

A SWOT ANALYSES ON THE WIND ENERGY DEVELOPMENT IN ROMANIA

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Romania has good wind resources, mainly on the Black Sea coast and in mountainous areas. Available realistic potential (i.e. taking into account both resource and site restrictions) can be estimated at 2,000 MW producing over 4,000 GWh/year.

At the same time, within the national R&D programme, several favorable sites for wind farms were investigated and pre-feasibility studies were carried out (the Semenic Mountains, the Black Sea coast and off shore, the Sub-Carpathians areas).

Four experimental 300kW wind turbines were assembled on location in the Semenic Mountains. Two of the wind turbines never became operational because of lack of funding. The first set is still operational, but it has to be dismantled because it is in an advance stage of wear. The set belonging to Electrica S.A. has fallen into disrepair because of a broken blade.

The hesitant and slow wind energy development in Romania is contradictory to the European energy policy and to the clear Romanian commitment to adopt the European *acquis*.

So, in this critical point, a SWOT analyses of wind energy development in Romania is most welcomed. This analyze may be also symptomatic for other CEE countries as well.

Positive factors:

- The vertically integrated monopoly CONEL (power utility) has been unbundled, therefore decentralised generation is now legally and commercially possible.
- New energy laws have been passed and are now in force accounting for energy market liberalisation.
- The absorption of the EU *acquis* is an immediate policy goal for Romania. The promotion of renewables is a priority for the EU energy policy (see the Directive on renewables and the Green Paper towards a European Energy Strategy). Romania has to comply with this option.
- Other political commitments (e.g. the Kyoto Protocol, ratified by Romania, sets the target to reduce GHG emissions by 8% during the first commitment period), favour the development of renewables. Use of the Kyoto flexible financial mechanisms (joint implementation and emissions trading in particular) can also provide an additional financial input for the development of renewable sources, especially wind power.
- The Romanian power and heat regulatory agency (ANRE) has established rules to guarantee equal treatment of actors on the energy market. ANRE produced a clear regulatory framework for IPPs to operate according the regulated Third Part Access (rTPA) principles.
- The cross subsidies for electricity were removed. The tariffs, based on transparent methodologies, reflect the real electricity costs.
- The Romanian industrial sector has a proven capability to transfer and implement modern technologies for wind turbine components manufacture, i.e. towers, nacelles, gearboxes, generators.
- Good wind energy resources.
- Quite good own R&D experience. There are various centres in Romania where extensive research in the field of renewable energies, particularly wind energy, has been performed. Sound knowledge and professional skills are available from a group (albeit a rather small one) of qualified local experts.
- The development of remote rural areas where connection to the grid is not possible or is too costly calls for decentralized power generation solutions. Renewables provide such environment-friendly alternative solutions.
- Many companies that have considerable electricity bills and own sites with good wind potential are interested to become self-producers.

Policy barriers

- In spite of the fact that promotion of renewables is stated as a policy goal in all official documents governing the energy legislative and regulatory framework, no specific legislation has been yet enacted and no well-defined mechanisms have been put in place to provide meaningful incentives for the implementation of projects in the area of renewable energy resources.

- No connection is being made between the political commitment to rural electrification and the opportunities provided by renewables as a viable solution.
- Nuclear power production is seen as a priority for the national energy strategy in order to meet the rising electricity demand. Since no electricity shortages are foreseen in the medium term, there is no special pressure to develop alternative environmentally clean resources.
- The slow pace of translating new energy laws and national strategies into a well-functioning energy market with free access for all investors.
- The existing large hydro sector, once included in the renewables category, is perceived as covering the “clean energy” and other political commitments.
- There is a lack of operational experience with Independent Power Producers in Romania. Because of this identified barrier there has been only limited IPP activity in the country.

Financial barriers

- The relatively high initial capital costs of renewables jeopardize the ability of such units to compete in a free energy market. Unregulated liberalization of the market could result in lower electricity prices in conventional generation units, thus undercutting the progress of renewables. There is no financial mechanism in place yet to reallocate a quota of electricity sales to renewables activities.
- Competition for investment capital in Romania is substantial, and the absence of a history of commercially operating renewable energy projects results in limited availability of investment capital.
- Persistence of still low energy prices. Today the average regulated electricity prices are \$38 to \$49 per MWh, on medium or low voltage.
- Romanian overall economic performance has been poor especially in the past four years; the situation was compounded by a shortage of investment capital.
- Existence of excess electricity generating capacity to meet a dwindling energy demand.

Institutional barriers

- Renewables are dealt with by various decision-making bodies: Ministry of Resources and Industry, Ministry of Waters and Environmental Protection, ANRE and ARCE.. No clear delimitation between their responsibilities and no agreed co-ordination mechanism seem to exist.

Technical barriers

- There is no precise knowledge of the wind power potential, since no substantial wind audit has been conducted in the country. Only a general analysis was attempted during the 1990's.
- There are no meaningful national capabilities, so far, for the design, manufacturing and testing to enable the local production of wind turbines with a capacity of 600 - 750 kW to be used for electricity generation in wind farms and for stand-alone systems. Such wind turbines will have, therefore, to be developed and produced through technology transfer, provision of expertise, training and supply of related equipment.
- There are no specific Romanian norms and standards relating to wind energy.

Information, awareness and human resources barriers

- Earlier demonstrative applications in the area of wind power using exclusively Romanian equipment and know-how undermined the credibility of the new technology as a result of their poor performance due to inadequate materials and maintenance.
- No convincing demo application using commercially available proven wind energy technology has been installed in Romania yet. Although there were attempts in the past to produce wind turbines for electricity generation, they were unreliable and inefficient.
- The population has no recent experience with wind energy. It is, therefore, necessary to overcome the lack of knowledge about the availability of alternative renewable energies, particularly wind, and to educate the population, at all levels, by providing tangible demonstration that such alternative technologies could offer real solutions.

It is clear that, without addressing the above-mentioned barriers, it will be difficult to promote sustainable wind energy alternatives and open the market. In this context, ENERO is committed to contribute, according to its objectives and resources, to the wind energy development in Romania. Identifying the barriers is a first, necessary, step.