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Abstract:

This document reports the work performed within Tasks 14.1 "Analysis of the Demo sites technical data" and Task 15.1 "Demonstration activities planning". In this document it is possible to find information about how the deployment and demonstration of the WiseGRID tools are expected to be performed in the different Pilot Sites taking into account the current and future available infrastructure.

Keywords:

Pilot Sites, Testing, Demonstration, Deployment, Planning, Infrastructure, Use Case, Tool

Revision History

Revision	Date	Description	Author (Organisation)
V0.0	01.03.2018	New document	ETRA
V0.1	01.05.2018	First round of contributions	ETRA, ENER, AEA, HEDNO, ECO, ASM, PARTA, EMOT
V0.2	15.05.2018	Second round of contributions	ETRA, ICCS
V0.3	30.05.2018	Version ready for peer review	ETRA
V0.4	07.06.2018	Integration of feedback received	ETRA, ECO, HEDNO
V1.0	10.06.2018	Final refinement and ready for submission	ETRA

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EXECUTIVE SUMMARY

As explained in previous deliverables, WiseGRID will provide a set of 9 technological solutions which will aid to the widespread of the Smart Grids in Europe. It is necessary to understand the functionalities and the behaviour of all the tools in order to have an overview of which kind of Use Cases can be tested.

- **WG IOP:** It is a scalable, secure and open ICT platform, with interoperable interfaces, for real-time monitoring and decentralized control to support effective operation of the energy network.
- **WG Cockpit:** It is the WiseGRID technological product targeting DSOs and micro grid operators, allowing them to control, manage and monitor their own network, using flexibility to improve stability and security of their network.
- **WiseCORP:** It is the solution targeting businesses, industries, ESCOs and public facility consumers and prosumers, with the objective of providing them with the necessary mechanisms to become smarter energy players.
- **WiseCOOP:** It is the WiseGRID technological solution targeting aggregators of consumers and prosumers - particularly focused on domestic and small businesses.
- **WiseHOME:** It is the tool of the WiseGRID framework that serves as the interface with the residential electricity consumer or prosumer.
- **WiseEVP:** It is the WiseGRID technological solution for vehicle-sharing companies or EV fleet managers and EVSE infrastructure operators.
- **WG FastV2G:** It is an innovative charging station that allows feeding electricity back into the grid from the EV battery.
- **WG STaaS/VPP:** It is the technological solution targeting aggregators with a portfolio based on distributed generation and storage assets.
- **WG RESCO:** This tool aims at supporting the RESCOs to manage the relationship with their customers and the provision of energy from renewable energy sources to consumers (households/businesses) not owning nor maintaining the respective equipment.

All these tools will be tested (following different scenarios or Use Cases) in the 5 Pilot Sites of WiseGRID. Each Pilot Site, according to their own characteristics, current infrastructure, needs and preferences have declared their intention of which tools will be tested in their premises. These choices can be seen in the following table. As the WG IOP is mandatory in order to assure the communication between all the tools and will be actually used in all the testing scenarios, it is out of this table.

Table 1 – Tools to be tested in each Pilot Site

	WiseCORP	WiseHOME	WiseEVP	WG FAST V2G	WG STAAS/VPP	WG COCKPIT	WG RESCO	WiseCOOP
Crevillent	X	X	X	X		X		X
Terni	X		X		X	X	X	
Flanders	X	X	X		X		X	X
Mesogia	X	X				X		X
Kythnos	X		X		X	X		

In order to better deploy the WiseGRID products in the respective demo sites, a planning and timeline has been created. The timeline follows the basic milestones of the WiseGRID project. These demonstration activities have been divided into three different stages:

Integrated Lab-Testing activities

It is a task that mainly refers to the tool developers of the consortium and its main scope is to test and evaluate the performance and interoperability of the WiseGRID tools in an integrated laboratory environment, as well as to refine them so as to be ready for the final deployment period.

Preliminary Deployment

The scope of this activity is, on the one hand, to give a feedback to the tool developers for the performance of the deployed tools at real world conditions and on the other hand, to activate the Pilot Sites so as to prepare their infrastructure before the final deployment.

Final Deployment

Both the Pilot Site leaders and the tool developers with the experience gained from the preliminary deployment will deploy and evaluate the operation of all the WG tools (as agreed per Pilot Site) with final goal the preparation for the demonstration activities that follow.

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

The present document aims to describe and explain the results acquired from the Tasks 14.1 “Analysis of the Demo sites technical data” and 15.1” Demonstration activities planning”. These tasks mainly deal with the description of the current infrastructure available in the Pilot Sites for WiseGRID purposes. In addition, it includes a planning for the deployment of the different WiseGRID tools taking into account which scenarios will be tested in the respective Pilot Sites.

1.2 SCOPE OF THE DOCUMENT

The extent of this deliverable is focused on the current infrastructure, characteristics, needs and preferences of the Pilot Sites that will be involved in the demonstration of the WiseGRID tools. The work performed in this deliverable has included the Pilot Sites as the core of all the sections in order to maximize the impact of the tools.

This deliverable will serve as a starting point for the wholes WP14 “Integration and deployment of WiseGRID ecosystem” and WP15 “Large scale demonstration activities of the integrated WiseGRID ecosystem” providing the guidelines that will aid to the entire demonstration phase of the project.

1.3 STRUCTURE OF THE DOCUMENT

Apart from this introductory section, the current document is structured as follows:

Firstly, the 9 technological tools that WiseGRID is developing are explained. This part is the basis for the understanding of the Use cases (already defined in D2.1 “WiseGRID requirements, use cases and Pilot Sites analysis”) that will be tested in each Pilot Site according to their preferences and characteristics.

Following that section, the document shows the different systems and devices already available in the Pilot Sites that will help the reader to understand in which conditions the tools will be deployed.

Next to that, the requirements of extra infrastructure are explained in order to show which are the currently missing systems for the optimal deployment of the tools.

Having in mind the previous information, the document also explains the expected planning and timeline for the most suitable deployment and demonstration of the tools.

Finally, the document ends with a brief summary and the exposition of the main conclusions that can be extracted from the whole document.

2 DESCRIPTION OF THE WISEGRID TOOLS AND USE CASES TO BE TESTED IN EACH PILOT SITE

As explained in previous deliverables, WiseGRID will provide a set of 9 technological solutions which will aid to the widespread of the Smart Grids in Europe. It is necessary to understand the functionalities and the behaviour of all the tools in order to have an overview of which kind of Use Cases can be tested.

2.1 WISEGRID TOOLS

2.1.1 WG IOP

The WiseGRID Interoperable Platform (WG IOP) is a scalable, secure and open ICT platform, with interoperable interfaces, for real-time monitoring and decentralized control to support effective operation of the energy network. The objective of the platform is to manage and process the heterogeneous and massive data streams coming from the distributed energy infrastructure deployed, acting as a platform for the intercommunication of the other WiseGRID tools. This platform will enable new services and reduce ICT costs for prosumers and smaller players, whilst it will facilitate cross-network and cross-entity interoperability.

It is possible to find further information of this tool in D4.2 “WiseGRID interoperable Integrated Process (WG IOP)”.

2.1.2 WG Cockpit

WG Cockpit is the WiseGRID technological product targeting DSOs and micro grid operators, allowing them to control, manage and monitor their own network, using flexibility to improve stability and security of their network.

The main purpose of the WG Cockpit is to enable grid operators to manage the fundamental changes that distribution grids are facing nowadays, some remarkable ones of those being the transition towards a grid with high penetration of distributed renewable energy resources and the presence of additional significant loads coming from EVs among others. In addition, this particular outcome of the project aims at approaching the benefits that new technologies (such as big data or unbundled smart meters) and algorithms (such as state estimation or fault detection) bring to the operation of the grid. Finally, since one of the objectives of the project is the empowerment of the citizens in the energy field, the WG Cockpit will also demonstrate how that empowerment can be beneficial for several actors – including DSOs -, and how the whole ecosystem of actors can contribute to reach an environmentally and economically sustainable energy system.

It is possible to find further information of this tool in D13.1 “WiseGRID Cockpit Design”.

2.1.3 WiseCORP

WiseCORP is the WiseGRID technological solution targeting businesses, industries, ESCOs and public facility consumers and prosumers, with the objective of providing them with the necessary mechanisms to become smarter energy players. By means of energy usage monitoring and analysis, proper information can be given to facility managers helping them to reduce energy costs and environmental impact.

A key factor towards achieving these objectives is the proper retrieval and analysis of energy usage data, and the visualization of meaningful information extracted from it.

It is possible to find further information of this tool in D7.1 “WiseCOOP and WiseCORP Apps Design”.

2.1.4 WiseCOOP

WiseCOOP is the WiseGRID technological solution targeting aggregators of consumers and prosumers - particularly focused on domestic and small businesses -, supporting them in their roles of energy retailers, local communities and cooperatives – which may have different objectives. The main goal of this solution is helping consumers and prosumers work together in order to achieve better energy deals while relieving them from administrative procedures and cumbersome research.

This tool will be the core of the WiseGRID Demand Response Framework and the back-end of the WiseHOME tool.

It is possible to find further information of this tool in D7.1 “WiseCOOP and WiseCORP Apps Design”.

2.1.5 WiseHOME

The WiseHOME app is the tool of the WiseGRID framework that serves as the interface with the residential electricity consumer or prosumer. Its initial goal is to provide a deep and comprehensive understanding of the energy consumption of the household to the user, in order to raise awareness about how energy is consumed, e.g. its time profile, what is the impact on total electricity intake from the grid, etc. In addition to this, WiseHOME will also inform the user about the state and performance of other assets he may have in the home, such as local generation, stationary batteries or EVs for instance.

It is possible to find further information of this tool in D11.1 “WiseHOME App Design”.

2.1.6 WiseEVP

WiseEVP is the WiseGRID technological solution for vehicle-sharing companies or EV fleet managers and EVSE (Electric Vehicle Supply Equipment) infrastructure operators in order to allow them to optimize the activities related with smart charging and discharging of the EVs including V2G (vehicle to grid, energy injection in the distribution network) and V2B (vehicle to building). Moreover, the EV companies will have an overview of the current status of their EV fleet and Charging Stations.

It is possible to find further information of this tool in D9.1 “WiseEVP Design”.

2.1.7 WG Fast V2G

WiseGRID FastV2G is an EVSE (Electric Vehicle Supply Equipment) which is able to:

- Perform a fast DC charging session.
- Inject electricity from the EV’s battery to the network (V2G functionality).
- Perform a dynamic charging session (power modulation) in both directions: G2V and V2G.
- Receive “charging orders” from a hierarchically superior component.
- Send performance information to a hierarchically superior component.

The main objective of FastV2G is to provide auxiliary services to help in the distribution network operation and to maximize renewable resources integration, by providing:

- regulation services,
- spinning reserves,
- peak-shaving capacity in order to flatten out the demand curve.

It is possible to find further information of this tool in D8.2 “WiseGRID FastV2G and other optimized storage solutions”.

2.1.8 WG STaaS/VPP

WG StaaS/VPP is the WiseGRID technological solution targeting aggregators with a portfolio based on distributed generation and storage assets. The main goal of this tool is to help consumers and prosumers (be them households or corporates) to be aggregated and offer to the market their unused storage capacity as well as spare generation in the form of a VPP.

It is possible to find further information of this tool in D6.2 “Storage as a service and Innovative optimized solutions”.

2.1.9 WG RESCO

This tool aims at supporting the RESCOs to manage the relationship with their customers and the provision of energy from renewable energy sources to consumers (households/businesses) not owning nor maintaining the respective equipment. Since the generation equipment will be owned, serviced and operated by the RESCO itself, the tool will also support the maintenance management of those assets and the provision of the produced energy to the market. The Final goal is to increase the share of renewable distributed resources by supporting a business model which will encourage the wide adoption of those technologies.

It is possible to find further information of this tool in D12.2 “RESCO services and Advanced models for smartening the distribution grid”.

2.2 TOOLS AND USE CASES TO BE TESTED IN EACH PILOT SITE

2.2.1 Tools

During the last months, the Pilot Site leaders completed the final list of the WiseGRID tools which will be tested in their respective Pilot Sites. These tools are coherent according to their business strategy, current infrastructure and future development plans. In Table 2, the tools to be deployed in each Pilot Site are shown. As the WG IOP is mandatory in order to assure the communication between all the tools, it is out of this table.

Table 2 – Tools to be tested in each Pilot Site

	WiseCORP	WiseHOME	WiseEVP	WG FAST V2G	WG STAAS/VPP	WG COCKPIT	WG RESCO	WiseCOOP
Crevillent	X	X	X	X		X		X
Terni	X		X		X	X	X	
Flanders	X	X	X		X		X	X
Mesogia	X	X				X		X
Kythnos	X		X		X	X		

All the WiseGRID tools (except WG FastV2G) will be widely covered by at least 2 different Pilot Sites and the project will have the opportunity to properly assess the performance of each tool.

In Section 3, it is possible to see the systems and technologies already available in each Pilot Site in order to facilitate the deployment and testing of the abovementioned tools.

2.2.2 Use Cases

In the context of the WP2 “WiseGRID Use cases, requirements and KPIs definition”, there was defined a list of Primary (PUC) and Secondary (SUC) Use Cases to be tested in the demonstration phase of the project. At that step, the Pilot Sites ranked their interest on testing each PUC and SUC. However, at this stage, the Pilot Sites have been more specific in declaring their intention for testing the Use Cases. In the final list, which can be seen in the following figures, there are 6 SUCs (from the initial total number of 102) and 1 PUC (from the initial total number of 27) that finally will not be tested in WiseGRID (indicated in red). As the amount of Use Cases rejected is almost negligible and none of them was listed as of “High Priority”, this will not affect the final results of the project.

This Use Cases’ list is coherent with the tools which will be tested in each Pilot Site, as indicated in Section 2.2.1.

	WiseGRID USE CASES INVENTORY	UC priority	PILOT SITES IMPLEMENTATION				
			ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 1 DISTRIBUTED RES INTEGRATION IN THE GRID (CRE)						
1	**HL-UC 1_PUC_1_Network monitoring**	**High**	Y	N	Y	Y	Y
2	HL-UC 1_SUC_1.1_Data collection from the RES and critical network sections	High	Y	N	Y	Y	Y
3	HL-UC 1_SUC_1.2_Forecast of RES production, consumption and of total power flow in critical sections	High	Y	N	Y	Y	Y
4	HL-UC 1_SUC_1.3_KPI management	High	Y	N	Y	Y	Y
5	HL-UC 1_SUC_1.4_Big data storage analysis	High	Y	N	Y	Y	Y
6	**HL-UC 1_PUC_2_Control strategies for reducing RES curtailment**	**High**	Y	N	Y	Y	Y
7	HL-UC 1_SUC_2.1_Reduce RES curtailment by encouraging neighbourhood transactions and real-time consumption	High	Y	N	Y	Y	N
8	HL-UC 1_SUC_2.2_Reduce RES curtailment by using grid storage distributed means	High	N	N	Y	N	Y
9	HL-UC 1_SUC_2.3_Providing DSO curtailment warnings service to allow RES strategies	High	Y	N	Y	Y	Y
10	HL-UC 1_SUC_2.4_Methods for reducing RES curtailment in island mode	Low	Y	N	Y	N	N
11	**HL-UC 1_PUC_3_Voltage support and congestion management**	**High**	Y	N	Y	Y	N
12	HL-UC 1_SUC_3.1_Provide local U control through P-Q flexibility of RES inverters (Centralized)	High	Y	N	Y	MAYBE	N
13	HL-UC 1_SUC_3.2_Provide local U control through P-Q flexibility of RES inverters (Decentralized)	Medium	Y	N	Y	MAYBE	N
14	HL-UC 1_SUC_3.3_Improve voltage symmetry between the phases	Low	Y	N	Y	N	N
15	**HL-UC 1_PUC_4_Grid planning analysis**	**Low**	Y	N	Y	N	N
16	HL-UC 1_SUC_4.1_EV charge points planning analysis	Low	Y	N	Y	N	N
17	HL-UC 1_SUC_4.2_Grid storage planning analysis	Low	Y	N	Y	N	N
18	**HL-UC 1_PUC_5_Promote RES via RESCO companies**	**Medium**	Y	Y	Y	N	N
19	HL-UC 1_SUC_5.1_RESCO asset inventory, control and maintenance	Medium	Y	Y	Y	N	N
20	HL-UC 1_SUC_5.2_Monitor domestic RES production	Medium	Y	Y	Y	N	N
21	HL-UC 1_SUC_5.3_Monitor domestic clients consumption	Medium	Y	Y	Y	N	N
22	HL-UC 1_SUC_5.4_Manage energy selling	Medium	Y	Y	Y	N	N
23	HL-UC 1_SUC_5.5_Energy cost management	Medium	Y	Y	Y	N	N

Figure 1 – HL-UC 1

	WiseGRID USE CASES INVENTORY	Main responsible partner	UC priority	PILOT SITES IMPLEMENTATION				
				ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 2 DECENTRALIZED GRID CONTROL AUTOMATION (ICCS)							
24	**HL-UC 2_PUC_1_Distribution network real-time monitoring**	**ETRA**	**High**	Y	N	Y	Y	Y
25	HL-UC 2_SUC_1.1_Monitoring grid through Unbundled Smart Meters	**ETRA**	High	Y	N	Y	Y	N
26	HL-UC 2_SUC_1.2_Data concentration	**ETRA**	High	Y	N	Y	Y	N
27	HL-UC 2_SUC_1.3_Monitoring power quality in the grid	**ETRA**	High	Y	N	Y	Y	Y
28	HL-UC 2_SUC_1.4_Fault detection and identification	**ETRA**	High	Y	N	Y	Y	N
29	HL-UC 2_SUC_1.5_Asset management	**ETRA**	High	Y	N	Y	Y	Y
30	**HL-UC 2_PUC_2_Real-time distribution system awareness**	**ICCS**	**High**	Y	N	Y	Y	Y
31	HL-UC 2_SUC_2.1_RES and load forecasting	**ICCS**	High	Y	N	Y	Y	Y
32	HL-UC 2_SUC_2.2_Topology processor	**ICCS**	Medium	Y	N	Y	Y	Y
33	HL-UC 2_SUC_2.3_Network observability analysis	**ICCS**	High	Y	N	Y	Y	Y
34	HL-UC 2_SUC_2.4_Load flow calculation	**ICCS**	High	Y	N	Y	Y	Y
35	HL-UC 2_SUC_2.5_State estimation	**ICCS**	High	Y	N	Y	Y	Y
36	HL-UC 2_SUC_2.6_Bad data detection, identification and replacement	**ICCS**	High	Y	N	Y	Y	Y
37	**HL-UC 2_PUC_3_Grid control**	**ICCS**	**High**	Y	N	Y	Y	Y
38	HL-UC 2_SUC_3.1_Load control	**ICCS**	High	Y	N	Y	Y	Y
39	HL-UC 2_SUC_3.2_DR as a service to the grid	**ICCS**	High	Y	N	Y	Y	Y
40	HL-UC 2_SUC_3.3_Optimization algorithm	**ICCS**	High	Y	N	Y	Y	Y
41	HL-UC 2_SUC_3.4_Reconfiguration	**ICCS**	Medium	Y	N	Y	Y	N
42	HL-UC 2_SUC_3.5_Islanding procedures for the local grid	**ICCS**	Low	Y	N	Y	N	N
43	HL-UC 2_SUC_3.6_Cold ironing	**ICCS**	Medium	N	N	N	N	Y (Simulation)

Figure 2 – HL-UC 2

	WiseGRID USE CASES INVENTORY	UC priority	PILOT SITES IMPLEMENTATION				
			ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 3 e-MOBILITY INTEGRATION IN THE GRID WITH V2G (ITE)						
44	**HL-UC 3_PUC_1_EVSE and EV fleet monitoring**	**High**	Y	Y	Y	N	Y
45	HL-UC 3_SUC_1.1_Data collection from EVSE	High	Y	Y	Y	N	Y
46	HL-UC 3_SUC_1.2_Data collection from EVs	High	Y	Y	Y	N	Y
47	**HL-UC 3_PUC_2_Interaction of the user with EVSE**	**Medium**	Y	Y	Y	N	Y
48	HL-UC 3_SUC_2.1_Users' authentication	Medium	Y	Y	Y	N	Y
49	HL-UC 3_SUC_2.2_Charging session request	Medium	Y	N	Y	N	Y
50	HL-UC 3_SUC_2.3_Charging session booking	Medium	Y	N	Y	N	Y
51	**HL-UC 3_PUC_3_EV charging management**	**Medium**	Y	Y	Y	N	Y
52	HL-UC 3_SUC_3.1_EVSE network configuration	Medium	Y	Y	Y	N	Y
53	HL-UC 3_SUC_3.2_EV load forecasting	Medium	Y	Y	Y	N	Y
54	HL-UC 3_SUC_3.3_EV flexibility estimation	Medium	Y	N	Y	N	Y
55	HL-UC 3_SUC_3.4_Reference charging load profile calculation	Medium	Y	Y	Y	N	Y
56	HL-UC 3_SUC_3.5_Charging session schedule	High	Y	Y	Y	N	Y
57	**HL-UC 3_PUC_4_Interaction with the energy infrastructure**	**Medium**	Y	N	Y	N	Y
58	HL-UC 3_SUC_4.1_Charging reschedule to follow grid requests	Medium	Y	N	Y	N	Y
59	HL-UC 3_SUC_4.2_Charging reschedule to maximise RES integration	High	Y	N	Y	N	N
60	HL-UC 3_SUC_4.3_EV providing V2H services	Medium	Y	N	Y	N	N

Figure 3 – HL-UC 3

	WiseGRID USE CASES INVENTORY	UC priority	PILOT SITES IMPLEMENTATION				
			ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 4 BATTERY STORAGE INTEGRATION AT SUBSTATION AND PROSUMER LEVEL (AMP / VS)						
61	**HL-UC 4_PUC_1_Batteries management at prosumer level**	**High**	N	Y	Y	N	Y
62	HL-UC 4_SUC_1.1_Increase of self-consumption	High	N	Y	Y	N	Y
63	HL-UC 4_SUC_1.2_Time-of-use management	Medium	N	Y	Y	N	Y
64	HL-UC 4_SUC_1.3_Peak Shaving	Medium	N	Y	Y	N	Y
65	**HL-UC 4_PUC_2_Batteries management at aggregator level (grid support)**	**Medium**	N	Y	N	N	Y
66	HL-UC 4_SUC_2.1_Batteries dispatch management	High	N	Y	N	N	Y
67	HL-UC 4_SUC_2.2_Black start capabilities	Low	N	Y	N	N	N
68	HL-UC 4_SUC_2.3_Power management for peak-shaving and load harmonization	Medium	N	Y	N	N	N
69	HL-UC 4_SUC_2.4_Backup power for residential area	Low	N	N	N	N	N
70	**HL-UC 4_PUC_3_Ancillary services**	**Medium**	N	Y	Y	N	Y
71	HL-UC 4_SUC_3.1_Market scheduling	High	N	Y	Y	N	Y
72	HL-UC 4_SUC_3.2_Combination of applications/services in the same storage system	Medium	N	Y	Y	N	Y
73	HL-UC 4_SUC_3.3_Batteries automatic dispatch	Medium	N	Y	Y	N	Y
74	**HL-UC 4_PUC_4_Combination of battery storage systems**	**Medium**	N	Y	N	N	Y
75	HL-UC 4_SUC_4.1_Parameter configuration of storage systems	Medium	N	Y	N	N	Y
76	HL-UC 4_SUC_4.2_Priority list of units running	Medium	N	Y	N	N	Y

Figure 4 – HL-UC 4

	WiseGRID USE CASES INVENTORY	UC priority	PILOT SITES IMPLEMENTATION				
			ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 5 COGENERATION INTEGRATION IN PUBLIC BUILDINGS/HOUSING (ICCS / EPA)						
77	**HL-UC 5_PUC_1_Thermal monitoring**	**Medium**	N	N	N	Y	N
78	HL-UC 5_SUC_1.1_Monitoring gas meters	Low	N	N	N	Y	N
79	HL-UC 5_SUC_1.2_Monitoring CHP	Medium	N	N	N	Y	N
80	HL-UC 5_SUC_1.3_Monitoring buildings	Medium	N	N	N	N	N
81	**HL-UC 5_PUC_2_Cogeneration and HVAC management**	**Medium**	N	N	N	Y	N
82	HL-UC 5_SUC_2.1_Forecasting thermal needs	Medium	N	N	N	Y	N
83	HL-UC 5_SUC_2.2_Real time control set-points	Medium	N	N	N	Y	N
84	HL-UC 5_SUC_2.3_Control devices	Medium	N	N	N	Y	N
85	HL-UC 5_SUC_2.4_Alarm management	Medium	N	N	N	Y	N
86	**HL-UC 5_PUC_3_Comfort-based demand flexibility models**	**Medium**	N	N	N	Y	N
87	HL-UC 5_SUC_3.1_Thermal model of households	Medium	N	N	N	N	N
88	HL-UC 5_SUC_3.2_Thermal model of building	Medium	N	N	N	Y	N
89	HL-UC 5_SUC_3.3_Thermal flexibility modeling	Medium	N	N	N	Y	N
90	**HL-UC 5_PUC_4_Cogeneration and HVAC optimisation**	**Medium**	N	N	N	N	N
91	HL-UC 5_SUC_4.1_VPP participation	Low	N	N	N	N	N
92	HL-UC 5_SUC_4.2_Provision of ancillary services	Medium	N	N	N	N	N
93	HL-UC 5_SUC_4.3_System optimisation	Medium	N	N	N	N	N

Figure 5 – HL-UC 5

	WiseGRID USE CASES INVENTORY	UC priority	PILOT SITES IMPLEMENTATION				
			ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 6 VPP TECHNICAL AND ECONOMIC FEASIBILITY (ENG)						
94	**HL-UC 6_PUC_1_VPP monitoring and management**	**High**	N	Y	Y	N	N
95	HL-UC 6_SUC_1.1_Resource metering	High	N	Y	Y	N	N
96	HL-UC 6_SUC_1.2_VPP RES forecast	High	N	Y	Y	N	N
97	HL-UC 6_SUC_1.3_VPP flexibility forecast	High	N	Y	Y	N	N
98	HL-UC 6_SUC_1.4_Strategies definition	Medium	N	Y	Y	N	N
99	**HL-UC 6_PUC_2_VPP market participation**	**Medium**	N	Y	Y	N	N
100	HL-UC 6_SUC_2.1_VPP market participation and bid calculation	Medium	N	Y	Y	N	N
101	HL-UC 6_SUC_2.2_VPP ancillary market participation and bid calculation	Medium	N	Y	Y	N	N
102	HL-UC 6_SUC_2.3_VPP unit scheduling	Medium	N	Y	Y	N	N
103	**HL-UC 6_PUC_3_VPP Real time control**	**High**	N	Y	Y	N	Y
104	HL-UC 6_SUC_3.1_Real time flexibility calculation	Medium	N	Y	Y	N	Y
105	HL-UC 6_SUC_3.2_VPP implementation of ancillary services	Medium	N	Y	Y	N	Y
106	HL-UC 6_SUC_3.3_Real time decision making	High	N	Y	Y	N	Y
107	**HL-UC 6_PUC_4_VPP users relationship management**	**Low**	N	Y	Y	N	N
108	HL-UC 6_SUC_4.1_Manage contractual issues	Low	N	Y	Y	N	N
109	HL-UC 6_SUC_4.2_Define and manage member compensation	Low	N	Y	Y	N	N
110	HL-UC 6_SUC_4.3_DSM and DR mechanisms	High	N	Y	Y	N	N

Figure 6 – HL-UC 6

	WiseGRID USE CASES INVENTORY	UC priority	PILOT SITES IMPLEMENTATION				
			ENER (Creville	ECO (Ghent)	ASM (Terni)	HEDNO (Mesogia)	AEA (Kythnos)
	HL-UC 7 CITIZENS EMPOWERMENT IN ENERGY MARKET AND REDUCTION OF ENERGY POVERTY (HYP)						
111	**HL-UC 7_PUC_1_Dynamic management of demand side assets in tertiary sector**	**High**	Y	Y	Y	Y	Y
112	HL-UC 7_SUC_1.1_Monitor energy demand	High	Y	Y	Y	Y	Y
113	HL-UC 7_SUC_1.2_Enriched information visualization	High	Y	Y	Y	Y	N
114	HL-UC 7_SUC_1.3_Integration with DR mechanisms	High	Y	Y	Y	MAYBE	Y
115	HL-UC 7_SUC_1.4_Net metering & self consumption	Medium	Y	Y	Y	N	N
116	HL-UC 7_SUC_1.5_Energy cost management for large infrastructures	Medium	Y	Y	Y	SIMULATION	N
117	**HL-UC 7_PUC_2_Dynamic aggregation of distributed energy assets and active participation into energy market**	**High**	Y	Y	N	Y	N
118	HL-UC 7_SUC_2.1_Enriched information visualization	High	Y	Y	N	Y	N
119	HL-UC 7_SUC_2.2_Portfolio profiling & analytics	High	Y	Y	N	Y	N
120	HL-UC 7_SUC_2.3_Portfolio demand forecasting for wholesale energy trading	High	Y	Y	N	Y	N
121	HL-UC 7_SUC_2.4_Billing services	Medium	Y	Y	N	Y	N
122	HL-UC 7_SUC_2.5_Energy cost management and optimization	Medium	Y	Y	N	Y	N
123	HL-UC 7_SUC_2.6_Automated DSM strategies activation through direct load control	Medium	N	Y	N	Y	N
124	HL-UC 7_SUC_2.7_Manual DSM strategies activation	High	N	Y	N	Y	N
125	**HL-UC 7_PUC_3_Clients engagement for active market participation**	**High**	Y	Y	N	Y	N
126	HL-UC 7_SUC_3.1_Enriched information visualization for energy monitoring	High	Y	Y	N	Y	N
127	HL-UC 7_SUC_3.2_Social network collaboration and comparisons with peers	Low	Y	Y	N	Y	N
128	HL-UC 7_SUC_3.3_Participation in DR programs	High	Y	Y	N	Y	N
129	HL-UC 7_SUC_3.4_Residential net metering & self consumption	Medium	Y	Y	N	N	N

Figure 7 – HL-UC 7

3 EXISTING SYSTEMS AND INFRASTRUCTURE

Each Pilot Site has different technologies in place and it is necessary to know them in order to better plan the deployment activities. The current infrastructure will allow the tool developers to also refine the tools according to the needs and opportunities of these systems. This section will provide a short description of each Pilot Site (for better understanding of their activities and businesses) and a summary of their current systems. For that last purpose, the coordinators of the Pilot Sites have completed some questionnaires with the required details about their current systems in place. Although there is a lot of information in this section, by the date of the submission of this deliverable there is still some minor info to be defined in these questionnaires. However, this is not a shortcoming for the planning of the deployment and demonstration phase of the project due to the consortium has the main information for starting their deployment activities.

Further descriptions about all the Pilot Sites can be found in D2.1" WiseGRID requirements, Use cases and Pilot Sites analysis".

3.1 MESOGIA

This Pilot Site is located in the area of Mesogia at the south-eastern part of Attica, near Athens. Mesogia area includes the municipalities of Koropi, Lavrio, N. Makri and the interconnected islands of Kea, Andros and Tinos. The main coordinator of this Pilot Site is the Hellenic Electricity Distribution Network Operator (HEDDO) in charge of operating, maintaining and evolving the Distribution Grid.

The Mesogia area is considered ideal for demonstration purposes since: a) it combines parts of mainland and interconnected islands, which is an interesting mixture of locations, systems and infrastructure to be studied, b) provides a mix of rural, urban and suburban areas, c) consists of a customer mix including: households, small, medium and large industries, d) has high RES penetration of various types and e) is close to the capital. Some of the buildings used for the demo purposes are described in the following checklists for the respective tools.

3.1.1 WG Cockpit Pilot Site details checklists

3.1.1.1 Set-up

Information required	
Database of distribution grid assets, including GIS information (geojson, postgis…)	X
Single-wire diagrams of distribution grid (including topology, line characterization, impedances, electrotechnical assets,…)– MV and LV (PSSE raw, …)	X

3.1.1.2 Integration with DSOs systems

SCADA	
Manufacturer	EFACEC
Model	---
Will it be available for monitoring?	Yes X No ☐

Type of monitored signals (node voltages, line currents, switches and protective device states, …)	
Frequency of data acquisition	
Approx. amount of monitored signals in demo site	---
Will it be available for controlling field assets (self-healing features)?	Yes ☐ No ☐ TBD (To Be Defined)
Which protocol is available for integration with third parties?	---

AMI/AMR	
Manufacturer	ITF-EDV for the first 200 smart meters
Model	Basis 01x/C10 ZFA/200-F5/250,000/C10 for the first 200 smart meters SLAM/SMX for the last 200 smart meters
Approx. number of smart meters in demo site	400
Communication with Smart Meters (GPRS, PLC, etc.)	GSM/GPRS for the first 200 smart meters Wifi/ethernet for the last 200 smart meters
Frequency of readouts from smart meters	Frequency of readings from smart meters (communications GSM/GPRS): 1/3days Frequency of readings from smart meters (communications Wifi/ethernet): adjustable, possible near real-time monitoring
Frequency of readouts from concentrators	No PLC communications for data readouts via concentrators.
Which protocol is available for integration with third parties?	DLMS Cosem

3.1.1.3 Field devices

Medium voltage grid	
Which elements are you currently monitoring with your SCADA (e.g. Fault Passage Indicators, protective relays, transformers…)?	TBD
Which elements are you able to control from your SCADA (switches…)?	TBD

3.1.1.4 RES and Electric Vehicles

RES	
Which RES units are present in your distribution grid? Please provide details (number of units, types, average peak power, ratio compared to overall demand…)	5 Wind farms of total inst. power 5,150.00 kW 280 PV of total inst. power 48,822.88 kW 40 PV net metering of total inst. power 545.84 kW 1457 Rooftop PV of total inst. power 12,442.68 kW Capacity factor for wind farms: 30% Electricity production of Rooftop PV: 1400 kWh/ $kW_{installed}$ Electricity production of PV: 1500 kWh/ $kW_{installed}$
Are you currently monitoring production of those units? How? (SCADA, AMI,Protocols…)	Most of them are telemetered (except for rooftop PV).
Are you in position of controlling RES units? (production curtailment, power factor…) How? (direct control, signalling to third party…)	RTUs and SCADA/DMS are expected to be used in the future for big RES plants (above 500kW). Right now, there are no RTUs for the telecontrol of the existing RES units connected to the distribution network of Mesogia Area. The only control applied to them is their disconnection in case of serious danger for the safety and balance of the grid; this can be done either manually, when the RES is connected to an individual line to the substation, or automatically through the RTU of the substation line. For the demo project, the virtual environment of SCADA/DMS will be used to simulate the control of RES units.

Electric Vehicles	
Are there electric vehicle charging stations deployed in your distribution grid? Please provide details (number of units, demand profile, ratio compared to overall demand…)	Yes, installed for the European project SHAR-Q.
Are you currently monitoring demand of those units? How? (SCADA, AMI, Protocols…)	We monitor EV charging sessions via a custom platform (currently under development), using OCPP.
Are you in position of controlling the operation of the charging points? (start/stop operations, limit supply…) How? (direct control, signalling to third party…)	Yes, via a custom platform (currently under development), using OCPP.

3.1.2 WiseCOOP, WiseCORP, WiseHOME, Pilot Site details checklists

3.1.2.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	400 of the customers connected to the network will participate in the demo site. The majority will be deployed in the area of Mesogia.
Please provide database with details on customers/members (location, profile…) – No personal information required	X
Existing customer types	Commercial/tertiary (LV) ☐ Commercial/tertiary (MV) X (potentially metering data from commercial/tertiary (MV)) Residential (LV) X Others X (Public Buildings)
Number of customers/members equipped with smart meters	400 smart meters
Frequency of readings from smart meters	Frequency of readings from smart meters (communications GSM/GPRS): 1/3days
When do the smart meter readings become available to you?	Meter readings collected by the AMR/AMI systems will become available to us once every 3 days. For the demo project though, a common for ICCS and HEDNO simulated AMR/AMI system will collect the meter readings, corresponding to the exact previous week.

3.1.2.2 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	1. Public Power Corporation S.A. 2. ELPEDISON S.A 3. HERON 4. GREEN S.A. 5. VOLTERRA S.A 6. PROTERGIA_THERM S.A. 7. WATT AND VOLT S.A. 8. NRG TRADING HOUSE S.A. 9. VOLTON S.A. 10. ELTA HELLENIC POST S.A. 11. KEN S.A 12. ZeniΘ

What types of time-of-use tariffs are there (single period, 2 periods, 3 periods, etc.)	2 periods
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	The minimum reading frequency for consumption is 1/hour.
Is there a differentiation of tariffs based on active power? Please provide information.	There are three categories of tariffs: residential, business and large business MV. Business Tariffs are addressed to customers for commercial use, (offices, shops, warehouses, infirmaries, shopping centers, etc.), industrial use (workshops, craft industries, small industries, bakeries and other businesses) and general use (public areas, warehouses, parking spaces). There are three Business Tariffs for commercial and industrial use: Γ21, Γ22 and Γ23. Business Tariffs Γ21 & Γ22 are differentiated according to active power. More specifically, Business Tariff Γ 21 is addressed to customers with low consumption and small capacity. More specifically, it is provided to units with installed capacity up to 25 kVA for use in offices, shops, public areas, workshops, small craft industries, etc. Business tariff Γ 22 is addressed to customers with high levels of consumption. It is provided to units with installed capacity from 25 kVA up to 250 kVA. Furthermore, there is a differentiation of Public Lighting Tariffs for the lighting of streets and squares (T-49, Tα-49/1, Γ4) based on active power (<25kVA, >25kVA without calculation of reactive power, >25kVA with calculation of reactive power).
Is there a differentiation of tariffs based on voltage? Please provide information.	Each supplier has its own tariffs addressing different customers, services, needs but in general the tariffs follow the main categorization scheme described above and here. Indicatively, here, we mention the different tariff schemes as they are categorized and characterized by the main electrical energy supplier in Greece, PPC. 1. Residential Tariffs (LV) a. Residential Tariff b. Residential Night Tariff c. Large Family Tariff d. Social Residential Tariff 2. Business Tariffs (LV) a. Business Tariff Γ 21 b. Business Tariff Γ 22 c. Business Tariff Γ 23 d. Agricultural Tariff – Reduced Agricultural Tariff (T33/LV, T33A/LV and other low voltage agricultural tariffs) e. Public Lighting Tariffs (T-49, T-49/1, Γ4)

	3. Large Business MV Tariffs (MV) a. MV Tariff b. MV Tariff (High Coefficient Usage) c. MV Tariff (Low Coefficient Usage) d. MV Tariff - Agricultural -Reduced Agricultural Tariff
Are there any other types of differentiation and/or re-strictions that limit the selec-tion of a tariff plan? Please provide information.	Tariffs addressed to customers depend on energy use (residential, agricultural, business, public lighting, etc.). In particular, the Business Tariff Γ 23, (as they are coded for PPC's tariffs and invoices) is a tariff that includes two charging prices, that is, the consumption within the 24-hour period is calculated using two different prices. So, the consumption within the peak period is charged with the increased price compared to the other Commercial Tariffs (Γ21, Γ22), while the consumption within the off-peak period is charged with a reduced price. This tariff can be provided to all the business customers irrespective of capacity. Furthermore, there is a differentiation of Residential Tariffs based on consumption and single phase or 3-phase supply. Moreover, there is a differentiation of Large Business MV Tariffs based on coefficient usage, and particularly, consumption and measured maxi-mum demand.
Are dynamic price tariffs avail-able in your region or by your supplier? Is your building eligi-ble for them? Please provide information.	No
Any other comments/remarks regarding tariff ruling in your country?	

3.1.2.3 Etaireia Dianomis Aeriou Attikis Headquarters

3.1.2.3.1 Building information

Information required	
Name of building	Etaireia Dianomis Aeriou Attikis Headquarters
Location (coordinates)	38.0690511, 23.7799473 // Leoforos Sofokli Venizelou 11, 14123 Lukovrisi, Athens
Structural information (e.g. surface, dimensions, floors, areas, etc.)	3 floors, dimensions: 31m x 67m x 19m (height), total area : 6100m^2
Usage (e.g. purpose, occupants, working times)	office space, 07:00-18:00
Available equipment	
Sensors (please focus especially on occupancy and envi-ronmental sensors, e.g. temperature, humidity, luminance,	No X Yes ☐; please, provide details:

IAQ, etc.)	
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details: 5 KWe CHP unit (currently being installed)
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X Gas Meter
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others...	
Approx. building annual electricity consumption	1,080,000 kWh
Approx. annual electricity production (if RES)	-
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):
Frequency of readouts	Hourly (after special request to the retail company)
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: NG monthly consumption Electricity monthly consumption
Price history available	No ☐ Yes X please, provide details: NG monthly price Electricity monthly price
Billing	
Current tariff plan	07:00-23:00 on working days: 0.06428 €/kWh. 23:00-07:00 on working days, during weekend and on holidays: 0.05062 €/kWh.
Current involvement in demand response programmes	NO
Legal	
Who owns the building?	private owner

Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required ☐ Yes, consent from building occupants is required X
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required ☐ Yes, consent and building occupants is required X

3.1.2.3.2 Available controllable assets

Information required	
Manufacturer/Model	Not determined
Available protocol for monitoring/control (please elaborate on how the asset setpoints or measurements can be accessed)	
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	No ☐ Yes ☐ I do not know X
Controllability restrictions (technical, legal, contractual, comfort…)	
Energy demand of asset – frequency of readouts	
When are the readouts available to you or to third parties?	
Are these readings personal/sensitive data according to European or national legislation?	No ☐ Yes ☐ I do not know X
Energy demand of asset – historical readouts available	X

3.1.2.4 Small cottage for summer holidays

3.1.2.4.1 Building information

Information required	
Name of building	
Location (coordinates)	Meltemi seaside camping at Rafina (38.001466, 24.022994)
Structural information (e.g. surface, dimensions, floors, areas, etc.)	The 230 cottages are not bigger than 50m^2. Most of the houses are prefabricated; built in components (e.g. panels), modules (modular homes) or transportable sections (manufactured homes). Furthermore, light materials are used for the construction of each cottage and the use of concrete is limited. The typical house consists of 1 bedroom, 1 kitchen, 1 bathroom and 1 living room merged into the dining room for spacious reasons.
Usage (e.g. purpose, occupants, working times)	Small cottage used mostly for summer holidays. Due to the small size of each cottage, its electrical consumption is lower than that of an ordinary house in Greece. During the summer months, the demand is expected to be higher than the winter months because of the summer holidays.
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No ☐ Yes X; please, provide details: • Temperature Sensors • Humidity Sensors • Energy Sensors
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No ☐ Yes X; please, provide details: • Water Heater (5 houses) • Oven (1 house) • A/C (1 house)
Local electricity generation (emphasis on RES)	No ☐ Yes X please, provide details: • 4.5 kW PV • 3 WT (currently offline due to residents' complaints) 1 GenSet 40kVA
Storage (incl. Electric Vehicles)	No ☐ Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): SMX developed for Nobelgrid project [1] and smart meters developed

	for SmarterEMC2 project.
Building Management System	No ☐ Yes X; please, provide details (e.g. about make, capabilities and connected assets): A total of ten (10) smart load controllers have been installed in ten (10) of the Meltemi cottages that provide remote measurements and control of various load types (e.g. water heater, A/C).
Others…	The Meltemi MV/LV substation is also equipped with energy meters that provide power quality measurements. The substation consists of 6 feeders that distribute the energy throughout the Meltemi camp. Smart meters have also been installed in all Meltemi cottages.
Approx. building annual electricity consumption	< 1,250 kWh
Approx. annual electricity production (if RES)	
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):
Frequency of readouts	Frequency of readings from smart meters (communications GSM/GPRS): 1/3days
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X please, provide details:
Price history available	No ☐ Yes ☐; please, provide details:
Billing	
Current tariff plan	
Current involvement in demand response programmes	
Legal	
Who owns the building?	Citizens
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.1.2.4.2 Available sensing equipment

Information required	
Manufacturer/Model	
Sensor type (e.g. temperature, occupancy, IAQ, luminance, etc.)	• Temperature Sensors • Humidity Sensors • Energy Sensors
Available protocol for monitoring/control (please elaborate on how the sensor readings can be accessed)	Modbus TCP/IP, SSH, Open-ADR
Sensor readings – frequency of readouts	min., 100ms
Are these readings personal/sensitive data according to European or national legislation?	No ☐ Yes ☐ I do not know X
Sensor readings – historical readouts available	☐

3.1.2.4.3 Available controllable assets

Information required	
Manufacturer/Model	
Available protocol for monitoring/control (please elaborate on how the asset setpoints or measurements can be accessed)	Modbus TCP/IP
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	No ☐ Yes X I do not know ☐
Controllability restrictions (technical, legal, contractual, comfort…)	The device needs to be on and can only be turned off remotely, because controllable relay is in series with device switch.
Energy demand of asset – frequency of readouts	
When are the readouts available to you or to third	Real-time readouts

parties?	
Are these readings personal/sensitive data according to European or national legislation?	No ☐ Yes X I do not know ☐
Energy demand of asset – historical readouts available	No

3.1.2.5 Mesogia Household with CHP

Information required	
Name of building	Mesogia Household with CHP
Location (coordinates)	Mesogia
Structural information (e.g. surface, dimensions, floors, areas, etc.)	2-floor house
Usage (e.g. purpose, occupants, working times)	household
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details: 6 KWe/ 15 kWth CHP unit (purchased, to be installed) Vitobloc 200 EM-6/15 from Viessmann
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party):
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):

Others…	
Approx. building annual electricity consumption	2,500 kWh
Approx. annual electricity production (if RES)	-
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):
Frequency of readouts	Hourly (after special request to the retail company)
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: NG monthly consumption Electricity monthly consumption
Price history available	No ☐ Yes X please, provide details: NG monthly price Electricity monthly price
Billing	
Current tariff plan	
Current involvement in demand response programmes	NO
Legal	
Who owns the building?	private owner
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent and building occupants is required☐

3.2 TERNI

The main coordinator of the Terni's Pilot Site is ASM TERNI S.p.A. ASM is an Italian multi utility company, established in 1960 and fully owned by Terni municipality, specializing in water, gas, electricity and environmental services. It owns and operates the local power distribution network, covering a surface of 211 km^2 and delivering about 400 GWh to 65100 customers annually. Nowadays the ASM electric grid is characterized by a large number of distributed renewable energy sources embedded in the medium and low voltage distribution networks.

For the integration of EVs in Terni, the Pilot has the support of Emotion. Emotion is an Italian company specialized in the sector of electric mobility. Emotion strategy is focused on research, development and technical growth, with a focus on acquisitions aimed at increasing efficiency and global footprint within strategic energy and automation businesses.

Basically, ASM TERNI will run the WiseGRID trial at its own headquarters, located in a suburb of the city of Terni and using its MV network.

3.2.1 WG Cockpit Pilot Site details checklists

3.2.1.1 Set-up

Information required	
Database of distribution grid assets, including GIS information (geojson, postgis…)	X
Single-wire diagrams of distribution grid (including topology, line characterization, impedances, electrotechnical assets,…)– MV and LV (PSSE raw, …) available in csv format and PSAF/CYME	X

3.2.1.2 Integration with DSOs systems

Power Quality Analyzer (PQA)	
Manufacturer	TEAMWARE
Model	WALLY A RTU
Will it be available for monitoring?	Yes X No □
Type of monitored signals (node voltages, line currents, switches and protective device states, …)	Node Voltages, feeder currents, THD, frequency, short circuits, overvoltages (minimum frequency detected 10 mHz). Supervision and remote control of the HV-MV and MV-LV cabins. Transfer of information requested by the TSO and Italian Authority for energy sector (ARERA).
Frequency of data acquisition	25.6 ksample/sec
Approx. amount of monitored signals in demo site	To be evaluated
Will it be available for controlling field assets (self-healing features)?	Yes No X
Which protocol is available for integration with third parties?	• Ethernet 100 Mb (Internet protocol) • USB Device

	• Modem GSM/GPRS/UMTS • GPS

AMI/AMR	
Manufacturer	Ericsson
Model	
Approx. number of smart meters in demo site	3 SM 5 PQA
Communication with Smart Meters (GPRS, PLC, etc.)	SM: Modem GPRS PQA: LAN
Frequency of readouts from smart meters	SM: 15 minutes PQA: 1 hour and trigger event
Frequency of readouts from concentrators	Every day
Which protocol is available for integration with third parties?	SM: RS232 PQA: • Ethernet 100 Mb (Internet protocol) • USB Device • Modem GSM/GPRS/UMTS • GPS

3.2.1.3 RES and Electric Vehicles

RES	
Which RES units are present in your distribution grid? Please provide details (number of units, types, average peak power, ratio compared to overall demand…)	1,200 PV plants, 6 Hydro power plants, 1 waste to energy and 4 biomass power plants and are connected to the network. About 50 % of energy demand is supplied by RES (2016): - 29 GWh from Solar Energy (26 GWh supplied to the network, because 3 GWh is the amount of the energy self-consumed by the prosumers). - 70 GWh from Hydropower. - 79 GWh from Biomass and waste to energy. - Overall consumption was 380 GWh. - 25 GWh supplied to the national transmission network as reverse power flow. Peak Power:

	- Consumption: 72 MW - Production from RES: 39 MW - Absorption from National Transmission Grid: 58 MW - Injection to National Transmission Grid (reverse power flow): 22 MW Average Power: - Consumption: 42 MW - Production from RES: 22 MW - Absorption from National Transmission Grid: 26 MW - Injection to National Transmission Grid (reverse power flow): 3 MW
Are you currently monitoring production of those units? How? (SCADA, AMI,Protocols…)	The units are monitored by AMI.
Are you in position of controlling RES units? (production curtailment, power factor…) How? (direct control, signalling to third party…)	Not at all. Every inverter of the PV power plants is equipped with a control system which requests power reduction when voltage/frequency decreases/increases. These prescriptions are carried out by the manufacturer but the DSO cannot control how the regulation is working, a proper equipment should be deployed to control RES unit. Some producers/prosumers will be invited to participate in DR campaigns leveraging on self-consumption increasing (i.e. Nobel grid test scenarios).

Electric Vehicles	
Are there electric vehicle charging stations deployed in your distribution grid? Please provide details (number of units, demand profile, ratio compared to overall demand…)	6
Are you currently monitoring demand of those units? How? (SCADA, AMI, Protocols…)	The units are monitored by AMI.
Are you in position of controlling the operation of the charging points? (start/stop operations, limit supply…) How? (direct control, signalling to third party…)	No

3.2.2 WiseCOOP, WiseCORP, WiseHOME, WG RESCO and WG STaaS VPP Pilot Site details checklists

3.2.2.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	65,000 Customer (DSO)

Please provide database with details on customers/members (location, profile…) – No personal information required	64,700 (LV) – 300 (MV); they are located in Terni and the surrounding area
Existing customer types	Commercial/tertiary (LV): X Commercial/tertiary (MV): X Residential (LV): X Others: 1,300 production plants
Number of customers/members equipped with smart meters	65,000
Frequency of readings from smart meters	1 time a month (LV) – each 15 minutes (MV)
When do the smart meter readings become available to you?	2/3 days

3.2.2.2 Building information

Information required	
Name of building	ASM's Headquarter
Location (coordinates)	42.567361, 12.607000
Structural information (e.g. surface, dimensions, floors, areas, etc.)	ASM Terni buildings comprising i) a 4,050 m^2 three-storey office building; ii) a 2,790 m^2 single-storey building consisting of technical offices, a computer centre and an operation control centre and iii) a 1,350 m^2 warehouse.
Usage (e.g. purpose, occupants, working times)	Administration, technical offices, operational, front office. 400 occupants. Occupancy Schedule: The operation control centre located at the single-storey building is open 24 hours a day, 7 days a week. Monday – Friday: office building and warehouse open 07:00-08:00 occupants arrive from 07:30-08:30, depart from 17:10-18:10. From June to September occupants arrive from 07:00-08:00 and depart from 14.00 to 15.00 pm. Saturday: open from 07:00 am to 13:00 pm. Sunday: Closed
Available equipment	

Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	Yes ; please, provide details: HVACs
Local electricity generation (emphasis on RES)	Yes; please, provide details: two PV arrays (180 kWp and 60 kWp)
Storage (incl. Electric Vehicles)	Yes; please, provide details: 66 kWh battery energy storage; Six EVs: a Renault Zoe R240 featuring a 11-kWh lithium-ion battery is already in use in ASM TERNI headquarters, fed by a SPOTLINK - EVO filling station. The other units will be put in operation over the WISEGRID project by the EMOTION partner.
Smart meters/ Power analysers	Yes Teamware - WALLY RTU A (5 seconds) Landis+Gyr – ZMD (5 seconds) Both meters are connected to SMX, which interrogates the meter every 5 seconds and sends data to ASM servers devoted to European projects.
Building Management System	No
Others…	No
Approx. building annual electricity consumption	800 MWh
Approx. annual electricity production (if RES)	200 MWh (PV)
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No
Frequency of readouts	15 minutes – 1 month
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	Yes; please, provide details: 5 years
Price history available	No
Billing	
Current tariff plan	Energy Pricing & cost structure: F1 0.17356 € (Monday - Friday from 08:00-19:00) F2 0.17148 € (Monday – Friday from 07:00-8:00. and from 19:00-23:00; Saturday from 07:00 a.m. to 23:00 p.m.) F3 0.14599 € (Monday – Friday from 23:00-07:00; Sunday and

	Public Holiday)
Current involvement in demand response programmes	No
Legal	
Who owns the building?	Municipality of Terni
Is an agreement needed to access data for demo purposes?	Yes, owner consent is required
Is an agreement needed to take actions over assets for demo purposes?	Yes, owner consent is required

3.2.2.3 Available controllable assets

Information required	
Manufacturer/Model	RHOSS THAETY2160
Available protocol for monitoring/control (please elaborate on how the asset setpoints or measurements can be accessed)	No
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	I do not know
Controllability restrictions (technical, legal, contractual, comfort…)	No
Energy demand of asset – frequency of readouts	There is not a meter dedicated to the controllable assets now; in the next months some SMXs will be connected to some SHICs (Smart Controllers) to manage HVACs.
When are the readouts available to you or to third parties?	
Are these readings personal/sensitive data according to European or national legislation?	No
Energy demand of asset – historical readouts available	No
Please, provide any technical documentation available	

HVAC System – RHOSS Heat Pump System				
	Type	Description	Value	Unit
Specifications	Heating & Cooling	RHOSS THAETY2160		
	Installed capacity	Electrical Load	56.2	kWe
		Heating	175.0	kWth
		Cooling	159.8	kWth

We will also be able to use:

Number of units	Producer	Model	Power (W)
1	ITELCO	K49R40	1100
4	DAIKIN	RXS25L2V1B	900

3.2.2.4 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	All the Italian retailers (Umbria Energy, Enel, …)
What types of time-of-use tariffs are there (single period, 2 periods, 3 periods, etc.)	3 Periods
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	1 hour
Is there a differentiation of tariffs based on active power? Please provide information.	No
Is there a differentiation of tariffs based on voltage? Please provide information.	Yes (MV/LV)
Are there any other types of differentiation and/or restrictions that limit the selection of a tariff plan? Please provide information.	No
Are dynamic price tariffs available in your region or by your supplier? Is your building eligible for them? Please provide information.	No
Any other comments/remarks regarding tariff ruling in your country?	No

3.2.3 WiseEVP Pilot Site details checklist

3.2.3.1 Infrastructure

Charging points	
Manufacturer	Emotion
Model	EVO
How many charging points will be available at demo site?	4
Please provide database with charging points details, including GIS information (geojson, postgis…)	Yes
Are charging points remotely accessible to third parties?	No
If yes, please specify protocol	

Are charge points currently managed by any control system of your own?	Yes
If yes, please specify third party integration possibilities (API, protocol…)	API RESTFUL

Extra infrastructure	
Are the charge points part of a larger facility?	No
If yes, will the facility participate in WiseGRID demonstrators (WiseCORP)?	Yes ☐ No ☐
Are other elements (batteries, solar panels…) installed or planned to be installed alongside the charge points?	No
If yes… Could they be monitored as part of the demonstrator? Could they be controlled as part of the demonstrator?	Yes ☐ No ☐ Yes ☐ No ☐

3.2.3.2 Electric vehicles

Electric vehicles	
Manufacturer	Renault
Model	Zoe
How many vehicles will be available at demo site?	6
Database with electric vehicle details	YES
Are vehicles currently monitored? If yes, please specify	YES
Details of hardware at vehicle	CUSTOM OBD DEVICE
Details of monitoring system	Further explained in documentation already sent to ETRA
Data retrieved from vehicles	Further explained in documentation already sent to ETRA
Frequency of data readout	20 seconds

3.2.3.3 Scheduling systems

Scheduling systems	
Are you currently using any system for EV vehicle availability scheduling? (e.g. times when vehicle is required by the organization, expected distances to travel, vehicle booking…)	YES
If yes, could you provide details on the information handled by this system (availability scheduling, min. charge constraints, etc.)	Further explained in documentation already sent to ETRA

3.3 FLANDERS

The main coordinator of the Flanders' Pilot Site is Ecopower cvba. Ecopower was founded in 1992 as a co-operative under Belgian law. The organisation has three main goals: investing in renewable energy; supplying 100% green electricity to our cooperative members and promoting a rational use of energy (and renewable energy and the cooperative business model in general).

For the integration of EVs, partnership was formed with Partago cvba. Partago was founded in 2015 as a cooperative under Belgian law. The organisation is active solely in Ghent and has two main goals: 1) to provide access to 100% electric cars to the cooperative members and 2) to promote a transition towards a healthy and sustainable city.

The WiseGRID Pilot Site in Flanders, Belgium consists of 1 main pilot area in the City of Ghent and some smaller complementary test sites. The smaller project sites have been investigated as they are potentially capable of combining PV, batteries, charging stations and EVs on a small but manageable scale.

3.3.1 WiseCOOP, WiseCORP, WiseHOME, WG RESCO and WG STaaS/VPP Pilot Site details checklists

3.3.1.1 Oxfam

3.3.1.1.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	50,000 but real number depends of participants in aggregation role.
Please provide database with details on customers/members (location, profile…) – No personal information required	☐
Existing customer types	Commercial/tertiary (LV) ☐ Commercial/tertiary (MV) X Residential (LV) X

	Others ☐, please elaborate
Number of customers/members equipped with smart meters	Depends on NobelGRID SMX final implementation.
Frequency of readings from smart meters	Up to 1 minute data real time.
When do the smart meter readings become available to you?	Depends on the speed of the data coming from the SMX through the WG IOP.

3.3.1.1.2 Building information

Information required	
Name of building	OXFAM
Location (coordinates)	Ververijstraat 17, 9040 Sint-Amandsberg (51.052981, 3.744632)
Structural information (e.g. surface, dimensions, floors, areas, etc.)	1 building layer
Usage (e.g. purpose, occupants, working times)	Administration office. Working times: 07:00 – 18:30 (Mon-Fri).
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X ; please, provide details: PV installation 82.62 kWp.
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details: Negotiation with Ampère Energy on going
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Currently: AMR (15 minutes day after) Foreseen: investment of 1,600 € to have impulses locally available which means real time data to be read by the SMX.
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	

Approx. building annual electricity consumption	28,000 kWh grid offtake/year (app. 35,000 kWh final electricity consumption)
Approx. annual electricity production (if RES)	75,000 kWh/year
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No ☐ Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.): TBD
Frequency of readouts	TBD
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes ☐; please, provide details: Main meter: yes (3 years, freq. 15 min) PV production: yes (3 years, freq. 15 min)
Price history available	No ☐ Yes X; please, provide details: Ecopower is supplier for grid off take and purchases grid injection of this PV installation.
Billing	
Current tariff plan	0.259 €/ kWh incl. VAT (ECOPOWER tariff)
Current involvement in demand response programmes	NO
Legal	
Who owns the building?	OXFAM
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.3.1.2 City office Eeklo

3.3.1.2.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	50,000 but real number depends of participants in aggregation role.
Please provide database with details on customers/members (location, profile…) – No personal information required	☐
Existing customer types	Commercial/tertiary (LV) ☐ Commercial/tertiary (MV) X Residential (LV) X Others ☐, please elaborate
Number of customers/members equipped with smart meters	Depends on NobelGRID SMX implementation.
Frequency of readings from smart meters	Up to 1 minute data real time.
When do the smart meter readings become available to you?	Depends on the speed of the data coming from the SMX through the WG IOP.

3.3.1.2.2 Building information

Information required	
Name of building	City office Eeklo (urban administrative and technical center)
Location (coordinates)	Industrielaan 2, 9900 Eeklo (51.182497, 3.546645)
Structural information (e.g. surface, dimensions, floors, areas, etc.)	Front building: 3 building layers, 2100 m² Back building: 2 building layers, 1400 m²
Usage (e.g. purpose, occupants, working times)	Front building: administrative center Back building: technical service incl. stockroom, workplace and parks department. Working times: 07:00-18:30 (Mon-Fri) Personnel: 130
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details:

	- 2 PV installations (2x 5 kWp on front building and back building)
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X - 3 Flukso and 3 SMX from NobelGRID: 1 SMX and Flukso for offtake and injection building, 2 SMX and Flukso for production 2 PV installations
Building Management System	No ☐ Yes X; please, provide details (e.g. about make, capabilities and connected assets): Centralized control unit for heating building, with heat recuperation on ventilation system.
Others…	
Approx. building annual electricity consumption	180,000 kWh
Approx. annual electricity production (if RES)	PV Eeklo city office: 9,000 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No ☐ Yes X; PV : 2x SMA sunny boy
Frequency of readouts	5-15 min data
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No X Yes ☐; please, provide details:
Price history available	No ☐ Yes X ; please, provide details: Ca. 115 €/MWh
Billing	
Current tariff plan	Ca. 115 €/MWh
Current involvement in demand response programmes	No
Legal	
Who owns the building?	Stad Eeklo
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is re-

	quired ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required **X** Yes, consent from owner and building occupants is required ☐

3.3.1.3 Ecopower office

3.3.1.3.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	50,000 (but real number depends on participants in Aggregation role
Please provide database with details on customers/members (location, profile...) – No personal information required	
Existing customer types	Commercial/tertiary (LV) ☐ Commercial/tertiary (MV) **X** Residential (LV) **X** Others ☐, please elaborate
Number of customers/members equipped with smart meters	Depends on Nobelgrid SMX implementation.
Frequency of readings from smart meters	Up to 1 minute data real time
When do the smart meter readings become available to you?	Depends on the speed of the data coming from the SMX through the WG IOP.

3.3.1.3.2 Building information

Information required	
Name of building	Ecopower office
Location (coordinates)	51.199360, 4.431400
Structural information (e.g. surface, dimensions, floors, areas, etc.)	Only third floor of n° 3 (middle part), 750 m^2 surface area
Usage (e.g. purpose, occupants, working times)	Office. Working times: 08:30-18:30 (Mo-Fri).
Available equipment	

Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No ☐ Yes X; please, provide details: 6 daylight/occupancy sensors on DALI controllable through NobelGrid SHIC
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No ☐ Yes X; please, provide details: Lights and PV inverter
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details: 2065 Wpeak, monophase with Nobelgrid experimental controllable inverter (by Nobel Grid partner Uninova)
Storage (incl. Electric Vehicles)	No ☐ Yes X; please, provide details: 96 V Nobelgrid Battery pack. Battery capacity 672 Wh
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): A+, A- and PV production (when operational) nearly real time 1 min through NobelGrid SMX.
Building Management System	No ☐ Yes X; please, provide details (e.g. about make, capabilities and connected assets): Only WAGO PLC with DALI gateway to control lighting.
Others…	
Approx. building annual electricity consumption	17,000 kWh
Approx. annual electricity production (if RES)	1,700 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No ☐ Yes X; please, provide details (e.g. how, which assets, their importance to building consumption, etc.): Sub-metering of PV production
Frequency of readouts	Pulse based 10 Wh/pulse
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: Since 25/05/2017
Price history available	No ☐ Yes X; please, provide details: ECOPOWER tariff
Billing	
Current tariff plan	Ecopower

Current involvement in demand response programmes	Nobelgrid
Legal	
Who owns the building?	It is rented from real estate party.
Is an agreement needed to access data for demo purposes?	No X Yes, owner consent is required ☐ Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No X (only ECOPOWER property will be taken over: lighting and Nobelgrid PV/Battery) Yes, owner consent is required ☐ Yes, consent from owner and building occupants is required ☐

3.3.1.3.3 Available sensing equipment

Information required	
Manufacturer/Model	
Sensor type (e.g. temperature, occupancy, IAQ, luminance, etc.)	Luminance/occupancy
Available protocol for monitoring/control (please elaborate on how the sensor readings can be accessed)	DALI
Sensor readings – frequency of readouts	
Are these readings personal/sensitive data according to European or national legislation?	No X Yes ☐ I do not know ☐
Sensor readings – historical readouts available	NO
Please, provide any technical documentation available	

3.3.1.3.4 Available controllable assets

Information required	
Manufacturer/Model	Uninova controllable

	inverter
Available protocol for monitoring/control (please elaborate on how the asset setpoints or measurements can be accessed)	
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	No ☐ Yes ☐ I do not know X
Controllability restrictions (technical, legal, contractual, comfort…)	TBD
Energy demand of asset – frequency of readouts	
When are the readouts available to you or to third parties?	
Are these readings personal/sensitive data according to European or national legislation?	No X Yes ☐ I do not know ☐
Energy demand of asset – historical readouts available	☐

Information required	
Manufacturer/Model	Lighting
Available protocol for monitoring/control (please elaborate on how the asset setpoints or measurements can be accessed)	DALI
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	No ☐ Yes X I do not know ☐
Controllability restrictions (technical, legal, contractual, comfort…)	Comfort levels lighting
Energy demand of asset – frequency of readouts	Real time through MQTT/SMX
When are the readouts available to you or to third parties?	Nearly real time through SMX
Are these readings personal/sensitive data according to European or national legislation?	No X Yes ☐ I do not know ☐
Energy demand of asset – historical readouts available	No submetering for lighting. Only total consumption of office.

3.3.1.3.5 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	
What types of time-of-use tariffs are there (single period, 2 periods, 3 periods, etc.)	Standard: single. Only dynamic as alternative.
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	15 minutes
Is there a differentiation of tariffs based on active power? Please provide information.	Not for the site connections (LV).
Is there a differentiation of tariffs based on voltage? Please provide information.	
Are there any other types of differentiation and/or restrictions that limit the selection of a tariff plan? Please provide information.	
Are dynamic price tariffs available in your region or by your supplier? Is your building eligible for them? Please provide information.	Dynamic tariffs are not yet operational in Belgium. Ecopower will simulate one.
Any other comments/remarks regarding tariff ruling in your country?	Capacity tariff is being discussed, but not implemented.

3.3.1.4 Thrift shop Eeklo

3.3.1.4.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	50,000 but real number depends of participants in aggregation role.
Please provide database with details on customers/members (location, profile…) – <u>No personal information required</u>	☐
Existing customer types	Commercial/tertiary (LV) ☐

	Commercial/tertiary (MV) X Residential (LV) X Others ☐, please elaborate
Number of customers/members equipped with smart meters	Depends on NobelGRID SMX implementation.
Frequency of readings from smart meters	Up to 1 minute data real time.
When do the smart meter readings become available to you?	Depends on the speed of the data coming from the SMX through the WG IOP.

3.3.1.4.2 Building information

Information required	
Name of building	Thrift store Eeklo (Kringwinkel Eeklo)
Location (coordinates)	Slachthuisstraat 2B, 9900 Eeklo (51.18, 3.55)
Structural information (e.g. surface, dimensions, floors, areas, etc.)	Building (3,151 m²) contains 3 zones: Zone 1: working place for repairs and sorting of second hand goods (1 floor). Zone 2: shopping space for customers (1 floor) Zone 3: 2 floors. Ground floor: counter. First floor: office spaces, dining room.
Usage (e.g. purpose, occupants, working times)	Purpose: see previous box. 30 occupants. Open Tuesday- Saturday 09:00-18:00 Closed Sunday & Monday
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details: 1 PV on thrift store building (34.6 kWp)
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible

	to you or a third party): 2 Flukso + 2 SMX from NobelGRID: 1 SMX and Flukso for PV production, 1 SMX and Flukso for offtake and injection.
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	
Approx. building annual electricity consumption	60,000 kWh
Approx. annual electricity production (if RES)	33,300 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No ☐ Yes X; please, provide details (e.g. how, which assets, their importance to building consumption, etc.): PV: 6 x SMA sunny boy
Frequency of readouts	5-15 min data
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: Production, offtake, injection
Price history available	No ☐ Yes X; please, provide details: PV: property of Ecopower. Rent for PV-installation to Ecopower: 457.52 EUR/year. Tariff autoconsumption: 0.066 EUR. Tariff offtake grid: standard Ecopower tariff. Tariff injection PV: TBD, e.g. % endex.
Billing	
Current tariff plan	Ecopower standard
Current involvement in demand response programmes	H2020 Nobelgrid
Legal	
Who owns the building?	Kringwinkel Meetjesland vzw (Komosie)
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.3.1.4.3 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	
What types of time-of-use tariffs are there (single period, 2 periods, 3 periods, etc.)	Standard: single. Only dynamic as alternative.
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	15 minutes
Is there a differentiation of tariffs based on active power? Please provide information.	Not for the site connections (LV).
Is there a differentiation of tariffs based on voltage? Please provide information.	
Are there any other types of differentiation and/or restrictions that limit the selection of a tariff plan? Please provide information.	

3.3.1.5 Rotselaar Mill

3.3.1.5.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	50,000 but real number depends of participants in aggregation role.
Please provide database with details on customers/members (location, profile…) – No personal information required	☐
Existing customer types	Commercial/tertiary (LV) ☐

	Commercial/tertiary (MV) X Residential (LV) X Others ☐, please elaborate
Number of customers/members equipped with smart meters	Depends on NobelGRID SMX implementation.
Frequency of readings from smart meters	Up to 1 minute data real time.
When do the smart meter readings become available to you?	Depends on the speed of the data coming from the SMX through the WG IOP.

3.3.1.5.2 Building information

Information required	
Name of building	Rotselaar Mill Site
Location (coordinates)	50.947239, 4.702859
Structural information (e.g. surface, dimensions, floors, areas, etc.)	8 private dwellings, 1 old bakery house and 1 water mill museum.
Usage (e.g. purpose, occupants, working times)	
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details: Watermill = hydropower: 65 kW permanently
Storage (incl. Electric Vehicles)	No ☐ Yes X; please, provide details: 1 public EVSE
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Total number of meters: 8 private (of which 6 SMX), 1 for bakery (with SMX), 2 mill building (with SMX). 1 AMR (4-Quadrant meter) for turbine production with official 15 min production data (available day-after).

Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	
Approx. building annual electricity consumption	18,000 kWh
Approx. annual electricity production (if RES)	450 MWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No ☐ Yes X; please, provide details (e.g. how, which assets, their importance to building consumption, etc.): Smart meters = submeters of site: total number of meters: 8 private (of which 6 SMX), 1 for bakery (with SMX), 2 mill building (with SMX). 1 AMR (4-Quadrant meter) for turbine production with official 15 min production data (available day-after).
Frequency of readouts	instantaneous read-out through MQTT
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details:
Price history available	No ☐ Yes X; please, provide details: only for Ecopower clients: 6 households + bakery + mill building
Billing	
Current tariff plan	Ecopower standard
Current involvement in demand response programmes	H2020 Nobelgrid
Legal	
Who owns the building?	Ecopower + 9 households
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.3.1.5.3 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	
What types of time-of-use tariffs are there (single period, 2 periods, 3 periods, etc.)	Standard: single. Only dynamic as alternative.
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	15 minutes
Is there a differentiation of tariffs based on active power? Please provide information.	Not for the site connections (LV).
Is there a differentiation of tariffs based on voltage? Please provide information.	
Are there any other types of differentiation and/or restrictions that limit the selection of a tariff plan? Please provide information.	
Are dynamic price tariffs available in your region or by your supplier? Is your building eligible for them? Please provide information.	Dynamic tariffs are not yet operational in Belgium. Ecopower will simulate one.
Any other comments/remarks regarding tariff ruling in your country?	Capacity tariff is being discussed, but not implemented.

3.3.1.6 Bio-ecological and energy-efficient home

3.3.1.6.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	50,000 but real number depends of participants in aggregation role.
Please provide database with details on customers/members (location, profile…) – <u>No personal information required</u>	☐
Existing customer types	Commercial/tertiary (LV) ☐

	Commercial/tertiary (MV) X Residential (LV) X Others ☐, please elaborate
Number of customers/members equipped with smart meters	Depends on NobelGRID SMX implementation.
Frequency of readings from smart meters	Up to 1 minute data real time.
When do the smart meter readings become available to you?	Depends on the speed of the data coming from the SMX through the WG IOP.

3.3.1.6.2 Building information

Information required	
Name of building	Jacobs Nest
Location (coordinates)	Rodonkstraat 22, 9030 Ghent; 51.07705 3.66859
Structural information (e.g. surface, dimensions, floors, areas, etc.)	Surface area (A): 220 m² Compactness: 2.30 3 floors Semi-detached house
Usage (e.g. purpose, occupants, working times)	Housing
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No ☐ Yes X; please, provide details: - outside temperature - inside humidity - temperature of solar boiler - electricity consumption monitoring (Flukso) - electricity injection from PV monitoring - EVSE consumption monitoring
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No ☐ Yes X; please, provide details: Heat pump on/off controllable (model: Stiebel Eltron LWZ403, 6.4kW, for heating, warm water and ventilation)
Local electricity generation (emphasis on RES)	No ☐ Yes X; please, provide details:

	18 x 245 W solar panels, area 30 m², approximately 4100 kWh / year production.
Storage (incl. Electric Vehicles)	No ☐ Yes X; please, provide details: - Renault Zoé with 40 kWh battery, in a sharing system of Partago.
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Flukso, 3 electricity phase electricity metering (offtake + feed-in) + submetering EVSE consumption. Extra PV production submeter to be installed.
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	Solar panels for hot water production: area 5.5 m².
Approx. building annual electricity consumption	2,000 kWh / year net energy consumption from the grid.
Approx. annual electricity production (if RES)	4,100 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No ☐ Yes X; please, provide details (e.g. how, which assets, their importance to building consumption, etc.): Yes, see Flukso above.
Frequency of readouts	
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: Are being deployed now. Very rude measurements by monthly manual input of the meters.
Price history available	No ☐ Yes X; please, provide details: only for Customer of Ecopower.
Billing	
Current tariff plan	Fixed price: 0.26€ / kWh incl VAT
Current involvement in demand response programmes	H2020 Nobel Grid
Legal	

Who owns the building?	A Cooperative member of Ecopower.
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.3.1.6.3 Available controllable assets

Information required	
Manufacturer/Model	Stiebel Eltron LWZ 403 compact heatpump
Available protocol for monitoring/control (please elaborate on how the asset setpoints or measurements can be accessed)	EVU port: on/ off switch of heatpump
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	No ☐ Yes ☐ I do not know X
Controllability restrictions (technical, legal, contractual, comfort…)	The heat pump provides heating, so user comfort needs to be guaranteed.
Energy demand of asset – frequency of readouts	6.4 kW
When are the readouts available to you or to third parties?	After manual checking on the interface of the heat pump. There is possibility of automatic read out via a serial port, but is currently not (planned to be) implemented.
Are these readings personal/sensitive data according to European or national legislation?	No ☐ Yes X I do not know ☐
Energy demand of asset – historical readouts available	Yes by very rough measurements, monthly manual read out.
Please, provide any technical documentation available https://www.stiebel-eltron.com/en/home/products-solutions/renewables/heat_pump/air_water_heat_pumps/lwz_304_404_sol/lwz_404_sol/technical-	

data.html

3.3.1.6.4 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	Ecopower cvba
What types of time-of-use tariffs are there (single period, 2 periods, 3 periods, etc.)	Single tariff
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	
Is there a differentiation of tariffs based on active power? Please provide information.	No
Is there a differentiation of tariffs based on voltage? Please provide information.	No
Are there any other types of differentiation and/or restrictions that limit the selection of a tariff plan? Please provide information.	Unknown
Are dynamic price tariffs available in your region or by your supplier? Is your building eligible for them? Please provide information.	Not yet. Planned for 2019
Any other comments/remarks regarding tariff ruling in your country?	

3.3.2 WiseEVP Pilot Site details checklist

3.3.2.1 Infrastructure

Charging points	
Manufacturer	Allego (public charging station) Schneider electric (Partago owned charging station), Blue Corner (Partago owned charging station)
Model	Allego; Schneider: Evlink2; Blue Corner: pro station.

How many charging points will be available at demo site?	6 charging points in the main Pilot Site, 2 of which are controllable/real-time monitored; and for the rest of them, we can have charging log data (because of not owned by Partago). Optional controllable charging points: the charging stations of Partago are spread over Gent, 4 of them are located at homes with solar installations.
Please provide database with charging points details, including GIS information (geojson, postgis…)	☐
Are charge points remotely accessible to third parties?	Yes X No
If yes, please specify protocol	
Are charge points currently managed by any control system of your own?	Yes X No
If yes, please specify third party integration possibilities (API, protocol…)	- Schneider electric: OCPP - None of the charging stations are monitored by a control system of our own, but by the control system of Mobility+ (mobilityplus.be) and the control system of Blue Corner (bluecorner.be). We can access data from their backend. API availability unknown.
Please, provide any technical documentation available (charge points and monitoring system) mobilityplus.be evportal.be	

Extra infrastructure	
Are the charge points part of a larger facility?	Yes ☐ No X
If yes, will the facility participate in WiseGRID demonstrators (WiseCORP)?	Yes ☐ No X
Are other elements (batteries, solar panels…) installed or planned to be installed alongside the charge points?	Yes X No ☐
If yes… Could they be monitored as part of the demonstrator?	Yes X

Could they be controlled as part of the demonstrator?	No ☐ Yes ☐ No X

3.3.2.2 Electric vehicles

Electric vehicles	
Manufacturer	Renault Zoé and Nissan
Model	Zoé 22kWh, Zoé 41kWh, Nissan eNV200 24 kWh
How many vehicles will be available at demo site?	Total 26: 25 Zoé, 1 Nissan
Database with electric vehicle details	
Are vehicles currently monitored? If yes, please specify	Yes v No ◽
Details of hardware at vehicle	INVERS CloudBoxx
Details of monitoring system	Data is collected from car's can bus send via data connection to servers of INVERS, and set available via API's to our server. We get and set the data via the API of INVERS. Partago collects this data in his own database, which is accessible via API's.
Data retrieved from vehicles	SOC, charging plug in/out, charging on/off, ignition on/off, mileage, geolocalisation, doors status, handbrake status.
Frequency of data readout	Upon request by system (event).
Please, provide any technical documentation available (electric vehicles and monitoring system) 1, CloudBoxx documentation is confidential by INVERS. 2, Renault Zoé: https://nl.renault.be/voertuigen/elektrische-wagens/zoe/versies-en-prijzen.html#grade-ZOE-2|specs 3, Nissan e-NV200 24kWh OPTIMA https://nl.nissan.be/voertuigen/nieuw/e-nv200/specificaties.html	

3.3.2.3 Scheduling systems

Scheduling systems	
Are you currently using any system for EV vehicle availability scheduling? (e.g. times when vehicle is required by the organization, ex-	Yes X No ☐

pected distances to travel, vehicle booking…)	
If yes, could you provide details on the information handled by this system (availability scheduling, min. charge constraints, etc.)	In house made platform. Users reserve cars via the frontend. Key is sent to their smartphone. They open the doors with their smartphone to use the car. They return the car after use to the charging station, if battery's stage of charge is lower than 70%. Backend registers all reservations and controls availability. Frontend on https://app.partago.be. Backend on http://app.partago.be/admin. API with status data of our fleet is publicly available and expandable.

3.4 CREVILLENT

Crevillent is a municipality of the Valencian Region, Spain. It is located in the Range of Crevillent in the province of Alicante (Bajo Vinalopó region). The main coordinator in this Pilot Site is the electric Cooperative Crevillent, subsidiary of the Enercoop Group. Currently, the Electric Cooperative of Crevillent is a DSO and retailer that provides electricity to 14,315 consumers (13,047 households and 1,268 companies) in low voltage network and 30 consumers in medium voltage network (mainly industrial and service sector companies).

The entire energy production of the entity has zero emissions and hard work is done to get all the generated and distributed energy 100% clean.

3.4.1 WG Cockpit Pilot Site details checklists

3.4.1.1 Set-up

Information required	
Database of distribution grid assets, including GIS information (geojson, postgis, …)	X
Single-wire diagrams of distribution grid (including topology, line characterization, impedances, electrotechnical assets, …)– MV and LV (PSSE raw, …)	X

3.4.1.2 Integration with DSOs systems

SCADA	
Manufacturer	SITEL
Model	Is currently being upgraded
Will it be available for monitoring?	Yes X No ☐
Type of monitored signals (node voltages, line currents, switches and protective device states, …)	node voltages, line currents, switches and protective device states
Frequency of data acquisition	TBC
Approx. amount of monitored signals	---

in demo site	
Will it be available for controlling field assets (self-healing features)?	Yes X No ☐
Which protocol is available for integration with third parties?	TB SPECIFIED

AMI/AMR	
Manufacturer	ZIV / STGTEDIS
Model	Mostly - ZIV 5CTD-EIC - ZIV 5CTME2C47536 AVF
Approx. number of smart meters in demo site	12,000
Communication with Smart Meters (GPRS, PLC, etc.)	PLC
Frequency of readouts from smart meters	Hourly
Frequency of readouts from concentrators	Hourly, collected from previous day.
Which protocol is available for integration with third parties?	FTP/XML files

3.4.1.3 Field devices

Medium voltage grid	
Which elements are you currently monitoring with your SCADA (e.g. Fault Passage Indicators, protective relays, transformers…)?	Fault Passage Indicators, protective relays, transformers
Which elements are you able to control from your SCADA (switches…)?	Switches

3.4.1.4 RES and Electric Vehicles

RES	
Which RES units are present in your distribution grid? Please provide details (number of units, types, average peak power, ratio compared to overall demand…)	There are installed and integrated into the grid more than 75,000 PV panels in solar plants and 2,000 modules of PV panels in solar roofs. Photovoltaic plants connected to the Cooperative Network produce a total power of 13.4 MW, of which 13 MW are located in the solar farm of "El Realengo". This solar farm is divided into solar plants of 100, 50 and 25 kW, which are connected to the LV Cooperative Network. The rest of

	the plants are located on rooftops.
Are you currently monitoring production of those units? How? (SCADA, AMI,Protocols…)	Yes, SCADA.
Are you in position of controlling RES units? (production curtailment, power factor…) How? (direct control, signalling to third party…)	Yes, direct control.

Electric Vehicles	
Are there electric vehicle charging stations deployed in your distribution grid? Please provide details (number of units, demand profile, ratio compared to overall demand…)	No
Are you currently monitoring demand of those units? How? (SCADA, AMI, Protocols…)	---
Are you in position of controlling the operation of the charging points? (start/stop operations, limit supply…) How? (direct control, signalling to third party…)	---

3.4.2 WiseCOOP, WiseCORP, WiseHOME Pilot Site details checklists

3.4.2.1 Aggregator information

Information required	
Approx. amount of customers/members of cooperative/DSO	15,000
Please provide database with details on customers/members (location, profile…) – No personal information required	X
Existing customer types	Commercial/tertiary (LV) X Commercial/tertiary (MV)X Residential (LV) X Others ☐, please elaborate
Number of customers/members equipped with smart meters	12,000

Frequency of readings from smart meters	Hourly
When do the smart meter readings become available to you?	Daily

3.4.2.2 Mortuary

3.4.2.2.1 Building Information

Information required	
Name of building	Mortuary "Virgen de la Esperanza"
Location (coordinates)	691997.43 – 4235175.04
Structural information (e.g. surface, dimensions, floors, areas, etc.)	2 floors of 300 m^2 each one
Usage (e.g. purpose, occupants, working times)	Mortuary – Public service
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; PV plant of 6 kWp
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Models: - ZIV 5CTD-EIC - ZIV 5CTME2C47536 AVF
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	
Approx. building annual electricity consumption	55,111 kWh
Approx. annual electricity production (if RES)	7,533 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):

Frequency of readouts	Hourly, Daily and Monthly
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: 1 year
Price history available	No X Yes ☐; please, provide details:
Billing	
Current tariff plan	Enercoop Tariff
Current involvement in demand response programmes	No
Legal	
Who owns the building?	Cooperativa Eléctrica San Francisco de Asís
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.4.2.3 Nursing House

3.4.2.3.1 Building Information

Information required	
Name of building	Nursing House "La purísima"
Location (coordinates)	6923337.21 - 4235744.68
Structural information (e.g. surface, dimensions, floors, areas, etc.)	3 floors of 250 m^2 each one
Usage (e.g. purpose, occupants, working times)	Nursing House - 50 occupants
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No X Yes ☐; please, provide details:

Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; PV plant of 18.45 kWp
Storage (incl. Electric Vehicles)	No X Yes ☐; please, provide details:
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Models: - ZIV 5CTD-EIC - ZIV 5CTME2C47536 AVF
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	
Approx. building annual electricity consumption	96,471 kWh
Approx. annual electricity production (if RES)	26,213 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):
Frequency of readouts	Hourly, Daily and Monthly
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: 1 year
Price history available	No X Yes ☐; please, provide details:
Billing	
Current tariff plan	Enercoop Tariff
Current involvement in demand response programmes	No
Legal	
Who owns the building?	Residencia La Purísima
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X

	Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.4.2.4 Enercoop Headquarters

3.4.2.4.1 Building Information

Information required	
Name of building	Headquarters Electric Cooperative San Francisco de Asís
Location (coordinates)	691821.56 – 4233692.98
Structural information (e.g. surface, dimensions, floors, areas, etc.)	3 floors of 250 m^2 each one
Usage (e.g. purpose, occupants, working times)	Offices
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No☐ Yes X; please, provide details: HVAC
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; PV plant of 12 kWp
Storage (incl. Electric Vehicles)	No ☐ Yes X; please, provide details: 1 EV
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Models: - ZIV 5CTD-EIC - ZIV 5CTME2C47536 AVF

Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	
Approx. building annual electricity consumption	76,200 kWh
Approx. annual electricity production (if RES)	15,907 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):
Frequency of readouts	Hourly, Daily and Monthly
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details: 1 year
Price history available	No X Yes ☐; please, provide details:
Billing	
Current tariff plan	Enercoop Tariff
Current involvement in demand response programmes	No
Legal	
Who owns the building?	Cooperativa Eléctrica San Francisco de Asís
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.4.2.5 Enercoop Industrial plant

3.4.2.5.1 Building Information

Information required

Name of building	Industrial Plant Technical Department of the Cooperative
Location (coordinates)	692966.09 – 4234829.60
Structural information (e.g. surface, dimensions, floors, areas, etc.)	Industrial Building: 1,000 m^2 Offices: 250 m^2 Courtyard: 1,200 m^2
Usage (e.g. purpose, occupants, working times)	Warehouse, Technical Department, Control Centre
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No☐ Yes X; please, provide details: HVAC
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	No X Yes ☐; please, provide details:
Local electricity generation (emphasis on RES)	No ☐ Yes X; PV plant of 40 kWp
Storage (incl. Electric Vehicles)	No ☐ Yes X; please, provide details: 1 EV
Smart meters/ Power analysers	No ☐ Yes X; please, provide details (with emphasis on frequency of metering and when the data can become accessible to you or a third party): Models: - ZIV 5CTD-EIC
Building Management System	No X Yes ☐; please, provide details (e.g. about make, capabilities and connected assets):
Others…	
Approx. building annual electricity consumption	78,800 kWh
Approx. annual electricity production (if RES)	50,959 kWh
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No X Yes ☐; please, provide details (e.g. how, which assets, their importance to building consumption, etc.):
Frequency of readouts	Hourly, Daily and Monthly
Historical readouts available (historical traces of consumption is needed to calibrate/train models)	No ☐ Yes X; please, provide details:

	1 year
Price history available	No X Yes ☐; please, provide details:
Billing	
Current tariff plan	Enercoop Tariff
Current involvement in demand response programmes	No
Legal	
Who owns the building?	Cooperativa Eléctrica San Francisco de Asís
Is an agreement needed to access data for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐
Is an agreement needed to take actions over assets for demo purposes?	No ☐ Yes, owner consent is required X Yes, consent from owner and building occupants is required ☐

3.4.3 WiseEVP Pilot Site details checklist

3.4.3.1 Infrastructure

Charge points		
Manufacturer	INGETEAM, CIRCUTOR	
Model	INGEREV CITY RVE-WB	
How many charge points will be available at demo site?	3 (one of them the WG FastV2G)	
Please provide database with charge points details, including GIS information (geojson, postgis…)		
Are charge points remotely accessible to third parties?	Yes ☐	No ☐

If yes, please specify protocol	TBC (OCPP)
Are charge points currently managed by any control system of your own?	Yes ☐ No X
If yes, please specify third party integration possibilities (API, protocol…)	

Extra infrastructure	
Are the charge points part of a larger facility?	Yes X No ☐
If yes, will the facility participate in WiseGRID demonstrators (WiseCORP)?	Yes X No ☐
Are other elements (batteries, solar panels…) installed or planned to be installed alongside the charge points?	Yes X No ☐
If yes… Could they be monitored as part of the demonstrator? Could they be controlled as part of the demonstrator?	Yes X No ☐ Yes ☐ No X

3.4.3.2 Electric vehicles

Electric vehicles	
Manufacturer	Renault
Model	Renault ZE 40 Renault Kangoo
How many vehicles will be available at demo site?	2
Database with electric vehicle details	
Are vehicles currently monitored? If yes, please specify	Yes ◻ No X
Details of hardware at vehi-	

cle	
Details of monitoring system	
Data retrieved from vehicles	
Frequency of data readout	

3.4.3.3 Scheduling systems

Scheduling systems		
Are you currently using any system for EV vehicle availability scheduling? (e.g. times when vehicle is required by the organization, expected distances to travel, vehicle booking…)	Yes ☐	No X
If yes, could you provide details on the information handled by this system (availability scheduling, min. charge constraints, etc.)		

3.5 KYTHNOS

The demonstration area of the current Pilot Site corresponds to the electrical system of Kythnos, a Greek island and municipality in the Western Cyclades with a population of 1,632 people. Kythnos is not interconnected either to the mainland grid or to any other neighbouring islands' electricity grids; hence Kythnos Island's electrical system constitutes a single-island insular system. The main coordinator of this Pilot Site is the Aegean Energy and Environment Agency (AEGEA). AEGEA's strategic objective is to increase the share of RES in islands' energy mix and promote technologies and practices that encourage the efficient and rational use of energy.

3.5.1 WG Cockpit Pilot Site details checklists

3.5.1.1 Set-up

Information required	
Database of distribution grid assets, including GIS information (geojson, postgis, …)	☐
Single-wire diagrams of distribution grid (including topology, line characterization, impedances, electrotechnical assets, …)– MV and LV (PSSE raw, …)	X

3.5.1.2 Integration with DSOs systems

SCADA

Manufacturer	EFACEC (in progress, not yet implemented on Kythnos)
Model	ScateX+ 15.7.5 (in progress, not yet implemented on Kythnos)
Will it be available for monitoring?	Yes X No ☐
Type of monitored signals (node voltages, line currents, switches and protective device states, …)	Feeder voltage, line current at feeder, feeder protective device state, feeder switches state, power factor values of lines at feeder point.
Frequency of data acquisition	Measurements are acquired either every 1 min or every time a measured quantity changes by a value greater that a specified amount. States of switching elements or other equipment are transmitted every time a change in their state occurs. Once per day a general interrogation of all control signals is performed in order to update their state in the central system, independently of whether they had a change of state or not.
Approx. amount of monitored signals in demo site	
Will it be available for controlling field assets (self-healing features)?	Yes ☐ No ☐
Which protocol is available for integration with third parties?	IEC 60870-5-101/104

AMI/AMR	
Manufacturer	---
Model	---
Approx. number of smart meters in demo site	
Communication with Smart Meters (GPRS, PLC, etc.)	
Frequency of readouts from smart meters	15 min
Frequency of readouts from concentrators	---
Which protocol is available for integration with third parties?	---

3.5.1.3 Field devices

Medium voltage grid	
Which elements are you currently monitoring with your SCADA (e.g. Fault Passage Indicators, protective	None yet

relays, transformers…)?	
Which elements are you able to control from your SCADA (switches…)?	None yet

3.5.1.4 RES and Electric Vehicles

RES	
Which RES units are present in your distribution grid? Please provide details (number of units, types, average peak power, ratio compared to overall demand…)	1. Wind farm 165 kW of installed power (production has stopped). 2. Wind farm 500 kW of installed power (production has stopped). 3. Three small PV stations of 238.25 kWp in total (a 98.25 kWp station and two 70kWp stations) installed and fully operating (low voltage distributed generation). 4. Repowering process for a 0.8 MW wind turbine has started and installation of the new unit is expected by end of 2018.
Are you currently monitoring production of those units? How? (SCADA, AMI, Protocols…)	Production of wind farms could be monitored in the Diesel Power Station through Diesel Power Station SCADA (MAS), with some additional implementation on the wind farm side. Production of Photovoltaic installations is not being monitored.
Are you in position of controlling RES units? (production curtailment, power factor…) How? (direct control, signalling to third party…)	Wind farms could be submitted to production curtailments through Diesel Power Station SCADA (MAS), with some additional implementation on the wind farm side.

Electric Vehicles	
Are there electric vehicle charging stations deployed in your distribution grid? Please provide details (number of units, demand profile, ratio compared to overall demand…)	None yet
Are you currently monitoring demand of those units? How? (SCADA, AMI, Protocols…)	---
Are you in position of controlling the operation of the charging points? (start/stop operations, limit supply…) How? (direct control, signalling to third party…)	---

3.5.1.5 Power Station

SCADA System	
Type of SCADA	---
Type of Units	Seven diesel gen-sets are operating at the power station (2 x MITSUBISHI S16R-PTA with nominal power 1,275MW, 1 x

	MITSUBISHI with nominal power 1,250MW and 4 x MWM TBD603V12 with nominal power 0.53 MW)

3.5.2 WiseCORP and WG STaaS VPP Pilot Site details checklists

3.5.2.1 Building information

Information required	
Name of building	Desalination plant at Merichas
Location (coordinates)	
Structural information (e.g. surface, dimensions, floors, areas, etc.)	
Usage (e.g. purpose, occupants, working times)	Two desalination units with maximum capacity of 300 m^3/day each – 600 m^3/day in total.
Available equipment	
Sensors (please focus especially on occupancy and environmental sensors, e.g. temperature, humidity, luminance, IAQ, etc.)	No **X** Yes ☐; please, provide details:
Controllable assets (please focus especially on energy hungry assets, e.g. HVAC, lighting, pool equipment, etc.)	Yes ☐; PLC unit (ON/OFF), Pumps for sea water, desalinated water and saline residuals.
Local electricity generation (emphasis on RES)	No
Storage (incl. Electric Vehicles)	No
Smart meters/ Power analysers	No
Building Management System	No
Other	
Approx. building annual electricity consumption	
Approx. annual electricity production (if RES)	
Metering	
Are you metering particular areas/assets demand independently? (sub-metering)	No
Frequency of readouts	None
Historical readouts available (historical traces of consumption are needed to calibrate/train models)	No ☐ Yes ☐; please, provide details:
Price history available	No ☐ Yes ☐; please, provide details:

Billing	
Current tariff plan	
Current involvement in demand response programmes	None
Legal	
Who owns the building?	Municipality of Kythnos
Is an agreement needed to access data for demo purposes?	Yes, owner consent is required
Is an agreement needed to take actions over assets for demo purposes?	Yes, owner consent is required

3.5.2.2 Available controllable assets

Information required	
Manufacturer/Model	Siemens/ PLC SIMATIC S7-300
Available protocol for monitoring/control (please elaborate on how the asset set-points or measurements can be accessed)	Modbus
Is it possible to capture the setpoints that users apply (e.g. temperature on thermostats or dimming levels)?	No ☐ Yes ☐ I do not know X
Controllability restrictions (technical, legal, contractual, comfort…)	
Energy demand of asset – frequency of readouts	
When are the readouts available to you or to third parties?	
Are these readings personal/sensitive data according to European or national legislation?	I do not know
Energy demand of asset – historical readouts available	

3.5.2.3 Tariff information

Information required	
Provide a list the retailers that offer tariffs that can be applied to your buildings	One retailer supplies energy to the island (P.P.C. S.A.).
What types of time-of-use tariffs are	Only the residential customers have the option to be charged

there (single period, 2 periods, 3 periods, etc.)	by a different tariff during 02:00-08:00 and 15:30-17:30 from the 1st of November until the 30th of April and during 23:00-07:00 from the 1st of May until the 31st of October.
For time-of-use tariffs, what is the minimum reading frequency for consumption (1 hour, 15 minutes, etc.)	________________________________
Is there a differentiation of tariffs based on active power? Please provide information.	________________________________
Is there a differentiation of tariffs based on voltage? Please provide information.	________________________________
Are there any other types of differentiation and/or restrictions that limit the selection of a tariff plan? Please provide information.	________________________________
Are dynamic price tariffs available in your region or by your supplier? Is your building eligible for them? Please provide information.	________________________________
Any other comments/remarks regarding tariff ruling in your country?	________________________________

3.5.3 WiseEVP Pilot Site details checklist

3.5.3.1 Infrastructure

Charge points	
Manufacturer	---
Model	Technical specs: Mode 3 AC charging according to IEC 61851-1:2017 3phase, nominal voltage 230/400 V OCPP 1.6 ready Communication protocol IEC 61851 Protection IP 54 according to EN/IEC 60529 Pollution level 3 according to IEC 61439-1 One or two sockets Nominal power for each socket at 22 kVA/7 kVA for 3phase/1phase respectively. Maximum current per phase for each socket: 32A.
How many charging points will	10 (expected)

be available at demo site?	
Database with charging points details, including GIS information (geojson, postgis…)	During an interactive workshop with Kythnos locals at the end of April, the participants were asked to propose 10 locations for charging points on the map of Kythnos. Currently, these proposals are being discussed with the DSO during a spatial and EV planning analysis process.
Are charging points remotely accessible to third parties?	Yes
If yes, please specify protocol	TCP/IP
Are charging points currently managed by any control system of your own?	No
If yes, please specify third party integration possibilities (API, protocol…)	

3.5.3.2 Electric vehicles

Electric vehicles	
Manufacturer	TBD from procurement process
Model	TBD from procurement process
How many vehicles will be available at demo site?	10
Database with electric vehicle details	
Are vehicles currently monitored? If yes, please specify	No
Details of hardware at vehicle	
Details of monitoring system	
Data retrieved from vehicles	
Frequency of data readout	

3.5.3.3 Scheduling systems

Scheduling systems	
Are you currently using any system for EV vehicle availability scheduling? (e.g. times when vehicle is required by the organization, expected distances to travel, vehicle booking…)	No
If yes, could you provide details on the information handled by this system (availability scheduling, min. charge constraints, etc.)	

4 UPCOMING SYSTEMS AND DATA

4.1 MESOGIA

Mesogia Pilot Site infrastructure is currently being upgraded in order to be able to fully host the WiseGRID tools that have been selected. The following list presents the planned hardware upgrade of the Pilot Site.

- 1 CHP (Combined Heat and Power) module – EDA is at the final stage of purchasing the module which will be installed at its premises. It will be used for WiseCORP and is expected to be installed no sooner than December 2018.
- CHP infrastructure – ICCS has purchased a CHP (Vitobloc 200 6/15) and has started installing it, so there is some pending infrastructure (e.g pipes). It will be used for WiseCORP. It is expected to be installed and ready for operation by December 2018.
- Server system – It is the required hardware for the Big Data platform. It will be used for all tools and will be available on August 2018.

4.2 TERNI

ASM Terni infrastructure is currently being upgraded in order to be able to fully host the WiseGRID tools that have been selected. The following list presents the planned hardware upgrade of the Pilot Site.

- 1 Electric Vehicle – Renault ZOE 22kWh. It will be used for WiseEVP and is expected to be available by June 2018.
- 1 Electric Vehicle – Nissan Leaf 30kWh. It will be used for WiseEVP, but the day of availability is not known yet.
- 1 Fast Charger – It will be used for WiseEVP, but the type and day of availability have not been defined yet.

4.3 FLANDERS

The Flanders Pilot Site infrastructure is currently being upgraded in order to be able to fully host the WiseGRID tools that have been selected. The following list presents the planned hardware upgrade of the Pilot Site.

- 5 to 7 Battery systems – Battery systems including batteries and single-phase battery inverter will be commissioned from Varta (5 household systems) and Ampère Energy (1 or 2 3-phase systems). They will be used for WG Staas/VPP. Varta is awaiting regulatory approval to install it in Belgium and Ampère is currently awaiting data of 2 test sites for further design.
- Ecopower is working on the installation of more H2020 Nobel Grid Smart Home controllers to be able to control up to 8 extra heat pumps in the Ghent area through the SMX. They are expected to be available July 2018.
- Together with the local co-operative Energent, Ecopower is working on the installation of up to 50 smart meters with SMX in the Ghent area. They are expected to be available December 2018.
- The local co-operative Energent is working on the installation of more individual and community-owned PV plants. They are expected to be installed throughout the project.

4.4 CREVILLENT

Crevillent Pilot Site infrastructure is currently being upgraded in order to be able to fully host the WiseGRID tools that have been selected. The following list presents the planned hardware upgrade of the Pilot Site.

- SCADA upgrade – Current SCADA is being upgraded to a newer version. It will be used for WG Cockpit for real-time collection of measurements from substations and monitoring the status of fault passage detectors. It is expected to be available on July/August 2018.
- Integration of HVAC – It will take place at the headquarters of Cooperative Crevillent and will be used for WiseCORP.
- OCPP protocol – It needs to be confirmed that is available at Enercoop headquarters. It will be used for the integration with WiseEVP.
- PV and charging station submetering data from the Enercoop Industrial Plant.
- The WG FastV2G will be deployed in Crevillent but ITE needs to perform some tests in advance. Currently, the vehicles compatible with V2G technology are the Nissan Leaf and the Nissan E-NV200 van. So, these are the two types of vehicles that would enable us to demonstrate V2G technology. By the beginning of June, ITE will have a Nissan Leaf in renting mode during the same month to conduct the tests in ITE premises.
- To demonstrate the fast charge of the WG FastV2G, any vehicle compatible with CHAdeMO will serve. Possible list of cars to be used in Crevillent: Nissan Leaf (V2G) · Nissan E-NV200 (V2G) · Mitsubishi Fuso Ecanter · Mitsubishi Outlander · Toyota Prius · Kia Soul · Tesla Model S (with CHAdeMO adapter) · Mitsubishi I-MIEV · Mahindra E20 · Peugeot Partner · Peugeot Partner Tepee Electric · Citroen C-Zero · Peugeot Ion · Citroen Berlingo · Mitsubishi Minicab-MiEV Truck · Mitsubishi Minicab-MiEV · Mazda Demio · Bollinger B1 · Honda Fit · Subaru Stella · BD Otomotiv eKangoo · BD Otomotiv eDucato · BD Otomotiv eFiorino · BD Otomotiv eTrafic.

4.5 KYTHNOS

Kythnos Pilot Site infrastructure is currently being upgraded in order to be able to fully host the WiseGRID tools that have been selected. The following list presents the planned hardware upgrade of the Pilot Site.

- 5 to 10 Battery systems – Battery systems including batteries and single-phase battery inverter will be commissioned from Varta. They will be used for WG Staas/VPP. The first two units are expected by August 2018 and the rest by December 2018.
- 5 to 10 Charging stations – They will be used for WiseEVP. The first two units are expected by November 2018 and the rest by February 2019.
- 5 to 10 Electric Vehicles – They will be used for WiseEVP. The first two units are expected by November 2018 and the rest by February 2019.

5 PLANNING AND TIMELINE OF THE INTEGRATION AND DEPLOYMENT ACTIVITIES

At this chapter the timeline and planning of the integration and deployment activities is presented and explained. The timeline follows the basic milestones of the WiseGRID project. Tool developers and Pilot Site leaders, with the support of ICCS and ETRA, are the main responsible partners of these two activities. Integrated lab-testing and deployment activities will prepare the ground for the demonstration activities, the final stage of the WiseGRID project.

5.1 INTEGRATED LAB-TESTING ACTIVITIES

It is a task that mainly refers to the tool developers of the consortium, supported by ICCS and ETRA, and its main scope is to test and evaluate the performance and interoperability of the WiseGRID tools in an integrated laboratory environment and refine them, so as to be ready for the final deployment period. For that purpose, a set of integration steps will be identified and realized for each tool. Each integration step should produce a product that implements a related functionality of the tool. The sequence of the integration steps and the complete schedule will be also described. Additionally, part of this task is also the resolution and documentation (if necessary) of possible integration problems that might occur during this activity. At Figure 8, the timeline of the Integrated Lab-testing activities is presented.

As it can be seen from the timeline, this activity starts at month M19, which corresponds to May 2018, and ends at month M24 which is October 2018. At M19 and M24 the deliverables D14.1 and 14.2 need to be submitted accordingly. From the end of M19 up to M21 (July 2018), the tool developers need to identify and describe the required integration steps and their sequence. Also, during the same period the final refinement of the WG tools will take place and the tool developers will close all the pending issues regarding the functionalities of developed tools. The end of this period, July 2018, coincides with the deadline of the deliverables D5.2, D7.2, D9.2, D11.2 and D13.2 which correspond to the refinement and lab-testing for each of the developed tools. At the same month (M21), the main part of the activity starts, which is the integrated lab-testing, based on the steps and following the sequence, as defined at the previous period. This period ends at the end of M24 (October 2018) and the outcomes will be presented in the deliverable D14.2. During the integrated lab-testing period, the resolution and, in cases, documentation of the occurring problems will take place. At the end of the Integrated lab-testing period, all developed tools are expected to be ready for the final deployment.

5.2 PRELIMINARY DEPLOYMENT

The main responsible partner for this activity, the Pilot Site leaders, will collaborate with the tool developers and will be supported by ICCS and ETRA in order to deploy one or two, at most, of the WiseGRID tools at their premises and evaluate their performance. The scope of this activity is, on the one hand, to give a feedback to the tool developers for the performance of the deployed tools at real world conditions and on the other hand to activate the Pilot Sites so as to prepare their infrastructure before the final deployment. At the end of this activity, it is expected that each of the developed tools will be operating and will be fully functional at one Pilot Site, and at each Pilot Site at least one WG tool will be fully deployed. At Figure 9, the timeline of the preliminary deployment activities is presented.

According to the timeline this activity starts at M22, which is August 2018, and ends at M26, December 2018. As it can be observed, this activity overlaps with the integrated lab-testing activity, described at the previous paragraph. This allows the tool developers to get a feedback from the real-world testing and refine even more, if required, the developed tools. This activity starts with the preparation of the Pilot Sites in order to be able to host the defined tool. Three months have been allocated for this preparation, from August (M22) to October (M24). Big data infrastructure preparation, although a part of the general preparation of the Pilot Site, is defined as a different activity since it requires the active involvement of more partners (not only the Pilot Site leader). On M23, September 2018, the tool developers will start preparing the tool for its deployment at the specific Pilot Site. This means that all the required interfaces, parameters, submodules need to be calibrated accordingly and tested separately, if necessary. The actual preliminary deployment will start on October 2018 (M24) and will last until November 2018 (M25). The last month, December 2018 (M26) will be used for the evaluation and assessment of the results coming from the operation of the tools at the specific Pilot Site. In parallel with the deployment phase, the documentation of the occurring issues will take place along with the way to resolve them. Finally, it needs to be mentioned that DPIA establishment, which is part of the preliminary deployment activity, has been decided to take place during June 2018 (M20). This month precedes the officially specified period of preliminary deployment, but since it is an independent but necessary activity, it was considered best to happen in this month.

5.3 FINAL DEPLOYMENT

Similar to the preliminary deployment activity, the responsible partners for this activity are the Pilot Site leaders who will collaborate with the tool developers and will be supported by ICCS and ETRA in order to achieve the final deployment of the selected WiseGRID tools at the respective demo sites. Both the Pilot Site leaders and the tool developers with the experience gained from the preliminary deployment will deploy and evaluate the operation of all the WG tools with the final goal being the preparation for the demonstration activities that follow. At Figure 10, the timeline of the preliminary deployment activities is presented.

As it is expected, the main activities required for the final deployment are more or less the same as for the preliminary deployment. The main difference is that in this case all the specified tools will be deployed at the corresponding Pilot Sites. Although this seems to be a heavy burden for only four months, it is expected that the experience gained during the preliminary deployment will help significantly and in various ways. The tool developers will have debugged the tools and will have already prepared them for deployment. Many issues related to real environments will have been already dealt with. As a result, only the Pilot Site specific requirements will need to be met. The same is expected for the Pilot Site leaders, as well. According to the timeline this activity starts at M27, which is January 2019, and ends at M30, April 2019. The final deployment starts with the preparation of the Pilot Sites in order to be able to host the defined tools. Slightly more than two months have been allocated for this preparation, from January (M27) to beginning of March (M29). Big data infrastructure preparation, although a part of the general preparation of the Pilot Site, is defined as a different activity for the same reason as before. This activity runs in parallel with the preparation of the Pilot Site but is not expected to be time consuming since most of the issues concerning the required hardware and software are expected to have already been solved during preliminary deployment. The tool developers will start preparing the tools for the deployment at the various Pilot Sites also at the same period. The actual final deployment will start at the end of M28 (February 2019) and will last until the beginning of M30 (April 2019). At the end of M29 (March 2019) and during the whole M30 the evaluation and assessment of the results coming from the operation of the tools at the Pilot Sites will take place. Note that this month is also the deadline for the deliverable D15.1 “WiseGRID integrated ecosystem preliminary deployment and demonstration". At the end of the final deployment all tools should be able to operate at the specific Pilot Sites, so that the demonstration period could start.

Figure 8 – Timeline for integrated lab-testing activities.

Figure 9 – Timeline for preliminary deployment activities.

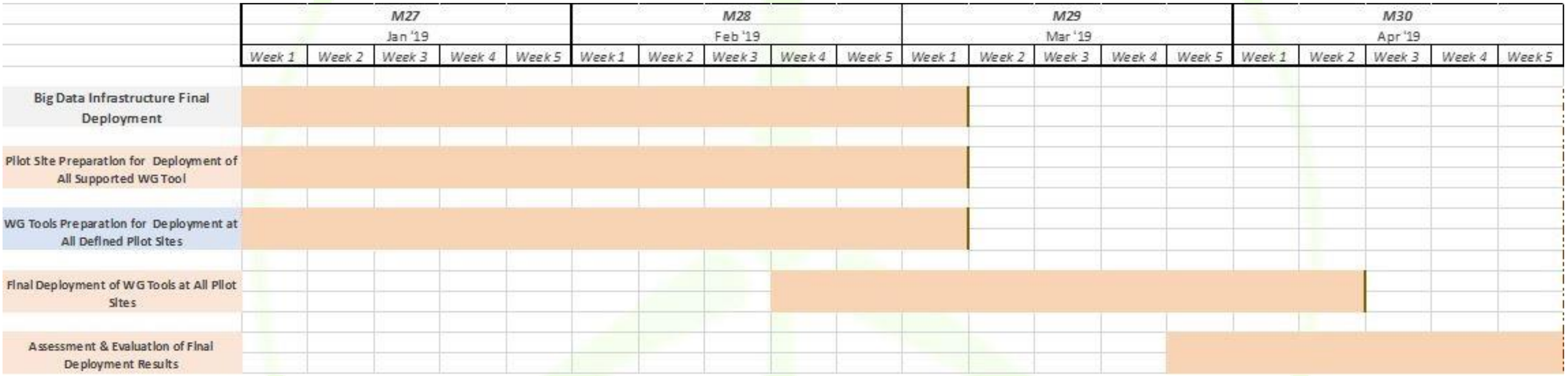

Figure 10 – Timeline for final deployment activities.

6 CONCLUSIONS

The integration and demonstration of 9 different products into a single framework will not be an easy task and the tool developers and Pilot Sites have to be properly prepared. That requires a good overview of the systems already in place and the necessary extra requirements such as storage, big data specifications…

The data collected from the Pilot Sites indicates that they are correctly prepared to test and evaluate all the WG tools and Use Cases that they indicated. In addition, it can be highlighted that the deployment and utilization of the respective WiseGRID products will be useful for improving their respective businesses, as they will facilitate faster dispatching of their everyday tasks.

In order to better prepare this demonstration phase, a planning and a timeline have been created according to the WiseGRID milestones. The goal of this process is to deploy the tools in an organized way in order to receive reliable and exploitable feedback, learn from the first deployments and avoid future problems in the definitive deployment.

In the future deliverables of WPs 14 and 15, all the tasks that are needed to be carried out for the proper demonstration of the WiseGRID framework will be further explained and additionally, specific information (divided per Pilot Site) will be shown in order to correctly test and assess its performance.

7 REFERENCES AND ACRONYMS

7.1 REFERENCES

[1] NOBEL GRID Project, [Online]. Available: http://nobelgrid.eu/.

7.2 ACRONYMS

Table 3 – Acronyms list

Acronyms List	
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
API	Application Programming Interface
DC	Direct Current
DMS	Distribution Management System
DPIA	Data Protection Impact Assessment
DSO	Distribution System Operator
ESCO	Energy Service COmpany
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment

G2V	Grid To Vehicle
GIS	Geographical Information System
HV	High Voltage
ICT	Information and Communication Technology
LV	Low Voltage
MV	Medium Voltage
OCCP	Open Charge Point Protocol
PLC	Programmable Logic Controller
PV	Photovoltaic
RES	Renewable Energy Source
RESCO	Renewable Energy Service COmpany
RTU	Remote Terminal Unit
SCADA	Supervisory Control And Data Acquisition
STaaS	Storage as a Service
TSO	Transmission System Operator
V2B	Vehicle To Building
V2G	Vehicle To Grid
VPP	Virtual Power Plant
WG	WiseGRID