Financing High-Efficiency Cogeneration in Romania

February, 2015
Established in 1990 by taking over the commercial banking operations of the National Bank of Romania

- Most important financial group in Romania:
  - Assets: EUR 15bn
  - Customers: 3.2mn
  - Market Share: 18% → market leader

BCR is the most valuable financial brand in Romania, according to level of customer trust and number of clients.

Since 2006 a member of Erste Group

- Erste Group was founded 1819 as the first Austrian savings bank.
- Since 1997 Erste Group has developed into one of the largest financial services providers in Central and Eastern Europe,
  - 46,000 employees, 16.5mn clients, 2,900 branches in 7 countries

Erste Group: EUR 7.5bn investment in Romania, through BCR or direct investments

- BCR has doubled the volume of its outstanding loans since 2006;
- BCR has been the main supporter of the Prima Casa program (60% market share for Prima Casa 4)
- 2013 Erste Group Net Profit: EUR 61mn
Energy projects

Selected credentials

Energy Sector key interest for BCR and ERSTE Group, as it plays a very important role in the development, sustainability and security of Romania

Private sector

High Efficiency Cogeneration Projects:
► 42 MWe + 110 MWt

Renewable Energy Projects:
► 410 MWe

Public sector

Thermal Power Projects:
► 990 MWe producing only power
► 82,1 MWe and 1,151 MWt producing in cogeneration
► 90 MWt producing only heat
Thermal system in Romania

Overview

Evolution:

<table>
<thead>
<tr>
<th>Year</th>
<th>Capacity (MW)</th>
<th>Households Connected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>4,000</td>
<td>2.7 mil</td>
</tr>
<tr>
<td>2014</td>
<td>3,600</td>
<td>1.3 mil</td>
</tr>
</tbody>
</table>

(more than 200 cities abandoned the DHS during 1989 - 2014)

Issues:

- Oversized Installed Capacity in Romania;
- Massive Disconnections (every year 2-5% of total number of flats turn to Individual heating systems);
- Cogeneration used in only 20 out of 95 Cities with DHS;
- Regulated Prices in order to protect the Consumer;
- Subsidized System, maintaining the inefficiency;
- Obsolete CHPP and Distribution Networks with Technological Losses of 35-77%;
- Lack of Funds from Local Authorities for DHS Rehabilitation;
- New Environmental Constrains for 2016.

Average heat production cost (RON/Gcal)

- 2011: Household Price 316, Subsidy 69%, Total Cost 324
- 2012: Household Price 324, Subsidy 66%, Total Cost 336
- 2013: Household Price 336, Subsidy 33%, Total Cost 337
- 2014: Household Price 337, Subsidy 37%

Source: ANRSC

Heat price - EU comparison (USD/Gcal)

<table>
<thead>
<tr>
<th>Country</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romania</td>
<td>96.1</td>
<td>78</td>
<td>71.4</td>
<td>60.4</td>
</tr>
<tr>
<td>Germany</td>
<td>78</td>
<td>71.4</td>
<td>60.4</td>
<td>52.8</td>
</tr>
<tr>
<td>Finland</td>
<td>60.4</td>
<td>52.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ANRSC
Thermal system in Romania

Overview

- **Total Heat Consumption decreased from 59 mil Gcal in 1992 to 14 mil Gcal in 2013** due to industry contraction and disconnections of residential consumers (switch to individual heating solution boomed 2000-2004).

- **Frequent Insolvency and Bankruptcy for both Heat Producers and Distributors**: Braila, Bacau, Piatra-Neamt, Suceava, Galati, Brasov, Iasi, Drobeta Turnu Severin.

- According the ANRSC the thermal system in Romania is close to bankruptcy: **Cumulated Debt is of app RON 5.5bn vs. Cumulated Receivables of app RON 1.97bn.**

### Household Consumption (million Gcal)

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>25.7</td>
</tr>
<tr>
<td>2000</td>
<td>26</td>
</tr>
<tr>
<td>2005</td>
<td>15.3</td>
</tr>
<tr>
<td>2010</td>
<td>11.3</td>
</tr>
<tr>
<td>2011</td>
<td>11.2</td>
</tr>
<tr>
<td>2012</td>
<td>9.6</td>
</tr>
<tr>
<td>2013</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: ANRSC

### Connection Rate to DHS

<table>
<thead>
<tr>
<th>City</th>
<th>2008</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bucharest</td>
<td>82%</td>
<td>82%</td>
</tr>
<tr>
<td>Timisoara</td>
<td>72%</td>
<td>52%</td>
</tr>
<tr>
<td>Ploiesti</td>
<td>92%</td>
<td>77%</td>
</tr>
<tr>
<td>Giurgiu</td>
<td>95%</td>
<td>35%</td>
</tr>
<tr>
<td>Zalau</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Resita</td>
<td>17%</td>
<td>0%</td>
</tr>
<tr>
<td>Paroseni</td>
<td>27%</td>
<td>0%</td>
</tr>
<tr>
<td>Braila</td>
<td>35%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>65%</strong></td>
<td><strong>59%</strong></td>
</tr>
</tbody>
</table>

Financing cogeneration plants in Romania

February 15
Support schemes & investments made in DHS

Financing Sources

- EU Funds
- Local or Central Budgets
- Bank Loans
- Private Capital
Support schemes & investments made in DHS

Financing Sources - so far

**EU Funds for DHS (million RON)**

**EU Funds for DHS**

<table>
<thead>
<tr>
<th>City</th>
<th>Amount mil RON</th>
<th>Completion %</th>
<th>Signing</th>
<th>Expected Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oradea</td>
<td>317</td>
<td>1%</td>
<td>22.06.2012</td>
<td>22.12.2014</td>
</tr>
<tr>
<td>Bacau</td>
<td>265</td>
<td>54%</td>
<td>06.09.2010</td>
<td>31.12.2015</td>
</tr>
<tr>
<td>Iasi</td>
<td>250</td>
<td>22%</td>
<td>17.03.2010</td>
<td>31.12.2015</td>
</tr>
<tr>
<td>Valcea</td>
<td>240</td>
<td>28%</td>
<td>17.08.2011</td>
<td>31.12.2015</td>
</tr>
<tr>
<td>Timisoara</td>
<td>205</td>
<td>95%</td>
<td>22.11.2010</td>
<td>22.12.2013</td>
</tr>
<tr>
<td>Focsani</td>
<td>112</td>
<td>66%</td>
<td>08.03.2011</td>
<td>08.01.2015</td>
</tr>
</tbody>
</table>

TOTAL 1,539 45%

Source: Managing Authority SOP Environment (May 2014)
Support schemes & investments made in DHS

Financing Sources - so far

Direct Investments

- RON 2.12bn allocated between 2006-2015 for “Termoficare 2006–2015 Caldura și Confort” program (heat network rehabilitation) = 70% co-financing from the Government (30% provided by the Local Authorities)

Regulatory Decisions

- Timisoara Local Council Decision: obligation for public institutions and new buildings financed from the local budget to be connected to the central heating system => disconnections limitation

Operating Subsidies

- The total value of the operating subsidies granted yearly by the local authorities for CHPP is estimated at EUR 1.0bn

Guarantees for Investment Loans
Support schemes & investments made in DHS

Financing Sources - going forward

Available EU funds

Large Infrastructure Objectives for Climate Change (EU funds – draft paper 2014-2020)

**OS 7.1**
- For projects smaller than 8MW
- In order to save 70,000t CO2

**EUR 57mn - cogeneration**: additional 50MWe (90% natural gas, 10% biomass/biogas)

**EUR 85mn – biomass**: additional 60MWe (mainly for large industrial heat consumers)

**OS 7.2**

**EUR 292mn - energy transport and distribution**: technological losses to be reduced from 27% to 15% by 2023 in Bucharest

Biomass: renewable energy source (RES) still benefits from financing programs and can produce in cogeneration

- Abundant biomass supply in Romania
- Emphasis on biomass projects by the Energy Strategy of Romania for 2020-2035
- Renewable Energy Action Plan envisaged that until 2020:
  - Heat Target: from 1,300MWt to be replaced → 200MWt (15%) should be new units running on biomass
  - Electricity Target for 2020: 600MWe produced from biomass
- Currently only a marginal thermal energy was generated from biomass sources

Despite the Available EU funds the Existing Incentive Schemes (please see next slide) are not sufficient for cogeneration projects sustainability => NEW/SEPARATE INCENTIVE SCHEME IS NEEDED

Financing cogeneration plants in Romania

February 15
## Support schemes

### Existing Incentive Schemes

## Two Incentive Schemes Applicable for New Projects

### Green Certificates (GCs) (Law 220/2008)

- **Applicable from 2011** for projects accredited until end of 2016;
- **For a period of 15 years** from accreditation;
- **Electricity producers** from renewable energy sources receive a certain number of GCs per technology for each MWh injected into the grid;
- **Electricity suppliers** must buy a certain number of GCs for each MWh supplied to the final consumers.

**Main problems:**
- **Retroactive regulatory changes** and high risks related to the remuneration of GCs;
- Only for projects accredited until end of 2016;
- **No acquisition quotas after 2020.**


- **Applicable from 2011 until 2023**;
- **Regulated Asset Return of 9%** for Regular CHPP;
- **Bonus for High Efficiency CHPP** revised annually by ANRE to maintain a real return rate of 9% + the difference in cot to regular CHPP;
- **Fixed Electricity Price:** 90% of DAM starting 2013;
- **Recommended Heat Price:** published by ANRE for 11 years calculated for an equivalent electrical only unit that uses that same fuel.

**Main problems:**
- The incentive scheme ends in 2023;
- The heat price is recommended not guaranteed.
Financing prerequisites
Cogeneration power projects in Romania

Constraints
► Obsolete DHSs (production facilities; distribution and transport networks and end user installations);
► Cogeneration not widely used;
► Lack of adequate regulatory framework and unitary approach for modernization of existing CHPP and new investments;
► Lack of long term view and support from local authorities;
► Current subsidized price maintain the inefficiency;
► Insufficient incentive schemes for producers;
► High rate of disconnections;
► Industry contraction;
► Poor collection rate and delays in subsidies payment;
► Frequent insolvency and bankruptcy cases among heat producers and distributors;
► Limited EU support;
► Environmental issues.

Must haves
► Modernization of the entire system, from producers to end users;
► Support for High Efficiency Cogeneration, as a solution for DH;
► Urgent and adequate legal framework;
► Clear and updated strategy at the country’s level for DHS rehabilitation;
► Long term view and active support of municipalities, including limiting the disconnection of households from the DHS;
► Subsidies should protect the vulnerable consumer not an inefficient system;
► Deregulation of gas price from the government in order to urge the need of investments.
BCR financing approach

Cogeneration power projects in Romania

Market
- **Capacity to be installed/upgraded** under high-efficiency support scheme: 4,000 MW
- **Installed** new high efficiency cogeneration capacity: <100 MW
- **Average** investment: EUR 0.7mn/MW
- **Total** estimated investment: EUR 2,500mn

Structure
- **Debt-to-Equity** – up to 65:35, depending on project parameters
- **Investment Loans; VAT and Working Capital Facilities**, if needed
- **Legal and technical DD**
- **Maximum repayment period**: 10 years, 1 year tail compared to incentive scheme duration (current high efficiency cogeneration bonus scheme)
- **DSRA of 25-50%** of annual debt service
- **Mortgage over Assets, Shares and Recourse on Sponsor** (applicable for some cases)
- **Financial covenants**: DSCR (Debt service cover ratio), Net debt to EBITDA (Leverage ratio)
Financing Requirements from Client
Cogeneration power in Romania

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Critical success factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>► High unutilized potential (especially for small gas plants);</td>
<td>► Strong Sponsor committed to the project able to cover any adverse change in the regulatory scheme;</td>
</tr>
<tr>
<td>► Reliable energy source (high load factor);</td>
<td>► Strong EPC Agreement – experienced constructor, and supplier of technology;</td>
</tr>
<tr>
<td>► Low technology risk (proven technology);</td>
<td>► Clean legal and technical due diligence performed by the Bank’s consultants;</td>
</tr>
<tr>
<td>► Stable energy production;</td>
<td>► Performance Guarantees and Maintenance Agreement from technology supplier;</td>
</tr>
<tr>
<td>► High efficiency → responsible use of energy sources.</td>
<td>► A. Long-term Off-take Agreements for heat (financial standing and minimum number of connections of the heat distributor) OR</td>
</tr>
<tr>
<td></td>
<td>B. Integrated business where the producer also operates the grid;</td>
</tr>
<tr>
<td></td>
<td>► Upgraded grid with reduced losses;</td>
</tr>
<tr>
<td></td>
<td>► Guaranteed payments from the supplier to the producer (from the local municipality, escrow accounts etc.);</td>
</tr>
<tr>
<td></td>
<td>► Insurance cover during construction and operation for project company and construction &amp; technology suppliers.</td>
</tr>
</tbody>
</table>

**Main risks**

- Complex operation phase;
- Disconnections;
- Regulatory risks associated to incentive schemes;
- Poor collection rate for the producer (non-payment from end users, losses, subsidies paid with delays).
Financing Requirements from Client
Cogeneration power projects in Romania

**Technical requirements**
- The producer should have a sound track record and financial standing;
- An experienced EPC contractor or technology and construction suppliers offering market standard guarantees → performance; parameters evaluated by the technical advisor;
- Production forecast based on estimated heat consumption and data prepared by the technical advisor;
- A long term maintenance contract to be concluded either with the technology supplier or other qualified O&M service providers for the life time of the loan.

**Due diligence requirements**
- Detailed construction budget, construction program and financial model of the project;
- Contractor and Supplier of technology anticipated, basic conditions of the contract (unit price, payment schedule, warranty period, scope of warranty);
- DH distribution capacity, number of connections, financial standing of distributor and supplier, if applicable and consumption studies;
- Draft heat off-take agreement (if business is not integrated);
- Track-record of site operator;
- Environmental due diligence;
- Technical due diligence covering: consumption study review, technology solution review, production off-take possibilities, technology supply and O&M Contracts;
- A legal advisor confirming all necessary permits, approvals, licences and authorisations in relation to construction, grid access and operations are in place prior to loan approval;
- An external insurance adviser.
## Financing Energy Projects in Romania

### Risk Mitigation Mechanism

<table>
<thead>
<tr>
<th>Cash Deficiency Guarantees</th>
<th>Project Reserve Accounts</th>
<th>Cash Cascade</th>
<th>Cash Sweep</th>
<th>Dividend Restriction</th>
<th>Involvement of International Financing Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional payment obligations from sponsors in order to mitigate certain risks (e.g. cost overrun risks)</td>
<td>Debt Service Reserve Account (additional cash-flow buffer of 3-6 months debt service)</td>
<td>Exact order for the use of the project’s cash (Opex, Taxes, Senior Debt, Capex, Project Accounts Replenishing)</td>
<td>Agreements regarding application/distribution of annual surplus liquidity (mandatory prepayment)</td>
<td>Distributions lock-ups: e.g. only allowed if certain financial ratios are met, phasing, etc.</td>
<td>Benefit from longer loan maturities and political and commercial risk cover (ECAs)</td>
</tr>
</tbody>
</table>

### Preparation

- Preliminary analysis
- Project finance LOI/Indicative term-sheet

### Execution

- Due-diligence (technical, legal, environmental etc.)
- Committed financing offer subject to satisfactory DD and fulfillment of all key T&Cs as per the ITS

### Financial closing

- Financing documentation signing
- Available financing subject to CPs fulfillment
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