Scoring and Assessing Policy Proposals

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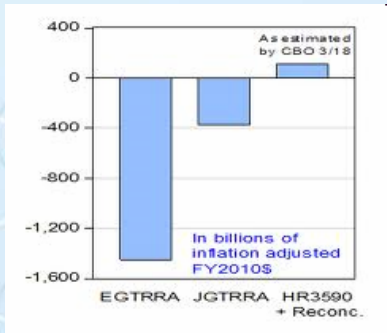
ACEEE Policy & Analysis Conference

December 2010



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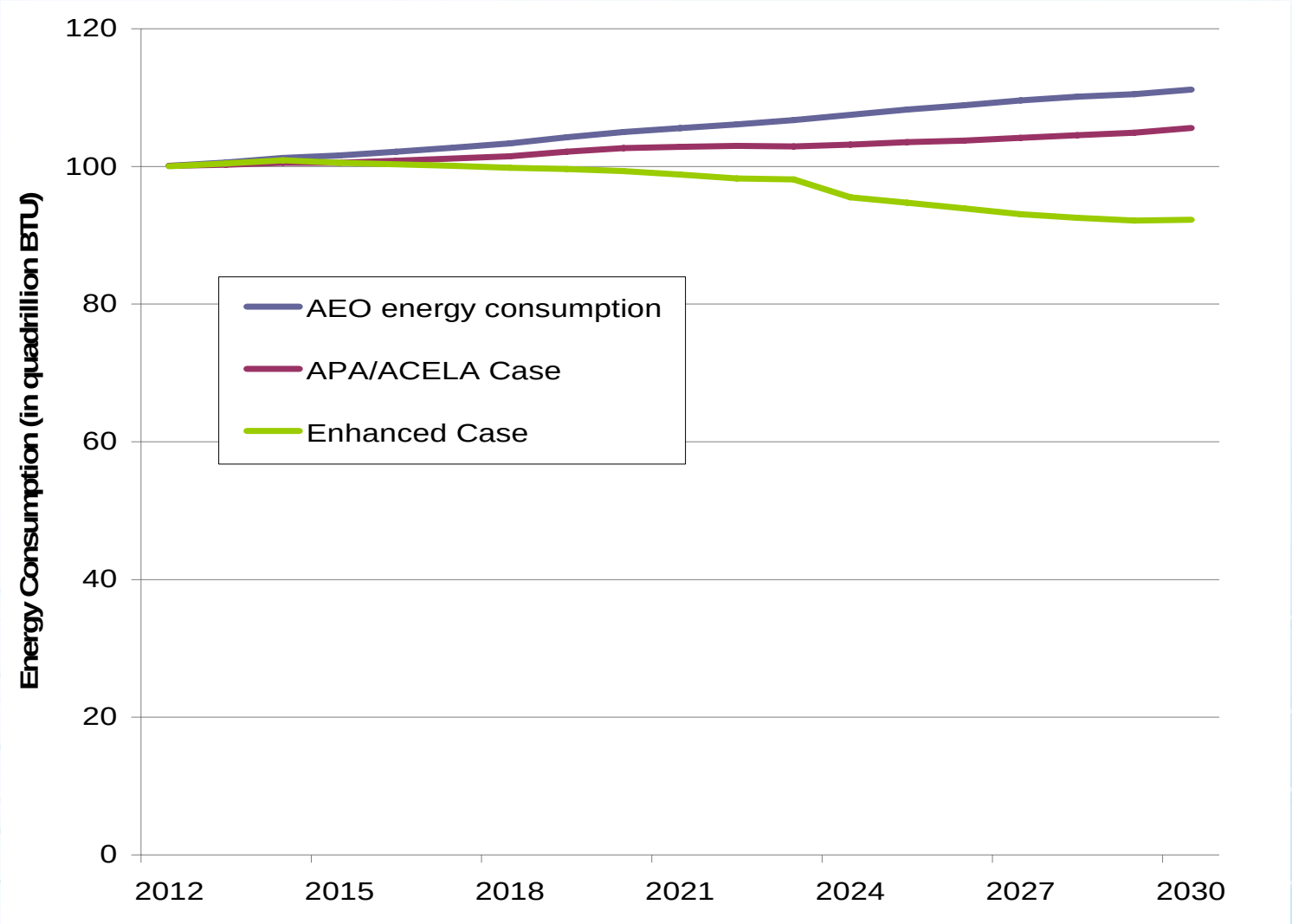
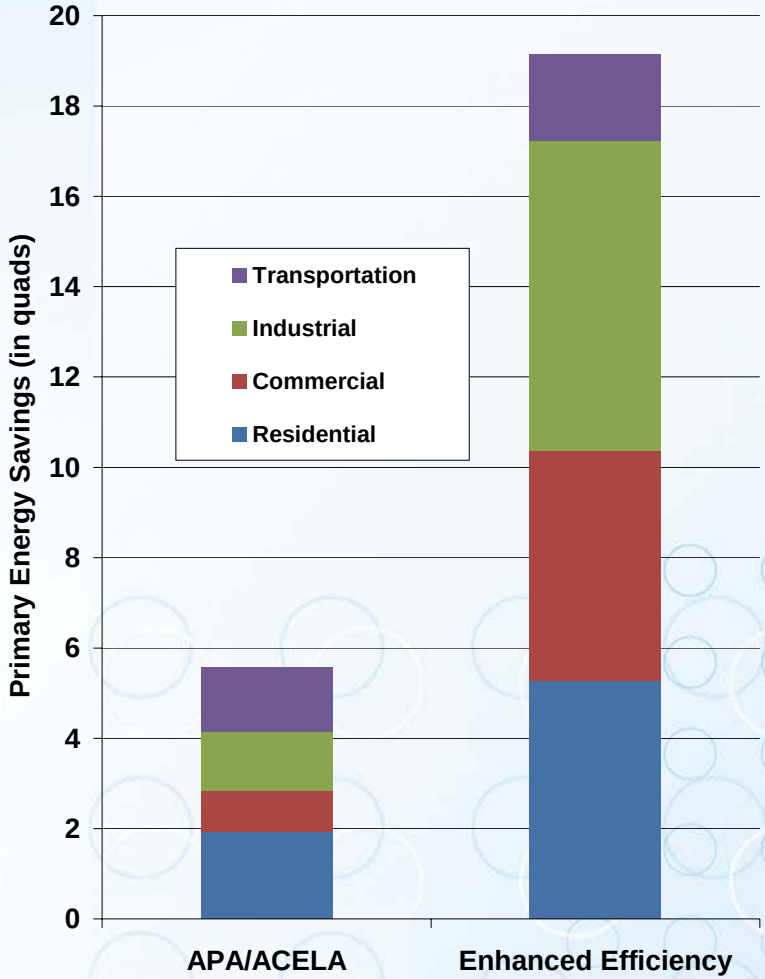
Scoring of Proposals

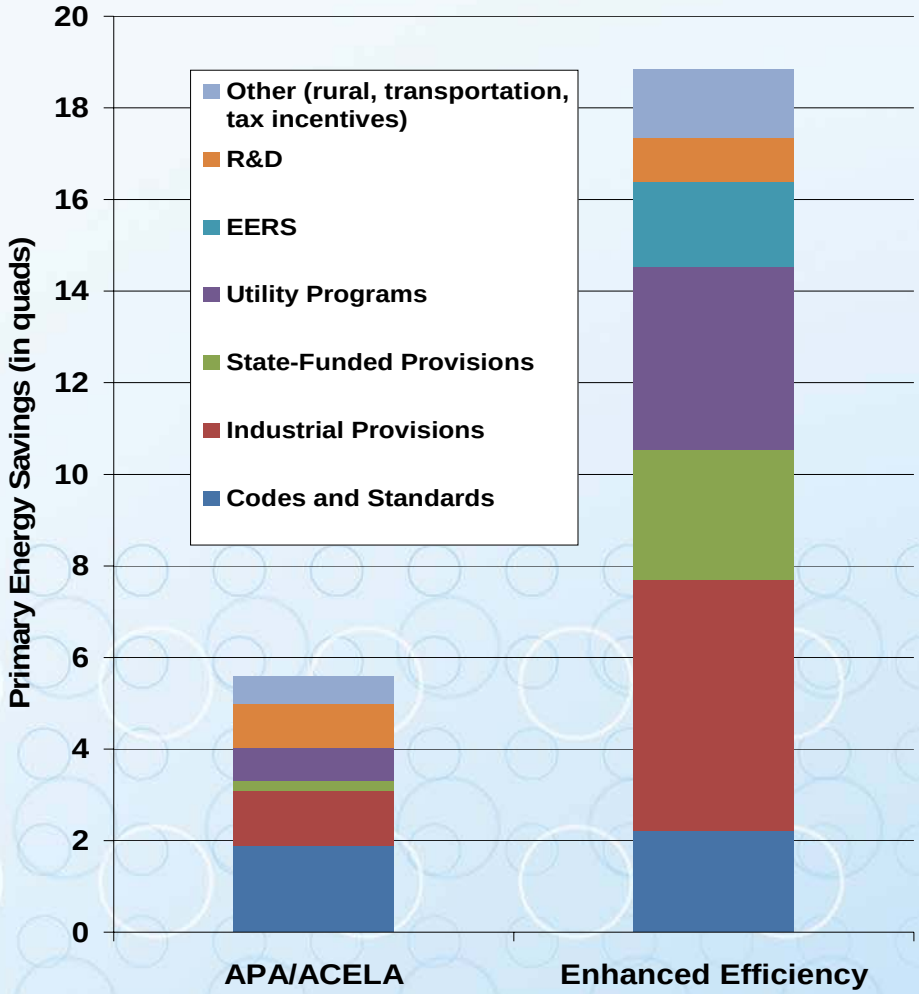
- Estimate costs
  - To federal government
  - Overall
- Estimate benefits
  - Energy savings
  - Peak demand impacts
  - Emissions impacts
  - Direct economic impacts
- Impact on economy
  - Jobs
  - GDP

Primary Energy Use in EIA Reference Case and Direct Savings from the APA+ACELA and Enhanced Cases



Proportion of Energy Savings from Major Energy Efficiency Provision Categories & End-Use Sector in APA+ACELA and with Enhanced Provisions in 2030





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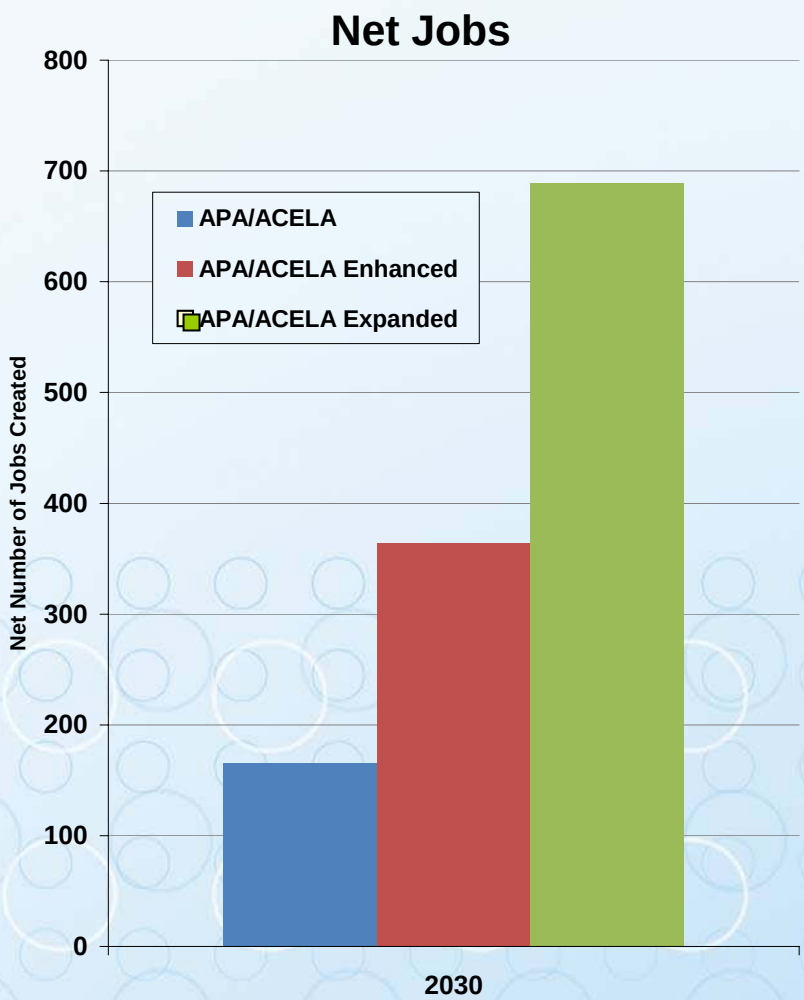
Net Annual Consumer Savings per Household and Net Jobs Created in 2030



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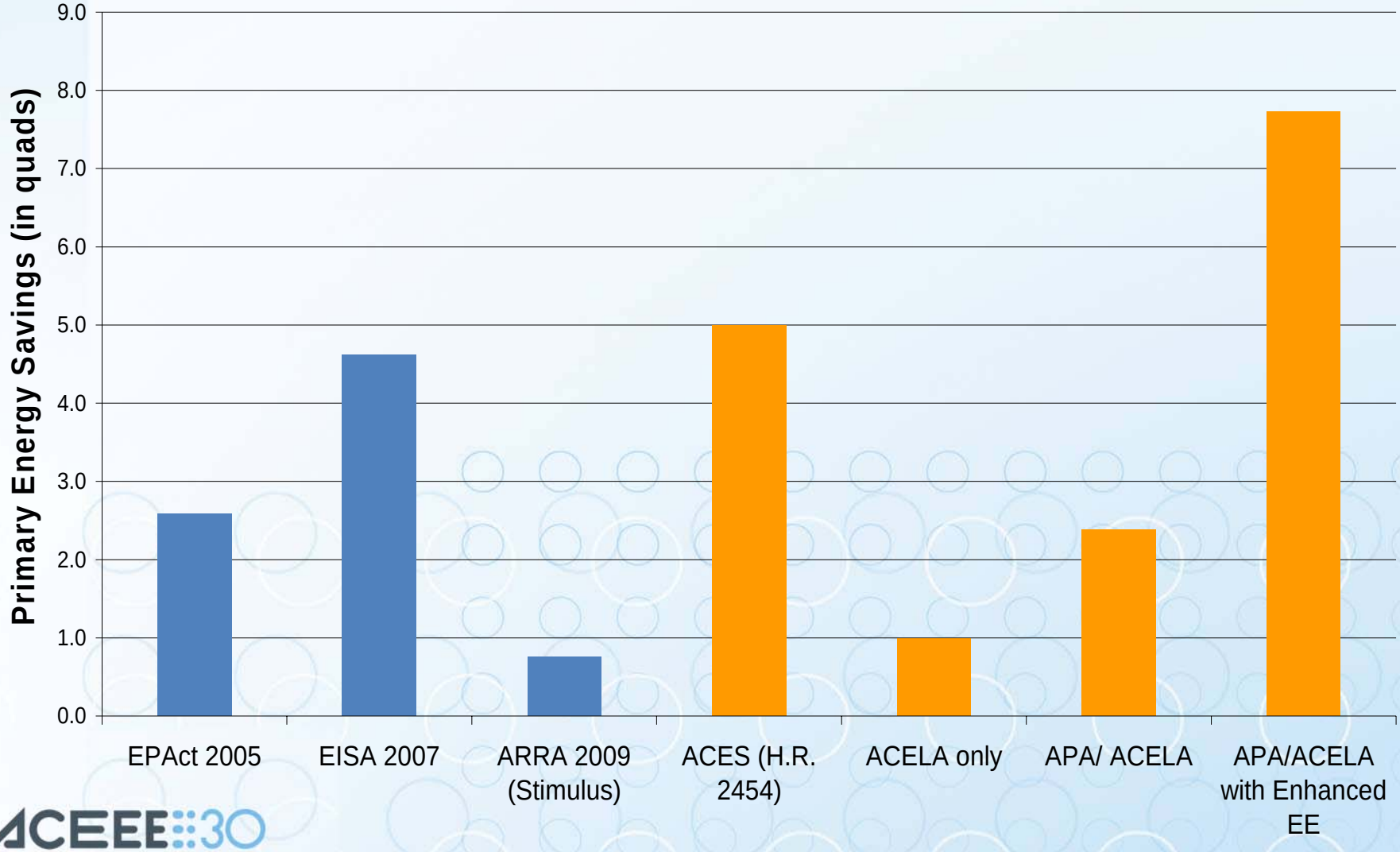
Potential Energy Savings in 2020 from Federal Energy Legislation 2005–2010



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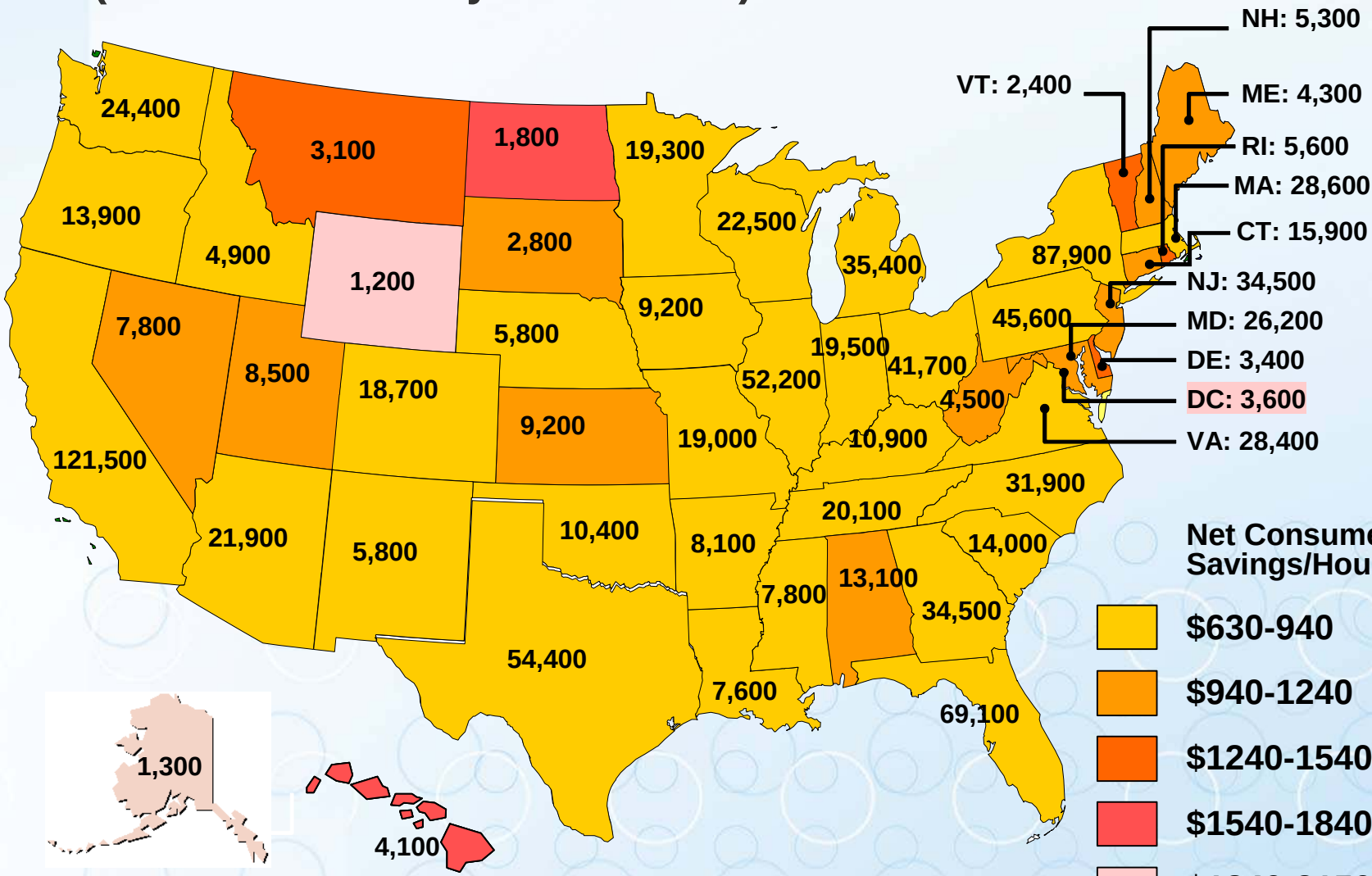
Jobs & Savings in Every State

(from ACEEE analysis of ACES)



Total Jobs: 1,035,500

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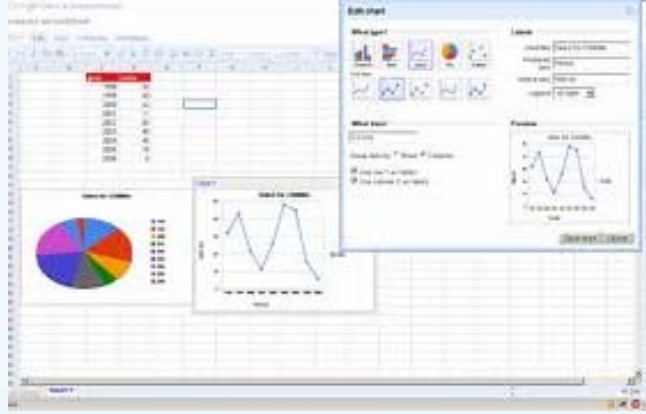
ACEEE Analysis of Federal Bills

- Use EIA's most recent AEO as foundation, including energy prices; allowance revenues from EPA
- Provision by provision spreadsheet analysis estimating 2020 and 2030 energy savings
- Emissions and peak demand savings based on national average emissions and peak demand per kWh and therm
- Jobs and economic impacts based on multi-sector input-output analysis
- National level analysis, allocated to states

ACEEE Analysis



- Spreadsheet models
- Transparent -- document assumptions and make explicit
- Either a range or estimate mid-point of range
- Subject to substantial uncertainty
  - Round
  - Qualify

Sample – Energy Savings from Refrigerator Standards

13.8m sold/year (DOE est. for 2020)

X 527 kWh/year base case (DOE)

X 24% avg. savings (AHAM agreement)

X (1-16%) that will meet anyway (ACEEE est. considering Energy Star mkt. share)

X 15.5 years of sales affected 2014-2030

= 24.4 billion kWh saved in 2030

(slightly different from above due to rounding)

Thorny Issues

- How to score an authorization? Will Congress appropriate money?
  - Can do range from low to high
  - Midpoint tricky
- Extrapolating from limited field experience to the nation
- Assumptions about program quality – will they use best practices or not?

Use of Analyses

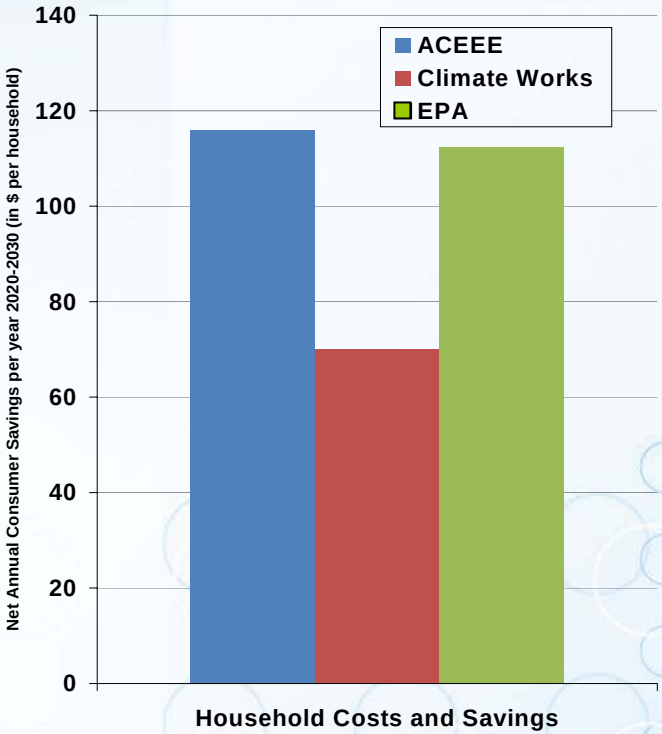
Provide information to policy-makers

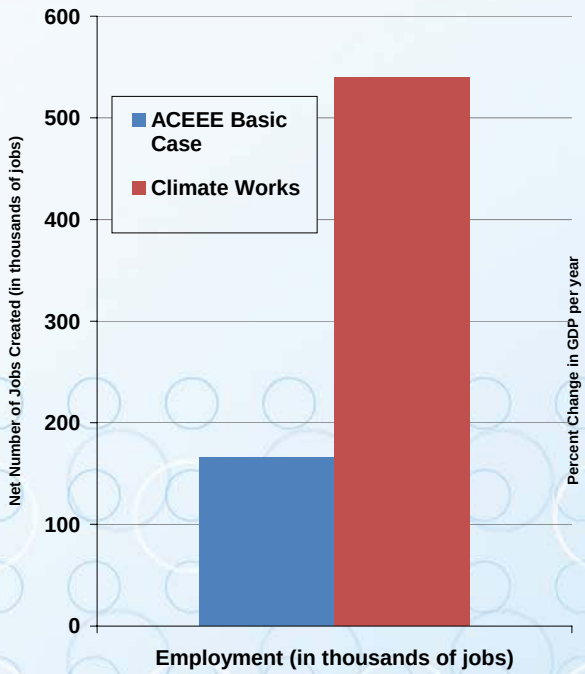
- Want estimates of energy savings, jobs, power plants saved, economics, emissions reductions,
- What are the benefits?

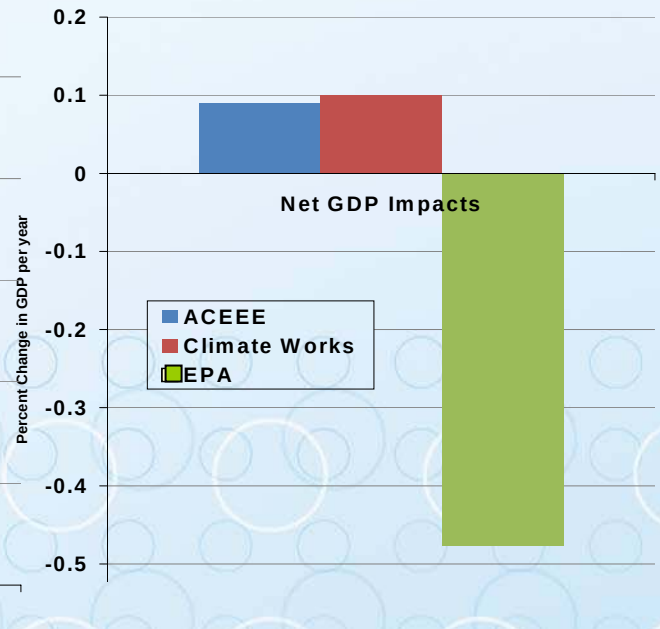
Comparative analysis

- What is most effective
- What is best use of limited money

Comparison of ACEEE, EPA and Climate Works Analyses of APA/ACELA







Note: these represent the averages in 2020 and 2030 from the studies mentioned above. Different studies present the results in different ways.

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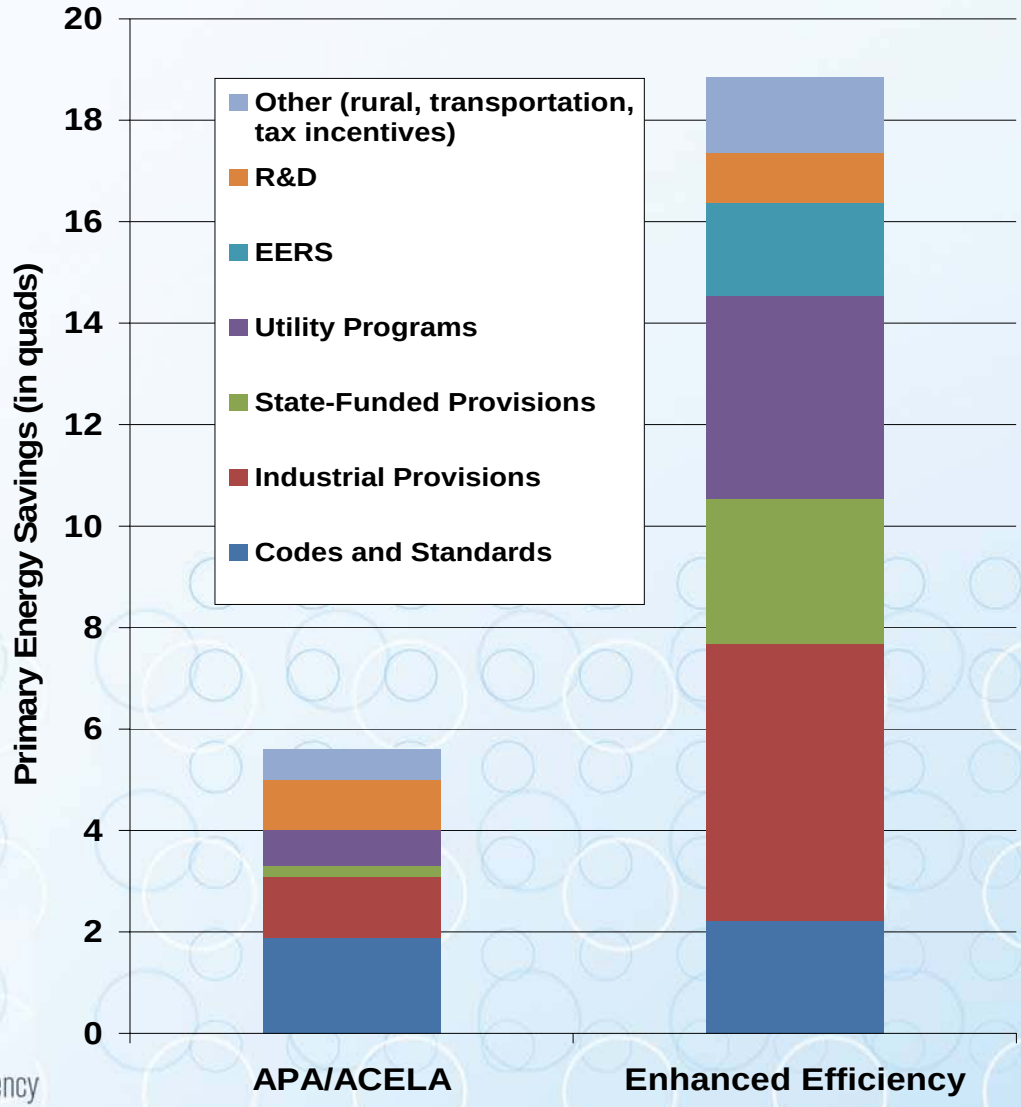
Proportion of Energy Savings from Major Energy Efficiency Provision Categories & End-Use Sector in APA+ACELA and with Enhanced Provisions in 2030



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Relative Impacts of Different Efficiency Tax Incentives

Item	Federal $/ Lifetime mBtu	Rank	Market transformation effect?
Increasing commercial building deduction	0.21	1	Large
CHP -- increase credit size and remove size cap	0.47	2	Small
New homes -- extend current credit	0.56	3	Large
New homes -- 50% whole home savings	0.75	4	Large
Advanced motors	0.79	5	Large
Windows -- $25 per window for Energy Star	1.34	9	Medium
Replace CFC chillers	1.51	6	No
Whole house retrofits	2.33	7	Medium
Appliances	2.38	8	Large
AC and HP -- $1000 incentive w duct sealing	2.39	12	Medium
Attic insulation	2.70	10	Low
Wall insulation	3.20	11	Low
AC and HP -- up to $1500 incentive w duct seal	3.23	15	Medium
Furnaces -- $1000 incentive w duct sealing	3.31	13	Medium
Attic insulation plus attic air sealing	3.60	16	Low
Furnaces -- up to $1500 incentive w duct sealing	3.97	17	Medium
Water heaters -- $500 incentive	4.49	14	Large
Water heaters -- $750 incentive	4.99	19	Large
Fuel switching oil to natural gas	5.85	16	No
Water heaters -- up to $1000 incentive	5.99	21	Large
Water heaters -- current incentive	5.99	21	Large
Windows -- current incentive	6.41	18	Medium
AC and HP -- current incentive	9.91	20	Medium
Furnaces -- current incentive	18.73	22	Medium

Improving Data Underlying Analysis

- Larger and more frequent RECS, CBECS, MECS
- Restoring transportation data surveys
- Better correlation between AEO, AER and consumption surveys
- Better data on avoided emissions, load shapes

Conclusions

- Scoring policy proposals makes it easier for policy-makers to understand proposals, make decisions
- Both science and art
  - Subject to uncertainty
  - Make assumptions explicit
- Improved data would help

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