



Biofuel Project Finance

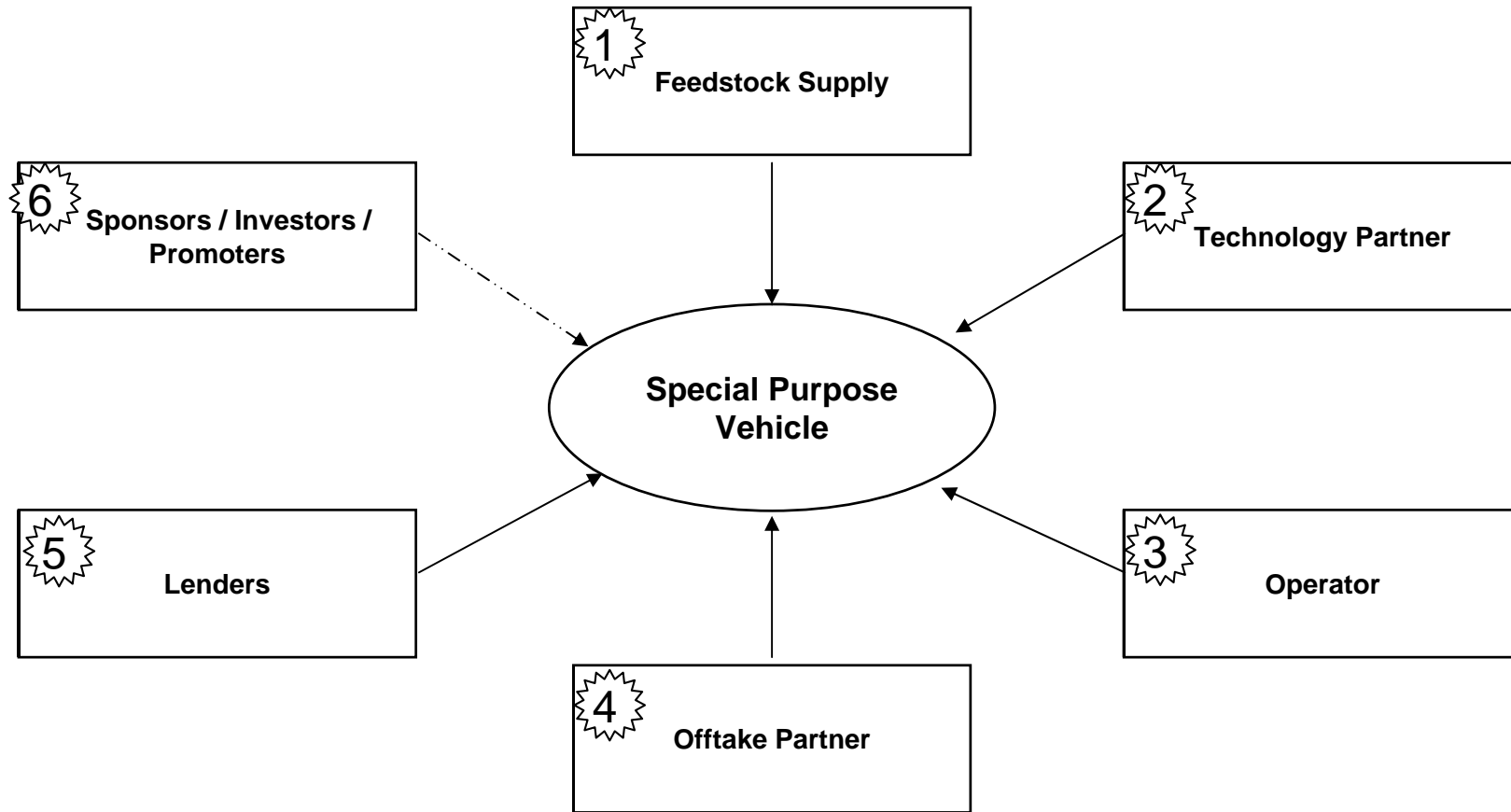
African Biofuels Conference

Date: 1 December 2006

Contents

- I. Limited Recourse Financing
- II. Feedstock Supply
- III. Technology Partners and Plant Operators
- IV. Offtake - Biofuels and By-products
- V. Lending Considerations
- VI. Other Critical Issues
 - I. Commercial Viability
 - II. Government Support
- VII. Involvement of Small-scale Farmers
- VIII. Providing a Seamless Financing Solution

Limited Recourse Financing



Limited Recourse Financing involves 'ring-fencing' cash-flow and risk areas, and allocating responsibility for risk areas to appropriately resourced and experienced companies.

Feedstock Supply - Ethanol

Feedstock	Current Production	Conversion Ratio Tons per Ha	Potential Contribution to Biofuel Supply	Issues
Sugar Cane	21m tons - 50% exported	Approximately 8% Average 65 tons per hectare	880,000 tons from export market Possible additional 104,000 tons	-Ethanol prices pushing up sugar prices globally -Grower-miller relationships -Use of molasses -Co-generation + fertiliser production
Maize	6.3m tons 2005/6 12.2 m tons 2004/5	Approximately 33% Average 3 tons per hectare	Average 3m ton surplus = 990,000 tons	-DDGS -CO2 savings
Other feedstocks: Wheat (SA net importer), Sugar Beet (no history of SA production), Sweet Sorghum (no history of SA production)				

Critical risk areas: price volatility, feedstock market liquidity, supply chain visibility, force majeure, global market dynamics, EU / US subsidies.

Feedstock Supply - Biodiesel

Feedstock	Current Production	Conversion Ratio Tons per Ha	Potential Contribution to Biofuel Supply	Issues
Soya	424,000 tons	Approximately 20% Average 1.76 tons per Hectare	Currently none domestically, SA net importer of soya oilcake	-SA high cost producer -Import replacement of soya oilcake -Low value crop
Canola	32,000 tons	Approximately 35-42% Average 1.7 tons per hectare	Currently none	-Possible E. Cape production
Sunflower	520,000 tons	Approximately 30% Average 1.10 tons per hectare	Currently none	-Low value crop

Critical risk areas: price volatility, feedstock market liquidity, supply chain visibility, force majeure, global market dynamics, EU / US subsidies.

Technology Partners and Plant Operators

Technology Partners	Plant Operators
<ul style="list-style-type: none">• Reputable<ul style="list-style-type: none">– Proven technology, references– Turnkey contracts with performance and completion contracts• Long-term involvement<ul style="list-style-type: none">– Possibly equity participation• Global experience, local knowledge and approach<ul style="list-style-type: none">– Well-developed R&D– Empowerment– Capacity for roll-out• Cost of technology, efficiency, flexibility<ul style="list-style-type: none">– Multi-feedstock– Quality and suitability of by-products	<ul style="list-style-type: none">• Experienced management• Technical expertise<ul style="list-style-type: none">– Bioethanol production is a biological process– Biodiesel production includes crushing and oil expelling• Lifecycle approach to plant operations and management• Often good to have the technology supplier as the plant operator, or involved in establishing plant operations

In a fledgling industry R&D infrastructure, global technology and networks, and substantial knowledge of the local environment are crucial risk mitigators.

Offtake – Biofuels and By-products

Primary Products: Biofuels	By-Products
<ul style="list-style-type: none">• Contracts for term of debt• Quality of offtakers<ul style="list-style-type: none">- Creditworthiness- Market access• Price, volume and exchange rate risks<ul style="list-style-type: none">- Market trends in international markets	<ul style="list-style-type: none">• Livestock sector:<ul style="list-style-type: none">– Market absorption analysis<ul style="list-style-type: none">- DDGS uptake often overstated- Limited oilcake market- By-product prices often critical to project bottom-lines• Other:<ul style="list-style-type: none">– Co-generation possibilities– Glycerine<ul style="list-style-type: none">- Depressed market prices

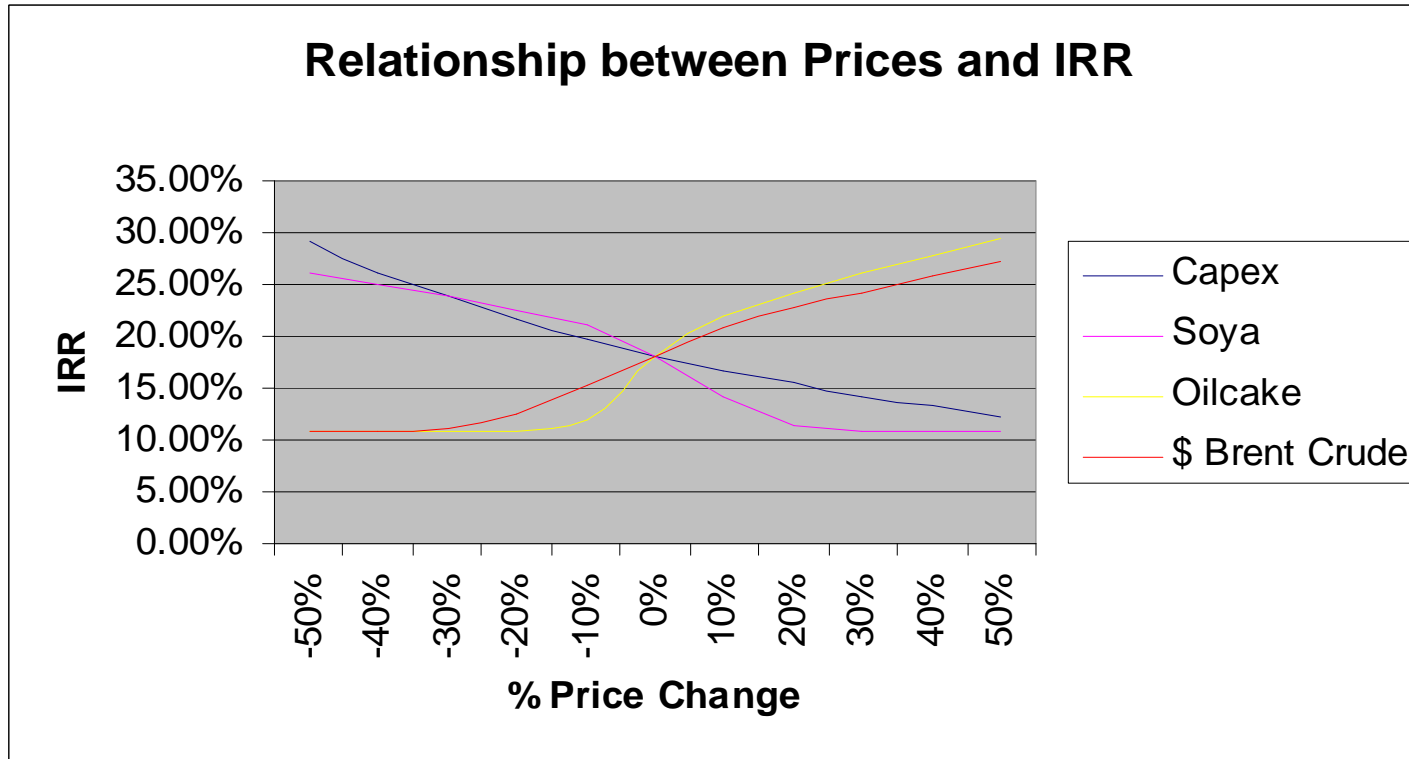
Careful consideration needs to be given to:

- 1. Biofuel price competitiveness in domestic and international markets.**
- 2. The impact of biofuel demand on both feedstock and by-product prices.**
- 3. The strategic re-alignment of the livestock and other by-product industries.**

Lending Considerations

1. Projects funded on a limited recourse project finance basis
2. Special purpose vehicle established to house project:
 - Ringfence cash flows (dedicated to project)
 - Contain risks
 - No other business activities other than biofuels activity
 - Step-in rights to lenders
3. Mitigate risks by allocating to parties best equipped to deal with these
4. Cash flows to be secured by offtake arrangements
5. Debt : Equity determined by:
 - Risk profile of transaction
 - Debt capacity ascertained by cash flows projected on a conservative set of parameters
6. Types of debt funding:
 - Senior bank debt, subordinated / mezzanine debt, convertible debt

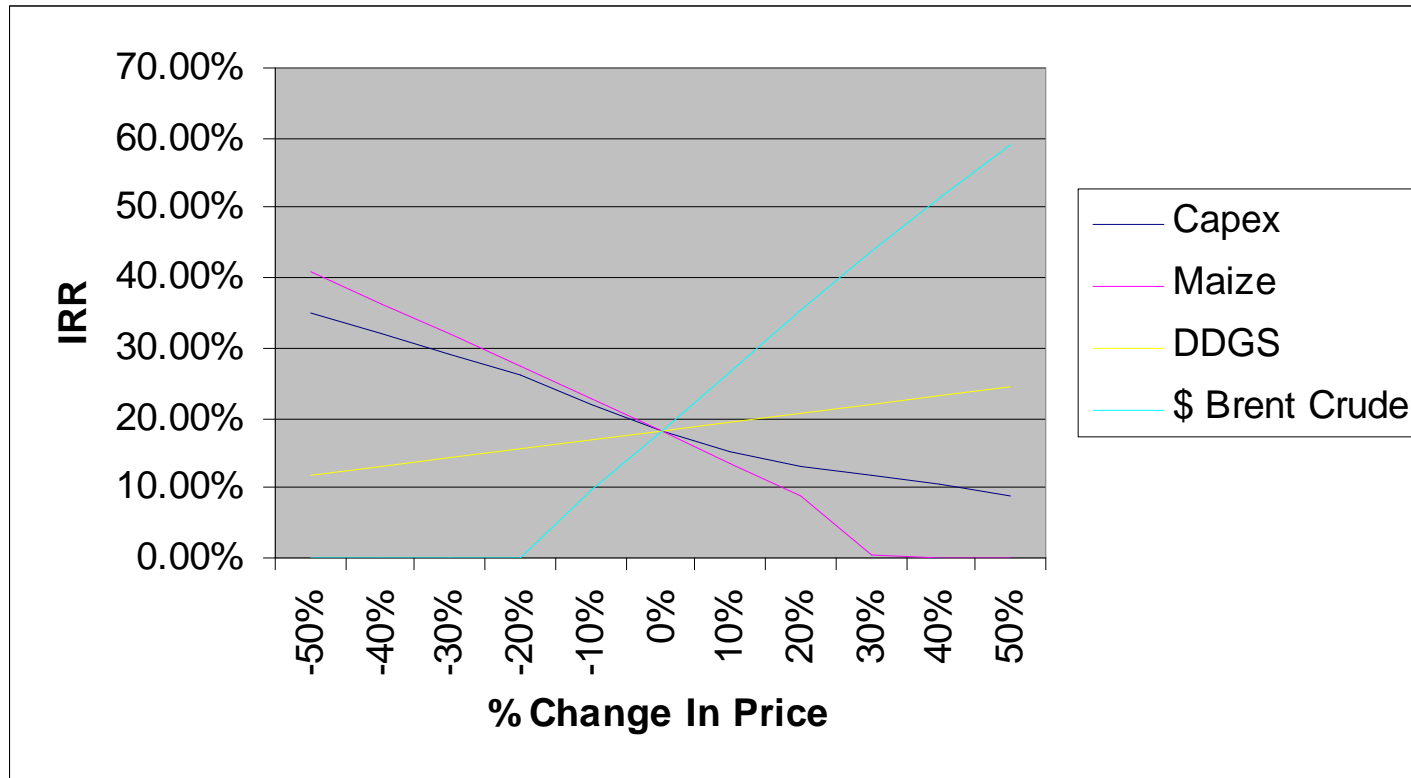
Other Critical Issues: Commercial Viability of Biodiesel Production



Capex	Soya	Oilcake	\$ Brent Crude
646,193,889	812.3901	3,099	\$60.39

IRR	18%
-----	-----

Other Critical Issues: Commercial Viability of Ethanol Production from Maize



Capex	Maize	DDGS	\$ Brent Crude
645,000,000.00	1000	760.00	56.81

IRR 18%

Other Critical Issues: Government Support

No Incentives	With Incentives
<ul style="list-style-type: none">• Ethanol production<ul style="list-style-type: none">– 290m lt from yellow maize– 900m lt imported• Biodiesel production<ul style="list-style-type: none">– 40m lt from soya beans– 400 m lt imported• Very little BEE farmer establishment<ul style="list-style-type: none">– Cannot compete against imports<ul style="list-style-type: none">- Biofuel crops are generally not high revenue earners– But BEE participation likely at higher levels in value chain• Refinery investment<ul style="list-style-type: none">– R5.4bn – without innovative project structuring	<ul style="list-style-type: none">• Ethanol production<ul style="list-style-type: none">– 1bn lt from commercial farmers– Potential 200m lt from BEE farmers– Potential for 17 000 maize farm-level jobs by 2015• Biodiesel production<ul style="list-style-type: none">– 250m lt from established farmers– Potential 200m lt from BEE farmers– Potential for 38 500 farm-level jobs by 2015• BEE farmer participation<ul style="list-style-type: none">– Appropriately structured projects needed– Cost-plus feedstock procurement structures– Aggressive farmer outreach and support programme needed• Refinery investment<ul style="list-style-type: none">– R7.7bn with innovative project structuring

Biofuels are poised to unlock investment into agriculture and ensure BEE success, provided government supports appropriately structured investment projects.

Participation of Small-Scale Farmers – Massification Programme

The Massification Concept
<ul style="list-style-type: none">– Grouping of small-scale farmer in large projects– Includes build, operate and transfer type agreements– Setting up farmer co-operatives to create economies of scale for:<ul style="list-style-type: none">- training- funding- mechanisation- marketing- transport

Biofuel Production
<ul style="list-style-type: none">• Energy crops ideal for massification<ul style="list-style-type: none">– High volumes, relatively low risks, liquid markets– Long production history– Can be stored and transported cost effectively – no requirement for cold chain maintenance etc.– Allow for large-scale regional production• Biofuel projects can facilitate rural development<ul style="list-style-type: none">– Create a stable, bankable base of emerging farmers– Can be rotated with higher value cash crops and other biofuel crops– The livestock industry may benefit from increased animal feed supply

The empowerment of small-scale farmers can create competitive advantages for the biofuels industry

Providing a Seamless Finance Solution

