Rising to the challenge: the growth of wind power generation in Greece

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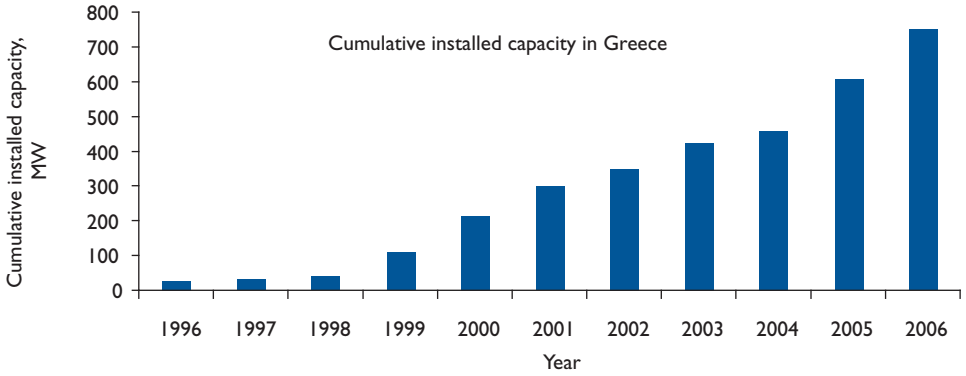
Over the past few years Greece has produced a consistent and arguably impressive growth in wind power generation, both in terms of increasing its total installed capacity and getting closer to the targets set by directive 2001/77/EC on the Promotion of Electricity Produced from Renewable Energy Sources in the Internal Electricity Market. In 2005, approximately 121 MW were connected to the electricity supply network, increasing the installed capacity by 25% and taking it to a total of 605 MW. In 2006, another 142 MW were added, raising the total installed capacity to 749 MW, a 24% increase over the previous year. The current capacity allows wind generation to meet 3% of the country's national electricity demand and gives Greece 11th place among the EU-27 in terms of wind-generated electric power. Indeed, the energy produced from wind generation has been growing steadily: from 1,120 GWh in 2004, it rose to 1,270 GWh in 2005 and to 1,580 GWh in 2006. Figure 1 shows the substantial growth in the country's installed wind capacity between 1996 and 2006.

Greece still falls short of the objectives set in directive 2001/77/EC and by 2010 it needs to increase its installed wind generation capacity to 3,370 MW and the corresponding generated energy to 7 TWh. Even though it may fail to do so, the country's progress points to a success story: between 2001 and 2005 (i.e. before the enactment of Statute 3468/2006, the latest national law on the generation of electricity from renewable energy sources) the number of production licences that were granted for wind generation reached 350 and amounted to a total capacity of 4,088 MW. The current estimate of the wind energy capacity that will be installed by 2010 indicates at least 2,100 MW but may even reach 3,270 MW if construction work proceeds at a quicker pace.

How it all started: the legal framework on renewable energy production

Rules regulating the production of electricity from renewable energy sources (RES) were first introduced by Statute 1559/1985 (Regulations of Issues of Alternative Forms of Energy and Specific Issues of Power Production from Conventional Fuels). Drawing on this law, the Public Power Corporation (PPC), the then vertically integrated state-owned undertaking, installed 24 MW and local government bodies only 3 MW; on the other hand, the private sector was entirely left out. The inadequacies of this law, which made licensing an almost impossible task, led to its amendment by Statute 2244/1994 (Regulation of

Figure 1: Installed wind generation capacity in Greece, 1996-2006



Source: 2006 IEA Wind Energy Annual Report

Issues pertinent to the Generation of Electrical Energy Sources and Fossil Fuels), which became a landmark piece of legislation for the development of RES in Greece. Indeed the new statute attracted investors into the RES sector by ensuring that electricity produced by RES would be sold to PPC. Crucially, Statute 2244/1994 introduced fixed tariffs at 90% of the medium-voltage tariff for RES electricity sold into the country's interconnected system and at 90% of the low-voltage tariff for RES electricity sold into the country's non-interconnected islands. In either case, PPC was obliged to buy such electricity under 10-year contracts with RES producers. In addition to feed-in tariffs, the development of RES projects was greatly facilitated by the support of investment laws which provided grants and subsidies amounting to as high as 60% of the project budget. It was under this framework of feed-in tariffs and extensive incentives that the first private wind farms came into being in 1998. Interestingly, RES was almost entirely identified with wind energy, especially in the case of IPPs.

Statute 2773/1999 (On the Liberalisation of the Electricity Market) retained the favourable pricing regime for RES and wind power while placing emphasis on priority access of RES to the grid. Growing investment interest in RES also led to Statute 2491/2001 (Simplification of Procedures for Establishing Companies, Licensing Renewable Energy Sources Plants etc.). Between 2002 and 2005 a thorough revision of the statutory framework for RES was under way, partly because of commitments undertaken by Greece under international conventions (e.g. the Kyoto Protocol which was adopted by Statute 3017/2002) and EU secondary legislation (e.g. directive 2001/77/EC) and partly because of the country's fast-growing RES sector. Statute 3175/2003 aimed to give a further impetus to RES development (e.g. introduced new rules aimed at speeding up the licensing process), yet further progress had to be made because authorisation and licensing procedures still remained time-consuming, local communities were often unsympathetic to wind power projects and the capacity of the grid was sometimes insufficient to accommodate all wind energy production.

The current framework: Statute 3468/2006 implementing directive 2001/77/EC

Statute 3468/2006 (RES Statute) which entered into force on July 14, 2006, transposed directive 2001/77/EC into Greek legislation and set out *de novo* the entire legal framework for RES. The new statute introduces several provisions that are intended to attract further investments in the RES sector. Pursuant to article 19 of the RES Statute, a RES Projects Committee has been set up whose role is to promote and monitor investments in RES and co-generation plants whose installed capacity is of at least 30 MW or whose investment budget is of at least €30,000,000. The most important provisions of the new law are:

- the increase of the feed-in tariffs;
- the extension of the duration of the power purchase agreement (PPA) to 20 years; and
- the reduction of bureaucratic obstacles.

The RES Statute sets forth a coherent licensing framework for the production of electricity from RES. In doing so, it provides for the issue of three individual licences: the production licence, the installation licence and the operation licence. Of these, the installation licence is the most crucial and time-consuming for it requires several individual permits and approvals from various bodies (e.g. Ministry of Agriculture, environmental authorities, the Urban Planning Authority, the Greek Archaeological Service, local prefecture etc). Unless the installation licence is granted within 24 months from the time the production licence is granted, the Greek regulatory authority of energy may revoke the production licence. The new law also sets forth strict rules on monitoring holders of production licences to ensure that, unlike what was happening under the licensing regime before the introduction of the RES Statute, licence trading is no longer under way.

Costs and tariffs

The total cost of Greek wind-power projects depends on the wind turbine type, size, and accessibility. The cost usually varies between 900 €/kW and 1,100 €/kW and is mainly influenced by international market prices and interconnection costs. The cost of generated wind power ranges between 0.026 €/kWh

Table 1: Tariffs

Type of electric energy production	Mainland interconnected system (Euro/MWh)	Non-interconnected system / autonomous power plants (Euro/MWh)
Wind onshore	73	84.6
Wind offshore	90	90

and 0.047 €/kWh depending on the site and project cost.

Statute 3468/2006 has continued the practice of feed-in tariffs and has indeed offered even more competitive prices for IPPs under longer term PPAs (i.e. 20 rather than 10 years). Under the tariffs provided in article 13 of the RES Statute, market prices for wind power are as shown in Table 1.

Incentives for wind energy projects

Financial support for wind energy projects has been generously provided by the State as part of the so-called Operational Programme for Competitiveness (OPC) and the Investment Incentives Statute 3299/2004 (and its predecessors). The OPC has drawn resources from the EU Third Community Support Framework to provide state aid to renewable energy sources. State aid accounts for 30% of the eligible cost of the projects and can go up to 50% in the case of construction of transmission lines connecting renewable energy plants to the grid. During 2006, several measures under the OPC were made open to tender.

In addition to OPC, Statute 3299/2004 introduces substantial and procedural changes to the regime of state aid to corporations and provides for various types of incentives (i.e. cash grants, leasing subsidies, tax relief and a cash grant for payroll expenses relating to employment created by an investment). The cash grant for payroll expenses covers a percentage of the total payroll cost of each new employment position, depending on the geographical area. The law was partially amended at the end of 2006 to be harmonised with the new regional aid map (Map) that will apply to the EU for the period 2007-2013. The map defines new regional aid guidelines as well as new maximum permissible limits of state aid.

The incentives set out in Tables 2 and 3 are available, based on the zone and category of investment. The law provides that the incentives cannot exceed those which are provided by the approved Regional Aid Map of the European Commission.

Employment positions qualifying as new employment positions under Statute 3299/2004 are those created within the first three years of completion of the investment and commencement of operation. The cash grant is computed on the gross

Table 2: Incentives other than income tax exemptions

Investment Category	Zone A	Zone B	Zone C
Category 1	20%	30%	40%
Category 2	15%	25%	35%

Table 3: Income tax exemption incentives

Investment Category	Zone A	Zone B	Zone C
Category 1	60%	100%	100%
Category 2	50%	100%	100%

wages for each qualifying employment position and is paid for a period of two years. The law provides medium-size enterprises with additional aid of up to 10% and small and very small enterprises with additional aid of up to 20%.

According to Statute 3299/2004, as amended, big investments are those for which aided expenditures exceed €50m. For investment projects exceeding €50m the maximum aid is calculated as follows:

- Up to €50m – 100%
- €50m to €100m – 50%
- exceeding €100m – 34%

The Centre for Renewable Energy Sources is the intermediate agent responsible for administering and managing all wind energy projects on the mainland and those in the Greek islands with a capacity greater than 5 MW.

Financing sources

Sources of financing for wind energy projects invariably take the form of equity or debt or both. The most usual source, however, has been loans from banking institutions established in Greece or abroad, or other (non-banking) companies, including other group companies. Over the past few years, banks operating in Greece, whether local or foreign have gained considerable experience from financing wind power projects. In case a loan is concluded with affiliated companies, the terms of the loan and more specifically the level of interest charged must be set at arms' length, as if charged by an unrelated third party. Syndicated loans are frequently used for large-scale projects. It should be noted that in the event of loans from abroad from non-banks, stamp duty and withholding tax issues will also have to be reviewed.

An alternative way of financing, which has been occasionally used, is the issuance of bond loans. Such financing method provides more tax advantages under Greek tax law both for the project as well as for the foreign lenders.

Shareholders may inject capital in the project company by capital increases. Capital concentration tax at the rate of 1% on the share capital amount applies in those cases. In case of a capital increase, a specific formalistic procedure must be followed for both a *societe anonyme* and a limited liability company, the two types of corporation under Greek law, which requires the amendment of the articles of association.[1]

Conclusion

Wind energy deployment has increasingly become a challenging area for development all over the country, especially in areas having poor infrastructure, where some of the most promising sites for wind energy development can be found (most notably in Thrace, the Peloponnese, the island of Euboea and Crete). Growth has come together with the involvement not only of major international players (e.g. Ibredrola, Enel, EdF, Endessa) in the local market but also of major construction companies, individual investors and equity funds. Even though certain matters still need to be addressed (e.g. drafting of technical codes, increase of the grid's capacity and efficiency of licensing procedures which despite the substantial improvements still remain slow and bureaucratic), growth is now an established long-term trend that is bound to continue at an impressive pace. Interestingly, this growth, which owes much to feed-in tariffs and to attractive incentive schemes, still presents opportunities for investors, whether from the energy market or beyond. In fact, it is no longer a matter whether the investment risk is worth taking (this has been decided some time ago) but rather how an investor will identify and secure the right project or scheme.

Notes:

[1] For an overview of legal issues relating to project finance in Greece, see article "Greece: The State of the Law in Project Finance" authored by the partners of Kelemenis & Co., Dr. Andreas Bagias and Tom Kyriakopoulos, for Euromoney's *Project Finance Yearbook 2007/08*.

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