

# Financing photovoltaic energy in Romania

*July, 2012*

# Profile – Banca Comerciala Romana



## BCR brand

- Banca Comerciala Romana (BCR) was established in 1990
- Taking over the commercial banking operations of the National Bank of Romania.
- BCR is the most important financial group in Romania - currently manages assets of over EUR 17bn, has over 3.7 million customers, and is the market leader with over 20% market share
- BCR is the most valuable financial brand in Romania, according to level of customer trust\* and number of clients who mainly bank with BCR.



## Integration into Erste Group

- From 2006 BCR became 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,
- 50,000 employees, 17 million clients, 3,200 branches in 8 countries



## Commitment to Romania

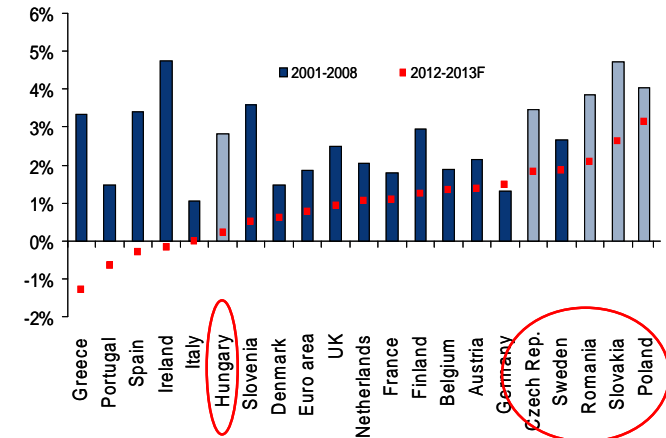
- Erste Group has invested so far more than EUR 7.5 bn in Romania, through BCR and as direct investments in Romanian commercial exposure
- BCR has doubled the volume of its outstanding loan portfolio since 2006 and has been the main supporter of the Prima Casa program (60% market share for Prima Casa 4)
- In 2008-2011, BCR Group has made investments of more than RON 800 mio (approx EUR 195 mio) and plans to invest more than RON 200 mio in 2012 (approx EUR 48 mio)

# BCR & Erste Group in regional context

## CEE's growth potential - twice as high as the Eurozone's

- Economic outlook for CEE better than expected - CEE's GDP (inc. TR) forecast for 2013 recently revised upwards to 3.3%, twice as the Euro area.
- The feared spill-over effect from Southern Europe to CEE not taking place to the extent as it was feared.
- Exports and investments will continue to be the main growth drivers, with household consumption still remaining subdued.
- Most countries of the region are economically more closely tied to the much healthier part of the Euro area (Germany, Austria)

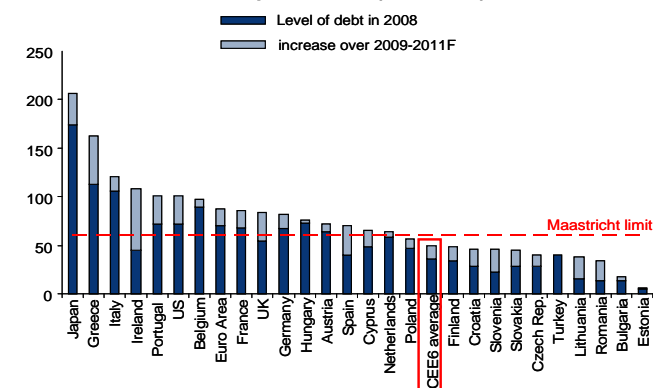
Average growth of potential output (according to European Commission)



## CEE gross debt half of Eurozone's average

- CEE is the EU's most dynamic region with gross debt only half of the Eurozone's average.
- Prudent fiscal policy measures of CEE countries have resulted in much lower level of outstanding public debt and fiscal deficits.
- Apart from Hungary, all CEE countries have their debt to GDP about 50% of GDP in average (2011F), well below the Maastricht criterion (60%). The Eurozone average is 87% (Q3 2011).
- The government debt of the Czech Republic, Slovakia, Hungary, Romania and Poland together is barely higher than the debt of Greece alone, a country of only 11 million people.

Gross public debt (% of GDP)



## ▪ **Current situation of the Romanian economy**

- Romania rose by a robust 2.5% in 2011, helped by a bountiful agricultural output and the gradual recovery of the domestic demand. This year's economic growth is projected at 1.2% as Eurozone, Romania's main trading partner, could face a mild recession.
- Inflation is now hovering within the central bank's targeted band (3%±1pp) after a plentiful crop in agriculture and moderate increases in administered prices. The central bank cut key rate by a cumulative 100bp since November 2011. Current account deficit at around 5% of GDP is no longer a threat for the financial stability.
- Fiscal consolidation to put the economy on a strong footing in the long run with a positive impact on market sentiment. The precautionary deal with IMF/EU is on track and remains an anchor of stability.

## ▪ **Banking sector: Prudent approach of new business, strict portfolio monitoring**

- Slight progress in bank lending, deposits constantly up.
- Improving capital & liquidity positions: capital adequacy at 14.51% (as of Dec 2011).
- Financial intermediation still below peer countries: total assets to GDP at 61.2% (as of YE 2011); CEE peers over 100%, Euro Zone over 300%.

# Group Infrastructure Finance

Energy and Environment infrastructure targeted

**Wind Parks**



**Wind Parks Offshore**



**Solar PV**



**Solar Thermal**



**Oil/Gas Generation**



**Hydro Plants**



**Electricity Networks**



**Transmission Systems**



**Public Systems**



**Waste Management**



**Water Treatment**

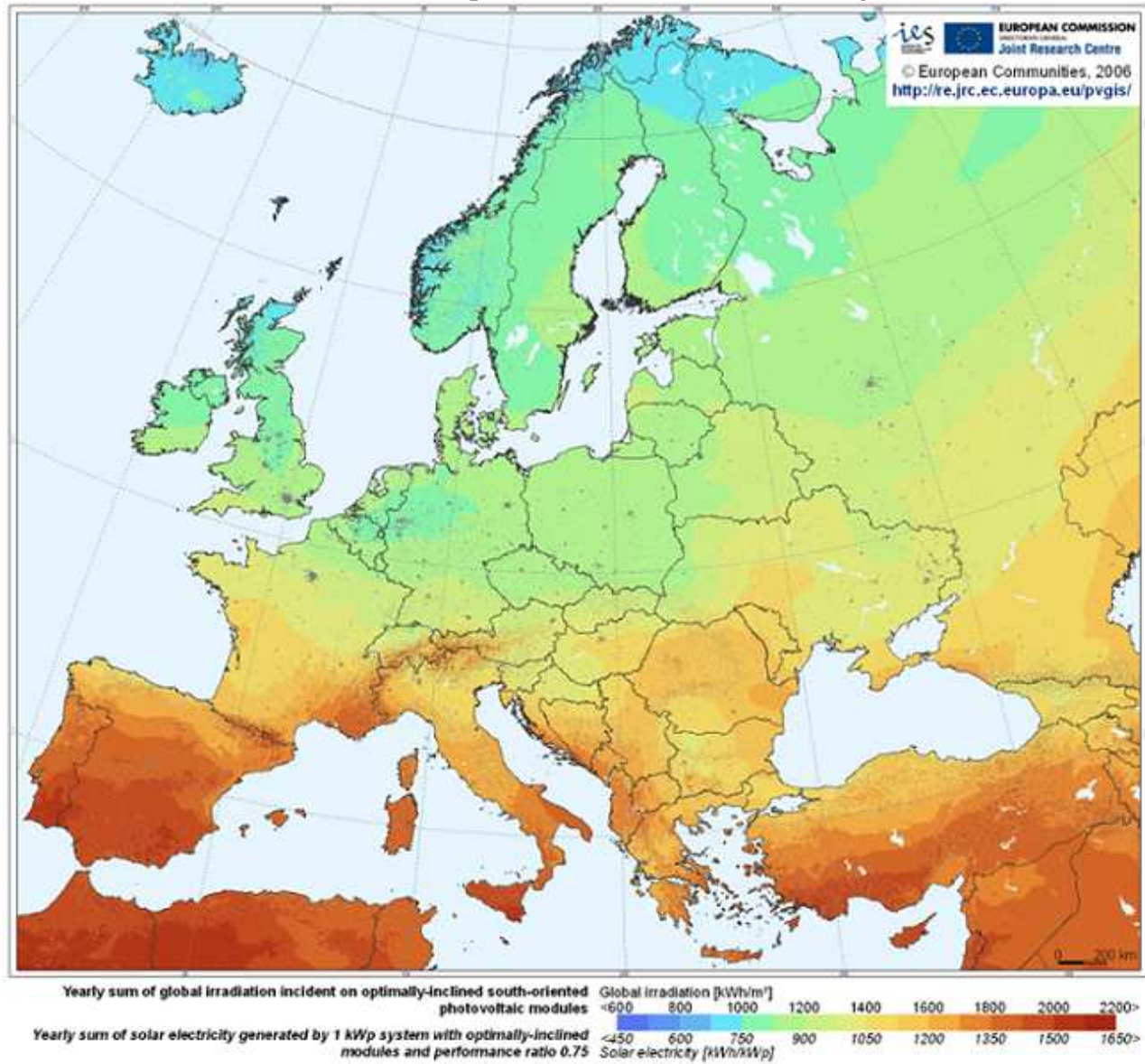


**Waste Treatment**



# Technical aspects

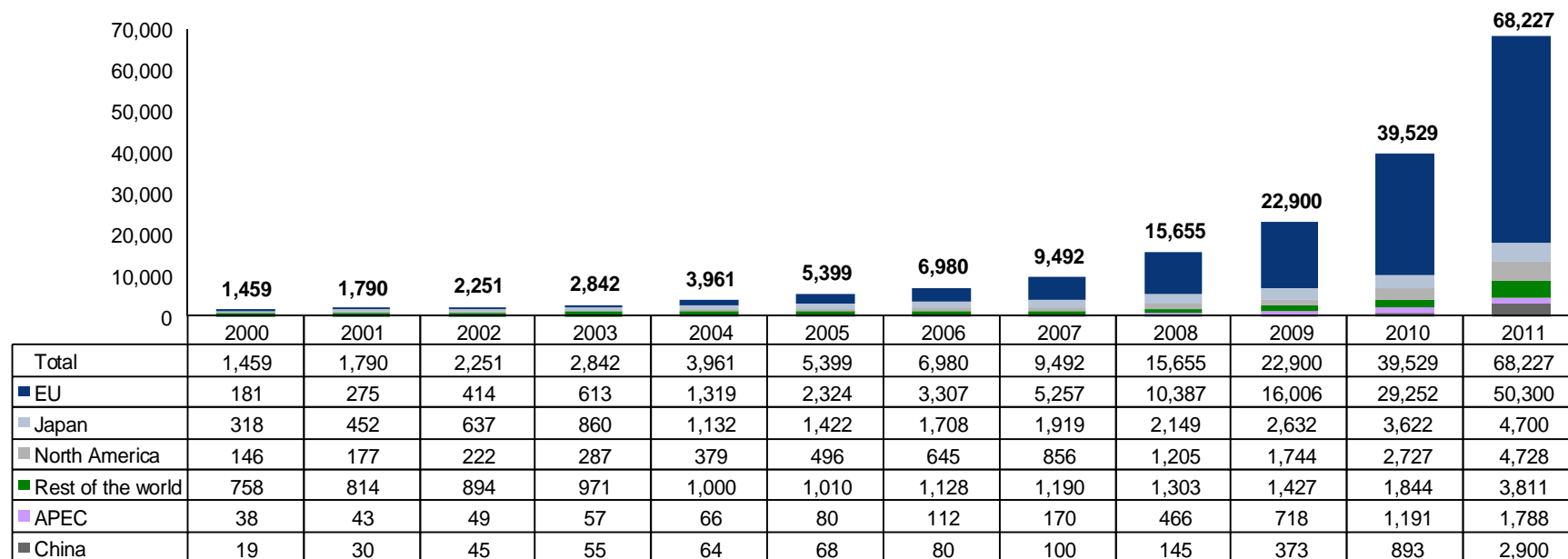
## Photovoltaic Electricity Potential in European Countries



# Technical aspects

## Photovoltaic Power Industry

### Photovoltaic installed capacity globally (MW)



# Romanian RES energy market

## Regulatory framework

### Romania' Renewable energy targets (2020)

Overall energy (electrical, heat&cooling and transportation)	Electrical energy including large hydro	Electrical energy excluding large hydro
24%	38%	20%

- Calculated as total energy from renewable sources (including heat, electricity and transportation) divided by the **total final gross energy consumption**.
- This percentage is **legally binding** to EU, as per the **EU Directive (2009/28/EC)** incorporated also in the National Renewable Energy Action Plan (NREAP) submitted by Romania in 2010.
- The **total energy** covers: electricity, heat and transportation(fuel).
- The high level of RES in heating an cooling comes from quantification of wood burnt by households for heating.
- Calculated as **electrical** energy from renewable sources (including large hydro capacities of over 10 MW each) divided **by the final gross electricity consumption**.
- The target is national as (**law 220/2008**), set-up in order to achieve the EU target.
- Calculated as **electrical** energy from renewable sources (excluding large hydro capacities of over 10 MW each) divided by **the final gross electricity consumption**.
- The target is national (**law 220/2008**), set-up in order to achieve the EU target.



Category of energy	Gross Final		RES 2010 (ktoe)	%
	Consumption (2010) ktoe			
Heat	16.056	2.819	18%	
Electrical	5.350	1.435	27%	
Transportation	4.856	275	6%	
<b>Total</b>	<b>26.262</b>	<b>4.529</b>	<b>17,2%</b>	

Source: NR EAP Romania 2010



# Romanian RES energy market

## Green Energy Quotas

### Demand

### Supply

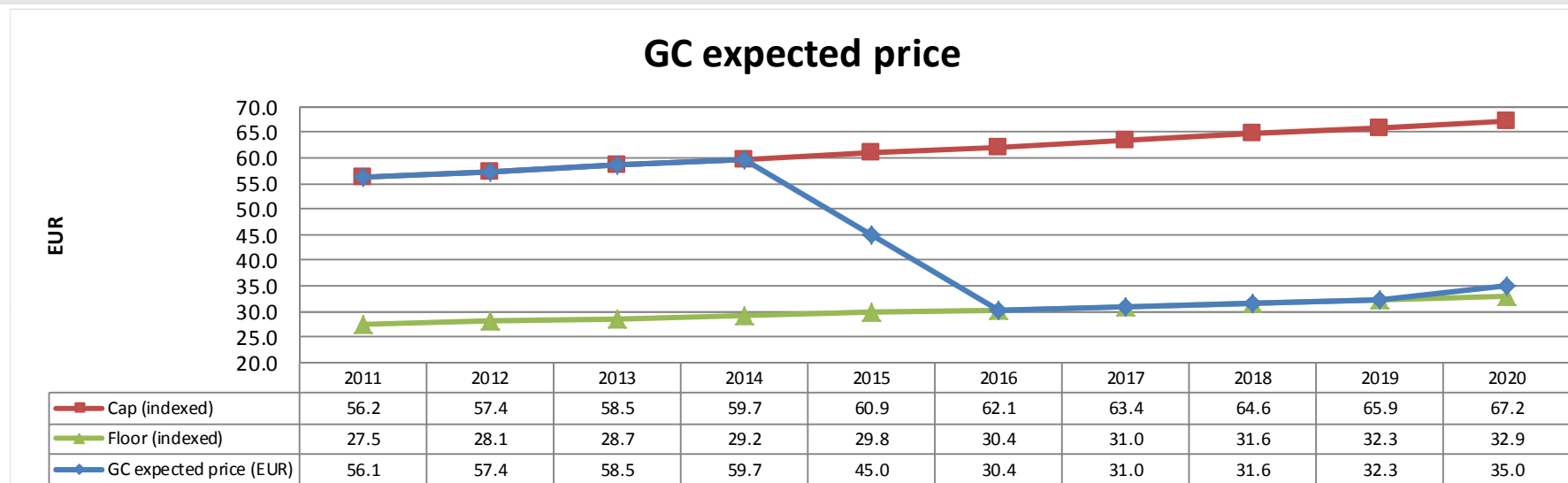
Year	Est. Electricity delivered to final clients (GWh)	Annual quotas of Green energy	Estimated quotas of GC/MWh	Targeted qty of green energy (GWh)	Solar power installed (MW)	Biomass power installed (MW)	Microhydro power installed (MW)	Solar power generated (MWh)	Biomass power generated (MWh)	Microhydro power generated (MWh)	Actual/forecast MW installed of wind**	Remaining energy to be fulfilled by the wind power (MWh)	MW of installed wind power need (24% loan factor)
	1	2	3	4=1x2	5	6	7	8=5x1fx24x36	9=6x1fx24x3	10=6x1fx24x36	11	12=4-8-9-10	13=12(1fx24x365)
2009	42,858	6.28%	0.59%	2,691	0	8	64	-	-	229,862	14	2,461,612	1,171
2010	44,014	8.30%	1.57%	3,653	0	23	76	-	112,414	272,757	380	3,266,572	1,553
2011	46,620	10.00%	3.76%	4,662	1	23	120	2,453	144,540	323,244	982	4,161,322	1,979
2012	47,500	12.00%	12.60%	5,700	4	35	120	8,760	202,356	420,480	2,000	5,173,189	2,461
2013	50,420	14.00%		6,924	50	100	125	61,320	481,800	448,950	3,500	5,884,984	2,799
2014	51,932	15.00%		7,641	80	150	200	98,112	722,700	718,320	4,000	6,050,051	2,878
2015	53,490	16.00%		8,395	100	200	200	122,640	963,600	718,320	4,200	6,857,593	3,262
2016	55,095	17.00%		9,188	120	200	240	147,168	963,600	861,984	4,400	7,507,088	3,571
2017	56,748	18.00%		10,020	140	200	250	171,696	963,600	897,900	4,400	8,305,804	3,951
2018	58,450	19.00%		10,894	170	200	300	208,488	963,600	1,077,480	4,400	8,991,607	4,277
2019	60,204	19.50%		11,516	200	200	350	245,280	963,600	1,257,060	4,400	9,417,416	4,479
2020	62,010	20.00%		12,166	212	250	400	259,997	1,204,500	1,436,640	4,400	9,652,811	4,591

- The consumption now is expected to grow although last two quarters showed negative economic growth, there are signs of increased consumption in 2Q2012. Final energy consumption is expected to return to pre-crisis level in 2013-2014.
- The GC are currently trading on the market at 57.4EUR (adjusted with 2% inflation published by Eurostat).
- We believe that the green energy quota should be reached end of 2014.

# Romanian RES energy market

## GC price estimates

### GC expected price



The demand (quota \* consumption) is still unsatisfied by the installed capacity

The demand is reached, but the excess of GC can kept as their validity is for 16 months.

The demand is fulfilled by the installed capacity. Since 2016 is the last year the RES companies can benefit from the GC scheme, no new entrants are expected if the scheme is not prolonged.

The demand increases as only one certificate per MWh of RES is awarded starting 2018.

# BCR financing criteria

## Photovoltaic Energy Projects

### Financing Structure

- Non-recourse/limited recourse;
- Currency of financing: EUR or RON;
- Maturity: depending on project and sponsor, up to 12 years ;
- Interest rate hedging;
- Gearing: based on the financial model – 60% possible (PV projects);
- Sculpted repayment profile that is adjusted to predicted revenue streams (Black Electricity and GC income, costs etc.);

### Due diligence requirements

- Detailed construction budget and construction program, financial model of the project;
- Solar irradiation studies;
- Technical and legal due diligence performed by a reputable party;
- Permits and licences – status and copies;
- Contractor and Supplier of technology anticipated, basic conditions of the contract (unit price, payment schedule, warranty period, scope of warranty);
- Draft PPA
- Track-record of site operator

# BCR financing criteria

## Photovoltaic Energy Projects

We are looking to finance good projects, that have...	Common problems encountered
Strong sponsor	Short term focus of the investors
All the permits and licences	Legal issues related to the title and permits
Good renewable energy source (i.e. proven solar irradiation studies)	Market risk associated with GC in case of high capacities installed (over 4000 MW for wind, assuming small capacities for the other RES categories)
Ideally 5-10 yrs PPA	Long-term PPA's still scarce on the market additional hurdles
Minimum level of equity of 30% (min 40% for PV)	Low level of equity and sponsor support available
Reputable constructors and O&M contractors	Large surfaces of land needed: removal of land from agricultural use
Proven technology Proper insurance coverage	Highly competitive panel producers market
Satisfactory result of legal and technical DD performed by a reputable party	

# Financing Requirements

## Photovoltaic Power

### Main risks

- Highly exposed to the regulatory framework.

### Technical requirements

- The producer should have a sound record and financial standing. The technology suppliers will be accepted based on dynamic white list;
- Building permit already granted;
- Network connection;
- An experienced EPC contractor who should adhere to market standard guarantees and performance parameters evaluated by the technical advisor;
- Production forecast based on up to date simulation software and prepared by the technical advisor;
- A long term maintenance contract for the inverters to be concluded either with the manufacturer or other qualified O&M services provider for the life time of the loan;
- Technical due diligence covering: description of location, climate conditions, technical parameters of panels, inventors, transformers, etc while the building phase should be monitored by the technical advisor;

### Commercial requirements

- Electricity and Green Certificate off-taker;
- 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.

# BCR financing approach

## Photovoltaic Power

### Advantages

- Low operational costs;
- More predictable source of energy;
- Modular set-up allows for progressive installation of the PV plant
- Generous incentive scheme (6 Green Certificates)

### Constraints

- Expensive technology;
- Large surface of land needed (not used for agricultural purposes);
- Low load factor;
- Sensitive to GC price variation and to regulatory changes

### Critical success factors

- **Strong sponsor** committed to the project especially until the PV plant is connected but also afterwards in order to be able to cover any adverse change in the regulatory scheme.
- **Clean legal due diligence** performed by the Bank's consultants;
- **Availability guarantees** from acceptable/reputable panel suppliers;
- Long-term **PPA** for both black power and GC's
- **Insurance cover** for implementation, suppliers and operation.

# BCR financing approach

## Photovoltaic Power

Market

- Capacity to be installed until 2015 (NREAP): 148 MW
- Standard average investment: 2.0 EUR Mio/MW
- Estimated investment: 296 EUR Mio

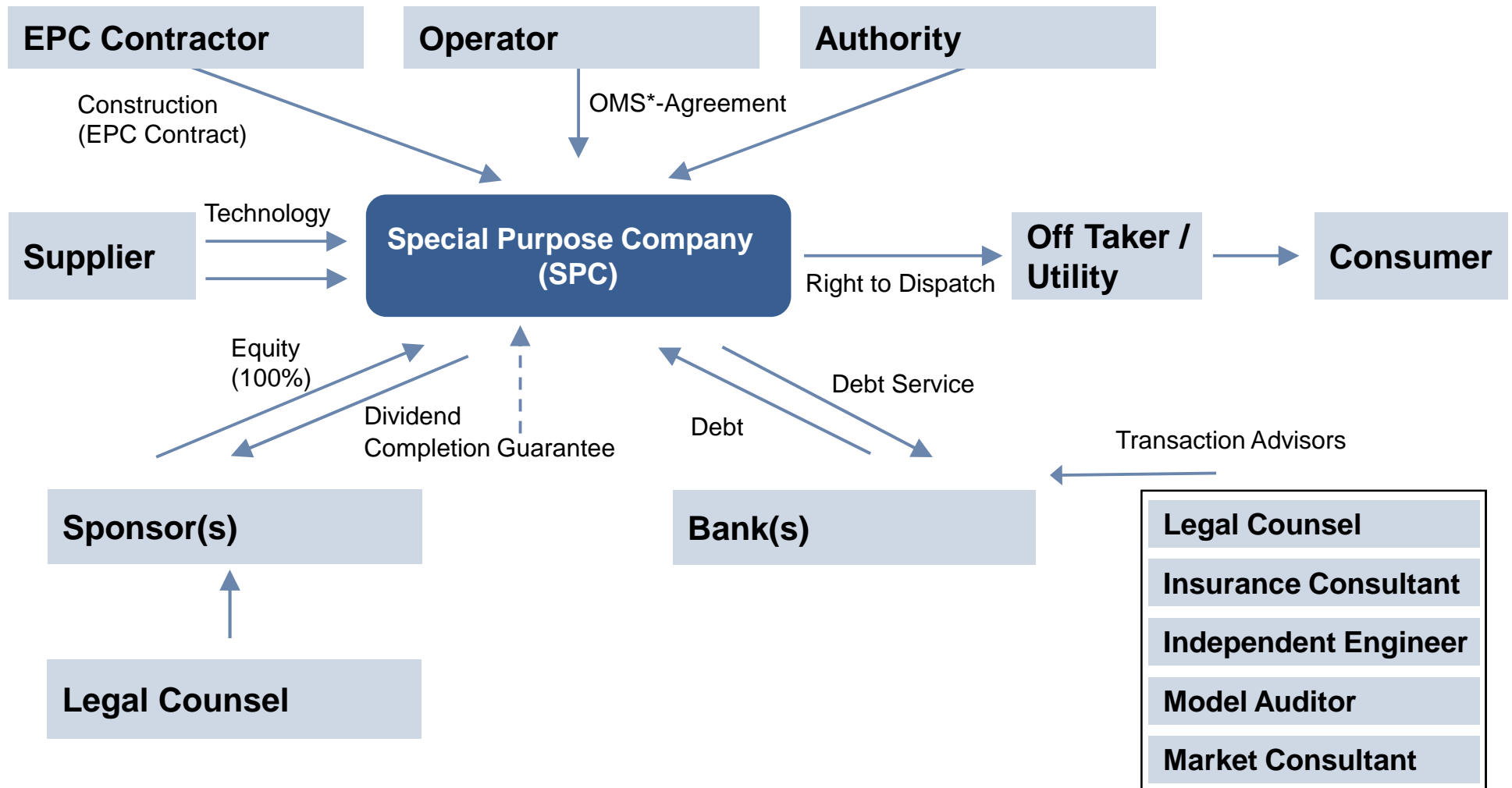
Structure

- D:E – 60:40
- Legal and technical DD
- Maximum maturity: 12 yrs.



# The Renewable Energy Business Model

## Project Finance Type of Financing



\* Operation, Management & Service



# BCR financing approach

## Photovoltaic – structuring considerations

### Equity

- not less than 40% (the equity should be provided upfront);

### Debt service reserve account (DSRA)

- DSRA of 25% of the annual debt service

### Financial covenants

- Ex. Debt service cover ratio (DSCR), Leverage ratio (Net debt to EBITDA)

### Hedging

- Ex. Interest rate hedging, exchange rate risk mitigation

### Security

- Ex. Mortgage of assets, shares



# Renewable Energy

Selected Credentials – 2010 / 2011

## Poland:

Participation in the financing of a 24 megawatts wind park project in Kisielice, central Poland.

Banking Consortium: Spanish La Caixa, Polish BreBank and Erste Group Bank.



## Czech Republic:

Mandated Lead Arranger and Debt Coordinator in a programme loan project financing of a 17.6 megawatt photovoltaic project pipeline in the Czech Republic. Banking Consortium: Erste Group Bank and BNP Paribas Fortis.



## Romania:

We have arranged financing for 42 megawatts wind park project in Tulcea, Romania. This is a milestone renewable energy project in Romania. The project consists of 20 wind turbines and is developed by Portuguese industrial group Martifer.

***A portfolio of approx. 100 MW of renewable energy projects approved (wind, micro-hydro, PV)***



## Turkey:

Lead Arranger in Turkey's Enerjisa Enerji Üretim project comprising 10 hydroelectric power plants and a natural gas-fired thermal plant with a total capacity of 1,900 megawatts. The financing package is the largest international transaction for a private company in Turkey.



# Team and Contacts



ERSTE GROUP



**Ioana Gheorghiaade**

Banca Comerciala Romana  
Project Finance Executive Director  
Bucharest, 18-20 Lipscani Str, 3<sup>rd</sup> District

Tel.: +40 372 262 181

Mobile: +40 731 042 090

[ioanaanca.gheorghiaade@bcr.ro](mailto:ioanaanca.gheorghiaade@bcr.ro)



**Oana Roxana Mogoi**

Banca Comerciala Romana  
Project Manager  
Bucharest, 18-20 Lipscani Str, 3<sup>rd</sup> District

Tel.: +40 372 262 133

Mobile: +40 726 168 576

[oanaroxana.mogoi@bcr.ro](mailto:oanaroxana.mogoi@bcr.ro)



**Mihai Dorin Voican**

Banca Comerciala Romana  
Project Finance Support Specialist  
Bucharest, 18-20 Lipscani Str, 3<sup>rd</sup> District

Tel: +40 372 262 177

Mobile: +40 733 040 225

[mihaidorin.voican@bcr.ro](mailto:mihaidorin.voican@bcr.ro)