



# ACCELERATING BIOECONOMY PROJECT FINANCE: KEY INITIATIVES TO DE-RISK CAPITAL AND DRIVE INVESTMENT

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# INNOVATIVE LEGAL SERVICES ACROSS THE GLOBE

With 13 locations worldwide, Faegre Baker Daniels knows that innovation doesn't occur in a vacuum. We're proud to support the bioeconomy through our extensive work in the renewable and cleantech industries.

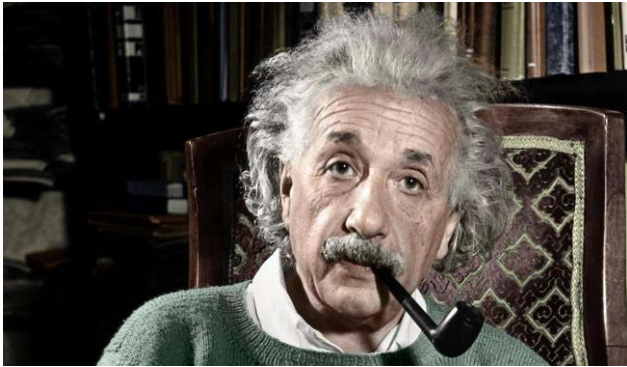
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# Renewable Energy, Renewable Chemicals and Cleantech Industries

Parody of the day:



This isn't rocket science!



# I. Funding Opportunities for the Bioeconomy

- Commercial Banks
- United States Department of Agriculture
- Investment Banks
- Strategic Capital Investment

# Commercial Banks



# U.S. Department of Energy – Loan Guarantee Programs



Open solicitation – up to \$4.5 Billion in loan guarantees are available under the Renewable Energy & Efficient Energy Projects Solicitation

Title XVII of the Energy Policy Act of 2005 authorized the DOE to implement a loan guarantee program for various renewable types:

- Utilize new or significantly improved technology
- Avoid, reduce or sequester greenhouse gases
- Located in the United States
- Have a reasonable prospect of repayment

# USDA Loan Guarantee Programs



United States  
Department of  
Agriculture



- ▶ The USDA established the Business & Industry (B&I or 9006) Guaranteed Loan Program to promote rural development using commercialized technologies by providing loan guarantees up to \$25M.
- ▶ The Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program (BAP or 9003) was established under Section 9003 of the 2008 Farm Bill, as amended, to assist in the development, construction and retrofitting of new and emerging technologies for advanced biofuels, renewable chemicals and biobased products manufacturing facilities by providing loan guarantees up to \$250M.
- ▶ The Rural Energy for America Program (REAP) was established under the 2014 Farm Bill to provide loan financing and grant funding to agricultural producers and rural small businesses for renewable energy systems or to make energy efficiency improvements, including by providing loan guarantees up to \$25M.



# Investment Banks



Tax-exempt “private activity bonds” used to finance “solid waste disposal facilities” which are defined as facilities that:

- Process solid waste in a “qualified solid waste disposal process”;
- Perform a “preliminary function”; or
- Are functionally related and subordinate to a solid waste disposal facility.

“Solid waste” is defined as garbage, refuse, or other discarded solid materials derived from agricultural, commercial, consumer, governmental, or industrial operation or activity

► Taxable bond financing.

# Strategic Capital Investment



## II. Renewable Fuel Standard Program



- The Energy Policy Act (2005) required EPA to implement a renewable fuels standard program
- First program was called “RFS1” – effective September 1, 2007
  - ▶ Renewable Fuels volumetric goals:
    - 9 Billion gallons by 2008; 22 billion gallons by 2022
  - ▶ Imposed obligations on gasoline refiners and importers (RVOs)
  - ▶ Created “Renewable Identification Numbers” or “RINs”:
    - The “currency of compliance”
    - Generated by producers of renewable fuels
    - Used by gasoline refiners and importers to prove compliance
    - Represented by a 38-digit code

# Evolution to “RFS2”

- RFS1 was barely underway when Congress enacted a major overhaul under the Energy Independence and Security Act (Dec 2007)
- Objectives
  1. Reduce dependence on foreign oil
  2. Reduce greenhouse gas (GHG) emissions
  3. Promote job growth in U.S. “green” sector
- Vast expansion of the overall volumes and scope of the RFS program
- Four interrelated annual renewable fuel mandates
- Obligations imposed on diesel as well as gasoline refiners and importers
- RINs are still the currency of compliance, but there are more strings attached to qualifying renewable fuel:
  - ▶ “Renewable Biomass” feedstock
  - ▶ Life-cycle emissions reductions
  - ▶ RIN creation/management centralized in EPA Moderated Transaction System (EMTS)



# RIN Generation

- RINs are generated by renewable fuel producers and U.S. importers who import from registered foreign producers
  - ▶ Producers and Importers generate RINs based on (denatured) production volume (temp-corrected) and the Btu content of the fuel
  - ▶ RINs can ONLY be generated if:
    - Fuel is used for transportation fuel, heating oil or jet fuel
    - Feedstock meets the definition of “**Renewable Biomass**”
    - Produced under an EPA-approved pathway (or grandfathered)

# III. Low Carbon Fuel Standard Program

California's Low Carbon Fuel Standard (LCFS) is designed to reduce greenhouse gas (GHG) emissions. The LCFS applies to fuels used for transportation, including gasoline, diesel and their alternatives. The goal of the LCFS is to reduce the carbon intensity (CI) of the transportation fuel pool by 10% by 2022. The LCFS is administered by the California Air Resources Board (CARB).

CI is defined as the lifecycle GHG emissions for a fuel per unit of transportation energy delivered. The CI of a fuel is calculated by assessing the GHG emissions in the lifecycle or "pathway" of the fuel. The pathway is determined by assessing the GHG emissions throughout each stage of the fuel's feedstock production, conversion, and use.

Fuels in the California transportation fuel pool that have a CI lower than the target established by California Air Resources Board (CARB) generate LCFS credits. Fuels in the transportation fuel pool with CIs higher than the target generate deficits. A fuel producer with deficits must generate or acquire enough credits to be in annual compliance with the standard.

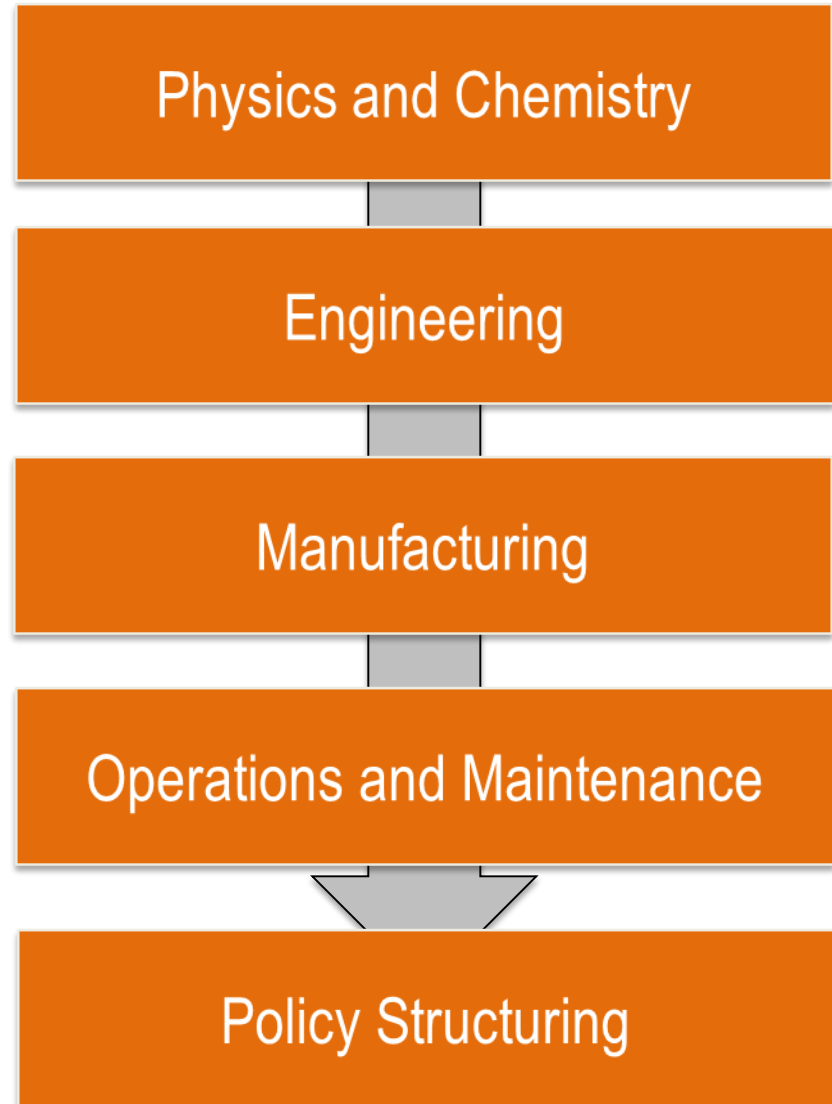
Petroleum importers, refiners, and wholesalers are Regulated Parties (RPs) under the LCFS. When transportation fuels are imported, refined, or sold in California, RPs enter the transaction-level information into CARB's central data system for the standard – the LCFS Reporting Tool (LRT). The LRT tracks each transaction of fuel with its corresponding credit or deficit position, and sums for each RP. Credits are retired when used to cover deficits per annual compliance report. LCFS credits do not have a vintage and do not expire. Credit transactions are reported to the LRT, including the transaction price in units of metric tonnes (MT) of LCFS credits. Credit owners can only sell or trade their credits with other RP deficit holders.

Credit prices have been relatively stable since the standard was implemented and are now just under \$100/MT.

# IV. Technology and Performance Insurance

Insurers offering Technology and Performance Insurance employ Failure Mode and Effects Analysis (FMEA) in underwriting.

- Failure modes are the ways in which a process can fail.
- Effects are the ways that these failures can lead to waste, defects or harmful outcomes for the customer.

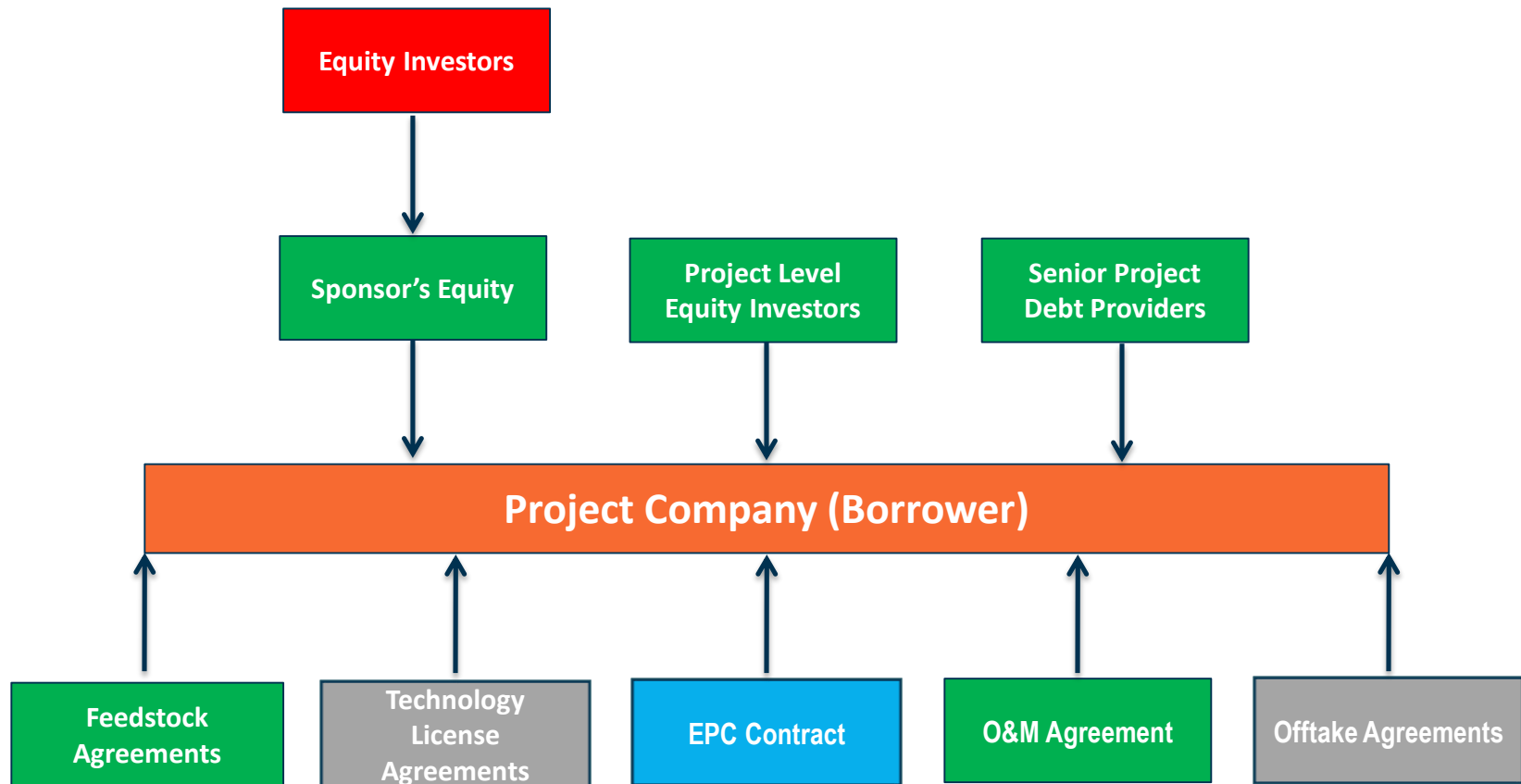


# Failure Modes

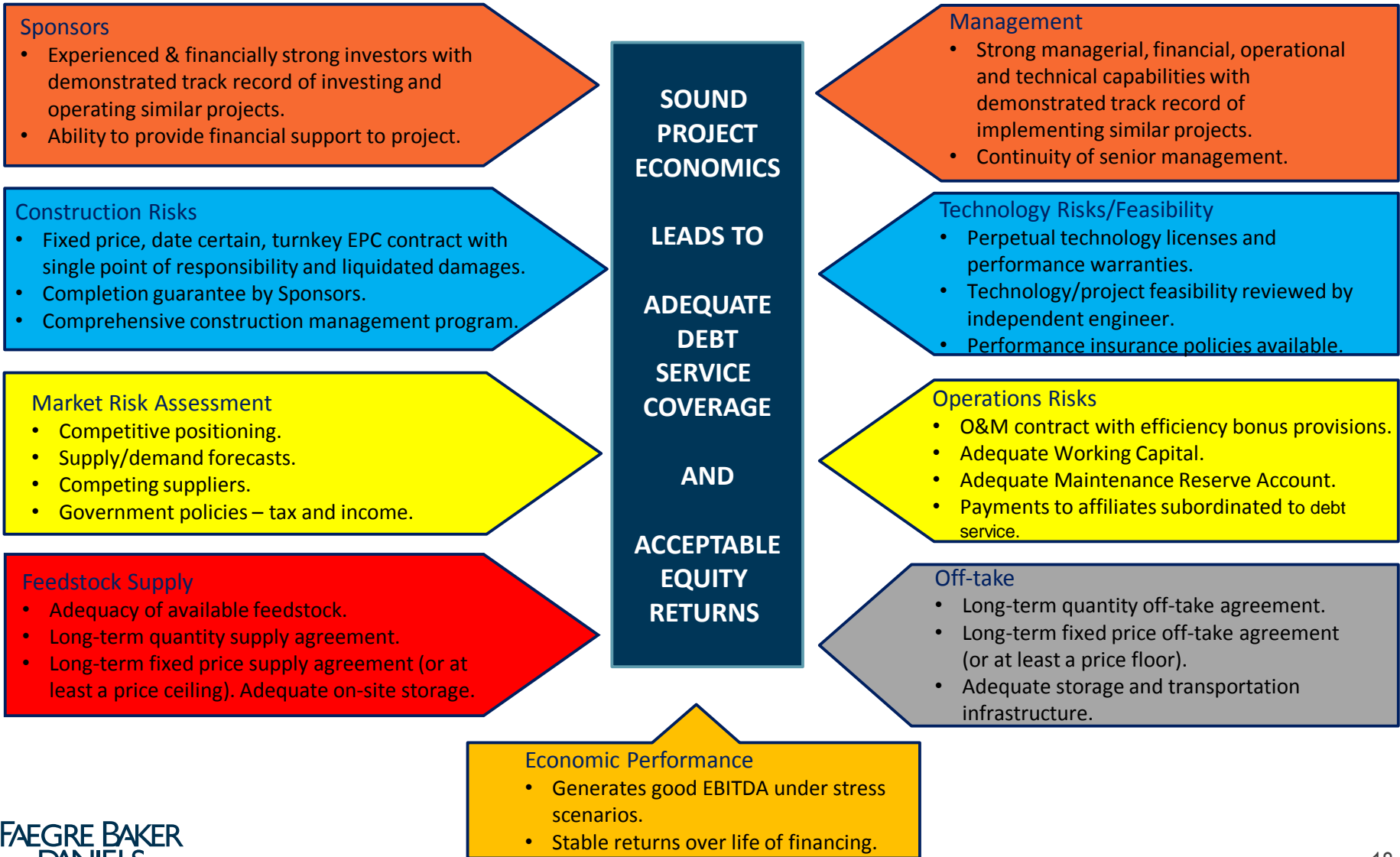
- Design FMEA and Process FMEA are the cornerstones of our underwriting
  - ▶ **What can fail?**
  - ▶ **What is the probability of that failure?**
  - ▶ **What are the consequences?**
- Frequently rely on IE to corroborate our understanding and the manufacturer's analysis
  - ▶ Is an IE report relevant?
    - Structure, operating conditions, design stability
  - ▶ Put the IE in our shoes:
    - **IE's like to use "reasonable, feasible, possible"**
    - **We want to know "expected, probable, likely"**



# V. Typical Project Finance Structure



# VI. Project Structure Mitigates Project Risks



# Successful financing process requires pragmatic approach on key issues

Ultimate objective of Sponsors is to maximize debt while providing adequate equity to protect project debt investors

- Trade-off between time, cost and optimization of other Sponsor objectives
- Decisions reflected in economic terms of deal (interest rate, terms, reserves, leverage, etc.)

## Feedstock Supply

- Long-term quantity supply agreement
- Long-term fixed price supply agreement (or at least a price ceiling)
- Credit quality (or lack thereof) of feedstock supplier(s)

## Off-take

- Long-term quantity off-take agreement
- Long-term fixed price off-take agreement (or at least a price floor)
- Adequate storage and transportation infrastructure
- Credit quality of off-take counterparty

# Successful financing process requires pragmatic approach on key issues

## Third-Party Reports

- Independent engineering verification of technology/construction/feasibility
- Feedstock availability/logistics assessment by feedstock consultant

## Technology/Construction Risks

- Fixed price, date certain, turnkey EPC contract with single point of responsibility and liquidated damages
- May require completion guarantee by Sponsors
- Comprehensive construction management program
- Insurance/warranties on equipment, availability and general failure relating to proprietary technology

## Operations Risks

- Experience/credit quality of O&M contractor
- Adequate Maintenance Reserve Account



# Successful financing process requires pragmatic approach on key issues

## Debt Structure

- Maturity, coupon
- Amortization, waterfall, covenants, cash trap, etc.
- Debt Service Reserve Fund

## Economic Performance

- Efficient use of cash flows
- Generates good debt service coverage under stress scenarios
- Stable project returns, with potential upside for equity

## Sponsors/Partners/Management

- Ability of Sponsors to provide completion guarantees
- Quality of partners (feedstock, EPC, technology, off-take, O&M)
- Experience and continuity of Senior Management
- Political/ Regulatory risks

# Successful financing process requires pragmatic approach on key issues

## Capitalized Interest

- Capitalized Interest = interest during construction is deposited with the Lender/Trustee upon project finance close

## Debt Service Reserve Fund

- DSRF = up to one year of principal + interest is deposited with the Lender/Trustee upon project finance close

## Project Waterfall (after conversion)

- After the project is placed in service, all cash generated by the project is held by the Lender/Trustee and disbursed as follows:
  - Operating expenses (payments to affiliates subordinated to debt service)
  - Expenses of the Lender/Trustee
  - Interest and principal payments on the senior debt
  - Fill reserve accounts (e.g. DSRF), if needed
  - Pay permitted tax distributions
  - Cash distributed to Sponsor or held in a covenant compliance holding account



# Faegre Baker Daniels LLP

## Renewable Energy Project Finance

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