

PILOT FINANCIAL MECHANISM

Draft Concept for Feedback

SENATE BILL 1383 (LARA), 2016

- Directs California to achieve a 40% reduction in livestock's methane by 2030.
 - With 1.5 million cows in California, that's capturing methane from 600,000 cows
- Prior to adopting regulations, the state board shall work with stakeholder to identify and address technical, market, regulatory, and other challenges and barriers to the development of dairy methane emissions reduction projects.
 - Formation of these dairy committees / subcommittees
- The law directs ARB to develop a **pilot financial mechanism** to reduce the economic uncertainty associated with the value of environmental credits, including credits pursuant to the Low Carbon Fuel Standard from dairy-related projects.
 - This has been our task over the past 6 months

OBJECTIVE & APPROACH

- Encourage methane capture projects to meet Short-Lived Climate Pollutant goals
- **Design a mechanism that mitigates the risk that future government action could reduce or eliminate the market value of LCFS & RIN credits**
- Leave project exposed to all other market factors
- Develop mechanism that could be utilized by other fuel types, upon successful demonstration
 - Hydrogen
 - Biodiesel / renewable diesel
 - Etc.

POTENTIAL SOLUTIONS

- Our project team vetted many potential solutions, including Put Options, Contracts for a Difference, private insurance, and blends of the options above.
- After feedback from an initial set of stakeholders, our proposal is a blend of the Contracts for a Difference with private insurance
 - Sourced singularly through a government agency

LIMITATIONS OF POTENTIAL SOLUTIONS

- Put Options
 - Difficult for government agency to administer; easier for private market brokers to implement
- Contract for Difference
 - Scale of resources required to underwrite limits the impact and would fall short of SLCP goals
- Private Insurance
 - Too expensive without government also putting skin in the game, and alleviating risk of change in law

PROPOSED MECHANISM

- Blended Mechanism
 - Part I: Contract for Difference – primary risk insurance
 - Part II: Private Insurance – secondary risk insurance
- Sourced singularly through government agency
- Needs a better name

PART I: CONTRACTS FOR DIFFERENCE (CFD)

- Government agency establishes a strike price based on confidential proposals from developers. This strike price reflects the minimum value needed from environmental credits (LCFS + RINs) for profitability.
 - Proposals are non-binding, and contain fuel volumes
 - Contract term will be set based on the expected payback period for capital investment (e.g. 10 years)
- Agency signs binding contracts with project developers; puts in escrow necessary funding to back projects at stated volumes
 - Includes grace period for project construction
- Contract protects revenue if LCFS credits falling below the set strike price
- CfD covers the first tranche of risk below the strike price (20%? below strike price)

PART II: PRIVATE RESIDUAL RISK INSURANCE

- Agency will solicit private sector underwriters willing to insure against environmental attribute price declines greater than [20%?] below strike price
- Projects will receive a single insurance product combining government and private risk underwriting
 - Government will optimize the balance between public program/private insurance
- Agency will establish a fee based on the cost of private underwriting plus an appropriate fee for the government underwriting service
- Projects will pay the underwriting fee – and will retain 100% of environmental attribute revenues

MANAGING MECHANISM DEMAND

- Agency will announce the availability of insurance with a strike price and fee established in the manner described above
- Applicants will be processed on a first-come first-served basis
- Applications may not be submitted until project is able to demonstrate sufficient documentation
 - May reserve a place in queue based on demonstration of contracts or construction
- To secure insurance, applicant must place in escrow [*1% of value of insurance coverage?*]
- Escrow will be released upon [*six continuous months of production at 100% of the insured volume?*]

OUTSTANDING ISSUES

- Funding source is important, but unanswered.
- Which agency has appropriate authority to administer program?
- It is uncertain if private insurers will find blended approach sufficiently appealing to provide affordable insurance.
- Determine fee schedule that optimizes developers' use of program and keeping projects operational
- How might end product impact strike price value?

ILLUSTRATIVE EXAMPLE

Moo's Poos contracts with California agency to deliver 33,500 MMBtu/Yr for 10 years at \$80/LCFS credit + RIN. State contracts private insurance to kick in if prices dip 20% below \$80 (\$64 or less).

- 12,500 LCFS credits generated, or 12,500 MT CO₂e would be captured and mitigated annually.

Moo's Poos pays fees to California for this risk assurance. California holds \$288,100 in escrow to cover its max potential payout for Year 1, and contracts private insurance in case prices dip below \$64/ton.

- State must allocate new funds for each of the 10 years in case this funding is expended.

Year 1-3

LCFS and RINs trade at \$125/combined credit, and the project runs profitably.

- New projects may be contracted/underwritten with public dollars not expended in Years 1-3.

Year 4

LCFS and RIN value dips to \$70 total. The State reimburses \$10/ton through the shortfall. Project remains operational.

- State may choose to underwrite a smaller number of new projects with unused funding.

Year 5

LCFS + RIN value dips to \$50 total. The State reimburses \$16/ton (\$80 - \$64), and private insurance reimburses \$14/ton (\$64-\$50). Project remains operational.

RNG production as supported by an *illustrative* \$100M annual budget

Assuming a potential reduction of 20% in LCFS and RIN credit prices, approx. 8.2M MMBtu of RNG can continue to be produced by an annual funding of \$100 million to cover the price differences. Private insurance might kick in for credit price drops greater than 20%.

MMBtu/Year RNG Produced Assuming RNG is sold at \$3/MMBtu in the open market	8,193,906
Tons of CO2e Reduced Assuming 0.373 MTCO2e/MMBtu, corresponding to 2030 target of 20% CI reduction	3,056,327
Number of Cows Addressed Assuming each cow produces enough waste to each yield approx. 11.44 MMBtu/Yr of RNG	716,251

Number of Dairies/Clusters supported by an *illustrative* \$100M annual budget under CfD only

Assuming no LCFS value, 37 – 63 clusters can be supported for 15 years with \$100 million in annual funding. This utilizes ONLY CfD financing. The proposed blended approach could support more development.

	RIN @ \$1.75	RIN @ \$2.75
# of Clusters that can be supported by \$100M/yr budget (After considering for revenue generated from selling D3 RIN Credits and NG as a commodity)	37	63
# of Dairies (Assume Average Size of 3 Dairies per Cluster)	111	189
RNG Production (MMBtu/Yr)	3,718,943	5,135,702
Amount of MTCO ₂ e Reduced (Assume 0.373 MTCO ₂ e/MMBtu, corresponding to the 20% CI Reduction - Year 2030 Target)	1,387,166	1,915,617

Annual budget required to support 400 dairies under CfD only (approximately 133 clusters)

Assuming no LCFS value, \$193 – 280 million is needed annually for 15 years to support 400 dairies. In this scenario, government is covering 100% of the value below strike price.

	RIN @ \$1.75	RIN @ \$2.75
Annual Budget Required to Support 400 Dairies (After considering for revenue generated from selling D3 RIN Credits and NG as a commodity)	\$280,010,582	\$193,187,890
RNG Production (MMBtu/Yr)	7,408,080	
Amount of MTCO ₂ e Reduced (Assume 0.373 MTCO ₂ e/MMBtu, corresponding to the 20% CI Reduction - Year 2030 Target)	2,763,214	

THANK YOU

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