Tomorrow's Energy . . . Today
Project Finance Tutorial
Energy x-Po, Hancock, MI

Sigma Capital Group, Inc.
Bruce Woodry, Chairman and CEO

September, 2007

Sigma Capital Group, Inc.

Who we are:

- Sigma Capital is a boutique investment bank, providing advisory and representative investment banking services on $5-250M transactions
- Primarily to energy and renewable energy project finance.

My focus:

- Project finance (private equity and debt) for BTP, BTL, CTL, ethanol and integrated agri-energy projects

Today, Primer on Renewable Energy Project finance:

- Comparison to Growth Funding
- Some things to consider when reviewing a renewable energy project finance transaction

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QUICK ENERGY OVERVIEW

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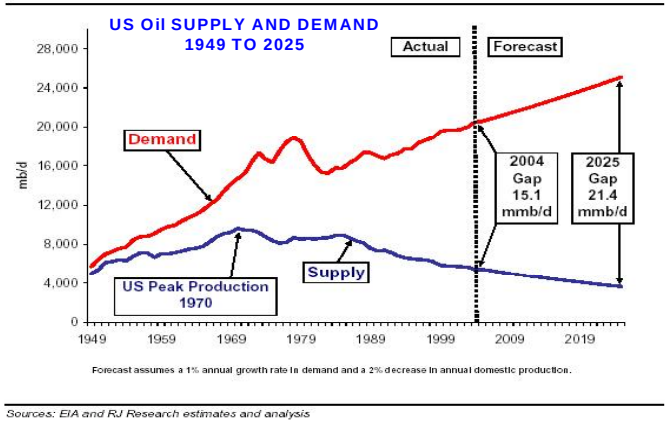
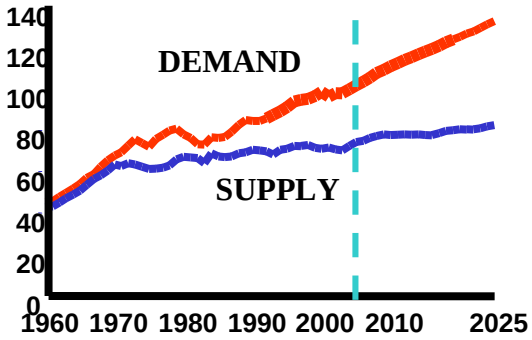
Energy: Changing industry

US OIL

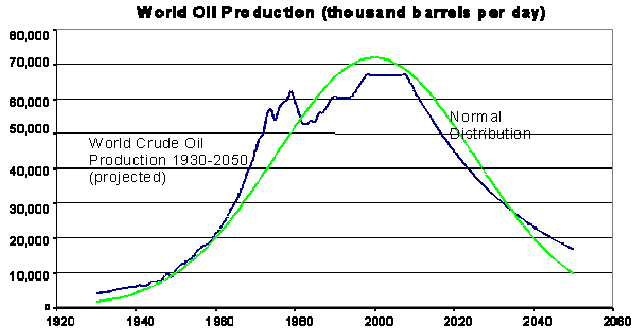


Sources: EIA and RJ Research estimates and analysis

US NATURAL GAS



WORLD OIL



- World oil peaked circa 2000, no major discoveries, existing wells on decline curve
- U.S. Oil
  - Production peak in 1970
  - Today, United States consumes 20 MBBL/day, 76 % imported (2004) going to 25 MBBL/day, (86%) imported (2025)
  - China, #2 at 9MBBL/Day is growing at 9%, competing for scarce supplies
- US Natural Gas
  - Price from $1.5 to $14 MCF over past several years
  - Summer/winter shortage
- Concerns over price, supply

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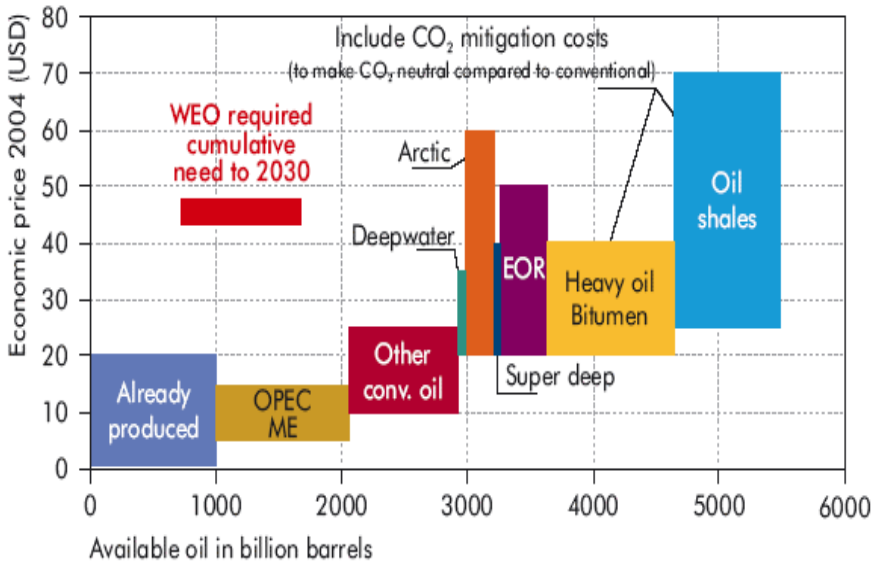
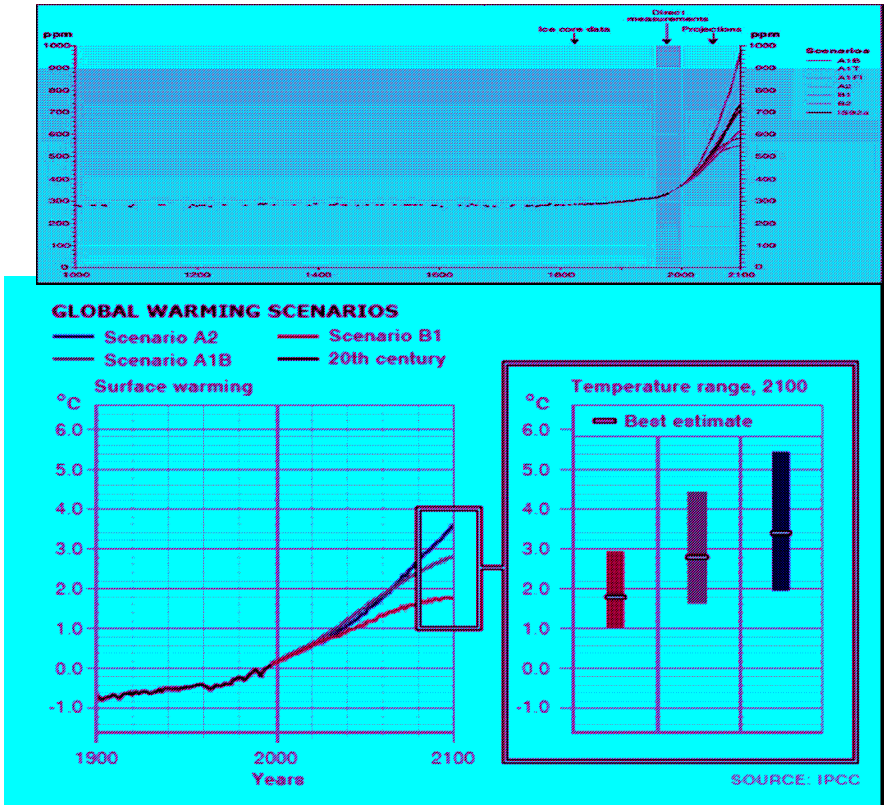
Future of oil …vs. Climate

Figure 7.1 • *Oil cost curve, including technological progress: availability of oil resources as a function of economic price*



Source: IEA.



CO_2 Levels are growing dangerously high

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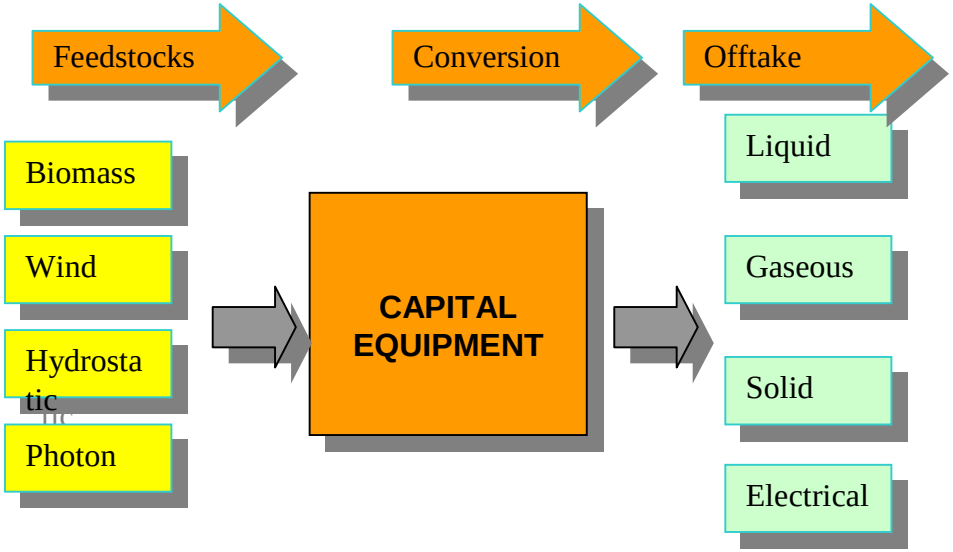
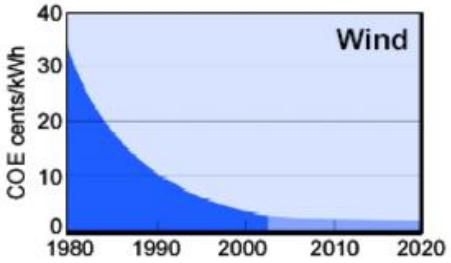
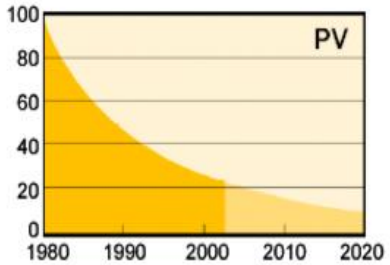
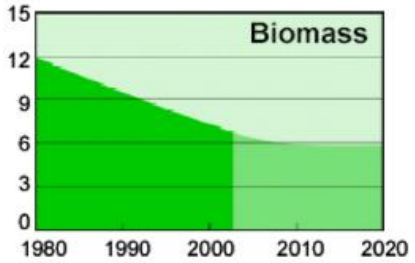
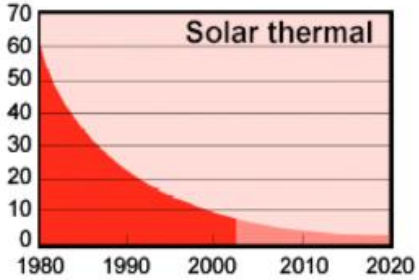
Renewable Energy Industry











- Renewable energy takes one form of energy (biomass, wind, hydro, sunlight) and converts to another, more usable form (liquid, solid, gaseous, electrical)
- Capex intensive
- Dynamic of the conversion: must relate local supply to local need

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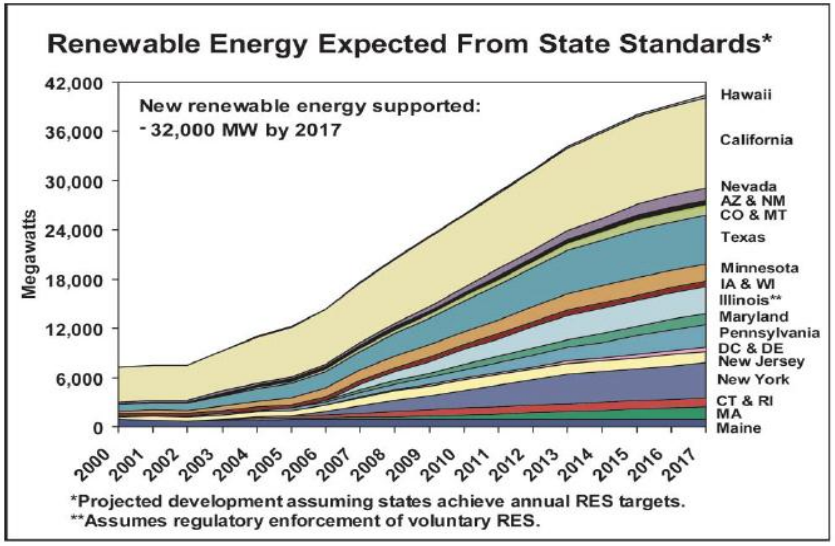
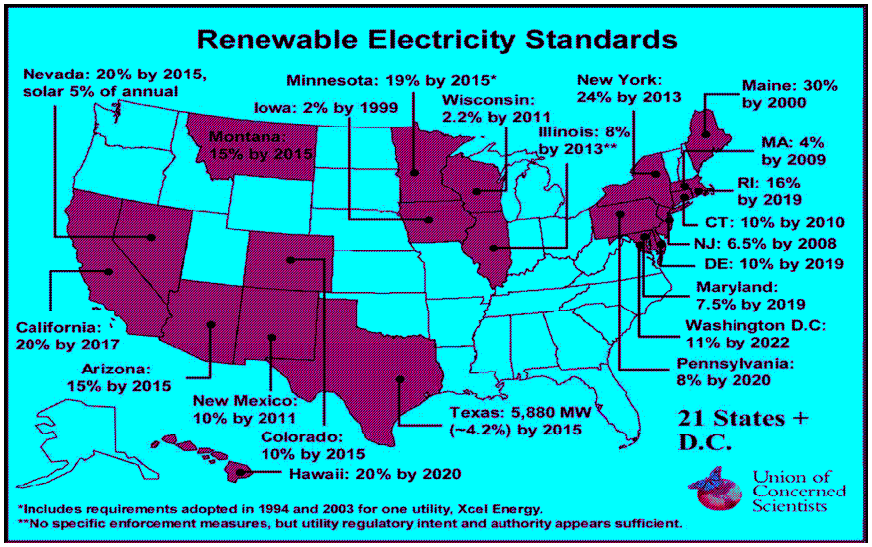
State and Federal Drivers





- Energy policy act of 2005
  - PTCs By Technology: 1.9 cents/kwh for 10-year period beginning on date facility is placed in service for Wind, Closed-loop biomass, Geothermal, Solar
  - Generally must be put in service between 2007 and 2008

- State policies augment federal policies
  - Renewable portfolio standards in 21 states & District of Columbia
  - Requires 2%-24% of electricity to be generated by renewables

Expected to be 32,000 MW by 2017, California, New York, Texas will lead

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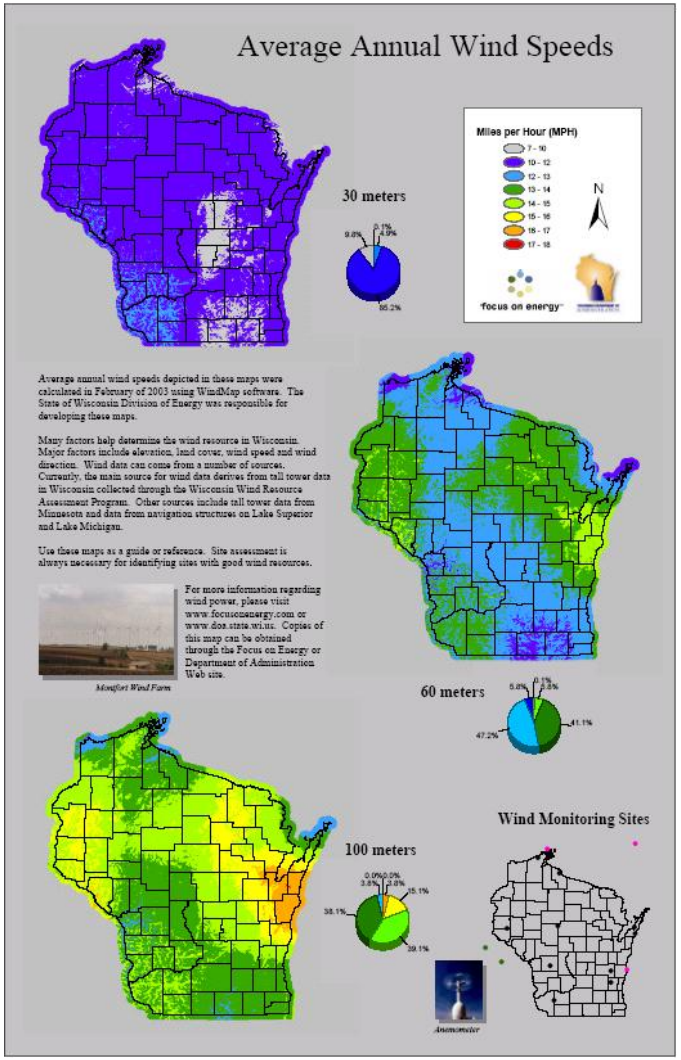
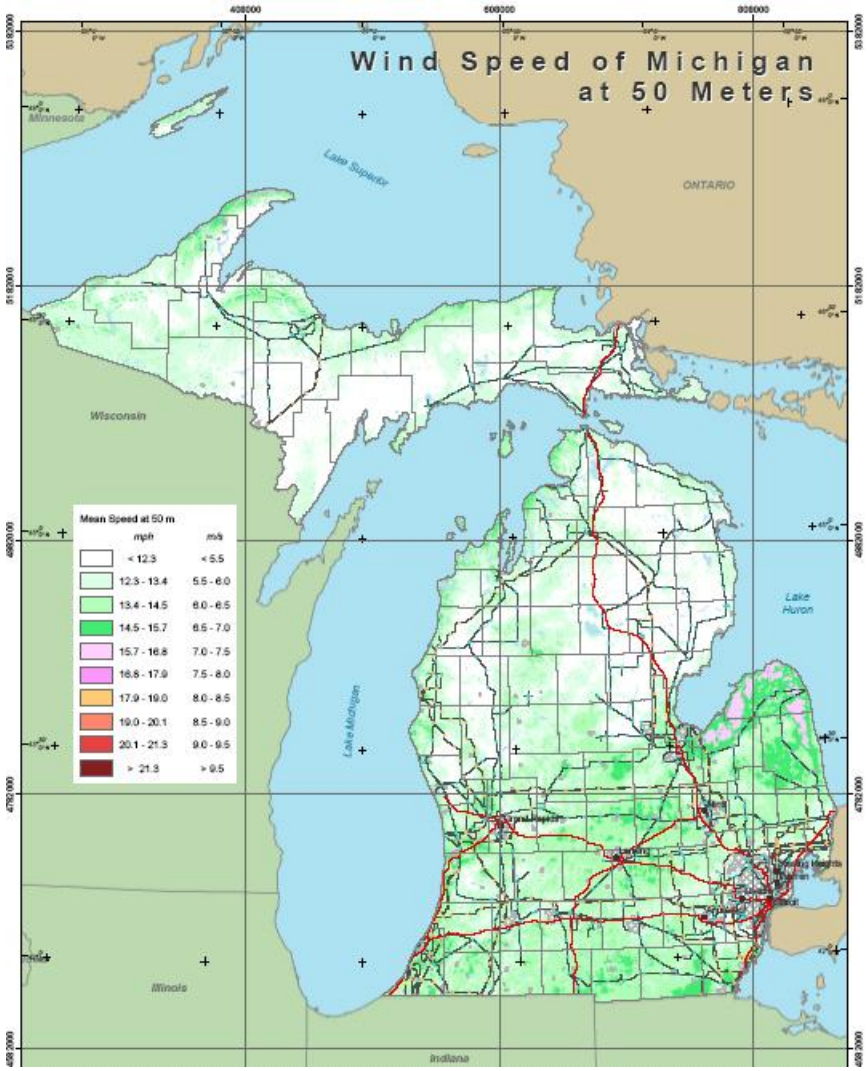
Wisconsin & Michigan Wind Speed





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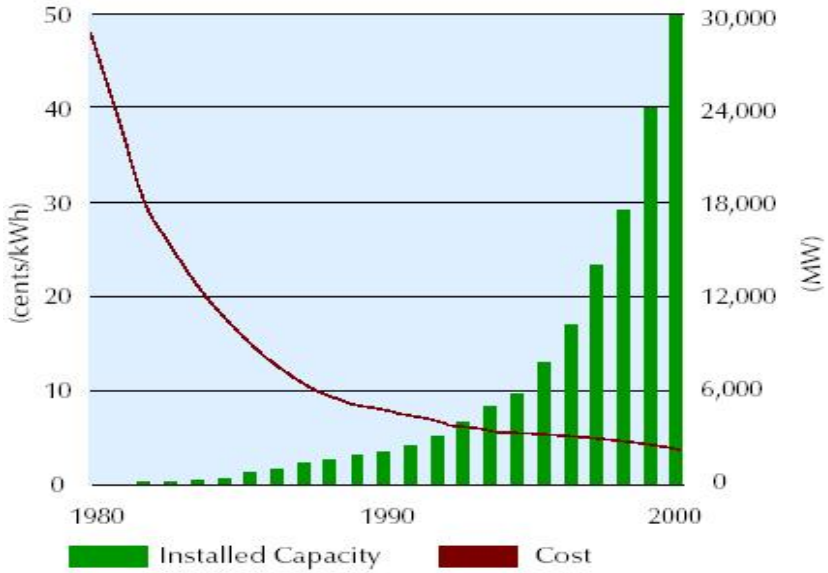
Wind Power, Installed Base vs. Cost



The Energy Foundation, 2004

- Wind received 72% of U.S. energy asset investment in 2005
- Average deal size 75 million
- $4 billion for 65 wind parks
- Buyouts: 25 in 2005 for $3 billion (global), mostly in Spain

\+ Wind plants are economically viable…costs have dropped from 50 ¢/kWh to under 5 ¢/kWh since 1980

\+ 9149 MW in the United States

\+ Cost of generation is almost comparable with fossil fuels

\- Low capacity factors (6-37%)

\- 2 MPH change in average wind speed can make the difference between investment-grade returns, or not

\- 66% of total project returns attributed to tax credits

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Converting Biomass into Efficient Fuel

Biomass

- Biomass Advantages
  - Abundant
  - Accessible
  - Renewable
- Biomass Disadvantages
  - Inefficient to store and transport
  - Low energy density (8000 vs 18.000 BTU/LB)
  - Low energy efficiency
  - Negative environmental impact if not treated

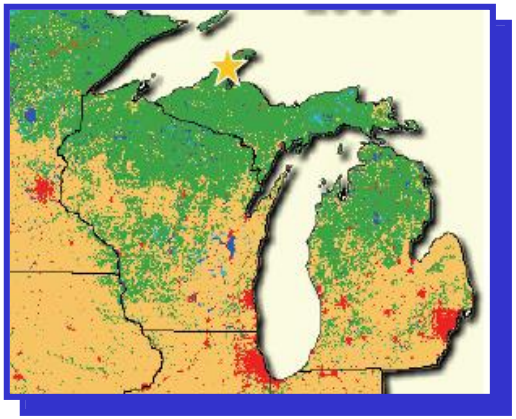
Need to understand Solutions (Conversion of Biomass to….?)

Energy density (storable/transportable), energy efficiency (liquid fuel), yields, compatibility with existing fuel infrastructure

MSU Study

Figure 25. Catchment Area for Hypothetical Forest Products Biorefinery

UP & N. LP Michigan



- **Region not as competitive as ag biomass**
- **Still opportunity for early processing of bio-mass**
- **Enhancing technology gaps for mixed feedstock would be beneficial**
- **Figuring out bio-conversion of wood is vital**
- **Better models associated with forest preservation for sustainability**

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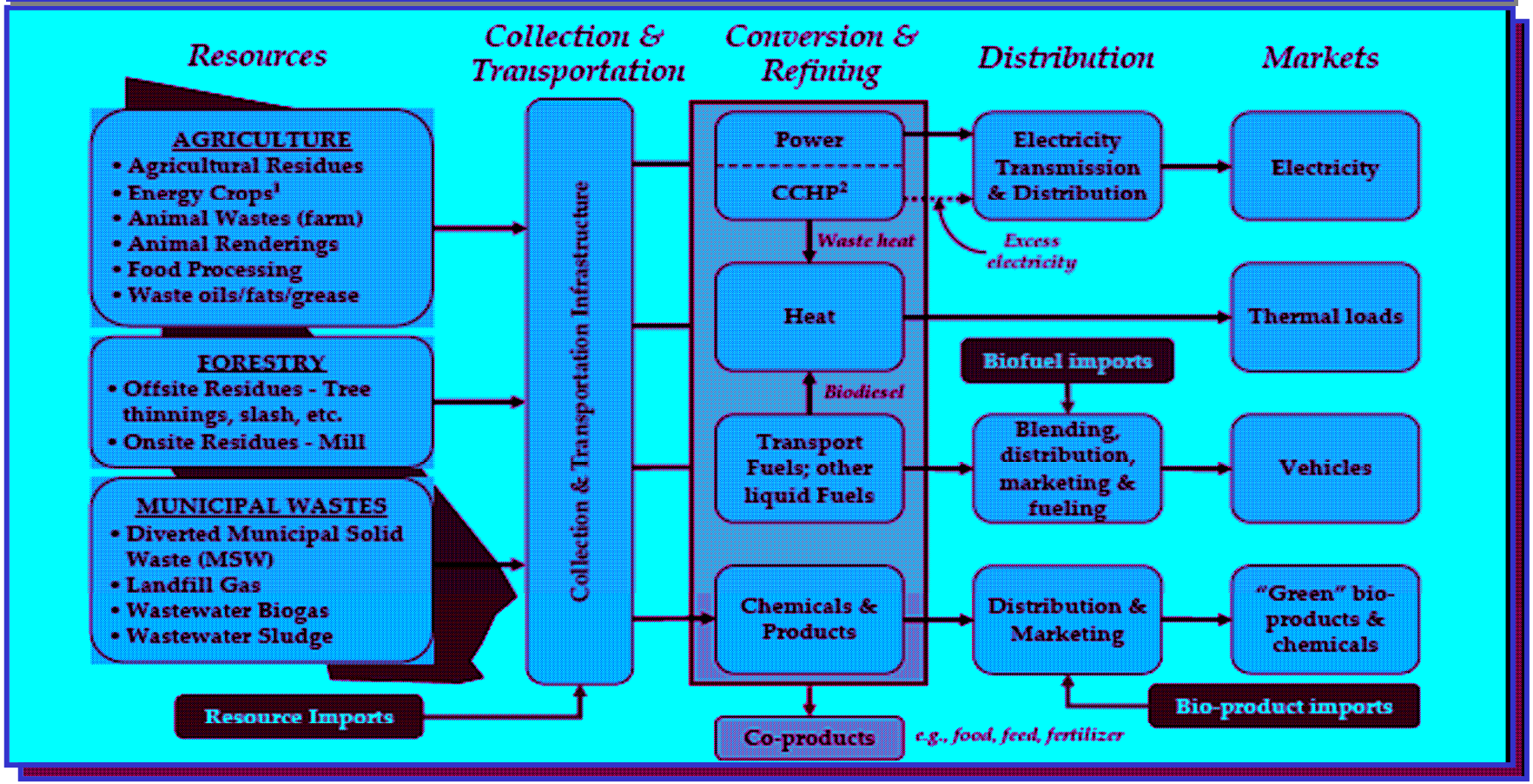
Application is critical for project economics

The inter-relation between feedstocks, conversion, end products, transport (incoming and outgoing) and CapEx determine project economics



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Environmental Waste Conversions

Municipal Solid Waste

CA MSW TOTAL				6,172,200	100.00%
Breakdown for Waste Procesing:					
Total suitable for RDF					68.51%
Metal					6.64%
Inerts for construction bedding					19.23%
Landfill disposal					5.46%
Batteries					0.15%

Farm/AG Manufacturing Waste

Raw material	dm %	odm % dm	average gas yiel l/kg of odm	Biogas m^3/t of substrate
Apple pulp	3	95	500	14
Apple marc	25	86	700	151
Brewing dregs	25	65	700	116
Biological waste	40	50	615	123
Blood meal	90	80	900	648
Grease trap residues	30	95	1000	285
Vegetable waste	15	76	615	70
Chicken manure	15	77	465	54

Considerations

- Optimal Sizing
- Optimal Technology
- Optimal Products
- Optimal Hauling Radius
- CapEx per Ton=?

Need to understand relationship between capex and energy density to offset and hauling (fuel shed radius)?

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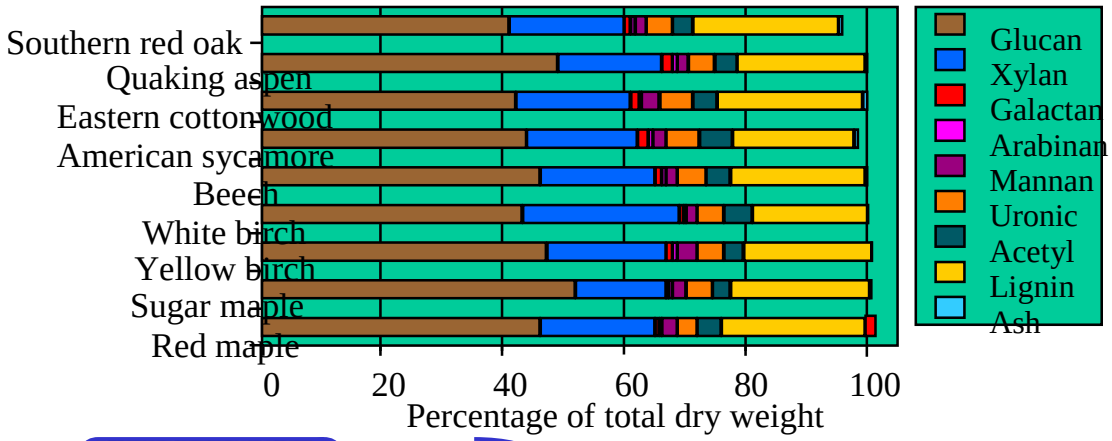
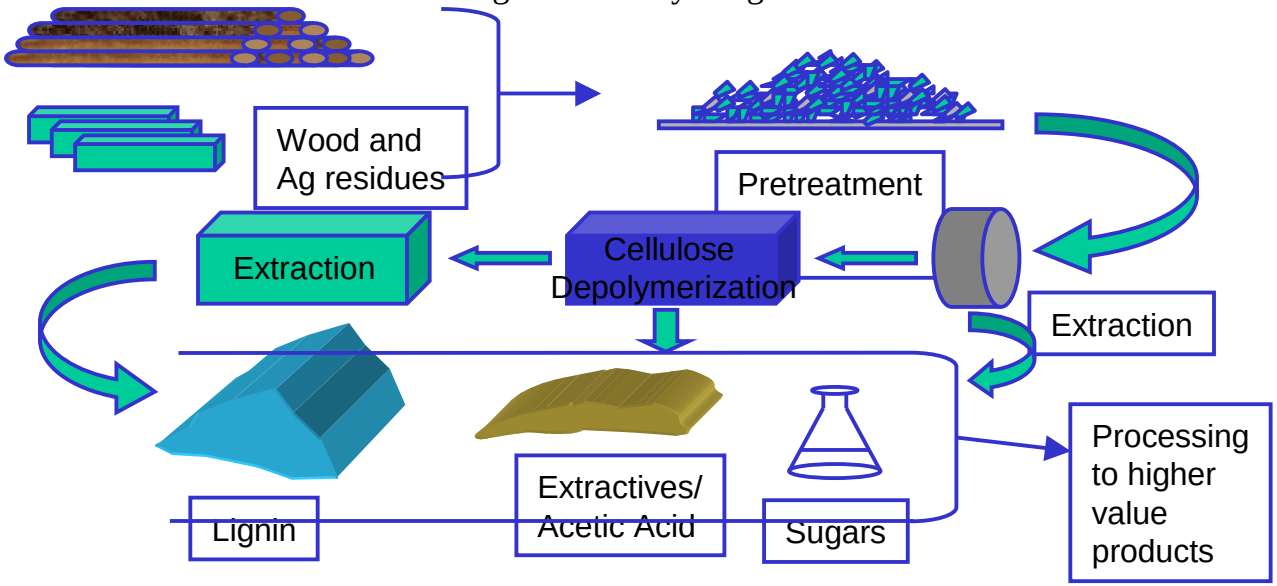
Forest Waste Conversions

Hardwoods





- Collection key to cost
- Densification of energy required
- High (and growing) transport costs force distributed densification

Need to understand relationship between capex and energy density to offset and hauling (fuel shed radius)?

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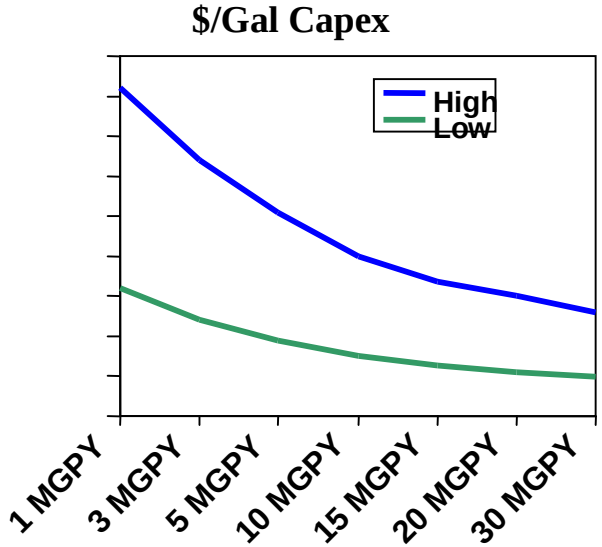
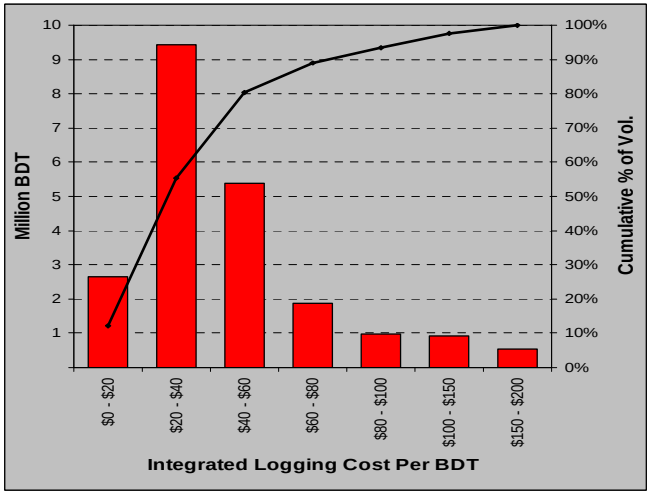
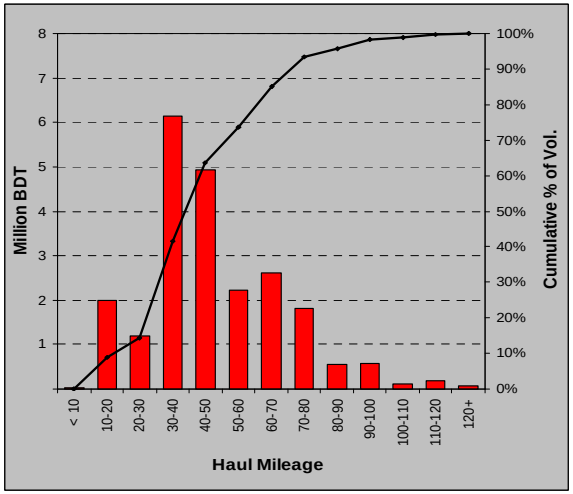
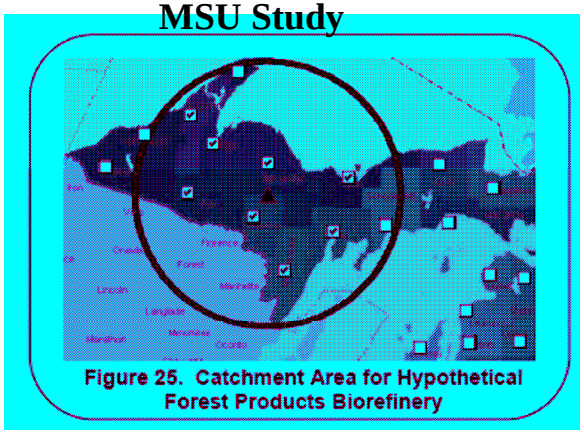
Size matters

Economy of Scale VS. Logistics and Hedging









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Need rigorous qualification optimize scale for community system

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QUICK FINANCE TUTORIAL

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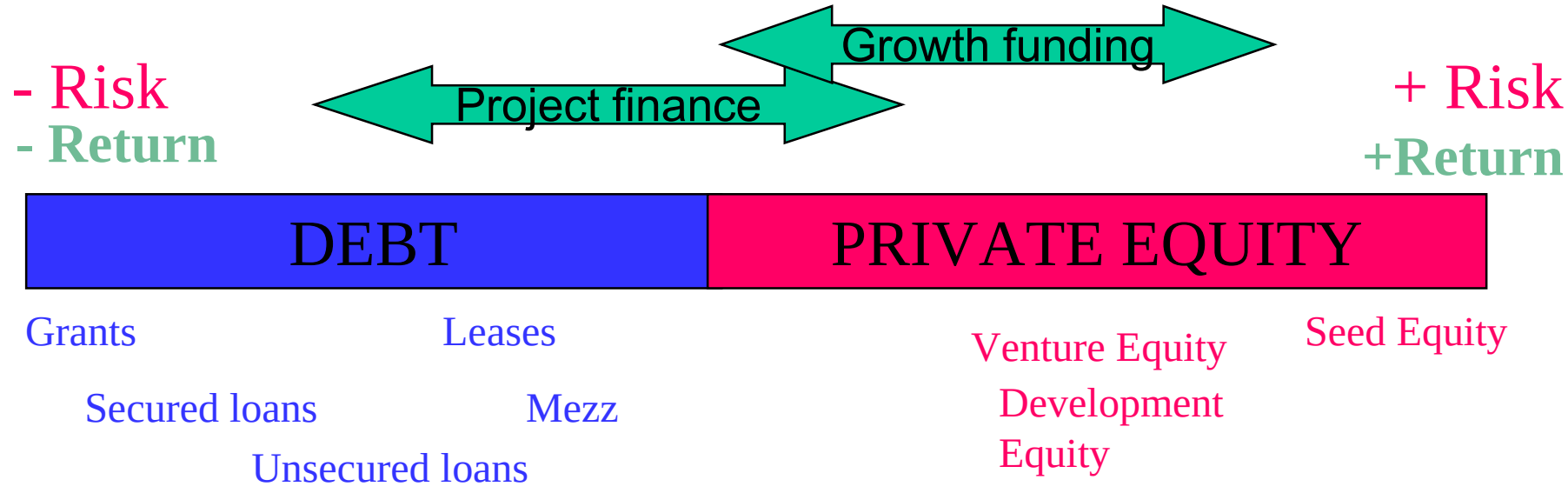
Funding spectrum



- All funding is not the same
- Cost and structure of money is dependant on risk profile
- Growth funding (venture capital) typically all equity and includes technology and market risk return premiums
- Development finance commercial completion risk
- Project finance: lower overall project IRR looks through the project to the value of the offtake agreement, will not assume technology, sight or commercial risk.

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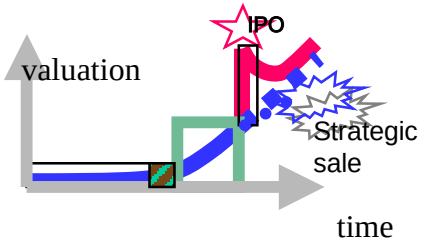
Renewable Technologies: Dual Challenge

Two Commercialization Pathways Required

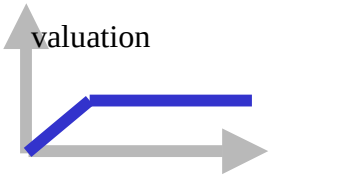
Products: Growth Company Pathway

Research → **Development** → **Manufacturing**



Fuels: Project Development Pathway

Bench → **Pilot** → **Commercialization**



- Must link development of new renewable energy technology companies with fuels development
- Commercialization of both required in parallel
- Different management, business models and financing

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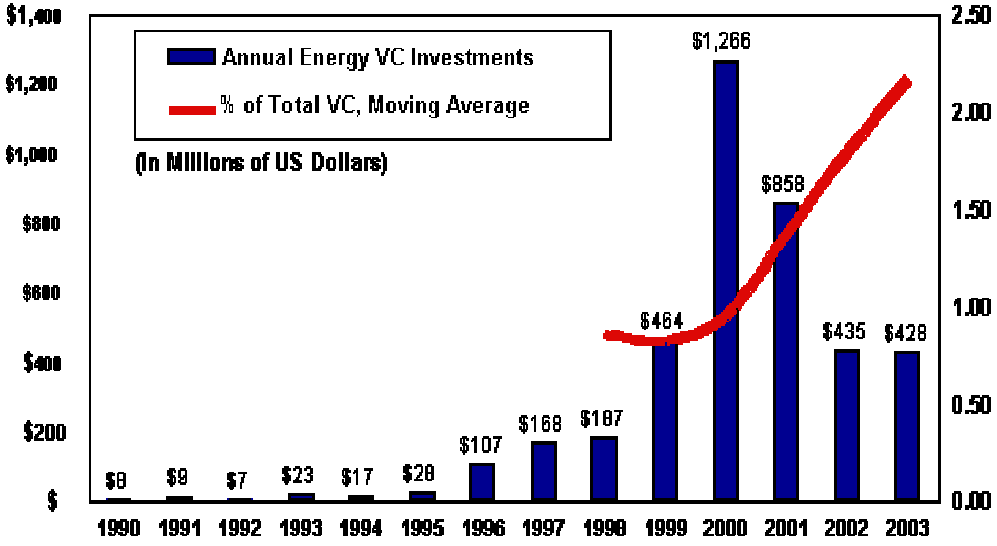
Growth Company finance



- Immature sector
- Growth funding is driven by VC investment, which may not be a good fit.
- Many/most early stage energy technology companies have not delivered investment grade returns
- Few IPOs, with some underperformers (Clipper & Capstone)
- BUT: great long term market potential if the right companies and fundmentals are selected

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PROJECT FINANCE

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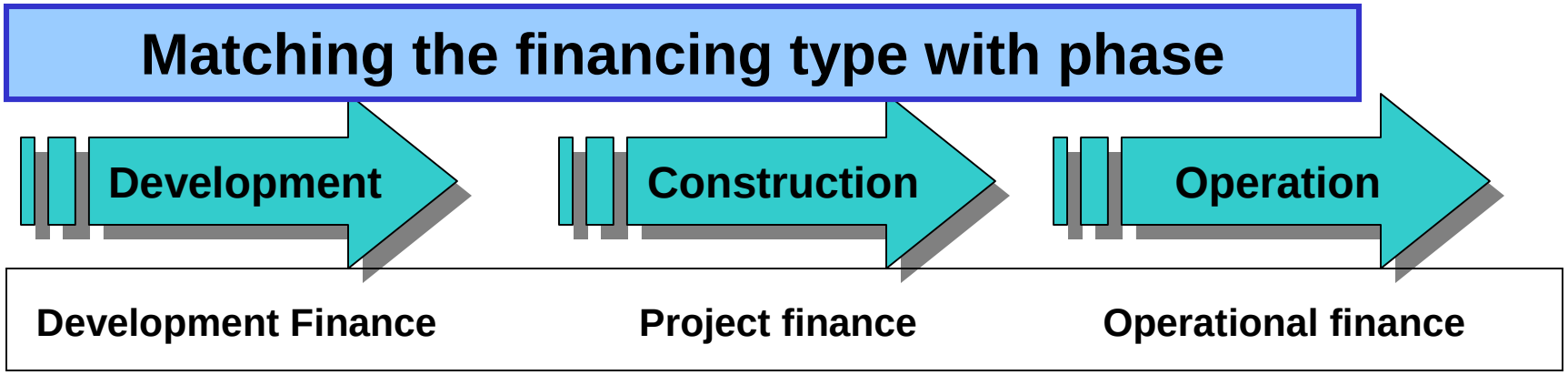
Phases of Renewable Energy project



Getting ready for fundraising and project

Validate the project, obtain sites, permits

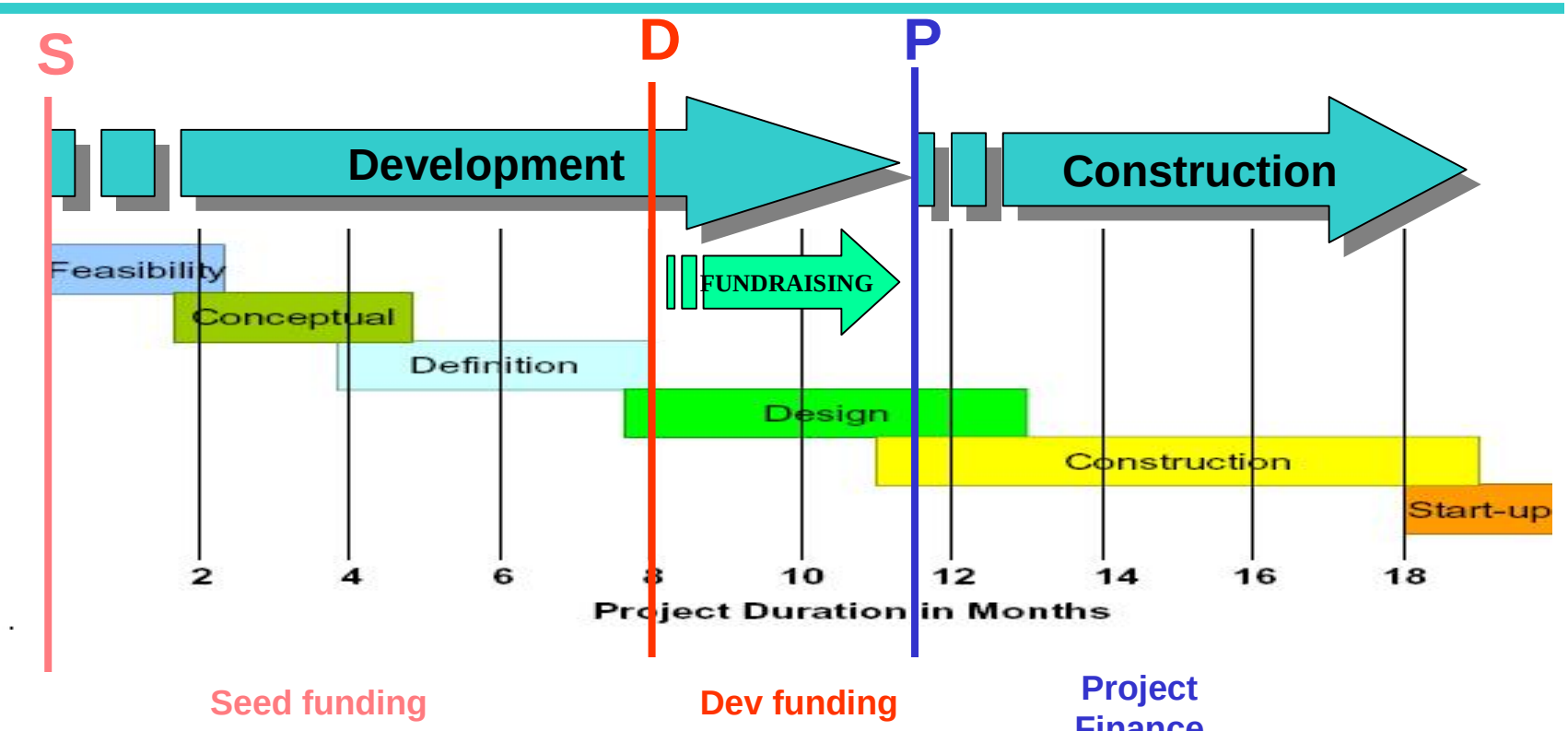
Preliminary design engineering

Deploying and managing engineering and construction costs and cashflow

Managing operations, working capital, debt repayment and cash sweeps

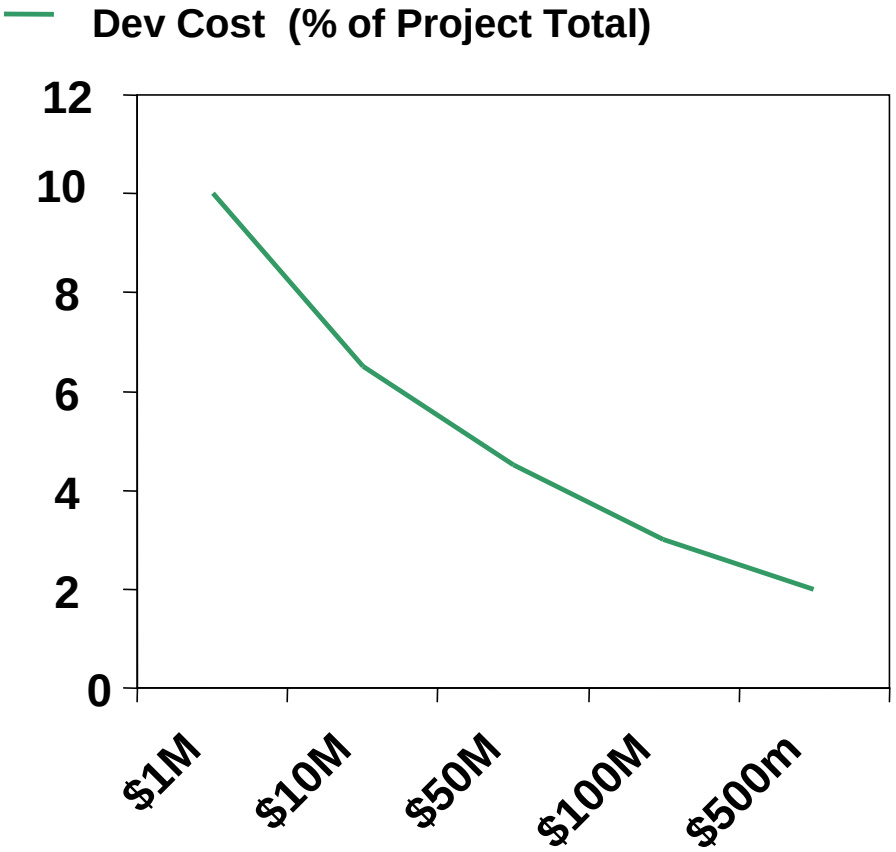
Project finance looks through the project to the value of the balance sheet of the offtake agreement

Project Timing



- Timing varies widely, but typically 18-24 months from project inception
- Development funding should be sufficient to last through the development.
- Fundraising may take 4-6 months after finalized “package” depending on complexity and structure

Development finance



- Seed: a few $100K for feasibility studies, etc.
- Development: Depending on size, development costs range from 2-10% of total project,
- Highest risk funding
- Highest rate of return money (30%-50%++)
- Development funding may be complimented with grants, loans

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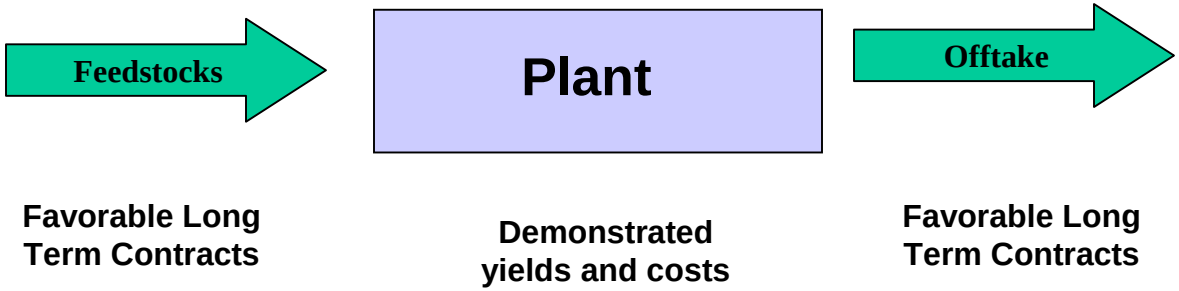
Project Finance, what to look for…

- The risk/return profile and valuation are consistent with the financial markets and company expectations
- Management team has the experience and capability for the project undertaken
- The project is realistic and major risks are mitigated
    - Feedstock agreements
    - Offtake agreements (Merchant vs. contract)
    - Creditworthiness of Offtake purchasers
    - Technology risk/obsolescence
    - Performance bonding/ Construction risk



Project finance looks through the project to the value and balance sheet of the offtake agreement

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Project Finance

Proper structuring to balance debt and equity can reduce risk & improve returns

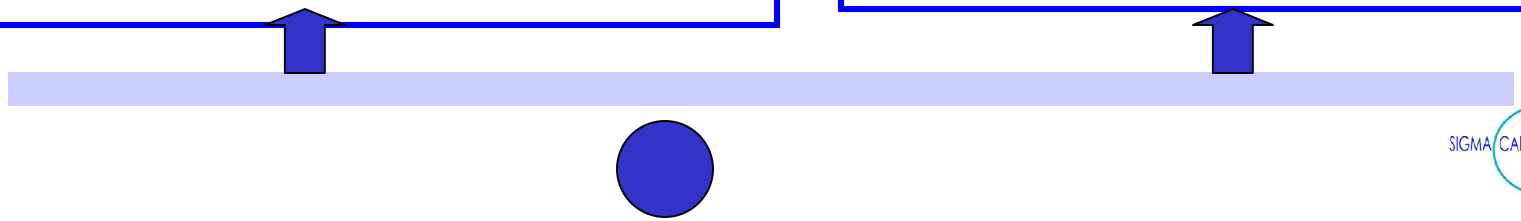
The larger the project, the more complexity & possibilities of improvement through structuring

Debt

- Construction
- Permanent Finance
- Bonds (taxable and exempt)
- Equipment / Operational Lease
- Mezzanine (limited)
- Grants & government loans

Equity

- Private-accredited
- Institutional
- Socially Responsible Investors
- Strategic & Vender Finances
- Tax investors



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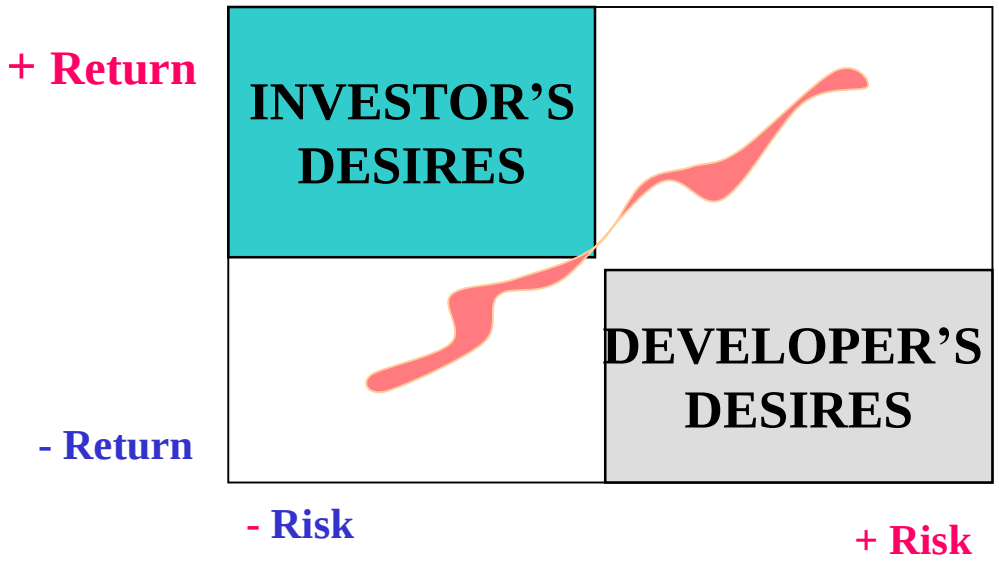
Renewable Energy Project Finance Gap



(unsophisticated?)Investor/ Lender

- I want 40% ++ with no risk
- Get me out next year with an IPO
- I will give you $ 3 million Pre-money valuation

(unsophisticated?) Developer

- Investors should invest in my project because it is the socially responsible thing to do
- Let's get going, will fill in the details later
- Don't look over my shoulder, I want a "silent partner"
- I give you slightly better than prime rate, so I can keep the majority of "my project"
- I'll offer you 5% of the project for $80 million

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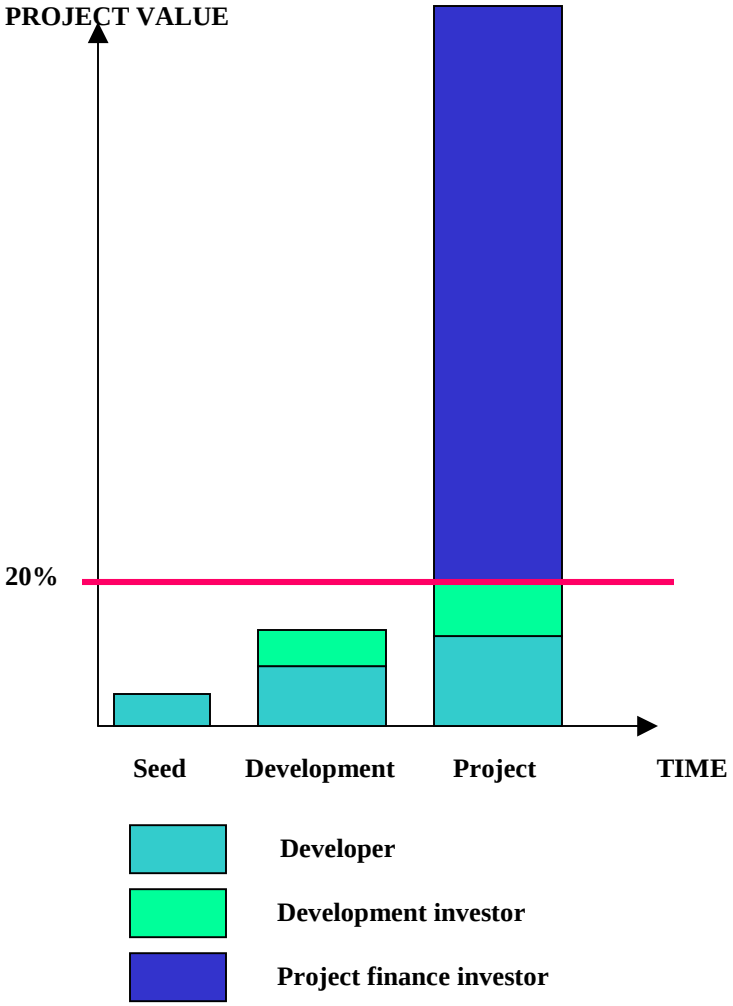
What really happens



- Valuation of the project increases with the amount of work done to build the project to financial close
- Typically the developer invest seed funding of $100-500 K
- Typically, developer receives additional development funding to meet the 1-10% of the project development funding total
- At the end of project finance, the project finance investor owns the vast majority of the project, typically around 80% (depending on the amount of investment by the investor, project financials, etc.)

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Financial structures summary

Financing Structure	Project Capital	Mechanism
Corporate	All Equity	Corporate/strategic and the developed projects and finances all cost, receives all tax benefits
Investor Flip	All Equity	Investor contributes almost all of equity, receives almost all of cash & tax benefit prior to return based flip in allocations
Pay as you go	All Equity	Investor finances much of the project, injecting some equity upfront and additional equity overtime
Cash Leveraged	Equity and Debt	Sameness investor flip, but adds that financing. Loan size is based on amortization/cash flow/creditconsiderations
Back Leveraged	All equity, but developer has outside debt	Same as investor flip, but developer uses outside debt in exchange for equity in project

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Financial Structure: pick the one that fits

Depending on the structure, and the amount of development funding required, developer financial wherewithal, and developer needs, a variety of scenarios are possible

scenario	Developer can use tax benefit	Developer can fund project cost	Developer wants to retain stake in project	Developer wants early cash distribution	Developer has low projected IRR	Project already exists: refinancing/ acquisition	Most suitable financing strategy
1	No	No	No	yes	N/A	No	Sell project's strategic investor
2	Yes	Yes	Yes	No	No	No	Strategic/ Corporate
3	No	Limited	Yes	Yes	No	No	Investor flip
4	No	Yes	Yes	yes	N/A	Yes	Pay-as-you-go
5	No	limited	Yes	No	Yes	No	Cash leveraged
6	No	Limited	Yes	Yes	Yes	No	Back levered

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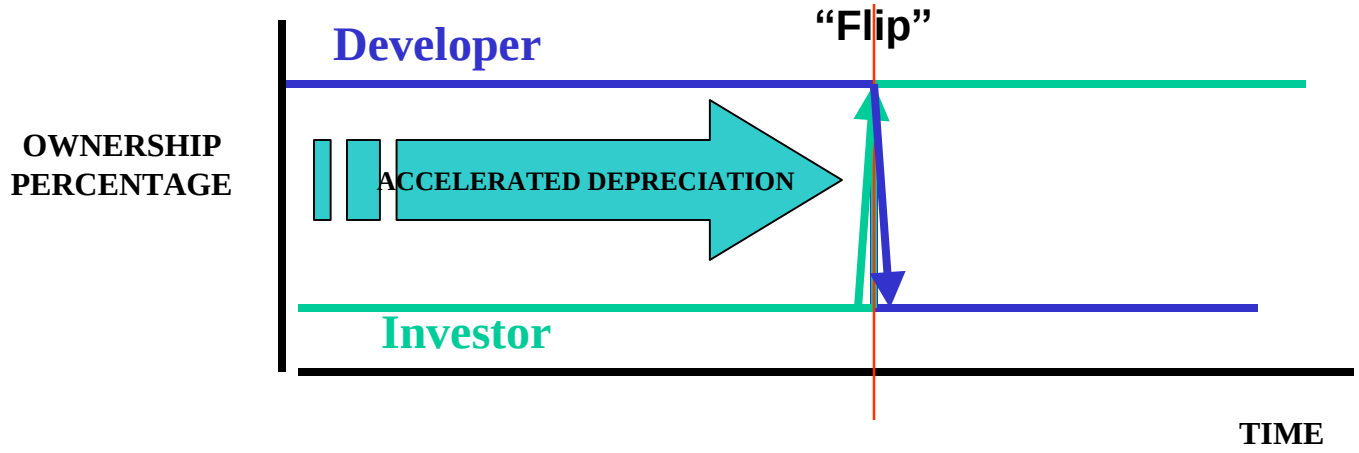
Flip example



- Initial (3-5 years) depreciation in excess of project's ability to use it
- "Sell" the majority of the project to investor who can tax losses against passive gains
- "Flip" back to the developer (ratio reversed) after investor returns are realized
- Complex structures, requiring legal and accounting professionals skilled in the issues

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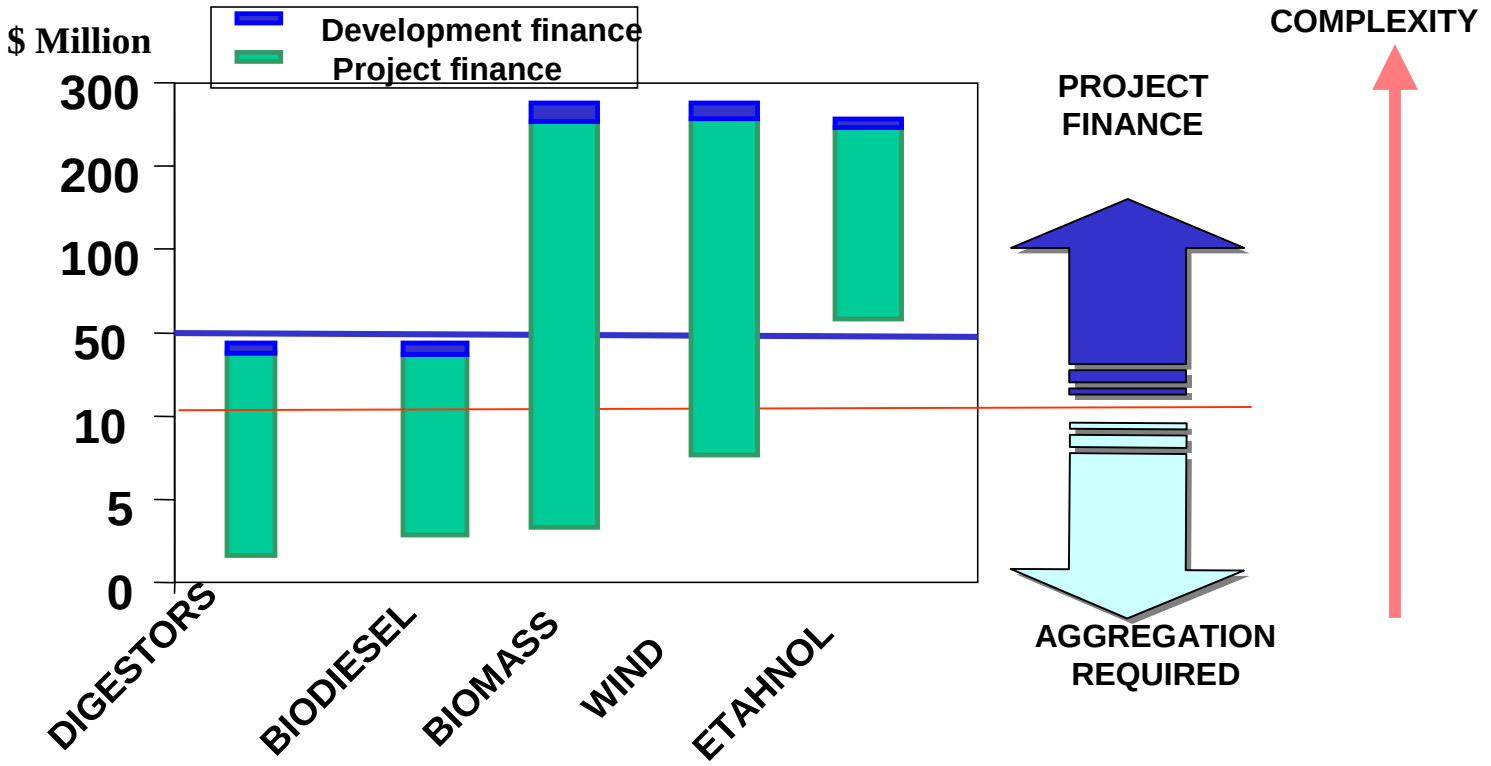
Size vs complexity



- Larger transactions: (ethanol, wind, biomass power generation) more complex, require substantial structuring
- Smaller transactions: (bio diesel, anaerobic digesters) less complex, require little or no structuring
- Investment banking generally required to structure larger transactions
- Investment in smaller transactions better suited to aggregation

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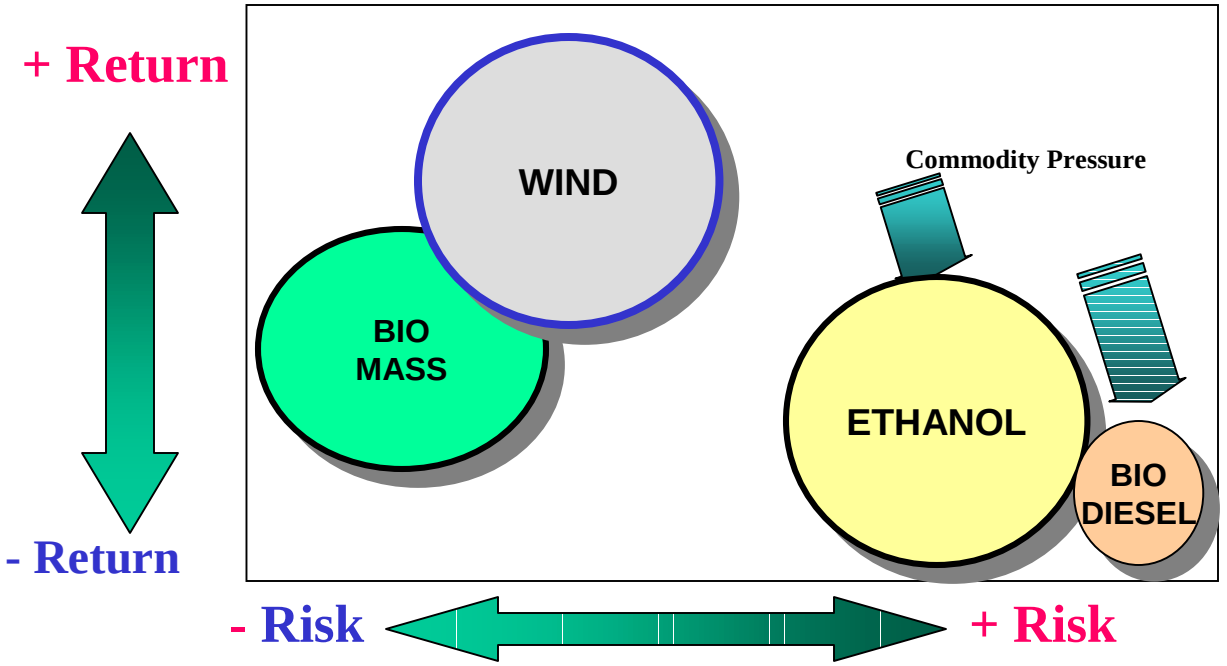
What Does It All Mean?



- Financial markets: frothy
  - Unknowledgeable investors will fall into failed deals?
  - What happens in the overbuilt over hyped short/medium term: Dot.Bomb shakeout coming?
  - Credit Crunch: Terms and rates currently unfavorable
  - Long term prospect: Overall, excellent, returns will improve as oil prices continue to increase and developers mature

SIGMA CAPITAL GROUP INC

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TURNING RENEWABLES INTO SHAREHOLDER VALUE

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