

Cap-and-invest Systems

Critical to Achieving Emission Reductions

REV2019 CONFERENCE & EXPO

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Karen Glitman

Senior Director, Transportation and Infrastructure Markets



Center for
Sustainable
Energy™

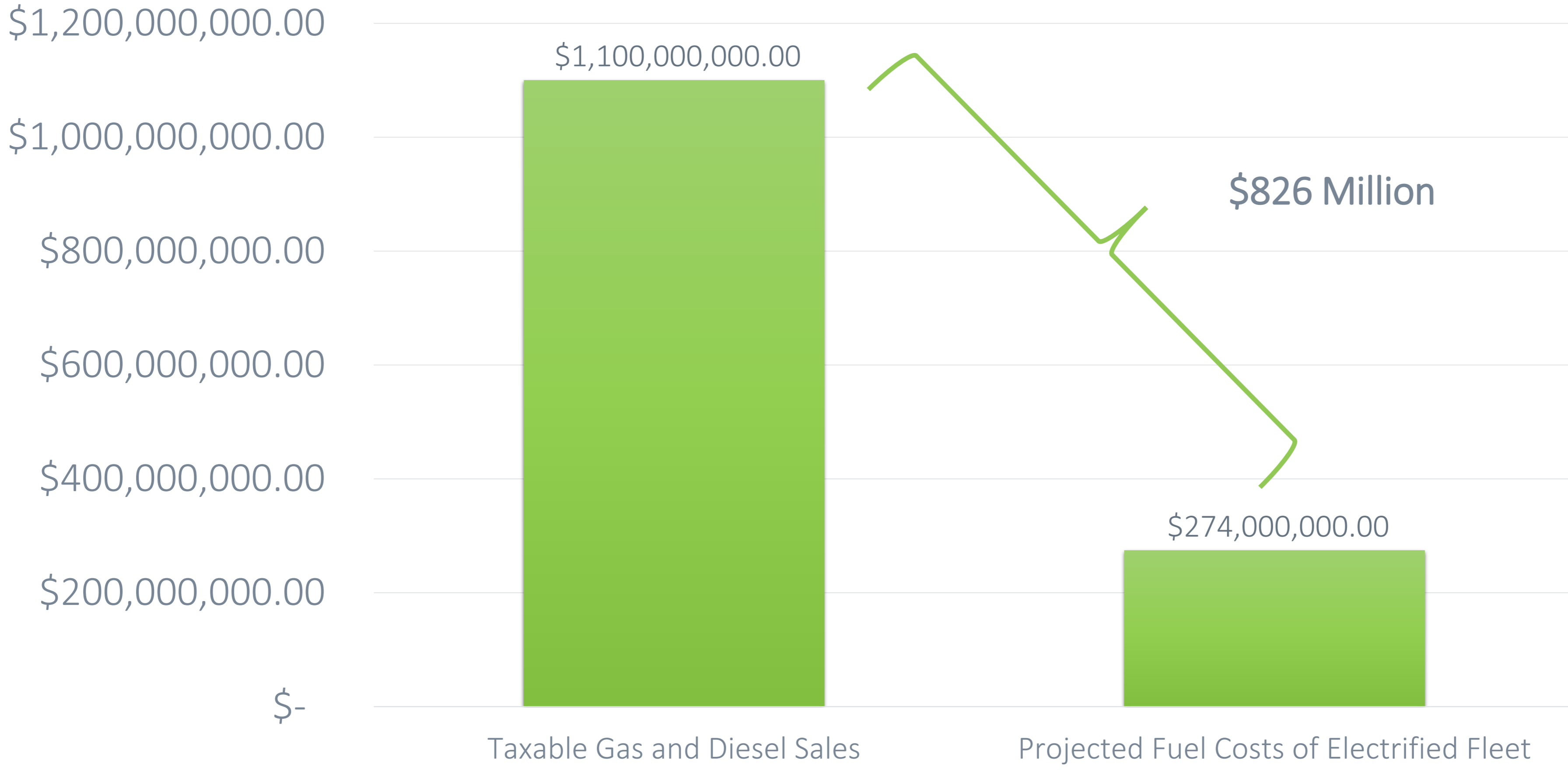
“Our house is on fire.”

Greta Thunberg

Too Hot for Human Survival



Vermont Consumer Expenditures



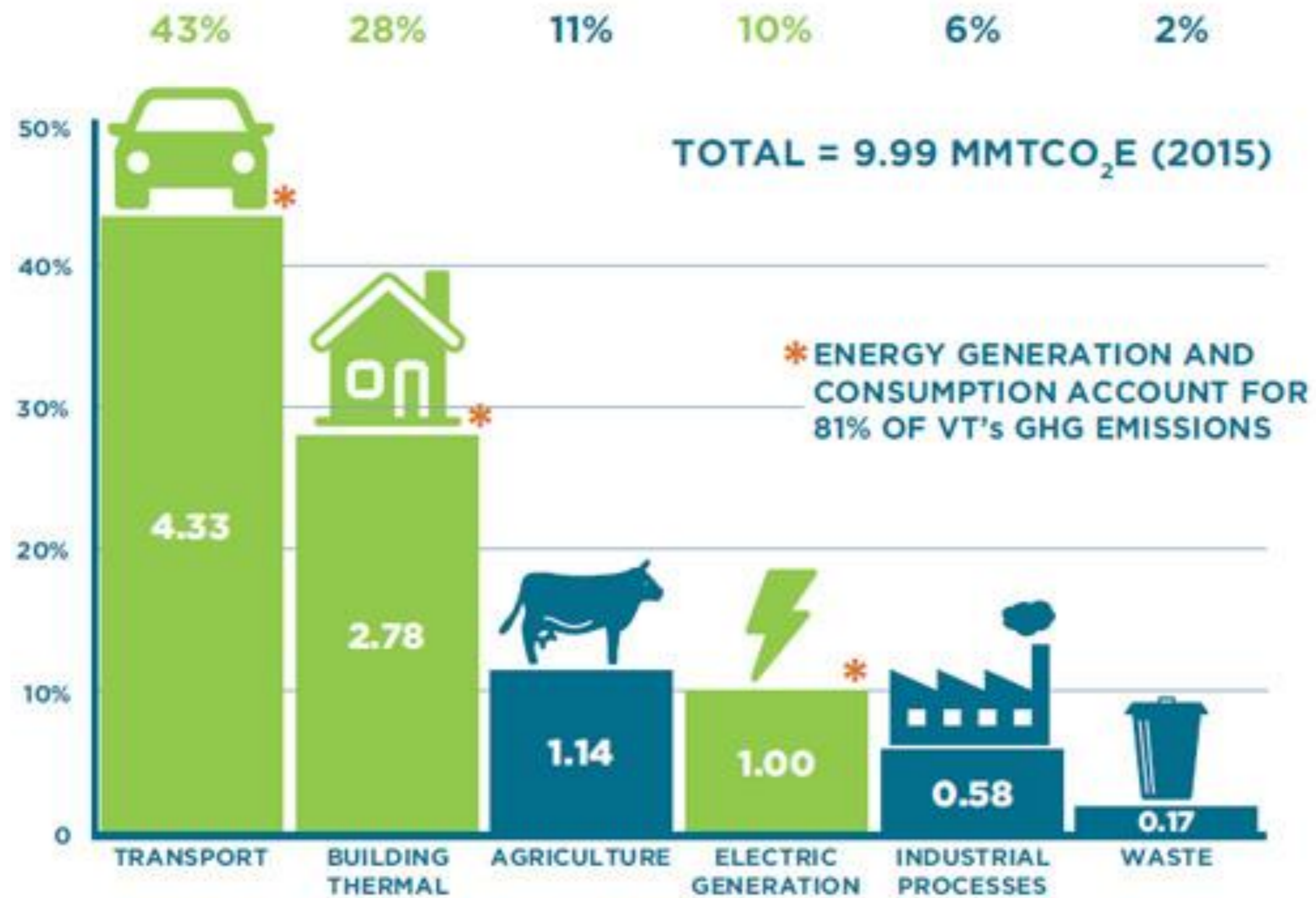
Vermont Consumer Expenditures



Source: The Benefits of Achieving Vermont's Energy Commitments, 2018 Annual Progress Report, Energy Action Network

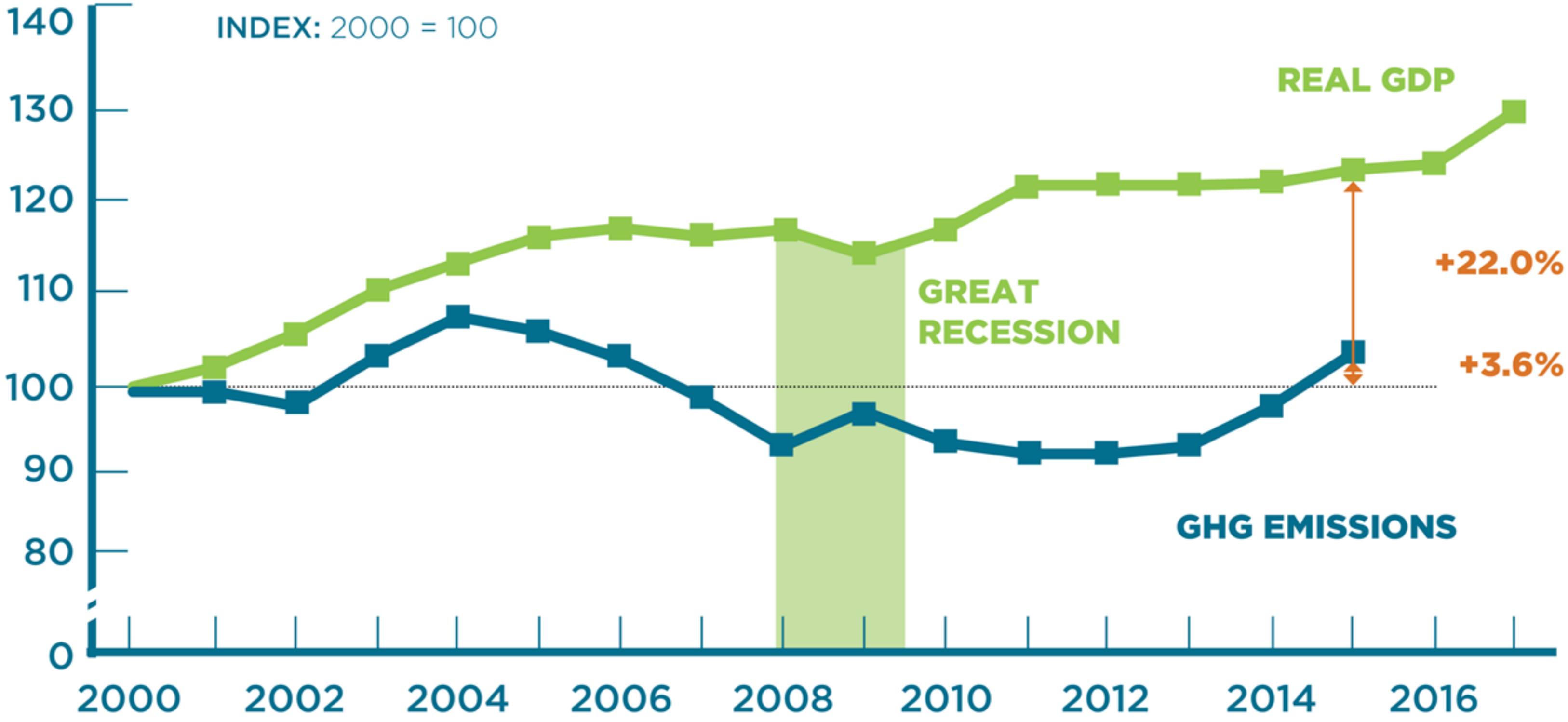
Vermont Consumer Expenditures

Vermont's GHG emissions by sector



1. 2018 Greenhouse Gas Emissions Inventory Brief (1990-2015), VT Agency of Natural Resources.

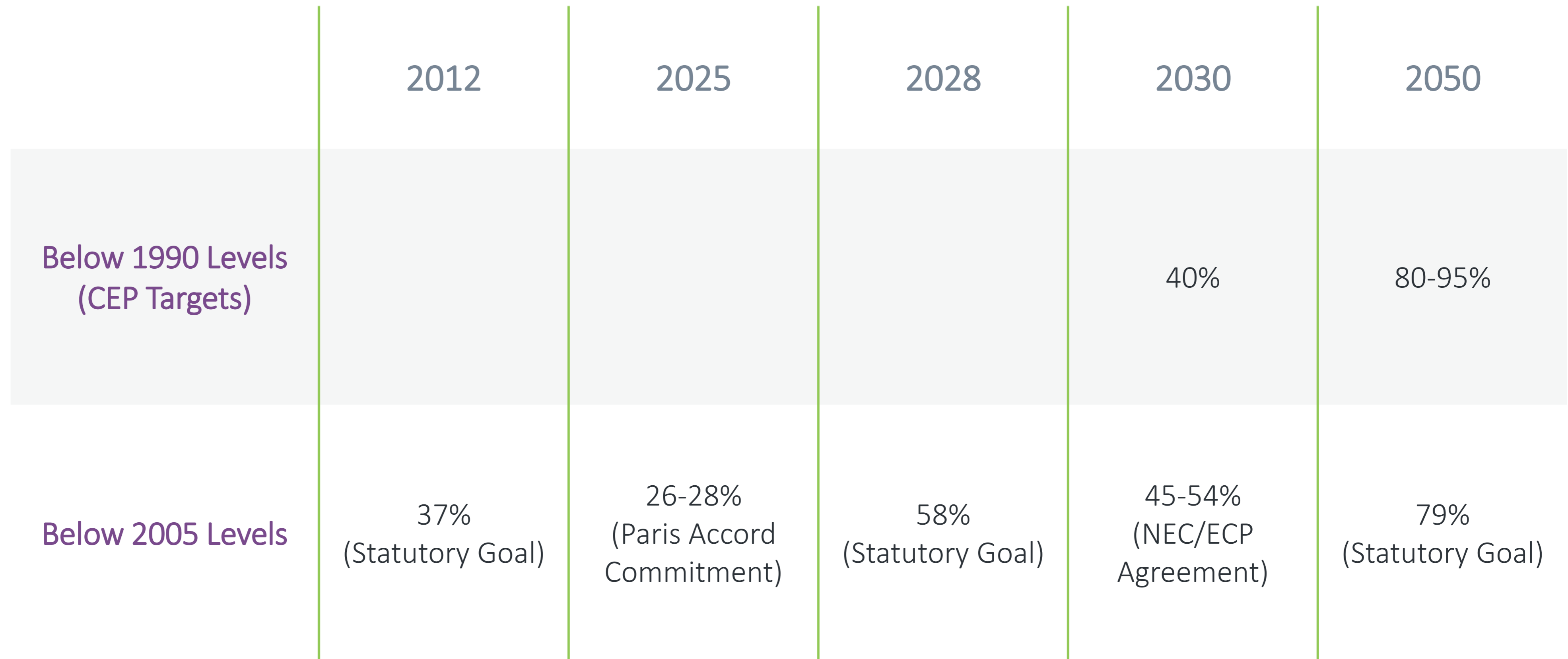
Vermont Consumer Expenditures



Source: Emissions: 2018 Greenhouse Gas Emissions Inventory Brief (1990-2015), VT Agency of Natural Resources. GDP: Federal Reserve Economic Data.



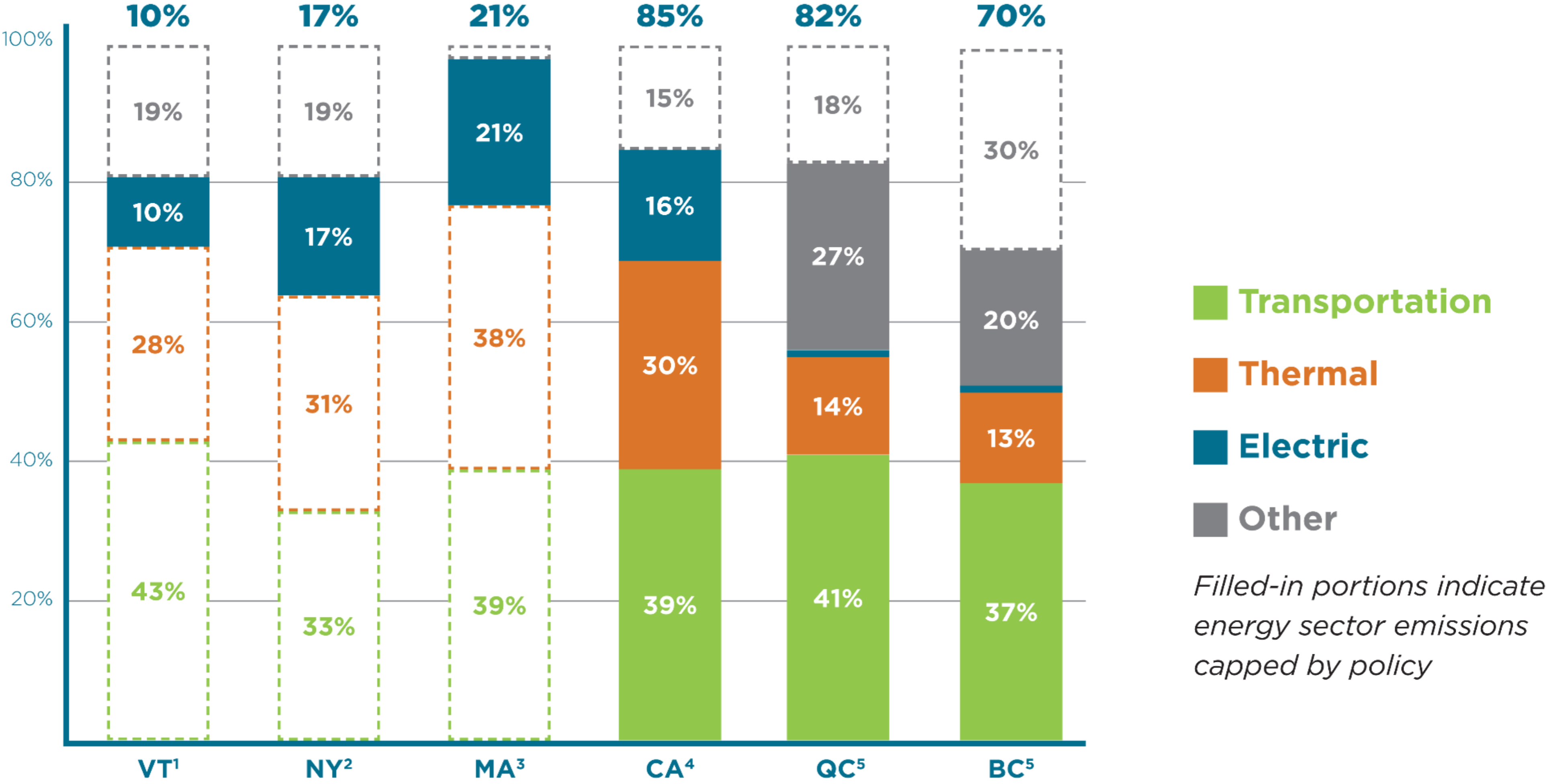
Vermont GHG Reduction Commitments



10 V.S.A. § 578 (d) (2005)

In order to increase the likelihood of the State meeting the goals established under this section, the Public Utility Commission, the Secretary of Natural Resources, and the Commissioner of Public Service **shall advocate** before appropriate regional or national entities and working groups **in favor of the establishment of a regional or national cap and trade program for greenhouse gas emissions, including those caused by transportation, heating, cooling, and ventilation.**

Percent of Emissions Covered by Statewide Decarbonization Program



Sources and Notes: 1. 2018 Greenhouse Gas Emissions Inventory Brief (1990-2015), VT Agency of Natural Resources. 2. New York State Greenhouse Gas Inventory: 1990-2015, NYSERDA. 3. MA GHG Emission Trends, Executive Office of Energy and Environmental Affairs. 4. California Greenhouse Gas Emissions Inventory - 2018 Edition, California Air Resources Board. 5. Canada's greenhouse gas inventory, Environment and Climate Change Canada.

North American Cap-and-Invest Systems

Cap-and-Invest Systems			
	California	Quebec	RGGI
Sectors Covered	Electricity, Transportation, Heat, Industry	Electricity, Transportation, Heat, Industry	Electricity
% of total GHG covered	80%	85%	20% (region) 10% (Vermont)
Emissions covered	CO ₂ , CH ₄ , N ₂ O, SF ₆ , HFCs, PFCs, NF ₃	CO ₂ , CH ₄ , N ₂ O, SF ₆ , HFCs, PFCs, NF ₃	CO ₂ only
Emissions reduction	8% (2012-2016)	2.8% (2012-2016)	40% electric sector (2009-2016)
GDP growth	29% (2012-17) US – 26% (2012-2017)	22% (2012-2016)	21.2% (2009-2017) US - 18.2% (2009-2017)
Proceeds received	\$9.3B in 5 years (2013-2018)	\$2.8B (CAD) in 4 years (2014-2018)	\$2.6B in 10 years (2008-2018)

WCI

Disposition of Auction Proceeds

Vermont RGGI funds are deposited into the electric efficiency fund and used for thermal efficiency programs.

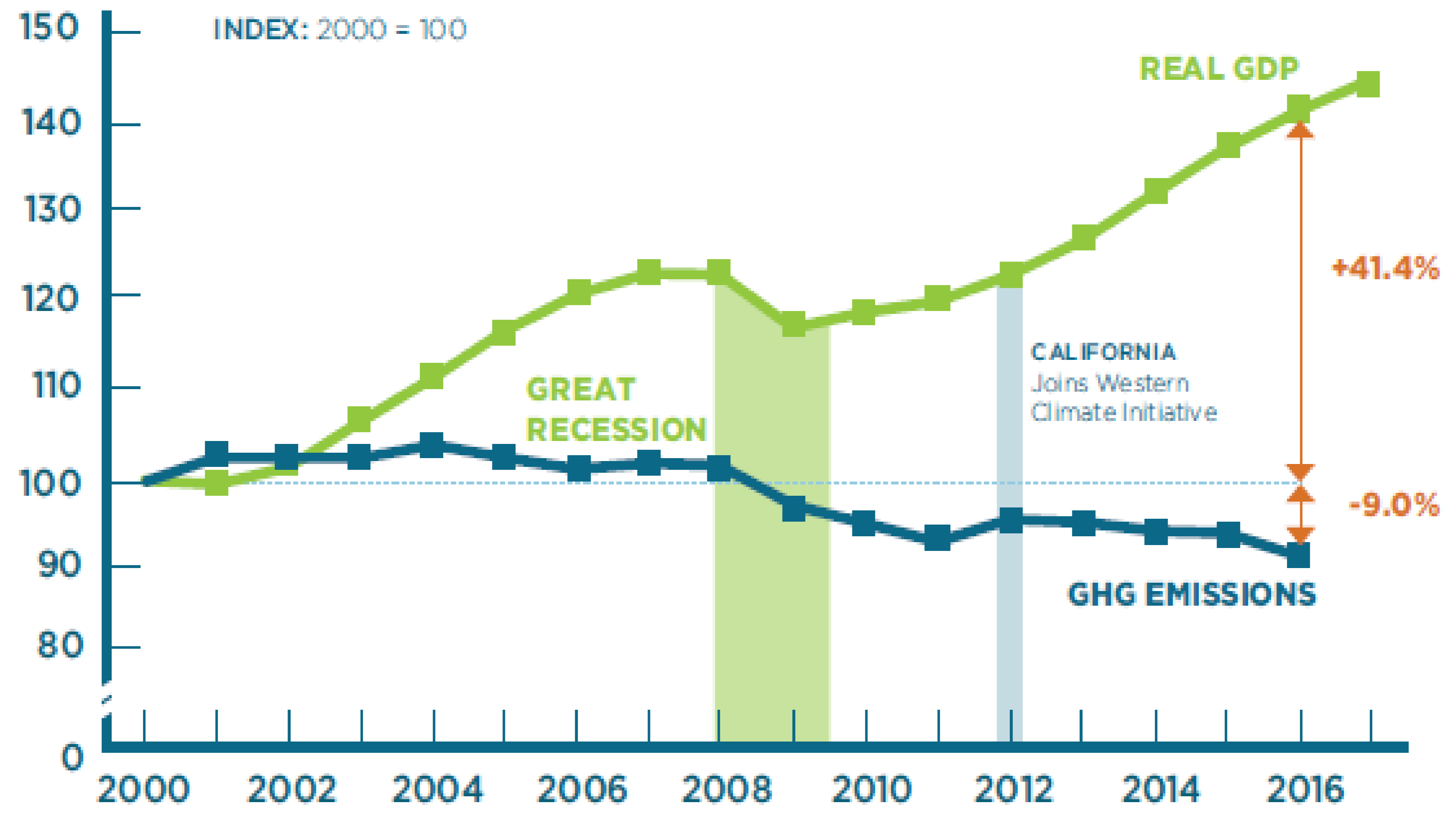
California revenues are broadly appropriated to state agencies that develop the programs and projects in support of AB 32 and SB 32 objectives.

Quebec revenues are directed by the Green Fund Board in support of the 2013-2020 Climate Change Action Plan.

Investment Priorities

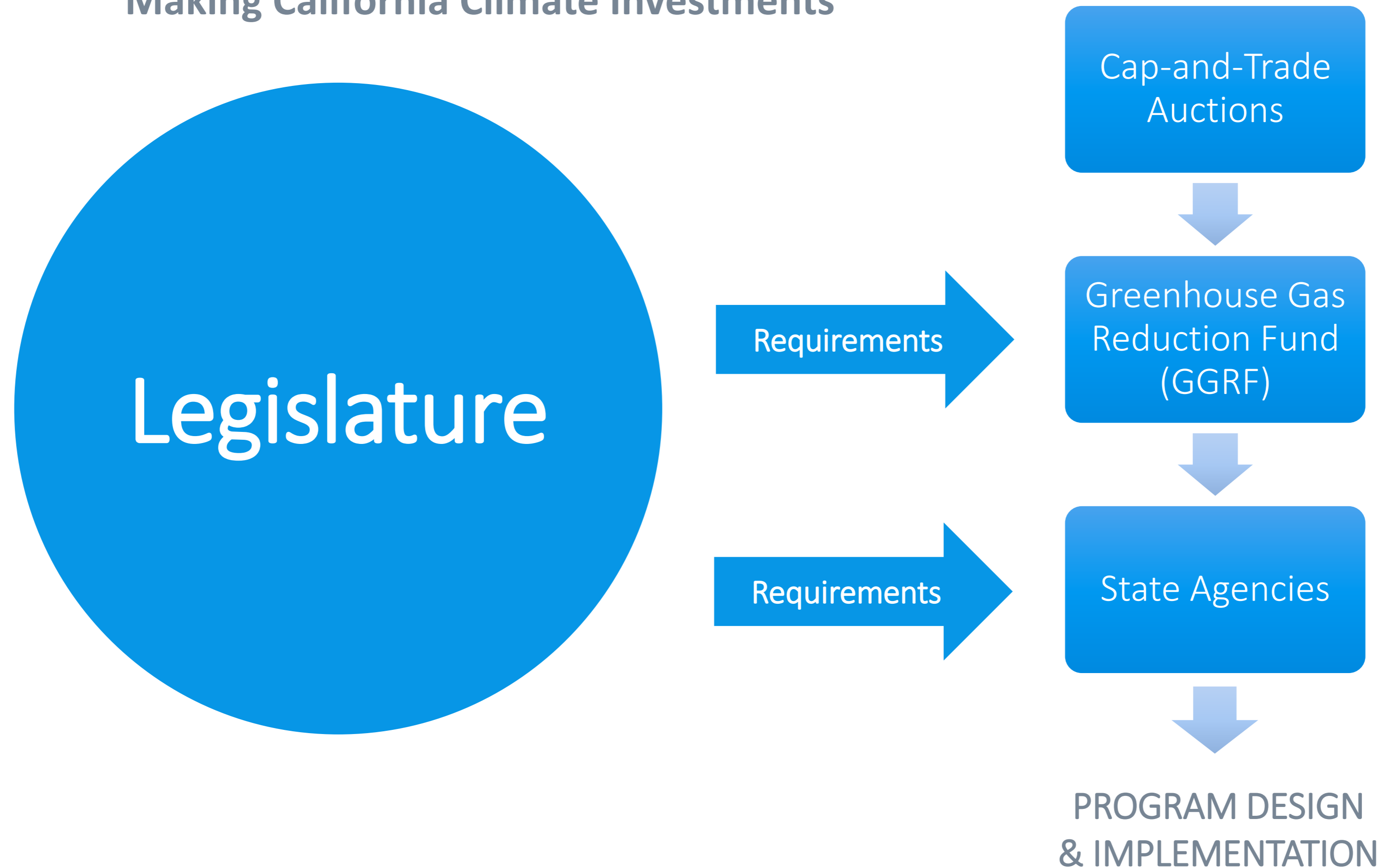
California Investments		Quebec Investments		RGGI Investments	
Transportation and Sustainable Communities (11 programs)	80%	Mobility of People and Goods	67.0%	Energy Efficiency	55%
Clean Energy & Energy Efficiency (10 Programs)	5%	Industry support	8.0%	Clean & Renewable Energy	17%
Natural Resources and Waste Diversion (16 programs)	14%	Sustainable Buildings	7.0%	GHG Abatement	11%
		Community support - Land Use, planning, risk management	5.0%	Direct Bill Assistance	11%
		Research and Development	4.0%	Administration	5%
		Education and Outreach	3.0%	RGGI, Inc.	0.40%
		Renewable Energy	2.0%		
		Coordination, monitoring and accountability	2.0%		
		Biodiversity	1.0%		
		Health	1.0%		
		Government lead the way	1.0%		
		Support vulnerable economic players	1.0%		
		Adaptation	0.4%		
		Waste management	0.4%		
		Agriculture	0.4%		
		Establishing carbon market	0.3%		

California - Emissions and Economic Growth



California - Emissions and Economic Growth

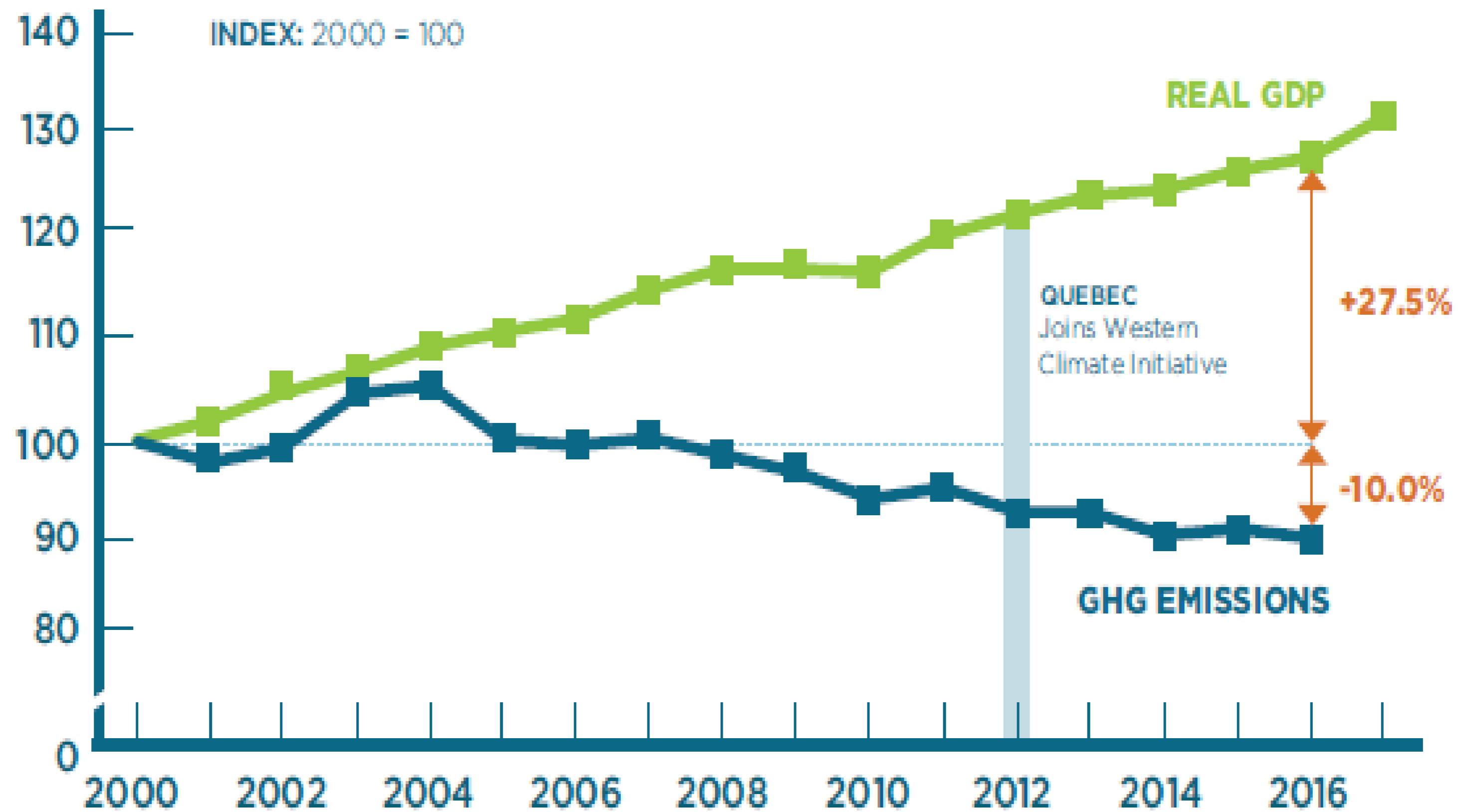
Making California Climate Investments



Clunkers to EVs



Quebec - Emissions and Economic Growth



Quebec Green Fund Revenue and Investments

Combating Climate Change

REVENUES

Carbon Auction Proceeds



INVESTMENT

Climate Change Action Plan

Cap-and-Invest - Elements to Establish



1 States determine the emissions and sectors to be capped and develop emissions reporting requirements.



2 States establish a cap on the emissions.



3 States establish a point of regulation, set rules for applying the compliance obligation and establish monitoring and enforcement protocols.



4 States auction allowances.

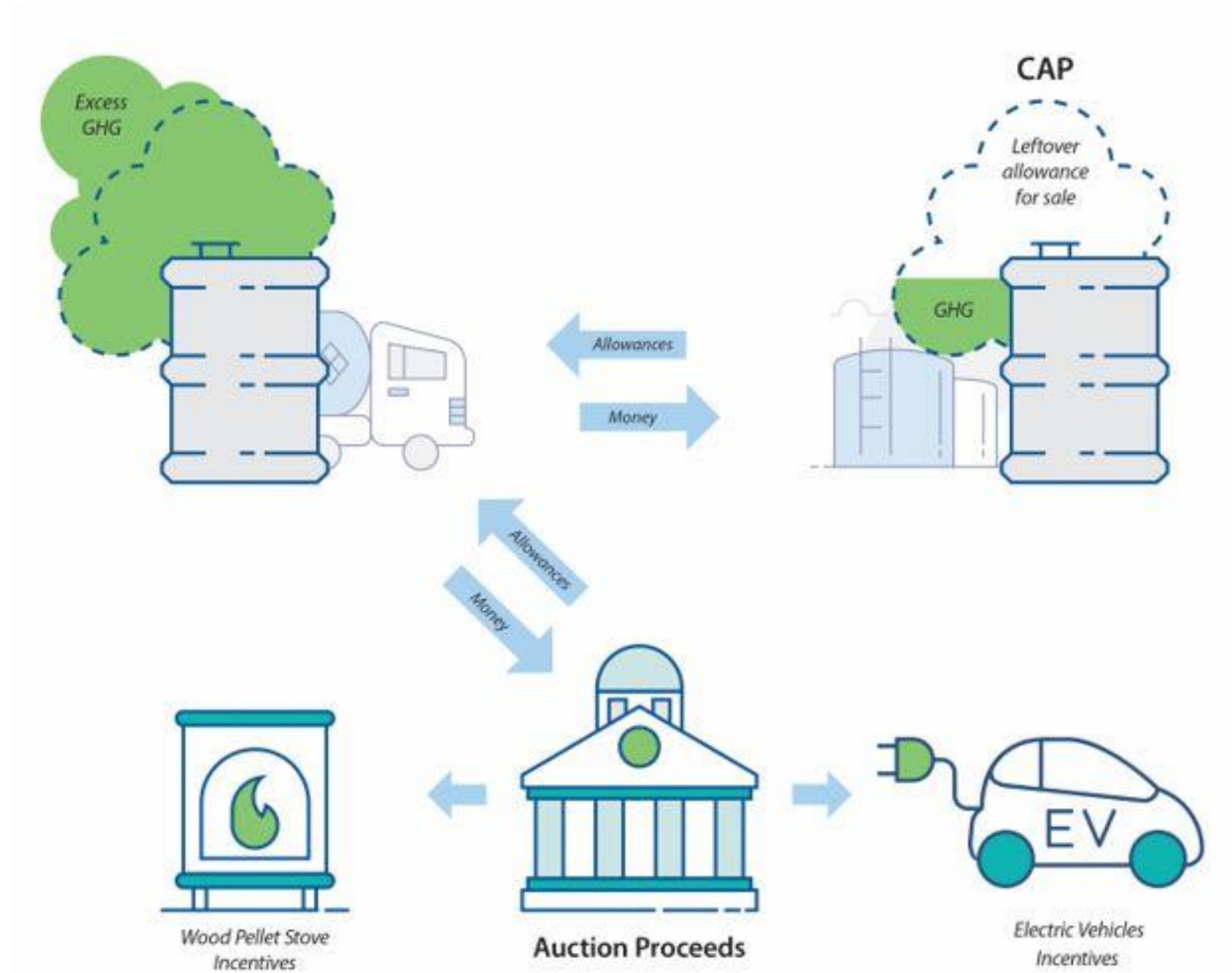


5 Regulated entities comply by procuring allowances equal to their obligations.



6 States decide how to invest the auction proceeds.

Cap-and-Invest System Outline



Vermont – Potential Annual Gross Carbon Revenues by Sectoral Coverage

Sectoral Coverage	2012	2025	2028
Economy-wide (Electricity Exempt)	99.4	120.8	147.0
Transporting and Heating	94.1	114.3	138.9
Transportation Only	62.1	74.7	89.6

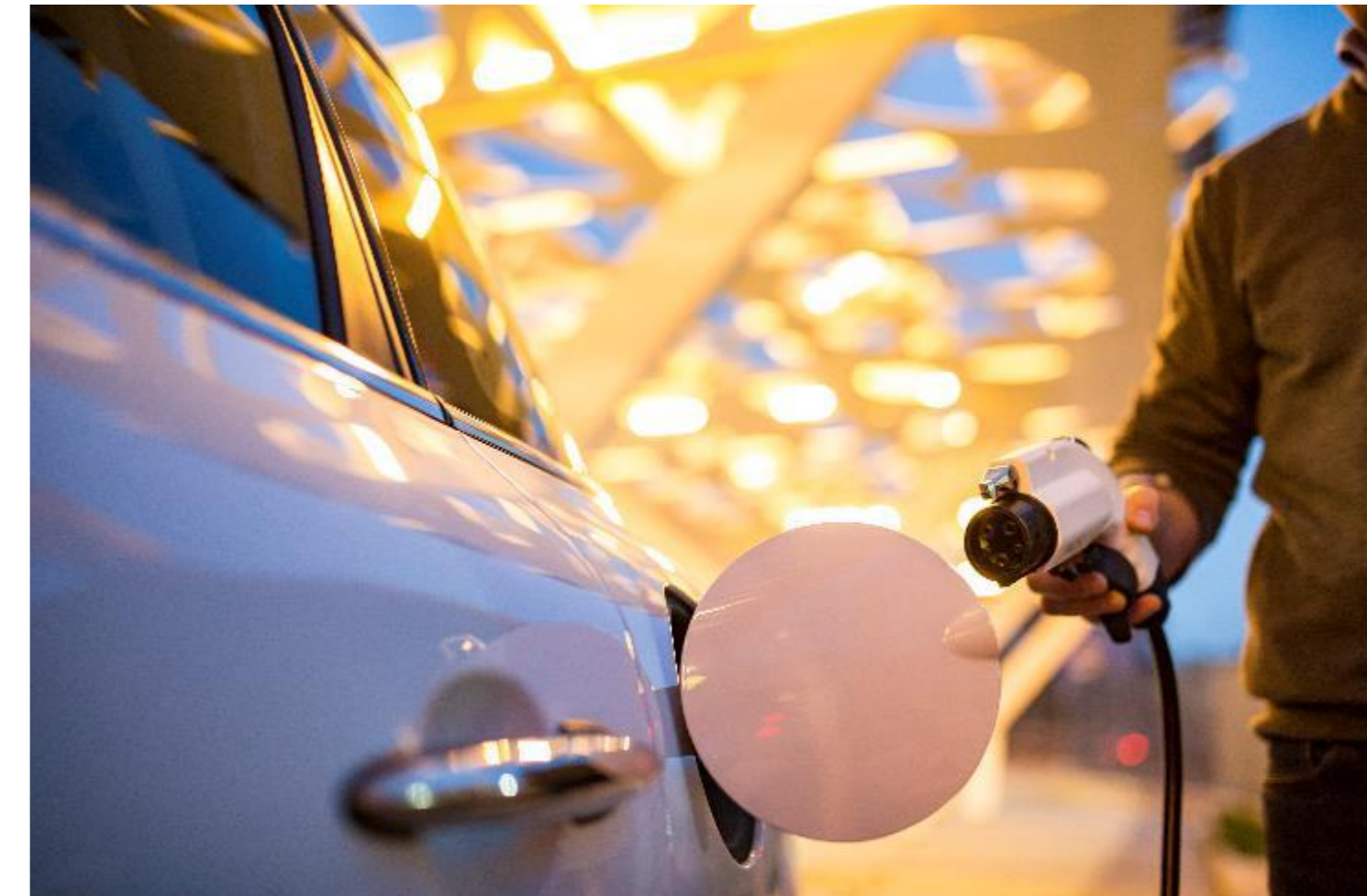
Concluding Thoughts

A successful cap-and-invest program should not last indefinitely.

A successful program will achieve its emission reductions and phase out.

The goal of this effort is to use market forces to adopt cost-effective low/no-emitting practices in time to solve the climate crisis.

The sooner we begin this work, the sooner the benefits can be realized.



One simple mission —

DECARBONIZE.

Our vision is a future with sustainable, equitable and resilient transportation, buildings and communities.

Corporate Slides

—

About CSE

A mission-driven 501(c)(3) nonprofit organization

Offering scalable clean energy program administration and technical advisory services for more than 20 years.

A national footprint, headquartered in San Diego, CA

Regional offices:

CA: Los Angeles, Oakland, Sacramento, MA: Boston, NY: Brooklyn, Stony Brook

185+ dedicated, mission-driven employees

Managing ~50 projects and programs

National programs | Statewide incentive projects | Region-specific solutions

Neutral and Trusted

Operations

Funded by delivering service for value under contract

- No members or donors to influence positions or actions
- Less than .2% donor funding

Nonprofit

No shareholder pressure for profit and dividends

Neutral funding source drives credibility

- Program administration
- Program evaluation
- Advisory services
- Demonstration/Validation
- Policy



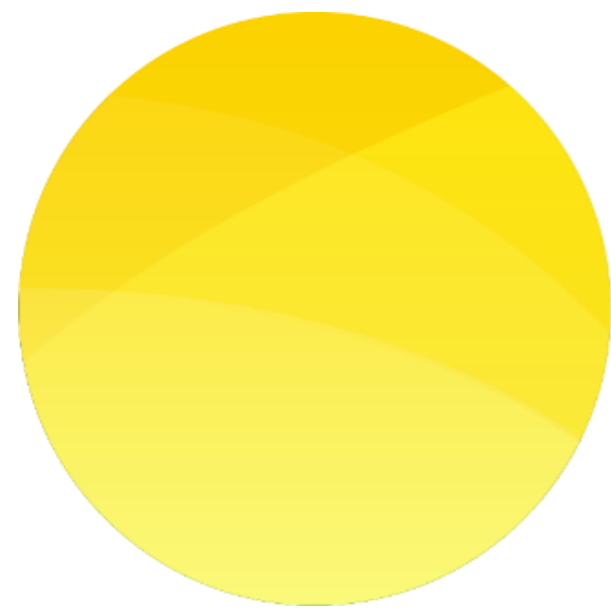
Core Values

We lead with the passion and heart of a nonprofit and the operational experience and efficiency of a for-profit. To execute our mission and realize our vision, we integrate our values throughout our operations.

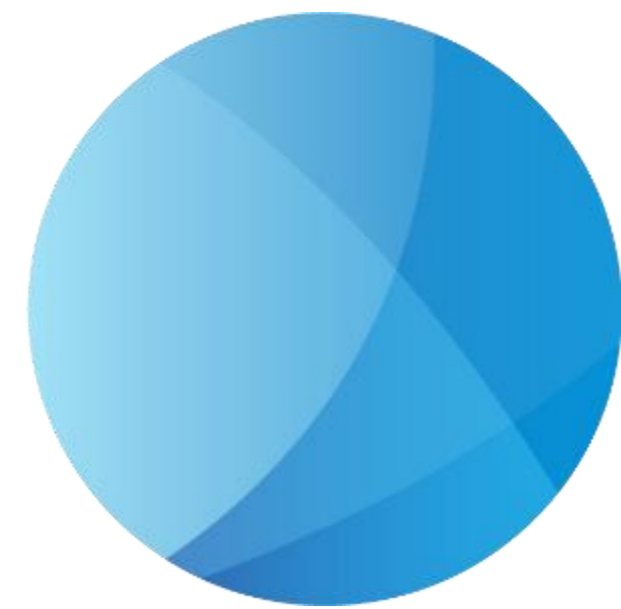


Core Values

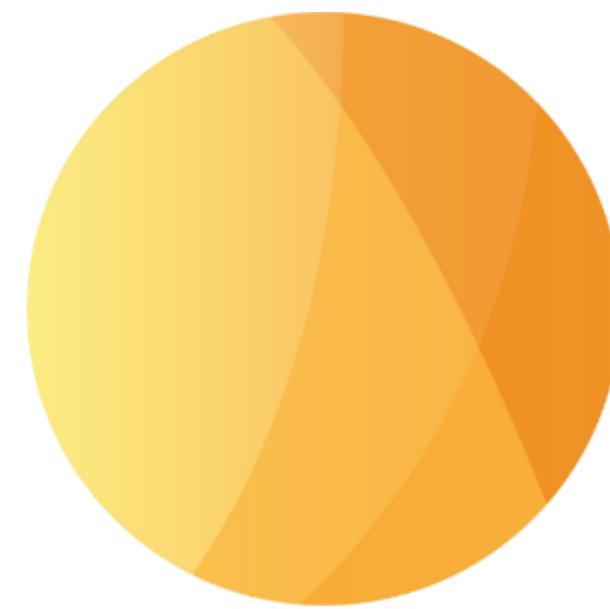
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Sustainability



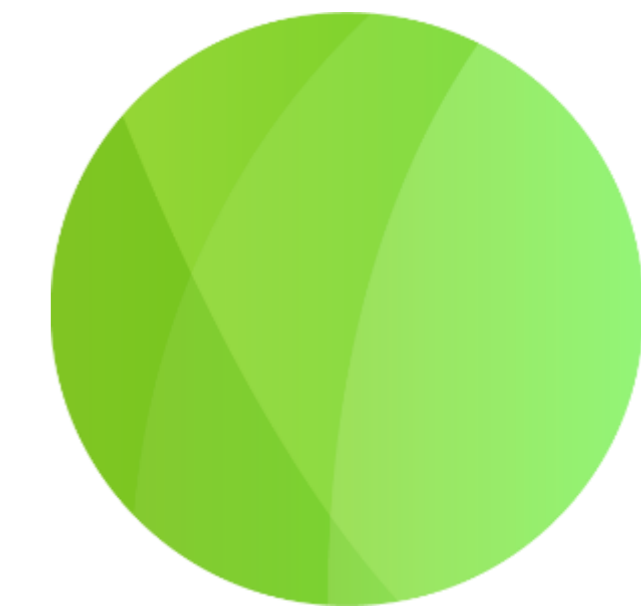
Equity



Transparency



Resiliency



Policy

Areas of Expertise



Clean Transportation

Adoption of electric vehicles and deployment of charging infrastructure



Built Environment

Advancing energy efficiency and renewable resources



Technology Convergence

Interconnecting systems to achieve decarbonization

Billion Dollar Program Management Experience

Clean Vehicle Rebate Program

- \$700 million+
- 300K vehicles
- 800 GB EV consumer data

CALeVIP

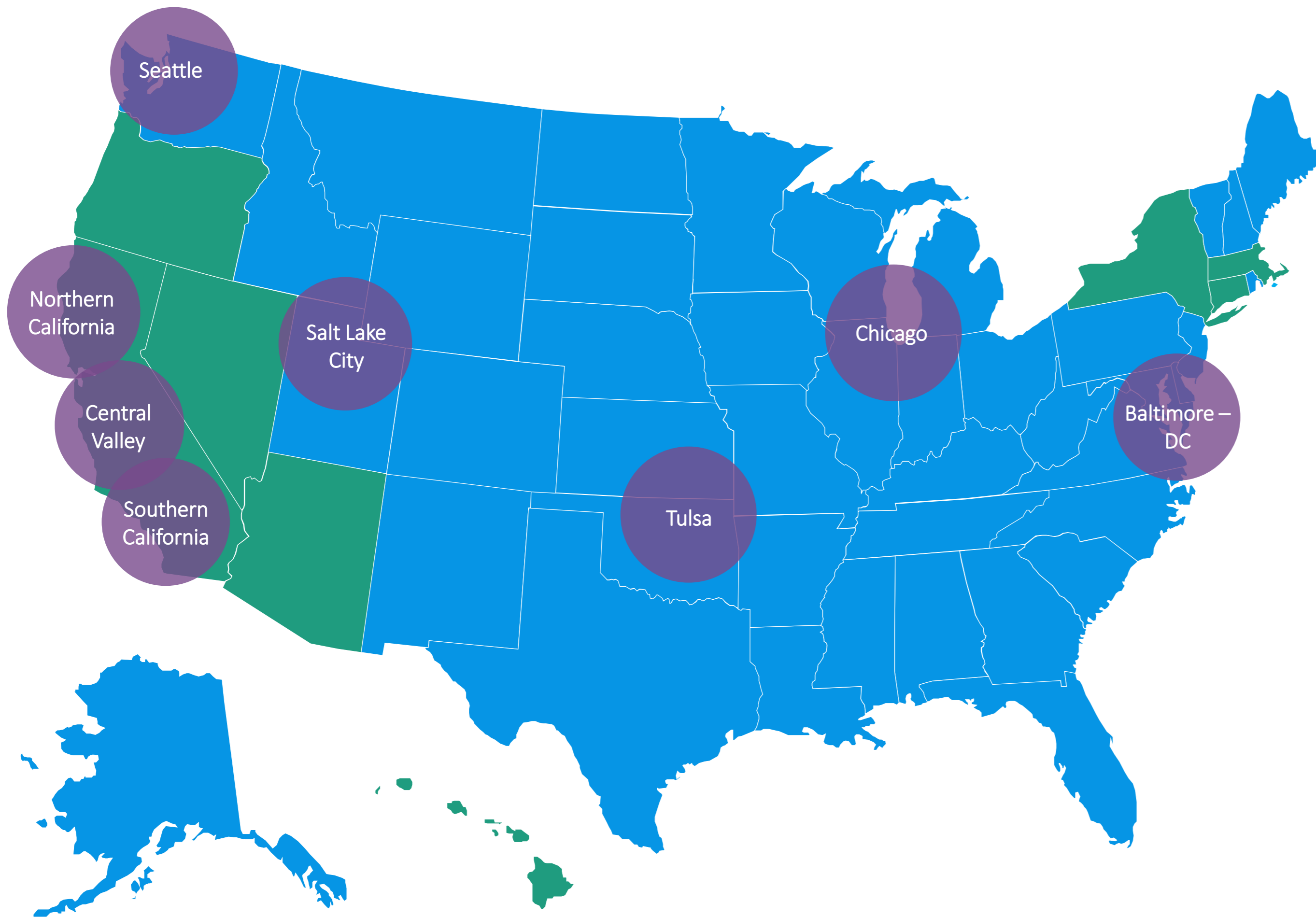
- \$100 million+
- 421 DC fast chargers; 256 Level 2 chargers
- Diverse: urban, rural, mountains, deserts, plains

SOMAH

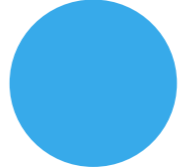

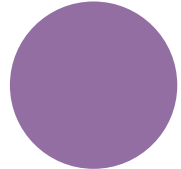
- \$1 billion
- 300 MW + virtual net energy metering



Our Reach



We work with governments, regulators, utilities, CCAs, businesses, property owners and consumers as a trusted and objective implementation partner and technical advisor.

-  Tackling issues of national importance
-  Statewide incentive and distributed energy programs
-  Region-specific solutions