Missed Opportunities: The Impact of Recent Policies on Energy Efficiency Programs in Midwestern States

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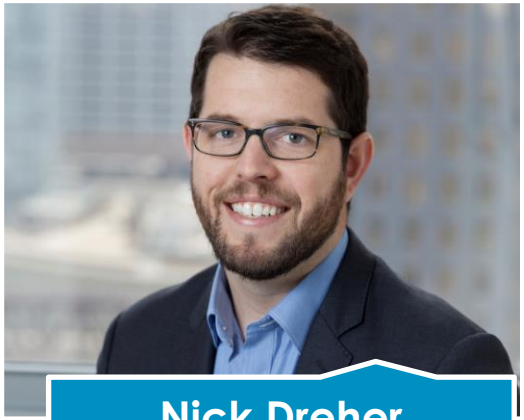
MIDWEST ENERGY EFFICIENCY ALLIANCE

MEEA Policy Webinar

November 4, 2021

Introduction



Nick Dreher
Policy Director

- Welcome to today's webinar.
- This webinar is being recorded & will be distributed to attendees
- Please ask questions in the Q&A box and we will answer as many as possible at the end of the presentation

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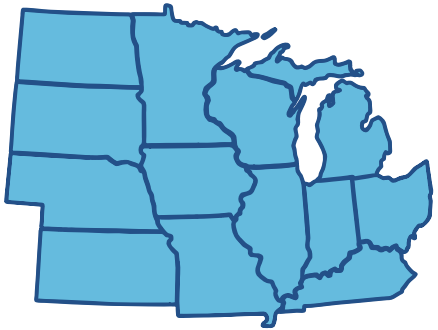
Midwest Energy Efficiency Alliance

MEEA



At MEEA, we leverage our unique position as the **Midwest's trusted resource on energy efficiency policy and programs** to help identify, understand, and implement cost-effective strategies that provide economic and environmental benefits.

MEEA is a non-profit membership organization with 160+ members, including:

Electric & gas utilities

State & local governments

Academic & Research institutions

Energy service companies & contractors

Introduction: State Policy Scenarios

Overview of the state policy decisions that were explored in this study

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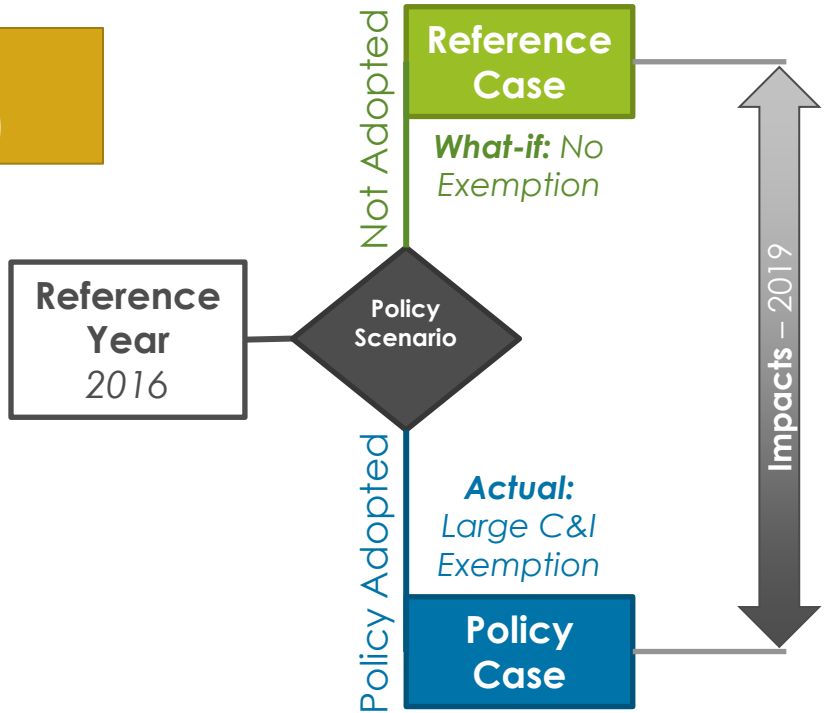
Missed Opportunities for EE in the Midwest

Illinois – Adopted Regressive Policy – Industrial Exemption

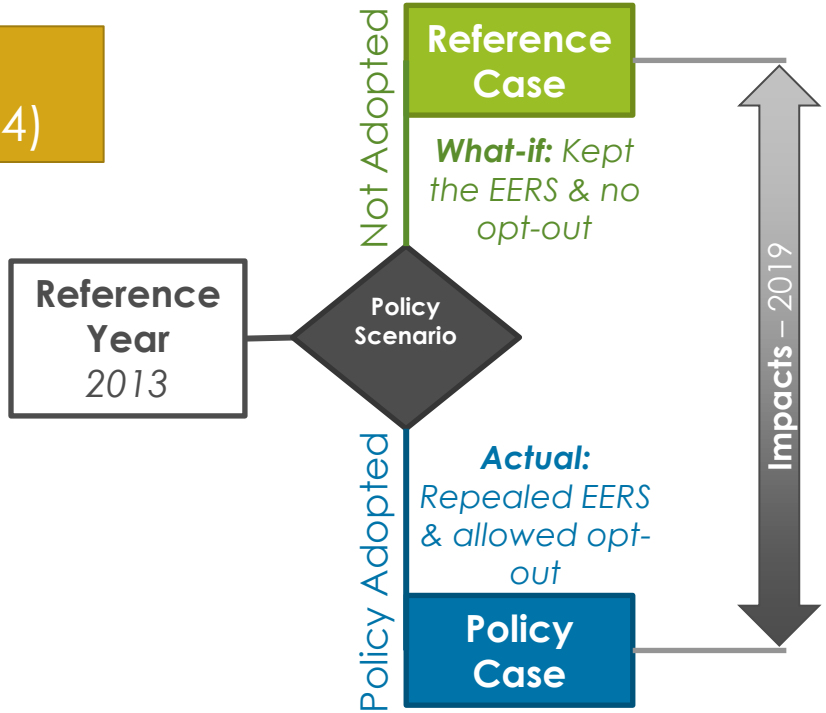
Policy:
- FEJA (2015)



Missed Opportunities for EE in the Midwest

Indiana *– Adopted Regressive Policy –* ***Repealed EERS & Industrial Opt-Out***

Policy:
- SB 340 (2014)



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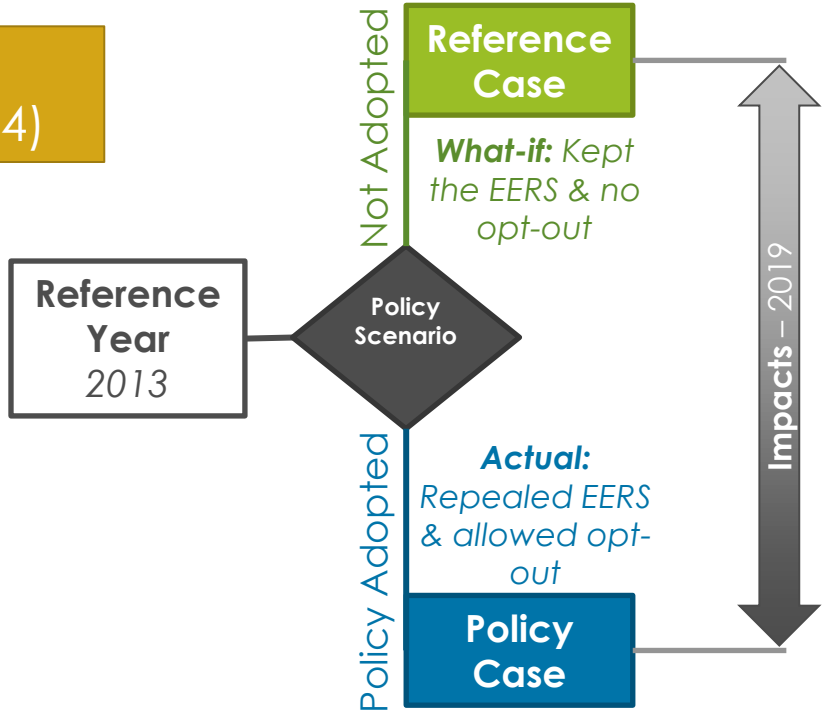
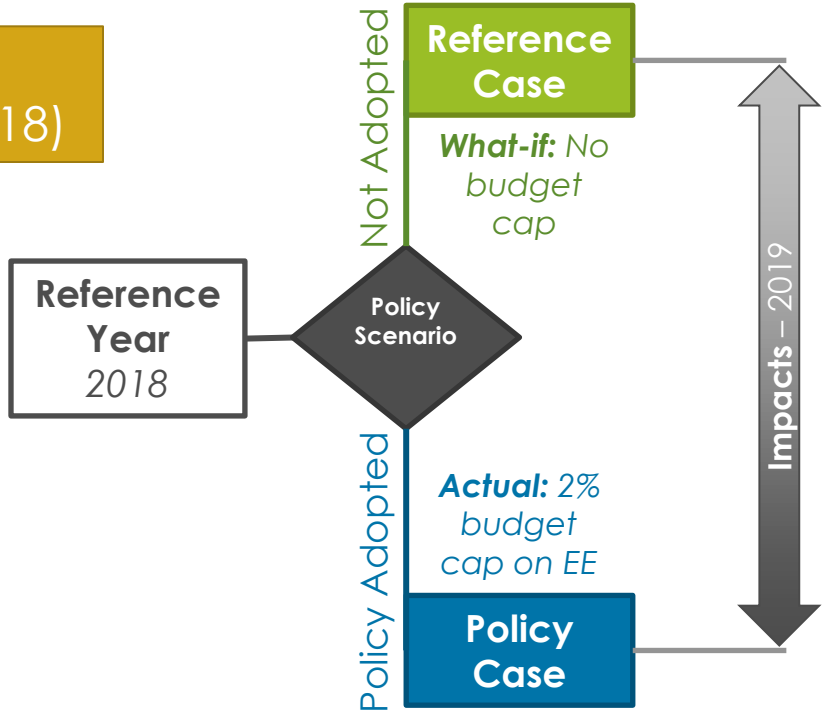


Missed Opportunities for EE in the Midwest

Iowa – Adopted Regressive Policy (Electric) – Budget Cap

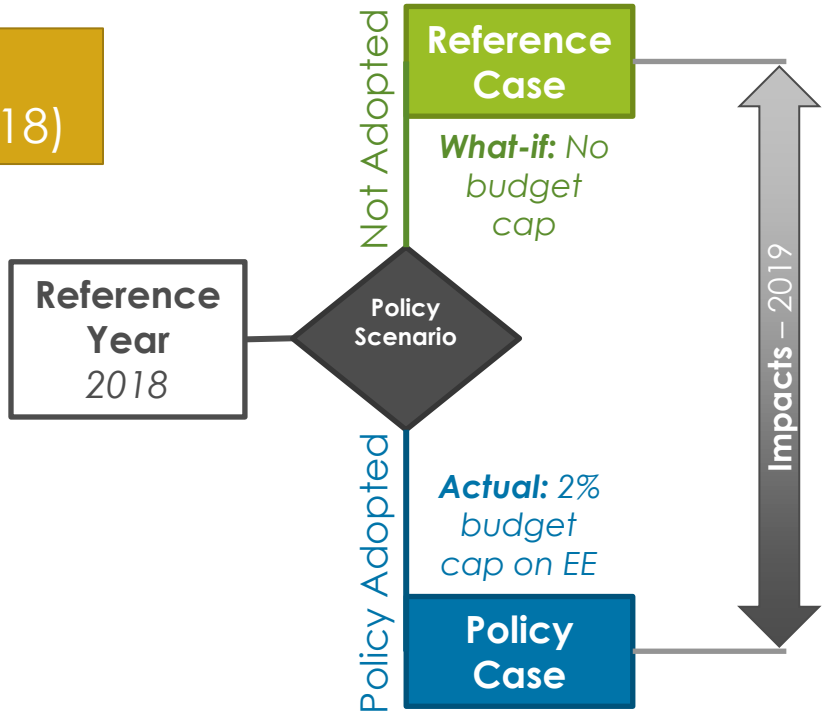
Policy:
- SF 2311 (2018)



Missed Opportunities for EE in the Midwest

Iowa *– Adopted Regressive Policy (Gas) –* ***Budget Cap***

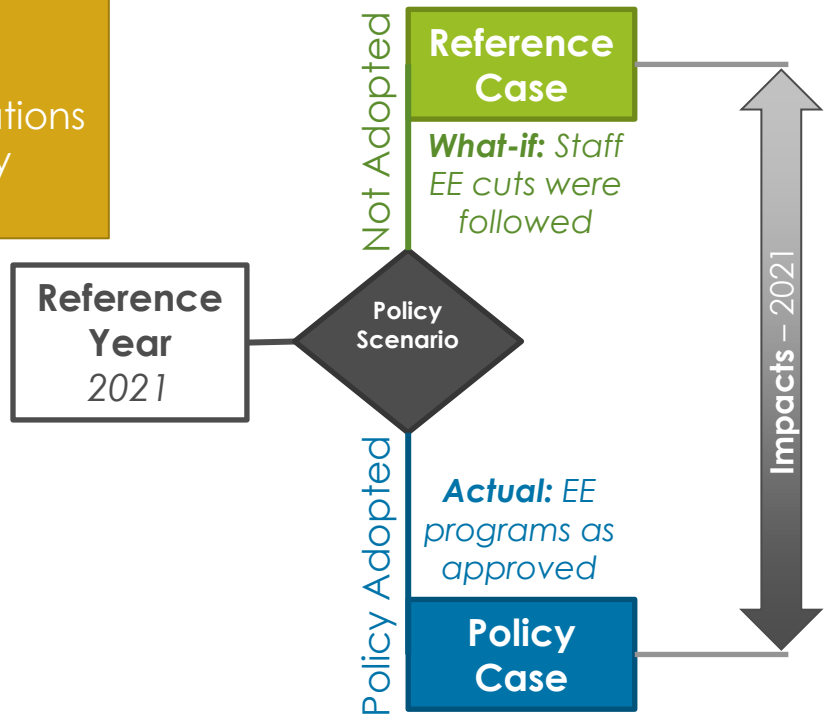
Policy:
- SF 2311 (2018)



Missed Opportunities for EE in the Midwest

Missouri *– Averted Regressive Policy –* ***Staff Recommendations for EE Cuts***

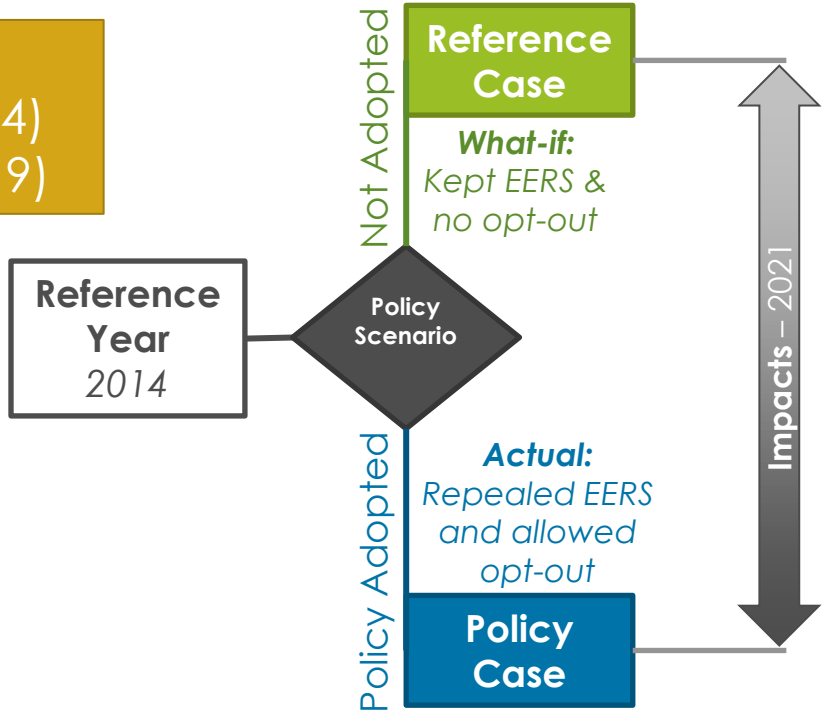
Policy:
- MO PSC Staff recommendations in recent utility plan dockets



Missed Opportunities for EE in the Midwest

Ohio** – Adopted Regressive Policy – **Repealed EERS & Industrial Opt-Out

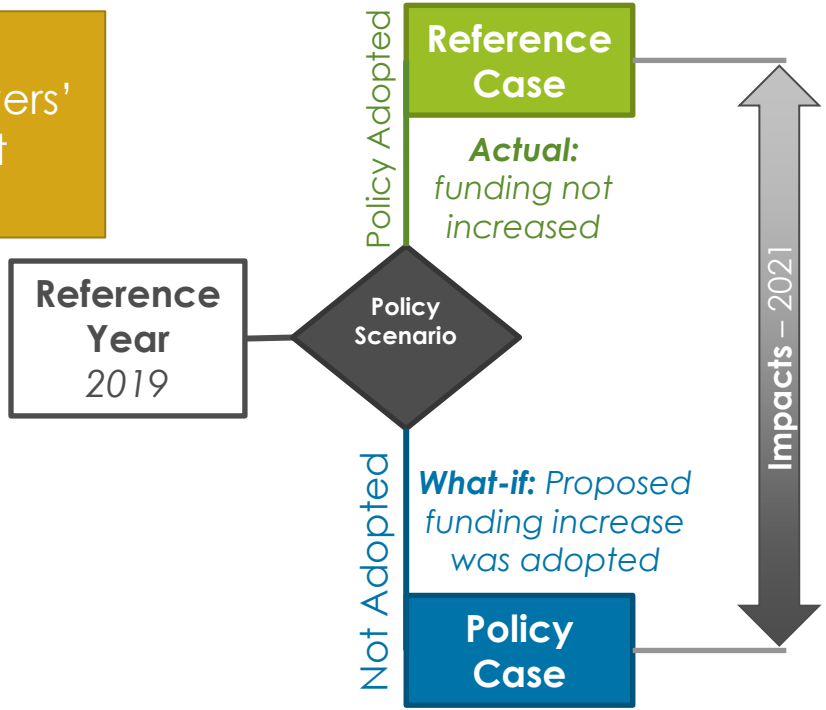
Policy:
- SB 310 (2014) & HB 6 (2019)



Missed Opportunities for EE in the Midwest

Wisconsin *– Did Not Adopt Progressive Policy –* ***Funding Increase***

Policy:
- Governor Evers' 2020 budget proposal



Today's Presenter

Kenji Takahashi

Senior Associate
Synapse Energy Economics

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Missed Opportunities -
Impacts of Recent Policies on Energy Efficiency Programs in Midwestern States

MEEA Webinar

November 4, 2021

Kenji Takahashi

With assistance from: Tim Woolf, David While, Danielle Goldberg, Shelly Kwok, Andrew Takasugi, and Jenny Marusiak

Synapse Energy Economics

- Founded in 1996 by CEO Bruce Biewald
- Leader for public interest and government clients in providing rigorous analysis of the electric power and natural gas sectors
- Staff of 40+ includes experts in energy, economic, and environmental topics
- Synapse's nationally recognized energy efficiency team has deep experience in all 50 U.S. states, the District of Columbia, and six Canadian provinces.
- We assist clients with analyzing costs, energy savings, avoided costs, cost-effectiveness, potential studies, rate and bill impacts, price suppression effects, economic and job impacts, and the regulatory policies used to promote and support energy efficiency resources.

Contents

- Background and scope of work
- Study methodologies
- Scenario development
- Energy and peak Impacts
- Lost net benefit Impacts
- Macroeconomic impacts
- Affordability implications

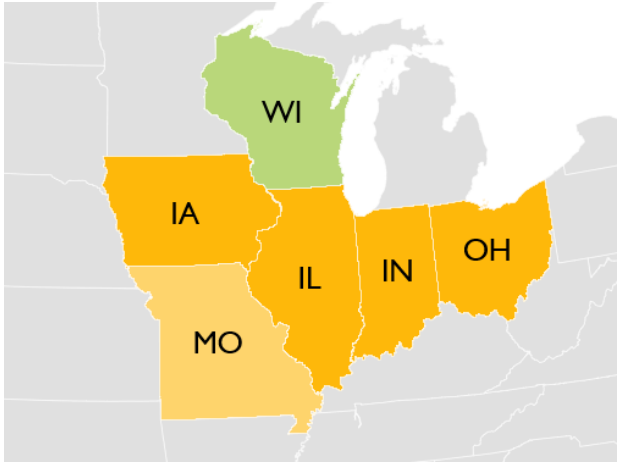
Recent Midwestern Regressive Policies

Background

Regressive Energy Efficiency Policies

- Several states across the Midwest have adopted or proposed various policies concerning ratepayer-funded energy efficiency programs through regulatory orders and legislative actions.
  - Limiting program funding
  - Exempting large business customers
  - Repealing energy efficiency resource standards or targets
  - Failing to adopt progressive energy efficiency policies

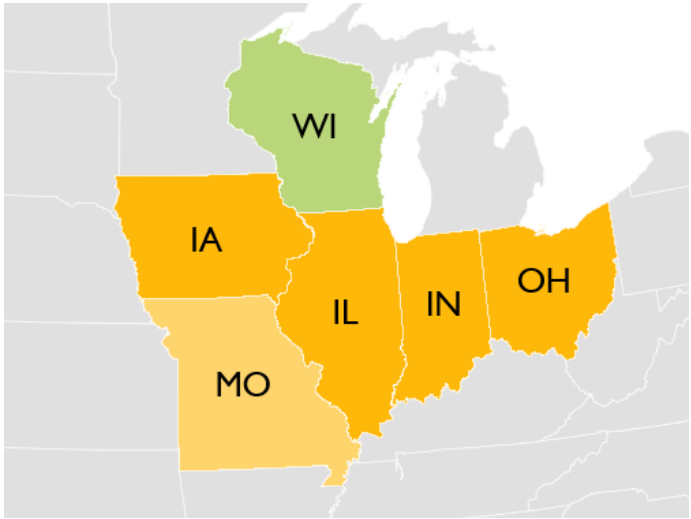
Selected Midwest states for our study



Scope of Study

Synapse assessed the impacts of recently adopted or proposed energy efficiency policies for six selected Midwestern states: namely Illinois, Indiana, Iowa, Missouri, Ohio, and Wisconsin

- Cost-effectiveness
- Emissions and health impacts
- Macroeconomic impacts
- Affordability implications



Key Findings

- Regressive policies in the region (or the failure to adopt a progress policy in the case of Wisconsin) caused enormous, missed opportunities for:
  - energy savings
  - emissions savings
  - economic and health benefits
  - job creation

Study Methodologies

Cost-Effectiveness Analysis Framework

	UCT	TRC Test	SCT
Electric Utility System Impacts	✓	✓	✓
Gas Utility System Impacts	✓	✓	✓
Other Fuel Impacts	-	✓	✓
Participant Impacts	-	✓	✓
Participant costs	-	✓	✓
Participant non-energy impacts	-	✓	✓
Societal Impacts	-	-	✓

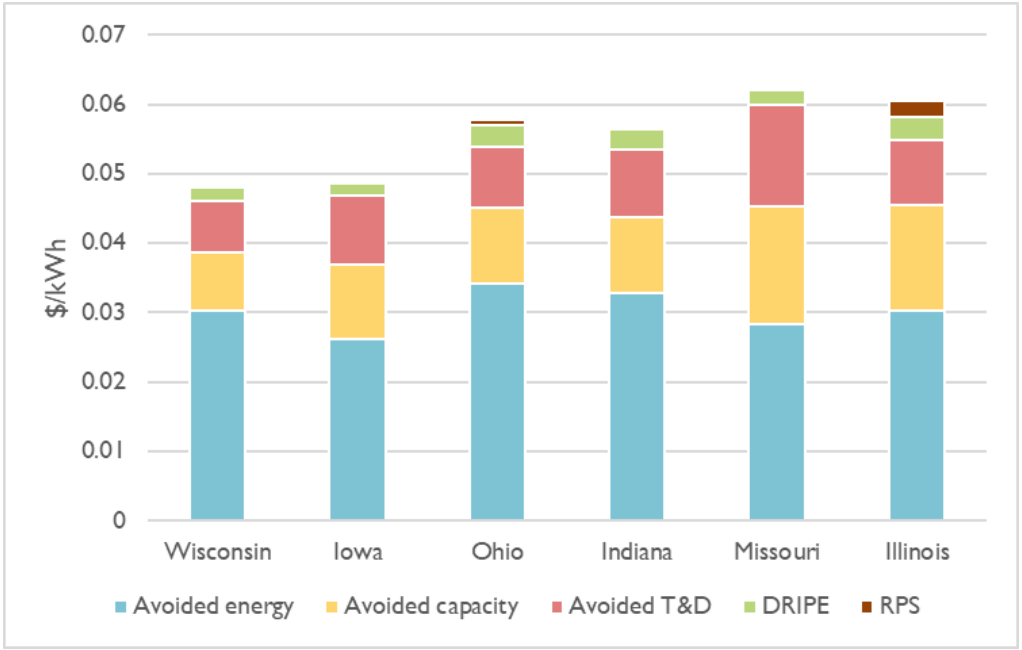
Notes: UCT: Utility Cost Test; TRC: Total Resource Cost; SCT: Societal Cost Test

Utility Avoided Costs - Electric

- **Avoided energy costs**: approximately $27 to $36 per MWh in 2022
  - Day-ahead hourly locational marginal price data (2017-2019) for each applicable pricing zones from PJM, SPP, and MISO markets
- **Avoided capacity costs**: approximately $45 to $83 per kW-year (or $110 to $177 per MW-day) in 2022
  - PJM's capacity auction prices through 2022
- **Avoided transmission and distribution (T&D) costs**: $62 per kW-year in 2022
  - An average value based on our survey of avoided T&D costs in Iowa, Illinois, Minnesota, Missouri, and Wisconsin
- **Avoided RPS compliance costs**: $1.3 to $3.4 per MWh in 2022
  - The current REC prices and RPS requirements in Illinois and Ohio
- **Demand reduction-induced price effect** (DRIPE):
  - 0.5 percent price reduction per 1 percent load reduction over 5 years
  - Adjusts the effects for market hedging

Utility Avoided Costs – Electric (cont.)

Average electric avoided costs ($ per kWh)



Utility Avoided Costs - Gas

- **Avoided costs of natural gas**
  - Primarily based on MidAmerican's avoided cost estimates
- **Avoided costs of wholesale natural gas**
  - $3 per MMbtu in 2020, increases to $7.8 per MMBtu by 2045
- **Avoided costs of transmission and distribution systems**
  - $96 per peak MMBtu (or $2.7 per annual MMbtu), increases to $135 per peak MMBtu (or $10.5 per annual MMBtu) by 2045
  - Uses a peak-to-annual savings factor based on MidAmerican's program data

Non-Energy Impacts (NEI)

NEI Values for Electric and Gas energy efficiency Programs (% of total benefits)

	Electric energy efficiency	Gas energy efficiency
RES	15%	11.3%
C&I	10%	7.50%

Sample NEI values by state, with Massachusetts values for illustration

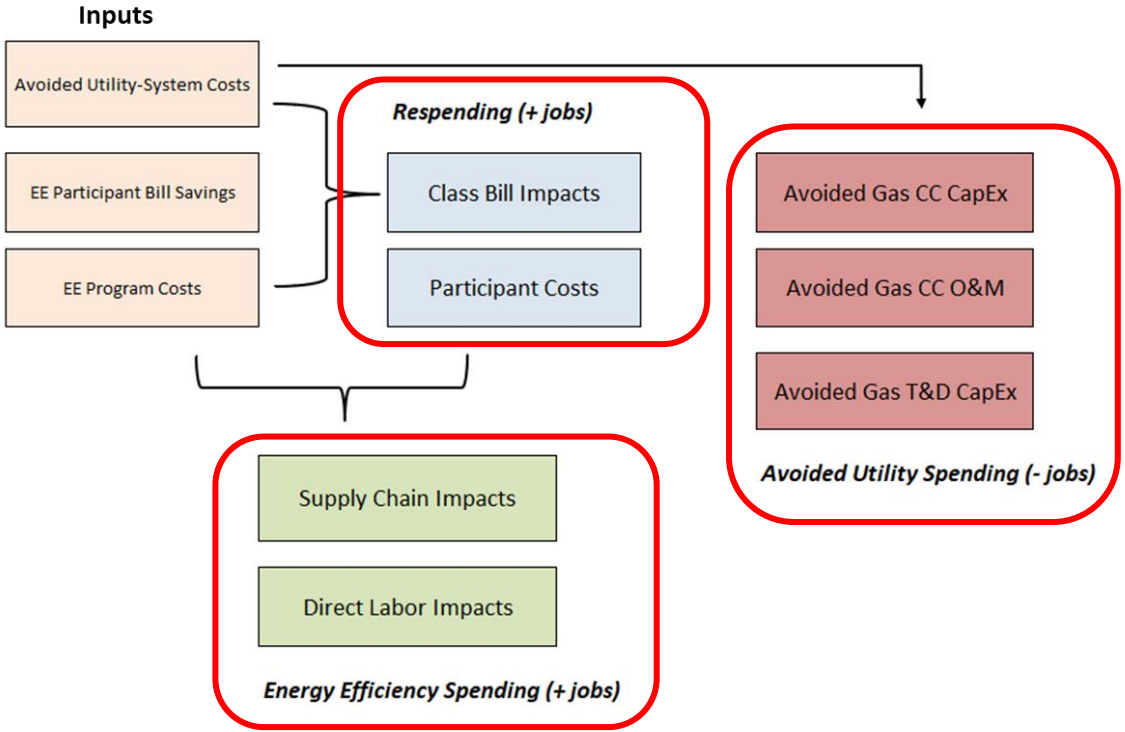
NEI	Values								
	MA	WA	CO	NM	ID	IA (electric)	IA (gas)	IL (electric)	IL (gas)
By participant NEI									
Unit	*$/Unit*	*Adder*	*Adder*	*Adder*	*Adder*	*Adder*	*Adder*	*Adder*	*Adder*
Comfort	27.18								
Productivity/O&M	11.98								
Health and safety	0.87								
Asset value	379.0								
Low-income adder			20%	25%					
Total									
Portfolio adders		10%	10%	15%	10%	10%	7.5%	10%	7.5%

Societal Impacts

- **Avoided emissions from power plants**
  - CO_2, SO_2, NO_X, and $PM_{2.5}$
  - U.S. EPA's *Avoided Emissions and Generation Tool (AVERT)* and Rocky Mountain Institute's (RMI) *Utility Transition Hub*
  - Conservative methane emission leak rate of 1.42 percent from natural gas supply based on EPA's current estimates.
- **Social costs of carbon (SCC) emissions**
  - The SCC values recommended by the recent AESC (Avoided Energy Supply Component) study for New England states. The values are based on the estimates by New York State's Department of Environmental Conservation (Obama EPA's guidelines with a lower discount rate).
  - Increases from $118 per ton in 2021 to $290 per ton by 2050
- **Avoided health damage costs**
  - Avoided criteria pollutants (SO_2, NO_X, and $PM_{2.5}$) from AVERT
  - EPA's CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA)

Macroeconomic Impacts

Analytical approach to macroeconomic analysis



Affordability Implications

- **Rate impacts**
  - Estimates the expected rate impacts of EE investments (% of the current rate) based on the estimated EE spending as well as the estimated changes in sales and revenue requirements due to the EE programs
- **Bill impacts**
  - Estimates average bill impacts for all customers by sector for each scenario
- **Participation impacts**
  - Assesses how program participants would change between the Policy Case and Reference Case scenarios
  - Study results represent illustrative examples

Scenario Development

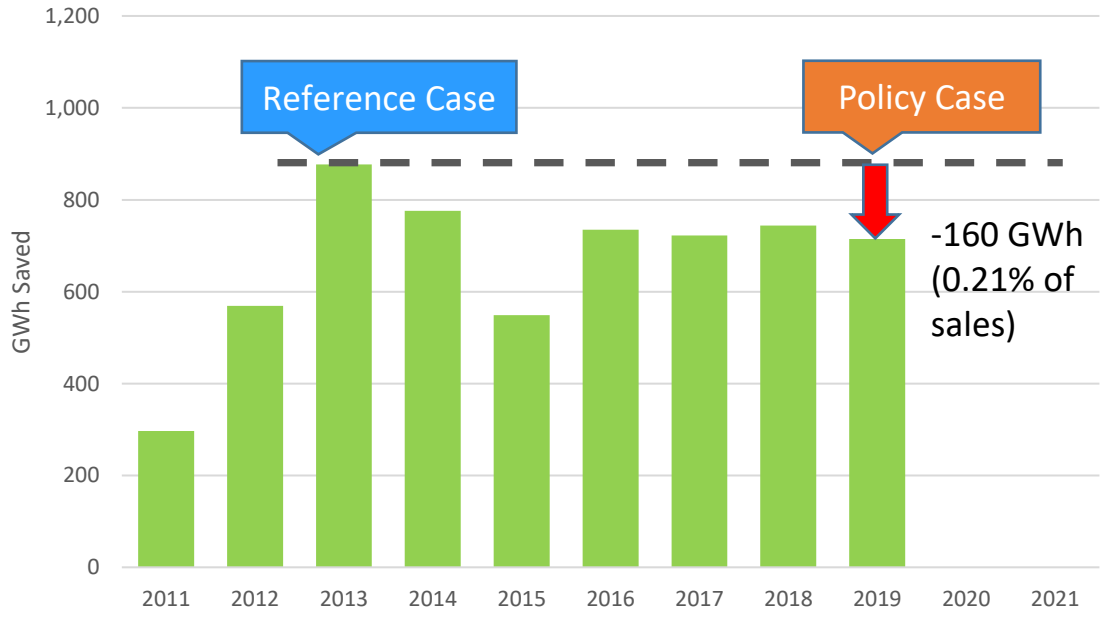
State Scenario Development

- **Policy Case**:
  - For all the six states except Wisconsin, the energy efficiency program policies/laws assumed under the Policy Case are regressive policies that have been adopted or proposed. Most of these policies are effective today.
- **Reference Case**:
  - The Reference Case assumes that the policies we studied were never enacted, with the exception of Wisconsin and Missouri where the Reference Cases represent the current policy environments.
  - The energy savings under this case are higher than the Policy Case for each state except Wisconsin, which shows the opposite results; the Policy Case for this state assumes the acceptance of the recent budget proposal to increase the program budget, whereas the reference case reflects Wisconsin's failure to adopt

Summary of Energy Efficiency Program Scenarios

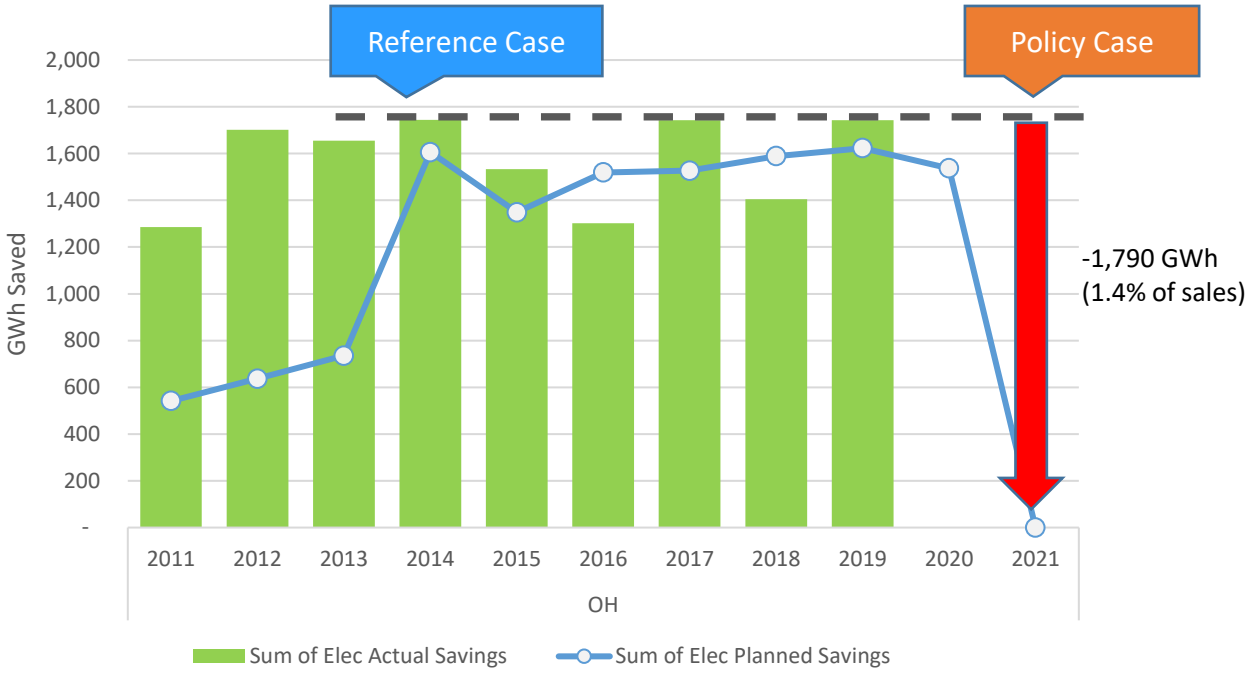
State	Policy	Reference year (RY)	Policy impact year (PIY)
Electric EE			
Illinois	Large C&I exemption	2016	2019
Indiana	Repeal of EERS and large C&I opt-out	2013	2019
Iowa	2% budget cap	2018	2019
Missouri	PSC Staff's EE proposal	2021	2021
Ohio	Repeal of EERS and large C&I opt-out	2014	2021
Wisconsin	Proposed 2021 budget	2019	2021
Gas EE			
Iowa	1.5% budget cap	2018	2019

Example of Two Scenarios – Indiana



Source: EIA 861 data combined with data provided by MEEA

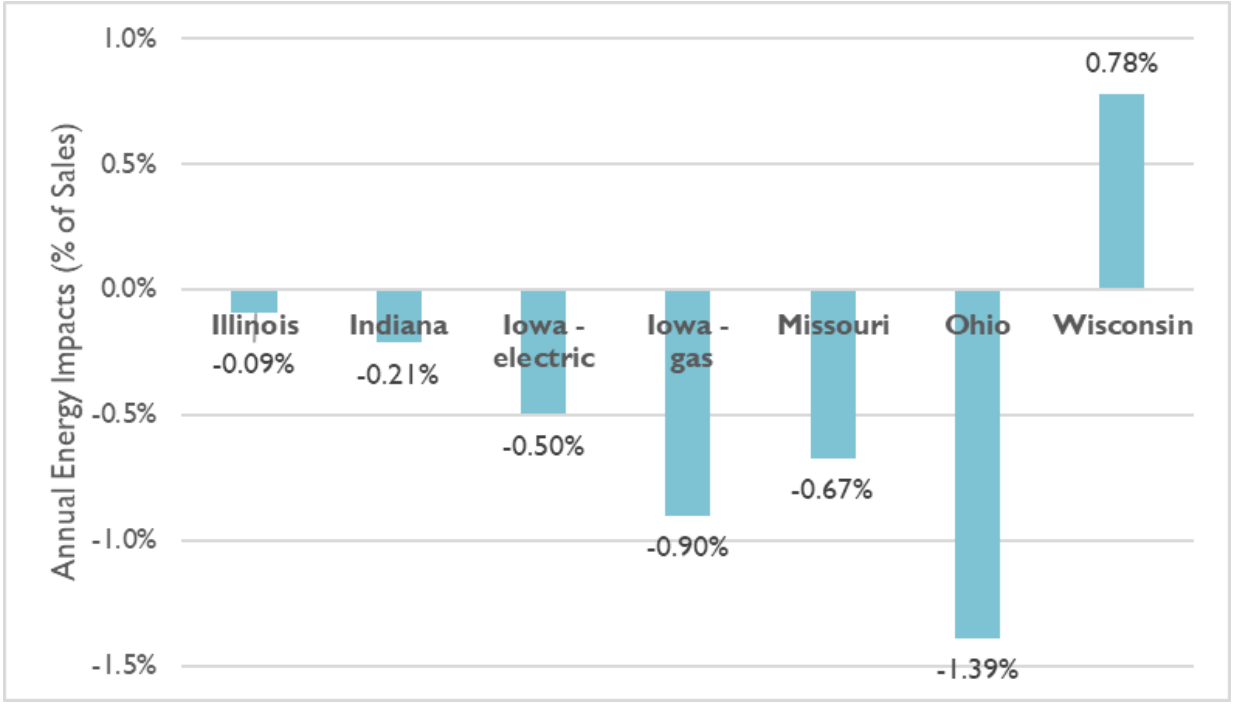
Example of Two Scenarios – Ohio



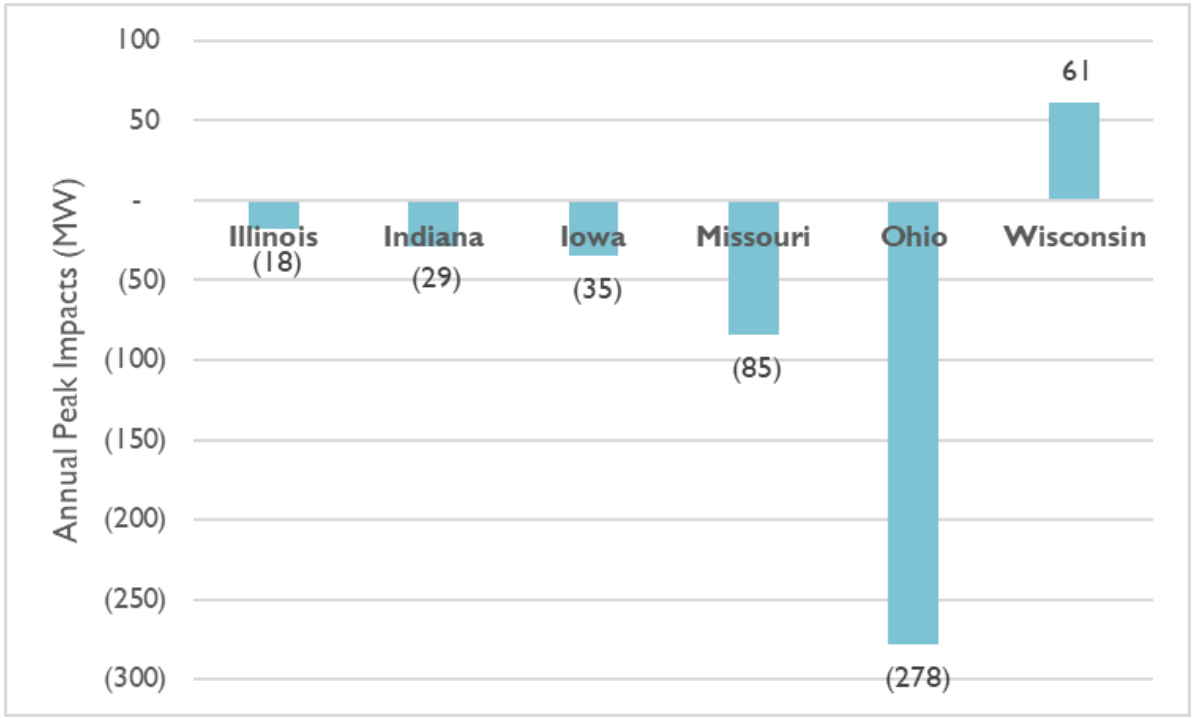
Source: data compiled by MEEA

Energy and Peak Impacts

Annual Energy Impacts due to the Policy Case

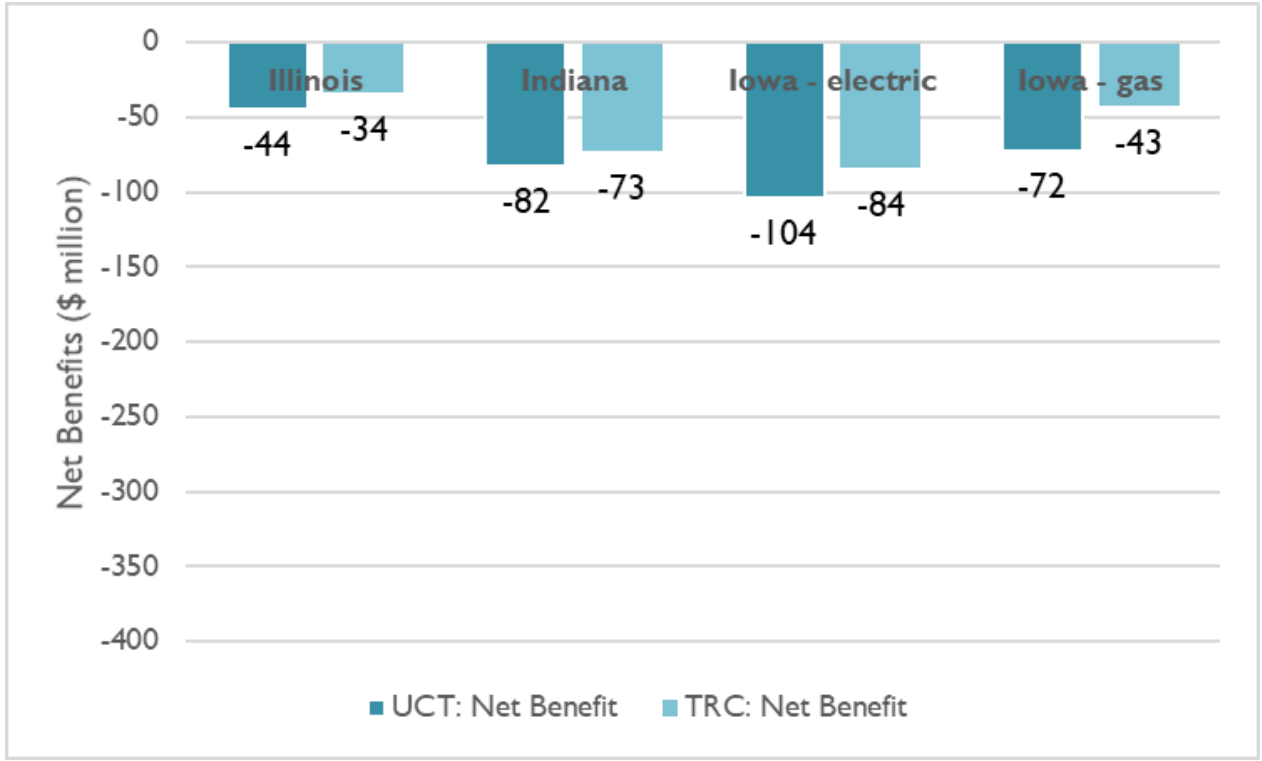


Annual Peak Load Impacts due to the Policy Case

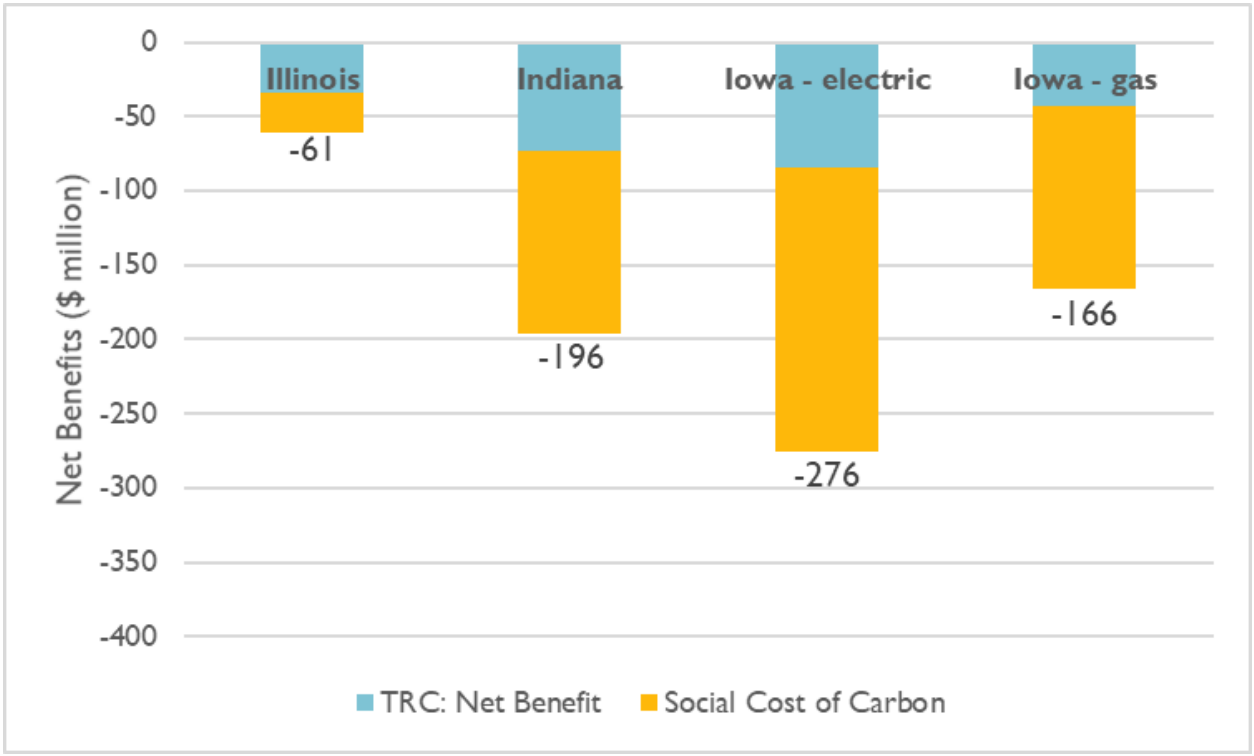


Lost Net Benefit Impacts

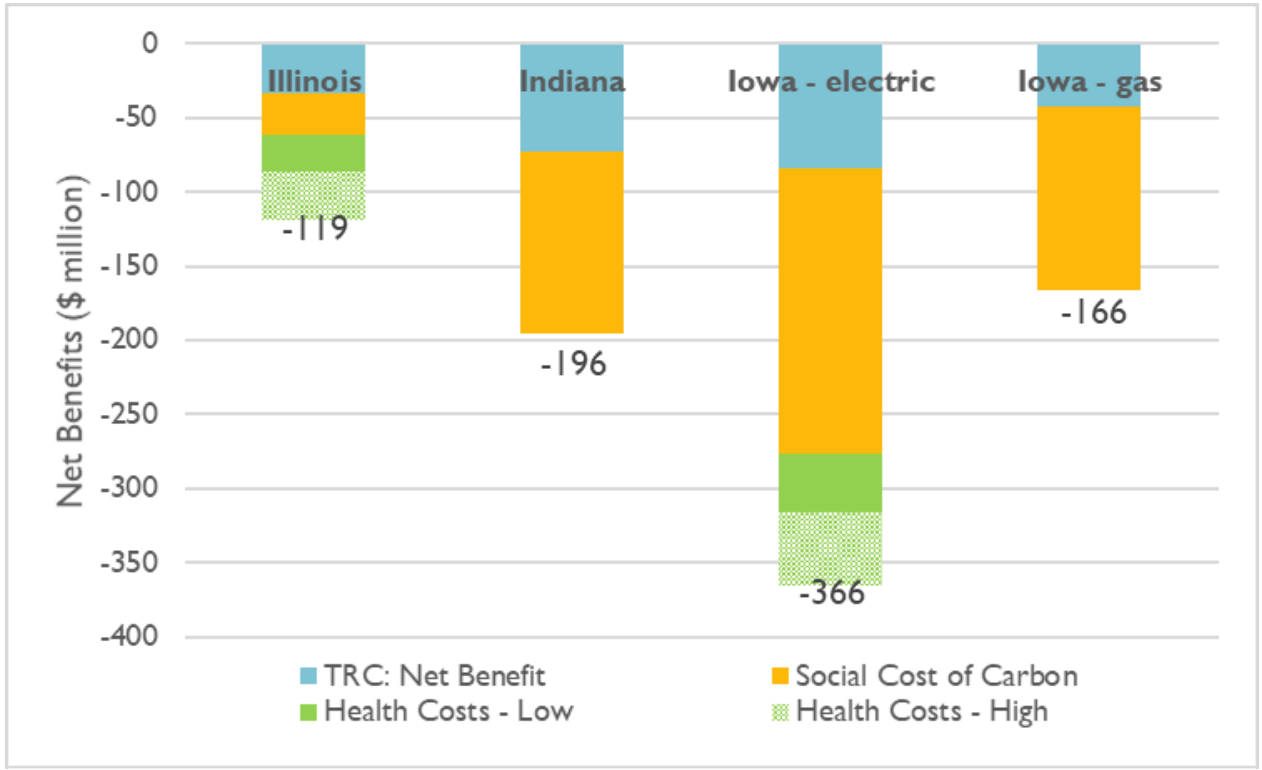
Lost Net Benefits for Illinois, Indiana, and Iowa – UCT and TRC Perspectives



Lost Net Benefits for Illinois, Indiana, and Iowa – TRC with Social Cost of Carbon (SCT)

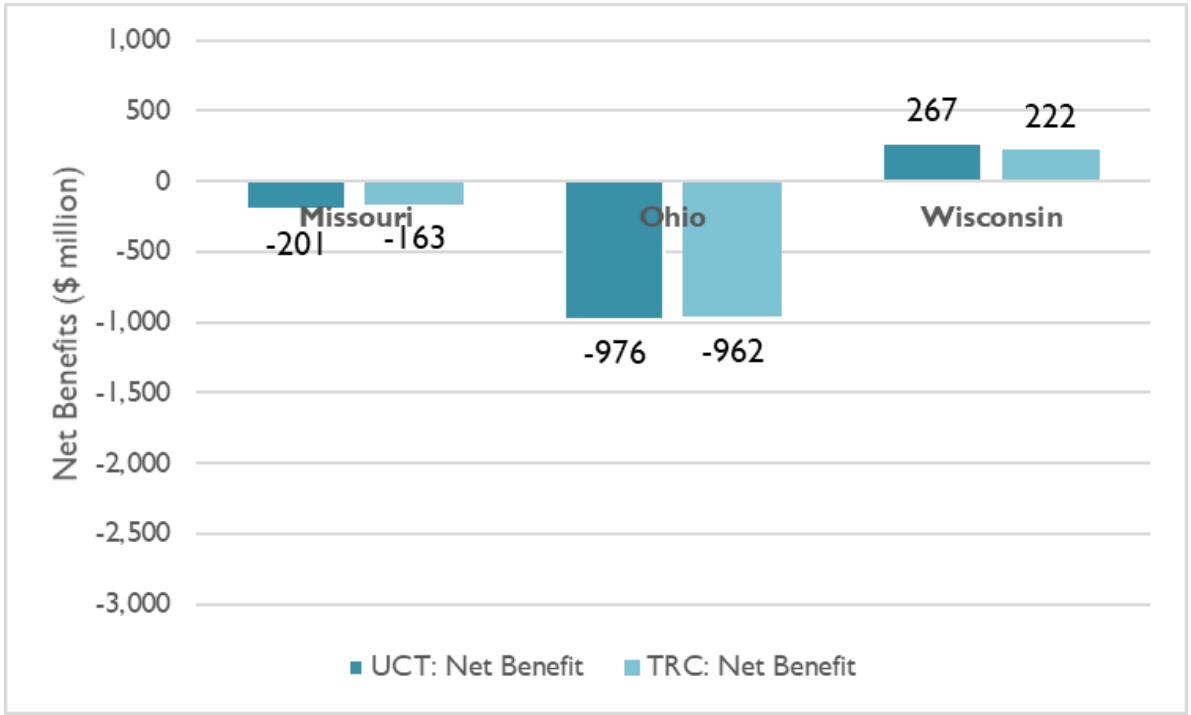


Lost Net Benefits for Illinois, Indiana, and Iowa – TRC with SCT and Health Impacts

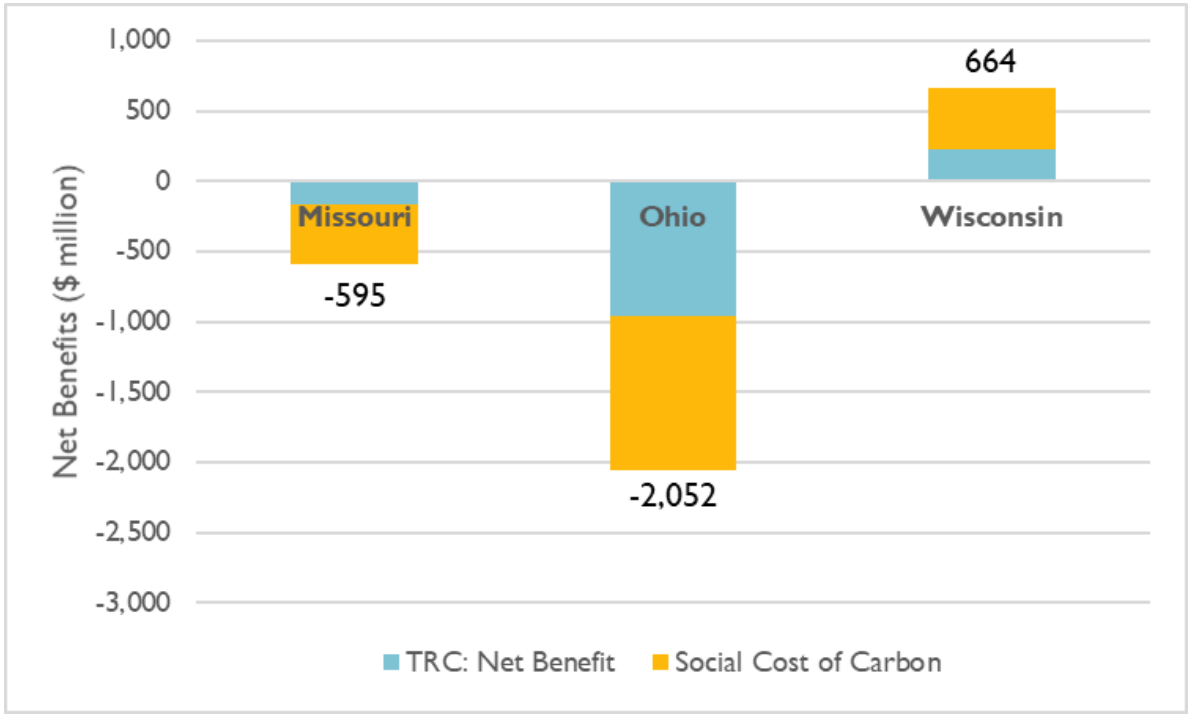


Note: Iowa - gas: health cost impacts were not estimated; Indiana: health cost impacts are currently under review.

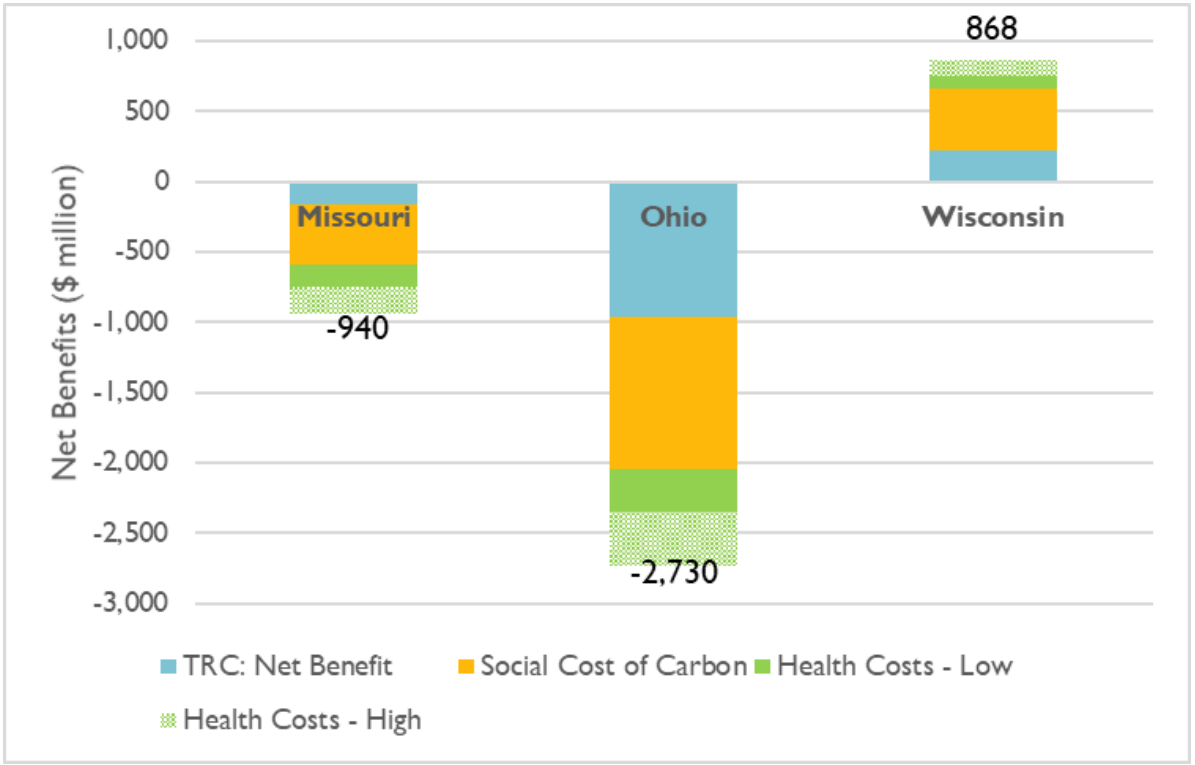
Lost Net Benefits for Missouri, Ohio, and Wisconsin – UCT and TRC Perspectives



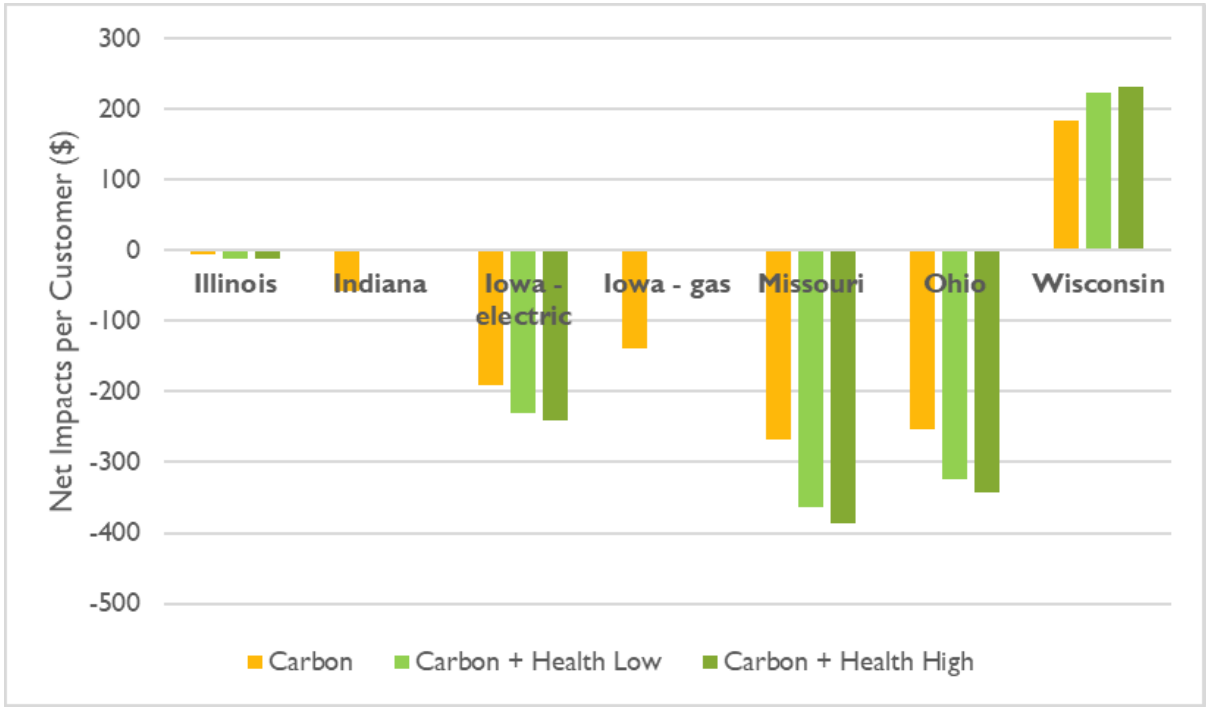
Lost Net Benefits for Missouri, Ohio, and Wisconsin – TRC with Social Cost of Carbon (SCT)



Lost Net Benefits for Missouri, Ohio, and Wisconsin – TRC with SCT and Health Impacts



Illustrative Net Societal Impacts from Residential Programs per Customer due to the Policy Case

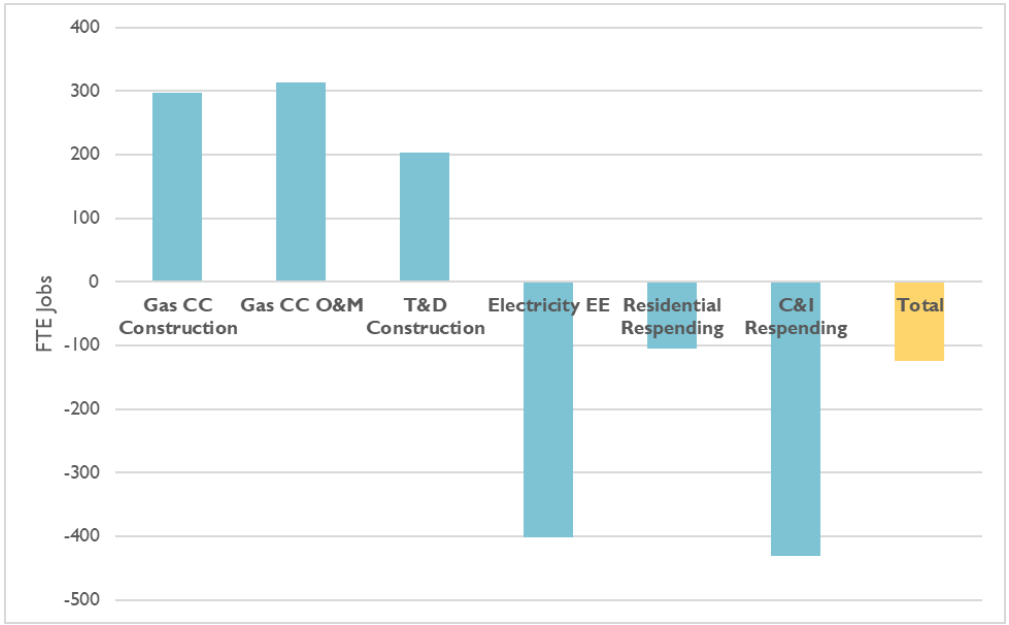


Note: Iowa - gas: health cost impacts were not estimated; Indiana: health cost impacts are currently under review.

Macroeconomic Impacts

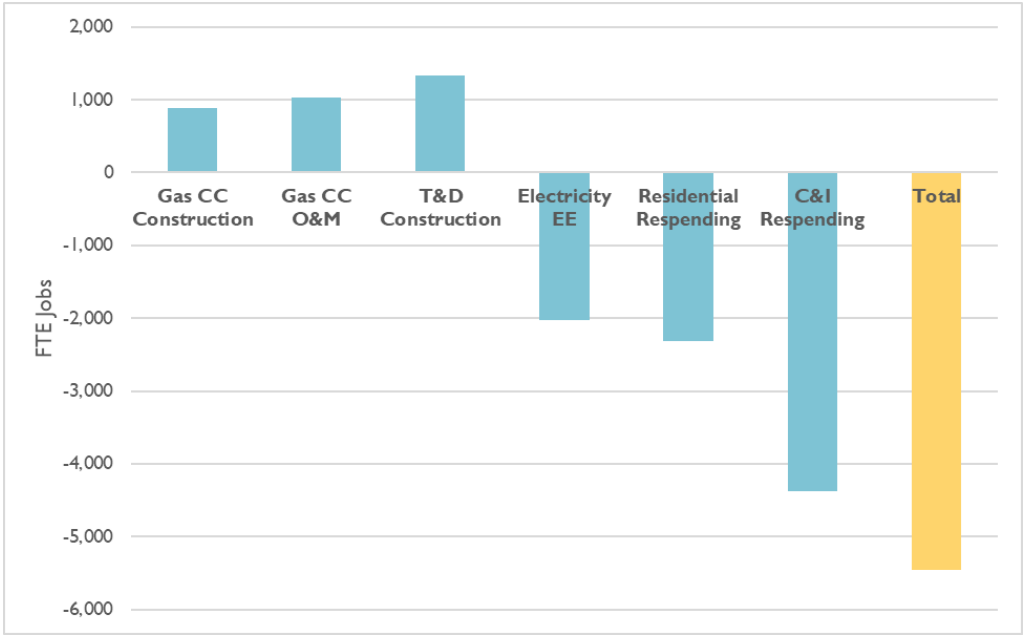
Iowa - Lifetime Macroeconomic Results

- Results in 124 fewer full-time jobs and $6 million less income

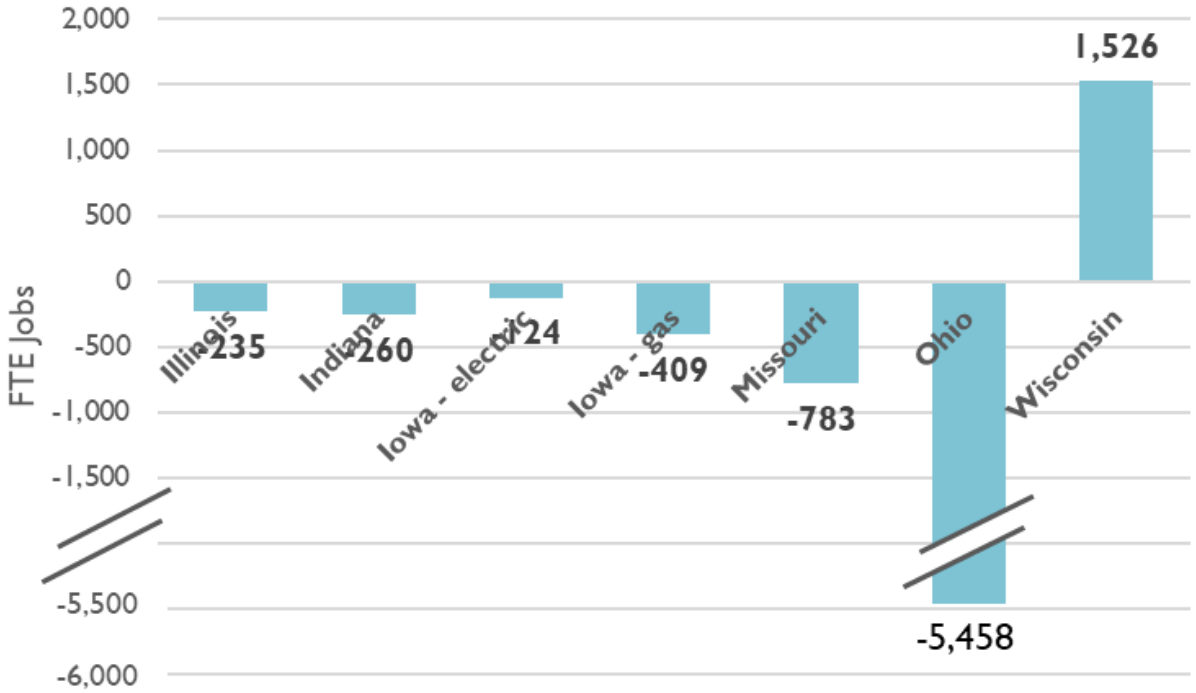


Ohio - Lifetime Macroeconomic Results

- Results in 5,460 fewer full-time jobs and $300 million less income



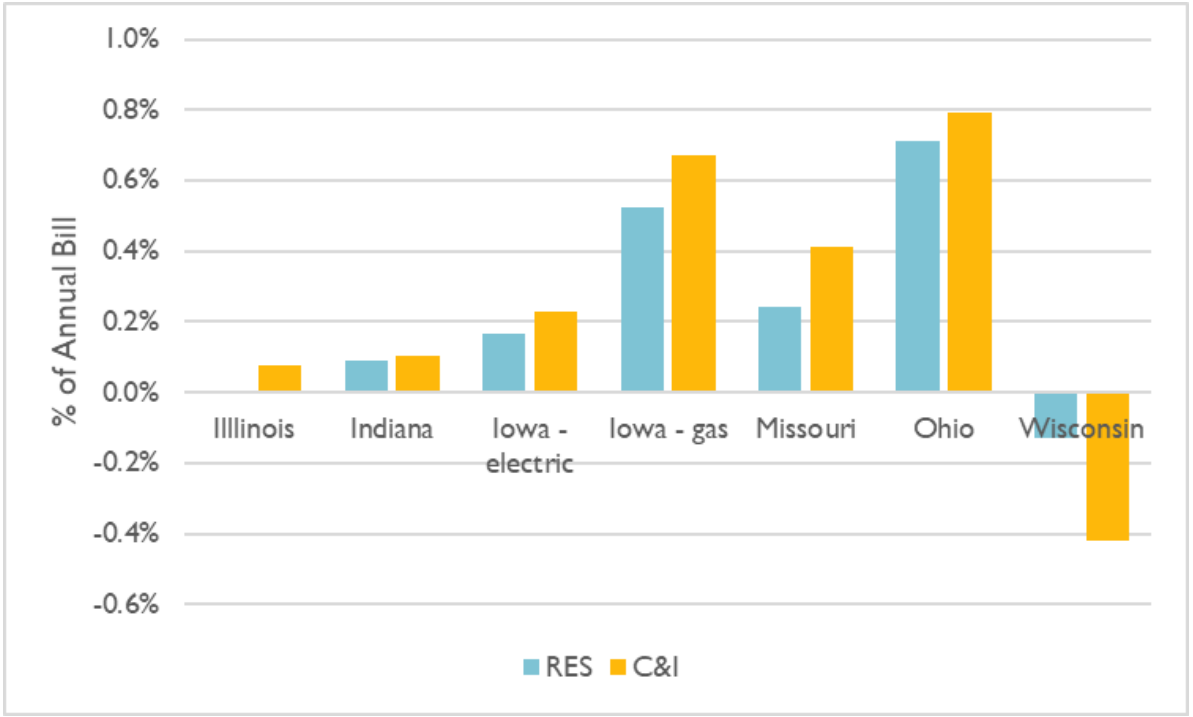
Lifetime Job Impacts



Affordability Implications

Annual Average Rate Changes under the Policy Case relative to the Reference Case

Annual Average Bill Changes under the Policy Case relative to the Reference Case



Illustrative Program Participation Impacts

Indiana

Utility	Case	Program Name	Participants	% Impact
Duke	Policy Case	Low Income Weatherization	205	-93%
Duke	Reference Case	Low Income Weatherization	3,000	-

Iowa (electric EE)

Utility	Case	Program Name	Participants	% Impact
MidAmerican	Policy Case	HVAC	3,986	-78%
MidAmerican	Reference Case	HVAC	17,896	-

Iowa (gas EE)

Utility	Case	Program Name	Participants	% Impact
MidAmerican	Policy Case	High Efficiency Furnace	5330	-59%
MidAmerican	Reference Case	High Efficiency Furnace	12,972	-

Missouri

Utility	Case	Program Name	Participants	% Impact
Ameren Missouri	Policy Case	Single Family Low-Income	15	-97%
Ameren Missouri	Reference Case	Single Family Low-Income	487	-

Ohio

Utility	Case	Program Name	Participants	% Impact
AEP Ohio	Policy Case	Appliance Recycling	0	-100%
AEP Ohio	Reference Case	Appliance Recycling	18,230	-

Wisconsin

Utility	Case	Program Name	Participants	% Impact
Focus on Energy	Policy Case	Home performance with Energy Star	53290	100%
Focus on Energy	Reference Case	Home performance with Energy Star	26,645	-

Thank you!

Kenji Takahashi | ktakahashi@synapse-energy.com | (617) 453-7038

- NICK SLIDE(S) – HOW WE ARE USING INFO, EDUCATION & OUTREACH, ETC.

Questions

- Please ask questions in the Q&A box and we will try to answer as many as we can in the time remaining

MEEA Contact Info

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Supplemental slides

Media Coverage by Energy News Network

Report: Ohio and other states losing millions from rollbacks of energy efficiency standards

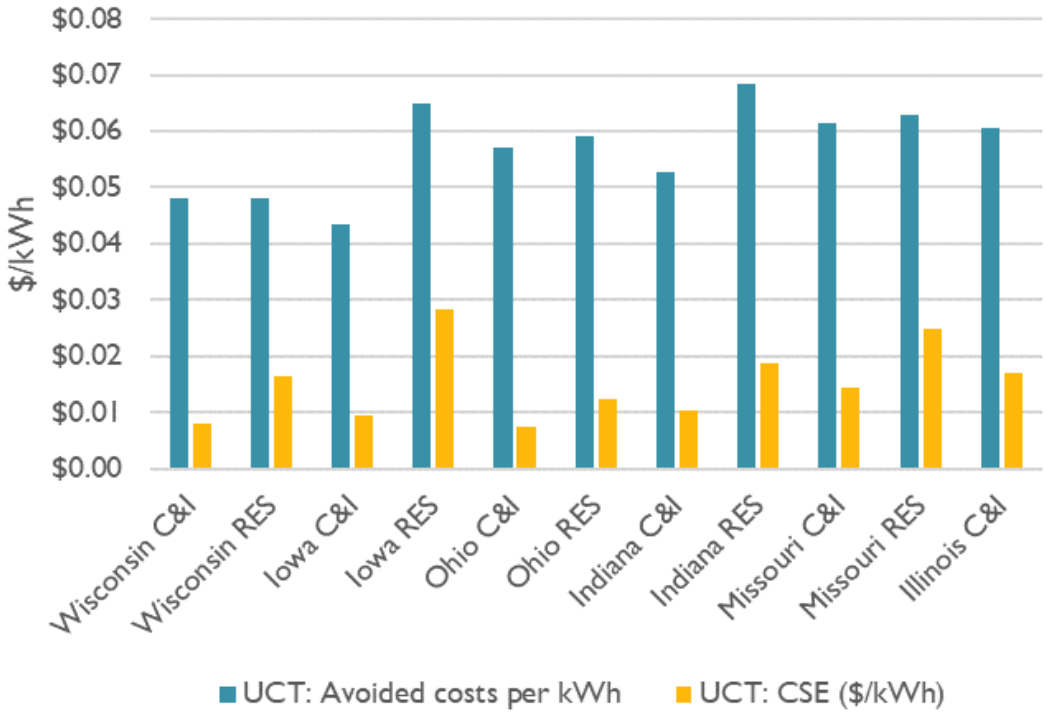
A bipartisan Ohio bill would be a first step to recouping savings, say advocates. But huge losses from House Bill 6 would remain.

by **Kathiann M. Kowalski**
October 4, 2021

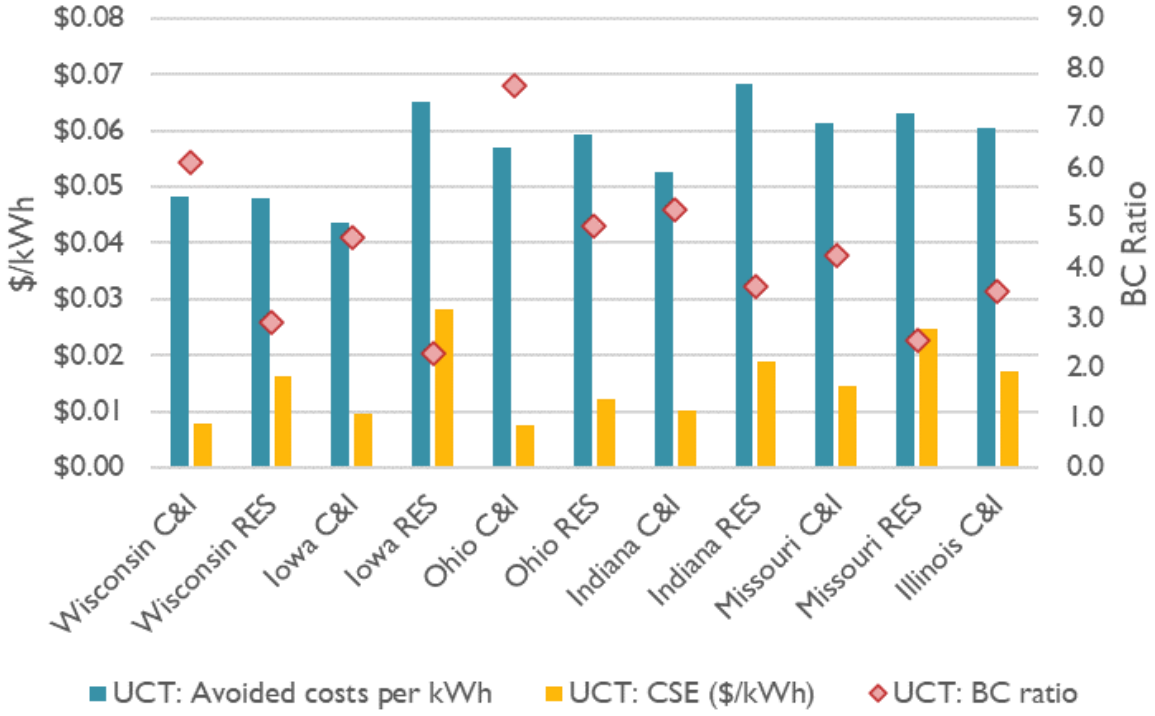
State Rep. David Leland, left, a Columbus Democrat, and Rep. Bill Seitz, a Cincinnati Republican, conclude their testimony on bipartisan efficiency legislation on Sept. 22. A new report says the bill will have limited impact. Credit: AP Photo/Andrew Welsh-Huggins

Source: https://energynews.us/2021/10/04/report-ohio-and-other-states-losing-millions-from-rollbacks-of-energy-efficiency-standards/

High-level Cost-effectiveness Results



High-level Cost-effectiveness Results

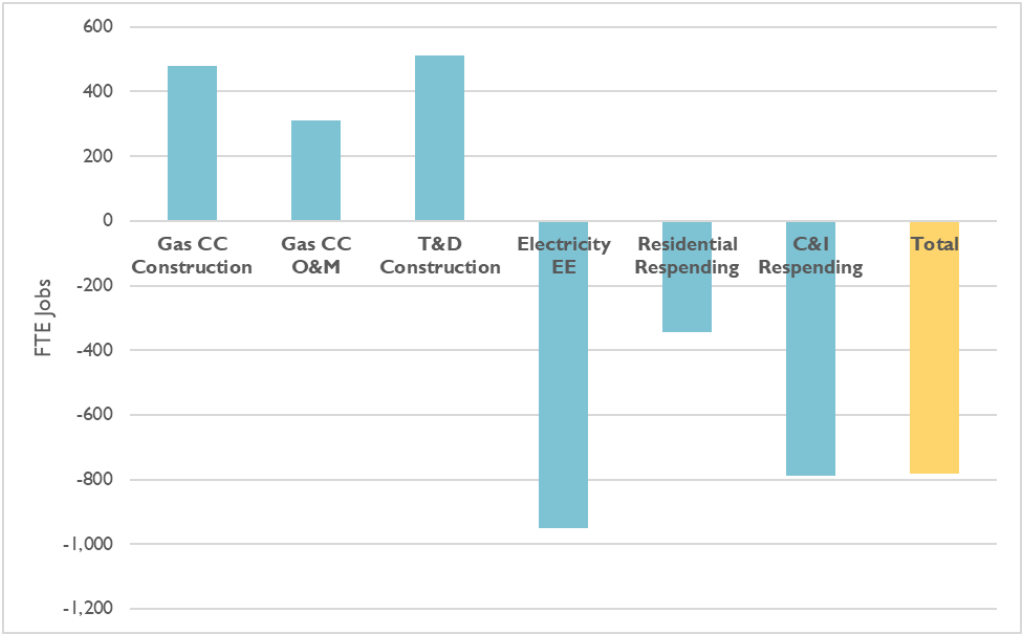


Summary of energy efficiency program scenarios

State	Policy	Reference year (RY)	Policy year (PY)	Major scenario assumptions
Electric EE				
Illinois	Large C&I exemption	2016	2019	RY: 2019 savings + 2016 PY inc. savings for large C&I; PY: 2019 savings
Indiana	Repeal of the Energy Efficiency Resource Standards (EERS) and large C&I opt-out	2013	2019	RY: 2013 savings for all sectors with current performance on peak savings (kW/MWh), measure life and costs of saved energy; PY: 2019 savings
Iowa	2% budget cap	2018	2019	RY: 2018 data; PY: 2019 data
Missouri	Staff's energy efficiency program proposal (not adopted)	2021	2021	RY: 2021 approved program; PY: staff proposal
Ohio	Repeal of EERS and large C&I opt-out	2014	2021	RY: 2019 savings for RES and COM and 2014 savings for IND sector; PY: no energy efficiency impact
Wisconsin	Proposed 2021 budget (not adopted)	2019	2021	RY: 2019 data; PY: doubling budget and savings
Gas EE				
Iowa	1.5% budget cap	2018	2019	RY: 2018 data; PY: 2019 data

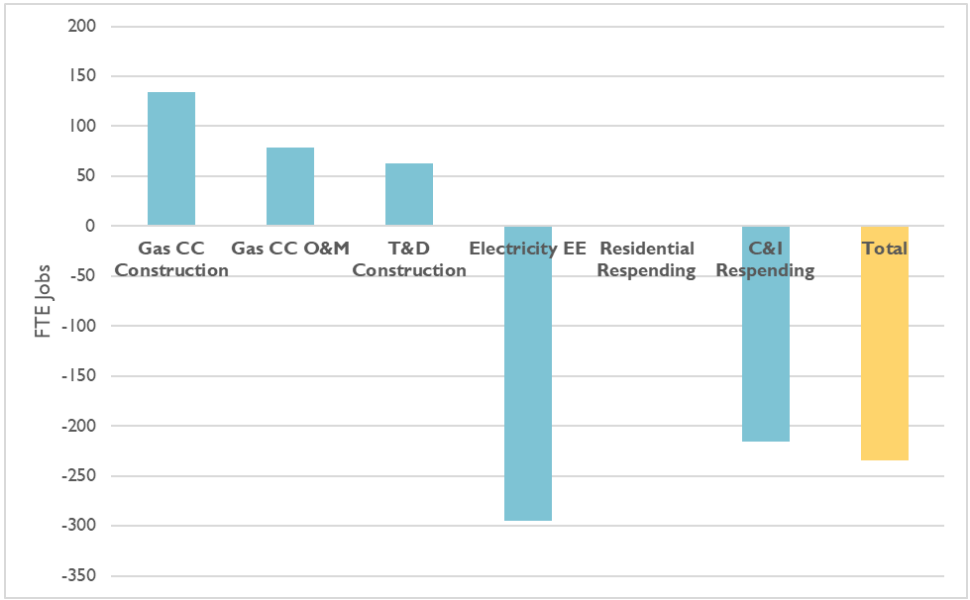
Missouri - Lifetime Macroeconomic Results

- Results in 783 fewer job-years and $43 million less income



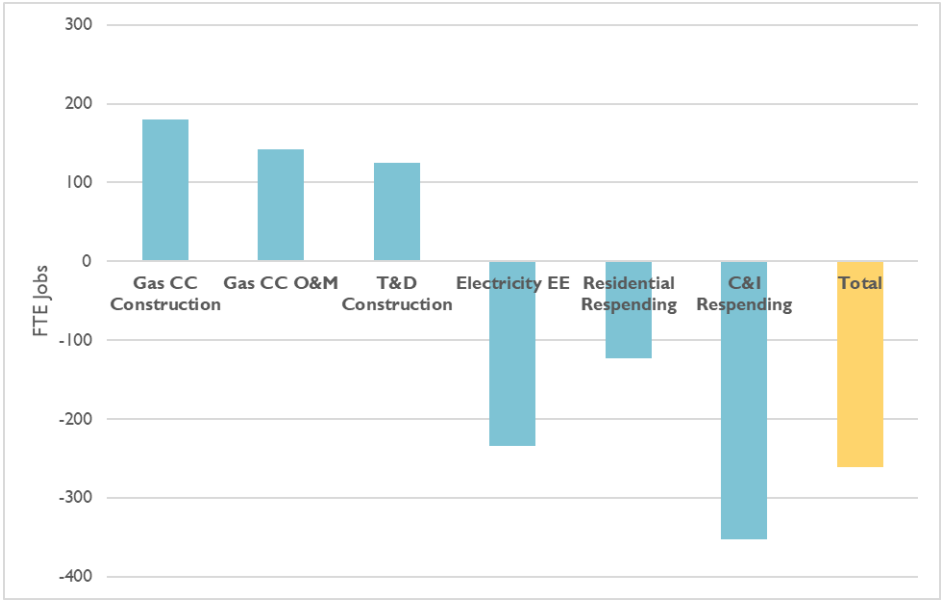
Illinois - Lifetime macroeconomic results

- Results in 235 fewer full-time jobs and $15 million less income



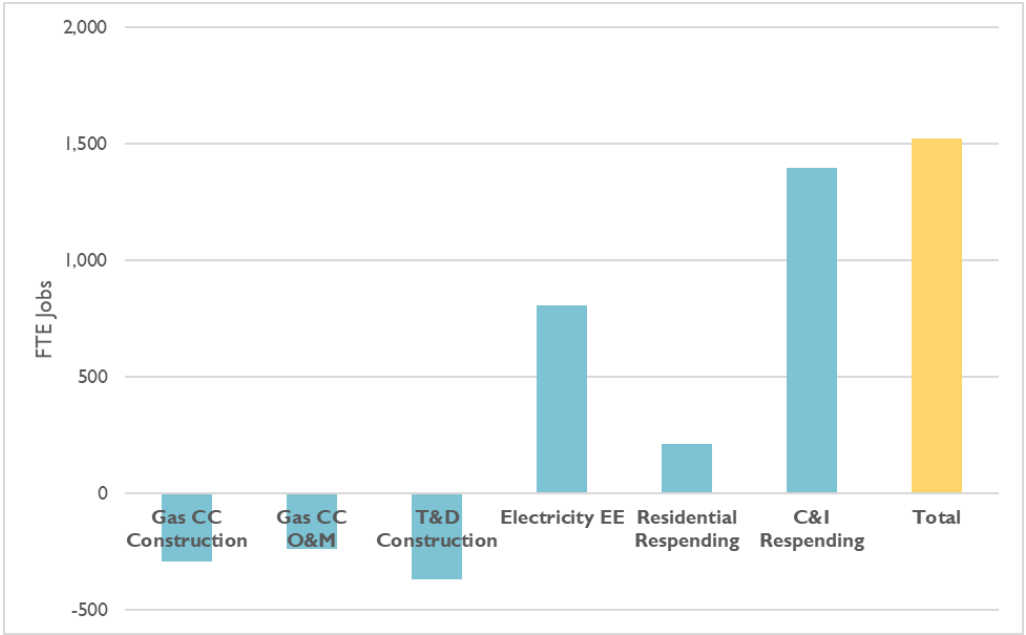
Indiana - Lifetime Macroeconomic Results

- Results in 260 fewer full-time jobs and $14 million less income



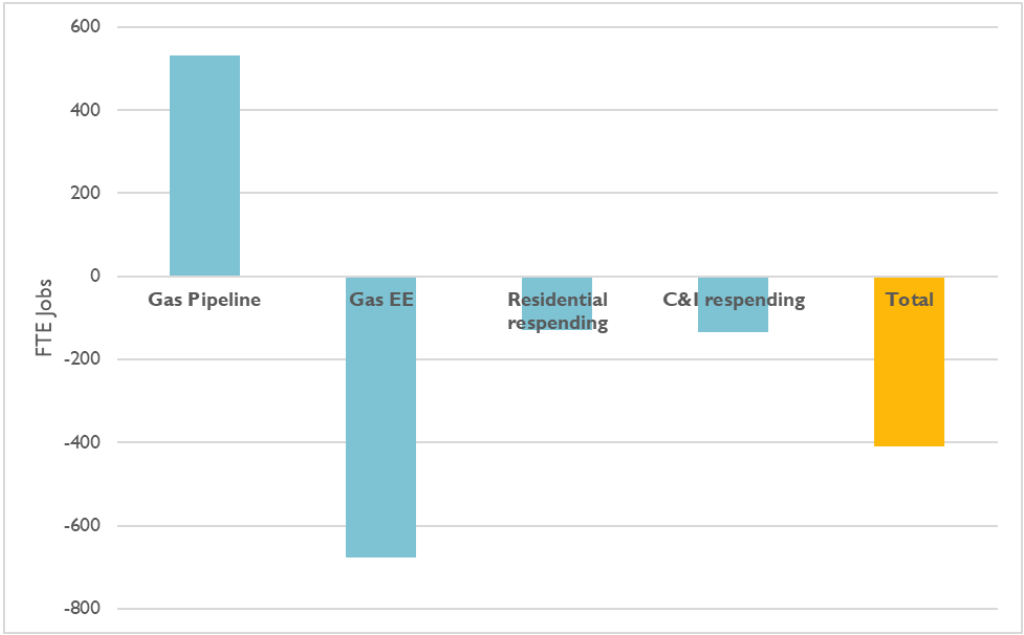
Wisconsin - Lifetime Macroeconomic Results

- Results in 1,530 more full time jobs and $85 million more income



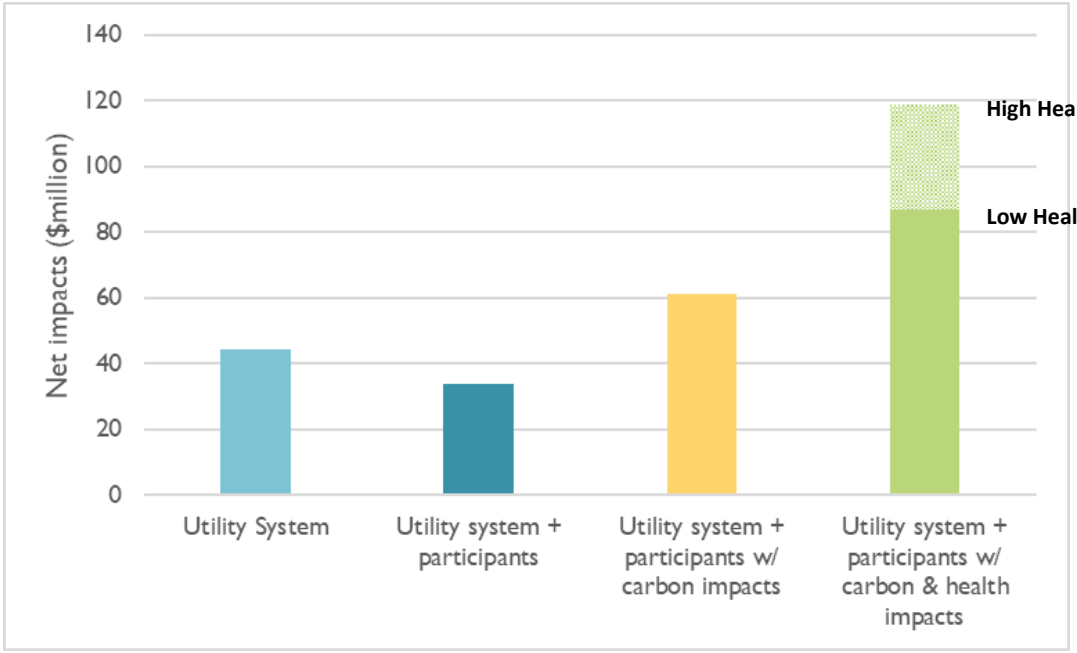
Iowa (gas EE) - Lifetime Macroeconomic Results

- Results in 410 fewer full-time jobs and $20 million less income



Illinois - Lost net benefits of the Policy Case relative to the Reference Case

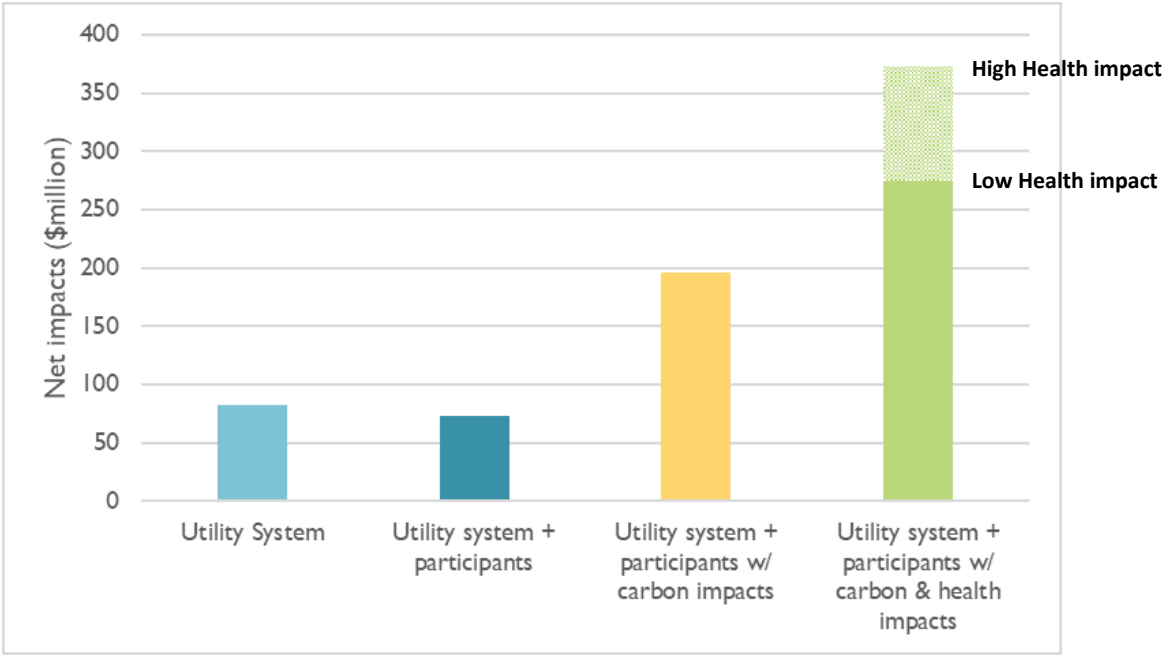
Impact of large customer exemption policy in Illinois



Note: the utility system impacts includes $14 million net lost benefits to non-program participants.

Indiana - Lost Net Benefits of the Policy Case relative to the Reference Case

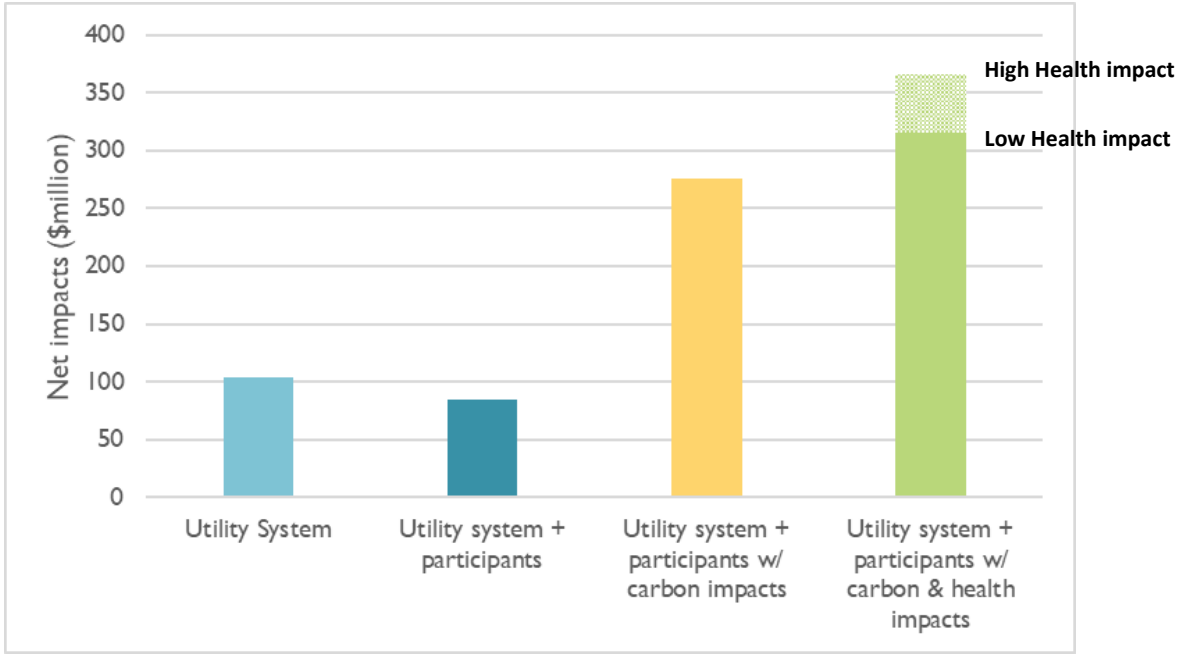
Impact of the large customer opt-out policy and the repeal of the EERS in Indiana



Note: the utility system impacts includes $21 million net lost benefits to non-program participants.

Iowa - Lost net benefits of the Policy Case relative to the Reference Case

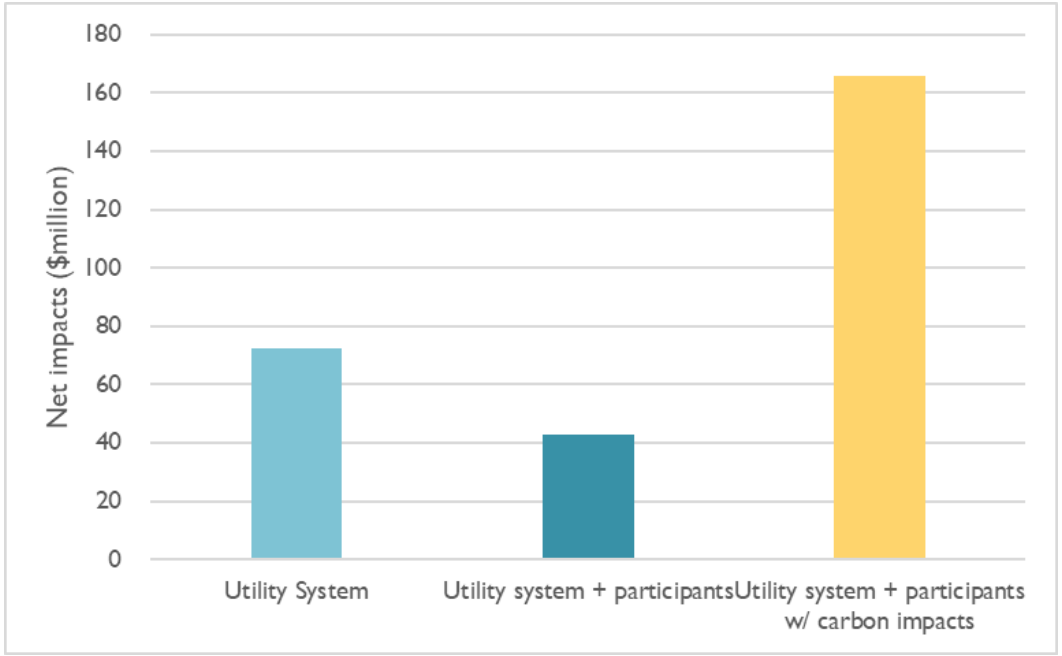
Impact of the budget cap policy on the electric EE programs in Iowa



Note: the utility system impacts includes $25 million net lost benefits to non-program participants.

Iowa (gas EE) - Lost Net Benefits of the Policy Case relative to the Reference Case

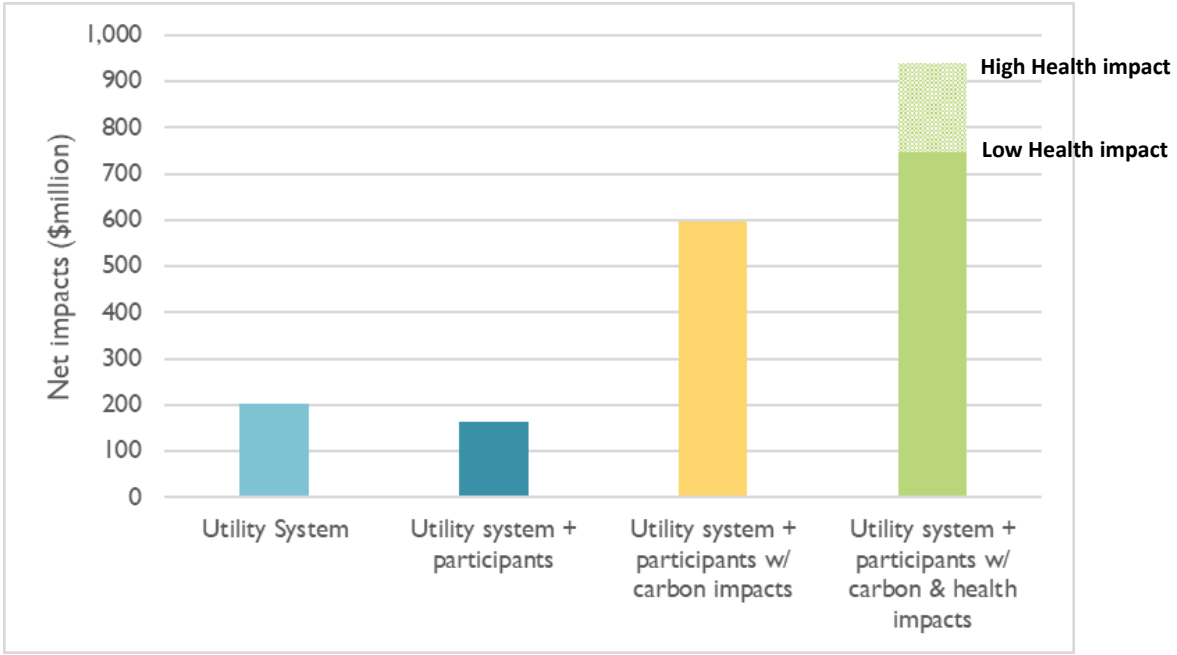
Impact of the budget cap policy on the gas EE programs in Iowa



Note: the utility system impacts includes $8 million net lost benefits to non-program participants.

Missouri - Lost Net Benefits of the Policy Case relative to the Reference Case

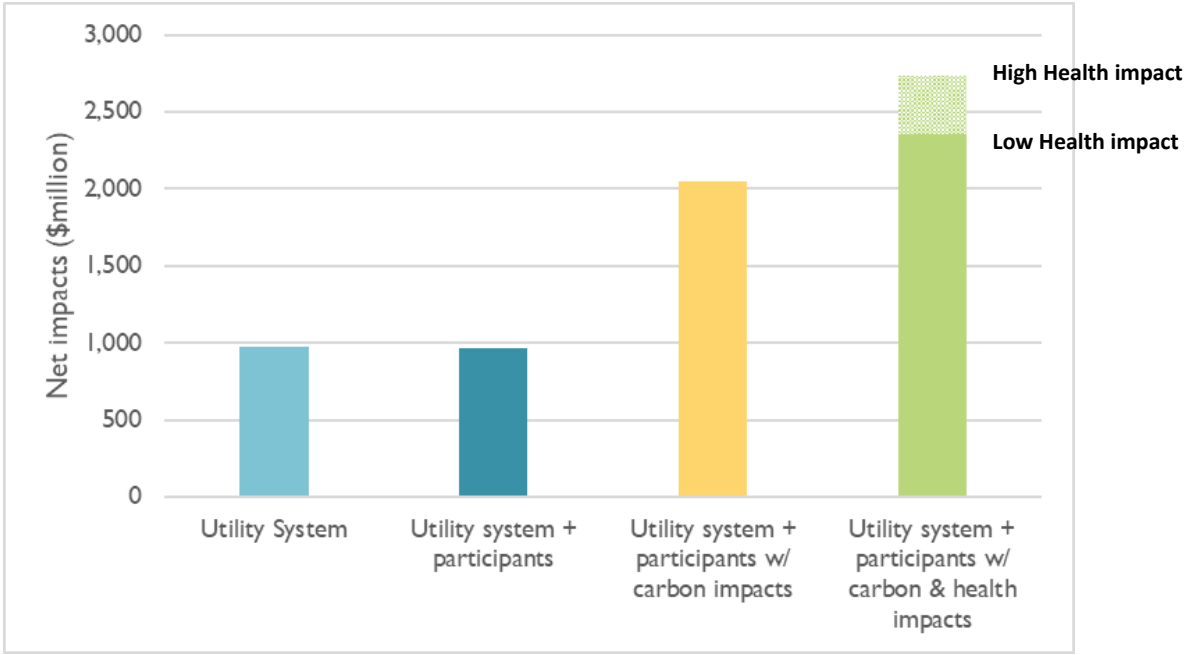
Impact of the PSC staff's proposal on the electric EE programs in Missouri



Note: the utility system impacts includes $70 million net lost benefits to non-program participants.

Ohio - Lost Net Benefits of the Policy Case relative to the Reference Case

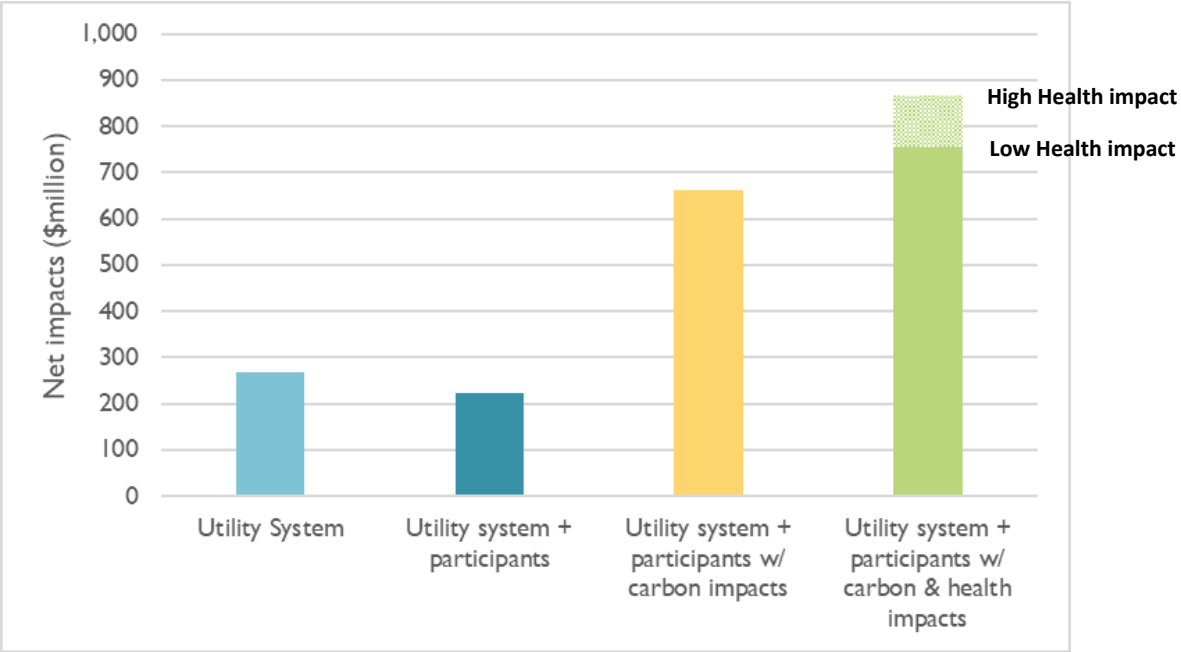
Impact of the repeal of the EERS on the electric EE programs in Ohio



Note: the utility system impacts includes $290 million net lost benefits to non-program participants.

Wisconsin - Net Benefits of the Policy Case relative to the Reference Case

Impact of the proposed budget increase on the electric EE programs in



Note: the utility system impacts includes $56 million net lost benefits to non-program participants.

