

California Environmental Protection Agency



Air Resources Board

***Low Carbon Fuel Standard
Refinery Provisions***

April 18, 2014

Agenda

- Low-Complexity/Low-Energy-Use Refineries
- GHG Emissions at Refineries

***Low-Complexity/
Low-Energy-Use
Provision***

Low-Complexity/Low-Energy-Use Refinery Provision

A Quick Review

- Resolution 11-39

“...investigate the feasibility of developing into regulatory language for future rulemaking(s)....

Accounting for lifecycle carbon intensity associated with low-energy refineries”

- Status: Planning to include in the 2014 re-adoption of the LCFS

Low-Complexity/Low-Energy-Use Refinery Provision (cont'd)

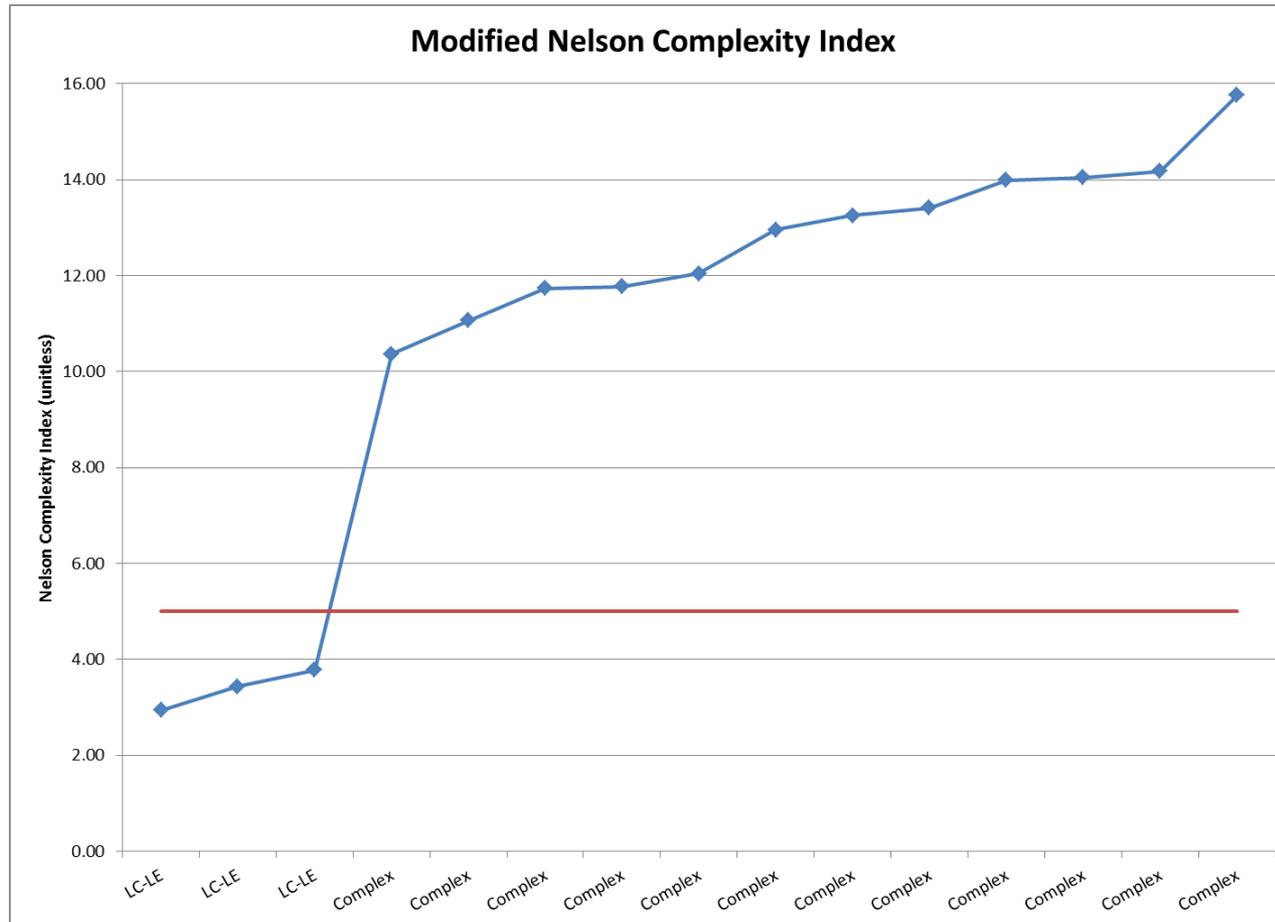
Metric for Applicability

- Modified Nelson Complexity: Less than 5

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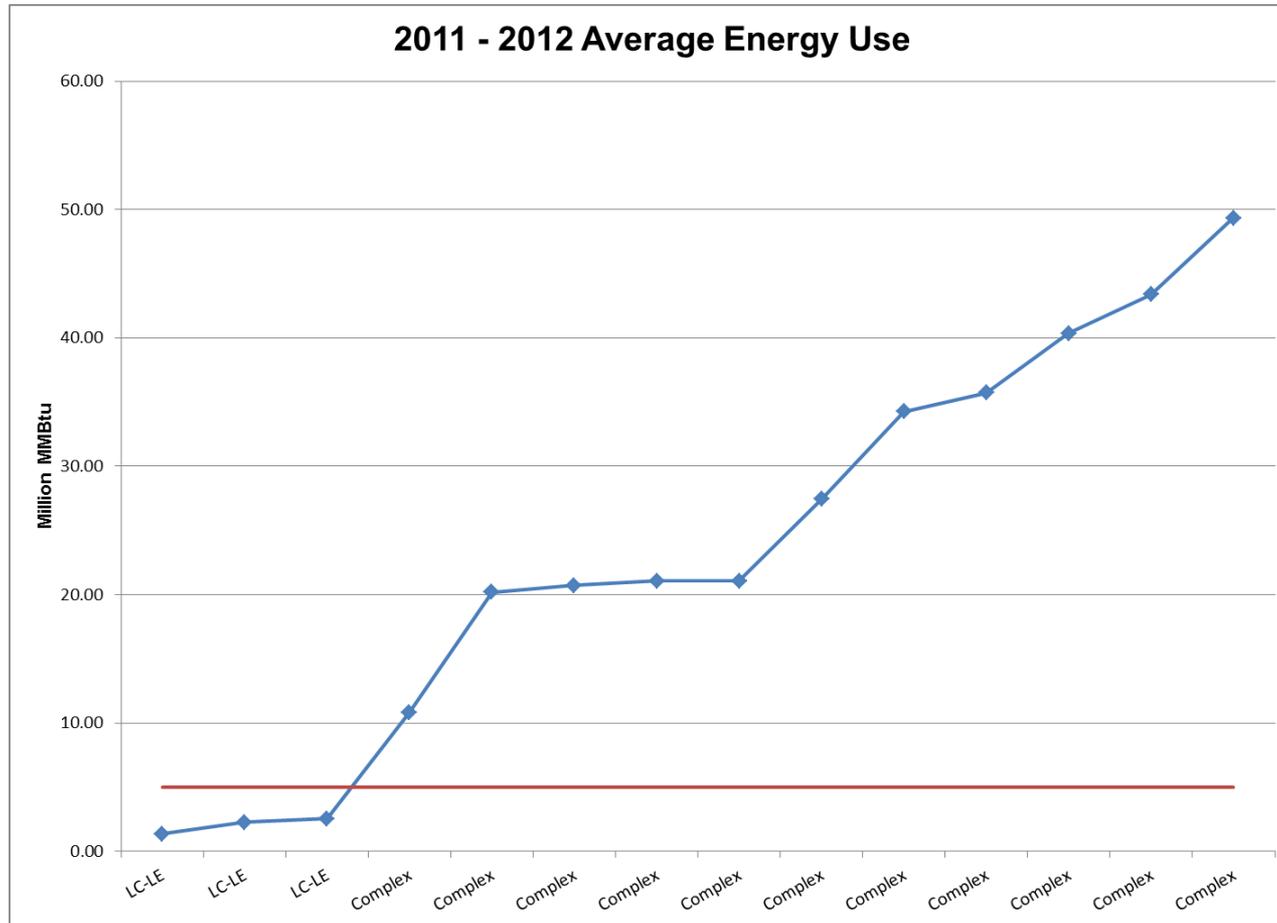
- Total energy use of refinery: Less than 5 million MMBtu consumption per year

Defining a Low-Complexity/Low-Energy-Use Refinery



Modified Nelson Complexity: Less than or equal to 5

Defining a Low-Complexity/Low-Energy-Use Refinery



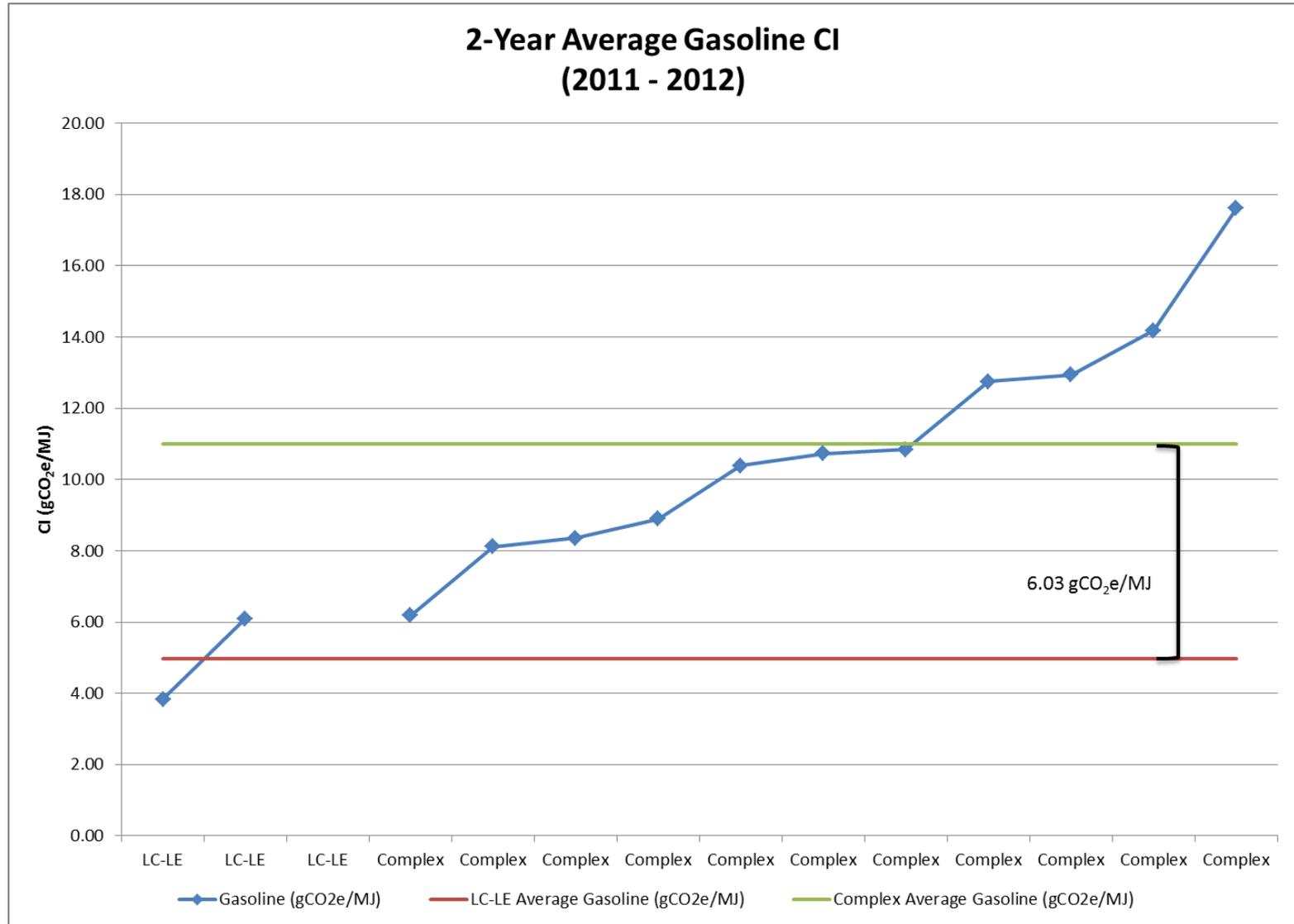
Total Annual Energy Use: Less than or equal to 5 million MMBtu per year

Low-Complexity/Low-Energy-Use Refinery

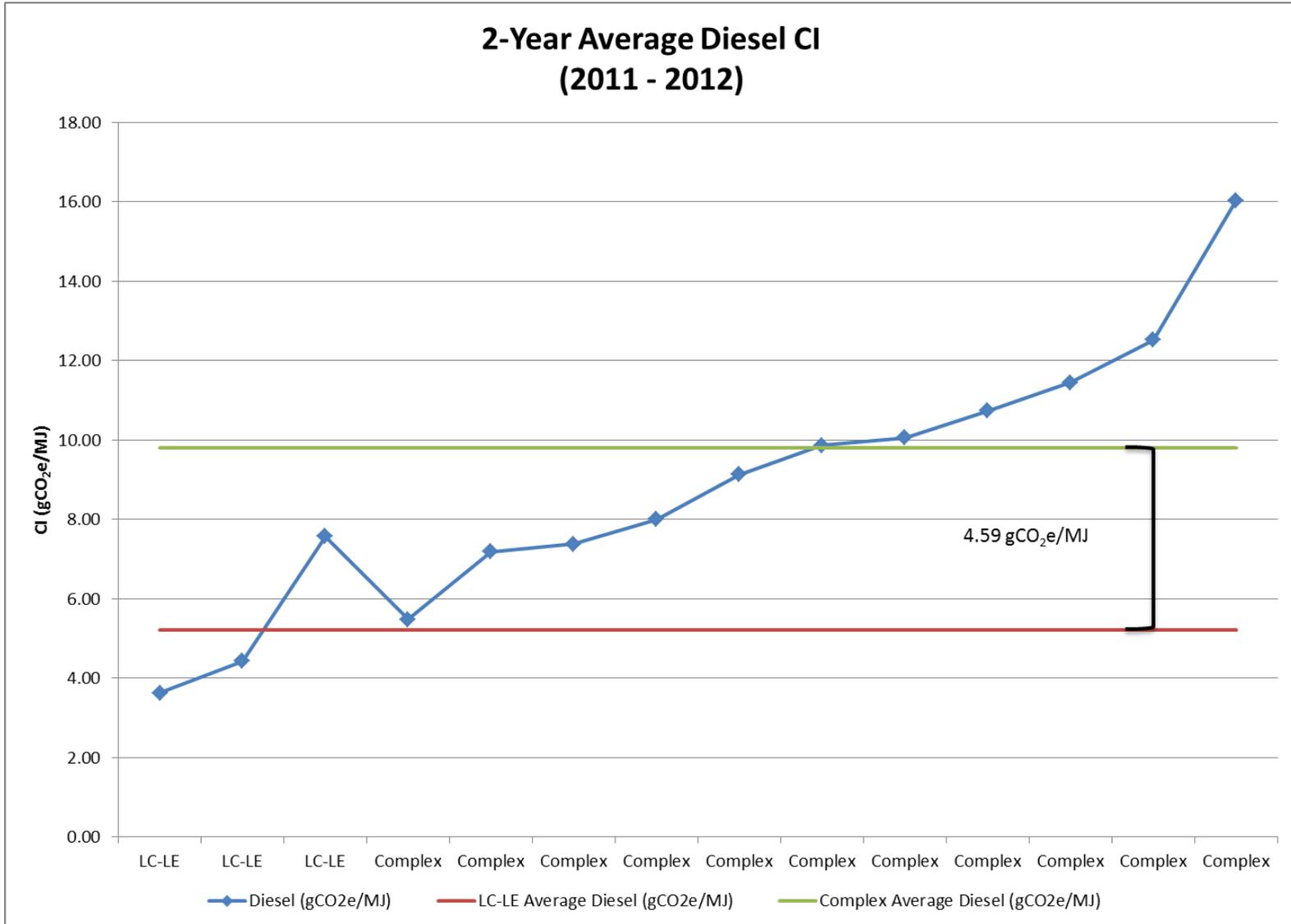
Staff quantified the difference in transportation fuel carbon intensities between Low-Complexity/Low-Energy-Use refineries and the complex refineries

- Emission and product data from 2011 and 2012 Mandatory Reporting Rule (MRR) reporting
- All energy inputs and outputs to the refinery were used in the calculation of each refinery's total GHG emissions
- Emissions were apportioned on a volume basis using Primary Refinery Products

Low-Complexity/Low-Energy-Use Refinery



Low-Complexity/Low-Energy-Use Refinery



Low-Complexity/Low-Energy-Use Refinery

Staff is currently proposing a 5 gCO₂e/MJ reduction of the CI of both gasoline and diesel for Low-Complexity/Low-Energy Use refineries

- Smooths out uncertainties associated with a simple-barrel approach
- The CI reduction will be handled in the reporting tool

Low-Complexity/Low-Energy-Use Refinery

- CARBOB and CARB diesel purchased for blending or sale will not receive the proposed 5 gCO₂e/MJ CI reduction
- Staff has yet to develop a proposal that addresses the volume of CARBOB and CARB diesel produced from intermediate feedstocks (including transmix)
 - How much energy savings associated with charging intermediates instead of crude?
 - Does that affect the 5 gCO₂e/MJ CI reduction?

Low-Complexity/Low-Energy-Use Refinery Reporting Requirements

Staff is proposing to add reporting requirements for refineries subject to the Low-Complexity/Low-Energy-Use refinery provisions

- CARBOB and CARB diesel produced from crude
- CARBOB and CARB diesel produced from other intermediate feedstocks (including transmix) that require less refining than crude
- CARBOB and CARB diesel purchased for blending

Questions?

***GHG Refinery
Emission
Provision***

GHG Emission Reductions at Refineries

- Why?
 - Consistent with life cycle analyses
- How?
 - Refineries will submit projects for approval
 - Delta between refinery's baseline transportation fuel CI and new transportation fuel CI will be determined
 - Credits will be applied to refinery
- Review
 - Each refinery with approved Refinery Investment credits will have their transportation fuel CIs reviewed periodically
 - Changes in the CIs could result in an increase, decrease, or elimination of the credit in future years

GHG Emission Reductions at Refineries

- Awarding credits on a project basis:
 - Avoids benchmarking
 - Is easier to implement
 - Acknowledges differing opportunities for specific facilities
- Projects will be eligible for credits if implemented in 2015 and beyond
- Staff is considering a de minimus threshold under which no credits will be earned

GHG Emissions Increases at Refineries

Staff is looking at “the other side of the coin”

- Should GHG emission increases result in incremental deficits?
- What metric(s) would be used for such analysis?
- How would changing refinery throughputs be considered?
- How would changing refinery product slates be considered?

Questions?

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<http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>