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Integrating State and Regional Programs into an Emerging Federal System for GHG Regulation: The Critical Role of State Planning

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Crystal ball now clear: There will be a federal economy-wide response to climate change

- Obama Administration's position
- *Massachusetts v. EPA*
- Advance Notice of Proposed Rule Making under Clean Air Act
- Unclear: The Role of the States

Massachusetts v. Environmental Protection Agency, 549 U.S. 497 (2007)

- Standing based on impact of GHG emissions on MA coastline, coupled with special status of states.
- CAA authority to regulate emissions of carbon dioxide and other GHGs
- EPA reliance on factors outside of statutory factors required that the matter be remanded
  - Inquiry under Section 202(a)(1) limited to whether emissions "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare."

ANPR, *Regulating Greenhouse Gas Emissions Under the Clean Air Act*, 73 Fed. Reg. 44354 (July 30, 2008)

- 202 endangerment finding – identical triggers in 108, 111, 213, and 231 may mean economy wide regulation.
- Thoughtful analysis of categorical standards and possible cap and trade under sections 111(d) and 110(a)
- Fails to discuss how to engage states and misses opportunities to do so under Section 110 SIP process

Must Have Planning at State Level – It's Really Hard

- Different capabilities for low or no carbon energy
- Different legal regimes, particularly for transportation, land use, building code and utility regulation
- Need to consider legal and factual interrelationships – leakage and induced emissions, demand based emissions vs direct emissions
- Experience – state plans more cost effective than one-size-fits-all-inside-the-Beltway solutions
  - Less influence by trade associations – allowances by auction

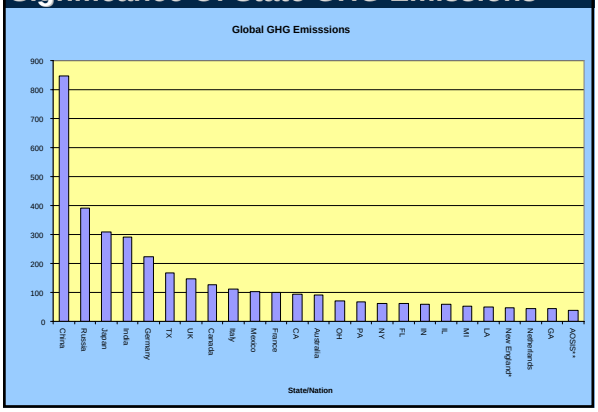
Emergence of the New Old Federalism in Climate Mitigation

- Federal inaction on international environmental issues
- Emergence of state policies implementing Agenda 21, the Rio Declaration on Environment and Development
  - Climate Change
  - Biodiversity Conservation
  - Sustainable Development

Federal law evolves from states

- Clean Air Act – California model
- Clean Water Act – DRBC program
- Surface Mining Control and Reclamation Act – Pennsylvania
- RCRA cradle to grave – NJ chemical waste control
- CERCLA/Superfund – New Jersey Spill Act
- States provide model for integrating federal, state and local initiatives and for equitable international model
  - LA Summit – Nov. 18-19, 2008

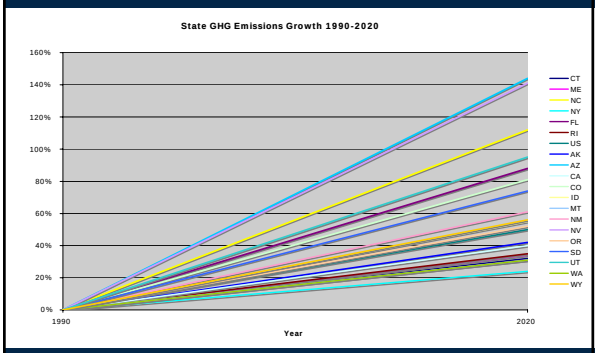
Significance Of State GHG Emissions



State Actions While the Feds Fiddled

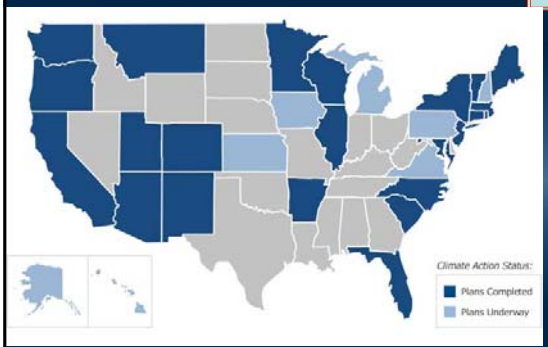
- GHG State Emissions Inventories and Forecasts
- State Climate Action Plans - 31 major initiatives since 2000
- Statewide and Regional GHG targets and timetables
  - 50-85% reductions by 2040 to 2100
- Energy and Climate Policies and Mechanisms
  - 250+ types, including financing mechanisms
- Cap and trade and tech based standards
  - Cal AB 32, automobile emissions standards
  - CA, WA MA, NH coal fired EGU emissions standards
- Reporting systems and/or registries

State GHG Growth Rates from Inventories



Center for Climate Strategies, 11/14/08 www.climatestrategies.us

31 State Climate Plans Completed & In Progress



Center for Climate Strategies 11/08

Selection of State Policies – Bottom up

- Typically by Consensus Based on Transparent Analysis
- Stakeholder Based Processes
- Decision Criteria:
  - GHG reduction potential
  - Cost effectiveness
  - Co-benefits and costs – This often includes economic development
  - Feasibility

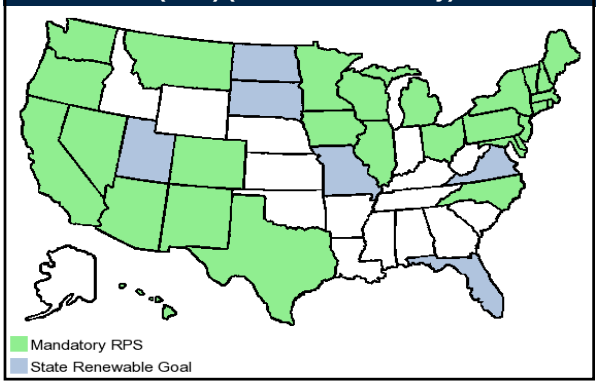
Policy Actions

- Over 250 individual policy actions – often by sector
- Key areas:
  - Energy Supply (Heat and Power)
  - Residential, Commercial, Industrial (Energy Use and Other Activities)
  - Transportation and Land Use
  - Agriculture, Forestry and Waste Management
  - Cross Cutting Issues (e.g. Cap and Trade, registries)
- Evaluate for GHG reductions, cost (effectiveness), co-benefits and overlap

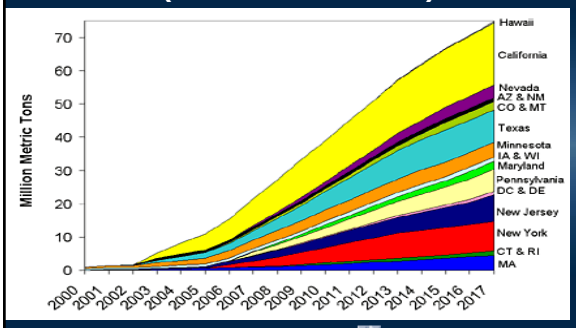
Varied State Implementation Methods

- Codes and Standards
  - Emissions standards for facilities and vehicles, load based emissions standards, RPS, fuel content, product energy efficiency, land use, building codes,, etc.
- Market Based Approaches
  - Cap and trade - often with auctions of allowances
  - Tax based – in practice the same
  - Reporting and Registries
- Financial Incentives – Often tied to auction revenues
- Other Financing Mechanisms
- Other
  - Voluntary Agreements
  - Technical Assistance
  - Information and Education

Example of One Measure: Renewable Portfolio Standards (RPS) (MO now mandatory)



Scale up - GHG Emissions Reductions from RPS (19 states and D.C.)

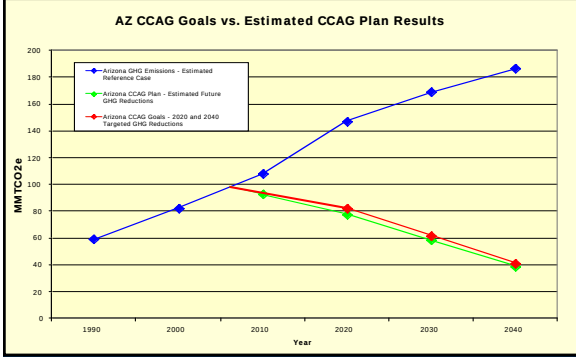


(Union of Concerned Scientists)

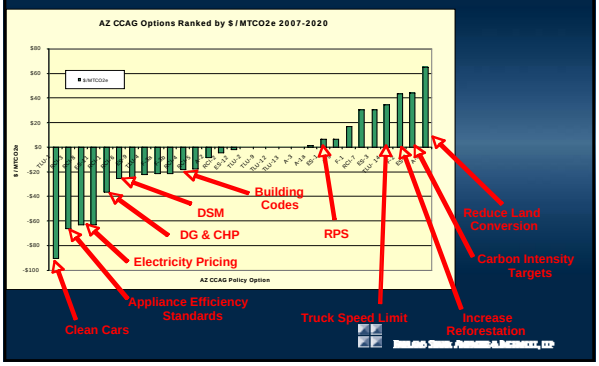
Arizona Planning Results

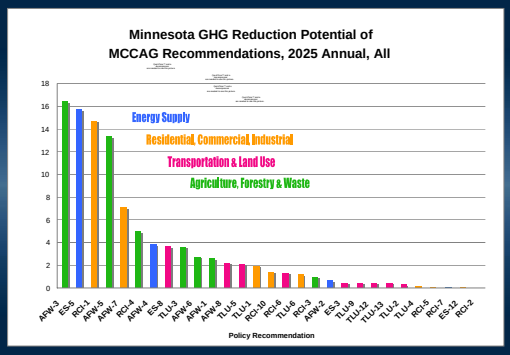
- 49 Policy Actions Recommended
- Will reduce 165% growth in emissions to return to 2000 levels by 2020 with 50% reduction by 2040 if kept in place
- Savings of $4-5 billion by 2020
- Still need reductions of additional 35-45% by 2100

Arizona Climate Action Plan Recommendations 2006 (CCS)

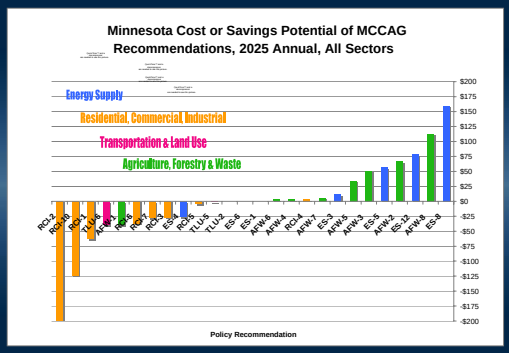


Arizona Mitigation Benefits/Costs
(CCS)





CCS, www.climatestrategies.us



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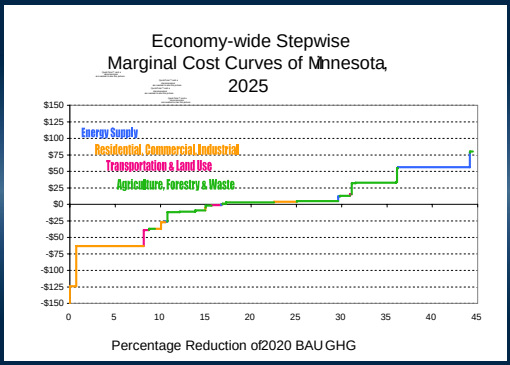


CCS, www.climatestrategies.us

Economic and Employment Impacts NC (Ponder et al, for CCS Aug. 2008)

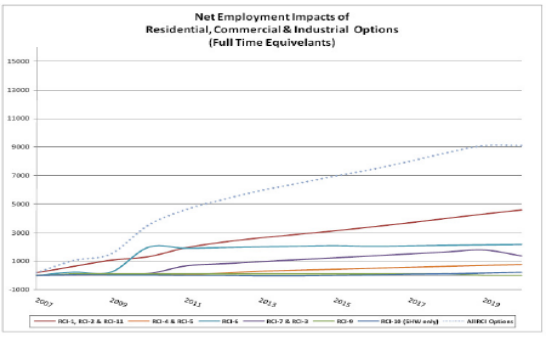
- **15,000 jobs, $565 employee and proprietor income, $302 million GSP**

Table ES-1: Summary Results for All Options

	Net Annual Employment (FTE)			Net Income ($2004, million)				Total Value-Added ($2004, million)			
	2010	2015	2020	2010	2015	2020	2007-2020 NPV	2010	2015	2020	2007-2020 NPV
Energy Supply Options	(409)	(384)	1,744	(41)	(53)	26	(297)	(99)	(152)	(118)	(1,046)
Residential, Commercial, and Industrial Options	3,518	6,961	9,110	136	271	364	1,942	114	125	42	937
Agriculture, Forestry, & Waste Management Options	1,202	1,960	3,318	39	75	183	649	78	145	331	1,267
Transportation and Land Use Options	783	432	871	(1)	(19)	(8)	(91)	24	7	48	128
All Options	5,094	8,970	15,042	134	274	565	2,203	116	126	302	1,287

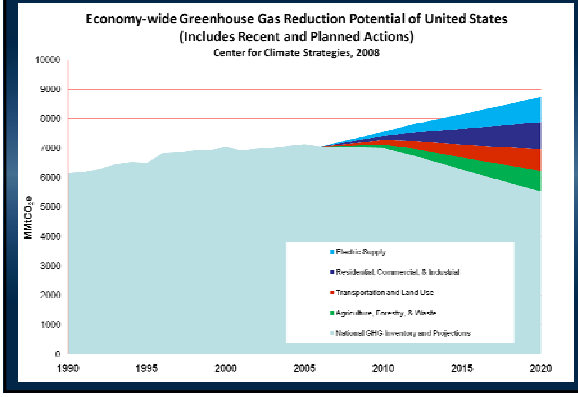
Note: Values in parentheses identify loss of jobs, income, or Value-Added to the economy. FTE = full-time equivalent; NPV = net present value

Figure 2. Employment impact of various residential, commercial and industrial (RCI) policies in North Carolina over time.[4]



Note: RCI-1, RCI-2 & RCI-11 are energy efficiency and DSM programs, included under the RCI-1 bundle in this analysis. RCI-4 & RCI-5 are market transformation and appliance standards, included under the RCI-14 bundle here. RCI-6 is building codes, included under RCI-8 here. RCI-7 & RCI-3 are distributed renewable energy and high performance buildings, included under RCI-5 and ES-5 here. RCI-9 is state purchasing of efficient appliances, included under RCI-13 here. RCI-10 is solar water heating, included under RCI-7 here.

Scale up from 20 states (CCS, Peterson et al 2008)



State and Local Action Necessary and Will Provide Economic Development Drivers – 20 State Scale up

- *CCS White Paper, Climate Policy as Economic Stimulus: Evidence and Opportunities from the States* (Nov. 2008)
- CCS White Paper, *Economic Stimulus, Recovery, and Climate Mitigation: Policy and Program Opportunities from the States* (Dec. 2008) www.climatestrategies.us/ewebeditpro/items/O25F20666.pdf

Year 2020 Net Cost of Attaining 10% Below 1990 Levels of Emissions

	2020 Reductions of 20 States to Meet 10% Goal (MMtCO2e)	Estimated Cost or Cost Savings per ton GHG Removed	2020 Reductions of National GHG Reductions to Reach 10% Goal (MMtCO2e)	Year 2020 National Net Cost of Reaching 10% Below 1990 Goal in 2020 (Millions)
ES	318.75	-$6.19	852.88	-$5,283
RCI	361.66	-$42.34	918.22	-$38,873
AFW	334.46	$5.17	701.64	$3,628
TLU	196.51	-$84.55	730.36	-$61,750
Total	1211.38	-$26.56	3203.09	-$85,065

Note: Estimated Net Cost based on the graph: "Economy-wide Stepwise and Fitted Marginal Cost Curves of US, 2020"

Scale up from 20 State Climate Plans
Center for Climate Strategies (2008)

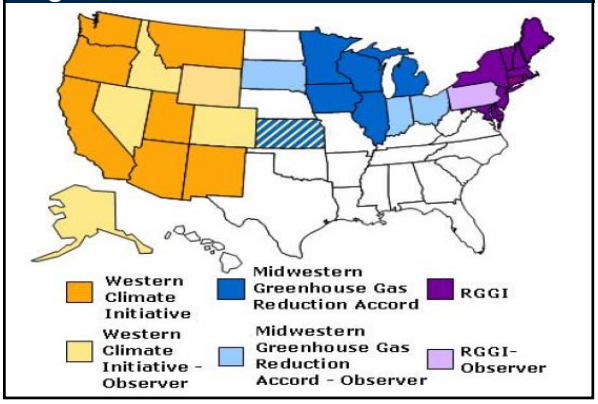
Analysis of 900 Policies from 20 States in 80 Bundles

- Funding to economy
  - 44 move funding within 1 yr
  - 68 high to moderate job creation potential
  - 10 - $CO_2e \geq 3$ million tons
- Federal Jurisdiction
  - Role in 52 bundles – funding. implementation or both
  - Only 3 exclusive
- State Jurisdiction
  - Role in 70 bundles
  - 18 exclusive
- Local
  - Role in 22 bundles
  - 1 exclusive

Regional Efforts

- The Climate Registry, www.theclimateregistry.org
  - 39 states, D.C., all Canadian provinces & six Mexican states
- Western Governors Initiative www.westernclimateinitiative.org
- RGGI, www.rggi.org
- Midwestern Greenhouse Gas Reduction Accord http://www.midwesterngovernors.org/resolutions/GHGAccord.pdf

Regional Actions (Pew Center 2007)

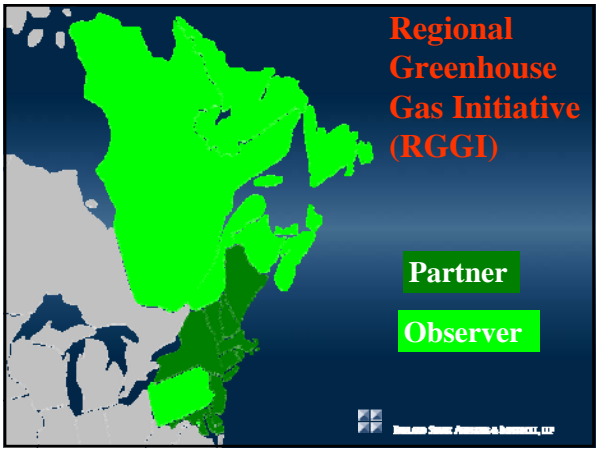


The Climate Registry Member States and Provinces

(The Climate Registry website)

The Climate Registry

- General Reporting Protocol For the Voluntary Reporting Program (Oct. 29, 2007)
- General Verification Protocol (Draft 4, February 1, 2008)
- Voluntary but basis for regulatory programs



Regional Greenhouse Gas Initiative (RGGI)

Partner

Observer

RGGI Model Rule for EGU Cap and Trade

- Template for state regulation
  - Each state has pledged to adopt by 12/31/08
- Offsets
  - Emitters will only be able to offset 3.3% of their compliance obligations, although this percentage may increase if cost triggers hit
- Banking
  - Storage of allowances for future periods allowed (but not borrowing of allowances)
- Retirement of allowances
  - Model Rule encourages the voluntary retirement of allowances to match increases in renewable energy purchases

Allocation Mechanisms

- First Auction (9/25/08) Results
  - All 12,565,387 emission allowances sold at a $3.07 clearing price
  - Demand exceeded supply by more than 4 to 1
- Second Auction (12/17/08) Results
  - All ten RGGI states participated
  - All 31,505,898 allowances sold at $3.38 clearing price
- Use of Auction Proceeds: Support low-carbon-intensity solutions, including energy efficiency and clean renewable energy, such as solar and wind power

Northeast Regional Initiative (1/09)

- Letter agreement by ten RGGI states plus Pennsylvania
- Commitment to develop low carbon fuel standard: "market-based, technologically neutral policy to reduce the average lifecycle greenhouse gas emissions of a unit of useful energy.
  - Lifecycle concept includes direct (on-site, internal) and indirect (off-site, external, embodied, upstream, downstream causes
  - Will analyze low-carbon fuel supply options and develop framework for a regional standard.
- Will work through NESCUAM

The Western Climate Initiative (WCI)

Partner

Observer

Common Goals

- **Market-based cap-and-trade program, launched in 2007, designed to reduce GHG emissions by 15 percent by 2020**
- **Cap of multiple sectors (vs. RGGI), including electricity, industry, transportation, and residential and commercial fuel use**

Structure and Schedule for Regional Cap and Trade program

- **Mandatory Emissions Reporting Beginning in 2011**
- **Phased Cap-and-Trade Program**
  - **Phase 1 (2012) – Direct large emissions**
  - **Phase 2 (2015)– smaller emissions upstream (at fuel use)**
- **Declining caps with 3-year compliance period**
- **Minimum requirements for auction**
  - **California will go to 100%**
  - **Use of proceeds to promote other climate goals or preventing hardship**

Florida

- Governor's Energy & Climate Action Team recommended observer status with RGGI and WCI (10-15-08);
- Action Team recommended potentially joining *both WCI & RGGI*;
- Florida 4th largest economy in U.S.
  - ✓2007 Population = 18,251,243
  - ✓2007 GDP = $609,899 million
- Projected 2020 economy-wide emissions equal 70% of California.

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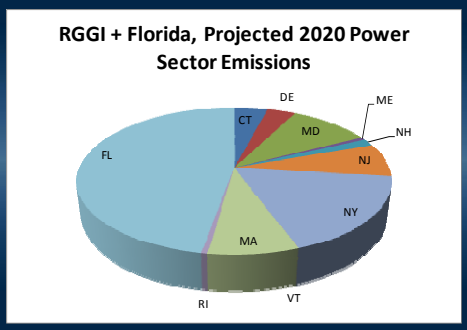
Florida



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How Can We Preserve Existing Progress and Advantages of State Action, Extend it to Recalcitrant States, and Keep National Markets and Consistency:

The Existing Clean Air Act Does This Well and Can Do it Better for GHGs

How to make CAA 108-110 Work – NOT Your Grandparents' SIP

- Secondary NAAQS (450-550 ppmv)
- Maintenance SIPs designed to achieve US fair share of emissions reductions
  - No regrets 10% below 1990 by 2020, 80% reduction by 2050
- Each state must adopt plan designed to achieve emissions reductions – NOT modeling or local concentrations
  - Emissions based approach due to unique nature of GHGs

Federal Cap & Trade Alone Won't Work Well

- Many cost effective mechanisms not being implemented
- Market barriers/imperfections
  - Lack of knowledge – building codes
  - Lack of connection between capital and operating budgets/decisions
    - Leases
    - Home mortgages and energy savings
    - Legal authorization barriers (e.g. energy increment financing)
  - Inability to pass through – utility regulation
  - Inability to aggregate capital for many small actions
  - Lack of market – land use and transportation
- Other non-planning mechanisms face similar barriers

EPA Duties

- Determine and assign state by state emissions reduction goals
- Establish technology based standards for appropriate sectors (automobile, off road vehicles, some stationary sources, NSR for buildings)
- Standards for a cap and trade program under 110(a)
- Standards for approving state plans
- Contents of federal implementation plan

State Plans

- Determine mix of market and non-market mechanisms appropriate to meet emissions reduction goals (after considering federal reductions)
- Where cap and trade, state would determine what sectors covered and allocation mechanism.
- Upon federal approval, state cap and trade allocations part of federal system and may be traded nationwide
- Mix of measures must achieve necessary reductions

How Cap and Trade Would Work – Similar to EU

- EPA approves a SIP designating mix of measures to achieve required reductions, including sectors covered by cap and trade
- Approved allowances become part of national system traded nationally
  - Reductions outside of allowance system may not create offsets
- If state fails to submit suitable SIP, EPA may designate FIP, with allowances allocated to emitters covered by cap and trade portion of FIP

Incentives for Responsible State Action

- More likely to be acceptable to stakeholders
- Revenues from state allocated allowances (federal would be give away)
- Maintain all existing enforcement mechanisms and incentives, which have achieved significant reductions
- Economic development potential

Advantages

- Economic efficiency and greater economic development potential
- Stakeholder acceptability
- More likely to be effective
- Preserve existing progress at state level
- Not as influenced by lobbyists/trade associations
- Can't do it at the federal level alone

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