

Regional Greenhouse Gas Initiative Analysis and Policy Making within a Multi-State Process

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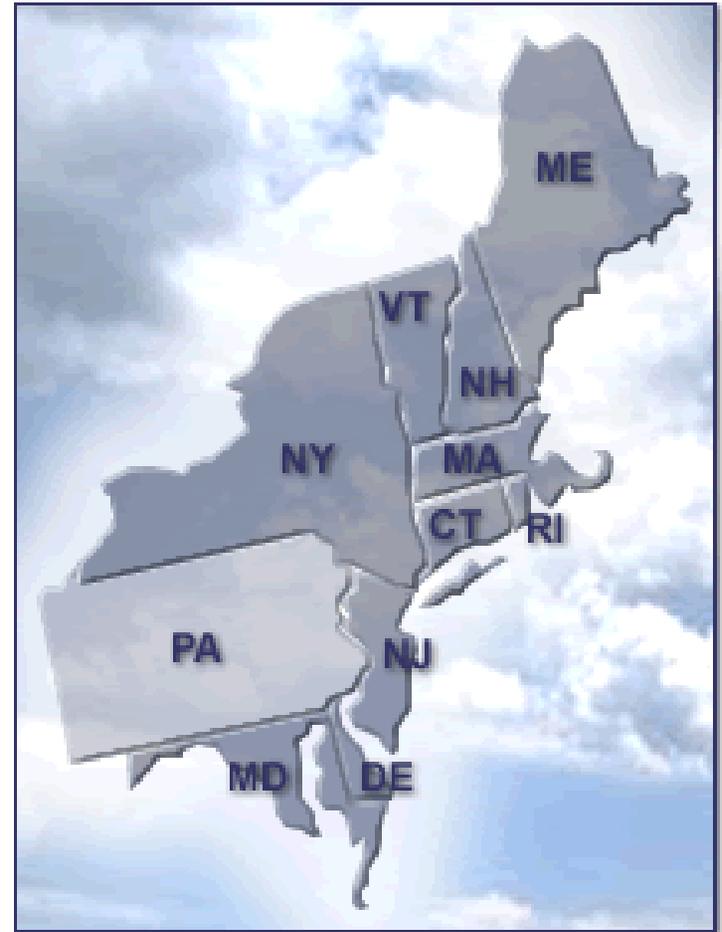
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Integrated Energy and Environmental Scenarios Session
Energy Collaborative Analysis Initiative
U.S. Department of Energy
Washington, DC
June 27-28, 2007



RGGI Overview

- 10 States have signed MOU (as of June 2007).
- Applicable to power plants >25 MW; compliance obligation begins in 2009.
- Stabilize CO2 emissions at current levels from 2009-2015; 10% reduction in emissions by 2019.
- Limited use of Offsets; expanded use if price triggers (\$7/ton and \$10/ton) are met.
- States must allocate/auction at least 25% of allowances for strategic energy or consumer benefit purposes.
- 3-year Compliance Period; unlimited banking.
- Comprehensive review in 2012.
- Model for national program.



RGGI – State Structure for Policy Development

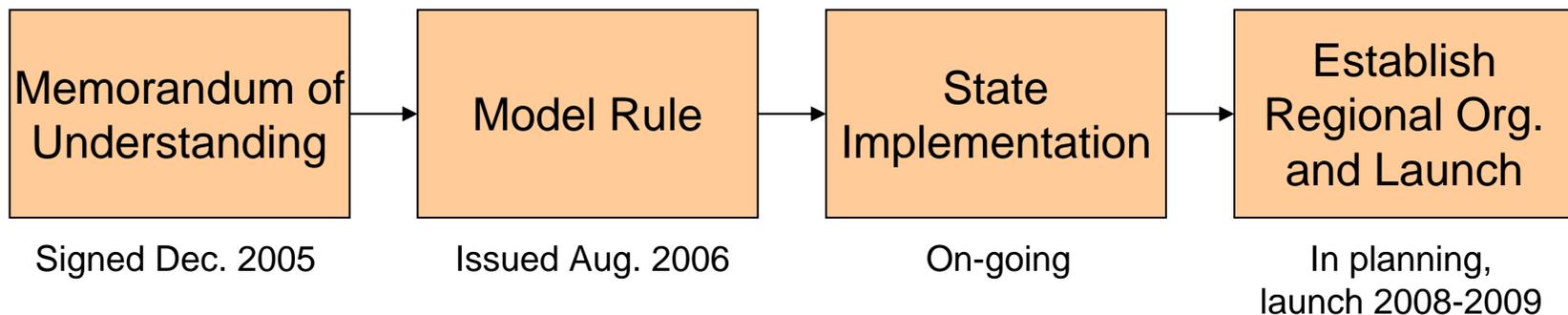
Representation

Each state is represented by Staff and Agency Heads from **Environmental** and **Energy** agencies.

Staff Working Group – Meets regularly, performs analysis, engages with stakeholders, provides design recommendations, prepares key policy issues for Agency Head decisions.

Agency Heads – Secretaries/Commissioners briefed regularly by SWG, meet 1-2/year for face-to-face negotiations leading to final program design, provide recommendation to Governor.

Process



Respective Roles/Perspectives of Environmental and Energy Agencies in RGGI

Environmental Agencies

- Climate Protection – meet State Climate Plan targets
- Regulatory oversight of emissions from Generation Units
- Experience in NO_x and SO₂ programs

Energy Agencies

- Assure electric system reliability
- Maintain affordable electric rates
- Enhance fuel diversity and reduce overdependence on natural gas
- Regulatory oversight of utility companies and rate structures (less and less oversight of generation units)
- Implement EE and RE programs



RGGI – External Participation

Regional Level

- Invited Expert Analysts
- Resource Panel
- Formal Stakeholder Group
- General Public
- Professional Facilitation (Stakeholder Meetings, Agency Heads Meetings)

State Level

- State Stakeholder Groups



Role of Modeling in RGGI Program Design

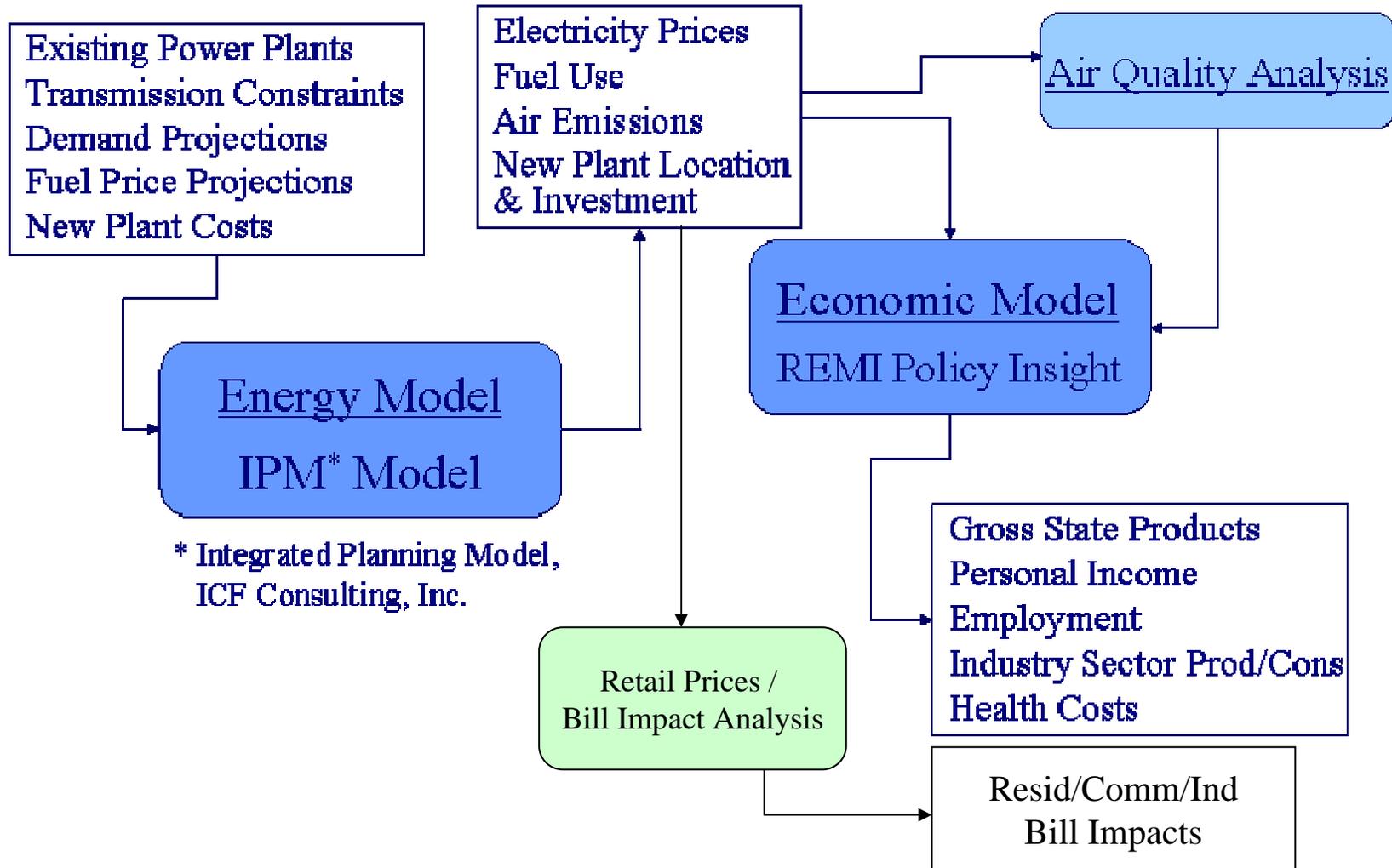
Cap and Trade program structure was established prior to analytical studies and modeling.

Modeling was not meant to drive program design, but to provide analytical basis for establishing design parameters and assessing impacts

As anticipated, though, modeling did become focal point for Stakeholders and Agency Heads on program support and design details.



Modeling Framework



Analytical Needs and Challenges

Key Design Parameters

Stringency of Cap

Use of Offsets

Investment in EE

Key Uncertainties

RE and EE Projections

Natural Gas Prices

New Coal Units in Region

Federal/Canadian Program

Key Output

Program Costs

CO₂ Allowance Prices

Wholesale Electric Rates

Retail Electric Rates

Consumer Bill Impacts

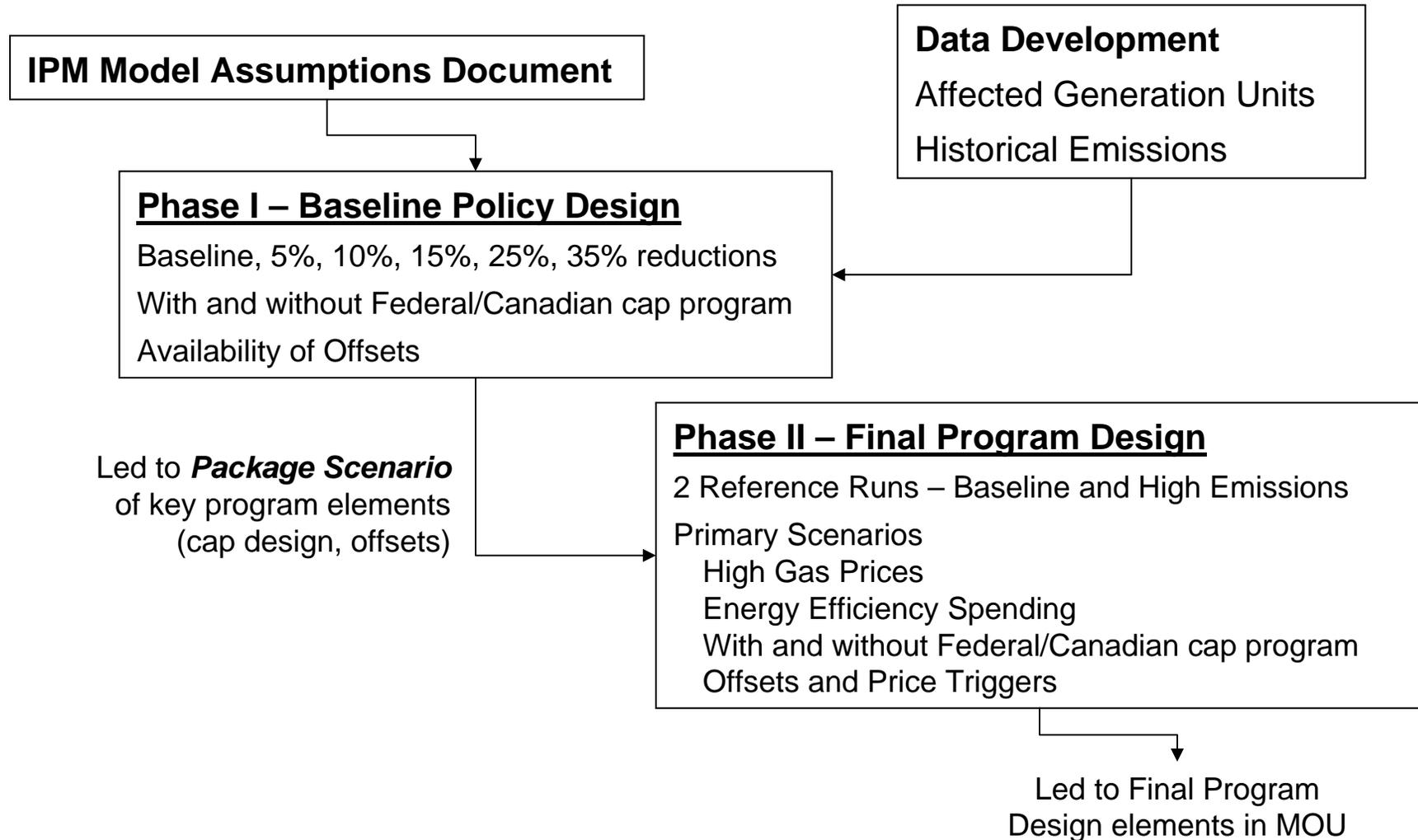
New Investment

Generation Fuel Mix

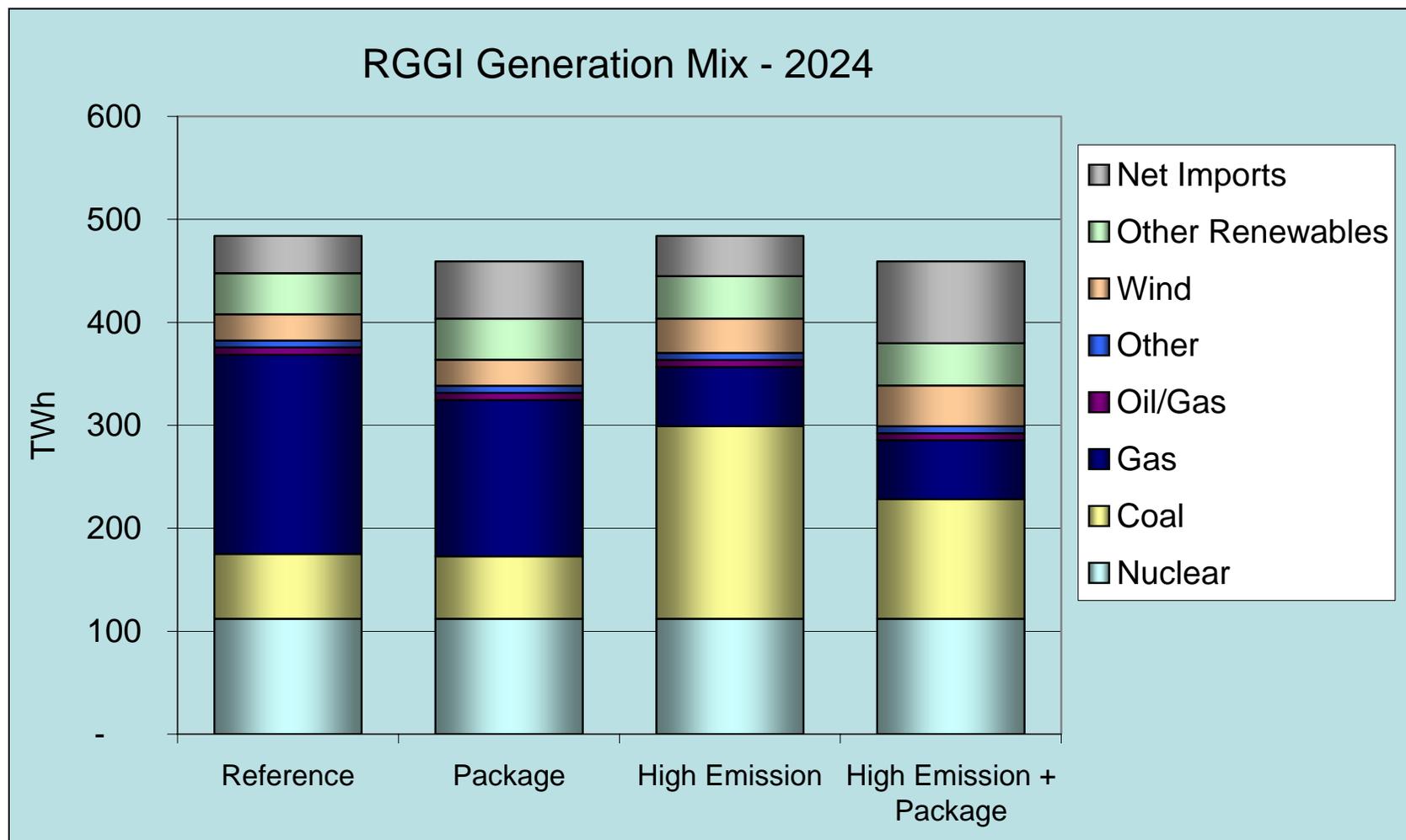
Leakage



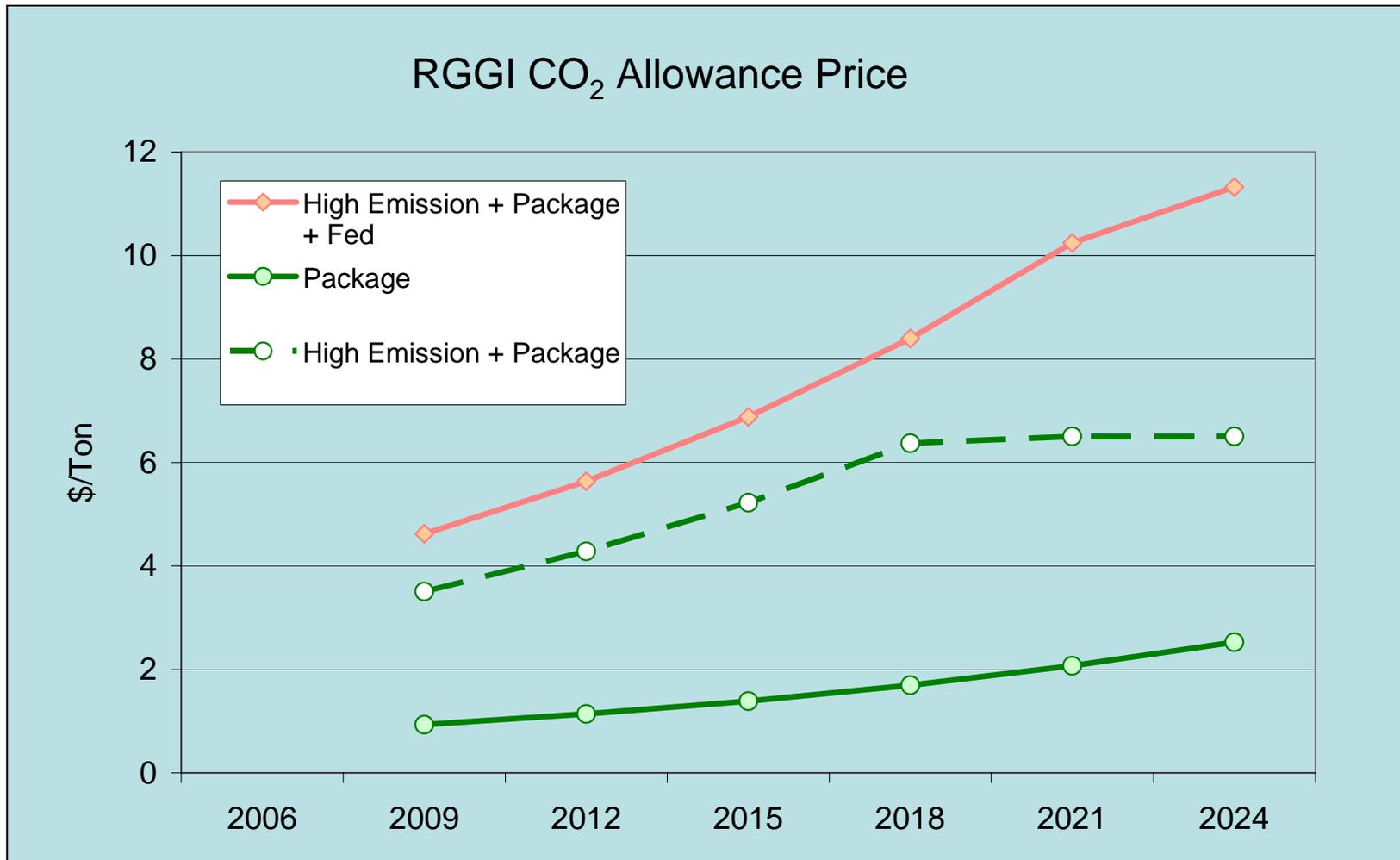
Modeling Process Leading to Policy Making



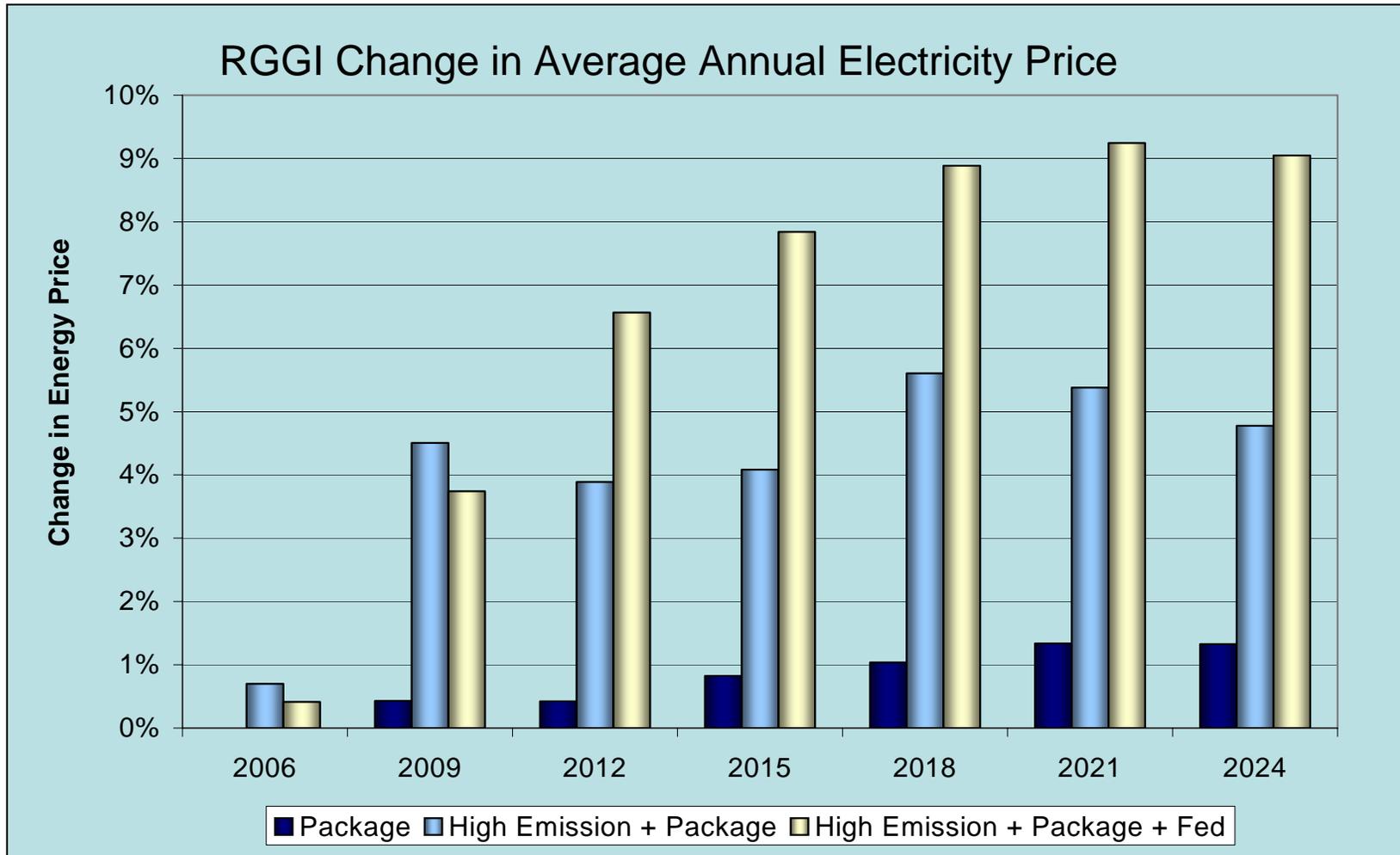
IPM Modeling – Sample Results



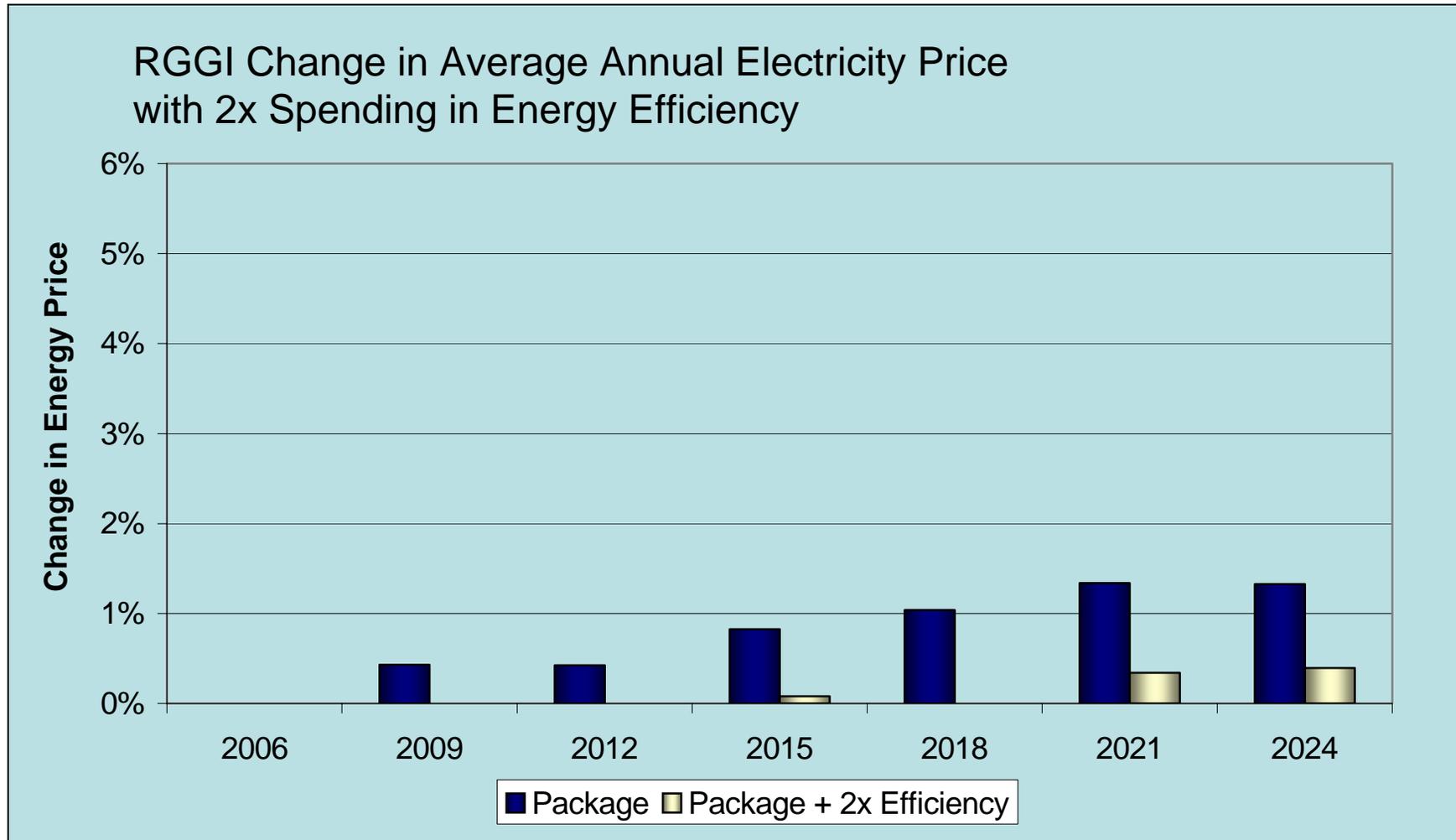
IPM Modeling – Sample Results



IPM Modeling – Sample Results

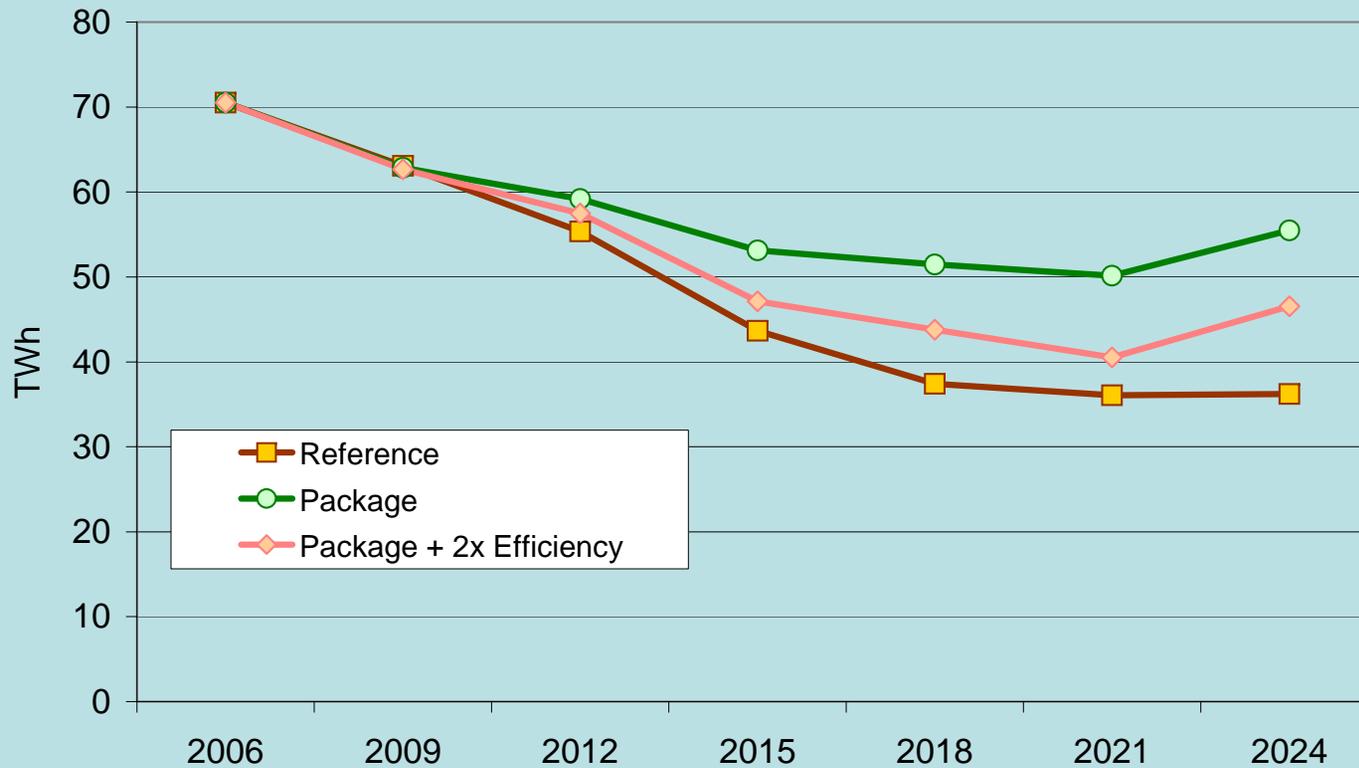


IPM Modeling – Sample Results



IPM Modeling – Sample Results

RGGI Change in Imports (Leakage)
with 2x Spending in Energy Efficiency



REMI Modeling – Sample Results

RGGI Regional Macroeconomic Impacts, % (relative to Std Ref Case)

Impacts on 9-State Region		2009	2015	2021
Package	Total GRP (Bil Fixed 96\$)	0.01%	0.01%	0.01%
	Real Pers Inc (Bil Fixed 96\$)	0.00%	0.01%	0.02%
	Private Sector Jobs	0.01%	0.02%	0.02%
Package w/ 2 x Efficiency	Total GRP (Bil Fixed 96\$)	0.04%	0.05%	0.06%
	Real Pers Inc (Bil Fixed 96\$)	0.01%	0.05%	0.09%
	Private Sector Jobs	0.05%	0.06%	0.08%
Package + CN-FED Policies	Total GRP (Bil Fixed 96\$)	-0.04%	0.07%	0.08%
	Real Pers Inc (Bil Fixed 96\$)	-0.07%	0.12%	0.13%
	Private Sector Jobs	-0.04%	0.10%	0.09%

Economic impacts of RGGI policies are small & generally positive – roughly one-hundredth to one-tenth of 1 percent.

The reported impact is the *change* in the growth that would have otherwise occurred in the “do nothing” forecast.



Bill Impact Analysis – Sample Results

RGGI Implied Annual Household Bill Changes

<u>Before</u> Energy Efficiency Savings	Household Bill Impact (\$/yr)		<u>After</u> Energy Efficiency Savings	Household Bill Impact (\$/yr)			
	2015	2021		Participating Households*		If all EE savings distributed equally across all households	
Direct Impact of RGGI due to retail price change	2015	2021	Impact of RGGI after assumed EE Programs resulting in reduction in household energy usage	2015	2021	2015	2021
Standard REF Case			Standard REF Case				
Package	2.90	5.45	Package	-92.54	-153.67	-30.51	-50.24
Package + Fed	36.84	45.99	Package + Fed	-61.95	-119.81	2.26	-12.04
Package + 2X EE	0.77	2.16	Package + 2X EE	-189.59	-314.99	-65.85	-108.84
Hi Emissions REF Case			Hi Emissions REF Case				
Package	16.02	22.44	Package	-86.15	-147.43	-19.74	-37.02
Package + Fed	31.93	38.04	Package + Fed	-71.60	-133.97	-4.31	-22.17

* Assumes 35% Participation rate across households reached over time



Resulting Policy Design Negotiations

Regional Commitment to Increase Energy Efficiency Investment

Require at least 20% of allowances to be auctioned and dedicate revenues to EE and other strategic energy activities.

Protection Against Unanticipated Program Costs

If allowance Price Triggers are hit, program flexibility measures are added (greater magnitude and geographical opportunity for offsets, extended compliance period).

Program and Leakage Monitoring and Review

In absence of federal program, modeling show leakage can threaten carbon mitigation and economic impacts. Leakage will be carefully monitored and formally reviewed in 2012.



Remaining Steps for 2009 Implementation

States Implementation of Model Rule

Each state must complete implementation of RGGI program through state legislation or regulation. Key discretionary program elements:

- Auction of allowances beyond 25% minimum
- Participation in regional auction
- Set aside of allowances for voluntary renewable energy market

Formation of RGGI Regional Organization

- Legal incorporation
- By-Laws and Representation by states
- Staffing and Budget

Offset Rules, Procedures, and Additional Categories

Design and Implement Regional Auction

Auction design study under way by contract research team (UVa, RFF, CalTech).
Research recommendations by fall 2007. Regional auction implementation by fall 2008.

Additional Modeling and Analysis

Emissions Leakage report completed in March 2007 (www.rggi.org/emisleak.htm).
Some states are pursuing additional analysis on their own (MD/Univ. of MD).



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