

A brief guide to the implementation of the Renewable Energy Order

Ana Isabel Mendoza Losana

*Senior Lecturer (Assistant Professor (Tenure Track)) of Civil Law, Universidad de Castilla-La Mancha
Knowledge Management Department, Gómez-Acebo & Pombo*

The Ministerial Order IET/1045/2014 of 16 June, approving the remuneration parameters for standard facilities applicable to certain facilities that produce electricity from renewable energy sources, cogeneration and waste, is the last piece in the new remuneration scheme for these facilities. Given the magnitude of the rule, this document aims to provide some guidance on how to calculate the remuneration of a specific facility.

With the publication in the Official Journal of Spain (B.O.E.) of 20 June 2014 of the Ministerial Order IET/1045/2014 of 16 June (hereinafter, the Renewable Energy Order or the Order), the special remuneration scheme under the Electricity Sector Act 54/1997 – implemented by Royal Decree 661/2007 of 25 May, regulating the production of electricity under the special scheme and other supplementary regulations – is definitely bygone.

The Order implements and supplements Royal Decree 413/2014 of 6 June, regulating the production of electricity from renewable energy sources, cogeneration and waste, which together with Royal Decree Act (Order in Council) 9/2013 of 12 July, adopting urgent measures to ensure the financial stability of the electricity system, and the Electric Industry Act 24/2013, forms a complex web of rules that regulate a new remuneration system for facilities producing electric energy with renewable technology

In all likelihood, the Order breaks all records as to length of a law or by-law. It takes up 1.761 pages of the B.O.E. and contains a detailed regulation of the parameters to be taken into account when setting the remuneration of each type of standard facility, ultimately assigning the remuneration parameters (remuneration from investment and remuneration from operation) that

will determine the exact amount to be received by each facility during the first regulatory half period (between 14 July 2013 and 31 December 2016).

Given the scale of the rule, this paper seeks to give some guidance on the procedure one should follow to identify the remuneration formula of a specific facility.

1. Starting point: “reasonable rate of return on investment”

As we know, the new system rests on a basic principle, that of covering costs and obtaining a reasonable rate of return on investment. Its remuneration schemes should allow these types of facilities to cover the costs that are necessary to compete on the market on an equal footing with other technologies, as well as to obtain a reasonable rate of return on the overall project (art. 11(2) RD 413/2014).

Pursuant to the legislation it implements (final provision 3 Act 24/2013 and additional provision 2 RD 413/2014) and for facilities which qualified for special remuneration when Royal Decree Act (Order in Council) 9/2013 came into force, the Order provides that the reasonable rate of return on investment is

the average yield of ten-year Spanish government bonds on the secondary market for the ten years prior to entry into force of Royal Decree Act 9/2013, that is, the period from 1 July 2003 to 30 June 2013.

For facilities qualifying for special remuneration after Royal Decree Act 9/2013 entered into force, the reasonable rate of return is the average yield of ten-year Spanish government bonds on the secondary market for the months of April, May and June 2013 (additional provision 10 Act 24/2013 in connection with additional provisions 14 and 1 RD 413/2014).

The affected facilities will continue to receive income additional to that earned on the market until the end of their lifespan, provided they do not make a reasonable rate of return (the

rate of return of a standard facility), that is, provided income from the sale of electricity on the market is insufficient to cover the costs of an efficient and well-managed company.

Once the facilities have reached the end of their regulatory lifespan they will stop receiving remuneration on investment and remuneration on operation. In addition, those facilities that have not yet reached the end of their regulatory lifespan but are making a reasonable rate of return shall not receive remuneration on investment but will continue to receive, as the case may be, remuneration on operation during their useful regulatory lives.

As explained in the paper on RD 413/2014¹, each facility's remuneration shall be the result of applying the following formulas:

<p>REMUNERATION_{facility} = Remuneration from sales_{market price} + Specific remuneration</p> <p>+ [Incentive to investment for facilities within non-peninsular electricity systems involving a global reduction of production costs]</p> <p>(Throughout the regulatory lifespan of a standard facility)</p>	
Remuneration _{specific} =	<ul style="list-style-type: none"> • Remuneration on investment + Remuneration on operation
Remuneration _{investment} =	<ul style="list-style-type: none"> • Limit per installed power capacity unit = Non-recovered investment costs of standard facility
Remuneration _{operation} =	<ul style="list-style-type: none"> • Operating costs of standard facility – Market revenue of standard facility

¹ <http://www.gomezacebo-pombo.com/index.php/en/knowledge/legal-analysis/item/1582-the-spanish-government-approves-royal-decree-413-2014-on-electricity-generation-by-means-of-renewable-cogeneration-and-waste-facilities>

The Order completes the above formulas by defining the appropriate remuneration for each standard facility.

2. Affected pre-existing facilities

The new remuneration system shall be applied to both new and pre-existing facilities. Therefore, the following facilities are included in the scope of the Order (art. 2):

- 1.º Facilities producing electricity from renewable energy sources, cogeneration and waste and qualifying for special remuneration when Royal Decree Act 9/2013 came into force (additional provision 2 RD 413/2014). In particular, facilities that at such date qualified for special remuneration under the following laws may receive the specific remuneration regulated in title IV of RD 413/2014, effective as of 14 July 2013:
 - a) Royal Decree 661/2007 of 25 May regulating the production of electricity under the special scheme. Included in this category are those facilities that qualified for special remuneration prior to the entry into force of Royal Decree Act 2/2013 of 1 February, concerning urgent measures in the electricity system and the financial sector (art. 45 RD 661/2007);
 - b) Royal Decree 1578/2008 of 26 September, concerning remuneration for the production of electricity using photovoltaic solar technology for facilities after the deadline date for maintaining the remuneration for such technology under Royal Decree 661/2007 of 25 May.

These facilities will receive remuneration in line with the characteristics provided in additional provisions 2, 6, 7, and 8 and transitory provisions 1 and 9 of RD 413/2014.

- 2.º Successful bidders in the invitation to tender for innovative thermoelectric solar energy facilities (additional provision 3 RD 413/2014).

- 3.º Facilities or modifications of facilities other than wind or thermoelectric solar or photovoltaic facilities which have not been registered in the remuneration pre-assignment register or the first section of the electricity production facilities register but falling within one of the situations referred to in additional provision 4 of RD 413/2014.

As stated above, these facilities will continue to receive income additional to that received on the market until the end of their lifespan, provided they have not yet reached a reasonable rate of return, i.e., that of the standard facility.

3. Standard facilities

The Renewable Energy Order sets out a classification of standard facilities based on technology, installed capacity, age, electric power system and other cut-offs necessary for the remuneration scheme to be applied. Each group and subgroup of facilities is associated with a set of standard facilities² to which an individualised code is assigned³. Schedule I and IV to the Order define the standard facilities and assign a total of 2071 alphanumeric codes.

Pursuant to transitory provision 1(8) RD 413/2014, the Order sets out equivalences between the new standard facilities defined therein and the classification previously in force (Schedules I and IV), for purposes of determining which remuneration scheme is applicable; each existing facility is assigned new remuneration parameters.

² In connection with the new groups and subgroups, see the table on the regulatory lifespan of the different facilities (section 4).

³ The definition of each standard facility and correlating assignment of codes depends on numerous variables (see Schedule I): the facility's group (admitted to the special remuneration scheme by any of the ways provided in previous regulations: art. 2 and transitory provision 2, additional provision 6(3) and art. 45 RD 661/2007; transitory provision 10 RD 661/2007, RD 1578/2008...) or subgroup, the fuel it uses (natural gas, diesel oil, fuel oil), range of output (< 0,5 MW; between 0,5 and 1 MW; between 25 and 50 MW...); its technology subtype (turbines, engine,...); year of the operating authorisation that coincides with the year it was commissioned (from before 1993 to 2016); whether it is a new facility or a substantial modification of a facility. In terms of photovoltaic facilities that were admitted to the special remuneration scheme pursuant to RD 1578/2008, the climatic zone where the facility is located is also taken into account (see Schedule I.8).

In particular, the Order provides a procedure for the assignment of standard facilities for substantial modifications of cogeneration facilities included in subgroups a.1.1 and a.1.2 where there is no information available regarding whether or not they have been substantially modified (cf. transitory provision 3 of the Order). The owners of facilities with assignments that do not correspond to the real characteristics of their facilities must file an electronic request for modification of standard facility with the Directorate-General for Energy Policy and Mines within the three months following the automatic registration of the facility in the specific remuneration scheme register to which it has been assigned. Such request must be accompanied by supporting documentation.

Lastly, pursuant to transitory provision 1(9) RD 413/2014, the Order contains certain rules for the default assignment of standard facilities when, based on the information available at the register of electricity production facilities and in the settlement system, it is not possible to determine the standard facility associated to such facility (transitory provision 1 Order 1045/2014). The owners of facilities with default assignments that do not correspond to the real characteristics of their facilities must file an electronic request for modification of the standard facility assigned by default with the Directorate General for Energy Policy and Mines within the three months following the automatic registration of the facility in the specific remuneration scheme register (cf. transitory provisions 10(2), 3 and 4 of the Order).

Registration of a facility in the specific remuneration scheme register (specific remuneration scheme under operation) and the correlating assignment of a standard facility with a code will permit the owner of the facility to qualify for the appropriate specific remuneration.

4. Remuneration parameters

Each standard facility has been assigned a code (a total of 2.071) and, in turn, each code has been assigned an annual remuneration corresponding to the investment and remuneration on operation. The years that are subject to this new method of remuneration are 2013 (from 14 July to 31 December 2013, Schedule II.1), 2014, 2015 and 2016 (Schedule II.2).

Each standard facility has a set of remuneration parameters that are calculated by reference to the activity carried out by an efficient and well managed company. These parameters set the specific remuneration scheme to be applied to the facilities associated to such specific standard facility (in reality, the assigned alphanumeric code). The most relevant parameters are: the remuneration on investment per unit of power, remuneration on operation, regulatory lifespan, minimum number of operating hours, the operating threshold and maximum number of operating hours for purposes of collecting remuneration on the operation, as the case may be. In addition, certain remuneration parameters are relevant for purposes of calculating the above, including but not limited to the following: the standard value of the initial investment of the standard facility, the estimated daily and intraday market prices, number of operating hours of the standard facility, upper and lower annual market price limits, estimated future operating income, estimated future operating costs, the discount rate based on the reasonable rate of return, the standard facility's adjustment coefficient and the net value of the asset. Some of these parameters deserve special attention:

- The **reasonable rate of return of standard facilities will revolve around** the average yield of ten-year Spanish government bonds on the secondary market over the 24 months prior to the month of May in the year preceding the beginning of the regulatory period, increased by the appropriate differential (art. 19(1) RD 413/2014);
- The **facility's number of equivalent operating hours** for a specific period. This is determined by the quotient between electricity sold on the market, however it be transacted, during the period in question, expressed in kWh, and the installed capacity, expressed in kW (art. 21 RD 413/2014). Minimum numbers of equivalent operating hours and operating thresholds have been set for each standard facility. The application of this parameter will lead to an obligatory adjustment of the annual income from specific remuneration depending on whether or not the facility's operating hours exceed the operating hours of the standard facility (cf. art. 21(4) RD 413/2014), and could even cause the

facility to forfeit specific remuneration for that year if its equivalent operating hours are lower than the operating threshold for the standard facility for that year;

- The estimated **market energy price** for each year of the first regulatory semi-period is calculated as the arithmetical average of prices for the appropriate annual futures contracts negotiated on the Iberian Energy Derivatives Exchange during the last six months of 2013. Alignment coefficients are applied to this estimated price in order to obtain the electricity market prices applicable to each technology (calculated as an average of the values available from the Spanish Competition and Markets Authority).

In order to reduce the uncertainty surrounding the estimated market price

for electricity, which directly affects the remuneration obtained by the standard facility from the sale of electricity, the Order defines the upper and lower limits of said estimated price. When the average annual price on the daily and intraday market is outside such limits, a positive or negative annual balance is generated, the so-called market price adjustment value, which shall be settled throughout the facility's lifespan (cf. art. 22.3 RD 413/2014).

- Two of the parameters are particularly important: **the regulatory lifespan** and the **standard value of the initial investment** of the standard facility, as once they are recognised they may not be revised;

The regulatory lifespan of each type of facility is summarised in the following table (art. 5 of the Order):

Category	Group	Subgroup	Regulatory lifespan (years)
a)	a.1 (cogeneration)	a.1.1 (natural gas in the determined proportion), a.1.2 (petroleum or carbon in the determined proportion) and a.1.3 (fuels in a proportion other than that determined)	25
	a.2 (energy from waste)		25

b)	b.1 (solar energy)	b.1.1 (photovoltaic)	30
		b.1.2 (solar thermal)	25
	b.2 (wind energy)	b.2.1 (land-based wind)	20
		b.2.2 (offshore wind)	
	b.3 (geothermal, hydrothermal and aerothermal energies, wave energy, hot dry rock energy, ocean thermal energy conversion and marine current energy)		20
b.4 (hydroelectric energy < 10 MW), b.5 (hydroelectric energy > 10 MW), b.6 (generation or cogeneration with biomass from energy crops, agricultural, cattle-farming, forestry-related or similar activities as its main fuel ⁴ , b.7 (generation or cogeneration facilities using as their main fuel either bioliquid made from biomass or biogas resulting from the anaerobic digestion of energy crops, waste and others) and b.8 (generation or cogeneration facilities using biomass from agricultural or forestry sector industrial facilities as their main fuel)		25	
c)	c.1 (main fuel ⁵ domestic and similar waste), c.2 (main fuel other waste not included in subgroup c.1, fuels listed in b.6, b.7 y b.8 in a percentage < 90%, black liquor and old facilities included in subgroup) and c.3 (successors subgroup c.4, fuels from non-commercial quality mines for electrical generation due to their high content in sulphur or ash)		25

⁴ Main fuel if it makes up at least 90% of the primary energy, measured in terms of the lower heating value.

⁵ Main fuel if it makes up at least 70% of the primary energy, measured in terms of the lower heating value.

5. Review of parameters

Act 24/2013 sets out that the reasonable rate of return for the remaining regulatory lifespan shall be legally set prior to the beginning of each regulatory period, which shall have a duration of six years. The regime for the review of the parameters that make up this “reasonable rate of return” varies depending on the parameter:

- **Non-revisable parameters:** two parameters, regulatory lifespan and the standard value of the initial investment in a facility, may in no case be revised after being recognised (art. 20(1)(III) RD 413/2014);
- **Annually revisable parameters:** The remuneration on operation for technologies with operating costs that essentially depend on fuel prices will be revised at least once per year (art. 20(3) RD 413/2014);
- **Parameters to be revised every three years:** Estimates of income from the sale of energy, valued at production market prices, shall be revised every three years for the remaining regulatory lifespan, based on the evolution of market prices and predicted operating hours, by way of an Order made by the Ministry of Industry, Energy and Tourism, subject to the agreement of the Government Delegated Committee for Economic Affairs (art. 20(2) RD 413/2014);

- **Parameters to be revised every six years:** The reasonable rate of return for standard facilities shall be revised every six years. Before January 1 of the final year of each regulatory period, the Ministry of Industry, Energy and Tourism shall forward to the Cabinet a draft bill with the proposed value, based on a differential applied to the average yield in the secondary market of ten-year Spanish government bonds during the 24 months prior to May of the previous year.

In any case, any of the remuneration parameters (except for the regulatory lifespan and the standard value of the initial investment of a standard facility) may be revised at the end of each regulatory period by Order of the Ministry of Industry, Energy and Tourism, subject to the agreement of the Government Delegated Committee for Economic Affairs.

6. Remuneration of each facility

There is obviously not enough space here to set out the characteristics of remuneration for each facility⁶. Certain guidelines are outlined below in table-form in order to guide anyone who wishes to calculate the remuneration for a specific facility. The tables include the different types of facilities and relate them to the articles and Schedules of the Order that define the remuneration for each facility.

⁶ While not intending to delve into the remuneration of each facility, it bears pointing out that numerous facilities will only collect remuneration on investment and not on operation for the period 2014-2016 (e.g. codes IT-00621, IT-02020, IT-02023, IT-02035, IT-02038). Others will receive no additional remuneration, i.e., remuneration neither on investment nor on operation (e.g. codes IT-00799-IT-00810 for 2013; IT-000621 to IT-00628 for 2014-2016).

Facilities producing electricity from renewable energy sources, cogeneration and waste that qualified for special remuneration when Royal Decree Act 9/2013 came into force (additional provision 2 RD 413/2014)) and successful bidders in the invitation to tender for innovative thermoelectric solar energy facilities (additional provision 3 RD 413/2014)				
Schedule I	<ul style="list-style-type: none"> • Equivalence between categories, groups and subgroups prior to Royal Decree 413/2014 and new categories⁷ • Standard facilities and assigned codes (*) <p>(*) Rules for the default assignment of standard facility (transitory provision 1(1) Order) and application for change within three months of registration (transitory provision 1(2) and (3) Order)</p>			
Schedule VII	<ul style="list-style-type: none"> • Reclassification of facilities in subgroups a.1.1 (cogeneration based on natural gas and others as fuel in the proportion set out in art. 2(1)(1) RD 413/2014) and a.1.2 (cogeneration based on petroleum or carbon by-products in the proportion set out in art. 2(1)(1) RD 413/2014) that do not satisfy the new consumption limits → subgroup a.1.3 • Codes for subgroup a.1.3 standard facilities • Subgroup a.1.3: only remuneration on investment (not on operation) 			
Schedule II.1	<p>Remuneration parameters for 2013 (from 14 July to 31 December)</p> <ul style="list-style-type: none"> — Maximum number of equivalent operating hours for purposes of collecting remuneration on operation (art. 8 Order 1045/2014) 			
Schedule II.2	<p>Remuneration parameters for 2014, 2015 and 2016</p> <ul style="list-style-type: none"> — Application of minimum operating hours and thresholds, art. 7 Order 1045/2014 — Maximum number of equivalent operating hours for purposes of collecting remuneration on operation (art. 8 Order 1045/2014) 			
Schedule II.3	<p>Remuneration on operation for 2015 and 2016 (except for standard facilities with operating costs that essentially depend upon fuel prices, which have annually revisable remuneration)</p>			
Schedule III	<table border="1"> <tr> <td rowspan="2">Explanatory Schedule: Conditions for the calculation of the remuneration parameters</td> <td>Common to all technologies (paragraph 1)</td> </tr> <tr> <td>Specific to each technology (paragraph 2)</td> </tr> </table>	Explanatory Schedule: Conditions for the calculation of the remuneration parameters	Common to all technologies (paragraph 1)	Specific to each technology (paragraph 2)
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Schedule VIII	<p>Explanatory Schedule: defined remuneration parameters (among which, standard value of the investment: average yield of ten-year Spanish government bonds increased by 300 basis points: 7,398)</p>			

⁷ See table on the lifespan of facilities, which details the groups and subgroups according to their technology.

Facilities or modifications of facilities other than wind or thermoelectric solar or photovoltaic facilities which have not been registered in the remuneration pre-assignment register or the first section of the electricity production facilities register but falling within one of the situations referred to in additional provision 4 of RD 413/2014 (up to a maximum of 120 MW)			
Schedule IV	<p><i>Standard facilities and codes (*)</i></p> <p><i>(*)Rules for the default assignment of standard facility (transitory provision 1(1) Order) and application for change within three months of registration (transitory provision 1(2) and (3) Order)</i></p>		
Schedule V.1	<p>Remuneration parameters for 2014, 2015 and 2016</p> <ul style="list-style-type: none"> — Application of minimum operating hours and thresholds (art. 7 Order 1045/2014) — Maximum number of equivalent operating hours for purposes of collecting remuneration on operation (art. 8 Order 1045/2014) 		
Schedule V.2	<p>Remuneration on operation for 2015 and 2016 (except for standard facilities with operating costs that essentially depend upon fuel prices, which have annually revisable remuneration).</p> <ul style="list-style-type: none"> — Maximum number of equivalent operating hours for purposes of collecting remuneration on operation (art. 8 Order 1045/2014). 		
Schedule VI	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Explanatory Schedule: Conditions for the calculation of the parameters of remuneration.</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Common to all technologies (paragraph 1)</p> <p>Specific to each technology (paragraph 2)</p> </td> </tr> </table>	<p>Explanatory Schedule: Conditions for the calculation of the parameters of remuneration.</p>	<p>Common to all technologies (paragraph 1)</p> <p>Specific to each technology (paragraph 2)</p>
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Schedule VIII	<p>Explanatory Schedule: remuneration parameters taken into account (among which, the standard value of the investment)</p>		
Additional Provision 3(1) and 2	<ul style="list-style-type: none"> • Registration for pre-assignment in the specific remuneration scheme register • Time limit: to begin 15 days after entry into force of the Order, with a duration of one month (from 7 July to 7 August). 		
Additional Provision 3(3)	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Modification of existing facilities</p> </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> — Modified part = new unit of remuneration — The unmodified part continues with the same remuneration scheme. — Waiver of remuneration for power within the maximum period of one month from the date on which the part of the original facility to be modified becomes unavailable (art. 31 RD 413/2014) — Registration of the power of the new remuneration unit (Schedule V.1 RD 413/2014). </td> </tr> </table>	<p>Modification of existing facilities</p>	<ul style="list-style-type: none"> — Modified part = new unit of remuneration — The unmodified part continues with the same remuneration scheme. — Waiver of remuneration for power within the maximum period of one month from the date on which the part of the original facility to be modified becomes unavailable (art. 31 RD 413/2014) — Registration of the power of the new remuneration unit (Schedule V.1 RD 413/2014).
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Hybrid facilities (arts. 4 RD 413/2014 and 6 Order 1045/2014)

Type 1 (2 or more fuels from groups b.6, b.8 and group c.2 black liquors)	Group b.6 fuel (Remuneration on investment ex art. 6(1) (a) + remuneration on operation ex art. 6(3)) (*)
	(*) Correction pursuant to equivalent annual operating hours (art. 21 RD 413/2014)
	Non-group b.6 fuel (Remuneration on investment ex art. 6(1)(b) + remuneration on operation ex art. 6(3))(*)
Type 2 (solar thermal facilities that also use one of the main fuels listed in groups b.6, b.7 and b.8)	(*)Correction pursuant to equivalent annual operating hours (art. 21 RD 413/2014)
	Type 1 (group c.2 black liquors): application for registration of the thermal output of thermal equipment installed for consumption of existing fuels in hybridisation (transitory provision 2 Order)
	Remuneration on investment ex art. 6(2) + remuneration on operation ex art. 6(3) (*)
	(*)Correction pursuant to equivalent annual operating hours (art. 21 RD 413/2014) (art. 21 RD 413/2014)

Efficient use of heat output to heat buildings (Schedule XVI RD 413/2014)

Additional provision 1 of Order 1045/2014, Schedules XIV and XVI RD 413/2014	First quarter (October-March)	Remuneration on investment + Remuneration on operation
		— Repayment of the remuneration if energy sold to the system > ERREO (real equivalent electrical yield for the period with the calculation of the value of the electricity);
	Second quarter (April-September)	— No adjustment if energy sold to the system < ERREO
		Remuneration on investment + Remuneration on operation
		Repayment of the remuneration if energy sold to the system > ERREO (real equivalent electrical yield for the period with the calculation of the value of the electricity); no adjustment if energy sold to the system < ERREO

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