

Executive summary

The present deliverable examines the existence and importance of various regulatory and socio-economic obstacles regarding innovative energy services, data exchanges & synergies and new business models promoted by SYNERGY. This research is centered around the European landscape, with a particular focus on the demonstration countries (Greece, Spain, Austria, Finland and Croatia) of the SYNERGY consortium.

Research performed in the framework of T2.2 provided a list of current European policies and regulations pertinent to SYNERGY's demo cases. These European Policies are clustered as either a) horizontal, affecting the whole electricity data value chain, b) vertical, when linked to specific technologies and applications or c) hierarchical, which mainly fall under the horizontal category but are facilitated by the vertical ones. This bundle of EU regulations address issues that span across a variety of electricity data value chain related domains such as transmission, distribution and cross-border grid operation, RES operation and market participation, smart metering, data protection (GDPR), trust services for electronic transactions, smart contracts and blockchain energy consumers rights and more.

A comprehensive, survey-based data gathering exercise was designed, formulated and conducted across the project's demo partners in order to assess, at a national level (demo countries), certain aspects related to the aforementioned European regulations, such as: the existence (or not) of relevant laws that enforce the European policies, their importance in the implementation of the SYNERGY demo cases towards facilitating smarter, digitized innovative energy services provided by online platforms, data sharing platforms and creation of data economies around electricity data.

During the analysis we tried to identify key obstacles and barriers that may have an impact to the realization of the demo cases, towards enabling proactive decisions both referring to the design of the SYNERGY platform/ applications and the way demonstration activities will be implemented in order to overcome them. The surveys verified that all regulations identified at an EU-level, are closely related to SYNERGY's demo cases and as such, their existence or absence at a national level is highly important for their implementation. Moving further, the survey revealed different regulatory gaps in most of the demo countries. It is important to mention that, among the five demo countries, Finland is the only one that presents no missing regulations relative to the identified EU directives, as opposed to the other four countries (Greece, Spain, Austria, Croatia), which lack the implementation of different EU



directives at a national level. Particularly Spain, is found to be the country that currently misses the most regulations pertinent to SYNERGY innovation, compared to Greece, Austria and Croatia. However, most missing regulations in Spain are expected to be approved the end of 2020 while particularly regulation on energy communities is expected to be implemented by mid-2021. It is also shown, that policies related to the introduction of new technologies such as Electronic Identification, Authentication and Trust Services (eIDAS), smart contracts & blockchain or ethics in artificial intelligence are currently missing from almost all demo countries. It should be noted also that, legislation relative to smart metering, has been applied to all demo countries. Extra care should be given in the cases where the regulations are marked as significantly important by the demo partners, yet they are not in place. Such examples are missing regulations for Energy Efficiency in Spain, Energy Communities in Croatia, eIDAS in Greece.

A state-of-the-art analysis on socio-economic and organizational aspects related to Innovative Energy Services (IES) evaluated by SYNERGY, revealed a plethora of such potential obstacles that could affect, in various degrees, the realization of the project's objectives, both at a prototyping and a market replication level. In this direction, the deliverable comprehensively presents a relevant literature review, offering valuable insights, based on the experience acquired through previous prominent research studies.

Although, naturally, different barriers apply to different demo cases, some barriers were repeatedly highly ranked by the different demo partners of the same country, potentially verifying a common understanding at a national level. i) Neglecting the value of system flexibility in Greece, Austria and Finland, ii) Concerns on the conversion process of innovation into "business as usual" in Spain, iii) Lack of consideration for diversity of interests in Finland, iv) lack of CAPEX sponsorship for investments in Croatia, are some of those examples.

On the organizational level, identifying the most important organizational barriers for each individual partner can be mostly exploited in the direction of driving implementation decisions for the SYNERGY platform and elaborating on the way the different demonstration cases will need to be implemented and validated, so as that obstacles are removed (e.g. through hybrid approaches combining real-life demonstrations with simulation, or through proceeding with the obtainment of special permit and approvals by local or national authorities for the conduction of the SYNERGY demo cases in the form of research experiments). Although, cross-evaluation of barriers scores is not the main objective in this level, some barriers are commonly highlighted in the results across almost all organizations. Such barriers are i) the lack of data governance in place to identify the value in vast data quantities



generated, ii) the lack of compatibility of multi-source data and iii) inability to deal with overly complex data and models promoted in platforms like the one envisaged by SYNERGY.

Our socio-economic and organizational analysis showed that a number of issues exist that are particularly related to the perception of the value that data sharing and data analytics can bring to organizations and their customers via the utilization of currently unused data, either by increasing internal business intelligence or by enabling the provision of innovative energy services

The SYNERGY project has been defining in parallel to this exercise the Use Cases and Requirements for the SYNERGY platform that aims to address inclusively all barriers identified from our socio-economic and organizational analysis. The work conducted in this task and reported in this deliverable will inform the design of the SYNERGY architecture and the prioritization of the functionalities the different components will offer, so as to ensure their smooth deployment in local contexts following an adaptation process based on the key conclusions and insights revealed through the analysis performed in the current deliverable.

To ensure that our platform design encompasses business-wide perspectives and is validated from the whole electricity data value chain, we utilised our tri-level analysis (i.e. partner, stakeholder type, demo country) to formulate qualitative interviews with business experts from each stakeholder type within SYNERGY consortium (namely TSOs, DSOs, Aggregators/ESCOs, Facility Managers/Urban Planners, RES Operators). This Living Labs related activity considered internal validation activities which involved, external to the implementation team, experienced business professionals from the demo partners involved in the project. This activity is ongoing and will be utilized to feedback to our platform design including requirements and use cases which will be reported in the updated deliverable (D2.4) of T2.2 and the D2.6 SYNERGY Framework Architecture delivered in M12.