FINANCING BIOGAS PROJECTS

3rd NATIONAL BIOGAS CONFERENCE

Raoul Goosen– Industrial Infrastructure SBU, IDC
Contents

- Overview of IDC
- Industrial Infrastructure Unit - Energy
- IDC Funding Criteria
- IDC Processes in Assessing Clean Energy Projects for Investment
- Funding Structures
- **Due Diligence Checklist**
  - Green Funding
  - Biogas project specific issues
Overview of IDC

- **Established:** 1940
- **Type of organisation:** Development Finance Institution (DFI)
- **Ownership:** State owned company, 100% owned by the SA government
- **Total assets:** R129.8 billion (31 March 2017 - group)
- **Total liabilities:** R41.5 billion (31 March 2017 - group)
- **Main business area:** Providing funding for entrepreneurs and projects contributing to industrialisation
- **Geographic activities:** South Africa and the rest of Africa
- **Products:** Custom financial products above R1m to suit project’s needs including debt, equity, guarantees or a combination of these
- **Stage of investment:** Project identification and development, feasibility, commercialisation, expansion, modernisation
- **Number of employees:** 816 (December 2016)

**Operational Footprint:**
- Head Office - Johannesburg
- 20 Regional and Satellite offices
The funding model of IDC is based on it being self-sustainable.

**IDC IS FUNDED THROUGH:**

- Internal profits
- Divestment of mature investments
- Borrowing in domestic and international markets

**LOAN FUNDING**

- Interest repayments
- Capital repayments

**EQUITY FUNDING**

- Dividend receipts
- Capital growth and realisation

Proceeds from this funding are used to repay borrowings, cover our costs and grow our balance sheet to re-invest in future business.
Value Chains are earmarked for special attention including proactive project development, whilst High Impact Sectors are exclusively reactive.
Analysis of the Biogas Feedstock Database shows a total captured potential of 2,985,150 Nm³/day. The majority of the sources is located in and around South Africa’s urbanised areas. With a share of 38% the Municipal Solid Waste Sector is the largest contributor.

**Biogas sources per sector**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Biogas potential (Nm³/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit Processing</td>
<td>0.21%</td>
</tr>
<tr>
<td>Brewery</td>
<td>0.36%</td>
</tr>
<tr>
<td>Abattoir</td>
<td>1.27%</td>
</tr>
<tr>
<td>Pulp &amp; Paper</td>
<td>6.91%</td>
</tr>
<tr>
<td>Municipal Waste Water</td>
<td>7.27%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>13.77%</td>
</tr>
<tr>
<td>Sugar Production</td>
<td>32.35%</td>
</tr>
<tr>
<td>Municipal Solid Waste</td>
<td>38.07%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>38.07%</strong></td>
</tr>
</tbody>
</table>

Local governments in South Africa control and/or operate a large share of the country’s potential biogas for transport sources, making it ideally positioned to drive the large scale uptake of biogas as a transport fuel.
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Industrial Infrastructure Strategic Priorities

**ENERGY**

**CONVENTIONAL:**
Coal, gas, nuclear

**RENEWABLES:**
Solar, wind, hydro, biomass, biogas

**NON-CONVENTIONAL:**
Co-generation, waste-to-energy, geothermal, wave, hydrogen/fuel cells

**FUELS:**
Liquid petroleum fuels, biofuels, natural gas

**INFRASTRUCTURE:**
Power transmission & distribution lines, energy storage, oil & gas

**EXCLUSIONS**
Electrification: Household

**LOGISTICS**

**LAND:**
Road, rail, rope-ways, shared storage (cold, silos), terminals, industrial hubs

**MARINE:**
Ports/terminals, shipping/cargo, waterways, offshore facilities, port facilities, marine storage

**AIR:**
Ports/terminals, cargo

**EXCLUSIONS**
PUBLIC TRANSPORT
Cars, taxis, trucks, trains

COMMERCIAL AIRLINES

COMMERCIAL SHIPS
Yachts, cruise-liners, boats

**WATER**

**STORAGE:**
Reservoirs, dams

**TRANSPORTATION:**
 Pipelines

**TREATMENT:**
Desalination, waste water, fresh water

**BULK SERVICES:**
Irrigation systems, pump stations

**EXCLUSIONS**
SANITATION: end-user infrastructure

**EXCLUSIONS**
Internet services
Data centres

**TELECOMS**

**BROADBAND:**
Fibre, wireless, transmission equipment, open access/shared
IDC in Green Energy (excl. REIPP) : R1.7 bn

Biogas has made up 75% of “waste” to energy projects
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Funding criteria – mandate, etc

• Funding is provided to projects & Pte Sector (*NOT para-statals or sovereigns*)

• Finance is available for the establishment of new businesses, and for the expansion or rehabilitation of existing businesses

• Business case must exhibit *economic merit* (*i.e. in addition to development impact, it must be profitable/ sustainable and capable of repaying its debt*)

• Credible operator/ technical partner

• Adequate financial structure / *debt-to-equity ratio* (*with reasonable contribution by promoters*)

• Strict environmental compliance

• Minimum project size, ca R 5 mil (*higher for SADC, RoA*)
Other key factors:

- Assist Black Industrialists, Youth, Women, BEE and broad based/community/workers equity
- Localisation of equipment
- Jobs focus
- Regional development
- Rural development
- Green
- Water saving

BIOGAS CAN TICK A NUMBER OF THESE BOXES
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Deal origination, assessment and post-investment

**Pipeline**
- Applications from existing/prospective businesses
- Proactive identification and development of projects

**Screening**
- Basic assessment
- Pre-feasibility

**Assessment and decision**
- Detailed due-diligence/feasibility study assessing development impact and sustainability of opportunities:
  - Development outcomes
  - Market for products/services
  - Technical viability and competitiveness
  - Financial viability
  - Management
  - Legal
  - Environmental impact
  - Etc.

**Implementation and monitoring**
- Legal agreements
- Meeting conditions
- Disbursement
- Ongoing monitoring of client performance after funding is disbursed
- Interventions in businesses experiencing difficulties:
  - Business support
  - Restructuring of facilities
  - Etc.

**Structuring of funding depending on client’s needs**

**Approval of viable transactions at appropriate committee**
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<table>
<thead>
<tr>
<th>Ownership Structure – the Lender?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ownership</strong></td>
</tr>
</tbody>
</table>
| **No SPV** | Low transaction complexity  
Owning the upside  
Cost of debt could be lower | Cost of feasibility study  
Balance sheet burden  
Project execution burden (can outsource)  
Technical risks  
O&M responsibility & risks |
| **Host-owned On-balance Sheet** |  |  |
| **SPV** | Off-balance sheet funding  
SPV pays feasibility study cost  
IDC could share in FS cost  
Shifts technical and O&M risk | Project Finance documentation  
Cost of Debt Service Reserve  
Buyer default obligations  
Could disqualify Tax benefits |
| **Project Finance Limited recourse** |  |  |
| **1. 100% IPP – owned** | Share in upside  
Knowledge of IPP developer | Requires all the PF structures |
| **2. Partly Host-owned** |  |  |
| **3. 100% Host-owned** | Owns the upside  
Can sell-down or re-finance  
Can structure good balance of risk | Requires all the PF structures  
No IPP knowledge |
## Balance Sheet vs Limited Recourse (project finance)

<table>
<thead>
<tr>
<th>Salient Terms</th>
<th>Balance Sheet</th>
<th>Limited Recourse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debt Tenure</strong></td>
<td>3- 8 Years Capital and interest moratorium during construction</td>
<td>Depending on PPA tenure, also 5-15 years and moratorium</td>
</tr>
<tr>
<td><strong>Debt Pricing</strong></td>
<td>IDC risk pricing model Expect to be lower</td>
<td>IDC risk pricing model Expect to be higher</td>
</tr>
<tr>
<td><strong>Percentage Contribution</strong></td>
<td>Up to 100% of Project cost if balance sheet retains 40% own funds as % of total funds.</td>
<td>Debt: Equity 70:30 IDC: 26 - 49% of equity ca.50% of debt</td>
</tr>
<tr>
<td><strong>Covenants</strong></td>
<td>Balance sheet borrowing Dividends and shareholder loan repayments to retain 40% ownership structure</td>
<td>Strict cash waterfall with lock-up debt service cover ratio (DSCR) and loan life cover ratio (LLCR)</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Suspensive sale and collateral: GNB, SNB, Mortgage and parent company guarantee</td>
<td>Complete step-in rights and cession over all project agreements DSRA</td>
</tr>
</tbody>
</table>

**Biogas projects are generally too small for full limited recourse, so are often a hybrid**
## Project Finance (Limited Recourse)

<table>
<thead>
<tr>
<th>Terms</th>
<th>Consideration</th>
</tr>
</thead>
</table>
| **Debt Tenure and repayment profile** | • Tenure and repayment profile has a direct influence on the tariff  
  • *Generation projects require long term debt, typically 10-15 years (Current norm for biogas projects)*  
  • Host remains the obligor and banks may limit to shorter if not AAA-rated  
  • IDC inclined to provide longer term debt based on underlying development |
| **Buyer Default Termination**  | • *Financiers require that Buyer (Host) repays the loan if it defaults on the PPA*  
  • amount or formula to calculate is usually written into the agreement  
  Needs a note on their balance sheet |
| **DSRA (Debt service reserve account)** | • An account is funded that equates to one semi-annual debt repayment  
  • For cyclical industries, this may be increased to two payments  
  • This adds to capital cost of implementation and thus reflects in tariff |
| **Project Finance Agreements** | • Power/Energy Purchase agreement  
  • Fuel/Waste supply agreement  
  • Site lease and access agreement  
  • Facilities agreement – water and power  
  • Financier direct agreement |
### Contracting Methodology (Key Factors)

<table>
<thead>
<tr>
<th>Attributes</th>
<th>EPC</th>
<th>EPCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountability</td>
<td>Contractor fully accountability</td>
<td>Owner has multiple points of accountability</td>
</tr>
<tr>
<td>Quality/Performance Guarantee</td>
<td>Contractor guarantees performance of complete facility</td>
<td>Contractor does not provide guarantees. Direct exposure to all subcontractors</td>
</tr>
<tr>
<td>Risk</td>
<td>Contractor holds risk</td>
<td>Owner holds risk</td>
</tr>
</tbody>
</table>

**Biogas projects under capital cost pressure opt for EPCM contracts exposing financiers to terms of all subcontractors**
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• **Due Diligence Checklist**

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DUE DILIGENCE CHECKLIST : GENERAL

- Project Information Memorandum
- Project structure diagram (all key stakeholders: Lenders, Shareholders, Contractors, Concessionaire, etc) detailing project gearing
- Shareholder organogram
- **Sponsors background and experience**
- **Technical partner background and experience**
- Project timeline
- **Schedule of all project risks and mitigants**
- BEE Entity (& BBBEE)
  - (i) ownership (%SH, % black S/H, Male or Female, Youth, SA/non-SA, etc.), (ii) management team, (iii) value add to project / operational involvement, (iv) ZAR value of own contribution to project
- Completed FICA checklist
- Acknowledgement letter for credit check
DUE DILIGENCE CHECKLIST : TECHNICAL

• Detailed technology description
• Key contractors (EPC, O&M, etc) detailed background and experience
• Lenders Technical Advisor fatal flaw analysis – IDC can do internally
• Feedstock analysis and quantity measurements
• EPC heads of terms for a fixed price and date certain construction of the facility
  – security package (performance bond, parent guarantees, advance payment guarantees, etc)
  – penalties - delay, performance, aggregate liquidated damages thresholds
  – price
  – implementation schedule
  – defects period & testing regime
  – Spares, termination, etc
• O&M heads of terms
• Equipment supplier profile and heads of terms (if applicable)
• Structure of EPC and OM if JV with BEE party
• Management Services Agreement including fee
• Construction and operations jobs - detailed breakdown (number and months)
• Local content % and breakdown of local components
DUE DILIGENCE CHECKLIST

MARKETING – ALL REVENUES

• Power//Heat/Gas/Digestate Purchase Agreement/s
• Demonstration of off-takers ability to fulfil offtake – business case for power demand, affordability, sustainability etc
• Waste Gate Fee and Supply Agreements – long term, guarantee

LEGAL/REGULATORY

• Shareholders Agreement
• Company constitutional documents, including Memorandum of Incorporation
• Land use agreement i.e. lease agreement
• Environmental Impact Assessment and accompanying Environmental Approval
• Permits, Licences (Waste Licence, WUL) and Authorizations
• **Base case financial model (BCFM) with no expected material changes comprised of at least the following:**
  – Inputs sheet that contains all financial, revenue and technical assumptions;
  – Detailed capital cost estimates and proposed capital draw-down schedule;
  – Monthly construction and operations workings
  – Quarterly model forecasting income statement & balance sheet for duration PPA;
  – Debt schedule with monthly capital and interest repayments – shorter than PPA;
  – A quarterly cash flow statement

• **Key financial covenants in BCFM per Lender term sheets – DSCR, LLCR, PLCR**

• **Sensitivity analysis** – minimum prescribed sensitivities: COD delay (factoring penalties where applicable); changes in output, capex, opex, interest rates, inflation, foreign exchange, working capital assumptions, etc

• Financial summary including a source and application of funds, key ratios, project and equity returns

• Fully funded project supported by terms sheets

• Full details of source of equity holders’ funds (i.e. cash on hand, sale of asset, ultimate shareholder cash/borrowings etc.)
• Development cost breakdown – to be audited prior to Financial Close
• Development fee breakdown (if applicable)
• Proposed insurance package & quotation for contract, including key cover terms
• Off-takers audited Annual Financial Statements – 2 years
• Sponsors/shareholders Annual Financial Statements – 2 years
• Technical Partner, EPC, O&M Annual Financial Statements – 2 years
• Entity providing Parent Company guarantee AFS – 2 years
• Finance department walkthrough, including internal controls (For SPV, detail internal controls to be put in place)
• Details of company auditors [Applicant]
• Bank facility letter(s) (detailing all facilities available, security, interest rates/fees and other terms)
• All loan agreements [Applicant]
• Details of all off balance sheet funding/arrangements [Applicant]
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Objective:

• To provide finance to renewable energy and energy efficiency projects of smaller scale and manufacturing of Green products in South Africa

Qualifying Criteria:

Renewable Energy (RE)

• Solar and biomass; and
• Other technologies are considered on a case by case basis.

Energy Efficiency (EE)

AFD funds are blended at a leverage level of at most 50% funding from IDC

No refinancing.
**Instruments and Pricing**

- Total investment cost not higher than R250 million per project;
- Normal risk pricing with a cap of Prime + 1.6% or an equivalent fixed rate;
- Minimum investment period of 3 years;
- Maximum payback based on energy savings of 8 years; and
- Standard IDC fees apply.
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Revenue: Market Pull

- **Electricity Offtaker - No open electricity market with free market (competitive prices)**
  - A. Government programs (IPP’s under REIPPP)
  - B. Embedded Generation etc for host
  - C. IPP’s with willing buyers - wheeling

- **What else?**
  - MiniGrids (Only 88% of households access to electricity) – **Not bankable**
  - Distributed Renewable Energy Technology (DRET)
  - Gas for transportation fuel or commercial usage - Price Risk

- **Other sources of revenue?**
  - Gas
  - Heat
  - Digestate - fertiliser
  - Waste, Gate/Disposal Fee

*Lack of biogas specific market/investment incentives - there are Tax Incentives, such as accelerated depreciation (50:30:20) and 12L of 95c/kWh possible*
Biogas: Can it assist other renewables & grid?
Biogas and Solar PV Hybrid: Peak production
Biogas and Solar PV Hybrid: 24 hour balance
Biogas Project Issues

• VIABILITY: eg. reduced CapEx in SA due to lower revenues & gate fees

• Small size makes full recourse project finance limited, so requires some form of balance sheet support or other guarantees

• Recover capital cost during operations phase – longer tenure, sculpting

• Technology support and local skill development - lack of Technology Suppliers with Balance Sheets

• Project development expertise and funding - limited developer equity balance sheet support to projects, so insurance schemes

IDC requirements

• Local content, Job creation

• BEE, BBBEE & Corporate Social Invest requirements, eg. Black Industrialist policy
Thank you