The Center for Climate Strategies

Helping States and the Nation Tackle Climate Change

Climate Mitigation Under the Existing Clean Air Act

Taking Climate Change Seriously

SEI – Tufts University

Medford, MA

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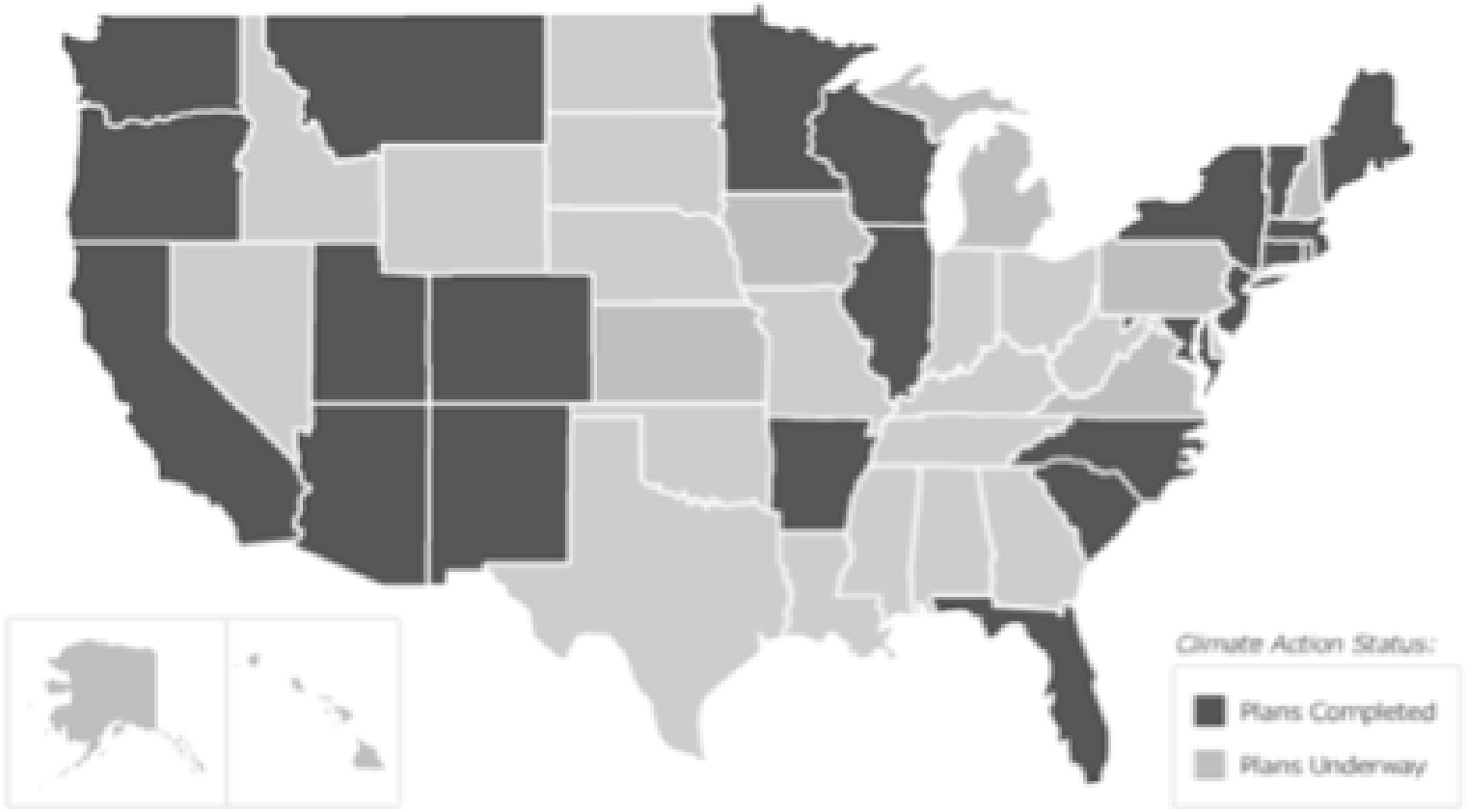
States with Climate Action Plans

Figure 1. States with Climate Action Plans Completed or Underway



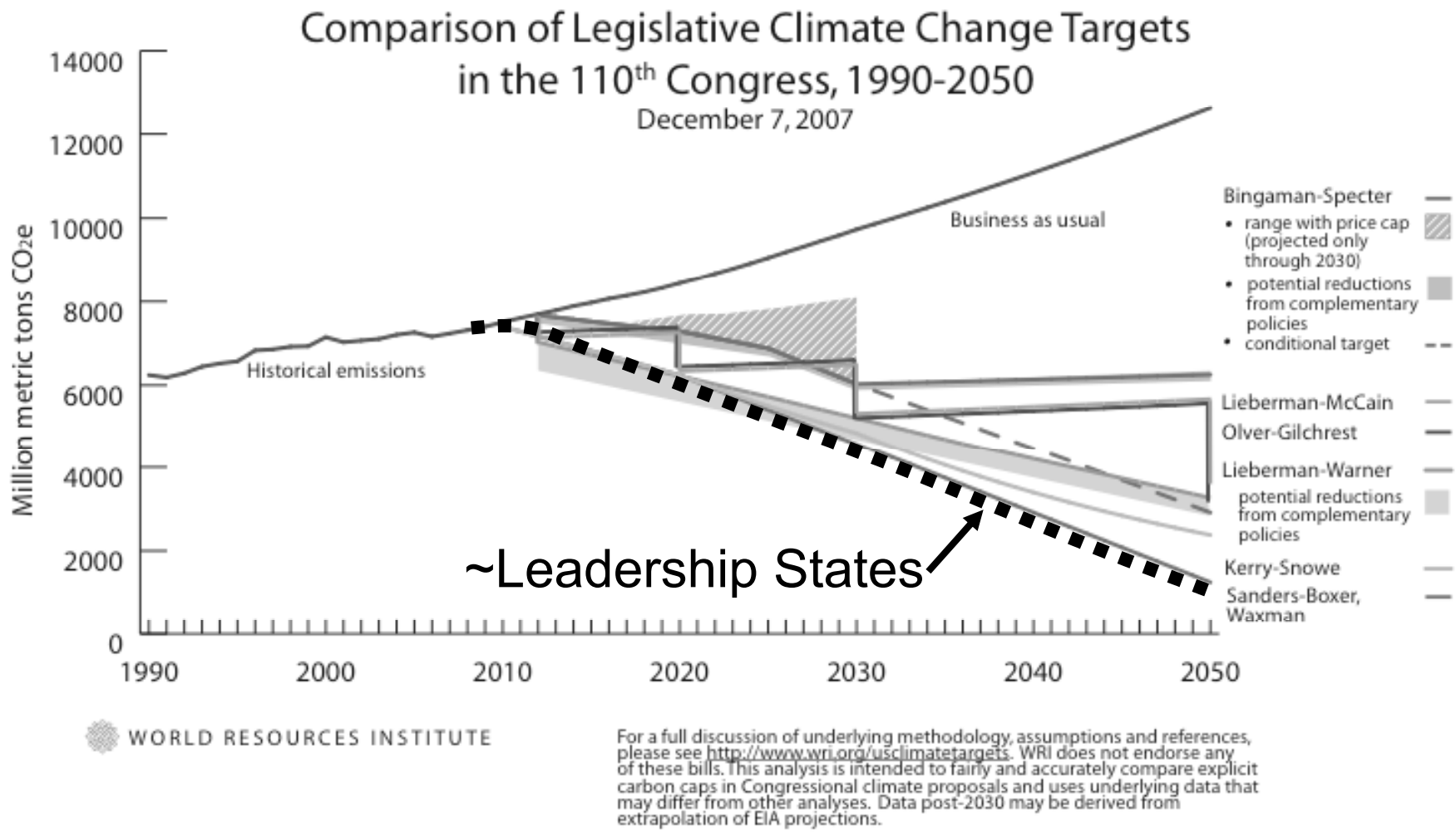
CCS Process

1. Develop Inventory & Forecast
2. Indentify Universe of Policy Options
3. Select Priority Options for Analysis
4. Characterize Options (Straw Proposals)
   - Design, Implementation Mechanisms, Feasibility, etc.
5. Quantify GHG Reductions & Costs or Savings
6. Aggregate; Iterate to Consensus
7. Final Report; Follow-on Analyses

Sampling of State Climate Plan Results

State	Policy Options	Degree of Unanimity	Amount of GHG Reductions	Overall NPV Cost or Savings	Jobs Impact
AZ	49	92%	• 2000 level by 2020 • Half 2000 level by 2040	$5.5 billion savings 2007-2020	285,000
CA	n/a	n/a	• AB-32: 1990 level by 2020	AB-32 $4 billion savings	AB-32 83,000
CO	70	87%	• 37% below projected emissions by 2020	~$3 billion savings 2007-2020	Not assessed
CT	55	High	• 1990 level by 2010 • 10% below 1990 level by 2020	Net Savings	Not assessed
ME	54	High	• 1990 level by 2010 • 10% below 1990 level by 2020	Net Savings	Not assessed
MT	54	98%	• 1990 level by 2020	$78 million savings 2007-2020	Not assessed
NC	56	85%	• 47% below projected emissions by 2020	$7.5 billion savings 2007-2020	44,500
NM	69	97%	• 2000 level by 2012 • 10% below 2000 level by 2020	$2.2 billion savings 2007-2020	Not assessed
VT	37	86%	• 25% below 1990 level by 2012 • 50% below 1990 level by 2028	$1.3 billion savings 2007-2028	Not assessed

Comparison to National Bills



GHG Reduction Strategies

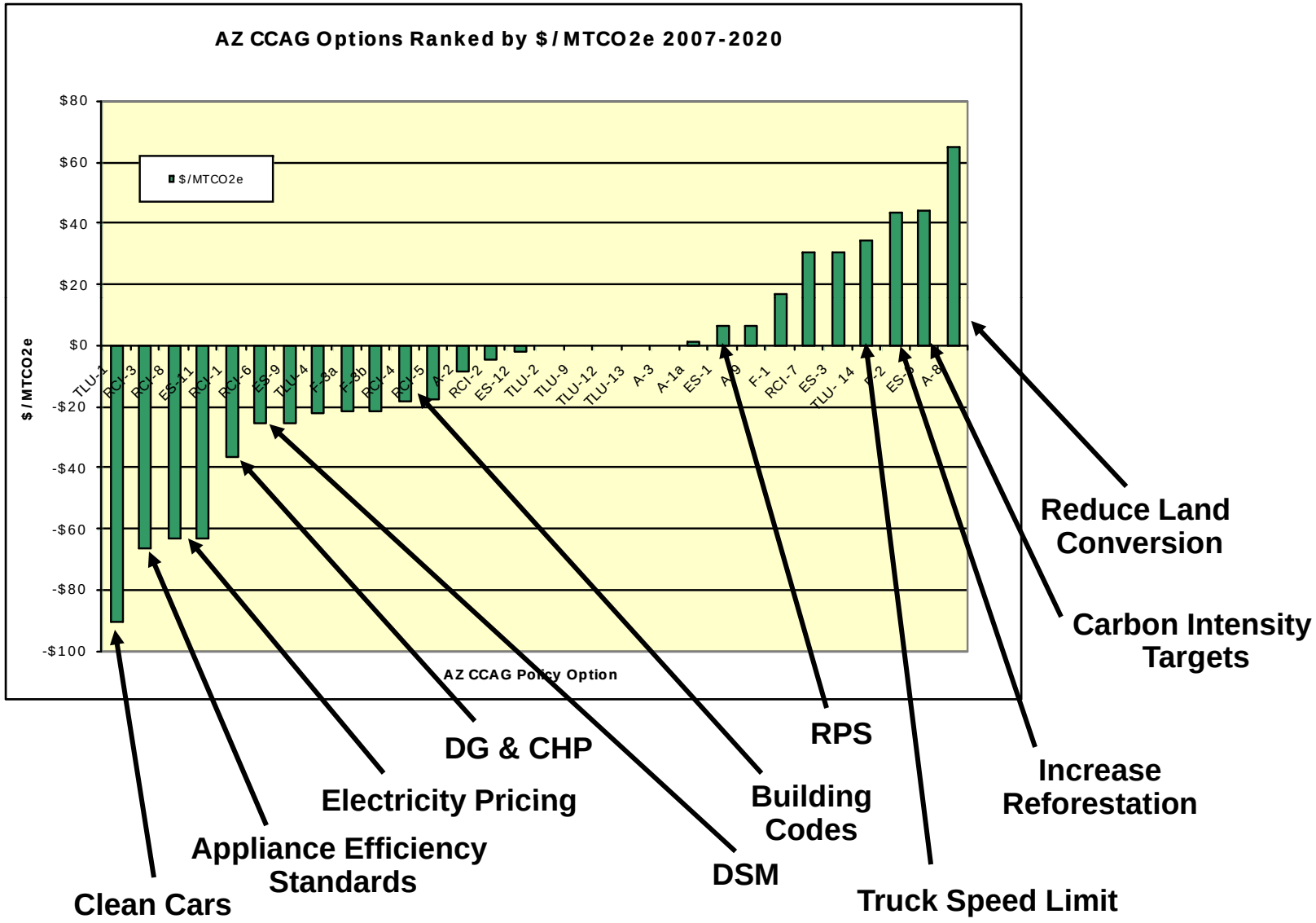
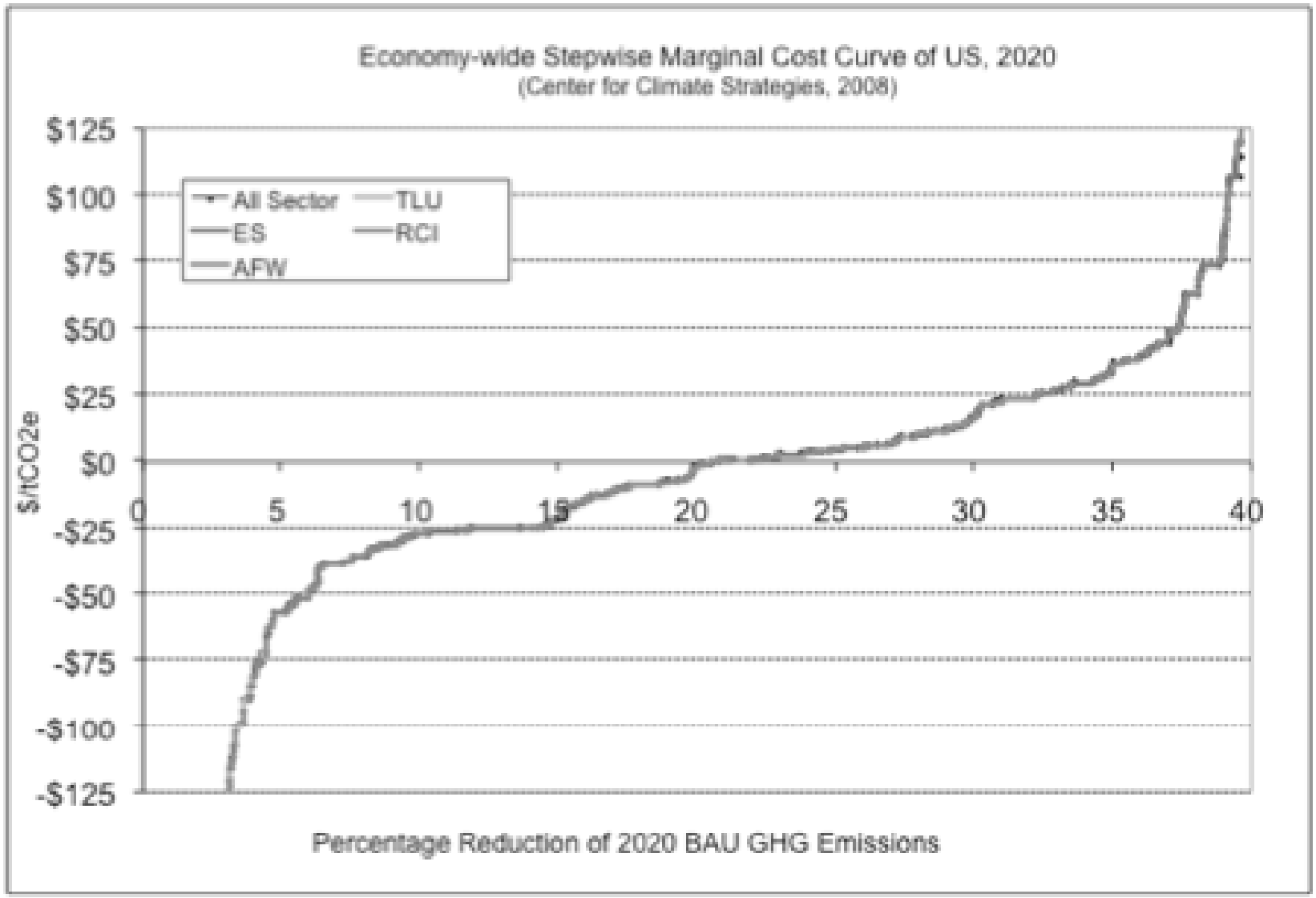


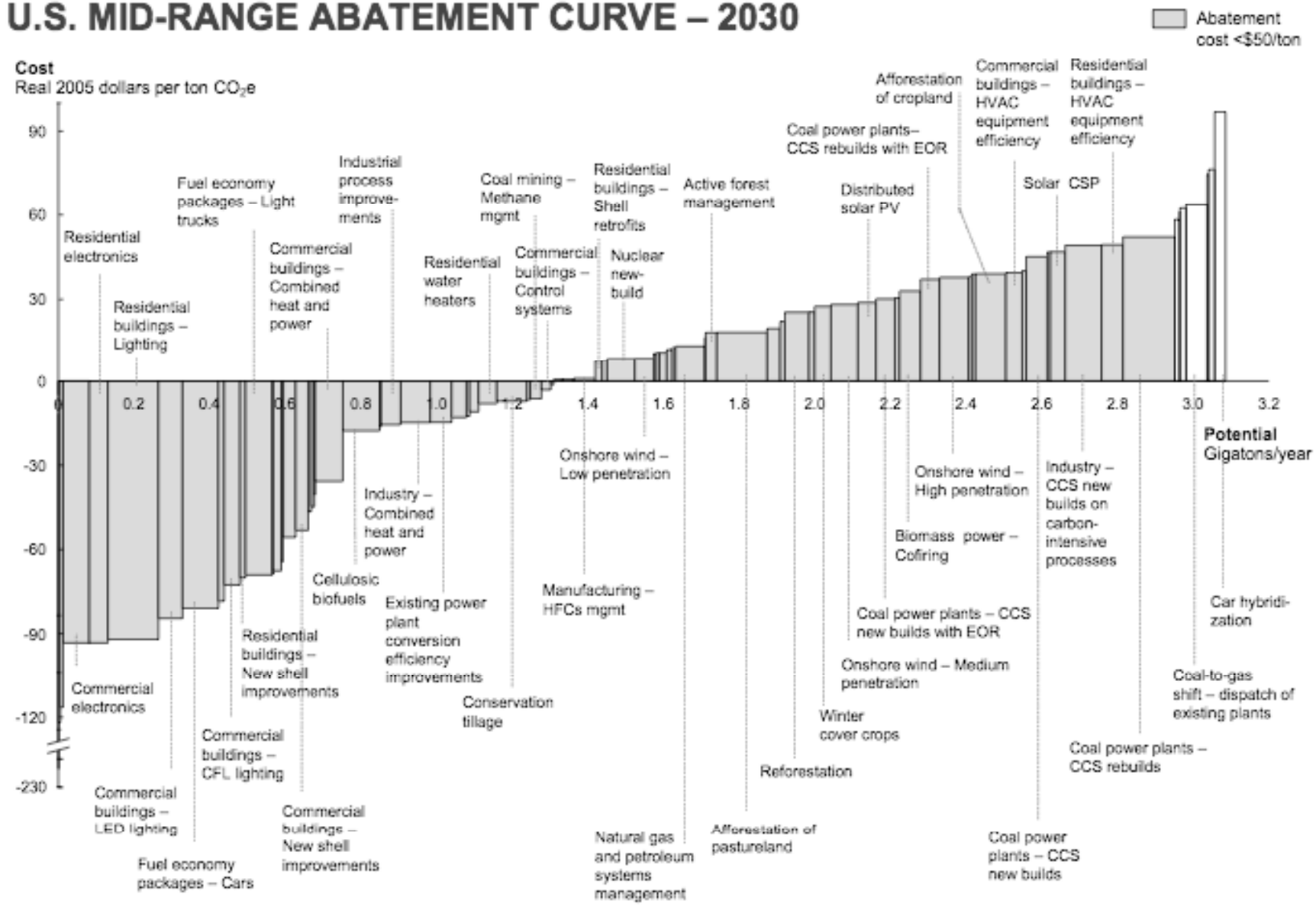
Figure 2. Stepwise Marginal Cost Function for the U.S., 2020



AFW=agriculture, forestry and waste management, ES=energy supply, RCI=residential commercial and industrial; TLU=transportation and land use

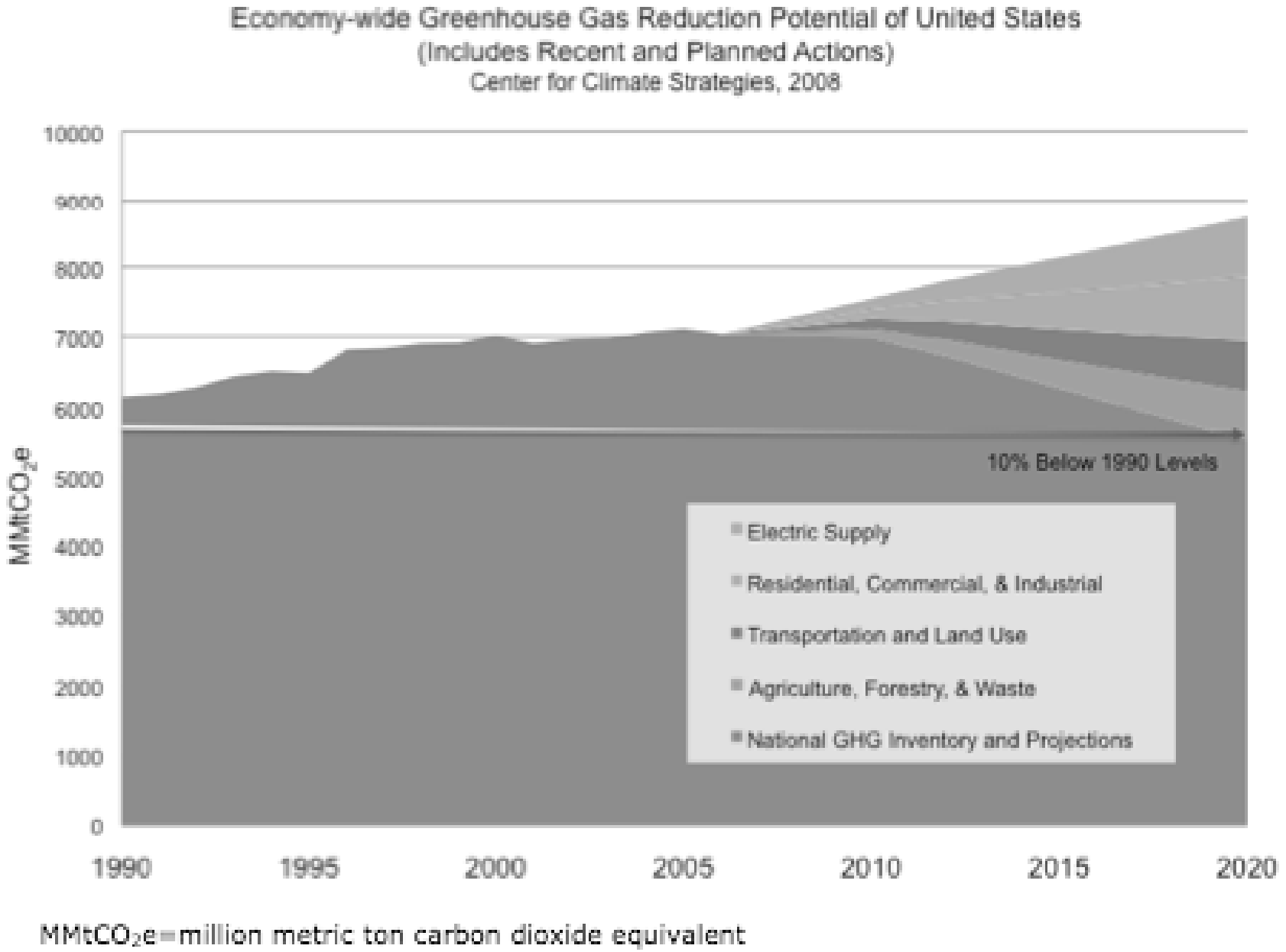
Exhibit 11

U.S. MID-RANGE ABATEMENT CURVE – 2030



Source: McKinsey analysis

Figure 5. US GHG Reductions by Sector 2009-2020



$MMtCO_2e$ = million metric ton carbon dioxide equivalent

Potential US Net Economic Savings

Preliminary national projections suggest a climate plan involving all U.S. states and economic sectors could produce net savings of:

- $21 billion in 2012
- $85 billion in 2020
- $536 billion cumulative 2009-2020

Existing Clean Air Act Provisions

EPA must list as a priority pollutant, establish NAAQS, and require SIPs if:

1. Endangerment is clear; Yes
2. Sources are clear; and Yes
3. EPA hasn't listed yet. Yes

Suggest EPA list GHGs as one, with individual GWPs, like ozone precursors and photo reactivity.

Existing Clean Air Act Provisions

Listing creates duty to issue "criteria document" on:

1. Health and welfare impacts;
2. Control Techniques

Suggest using IPCC 4th Assessment Report

Existing Clean Air Act Provisions

And then to adopt National Ambient Air Quality Standards (NAAQS)

Suggest using UNFCCC / IPCC standard:

- *"Prevent dangerous anthropogenic interference" = "Prevent Adverse effects"*
- *Establish as secondary (welfare) standard*
  - *Versus (or = to) a primary (health) standard*

~450 ppmv CO_2

Since lower now; "maintenance plan" in order

Existing Clean Air Act Provisions

Require "SCIPs" – State Climate Implementation Plans:

- Will need to be different *(& "not your father's SIP!)*
  - Not concentration based
  - No local dispersion modeling, etc.
- Should be emissions-reduction-based
  - Against state emissions "budgets"…
  - Reflecting in total US's "common but differentiated" responsibility, and
  - Phased-down, to meet long-term goals

Existing Clean Air Act Provisions

What about other countries' contribution to global warming?

- CAA allows for international "but for" attainment

Existing Clean Air Act Provisions

How would the US "share" be calculated?

- Not clear yet (Copenhagen?)
  - Pro rata of current global total?
  - Per capita?
  - Based on past contribution to the problem?

Suggest picking least-stringent approach – pro rata – as a "no regrets" strategy

Existing Clean Air Act Provisions

How would state-by-state baselines be calculated?

- *Existing GHG inventories and forecasts are up to the task*

How would state-by-state reduction responsibilities (emissions "budgets") be calculated?

- *Use current emissions adjusted by population projections*
- *"Budget" would be this less federal measures*

Existing Clean Air Act Provisions

EPA would also have to develop Federal Implementation Plans (FIPs) for laggard states..

Suggest a stakeholder process be involved in developing SCIPs…

- *Not just traditional "notice and comment"*
- *Better results ("delberative democracy"), more engagement, etc.*

Existing Clean Air Act Provisions

What about Cap-and-Trade (C&T)?

- States could choose to include C&T as one measure in their SCIPs
- And also choose what sectors are included

National C&T would be created in aggregate because:

- EPA has to approve state C&T provisions (i.e., can ensure consistency)
- Would also coordinate and integrate state programs

Existing Clean Air Act Provisions

States' allowance allocations, if they chose to auction, could be "bundled" into one national auction (ala RGGI).

Why wouldn't this get struck down like the Clean Air Interstate Rule (CAIR)?

- No need to ensure guarantee against interstate transport

Existing Clean Air Act Provisions

Advantages of this approach:

- §110 better than §111 – Not just stationary
- Existing state efforts can be incorporated (including RGGI, WCI); state flexibility & authority is maintained
- Can be implemented expeditiously (vs. new legislation)
  - Enables climate action to commence while new legislation is developed
- Analogous to EU ETS approach; so likely to coordinate well with it

Existing Clean Air Act Provisions

Most important advantage: ***Least Cost***

- Most least-cost options are not subject to federal regulation
  - EE, DSM, state utility regulation, land use, building codes, split incentives, agriculture & forestry, etc.

Market measures alone are inadequate:

- If markets were truly efficient, “negative cost” options would already be done
- State programs can overcome market imperfections

Existing Clean Air Act Provisions

Suggest 2-Phase SCIP implementation approach:

1. Conceptual Overall Plan – Sectors, measures, anticipated GHG reductions, expected costs, feasibility, etc.

2. Actual implementation measures (new laws, regulations, etc.)

EPA could further expedite by approving current high-quality state plans as meeting Phase 1 requirement.

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Thank You
for Your Time
and Attention

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Integrated State & Federal Actions Will …

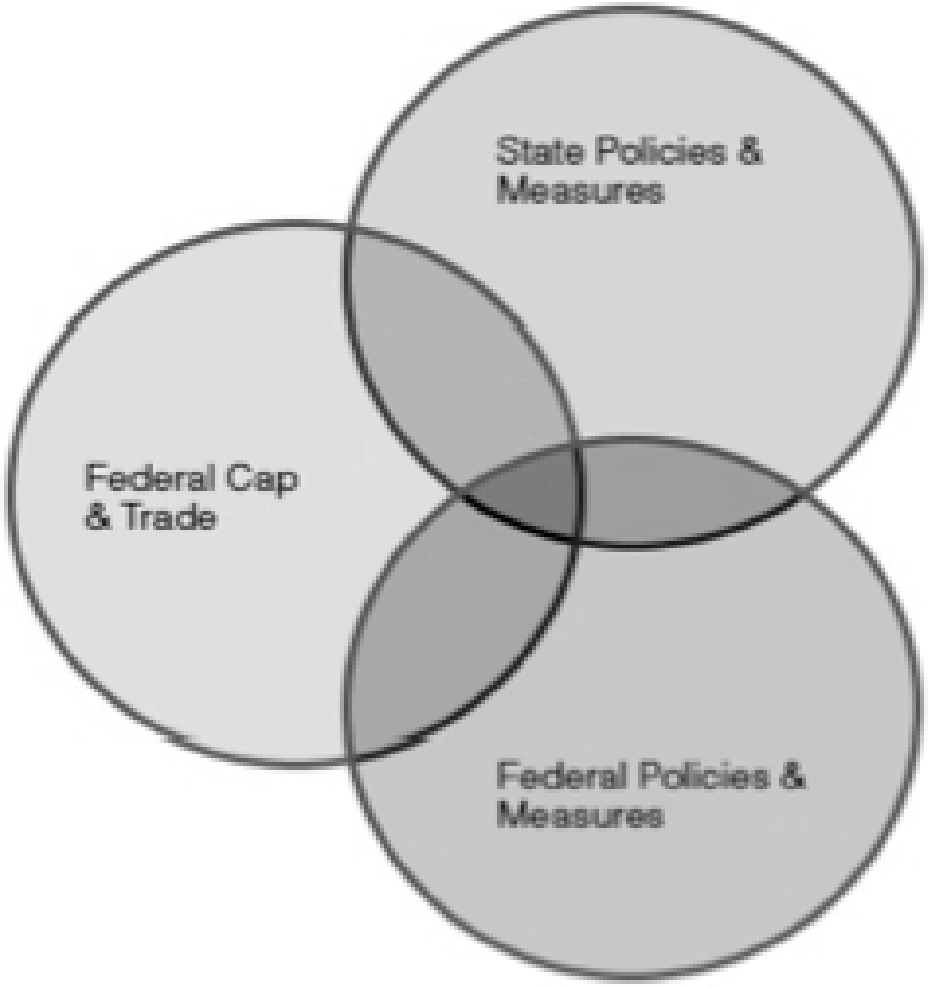
- Secure the most cost-effective measures
- Capture more of the GHG Inventory
- Address sectors/sources, issues, and opportunities not as amenable to cap-and-trade
  - Market failures (e.g., landlord vs lessee; capital vs operating costs)
  - Inelasticity (e.g., gasoline price response)
  - Land use; building codes; utility regulation
  - Education & outreach, economic incentives, etc.
- Preserve states' ability to excel & innovate
  - Cap needs to be a floor, not a ceiling
- *Not an "either-or" situation…*
  - Climate response needs "all hands on deck"

Federal-State Partnership

States consistently push federal policy…

State Action	When	*Corresponding Federal Action*	When
State Acid Rain Laws	1985	*Federal Acid Rain Program*	*1990*
State Air Toxics Laws	1987	*Federal Air Toxics Program*	*1990*
State NOx Trading (OTC)	1995	*Federal NOx SIP Call*	*2004*
State Mercury Laws	1998-2002	*Federal CAMR Rule*	*2005*
State RPS Laws	1997-2007	*Federal RPS Law*	*Introduced*
State "4-P" Laws for Power Plants	1997-2002	*Federal "4-P" Law*	*Introduced*
Statewide GHG Reduction Laws	2003-2006	*Federal GHG Reduction Law*	*Introduced*
State GHG Reductions from Vehicles	2002	*Federal Vehicle GHG Standards*	*?*

Figure 7. Comprehensive Climate Policy Integration



What Should We Do?

- Act by pushing "no regrets" policies now
  - Strive to measure co-benefit results
- Results create:
  - "Proof of concept"
  - New audiences and advocates
  - Impetus for adoption elsewhere
- Helps avoid:
  - "Paralysis by analysis" in public policy
  - Further delay in reducing emissions!

IPCC Fourth Assessment Report Working Group III - Mitigation

Table SPM.5: Characteristics of post-TAR stabilization scenarios [Table TS 2, 3.10][a)]

Category	Radiative Forcing (W/m^{2})[2)]	CO_2 Concentration[c)] (ppm)	CO_2-eq Concentration[c)] (ppm)	Global mean temperature increase above pre-industrial at equilibrium, using "best estimate" climate sensitivity[b), c)] (°C)	Peaking year for CO_2 emissions[d)] (year)	Change in global CO_2 emissions in 2050 (% of 2000 emissions)[d)] (%)	No. of assessed scenarios
I	2.5 – 3.0	350 – 400	445 – 490	2.0 – 2.4	2000 - 2015	-85 to -50	6
II	3.0 – 3.5	400 – 440	490 – 535	2.4 – 2.8	2000 - 2020	-60 to -30	18
III	3.5 – 4.0	440 – 485	535 – 590	2.8 – 3.2	2010 - 2030	-30 to +5	21
IV	4.0 – 5.0	485 – 570	590 – 710	3.2 – 4.0	2020 - 2060	+10 to +60	118
V	5.0 – 6.0	570 – 660	710 – 855	4.0 – 4.9	2050 - 2080	+25 to +85	9
VI	6.0 – 7.5	660 – 790	855 – 1130	4.9 – 6.1	2060 - 2090	+90 to +140	5
						Total	177

a) The understanding of the climate system response to radiative forcing as well as feedbacks is assessed in detail in the AR4 WGI Report. Feedbacks between the carbon cycle and climate change affect the required mitigation for a particular stabilization level of atmospheric carbon dioxide concentration. These feedbacks are expected to increase the fraction of anthropogenic emissions that remains in the atmosphere as the climate system warms. Therefore, the emission reductions to meet a particular stabilization level reported in the mitigation studies assessed here might be underestimated.

b) The best estimate of climate sensitivity is 3°C [WG 1 SPM].

c) Note that global mean temperature at equilibrium is different from expected global mean temperature at the time of stabilization of GHG concentrations due to the inertia of the climate system. For the majority of scenarios assessed, stabilisation of GHG concentrations occurs between 2100 and 2150.

d) Ranges correspond to the 15th to 85th percentile of the post-TAR scenario distribution. CO_2 emissions are shown so multi-gas scenarios can be compared with CO_2-only scenarios.