



***Economic Impact of the American Clean
Energy and Security Act of 2009 (H.R.2454)***

State-level Results : Ohio



INTERNATIONAL

Prepared by:

David Montgomery, Robert Baron,
Paul Bernstein, Scott Bloomberg,
Anne Smith, Sugandha Tuladhar, and
Mei Yuan

CRA International

1201 F Street, N.W., Suite 700
Washington, D.C. 20004

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This report provides estimated state-specific economic impacts for selected states resulting from adoption of H.R.2454. The report reflects a detailed account of how participants in the economy respond to future considerations and reflects CRA International’s current assumptions regarding implementation of the bill. Underlying the state results are the national results, which are also summarized in this report. The baseline has been formulated based upon the Energy Information Administration’s *Annual Energy Outlook 2009 Early Release*. A summary of the key provisions of H.R.2454 underlying the analysis is provided below.

Provision	Details
Combined efficiency and renewable electricity standard	Requires specified percentages of a baseline level of electricity sales to be met with qualified resources; baseline level excludes certain existing hydroelectric generation, sales from small LDCs and generation from new nuclear and carbon capture and storage (CCS) units.
Greenhouse gas cap & trade	Cap on covered emissions from 2012-2050, allows banking/borrowing.
Offsets	Annually allows for up to 2 billion in offsets split between domestic and international offsets. International avoided deforestation offsets are assumed to not be available.
Allowances for carbon capture and storage	Funds from allowances are used to bring online 3 GW of new CCS in 2020.
Allocation provisions and revenue recycling	Regional and U.S. welfare impacts reflect H.R.2454 provisions for free allocations to industries and for investments in CCS and adaptation. All auctioned revenues are recycled to U.S. consumers.

Key Definitions

Employment Impact

Change in full-time job equivalents from baseline represents the net of green jobs gained and job losses in other sectors due to imposition of bill's mandates. It assumes that jobs would be shed in equal proportions across the entire wage distribution.

Household Purchasing Power Impact

Change in household purchasing power (or real income) expressed relative to 2010 baseline consumption (represents effect on average U.S. household). The impacts would be larger if stated against projected future baseline income levels.

Gross State Product Impact

Change in the total value added of industries within the state in a year, expressed as a percentage change from the baseline.

Electricity Retail Price Impact

Change in delivered electricity price to households from baseline.

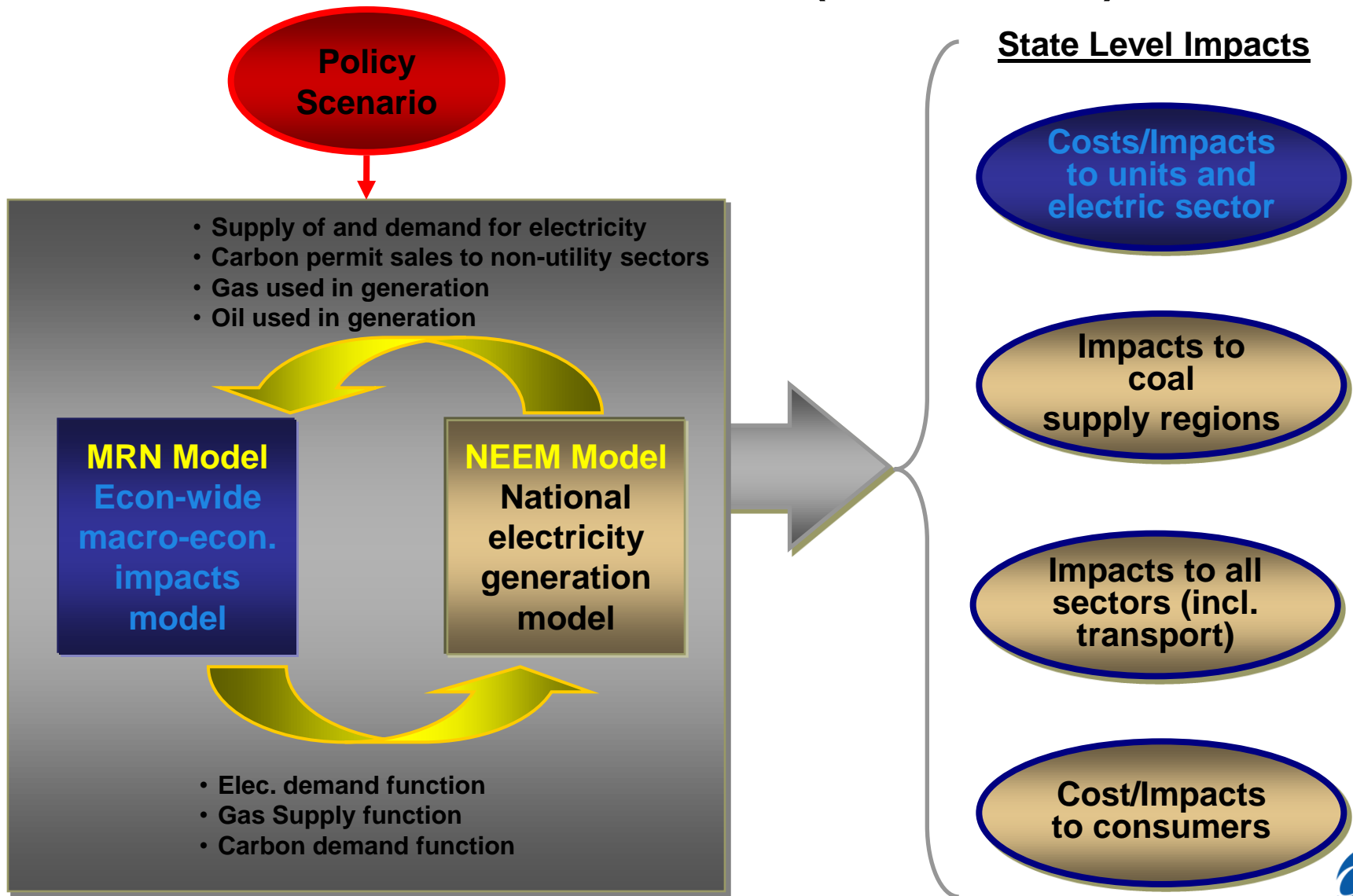
State Tax Receipts Impact

Change in state tax revenues from baseline.

Sector Definitions

Energy-Intensive Sectors	Industries that rely heavily on energy as a production input (e.g., iron, steel, chemicals, cement).
Motor Vehicles and Related Parts	Production of motor vehicles and complementary products..
Services	Individuals and businesses that produce services rather than goods. The sector includes wholesale and retail trade.
Manufactured Goods	Production and refinement of industrial and consumer goods (e.g., electronic components, machinery, textiles).

This Analysis was Performed using CRA's Suite of Economic Models (MRN-NEEM)



The Multi-Region National Model (MRN)

MRN is a **forward looking, dynamic** computable general equilibrium (CGE) model of **state-specific** impacts and state level interaction in the U.S. economy

Inputs

- New IMPLAN data including 2002 input-output matrices and trade flow data
- EIA state-level energy production, consumption and price data



Flexible Sectoral and State Coverage

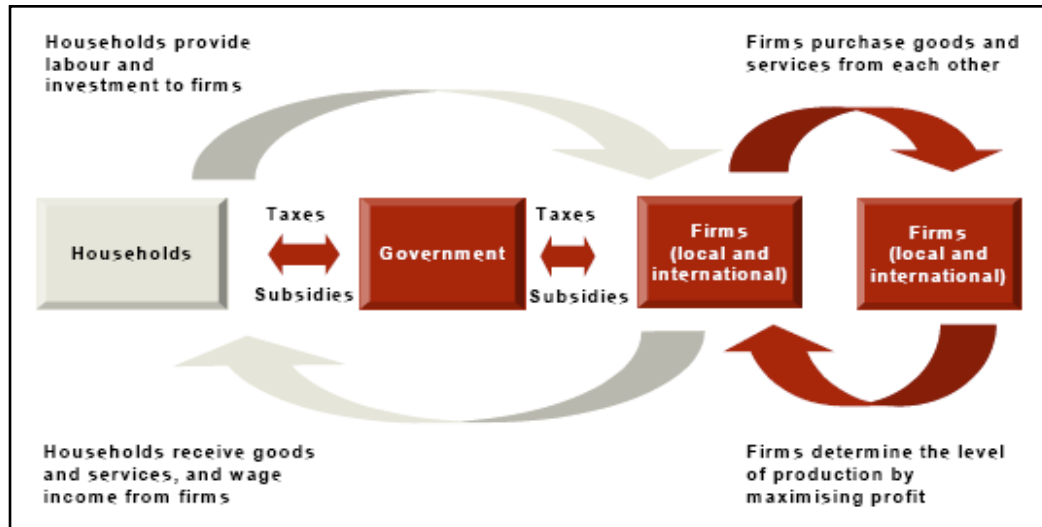
- **Energy Sectors** - electricity, coal, crude oil, natural gas, refined petroleum products
- **Non-Energy Sectors** – can be aggregated based on analysis needs
- **Adaptable Regional Aggregation** – down to the state level



Key Economic Mechanisms

- Possibility of premature retirement of capital
- Impacts on government budgets, tax interaction and “double dividend” effects
- Improvement in technology over time or in response to policies
- Sufficiently long time horizon to capture anticipation of future policies

CGE Model



Analysis

- Simulates patterns of investment and consumption behavior that maximize consumer welfare over time
- Can capture impacts at a state level
- Captures changes in energy demand and fuel prices that cannot be modeled without modeling the entire US energy sector

National Impacts

Projected Economic Impacts of H.R.2454

	2015	2020	2025	2030
Estimated Employment Impact (Change in full-time job-equivalents)	-1,556,000	-1,945,000	-2,165,000	-2,435,000
Estimated Household Purchasing Power Impact (Cost per household in 2008\$)	-\$910	-\$1,010	-\$1,090	-\$1,170
Estimated Gross Domestic Product Impact (Percentage change %)	-0.7%	-0.9%	-1.1%	-1.3%
Estimated Electricity Retail Price Impact (Change in ¢/kWh in 2008\$)	1.8¢	2.7¢	3.1¢	3.9¢
Estimated Carbon Allowance Prices (2008\$ per Metric Ton CO ₂)	\$33	\$42	\$53	\$67

Projected Sector Output Impacts in Year 2030 (Percentage change in output by industrial sector)				
	Energy-Intensive Sectors	Motor Vehicles and Related Parts	Services	Manufactured Goods
Percentage Change (%)	-1.8%	-0.4%	-0.9%	-0.9%

Notes:

Impacts are measured relative to the baseline

A value “NR” indicates the size of the industry in the given state is too small to make meaningful conclusions based on the projected impacts

Ohio Impacts

Projected Economic Impacts of H.R.2454

	2015	2020	2025	2030
Estimated Employment Impact (Change in full-time job-equivalents)	-79,300	-102,300	-103,900	-114,100
Estimated Household Purchasing Power Impact (Cost per household in 2008\$)	-\$850	-\$940	-\$990	-\$1,070
Estimated Gross State Product Impact (Percentage change %)	-0.9%	-1.3%	-1.4%	-1.8%
Estimated Electricity Retail Price Impact (Change in ¢/kWh in 2008\$)	2.0¢	3.3¢	3.7¢	4.6¢
Estimated State Tax Receipts Impact (Change in million 2008\$)	-\$470	-\$640	-\$770	-\$960

Projected State Sector Output Impacts in Year 2030 (Percentage change in output by industrial sector)				
	Energy-Intensive Sectors	Motor Vehicles and Related Parts	Services	Manufactured Goods
Percentage Change (%)	-3.4%	-2.2%	-0.9%	-1.7%

Notes:

Impacts are measured relative to the baseline

A value “NR” indicates the size of the industry in the given state is too small to make meaningful conclusions based on the projected impacts