



Energy Efficiency's Role in Emerging Climate Policy and Energy Markets

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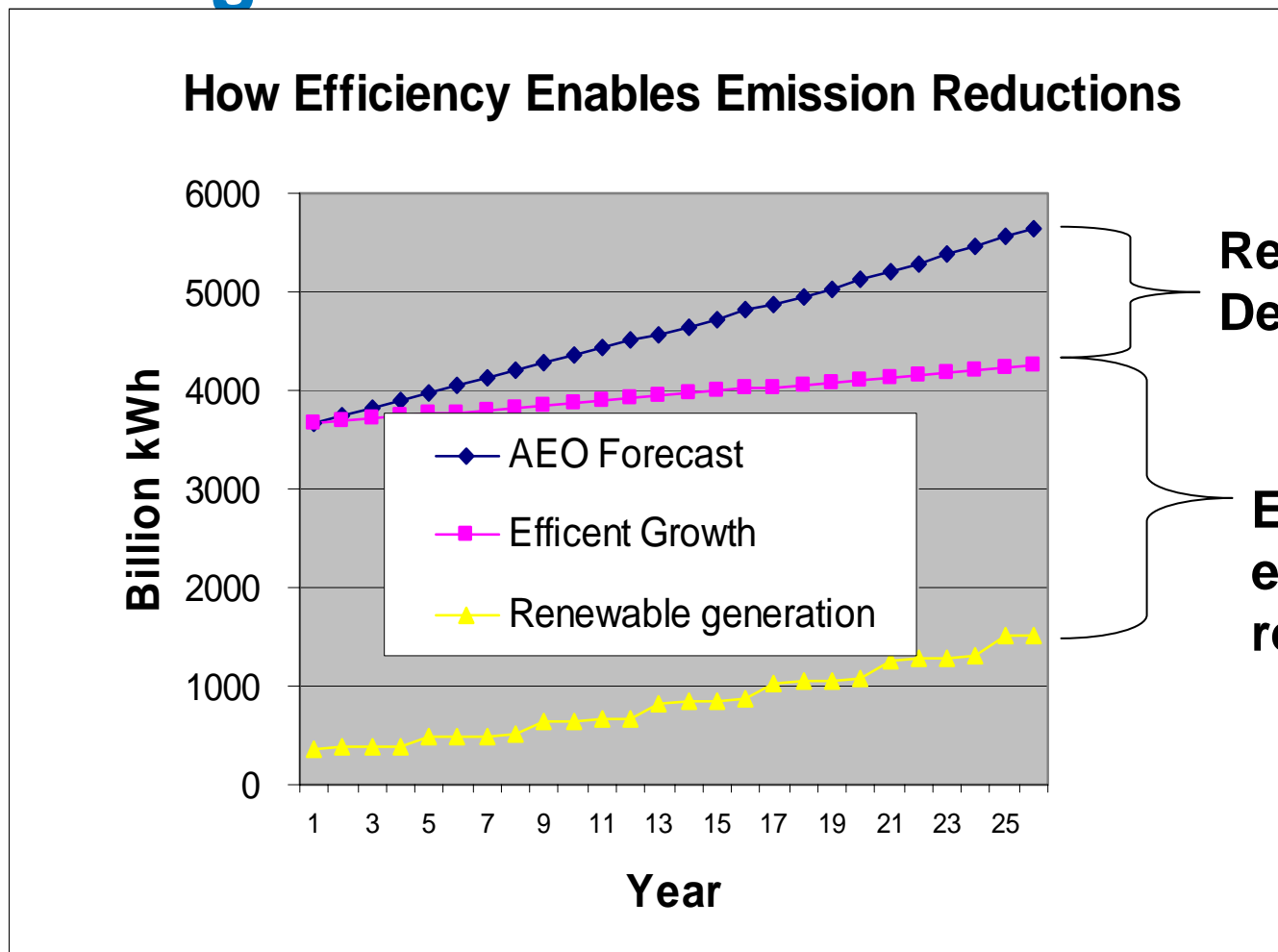
Overview

- The resource value of efficiency as a carbon emissions mitigation strategy
 - Scale and cost
 - Linkage to low-carbon supply strategies
 - Efficiency's cost-reduction benefits for climate policy
- Limitations of climate policy/cap-and-trade designs to capture efficiency directly
- Policy solutions that can make efficiency work in and beyond cap and trade systems
- Near-term energy markets implications

Scale and Cost of Efficiency

- Efficiency accounts for about half of CO₂ abatement technologies costing less than \$50/ton
- Most estimates converge on efficiency as having the economic potential to reduce forecast CO₂ emissions by 25% in a 2030 timeframe
 - Estimates vary based on sectors addressed, measure performance and cost assumptions, etc.
- The “negative cost” question: relative to a reference energy price
 - No resource is free, or easy to extract

Converging EE and Low-Carbon Supply Strategies



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Efficiency as Low-Carbon Strategy Enabler

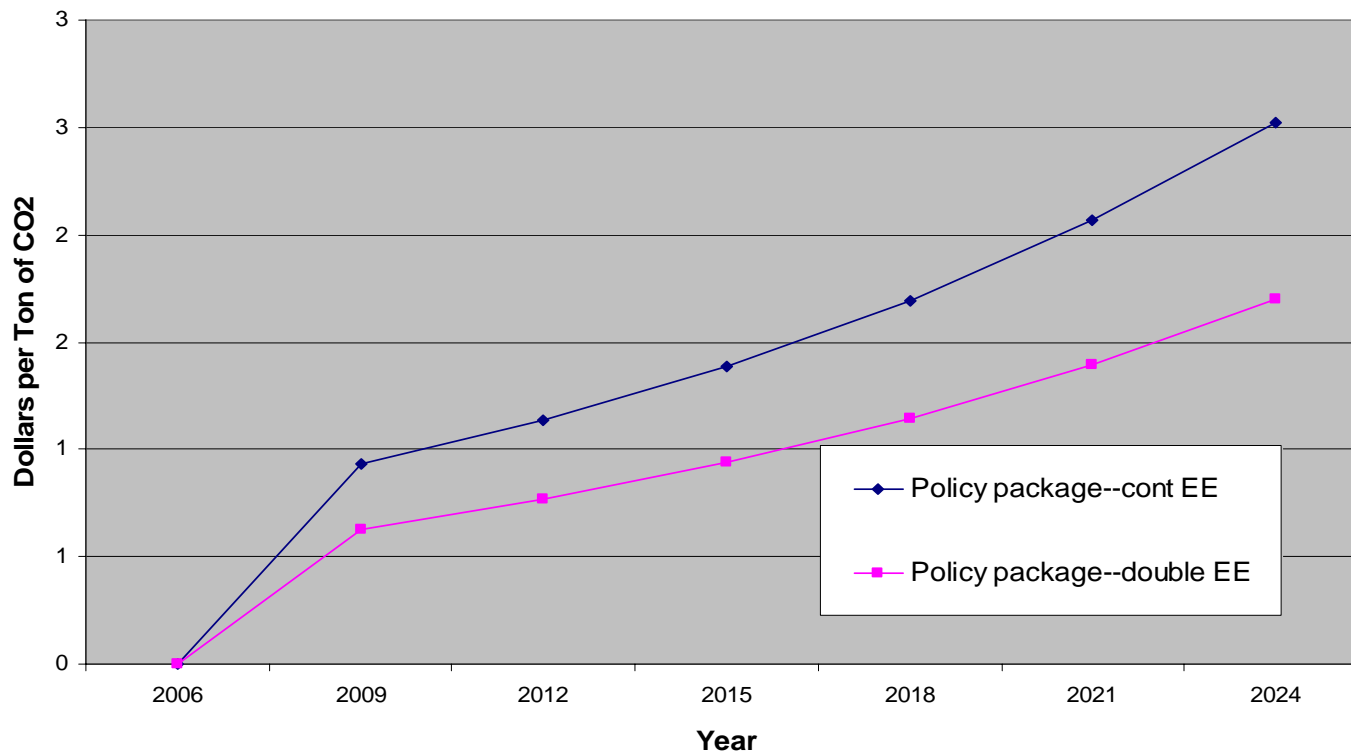
- Most low-carbon resource studies don't examine total emissions impact relative to demand growth
- Low-carbon resource deployment strategies typically don't overtake historical demand growth
- Moderating demand growth through efficiency enables low-carbon strategies to actually reduce total emissions

How EE Cuts Costs of Carbon Policy

- Reduces average abatement resource cost
 - Offsets higher-cost resources
- Reduces energy bills for direct participants
- Reduces wholesale energy prices and thus bills for all energy users
- Reduces carbon allowance prices
- Produces secondary and tertiary macroeconomic benefits
 - Income and employment gains

RGGI IPM Results: Carbon Prices

Carbon Allowance Prices



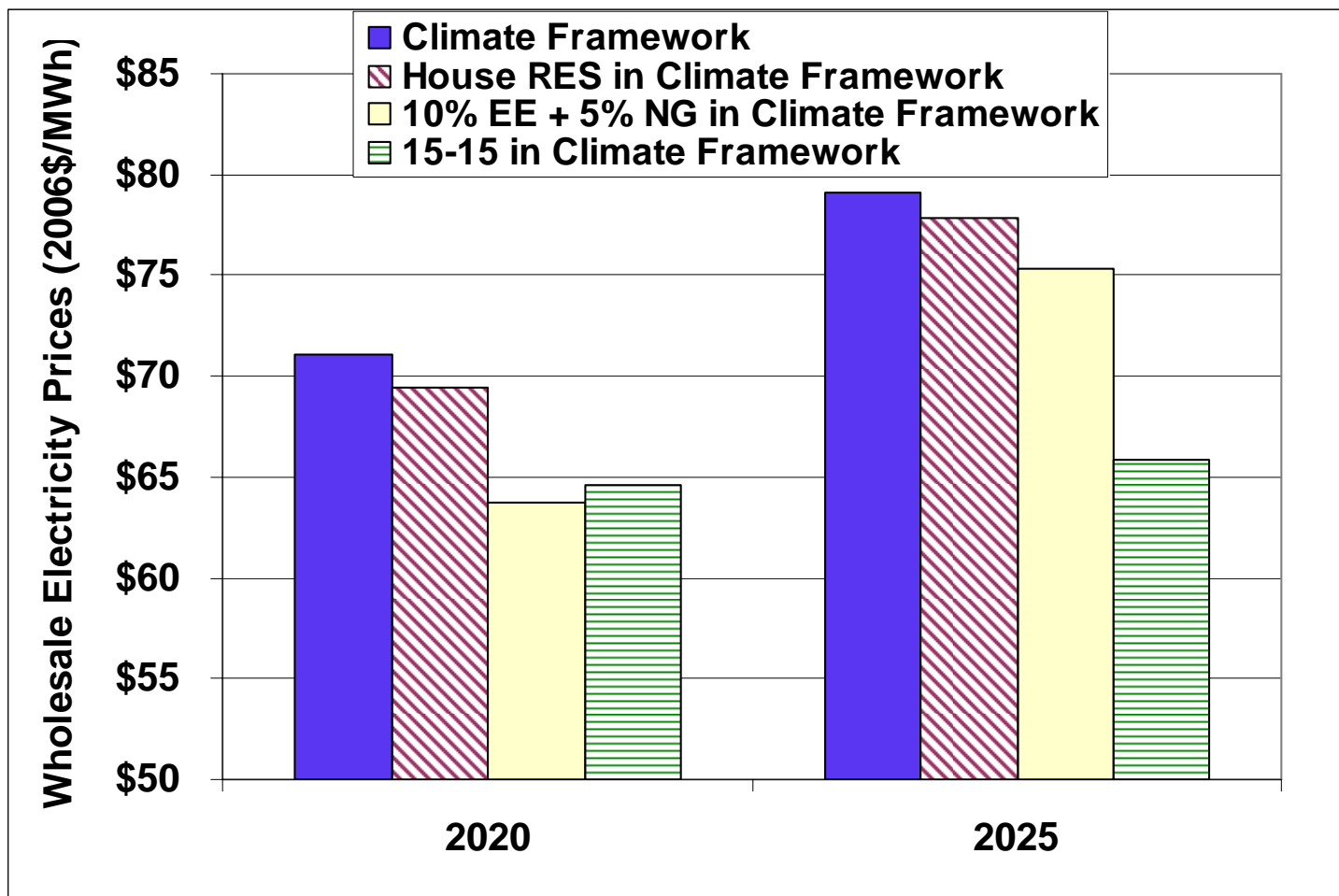
RGGI Results: Bill Impacts

Average Energy Bill Savings—RGGI Package with Doubled Efficiency					
Residential		Commercial		Industrial	
2015	2021	2015	2021	2015	2021
\$71	\$118	\$390	\$650	\$2468	\$4092
7.5%	12.4%	4.8%	8.1%	2.8%	4.7%

2007 House Energy Bill: RES and Energy Efficiency

- RES provision: 15% renewable electricity target by 2020 includes efficiency—can provide up to 27% of resource target
- ACEEE contracted with ICF to model impacts of House RES, and more aggressive targets (15% RE, 15% EE)
- ACEEE also asked ICF to model RES in a climate policy framework, akin to Lieberman-Warner

Electricity Prices: Climate Reference vs. RES/EERS Scenarios



Cap and Trade Alone Won't Drive Enough Efficiency Soon Enough

- Caps placed upstream block downstream emission reductions from trading markets
 - The indirect-reduction/double-counting problem
- Price elasticity effects of carbon prices are blunted by countervailing income and cross elasticities, and by market barriers
 - Principal-agent problem affects 50% of basic building energy use
 - Price effects of U.S. cap and trade system likely to be small in first years of the program
 - Greatest need and opportunity for efficiency is near term

Cap and Trade Policies Can Be Adapted to Better Mine Efficiency

- Allocation/auction policy
 - RGGI states auctioning 25%-100% of allowances, and using proceeds for EE
 - Current value estimated at over \$400 million
 - Some states showing tension between EE spending and rate relief
 - Congressional bills would auction some portion of allowances, stipulating some EE uses
 - Congressional bills make direct allocations to
 - States, with EE stipulations
 - Distribution utilities, with EE stipulations

Complementary Policies Can Support Cap and Trade Goals

- Utility Sector Efficiency Policies
 - 19 states have Energy Efficiency Resource Standards, including most RGGI states
 - EE part of RES standard in Waxman-Markey
 - States must manage cost recovery, rate impact, revenue stability, shareholder incentive issues
- Building codes
 - Congressional bills include building codes provision
 - ARRA requires 2009 IECC adoption
- Appliance standards
 - Standards and voluntary labeling continue to advance
 - Some states include codes and standards as part of EERS policies
- Federal allowance allocations can help pay for such policies

Future Markets for Efficiency

- Carbon markets
 - Compliance markets
 - covered entities' direct fuel savings
 - Distribution utilities DSM, IF the disco is a covered entity
 - Offset markets
 - Kyoto CDM, RGGI non-electric fuels—irrelevant in an all-sectors global market
 - Voluntary markets—CCX, etc.—future uncertain once economy-wide policies in place
 - Set-aside markets—historical precedent but few future prospects
 - Reverse auctions—provision in legislative discussion drafts, but no active plans

Future Markets for Efficiency

- Energy markets
 - Allowance allocation proceeds markets
 - Direct program funding—RGGI states using most allowance funds for EE; Waxman-Markey requires gas LDCS to spend >1/3 of allowance value on EE
 - Third-party credit markets—allowance recipients would have to create
 - EERS compliance markets
 - CT and NV RPS rules allow third-party credits from EE projects
 - EU EERS use credits in a few countries
 - Waxman-Markey RES would allow third-party credits, but not trading

Summary

- Efficiency holds substantial resource value for reducing carbon emissions, enabling low-carbon supply strategies, and reducing the cost of carbon policy
- Efficiency will not be engaged effectively in traditional cap-and-trade emission reduction policies
- Policy and program solutions can work within carbon policies, and as complementary energy policies, to drive efficiency investment
- Efficiency may be engaged in carbon markets, but only under policy-defined conditions, and is more likely to be engaged in complementary energy policies

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