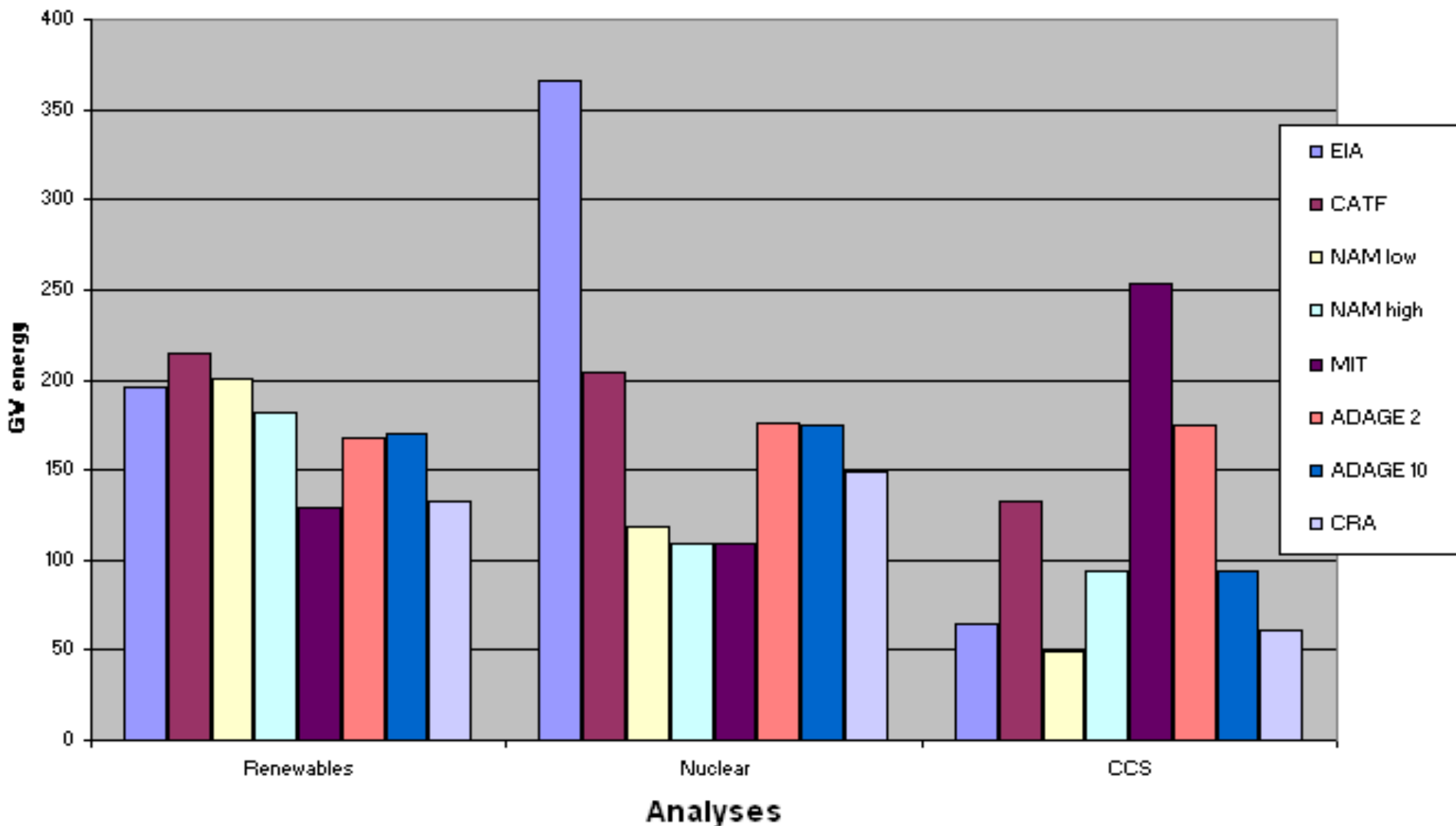
Source: Weyant, 2000
 (based on EMF-16
 results)

Analysis	Differences
EPA	No EISA or LCFS (but did use high tech. case to approximate EISA)
CATF	CAFE and Energy Efficiency Provisions (approximated with AEO best available technology case)
MIT	Separate HFC cap. No energy efficiency provisions
ACCF/NAM	Limited offsets and no banking (and high oil case)
EIA	EISA and Energy Efficiency Provisions (building codes, etc. LSE allocation)
CRA	RFS, CAFE and LCFS

- EIA very optimistic about nuclear deployment (266% growth from 2005 to 2030).
- MIT very optimistic about CCS deployment by 2030.
- ACCF/NAM, CRA and EIA more pessimistic about CCS deployment.

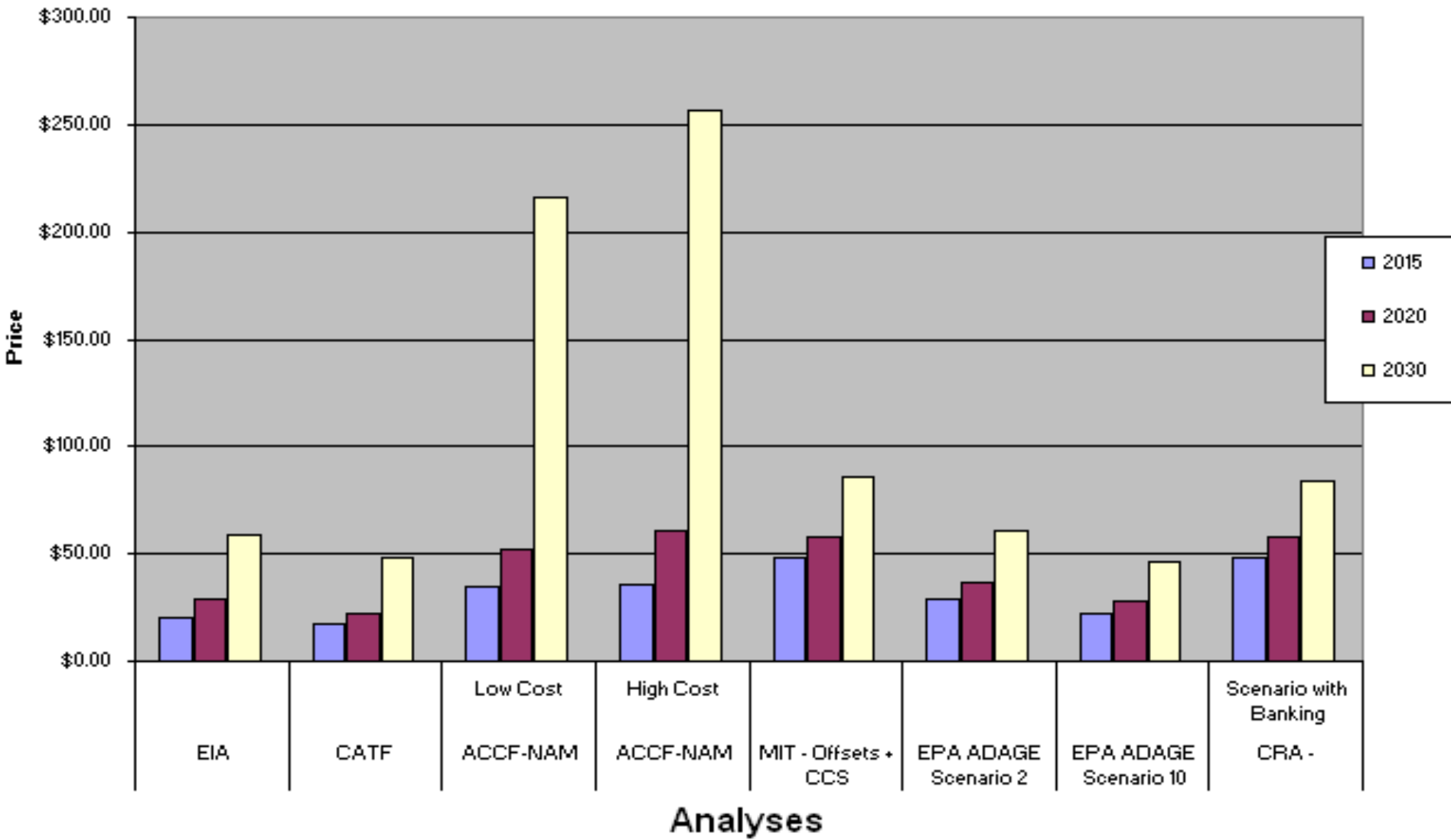
Energy Technology in 2030

GW Energy
2030

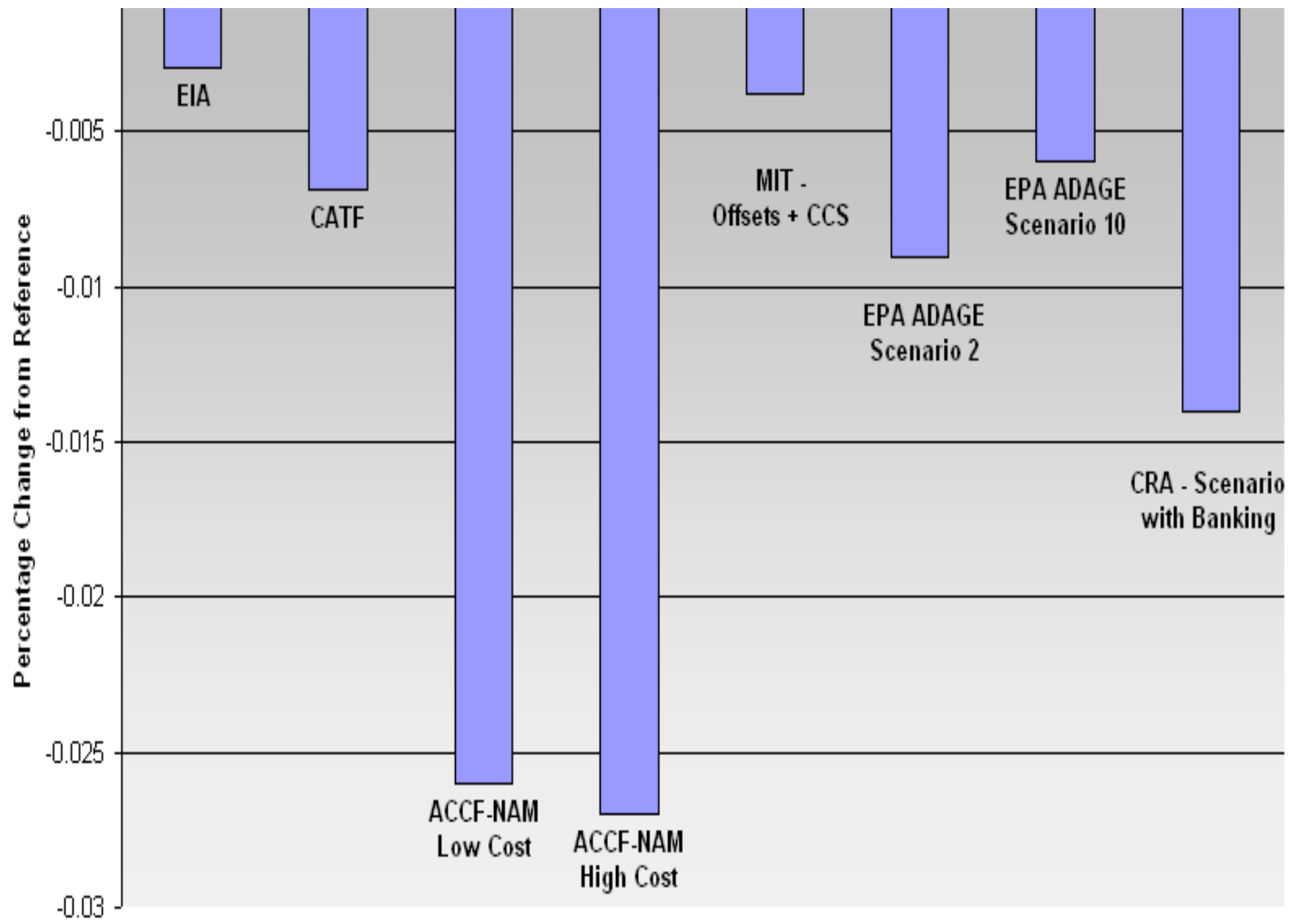


- Very uncertain.
- Very dependent on policy architecture/implementation.
- We can put some very rough bounds on cost estimates.
- We have some general insights into how to minimize costs.

L-W Allowance Prices

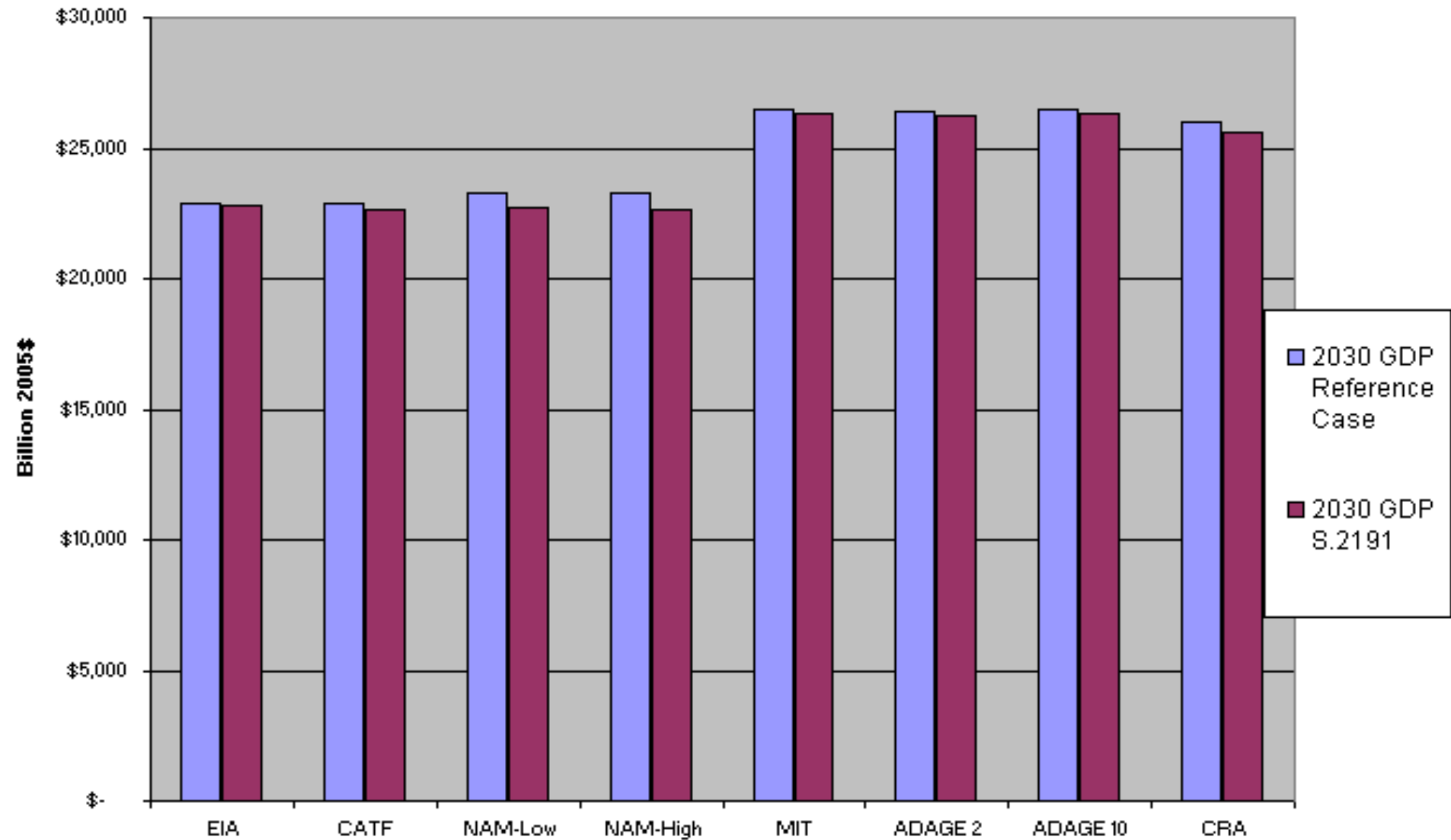


GDP Impacts (off growth) 2030



The Economy Still Grows

Projected 2030 GDP - Reference Case and S. 2191



- Very difficult to compare across models – these should not be interpreted as ranges. These are apples and oranges because they are all different analyses.
- **While there is considerable variation across models in terms of the likely price of allowances, where low carbon technology is allowed to develop and flexible policy is included, the costs are modest.**

- Organize our thinking
- Put very rough bound on costs
- Prioritize our efforts
- Identify policy and technology sensitivities (the drivers)
- Provide insights or benchmarks for “good” policies

Models are not crystal balls and are only as good as the assumptions, the structure, and the data allow.

- A broad-based advanced technology portfolio is critical to achieving climate goals at reasonable cost.
- A combination of price signal and policies for end use efficiency can reduce program costs by decreasing energy demand.
- Flexibility (banking and borrowing) can reduce costs.
- The more offsets in a program, the lower the costs.
- Some sectors will show greater opportunities for reductions in the short term.
- In the medium to longer term, CCS plays a large role.
- Under reasonable climate policy, the economy will still grow robustly.

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