



ENERGY
INVESTORS
FUNDS

Lowering the Effective Cost of Capital for Generation Projects

Private Equity and Power Project Financing: Renewables and Fuel Projects

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Private Equity Funds And The Power/Energy Sector

- ❑ Approximately 700 private equity funds invest in the power/energy sector including:
 - buyout, hedge, mezzanine, venture, energy technology, sustainable energy, real estate, and single market-focused funds
- ❑ These funds invest in **power and energy assets and companies**
- ❑ Generally, funds are agnostic about generation fuel type and keen on transmission plays
- ❑ Asset and corporate plays involve non-recourse project financing, some M&A
- ❑ Generally, project-focused funds target IRRs of 15% - 25%, depending on stage of investment (development, construction, or operating), PPA versus merchant or hybrid off-take status, etc.

Macro Climates: Facts and Assumptions

- ❑ World oil consumption will increase by 5x between 2002 and 2020
- ❑ U.S. will seek to decrease oil dependency by diversifying new generation projects and by incentivizing construction of fuel projects
- ❑ Domestic refining capacity is relatively flat
- ❑ Katrina threatened roughly 25% of U.S. gas supply, refinery, storage, and transportation
- ❑ Imported crude oil prices have risen dramatically since January 2002 (> 2x)
- ❑ Older generation capacity is mostly coal and nuclear (approximately 60%); new capacity is virtually all natural gas-fired (90% of capacity additions since 2000)
- ❑ Natural gas prices have shown unprecedented volatility since 2002
- ❑ There are 44 proposed liquid natural gas (LNG) terminals in the U.S., perhaps 4-5 will be built
- ❑ EPCAct, Renewable Portfolio Standards, regulation vs. deregulation vs. limbo, etc., will drive fuel choices for new capacity additions

California: Summer 2006

- ❑ Overall, U.S. **capacity margins** have shrunk annually since 2003
 - Indicates slowing of capacity additions over last four years
 - From 2005-2006, margins have decreased in all regions except SERC and NPCC
- ❑ **Transmission line mileage** has increased over the last six years and exceeded 5-year projections
 - But growth rate of transmission line mileage trails growth in demand and capacity
- ❑ Summer peak
 - 3% more than 2005
 - Projected capacity margin of approximately 13%, but shrinking
 - Despite Path 15 and other upgrades, transmission constraints still exist
 - A very hot summer would strain capacity and transmission margins

Conundrums

- ❑ Reduce crude consumption
 - Transportation fuel projects (coal-to-liquids, ethanol, biomass)
- ❑ Increase renewable generating capacity
 - God-given, replenishable, non-carbon, non-crude fuels
- ❑ What will it take for equity \$ to back fuel projects and renewable generating capacity?

Fuel Project Financings

- ❑ **EPAct incentives** and high oil prices have encouraged regulators, government and private sector developers, lenders and equity sources to develop coal-to-liquids, ethanol (corn) and biodiesel (soybeans) projects
- ❑ **Federal and state incentives** are/should be available to encourage these fuel-play projects
 - Grants, loans and loan guarantees, and tax subsidies
- ❑ CTL projects become **economically feasible** when oil prices are high enough so that cost of coal + conversion costs of coal-to-liquid fuel is economic (somewhere between \$20-\$40/barrel is a ballpark oil price range)

Fuel Project Financings

❑ Financing Issues for Fuel Projects

- **Volatility of oil prices** directly impacts cost and returns of CTL, ethanol and biodiesel projects
- How will banks view and **allocate** commodity, technology, permitting and completion **risks**
 - **futures contracts** around price of diesel, ethanol, coal, corn, soybeans, etc., to stabilize revenues + costs
 - execute long-term contracts at fixed + escalator pricing for all/most/some of projects output
- Do costs of futures and fixed commodity price contracts plus cost of debt make fuel projects marginal for equity investor?

Fuel Project Financings

- ❑ Developer may lock up supplies of coal, corn and soybeans by buying mines, co-ops, etc.
- ❑ Availability of fixed-price, turnkey EPC contract for fuel projects
 - Essential for bank financing
 - Shadow terms and conditions of typical independent power project financing
 - Liquidated damages from EPC contractor
 - Recourse to developer/equity investor

Fuel Project Financings

- ❑ Guarantees
 - Volume, variety and quality of fuel output
- ❑ Warranties
 - Quality and adequacy of delivery systems (trucks, etc.) and point-of-sale systems (gas stations, etc.)
- ❑ Government subsidies and long-term performance and reliability guarantees for the fuel resource, distribution, network, and end-user
- ❑ That old standby, non-recourse project financing, will be put to the test in new CTL, ethanol and biodiesel projects

Financing Renewable Energy Projects

- ❑ Key for developers and equity: **MONETIZING TAX SUBSIDIES**
- ❑ Two principal structures to realize value and monetize PTCs in “renewable energy” projects
 - Partnership Flip
 - Leases

Financing Renewable Energy Projects

- ❑ **Partnership Flip:** developer sells interest to equity investor
 - LP receives majority of cash flow until tax credits are utilized
 - LP then flips down its cash participation after receiving hurdle IRR
 - Developer must have control over project if tax credits are shared
 - Issues – guaranteed return structures and contingent payment structures being reviewed by IRS

Financing Renewable Energy Projects

- ❑ **Lease Structures** not available for PTC projects (except biomass)
- ❑ **Biomass:** lessee receives PTCs and rent deductions; lessor retains depreciation and uses to shelter rents
- ❑ **Sale-Leaseback:** most efficient method to monetize tax benefits (do so within three months of in-service date)

Financing Renewable Energy Projects

❑ Wind – Financing Issues

- Technology
- Returns to tax equity: ranging up from 7.5% now that interest rates are rising
 - Lots of tax equity players
 - Add 200+ bps if project is leveraged
- Required amount of equity
- Wind resource risk
- Transmission access
- Bi-annual PTC/ITC renewal hysteria

Financing Renewable Energy Projects

□ The Ticker: Recent Developments

- June 15 **California PUC decision** to allow utilities to charge rate payers for transmission costs incurred in developing renewable energy projects, particularly wind (usual practice is for developer/equity to bear the cost and recover over time under PPAs, etc.)
- **\$263 million loan syndication** for development of wind projects (OK and NY) by Horizon Wind Energy – terms reported to be 15-year debt at LIBOR + 1 3/8% stepping up over time to LIBOR + 250.

Financing Renewable Energy Projects

- **Renewable energy IPOs:** Verasun Energy Corp., an ethanol producer, IPOs on June 13, opening at \$28/share with launch price of \$23.
 - Private equity (technology funds) very interested in solar and ethanol
- **NRG** announced intentions to build three coal gasification projects (DE, NY, CT) and is seeking long-term PPAs
 - 630MW each; cost estimates of \$1,955/gross installed KW
 - Private equity funds will be interested in project equity