Taking a global view
Commodity and energy trading seminar

September 17, 2019
Patrick Eberhardt, Partner, Geneva
Greg Kaufman, Partner, Washington DC
David McCullough, Partner, New York City
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Corporate criminal responsibility:
How prosecutors increase pressure on faulty traders
Criminal responsibility of companies: You don’t see it coming!
Criminal responsibility of companies

Background

— UN and OECD conventions on fight against finance of terrorism and corruption (1999/2000)

— Money laundering (1990) and Money Laundering Act (1998)

— Criminal responsibility of companies art. 102 Swiss Criminal Code (2007)
Criminal responsibility of companies

Accelerators

– Changed perception of corruption: scope widened
– Constant flow of regulatory rules in financial industry
– Human rights in business
– Traders frequently targeted by non-profit organizations ("Public Eye")
Criminal responsibility of companies

How companies become criminals: art. 102 Swiss Criminal Code

— Company is subsidiarily liable: «who dunnit ?»

— Company is primarily liable: «company caused the crime!»
Criminal responsibility of companies

**Who dunnit**: article 102 para 1 SCC

“If a felony or misdemeanour is committed in an undertaking in the exercise of commercial activities in accordance with the objects of the undertaking and if it is not possible to attribute this act to any specific natural person due to the inadequate organisation of the undertaking, then the felony or misdemeanour is attributed to the undertaking. (...)”
Criminal responsibility of companies

*Who dunnit*: article 102 para 1 SCC

- Felony or misdemeanor was committed
- Impossible to identify the perpetrator due to lack of organization
- Example: serious speeding offense with company car or hacking of computers
Criminal responsibility of companies

«Company caused the crime!»: article 102 para 2 SCC

“If the offence committed falls under Articles 260ter, 260quinquies, 305bis, 322ter, 322quinquies, 322septies paragraph 1 or 322octies, the undertaking is penalised irrespective of the criminal liability of any natural persons, provided the undertaking has failed to take all the reasonable organisational measures that are required in order to prevent such an offence.”
Criminal responsibility of companies

«Company caused the crime!»: article 102 para 1 SCC

Punishment in addition to the actual perpetrator

Only for certain crimes:

- Participation in criminal organization
- Finance of terrorism
- Money laundering
- Corruption
Criminal responsibility of companies

Sanctions?

Hard punishment:

- Fine up to CHF 5m
- Confiscation of benefits of crime
- Reparation payment
Criminal responsibility of companies

Sanctions?
Soft punishment:
– Preventive incarceration
– Dawn raids
– Blocking of bank accounts
– Public shaming
Criminal responsibility of companies

Example: Alstom Network Switzerland (2011)

Alleged facts:

– Alstom Network Switzerland: centralized compliance function
– Alstom accused of bribery payments to government officials in Malaysia, Tunisia and Latvia
– Payments channeled via Alstom’s freelance “consultants”
Criminal responsibility of companies

Example: Alstom Network Switzerland

Alstom’s failure:

- Commissions above allowed threshold
- Dealings and payments to off-shore structures
- Existing rules not enforced
- Compliance department: understaffed, not sophisticated and not independent
Criminal responsibility of companies

Example: Alstom Network Switzerland

Is Alstom’s guilty?

- Corruption: on the list
- Corruption committed in the course of usual business
- Lack of organization and enforcement of rules allowed corruption to occur
Criminal responsibility of companies

Example: Alstom Network Switzerland

Sanctions imposed:

- Compliance Manager: preventive incarceration
- Fine: CHF 2,5m
- Confiscation: CHF 36,4m
- Reparation payment: CHF 1m to the Red Cross
Criminal responsibility of companies

Is ignorance a defense: Post Finance (2016)

Alleged facts:

– CHF 4,6m withdrawn at counter without sufficient checks
– Charges against Post Finance for lack of organization
– No charges against involved employees

Post Finance acquitted:

– Prosecution failed to demonstrate that involved employees were aware that they knowingly and willingly engaged in money laundering
– Surprising: “(...) the undertaking is penalised irrespective of the criminal liability of any natural persons (...)”
– Defeats the purpose?
Criminal responsibility of companies

Why is art. 102 SCC scary?

Central role of prosecution office:

- “Justice behind closed doors”
- Sentencing power
- Plea bargain possible under various forms (incl. without approval of a court)
- Full court trial unlikely
Criminal responsibility of companies

Example: Addax

Alleged facts:

– Unexplained payments to Nigerian attorneys discovered by auditors

– Suspicion that payments were used as government bribes

Soft punishment:

– Preventive incarceration of CEO and Head Legal
– Dawn raids
– Bad press
Criminal responsibility of companies

Example: Addax

The outcome (after four months of investigation):

– Procedure closed
– Addax paid CHF 31m as “compensation”

Aftermath:

– Prosecution office criticized
– The rich pay their way out of trouble
Criminal responsibility of companies

How to avoid the surprise attack:

- Compliance: procedures, staff and independence (adapted to industry)
- Training
- Four-eyes principle for payments
- Avoid “shadow correspondence” (Yahoo chat, WhatsApp, etc.)
Questions?
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Taking a global view
Commodity and energy trading seminar – Evolving theories of market manipulation and fraud in the commodities markets

September 17, 2019

Greg Kaufman
Partner
Washington DC
How did we get here?
And where are we?
Primer on Artificial Price Manipulation

– Felony under the CEA for “any person to manipulate or attempt to manipulate the price of any commodity in interstate commerce or for future delivery”

– No definition of manipulation in the CEA or its regulations

– Two essential elements of Artificial Price Manipulation
  • Specific intent to manipulate
  • Act that causes an artificial price

– Artificial Price – a price that does not reflect the legitimate forces of supply and demand
Evolution of manipulation

— The Classics:
  • Squeeze – amassing a long futures position to punish the shorts at liquidation or conversely
  • Corner – accumulating a long or short cash position to manipulate the physical market or deliverable supply in the futures market
  • Both require shortages or control of physical supply

“
The methods and techniques of manipulation are limited only by the ingenuity of man

Anti-fraud authority

— Manipulation by Fraud

— Intentionally or recklessly engaging or attempting to engage in any of the following activities:
  • Using a manipulative device, scheme or artifice to defraud
  • Making an untrue or misleading statement or omission of material fact
  • Engaging in a course of business which would operate as a fraud or deceit upon any person
  • Delivering a false, misleading or inaccurate report concerning market information that tends to affect price
CFTC Description of the Rule:
• Prohibits, among other things, manipulative and deceptive devices, i.e., fraud and fraud-based manipulative devices or contrivances employed intentionally or recklessly, regardless of whether the conduct in question was intended to create or did create an artificial price
• Does not require:
  • Artificial price (or intent to create an artificial price)
  • Specific intent
    • Reckless commission of a fraud will do
The CFTC Division of Enforcement said that the Rule would only apply to fraud-based manipulations.

Common Law fraud requires knowledge of falsity and a purpose (to have a market impact).

Intersection of fraud and market power manipulations.
Okay, don’t trust us . . .

The CFTC has not limited its Anti-Fraud Rule to fraud-based manipulations

- Under Regulation 180.1, the Commission explained that it is unlawful under Section 6(c)(1) to use “any manipulative device, scheme, or artifice to defraud.”
- Because those provisions were drafted with the disjunctive “or,” Plaintiff claims that they create two separate causes of action, one for manipulation and one for fraud.
- Plaintiff argues that there can be claims for “manipulation” only, and that such claims do not require any showing of fraudulent conduct.
London Whale (2013 Settlement)

- Reduce mark-to-market losses in CDS portfolio ahead of month-end valuation period
- Sold “record volume” of swaps at month-end to defend its position
- Recklessly employed a manipulative device
  - Device = selling enormous volumes of swaps in a short time
  - Knowledge = the potential to affect or influence the market
  - No allegation of fraud on market participants
  - No misrepresentations
  - No artificial price (or intent to create)
- Conduct “interfered with the free and open markets”
McVean Trading (2017 Settlement)

- Manipulative device – injecting false information into the market that portrayed a false appearance of wide investor interest
  - Distorted the view of that market as seen by other participants
- No need to prove actor was motivated by a desire to manipulate the market
- Adequate Scienter – selling massive volume of swaps during a concentrated period while recognizing position size “had the potential to affect or influence the market”
- No discussion of a profit motive or artificial price
- Position limit violation became a Fraud
Kraft

- Large delivery position sent false signals into the market, driving down physical wheat prices
- Alleged use of a non-fraudulent manipulative device
- Court required fraud but found it was adequately alleged
- Deception through legitimate trading
  - Requires wrongful intent?
  - Rule does not require specific intent
- Market participants assume the market price reflects only legitimate forces of supply and demand
  - Requires existence and creation of an artificial price?
  - Rule does not require proving artificial price
Fraud on the market

— Deceptive acts presumed to have been relied upon and resulted in harm to the efficiency of the market

— Do not have to prove:
  • Causation
  • That anyone was deceived or misled

— Defendant’s burden of persuasion to rebut a presumption of market impact

— Prove by a preponderance of the evidence that:
  • No affect on price
  • Market participants would have transacted anyway
Where does this leave us?

- Akin to FERC’s Anti-Manipulation standard – any action or transaction for the purpose of impairing, obstructing or defeating a well functioning market
- Standard for manipulation absent fraud?
- Not required to prove intent or existence of artificial price
- The deceptive device is whatever we say that you did
- Sounds like:

**We know it when we see it, trust us!**
DRW through the lens of fraud

- CFTC lost the DRW trial under the artificial price standard
- CFTC alleged DRW knew its trading practice of concentrating bids during the pricing window would result in higher settlement prices and it never intended to transact
- DRW’s defense was that its trading was supported by a legitimate economic rationale
- Court had problems with the lack of intent, artificiality and efficient market evidence
- With no need to prove intent or artificial price, CFTC would only need to show that the trading activity constituted a deceptive device that interfered with a well-functioning market
Where does this leave us?

- Blurred lines between lawful arbitrage and market manipulation
- Cases will be brought in the absence of a smoking gun
- Focus is on your activities, not on the broader market
- How should you act when it is possible, even likely, your actions will have an effect on the market
  - Can you anticipate those effects
  - How certain do you need to be
  - What should you communicate or not communicate
  - Can you articulate an economically justifiable theory
Where does this leave us? (con’t)

- Market Power means whatever they say it means
- Subjective “know it when we see it” enforcement regime
- Transparency of transacting in the open market does not protect you
- Legitimate trading with an illegitimate motive causes the resulting price to be artificial (let’s hope not)
Taking a global view
Commodity and energy trading seminar

September 17, 2019
David McCullough, Partner, New York City

Investment in advanced biofuels – biogas, renewable diesel and renewable jet fuel
The Future of the RFS and State LCFS Programs
What are advanced biofuels?

— Advanced biofuels are transportation fuels that are derived from renewable biomass and are significantly less carbon-intense than gasoline and diesel (at least 50% less carbon-intense)

— These fuels include:
  • Renewable diesel
  • Renewable jet fuel
  • Biogas
  • Electricity

— Feedstocks include:
  • Tallow
  • Waste oils
  • Wood
  • Wood pulp
  • Wastewater
  • Landfills
  • Agricultural waste

— What advanced biofuels are not:
  • Ethanol from corn
What is driving investment in advanced biofuels?

— From 2007 – 2015, the federal Renewable Fuel Standard ("RFS") transformed the transportation fuel landscape
  • Ethanol and biodiesel came into the market in significant quantities

— Since 2015, a combination of the RFS and the California Low Carbon Fuel Standard ("LCFS") have driven significant investments in very low carbon intensity fuels
  • Large quantities of biogas, renewable diesel and renewable jet fuel are now present in the market

— While there has been recent uncertainty associated with the future of the RFS, the RFS will continue to provide base support for advanced biofuels

— State LCFS programs, most notably in California, will be the primary catalysts for bringing on additional quantities of advanced biofuels in the near term
  • Renewable diesel from tallow and waste oils as well as biogas from dairy farms will be the primary beneficiaries

— Voluntary programs, as well as corporate mandates, will also provide incentives
Key takeaways

- There will continue to be significant federal and state support for investment in this sector for the foreseeable future
  - However, the RIN and LCFS credit markets are the most volatile commodity market that exists
- If you are investing or participating in the advanced biofuel market:
  - In addition to a volatile market, there is regulatory risk—both existential programmatic risk and validity risk
  - Need to understand the market and the underlying regulations
  - Ensure credit validity
    - Third party consultant verification is a good start, but you need much greater due diligence
  - Carefully consider regulatory outs in your deal and commercial documents
  - Indemnities are critical
  - Consider insurance
RFS background
Renewable Fuel Standard: background

- **History**: Originally passed in 2005 as part of the Energy Policy Act ("RFS1"); substantially amended and strengthened in 2007 as part of the Energy Independence and Security Act ("RFS2")

- **Purpose**: Incentivizes/mandates the use of renewable fuel in transportation fuel, heating oil and jet fuel

- **Policy Reasons**:
  1. Domestic job and industry growth (both energy and agricultural jobs—notably corn)
  2. Energy security
  3. Reduction in greenhouse gas ("GHG") emissions

- **What constitutes renewable fuel?**
  1. Produced from renewable biomass
  2. Achieves certain GHG emission reductions
  3. Replaces volumes of transportation fuel, heating oil and jet fuel
RFS: Basic structure of the program

- Requires refiners, importers and component blenders of gasoline and diesel ("obligated parties") to ensure that renewable fuel replaces petroleum-based transportation fuel, heating oil and jet fuel

- Renewable fuel producers generate credits ("Renewable Identification Numbers" aka "RINs")

- RINs can be separated under specified conditions

- Separated RINs are freely traded

- RINs are valid for the year in which they are generated and the following year

- RINs are retired by obligated parties and renewable fuel exporters corresponding to the amount of gasoline and diesel they produce or renewable fuel they export
**RFS mandates and fuel types: 2018 Final Rule**

- Fuel and RIN types

- **[Mostly corn ethanol]**

- **[Biodiesel and renewable diesel]**

- **[Mostly biogas, but also cellulosic renewable diesel and jet fuel]**

- **[Mostly sugarcane ethanol, but also other advanced fuels, such as renewable heating oil and biodiesel/renewable diesel co-processed with petroleum]**

  - Total Renewable Fuel – 19.29 billion gallons (D6 + D3, D4, D5, D7 RINs)
  - Advanced Biofuel – 4.29 billion gallons (D5 + D3, D4, D5, D7 RINs)
  - Cellulosic Biofuel – 0.288 billion gallons (D3, D7 RINs)
  - Biomass-Based Diesel – 2.10 billion gallons (D4 RINs) (approximately 3.3 billion RINs)
Eversheds Sutherland

RFS mandates and fuel types: 2019 Final Rule
- Significant pressure for advanced biofuels and cellulosic biofuel

- Mostly corn ethanol
- Mostly biogas, but also cellulosic renewable diesel and jet fuel
- Mostly sugarcane ethanol, but also other advanced fuels, such as renewable heating oil and biodiesel/renewable diesel co-processed with petroleum

Total Renewable Fuel – 19.92 billion gallons (D6 + D3, D4, D5, D7 RINs)
Advanced Biofuel – 4.92 billion gallons (D5 + D3, D4, D5, D7 RINs)
Cellulosic Biofuel – 0.418 billion gallons (D3, D7 RINs)
Biomass-Based Diesel – 2.10 billion gallons (D4 RINs) (approximately 3.3 billion RINs)
RFS mandates and fuel types: 2020 Proposed Rule
- Significant pressure for advanced biofuels and cellulosic biofuel

- Total Renewable Fuel – 20.04 billion gallons (D6 + D3, D4, D5, D7 RINs)
  - Advanced Biofuel – 5.04 billion gallons (D5 + D3, D4, D5, D7 RINs)
  - Cellulosic Biofuel – 0.540 billion gallons (D3, D7 RINs)
  - Biomass-Based Diesel – 2.43 billion gallons (D4 RINs) (approximately 3.8 billion RINs)

[Mostly corn ethanol]

[Mostly biogas, but also cellulosic renewable diesel and jet fuel]

[Mostly sugarcane ethanol, but also other advanced fuels, such as renewable heating oil and biodiesel/renewable diesel co-processed with petroleum]
RIN prices

D3 RIN prices in EPA’s EMTS
Granting of Small Refinery Exemptions (“SREs”)

– Exemption provided by Congressional Statute:
  • The RFS provides an exemption from RIN retirement obligations for any refinery that processes less than 75,000 barrels per day of crude oil and suffers disproportionate economic hardship

– Supply creation (not demand destruction)
  • Under Obama, SREs were granted prospectively and the exempted volumes were rolled into the obligations of other non-exempt refineries
  • Under Trump, SREs were granted retroactively and RINs the refineries had retired for compliance, were refunded to the exempted refineries—creating an unexpected surplus of RINs
Granting of Small Refinery Exemptions ("SREs")
(con’t)

– History of SREs

<table>
<thead>
<tr>
<th>Compliance Year</th>
<th>Petitions Received</th>
<th>Petitions Granted</th>
<th>Total RINs Refunded</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>16</td>
<td>8</td>
<td>Very few because granted prospectively</td>
</tr>
<tr>
<td>2014</td>
<td>13</td>
<td>8</td>
<td>Very few because granted prospectively</td>
</tr>
<tr>
<td>2015</td>
<td>14</td>
<td>7</td>
<td>Very few because granted prospectively</td>
</tr>
<tr>
<td>2016</td>
<td>20</td>
<td>19</td>
<td>790 million</td>
</tr>
<tr>
<td>2017</td>
<td>37</td>
<td>35</td>
<td>1.82 billion</td>
</tr>
<tr>
<td>2018</td>
<td>42</td>
<td>31</td>
<td>1.43 billion</td>
</tr>
</tbody>
</table>

– RINs refunded to small refineries

• In the year following the compliance year, EPA refunded approximately: (likely less):

<table>
<thead>
<tr>
<th>RIN Type</th>
<th>2017 Compliance Year</th>
<th>2018 Compliance Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6 RINs</td>
<td>1.4 billion</td>
<td>1.1 billion</td>
</tr>
<tr>
<td>D5 RINs</td>
<td>122 million</td>
<td>64 million</td>
</tr>
<tr>
<td>D4 RINs</td>
<td>284 million</td>
<td>233 million</td>
</tr>
<tr>
<td>D3 &amp; D7 RINs</td>
<td>29 million</td>
<td>21 million</td>
</tr>
</tbody>
</table>

– White House is attempting to address the situation

• Possible rumored solutions:
  • Increase standards by:
    • 500 million D6 RINs, and
    • 500 million advanced RINs (D3, D4, D5 and D7 RINs)
  • Increase standards by 5%
RFS 2020 – 2022

The “reset” of the RFS volumes
- Due to failure of the renewable fuel industry to meet certain volumetric production thresholds, by the end of this year EPA is required to engage in a resetting of the RFS standards for 2020, 2021 and 2022
- Reset based on a variety of factors including impact of renewable fuels on the environment, infrastructure, consumers job creation, food prices, supply of agricultural commodities, impact on the environment and the expected rate of production of renewable fuel
- In other words, EPA will have significant discretion to set the standards
- Proposal expected very soon

RINs on renewable electricity from biogas and biomass
- Allowed by the RFS, but currently there is no pathway
- Lawsuit may be needed to push EPA to provide for RIN generation
- Any such allowance would significantly increase the number of RINs in the market

RINs on biogas used as LNG bunker (i.e., vessel) fuel
- Possible reading of the RFS would allow for RIN generation on biogas converted to LNG used to power vessels
- With IMO 2020 pending, use of LNG as a bunker fuel will increase significantly
- Any such allowance would significantly increase the number of RINs in the market
Future of the RFS 2023 and beyond

— **There will be an RFS:** Mandatory renewable fuel volumes are only stated through 2022, leading some to believe that the RFS will then “expire,” which is inaccurate

— **Post 2022:** RFS will continue with EPA setting new standards albeit with greater flexibility that may be based more on political influences than legal standards
  - Cellulosic standards would be set based on a number of factors—not just forecasted production

— **What will the standards be in 2023 and beyond?**
  - The “ethanol mandate” could be reduced
  - Advanced standard must be at the least the same percentage of the volume of renewable fuel as in 2022
    - Biomass-based diesel standard cannot go below one billion gallons

— Possibility that EPA could alter the way that the cellulosic biofuel markets operate
  - EPA might not exercise its waiver authority, which likely means a lack of cellulosic waiver credits in the same year
  - Result could be volatility in RIN pricing, or at least greater marketplace impact on prices
Realizing revenue on RINs from cellulosic and advanced biofuels
Generating RINs on biogas

- **Sources**
  - Landfills
  - Municipal wastewater treatment facility digesters
  - Agricultural digesters
  - Separated municipal solid waste digesters
  - Waste digesters

- **Fuel type**
  - CNG
  - LNG
  - Renewable electricity

- **End use**
  - Transportation fuel

- **RIN type**
  - D5 Advanced Biofuel RINs (waste digesters)
  - D3 Cellulosic RINs (all other approved biogas sources above)

- **RIN quantity**
  - 1 RIN for every 77,000 BTUs (LHV)
  - 0.903 (LHV to HHV conversion factor)
  - 11.72 RINs for every MMBtu

- **Timing of generation**
  - Once converted to CNG/LNG/electricity, but best practice is likely upon demonstration of dispensing into vehicle
  - Industry practice is monthly
Generating RINs on renewable diesel, jet fuel and heating oil

- **Sources**
  - Used cooking oil and other waste oils
  - Tallow
  - Soybean oil
  - Sorghum
  - Sugarcane
  - Wood and wood pulp?

- **Fuel type**
  - Renewable diesel
  - Biodiesel
  - Renewable jet fuel
  - Renewable heating oil
  - Sugarcane ethanol

- **End use**
  - Transportation fuel, heating oil and jet fuel

- **RIN type – depends on the feedstock**
  - D4
  - D5
  - D7 (comparable to D3s from biogas)

- **RIN quantity**
  - 1.5 – 1.7 RINs for every gallon
RFS compliance overview

- **Registration**
  - All obligated parties, renewable fuel producers/importers/exporters, and all others who own RINs must register their company
  - Set up registrations, CDX, EMTS before activity begins

- **Generating RINs**
  - Five different types of RINs and four RIN markets
  - Approved feedstocks
  - Approved production processes
  - Proper quantities
  - Structuring a RIN generation transaction

- **Separating RINs**

- **Reporting**
  - Annual and quarterly reporting requirements for all parties

- **RIN validity**
  - Burden on obligated parties to ensure validity criteria met

- **RIN retirement**
  - Obligated parties
  - Renewable fuel exporters

- **PTD requirements**

- **Recordkeeping obligations**
Structuring an agreement to generate RINs on biogas

- In order to generate RINs, the biogas must be “used” as a transportation fuel

- This is typically achieved through three or more parties partnering together:
  - A biogas source (e.g., landfill, wastewater treatment facility)
  - A natural gas marketer
  - An end user (CNG/LNG fueling station)

- One of these parties elects to serve as the RIN generator

- RIN revenue is shared between the parties as determined by contract

- The parties show that the biogas is used as a transportation fuel through:
  - A physical pathway of connected pipelines (injection should occur into an LDC or interstate pipeline)
  - Contracts for the sale of biogas and environmental attributes
Key considerations for the parties owning the biogas when generating RINs from biogas

- Must be used as a transportation fuel (e.g., heating oil not permitted)
- If injecting into a pipeline:
  - Pathway/connectivity-risk exposure evaluation
  - Continuous metering
- Who will serve as the RIN generator?
  - Significant responsibility and liability
- Sharing the RIN revenue
- All parties must cooperate and be involved
  - Knowing your counterparty
  - Agreements with all parties involved
- Affidavits from all owners of the biogas
- Existing contracts for environmental attributes
- To QAP or not to QAP?
- Who to use as consultants/auditors/validators?
Key consideration for those owning/financing RIN generation operations: RIN validity

- **RIN validity risk**
  - Owners/operators of facilities are liable for RIN replacement and penalties
  - A small number of individuals/owners of facilities have engaged in fraud
  - Mistakes also happen

- **Due diligence of ability to generate valid RINs**
  - Careful review of the pathway for the fuel
  - Careful review of the background of the individuals
  - Careful review of compliance systems and RIN generation practices

- **Managing validity risk on an ongoing basis**
  - Deal structure, financing and ownership provisions
  - QAP Program
    - Optional program, but almost everyone in the biogas industry participates
    - Protects the Obligated Parties (i.e., the refiners), not the renewable fuel producers/RIN generators
  - Additional RIN generation/compliance systems
  - RIN insurance
California LCFS
California LCFS
Compliance curves

Percent Reduction in Carbon Intensity

Historic Compliance Targets (black solid line)
Reported % CI Reduction (green line)

Carbon intensities based on composite of gasoline and diesel fuels
California LCFS (con’t)
Drawing down of the credit bank

Fig 1. Total Credits and Deficits (MT) for All Fuels Reported Q1 2011 - Q1 2019

Credits
Deficits
Cumulative Bank
California LCFS (con’t)
Credit prices have increased significantly
$200 per credit price cap?

There is currently no hard cap on LCFS prices

- CARB established the Credit Clearance Market (CCM) to manage credit prices
  - Allows owners of LCFS credits to pledge their credits into the CCM if a regulated party who is required to retire credits does not retire sufficient credits
  - Credits within the CCM are sold at a maximum price of $200/credit adjusted for inflation (2016 is the base year). There is no prohibition against transacting in prices in excess of $200 outside of the CCM. There is no requirement that sellers pledge to the CCM
  - If there are not enough credits available in the CCM, the regulated party buying credits must purchase its outstanding balance (with interest) within five years, otherwise it would be in violation
  - CARB has acknowledged in the past that the CCM only provides “moderate” controls on credit prices
  - However, CARB is currently considering a proposal that would place a “harder” cap on credit prices equal to the prevailing CCM price

- The real cap on prices may be $1,000 per credit
  - The non-compliance penalty for regulated parties retiring insufficient credits is capped at $1,000/credit
California LCFS
Ways to meet the demand for credits

2017 Volume-weighted Average Carbon Intensity by Fuel Type

CI of gasoline/diesel
Market is responding to demand
Driver for renewable diesel and biogas/renewable natural gas

Fig 3. Credits (MT) By Fuel Type
Q1 2011 - Q1 2019

- Renewable Diesel
- Ethanol
- Biodiesel
- Electricity
- Biomethane
- Fossil Natural Gas
- Other (Hydrogen, Renewable Naphtha, Propane, Innovative Crude & Low Complexity / Low Energy Use Refining, etc.)

[2018 & 2019 Low Complexity/Low Energy Use Refinery credits are not]
Market is responding to demand (con’t)
Driver for renewable diesel and biogas/renewable natural gas

![Graph showing changes in fuel volume and credits over years from 2011 to 2018. The graph includes data for ethanol, biodiesel, renewable diesel, fossil natural gas, biomethane, and electricity.]
Certain feedstocks have been incentivized

<table>
<thead>
<tr>
<th>Year</th>
<th>Soy</th>
<th>Canola</th>
<th>Other Crop-Based</th>
<th>Fish Oil</th>
<th>Distiller's Corn Oil</th>
<th>Tallow</th>
<th>UCO</th>
</tr>
</thead>
<tbody>
<tr>
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Current and future LCFS in other states
Oregon (the Clean Fuels Program or “CFP”)

– Only other currently effective LCFS in the country
– Built on similar attributes as California LCFS
  • Life-cycle analysis
  • Focus on transportation fuels
  • Goal of 10% reduction in carbon intensity (“CI”) by 2025
– Avg. March 2019 CFP credit price $145 vs. $188 for California LCFS
– CFP has less overall demand—reflected in relative credit price spread with California—less credit transfers and volumes generally
CFP credit prices continue to trend up
Particularly steep climbs since December 2018
Other possible states

- New England
- New York
- Washington
Questions?
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