"INOGATE Technical Secretariat & Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives" Project

BUILDING PARTNERSHIPS FOR ENERGY SECURITY

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EXAMPLES OF LENDING FOR EE/RES

AHEF BY.085 WORKSHOP:
“Capacity building for financing of EE / RES projects”

December 09-013, 2013
Minsk, Belarus

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EE / RE Source Financial Training & Research Expert, INOGATE TS
Industrial boilers serve for production of heat in the form of hot water or steam
To receive hot water and steam, a company uses a gas-fired boiler. **Total annual costs – 523 426 $**

**PROJECT IDEA**

**UPGRADE**

With minimal capital investments

Heavy and/or comprehensive

**TECHNOLOGY**

Switch to biofuel or biogas

**INVESTMENT PROJECT**

Cost estimate – **1 000 $/kW**

Cost of equipment ~ 60-70% of the project value
<table>
<thead>
<tr>
<th>Loan Terms</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan amount</td>
<td>650 000 $</td>
</tr>
<tr>
<td>Period</td>
<td>60 months</td>
</tr>
<tr>
<td>Interest rate</td>
<td>12%</td>
</tr>
<tr>
<td>Installment schedule</td>
<td>Equal parts</td>
</tr>
<tr>
<td>Grace period</td>
<td>6 months</td>
</tr>
<tr>
<td>Repayment schedule</td>
<td>Equal parts</td>
</tr>
<tr>
<td>Pledge</td>
<td>Property, equipment</td>
</tr>
<tr>
<td>Annual savings</td>
<td>120 388 $</td>
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<tr>
<td>Payback period</td>
<td>65 months</td>
</tr>
</tbody>
</table>

Electricity – 0.05 $/kWh
Gas – 0.13 $/m³
INVESTMENT STRUCTURE, $

Core equipment: 429 000; 66%

Construction: 91 000; 14%

Ancillary equipment: 45 500; 7%

Commissioning / adjustment: 13 000; 2%

Design works: 52 000; 8%

Infrastructure: 19 500; 3%
Cogeneration allows for a reliable and independent energy supply system and ensures a reserve for expansion of production capacities.
An enterprise uses electricity and hot water from external suppliers. The total annual costs – 614 550 $.

**OBJECTIVE of the PROJECT**

- Reducing the costs of consumed energy
- Ensuring an independent energy supply

**PROPOSED SOLUTION / TECHNOLOGY**

- Purchase of a cogeneration unit

**INVESTMENT PROJECT**

- Cost estimate – 1 000 $/kW
- Cost of equipment ~ 60-70 % of the project value
**LOAN TERMS**

<table>
<thead>
<tr>
<th>Loan amount</th>
<th>750 000 $</th>
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<tbody>
<tr>
<td>Period</td>
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<td>Interest rate</td>
<td>12%</td>
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<tr>
<td>Installment schedule</td>
<td>Equal parts</td>
</tr>
<tr>
<td>Grace period</td>
<td>6 months</td>
</tr>
<tr>
<td>Repayment schedule</td>
<td>Equal parts</td>
</tr>
<tr>
<td>Pledge</td>
<td>Property, equipment</td>
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<tr>
<td>Annual savings</td>
<td>202 800 $</td>
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<tr>
<td>Payback period</td>
<td>44 months</td>
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</tbody>
</table>

**Electricity** – 0.05 $/kWh

**Gas** – 0.13 $/m³
INVESTMENT STRUCTURE, $

Core equipment: 472 500; 63%

Infrastructure: 22 500; 3%

Ancillary equipment: 67 500; 9%

Construction: 142 500; 19%

Commissioning / Adjustment: 7 500; 1%

Design works: 37 500; 5%
Refrigerator compressors ensure circulation and compression of coolant in the refrigerating system. A subcategory of refrigerating machines is absorption refrigerating machines based on the direct conversion of heat energy into the cold inside the unit.
An enterprise uses electricity for operation of the refrigeration unit. **Total annual costs – 356 340 $**

**PROJECT IDEA**

**OBJECTIVES of the PROJECT**

- Reduction of the cost capital investments
- Utilisation of cheaper feedstock

**PROPOSED SOLUTION / TECHNOLOGY**

- Installation of a rotary compressor

**INVESTMENT PROJECT**

- Cost estimate – 100-150 $/kWh of cold
- Cost of equipment ~ 75-85 % of the project value
## LOAN TERMS

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Loan amount</td>
<td>437,000 $</td>
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<tr>
<td>Period</td>
<td>60 months</td>
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<tr>
<td>Interest rate</td>
<td>12%</td>
</tr>
<tr>
<td>Installment schedule</td>
<td>Equal parts</td>
</tr>
<tr>
<td>Grace period</td>
<td>6 months</td>
</tr>
<tr>
<td>Repayment schedule</td>
<td>Equal parts</td>
</tr>
<tr>
<td>Pledge</td>
<td>Property, equipment</td>
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<tr>
<td>Annual savings</td>
<td>203,110 $</td>
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<td>Payback period</td>
<td>27 months</td>
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</tbody>
</table>

- **Electricity** – 0.05 $/kWh
- **Gas** – 0.13 $/m³
INVESTMENT STRUCTURE, $

- **Core equipment:**
  - 332,120; 76%

- **Infrastructure:**
  - 8,740; 2%

- **Design works:**
  - 21,850; 5%

- **Commissioning / Adjustment:**
  - 8,740; 2%

- **Ancillary equipment:**
  - 26,220; 6%

- **Construction:**
  - 39,330; 9%
THANK YOU !!!

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