



RES INVESTMENT PERSPECTIVES

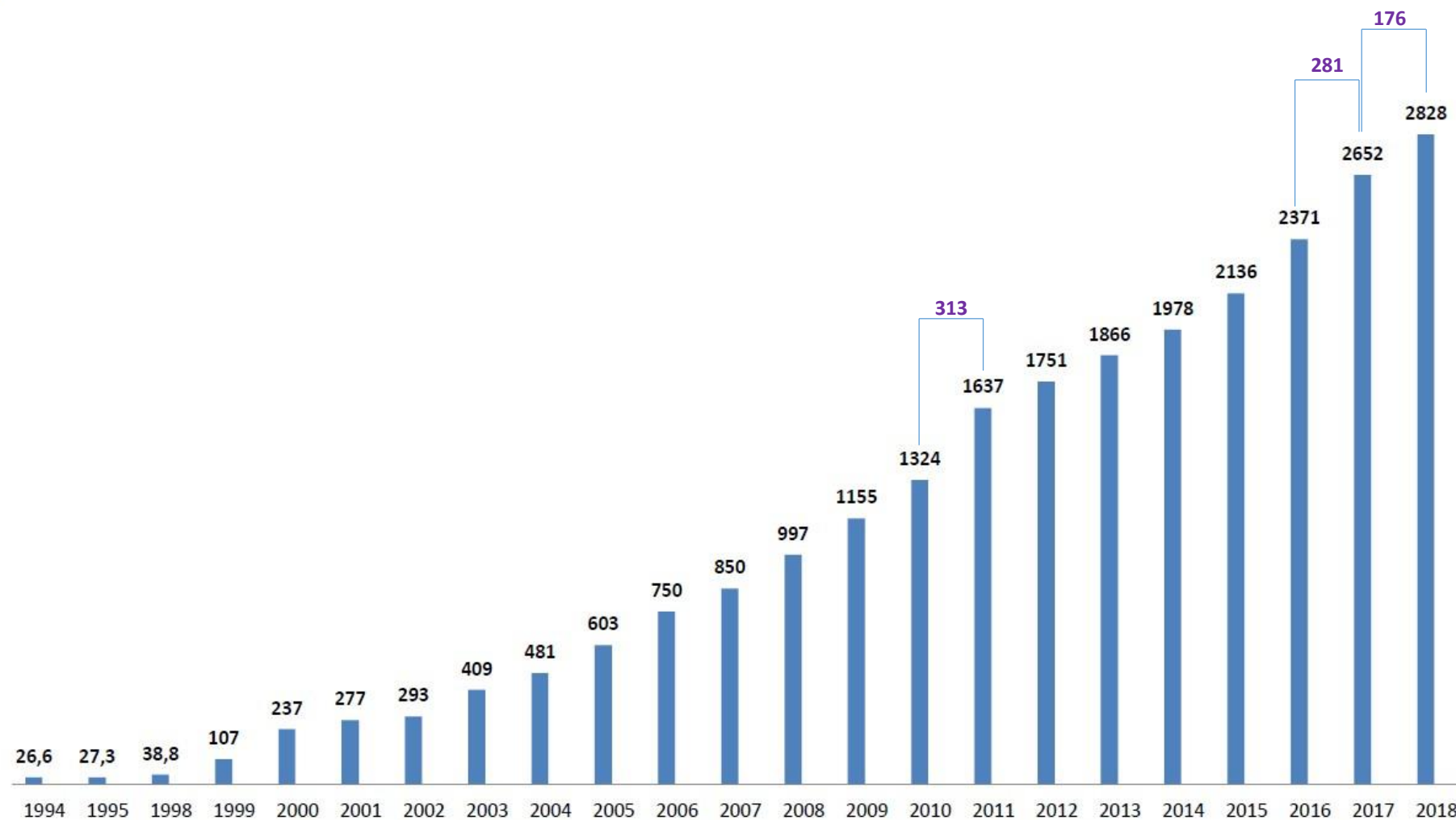
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Total Installed MW of Wind Parks per year in Greece



Mean average of the annual installed capacity during the last 20 years: 140 MW

Source: Hellenic Wind Energy Association - HWEA

Ambitious National RES Targets

- The 2020 wind energy national targets will not be achieved, resulting in a RES capacity deficit of about 4800 MW. According to the already published National Energy and Climate Plan (NECP), the National RES Target for 2030 must be clearly higher, that is 32%, while the target of share of electricity produced by renewables raises to 55%
- National Energy Planning should also serve the goal of a low-carbon economy by 2030 and be compatible with a decarbonisation pathway of the economy by the middle of the century, in order to face climate change consequences and protect the environment
- Preservation of the Priority Dispatch policy concerning the absorption of wind energy for all projects
- There is a tendency for increasing of the payment delays, obviously due to the reduction of the Suppliers' Surcharge without any mechanism in place (Guarantees of Origin, etc), as well as creation of a possible new deficit for RES Special Account, concerning the reduction of Special Levy on Pollutant Emissions (ETMEAR).



National Spatial Planning

- Improvement interventions in the process of spatial planning review, with active involvement of the RES sector
- Avoiding of a complete revision of the RES Special Spatial Planning. No significant decision-making at the level of local and regional spatial plannings
- The new Special Spatial Planning should not introduce unreasonable restrictions –additional exclusion zones- against RES that are not needed for biodiversity protection
- Environmental Impact Assessments and management protection plans of Natura areas must be compatible with energy planning, without setting horizontal and non-scientific restrictions against RES (Regional Spatial Planning of Crete case)



Large Investments for the exploitation of the Aegean Sea's high wind potential (Cyclades – Crete)

- Large investments are absolutely necessary for Greece in order to meet its energy and climate targets and maximize the relevant positive impact on economic growth and new jobs
- Development of new interconnection networks between the islands
- These interconnections can be combined with clusters of wind farms in the islands, which of course must be handled, concerning the remuneration regime, in equal terms and conditions under the framework of bidding processes
- Benefits of reduction regarding the annual charge to electricity consumers (SPI) of about 650-800 million euros, due to new interconnections



Licensing of RES Projects

- Continuous existence of bureaucracy which puts barriers in the development of projects characterized by extreme delays, costs and risks. Up to 30 authorities involving in the environmental only licensing of a wind park project, while the most frequent situation is that projects are constructed in about 10 years after the start of its licensing procedure.
- Establishment of a One Stop Shop Agency with adequate personnel from all relevant departments (environmental, forestry, urban planning, archaeological etc) which will have central structure and will get full authorization issuing the final investment permit.
- Acceleration of licensing procedure in case of modifications of already issued permits
- Radical simplification and more efficient licensing processes, with emphasis on Forestry and Military Authorities as well as Grid Connection Contracts
- Competent authorities should express their opinion on matters within the framework of their own responsibilities, getting binding deadlines, while a “no answer” (after a period of certain time) to be considered as a positive one
- Ensuring the compliance of the procedures of the various authorities with the RES Special Planning, with emphasis on archaeological opinions. Removal of the subjectivity of the relevant judgments by the introduction of objective - quantitative criteria.
- Removal of various fees and charges that no longer serve, for example the annual Production License Maintenance Fee, especially concerning large wind park's clusters with submarine interconnections, and Letters of Guarantee following the issuance of Binding Connection Offers. The developers are taxed due the inefficiencies and the delays of the state procedures.



New era of wind energy (1)

- **RES Competitive Bidding Process 2018-2020 (in accordance with L.4414/2016 and the State Aid Guidelines of the European Commission)**

- Wind farms with independent interconnection and offshore wind parks. The relevant decisions so far adopted do not cover this specific category. Inclusion in projects with a common point of absorption of the interconnection in the Greek Grid, does not give any chance of success to those mature projects with acquired rights, where it is obvious that the CAPEX due to submarine interconnection is significantly higher, in comparison to wind parks in mainland system and especially PVs.
- Proposal for participation of wind energy projects with independent interconnection and offshore wind parks in the bidding processes having an added premium to their selected reference price due to the high interconnection cost of these projects
In parallel, integration in Greek Legislation of the procedure concerning the notification of individual support schemes for large RES projects above 250MW per site as per par. 20 of the current Guidelines on State aid for environmental protection and energy 2014-2020

Countries like Greece, with stricter limitations in terms of space availability (land/sea uses) as well as applications submitted many years ago, should be awarded the possibility to follow a similar flexible procedure for smaller projects as well.

Therefore, we propose to reduce the threshold for such cases to 150MW per site

- Increase of the available capacity for the bidding processes for the projects above
- Four bidding processes concerning wind parks projects have already been conducted. There is a large deviation between the already auctioned and the selected capacity of the projects, which is indicative of the failure to achieve the RES targets already set.
- Low selected prices (*Lower Price:55€/MWh, Weighted average price:58.6€/MWh - Dec. 2018*) provide risk to a successful implementation of these projects

New era of wind energy (2)

- **Incorporation of RES projects to target model**

- Concerning the transition period up to the establishment of the Target Model, it is predicted the participation of RES projects mainly in the Day Ahead Market (DAM). After the establishment of the Target Model, RES projects will also participate in the Intraday and Balancing Markets
- Uncertainties concerning forecasting of energy production
- Establishment of RES Aggregators

- **New wind turbines technology**

- Evolution concerning the aerodynamic design of new wind turbines and the material of their equipment leads to higher energy production
- Lower cost of equipment
- Bigger sizes of wind turbines, more than 3MW platform (Rotor diameter $\sim 120\text{m}$, Hub height $\sim 90\text{m}$)



Copelouzos - Elica Group Overview (1)

- Elica Group (“EG” or “The Group”) has developed integrated renewable energy activities in Greece and the Balkans since 1998
- The Group is one of the leading renewable energy groups in Greece having already fully designed, developed, constructed and set in operation around 250 MW of Wind Parks, 10 MW of Hydroelectric plants and 20 MW of PV plants, while 50 MW of WPs are under construction phase.
- Furthermore the Group has a projects’ pipeline of over 2,100 MW of wind parks in Greece, with emphasis in Aegean Sea . Among them, it is worth mentioning, on one hand the implementation of 1,000 MW of wind parks in Crete island, considering it as the largest green island globally, through its interconnection with the national grid and on the other hand the offshore wind parks project of Alexandroupoli – Thrace in Northern Greece (the first realistic project of its kind due to low sea depth)
- The Group in 2005 introduced for the first time the concept of installing “chain” wind parks in areas with high wind potential but very limited transfer capabilities by developing on each project the necessary interconnection infrastructure.
- The Group has designed, developed and issued Installation Licenses of a major project consisting of eight wind parks in Kafireas area of Evia to be connected via a submarine cable to the Greek mainland with a licensed capacity of about 180 MW, which were subsequently sold to a third party and now is ready for operation.

Copelouzos - Elica Group Overview (2)

- Abroad, our GROUP has shown activity in Bulgaria, where wind parks of total capacity 350 MW are in progress.
- Moreover, our GROUP and the Egyptian public electricity company (EEHC), supported by the Egyptian Ministry of Electricity and Renewable Energy, have signed an MOU aiming to mutual efforts for the development of 3.000 MW of wind farms in the area of Suez and transmission of the electric energy to Europe through Greece, through underwater interconnection.
- In addition our GROUP has entered into important strategic partnerships with ENEL GREEN POWER (EGP) and NEK for the development of wind parks in Greece and Bulgaria respectively. Recently EG has developed significant cooperation with the CHINA ENERGY Group in the area of wind energy.
- Our GROUP is very interested in expanding its activities to new promising RES technologies such as geothermal and solar thermal (CSP) energy





Thank you
for your
attention.