Private Equity Funding of Advanced Biofuels

A European and North American Outlook

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Agenda

• Investment trends

• Objectives and investment opportunities

• Recent deals
Increasing percentage VC/PE investment directed at next generation

$m VC/PE investment

Notes: 1-Gen abbreviates first generation

1st generation targets expansion; next generation aimed at early stage VC/PE biofuel investment by deal type, Q4 2006 to Q4 2008

Notes: 1-Gen abbreviates first generation

Wide range of next generation biofuel operating costs
November 2008: $ per litre

Notes: Esterification, starch fermentation and sugar fermentation are proven commercial technologies. However, the acid hydrolysis, biobutanol, enzymatic hydrolysis and gasification processing costs are projections from pilot-scale.

Sources: New Energy Finance (v9.01), Hylander, BlueFire Ethanol, NREL and Soloman

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Industry players targeting substantial cost reductions
NREL enzymatic hydrolysis operating costs: $ per litre

Notes: NREL’s operating costs essentially represent only the enzymatic hydrolysis technology

Sources: New Energy Finance and NREL, 2007
Next generation investment focused on North America
Number of VC/PE deals, Q4 2006 to Q4 2008

“Significant” investors targeting next generation biofuel opportunities
Q4 2006 to Q3 2008: number of deals

- Khosla Ventures: 16 deals
- Kleiner Perkins Caufield & Byers: 7 deals
- Flagship Ventures: 4 deals
- Advanced Equities: 3 deals
- Arch Venture Partners: 3 deals
- Capricorn: 3 deals
- Draper Fisher Jurvetson: 3 deals
- Quercus Trust / David Gelbaum: 3 deals
- Vantage Point Venture Partners: 3 deals
- General Motors: 2 deals

In summary

- Increasing % VC/PE investment directed at next generation biofuels
- 1st generation targets expansion; next generation aimed at early stage
- Wide range of next generation biofuel operating costs
- Industry players targeting substantial cost reductions
- VC/PE investment focused on North America
- Significant investors targeting next generation biofuel opportunities

- New Energy Finance monitors how & who moving to demo. scale
- Examining where most value will come from biomass