**Brief overlook on the market**

**THE ROMANIAN ENERGY SECTOR IS A SERVICE PROVIDER TO THE ROMANIAN ECONOMY AND THE ROMANIAN POPULATION – BEFORE DRAFTING AN ENERGY STRATEGY, THE FORECAST OF THE ENERGY CONSUMPTION IS NEEDED.**

During the last two decades, the Romanian energy strategies have been written using the same template – the kernel was a least cost development study for the power generation capacities. Depending on the results and the conclusions regarding the positioning of eventually new power generation units, the discussion was held about reinforcing the HV power transmission grid, followed by some considerations on the transformations in the power distribution sector – bringing electricity to isolated localities, increasing distribution voltage for decreasing technical and non-technical losses, inserting more automation. Then several statistical data on the oil and gas output as well as the situation of the coal mining sector were inserted. Finally, the standard sentences about the energy efficiency were added, mainly for “cosmetic” purposes. But usually such strategies were lacking decisions, containing only the formulations made by ministry executives creating the framework for decisions from the politicians – but such decisions were lacking and the strategies ended in being vague in the hottest points.

The elaboration of an energy strategy for Romania is once again made difficult by the economic and financial crisis, but also by the institutional weaknesses, that finally lead to the unavailability of the input data for building a coherent and focused document.

**THERE IS A SERIOUS INVESTMENT SPEED GAP BETWEEN THE PRODUCTION FACILITIES AND THE TRANSMISSION INFRASTRUCTURE.**

The weight center of the Romanian power generation has shifted from South-West to South-East – from the lignite fired thermal power generation units, to the nuclear and wind power plants located in Dobrogea. This shift took place in several years, with serious pressure also on the balancing needs of the Romanian NPS. The HV transmission system has to cope with this shift, by developing new lines and other grid components. While the private investment in new wind power plants has exploded as a consequence of a generous support scheme, the investment in new public domain transmission infrastructure assets is affected by the usual inertia in making decisions, the durations needed for permitting new investment, the legislative gap that prevents or delays land securitization and the
absence of adequate financial resources and financing solutions/instruments.

HV transmission lines such as Suceava-Gadalin, Smardan-Gutinas, Cernavoda-Stalpu-Brasov, Deleni(Independenta) – Pelicanu, Rahman-Bucuresti, Stupina-Tariverde (see figure below), are needed now or in the nearest future for the interest of the safe operation of the system. In order to allow the Tarnita-Lapustesti PSHPP to play its long awaited balancing role in the system, it should get connected to the grid by means of two 400 kV lines: Tarnita-Gadalin and Tarnita – Mintia. Given the advanced stage of the power plant development process, the lines should be in a parallel development process in order to provide comfort to potential investors that they will place capital in a power generation capacity connected to the HV transmission system. However, today the financing solution for the two lines is not known and there is still no real sponsor/champion for these projects.

**ROMANIAN POWER GENERATION SECTOR IN A STALEMATE**

The usual algorithm for building the Romanian energy strategy is now inapplicable, as long as:

- The power consumption records historical minimums and a credible forecast is not available.

The graph below indicates the history of consumption and coverage of the load curve by different power generation technologies during 01-07.05.2013. It was an exceptional period, with a superposition of 1st May and Orthodox Easter celebrations that have practically triggered a stoppage of the Romanian industry. Practically the Romanian population and the services have consumed electricity during that period. Electricity specialists in Romania do not recall the last times when the consumption has dropped below 3,700 MW. The National Dispatch Center has been placed in front of a very difficult challenge:

- The consumption was at a historically minimum value;
- The nuclear power plant had to operate at a stable load;
- The wind was blowing and the wind power plants are granted priority at dispatch;
- There are some gas fired cogeneration facilities that provide heat for district heating and should also be dispatched with priority;
- April-May is a period with snow melting in Romanian mountains and in the region – the flows on the major rivers, including Danube are at the yearly maximum flows.

The solution seems to have been an agreement with neighboring power systems for exchanges that allowed Romanian power generation entities to stay above a technical minimum load and to avoid stoppages with serious risks for the system stability.

An immediate consequence has been the stoppage of the lignite fired power generation in Romania – the slim coal fired production was ensured by the hard coal fired plants, as they also provide some heat to neighboring cities – see black curve in the figure above.

Although such an episode seems unrepeatable – there has been an exceptional combination of factors, it has generated serious question marks on the strategy for developing further power generation entities in the Romanian power system. The forced temporary unemployment of some 14,000 people in the Oltenia Energy Complex and the linked industries has played the role of a cold shower for political decision makers, for trade unions leaders, for strategy specialists. The most obvious questions have been:

- How to “keep afloat” the existing lignite fired power generation entities, in order to be able to finance their mandatory environmental retrofit investment and to save jobs?
- Is there scope for the intended expansion of the lignite fired power generation capacities in Romania?

**HOW TO “KEEP AFLOAT” THE EXISTING LIGNITE FIRED POWER GENERATION ENTITIES?**

In order to “keep afloat” the coal fired entities, the Government has passed the Government Decision No. 138/2013 that practically intends to force the market to absorb the output and the ancillary system services of the hard coal and lignite fired entities during April 15, 2013 – July 1, 2015. However, the wording limiting the provisions of the Government Decision to “the conditions imposed by ANRE regulations” – a normal requirement – has practically blocked any forced intervention – the wholesale electricity market is liberalized and acquisition is made by suppliers/traders based on price-quantity offers and not on administrative orders – this is why the government decision...
has practically resulted in no effect, triggering the anger of trade unions on ANRE leadership.

**IS THERE SCOPE FOR NEW LIGNITE FIRED AND GAS FIRED POWER GENERATION IN ROMANIA?**

As shown above, at this stage the lignite fired generators are the marginal power generators in the wholesale market, mainly on the spot market (“Day Ahead Market”). This is determined by the policy applied by the wind power generators: counting on the support in the form of green certificates per MWh generated, they offer low prices on the competitive market for the sake of being dispatched. By bidding a minimum price allowed by the market, they obtain finally the Market Closing price, plus the green certificates. This penetration at low prices of the wind and solar power generators takes practically out of the merit order the thermal power generators, mainly the lignite fired ones, that benefit from less arrangements such a regulated bilateral wholesale contracts at regulated prices. So at this moment there are question marks whether there is scope for expanding (or even preserving/maintaining) the installed capacity in coal fired entities. The new joint venture in the Rovinari lignite fired thermal power plant for a new 600 MW capacity is said to be developed for export opportunities. Even if last winter (2012) one has witnessed a peak production of some 10,300 MW (see figure below) – also unprecedented during the last 23 years, the expected annual utilization time for such capacities is expected to be below the threshold that allows profitability and the Romanian coal fired entities will face pressure to restructure massively labor resources.

Under these circumstances, there are also serious questions about the opportunity of building new gas fired power generation capacities in Romania.

Probably local small scale cogeneration solutions will proliferate, provided that the heat consumption is properly forecasted and observed during the operation stage – it is essential to make maximum sales from the energy generated by each unit of gas. Eventually tri-generation or “quadri-generation” (chemical use of the gas combustion products) can guarantee profitability, provided the right host is found/contracted.

But large scale gas fired units will face major uncertainties. Given the obligation to offer all electricity output on centralized markets, there will be less opportunities to sign long term negotiated bilateral contracts, and under transparency, competitiveness, centralization obligations, the price offered reflecting generation costs will be crucial for the survival of such new entities.

Till now, developers considered that the vicinity and the contractual relationship of a major industrial heat consumer would be a serious advantage for such a new capacity. Additionally, developers started looking at municipal cogeneration as a potential for maximizing sales from the gas burning and for benefitting of the cogeneration bonus. Co-combustion of biomass is also envisaged for some municipal solutions.

But the gas price remains crucial for the investment decisions in such new capacities. Romania has assumed an ambitious liberalization program, aiming at aligning indigenous gas prices to the international levels. On the other side, there are new discoveries of natural gas in the continental shelf of the Black Sea. Such gas will be brought on shore and the amounts announced till now seem to have the potential to exceed the present imports of Romania. Therefore, the gas consumption in Romania should increase (eventually via power generation or gas industrial utilization) or the infrastructure should be built in order to insure possibilities for exporting the output of the future producers in the Black Sea. Apparently the Nabucco route does not seem the best fit geographically for ensuring a smooth export of the Black Sea extracted new natural gas.

So an important question for the medium to long term would be if there is any future for gas fired power generation in Romania. The answer lies in the opportunities for cogeneration and in the relationship between the power generation cost of a new gas fired entity and an existing lignite fired power generation entity. This is mainly due to the fact that these technologies are expected to be the marginal competitive ones in the Romanian future spot market. And, of course, the answer will depend on the level of extraction costs and selling price for the gas in the Black Sea – clearly at present the import gas fired MWh is not likely to replace an indigenous lignite fired MWh... The situation seems similar to the European power sector one – Europe imports coal and keeps idle gas fired state of the art CCGTs.

**PUMPING UP ROMANIAN POWER CONSUMPTION?**

Worried experts rethink strategies for keeping or pumping up the consumption of electricity in...
Romania. The country still has advantageous electricity prices for households, but the support scheme for renewables and cogeneration adds on the industrial electricity bills.

In order to keep the electricity consumption up and allow also power generators to survive, various ideas have shown up among sector specialists:

- Combining irrigation pumping with wind power generation in the congested area of Dobrogea. Agriculture in the area is heavily dependent on irrigation and the canals network is well developed. Unfortunately the 6 kV power supply network for irrigation pumping stations has been destroyed following neglect and theft. The variable output of wind farms in the region could be used for supplying power to revamped pumping stations.
- Revigorating electricity consumption in the country can also imply usage of electricity for multiple housing utilities – heating, cooking, etc. Electric vehicles do not appear now, due to the state of the technology and the state of the road and loading infrastructure, a viable solution of today’s Romania.

EXPORTING ELECTRICITY?

Given that the new wave of electricity production comes mainly from uncontrollable power generation sources in the region, the future of cross-border trade seems to belong to “exchanges” rather than to “electricity exports” based on long term bilateral contracts. This may imply needs to reorganize the markets for cross-border transmission capacities and to advance massively with market coupling and market rules harmonization.

SEVERAL CONCLUSIONS:

The Romanian power generation sector seems to be in stalemate. Restructuring efforts need to be undertaken with jobs and capacities cuts, in order to cope with the new reality. Several strategic projects are on the government desk: Cernavoda nuclear units 3&4, Tarnita-Lapustesti PSHPP, other pumped storages in locations like Macin (close to the wind power generation pole and the nuclear power plant) or at the border with Serbia. But such projects need innovative financing solutions, that might imply state aid to be thoroughly justified and defended/negotiated – sovereign guarantees for financing for maturities above the usual lending practice, export credit, contractual mechanisms eventually distorting a competitive market but providing a certain predictability of returns, etc.

For the private investors, the Romanian conventional power generation sector seems less and less predictable and attractive. The situation is not any better in the renewable power generation sector, where the intended review of the support scheme has already blocked financing decisions.

The state would need to rethink its role in the Romanian energy sector. It should firstly understand that it is not any more the main investor and it should focus more on its role of tax collector and strategy/policy elaborator, allowing the right independence to the regulator.

The state would need to concentrate on securing financing for transmission infrastructure elements, being once again aware that the resources of state-controlled TSOs are not sufficient for the challenging investment programs, under the present financing models/instruments.

Once again, the state aid policy for infrastructure elements providing public service under Altmark criteria should be revisited, in order to cope with the stringent investment requirements aiming at preserving security of energy supply. The new power transmission lines would need innovative financing mechanisms, having in view that the classical model with Transelectrica borrowing money for each project do not work anymore – Transelectrica has reached its indebtedness capacity, and the mechanism with Transelectrica borrowing money and the return coming only when the asset is ready and included in the Regulated Asset Base is not anymore sufficient.

The legislative and regulatory framework for such new transmission infrastructure elements should be revisited – Romania is a country in which, during the last 23 years, private property has been heavily promoted/defended to the detriment of the public property – such balance should be revisited, when it comes to expropriating land for such transmission infrastructure elements. Similarly, the legislative and regulatory framework for permitting and building the gas pipeline system to allow injection of the Black Sea gas into the Romanian gas transmission system and further export should be conceived and passed since those days.

But the main problem is still that the state would not be able to mobilize the financial resources for transmission infrastructure elements that would allow private investors to perform their competitive production business – be it power or gas. On the other side, asking private investors to cover such investment might chase them away for affecting the profitability of their intended businesses. The solution would be in the middle – Public Private Partnerships – the legislation should be thoroughly conceived in order to cope with the need to build new energy transmission components, not only transportation or other public infrastructure components.

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