Woodlawn Associates

Management Consulting

Beyond the Blue Chip: Wind Turbine Financing in the USA

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Josh Lutton
Managing Partner
Woodlawn Associates
josh.lutton@woodlawnassociates.com
+1 (312) 262-1610

Summary of findings

- **This information primarily based on interviews with equity investors, debt investors, and wind farm developers the United States**
- **Investors show mixed interest in financing projects using emerging turbines**
  - Investors most interested in GE, Siemens, Vestas, Gamesa, Acciona, and Mitsubishi projects
  - Clipper and Suzlon draw mixed reaction
  - Korean vendors also get a mixed reaction, but investors impressed by balance sheets and industrial reputations
  - Most investors not interested in financing Chinese turbines
- **Financing for emerging turbines more costly and shifts more risk to sponsor**
  - Deals likely to be priced 25-100 basis points higher
  - Investors may require recourse to the sponsor or other guarantees
  - Investors will likely want more of the sponsor's money in deals
  - Burden of proof for deals will be higher
- **For emerging vendors, first priority must be to establish capability to deal with any issues over the long term**
  - Consider tie up with major industrial company or otherwise strengthen balance sheet
  - Demonstrate depth of service capability in U.S.
  - United Technologies investment in Clipper seen as a step in the right direction, but doesn't satisfy all
- **Second step is minimize risks and costs to developers and investors**
  - Self-finance projects, at least for a few years
  - Develop deep relationships with certain lenders *a priori*
  - Take advantage of the government credits and loan guarantees that reduce risk
- **Finally, target the right developers**
  - Focus on larger developers with own tax appetite and ability to raise debt at corporate level

Investors show mixed interest in financing projects using emerging turbines

- **Investors most interested in GE, Siemens, Vestas, Gamesa, Acciona, and Mitsubishi projects**
  - "If there were six deals out there and five were GE or Siemens or Vestas or Gamesa and one was Clipper or Suzlon, I'd just pass on the Clipper and Suzlon one." – Debt Investor A
  - "The turbines that are bankable in today's market are Siemens, GE, Mitsubishi, Vestas, and Acciona." – Debt Investor B
- **Clipper and Suzlon draw mixed reaction**
  - "Right now we just aren't doing those technologies. We won't back it internally. We are busy enough; we can pick and choose." – Debt Investor D
  - "I don't have an interest in finding a way to do a Suzlon deal." – Debt Investor H
  - "We have financed Clipper or Suzlon in the past and will be again shortly." – Equity Investor B
  - "We are currently evaluating opportunities with Suzlon turbines." – Debt Investor G
- **Korean vendors also get a mixed reaction, but investors impressed by balance sheets and industrial reputations**
  - "Korean vendors don't rise to the second tier if you ask me." – Equity Investor B
  - "I wouldn't look at financing a…Korean turbine now." – Debt Investor A
  - "Samsung is a great name. It is known to be a high quality company. It's harder to finance because they don't have an operational track record. Samsung would have to indemnify the project." – Debt Investor E
  - "Now that DeWind is part of Daewoo, they are a little more interesting." – Equity Investor A
- **Most investors not interested in financing Chinese turbines**
  - "In the past I've been caught with Chinese products. We did one project where the Chinese equipment had lead paint and poor welding…Chinese turbines would not meet our requirement for proven technology…" – Debt Investor F
  - "I know there is political unpleasantness about Chinese turbines. [We] would not want to be in the middle of that." – Debt Investor B
  - "It's one thing to trust Samsung. But China, no. It's very problematic to know what you a getting in terms or financials or guarantees." – Debt Investor E

Source: Woodlawn Associates interviews

Financing for emerging turbines more costly and shifts more risk to sponsor

- **Deals likely to be priced 25-100 basis points higher**
  - “There might be a slight premium on spread – something like 25-50 basis points.” – Equity Investor B
  - “It would be maybe 50-75 basis points more.” – Debt Investor G
  - “I would be willing to look at this for additional return or lower risk. For example 70-100 basis points on the return side.” – Debt Investor B
- **Investors may require recourse to the sponsor or other guarantees…**
  - “What will happen on a deal with Clipper or Suzlon is there will need to be some recourse back to the sponsor…We will not finance a Suzlon-only farm with no- or low-recourse loans. No way.” – Debt Investor A
  - “Maybe it is not additional spread, but I could have 25% of my investment guaranteed by the sponsor.” – Debt Investor B
  - “To do a deal, it wouldn’t be sufficient to get a higher rate or some risk mitigation. You’d need both. Some incremental spread plus some recourse or really solid report from an engineering firm or a corporate guarantee.” – Debt Investor E
  - “Ideally, lenders would love to be able to go to the project sponsor to back up any warranty the vendor can’t support.” – Debt Investor C
- **…and will likely want more of the sponsor’s money in the deal**
  - “If a normal project had a debt service coverage of 1.45, you might require 1.55 for Clipper.” – Debt Investor C
  - “When we finance projects like that we make appropriate adjustments to expected O&M and availability. Thus, there will be reduced cash flows. This will reduce the amount we’re willing to put into a deal relative to some others.” – Equity Investor B
  - “There’s a good chance the amount of leverage would go down.” – Debt Investor G
- **Burden of proof for emerging turbine deals will be higher**
  - “We would have a special concern about the reliability with Suzlon. They would have to establish to our satisfaction that the problems weren’t going to occur again.” – Debt Investor F

Source: Woodlawn Associates interviews

For emerging vendors, first priority must be to establish capability to deal with any issues over the long term

- **Consider tying up with a major industrial company**
  - "I would find a blue chip parent." – Debt Investor D
  - "Bigger companies can make good on the warranty. They have the labor and financial resources to show up overnight to fix any problems that exist. Smaller vendors don't have those resources, and their supply chain relationships may be weaker as well." – Debt Investor B
  - "The easiest way is to be doing it in the context of a big, experienced guy like Siemens." – Equity Investor A
- **Otherwise, strengthen balance sheet**
  - "As a startup, having the balance sheet to stand by the warranty is really important." – Debt Investor G
  - "A new entrant with a strong balance sheet who is willing to provide a really strong five year warranty might be financeable." – Debt Investor C
- **Demonstrate the depth of service expertise in the U.S.**
  - "You have to answer the question about if it doesn't work, who is going to pay. You can do that through warranty terms, having a strong balance sheet, and showing that you have the people to support it." – Developer A
- **Get opinion on technology from an independent engineer**
  - "I'd hire an independent engineer to crawl through my technology and do extensive due diligence and provide an opinion." – Debt Investor G
  - "You are always going to want a GL cert and Garrad Hassan certifying that it is evolutionary technology." – Debt Investor C
  - May also want to write or commission a white paper on the operating performance of turbines

Source: Woodlawn Associates interviews

United Technologies investment in Clipper seen as a step in the right direction, but doesn't satisfy all

Transaction Highlights

- **UTC invested $206M in new shares, with proceeds going to Clipper**
  - Including cash balance as of Dec 31, Clipper has approximately $282M in cash
- **UTC invested additional ~$70M to purchase shares from existing shareholders**
- **As a result of above two transactions, UTC owns 49.5% of Clipper**
- **UTC has appointed five of 12 of Clipper's board members**
- **Board appointed Mauricio Quintana, formerly of UTC, as President & CEO**

- **Many view recent investment as a positive sign for Clipper**
  - "The UTC investment is seen as favorable in terms of UTC doing lots of due diligence and putting a couple hundred million dollars into the company." – Debt Investor C
  - "For Clipper, the UTC deal doesn't fix everything but it is definitely a step in the right direction." – Debt Investor G
  - "The recent marriage of Clipper with UTC was huge…There is still work to be done there, but it is a good sign." – Debt Investor H
- **Others are less impressed. Clipper may want to arrange for UTC to explicitly guarantee their warranty and support**
  - "The United Technologies investment in Clipper was a token gesture [since it was a minority investment]. There is no hook back to UT. " – Debt Investor D
  - "Clipper could have UTC 'wrap' their guarantee." – Debt Investor E

Source: Clipper and United Technologies reports, Woodlawn Associates interviews

Second step for emerging turbine makers is to minimize risks and costs to developers and investors

- **Finance projects on own balance sheet, at least for a few years**
  - "If you have a project up and running that helps. That eliminates the wind risk. Today I would view the wind risk as bigger than the turbine risk, at least for Clipper." – Debt Investor H
  - "They should try to finance a project themselves, with their own balance sheet. Then they should get engineers out to review to see how it is going." – Debt Investor C
  - "If I were Samsung I would just finance a project with equity for a few years, let the engineers crawl all over it to see that it is operating well." – Debt Investor E
- **Develop deep relationships with certain lenders *a priori***
  - "I would have them bring in their relationship banks." – Debt Investor D
  - "You maybe can arrange to have friendly banks. I can easily imaging Samsung coming in and saying, here are some Korean banks. They are doing to finance this project for you." – Developer A
- **Offer pricing that counteracts the higher cost of financing**
  - "I would look to subsidize the financing costs. " – Debt Investor A
- **Take advantage of the government credits and loan guarantees that reduce risk**
  - "I would get the ITC grant, definitely. I'd do an all equity project for one and half years. Then I would get debt financing after I've shown it is good technology." – Debt Investor B
  - "The best option is to get the project and loans approved by DOE under their Section 1705 program. The requirements are onerous. It's not easy but it is probably what you have to go do." – Equity Investor B
  - "I would advise people to focus on the 1703 loan guarantee program." – Debt Investor H

Source: Woodlawn Associates interviews

Finally, emerging turbine vendors should target the right developers

Likely Primarily Financing Type and Presence of Emerging Turbines in Portfolio of Top 15 U.S. Wind Owners

Developer	Owned MW	Likely Finance Type	Many Emerging Turbines in Portfolio?
NextEra	6290	Corporate	Few (Clipper)
MidAmerican	1940	Corporate	No
AES	957	Corporate	No
Shell Wind Energy	449	Corporate	No
Puget Sound Energy	385	Corporate	No
Edison Mission Group	960	Corporate	Yes (Suzlon)
John Deere Wind	527	Corporate	Yes (Suzlon)
Duke	322	Corporate	Yes (Suzlon)
Horizon-EDPR	1873	Project	Few (Suzlon)
Invenergy	1277	Project	No
Pattern Energy*	1119	Project	No
E. On C & R	727	Project	No
enXco	527	Project	No
Terra-Gen Power	369	Project	No
Iberdrola	2063	Project	Yes (Suzlon)

- **Focus on larger developers with own tax appetite and ability to raise debt at corporate level**
  - Less need to use external project financing
- **Even if project finance desired, large sponsor most likely to get financing**
  - "The first question is whether the developer is well capitalized and has the experience to manage any problems that would come up." – Debt Investor H
- **Investors also more open to financing if a project or portfolio is only 10-20% emerging turbines**
  - Larger sponsors more likely to be able to do this
- **However, some large developers with significant number of emerging turbines looking to diversify already**
  - "We have a pretty big chunk of [emerging turbines] already, and we like to have diversified suppliers." – Developer A
  - "It has always been our intent to diversify to spread technology risk…and will continue along those lines until we have a more balanced portfolio." – Developer B
- **Some developers may want to simplify operations by using only one turbine**
  - Certain developers (i.e., Invenergy) appear to follow Southwest Airlines "one model" philosophy

Source: AWEA *Annual Wind Industry Report 2008*, Woodlawn Associates analysis, company reports, Wikipedia
Notes: * Formerly Babcock & Brown
Green highlight = likely to be using corporate balance sheet financing, internal ability to use tax credits, and no or few emerging turbines already in portfolio.
Yellow highlight = likely to be using project financing, few emerging turbines already in portfolio.

About Woodlawn Associates

- **Management consulting firm focusing on high tech, telecommunications, and industrial clients**
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- **Help clients with strategy, M&A, restructuring & turnarounds, channel design**
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For more information:

www.woodlawnassociates.com
+1 (312) 262-1610
info@woodlawnassociates.com