

CALL FOR SUBMISSIONS

Call for submissions by the French National Regulatory Authority (CRE) of 13 July 2016 on the classification of emerging technologies as provided by Regulation (EU) 2016/631 of the Commission of 14 April 2016

Background to the call for submissions

The European network code defines technological requirements applicable to connect any new power generating module to the grid with a capacity equal to, or greater than, 800W. The code enables power generating module manufacturers to apply for classification as an “emerging technology” based on eligibility criteria. Power generating modules classified as emerging technologies do not have to comply with network code requirements.

As such, the purpose of the present call for submissions is to:

- inform manufacturers that might be able to meet the eligibility criteria;
- enable power generating module manufacturers to submit a full application.

The CRE invites interested parties to send their submissions no later than **17 November 2016**.

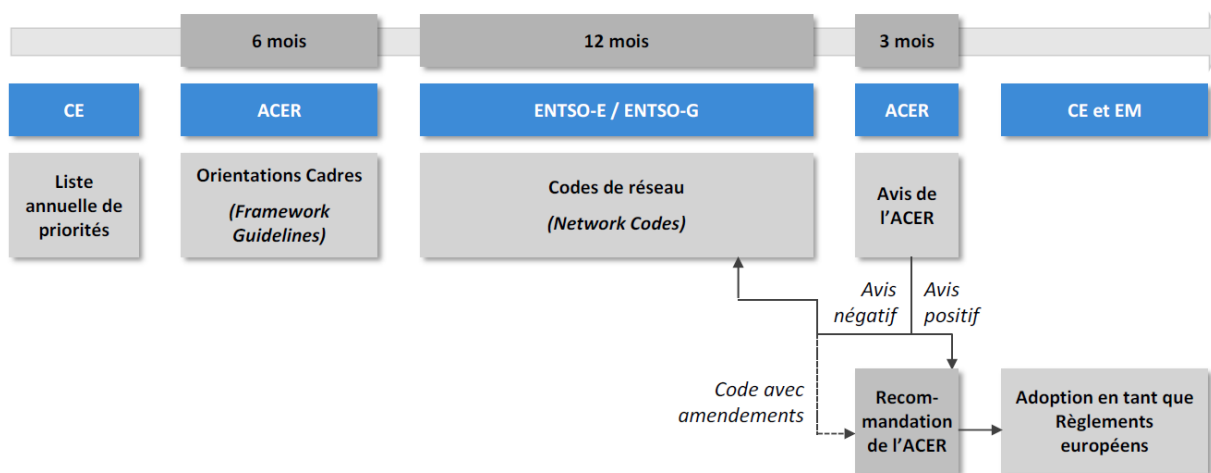
1. BACKGROUND

1.1. The European context

The aim of Regulation (EC) No. 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No. 1228/2003, adopted in the 3rd energy package in 2009, is to devise network codes and guidelines which, once adopted by the European Commission, take the form of European regulations. The purpose of these network codes is to develop a set of standardised rules for cross-border exchanges to improve competition in the domestic electricity market while increasing security of supply.

To meet these objectives, about ten texts, split into three groups (network codes for connections, system operation guidelines and market guidelines), have been drafted using the same procedure involving the Agency for the Cooperation of Energy regulators (ACER) and the European Network of Transmission System Operators for Electricity (ENTSO-E), prior to their adoption by a comitology procedure, including the European Commission (EC) and Member States.

During the comitology phase, Member States provide an opinion on each draft network code or set of guidelines, then each text is translated. The Parliament and European Council subsequently have a scrutiny phase, during which they can oppose the text being adopted by applying procedures in Article 5(a) of the decision of the Council of 28 June 1999, laying down procedures for the exercise of implementing powers conferred on the Commission. Once adopted, the text is published as a European regulation in the Official Journal of the European Union (OJEU) and, in principle, enters into force twenty days after publication.



Development process for European network codes

1.2. European Network Codes for Grid Connection

Grid Connection Network Codes set the technical capacities applicable to power generating modules to connect them to the network and enable network operators to ensure the stability of the European electricity system. The three following codes have received a positive opinion from Member States during the comitology phase during 2015:

- the network code on requirements applicable to the grid connection of power generating modules, or Requirements for Generators (RfG);
- the network code on requirements applicable to transmission network connection and demand units, or Demand Connection Code (DCC);
- the network code on requirements applicable to the grid connection of high-voltage direct current systems and DC-connected non-synchronous power park modules, or High Voltage Direct Current (HVDC).

1.3. The RfG Network Code

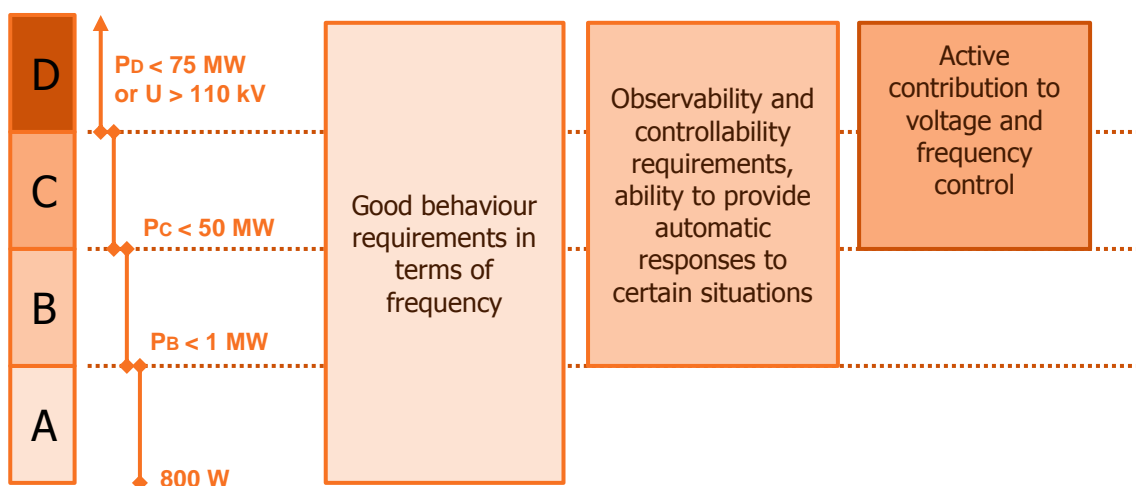
On 26 June 2015, the network code establishing requirements applicable to the grid connection of power generating modules (more commonly known as the RfG code) received a positive opinion from all Member States. The code was adopted and published in the Official Journal of the European union (OJEU) on 27 April 2016 and came into force twenty day later, i.e. 17 May 2016.

This code introduces technical requirements on constructive capacities to connect all new power generating modules with a capacity equal to, or greater than, 800 Watts. It also introduces requirements on compliance control procedures for power generating modules prior to their commissioning and during their lifetime.

Some requirements are comprehensively defined by the code and are consequently applied directly, while for others, the code only provides the range of values or the principles in which each Member State must set detailed parameters. In particular, the types of power generating modules (categories A, B, C and D) to which different requirements apply, will be defined nationally.

For this, the transmission network operator must propose capacity thresholds to define the various types of power generating modules and which will be subject to approval by the relevant authority. It should be noted that the relevant authority will be defined in a decree which is currently being drafted.

The diagram below helps visualise the applicable requirements for each type of power generating module as well as the P_B , P_C , P_D thresholds which will be set nationally in the limit of maximum capacity thresholds indicated. As such, Type A modules fall into a capacity range from 800 W to a P_B threshold to be defined, but which must not, in any case, exceed 1 MW.



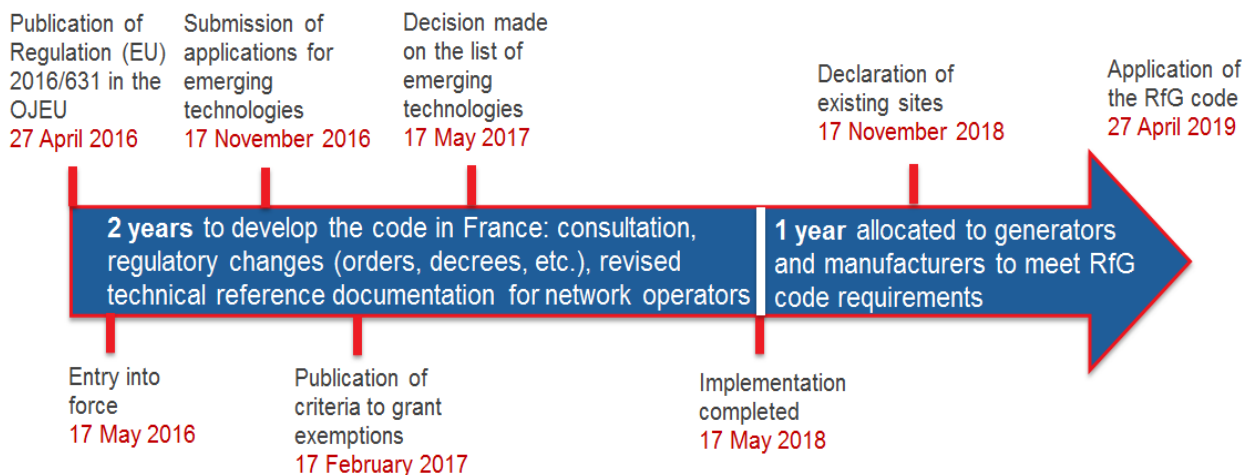
P_B , P_C and P_D thresholds to be determined by each Member State in the maximum capacity limit indicated and requirements applicable by type of power generating module (Source: RTE)

The code also makes provision for requirements that could be applied to existing power generating modules, especially when they are significantly modified, but also upon request of the transmission network operator if they deem it necessary to secure certain constructive capacities to ensure system safety. In the latter case, the network operator must conduct a cost-benefit analysis and the final decision to apply code requirements to these modules will be taken by the relevant authority.

Finally, the code sets out milestones which require the regulator to define:

- criteria by 17 February 2017 to exempt power generating modules from one or more code requirements;
- a list of technologies by 17 February 2017 that could be classified as “emerging”, to enable their commercial development with a minimum of technical constraints.

The code consequently allows for a three-year period from the date of publication to it being fully implemented, which should be sufficient to specify all RfG code provisions.



RfG code implementation schedule (Source: CRE)

To prepare for the implementation of this network code, a stakeholder committee was created in July 2015 in France and all parties concerned were invited. It was jointly run by the transmission network operator, RTE, and the Association of Distributors of Electricity in France (ADEeF), while the CRE and DGEC took up an observation role.

2. EMERGING TECHNOLOGIES

To obtain this classification and thus be exempt from RfG code provisions (apart from Article 30 on operational notification), the code sets eligibility criteria and requires a specific procedure subsequent to which the French Energy Regulatory Authority (CRE) must publish the list of technologies considered as “emerging” on its website.

2.1. Submitting requests

Article 68 (1) of the Regulation states, “Within six months of the entry into force of this Regulation, manufacturers of Type A power generating modules may submit to the relevant regulatory authority a request for classification of their power generating module technology as an emerging technology”.

As such, the CRE is launching a call for submissions to encourage power generating module manufacturers likely to meet the eligibility criteria specified in the paragraph below. As the code came into force on 17 May 2016, manufacturers wanting to apply for this classification must submit their applications to the CRE by 17 November 2016 at the latest, which is the expiry date for this call for submissions.

2.2. RfG code eligibility criteria

In applying the procedures in Article 66 (2) of the aforementioned Regulation, “A power generating module shall be eligible to be classified as an emerging technology (...) provided that:

- (a) it is of Type A;
- (b) it is a commercially available power generating module technology and;
- (c) the accumulated sales of the power generating module technology within a synchronous area at the time of application do not exceed 25% of the maximum level of cumulative maximum capacity established pursuant to Article 67, paragraph 1.”

Details on these criteria are provided below.

2.2.1. Type A power generating modules

The capacity range of Type A power generating modules is between 800 W to $P_B < 1$ MW. All power generating modules with a capacity falling into this range can qualify for the criteria determining the list of emerging technologies of this call for submissions.

For information, any Type A power generating module that is not classified as an emerging technology must be able to:



- operate within certain frequency ranges (Article 13.1 of the Regulation);
- reduce power when an overfrequency threshold is reached (Article 13.2 of the Regulation);
- take into account active power reduction conditions in the event of a frequency drop (Article 13.5 of the regulation).

Furthermore, in applying the provisions in Article 2 of the RfG network code, the definitions for power generating modules are as follows:

- “power generating module” means either a synchronous power generating module or non-synchronous power park module;
- “synchronous power generating module” means an indivisible set of installations which can generate electrical energy such that the frequency of the generated voltage, the generator speed and the frequency of network voltage are in a constant ratio and thus in synchronism;
- “power park module” means a unit or ensemble of units generating electricity, which is either non-synchronously connected to the network or connected through power electronics, and that also has a single connection point to a transmission system, distribution system including closed distribution system or HVDC system

2.2.2. Commercially available technology

Only commercially available technologies are eligible. Furthermore, their cumulative sales must not exceed 25% of the maximum of cumulative maximum capacity permitted. (i.e. 101.5 MW for the Continental Europe synchronous area, as indicated in paragraph 2.2.3 below).

Sufficiently mature technologies likely to be marketed before the end of 2016 can be considered.

For this, they must have a minimum level of maturity of 8 on the TRL1 scale, which comprises 9 levels, the 9th being full commercial application.



Technology Readiness Levels

- TRL 0: Idea.** Unproven concept, no testing has been performed.
- TRL 1: Basic research.** Principles postulated and observed but no experimental proof available.
- TRL 2: Technology formulation.** Concept and application have been formulated.
- TRL 3: Applied research.** First laboratory tests completed; proof of concept.
- TRL 4: Small scale prototype** built in a laboratory environment ("ugly" prototype).
- TRL 5: Large scale prototype** tested in intended environment.
- TRL 6: Prototype system** tested in intended environment close to expected performance.
- TRL 7: Demonstration system** operating in operational environment at pre-commercial scale.
- TRL 8: First of a kind commercial system.** Manufacturing issues solved.
- TRL 9: Full commercial application,** technology available for consumers.

TRL levels (Source: Horizon 2020)

¹ The Technology Readiness Level (TRL) is a system that assesses the level of maturity of a technology (material, components, peripheral devices, etc.), particularly with a view to funding its research and development, or to build this technology into an operational system or sub-system.



2.2.3. Cumulative sales and maximum level of cumulative capacity permitted

In applying the provisions contained in Article 67 (1) of the Regulation, using data from ENTSO-E¹ Statistical Factsheet 2014, maximum permissible sales volumes calculated for the Continental Europe area and for France are as follows:

- 101.5 MW for the continental synchronous area when applying for emerging technology classification, the maximum cumulative capacity for this zone being 406 MW;
- a maximum cumulative capacity of 87.4 MW permissible for France.

In fact, so as not to affect system safety, only a limited number of power generating modules that do not comply with the RfG code technical requirements can be accepted in a synchronous area. A maximum capacity per Member State is defined on a pro-rata basis for electrical power produced by the Member State in the synchronous area.

2.2.4. Definition of an emerging technology

As the RfG network code leaves some leeway in judging the concept of “emerging technology”, all requests presented in this call for submissions will be carefully studied.

The CRE has nevertheless made a number of preliminary considerations, in particular with the ADEME, on the types of technologies that could together fulfil the eligibility criteria described above.

As such, the CRE can propose a list of sectors in development that are likely to fulfil the eligibility criteria for emerging technologies:

- river turbines, or micro tidal turbines;
- micro combined heat and power systems (CHP);
- pico hydro power plants (with a capacity of less than 20 kW);
- micro hydro power plants (with a capacity of less than 500 kW);
- wave energy converters;
- hybrid solar power plants (photovoltaic and thermal).

For one of these technologies listed above to be considered as “emerging”, manufacturers must respond to a set of questions posed in paragraph 3 below. However, this is not an exhaustive list and any manufacturer that thinks their technology is likely to meet the eligibility criteria can answer this call for submissions.

2.3. The decision-making process for the list of emerging technologies

The CRE, in coordination with other regulators, will make its decision in accordance with the provisions contained in Article 69 (1) of the RfG Regulation: “By 12 months of the entry into force of this Regulation, the relevant regulatory authority shall decide, in coordination with all the other regulatory authorities of a synchronous area, which power generating modules, if any, should be classified as emerging technology”. It will publish the list on its website, in accordance with the provisions of Article 69 (2) of the Regulation.

As such, the regulators will define a list of emerging technologies by 17 May 2017, at the latest.

2.4. Monitoring sales volumes and revoking the classification

In applying the provisions contained in Article 70 of the Regulation: “From the date of the decision of the regulatory authorities pursuant to paragraph 1 of Article 69, the manufacturer of any power generating module classified as an emerging technology shall submit to the regulatory authority every two months an update of the sales of the module per Member States for the past two months” and when the sales volume “exceeds the threshold established in Article 67, the classification as an emerging technology shall be withdrawn by the relevant regulatory authority. The withdrawal decision shall be published.”

¹ https://www.entsoe.eu/Documents/Publications/Statistics/Factsheet/entsoe_sfs2014_web.pdf

3. CALL FOR SUBMISSIONS

As a reminder, the eligibility criteria stated and specified in paragraph 2.2 above are as follows:

- to be a type A power generating module with a capacity of < 1 MW;
- to be a commercially available power generating module;
- to have cumulative sales strictly less than 101.5 MW in the Continental Europe synchronous area and strictly less than 87.4 MW in France when applying for classification.

3.1. Questionnaire to be completed by applicants

Question 1: *What type of emerging technology is your company developing and/or marketing? Please add any useful details.*

Example 1: a Stirling motor micro combined heat and energy system

Example 2: a coastal oscillating water column wave energy converter

Question 2: *In your opinion, and given the eligibility criteria, should your technology be classified as an emerging technology and, as such, be exempt from RfG code requirements? If yes, please answer the following questions.*

Question 3: *What is the electrical capacity of the power generating module that is, or will be, commercially available? If you have several module ranges, please indicate the capacity of each module on the market.*

Power generating module capacity (range 1): kW

Power generating module capacity (range 2): kW

Power generating module capacity (range ..): kW

Question 4: *Can your technology be, or is it already, commercially available? If your technology is a pipeline product, please indicate the level of maturity of your technology as well as the provisional date it will be launched on the market.*

Question 5: *If your technology is already commercially available, what are the cumulative sales volumes in megawatts for each type of power generating module, as well as the cumulative sales volumes in the Continental Europe synchronous area¹ and in metropolitan France?*

Cumulative sales volumes for the power generating module (range 1) in the synchronous area: MW

Cumulative sales volumes for the power generating module (range 1) in metropolitan France: MW

Cumulative sales volumes for the power generating module (range 2) in the synchronous area: MW

Cumulative sales volumes for the power generating module (range 2) in metropolitan France: MW

Cumulative sales volumes for the power generating module (range ..) in the synchronous area: MW

Cumulative sales volumes for the power generating module (range ..) in metropolitan France: MW

¹ The Continental Europe synchronous area includes the following countries: Austria, Bosnia-Herzegovina, Belgium Bulgaria, Switzerland, Czech Republic, Germany, Denmark, Spain, France, Greece, Croatia, Hungary, Italy, Luxembourg, Montenegro, Macedonia, Netherlands, Poland, Portugal, Romania, Serbia, Slovenia and Slovakia. The Metropolitan France area excludes Corsica and French island territories.

Question 6: *Could the commercial development of your technology be disrupted if you cannot secure a temporary derogation from RfG code specifications? Please specify the requirements which you consider the most difficult to fulfil and the impact this could have on your business.*

3.2. Submission arrangements

The CRE invites interested parties to send their submissions by **17 November 2016** at the latest:

- by email to the following address: dr.cp1@cre.fr;
- by direct submission on the CRE website (www.cre.fr), in the “Documents / public consultations” section;
- by post to: 15, Rue Pasquier - F-75379 Paris Cedex 08.

Applicants are also asked to specify in their submissions those parts which they wish to keep anonymous and/or confidential.