Deliverable D1.2

User and Customer-engagement plan: validated plan for users' recruitment and operation of the cascading funds

V1.2

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Executive summary

The aim of this CoordiNet subtask, is to explore the interface between the customers and DSOs to find ways to improve the engagement of the customers and enhance their participation first in the project and in the future markets of new grid related services in the longer term.

As depicted in Figure 1, the work in Task 1.2 (described in this deliverable) is part of Work Package 1 and closely related to task 1.4: "DER Characteristics". Both mentioned tasks are fundamental for the demo preparation phase and the engagement activities for the three demo countries, Greece, Spain and Sweden.

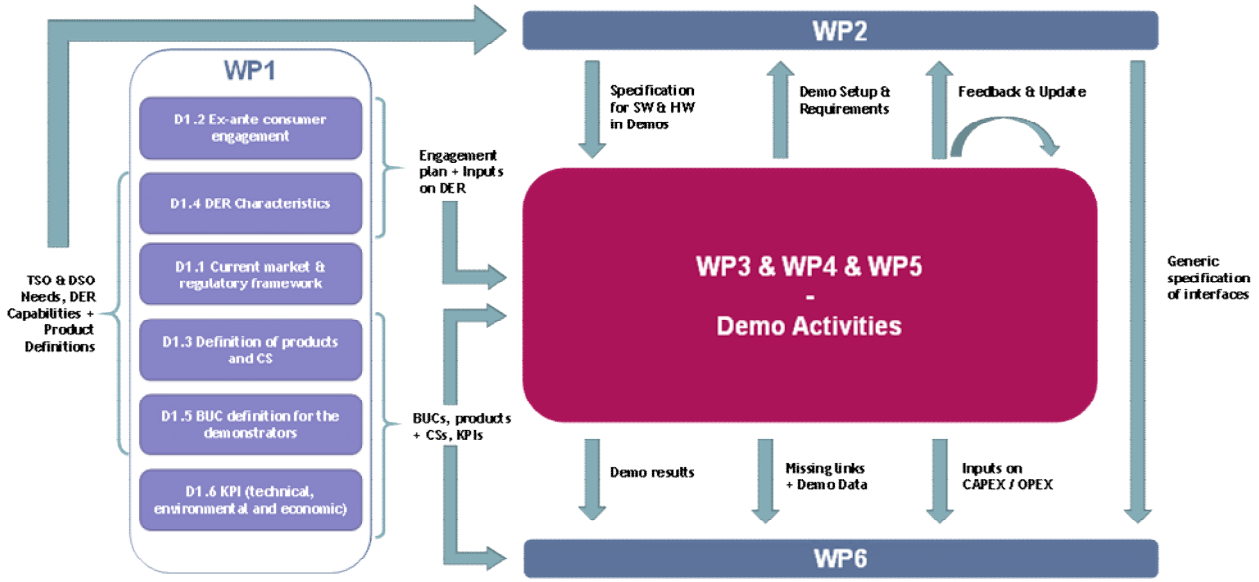

Figure 1. Main interactions and links of WP1 deliverables with the other WPs of the CoordiNet project

As our energy system becomes increasingly complex and decentralised, the role of the customer in the value creation process becomes more prominent. Customers can with their activities support an efficient operation of the energy system and thus contribute to the value creation in the electricity market. The local energy market, with its issues concerning capacity and flexibility, is not, naturally on the customers' mind. The electricity market traditionally has been characterized by passive customers and active producers and networks. The DSOs, for their part have mostly been engaged with the customers about concerns with connections and billings. In the CoordiNet project we explore the possibilities that more proactivity from these two stakeholder groups can enhance the value creation process. In the ongoing energy transition, one of the common themes is the question of how to unlock the potential of customer engagement. The aim of this CoordiNet subtask, is to explore the interface between the customers and DSOs to find ways to improve the engagement of the customers and enhance their participation first in the project and in the future markets of new grid related services in the longer term.

This report follows the methodology shown in Figure 5. First, the CoordiNet customer engagement work is put in the context of the H2020 project and BRIDGE[1] "Customer Engagement" Workgroup[2]. In addition to this, the current experiences from CoordiNet's partners are highlighted in this field. Based on this input, concepts of customer segmentation, motivations and drivers are proposed, and phases of customer engagement and associated key performance indicators are described. These experiences are then evaluated to come up with customer engagement strategies that can be used in the CoordiNet pilots. Finally, recommendations for the use of cascading funds are given.

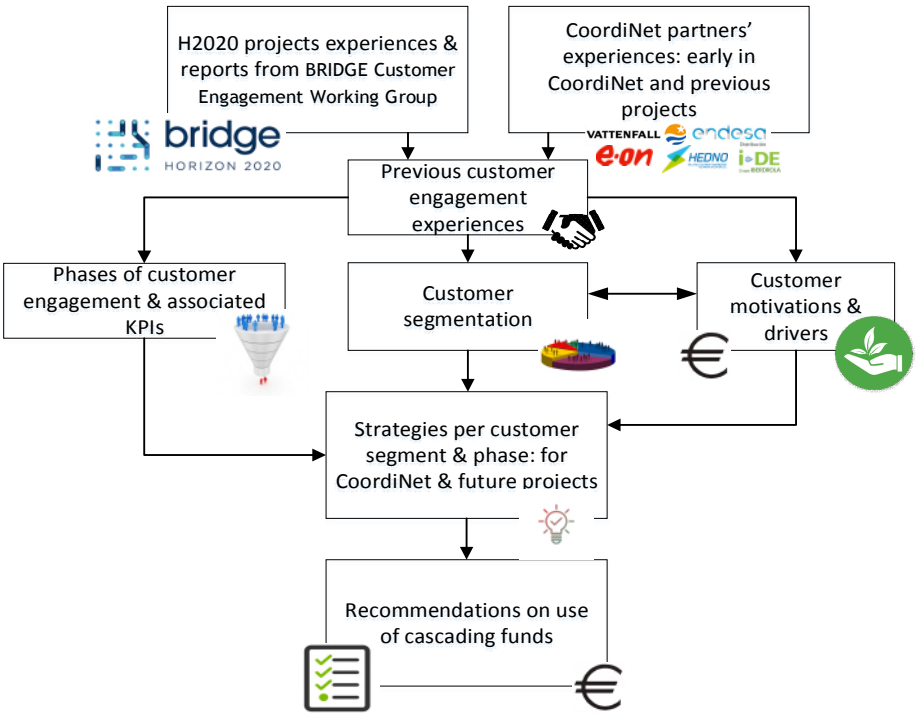

Figure 2. Methodology proposed for customer engagement

As customers are not a homogeneous group, their preferences and willingness to adopt new technologies differ. Therefore, customer segmentation to create consumer engagement plans tailored for the different needs, preferences and capabilities, is discussed. Thus, there is not one recommendation that fits all situations. The particular situation of the customers must be used and leveraged when engaging them. This heterogeneity of contexts is highlighted in the participant's descriptions of earlier experiences regarding customer segmentation strategies used in previous projects.

Differences in market models and network regulations among the countries can further complicate the development of standardised criteria for segmentation, as customers will have different reactions to different stimuluses.

[1] BRIDGE is a European Commission initiative which unites Horizon 2020 Smart Grid and Energy Storage Projects to create a structured view of cross-cutting issues which are encountered in the demonstration projects and may constitute an obstacle to innovation.
[2] The "Customer Engagement" Working Group (WG) meets at the European Commission premises in Brussels to discuss about issues such as the challenges in understanding and engaging customers, especially in the area of demand response.

Examples of how customer can be identified are e.g. in their use-of-energy, spatial position, education, economic and environmental aspects, etc. In the CoordiNet project the customers are segmented according to Table 1

Type of consumer	Categories	Examples of Sites	CoordiNet demo
Large-medium size customers sites	Industrial processes	Basic materials production Industrial heating and cooling application Manufacturing Waste and Water treatment	Spanish, Swedish.
	Backup power	Hospitals Hotels Power utilities Military Bases Telecom base stations	Greek, Swedish
	High Tech	Data centres Laboratories	
Large organizations or Power companies	Property Owners	Shopping centres Sports facilities Office buildings Public housing Public Buildings Apartment buildings Schools Nursing homes Hotels	Swedish, Spanish
	Transportation	Public transport Railway EV charging in parking garage	Swedish, Spanish
	Renewable Power generators	Wind power farm PV park	Spanish, Swedish, Greek
	Power Generators	Resources connected at transmission and distribution networks	Swedish.
Aggregated small consumers	Electrical Appliances	Grocery stores Bakeries Dry Cleaners	
	Heating or cooling	Single family homes Condominiums	Swedish (through aggregation), Greek

Table 1. Segmentation in CoordiNet project

Individual sites and large organizations with high power and energy consumption often have their own internal resources and energy professionals to work with energy efficiency. Engagement with these customers should take this competence into consideration. Communication efforts will be more effective if there is a customer contact that has a background in energy. Even small sources of power usage can be relevant if there is a large enough volume locally. Cooling and heating solutions such as heat pumps and air conditioning units are an obvious example of this. Aggregation of these assets is necessary to access a scale that is comparable to other large users.

Several synergies can be found between customer engagement and marketing and advertising strategies in terms of process perspective. This is why the AIDA Model, or the “Purchase Funnel” is included. The well-known concept model for enhancing purchase is divided into four customer-oriented steps: get *Attention*, hold *Interest*, create *Desire* and obtain *Action*. Each step of the funnel indicates a phase of consumer engagement and a move forward implies that a potential customer getting closer to the desired action. Further developments of the model have added an extra final step, dedicated to satisfaction consultation after the purchase.

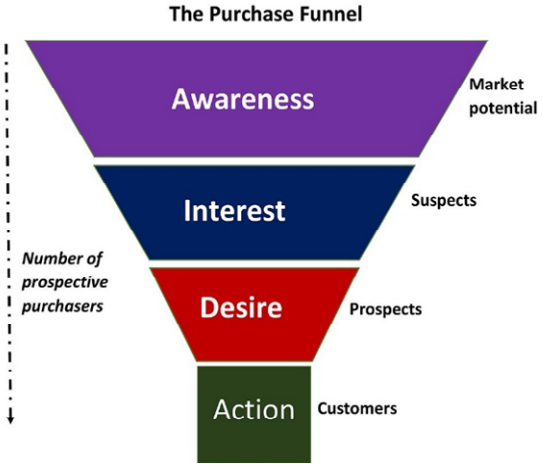

Figure 3. The AIDA Model [1]

While the original objective of the AIDA Model is to increase sales, in this report it has been used for the customer engagement process that aims to recruit participants to the project. To make the most of the model, goals should be set for each of the steps. Examples of KPIs for the different phases are number of offers made to customer (awareness), number of activated requests (interest), and customer satisfaction (desire).

In the customer engagement context, a driver is understood as a factor that meets customer expectations, needs and contributes to increase his/her engagement in the project. Examples of drivers could be monetary incentives, environmental benefits, increase of knowledge, etc. Regarding pro-environmental attitudes, the customers see them as an ethical pursuit. Most of the reviewed projects display the high concerns regarding environmental issues, such as climate mitigation and increased share of renewable energy use among the customers. It is true that for some customer segments, this can be a key driver, while other segments place their motivation in other aspects due to different economic situations or geographical locations.

It is thus important to help the customer identify the monetary gains that can be made from his/her participation. In addition, many customers perceive environmentally friendly projects as sensible and desirable. Thus the “green impact” of the project needs to be highlighted. If environmental concern of some customers can be identified e.g. as correlated to geographical area, education, etc., this can be used as part of the customer segmentation. Customers are often attracted by improving their knowledge in energy systems and actively participate in the project decision chain. Empowering customers with continuous communication could increase participation and interest in the project. Moreover, training workshops, educating e-mails and feedback surveys can help customer education. In the case of the latter, it has the dynamic effect of supplying learning about the customers to the companies.

The ambition of the CoordiNet project is to create large scale demonstration of how flexible resources can provide services to the system operators. In order to make impact on system level it is necessary to provide relevant flexibility capacity and not only to test or verify a technology. This requires a strategy to attract substantial flexibility volumes or capacity to meet the objectives of the project.

The results and insights from *customer segmentation*, *motivations and drivers*, and *phases of customer engagement* are evaluated to come up with customer engagement strategies for specific customer segments. These strategies can be used to attract and engage potential customers to participate in the CoordiNet pilots.

A central part of the strategies includes involvement of external stakeholders, such as municipalities, that are able to support the realization of the project and assist with resources, skills and existing networks. Local stakeholders can facilitate and even lead much of the work related to customer engagement locally. They can identify and motivate early adopters to participate, which is critical in early phases of the market.

The strategies developed suggests focussing on significant energy volumes, predominantly found among:

- Power companies or large organisations
- Large-medium size customers sites
- Aggregated small customers

The strategies emphasise the methodology and importance of a structured model when engaging customers. The method to ensure efficiency for the engagement of different segmentation alternatives is to utilize the structured approach (e.g. AIDA model). This includes to define activities and set KPI-targets in each step of the model and monitor and follow up performance. It is also recommended to involve external partners or stakeholders to support the process.

In Table 2, a summary of the engagement strategies in the analysed projects for each customer segment is shown. The AIDA model is juxtaposed against a segmentation of customers based on their size. In addition, some of the most important issues and actions for each segment are presented.

Phase	Low Voltage consumers	Responsive LV consumers	Commercial and industrial users	System operators
Awareness	• Highlight economic benefits • Highlight environmental benefits • Highlight benefits for the local community • Personalize invitation letters • Highlight the impact of public contribution on the project decision-taking	• Highlight economic benefits • Highlight environmental benefits • Focus on innovative solutions and new technologies • Use of social media, flyers, videos, newsletters	• Highlight economic benefits • Focus on type of products that could help commercial and industrial stakeholders in saving energy • Personalize interviews, questionnaires and surveys	• Highlight system efficiency improvement • Highlight Environmental and social impacts • Highlight value provided by the project
Interest and Desire	• Customer service • Social pressure and community sense of responsibility • Helpdesk and information stand availability during workshops and conferences	• Keep updated about the project • Inform about control improvement over electrical appliances • Avoid excessive coordination among participants • Free electronic devices for participants • Agreements, contracts and collaboration forms	• Keep updated about the project • Incentivize workshops and in-depth interviews to encourage real dialogue and discussion among stakeholders • Focus on preferred pricing schemes	• Keep updated with personalized information
Action	• Highlight economic benefits • Lottery, ticket coupons for several events • Monthly electricity bill discount • Application installation discount • Aftercare service	• Highlight economic benefits • Use of apps compatible with phones and tablets which improve control over heating and electric devices	• Highlight economic benefits • Benchmarking, showing competitors' savings	• Highlight economic benefits

Table 2. Engagement strategies per customer segment

Finally, the most important part of the combined results from segmentation, engagement process and motivational arguments, are the strategies for different segments. There are five recommended strategies to engage customer and to secure that the project goals are accomplished.

- Focus on power companies, electricity intensive customers and large organisations since these actors have significant power and energy volumes as well as professional personnel with knowledge of the functioning of the power system and markets. These actors would be more informed and willing to participate in the project.
- Include large and medium size customers in terms of energy volumes since they can provide relevant flexibility to the system. These customers might lack specific knowledge of the power system but may have dedicated energy professionals. Technical challenges for generators and consumers are very different and, as discussed previously, the level of knowledge of the owners are totally different. An alternative is to make pure technological assessments on different technologies in relation to cost and availability.
- Engage local aggregators to attract residential customers and by large population provide relevant flexibility volumes. Cooling and heating loads such as heat pumps and air conditioning units are flexible as they have thermal storage. Aggregation of these assets is necessary to access a scale that is comparable to other large users. If residential customers should be engaged, it is recommended to involve aggregators to coordinate and manage the customer interaction and flexibility activation. Aggregators are often professional actors with specific knowledge regarding use of flexibility.
- Use a structured methodology and create a “sales funnel” model according to the AIDA model. By using a structured approach and monitor progress throughout the project it will generate learnings and new insights regarding customer engagement. It is also possible to define specific activities for different segments in different phases of the process.
- Monitor and evaluate the activities to increase precision in activities and improve engagement result. Creation of a continuous learning environment is beneficial for the whole project if result is shared between different demo sites.

The ideal customer engagement plan should provide enough incentives to involve new participants in an economic sustainable way. This aspect is particularly relevant for scalability and replicability of the project in other contexts. The engagement plan should pursue many participants in the project with the minimum economic efforts and after the project termination, ideally, the project objectives can be extended to the rest of the system. The cascading funds are foreseen in the CoordiNet Consortium agreement to incorporate participants who are not project partners. These should be used as a financial support to remove some cost barriers in the pilots.

As part of these strategies the report has discussed the use of cascading funds as means to engage customers in the project. The knowledge in this area is not too extensive. Therefore, the formal requirements, process and documents for this funding alternative are relatively complex. There are clear benefits if the activities related to cascading funds could be coordinated within the CoordiNet Consortium to increase knowledge and experiences.

It is recommended to harmonize as much as possible the design and the structure of the cascading funds handling between the demo countries. This makes it possible to re-use the process and have common criteria, especially documents and definitions.

For the actual use of funds, some adaptation to the demo in question is though foreseen, but in a way that still ensures a somewhat overall project approach. Funds are suggested to be distributed according to the level of complexity, resource need, reference costs (if available) and taking into consideration the expected impact.

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Notations, abbreviations and acronyms

AB	Advisory Board
BRP	Balance Responsible Party
BUC	Business Use Case
CA	Consortium Agreement
DoW	Description of Work
DRES	Distributed renewable energy sources
DSO	Distribution System Operator
EDSO	European Distribution System Operators for Smart Grids (non-profit association)
EEGI	European Electricity Grid Initiative
ENTSO-E	European Network of Transmission System Operators for Electricity
EPIA	European Photovoltaic Industry Association
EU	European Union
EWEA	European Wind Energy Association
GA	Grant Agreement
FP7	Seventh Framework Programme
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
LV	Low Voltage
MV	Medium Voltage
PAS IEC	Publicly Available Specification
RTD	Research and Technology Development.
SME	Small Medium Enterprise
T&D	Transmission and Distribution
TSO	Transmission System Operator
WP	Work Package

Table 3. Acronyms list

1. Introduction

1.1. The CoordiNet project

The CoordiNet project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations. The CoordiNet project is centred on three key objectives:

1. To demonstrate to which extent coordination between TSO/DSO will lead to a cheaper, more reliable and more environmentally friendly electricity supply to the consumers through the implementation of three demonstrations at large scale, in cooperation with market participants.
2. To define and test a set of standardized products and the related key parameters for grid services, including the reservation and activation process for the use of the assets and finally the settlement process.
3. To specify and develop a TSO-DSO-Consumers cooperation platform starting with the necessary building blocks for the demonstration sites. These components will pave the way for the interoperable development of a pan-European market that will allow all market participants to provide energy services and opens up new revenue streams for consumers providing grid services.

In total, eight demo activities will be carried out in three different countries, namely Greece, Spain, and Sweden.

In total, eight demo activities will be carried out in three different countries, namely Greece, Spain, and Sweden. In each demo activity, different products will be tested, in different time frames and relying on the provision of flexibility by different types of Distributed Energy Resources (DER). Figure 4 presents an approach to identify preliminary standardized products, grid services, and coordination schemes to incorporate them into the future CoordiNet platform for the realization of the planned demo activities[3].

[3] Considering that this Deliverable D1.2 is being published at an early stage of the project, these characteristics may change. Please refer to the latest CoordiNet deliverables for updated information.

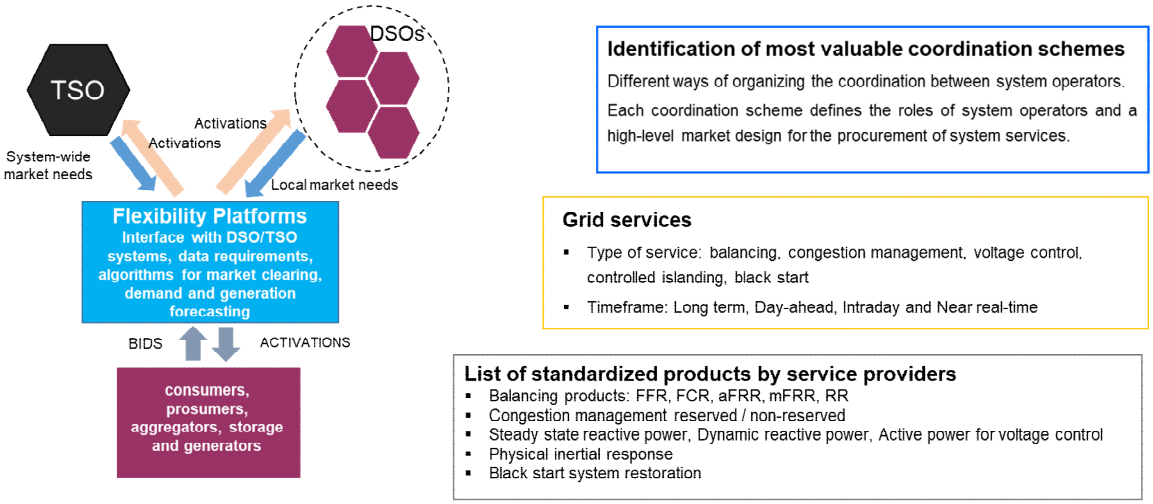

Figure 4 Overall CoordiNet approach (FFR: Fast Frequency Response, FCR: Frequency Containment Reserves, aFRR: automatic Frequency Restoration Reserves, mFRR: manual Frequency Restoration Reserves, RR: Replacement Reserves)

1.2. Scope of the document

As our energy system becomes increasingly complex and decentralised, the role of the customer as well becomes more important. Customers can with their activities support an efficient operation of the energy system and thus contribute to the value creation in the electricity market. The local energy market, its capacity and flexibility are however, rarely the first thing on the customers' minds. In CoordiNet we investigate ways to improve the interface between the customers able to provide services, and DSOs in need of these grid related services.

The scope of this document is to describe a plan for Demonstration Leaders when recruiting customers/users to engage them in innovation projects, such as CoordiNet, and successfully incorporate them in achieving the overall project objectives. The suggested process aims at promoting an active role of customers in smart energy projects, for example by providing feedback information about energy consumption, installation training about energy management device and automated appliances.

In addition, this document aims to provide general guidelines on distributing funds to recruit those customers. In the H2020 projects, part of these funds is referred to cascading funds. The plan identifies the following aspects:

1. Key motivational arguments for user engagement
2. Successful practices and pathways when initiating engagement
3. Obstacles, risks and hidden costs for users
4. Recommendations on distributing cascading funds

Main scope of the report

The focus of this report is on how to engage and involve customers to the CoordiNet project and suggest methods for this. It will not address the content of potential products, offers and services pricing related

to the project. There are also suggestions and recommendations that describe what is considered suitable, but it is always the DSOs or Demo lead to final decision making.

1.3. Methodology

This report investigates customer engagement of DSOs, to a large extent also applicable to TSOs. The customer engagement includes the complex ways in which customers are addressed, informed and driven towards changing their perception and actions with regards to decisions regarding their energy consumption.

1.3.1. Report structure

This deliverable starts with the literature review of H2020 project and BRIDGE[4] "Customer Engagement" Workgroup[5]. In addition, experiences of CoordiNet partners from previous projects and activities during the initial part of the project are included. Based on this review of customer engagement experiences, a description of customer segmentation, motivations and drivers and phases of customer engagement and associated KPIs follows. These experiences are then evaluated to come up with customer engagement strategies per customer segment and phase that can be further followed in CoordiNet and future projects. This methodology is further explained in Figure 5.

[4] BRIDGE is a European Commission initiative which unites Horizon 2020 Smart Grid and Energy Storage Projects to create a structured view of cross-cutting issues which are encountered in the demonstration projects and may constitute an obstacle to innovation

[5] The "Customer Engagement" Working Group (WG) meets at the European Commission premises in Brussels to discuss about issues such as the challenges in understanding and engaging customers, especially in the area of demand response

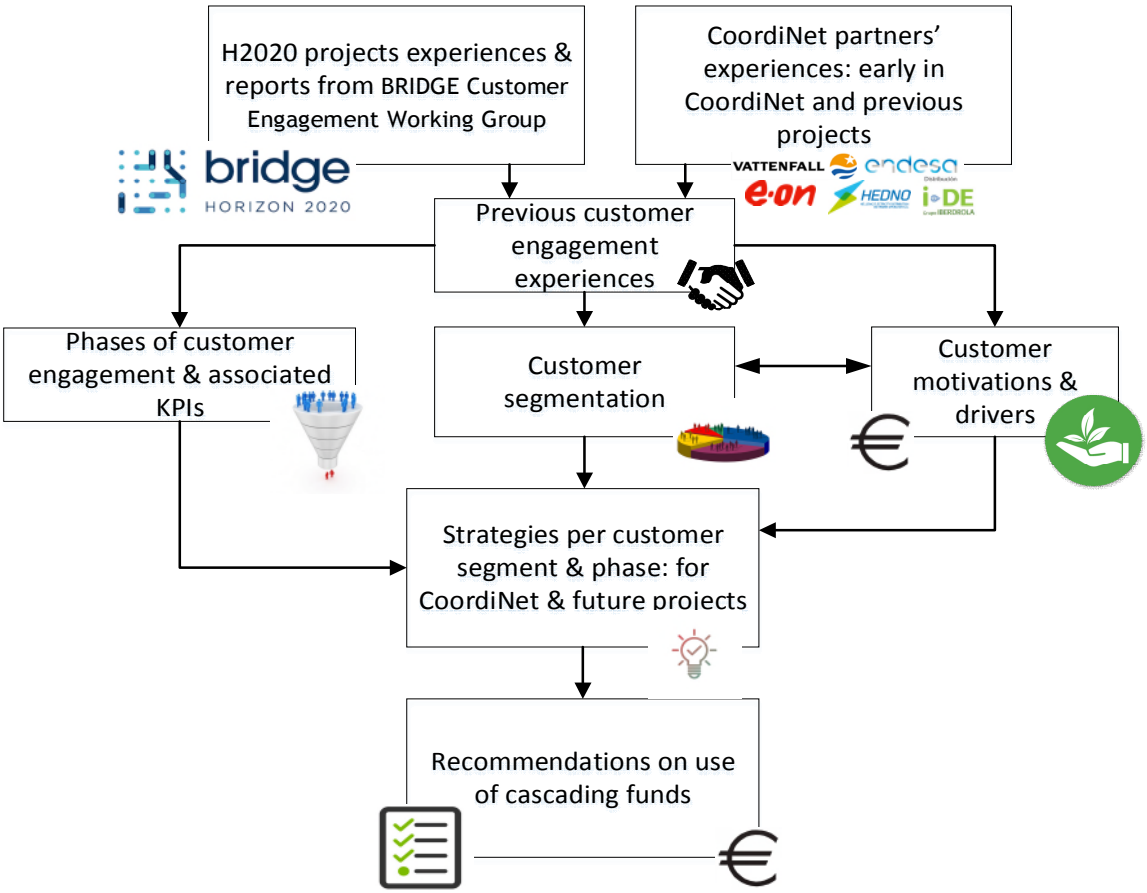

Figure 5. Methodology proposed for customer engagement

The following four chapters of the report correspond to four necessary processes for a successful customer engagement.

1) Customer segmentation used to classify the customers with respect to the engagement strategies

2) Phases of customer engagement and definition of Key Performance Indicators (KPI) of those phases

3) Customer motivations, and drivers

4) Strategies per customer segment

These four chapters will be followed by a chapter discussing the operation and distribution of cascading funds. Each of the chapters are divided into subsections including a review of the previous work, meaning a review of the H2020 projects previously mentioned, and experiences of the CoordiNet partners both in initial phase of the CoordiNet project and in previous projects. Each chapter ends with a subsection providing recommendations for CoordiNet on the basis on the previous subsections. A closing chapter outlines our general conclusions and recommendations for customer engagement to be performed by CoordiNet demos.

Customers are not a homogeneous group, and thus their preferences and willingness to adopt new technologies differ. Therefore, the following chapter starts with discussing customer segmentation as a means to create consumer engagement plans tailored for the different needs, preferences and capabilities. In this report, there is no one way segmentation recommended. Rather, it includes discussions and own experiences regarding customer segmentation strategies applied in previous projects. Examples are use-of-energy, spatial position, education, economic and environmental aspects, among others. Any of these can be used in order to achieve a successful segmentation for each project.

In the third chapter, there is an exploration of the synergies between customer engagement strategies and marketing and advertising strategies. This includes the AIDA Model, which is a conceptual marketing model dedicated to enhance purchase, and discuss the applicability of its four stages; get Attention, hold Interest, create Desire and obtain Action [1] to customer engagement processes. In relation to the different phases of the AIDA model there are several customer engagement KPIs reviewed. The chapter will also discuss the timing and most efficient use of KPIs in relation to customer engagement. However, it should be noted that while KPI recommendations will be provided in this report, the full list of KPIs for the project are treated in the Deliverable 1.6 KPI[6].

Based on the reviewed made from other projects, it has been highlighted that a major part of the customers' motivations to actively engage in the electricity market is monetary. However, chapter 4 highlights that there are also other potential motivations, such as environmental concerns, new technology interests, or business. Also challenges with motivation, such as potential risks and threats for the users/customers is discussed.

Definition of customer segment drivers and specific strategies is the final step to achieve the customer engagement, considering the principal motivations and differences between customer segments. Discussion on this topic is carried out in chapter 5. Prioritizing among customer segments is of high importance, since the available funds are always limited, and some engaged segments could help involving other segments.

In chapter 6, the use of financial support for third parties (FSTP, or cascade funding) is described. The received funds should be administrated according to the procedures established by the European Commission. Appendices with preliminary relevant examples and additional details are provided at the end.

1.3.2. Terms and definitions

Within CoordiNet, customer engagement is the process of involving external participants in the project. In this context, it is relevant to distinguish between project partners and customers. While the project partners are naturally engaged and already committed to achieve the project objectives and at the same time financed with project funds. Customers, on the other hand, are not initially engaged in the project and usually do not receive economic compensation from the project budget. Nevertheless, their participation is essential to obtain the project objectives. Thus, this report focusses on the customer engagement, discussing how to involve many key participants to the project to accomplish the project objectives by using limited economic resources.

[6] Complete set of KPIs for CoordiNet project is available in Deliverable 1.6 KPI

A successful customer engagement depends on the involvement of relevant stakeholders, which may not be customers, but are influential, for instance local governments, associations, etc.

Table 4 presents the definitions that are relevant when discussing stakeholders. Stakeholders can also be consumers, customers, or energy professionals. Their importance to the project can depend on their size, knowledge, and motivations connected to the project.

Term	Definition
Consumer	An energy user of electricity, heat/cold and chemical energy (e.g. gas). [1]
Prosumer	A consumer also able to produce electricity through solar cells or other local generation source
Customer	A customer of a DSO, i.e. Consumer or local generator of electricity with a business relation with the grid company.
Participant	A customer engaged by the project
Energy Professional	A person with the necessary knowledge, skills and attitudes related to the field of energy, power and energy efficiency.
Stakeholder	Any individual, group or organisation affected by, or able to affect, a proposed project and its implementation. [30]
Demo leader	The project partner within CoordiNet responsible for the demos in a specific country

Table 4. Definition of stakeholders

1.3.3. Sources of experiences

This report is based on several projects that were part of the BRIDGE "Customer Engagement" Workgroup as well as the project partners own experiences. In the review, ten H2020 projects (InteGrid, RealValue, EMPOWER, Flex4Grid, NobelGrid, SMILE, WiseGrid, SmarterEMC2, CrossBow and INVADE) plus the BRIDGE Customer Engagement Working Group recommendations [2] have been analysed. A short introduction of each analysed project is provided below, while a detailed description is available in Appendix A. Description of the reviewed projects

- Integrid

Integrid aims at demonstrating how DSOs enable the different stakeholders to actively participate in the energy market and to develop and implement new business models, making use of new data management and consumer involvement approaches [3]. The Integrid project is divided between the three countries where demos take place: Sweden, Portugal and Slovenia.

- RealValue

The Realvalue project aims to demonstrate how small-scale energy storage systems, within homes (e.g. Smart Electric Thermal Storage Systems 'SETS') can provide benefits to the whole electricity supply chain, from generation and distribution, through to wholesale markets and suppliers and ultimately to the end consumer.

- EMPOWER

EMPOWER project aims to develop and verify a local market place and innovative business models, including operational methods, the project encourages micro-generation and the active participation of prosumers to exploit the flexibility created for the benefit of all connected to the local grid. [4]

- Flex4Grid

The Flex4Grid project activity aims at providing a system for new market players offering data analytics and aggregation services for Distribution System Operators (DSO) to forecast and influence the load on the grid avoiding blackouts caused by network overloads or lack of power supplies. [5]

- Nobel Grid

Nobel Grid provides advanced tools and ICT services to all actors in the Smart Grid system and retail electricity market in order to ensure benefits from cheaper prices, more secure and stable grids and clean electricity [6].

- SMILE

The Smart Islands Energy Systems (SMILE) project demonstrates nine different smart grid technologies on different islands. The end goal of the project is to foster the market introduction of these nine technologies. The project has three large-scale pilot projects in different regions of Europe with similar topographic characteristics but different policies, challenges, regulations and energy markets. This enables the project to develop and optimize new innovations in different environments, thereby allowing optimal testing and flattening of the path towards wide market introduction. [7].

- WiseGRID

The WiseGRID project provides a set of solutions, technologies and business models which increase the smartness, stability and security of an open, consumer-centric European energy grid and provide cleaner and more affordable energy for European citizens. WiseGRID organized various citizen engagement activities in 4 countries (Spain, Belgium, Greece and Italy).

- SmarterEMC2

The SmarterEMC2 project aims to develop and implement ICT tools that support the integration of consumers through Demand Response services and the integration of DG/RES through Virtual Power Plants. In addition, the project explores whether the existing telecommunication infrastructure is sufficient to, in mass scale, support the emerging business models and Smart Grid services.

- CROSSBOW

The goal of the CROSSBOW project is to propose the shared use of resources to foster cross-border management of variable renewable energies and storage units, enabling a higher penetration of clean energies whilst reducing network operational costs and improving economic benefits of clean energies and storage units. Within this framework, CROSSBOW also investigates the cooperation between TSOs and DSOs for solving technical problems faced by TSOs.

- INVADE

The INVADE project aims to deliver a Cloud-based flexibility management system integrated with EVs and batteries empowering energy storage at mobile, distributed and centralized levels to increase the share of renewables in the smart grid. Five pilots located in 5 different countries in Europe (Spain, Netherland, Bulgaria, Norway and Germany) are implemented [8].

2. Customer segmentation

Customer segmentation is a way to group and classify a diverse portfolio of customers based on common denominators among them to better target them in a customer engagement process. With regards to CoordiNet, this translates into identifying capacity and flexibility potential in a diverse customer base in order to concentrate resources and use them in the most cost-efficient way. The segmentation can be developed considering different rules, such as consumption level, contracted power, type of building, use of energy, distributed energy resources adoption, level of education of the agent, among others [9].

To find a unique customer segmentation rule for projects is challenging due to different areas of focus and research. It is also true that customers and stakeholders living in different countries may react differently to the same stimulus, which as well hinders a general solution for the customer segmentation.

2.1. Review and analysis of previous work

Segmentation has been used by the analysed projects in different areas of their research. Most of them used segmentation at early stages of the project in order to select suitable customers for recruiting to take part in the project. However, some of the analysed projects also used segmentation for dissemination purposes, to efficiently carry out customer engagement incentives. Finally, some projects applied the segmentation at the feedback stage with the purpose of evaluating why some customers performed better than others and its relation to their attitudes and motivations. Therefore, before defining the customer segments, it is essential to clearly identify what is the final goal of the engagement that segmentation is serving [9].

Most of the analysed projects are focused on LV customers differentiating between those able to produce their own electricity with distributed energy resources (prosumers) and those who cannot (consumers). Other commonly used segmentation criteria include; by use-of-energy, regions, wealth, education, installed appliances. These last attributes are essential for describing and understanding the involvement of the participating consumers and prosumers. For example, does the flexibility of the consumers change depending on the energy used (e.g. thermal users tend to be more flexible). Likewise, wealthier or more educated people tend to engage more and devote more resources to innovative projects.

Table 5 shows the different approaches applied in each of the analysed projects, depending on the use-of-energy and technology-used approaches. The majority of the reviewed projects focus on residential segments although this sector is quite complex because of the size of each individual customer and their different motivational aspects, there is little experience on engaging industrial customers, which is one of the sectors that will participate in both the Spanish and Swedish demo. In addition, no experience is reported related to generators which is also plays a significant role in the CoordiNet demos.

Projects\ Customers		Consumer				Electric Vehicle	Storage/ Battery	Generator
		Residential		Commercial	Industrial			
		No DER	DER					
InteGrid	Sweden	✓	✓					
	Portugal	✓	✓	✓	✓		✓	
	Slovenia			✓	✓			
RealValue	Latvia	✓	✓	✓				
	Ireland	✓						
	Germany	✓						
EMPOWER		✓						
Flex4Grid		✓						
NobelGrid		✓						
SMILE	Madeira	✓	✓	✓		✓		
	Orkney Islands	✓	✓		✓	✓		
WiseGRID		✓	✓	✓				
CROSSBOW		✓		✓				
Smarter EMC2		✓		✓	✓			
INVADE		✓	✓	✓		✓	✓	

Table 5. Customer segmentation review

In addition to the previous segments, other characteristics used to develop a customer segmentation are the following:

- Regions, locations and neighbours

For residential customers in particular, culture and geographical features can be decisive for the response to engagement incentives. For instance, urban areas are easier to engage than rural areas. As well, the degree of unity of a neighbourhood can impact the customers' response. In areas where social pressure from a neighbour exists and where the opinion of the neighbour influences the customers' decision the engagement may be easier.

- Personal characteristics of participants
    - Wealth and vulnerability

People in economic need are more attracted by monetary incentives, while wealthy people show higher engagement if new technologies or educational aspects are included in the project. For this reason, income segmentation could be useful for some projects.

- Age, education and technology aversion

Depending on the project goals, i.e. promoting end-user control over heating and electric system through a mobile App, it would be interesting to focus on younger customers with low technology aversion and who are used to adopting new technologies.

- Installed technology

For projects which requires specific appliances to be installed on the customer-side, an installed-technology segmentation would be very useful. If the customers who already have the needed appliances installed are engaged, it could derive in high economic savings for the project.

- Metering and current tariff

A traditional and easier segmentation would be segregating the customers by their current tariffs and use-of-energy. A lot of information is available for this segmentation and it is suitable for large numbers of customers.

- Individual flexibility capacity

Nowadays, flexibility markets are an important research line. For those projects related to this topic, an interesting segmentation would be by flexibility capacity. This means quantifying the curtailable MW, storage capacity, aggregation capacity with neighbours, etc.

- User activity and consumption patterns

For commercial and industrial customers, it would be very useful to segment by their energy-related activities. For example, most restaurants have their peak-consumption at parallel times. In the same way, similar industries have the same consumption patterns.

2.2. Experiences of CoordiNet' partners

As reiterated above, finding a unique customer segmentation is challenging, because different projects focus on different aspects of the customer needs and capabilities. Differences in for example market models and network regulations among the countries can further complicate the development of a standardised criteria for segmentation, as customers will have different reactions to different stimuluses [a].

While, the input from the project partners reveals that many different aspects have been given to customer segmentation, there are some repeated characteristics. These relate to assets owned based segmentation (e.g. Owners of electrical vehicles, storage heater, electrical heat pumps CC-technology, RES) and segmentation based on the character of customers' consumption (large, small, commercial, industrial). The financial benefit for larger customer is often more notable and their relevance for solving the problem of the DSO greater, why it can prove beneficial to focus on this segment [b]. Several project partners have relevant experiences from engaging industrial customers and local generators which is valuable to CoordiNet since several demos will target these segments.

From the experience of some partners, it is suggested that the best results in terms of engagement is achieved among "energy professionals" such as combined heat and power plants and industrial customers with substantial electricity consumption and extensive knowledge there about [b]. This means that they

have the expertise and capacity to comprehend and run flexibility question internally. Customers with both variable consumption and local generation capacity, has been particularly interested to participate in testing marketplaces for flexibility solutions.

Specific learnings from dealing with households has not been outlined among the partners' experiences. This might owe to the fact that little has been done in this regard. Another plausible explanation may be that attempts to engage with households have produced only limited feedback thus barely providing a base for drawing conclusions.

One relevant aspect that has played an important role in recruiting customers for the CoordiNet project is to involve resources such local generators and power and heat companies, located in the grid, and that have dedicated energy professionals. This makes is easier to involve resources since they are active in the same community and could have common incentives to develop the project. This is the case for all demos in CoordiNet. For a detailed example of customer segmentation of a demo area see Appendix B.

Lastly, regional authorities or municipalities were mentioned as possible customer segments. These actors have an important role in engaging customers since they can explain the importance for the community and influence other actors. There are some experiences from Sweden where municipalities (e.g. Uppsala, Stockholm, Malmö) face a situation where capacity constraints in the electricity grid threatens the development of new city districts and expansion or introduction of new industries. This creates a strong incentive for these municipalities to participate jointly (with for example DSOs) and find solutions, for instance by acting as a facilitator of the customer engagement process. In the CoordiNet project, this potential is well-reflected, as two municipalities can be found among the project partners: Malaga, Uppsala. In both cases, the municipalities have natural incentives to bring innovative solutions to their locations, foster innovation and local development. Municipalities could also involve additional customers such as hospitals, local retailers and SMEs etc.

2.3. Recommendations for segmentation in CoordiNet

Findings in 2.1 and 2.2 emphasize the importance of technology and an actor's knowledge and experience with flexibility. Therefore, it is strongly recommended that size, in terms of electricity consumption, and technology segmentation is prioritized segmentation perspectives. The target group segmentation for the CoordiNet project is provided in Table 6. These categories correspond to different resources that have been considered at month 6 of the project but they may be subject to change throughout the course of the project.

Recommended starting point for segmentation structure:

Type of consumer	Categories	Examples of Sites	CoordiNet demo
Large-medium size customers sites	Industrial processes	Basic materials production Industrial heating and cooling application Manufacturing Waste and Water treatment	Spanish, Swedish.
	Backup power	Hospitals Power utilities Military Bases Telecom base stations	Greek, Swedish
	High Tech	Data centres Laboratories	
Large organizations or Power companies	Property Owners	Shopping centres Sports facilities Office buildings Public housing Public Buildings Apartment buildings Schools Nursing homes Hotels	Swedish, Spanish
	Transportation	Public transport Railway EV charging in parking garage	Swedish, Spanish
	Renewable Power generators	Wind power farm PV park	Spanish, Swedish, Greek
	Power Generators	Resources connected at transmission and distribution networks	Swedish.
Aggregated small consumers	Electrical Appliances	Grocery stores Bakeries Dry Cleaners	
	Heating or cooling	Single family homes Condominiums	Swedish (through aggregation)

Table 6. Segmentation in CoordiNet project

The recommendation is to pay special attention to large electro-intensive consumers and large organizations with high power and energy consumption who have their own internal resources and experts working with energy efficiency. In addition, medium sized back-up power and assets as heating pumps and electric boilers, which are installed to provide services to consumers, can be also used to provide services to the system operators and obtain additional revenues. Engagement efforts with this type of customer is likely to prove easier and more effective given their background in energy and their size and thereby relative impact on the project.

Meanwhile even small sources of power usage can be relevant if there is a large enough volume locally. Cooling and heating solutions such as heat pumps and air conditioning units are an obvious example of this. Aggregation of these assets is necessary to access a scale that is comparable to other large users. It as well recommended to map the technologies connected to the power usage for individual sites, as this reveals the potential for power efficiency measures and flexibility solutions. Some examples of technological applications are listed in Table 7.

Category	Examples of Technology
Backup Power	gas turbines, generators, batteries, fuel cells, pumped storage
Industrial processes	engines, pumps, fans, blowers, shifting operation schedule to low peak periods
High Tech	servers, laboratory equipment
Property	electric heating, electric cooling, pumps, ventilation, lighting, electric charging stations, shifting operational hours to low peak periods
Transportation	charging of electric buses, powering trains, electric heating of depos
Electrical Appliances	ovens, refrigerators, freezers, dryers, press
Heating and cooling	heat pumps, electrical heaters, air-conditioning systems

Table 7. Technological application

3. Phases of Customer Engagement and KPIs for monitoring

As mentioned initially in this document several synergies can be found between customer engagement and marketing and advertising strategies. Therefore, the AIDA Model, or the "Purchase Funnel", is included in this chapter. The well-known concept model for enhancing purchase is divided into four customer-oriented steps: get Attention, hold Interest, create Desire and obtain Action [1]. Each step of the funnel indicates a phase of customer engagement and a move downwards in the funnel implies that a potential customer gets one step closer to the desired action. Further developments of the model have added an extra final step, dedicated to satisfaction consultation after the purchase [10].

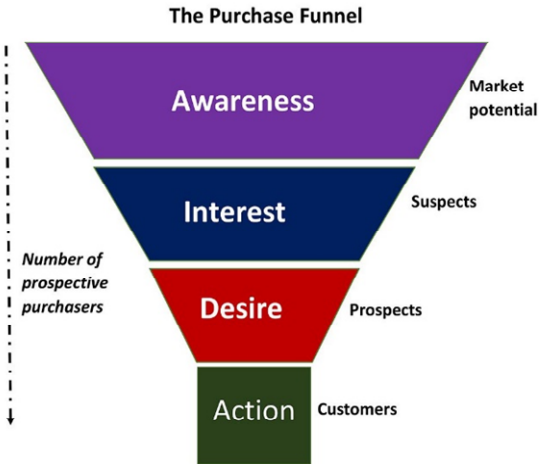

Figure 6. The AIDA Model [1]

Since a fraction of the targeted potential consumers erodes by each step the number of actual potential customers decreases throughout the process. This means that it is necessary to address a much larger target audience in the early stages of the process in order to meet the goals set for the final action – most often purchase. To make the most of the model, goals should however be set for each of the steps and not just on the final action. For each goal quantifiable measures should be set up in order to allow monitoring of the process as a whole. In the following those will be dealt with as KPIs.

While the original objective of the AIDA Model is to increase sales it has, in this report, used for the customer engagement process recruiting participant to the project. The experience with this adaptation of the model will be elaborated further in the following subchapters.

3.1. Review and analysis of previous work

Involving participants has proven to be difficult for various reasons in the projects reviewed. It is particularly the case for energy management projects because the financial benefits often do not correspond to the equipment costs (e.g. HEMS, smart appliances, DER) or loss of comfort resulting from the behavioural change required. It is therefore important to develop a customer engagement plan and look for quantifiable variables, such as KPIs, to measure the success of a certain plan.

The main findings within the BRIDGE Customer Engagement report show that customer engagement levels varied between the projects due to different levels of awareness, different analysed technologies and diverse types of interaction between stakeholders.

The BRIDGE report also includes a value chain consisting of three simple phases related to costumer engagement. The value chain provides a process for understanding the customer value, setting goals and developing KPIs to measure the success of each of the phases of interaction with the customer. The three phases, which the BRIDGE value chain proposes, are formed by:

1. Involve. Understand to whom you are talking to. This phase includes an initial involvement and preparation for questions.
2. Engage the customer through a process of benchmarking, offering incentives and developing a segmentation.
3. Evolve the relationship with the customer by a feedback loop where communication grows. [9]

Since there are similarities between the experiences from BRIDGE initiatives and the AIDA-model this is taken as confirmation that the established AIDA-model can be used.

The identification of KPIs are relevant to quantify the success of consumer engagement. Below is an overview of KPIs grouped following the AIDA- phases, however interest and desire are merged to one step covering information interest and desire to participate. The initial awareness phase deals with customer acceptance of the demo/project in question. While the final action phase with the participants' responses to the demo and the actual results of the demo.

In Table 8, the different KPIs used for each of these phases by the BRIDGE projects are listed [11], [12], [13], [14], [15], [16], [17], [18].

Project	Awareness phase KPI	Interest and Desire phase KPI	Action phase KPI
Flexicency (Italy)	Number of offerings sent/ number of activations per period	Number of activated requests Number of reporting requests per period	Customer satisfaction Financial savings for the service provider
Flexicency (Spain)	Number of offerings sent/ number of activations per period	Number of activated requests Number of reporting requests per period	Consumption reduction Load management Customer satisfaction
Flexicency (Sweden)		Number of activated requests Number of reporting requests per period Number of override /numbers of installation Number of technical help desk requests	Change in energy consumption (kWh) Home appliance steering Participant satisfaction with the services tested
Flex4grid	Participation rate, showing user engagement and acceptance Number of Households participating in the pilots		Reduction of peak loads Average grade of user satisfaction
RealValue (Germany)	Number of returned letters/Sent letters Number of visited houses which fulfilled the criteria	Onsite visits questionnaire Twitter followers Page views Social media posts	Number of signed contracts for energy storage appliance installation
RealValue (UK & Ireland)	Number of attendants to events Number of interested people calls Number of applications installed	Number of App users App time of use Number of page forms fulfilled Twitter followers Page views	Number of "satisfied or very satisfied" Number who rated it "better or much better" than the previous system
RealValue (Latvia)	Number of attendants to events Number of sign-up surveys	Twitter followers Page views Total impressions	Number of "satisfied or very satisfied" Number who rated it "better or much better" than the previous system

Flex4Grid	Participation rate (acceptance) Number of households participating in the pilots	Participation rate (engagement)	Estimated average revenue per user Reduction of electricity bill for prosumers Number of new services based on the activity Average grade of user satisfaction Reduction of peak loads
NobelGrid		Number of connections to EMA App	Actions the prosumers execute in each session DR scheme Impact on Load Absolute peak hour change Peak Load Reduction Increased Demand Flexibility
Integrid		Available flexibility for normal case Number of customers engaged	Cost/benefit ratio when additional equipment is necessary Monetization of the flexibility over a certain time period Energy use before the demo/Energy used after the demo
TILOS	Number of Local people joining events Number of people responding surveys	Number of households accepting smart meters and DSM kits	
WiseGrid	Circulation of a newsletter Number of newsletters per year Project fact sheet/brochure Number of all the workshops Number of training kits Number of training sessions Organization of 3 local workshops Demand response campaign penetration Number of attendants to meetings and events	Active participation in EV demand flexibility Demand response campaign penetration	Number of filled out feedback questionnaires Peak load reduction
Crossbow			Amount of reduced or shifted load
SmarterEMC2	DR Maximum Number of Devices	DR Participant' Efficiency DR Participant Impact DR Program Reliability DR Participant Responsiveness DR Participant Engagement	Change in total electricity consumption Change in peak electricity consumption Change in off-peak electricity consumption DR Participant Cost Savings
INVADE			Optimise energy consumption based on hourly rate Optimise energy consumption based on effect/power Peak Shaving Additional revenues for private households

Table 8. KPIs in each phase of consumer engagement per project

It is important to note that most pilots in this analysis focus on small sample-size pilots (less than 1000 people engaged). For larger demos and system-wide implementation, further research should be considered in relation to scalability and replicability analysis from demos.

Furthermore, as mentioned initially in this document, it should be kept in mind that these KPI considerations serve as a basis for recommendation. The actual KPIs to be used in the CoordiNet project will be developed within the Deliverable 1.6 KPI.

3.2. Experiences of CoordiNet partners

Much in line with the findings of the BRIDGE report, the internal experience of the CoordiNet partners, related to customer engagement generally shows that involving customers as participants in a project is challenging. This is certainly true in cases where the monetary savings for the participants do not correspond to the equipment costs and/or loss of comfort resulting from the behavioural change required [a].

Experience from Greece highlights reluctance from especially industrial and commercial consumers to install new hardware. It is therefore suggested to only involve consumers when the technologies to be deployed are ready and can be demonstrated alongside the schemes of incentives [d]. Experiences from Sweden mentioned the customers' perception of the DSOs as a challenge to be kept in mind when approaching consumers [c]. DSOs, because of their nature of natural monopolies and lack of experience in commercial activities make them difficult to engage customers. To minimize the gap between the actors, an open dialogue with key stakeholders is suggested, if possible, targeting energy/technological experts as their knowledge will allow for smoother exchange [c]. In Spain, it was difficult to involve the commercial sector (e.g. hoteliers), as they lacked energy experts that can evaluate the technical capabilities of the installations to provide system services. The use of cascading funds to support this lack of expertise can overcome this barrier and gain a wider range of customers.

It has proven beneficial to have clear and measurable incentives ready to offer to the customers to ensure a successful engagement [d]. To this end, raising awareness of the importance of flexibility was underlined as a crucial step along with identifying which incentives are the most important to the different customers. Some of the CoordiNet participants have previously carried this out by use of conceptual models known from marketing strategies [a], such as the previously explained AIDA model.

As seen earlier, the AIDA model divides the engagement process into four key actions: get attention, hold interest, arouse desire and obtain action. With regards to engaging customers as participants in a project, the step is equal to sales process and relates to gaining the customers' attention. The customer segmentation and the analysis of the potential market are crucial prior steps for this approach. Once the awareness is achieved, the aim is to get the potential customers to develop interest in the project and adopt a positive attitude towards the project. Once the customer has become interested in knowing more about the project, the advantages and benefits should be explained seizing the opportunity to create desire to participate. It is important to target the audience evoking adequate motivations corresponding to their identified segment in order to increase the probability of a high number of engaged customers [a]. Finally, the actions which it is desired of each customer to take must be carefully explained. Any doubt or concern from the customers must be attended as fast as possible to mitigate the risk of non-participation caused by information gaps.

Additionally, the experience shows that it can be beneficial after these steps to add a satisfaction consultation allowing for a continuous improvement of the different phases and facilitation of higher engagement rates.

Regarding the KPIs, experiences suggests that it is valuable to define these as early as possible [a]. The experience also included dividing KPIs into three different engagement phases, namely: awareness, interest and desire, and action, corresponding to the AIDA Model, equal to the method explained in the previous sub-chapter.

3.3. Recommendations for phases of customer engagement

This chapter has used the AIDA-model to organize the customer engagement process structuring engagement activities under each step (Awareness, Interest & Desire and Action). The purpose of the activities is to attract new possibilities, drive the process forward and get customers to participate in the project.

It is recommended to set up a structured process to work with customer engagement in different phases as the one proposed following the AIDA model. As such, an early elaboration of a customer engagement plan is recommended. This is useful to maintain the customer engagement throughout the project and allows for monitoring and evaluation of the engagement step by step in order to ensure that the project objectives are achieved.

Based on the previous subchapters, it is recommended to consider carefully the timing of the engagement process. It should not be started before the action to be taken by the participant can be clearly explained and demonstrated. Prior to reaching out to customers KPIs for measuring the success of the engagement process should as well be in place.

Concerning the phase of interest and desire, it is recommended to apply tailor made arguments considering the motivations of the different customer segments, which will be tackled in the next chapter. Likewise, it is recommended to keep an open dialogue with the customers. This will help bridge any potential knowledge gap related to the purpose of the project, as well as to maintain the interest of the customer throughout the engagement phase and later in the project. However, the open dialogue also presents the project partners with an opportunity to evaluate their own work and ensure a continuous improvement of the engagement process to achieve the highest possible engagement rates.

Lastly, it is suggested to monitor and follow up activities throughout the CoordiNet project to ensure that the suggested approach in this report has contributed with value. This could for example be done by including a process performance follow-up in the demos and share experiences between the different countries.

4. Motivations and drivers per customer segment

Identifying key motivational arguments are relevant to the different customer segments are of outmost importance for the customer engagement process. However, this is a complex task, as these arguments can vary notably between different regions, segments and the purpose of the project activity. This means that communication and description of motivational arguments needs to be tailored to each specific situation.

In the following, "motivations" are what incentivises the customers to behave in a certain way. In the engagement process, motivations are not related to the project or to its objectives, but rather to the customer value understanding.

Meanwhile, a driver is understood as a factor that meets the customers' expectations and needs and contributes to increasing their engagement in the project [9]. Example of drivers could be monetary incentives, environmental benefits, increase of knowledge, etc.

Another aspect in this phase of the engagement relates to the potential risks and obstacles for customers making them reluctant to participate. Therefore, the motivation of customers must also address potential risk and obstacles and describe how to mitigate or handle them in order to be convincing. Examples include financial uncertainty as well as anticipated negative impact on industry production or reduced comfort.

According to BRIDGE [9], engagement can be negatively influenced by factors such as, shortcoming in communication and clarity, lack of resources and time as well as trust and user friendly technologies.

4.1. Review and analysis of previous work

In order to comprehend the main drivers for customer engagement, it is strongly recommended to listen the customer opinion, to derive their main expectations to the project and to find the reasons and motivations for participating in the demos. Because this subject is different and much wider than other topics of this report it has been decided to create a summary at the end of this section.

Obstacles to engagement process are as important as incentives, so drivers can be divided into two groups:

1) Customer drivers or primary factors
2) Required barriers, secondary factors or absence of barriers [9]

The main motivations per customer segment of the reviewed projects are provided below.

a) RealValue

An initial survey is a very useful tool to map the customers' main expectations related to joining the project. In the RealValue project, the initial surveys showed that the customer principal expectation was to save on the energy costs, for example by improving the control of the heating system. In the German pilot, the expectation to reduce bill costs was considered the most significant reason, but interest in new technology was also mentioned, as well as greater energy independence and environmental gains [11].

b) EMPOWER

In the Empower project, identified that the key drivers for participation are environmental values and economic considerations. Risks related to the security of energy supply is another significant concern among the customers, which would be a secondary factor, as it was mentioned at the beginning of this chapter. In the EMPOWER study, prosumers with a PV battery system do not assign much importance to flexibility concerns but focus rather on the electricity mix of their energy consumption or the electricity cost. Prospective customers share risk concerns regarding the security of energy supply and high levels of coordination among participants [19].

c) Flex4Grid

In the Flex4Grid project, an initial survey evaluated the key reasons for consumption adjustment and the customer monitoring desires. Table 9 show the survey results for both the Slovenian and German pilots, respectively. Money saving is the most frequent reason to adjust consumption. In Slovenia, economic motivations represent 53.8% of the responses while German responses are more environmentally friendly (21.9%). In both cases, consumers would like to monitor overall consumption and individual appliance consumption. There are some differences between Slovenians and Germans in monitoring overall consumption, while 91.2% of Slovenian respondents said yes, only 65.6% of Germans willed to monitor overall consumption. These differences could be due to small sample of surveyed population.

Category	Frequency	%
Reason to adjust consumption		
To save money	141	53.8
To be more environmentally friendly	20	7.6
Both	99	37.8
Monitor overall consumption		
Yes	244	93.1
No	18	6.9
Monitor appliance consumption		
Yes	238	91.2
No	24	9.2

Table 9. Active adjustment of consumption and monitoring – German pilot. Flex4Grid project [12]

Category	Frequency	%
Reason to adjust consumption		
To save money	14	43.8
To be more environmentally friendly	7	21.9
Both	11	34.4
Monitor overall consumption		
Yes	21	65.6
No	11	34.4
Monitor appliance consumption		
Yes	29	90.6
No	3	9.4

Table 10. Active adjustment of consumption and monitoring – Slovenian pilot. Flex4Grid project [10]

d) SMILE – Madeira

Differentiation in the motivation study among the different customers is highly recommended, as it may change due to several reasons such as age, education, wealth, nationality, interests, etc. In the SMILE project in Madeira, several drivers are approached in the different pilots.

Pilot 1. Getting started with Battery Energy Storage System and Demand Side Management:

- Targeted customers: domestic UPAC owners that cannot sell their excess production to the utility
- Motivation: maximize self-consumption

Pilot 2. Moving forward with Battery Energy Storage System and Demand Side Management:

- Targeted customers: commercial UPAC owners that cannot sell their excess production to the utility
- Motivation: reduce peak consumption, lower the contract with the DSO

Pilot 3. Getting Started with Electric Vehicles and Smart Charging

- Targeted customers: Three local businesses
- Motivation: improve fleet control and charge optimization [20]

After this review on the principal reasons for customers to participate in a project, some recommendations are presented to speed-up the customer engagement process.

e) WiseGRID

In WiseGRID, the main motivation for customers participation in the pilots are their interest in new technology based on which they gain a better knowledge on their consumption and therefore a better control of it. In addition, environmental concern was a key motivating factor [21].

f) SmarterEMC2

In SmarterEMC2, the ecological awareness of the customers, as well as their interest in new technology were the main drivers for their participation in the project. The ability to review their consumption data and statistics using the tablets that they received in order to participate in the project was an extra motivation for the customers, as they consider this as an opportunity to have a better control on their consumption and way to reduce bill costs [22], [23].

g) CROSSBOW

In CROSSBOW, the Greek demo aims at engaging customers that have already been engaged in previous projects. The efforts focus on customers who had a high willingness to participate in previous projects. These customers are mainly characterised by their environmental concerns and interest in new technology. Furthermore, the already installed infrastructure and the customers' familiarity with participating in a project is a key barrier breaker for their participation.

h) INVADE

In INVADE, the value of social and environmental conscience, the use of technology in order to maximize their profits and incentives are the main drivers for participation in the pilots. In addition, an *establishment of a good relationship* between the users and the pilot leaders is highlighted as a crucial factor for the engagement of the users [8].

4.1.1. Summary

Before summarizing the motivations and drivers for the customer engagement process, it is important to note that reviewed projects were mostly engaging residential customers. Therefore, motivations and drivers for other types of consumers, such as generators, industrial processes, transportation companies and other large-medium size customers cannot be approached. Some of the following assumptions about residential customers can be also applicable for aggregation companies or small commercial organizations.

One of the principal motivations for the customer participation in the reviewed projects is mainly economically driven, in the case of residential consumers, on their energy bills. However, other incentives were also highlighted below.

In order to compare benefits between houses which differ in size, location and specific features, Integrid project proposes a Household-Specific Baseline that would allow for:

1. Personalized goals, depending on the efficiency already achieved by the consumer
2. A fairer comparison of energy efficiency between households

This household-specific baseline would depend on the household area, the number of residents, use of washing machine and the number of residents who usually work from home.

The importance of the money saving is demonstrated by almost all projects. It is important to note that the drop of variable cost is as important as lowering economic barriers such as those related to a required initial investment, to engage the customer to participate. Although the impact monetary incentives are of high importance, it is not the only factor playing in. In the Bridge Customer Engagement Report, a total of four factors are outlined related to the drivers of customers' participation:

1. Monetary incentives
2. Assurance of comfort
3. Pro-environmental attitudes
4. Education, training and communication

Assurance of comfort is a core motivator for behavioural change. In fact, the absence of comfort guides the most powerful changes in the customer's behaviour. This driver is a physiological need that must be met as the fear of losing it would provoke a barrier for engagement. An example hereof could be loss of time or changing routines based on the energy consumption which could both be classified as discomfort, and lead to non-participation.

Regarding pro-environmental attitudes, the customers see them as an ethical pursue. Most of projects show that there is a high concern on environmental issues among the customers. It is true that for some customer segments, this can be a key driver. However, other customer segments may find other motivations more important due to different economic situations or geographical locations. The BRIDGE analysis furthermore suggests that environmentally friendly projects which are sensible and desirable can benefit from a qualitative segmentation of the customers as this could lead to better approaches for customer engagement.

Customers are often attracted by improving their knowledge in energy systems and actively participate in the project decision chain. For this reason, a continuous communication with the customers can increase participation and interest in the project. Moreover, training workshops, educating e-mails and feedback surveys would help meeting this customer requirement [24].

Risks of not satisfying these needs and requirements should be considered as risks or threats to the customer engagement. All activities addressing these shortcomings should have a positive impact.

4.2. Experiences of CoordiNet partners

The general experience of CoordiNet partners suggests that the main drivers and motivation for customer engagement relates to the benefits of the individual customer. Key arguments to convince the customers to participate and provide flexibility to a project, therefore relates to financial benefits. However, additional motivations other than financial benefits should always be accounted. Industrial customers are mainly concerned about the core business and that there is no interference with their processes. Even risks of negative impact on processes could be enough to refrain from engagement. Residential customers value the assurance of comfort, or even of improved comfort. In the experience of the project partners, the negative incentives provoked by interference with processes or absence of comfort will prevail the positive incentives stemming from financial benefits [b]. While other drivers can add to the costumers' motivation to participate these are likely to differ among different customer segments. Even if financial benefits are crucial, providing flexibility will not be a core business for a majority of customers and decision to engage will depend on a variety of factors.

Albeit, the existence of financial benefits it is furthermore important to be able to present the customer with easy understandable business models. Customers tend to be somewhat reluctant to be first adopters and want to see "proof of concept" and established solutions. When business models and concepts are established it will be easier to include also smaller customers, who will then perceive the related risk as smaller [b].

In line with the point above, another barrier to participation can be lack of information or knowledge. It is important to ensure that the customer understand how electricity consumption changes over time within their operation. Often, customers have information of their consumption in terms of annual turnover and monthly values, while the profile over the day and potential peaks seldom are known. Additionally, it is valuable if the customers have a good understanding of current challenges for the electricity system. This concerns both knowledge of limitations in capacity growth in regions around larger cities as well as of implications from intermittent renewable generation from wind and solar. This understanding helps to get a grasp of direction of future values and of challenges in the energy transition and can potentially motivate the consumer to participate [b].

Corresponding to the BRIDGE analysis, experience of the project partners also shown that customers often are attracted by improving their knowledge about the energy systems and actively participate in the project decision phases. Empowerment of the customer is important, and individuals seems to be more willing to engage in a project if they are empowered. For this reason, a continuous communication with the customers can motivate and increase participation and interest in the project and is desirable [a].

Concerning the engagement with municipalities, motivations include reputation building and the opportunity to be a first mover. While the drivers concern the solving of challenges particular to the city in question, e.g. solving capacity issues allowing for electrification of the transport sector [c]. An example of this comes from the municipality of Uppsala in Sweden. The region has experienced severe capacity constraints during a period of exponential growth and development. The present energy and power markets do not create the necessary incentives to solve this situation and the TSO has indicated that it will take 10-15 years before the capacity constraints can be fully resolved. Driven by opportunity to solve this situation, the municipality took the initiative to involve local leaders and stakeholders, to support the CoordiNet project. These stakeholders are in fact the ones experiencing the negative consequences when the situation is not resolved. This created a win-win situation, where the project brings a potential solution to the municipality, and by engaging other stakeholders the municipality brings enhanced customers engagement to the project. More details regarding this example can be found in Appendix C. Partner engagement in Uppsala and Sweden

4.3. Recommendations and examples for motivation and drivers

In order to achieve a successful customer engagement, it is necessary to address the most relevant drivers for the targeted segments. Financial incentives at minimum discomfort are critical to successful customer engagement, as all customer segments responds to it. In addition, hereto also minimum impact on industrial processes and assurance of comfort among residential customers as well as environmental attitudes and educational aspects must be considered general factors appealing to the majority of customers. This means that the decision to engage in this type of project will be based on a mix of arguments and that it is crucial to understand different customers' preferences.

It is recommended to develop financial incentives and business models for a local market in dialogue with customers and stakeholder. This is especially important in the situation when industrial customers and generators should be engaged. In general, these type of actor's base decisions on evaluation of business cases where both potential revenues and costs are known. Requirements from the customer to see a simple and understandable business models is equally important.

A suggestion is to emphasise the key motivational arguments by addressing monetary incentives as commercial offers with the following characteristics:

- Clear and easy to understand.
- Definition of what is expected by the customer and the financial compensation (further refer in the cascading funds section).
- A business model that is understandable and easy to adopt.
- Focus on mitigate risks derived from providing flexibility terms of lost comfort or other negative aspects.

The financial incentives should also be accompanied by other drivers' such as environmental benefits in terms of climate mitigation and increased share of renewables as well as the potential knowledge increase that follows. It is important to differentiate the customers by their additional motivations, such as environmental benefits, and follow different strategies for each customer segment and motivation.

Recommendation is to create examples, calculations and illustrations of environmental benefits related to flexibility. One possibility is to relate flexibility in consumption to ability to include more renewable generation from wind and solar. By adding more flexible energy consumption a DSO would be able to include a larger fraction of intermittent renewable generation and hence improve the environment. Another alternative is to describe direct relation to emissions, if applicable.

In order to promote customer knowledge, it is recommended to include educational elements in the engagement process. Both in terms of understanding challenges and how flexibility can be an important solution for the energy system as well as the customers own potential to provide flexibility. An important step in this is to ensure that the customer understand how electricity consumption, or production in the case of generation, changes over time within their operation. Any action targeting the customer should be tailored to his needs. Differentiated sales material is therefore recommended among the different demo host countries as among the different customer segments taking into account each their specific context.

It is equally important to address potential risks and threats. This includes both financial uncertainty as well as anticipated negative impact on industry production or residential comfort. Industrial processes are usually performed to fulfil tight schedules without considering external needs. Therefore, to unlock potential flexibility from the process, the different process has to be adapted, affecting in some cases the whole production chain. A specific evaluation of the cost of these adaptations and the potential benefits for the system is necessary to proceed with the use of industrial flexibility. For residential or commercial consumers there may be a discomfort cost associated with the shifting of energy uses. However, with automation and flexibility from air conditioning and heating these barriers may be overcome as the discomfort may be minimized.

Since the communication needs to be tailored and targeted towards different customers, it requires a substantial effort in terms of both time and resources. The recommendation is to involve partners and stakeholders who will gain benefits from involvement in the project.

It is recommended for each demo to develop an approach to involve external parties who benefit from creating flexibility. This can be done either by improving the situation for the actor or creating new business in the process of establishing flexibility as seen in the Municipality of Uppsala case.

5. Strategies per customer segment

This chapter combines the insights from previous chapters regarding concepts of customer segmentation, motivations and drivers together with process perspective in phases of customer engagement to come up with customer engagement strategies. These strategies can be used to attract and engage potential customers to participate in the CoordiNet pilots.

A central part of the strategy includes involvement of external stakeholders that are able to support the realization of the project and assist with resources, skills and existing networks. In section 4.2, stakeholders were identified as a valuable resource when attempting to create and establish a new market, as is the case of CoordiNet. Local stakeholder can facilitate and even lead much of the work related to customer engagement locally. They can identify and motivate early adopters to participate, which is critical in early phases of the market. These early customers and stakeholders provide value input and examples of flexibility for the AIDA process. In order to support the stakeholder engagement, it is relevant to understand and visualize the ability to influence the project. A helpful tool for this purpose could be found in Appendix D. The Stakeholder Circle

5.1. Review and analysis of previous work

The objective of this chapter is to provide some views from the different projects analysed in the different strategies approach for each customer segment as described below.

a) RealValue

In the Irish demo of the RealValue project, some of the tools used in customer encouragement for Low Voltage consumers are:

1. €10 monthly electricity discount to every participant from sign-up date to the end of project
2. Discounted hardware and installation of Quantum SETS heating and hot water cylinders for participants
3. Specifically, trained customer service with specific phone number, postal and email address
4. Aftercare service if any trouble comes up from the installed devices
5. Mobile online App where they can control and schedule their heating appliances [18]

In the German demo of the RealValue project, the strategy followed for low voltage network users is:

1. Invitation letter sent to customers, attaching a leaflet, information about the project, a questionnaire and a privacy policy statement.
2. Evaluation of the returned letters and exclusion from participation for several reasons such as not fulfilling the project requirements.
3. Announcement letter to the selected potential participants and a rejection letter to the excluded participants.
4. Onsite visit by installers with a questionnaire
5. Welcome letter to the final selected customers including the contract

6. Installation work when all required parties signed the contract

Additional communications measures were developed to increase potential customers' awareness, such as a project website, press coverage and a customer magazine [17].

b) EMPOWER

In the EMPOWER project, some recommendation concerning the ideal marketing strategy are approached:

1. Highlight the benefits for the local community.
    1. Energy security.
    2. Economic benefits of the project.
    3. Pro-environmental benefits.
2. Innovative applications to attract the attention of younger citizens.
3. Excessive coordination among participants should be avoided [19].

c) Flex4Grid

In the Flex4Grid project, several strategies are approached to engage different customer segments:

1. For many desired engaged customers, a personalized invitation letter is sent with a response petition if the project participation is desired.
2. Lottery as an incentive to attract consumers with two electric bikes and three electric scooters as prizes.
3. Ticket coupons for events, boat trips, energy saving kits.
4. App use until the end of the project [12].

d) WiseGrid

In WiseGRID, the engagement focuses on residential consumers or prosumers and workshops/events have been organized at each pilot site. A video created to inform and invite people to come to the workshops and a questionnaire was used to collect citizens' feedback about the events. The events ensured that the main benefits for the citizens were outlined clearly. During the events, the WiseGRID project had an information stand which was providing more elaborate information, dissemination material and gave the opportunity for visitors to raise additional questions and give feedback. For the rest of the customers, private and public stakeholders, a variety of promotion and dissemination strategies have been used. Press releases, social media posts, newsletters, participation in conferences and events are mostly used. An important lesson learned form Wisegrid is that the workshops to engage users must be organized taking into account the characteristics of the places where the workshops are held. For example, Mesogia Area has a very specific nature, consisting of different small islands with very low population density. Therefore, citizen engagement in these islands needs a different approach. During July and August, summer camps are being organized in the area. This brings along the ideal opportunity to get in touch with the people living and working in Mesogia during summer months.

e) SmarterEMC2

In SmarterEMC2, the engagement focuses on residential, commercial and industrial consumers. Events were organized for informing customers about the project in general. The aim was to explain to the potential participants the scope and expected results of the pilot sites. In addition, data security and privacy issues were discussed. Also, the customers have been asked to sign a document, thus acknowledging their voluntary participation in the pilot project. In order to persuade customers to participate in the project, it made clear to them that reducing power consumption is only their decision and there is no sanction about this issue. Smart meters/controllers installed to many residential consumers that signed the participation documents. In the Greek pilot site, the consumers that accepted to participate in Demand Response (DR), received a tablet device. An application had been installed in tablet device which provided the consumers with information about their consumption and enabled them to participate in DR.

f) CrossBow

In Crossbow, the Greek Demo tries to use smart meters/controllers that have been already installed during previous projects. These devices are used to enable consumers to participate in demand response. Events are organized to inform the customers about the project, its scope, and the expected results and benefits from their participation in the project.

i) INVADE

The engagement strategy of INVADE was focused on suppliers who can already offer flexibility. Monitoring of the technical developments was used as motivation in order to persuade users and customers to participate in the pilots. Finding out what incentives would motivate them to participate was also a part of the engagement strategy [25]. In addition, dissemination activities, such as the organization of workshops, local and project events and the use of flyers, videos, newsletters and social networks aimed to inform the users for the benefits of their potential participation in the pilot and increase their interest in the project [26]. Furthermore, several agreements/contracts and a collaboration form for the collection of data were prepared in order this kind of agreement to support the engagement of the individual consumers/prosumers – households and EV users [27].

g) InteGrid

In the Integrid project, an interesting consideration is carried out: on one hand, the monetary savings are often not enough compared to the economic losses of initial investment, the environmental concern is believed to be important but does not provide engagement power in reality, and initial interest diminishes over a certain time period. On the other hand, social “pressure” together with a community sense of responsibility can provide engagement mechanisms among others such as increasing comfort or pro-environmental concerns. [24]

The main pillars for public participation are based on:

1) the belief that the public’s contribution influence on the decision-making process

2) understandable and updated information available for the participants

To build a successful customer engagement plan, some key decisions are explained in [1]: stakeholder mapping, content of consultation and consultation methods. The stakeholder consultation aims at identifying who should be considered a target segment for the engagement activities.

Identifying the project stakeholders is the first step, followed by understanding their expectations and needs. Second step would correspond to prioritise the stakeholders in order to focus on those more affected by the project and those who have a higher influence. The priority should be to involve as many key players as possible. Several sources of power can be considered to classify stakeholders: hierarchy, influence, control of resources, knowledge and involvement in action implementation.

Attention to the project should be another yardstick to classify them. Three factors are considered: criticality of the stakeholder, communication channels and cognitive capacity for understanding the information.

5.1.1. Summary

To summarize, some of the aspects that should be included in a residential users' consultation are:

- reactions to dynamic pricing
- disposition to produce energy and trade the surplus with neighbour households
- foreseen benefits of smart grids
- beliefs about the smart meters and their functions
- expectations of the project

For commercial stakeholders:

- same as residential users
- preferred pricing schemes
- type of products that could help commercial stakeholders in saving energy

For system operators:

- environmental and social externalities
- value provided by the project

Finally, the last decision to take is the consultation method. Some of the consultation methods proposed are with its pros and cons as represented in Table 11.

Method	**Positive**	**Negative**
Surveys	Homogeneous data Large samples Short time	Low response rate (10 %)
In-depth interviews	Real dialogue Get the opinion about the intervention Anonymous and private	Expensive Little samples
Workshops	Discussion among stakeholders	Not anonymous Not private
Web-based engagement	For geographically scattered customers	

Table 11. Pros and cons of consultation methods [24]

In Table 12, a summary of the engagement strategies followed in the analysed projects for each customer segment are shown. In the table the AIDA model is juxtaposed against a segmentation of customers based on their size. In the table we focus on some of the important issues and actions for the particular segment.

Phase	Low Voltage consumers	Responsive LV consumers	Commercial and industrial users	System operators
Awareness	• Highlight economic benefits • Highlight environmental benefits • Highlight benefits for the local community • Personalize invitation letters • Highlight the impact of public contribution on the project decision-taking	• Highlight economic benefits • Highlight environmental benefits • Focus on innovative solutions and new technologies • Use of social media, flyers, videos, newsletters	• Highlight economic benefits • Focus on type of products that could help commercial and industrial stakeholders in saving energy • Personalize interviews, questionnaires and surveys	• Highlight system efficiency improvement • Highlight Environmental and social impacts • Highlight value provided by the project
Interest and Desire	• Customer service • Social pressure and community sense of responsibility • Helpdesk and information stand availability during workshops and conferences	• Keep updated about the project • Inform about control improvement over electrical appliances • Avoid excessive coordination among participants • Free electronic devices for participants • Agreements, contracts and collaboration forms	• Keep updated about the project • Incentivize workshops and in-depth interviews to encourage real dialogue and discussion among stakeholders • Focus on preferred pricing schemes	• Keep updated with personalized information
Action	• Highlight economic benefits • Lottery, ticket coupons for several events • Monthly electricity bill discount • Application installation discount • Aftercare service	• Highlight economic benefits • Use of apps compatible with phones and tablets which improve control over heating and electric devices	• Highlight economic benefits • Benchmarking, showing competitors' savings	• Highlight economic benefits

Table 12. Engagement strategies per customer segment

Interest in new technologies is another motivation for some customer segments. Especially when we are talking about young, high qualified and wealthy customers. One possible strategy for this segment could be the use of apps compatible with phones and tablets, which improve the control on the own electrical system.

5.2. Experiences of CoordiNet partners

There are no clear segmentation strategies observed among CoordiNet partners when the project started. As mentioned, throughout this document, the CoordiNet partners' experience is important to tailor all engagement actions to the customer. This stems from the fact that different challenges relate to different customer segments, although commercial value overall is the most important driver as seen in 4.2.

Strategies must address well the risks seen from the costumers' point of view. Potential obstacles and risks for customers to participate could be reduced quality, delays in operation, recovery issues. Most customers do not have resources to manage this internally which requires support in this aspect.

It is important that all these aspects be considered and managed [b]. Furthermore, if the solution is to be implemented in the customers ordinary operation it must be born in mind that some customers prefer not to install additional hardware or software solutions [b].

In relation to stakeholder engagement, there are experiences of local engagement from municipalities that are involved in the project as partners.

In municipality of Uppsala, local, regional and national stakeholders play a critical role in the early stages of the market. Below some examples of what stakeholders have done for the project so far are presented:

- spread communication about CoordiNet through their networks and seminars
- identify and connect with other energy professionals that can be useful stakeholders for CoordiNet
- encourage large sites and organisations to work with flexibility and participate in the market
- act as early adopters by creating testbeds for flexibility which serve as good examples
- fund projects and research related to flexibility

Some of the local stakeholders are also large customers for the DSO. These stakeholders are capable of being early adopters and create some momentum for the market.

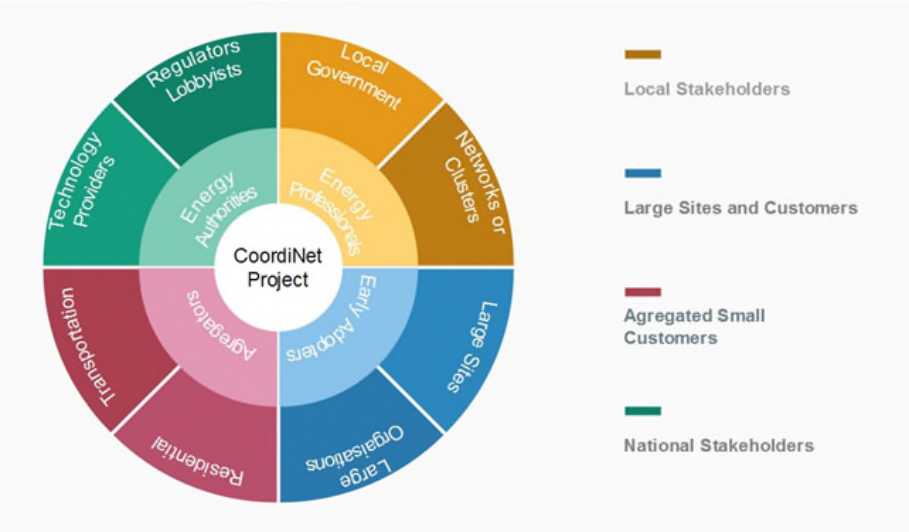

Figure 7. Stakeholder map for Uppsala

Figure 7 above is an initial simplified version of a stakeholder map for Uppsala. The circle is divided into 4 segments: local stakeholders, national stakeholders, large customers and aggregated small customers. The inner circle around the CoordiNet project shows the types of actors that are involved in the early stages of the market. In Uppsala local energy professionals, early adopters, the national energy authority, and a local aggregator are the main champions of the project. The outer circle shows stakeholders and customer segments that will be critical for the success of the market as it matures.

5.3. Recommendations and examples

The ambition of the CoordiNet project is to create large scale demonstration of how flexible resources can provide services to the system operators. In order to make impact on system level it is necessary to provide relevant flexibility capacity and not only to test or verify a technology. This requires a strategy to attract substantial flexibility in terms of either energy or capacity, depending on the service definition.

In order to broadening the engagement and spread the knowledge of the project, it is suggested to involve local stakeholders, such as municipalities, that could benefit from participation and contribute to improved customer engagement.

Based on the segmentation framework in section 2.3, the following segmentation strategy is suggested.

5.3.1. Power companies or large organizations

In order to obtain an impact on solving the grid problems, it is strongly recommended to consider the size of the resources and processes to focus on those that have stronger impact.

Large organizations with high power and energy consumption have professionals who would have at least basic knowledge of the functioning of the power system and markets. These agents would be more informed and willing to make a sound evaluation of the advantages and form an informed decision leading to participation in the project.

Strategies conducted to engage customers and resources such local generators and power and heat companies, located in the grid, and that have dedicated energy professionals is recommended. It could also strongly depend on the ownership of the resources. In CoordiNet, resources that are active in the same community could have common incentives to develop the project and are hence easier to engage than others. If the demo becomes successful, it will position the company as innovative and supportive.

On the other hand, other kind of resources such as public buildings, public companies, etc. that belong to public institutions, pursue public interests, and like to be seen as innovative from the citizens' point of view are also relevant. The response of these resources may be easier to coordinate and to engage, since they usually have exclusively dedicated energy professionals to the energy management. Also, these public resources can be very significant in volume.

5.3.2. Large-medium size customers sites

Large and medium size customers can provide relevant flexibility to the system, but they usually lack specific knowledge on the power system functioning or dedicated professionals for energy management.

Strategies based on the used technologies to provide flexibility help to focus on the challenges of the specific technologies. By focusing on machines or equipment with significant effects on high-energy consumption it is expected to attract significant flexibility capacities. The technical challenges for generators and demand are very different and, as discussed previously, the level of knowledge of the owners are totally different. An alternative is to make pure technological assessments on different technologies in relation to cost and availability. In this case it could be relevant to distinguish between continues processes, that can be modulated, and batch processes that can be advanced or delayed in time. This approach is further described in D1.4 "DER Characteristics". This could create an order of merit curve for different flexibility alternatives and make comparisons with alternatives. Addressing the flexibility from the technology perspective makes it possible to involve technology providers and manufacturers with specific expertise. It is also possible to learn and gain experience from specific technologies and find new opportunities based on this knowledge.

A general recommendation is to involve already existing capacity owners, such as backup power plants in sensitive operations in order to use their assets in a situation when it contributes with values.

5.3.3. Aggregated small consumers

In addition, it is very relevant to consider the location of the resources, as when local congestions occur, since only those on specific location can solve problems. Therefore, small sources of power usage can be relevant if there is a large enough volume locally. Cooling and heating loads such as heat pumps and air conditioning units are flexible as they have thermal storage. Aggregation of these assets is necessary to access a scale that is comparable to other large users.

If residential customers should be engaged, it is recommended to involve aggregators to coordinate and manage the customer interaction and flexibility activation. A relevant rational for this approach is that cost of technical equipment in relation to provided MW of flexibility is low. Residential customers are recommended to engage via aggregators that manages the interaction and potential steering of flexibility for this category of customers.

Flexibility potential is clearly a relevant aspect to consider when deciding on the efforts to engage customers as the most flexible resources are the most relevant to achieve the project objectives This approach derives from analyses of consumption patterns and volumes, indicating “promising suspects”. Understanding consumption/machines is relevant to find most promising flexibility providers.

5.3.4. Methodology

In addition to the segmentation, it is also suggested to utilize the methodologies described in chapters 3 and 4. The strategy to ensure efficiency for the different segmentation alternatives is to utilize the structured approach to engagement (e.g. AIDA model) and define activities in each step set KPI-targets for capacity, timeline etc., described in section 3.3.

It is also recommended to involve external partners or stakeholders to support the process according to section 4.3. When involving partners, it is recommended to reflect on the relation to evaluate the potential to influence the project. By involving these actors, the project will gain speed, recognition and promote engagement among a wider audience. Also, electricity retail companies acting as Balance Responsible Parties (BRPs) are relevant to involve since they are already an active participant in this market with existing customer relations and knowledge regarding flexibility.

One important finding in this report is to focus on all the phases for customer engagement and not only on initial involvement. Following the AIDA model, three phases were discussed: awareness, interest, desires and actions. Recommendation is to use the strategies for the different segments described in Table 12 and combine that with examples of suggested activities that supports the strategy. Examples of activities in different phases of the engagement process are described in Table 13.

<table>
<tr><th>Phase</th><th>Aggregated small consumers</th><th>Large-medium size customers sites</th><th>Power companies or large organizations</th></tr>
<tr><td rowspan="3">Awareness</td><td colspan="3">• Host events locally to inform about the project and challenges for energy system.</td></tr>
<tr><td colspan="2">• Write or initiate newspaper articles in local media or social media to make local actors aware of the CoordiNet project as well as the need for local participation.</td><td>• Get involved in already existing professional energy networks and build on previous experiences from their work. Focus especially on engineering and advisors in this segment and invite them to be part of the solution.</td></tr>
<tr><td></td><td>• Create and facilitate industry events and seminars in cooperation with local industry organizations.</td><td>• Engage in lobby organizations to get attention for the need of flexibility and the possibilities that the project provides.</td></tr>
<tr><td rowspan="3">Interest and Desire</td><td colspan="3">• Create a deeper knowledge of the possibilities, but also to understand what potential benefits the customer could get by getting involved in the project.
• Maintain communication over time since lack of continues information during projects often results in lost interest from the customer.
• Initiate and suggest related projects via existing forums and associations. E.g. Energy and Climate advisors, academic institutions and related “science parks” can create test beds, conduct investigations and research regarding technical solutions and potential.
• Develop initial assessment of business case and indications of potential revenues.</td></tr>
<tr><td colspan="2">• Create customer offerings and define packaging of suggested products.
• Prepare and present commercial proposal including financial compensation and other relevant benefits such as: assurance of comfort (for consumers), environmental benefits, education and training.</td><td></td></tr>
<tr><td>• Estimation of the value of flexibility related to the customers’ potential, besides, from financial incentives, also assurance of comfort and environmental gains are relevant to address.</td><td>•</td><td>•</td></tr>
<tr><td>Action</td><td colspan="3">• Assistance with the verification of the initial business case and adjust it if needed.
• Continue to communicate positive aspects of the project.
• Engage the customer in the project with formal contracts and agreements.
• Keep an active dialogue with the customer.
• Involve and evaluate the participation and level of engagement of customers.
• Reward customer and create “success stories” to engage other customers
.</td></tr>
</table>

Table 13. Activities in different phases of customer engagement

5.3.5. Follow up and monitoring

As innovation projects and specifically, new market settlements as the ones proposed in CoordiNet are relatively new both for customer as well as for the involved demo sites it is important to share experiences between regions but also between demo sites and find good practices and examples. This can be achieved by creating a platform for sharing information.

It is suggested to create a formal structure within the CoordiNet project with assigned "Customer Engagement managers" for each demo site. Part of the task of such a platform is to keep track of good and bad practices. The representatives from each demo should meet on a regular basis and with a structured agenda where experiences can be shared, and the performance of following process is monitored.

It is also suggested to monitor and follow up activities during and after the project to evaluate the recommendations suggested in this report.

6. Use of cascading funds

The ideal customer engagement plan should provide enough incentives to involve new participants in an economic sustainable way. This aspect is particularly relevant for scalability and replicability of the project in other contexts. The engagement plan should pursue many participants in the project with the minimum economic efforts and after the project termination, ideally, the project objectives can be extended to the rest of the system.

The cascading funds are foreseen in the CoordiNet Consortium agreement to incorporate participants who are not project partners. The use of these funds needs to be clearly defined according to the procedures established by the European Commission [28]. The objective of this chapter is not to provide a prescriptive and final suggestion on the use of these funds but rather to highlight alternatives that are identified as desirable by the partners. This first step will follow a more detailed procedure on the use of the cascading funds. Final responsibility to set up the call process and decide how the funds should be distributed between different Demo-sites and activities is defined by the Demo-lead in each country.

6.1. Analysis of formal requirements

Based on information related to cascading funds there are some formal requirements that should be met.

Financial support for third parties (FSTP, or cascade funding) is allowed, and should be used for large-scale piloting and ecosystem building activities. This financing alternative should meet conditions defined in part K of the General Annexes of the Work Programme 2018-2020 [28] described below.

In order to receive this type of funding, it is necessary to create a call for expressions of interest that clearly details the objectives and the results of the project. The call must be obtained and include at least the following elements:

- a fixed and exhaustive list of the different types of activities for which a third party may receive financial support,
- the definition of the persons or categories of persons which may receive financial support,
- the criteria for awarding financial support,
- the criteria for calculating the exact amount of the financial support,
- the maximum amount to be granted to each third party (may not exceed EUR 60 000 for each third party) and the criteria for determining it.

Projects must publish widely their open calls and adhere to Horizon 2020 standards with respect to transparency, equal treatment, conflict of interest and confidentiality. All calls for third parties must be published on the Horizon 2020 Participants Portal, and on the project's own web site. The calls must remain open for at least three months. If call deadlines are changed this must immediately be published on the call page on the participant's portal and all registered potential recipients of FSTP must be informed of the change.

An alternative is to provide financial support in the form of a prize awarded following a contest organised by the beneficiary. In this case, proposals must clearly detail at least the following elements:

- the conditions for participation;
- the award criteria;
- the amount of the prize;
- the payment arrangements.

Further conditions regarding the above-listed elements or other elements may be laid down in the call conditions.

The beneficiary of the EU grant must ensure that the recipients of the financial support allow the Commission, the European Anti-fraud Office (OLAF) and the Court of Auditors to exercise their powers of control on documents, information, even stored on electronic media, or on the final recipient's premises.

6.2. Review and analysis of previous work

Depending on the project, up-front investments at the customer expenses are a barrier too high to allow a successful initial engagement. It impacts cash-flow and finance balance (for companies and professional users) and contains risks (uncertain rate of return) and involves effort for financial administration. [1]

In the RealValue project, some project funds were used for bill discounts and hardware and devices installation discount. In the Flex4Grid project, the organization used lotteries and ticket coupons for several events for participants' enrolment.

Cascading funds have not been used in Crossbow, Wisegrid or SmarterEMC2. However, in Wisegird a Cogeneration of Heat and Power units (micro CHP) have been purchased in order to integrate different energy carriers in the WiseGRID ecosystem. The units were installed at a private and a public building, in the Mesogeia Pilot Site.

In SmarterEMC2, in the Greek pilot site, the consumers that accepted to participate in Demand Response (DR), received a tablet device. The consumers were living in Meltemi, a seaside holiday camp near Rafina. An application had been installed in tablet device, which provided the consumers with information about their consumption and enabled them to participate in DR.

For the author understanding, financial in the form of cascading funds has not been used in the projects reviewed in this report.

6.3. Example of process and documents used for cascading funds

In order to describe the process for the use of cascading funds, an actual H2020 example has been used to illustrate the call process to allocate the funds [29]. The call is from a different type of business and another topic, but structure and methods can be used as examples.

The process can be described in three general steps described in Figure 8:

- Create the call
- Evaluate and select
- Formalise an agreement

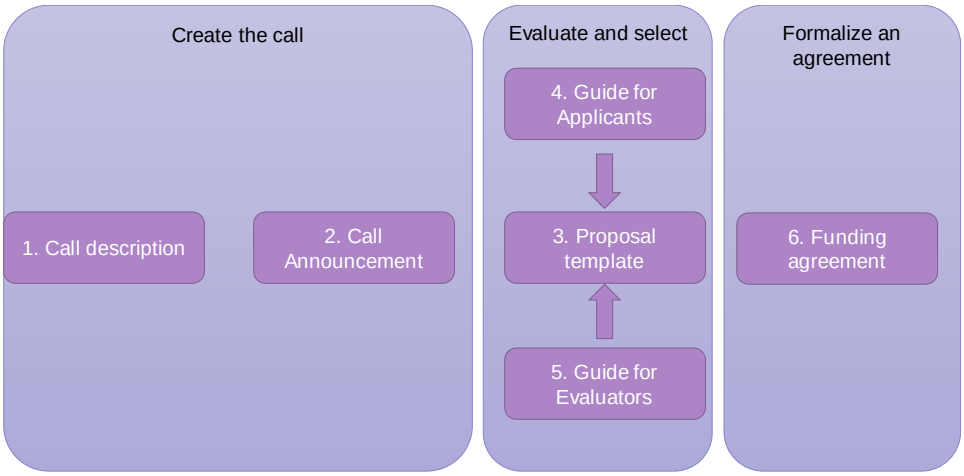

Figure 8. Example of process and documents for cascading funds

In addition to the process described above there are also a list of documents included in the example of the call. Some of the structure and general descriptions can be shared between the different demos and countries. List below is a summary of documents used in the example:

1) *Fact sheet*: Short illustration of what the call is about including basic facts, focus areas etc. (2-pager advertising format)
2) *Call announcement*: Formal text document describing the call, including objectives, focus areas, timeframes and instruments. (2-pager text document)
3) *Expression of interest template*: Template for participants who want to apply for funding including instructions for response structured according to evaluation criteria (per #instrument) and requirements of conformity with *Guide for Recipients (4)* and *Guide for Evaluators (5)*. In addition, deadlines, submission methods. (6-pager text document)
4) *Guide for Recipients*: Comprehensive document describing background, objectives definitions, principles and structure for the call. Instructions to respond, general conditions and aspects regarding conflict of interest. (9-pager text document)
5) *Guide for Evaluators*: General aspects, rational for this guide, evaluators role, code of conduct, conflict of interest. In addition, description of the evaluation process, evaluation criteria's (including evaluation template) and information regarding evaluation report. (8-pager text document)
6) *Funding agreement*: Include relevant sections such as: Definitions, Conditions from Grant agreement and Consortium agreement, Terms and Conditions, IPR, Confidentiality, Dissemination, Checks and Audits, Termination, Concluding conditions (20-pager text document)

The evaluation and selection process can be conducted according to two alternative models.

- Mixed evaluation with external and internal evaluators
- Internal evaluation with Steering Committee

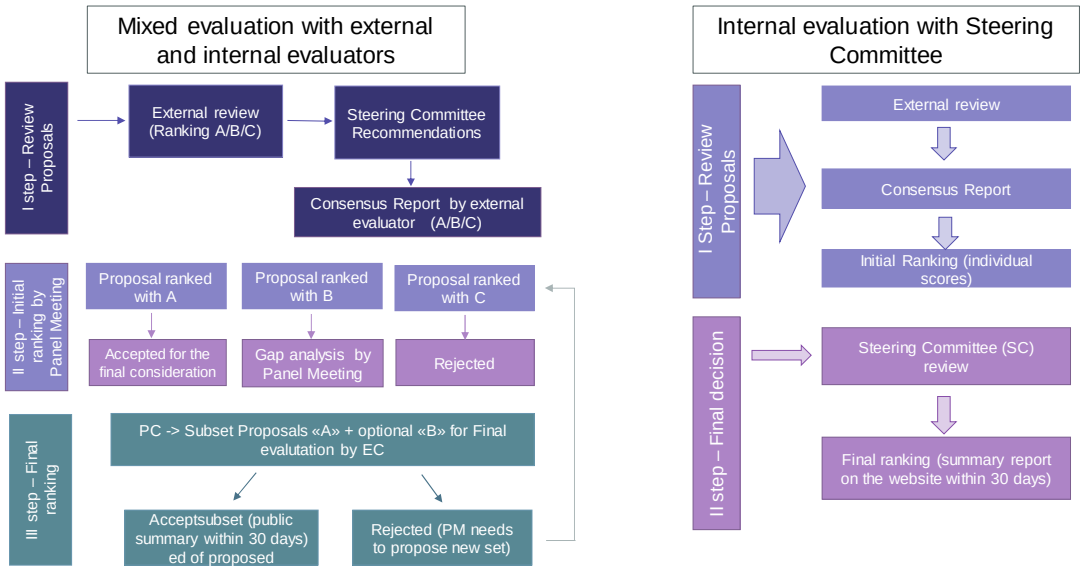

Figure 9. Illustration of evaluation models for cascading funds

The evaluation and selection process in the CoordiNet Call for expressions of interest will be the Internal evaluation with Steering Committee.

6.4. Recommendation for use of cascading funds

Use of cascading funds is highly dependent on the project goals for engagement, customer segment approach and their sensitivity regarding monetary incentives. There are limited experience and available references of this funding alternative and additional legal expertise is required to ensure compliance to EU rules; either via direct interaction with the Commission or legal experts with expert knowledge within the CoordiNet consortium.

Having in mind the different nature of the Business Use Cases (BUCs) to be analysed by CoordiNet[7] as well as the difference among the regions where they will be tested, a separation per country and demo site of the requirements, structure and timing of the calls for cascading funds is recommended. There should therefore be room for certain parts of the general description of the calls to be interpreted according to the specificities in each demo. However, the benefits of harmonisation should not be neglected. Therefore, it is recommended to as much as keep possible similar processes and that relevant parts of the related documents are harmonized and common for all demos. This would as well allow for an easier comparison of results and drawing of conclusion of use for the project in general.

Demo lead is formally responsible for the use of cascading funds and the related processes and documents.

[7] For a complete description of BUCs used in CoordiNet project, see deliverable D1.5.

6.4.1. Common approach for all Demos

As mentioned, it is recommended to harmonize as much as possible regarding the design and the structure of the handling of cascading funds in order to re-use the process and have common criteria, especially documents and definitions. Below follows a set of activities and definitions that were suggested to be similar for all demos.

Example of a common process that can be used:

1. Define requirements based on targets to be met
2. Formulate all legal documents required for the call, based on objectives and goals, including formal requirements.
3. Define reviewer of the received expressions of interest
4. Publish the call according requirements and define deadline for responding
5. Collect expressions of interest and prepare review of expressions of interest
6. Review, rank and decide to evaluate according to defined process
7. Select winning expressions of interest and communicate result
8. Sign contract with selected actors
9. Perform the activity
10. Administrate distribution of funds
11. Verify costs and achievements
12. Disseminate activity and close activity

Following activities have been also harmonized

- Appointment of external reviewer based on same logic to prevent any situation resulting in conflict of interest.
- Payment schemes based on similar structure as the CoordiNet consortium.
- Evaluation process following the Internal evaluation with Steering Committee described in Figure 9.
- General agreement including standard information regarding CoordiNet project and shared conditions.

In order to support a common approach for cascading funds it is suggested to create a “Centre of Excellence” within the consortium. The Centre can engage the responsible from each demo for the part of the work related to cascading funds. Within the Centre of excellence, they can share experiences and the developments in their specific demo with the other participants. This may support the sharing of knowledge regarding this topic as well as an efficient use of resources.

6.4.2. Distribution of funds

There has been an initial dialogue with demo sites regarding definitions of the requirements for cascading funds. Table 14 below summarize the received inputs.

Fixed and exhaustive list of the different types of activities for which a third party may receive financial support	**Definition of the persons or categories of persons which may receive financial support,**	**Criteria for awarding financial support**	**Criteria for calculating the exact amount of the financial support,**	**Maximum amount to be granted to each third party (may not exceed EUR 60 000)**	**Additional requirements**	**External reviewer**
Personnel costs: Characterization, preparations, deployment, development, integration **Equipment**: Software, hardware for control, steering & monitoring. **Delivered Flexibility**: Provided flexibility, tests, penalty compensation	**Flexibility providers:** Industrial and residential Customers, Generators, aggregators, battery owners.	**Ability to provide flexibility**: expected impact of flexibility activation, location.	**PM costs** (70 % of actual + 25 OH) **Providing flexibility**: €/MW (MWh)	**Uniform** recommendation for all demos and same procedures **Location** in the grid (DSO/TSO) perspective **Simple and easy** process for applying and reviewing	**Uniform** recommendation for all demos and same procedures **Location** in the grid (DSO/TSO) perspective **Simple and easy** process for applying and reviewing	To be defined

Table 14. Initial parameters defined by demo sites

Since the distribution of cascading funds is a continuous process for the demo implementation, so far the recommendation is to use objective criteria to use these funds. The first decision that has been taken in CoordiNet was to divide equally among the demo countries the values stated in the Grant agreement, where each country has an allocated sum (142 857 €). Following the renunciation of cascading funds by Greece, its share has been divided equally between Spain and Sweden.

Country	**Total/country**	**Demo site**
Spain	142 857 € + 50% of residual Greek cascading funds	Murcia
		Alicante
		Malaga
		Albacete
		Cadiz
Sweden	142 857 € (1 478 570 kr) + 50% of residual Greek cascading funds	North Sweden
		Uppland
		Gotland
		Malmö

Table 15. Final distribution of cascading funds

The Greek demo will not apply for cascading funds, since the fuel and interfaces which are necessary for the implementation of the demo are not eligible expenses under the cascading funding. Thus they will be purchased under other goods and services budget.

For more information about the Cascading funds mechanism please refer to Appendix E including a **draft** documentation of Guide for Recipients, Guide for evaluators and Template for expression of interest both

for the Spanish and Swedish Demo. This documentation will be fine tuned until the publication of the formal procedure.

7. Conclusions

This document reviews the consumer engagement strategies from different H2020 projects and the Bridge Customer Engagement Working Group. The first aspect that is highlighted is the customer segmentation which help categorise the different customers and prioritize them according to the project objectives. The suggested customer segmentation can be useful starting point for the CoordiNet project to divide the resources according to the proposed groups.

Most of the reviewed projects focusses on customer engagement strategies for residential consumers. Although this is a necessary sector to engage, as in accordance with the Clean Energy Package, it is also recommended to engage with large power consumption customers. These electricity intensive customers represent substantial fraction of the electricity consumption in Europe and their participation would have a significant impact on the flexibility potential. By engaging with large consumption customers, a significant impact is ensured with only a few participants, ensuring cost-effective solutions for the project. Since there is limited input from literature review regarding industrial customers it will be vital to include new experiences from partners of the CoordiNet project.

The report has as well identified that a structured engagement process with defined phases is beneficial to drive the engagement process and guarantee a successful outcome following the AIDA model. For each of the three phases of the model 1) awareness, 2) interest and desire and 3) action relevant KPIs shall be identified. The phases can also be applied to CoordiNet as well as the corresponding KPIs which will be further defined in T1.6 of the project. To ensure successful customer engagement it is necessary to value and set KPIs for each of the phases. This means that although engagement and response to the market signals are the final goal, intermediate goals should be set up as well to allow a continuous monitoring of the engagement process. Furthermore, customer experience and satisfaction, even after the development of the project, are critical for the continuous improvement of the process. An important aspect is that the initial number of consumers targeted should be well above the desired number of final participants as not all contacted customers can be expected to pursue participation.

The next step focusses on the customers' motivations and drivers. These are important in order to understand the customers and meet their needs and expectations. Most of the reviewed projects as well as initial experience of CoordiNet partners have reported that financial incentives are the most important factors for customers to participate. However, this is not the only motivation. Environmental concerns are often reported as a driving factor as well as the opportunity to enhance one's knowledge. While these are positive factors which a project can play on to motivate participation, the report also finds that some factors have a negative impact on the participation as they are perceived as risks by the customer. The report recommends developing engagement material tailor-made to each segment to help address these risks showing that the project partners have an understanding for the customers' situation and expectations. Customers are reluctant to participate if they suspect it will lead to any type of negative implications. Industrial customers are reluctant to interfere with processes that might harm industrial output. Residential customers are concerned about loss of comfort. In addition, project complexity can be a threat to a successful engagement of the customers. The risks linked to the complexity often stems from a knowledge gap. The report thus concludes that it is beneficial to target energy professionals who have a basic knowledge of the challenges the project addresses, when possible.

The report highlights the benefits of working with local stakeholders, namely municipalities, when launching a new market. Local government organisations can be a valuable asset in this part of the engagement process, as they can also serve as multipliers in the early stages of the engagement process.

Finally, the most important part of the combined results from segmentation, engagement process and motivational arguments, are the strategies for different segments. There are five recommended strategies to engage customer and to secure that the project goals are accomplished.

- Focus on power companies, electricity intensive customers and large organisations since these actors have significant power and energy volumes as well as professional personnel with knowledge of the functioning of the power system and markets. These actors would be more informed and willing to participate in the project.
- Include large and medium size customers in terms of energy volumes since they can provide relevant flexibility to the system. These customers might lack specific knowledge of the power system but may have dedicated energy professionals. Technical challenges for generators and consumers are very different and, as discussed previously, the level of knowledge of the owners is totally different. An alternative is to make pure technological assessments on different technologies in relation to cost and availability.
- Engage local aggregators to attract residential customers and by large population provide relevant flexibility volumes. Cooling and heating loads such as heat pumps and air conditioning units are flexible as they have thermal storage. Aggregation of these assets is necessary to access a scale that is comparable to other large users. If residential customers should be engaged, it is recommended to involve aggregators to coordinate and manage the customer interaction and flexibility activation. Aggregators are often professional actors with specific knowledge regarding use of flexibility.
- Use a structured methodology and create a “sales funnel” model according to the AIDA model. By using a structured approach and monitor progress throughout the project it will generate learnings and new insights regarding customer engagement. It is also possible to define specific activities for different segment sin different phases of the process.
- By monitoring and evaluation of the activities, it will be possible to increase precision in activities and improve engagement result. Creation of a continuous learning environment is beneficial for the whole project if results are shared between different demo sites.

As part of these strategies, the report has discussed the use of cascading funds as means to engage customers in the project. This deliverable reveals that knowledge in this area is not too extensive, and that the formal requirements, process and documents for this funding alternative are relatively complex. There are clear benefits if the activities related to cascading funds could be coordinated within the Consortium to increase knowledge and experiences. Following the internal discussion of the Consortium, it was agreed to proceed with the use of cascading for two out of three demos. In particular:

- Cascading funds for the Spanish demo will be used to foster the participation of demand directly and through demand aggregation in the provision of flexibility services, such as voltage control and local congestion management, which has not been done before. So far, voltage regulation and local congestion have not been provided through market mechanisms. These services have been offered by electricity producers only. Furthermore, generation aggregators have been participating in the markets but demand aggregators not yet.
- Cascading funds for the Swedish demo will be used to foster and unlock the participation of flexibility providers on an open flexibility market directly or through aggregation, for the purpose of DSO congestion management and for peer to peer trade avoiding curtailment due to congestion in the grid. Neither of this has been performed in Sweden before the CoordiNet demonstration.

A general conclusion is the importance of following up the result after the project. Both in terms of performance related to activities conducted during the project as well as the actual outcome in terms of amount of provided flexibility. It is interesting to evaluate if suggested activities and methods recommended in this report have contributed to better customer engagement. By including a continuous learning and gaining internal experiences from the project, it will make customer engagement more successful and efficient. It is important to ensure that experiences from different demos and countries are shared and evaluated.

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8.2. Project Documents

[a] Customer Engagement in Iberdrola DE_Comillas v2

[b] Customer Engagement – Experiences EON Final

[c] Customer Engagement Experiences Uppsala Municipality

[d] Customer Engagement in HEDNO v1

[e] Customer Engagement EDSO

[f] Customer engagement inputs v2 (Comillas)

Appendix A. Description of the reviewed projects

The projects analysed in this report are described below.

- Integrid

Integrid aims at demonstrating how DSOs enable the different stakeholders to actively participate in the energy market and to develop and implement new business models, making use of new data management and consumer involvement approaches [2]. The Integrid project is divided between the three countries where demos take place: Sweden, Portugal and Slovenia.

1. Integrid - Sweden

Three pilot projects are under development in Stockholm, to 1) explore the potential of House Energy Management Systems (HEMS), 2) evaluate how a social network for neighbourhoods can lead to higher residential consumer engagement and 3) explore the potential of self-consumption and electricity cost minimization.

For these pilots, two areas of the city participated:

1. Stockholm Royal Seaport: a new eco-district in Stockholm under development currently inhabited by 2000 residents with high income, families with small children and slightly older people. By 2030, it will contain 12000 dwellings.
2. Bagarmossen: a non-eco district, it means a district in standard environmental actions such as recycling centres have been carried out, inhabited by 12000 residents with a more heterogeneous population than Stockholm Royal Seaport.

For this project, customers have been differentiated by region because of their different economic status and environment profile, as outlined above. Educational and income level of the inhabitants are considered as a relevant factor for the study, as they are essential to engage with HEMS [30].

2. Integrid – Portugal

In the Valverde pilot, Low and Medium Voltage customers are differentiated according to their capability of providing flexibility. For the Caldas da Rainha pilot, 60 low voltage consumers were engaged. They were differentiated by their energy consumption, contracted power capacity, number of household elements, layout and type of home, availability and interest in the project, among other criteria. The objective of this project is to offer bids in the flexibility market by aggregation of several consumers [3]. To be selected for participation in the project, the potential Flexibility Operator[8] must submit a request to the grid-market hub. If the DSO, which acts as a neutral market facilitator, accepts all the required administrative

[8] The Flexibility Operator is a general concept to describe the entity responsible for activating flexibility providers. It could be an aggregator, for instance.

information, the Flexibility Operator will be able to submit offers to the flexibility market. Among others, the technical requirements include:

- Maximum response time after successful notification;
- Minimum power ramp time;
- Minimum time duration of the activated flexibility;
- Type of flexibility (Active/ Reactive);
- Flexibility Direction (Upward or Downward);
- Minimum deliverable power to be accepted by the DSO.

These technical requirements could be useful for future customer segmentation in flexibility-related projects.

After the customer selection, the Low Voltage network users are segmented in 4 types of consumers:

1. Static consumer: without any flexibility device
2. Load flexible consumer: equipped with flexible loads like electric water heater or Home Energy Management System (HEMS)
3. Prosumer: in addition to flexible load management, this consumer is able to produce its own energy for self-consumption
4. Flexible prosumer: adding the flexible load management and production, this client is able to extend flexibility over a daily period with energy storage capacity.

3. Integrid – Slovenia

In the Slovenian pilot, the objective is to provide flexibility and grid-support resources to TSO and DSO from distributed energy resources (DER) through commercial and technical Virtual Power Plants (VPP). A VPP is basically an aggregator with a portfolio composed by several types of DER, such as distributed generation (DG) and demand response. The characteristic of this portfolio makes the VPP behave as if it was a regular power plant. In this sense, a commercial VPP (cVPP) is a VPP which participates in energy and service markets. In the case of the InteGrid project, the cVPP provides tertiary reserve to the TSO, while a technical VPP (tVPP) provide support to DSOs to manage their grids.

For the technical VPP engagement, more than 15 customers connected to the medium voltage network were invited to participate in the flexibility procurement to the DSO. They were separated by their type of facility or production (Paper mill, Silica sand factory, Logistics centre with cold storage, Wastewater treatment, Pharmacy, Plastic packaging, Toolmaking and producing of plastic for lights, Camel, Combined heat and power, Chemical industry). Finally, the Slovenian DSO (Elektro Ljubljana) developed a customer engagement plan for their own buildings to provide flexibility to the technical VPP, boosting a competition between the employees. [31]

- RealValue

The Realvalue project aims to demonstrate how small-scale energy storage systems, within homes (e.g. Smart Electric Thermal Storage Systems 'SETS') can provide benefits to the whole electricity supply chain,

from generation and distribution, through to wholesale markets and suppliers and ultimately to the end consumer.

1. RealValue - Latvia

In the RealValue project in Latvia, a small sample of 50 properties was recruited. Riga Technical University (RTU) selected a mix of households, small businesses, holiday homes, electricity substations, a workshop, security guardhouse, storehouse and locker room.

2. RealValue - Ireland

In Ireland, SSE Airtricity differentiated the customers depending on their wealth, focusing on social housing with storage heaters needing replacement. The source of some customers was their existing customer base, while others came from contacts with housing associations and doorstep sales. In a posterior phase of the project, a broader range of customers was engaged by subsidizing heaters and cylinders. In this phase, homeowners, businesses and community organisations were included. Heaters were also installed in electricity substations to participate in the project.

3. RealValue - Germany

In Germany, customers with a set of technical characteristics were targeted. Those who were included had suitable wiring system and no asbestos in their old heaters, an Internet connection and had some computer literacy. The source of customers was the MVV Energie's database [11].

- EMPOWER

EMPOWER project aims to develop and verify a local market place and innovative business models, including operational methods, the project encourages micro-generation and the active participation of prosumers to exploit the flexibility created for the benefit of all connected to the local grid. [4]

In the EMPOWER project, customers were differentiated by their level of education and age. Thereby, the targeted customers were citizens with high technology status in the household, who are younger and with higher energy knowledge. This segmentation is developed based on the assumption that these customers are more likely to participate in solar panel installation, smart technologies and electric vehicles adoption [19].

- Flex4Grid

The Flex4Grid project activity aims at providing a system for new market players offering data analytics and aggregation services for Distribution System Operators (DSO) to forecast and influence the load on the grid avoiding blackouts caused by network overloads or lack of power supplies. [5]

In the Flex4Grid project, 10.956 consumers received an invitation letter to participate and the customers who responded were recruited for the project. This corresponds to a segmentation based on the interests of the customers. A forward development of this methodology would be to send a survey accompanied with the letter and try to engage those customers who give the adequate responses to the survey.

In the Slovenian Flex4Grid pilot, only those consumers who had a smart meter in their household were invited to participate [12].

- Nobel Grid

Nobel Grid provides advanced tools and ICT services to all actors in the Smart Grid system and retail electricity market in order to ensure benefits from cheaper prices, more secure and stable grids and clean electricity [6].

The methodology of the Nobel Grid is similar to the one applied in the Flex4Grid project. In Nobel Grid 50 end-users were engaged using an Energy Management Application app for smartphones and compatible with different house size, salary range, production capacity, etc. No further segmentation was performed and these parameters were personalized, but only the active consumers during the training period were selected to participate in the future pilots [32].

- SMILE

The Smart Islands Energy Systems (SMILE) project demonstrates nine different smart grid technologies on different islands. The end goal of the project is to foster the market introduction of these nine technologies.

The project has three large-scale pilot projects in different regions of Europe with similar topographic characteristics but different policies, challenges, regulations and energy markets. This enables the project to develop and optimize new innovations in different environments, thereby allowing optimal testing and flattening of the path towards wide market introduction. [7]

1. SMILE – Madeira Pilot

Three types of customers were engaged in the SMILE project pilot in Madeira. Each segment was approached with different strategies. The features chosen to develop the customer differentiation were related to their economic activity:

1. Unit of Production for Self-Consumption owners (UPAC)
    i. Domestic installations
    ii. Commercial installations
2. Unit of Small Production owners (UPP)
    i. Domestic installations
    ii. Commercial installations
3. Electric vehicles owners and operators

EEM (Empresa de Electricidade da Madeira), which is the Madeira's TSO and DSO, provided an anonymous list of the registered UPAC and UPP in Madeira. Table 16 provides the total number of registered customers.

	Domestic Installations	Commercial Installations

Unit of production for self-Consumption	36	12
Unit of Small production owners	701	85
Electric vehicles owners and operators	3	

Table 16. Costumers' segmentation of Madeira pilot of the SMILE project [20]

Since there are only a few of such cases in the island, all businesses operating in this manner were considered and contacted by the research team [20].

2. SMILE – Orkney islands pilot

In the Orkney Islands pilot, three types of demand-side customers are engaged to reduce levels of curtailment in the region. The controllable demand differentiation is dependent on the technology implemented and the size. Table 17. Customers' segmentation of Orkney Islands pilot of SMILE project [15] provides the total number of engaged customers:

Load type	**No**	**kW**	**Total kW**
Domestic heat installs type 1	15	5.6	84
Domestic heat installs type 2	15	5	75
Domestic heat installs type 3	10	5	50
Domestic heat installs type 4	5	5	25
EV smart slow chargers	30	7	210
Industrial load (500kW electrolyser)	1	500	500
TOTAL			**944**

Table 17. Customers' segmentation of Orkney Islands pilot of SMILE project [15]

The domestic heat installations consisted of different technologies, such as boilers, heat pumps, battery thermal store, hot water tanks and VCharge dynamos, implemented in approximately 45 properties. Even though, this number is not fixed since it depends on the uptake of participants (household energy use, size and existing heating technology) and the fulfilment of requirements for recruitment, such as:

- Current heating and/or electrical systems
- Location
- Space for equipment indoors/ outdoors for installation
- Metering and current tariff
- On-site generation
- Internet connection
- Quality of insulation and air leaks/ draughts
- Suitability for a domestic heating type (1 to 4)

For the Electric Vehicle points, two segments are approached:

1) Domestic households that currently have EV chargers at home, and

2) Local tourism sites that could benefit from offering EV charging points to tourist or customers.

Further segmentation of types of electric vehicles and number of recruited vehicles depend on the uptake of participants and the fulfilment of requirements, for example:

- Current electrical systems
- Location
- Metering and current tariff
- On-site generation
- Internet connection
- Participation in the domestic installs side of the project
- Frequency of use
- EV model and charger type
- Charging preferences and patterns

Regarding the industrial controllable load, it is proposed an 11kV on-site switching between wind and tidal generation, electrolyser, local grid and storage system to maximise electric generation and hydrogen fuel production [33].

It is important to note that due to the geographic environment of the project, developed in an archipelago, a regional differentiation between customers is approached as shown in Figure 10.

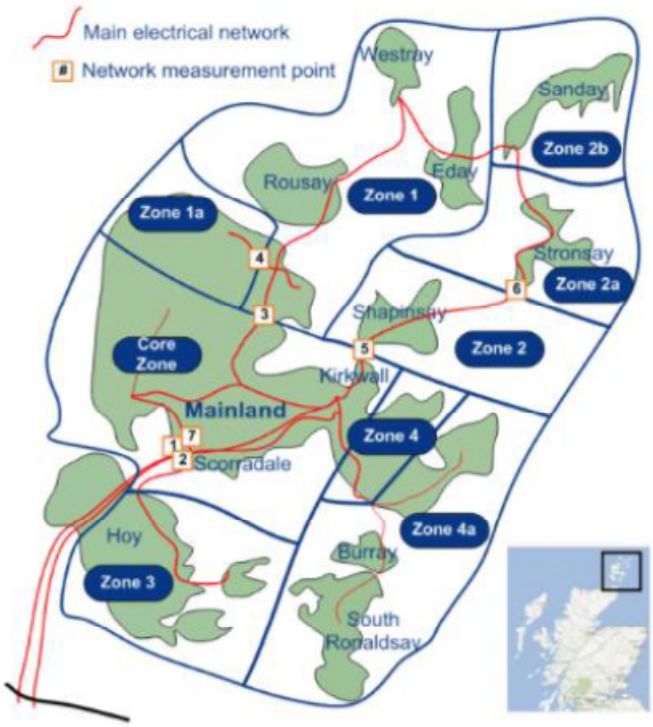

Figure 10. Regional segmentation in Orkney Islands pilot in SMILE project [33]

- WiseGRID

The WiseGRID project provides a set of solutions, technologies and business models which increase the smartness, stability and security of an open, consumer-centric European energy grid and provide cleaner and more affordable energy for European citizens.

WiseGRID organized various citizen engagement activities in 4 countries (Spain, Belgium, Greece and Italy). The purpose was to enable the sharing of the opinion of the local citizens and create a better understanding of citizen's mind-sets towards the technological tools being developed by WiseGRID. The targeted groups were governance teams (public and private stakeholders), associations, lead users and – most importantly - the citizens in the pilot sites. These activities, as well as other dissemination activities, contributed to the participation of residential and commercial users in the pilots.

- SmarterEMC2

The SmarterEMC2 project aims to develop and implement ICT tools that support the integration of consumers through Demand Response services and the integration of DG/RES through Virtual Power Plants. In addition, the project explores whether the existing telecommunication infrastructure is sufficient to, in mass scale, support the emerging business models and Smart Grid services. To this end, three pilot scenarios were tested in the project, in three different countries.

1. SmarterEMC2 - Greece

In Greece, the residents of a summer camp were engaged in order to test the smart controllers developed in the project. The residents that participated in the pilots can be separated in two categories based on their infrastructure: load controllers or in-home displays. The former needed to provide their preferences on load activation to the controller interface. The latter needed to provide their availability to receive DR

events and upon receiving one, their intention to participate in the event or not. Upon selecting to participate, they had the responsibility to reduce their load during the event.

2. SmarterEMC2 - Turkey

In Turkey, the pilot aimed to engage customers with high consumption profiles that already had automatic reading system. The initial goal was to engage nearly 400 customers with different consumption profiles (touristic, agricultural, commercial and industrial customers) in order to enable the consortium to validate and evaluate the performance of the DR platform to Industrial and Commercial customers. The table below shows the different types of potential participants in the pilot and the estimated number of them at the initial phase of the project. Finally, more than 300 commercial and industrial customers signed the participation documents and participated in the pilot.

Customer Type	Estimated Number
Industrial	140
Commercial	125
Hotel	75
Agricultural	60
Total	400

Table 18. Customers' segmentation of Turkey pilot of SmarterEMC2 project [22].

1. SmarterEMC2 - Italy

In Italy, domestic and rural customers connected to the low voltage network were engaged. A total capacity of 903.55 kW in two different pilot sites and a PV plant connected to the distribution network in order to implement a remote control of this were engaged.

- CROSSBOW

The goal of the CROSSBOW project is to propose the shared use of resources to foster cross-border management of variable renewable energies and storage units, enabling a higher penetration of clean energies whilst reducing network operational costs and improving economic benefits of clean energies and storage units. Within this framework, CROSSBOW also investigates the cooperation between TSOs and DSOs for solving technical problems faced by TSOs. The flexibility information from demand response entities gathered by DSO are sent to the TSO in order to run an optimization problem for deciding how much of the available flexibility are used per area in order to solve the identified problems [34]. In the Greek pilot, the aim is to engage residential and commercial customers *that have already been engaged* in previous projects and smart meters and controllers are already installed in their houses and premises.

- INVADE

The INVADE project aims to deliver a Cloud-based flexibility management system integrated with EVs and batteries empowering energy storage at mobile, distributed and centralized levels to increase the share of renewables in the smart grid. Five pilots located in 5 different countries in Europe (Spain, Netherland, Bulgaria, Norway and Germany) are implemented [8].

1. INVADE - Norway

The focus of the Norwegian pilot is to demonstrate the ability of the integrated INVADE platform to co-operate with an existing home energy management system. The pilot participants are families in households with and without installed DER systems and Housing cooperatives.

2. INVADE - Netherlands

The pilot in The Netherlands focuses on the impact of electric vehicle charging on the electricity network and the possibility to use as much as possible renewable energy, meanwhile keeping the energy grid in balance. The aim of the pilot is to involve a large amount of charge stations, located at private homes, offices and public parking garages, and users (EV drivers) to make impact on large scale.

3. INVADE - Bulgaria

The pilot in Albena, Bulgaria, aims to demonstrate how a centralised battery storage could contribute to the overall energy efficiency of a high number of consumers. In the pilot site, the EV cars of the tourists that are not used during the whole duration of their stay, are used to test the use of a small pool of interconnected charging stations that represent a centralized battery storage. The number of tourists that are impacted is highly dependable on the communication and dissemination plan of the project.

4. INVADE – Spain

The Spanish pilot shows how centralized storage installed at a secondary substation site can be used to provide flexibility to the DSO and the Balance Responsible Party while also acting as an energy backup service to a critical site. This new installation affects a group of 12 secondary substations that are interconnected. For the demonstration, the customers connected to the gird area of the pilot are incentivized to install distributed generation, adding to the available flexibility.

5. INVADE - Germany

The German pilot tests the use of a centralised energy storage device as well as the use of distributed energy storages in private households in order to improve and control power quality of the grid. Concerning the use of distributed energy storages, the pilot aims at connecting already existing decentralised batteries of households to offer auxiliary services to the DSO [35].

Appendix B. Segmentation example: Uppsala

When setting up segmentation criteria for a local market, it is valuable to begin with mapping of consumers power usage and flexibility potential. Involving local stakeholders in an active dialog for this process allows DSOs and TSOs to better understand the technologies and user profiles behind the metering points.

An example of this kind of mapping comes from Municipality of Uppsala. Immediately after initial engagement the municipality has mapped the power usage for the top 30 sites owned and operated by the municipality. The sites included a range of site: sewage and water treatment plant, pumping sites, a shopping mall, schools, sports facilities, and a concert hall.

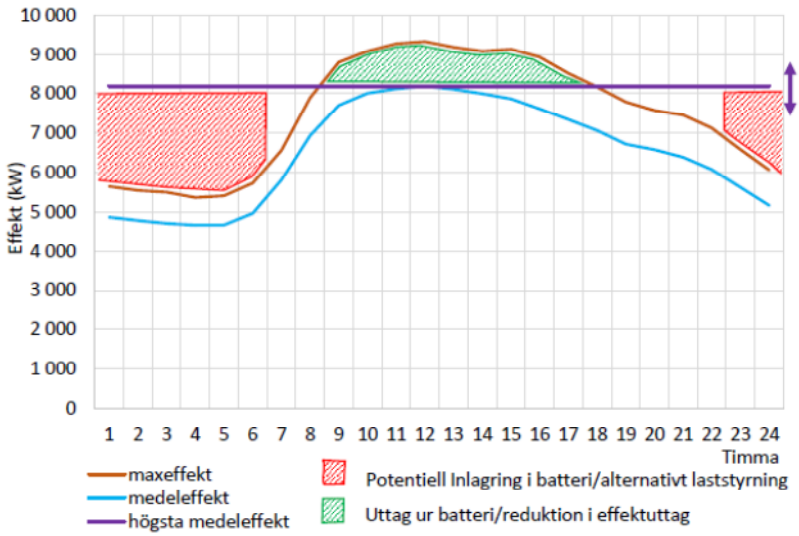

Figure 11. Graph (kW vs hour of the day) that identifies flexibility potential

Illustration in Figure 11 describes the flexibility potential for the 30 sites in Uppsala's initial study. The green shading represents a potential opportunity for reducing consumption. The red section shows potential for charging or load steering.

The mapping showed to what degree these sites contribute to peaks in the grid and it evaluated the flexibility potential in terms of cost and reduction of these peaks. It identified which technologies would be most effective for reducing or moving power usage. Table 19 shows an excerpt from the study in which specific technologies are identified as potential flexibility solutions.

	Flexibility Solution	Power demand (kW)	Savings (kW)	Total Cost (EUR)	Cost (EUR/kW)	Comments
B1	Temporary load steering of heat pump	42	42	1,000 - 2,000	25-50	Facility connected to district heating.
B2	Use district heating from cogeneration plant		60		0	Cogeneration plants add 60 kW of production to local net.
B1 + B2	Using district heating reduces power demand on electrical net and produces electricity to net.		102	1,000 - 2,000	10-20	

B3	Plan power usage in advance and use power in low usage periods		50-150	5,000-10,000	50-300	
B4	Plan charging of electric vehicles		4-50	0		Per charging vehicle.

Table 19. Identification of potential flexibility solutions

Techno-economic assessment can be developed from this mapping to evaluate alternatives for the value of flexibility as compared to back up power from batteries or gas turbines. An investment vs operational cost comparison when it comes to growth potential can indicate the need for flexibility. This kind of assessment is necessary when planning for measuring implementation of capacity versus flexibility.

After mapping and customer dialog in Uppsala, an initial potential of segmentation is shown in the table below.

Segmentation		**Active Engagement**	**Potential Engagement**
Technology	Backup power	Hospital, Power Utility	Telecom base stations, Military base
	Industrial processes	GE Healthcare, UVA (Waste and Water Treatment Plant)	Industrial Health Care
	High Tech		Data Centre, Laboratories
	Renewable Generation	Vattenfall Värme (Cogeneration Facility)	
	Property Owners	Shopping Centre, Schools, Public Housing	Office Buildings, sport facilities
	Transportation	Parking Garages with EV	
	Appliances		Grocery stores
	Heating and cooling	Heat Pump aggregation	Single family houses
Size	Individual Site	Cogeneration Plant, Hospital	Ikea
	Organization	Uppsala kommun (Municipality), Region Uppsala (Health and Public Transport Authority)	Other Municipalities, University, Industry
	Aggregated small consumers	Aggregator connected to local DSO	Aggregators for condominiums or single-family homes

Table 20. Segmentation example Uppsala

Appendix C. Partner engagement in Uppsala and Sweden

This example on partner involvement related to customer engagement in a local market comes from the municipality of Uppsala in Sweden. The region has experienced severe capacity constraints during a period of exponential growth and development. There is a multitude of reasons contributing to the congestion in Uppsala. The present energy and power markets do not create incentives necessary to solve this situation and the TSO has indicated that it will take 10-15 years before the capacity constraints can be fully resolved.

The ramifications of not addressing the congestion have immediate and severe consequences for local actors and regional development. In this situation, it is important to involve local leaders and stakeholders, which experience the pain when the situation is not resolved. Uppsala has embraced a collaborative leadership style, which involves engaging local Stakeholders in order to create momentum in a local market.

Recommendation is to use this example as an inspiration to design the own approach to involve external parties who benefit from creating flexibility, either by improving the situation for the actor or creating new business in the process of establishing flexibility. Description below relates to the motivations and drivers for different actors to involve in customer engagement.

Motivations for DSOs and TSOs to work with local stakeholders can include:

- Access to established forums and networks with local leaders and energy experts, which makes communication and local initiatives more effective
- Allows a better understanding of local challenges and opportunities for the customer, stakeholder, DSO, and TSO. In many cases this leads to the education all actors involved

With successful engagement, local stakeholders can act as advocates for flexibility and capacity. Local stakeholders may initiate flexibility and capacity projects and initiatives on their own or in groups. This is especially important when bridging an educational gap and creating credibility for the market. Local energy experts help DSOs with communication to other stakeholders and customers.

In the example of Uppsala local stakeholders include:

Actor	Description	Motivation
Local Government Organizations	These government organizations such as municipalities, counties and regions are often in close contact and dialogue with other local leaders. Government organizations may be already be hosts for arenas or forums of other local stakeholders. Government organizations often are significantly large property owners and landowners. Also, governments can be one of the major power consumers locally.	• **Economic development** due to jeopardized tax revenues • **Acknowledged local leader** will be held responsible regardless • **Sustainable development** is connected to electrification is also jeopardized • **Economic revenue**, while not core business, can be attained from external financing of test beds and other project related to flexibility or capacity • **Recognition** as a first movers creates a positive perception as innovators
Energy Advisors	Many regions have Energy Advisers who actively work with encouraging local businesses and homeowners to implement energy efficiency	• **New business** potential for them • **Recognition** will improve their visibility, status, and perception as innovative

	measures. The actors are often highly competent and capable in regard to the area of power, flexibility and capacity.	• **Core business** for them
Local Innovation Clusters	These cluster organizations that are designed to work with the private sector, public sector and academia. Contacts with local organizations that embrace innovation. Opportunity for cluster to create local testbeds.	• **New business** potential and possibility to get external funding • **Core business** creating value by supporting others • **Recognition** will improve their visibility, status, and perception as innovative
Innovation and start-up companies	Load steering solutions, energy storage, aggregators and data management are just some areas where start-ups can play a role in supporting a new market.	• **New business** creation is a primary driver. • **Recognition** is critical for a start ups visibility.
Universities and research centres	Maybe be accessed through innovation clusters, but also directly if there is a department focused on energy system or energy related engineering.	• **Recognition** makes these organizations attractive to potential students and investors • **Growth opportunity** through externally financed projects.
Local DSO	Has already established communication and relationship with local actors. Also dealing with consequences of congestion.	• **Recognition** makes a good image of these organizations to customers and local stakeholders. • **Growth opportunity** with success of flexibility solutions. • **Long-term cost savings from procuring flexibility from customers.**
Consulting companies	Many organizations rely on consultant's technical expertise in order to map or dimension their power needs. These experts will soon or later be involved in the flexibility discussions.	• **Core business** supporting customers who need to map or install flexibility or capacity solutions. • **Recognition** helps to attract new customers. • **Growth opportunity** if not already involved in this area.

Table 21. Local actors

In addition to local stakeholders, Regional and National actors have a significant impact on a local market. Motivations for DSOs and TSOs to work with regional and national stakeholders may include:

- Consensus when addressing gatekeepers for regulatory, policy and/or taxation obstacles
- Boost visibility and access to national/regional communication channels
- Potential economic incentives for local market actors

For Uppsala and in Sweden, examples of regional and national actors include:

Actor	Description	Motivation
Existing Technology Providers	Heat pumps, air conditioning, and kitchen or laundry appliances are some examples of potential flexibility suppliers.	• **New market** and potential additional use of their products/business • **Risk management** by avoiding potential threats for their product due to capacity challenges
Smart Grid and Energy Associations	Experts and lobby organizations that often are advocates for flexibility and capacity solutions. These organizations can lift critical issues and regulatory obstacles that inhibit local markets and flexibility solutions to parliament.	• **Core Business** involves development and implantation of flexibility or capacity solutions.
Energy authorities	This organization can act as a national advocate, organize communication campaigns, and create grants that give additional financial incentives to local flexibility actors.	• **Core Business** involves developing strategies and incentives where flexibility and capacity solutions are critical to reach national energy and climate goals.
Energy Regulators	Can allow Sandbox regulation for local markets working with flexibility.	• **Core business** to regulate energy markets and actors.

Table 22. Regional and national actors

Applying a collaborative leadership style has been essential in for the work in Uppsala and Sweden. Some examples of successful approaches for DSOs when work with this leadership style are:

- Face-to-face dialogue with stakeholders, focus on transparency
- Use explanations and descriptions of the capacity situation in terms the stakeholder can understand
- Focus on understanding the local situation and the stakeholder's motivations and obstacles
- Create a common vision of what the situation is and what is required to solve the capacity issues
- Collaborate with local stakeholders when removing obstacles and launching initiatives
- Recognize local advocates and communicate successful projects and initiatives

Consider this suggested method as an example and select the own approach, either by involving partners or when directly engaging customers.

Appendix D. The Stakeholder Circle

In order to support the stakeholder engagement, it is relevant to understand and visualize the ability to influence the project. A helpful tool for this purpose could be the stakeholder circle, where the colour coding helps with the interpretation of the stakeholder community and the position shows the influence and the power of each stakeholder (see Figure 12). Even though the Stakeholder Circle is used for a wider analysis and it takes into account all the project' stakeholders such as project partners, TSO, DSO, policy makers and institutions, among others, it is also useful for customer mapping, monetary decision making and visualization of influence links between stakeholders. The stakeholder circle includes more agents than purely customers. These additional agents could contribute to engage more customers, clear examples are national and regional governments who may inform citizens and public on the general objectives which are pursue by the project.

The Stakeholder Circle adds value for scalability and replicability of the project since the stakeholder dimensions and links between them can be easily evaluated.

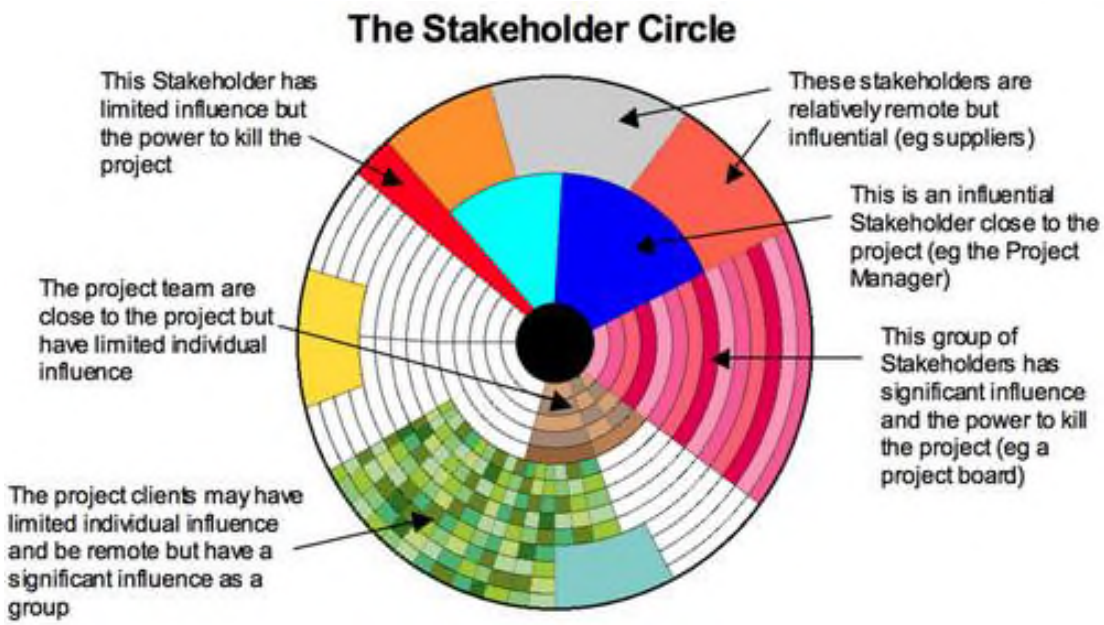

Figure 12. The stakeholder circle [24]

Once the key stakeholders have been identified, next decision is the consultation content which is deeply related to the stakeholder's role.

Appendix E. Cascading funds documentation

(DRAFT) GUIDE FOR RECIPIENTS

CoordiNet Call for expressions of interest - Spanish Demo

Contents

Definitions

Instrument:	Type of CoordiNet third-party contract outlining the contributions a successful recipient can make to CoordiNet.
CoordiNet Project:	The CoordiNet Project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The CoordiNet Project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations.
CoordiNet Consortium:	The CoordiNet Consortium is composed of 23 partners (Academia, TSOs, DSOs, industry, aggregators, service providers, municipalities) from 7 different European countries. https://coordinet-project.eu/partners/partners
Recipient:	Entity receiving financial support to third parties (cascade funding) from Horizon 2020 – The EU Framework Programme for Research and Innovation.
Project Steering Committee (SC):	The CoordiNet Project Steering Committee comprises two representatives from each demo and the Coordinator Person. The Steering Committee is involved in evaluation and selection process to ensure fit between the selected projects and overall goals of CoordiNet.
Expert Evaluator:	The expert, independent of the CoordiNet consortium and of any proposer, with the role of assessing the expressions of interest submitted in response to the **CoordiNet Call for Spanish Demo**.

1. General Aspects

1.1 Why this Guide

This guide collates terms and conditions to be applied for the Financial Support to Third Parties (FSTP) funding scheme to support demo activities through competitive calls for expressions of interest within the CoordiNet Project. The document is addressed to potential recipients of FSTP and aims at being a practical guideline for successful application.

In particular, this guide aims at supporting recipients addressing the **CoordiNet Call for expressions of interest for Spanish Demo** (hereinafter also "**Call for Spanish Demo**"). It provides the relevant administrative details. The main purpose of this guide, though, is to outline to the recipients the requirements of the CoordiNet Project in order to facilitate expression of interest matching with instrument embraced in this Spanish Demo as well as the overall objectives of the CoordiNet Project. The next sections explain the contributions expected from expressions of interest geared to this instrument.

1.2 Objectives of CoordiNet Project

The CoordiNet Project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The CoordiNet Project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations.

The CoordiNet Project is focused on three key objectives:

1. to demonstrate to which extent coordination between TSO/DSO will lead to a more economic, more reliable and more environmentally friendly electricity supply to the consumers through the implementation of three demonstrations at large scale, in cooperation with market participants;

2. to define and test a set of standardized products and the related key parameters for grid services, including the reservation and activation process for the use of the assets and finally the settlement process;

3. to specify and develop a TSO-DSO-Consumers cooperation platform starting with the necessary building blocks for the demonstration sites. These components will pave the way for the interoperable development of a pan-European market that will allow all market participants to provide energy services and opens up new revenue streams for consumers providing grid services.

In order to implement the CoordiNet Project and to achieve the abovementioned goals, several demo activities will be carried out in three different European Member States, namely Greece, Spain, and Sweden. Each demo activity will be focused on different products which will be tested, in different time frames and relying on the provision of flexibility by different types of Distributed Energy Resources (DER).

In particular, the present Spanish Demo has the commitment to proof the technical and economic viability of a system that enables flexibility services providers (FSP) regardless of their size and voltage level to provide services to: DSOs to solve their congestion and voltage problems and TSO to solve their congestion, voltage and balancing problems. This Spanish Demo will allow DSOs and TSOs to identify and create dynamic local markets (i.e. the geographical scope of the market will vary

according to the network conditions). For this scope the demonstration will find and engage customer and make available for the market their flexibility services, through the design of purposeful and scalable flexibility products.

1.3 CoordiNet Call Principles

CoordiNet strives for high-quality contribution funded via the FSTP instrument, FSTP standing for Financial Support to Third Parties that will facilitate the accomplishment of the goals and impact targeted in CoordiNet Project. Therefore, the expressions of interest will be evaluated not only on the merit of their excellence but mostly on their fit with the CoordiNet Project goals and approach.
Transparency and non-discriminatory principles constitute foundation of the market design.
The expressions of interest must always realize such aspects that are relevant for the specific instrument below.

2. Instrument

An instrument is a type of CoordiNet third-party contract outlining the contributions a successful recipient is expected to make to CoordiNet. This **CoordiNet Call for Spanish Demo** defines a specific instrument, namely "**Flexibility Service Provider engagement for demo testing**", a specific funding scheme, targeted results and impact as well as own evaluation criteria.

2.1 Instrument: Flexibility Service Provider engagement for demo testing

This instrument aims to involve in the Spanish Demo some Flexibility Service Providers that offer different type of flexibility resources in order to test a new local market for ancillary services able to alleviate network congestions and voltage problems. A Flexibility Service Provider (FSP) is the owner or the representative of large-scale or small-scale assets, which are connected to the electricity network and which can provide energy services for TSOs and/or DSOs. CoordiNet wants to take them on board in order to push innovation and strengthen the CoordiNet community.
As a precondition of his involvement, the recipient must be ready not to work in isolation but achieve the targeted results in co-operation with other members of the CoordiNet Community.

The type of Flexibility Service Providers requested for the demo testing are:

1. Malaga: Customers connected to MV or LV grid.
2. Alicante: Customers connected to 132kV >1MW in the province of Alicante.
3. Murcia: Buildings connected to MV grid located around Abenarabi street in Murcia or/and Buildings connected to LV around Plano de San Francisco Street.
4. Murcia: Buildings connected to MV or to LV grid located around Abenarabi street in Murcia or/and buildings connected to LV around Plano de San Francisco Street.
5. Albacete: Renewable generation or cogeneration in the area defined in demo.

The recipient's assets must be located in the requested demo sites.

Small and medium-sized enterprises (SMEs)[9] and Start-ups[10] will be considered with priority.

Recipients are requested to demonstrate clearly in their expressions of interest that they are very well aware of the areas in which their specific services fits best the project goals and the ongoing developments.

Recipients are further requested to pro-actively discuss the content of their contributions with CoordiNet, using the CoordiNet communication and interaction channels.

Instrument: Flexibility Service Provider engagement for demo testing	
Expected date for the call's opening	1st of July 2020
Expected runtime	October 2020-March 2022
Total Indicative Budget	213.000€
Max Budget per Demo run	In the demo areas the budget will be split according to this proposal: Malaga (e-DI) 25% for the two demo runs Cadiz (e-DI) 25% for the first demo runs Alicante (i-DE) 16,6% for the two demo run Murcia (i-DE) 16,6% for the two demo runs Albacete (i-DE) 16,6% for the two demo runs
Eligible activities	The Call requests flexibility service to several type of flexible sources to be involved in the demos. It will be also requested to collaborate in communication and cooperation agreement with no additional cost for the Project. A demo run time frame for the tests will be established at the moment of publishing the call for expressions of interest. In the case of Alicante and Murcia, if no actors join the Call for one of the two sites, the budget will be put at disposal to the other site.
Expected results	The actors involved will help the Project to demonstrate the provision of flexibility services and analyze the behaviour of different flexibility resources. On the other side, actors involved will learn from the Project how to join flexiblity markets and identify potential benefits and issues to overcome. The participation of flexibility providers would demonstrate the capacity of the pilot to open the market to external actors

Please note that any third party will not get more than € 60.000 of cumulative funding for the participation to any COORDINET cascading fund mechanism, according to CoordiNet Grant Agreement n. 824414.

[9] SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003).

[10] A start-up is an independent, organisation, which is younger than five years and is aimed at creating, improving and expanding a scalable, innovative, technology-enabled product with high and rapid growth.

3. Expression of interest submission

Any questions concerning this call shall be submitted in writing not later than 3 (three) days before the closing date to xxxxx@coordinet.eu. Questions shall make specific reference to the appropriate section(s) of this guide.
In order to apply for this **CoordiNet Call for Spanish Demo**, recipients need to submit an expression of interest based on the expression of interest template (provided separately at www.[●] for download), according to the requirements listed in this guide for recipients.
The expression of interest template will be submitted via the expression of interest submission platform/CoordiNet mail address: xxxxx@coordinet.eu.
The mail account is handled by the project's office team. The identity of the recipient and the content of the expressions of interest will be treated confidentially within CoordiNet Consortium.
The expression of interest template will provide:

- General/administrative expression of interest information and partner data.
- Information which is required to avoid any potential conflict of interest
- Contacts for administrative, scientific / technical and CoordiNet-related questions

It is the recipients' responsibility to ensure the timely submission of expressions of interest. The complete expression of interest consists of the completed and uploaded expression of interest template.
You can submit as many times as you like and the version submitted most recently before the deadline will be considered for evaluation. However, the deadlines given in this guideline is binding and expressions of interest submitted after the deadline will not be taken into consideration.

Shortly after the effective submission of the expression of interest, an acknowledgement of receipt thereof will be sent to the e-mail address of the coordinator named in the submitted expression of interest. The sending of an acknowledgement of receipt does not imply that an expression of interest has been accepted as eligible for evaluation. For any given expression of interest, Marco Baron (the CoordiNet coordinator) and designated member of the Spanish team act as the main point of contact between the Steering Committee and CoordiNet.
Upon receipt by CoordiNet, the expressions of interest will be registered and their contents entered into a CoordiNet database where only consortium members have access to support the evaluation process. The expressions of interest will be evaluated by external evaluator under confidentiality regulation.
Eligibility criteria for each expression of interest will also be checked by Project Steering Committee before the evaluation begins. The expressions of interest that do not fulfil these criteria will not be included in the evaluation. An expression of interest will only be considered eligible if it meets all of the following conditions: (i) it was received before the deadline given in the call text, (ii) template forms (all sections!) have been completed and and (iii) the eligibility criteria set out per Instrument are met.

4. General Conditions

- Cost categories eligible for funding:

In **CoordiNet Call for Spanish Demo** the budget mainly addresses cost for the provision of flexibility services. Checking the consistency between these costs and the expected work will be part of the evaluation.

- Payment schemes:

In **CoordiNet Call for Spanish Demo** one or more legal entities can apply for funding by submitting an expression of interest describing their goal, the technical plan to achieve it and an estimate of the involved cost.

Third-party beneficiaries will receive their payments according to the following schedule:

- One pre-financing payment of 40% of the budget, within 30 days from the entry into force of the agreement;
- Final balancing payment of all the budget, not exceeding the initial budget, within 60 days from receiving the final deliverable report.

- Entities eligible for Cascading funds

Flexibility Service Providers engagement Instrument is looking for entities, both non-profit and for-profit, as described in section 2.1.

In CoordiNet, financial support may be provided to any legal entity possessing a validated Participant Identification Code (PIC). At the moment of submission, though, the entity can apply with the provisional PIC. Once these conditions are met, financial support can be given to public or private bodies, research organizations, non-profit organizations, small and medium enterprises, international organizations, international organizations of EU interest, established in an EU Member State or in an Associated Country.

- Maximum funding and possibility to participate in several calls for expressions of interest

There are no restrictions regarding the number of call for expressions of interest in which an entity can participate. However, the cumulative funding for the beneficiary (as defined by the CoordiNet Grant Agreement n. 824414) will not exceed 60,000€.

- Contractual terms and conditions

Recipient that is selected for funding become a third party of the CoordiNet Consortium using Cascade Funding (also known as sub-granting).
Recipients have to comply with the rules and the principles mentioned in Section I, Article 6 (Eligible and ineligible costs) of the Grant Agreement (for information see H2020 AMGA – Annotated Model Grant Agreement https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf), in the same way as the beneficiaries of the CoordiNet project.
The rules concerning eligibility of costs, identification of direct and indirect costs and upper funding limits can be found in Section I, Article 22 of the H2020 AMGA.
The beneficiary of the EU grant, as well as its subgratees, must ensure that the recipients of the financial support allow the European Commission, the European Anti-fraud Office (OLAF) and the Court of Auditors to exercise their powers of control on documents, information, even stored on electronic media, or on the final recipient's premises (AMGA Articles 22 and 23).
Beneficiaries need to declare their lack of any conflict of interest with CoordiNet partners. This will ensure to prevent any situation where the impartial and objective of the awarding action is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest.
Recipients who cannot declare this will be not be awarded.
The intellectual property of the Spanish Demo's results generated by the Subgrantee, if any, will be owned by it. Subgrantees grant the CoordiNet consortium partners access to the results, for the pursuance of the objectives of the CoordiNet Project and the exploitation of the Project results in accordance with the related Gran Agreement.

5. Ethical issues

Research activities in Horizon 2020, and particularly in CoordiNet, should respect fundamental ethical principles, particularly those outlined in "The European Code of Conduct for Research Integrity" which may be consulted at https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf. Therefore, any questions about ethical issues are to be addressed in the expression of interest text, if ethical issues are applicable to CoordiNet before and during the runtime of the research activities within CoordiNet, including the approval by the relevant committees.

6. Evaluation Process

Expression of interest writers are strongly advised to read the accompanying document to this "Guide for Recipients", namely the "Guide to Evaluators": by understanding what the CoordiNet Consortium expects from Evaluators, expression of interest writers should be able to focus their ideas on what is really important and to improve the quality with which their expressions of interest can be evaluated.

Conflict of Interests

The recipients must take all measures to prevent any situation where the impartial and objective implementation of CoordiNet Project is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest ('conflict of interests'). They must formally notify to the CoordiNet coordinator Marco Baron, without delay, any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.
Moreover, as the CoordiNet Core Consortium is going to be involved in the evaluation and selection process, it is necessary to ensure from the very beginning that this process remains as transparent and unbiased as possible. A clear violation of impartiality could arise from either legal or financial ties between any of the recipients and any of the members of the core consortium. Examples of such situation include (but are not limited to):

- Member of the core consortium (either institution or any of the persons involved in the implementation of the project) being shareholder of the applying institution;
- Member of the core consortium (either institution or any of the persons involved in the implementation of the project) benefitting financially from success of an application;
- Any employee of the applying entity being simultaneously an employee of any of the members of the core consortium.

In order to avoid such situations, the recipients will be required to state any relationships with the core consortium in the Template for Expression of interest. Reporting such relationships does not immediately mean exclusion from the call – each such case will be analyzed individually, and the decision will be included in the evaluation report. On the contrary, failure to report a potential Conflict of Interests in case any doubtful relationship is discovered will be automatically considered a disqualifying factor.

Please find below the list of Partner and linked third parties of the Coordinet Consortium:

1. **ENDESA DISTRIBUCION ELECTRICA S.L (EDE)**, established in CALLE RIBERA DEL LOIRA 60, MADRID 28042, Spain, VAT number: ESB82846817
   - Linked Third party**:** ENEL Global Infrastructure and Network Srl [and Enel Iberia]
2. **IBERDROLA DISTRIBUCION ELECTRICA, S.A. (IBERDROLA)**, established in AVENIDA SAN ADRIAN 48, BILBAO 48003, Spain, VAT number: ESA95075578,
3. **RED ELECTRICA DE ESPANA S.A.U. (REE)**, established in PASEO DEL CONDE DE LOS GAITANES 177, ALCOBENDAS - MADRID 28109, Spain, VAT number: ESA85309219,
4. **FUNDACION TECNALIA RESEARCH & INNOVATION (TECNALIA)**, established in PARQUE CIENTIFICO Y TECNOLOGICO DE GIPUZKOA PASEO MIKELETEGI 2, DONOSTIA SAN SEBASTIAN 20009, Spain, VAT number: ESG48975767,
5. **UNIVERSIDAD PONTIFICIA COMILLAS (COMILLAS)**, established in CALLE ALBERTO AGUILERA 23, MADRID 28015, Spain, VAT number: ESR2800395B,
6. **NUESTRA NUEVA ENERGIA SL (OUR NEW ENERGY)**, established in CALLE JOSE ANTONIO CANETE JUAREZ NUM 17 ESC 2 PLAN PUERTA 2, ELCHE ELX ALICANTE 03202, Spain, VAT number: ESB54964531,
7. **AYUNTAMIENTO DE MALAGA (MALAGA)**, established in AVENIDA CERVANTES 4, MALAGA 29016, Spain, VAT number: ESP2906700F,
8. **VATTENFALL ELDISTRIBUTION AB (VEL)**, established in RU 2560, STOCKHOLM 16992, Sweden, VAT number: SE556417080001,
   - Linked Third parties**:** Vattenfall AB, Gotlands Energi AB
9. **E ON ENERGIDISTRIBUTION AB (E.ON)**, established in NOBELVAGEN 66, MALMO 20509, Sweden, VAT number: SE556070606001,
   - Linked Third party**:** E.ON Energilösningar
10. **AFFARSVERKET SVENSKA KRAFTNAT (SVK)**, established in STUREGATAN 1, SUNDBYBERG 172 24, Sweden, VAT number: SE202100428401,
11. **UPPSALA KOMMUN (UPPSALA KOMMUN)**, established in UPPSALA KOMMUN, UPPSALA 753 75, Sweden, VAT number: SE212000300501,
12. **ENERGIFORSK AB (Energiforsk)**, established in OLOF PALMES GATA 31, STOCKHOLM 10153, Sweden, VAT number: SE556974211601,
13. **EXPEKTRA AB (Expektra AB)**, established in VENDEVAGEN 87, DANDERYD 182 32, Sweden, VAT number: SE556818029201,
14. **RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN (RWTH AACHEN)**, established in TEMPLERGRABEN 55, AACHEN 52062, Germany, VAT number: DE121689807,
15. **DIACHEIRISTIS ELLINIKOU DIKTYOU DIANOMIS ELEKTRIKIS ENERGEIAS AE (DEDDIE/HEDNO)**, established in PERRAIVOU 20 KALLIRROIS ODOS 5, ATHINA 11743, Greece, VAT number: EL094532827,
16. **INDEPENDENT POWER TRANSMISSION OPERATOR SA (IPTO or ADMIE)**, established in Dyrrachiou str. & Kifisou 89, ATHENS 10443, Greece, VAT number: EL099877486,
17. **INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS (ICCS)**, established in Patission Str. 42, ATHINA 10682, Greece, VAT number: EL090162593,
18. **VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V. (VITO)**, established in BOERETANG 200, MOL 2400, Belgium, VAT number: BE0244195916,
19. **N-SIDE (N SIDE)**, established in BOULEVARD BAUDOUIN 1ER 25, LOUVAIN-LA- NEUVE 1348, Belgium, VAT number: BE0472607061,
20. **ENGINEERING - INGEGNERIA INFORMATICA SPA (ENG)**, established in VIA SAN MARTINO DELLA BATTAGLIA 56, ROMA 00185, Italy, VAT number: IT05724831002,
21. **OFFIS EV (OFFIS EV)**, established in ESCHERWEG 2, OLDENBURG 26121, Germany, VAT number: E811582102,
22. **EUROPEAN DISTRIBUTION SYSTEM OPERATORS FOR SMART GRIDS (EDSO)**, established in RUE DE LA LOI 82, BRUXELLES 1040, Belgium, VAT number: BE0825054581,
    - Linked Third parties**:** Alliander, ČEZ Distribuce, Fluvius, E-distribuzione, Innogy, Netz Niederösterreich

23. **ETRA INVESTIGACION Y DESARROLLO SA (ETRAID)**, established in CALLE TRES FORQUES 147, VALENCIA 46014, Spain, VAT number: ESA46112041.

(DRAFT) GUIDE FOR EVALUATORS

CoordiNet Call for expressions of interest - Spanish Demo

Contents

Definitions

Instrument:	Type of CoordiNet third-party contract outlining the contributions a successful recipient can make to CoordiNet.
CoordiNet Project:	The CoordiNet Project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The CoordiNet Project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations.
CoordiNet Consortium:	The CoordiNet Consortium is composed of 23 partners (Academia, TSOs, DSOs, industry, aggregators, service providers, municipalities) from 7 different European countries. https://coordinet-project.eu/partners/partners
Recipient:	Entity receiving financial support to third parties (cascade funding) from Horizon 2020 – The EU Framework Programme for Research and Innovation.
Project Steering Committee (SC):	The CoordiNet Project Steering Committee comprises two representatives from each demo and Marco Baron (the CoordiNet coordinator). The Steering Committee is involved in evaluation and selection process to ensure fit between the selected expressions of interest and overall goals of CoordiNet.
Expert Evaluator:	The expert, independent of the CoordiNet consortium and of any proposer, with the role of assessing the expressions of interest submitted in response to the CoordiNet Call.

1. General Aspects

1.1. Why this Guide

This guide aims at supporting the evaluation of expressions of interest submitted to the **CoordiNet Call for expressions of interest – Spanish Demo** (hereinafter also "**Call for Spanish Demo**"). The evaluation process involves both external evaluator, hereafter called *Expert Evaluator*, and internal evaluators embodied in the CoordiNet Steering Committee (SC). This guide will help evaluators to assess expressions of interest, contribute to evaluation panels and draft evaluation reports.

Further information about CoordiNet vision, principles, adoption path and Instruments can be found in the Guide for Recipients, Section 1 and 2.

1.2. Evaluators Role

The underlying principles to bear in mind during evaluation are:

- **Excellence**: expression of interest must demonstrate a high level of quality in relation to the topics and criteria set out in the calls;
- **Transparency**: funding decisions must be based on clearly defined rules and procedures, and recipients should receive adequate feedback on the outcome of the evaluation;
- **Fairness and impartiality**: all expressions of interest must be treated equally and evaluated impartially on their merits, irrespective of their origin or the identity of the recipients;
- **Confidentiality**: all expressions of interest and related data, knowledge and documents must be treated in confidence;
- **Efficiency**: expressions of interest should be evaluated and grants awarded and administered as swiftly as possible, without compromising quality or breaking the rules.

1.3. Evaluator's Code of Conduct and Conflict of Interest

It should always be anticipated in the Call that entities being part of the CoordiNet Consortium ensure the impartial and objective implementation of the action and take all measures to prevent any situation resulting in a "conflict of interests" for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest. Therefore, the beneficiaries cannot apply.

As regards other entities who have some link (loose or not) to the beneficiary entities, these can apply to the call as long as the evaluation process (thus the evaluators) is completely independent and none of the above situations occurs and neither is the impartial and objective implementation of the action compromised. The exact procedure for avoiding such conflict is described in the Guide for Recipients of the CoordiNet Call for expressions of interest. This impartiality will have to be demonstrated in the reports that the European Commission and the Project Officer (EC/PO) receives from the consortium describing the process and results of the calls that have taken place.

Both external experts (independent from the CoordiNet consortium and also without a conflict of interest with any of proposers) and internal experts (being employees of the members of the CoordiNet consortium but not having a conflict of interest with any of proposers) will be involved in the evaluation process and will have confirmed their independence and neutrality before.

It is important to notice, that all experts perform evaluations in their private capacity, not as representatives of their employer, their country or any other entity. They will sign a declaration of confidentiality concerning the contents of the expressions of interest they read and a declaration of absence of any conflict of interest. Both the confidentiality and the conflict of interest rules will follow the Code of Conduct set out in the Annex 1 of the H2020 Model Contract for experts:

(http://ec.europa.eu/research/participants/data/ref/h2020/experts_manual/h2020-experts-mono-contract_en.pdf).

In addition to a high level of competence, evaluators must not have any conflict of interests. A disqualifying conflict of interest exists even if an evaluator:

- Was involved in the preparation of the expression of interest;
- Could stand to benefit, or to be disadvantaged, as a direct result of the evaluation carried out;
- Has a close family relationship with any person representing a participating organization in the expression of interest;
- Is a director, trustee or partner of any beneficiary, participating in the expression of interest, or by a subcontractor/third party carrying out work for any beneficiary in the expression of interest concerned;
- Is employed by one of the beneficiary in the expression of interest concerned;
- Is in any other situation that comprises his/her ability to review the expression of interest impartially.

Evaluators with disqualifying conflicts of interest cannot take part in the evaluation of expressions of interest. A potential conflict of interest may exist, even in cases not covered by the clear disqualifying conflicts indicated above, if any expert:

- Was employed by one of the participating organizations in a project expression of interest in the last three years,
- Is involved in a contract or research collaboration with a participating organization, or had been so in the previous three years
- Is in any other situation that could cast doubt on his/her ability to review the expression of interest impartially, or that could reasonably appear to do so in the eyes of an external third-party;

The above mentioned list of unlawful behavior is considered merely examples and are not limited.

Since there is a potential conflict of interest - or the appearance of a conflict – the involved Evaluators cannot evaluate expressions of interest where they have a potential conflict of interest.

2. Evaluation Process

In the CoordiNet Project, expressions of interest and individual contracts are awarded through different processes depending on the kind of Instrument. This section describes the different roles and workflow for this specific **CoordiNet Call for Spanish Demo**.

2.1. Who is Who

- **External Evaluator**: One expert, independent of the CoordiNet Consortium and of any proposer, with the role of assessing the expressions of interest submitted in response to the CoordiNet Call for expressions of interest – Spanish Demo.
- **Steering Committee (SC)**: The CoordiNet Project Steering Committee. It comprises two representatives from each demo and the the CoordiNet project coordinator (Marco Baron).

2.2. Workflow

The section below present the workflow of the evaluation and selection processes of the instrument of the CoordiNet Call for Spanish Demo.

The Commission may contact the Coordinator to collect any document concerning the Cascading Funds mechanism, including expression of interests and evidence of the evaluation process.

Instrument: Flexibility Service Provider engagement for demo testing

The expressions of interest will be assigned to external evaluator who prepare the individual evaluation reviews based on the criteria described below (see Section 3.1.). An initial ranking will be created based on

scores assigned to each expressions of interest. Afterwards, the final decision is taken by the Steering Committee that analyses the ranking and reports and has a chance to vote on changing the initial ranking.

The summary report with the final ranking, signed by the Committee, will disclose the main strengths and weaknesses for each candidate; the reasons for rejection, if the case and the conclusions.

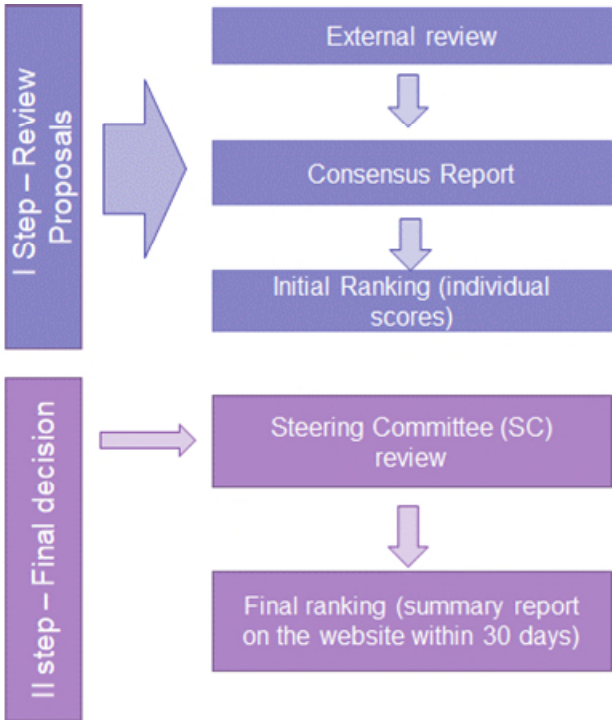

Figure 1. Evaluation workflow

3. Evaluation Criteria

The sections below present the evaluation criteria for the expressions of interest of the **CoordiNet Call for Spanish Demo**. The criteria reflect the expected impact of CoordiNet Project under those instruments.

3.1. Instrument: Flexibility Service Provider engagement for demo testing

Mandatory requirements for entry	Yes	No
➢ Type of Actor: o Malaga: Customers connected to MV or LV grid o Cadiz: Customers connected to MV grid o Alicante: Customer connected to 132kV >1MW. o Murcia: Building connected to MV or to LV grid. o Albacete: Renewable generation or cogeneration ➢ Type of Company • Small and medium-sized enterprise (SMEs) • Start-up • Other		
Mandatory requirements for entry	**Yes**	**No**
➢ Minimum Capacity : • Malaga:> 5kW • Cadiz: > 0,1 MW • Alicante: > 0,1 MW		

• Murcia: > 10kW • Albacete: > 5 MW		
➢ Geographical area: • Malaga: Centre of Malaga, Industrial Park Guadalhorce, Cadiz Road District and Campanillas. • Cadiz: area defined in demo. • Alicante: Customers connected to 132kV in the province of Alicante. • Murcia: Buildings connected to MV grid located around Abenarabi street in Murcia or/and Buildings connected to LV around Plano de San Francisco Street. • Albacete: area defined in demo.		
➢ Agree to communication and cooperation activites		
➢ Viability of technical solution for monitoring and receiving set points from the CoordiNet platform		

Small and medium-sized enterprises (SMEs)[11] and Start-ups[12], as defined by EU Commission, will be considered with priority.

1. Requirements		**Table**
• Criteria for entry	Score minimum: 7/30 (*5/10 on Technical excellence)* & acceptance of all requirements	
2. Expected impact		
• Pricing of the bid	Score: 1-10	1
3. Technical excellence		
• Innovation degree	Score: 1-10	2
4. Implementation		
• Minimum number of activations during the demo run	Score: 1-10	3
Remarks		
- Mandatory to sign cooperation agreement for demonstration - Communication activities agreed		
OVERALL SCORE:	*Score: ? / 30 (Threshold 7/30 on the total score and 5/10 on Technical excellence)*	

[11] SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003).

[12] A start-up is an independent, organisation, which is younger than five years and is aimed at creating, improving and expanding a scalable, innovative, technology-enabled product with high and rapid growth.

4. Evaluation Reports

4.1. Individual Evaluation Report (IER)

The Expert evaluator indicates if the expression of interest falls entirely outside of the scope of the part of the Spanish Demo that they are evaluating or involves ethical issues that will need further scrutiny. They evaluate each expression of interest considering the evaluation criteria in Section 3. For each criterion, Expert Evaluator give a **provisional score** between **1 and 10 points**, which are detailed in the following Tables and formulate a set of positive or negative **arguments**. Each argument should be described with two or three lines of text.

Table 1. Pricing of bids

Points	€/MWh
10	0-10
9	10-30
8	30-50
7	50-80
6	80-110
5	110-140
4	140-180
3	180-220
2	220-300
1	>300

Table 2. Technical excellence

Points	Innovation degree
10	High level [does not exist on flexmarket today]
5	Middle level [does exist but rare on flexmarket today]
1	Low [exists on the flexmarket today]

Table 3. Minimum number of activations during the demo run

Points	Minimun number
10	10
9	9
8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1

The expressions of interest with the highest score will be considered eligible for the cascading funds. The expression of interest must have a total score of 7/30 (with a threshold of 5/10 on *Technical excellence*) to be considered eligible for funding.

The criteria used to evaluate the expressions of interest will be the same as the ones used by the European Commission, namely **Expected Impact, Technical Excellence**, and **Implementation**:

- The **Expected Impact** considers the following aspects: the foreseen degree in which goals stated in the addressed challenge will be achieved, the potential to develop a ready-for-the-market solution and the potential key exploitation results of the proposed project.
- **Technical Excellence** evaluates adequacy of the technical solutions involved in the activities (Innovation degree).
- **Implementation** considers the adequacy between objectives and allocated resources, as well as the overall organization of the work.

4.2. Consensus Report (CR)

The consensus group discussion results in a Consensus Report (CR) drafted in written by the Expert Evaluator including justification of scores. This Consensus Report is the base document for the final decisions to be made. Moreover, the CR will be sent to the recipients whose expressions of interest are below threshold score. The Steering Committee will inform all the participants about the results of evaluation and selection. A public summary report will be published on the CoordiNet website within 30 days from the end of the selection.

5. Ethical issues

Research activities in Horizon 2020, and particularly in CoordiNet Project, should respect fundamental ethical principles, particularly those outlined in "The European Code of Conduct for Research Integrity" which may be consulted at https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf.

6. Redress procedure

Upon receiving the evaluation results the recipients have one week to start the redress procedure by sending complaint via the e-mail: XXX@CoordiNet.eu.

(DRAFT) TEMPLATE FOR EXPRESSION OF INTEREST- Spanish Demo

CoordiNet Cascading Funds

Contents

1. General Aspects

Project acronym:	CoordiNet
Project Grant Agreement:	No. 824414
Project Full name	Large scale campaigns to demonstrate how TSO-DSO shall act in a coordinated manner to procure grid services in the most reliable and efficient way
Project web address:	https://coordinet-project.eu
Call title:	CoordiNet Call for Espression of Interest
Call indentifier:	CoordiNet – Spanish Demo
Call publication date:	01.07.2020
Template Submission Deadline:	30.09.2020, at 17:00 (Brussels time)
Template Submission e-mail address:	xxxxx@coordinet.eu
Expected duration:	October 2020-March 2022
Total Budget:	€ 213 000
Budget Share	In the demo areas the budget will be split according to this proposal: Malaga (e-DI) 25% for the two demo runs Cadiz (e-DI) 25% for the first demo runs Alicante (i-DE) 16,6% for the two demo run Murcia (i-DE) 16,6% for the two demo runs Albacete (i-DE) 16,6% for the two demo runs

1.1. Description

The CoordiNet Innovation Action proposal aims to demonstrate how DSOs and TSOs shall act in a coordinated manner to procure grid services in the most reliable and efficient way through the implementation of three large scale "TSO-DSO-Consumer" demonstrations, in cooperation with market participants (and end users). The consortium will define or adapt, demonstrate and promote future standardized grid services and related market platforms to enable a seamless pan-European electricity market. The CoordiNet consortium under the coordination of ENDESA is composed of 23 beneficiaries and 10 linked third parties from 10 different European countries. It is supported by an Advisory Board and a Stakeholders' Forum to liaise with on-going projects in Europe and beyond. Three complete value chains of TSO-DSO-market participants constitute the backbone of the project in three demonstration macro-areas (Spain, Sweden, Greece) with ten demonstration pilots (four in Spain, four in Sweden and two in Greece) representing various boundary grid, climatic, load and generation conditions. Next to the demonstration campaigns, promising game-changer enabling technologies, such as IoT, Artificial Intelligence, Big data services, P2P energy trading platforms,

Blockchain, Distributed ledger Technologies will be tested to explore alternative means to facilitate energy prosumers participation of small-scale energy consumers into the markets.

1.2. Spanish Demo

This demonstration project will allow DSOs and TSOs to identify and create dynamic local markets (i.e. the geographical scope of the market will vary according to the network conditions). These markets serve the purpose of solving congestions in their networks with market-based mechanisms using EU wide or national standardized products that are at the same time integrated and coordinated with the system-wide wholesale and balancing markets.

- Moreover, the demo will test innovative approaches to enable DSOs to solve localized network problems by means of direct procurement of the flexibility products. These situations include, but may not be limited to, voltage problems in the MV and LV grids or the islanded or poorly interconnected operation of part of these systems. In each case, coordination algorithms between the platforms to be used by the DSOs and the TSO needs to be defined in order to assure that all actions taken in any of these processes are coordinated between each other and additionally the services can be properly measured and settled.

2. Cascading Funds

Instrument: Flexibility Service Provider engagement for demo testing

From May 2020, the COORDINET consortium has published the Call for expression of the interest (within the mechanism of cascading funds) with the aim of to involve in the Spanish Demo some Flexibility Service Providers that offer different type of flexibility resources in order to test a new local market for ancillary services able to alleviate network congestions and voltage problems. A Flexibility Service Provider (FSP) is the owner or the representative of large-scale or small-scale assets, which are connected to the electricity network and which can provide energy services for TSOs and/or DSOs. CoordiNet wants to take them on board in order to push innovation and strengthen the CoordiNet community.
As a precondition of his involvement, the recipient must be ready not to work in isolation but achieve the targeted results in co-operation with other members of the CoordiNet Community.

The type of Flexibility Service Providers requested for the demo testing are:

1. Malaga: Customers connected to MV or LV grid in the areas Centre of Malaga, Industrial Park Guadalhorce, Cadiz Road District and Campanillas
2. Cadiz: Customers connected to MV grid in area defined in demo.
3. Alicante: Customer connected to 132kV >1MW in the province of Alicante.
4. Murcia: Buildings connected to MV or to LV grid located around Abenarabi street in Murcia or/and buildings connected to LV around Plano de San Francisco Street.
5. Albacete: Renewable generation or cogeneration in the area defined in demo.

The recipient's assets must be located in the requested demo sites.

Recipients are requested to demonstrate clearly in their expressions of interest that they are very well aware of the areas in which their specific services fits best the project goals and the ongoing developments.
Recipients are further requested to pro-actively discuss the content of their contributions with CoordiNet, using the CoordiNet communication and interaction channels.
Small and medium-sized enterprises (SMEs) and Start-ups, as defined by EU Commission, will be considered with priority.

To this aim, the company _____ expressed its interest to join the call for Spanish Demo.

Text in red represents comments and should be deleted in your submission. Page limits refer to this text style in word: Times New Roman 11 pt font, Line spacing 1.15 lines, 0pt after, Standard A4 page size and margins

A. Please describe your company in general terms	
Name of the company	*Insert the text*
Address of the company	*Insert the address*
Registered number to the local chamber of commerce (VAT Number)	*Insert the number*
Name of the legal representative	*Name, surname and role*
Website of the company	*Website address*
Contact person	*Name, Surname, email address and telephone number*
Research participant portal PIC number (if any) :	

A. More details
Please refer to type of generation or consumption unit / type of aggregation
Insert the text
Please describe how your company will provide the requested services (qualitative description, max 20 lines)
Insert the text

Please describe previous experiences (main projects in the field etc. max 10 lines)
Insert text
Conflict of interest with partners end/or third parties of the Coordinet Consortium
As legal represent of the company _____, I confirm that I fully understood the indications defined in the Guide of recipients and that there isn't any potential conflict of interest with partners end/or third parties of the Coordinet Consortium. *[Otherwise please disclose the potential conflict of interest with partners end/or third parties of the Coordinet Consortium]*
Notes
Insert text

Please enclose:

- Financial Statement of the last financial year;
- Curriculum Vitae of the main staff contact.

3. Requirements and flexibility services provided

The evaluation criteria applying to the this section can be found in the Guide for Evaluators

3.1. Mandatory requirements for entry

	Yes	**No**
➢ **Type of Actor:** **- Malaga: Customers connected to MV or LV grid** **- Cadiz: Customers connected to MV grid** **- Alicante: Customer connected to 132kV >1MW.** **- Murcia: Building connected to MV or to LV grid.** **- Albacete: Renewable generation or cogeneration**		
	Yes	**No**

➢ Type of Company: • Small and medium-sized enterprise (SMEs)[13] • Start-up[14] • Other		
➢ Minimum Capacity : - Malaga: > 5 kW - Cadiz: > 0,1 MW - Alicante: > 0,1 MW - Murcia: > 10 kW - Albacete: > 5 MW		
➢ Geographical area: - Malaga: Centre of Malaga, Industrial Park Guadalhorce, Cadiz Road District and Campanillas - Cadiz: demo defined area - Alicante: Customers connected to 132kV in the province of Alicante. - Murcia: Buildings connected to MV grid located around Abenarabi street in Murcia or/and Buildings connected to L around Plano de San Francisco St. - Albacete: demo defined area		
➢ Agree to communication and cooperation activities		
➢ Viability of technical solution for monitoring and receiving set points from the CoordiNet platform		

3.2. Flexibility Services Provided

Expected impact: Pricing of the bid (€/MW)
Technical excellence: Innovation degree
Implementation: Minimum number of activations
Total Budget

[13] SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003).

[14] A start-up is an independent, organisation, which is younger than five years and is aimed at creating, improving and expanding a scalable, innovative, technology-enabled product with high and rapid growth.

(DRAFT) GUIDE FOR RECIPIENTS

CoordiNet Call for expressions of interest - Swedish Demo

Contents

Definitions

Instrument:	Type of CoordiNet third-party contract outlining the contributions a successful recipient can make to CoordiNet.
CoordiNet Project:	The CoordiNet Project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The CoordiNet Project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations.
CoordiNet Consortium:	The CoordiNet Consortium is composed of 23 partners (Academia, TSOs, DSOs, industry, aggregators, service providers, municipalities) from 7 different European countries. https://coordinet-project.eu/partners/partners
Recipient:	Entity receiving financial support to third parties (cascade funding) from Horizon 2020 – The EU Framework Programme for Research and Innovation.
Project Steering Committee (SC):	The CoordiNet Project Steering Committee comprises two representatives from each demo and the Coordinator Person. The Steering Committee is involved in evaluation and selection process to ensure fit between the selected projects and overall goals of CoordiNet.
Expert Evaluator:	The expert, independent of the CoordiNet consortium and of any proposer, with the role of assessing the expressions of interest submitted in response to the **CoordiNet Call for Swedish Demo**.

1. General Aspects

1.1 Why this Guide

This guide collates terms and conditions to be applied for the Financial Support to Third Parties (FSTP) funding scheme to support demo activities through competitive calls for expressions of interest within the CoordiNet Project. The document is addressed to potential recipients of FSTP and aims at being a practical guideline for successful application.

In particular, this guide aims at supporting recipients addressing the **CoordiNet Call for expressions of interest for Swedish Demo** (hereinafter also "**Call for Swedish Demo**"). It provides the relevant administrative details. The main purpose of this guide, though, is to outline to the recipients the requirements of the CoordiNet Project in order to facilitate expression of interest matching with instrument embraced in this Swedish Demo as well as the overall objectives of the CoordiNet Project. The next sections explain the contributions expected from expressions of interest geared to this instrument.

1.2 Objectives of CoordiNet Project

The CoordiNet Project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The CoordiNet Project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations.

The CoordiNet Project is focused on three key objectives:

- to demonstrate to which extent coordination between TSO/DSO will lead to a more economic, more reliable and more environmentally friendly electricity supply to the consumers through the implementation of three demonstrations at large scale, in cooperation with market participants;
- to define and test a set of standardized products and the related key parameters for grid services, including the reservation and activation process for the use of the assets and finally the settlement process;
- to specify and develop a TSO-DSO-Consumers cooperation platform starting with the necessary building blocks for the demonstration sites. These components will pave the way for the interoperable development of a pan-European market that will allow all market participants to provide energy services and opens up new revenue streams for consumers providing grid services.

In order to implement the CoordiNet Project and to achieve the abovementioned goals, several demo activities will be carried out in three different European Member States, namely Greece, Spain, and Sweden. Each demo activity will be focused on different products which will be tested, in different time frames and relying on the provision of flexibility by different types of Distributed Energy Resources (DER).

In particular, the present Swedish Demo has the commitment to relieve the existing and growing large scale network constraints in the regional DSO grid and DSO/TSO interfaces, by establishing innovative local markets for ancillary services, and through ground breaking use of P2P-markets for customer self-managed capacity optimization. For this scope the demonstration will find and engage customer and make available for the market their flexibility services, through the design of purposeful and scalable flexibility products.

1.3 CoordiNet Call Principles

CoordiNet strives for high-quality contribution funded via the FSTP instrument, FSTP standing for Financial Support to Third Parties that will facilitate the accomplishment of the goals and impact targeted in CoordiNet Project. Therefore, the expressions of interest will be evaluated not only on the merit of their excellence but mostly on their fit with the CoordiNet Project goals and approach.
Transparency and non-discriminatory principles constitute foundation of the market design.
The expressions of interest must always realize such aspects that are relevant for the specific instrument below.

2. Instrument

An instrument is a type of CoordiNet third-party contract outlining the contributions a successful recipient is expected to make to CoordiNet. This **CoordiNet Call for Swedish Demo** defines a specific instrument, namely "**Flexibility Service Provider engagement for demo testing**", a specific funding scheme, targeted results and impact as well as own evaluation criteria.

2.1 Instrument: Flexibility Service Provider engagement for demo testing

This instrument aims to involve in the Swedish Demo some Flexibility Service Providers that offer different type of flexibility resources in order to test a new local market for ancillary services able to alleviate network congestions and avoid power shortages. A Flexibility Service Provider (FSP) is the owner or the representative of large-scale or small-scale assets, which are connected to the electricity network and which can provide energy services for TSOs and/or DSOs. CoordiNet wants to take them on board in order to push innovation and strengthen the CoordiNet community.
As a precondition of his involvement, the recipient must be ready not to work in isolation but achieve the targeted results in co-operation with other members of the CoordiNet Community.

The type of Flexibility Service Providers requested for the demo testing are:

1) Industry,
2) Energy storage,
3) Building,
4) Aggregator,
5) Heat producer,
6) Renewable power producer

A maximum of five entities per FSP type will be selected.

The recipient's assets must be located in one of the four Sweden demo sites: Skåne, Uppland, Gotland and/or Västernorrland. Small and medium-sized enterprises (SMEs) [15] and Start-ups [16] will be considered with priority.

[15] SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003).
[16] A start-up is an independent, organisation, which is younger than five years and is aimed at creating, improving and expanding a scalable, innovative, technology-enabled product with high and rapid growth.

Recipients are requested to demonstrate clearly in their expressions of interest that they are very well aware of the areas in which their specific services fits best the project goals and the ongoing developments.
Recipients are further requested to pro-actively discuss the content of their contributions with CoordiNet, using the CoordiNet communication and interaction channels.

Instrument: Flexibility Service Provider engagement for demo testing	
Expected date for the call's opening	11.05.2020
Expected runtime	**November 2020-March 2022**
Total Indicative Budget	€ 213.000
Max Budget per Demo sites	The budget will be split in the four demo sites according to this proposal: Skåne € 76.500 Uppland € 76.500 Gotland € 30.000 Västernorrland € 30.000
Eligible activities	The Call requests flexibility service to several type of flexible sources to be involved in the demos. It will be also requested to collaborate in communication and cooperation agreement with no additional cost for the Project. A demo run time frame for the tests will be established at the moment of publishing the call for expressions of interest.
Expected results	The actors involved will help the Project to demonstrate the provision of flexibility services and analyze the behaviour of different flexibility resources. On the other side, actors involved will learn from the Project how to join flexiblity markets and identify potential benefits and issues to overcome. The participation of flexibility providers would demonstrate the capacity of the pilot to open the market to external actors

The minimun and maximum funding per Flexibility Service Provider amount to, respectively, € 2.500 and € 5.000. An extra funding for participation in aggregation technique dialogue with task WP 2.4 amounting to € 1.000 per FSP (voluntary) can also be available.

Please note that any third party will not get more than € 60.000 of cumulative funding for the participation to any COORDINET cascading fund mechanism, according to CoordiNet Grant Agreement n. 824414.

3. Expression of interest submission

Any questions concerning this call shall be submitted in writing not later than 3 (three) days before the closing date to xxxxx@coordinet.eu. Questions shall make specific reference to the appropriate section(s) of this guide.
In order to apply for this **CoordiNet Call for Swedish Demo**, recipients need to submit an expression of interest based on the expression of interest template (provided separately at www.[●] for download), according to the requirements listed in this guide for recipients.
The expression of interest template will be submitted via the expression of interest submission platform/CoordiNet mail address: xxxxx@coordinet.eu.

The mail account is handled by the project's office team. The identity of the recipient and the content of the expression of interest will be treated confidentially within CoordiNet Consortium.
The expression of interest template will provide:

- General/administrative expression of interest information and partner data.
- Information which is required to avoid any potential conflict of interest
- Contacts for administrative, scientific / technical and CoordiNet-related questions

It is the proposers' responsibility to ensure the timely submission of expressions of interest. The complete expression of interest consists of the completed and uploaded expression of interest template.
You can submit as many times as you like and the version submitted most recently before the deadline will be considered for evaluation. However, the deadlines given in this guideline is binding and expressions of interest submitted after the deadline will not be taken into consideration.

Shortly after the effective submission of the expression of interest, an acknowledgement of receipt thereof will be sent to the e-mail address of the coordinator named in the submitted expression of interest. The sending of an acknowledgement of receipt does not imply that an expression of interest has been accepted as eligible for evaluation. For any given expression of interest, Marco Baron (the CoordiNet coordinator) and designated member of the Swedish team act as the main point of contact between the Steering Committee and CoordiNet.
Upon receipt by CoordiNet, the expressions of interest will be registered and their contents entered into a CoordiNet database where only consortium members have access to support the evaluation process. The expressions of interest will be evaluated by external evaluator under confidentiality regulation.
Eligibility criteria for each expression of interest will also be checked by Project Steering Committee before the evaluation begins. Expressions of interest that do not fulfil these criteria will not be included in the evaluation. An expression of interest will only be considered eligible if it meets all of the following conditions: (i) it was received before the deadline given in the call text, (ii) template forms (all sections!) have been completed and and (iii) the eligibility criteria set out per Instrument are met.

4. General Conditions

- Cost categories eligible for funding:

  In **CoordiNet Call for Swedish Demo** the budget mainly addresses cost for the provision of flexibility services. Checking the consistency between these costs and the expected work will be part of the evaluation.

- Payment schemes:

  In **CoordiNet Call for Swedish Demo** one or more legal entities can apply for funding by submitting an expression of interest describing their goal, the technical plan to achieve it and an estimate of the involved cost.
  Third-party beneficiaries will receive their payments according to the following schedule:
  - One pre-financing payment of 40% of the budget, within 30 days from the entry into force of the agreement;
  - Final balancing payment of all the budget, not exceeding the initial budget, within 60 days from receiving the final deliverable report.

- Entities eligible for Cascading funds

  Flexibility Service Providers engagement Instrument is looking for entities, both non-profit and for-profit, as described in section 2.1.

  In CoordiNet, financial support may be provided to any legal entity possessing a validated Participant Identification Code (PIC). At the moment of submission, though, the entity can apply with the provisional PIC. Once these conditions are met, financial support can be given to public or private bodies, research organizations, non-profit organizations, small and medium enterprises, international organizations, international organizations of EU interest, established in an EU Member State or in an Associated Country.

- Maximum funding and possibility to participate in several calls for expressions of interest

  The minimun and maximum funding per Flexibility Service Provider amount to, respectively, € 2.500 and € 5.000. An extra funding for participation in aggregation technique dialogue with task WP 2.4 amounting to € 1.000 per FSP (voluntary) can also be available. There are no restrictions regarding the number of call for expressions of interest in which an entity can participate. However, the cumulative funding for the recipient (as defined by the CoordiNet Grant Agreement n. 824414) will not exceed € 60.000.

- Contractual terms and conditions

  Recipient that is selected for funding become a third party of the CoordiNet Consortium using Cascade Funding (also known as sub-granting).
  Recipients have to comply with the rules and the principles mentioned in Section I, Article 6 (Eligible and ineligible costs) of the Grant Agreement (for information see H2020 AMGA – Annotated Model Grant Agreement https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf), in the same way as the beneficiaries of the CoordiNet project.
  The rules concerning eligibility of costs, identification of direct and indirect costs and upper funding limits can be found in Section I, Article 22 of the H2020 AMGA.
  The beneficiary of the EU grant, as well as its subgrantees, must ensure that the recipients of the financial support allow the European Commission, the European Anti-fraud Office (OLAF) and the Court of Auditors to exercise their powers of control on documents, information, even stored on electronic media, or on the final recipient's premises (AMGA Articles 22 and 23).
  Beneficiaries need to declare their lack of any conflict of interest with CoordiNet partners. This will ensure to prevent any situation where the impartial and objective of the awarding action is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest.
  Recipients who cannot declare this will be not be awarded.
  The intellectual property of the Swedish Demo's results generated by the Subgrantee, if any, will be owned by it. Subgrantees grant the CoordiNet consortium partners access to the results, for the pursuance of the objectives of the CoordiNet Project and the exploitation of the Project results in accordance with the related Gran Agreement.

5. Ethical issues

Research activities in Horizon 2020, and particularly in CoordiNet, should respect fundamental ethical principles, particularly those outlined in “The European Code of Conduct for Research Integrity” which may be consulted at https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-

conduct_en.pdf. Therefore, any questions about ethical issues are to be addressed in the expression of interest text, if ethical issues are applicable to CoordiNet before and during the runtime of the research activities within CoordiNet, including the approval by the relevant committees.

6. Evaluation Process

Expression of interest writers are strongly advised to read the accompanying document to this "Guide for Recipients", namely the "Guide to Evaluators": by understanding what the CoordiNet Consortium expects from Evaluators, expression of interest writers should be able to focus their ideas on what is really important, and to improve the quality with which their expressions of interest can be evaluated.

Conflict of Interests

The recipients must take all measures to prevent any situation where the impartial and objective implementation of CoordiNet Project is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest ('conflict of interests'). They must formally notify to the CoordiNet coordinator Marco Baron, without delay, any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.
Moreover, as the CoordiNet Core Consortium is going to be involved in the evaluation and selection process, it is necessary to ensure from the very beginning that this process remains as transparent and unbiased as possible. A clear violation of impartiality could arise from either legal or financial ties between any of the recipients and any of the members of the core consortium. Examples of such situation include (but are not limited to):

- Member of the core consortium (either institution or any of the persons involved in the implementation of the project) being shareholder of the applying institution
- Member of the core consortium (either institution or any of the persons involved in the implementation of the project) benefitting financially from success of an application
- Any employee of the applying entity being simultaneously an employee of any of the members of the core consortium.

In order to avoid such situations, the recipients will be required to state any relationships with the core consortium in the Template for Expression of interest. Reporting such relationships does not immediately mean exclusion from the call – each such case will be analyzed individually, and the decision will be included in the evaluation report. On the contrary, failure to report a potential Conflict of Interests in case any doubtful relationship is discovered will be automatically considered a disqualifying factor.

Please find below the list of Partner and linked third parties of the Coordinet Consortium:

1. **ENDESA DISTRIBUCION ELECTRICA S.L (EDE)**, established in CALLE RIBERA DEL LOIRA 60, MADRID 28042, Spain, VAT number: ESB82846817
   - Linked Third party**:** ENEL Global Infrastructure and Network Srl [and Enel Iberia]
2. **IBERDROLA DISTRIBUCION ELECTRICA, S.A. (IBERDROLA)**, established in AVENIDA SAN ADRIAN 48, BILBAO 48003, Spain, VAT number: ESA95075578,
3. **RED ELECTRICA DE ESPANA S.A.U. (REE)**, established in PASEO DEL CONDE DE LOS GAITANES 177, ALCOBENDAS - MADRID 28109, Spain, VAT number: ESA85309219,

4. **FUNDACION TECNALIA RESEARCH & INNOVATION (TECNALIA)**, established in PARQUE CIENTIFICO Y TECNOLOGICO DE GIPUZKOA PASEO MIKELETEGI 2, DONOSTIA SAN SEBASTIAN 20009, Spain, VAT number: ESG48975767,
5. **UNIVERSIDAD PONTIFICIA COMILLAS (COMILLAS)**, established in CALLE ALBERTO AGUILERA 23, MADRID 28015, Spain, VAT number: ESR2800395B,
6. **NUESTRA NUEVA ENERGIA SL (OUR NEW ENERGY)**, established in CALLE JOSE ANTONIO CANETE JUAREZ NUM 17 ESC 2 PLAN PUERTA 2, ELCHE ELX ALICANTE 03202, Spain, VAT number: ESB54964531,
7. **AYUNTAMIENTO DE MALAGA (MALAGA)**, established in AVENIDA CERVANTES 4, MALAGA 29016, Spain, VAT number: ESP2906700F,
8. **VATTENFALL ELDISTRIBUTION AB (VEL)**, established in RU 2560, STOCKHOLM 16992, Sweden, VAT number: SE556417080001,
   - Linked Third parties**:** Vattenfall AB, Gotlands Energi AB
9. **E ON ENERGIDISTRIBUTION AB (E.ON)**, established in NOBELVAGEN 66, MALMO 20509, Sweden, VAT number: SE556070606001,
   - Linked Third party**:** E.ON Energilösningar
10. **AFFARSVERKET SVENSKA KRAFTNAT (SVK)**, established in STUREGATAN 1, SUNDBYBERG 172 24, Sweden, VAT number: SE202100428401,
11. **UPPSALA KOMMUN (UPPSALA KOMMUN)**, established in UPPSALA KOMMUN, UPPSALA 753 75, Sweden, VAT number: SE212000300501,
12. **ENERGIFORSK AB (Energiforsk)**, established in OLOF PALMES GATA 31, STOCKHOLM 10153, Sweden, VAT number: SE556974211601,
13. **EXPEKTRA AB (Expektra AB)**, established in VENDEVAGEN 87, DANDERYD 182 32, Sweden, VAT number: SE556818029201,
14. **RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN (RWTH AACHEN)**, established in TEMPLERGRABEN 55, AACHEN 52062, Germany, VAT number: DE121689807,
15. **DIACHEIRISTIS ELLINIKOU DIKTYOU DIANOMIS ELEKTRIKIS ENERGEIAS AE (DEDDIE/HEDNO)**, established in PERRAIVOU 20 KALLIRROIS ODOS 5, ATHINA 11743, Greece, VAT number: EL094532827,
16. **INDEPENDENT POWER TRANSMISSION OPERATOR SA (IPTO or ADMIE)**, established in Dyrrachiou str. & Kifisou 89, ATHENS 10443, Greece, VAT number: EL099877486,
17. **INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS (ICCS)**, established in Patission Str. 42, ATHINA 10682, Greece, VAT number: EL090162593,
18. **VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V. (VITO)**, established in BOERETANG 200, MOL 2400, Belgium, VAT number: BE0244195916,
19. **N-SIDE (N SIDE)**, established in BOULEVARD BAUDOUIN 1ER 25, LOUVAIN-LA- NEUVE 1348, Belgium, VAT number: BE0472607061,
20. **ENGINEERING - INGEGNERIA INFORMATICA SPA (ENG)**, established in VIA SAN MARTINO DELLA BATTAGLIA 56, ROMA 00185, Italy, VAT number: IT05724831002,
21. **OFFIS EV (OFFIS EV)**, established in ESCHERWEG 2, OLDENBURG 26121, Germany, VAT number: E811582102,
22. **EUROPEAN DISTRIBUTION SYSTEM OPERATORS FOR SMART GRIDS (EDSO)**, established in RUE DE LA LOI 82, BRUXELLES 1040, Belgium, VAT number: BE0825054581,
    - Linked Third parties**:** Alliander, ČEZ Distribuce, Fluvius, E-distribuzione, Innogy, Netz Niederösterreich
23. **ETRA INVESTIGACION Y DESARROLLO SA (ETRAID)**, established in CALLE TRES FORQUES 147, VALENCIA 46014, Spain, VAT number: ESA46112041.

(DRAFT) GUIDE FOR EVALUATORS

CoordiNet Call for expressions of interest- Swedish Demo

Contents

Definitions

Instrument:	Type of CoordiNet third-party contract outlining the contributions a successful recipient can make to CoordiNet.
CoordiNet Project:	The CoordiNet Project is a response to the call LC-SC3-ES-5-2018-2020, entitled "TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale generation" of the Horizon 2020 programme. The CoordiNet Project aims at demonstrating how Distribution System Operators (DSO) and Transmission System Operators (TSO) shall act in a coordinated manner to procure and activate grid services in the most reliable and efficient way through the implementation of three large-scale demonstrations.
CoordiNet Consortium:	The CoordiNet Consortium is composed of 23 partners (Academia, TSOs, DSOs, industry, aggregators, service providers, municipalities) from 7 different European countries. https://coordinet-project.eu/partners/partners
Recipient:	Entity receiving financial support to third parties (cascade funding) from Horizon 2020 – The EU Framework Programme for Research and Innovation.
Project Steering Committee (SC):	The CoordiNet Project Steering Committee comprises two representatives from each demo and Marco Baron (the CoordiNet coordinator). The Steering Committee is involved in evaluation and selection process to ensure fit between the selected expressions of interest and overall goals of CoordiNet.
Expert Evaluator:	The expert, independent of the CoordiNet consortium and of any proposer, with the role of assessing the expressions of interest submitted in response to the CoordiNet Call for expressions of interest.

1. General Aspects

1.1. Why this Guide

This guide aims at supporting the evaluation of expressions of interest submitted to the **CoordiNet Call for expressions of interest - Swedish Demo** (hereinafter also "**Call for Swedish Demo**"). The evaluation process involves both external evaluator, hereafter called *Expert Evaluator*, and internal evaluators embodied in the CoordiNet Steering Committee (SC). This guide will help evaluators to assess expressions of interest, contribute to evaluation panels and draft evaluation reports.

Further information about CoordiNet vision, principles, adoption path and Instruments can be found in the Guide for Recipients, Section 1 and 2.

1.2. Evaluators Role

The underlying principles to bear in mind during evaluation are:

- **Excellence**: expression of interest must demonstrate a high level of quality in relation to the topics and criteria set out in the calls;
- **Transparency**: funding decisions must be based on clearly defined rules and procedures, and recipients should receive adequate feedback on the outcome of the evaluation;
- **Fairness and impartiality**: all expressions of interest must be treated equally and evaluated impartially on their merits, irrespective of their origin or the identity of the recipients;
- **Confidentiality**: all expressions of interest and related data, knowledge and documents must be treated in confidence;
- **Efficiency**: expressions of interest should be evaluated and grants awarded and administered as swiftly as possible, without compromising quality or breaking the rules.

1.3. Evaluator's Code of Conduct and Conflict of Interest

It should always be anticipated in the Call that entities being part of the CoordiNet Consortium ensure the impartial and objective implementation of the action and take all measures to prevent any situation resulting in a "conflict of interests" for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest. Therefore, the beneficiaries cannot apply.

As regards other entities who have some link (loose or not) to the beneficiary entities, these can apply to the call as long as the evaluation process (thus the evaluators) is completely independent and none of the above situations occurs and neither is the impartial and objective implementation of the action compromised. The exact procedure for avoiding such conflict is described in the Guide for Recipients of the CoordiNet Call for expressions of interest.

This impartiality will have to be demonstrated in the reports that the European Commission and the Project Officer (EC/PO) receives from the consortium describing the process and results of the calls that have taken place.

Both external expert (independent from the CoordiNet consortium and also without a conflict of interest with any of proposers) and internal experts (being employees of the members of the CoordiNet consortium but not having a conflict of interest with any of proposers) will be involved in the evaluation process and will have confirmed their independence and neutrality before.

It is important to notice, that all experts perform evaluations in their private capacity, not as representatives of their employer, their country or any other entity. They will sign a declaration of confidentiality concerning the contents of the expressions of interest they read and a declaration of absence of any conflict of interest. Both the confidentiality and the conflict of interest rules will follow the Code of Conduct set out in the Annex 1 of the H2020 Model Contract for experts:

(http://ec.europa.eu/research/participants/data/ref/h2020/experts_manual/h2020-experts-mono-contract_en.pdf).

In addition to a high level of competence, evaluators must not have any conflict of interests. A disqualifying conflict of interest exists even if an evaluator:

- Was involved in the preparation of the expression of interest;
- Could stand to benefit, or to be disadvantaged, as a direct result of the evaluation carried out;
- Has a close family relationship with any person representing a participating organization in the expression of interest;
- Is a director, trustee or partner of any beneficiary, participating in the expression of interest, or by a subcontractor/third party carrying out work for any beneficiary in the expression of interest concerned;
- Is employed by one of the beneficiary in the expression of interest concerned;
- Is in any other situation that comprises his/her ability to review the expression of interest impartially.
  Evaluators with disqualifying conflicts of interest cannot take part in the evaluation of expressions of interest. A potential conflict of interest may exist, even in cases not covered by the clear disqualifying conflicts indicated above, if any expert:
- Was employed by one of the participating organizations in a project expression of interest in the last three years,
- Is involved in a contract or research collaboration with a participating organization, or had been so in the previous three years
- Is in any other situation that could cast doubt on his/her ability to review the expression of interest impartially, or that could reasonably appear to do so in the eyes of an external third-party;

The above mentioned list of unlawful behavior is considered merely examples and are not limited.

Since there is a potential conflict of interest - or the appearance of a conflict – the involved Evaluators cannot evaluate expressions of interest where they have a potential conflict of interest. Also, they are excluded from the panel meeting.

2. Evaluation Process

In the CoordiNet Project, expressions of interest and individual contracts are awarded through different processes depending on the kind of Instrument. This section describes the different roles and workflow for this specific **CoordiNet Call for Swedish Demo**.

2.1. Who is Who

- **External Evaluator**: One expert, independent of the CoordiNet Consortium and of any proposer, with the role of assessing the expressions of interest submitted in response to the CoordiNet Call for expressions of interest.
- **Steering Committee (SC)**: The CoordiNet Project Steering Committee. It comprises two representatives from each demo and the the CoordiNet project coordinator (Marco Baron).

2.2. Workflow

The section below present the workflow of the evaluation and selection processes of the instrument of the CoordiNet Call for Swedish demo.

The Commission may contact the Coordinator to collect any document concerning the Cascading Funds mechanism, including expression of interests and evidence of the evaluation process.

Instrument: Flexibility Service Provider engagement for demo testing

The expressions of interest will be assigned to external evaluator who prepare the individual evaluation reviews based on the criteria described below (see Section 3.1.). An initial ranking will be created based on

scores assigned to each expressions of interest. Afterwards, the final decision is taken by the Steering Committee that analyses the ranking and reports and has a chance to vote on changing the initial ranking.

The summary report with the final ranking, signed by the Committee, will disclose the main strengths and weaknesses for each candidate; the reasons for rejection, if the case and the conclusions.

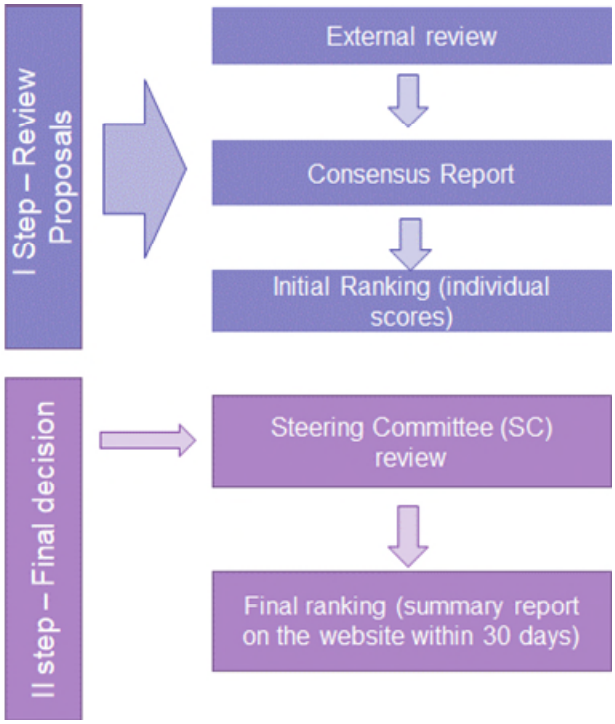

Figure 1. Evaluation workflow

3. Evaluation Criteria

The sections below present the evaluation criteria for the expressions of interest of the **CoordiNet Call for Swedish Demo**. The criteria reflect the expected impact of CoordiNet Project under those instruments.

3.1. Instrument: Flexibility Service Provider engagement for demo testing

Mandatory requirements for entry	Yes	No
➢ Type of Flexibility Service Provider: 1) Industry, 2) Energy storage, 3) Building, 4) Aggregator, 5) Heat producer, 6) Renewable power producer		
Mandatory requirements for entry	**Yes**	**No**
➢ Type of Company • Small and medium-sized enterprise (SMEs) • Start-up • Other		

➢ Pricing of bids between 0-5000 SEK/MWh?		
➢ Possibility to offer bids during relevant market horizons (information given by respective demonstration)?		
➢ Bid size > 0,1 MW (exception can be made for high innovation level, in CoordiNet non-tested technology used for flexibility service in line with European goal for sustainable energy system)		
➢ Geographical area: asset located within a market area		
➢ Agree to communication and cooperation activites and signing cooperation agreement		

Small and medium-sized enterprises (SMEs)[17] and Start-ups[18], as defined by EU Commission, will be considered with priority.

1. Requirements		**Table**
• Criteria for entry	Score minimum: 7/30 (*5/10 on Technical excellence)* & acceptance of all requirements	
2. Expected impact		
• Pricing of the bid	Score: 1-10	1
3. Technical excellence		
• Innovation degree	Score: 1-10	2
4. Implementation		
• How often and when will the participant send bids to the relevant market?	Score: 1-10	3
Remarks		
- Mandatory to sign cooperation agreement for demonstration - Communication activities agreed - Condition to table 2: Relevant market meaning availability at the market for which the actor intends to participate on.		
OVERALL SCORE:	*Score: ? / 30 (Threshold 7/30 on the total score and 5/10 on Technical excellence)*	

[17] SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003).

[18] A start-up is an independent, organisation, which is younger than five years and is aimed at creating, improving and expanding a scalable, innovative, technology-enabled product with high and rapid growth.

4. Evaluation Reports

4.1. Individual Evaluation Report (IER)

The Expert evaluator indicates if the expression of interest falls entirely outside of the scope of the part of the Swedish Demo that they are evaluating or involves ethical issues that will need further scrutiny. They evaluate each expression of interest considering the evaluation criteria in Section 3. For each criterion, Expert Evaluator give a **provisional score** between **1 and 10 points**, which are detailed in the following Tables and formulate a set of positive or negative **arguments**. Each argument should be described with two or three lines of text.

Table 1. Price of the bids

Points	SEK/MW
10	0-100
9	100-300
8	300-500
7	500-800
6	800-1000
5	1000-1400
4	1400-1800
3	1800-3000
2	3000-4000
1	>4000

Table 2. Technical excellence

Points	Innovation degree
10	High [does not exist on flexmarket today]
5	Middle [does exist but rare on flexmarket today]
1	Low [exists on the flexmarket today]
	Clear description

Table 3. Availability (Implementation)

Points	% of hours/market defined in may 2020
10	>80
9	70-79,9
8	60-69,9
7	50-59,9
6	40-49,9
5	30-39,9
4	20-29,9
3	10-19,9
2	5-9,9
1	0-4,9

The eligibility of expressions of interest follows the following two-step process:

i) Minimun score of 7/30 (with a threshold of 5/10 on *Technical excellence*)
ii) If more than 5 entities per FSP type score more than 7/30; it will be chosen the 5 entities with the highest score.

The criteria used to evaluate the expressions of interest will be the same as the ones used by the European Commission, namely **Expected Impact, Technical Excellence**, and **Implementation**:

- The **Expected Impact** considers the following aspects: the foreseen degree in which goals stated in the addressed challenge will be achieved, the potential to develop a ready-for-the-market solution and the potential key exploitation results of the proposed project.
- **Technical Excellence** evaluates adequacy of the technical solutions involved in the activities (Innovation degree).
- **Implementation** considers the adequacy between objectives and allocated resources, as well as the overall organization of the work.

4.2. Consensus Report (CR)

The consensus group discussion results in a Consensus Report (CR) drafted in written by the Expert Evaluator including justification of scores. This CR is the base document for the final decisions to be made. Moreover, the CR will be sent to the recipients whose expressions of interest are below threshold score. The Steering Committee will inform all the participants about the results of evaluation and selection. A public summary report will be published on the CoordiNet website within 30 days from the end of the selection.

5. Ethical issues

Research activities in Horizon 2020, and particularly in CoordiNet Project, should respect fundamental ethical principles, particularly those outlined in "The European Code of Conduct for Research Integrity" which may be consulted at https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf.

6. Redress procedure

Upon receiving the evaluation results the recipients have one week to start the redress procedure by sending complaint via the e-mail: XXX@CoordiNet.eu.

(DRAFT) TEMPLATE FOR EXPRESSION OF INTEREST – Swedish demo

CoordiNet Cascading Funds

Contents

1. General Aspects

Project acronym:	CoordiNet
Project Grant Agreement:	No. 824414
Project Full name	Large scale campaigns to demonstrate how TSO-DSO shall act in a coordinated manner to procure grid services in the most reliable and efficient way
Project web address:	https://coordinet-project.eu
Call title:	CoordiNet Call for Espression of Interest
Call indentifier:	CoordiNet – Swedish Demo
Call publication date:	11.05.2020
Template Submission Deadline:	11.08.2020, at 17:00 (Brussels time)
Template Submission e-mail address:	xxxxx@coordinet.eu
Expected duration:	November 2020-March 2022
Total Budget:	€ 213,000
Budget Share:	The budget will be split in the four demo sites according to this proposal: Skåne € 76.500 Uppland € 76.500 Gotland € 30.000 Västernorrland € 30.000

1.1. Description

The CoordiNet Innovation Action proposal aims to demonstrate how DSOs and TSOs shall act in a coordinated manner to procure grid services in the most reliable and efficient way through the implementation of three large scale "TSO-DSO-Consumer" demonstrations, in cooperation with market participants (and end users). The consortium will define or adapt, demonstrate and promote future standardized grid services and related market platforms to enable a seamless pan-European electricity market. The CoordiNet consortium under the coordination of ENDESA is composed of 23 beneficiaries and 10 linked third parties from 10 different European countries. It is supported by an Advisory Board and a Stakeholders' Forum to liaise with on-going projects in Europe and beyond. Three complete value chains of TSO-DSO-market participants constitute the backbone of the project in three demonstration macro-areas (Spain, Sweden, Greece) with ten demonstration pilots (four in Spain, four in Sweden and two in Greece) representing various boundary grid, climatic, load and generation conditions. Next to the demonstration campaigns, promising game-changer enabling technologies, such as IoT, Artificial Intelligence, Big data services, P2P energy trading platforms, Blockchain, Distributed ledger Technologies will be tested to explore alternative means to facilitate energy prosumers participation of small-scale energy consumers into the markets.

1.2. Swedish Demo

The objective of the Swedish demonstration Northern Lights lies in relieving the existing and growing large scale network constraints in the regional DSO grid and DSO/TSO interfaces, allowing for the ongoing integration of RES, urbanization and industrialization. This will be achieved by establishing innovative local markets for ancillary services, and through ground breaking use of P2P-markets for customer self-managed capacity optimization. Implementing these new markets in an efficient manner, will be achieved by ensuring an improved cooperation between the DSO and the TSO through finding a suitable coordination scheme, necessary market tools and a thorough understanding of both customer and grid operator user conditions. In general, there is a great need for flexibility on a national basis as forecasted by the Swedish TSO Svenska Kraftnät, in regard to the risk for power shortages due to network congestion on the Swedish transmission network. However locally there are much more urgent requirements for flexibility provided by customers, aggregators and generators, which is the background and reasoning for conducting the Northern Lights demo at four different sites, Malmö City, Uppsala City, the island of Gotland and rural north of Sweden, where flexibility solutions presently are required to alleviate network congestions and avoid power shortages. Since there are much different conditions locally, each of the four sites will require a separate solution that combined will provide an advantageous solution toolbox for the benefit of other TSOs and DSOs in the EU facing similar situations. The Northern Lights will demonstrate a new, local market to complement existing central markets for ancillary services. The end result will be a more holistic approach to reaching market equilibrium by also taking regional constraints into account as a pricing factor.

2. Cascading Funds

Instrument: Flexibility Service Provider engagement for demo testing

From May 2020, the COORDINET consortium has published the call for expression of the interest (within the mechanism of cascading funds) with the aim of to involve in the Swedish Demo some Flexibility Service Providers that offer different type of flexibility resources in order to test a new local market for ancillary services able to alleviate network congestions and avoid power shortages. A Flexibility Service Provider (FSP) is the owner or the representative of large-scale or small-scale assets, which are connected to the electricity network and which can provide energy services for TSOs and/or DSOs. CoordiNet wants to take them on board in order to push innovation and strengthen the CoordiNet community. As a precondition of his involvement, the recipient must be ready not to work in isolation but achieve the targeted results in co-operation with other members of the CoordiNet Community.

Small and medium-sized enterprises (SMEs) and Start-ups, as defined by EU Commission, will be considered with priority.

The type of Flexibility Service Providers requested for the demo testing are:

1) Industry,
2) Energy storage,
3) Building,
4) Aggregator,
5) Heat producer,
6) Renewable power producer

To this aim, the company _____expressed its interest to join the call for Swedish Demo.

Text in red represents comments and should be deleted in your submission. Page limits refer to this text style in word: Times New Roman 11 pt font, Line spacing 1.15 lines, 0pt after, Standard A4 page size and margins

B. Please describe your company in general terms	
Name of the company	*Insert the text*
Address of the company	*Insert the address*
Registered number to the local chamber of commerce (VAT Number)	*Insert the number*
Name of the legal representative	*Name, surname and role*
Website of the company	*Website address*
Contact person	*Name, Surname, email address and telephone number*
Research participant portal PIC number (if any) :	

C. More details
Please refer to type of generation or consumption unit / type of aggregation
Insert the text
Please describe how your company will provide the requested services (qualitative description, max 20 lines)
Insert the text

Please describe previous experiences (main projects in the field etc. max 10 lines)
Insert text
Conflict of interest with partners end/or third parties of the Coordinet Consortium
As legal represent of the company _____ , I confirm that I fully understood the indications defined in the Guide of recipients and that there isn't any potential conflict of interest with partners end/or third parties of the Coordinet Consortium. *[Otherwise please disclose the potential conflict of interest with partners end/or third parties of the Coordinet Consortium]*
Notes
Insert text

3. Requirements and flexibility services provided

The evaluation criteria applying to the this section can be found in the Guide for Evaluators

3.1. Mandatory requirements for entry

	Yes	**No**
➢ **Type of Flexibility Service Provider:** **1) Industry,** **2) Energy storage,** **3) Building,** **4) Aggregator,** **5) Heat producer,** **6) Renewable power producer**		

	Yes	No
➢ Type of Company: • Small and medium-sized enterprise (SMEs)[19] • Start-up[20] • Other		
➢ Pricing of bids between 0-5000 SEK/MWh?		
➢ Possibility to offer bids during relevant market horizons (information given by respective demonstration)?		
➢ Bid size > 0,5 MW (for innovation > 0,1 MW) (exception can be made for high innovation level, in CoordiNet non-tested technology used for flexibility service in line with European goal for sustainable energy system)		
➢ Geographical area: asset located within a market area		
➢ Agree to communication and cooperation activities and signing cooperation agreement		

3.2. Flexibility Services Provided

Expected impact: Pricing of the bid (€/MW)
Technical excellence: Innovation degree
Implementation: How often and when will the participant send bids to the relevant market?
Total Budget

[19] SMEs are defined by the European Commission as having less than 250 persons employed. They should also have an annual turnover of up to EUR 50 million, or a balance sheet total of no more than EUR 43 million (Commission Recommendation of 6 May 2003).

[20] A start-up is an independent, organisation, which is younger than five years and is aimed at creating, improving and expanding a scalable, innovative, technology-enabled product with high and rapid growth.