



SternBrothers&Co.

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Renewable Energy Case Studies

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Stern Brothers & Co.

- **Established in 1917, registered broker-dealer with 14 offices.**
 - 60 employees
 - 13 offices outside St. Louis (headquarters)
- **Client Services.**
 - Underwritings & Private Placements
 - Taxable and tax-exempt bonds, investment grade and high yield
 - Financial Advisory
 - Credit Enhancement
 - Remarketing
 - Fixed income trading
 - Institutional distribution
- **Investment Banking Products / Industries**
 - Project Finance / Municipal Finance
 - Alternative Energy
 - Real Estate
 - Healthcare
 - Higher Education & Non-Profit

Renewable Energy Project – Risk Mitigation

- **Sponsor Objective: Maximize amount of non-recourse project debt while mitigating risks faced by project debt investors.**
- **Risks to be Mitigated ➡ Ability to Pay Debt Service**
 - Project Sponsor(s)
 - Technology
 - Construction Completion
 - Plant Operation
 - Certainty of Cash Flows (credit-worthy counterparties)
 - Off-take Revenues
 - Feedstock Costs
 - Cost of Operations

Case Histories - Examples of Project Finance Structures: Hydro Expansion Project

- **Project Sponsor:** Private company, founded in 1870s, financed 4.7MW generation expansion at existing dam site.
- **Technology:** 1930s technology. No wrap on refurbished turbines.
Independent engineer report from Burns & McDonnell.
- **Construction:** Experienced contractor; had completed similar projects in Midwest.
Fixed price contract with contingency.
- **Off-take:** 25-year PPA with 'A-' rated municipal electric utility for 100% of power.
Capacity payment + Energy charge.
- **Feedstock Cost:** None.
Hydraulic study from Kleinschmidt.
- **Operation:** Sponsor has operated hydro electric facility for over 100 years.

Case Histories - Examples of Project Finance Structures: Hydro Expansion Project

- **Key Financing Details**
 - Not rated
 - Project eligible to receive federal 1603 grant
 - Weighted cost 6.5 – 7.0% area, 13.5 year average life, fully amortizing
 - Capacity payment covers > 90% of debt service
- **\$14.1 million Recovery Zone Bonds (tax-exempt)**
 - Issued by the city, city not responsible to pay debt service
 - 25-year maturity, callable in year 10
 - Money manager
- **\$8.7 million Qualified Energy Conservation Bonds (taxable)**
 - Maximum allowable maturity, make-whole call
 - Special situations fund (insurance company)
- **\$1.0 million Taxable Industrial Revenue Bonds**
 - Shortest maturity
 - Local banks

Case Histories - Examples of Project Finance Structures: Waste Water Sludge ➡ Fuel Cell ➡ Electricity

- **Project Sponsor:** Private developer financed fuel cell projects at two waste water treatment plants. Projects capture methane gas ➡ Fuel cell ➡ Electricity used at plant site.
- **Technology:** Fuel cell technology already in use at similar projects. *Independent engineer report from Xnergy.*
- **Construction:** Experienced contractor; had completed similar projects. *Guaranteed max price contract with contingency.*
- **Off-take:** PPA with investment grade municipal waste water authorities for 100% of power generated. *Take and pay.*
- **Feedstock Cost:** None.
- **Operation:** Contract operator with experience operating similar projects.

Case Histories - Examples of Project Finance Structures: Waste Water Sludge ➡ Fuel Cell ➡ Electricity

- **Key Financing Details**
 - Not rated
 - Project eligible to receive federal (1603) and state incentives (SGIP)
- **Recovery Zone Bonds (tax-exempt)**
 - Issued by state authority which is not responsible to pay debt service
 - Maturity = Term of PPA
 - Sub 8% interest rate
 - High Yield Mutual Funds

Case Histories - Examples of Project Finance Structures: Bio-Chemical Production Facility

- **Project Sponsor:** Private company financed first commercial plant to produce succinic acid from sugars.
- **Technology:** New technology (demo plant producing product).
Independent engineer report from E3 Consulting.
- **Construction:** Experienced contractor; had completed similar projects.
Fixed price contract with large contingency.
- **Off-take:** Requirements contracts typical in the chemical industry.
No long-term off-take agreements.
- **Feedstock Cost:** Contracts with large industrial sugar suppliers.
Feedstock study from Muse Stancil.
- **Operation:** Sponsor has operated similar chemical production facilities.

Case Histories - Examples of Project Finance Structures: Bio-Chemical Production Facility

- **Key Financing Details**
 - Not rated
 - Project received loan guaranty from USDA B&I program
 - Project received federal DOE grant
 - Sponsor made significant equity investment
 - Debt service coverage > 4x
- **Senior Debt (taxable bonds, non-recourse to parent)**
 - 15-year maturity, premium call structure
 - Risk mitigation ➡ 60% guaranteed by USDA
 - 40% not guaranteed
 - Blended cost < 10%
 - Large insurance company
 - Money manager (special situations fund)

Case Histories - Examples of Project Finance Structures: Second Generation Biofuels Project

- **Project Sponsor:** Private developer with Fortune 500 sponsors to finance first commercial plant to produce biofuels from MSW.
- **Technology:** New technology developed at a large university. Demo plant in operation.
Independent engineer report from SAIC.
- **Construction:** Alliance of experienced contractor + developer.
Fixed price contract with significant contingency.
- **Off-take:** 10-year 100% volume off-take.
100% volume / Floor price (?)
- **Feedstock Cost:** None. Tipping fee provides 1/3 of revenues.
MSW study from GBB.
- **Operation:** Contract operator with experience operating similar projects.

Case Histories - Examples of Project Finance Structures: Second Generation Biofuels Project

- **Key Financing Details**
 - Currently in rating process
 - Sponsors providing significant equity
 - Maturity = Term of tip fee contract; fully amortizing
 - Tip fee covers > 50% of debt service
- **Solid Waste Bonds (tax-exempt)**
 - Issued by the state economic development authority
 - 12-year maturity (2 years construction + 10 year off-take)
- **Taxable Bonds**
 - Balance of project debt
 - Shorter maturity, make-whole call

Contact Information

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