Business Perspective on Biofuels: Financing Opportunities & Challenges

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Today: Financing Opportunities and Challenges

- Sources of funding and other economic support - challenges
  - Private
  - Public
- Issues relating to question of making business case for funding
- In class work on your ask presentation for Wed
Complicated

- Groups are dealing with different kinds of firms
  - Biofuels start ups
  - Large existing oil and chemicals firms with biofuels and bioenergy initiatives
  - Public utilities
Private equity funding for start ups

- **Sources of private equity capital**
  - Investors take ownership interest in start ups (pre IPO)
  - Securities not publically traded
    1. Individual (self, family, friends, angel investors)
    2. Institutional
      - Private equity funds
      - Venture Capital
      - General equity funds
      - Corporations (mostly oil, chemical)
      - Joint venture partners
Costs and trade-offs

- **Entrepreneur gives up control**
  - Investors will demand the opportunity to review and comment on a project’s design and engineering, procurement, process engineering licenses and construction agreements etc
  - and make changes
    - VCs needs and expectations based on precedent of quick returns in dot.com and social media investments
Private equity funding for start ups

- Later stages when capital needs very high
  - Private equity
  - IPO (initial public offering)
  - Later stock sales
  - Joint venture partners
Other Sources of Funding
Debt

- **Limited Recourse Debt to finance projects**
  - Backed by assets and revenues of project itself (e.g. the biorefinery) and assets related to project (land, feedstock etc)

- **Full Recourse Debt – Balance Sheet Financing**
  - Backed by all the borrowers’ assets
  - Generally available only to substantial players whose long term unsecured debt is rated at least investment grade by a national rating agency
Other Sources of Funding

Debt

- **Senior debt**
  - Structured in way that requires company to repay lender first if it goes out of business
  - Less risky $\rightarrow$ lower interest rates

- **Subordinated debt (junior, mezzanine)**
  - Repaid from project revenues after all project operating costs and senior debt service has been paid.
  - Riskier $\rightarrow$ higher interest rates
Costs

- Have to repay principal and interest
- Lenders often demand information about projects and interfere with management
Other Sources of funding
Non-equity funding

- **Bootstrapping**
  - Start up or initiative generates enough revenues to fund its own growth
  - “Capital light” strategies (Amyris)
    - Vertical disintegration
      - Bolt project onto another company’s operation
      - Sell intermediate chemical to another company to process into biofuel
      - Sell rights to new technologies
  - Patent litigation
Other sources of funding
Non-equity private funding

- Public utilities
  - Rate increases
    - Have to persuade PUC regulators to pass costs through to rate payers
      - Make business case for
      - Show regulatory necessity (meet RPS and other standards)
      - Show environmental and other social benefits?
Funding for Projects within existing firms

- **Competing for internal firm resources**
  - Must go through internal budget request/allocation processes
    - May also be permitted to go for government subsidies
    - Firm may need to borrow or enter into joint ventures
    - Public utilities may also need rate increases

- **Importance of management buy in**
But This is an Over-Simplification

THE ENERGY INNOVATION CYCLE AND THE CLEAN ENERGY VALLEYS OF DEATH
Government funding and other support

- Huge range of public finance mechanisms to
  - Fill private funding gaps
  - Mobilize and leverage private funding
  - Help firms develop technological and organizational capacities to meet policy goals (climate change, farm sector growth, jobs, etc)
Military procurement

Stage 1: R&D
- R&D Support
  - Grants
  - Incubators

Stage 2: Demonstration
- Angel Investors
- Venture Capital
  - Public/Private Equity Funds
  - Public/Private VC Funds

Stage 3: Deployment
- Venture Capital
  - Soft Loans
  - Loan Facilities
  - Credit Lines
  - Guarantees

Stage 4: Diffusion
- Equity
  - Mezzanine
  - Debt
  - Insurance
  - Carbon

Stage 5: Commercial Maturity
- Larger projects financing package
  - Military procurement

GAPS
- Valley of death
- High perceived risks
- Lack of project development capacities and capital
- Debt-Equity Gap

FINANCING
- Public Finance Mechanisms
- Commercial Financing Mechanisms

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On line search tools

- http://advancedbiofuelsusa.info/resources/funding-opportunities
For Wed.
“Group Ask” presentation

- Craig Vaughn, Process Technology Advisor at BP – guest speaker
  - Handout to prepare

- 5 minute presentations, 2-3 ppt slides
Your ask
business case for your project

• **Lower costs than rivals**
  • Less expensive feedstocks and other inputs
  • More efficient processes
  • Economies of scale and scope

• **Critically important advance**
  • Technological breakthrough
  • Strategic partnership

• **Other funding, internal revenues etc**
Business case (continued)

- **Better product(s) than rivals**
  - Unique qualities that competitors cannot easily imitate
  - And/or lower prices
  - More green

- **Other competitive advantage(s)**
  - Public policy
  - First mover advantage
  - Organization advance
  - Marketing etc.
In class exercise

- Identify your project
- Identify a source of funding
- Develop your ask