May 26, 2022

Where Do We Go From Here: Visions for a Clean Heat Standard

Panel Discussion

Our Experts

Richard Cowart
RAP

Stephen Dodge
Clean Fuels Alliance America

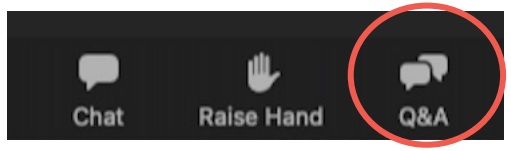
Erin Overturf
Western Resource Advocates

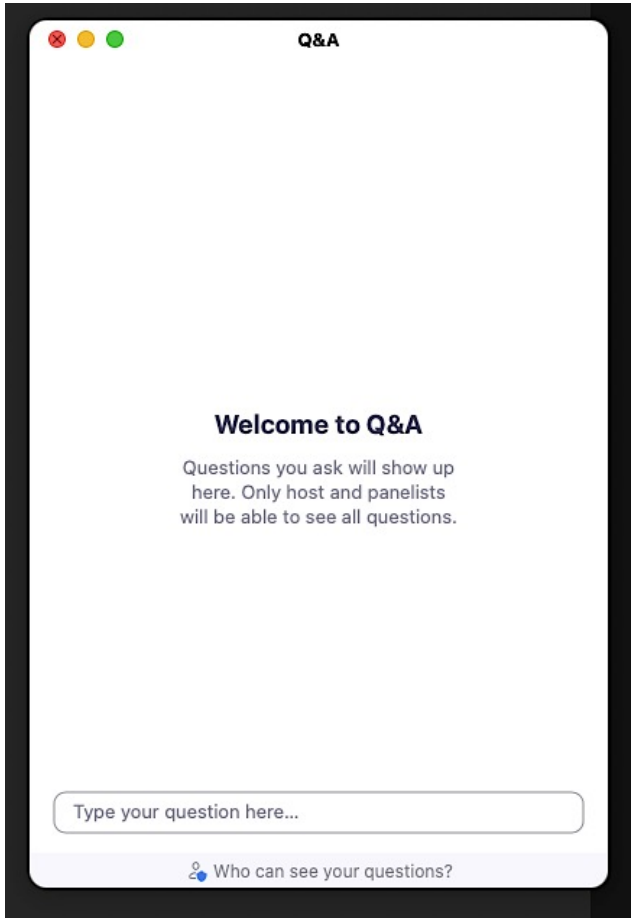
Respondent: Commissioner Megan Gilman, Colorado Public Utilities Commission

Moderator: David Farnsworth

Questions?

Please send questions through the Q&A pane





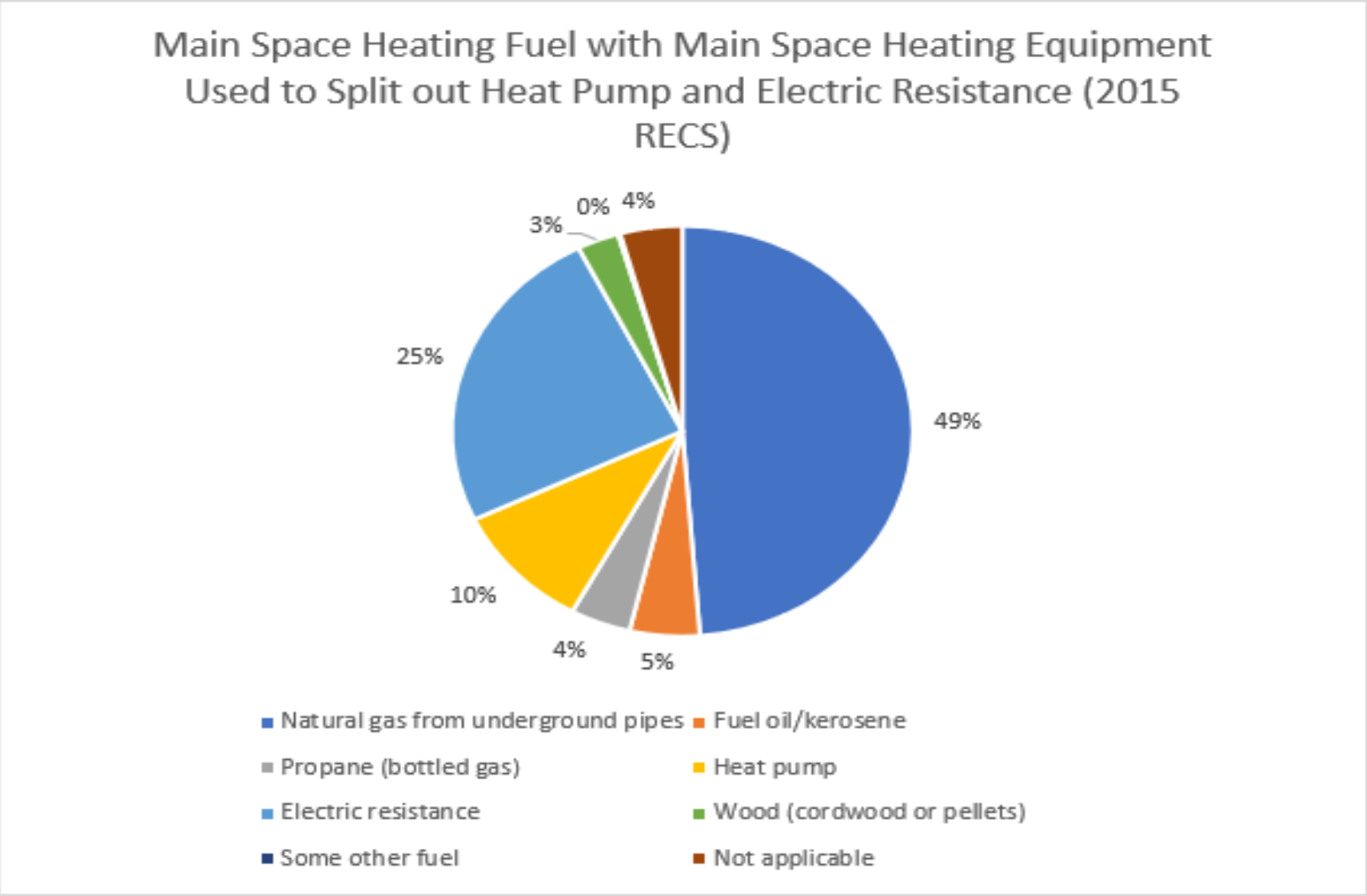
Clean Heat Standards:
New Tools for the Thermal Challenge

Richard Cowart, Principal

Fossil Heat May Be Our Toughest Climate Challenge

- Heat in buildings = 10% to 34% of climate emissions in US states
  - Primarily space heating, but also hot water, cooking
  - (plus industrial process heat, other uses)
- Large reductions are required from 1990 levels
  - 30-40% by 2030
  - 85-90% by 2050
- Need to address equity issues
  - Disadvantaged households have disproportionately substandard housing with inefficient shells and expensive heating sources
- Buildings are “hard” and “slow”

Home Heat in the US is 58% Fossil



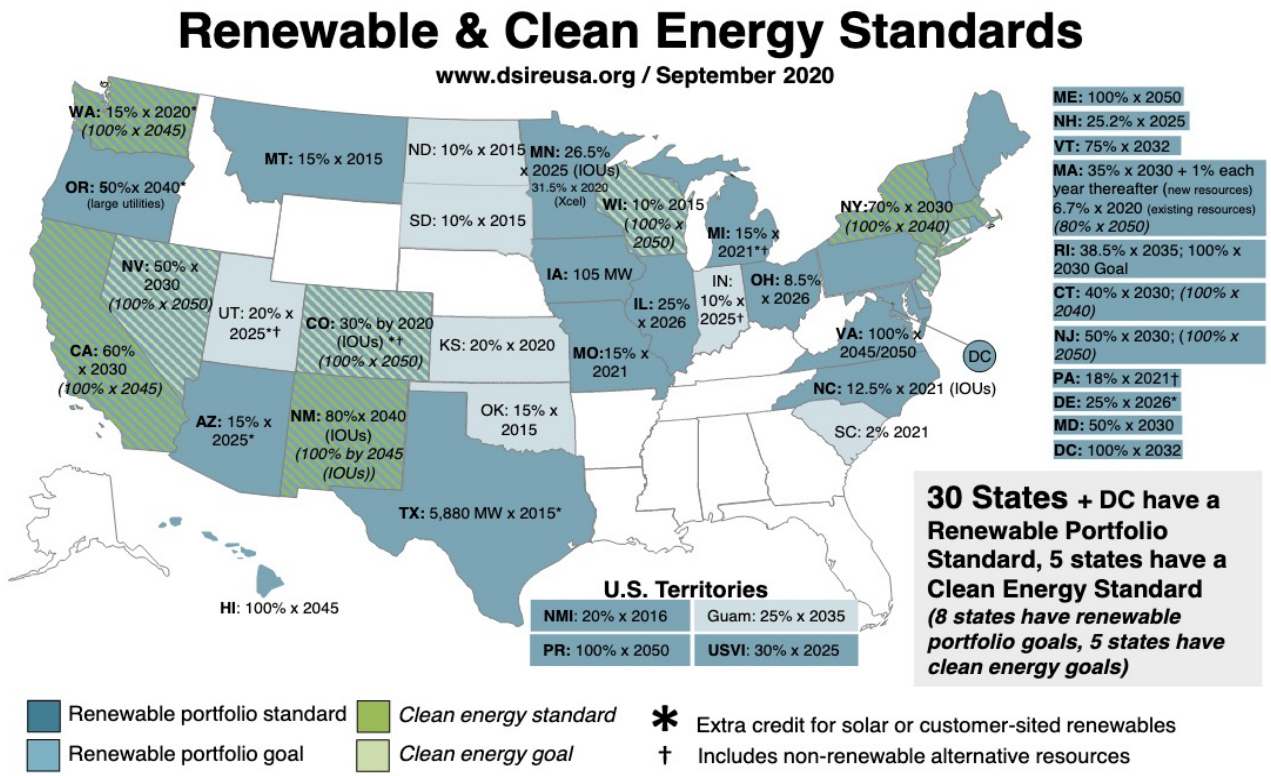
Basic Concept of a Clean Heat Standard (CHS)

*The CHS is a **performance standard**, requiring providers of [fossil heating fuels] to deliver a gradually-increasing percentage of low-emission heating services to customers.*

- Similar to the renewable portfolio standard
  - Increasing annual requirements pegged to GHG goals
  - Measured by delivery at the customer level
- Potential clean heat choices: Weatherization, electric heat pumps, low-emission heating solutions (biodiesel, RNG, district energy, solar thermal, advanced wood heat)
- Obligated parties can deliver cleaner fuels, help convert heat systems to clean heat solutions, or purchase credits from others

Energy Performance Standards

- 30 states have renewable portfolio standards
- 25 states have EE performance standards
- Low-carbon fuel standards (transportation only) in CA, WA, OR
- Clean Heat Standard in the Vermont Climate Plan
- CO Clean Heat Plan (pipeline gas utilities only)



Architecture of a CHS (1)

1. What is the obligation?
2. Who are the obligated parties?
3. Obligation pathway – how fast, how far in total?
4. How to promote equity?
5. What actions or fuels earn credits?
6. Are certain heat choices excluded or promoted?

More on Architecture:

7. How to measure performance?
8. How are credits created, traded, retired?
9. How to mesh with & support other programs
10. How to promote investments in long-lived measures (e.g., weatherization, heat pumps)
11. Flexibility (banking, borrowing, ACPs, etc.)
12. Governance, program administration

Vermont Proposal: Selected Elements

Nature of the Obligation

- Focus: reducing **GHG emissions** in the thermal sector to meet Vermont's GWSA mandates
- **Obligated parties: all fossil heat providers**
  - Vermont Gas (utility) and delivered fuel dealers
  - In proportion to their fossil fuel sales
- Credits are earned by **actions at customer locations that reduce emissions**, measured in tons of CO2e avoided

What Actions Earn Credits?

Many possibilities:

- Weatherization
- Heat pumps and heat pump water heaters
- Certain biofuels and renewable gases
- Low-carbon district heating
- Solar thermal and advanced wood heating
- Renewable hydrogen

- Customer choice is key to acceptance
- Anyone can earn credits

VT CHS Guardrails:

- VT proposal requires a high fraction of clean heat solutions delivered to low- and moderate-income households
- All credits measured on a net lifecycle basis
- Credits earned only for measures or fuels delivered in Vermont. (e.g, no offsets)
- Only ”sustainably sourced” biofuels earn credits
- Protected “strip” of credits for long-lived, installed measures

Conclusion: Why We Need a Clean Heat Standard

- Focus on consumers – where most decisions will be made
- Fossil providers must adapt or decline
- Equity can be built in at the outset
- Electricity is turning to clean – it's time for fossil heat to join in the transition

CHS Variations

CHS can be tailored for each state or region

- Which fuels are covered?
- Who is obligated to act?
- What qualifies as “clean heat”?
- Required pace of change
- Exclusions and promotions
- How to mesh with other policies?
- Administration
- And more…

Resources

- Richard Cowart and Chris Neme, “The Clean Heat Standard” (December 2021) posted at https://www.raponline.org/knowledge-center/the-clean-heat-standard/
- Vermont General Assembly, H.715 (2022), “An act relating to the Clean Heat Standard” as passed by House and Senate, found at https://legislature.vermont.gov/ *
  - *Note: as H.715 was vetoed at the end of the 2022 legislative session, the CHS has not yet been enacted in Vermont. However, the bill provides an excellent overview of issues and structural elements for those considering a CHS.

Clean Fuels
ALLIANCE AMERICA

BIODIESEL NORTHEAST STATE POLICY UPDATE

Stephen Dodge, Director of State Regulatory Affairs

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WHO WE ARE?

- Clean Fuels represents the farmers, the producers, the distributors and the end users for our all of the products our members and the U.S. industry produce, which include biodiesel, renewable diesel, sustainable aviation fuel, Bioheat ® fuel for thermal space heating as well as maritime and railroad fuels.

- We serve as the clean energy industry's primary organization for technical, environmental, and quality assurance programs and are the strongest voice for its advocacy, communications and market development.

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BD/RD/SAF…

- Our members produce Biodiesel, Renewable Diesel and Sustainable Aviation Fuel as well as fuels for the maritime and railroad industry
- Made from an increasingly diverse mix of resources such as recycled cooking oil, soybean oil and animal fats, biodiesel, renewable diesel and sustainable aviation fuel are renewable, clean-burning fossil fuel replacements that can be used in existing diesel engines and without modification. It is the nation's first domestically produced, commercially available advanced biofuel.
- Biodiesel, renewable diesel and sustainable aviation fuels are produced from agricultural by-products, wastes and residues such as:
  - Soybean, canola and other plant oils
  - Corn oil
  - Rendered animal fats
  - Winter oilseed cover crops
  - Used cooking oil
  - Other biomasses
- EPA designates biodiesel as a high-quality Advanced Biofuel, because it helps reduce GHG emissions between 57% - 86%

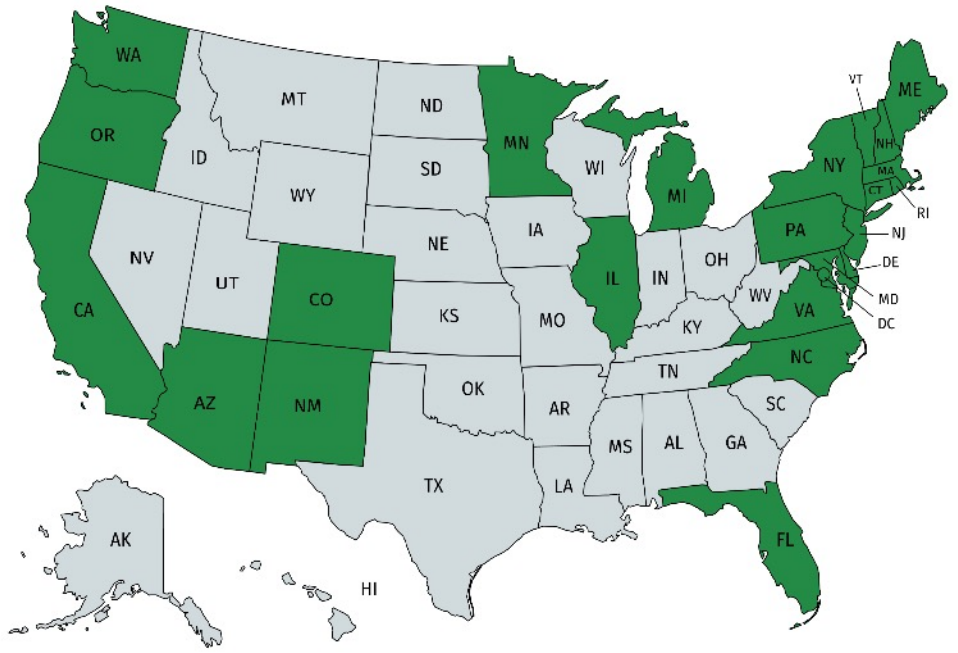
COMPREHENSIVE CARBON GOALS 2010 - 2020

By 2010:

- California
- New Jersey
- Connecticut
- Massachusetts
- Rhode Island
- Vermont

By 2020:

- Washington
- Oregon
- Arizona
- New Mexico
- Colorado
- Minnesota
- Wisconsin
- Illinois
- Michigan
- Maine
- New York
- Pennsylvania
- District of Columbia
- Maryland
- Delaware
- Virginia
- North Carolina
- Florida



>50% U.S. population.
>50% U.S. GDP.
>40% of on-road fuel.
>90% of heating oil.

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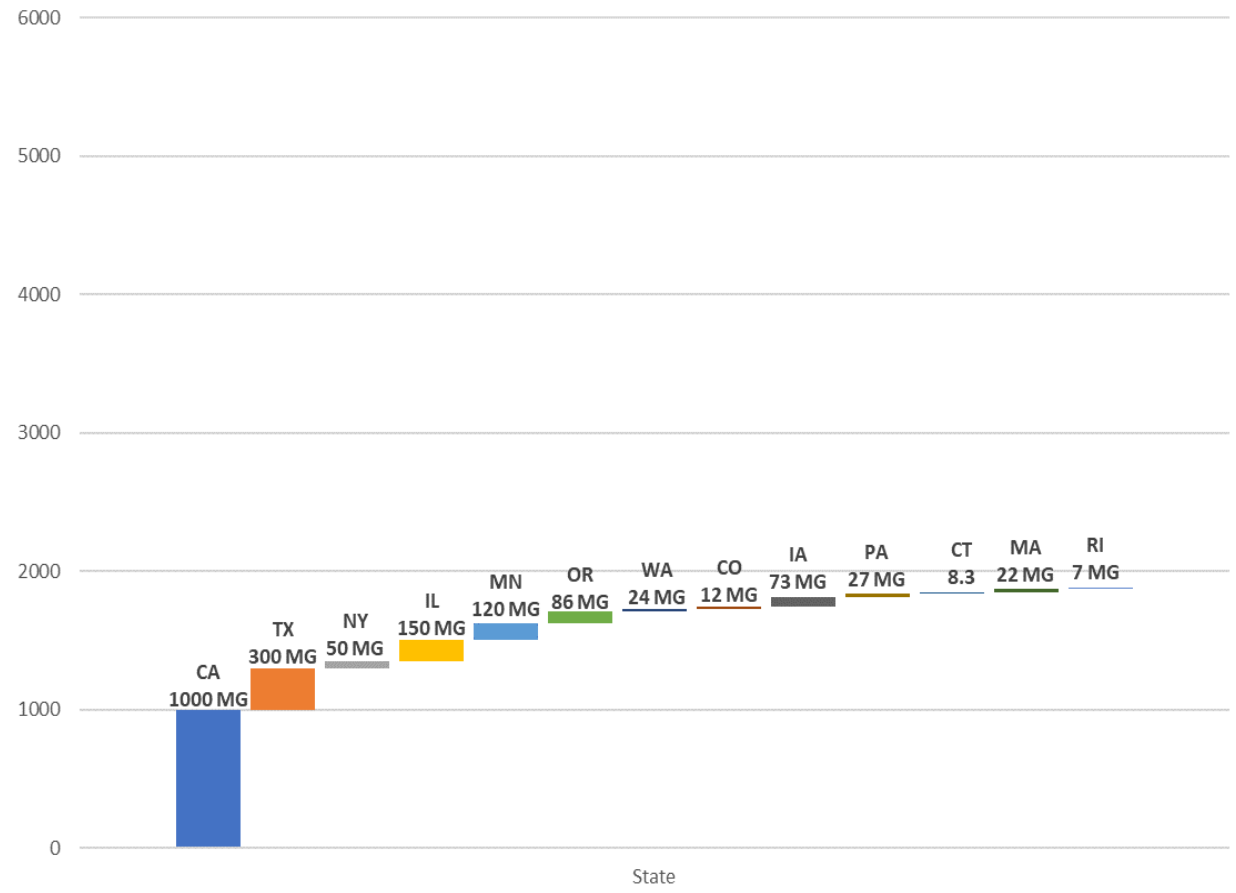
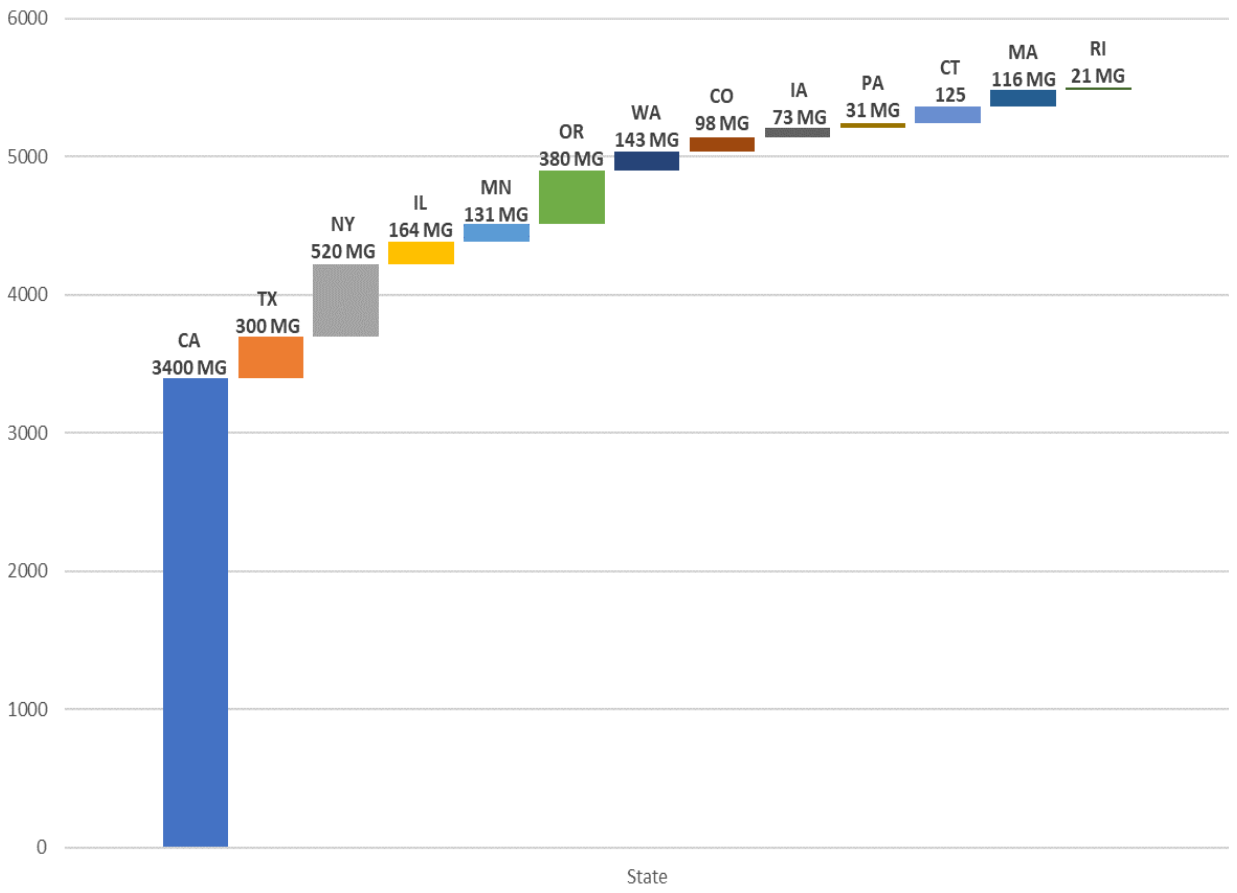
2020 1.9 Billion Gallon State Market



2030* 5.3 Billion Gallon State Market



*Potential growth based on established or proposed requirements

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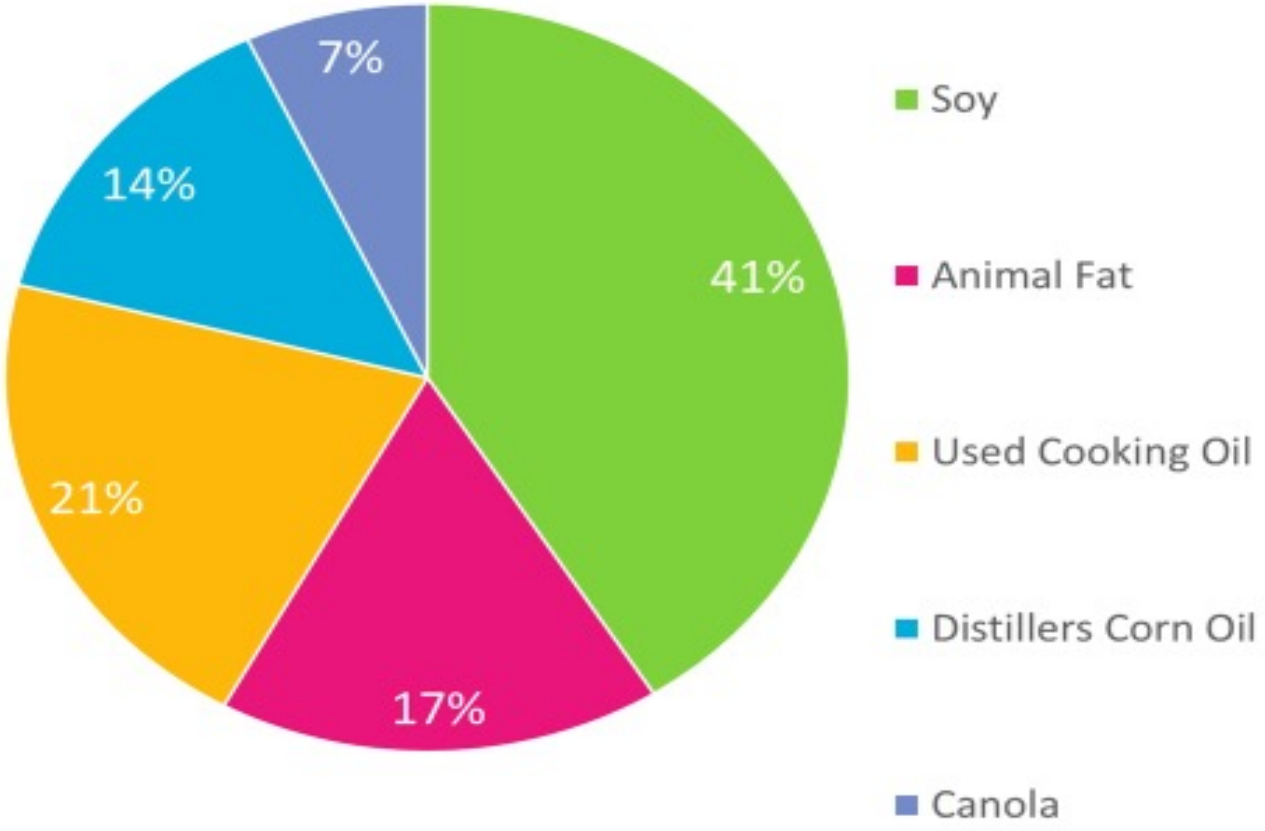
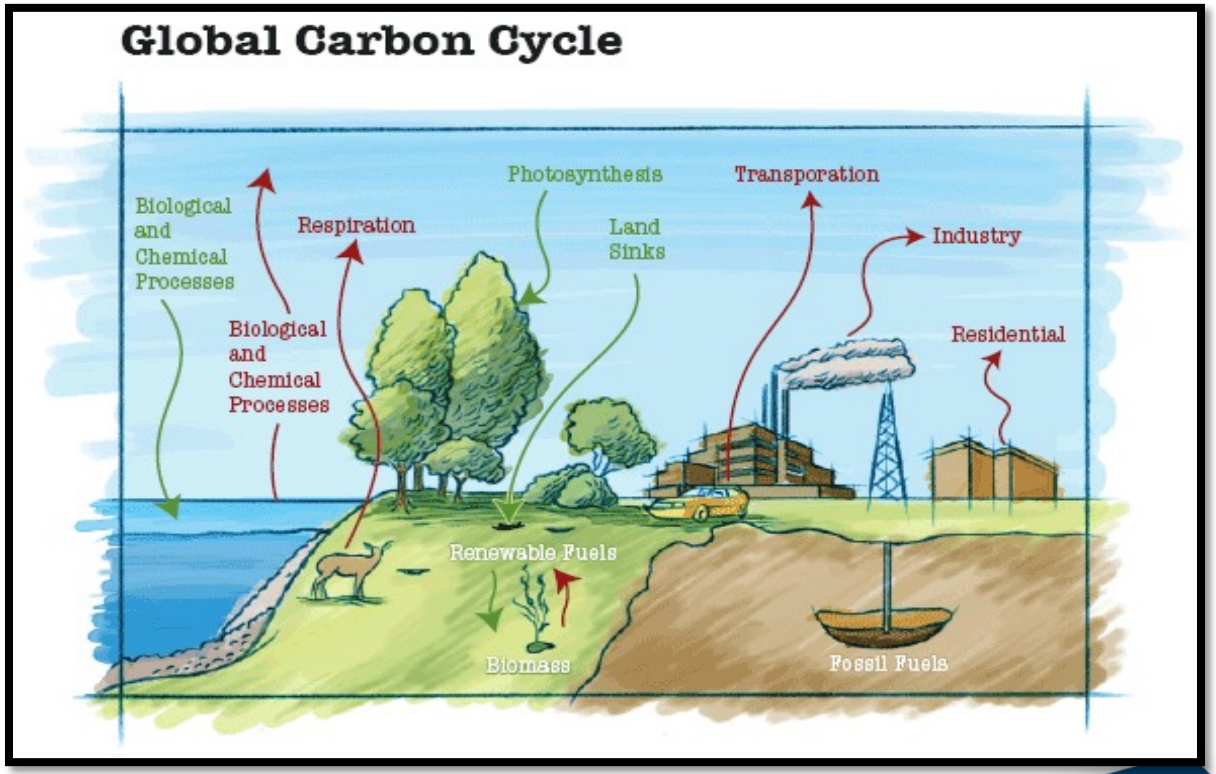
Biomass-based Diesel Feedstocks 2019



GREEN HOUSE GAS BENEFITS: BIODIESEL REDUCES CARBON FOOTPRINT

- **U.S. biodiesel on average provides an <u>80% Reduction in Carbon Emissions</u> compared to petroleum diesel**
  - Full life cycle from soil to tailpipe
  - Includes latest indirect land use



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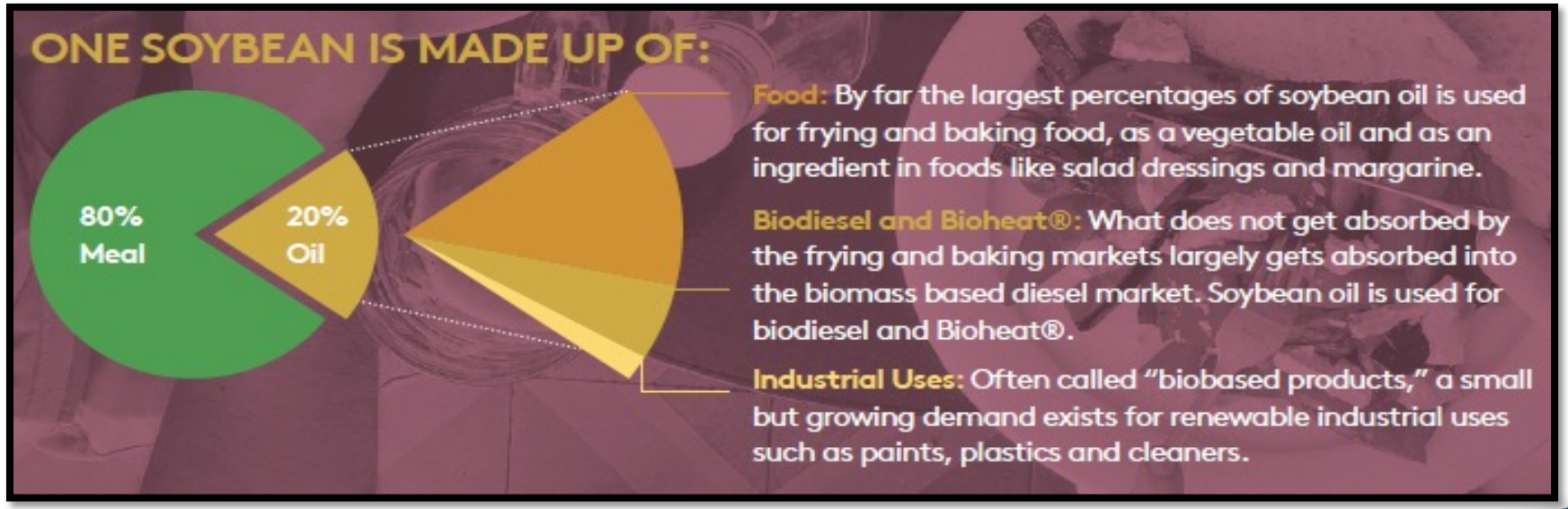
SUSTAINABILITY

- With biodiesel, **food isn't sacrificed for fuel.** Oils and fats for biodiesel are a minor by-product of producing food for humans and animals.
  – Soybeans are 80% protein, 20% oil



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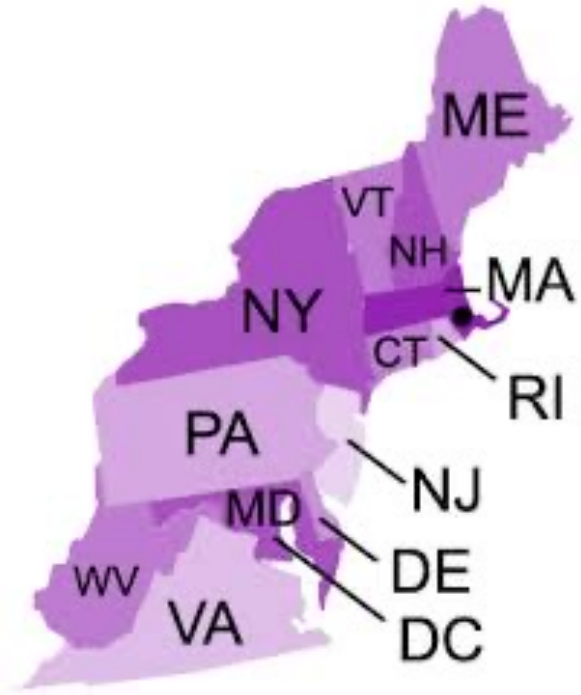
NORTHEAST & MID-ATLANTIC STATE POLICIES

Northeast & Mid-Atlantic States are "all-in" with public policies to phase out fossil fuels and adopt clean fuel standards

- GHG Reductions
  - 30% - 40% reduction by 2030
  - 80% - 85% reduction by 2050

- Power Generation (from renewables)
  - 30% - 70% by 2030
  - 70% - 100% by 2050



NORTHEAST STATE CARBON REDUCTION INITIATIVES

Current Laws & Policy Directives to Phase Out Fossil Fuels

Connecticut
Governor's Climate Change Council

Maine
State Climate Change Adaptation Strategy – Maine Won't Wait

Massachusetts
Clean Energy and Climate Plan for 2030 and 2050

New Jersey
Governor's Energy Master Plan

New York
Climate Leadership and Community Protection Act

Rhode Island
Greenhouse Gas Emissions Reduction Plan

Vermont
Global Warming Solutions Act & Comprehensive Energy Plan

Maryland
Climate Solutions Now Act of 2022

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NORTHEAST HEATING OIL MARKET

4.9 Million Homes (23%) that Consume 3.73 Billion Gallons

New York
1.663 million homes
1.039 BG

New Jersey
298,525 homes
231 MMG

Pennsylvania
843,106 homes
701 MMG

Maryland
131 MMG
219,809 homes

Maine
345,805 homes
270 MMG

Massachusetts
707,835 homes
619 MMG

New Hampshire
234,629 homes
181 MMG

Vermont
111,092 homes
98 MMG

Connecticut
574,588 homes
443 MMG

Rhode Island
128,844 homes
119 MMG

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CHICKEN OR EGG…???

- INDUSTRY BUY-IN

- BLENDING MANDATES
- TAX INCENTIVES
- LCFS/CHS
- CAP & INVEST
- BLENDING INCENTIVES

THE PROVIDENCE RESOLUTION 9/16/2019

15% BY 2023/B20
40% BY 2030/B50
NET-ZERO BY 2050/B100

Industry leaders from the New England States and New York gathered for the 1st Northeast Industry Summit

Out of this meeting the Providence Resolution was developed which said;

The industry resolved that it would reduce greenhouse gas emissions, based on 1990 levels, as follows:

New York State

Climate Leadership & Community Protection Act (CLCPA)

- ✓ Climate Action Council (CAC) – Draft Scoping Plan Approved Dec. 2021
- ✓ CY 2022 – Public Hearings/Comment Period with final Plan to be approved by Dec 2022
- ✓ Electrification of Building Sector (space heating, hot water, appliances, building codes) and Transportation Sector
- ✓ Transition and Permanent Role for "bio-energy" (biomass-based diesel) in Thermal Heating
- ✓ Clean Fuel Standard recommended to CAC
- ✓ Adopts the CA Advanced Clean Truck Rule

Biodiesel Blend in Space Heating Law - Chapter 750 of 2021

- ✓ Expands current 5% biodiesel blending in NYC Metropolitan Area to Statewide
- ✓ B5 in 2022; B10 in 2025; B20 in 2030

Advocacy for 50% and 100% Biomass-Based Diesel Blend

- ✓ Proposal to the CAC & State Legislature for 50% and 100% BMBD
- ✓ ASTM Standards and UL Protocols key to the proposal
- ✓ CT and RI B50 laws will assist

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Connecticut & Rhode Island

Connecticut Biofuel Blending Law - Public Act 21-181

- ✓ Signed into law July 12, 2021
- ✓ Establishes a statewide blending law
- ✓ B5 (2022); B10 (2025); B15 (2030); B20 (2034); B50 (2035)

Rhode Island Blending Law – Chapters 347 & 348 of 2021

- ✓ Signed into law on July 13, 2021
- ✓ Expands the current 5% blending law
- ✓ B10 (2023); B20 (2025); B50 (2030)

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Massachusetts

In 2008, MA adopted Clean Energy Biofuels Act

- ✓ The law would require B5 for both thermal heat and transportation
- ✓ Moratorium on enactment in 2010 due to supply and lifecycle GHG emission reduction concerns
- ✓ Clean Fuels and state marketers advocating for Governor to re-enact the statute

Commission on Clean Heat

- ✓ Evaluating a Clean Heat Standard and a Cap-and-Invest Program
- ✓ Evaluating whether electricity rate-payer funded programs should continue to be used for liquid fuel infrastructure

Alternative Portfolio Standard

- ✓ Incentive Program for biodiesel blending
- ✓ Current law limits feedstock to used cooking oil – Clean Fuels advocating for Advanced Feedstock definition

Local Bans on Fossil Fuel Infrastructure

- ✓ Legislation in conference committee that would establish pilot program for ten municipalities

Maine

- ✓ Maine Won't Wait Climate Plan relies heavily on heat pump installations. Administration interested in an LCFS.
- ✓ State Incentives for Home Grown Solutions - Ethel Levulinate from wood is preferred biofuel

New Hampshire

- ✓ New law protecting consumers right to choose their home heating fuel

New Jersey

- ✓ Governor's Energy Master Plan focused on electrification
- ✓ Bill pending in legislature to require a study of alternative fuels and consumer impacts
- ✓ Adopted the CA Advanced Clean Truck Rule
- ✓ Proposed regulations bans fossil fuels for commercial and institutional boilers and furnaces.

Pennsylvania

- ✓ Current on-road biodiesel mandate triggered from in-state production – currently B2
- ✓ Climate Plan includes an LCFS
- ✓ PA energy dealers more actively supporting the use of BioHeat®

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MARYLAND

Maryland Climate Solutions Now Act of 2022

- Bill requires the state to achieve net-zero statewide greenhouse gas emissions by 2045.
- Original version of the bill included NO reference to biodiesel or biofuels.
- Clean Fuels amendments adopted in House and retained in final version requires the state to study biofuels as part of a transition to an all-electric building code and in the development of energy performance standards.
- Governor Larry Hogan allowed the bill to become law without his signature.
- Hogan administration now on a tight timetable to develop regulations.
- Administration has expressed interest in an LCFS for transportation and heating.

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THANK YOU!

- Stephen Dodge – sdodge@cleanfuels.org

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Visions for a Clean Heat Standard: A Perspective from the West

Erin Overturf
Clean Energy Program Director
May 26, 2022

WHO IS WRA?

Western Resource Advocates

- We are a conservation organization with more than 30 years experience in the Interior West.
- WRA fights climate change to sustain the environment, economy, and people of the West.
- Our team of policy experts, engineers, economists, and attorneys works where decisions are made, sweating the details, creating evidence-based solutions, and holding decision makers accountable.

OUR MISSION: Western Resource Advocates is dedicated to protecting the West's land, air, and water to ensure that vibrant communities exist in balance with nature.

What I will be talking about:

- Nevada's proposed, but not adopted gas utility planning bill, A.B. 21-380.
- Colorado's adopted Clean Heat Standard, S.B. 21-264.
- Some overarching observations on greenhouse gas accounting.

What I will not be talking about:

- Specifics of pending Colorado PUC proceedings.

Nevada's AB 21-380

Establishes goals for net greenhouse gas emission reductions that occur from the use of combustible fuels in commercial and residential buildings, with a priority on efficiency as a compliance tool.

Directs the Public Utilities Commission to undertake an investigation exploring:

- safety standards,
- existing infrastructure,
- electrification technologies,
- environmental and health impacts,
- number and types of customers,
- issues affecting low-income customers,
- alternative fuels,
- potential role of securitization,
- workforce issues, and
- gas utility incentives, practices, and programs, that encourage continued gas use

Nevada's AB 21-380

Requires gas utilities to file Infrastructure, Supply, and Alternatives Plans, which include:

- 30-year forward-looking demand projections,
- decarbonization plan to meet the GHG reduction goals,
- detailed 6-year investment and action plan,
- alternative investment and action plans, including a "no action" alternative and an "efficiency strategy" alternative,
- cost-benefit analysis for plan and alternative plans, and
- quantification emission reductions from plan and alternative plans.

Colorado's SB 21-264

Sets GHG reduction goals for gas distribution utilities, from a 2015 baseline:

- 5% by 2025
- 22% by 2030

Requires regulated gas distribution utilities to regularly file Clean Heat Plans, showing how they'll meet the GHG goals using "clean heat resources."

Defines "clean heat resources" as:

- efficiency,
- "recovered methane," (biomethane, methane from municipal solid waste, coal mine methane, pipeline leaks)
- green hydrogen,
- electrification, and
- other technologies that reduce CO2 emissions from combustion of gas or meet a recovered methane protocol.

Colorado's SB 21-264

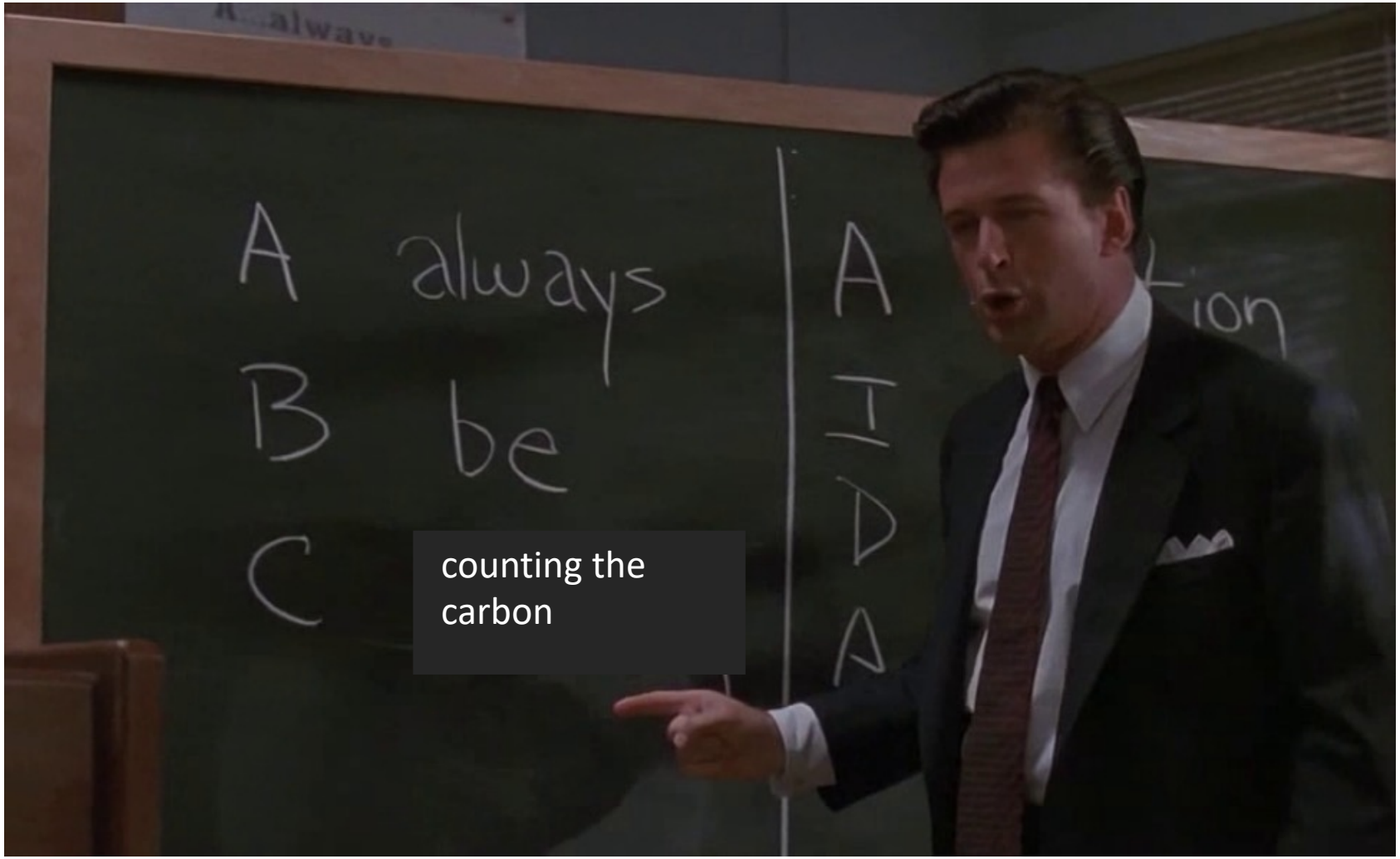
Clean Heat Plans must:

- limit use of "recovered methane" under a statutory cap for use in meeting emissions targets,
- prioritize investments that ensure disproportionately impacted communities and income-qualified customers benefit,
- forecast future system growth, and
- identify changes to depreciation schedules that would better align with statewide policy goals.

Air regulators' parallel responsibilities:

- establishing "recovered methane protocols," with a priority on inactive coal mine methane, biomethane, and gas system leaks,
- establishing a related crediting and tracking system, and
- evaluating Clean Heat Plans for municipal gas distribution utilities.

Emissions tracking



Some considerations in the Clean Heat context

Baselines: year, emissions

Biomethane, coal mine methane and other alternative methanes

- indirect emission reductions, leakage and burner tip emissions remain
- project-specific
- measurement and verification

Double counting

- inter-program
- intra-program
- credits

Offsets as a compliance tool raise their own additionality, permanence, and environmental justice concerns.

Thank you!

Erin Overturf

Clean Energy Program Director

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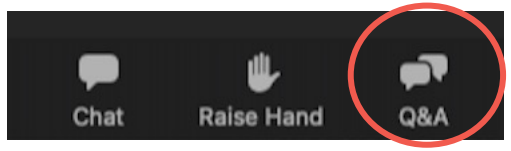
Respondent:
The Regulator's Perspective

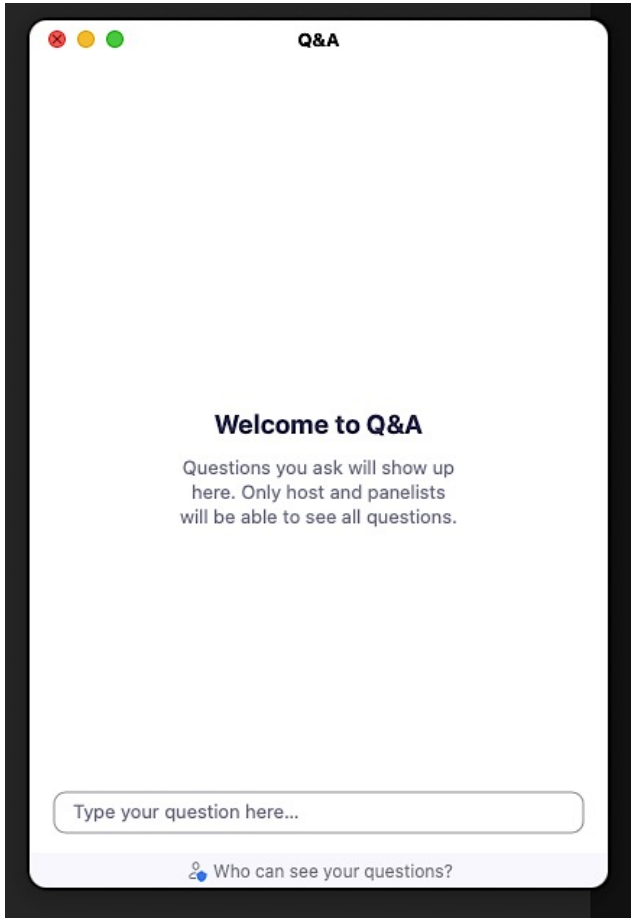
Takeaways

- A clean heat standard is a flexible policy tool that can be designed in different ways to meet the varied needs of policy makers.
- It can incorporate supply-side and demand-side resources, and compliment other established state policies.
- Regulators need to ensure that the full lifecycle GHG emissions of clean heat resources are correctly accounted for.
- If you are chosen as a clean heat resource, you are not given carte blanche; you must compete against all the other clean heat resources – on things like price availability and, of course, carbon intensity.

Questions?

Please send questions through the Q&A pane





About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org