



ENTEC

Energy Transition Expertise
Centre

Terms of Reference
Study on Regulatory
Sandboxes in the Energy
Sector



Terms of Reference – Regulatory Sandboxes in the Energy Sector



Consortium Leader

Fraunhofer Institute for Systems and Innovation Research ISI, Breslauer Straße 48, 76139 Karlsruhe, Germany
Barbara Breitschopf, barbara.breitschopf@isi.fraunhofer.de; Andrea Herbst, andrea.herbst@isi.fraunhofer.de

Consortium Partners

Guidehouse, Stadsplateau 15, 3521 AZ, The Netherlands

McKinsey & Company, Inc., Taunustor 1, 60310 Frankfurt, Germany

TNO, Motion Building, Radarweg 60, 1043 NT Amsterdam, The Netherlands

Trinomics, Westersingel 34, 3014 GS Rotterdam, The Netherlands

Utrecht University, Heidelberglaan 8, 3584 CS Utrecht, The Netherlands

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1 Objectives and Scope

1.1 Initial request of the European Commission

The Commission has indicated that there is a need for the following activities:

- 1) Identification of the regulatory framework put in place in different Member States to support innovation in the energy sector, identifying competent authorities and their competences in an exhaustive manner (the focus should be on the legal base and the general framework).
- 2) Complementation of former case studies on concrete examples (ISGAN, CEER, JRC – to be published imminently...) for country fiches (related to this, the focus should be on concrete examples of the use of regulatory experimentation.)
- 3) Identification of the main key features of different instruments and contribute to the lessons learned exercise (incl. by linking these features to the policy objectives, nature of obstacles to be addressed, area of intervention (consumers, electromobility, network fees, permitting, etc.), etc. to identify which instruments (and which features in terms of length, spatial distribution, etc.) are best suited to each of them).
- 4) Provision of examples of companies that have benefitted from regulatory sandboxes to boost their competitiveness (as the competitiveness angle is very important and connection to it should be made in the SWD).
- 5) Link with environmental legislation (this was mentioned in the REPowerEU communication in March last year: *"The Commission will also provide guidance on when and how regulatory sandboxes are needed to enable the testing of innovative technologies, products or services that aim to advance the coexistence of renewable deployment and environmental protection."*)

This has also been worded by the Commission in another manner:

- **Regulatory framework** or lack of it: is there anything in national legislation supporting or hindering regulatory sandboxes and other experimentation tools to support innovation in the energy sector? Is there a **barrier to innovation**?
 - Any information - existence of schemes, who (NRA, ministry, other) has competences in allowing for experimentation tools/sandboxes in: CY, FI, GR, RO, PL, SI; but also: BG, CZ, DE, EE, IE, LV, LU, MT, SK
- Which areas might require such a tool – is something missing?
 - Flexibility and balancing services; storage; integration of RES and low carbon gases (incl. H₂) in the gas networks; electromobility; energy communities; smart grids; integration of RES; tariff design etc.
- From concrete examples: common features; **what works – what does not work – why?** Any positive example companies benefitting from and introducing new permanent solutions?
- **Which feature** (local – nationwide; top-down, bottom up; regulated – non-regulated actors; case-by-case derogation – automatic; timeframe; learning objective) **is good for what purpose?**
- Any requirements related to **environmental legislation**?
- The focus is: regulatory sandboxes and experimentation in relation to the regulatory framework
- Broader view: living labs, test beds
- A challenge is the lack of definition of regulatory sandboxes/common categorisation

1.2 Project objectives

We phrase the main objective of the project as:

Analyse existing regulatory sandbox schemes with a focus on the EU Member States regarding their purpose, regulatory/legal basis, format, implementation barriers and best practices, and impacts in fostering regulatory learning and new business cases.

A number of Member States have adopted or are considering adopting frameworks for regulatory experimentation in the energy sector, including regulatory sandboxes. There is a number of reports comparing the existing regulatory sandboxes, which are usually focused on characterising the sandboxes and sometimes conducting case studies. However, there is limited information on the concrete implementation of these sandboxes, barriers to implementation and best practices, and the concrete impacts.

The Commission is looking for a study on regulatory sandboxes and other regulatory experimentation in the energy sector in the EU MSs to support innovation. This will feed into a SWD to be published by the Commission around summer 2023 on regulatory sandboxes and other experimentation instruments.

Other ongoing work from the JRC supports this study. The JRC will shortly publish a study on regulatory sandboxes (with interviews of NRAs), but which has a coverage gap where the following countries did not reply and/or no regulatory sandbox frameworks were identified: CY, FI, GR, RO, PL, SI (1st group) and BG, CZ, DE, EE, IE, LV, LU, MT, SK (2nd group). This project will complement the JRC study and improve the coverage gap in both these country groups and any content-based gaps identified by the JRC study.

To achieve these objectives, the project should conduct the following activities (with their main outputs):

- 1) **Identify frameworks for regulatory experimentation** in the energy sector, particularly regulatory sandboxes, the responsible competent authorities (ministries, NRAs or other entities) and competencies, and whether the absence of such a framework represents a barrier to innovation; study also the formation of regulatory sandboxes, in preparation for the output in Task 3 on barriers to forming regulatory sandboxes.

Main output: list of frameworks with legal basis (linking legislation where possible), competences and whether the absence represents a barrier, where information could be identified. Focus on JRC coverage gap.

- 2) **Characterise regulatory sandboxes:** what are their objectives (regulatory learning, development of new business cases, other), fields of intervention (flexibility, electromobility, energy communities, network tariffs, etc.) and other relevant characteristics;

Main output: Analysis of characteristics, linking e.g. objectives to fields of intervention or other relevant characteristics. If relevant, examples of existing sandboxes will be provided, but no structural characterisation will be done (i.e. complete tables characterising them are not needed). Coverage of EU MSs (i.e. no particular focus on JRC coverage gap).

- 3) **Identify barriers to innovation, best practices and impacts** for regulatory sandboxes: which characteristics support/hinder the regulatory sandbox objectives? Which characteristics are best suited for the areas of intervention? Which concrete examples exist? What was the impact of the sandboxes (in the form of examples/case studies)?

Main output: Analysis of barriers, best practices and impacts per type, with detailed examples (in the form of e.g. summary textboxes) of companies who participated in regulatory sandboxes, how this has benefitted them, and what general policy lessons can be learned, and an analysis of barriers to the formation of regulatory sandboxes.

- 4) **Identify environmental considerations** in regulatory sandboxes in the energy sector, if existing, especially related to facilitating the development of innovative energy projects while maintaining environmental protection standards;

Main output: details on identified sandboxes which include environmental considerations as well as analysis of how they (aim to) advance the coexistence of renewable deployment and environmental protection.

1.3 Scope of covered topics and considerations

- The aim of the analysis is not to provide a comprehensive overview of the existing or planned sandboxes in each Member State. Rather, it is to analyse each of the topics (e.g. relationship between sandbox designs, stated objectives and areas of intervention) to identify common aspects as well as differences arising from e.g. the national context.
- The analysis will nonetheless have to be substantiated by available examples as well as the extensive literature already available. In this regard, (confidential) access to the draft JRC report will be important.
- Objective 1 will primarily focus on the group of countries not covered by the JRC study, but include other countries if possible;
- Other forms of regulatory experimentation (testbeds, living labs) will be covered in objective 1, while objectives 2-4 will focus on sandboxes;
- The focus is on regulatory sandboxes in the energy sector – sandboxes in other sectors (e.g. fintech, mobility) may be mentioned where relevant (e.g. in case of common barriers) but will not be extensively covered;
- Objective 4 will focus on provisions related to environmental impacts in sandboxes in the energy sector, but may also include provisions in other regulatory experimentation schemes (such as for permitting procedures);
- The environmental analysis (objective 4) will focus on the potential environmental impacts of the commissioning and operation stages of the energy projects. Upstream (e.g. manufacturing) and downstream (decommissioning and recycling) are not a focus, but may be included if identified.

2 Task Structure

We propose to organise the work according to the following tasks.

2.1 Desk research

We will **request Trinomics’ experts to conduct a short review** for the Member States where we cover the national language (JRC gap countries only), to identify any energy regulatory innovation frameworks (or confirm their absence). These include CZ, CY, GR, IE, LV, LU, PL, RO, SK. The team will identify any existing frameworks, which can then be analysed by the core team of this study through machine translation of national documents and legislation. For other countries (FI, SI, BG, EE, MT), the core team will rely on desk research using machine translation and contact with national associations to retrieve information on innovation frameworks. For DE, existing expertise in the core team will be utilised.

We will also **review the available literature** to compile information regarding the characteristics of sandboxes, as well as related barriers, best practices and impacts. The analysis will be structured not per sandbox, but per element of analysis (e.g. eligible participants, length of derogations in the case of characteristics, or lack of guidance by competent authorities in the case of barriers). Examples of relevant literature include

- Energy Transition and Regulatory Sandboxes, Funseam, 2022
- Flexibilidad en Redes de Distribución Eléctrica, Futured, 2021
- Policy Messages to the Clean Energy Ministerial, ISGAN Regulatory Sandbox 2.0 Project, ISGAN, 2021
- Regulatory Experiment in Energy: Three Pioneer Countries and Lessons for the Green Transition, Schittekatte, T. et al., 2021.
- Regulatory recommendations: Regulatory Barriers in Target Countries and Recommendations to overcome them (WP7), Integrid, 2020
- Market Enabling Interface to Unlock Flexibility Solutions for Cost-Effective Management of Smarter Distribution Grids, EUniversal UMEI, 2019
- Making space for innovation; the handbook for regulatory sandboxes, Federal Ministry for Economic Affairs and Energy (BMWi), 2019
- Innovative Regulatory Approaches with Focus on Experimental Sandboxes, ISGAN, 2019

2.2 Stakeholder engagement

As discussed with the Commission, we will organise a **number of online meetings with relevant stakeholder groups** to efficiently gather information and feedback on the analysis. We propose to cover both competent authorities as well as private operators (market players as well as network operators).

Around 4 meetings of 1-2 hours duration should match the available resources and time. At the meeting, the study objectives and draft results of the analysis (if available) can be presented. The main basis for discussion will be a list of statements and questions to elicit the discussion.

Additional follow-up by email can be conducted bilaterally with specific participants, as typically the information obtained in a workshop is not detailed enough for inclusion as e.g. textboxes in a report. Potential groups to reach out to include:

- Council of European Energy Regulators (or alternatively ACER, although CEER might be more suited to obtain a quick response);
- The electricity coordination group from the Commission (if the regular meetings of the ESG match the study timeline;
- Eurelectric, given the majority of sandboxes are focused on the electricity sector;
- GEODE/E.DSO, given the importance of DSOs (as participants in regulatory sandbox projects or enablers)
- Eurogas, in case we wish to obtain more information on sandboxes covering the gas sector.

Quick agreement with the Commission on the stakeholders to be contacted as well as support (by initiating the contact or replying to our initial email) to increase response rates will be critical.

In addition to contacting the groups of stakeholders, we may contact individual organisations as needed, for example to cover information gaps related to Objective 1.

2.3 Analysis

We will provide Powerpoint slides with the draft analysis. This will be followed by a short written study (10-20 pages) with the following structure reflecting the objectives:

1. Frameworks for regulatory experimentation in the energy sector

- 1.1. Identified regulatory sandboxes and other frameworks, including competencies
- 1.2. Are frameworks explicitly required to facilitate regulatory innovation in the energy sector?

2. Characteristics of regulatory sandboxes

2.1. Characteristics

- Objectives
- Barriers addressed
- Areas of intervention
- Eligible participants
- Length of derogation
- ...

2.2. Relationship between sandbox designs, stated objectives and areas of intervention

3. Barriers, best practices and impacts of regulatory sandboxes

3.1. Barriers

- Lack of guidance by competent authorities
- Complex application procedure
- Requirement of financial guarantees
- ...

3.2. Best practices

- Provision of clarification
- Obligatory reporting on regulatory learning
- Minimum transparency requirements
- ...

3.3. Impacts (including examples)

- Regulatory innovation
- Development of new business cases
- Other

3 Work Organisation

The project will run from March to May 2023. Due to the short timeline and the fact the tasks will run largely in parallel, we do not provide a more detailed timeline. A draft of the JRC study shared by early March will be important to meet the deadlines and avoid repetition of the work.

We propose a team composed of **Trinomics** and **Fraunhofer ISI**. All tasks will be led by Trinomics, with Fraunhofer ISI contributing with expertise regarding innovation frameworks in general (not necessarily only in the energy sector) and the German context.

For the purpose of this specific study, the following deliverables will be produced and meetings held:

Table 1 List of deliverables and submission dates

Deliverable/ meeting	Contents	Date (original)	Outputs
M1	Kick-off for all tasks	Early March	PowerPoint slides
D1	PowerPoint slides with draft results	14 April	PowerPoint slides
M2	Final meeting	Week of 17 April	PowerPoint slides
D2	Draft final report	28 April	Word document
D3	Revised final report	2 weeks after comments / tbd	Word document

*Note that the **project can officially start only after the final approval of the Terms of Reference (ToR, i.e. this document)**. In the case that this approval is delayed, the overall project timeline will have to be adjusted accordingly.

4 Resources

Table 2 **Planned resources by task**

Task/Resource	Resource needs in days	Share of total resources in percent
Project coordination	3	7%
Task 1 Desk research	12	27%
Task 2 Stakeholder engagement	13	29%
Task 3 Analysis	15	33%
QA	2	4%
Total	45	100%



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