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NORTON ROSE FULBRIGHT

Law 4414/2016: A new support scheme for renewable electricity in Greece

Briefing

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Introduction

In early August 2016 the Greek Parliament passed the long awaited new national support scheme for electricity from renewables and highly efficient cogeneration of heat and power by virtue of Law 4414/2016 that came into effect on August 9, 2016 (Law 4414). Law 4414 was enacted following extensive consultation by the Ministry of Environment & Energy with market stakeholders and the European Commission which began in early 2016. The new scheme is intended to reform the existing support scheme in line with the European Commission's Guidelines on State aid for environmental protection and energy for the period 2014 – 2020 (Guidelines). It promotes better integration of renewables into the national electricity market at an optimum level of cost and benefit for society whilst exploiting by priority domestic renewables in order for Greece to meet its 2020 renewable electricity generation target (i.e. at least a 40 per cent share of gross electricity consumption). At the same time the level of support is limited so as not to over-reward renewable energy projects. Below is a summary of the main features of this new scheme as provided in Law 4414.

Main features of the new scheme

Feed-in premiums and market participation

The two overarching principles of the new scheme are: (a) the compulsory participation of new renewable energy projects in the Greek wholesale electricity market, either directly or through renewable energy aggregators, whilst undertaking some balancing responsibilities; and (b) revenue support on the basis of cost reflective, market-based operating aid which will ensure that the projects are neither overcompensated nor undercompensated.
To this end, the feed-in tariff-based (FiT) scheme, applicable with small variations since 1994, is replaced by a technology-specific sliding scale feed-in premium (FiP). The FiP will be added as a premium to the revenues received by renewable generators through their participation in the

wholesale electricity market, topping up revenues in order for the relevant operating aid to reach an acceptable level of support measured against a technology-specific reference tariff (RT). The RTs will be initially regulated for all technologies but from 2017 will be set through competitive bidding for most generators on a project-by-project basis. In case the market value of renewable electricity per technology is in excess of the applicable RT, the excess will be returned to the special account kept by the market operator or the network operator, as the case may be.

Scope of application and exemptions

The new scheme applies only to projects entering into commercial or trial operation in the interconnected electricity transmission system and distribution network of Greece (Interconnected System) after January 1, 2016 that have also entered into the FiP Contract provided in Law 4414 with the electricity market operator (HEMO or LAGIE by its Greek acronym). In effect, this will resemble to a contract for differences (CfD) against the applicable RT after taking into account the market value of renewable electricity per technology. However, small scale and demonstration projects[1] are exempt from the new scheme in which case a standard FiT Contract is also provided in Law 4414 instead of the typical power purchase agreement (PPA) that was available until the end of 2015. Projects entering into commercial or trial operation in the Non-Interconnected Islands of Greece (NIIs)[2] after January 1, 2016 will continue to access a FiT-based scheme (through FiT Contracts) as long as these islands are either not interconnected with mainland Greece or do not have a fully operational daily electricity market. In the event of interconnection or emergence of an effective daily electricity market, the signed FiT Contracts will be converted to FiP Contracts for the rest of their term, provided that the project is not exempt from compulsory FiP contracting because of small project size (see footnote 1). Until then FiT Contracts in the NIIs will be entered into with the distribution network operator (HEDNO or DEDDIE by its Greek acronym).

Term and content of FiP and FiT Contracts

The term of the new FiP and FiT Contracts and therefore of the associated operating aid will be 20 years for all renewable energy projects, other than solar thermal power plants which will enjoy a 25 year term. The form, the content and the details of such new standard contracts will be determined by ministerial decisions that need be adopted by the Minister of Environment & Energy following a proposal from LAGIE and an opinion of the Regulatory Authority for Energy (RAE). The drafts of the new FiP and FiT Contracts currently under public consultation by RAE are notably based on the standard PPAs that were available until the end of 2015. Project sponsors and potential financiers are therefore not expected to be faced with an entirely new form and content of contract for the sale and purchase of renewable electricity. It is the price clearing and settlement that will change essentially.

Transitional period for projects with PPAs

Operating projects and projects still under development which have entered into a standard PPA with LAGIE (the market operator), or DEDDIE in the NIIs, before January 1, 2016 will continue receiving operating aid under the previous FiT support scheme, provided that any such new-built projects enter into commercial or trial operation by June 30, 2018 in the case of wind, small hydro, biomass or biogas projects and by December 31, 2017 for all other renewable technologies and highly efficient cogeneration projects.

1 That would be: small scale renewable energy projects (other than wind) with an installed capacity of less than 500kW; wind energy projects with an installed capacity of less than 3MW; and innovative renewable energy projects installed by the Centre for Renewable Energy Sources (CRES) or universities or foundations or institutes in the context of an experimental programme and for the term of that programme.

2 Currently, that would be most of the Aegean Sea islands like the Cyclades Islands, Crete, Rhodes, Kos, Lesvos, etc.

Otherwise they will have to switch to the new support scheme and sign the new FiP or FiT Contracts, as applicable depending on installed capacity, but will be excluded from any competitive bidding process as long as they enter into commercial or trial operation by December 31, 2018. All these projects with an installed capacity of more than 5MW also have the option to voluntarily switch to the new FiP-based support scheme of Law 4414.

Participation in the daily electricity market

Although not elaborated in Law 4414, but still based on the underlying proposal of the Ministry that was put forward for consultation with stakeholders in early 2016, renewable energy projects with FiP Contracts will participate in the wholesale electricity market (either directly or through aggregators, including one of last resort to be nominated by ministerial decision). They will submit zero priced energy offers on an hourly basis and will be subject to the clearance and settlement procedures for day-ahead electricity market transactions which now apply to conventional power plants and electricity imports in Greece in anticipation of the introduction of the EU Target Model for electricity markets.

It is noted that the current market model of Greece is a mandatory power pool with single clearing prices for energy and imbalances which does not permit bilateral contracts with physical deliveries. Therefore the Electricity Transactions Code and the System Operation Code (both dated February 2012) and their implementing manuals will need be revised extensively as a outcome of not only Law 4414 but also the more recent Law 4425/2016 on reforming the wholesale electricity market of Greece in the context of the EU Target Model. Law 4425/2016 provides for the gradual introduction of a forward market with an obligation for physical delivery whilst allowing for bilateral transactions as well, a day-ahead market, an intraday market and a balancing market, including a capacity market. In any event the priority dispatch of renewable electricity by the competent system and network operator remains enshrined into law, namely in Article 9 of Law 3468/2006, as in force, pursuant to Article 16(2) of the Renewable Energy Directive 2009/28/EC.

Balancing upon achieving EU Target Model

When the EU Target Model for electricity markets integration is implemented in Greece (currently foreseen to be completed by the end of 2017) and liquid intra-day electricity market operations are developed in the domestic wholesale electricity market, renewable generators with FiP Contracts will be also subject to standard balancing responsibilities. Until then, some balancing responsibilities will be imposed pursuant to the System Operation Code relating to imbalances between estimated and actual power production exceeding certain tolerance limits while a Transitional Mechanism for Optimum Accurate Forecasting will be provided in the said code. A transitional management premium on top of the applicable RT will be provided to such generators for as long as it is deemed necessary to compensate them for the additional cost of participating in the wholesale electricity market. This premium will amount initially to Euro 3 per MWh for wind parks with an installed capacity up to 10MW and to Euro 2 per MWh for all other renewable energy projects (including wind parks with an installed capacity above 10MW) and will be reviewed annually.

Calculation and payment of the operating aid

In the case of FiT Contracts, the operating aid will be equal to the applicable RT. In the case of FiP Contracts though the operating aid of a generator on top of his wholesale electricity market revenues will be the difference between a special market price per renewable energy technology reflecting the market value of such technology (Special Market Price for Renewables or SMPRES) and the applicable RT for each technology or project concerned.

FiP = RT – SMPRES

The SMPRES, however, will be calculated differently for intermittent (i.e. wind power, solar PV and small hydro power plants) and non-intermittent (i.e. biomass, biogas, geothermal, solar thermal and highly efficient cogeneration of heat and power plants) renewable energy projects.

The SMPRES for intermittent renewable energy projects will be calculated on the basis of the weighted average value of the electricity production of each renewable energy technology during the relevant calculation period (i.e. one calendar month), while for non-intermittent projects the calculation will be done according to the average wholesale market clearing price (known as System Marginal Price or SMP) during same period. In both cases other wholesale electricity market charges and revenues may also be taken into account, especially during the transitional period to the EU Target Model during which period the hourly weighted average variable cost of thermal power plants may also be taken into account. In case the SMPRES is in excess of the applicable RT, the excess will be returned to the special account kept by the market operator or the network operator, as the case may be.

The methodology for these calculations and for the payment procedures will be elaborated in a ministerial decision due within three months from Law 4414 coming into effect. This difference in SMPRES calculation is expected to favour the more efficient intermittent projects of the same technology whilst provide an incentive for non-intermittent projects to generate renewable electricity during hours of high demand (and hence of high wholesale market prices). Although the methodology may be revised, the total operating aid due each time should not be affected since the relevant RT remains applicable for the term of the respective FiP Contract.

Any other capital or equivalent investment aid granted to renewable energy projects, which are subject to the new support scheme, will be taken into account and will be deducted from the operating aid to which the project is entitled under Law 4414 effectively based on regulated project internal rate of return after taxes (Project IRR). See Table 1 below for such Project IRRs pursuant to the RTs of Law 4414.

Regulated RTs and competitive bidding processes

The RTs for all renewable energy technologies and categories of projects provided in Law 4414, other than solar PV with an installed capacity in excess of 500kW, are set administratively for 2016 (and remain applicable for the term of the relevant FiP or FiT Contract signed in 2016). In this respect see Table 1 below. Any subsequent revision of these RTs, which may occur annually within the first quarter of any calendar year, will apply to new projects reaching commercial or trial operation after the first day of the second calendar year after that. Accordingly there is a lead time for project commissioning of almost three calendar years before a revised RT applies.

Subject to project size-specific exemptions that will continue enjoying regulated RTs, from January 1, 2017 all other renewable energy technologies and categories of projects will likely be eligible to receive operating aid only through a competitive bidding process to set the relevant RT per project. In this context RAE is required to run some pilot tenders in the last quarter of 2016 for 40MW of solar PV capacity with maximum bidding prices per project category (i.e. Euro 94 per MWh for projects above 1MW and Euro 104 per MWh for projects less than or equal to 1MW), maximum installed capacity per project (i.e. 10MW) and deadlines for commissioning (i.e. 18 months for projects less than or equal to 1MW and 24 months for projects above 1MW). In order for a solar PV project to be eligible to participate in these pilot tenders, it must have executed and have an effective Grid Connection Agreement or it must have secured grid connection terms from the grid operator subject to a relevant bank letter of guarantee being also in place as per the applicable laws.

Possible uplifts for dedicated subsea cables

Renewable energy projects in the NIIs that subsequently become interconnected with the Interconnected System through a dedicated subsea cable (paid entirely by the generators concerned) are entitled to an uplift on the applicable RT of Table 1 of up to 25 per cent.
The same uplift may be also available to onshore wind parks on uninhabited islets or offshore wind parks that get interconnected with the Interconnected System through a dedicated subsea cable (paid entirely by the generators concerned). In both cases, however, the uplift cannot end in a new Project IRR (for the entire project including the subsea cable in question) in excess of the Project IRR used by the administration for defining the relevant RT of Table 1 or the maximum bidding price allowed under the relevant bidding process.

Table 1 – Reference Tariffs of Law 4414

Renewable technologies and project categories [3]	RT (€/MWh)	Project IRR
Onshore wind parks in the Interconnected System	98	9%
Onshore wind parks in the Non-Interconnected Islands	98	9%
Small hydropower ≤3MW	100	9%
Small hydropower >3MW and ≤15MW	97	9%
Solar PV <0.5MW [*Roof-top solar PV installations are regulated by special legislation and hence excluded from the present briefing.*]	1,1 * wholesale electricity market price of the previous calendar year	-
Solar PV ≥0.5MW	Competitive bidding	-
Biomass (or bioliquids) from thermal processing ≤1MW (excluding the biodegradable fraction of urban waste)	184	9%
Biomass (or bioliquids) through gasification ≤1MW (excluding the biodegradable fraction of urban waste)	193	9%
Biomass (or bioliquids) from thermal processing (including gasification) > 1MW and ≤5MW (excluding the biodegradable fraction of urban waste)	162	9%
Biomass (or bioliquids) from thermal processing (including gasification) > 5 MW (excluding the biodegradable fraction of urban waste)	140	9%

3 Highly efficient cogeneration of heat and power plants (i.e. cogeneration projects that secure primary energy saving at least equal to ten per cent in relation to thermal and electric energy produced by separate procedures) are also included in the new support scheme of Law 4414 and specific, capacity-based RTs, which are calculated on the basis of a methodology considering the nominal performance coefficient and the present natural gas supply price, are provided for therein but are excluded from this briefing in the interest of general information on Law 4414.

Renewable technologies and project categories	RT (€/MWh)	Project IRR
Landfill gas and biogas from anaerobic digestion of the biodegradable fraction of urban waste ≤2MW	129	9%
Landfill gas and biogas from anaerobic digestion of the biodegradable fraction of urban waste >2MW	106	9%
Biogas released from anaerobic digestion of biomass (energy crops, rural waste and residues, etc.) ≤3MW	225	10%
Biogas released from anaerobic digestion of biomass (energy crops, rural waste and residues, etc.) >3MW	204	9%
Solar thermal without storage system (unless bioliquids are used, in which case see above)	257	9%
Solar thermal with storage system (minimum two hours) (unless bioliquids are used, in which case see above)	278	9%
Geothermal power ≤5MW	139	10%
Geothermal power >5MW	108	10%
Other renewable energy technologies	90	10%

The Special Account for Renewables restructured

The Special Account for Renewables, from which all renewable electricity generators in Greece are paid and which was held and managed until recently only by the market operator (LAGIE), is now aligned with the new support scheme with a view to also eliminating its deficit which is currently standing at around 200 million euros (and is projected to increase considerably unless dealt with effectively within the next years). Separate albeit interlinked Special Sub-Accounts for Renewables will hence be held and managed by the market operator (LAGIE) and the NIIs network operator (DEDDIE) for their areas of competence, respectively. Each of these sub-accounts will account for both electricity market revenues and subsidies revenues for the benefit of renewable electricity generators in a more elaborate way than before. The electricity market revenues of the sub-account for the Interconnected System, where the great majority of renewable electricity capacity is installed, is obviously more elaborated and enhanced than previously was the case. For instance, going forward these revenues will include an additional variable charge to be levied on electricity suppliers based on avoided average cost for electricity purchased through the wholesale electricity market had there not been any renewable electricity available. Further, they provide for the establishment of a secondary special market for certificates of origin for renewable electricity also in Greece.

Conclusions

The introduction of a new support scheme for renewable electricity is mainly driven by the need to adjust the national support scheme to comply with the Guidelines and to a lesser extent by the country's energy planning for the further promotion of renewable electricity through market based mechanisms for the period up to 2020. In spite of an Energy Roadmap to 2050 published by the Ministry of Environment & Energy in April 2012, national energy policy and the action plan for renewables requires updating for the medium to long term in the light of the progress achieved so far. Such an updated energy policy is always critical for the planning and financing of capital intensive projects like electricity generation projects and transmission infrastructure.

Its main features are indeed aligned with the Guidelines while it also takes into account the specifics of the Greek electricity system (e.g. many non-interconnected islands) and the status quo of the domestic renewable energy market through grandfathering provisions for operating projects and projects with PPAs signed under the previous support scheme. The latter category includes around 1GW of wind energy projects pending in the Interconnected System and these are the renewable energy projects that are more likely to find finance and come into operation in the short to medium term under the current market conditions.

However, certain key issues and in particular some methodologies for various calculations need to be elaborated in secondary legislation and the revised Electricity Transactions and System Operation Codes in order for Law 4414 to be implemented. This is a real challenge for both the Ministry of Environment & Energy and RAE not only in the light of the time schedules provided in Law 4414 but also those contemplated by the EU Target Model. Without secondary legislation, there is a risk that only a limited number of projects will contract with the market operator in 2016 under the new FiP Contracts, with challenges increasing further once competitive bidding is introduced from 2017 for new generation capacity. In this context, sponsors and financiers may need be more resourceful when considering project finance outside the traditional framework of FiT-based PPAs in order to reach the same level of comfort when assessing the bankability of a renewable energy project in Greece.

NORTON ROSE FULBRIGHT

Contacts

If you would like further information please contact:

Greece

Dimitris Assimakis
Partner
Tel +30 210 94 75 415
dimitris.assimakis@nortonrosefulbright.com

Minas Kitsilis
Senior associate
Tel +30 210 94 75 408
minas.kitsilis@nortonrosefulbright.com

Spyros Kokkaliaris
Associate
Tel +30 210 94 75 421
spyros.kokkaliaris@nortonrosefulbright.com

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