

# Typical Mechanics of Clean Fuel Standards with Possible Improvements

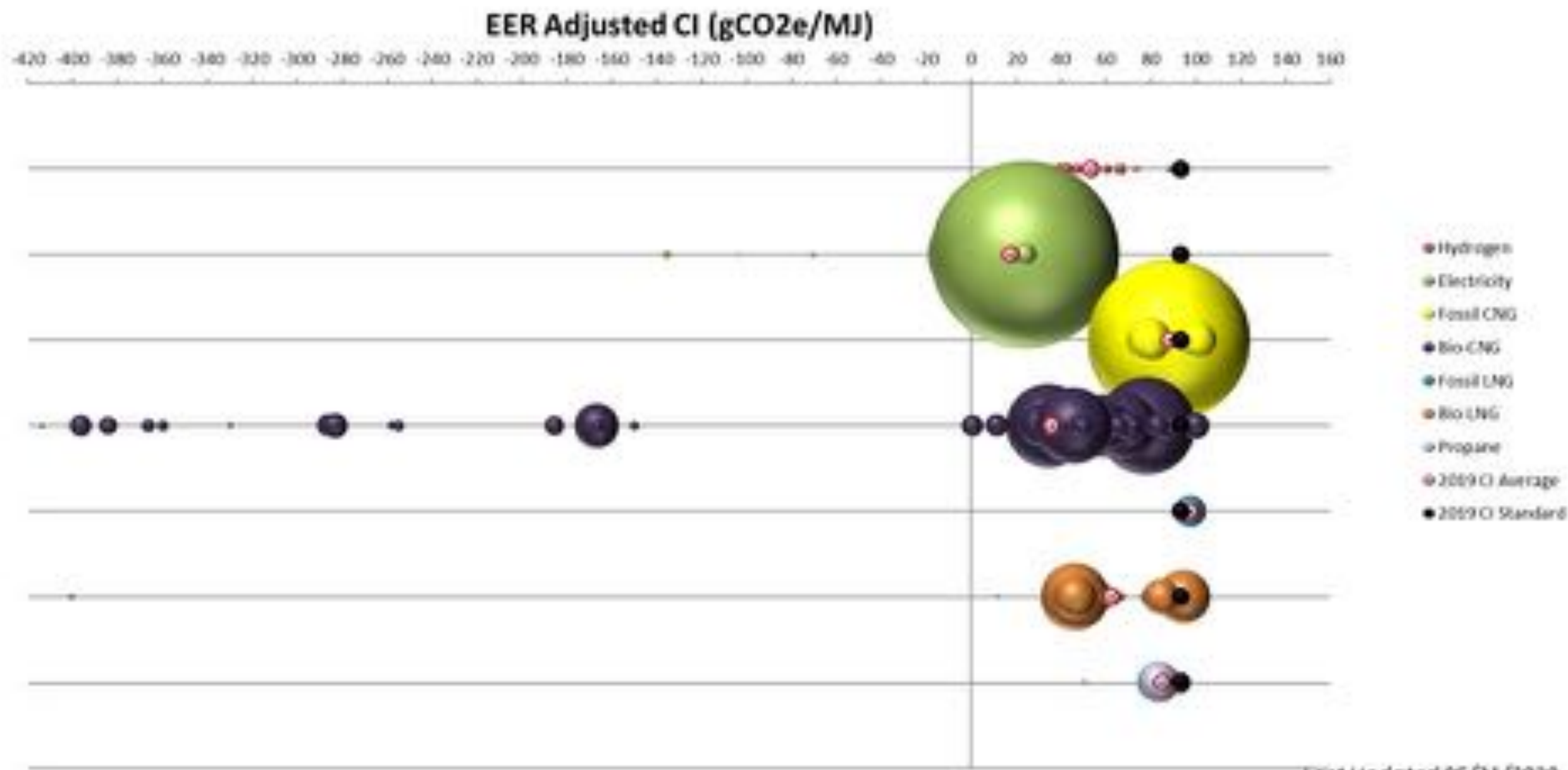
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# Background on Clean Fuels Standard

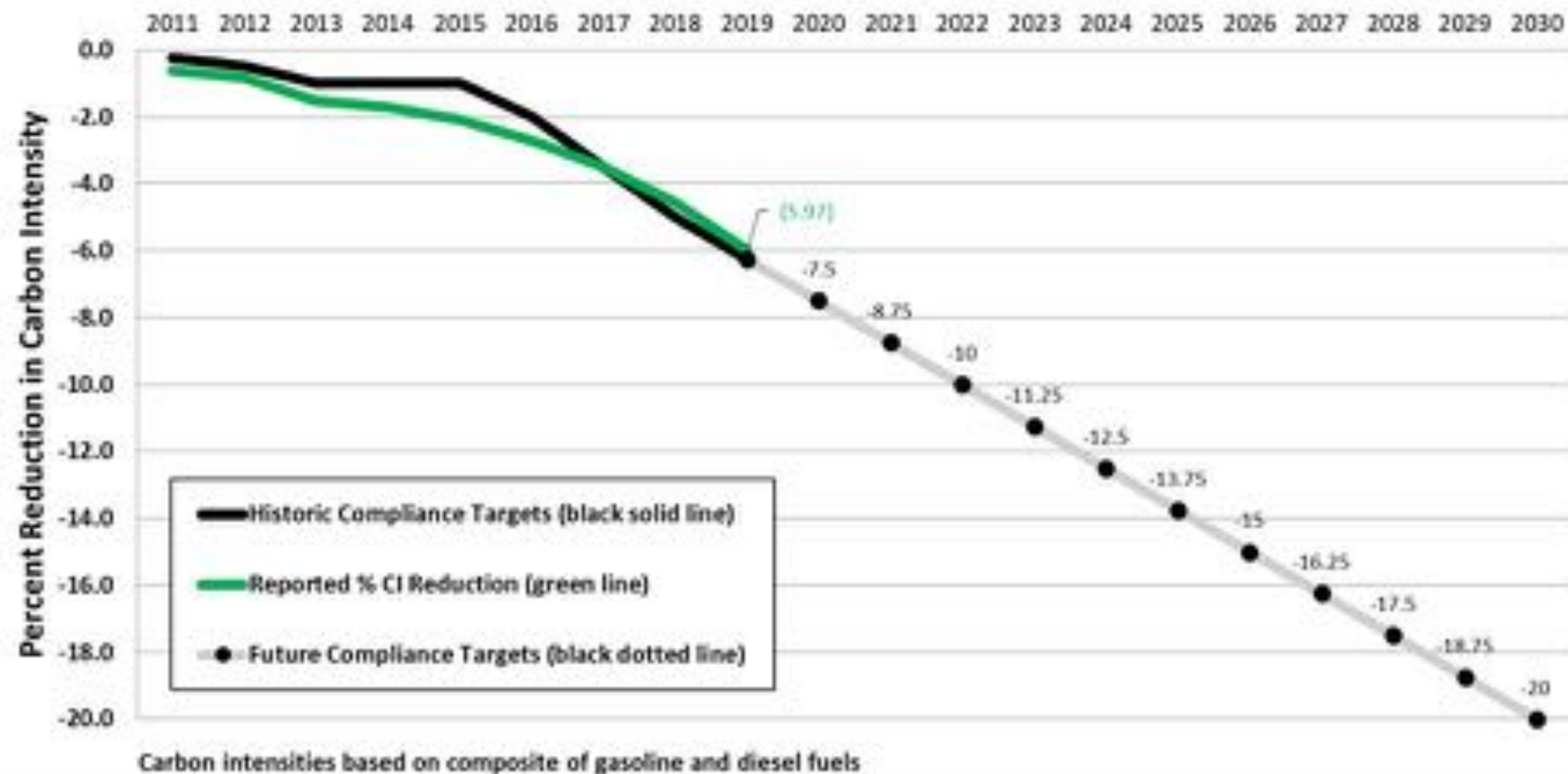
- CFS analogous to renewable energy or EE mandates in electricity sector but the regulated parties are oil companies (deficits)
  - Gasoline and diesel must reduce their carbon intensity (CI)
- Other parties (credit generators) are voluntary but must do reporting, sell credits and comply with how to spend the proceeds
- CFS is science based, is fuel neutral and rewards GHG performance “well-to-wheels”
  - Over 300 types of low-carbon fuels can generate credits – mostly biofuels, but also electricity, hydrogen, and natural gas
  - Also credits from carbon capture and storage, refinery improvements
- CFS can’t fund everything. CFS focus is on fuel sector
  - Other tools for reducing GHG from vehicles and reducing miles travelled
  - CFS will be amended and improved over time
  - CFS should complement not hurt other funding sources: taxpayers, utility customers, settlement funds

# 2019 Volume-weighted Average Carbon Intensity by Fuel Type for Non-Liquid Fuels



# Background on Clean Fuels Standard (cont'd)

- Overall value of CFS depends on price of credits
  - Supply and demand linked to design of CFS's stringency
- Politics typically dictates approach to CFS
  - Whether to start with legislature or agency
  - How to design the program (beneficiaries, stringency, compliance pathways)
- CFS broadly covers most transportation including heavy duty, aviation, non-road, rail
- CFS broader and more rigorous than the national RFS - includes more than biofuels and financially rewards reducing CI for all types of fuels
- CFS is operational in CA, OR and British Columbia and will soon be in Canada and Washington state
  - Great Plains Institute – Midwestern Framework for CFS will soon be released
  - MN legislature – in conference committee
  - Variation on the CFS in Northeastern states under development (Cap and Invest)



Last Updated 05/31/20

This figure shows the percent reduction in the carbon intensity (CI) of California's transportation fuel pool. The LCES target is to

# Background on Clean Fuels Standard (cont'd)

- Many parts to the “fuels” sector and CFS typically treats different fuels uniquely
  - Fuel production, refining, distribution, end-use/retail = “fuels sector”
  - Biofuels – regulators reward biorefineries – rewarding farmers being explored
  - Non-residential electricity – regulators reward site host / charging station owner
  - Residential electricity – regulators don’t give to EV driver but want surrogate to use money for EV commercialization and equity - many options here
- For CFS credits
  - How credits are calculated
  - Who generates credits
  - How credit revenue is used
  - Who oversees credit revenue spending

# Funding Potential for EVs in Wisconsin

- Assume a future of 1 million light-duty EVs in Wisconsin and 100,000 e-trucks, e-buses and non-road EVs out of about 4.5 million vehicles today
- Assume CA and OR prices for CFS credits and similar CI for electricity in 2035
- Results
  - Light-duty EVs generate about \$600-\$700M in 2035 alone for charging in all locations (mostly homes)
  - Non-light duty EVs generate about \$500-\$650m in 2035 alone.
  - Cumulative value from 2023-2035 is many billions of dollars
- Dilemma: - this money is needed in early years – not in 2035!
  - For 2023 only – rough estimate - 40,000 EVs with CFS credits = \$20-25M
- Solution: Estimated home charging credits can be calculated for 10- year life of the vehicle rather than being estimated every 3 months. Possible to forward at least some of the other CFS credits. Done today in utility EE programs.

# Other open issues



## **Bringing vehicle OEMs, charging networks, utilities, NGOs on board**

Compromise possible where all parties receive direct and/or indirect benefits

Likely means different approaches to base and incremental EV credits, residential and non-residential EV credits



## **Role of oil sector**

Midwestern history

No longer monolithic

Can generate credits with CCS, refinery improvements, and investing in alt fuels



# Other open issues



## Bringing farmers and biorefineries on board

For many years 70-90% of credits will go to ethanol, biodiesel, renewable diesel and biomethane

MN exploring credits not just to biorefineries but also farmers

CFS is not an expansion of biofuels (due to blend wall) but a decrease in the carbon intensity.



## Bringing larger equity focus

Not just LMI issues but also BIPOC, rural regions and other underserved communities

Very significant funds for equity projects from residential EV credits and potentially other credits


More need for equity groups in design stage

# Other open issues

- How to simplify the program?
  - Shift from two regulators to one regulator (remove role for utility commission)
  - Don't have third party verification for EVs
  - Shift some things to regional instead of state
  - Manage expectations - early versions of regulation don't have to be perfect
- Don't allow EV credits to go unclaimed



## Other resources

- [Clean Fuels Policy for the Midwest Jan 2020](#)
  - [Oregon climate change: Governor's new plan leans on supersizing the Clean Fuels Program - oregonlive.com](#)
  - [WA Clean Fuels Prog. Linked to OR & CA Low-Carbon Fuel Std. \(natlawreview.com\)](#)
  - [Renewable & Low Carbon Fuel Requirements Regulation - Province of British Columbia \(gov.bc.ca\)](#)
  - [Low Carbon Fuel Standard | California Air Resources Board](#)
  - [Clean Fuel Standard - Canada.ca](#)
  - [Is it a plan to fight climate change, or a gas tax? TCI facing fierce pushback \(ctmirror.org\)](#)
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The background features a light gray diamond shape centered on a white background. This diamond is framed by a white double-line border. In the four corners, there are overlapping geometric shapes: yellow diamonds in the top-left and bottom-right, and blue diamonds in the top-right and bottom-left. The word "Appendix" is centered within the white diamond.

# Appendix

# Typical clean Fuels Standard for EVs: with possible improvements

- **How credits are calculated**

- Calculated quarterly
- Value is mainly linked to kWh and \$\$ per ton of credits.
  - On West Coast – class 8 truck = > \$150,000 lifetime (or \$0.22 per kWh) and light duty EV >\$7,000 lifetime (or \$0.15 per kWh)
- *Idea - Allow all types of EVs to earn credits (e.g., mining, tractors, etc.) level playing field w other fuels*
- Two types: base credits (grid average electricity) and incremental credits (cleaner electricity)
- Non-residential and incremental credits are measured
- Residential base credits estimated - *Idea: estimate for 7 or 10 years of value (analogous to utility HVAC and refrigerator EE credits)*

- **Who generates credits**

- Non-residential - Owner of the charging station (usually site host)
- Incremental credits residential – several options but typically automaker
- Residential base credits - utility -*Idea: could be NGO and/or automaker instead*

- **How credit revenue is used**

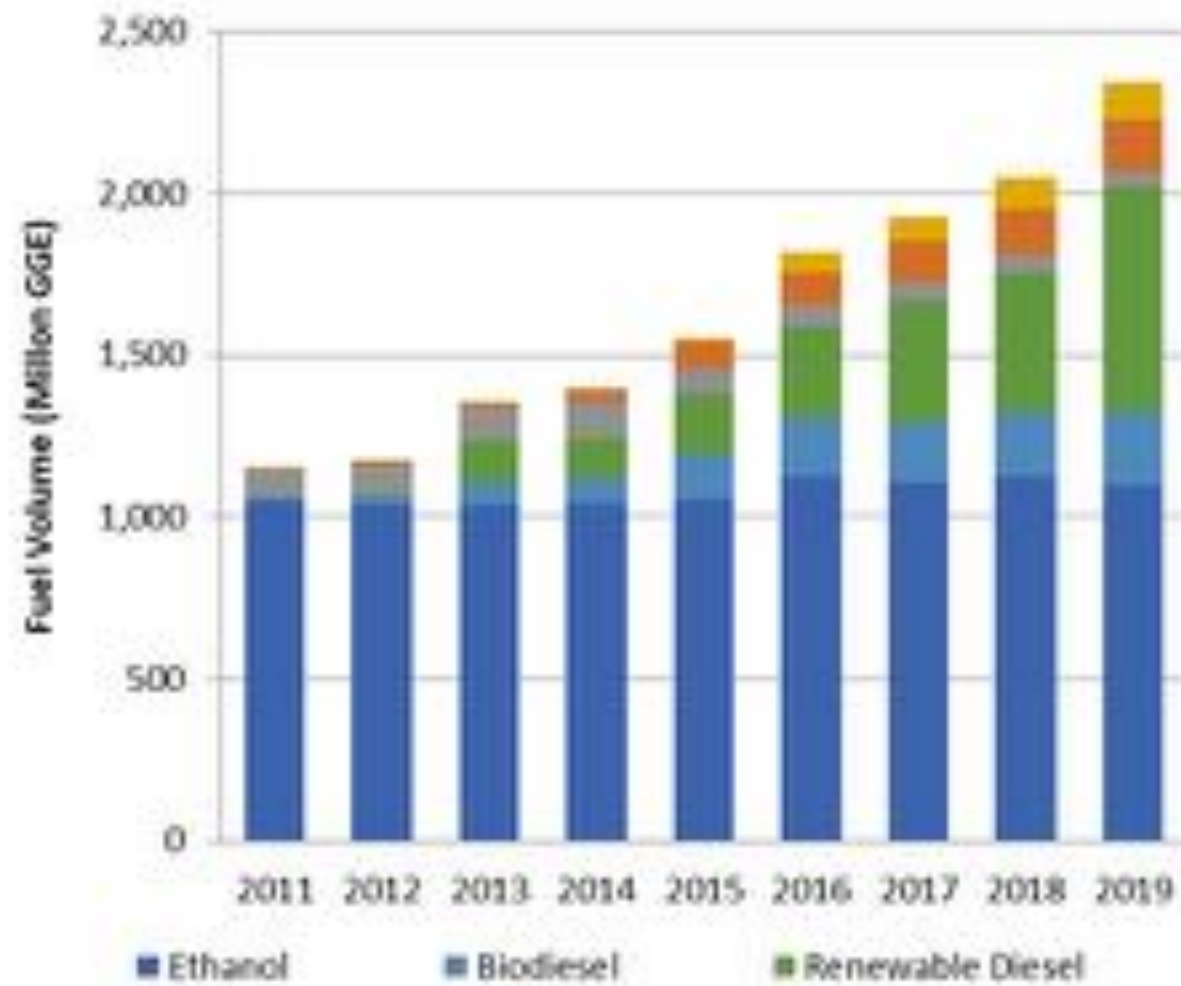
- Need guiding principles and requiring proceeds to be used to advance electric transportation with a significant portion for equity (LMI, rural, BIPOC and other underserved communities)

- **Who oversees credit revenue spending**

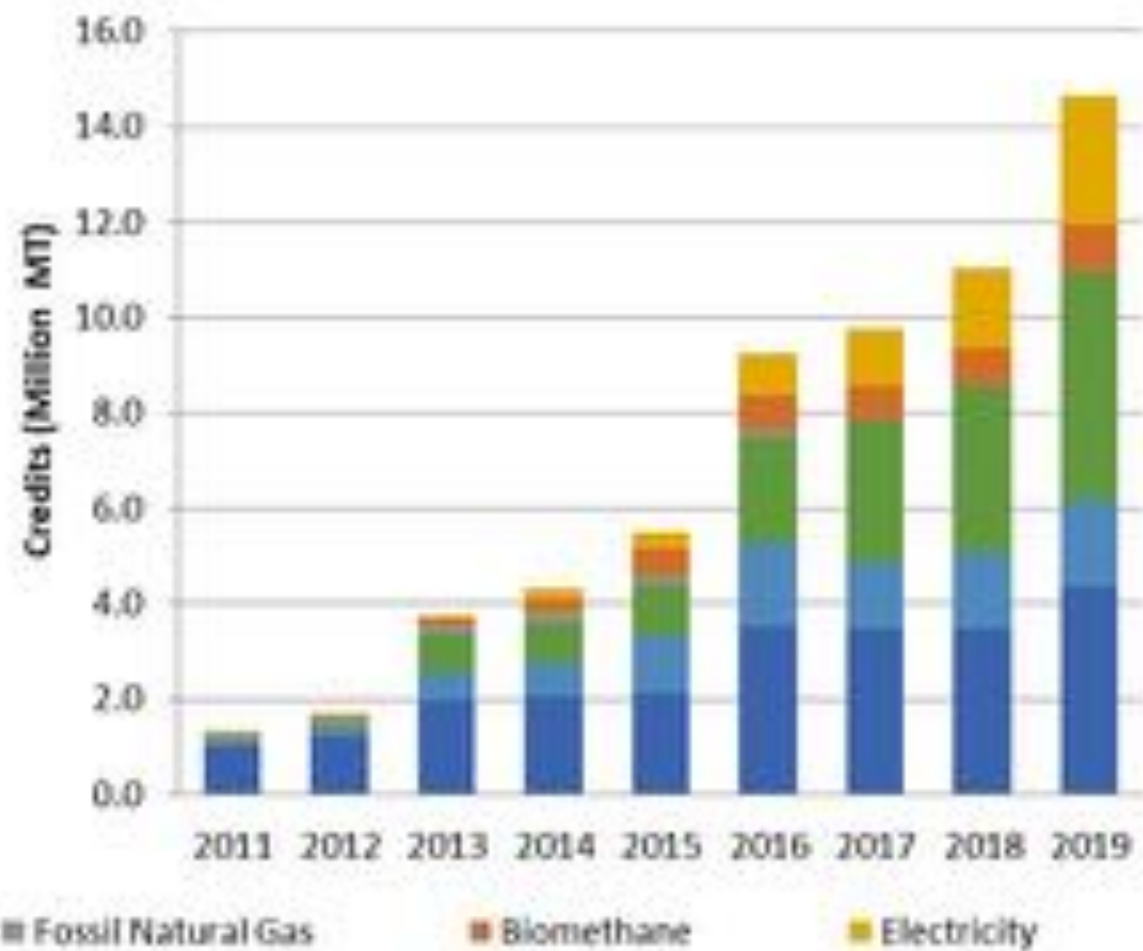
- Two regulators: environmental agency and utility commission - *Idea: could have one regulator*

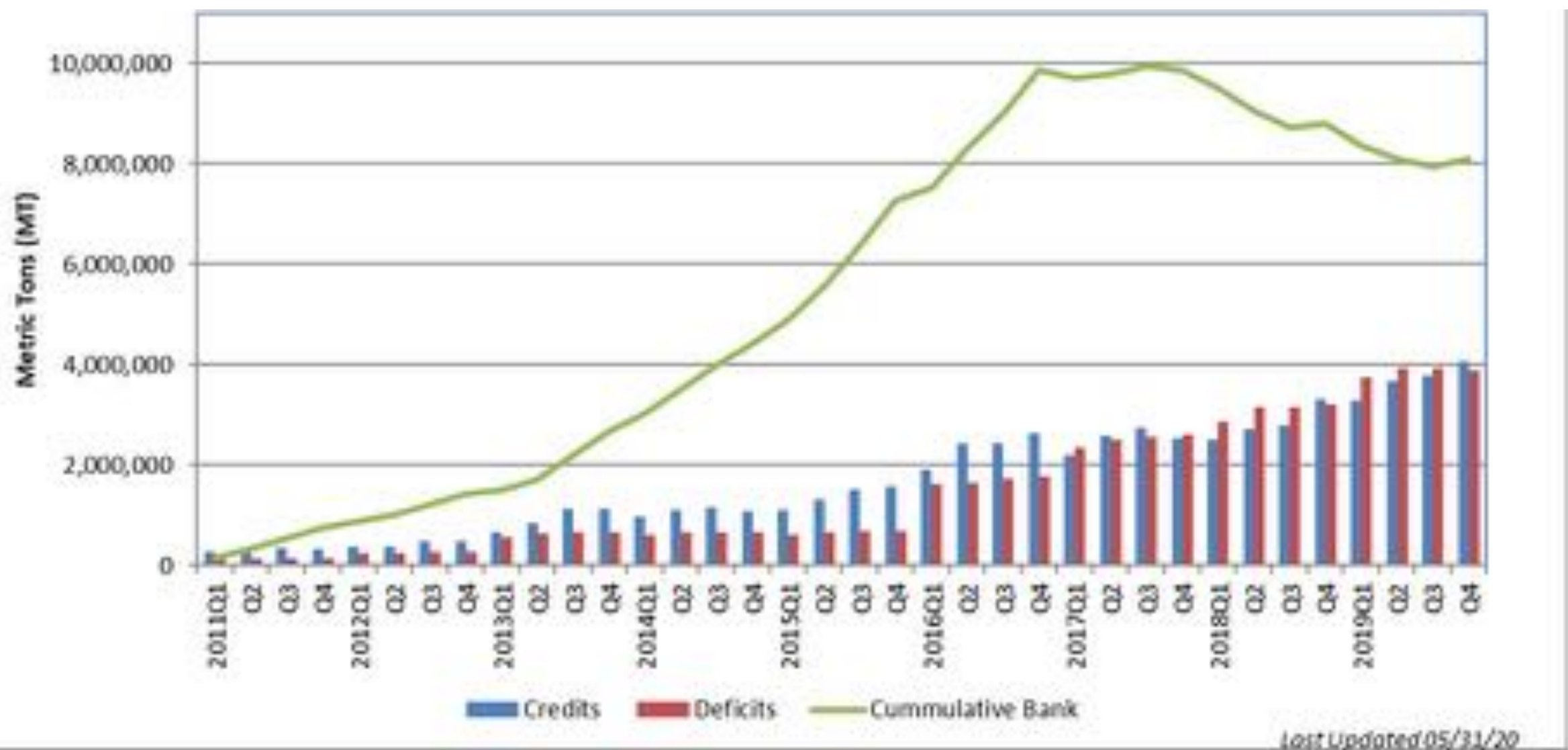
# Alternative Fuel Volumes and Credit Generation

## VOLUMES



## CREDITS





This chart shows the total deficits (in red) and credits (blue) generated during each quarter. The green line tracks the total number of banked credits.

Regulated entities have consistently over-complied with the standard, generating a bank of credits which can be sold or retired to meet compliance obligations at any time. At the end of Q4 2019, the bank stood at nearly 8.1 million credits. No 2019 Low