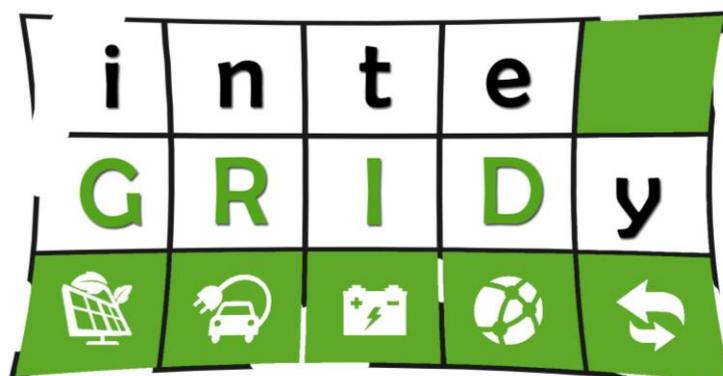


Innovation Action



inteGRIDy

integrated Smart GRID Cross-Functional Solutions for
Optimized Synergetic Energy Distribution, Utilization
& Storage Technologies

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WP10 – Project Management
**D10.12 - Report on Collaboration with
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Abstract:	This report presents the work undertaken as part of Task 10.4 “ <i>Collaboration with Other Projects & Coordination & Support Actions</i> ” in the <i>inteGRIDy</i> project. This task is described as follows in the <i>inteGRIDy</i> Document of Actions (DoA). “The aim of this task is to facilitate participation in technical workshops, and conferences organised by the EC and other innovation actions and co-ordination and support actions. This will include workshops on policy relevant issues such as regulatory frameworks, business models and obstacles to Smart Grid innovation. This task will focus on collaboration with other projects funded under the same call (H2020 LCE-2-2016) and the co-ordination and support actions funded under LCE-3 2016. Due to related DR projects funded by the Executive Agency for SMEs (EASME) this task will also involve contributing upon invitation by the EASME, to common information (like reporting on impact indicators) and dissemination activities to increase synergies between and the visibility of, H2020 and EC supported actions. The allocated effort for this task corresponds to around 2% of the total project funding, with the participation of all consortium partners.”
Keywords:	Collaboration, co-ordination actions, support actions, technical workshops, conferences, impact indicators, dissemination.

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Executive Summary

This report describes the efforts of the inteGRIDy consortium to participate in technical workshops and conferences organised by the EC and other innovation, co-ordination and support actions in the first 24 months of the inteGRIDy project. The project is funded under the H2020 LCE-02-2016 “Demonstration of smart grid, storage and system integration technologies with increasing share of renewables: distribution system” topic.

The main aim of this engagement is to ensure knowledge transfer between inteGRIDy and the other EU funded projects funded under the Competitive Low-Carbon Energy (LCE) topic. In the first two years of the inteGRIDy project, the main approach adopted utilised the existing BRIDGE network.

The actions undertaken by the inteGRIDy consortium have also sought to liaise with projects funded by the Executive Agency for SMEs (EASME). This has involved contributions upon invitation by the EASME, to common information and dissemination activities to increase synergies between and the visibility of, H2020 and EC supported actions.

Directly addressing Task 10.4 of the inteGRIDy project as described in the DoA this report describes the following.

- The inteGRIDy consortiums collaboration with BRIDGE, a cooperation group involving 36 H2020 Low Carbon Energy (LCE) Smart-Grid and Energy Storage from 2014 to 2019.
- Events hosted by the members of the inteGRIDy consortium. that were specifically aimed to engender integrated working with projects funded under LCE and Demand Response (DR) projects funded by the Executive Agency for SMEs (EASME)
- The engagement of the inteGRIDy consortium with events hosted and the DR projects funded by the EASME.

To identify the efforts for dissemination and participation in the above projects and groups, a survey for the inteGRIDy consortium members was conducted, the results are presented in chapter 5.

The survey responses revealed that inteGRIDy partners are mostly involved in projects funded under the same LCE-02-2016 topic as inteGRIDy and representing inteGRIDy on BRIDGE.

Overall, seven (approximately 23%) of inteGRIDy partners were involved in other projects under the same LCE-02-2016 topic as inteGRIDy, with one partner being involved with two other projects (3.3%). Nevertheless, there is a scope for increased engagement in the second 24 months of the project. It is anticipated that participation will increase dramatically with increased activities and findings in WP4 WP5, WP6 and WP7, which will lead to more technical dissemination in 2019 and 2020.

In addition, six (20%) of the inteGRIDy partners represented inteGRIDy in activities ran by BRIDGE programme including Business Models, Data Management, Customer engagement and regulations.

It is recommended that all inteGRIDy partners are further encouraged to present inteGRIDy work at events run by projects under the same LCE-02-2016 topic, and represent inteGRIDy at events hosted by DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME and to participate in the activities ran by IntEnSys4EU.



Table of Contents

1. Introduction	8
1.1 Scope and objectives of the deliverable	8
1.2 Structure of the deliverable.....	8
1.3 Research methodology	8
2. InteGRIDy, BRIDGE and IntEnSys4EU.....	10
2.1 Introduction.....	10
2.2 InteGRIDy and BRIDGE	10
2.2.1 inteGRIDy and the BRIDGE Coordinators Group	12
2.2.2 inteGRIDy and the BRIDGE Regulations Working Group.....	12
2.2.3 inteGRIDy and the Business Models Working Group	13
2.2.4 inteGRIDy and the Data Management Working Group.....	13
2.2.5 inteGRIDy and the Customer Engagement Working Group.....	14
2.3 inteGRIDy and IntEnSys4EU	14
3. inteGRIDy organised conferences and workshops.....	16
3.1 Introduction.....	16
3.2 InteGRIDy First International conference.....	16
3.2.1 InteGRIDy Work Package Workshops.....	17
4. inteGRIDy projects engagement with EASME funded projects	18
4.1 Introduction.....	18
4.2 EASME Contractors Meeting on Smart Buildings	18
5. Survey results.....	19
6. Conclusions.....	22
7. References.....	23
8. ANNEX 1 Description of EASME funded DR projects	24
8.1 Sim4Blocks	24
8.2 DrBOB.....	24
8.3 RESPOND	25
8.4 TABEDE	25
8.5 HOLISDER	25
8.6 DRIMPAC	26
9. ANNEX 2 Description of INEA projects on Grids & Storage, Energy Systems.....	27

Table of Figures

Figure 1. Projects within the BRIDGE consortium.....	10
Figure 2. InteGRIDy First International conference in Milan, on 14.09.2017.	16



Table of Tables

Table 1. BRIDGE Working Groups [BR118b].	11
Table 2. Key survey responses from inteGRIDy partners.	20
Table 3. Analysis to Key survey responses from inteGRIDy partners.	21
Table 4. H2020 projects on Grids & Storage, Energy Systems.....	27

List of Acronyms and Abbreviations

Term	Description
DoA	Description of Actions
DR	Demand Response
DR-BOB	Demand Response Energy Management Solution for Blocks of Buildings
DRIMPAC	Unified DR Interoperability Framework Enabling Market Participation of Active Energy Consumers
EC	European Commission
EASE	European Association for Storage of Energy
EASME	Executive Agency for SMEs
eDREAM	Enabling New DR Advanced, Market Oriented, Secure Technologies, Solutions & Business Models
EDSO	European Distribution System Operators
EERA	European Energy Research Alliance
EF-i	Energy Flexibility Interface
EMS	Energy Management System
ENTSO-E	European Network Transmission System Operators for Electricity
ESCO	Energy Services Company
ETIP SNET	European Technology & Innovation Platforms Smart Networks for Energy Transition
GOFLEX	Generalized Operational FLEXibility for Integrating RES in the Distribution Grid
HOLISDER	Holistic Demand Response Optimization in Buildings and Districts
HV	High Voltage
ICT	Information and communications technology
InterFlex	Interactions between automated ES & Flexibility brought by energy market players
InteGrid	Demonstration of Intelligent grid technologies for renewables Integration and Interactive consumer participation enabling Interoperable market solutions and Interconnected stakeholders
INVADE	Integrated electric vehicles and batteries to empower distributed and centralised storage in distribution grids
IntEnSys4EU	Integrated Energy System - A Pathway for Europe
JACE	Java Application Control Engine
LCE	Competitive Low-Carbon Energy topic
LV	Low Voltage
MV	Medium Voltage
RES	Renewable Energy Sources
RESPOND	integrated demand REsponse Solution towards energy POsitive Neighbourhoods
ROI	Return on Investment
SET-Plan	Integrated Roadmap Strategic Energy Technology Plan
Sim4Blocks	Simulation Supported Real Time Energy Management in Building Blocks
SME	Small and Medium Sized Enterprise
SMILE	SMart IsLand Energy systems
TILOS	Technology Innovation for the Local Scale, Optimum Integration of BES
EUSEW	European Sustainable Energy Week
WiseGRID	Wide scale demonstration of Integrated Solutions and business models for European smartGRID

1. Introduction

1.1 Scope and objectives of the deliverable

This report describes the efforts of the inteGRIDy consortium to participate in technical workshops and conferences organised by the EC and other innovation, co-ordination and support actions in the first 24 months of the inteGRIDy project which is funded under the H2020 LCE-02-2016 “Demonstration of smart grid, storage and system integration technologies with increasing share of renewables: distribution system” topic.

The main aim of this engagement is to ensure knowledge transfer between inteGRIDy and the other EU funded projects funded under the Competitive Low-Carbon Energy (LCE) topic. In the first two years of the inteGRIDy project, the main approach adopted utilised the existing BRIDGE network.

BRIDGE was established in November 2015 as a cooperation group for all LCE Smart-Grid and Storage projects funded under Horizon 2020 and has grown to a network of over 36 projects. These include inteGRIDy’s six sister projects funded under the same LCE-02-2016 topic as inteGRIDy. Namely, GOFLEX, InteGrid, InterFlex, INVADE, SMILE, WiseGRID (ANNEX 2).

The actions undertaken by the inteGRIDy consortium have also sought to liaise with projects funded by the Executive Agency for SMEs (EASME). This has involved contributions upon invitation by the EASME, to common information and dissemination activities to increase synergies between and the visibility of, H2020 and EC supported actions.

In addition, the actions undertaken by the inteGRIDy consortium have sought to liaise with the Integrated Energy System - A Pathway for Europe (IntEnSys4EU) an LCE-03-2016 (Support to R&I Strategy for Smart Grid and Storage) project, aiming to address the SET-Plan identified integration challenges.

In order to identify the efforts for dissemination and participation in the above projects and groups, a survey for the inteGRIDy members is conducted, the results of which are presented in chapter 5.

1.2 Structure of the deliverable

This report is structured in the following way to describe the work required as part of Task 10.4 “*Collaboration with Other Projects & Coordination & Support Actions*” in a way that clearly shows how the work conducted meets the task description in the document of actions.

Chapter 2 presents the inteGRIDy consortium’s collaboration with the BRIDGE and IntEnSys4EU initiatives.

Chapter 3 describes inteGRIDy-organised conferences and workshops that were specifically aimed to engender integrated working with projects funded under LCE and Demand Response (DR) projects funded by the Executive Agency for SMEs (EASME). Therefore, this section focuses on events hosted by the members of the inteGRIDy consortium.

Chapter 4 discusses the inteGRIDy projects engagement with EASME funded projects. Therefore, this section describes the engagement of the inteGRIDy consortium with events hosted and the DR projects funded by the EASME.

Chapter 5 analyses and presents the survey results.

1.3 Research methodology

The main methodology was in the form of desktop research in collecting relevant information about the stakeholders.

A survey was constructed to reveal the inteGRIDy member involvement with the projects and groups, as well as recording the activities of involvement within inteGRIDy managed workshops, seminars and meetings.

The survey was sent to the leads of the thirty inteGRIDy consortium designated by ATOS coordinators. The survey did not include the departing member ATK; recent member Siemens Spain was included.

The survey aimed to provide an inventory of the project collaboration and dissemination activities within the following categories:

- **Membership of consortia and groups**
- **Presentation of work from other projects** including workshops, technical meetings, plenary meetings
- **Representation of inteGRIDy** including workshops, technical meetings, plenary meetings
- **Representation in working groups** and activities

The survey focused on activities in particular projects:

- **Project consortia funded under the same LCE-02-2016 topic as inteGRIDy** (“Demonstration of smart grid, storage and system integration technologies with increasing share of renewables: distribution system”):
 - GOFLEX, which focuses on Smart Grid technologies for managing flexibility in energy production and consumption;
 - InteGrid, which bridges the gap between citizens and technology/solution providers
 - InterFlex, which researches the interactions between flexibilities provided by energy market players and the distribution grid
 - INVADe, which integrates flexibility management system, energy storage technologies, electric vehicles and novel business models
 - SMILE, which innovates solutions in large-scale smart grid demonstration projects in islands
 - WiseGRID, which focuses on, the smartness, stability and security of an open, consumer-centric European energy grid.
- **Project consortia under EASME**
 - DR-BOB, which focuses demand response in blocks of buildings
 - Sim4Blocks, which provides DR services for smaller residential and commercial customers
 - RESPOND, which integrates interoperable, cost-effective, user centred DR programs to integrate into the legacy energy management systems
 - TABEDE, which integrates cost-effective building integrated DR schemes, overcoming limitations due to lack of interoperability
 - HOLISDER, which provides a holistic building integrated DR Optimization Framework aiming to significantly reduce costs
 - DRIMPAC, aiming to empower consumer to become active participants in the energy markets.
- **IntEnSys4EU project**, which aims for addressing the SET-Plan identified integration challenges by innovating consumer and demand focused, optimised supply of secure, cost-effective, clean and competitive energy.
- **BRIDGE Working Group**, which aims to encourage exchange of information, experience, knowledge and best practices to create a structured view of obstacles to innovation in demonstration projects.

The survey results are presented in Chapter 5.

2.InteGRIDy, BRIDGE and IntEnSys4EU

2.1 Introduction

This chapter presents the inteGRIDy collaboration with the BRIDGE and IntEnSys4EU initiatives.

2.2 InteGRIDy and BRIDGE

BRIDGE is a cooperation group involving 36 H2020 Low Carbon Energy (LCE) Smart-Grid and Energy Storage from 2014 to 2019. The aim is to encourage exchange of information, experience, knowledge and best practices among its partners to create a structured view of issues encountered in the demonstration projects that may constitute an obstacle to innovation [BRI18a]. To date 36 projects have participated in BRIDGE, as depicted in Figure 1.



Figure 1. Projects within the BRIDGE consortium.

Information on the BRIDGE initiative is accessible from their website (<https://www.h2020-bridge.eu/>) [BRI18a]. The BRIDGE fact sheet contains information on the initiative and summarises the projects activities [BRI18b].

BRIDGE delivers conclusions and recommendations about the future exploitation of the project through four different Working Groups representing the main areas of interest: Business Models, Data Management, Customer Engagement, and Regulations Working Groups, as depicted in Table 1.

Table 1. BRIDGE Working Groups [BRI18b].

<p>Data Management</p> <ul style="list-style-type: none"> • Communication Infrastructure, embracing the technical and non-technical aspects of the communication infrastructure needed to exchange data and the related requirements • Cybersecurity and Data Privacy, entailing data integrity, customer privacy and protection • Data Handling, including the framework for data exchange and related roles and responsibilities, together with the technical issues supporting the exchange of data in a secure and interoperable manner, and the data analytics techniques for data processing. 	<p>Regulations</p> <ul style="list-style-type: none"> • As regards to energy storage, the regulatory framework needs to provide clear rules and responsibilities concerning ownership, competition, technical modalities and financial conditions, for island and mainland cases • In terms of smart grids, regulatory challenges arise regarding the incentives for demand-side response, commercial arrangements, smart meter data, etc.
<p>Customer Engagement</p> <ul style="list-style-type: none"> • Customer Segmentation, analysis of cultural, geographical and social dimensions, • Value systems - Understanding Customers • Drivers for Customer Engagement • Effectiveness of Engagement Activities • Identification of what triggers behavioural changes (e.g. via incentives) • The Regulatory Innovation to Empower Consumers 	<p>Business Models</p> <ul style="list-style-type: none"> • Defining common language and frameworks around business model description and valuation • Identifying and evaluating existing and new or innovative business models from the project demonstrations or use cases • The development of a simulation tool allowing for the comparison of the profitability of different business models applicable to smart grids and energy storage solutions is being developed and tested by the Working Group members

To ensure the inteGRIDy project's full co-operation with BRIDGE, the following members of the consortium were nominated to represent the inteGRIDy project on each of the BRIDGE working groups:

- Andrea Rossi (ATOS), BRIDGE coordinators Group
- Tracey Crosbie (Teesside University), Bridge Regulations Working Group
- Rene Bohnsack (University of Católica-Lisbon), Business Models Working Group
- Romain Chomaz (SOREA), Customer Engagement Working Group
- Javier Valiño (ATOS), Data Management Working Group.

In addition to the actions undertaken in through inteGRIDy participation in BRIDGE members of the inteGRIDy consortium have participated in EU Sustainable Energy Week EUSEW 2017 and 2018 under BRIDGE umbrella.

2.2.1 *inteGRIDy and the BRIDGE Coordinators Group*

All BRIDGE projects are represented on the coordination group. Coinciding with most Working Group meetings, BRIDGE management board also allocates a slot for the projects' coordination teams so that they can share relevant information about the Working Group performance, the needs for the future and the lessons learnt so far.

This way, Andrea Rossi, acting as inteGRIDy coordinator, has represented the project on the coordination meetings held so far:

- BRIDGE Coordination meeting held on the 4th to 5th of May 2018 in Brussels;
- BRIDGE Coordination meeting held on the 20th to 22nd of November 2017 in Brussels;
- BRIDGE Coordination meeting held on January 2017 in Brussels.

Under this coordination group, several activities have been also made, including:

- Identification of key exploitable results from each project. In this sense, inteGRIDy selected, as most representative expected results, the following assets to be deployed in pilot sites:
 - **MV Distribution Networks Management Tools** (POLIMI). Network operation cluster. Automation and control of MV network functional objective.
 - **Multi-Carrier hub optimization engine** (ENG). Integration of smart customers and buildings and integration of decentralised generation, demand, storage and networks clusters. Active demand response, System integration of small DER and Integration of storage in network management functional objectives.
 - **Heat pump remote control** (Minus7). Integration of smart customers and buildings cluster. Active demand response and energy efficiency from integration with smart homes and buildings functional objectives.
 - **Kisense Energy Management System** (VPS). Integration of smart customers and buildings cluster. Active demand response functional objective.
 - **Intelligent Building Control & Flexibility Prediction-Forecasting** (CERTH). Integration of smart customers and buildings cluster. Active demand response functional objective.
- Mapping of countries in which the project has piloting activities, main purpose and objectives with respect to BRIDGE activities and relevance with respect to Working Groups.

These activities helped the BRIDGE management board to properly map inteGRIDy needs and potential outputs and align them with Working Groups, in a way it is possible to set up a mutual benefit.

2.2.2 *inteGRIDy and the BRIDGE Regulations Working Group*

In total 28 of the BRIDGE projects are represented in the BRIDGE Regulations working group. Tracey Crosbie from Teesside University has represented the inteGRIDy project at two physical meetings.

- BRIDGE Regulation Working Group meeting held on the 17th of May 2018 in Brussels;
- BRIDGE Regulations working Group meeting held on the 20th to 22nd of November 2017 in Brussels.

As part of her role in the Regulations Working Group, Dr Crosbie has co-ordinated the inputs of the inteGRIDy team to the latest report published by the Bridge Regulations Working Group which provides Recommendations on Selected Regulatory issues [BRI18c]. In particular, she led the work, with Romain Mauger (University of Groningen, SMILE project), related to the specific regulatory aspects of island cases. This provides the first definition of an energy island and the main regulatory issues with the development of energy islands (see section 5 page 13 of the BRIDGE report on selected regulatory issues BRI18c). In the latest report published by

the Bridge regulations working group Dr Crosbie was also contributed to the following sections of the BRIDGE report:

- Section 1: Storage ownership and procurement of storage services;
- Section 2: Storage valorisation;
- Section 4: New market design options, leading to new services, business models and roles for system operators, requiring increased coordination between system operators.

InteGRIDy project partners contributed directly to the work presented in the BRIDGE Regulations Working Group report by reviewing where the deliverables and tasks they are working on can contribute to the issues raised in the deliverables. In addition, the InteGRIDy consortium contributed to a BRIDGE deliverable published in August 2018 entitled “How the BRIDGE projects are addressing the battery topic” by completing the survey that underpins the information presented in the report [BAD18].

2.2.3 *inteGRIDy and the Business Models Working Group*

In total there are 26 BRIDGE projects represented in the BRIDGE Business Models Working Group. René Bohnsack from Universidade Católica Portuguesa has represented the inteGRIDy project at the following meeting:

- BRIDGE Business Models Working Group meeting held on the 20th to 22nd of November 2017 in Brussels.

René Bohnsack coordinates the inputs of the inteGRIDy team to the reports published by the BRIDGE Business Models Working Group. The latest report was published in April 2018 [BRI18d]. The contribution regards Issue 2 “Market design to meet efficiency and scalability demands” in Section 2 of the report (“Business models` aspects in regulated activities”). This particular issue addresses the problem of internationalisation and business model replicability. The work that is being performed to tackle this issue includes developing a methodology for business model adaptation and a tool, which can be used to perform this activity by energy companies. This is an ongoing activity, with the developments to be reported in the future issues of the BRIDGE Business Models Working Group’s reports.

2.2.4 *inteGRIDy and the Data Management Working Group*

25 BRIDGE projects participate in the Data Management working group. Javier Valiño (Atos) and Florin Crihan (SIVECO) represented the inteGRIDy project during the three Working Group meetings held since January 2017 and up-to-date:

- BRIDGE Regulation Working Group meeting held on the 4th to 5th of May 2018 in Brussels (Florin Crihan);
- BRIDGE Regulations working Group meeting held on the 20th to 22nd of November 2017 in Brussels (Javier Valiño).

The working group has produced 2 different reports since inteGRIDy was active. The first one is aimed at providing recommendations on adoption of the 5G and energy. The document was in its final stage on the date inteGRIDy joined BRIDGE (January 2017) so the contribution was limited.

The second report produced is oriented to data handling issues in smart energy projects. In this case, inteGRIDy actively contributed by filling in a series of surveys on data handling. These surveys we used to identify the actors involved in the piloting activities and the way to exchange data.

The study was conducted selecting the most representative cases for each information flow identified in the report, including:

- **DSO to Aggregator.** InteGRIDy uses this exchange data flow in San Severino Marche pilot (among others). DSO asks to manage BESS (Battery Energy Storage System) in order to fix violations (overcurrent, undervoltage) in the Distribution Grid.
- **Aggregator to Prosumer.** Again, San Severino Marche is the most representative use case within inteGRIDy. Power set point for BESS equipment are exchanged in order to provide Demand Response or Ancillary Services provision to the main grid.
- **Prosumer to Aggregator** flow of information is also described on the basis of San Severino Marche pilot. The information exchange includes Smart meter (consumption data) together with BESS state of charge.
- Finally, Nicosia pilot is presented as representative for the **Prosumer to DSO** exchange of data. Smart metering, grid measures, data from appliances, EV charging status, topology, flexibility and forecasted data are used in this case.

In all cases, the details on data (anonymization, privacy, frequency, etc.), the management model for the flow (middleware, repository, etc.), the services and applications provided with the data, information models and standards used, rules to access data and cybersecurity and interoperability issues are analysed.

All in all, this data handling report aims at analysing all different project pilots and data flows to extract best practices and main barriers. The final version of the report is currently under preparation, with the release expected in the near future.

Finally, inteGRIDy volunteered to lead the Cybersecurity topic in the Working Group, represented by Florin Crihan (SIVECO). The work in this topic is expected to gain relevance in the near future.

2.2.5 inteGRIDy and the Customer Engagement Working Group

As pilot site in inteGRIDy project, SOREA have to engage residential participants to install some equipment that allow them to monitor their electrical equipment, and SOREA operate the demand/response at the relevant period with some of the equipment without changing the users' behaviour. And on other side we have also a commercial building to equip.

As DSO, SOREA get access to large data within its territory including clients' electrical subscription and buildings' heat requirement for buildings within SOREA area. Following evaluation of SOREA data base, a number of buildings were identified to be suitable for the inteGRIDY project.

SOREA R & D team sent letters and e-mails to all residential and public customers that were identified earlier. Customers who replied were contacted by phone calls followed by a visit to check the suitability of their premises to engage with the inteGRIDy project. Customers that fulfilled the requirements and criteria were given the opportunity to participate.

2.3 inteGRIDy and IntEnSys4EU

The **INTENSYS4EU (INTEgrated Energy SYStem, a pathway for EUROpe)** project is a coordination and support Action group supported by the European Commission's Horizon 2020 program. It started its activities in October 2017 and will finalize in September 2020. The overarching goals of the INTENSYS4EU project are two-fold:

- To support the further integration of innovative solutions in view of hosting 45% of variable renewables by 2030 while operating the energy system in a safe, stable and secure way;
- To extend the existing Research and Innovation roadmaps through permanent and direct interactions with the impacted energy system stakeholders and all the Member

States in view of validating the portfolio of innovative solutions via appropriate funding mechanisms.

IntEnSys4EU is aiming to address the SET-Plan identified integration challenges, specifically on:

- The consumer-focused energy system, where the consumer is an active participant;
- A demand focus that increases energy efficiency;
- An optimization-based energy system that supplies secure, cost-effective, clean and competitive energy [NCP18].

The project, which runs from 2016-2020, is managed by four independent players: ZABALA Innovation Consulting (coordinator), TECHNOFI, RSE and BACHER Energie. The project incorporates the ENTSO-E, EDSO, EASE and EERA to explore RD&I strategies for energy networks. The INTENSYS4EU project objectives are:

- To provide strategic guidance about the R&I activities raised by the integration issues within the European energy system;
- To interact with the stakeholders of the ETIP SNET (European Technology and Innovation Platform Smart Networks for Energy Transition) at the EU, national and international levels;
- To develop long term energy scenarios at the EU level;
- To analyse the on-going research, development and innovation projects in the EU and, when at Member State levels;
- To enhance collaboration between projects through the BRIDGE process;
- To share cross-border knowledge about energy system optimization, via interaction with national level players;
- To support the development of an R & I roadmap and implementation plans for approval at SET plan level, covering integrated network solutions.

University of Cyprus (UCY), a member of the inteGRIDy consortium, have used results of InteGRIDy in support of work done within the platform at the Governing Board of ETIP SNET that IntEnSys4EU is fully committed in its actions and activities.

3.inteGRIDy organised conferences and workshops

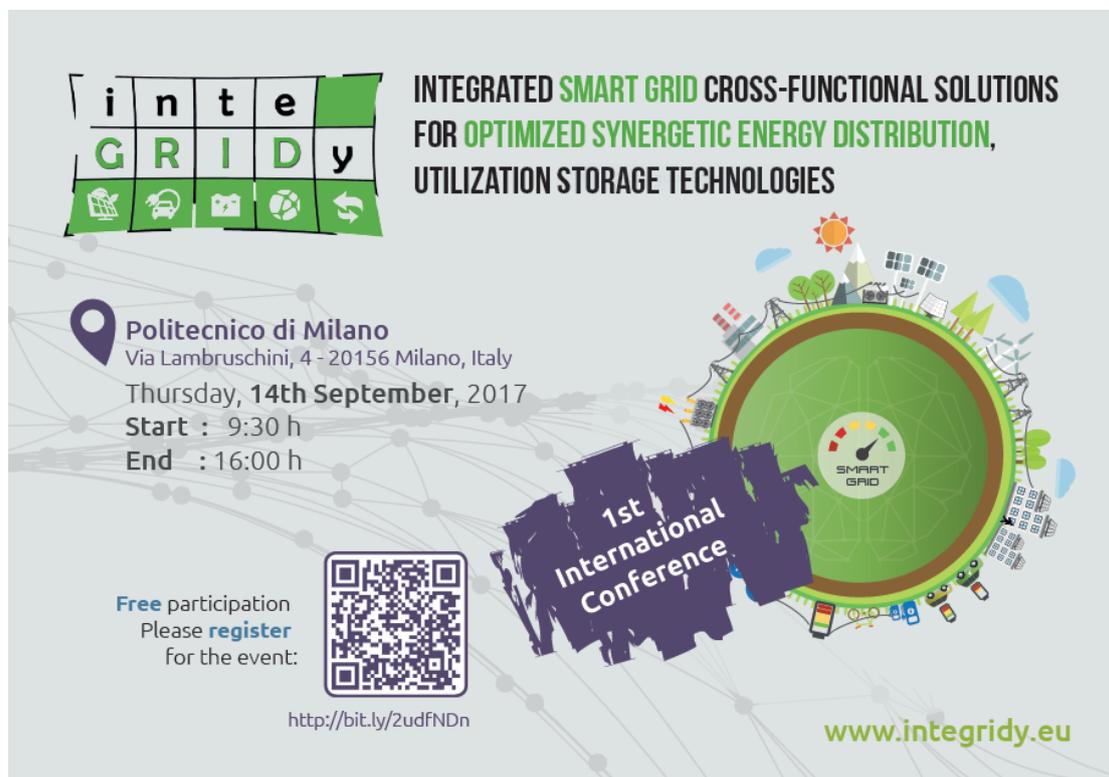
3.1 Introduction

This chapter describes inteGRIDy-organised conferences and workshops specifically aimed to propagate integrated working with projects funded under LCE and Demand Response (DR) projects funded by the Executive Agency for SMEs (EASME). Therefore, this section focuses on events hosted by the members of the inteGRIDy consortium.

3.2 InteGRIDy First International conference

The conference was held in Milan on 14.09.2017 and was related to the task of the InteGRIDy Project “Elicitation of Stakeholders, Market Needs & Implementation Priorities” with an aim to review needs and expectations of stakeholders that are part of the Smart Grid ecosystem. For this purpose, an on-line survey was implemented to contribute to the understanding of the visions of the different stakeholders in the European smart grid technologies, from their multiple prospective, identifying their needs and market priorities, gathering recommendation and proposals on today’s distribution challenges. The conference also gave the opportunity for the whole inteGRIDy consortium to engage with the EASME and LCE funded projects that attended and contributed to the conference. Session 3 of the conference was a discussion of the ongoing H2020/National R&I Projects as key drivers of innovation supporting technologies for smart grids on MV/LV with presentations from the following participants:

- Javier Valiño (ATOS), InteGRIDy project
- Simon Verleger (DVGW), STORE&GO project
- Massimo Bertoncini and Vincenzo Croce (ENGINEERING), ELSA project
- Luigi Crema (Green Energy Storage), GREENERNET project
- Thomas Drizard (ENEDIS), INTERFLEX project
- Laura Maretta (ENEL), FLEXCIENCY project



inteGRIDy

**INTEGRATED SMART GRID CROSS-FUNCTIONAL SOLUTIONS
FOR OPTIMIZED SYNERGETIC ENERGY DISTRIBUTION,
UTILIZATION STORAGE TECHNOLOGIES**

Politecnico di Milano
Via Lambruschini, 4 - 20156 Milano, Italy
Thursday, 14th September, 2017
Start : 9:30 h
End : 16:00 h

Free participation
Please **register**
for the event:

<http://bit.ly/2udfNDn>

1st International Conference

www.integriddy.eu

Figure 2. InteGRIDy First International conference in Milan, on 14.09.2017.

3.2.1 *InteGRIDy Work Package Workshops*

3.2.1.1 *WP2 Workshop in Milan*

A Workshop was organized in Milan to clarify inputs required for WP2 deliverables and help partners contribute to WP2 surveys. The workshop was divided into WP2 deliverables, with each deliverable presenting a summary of the required inputs for any surveys, clarification on the assumptions of the deliverables and discussion on any specific items that need to be defined for the surveys. The sessions were run by the respective task leaders focusing on each task, and a Q&A session to allow comments from the floor.

4.inteGRIDy projects engagement with EASME funded projects

4.1 Introduction

There are in total 6 smart buildings projects funded under topics EE-6-2015 and EE-12-2017, which are managed by EASME. These are DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER and DRIMPAC (Annex 1). This chapter discusses the InteGRIDy consortium engagement with these projects and EASME actions to increase synergies between and the visibility of H2020 and EC supported actions.

4.2 EASME Contractors Meeting on Smart Buildings

EASME Contractors' meeting on Smart Buildings Sustainable Places 2018 took place on 28.06.2018, in Aix-Les-Bains, France. The objective of this contractors meeting is to facilitate knowledge transfer and the exchange of best practice between the beneficiaries of R&I projects on smart buildings. InteGRIDy was represented at the meeting by Yannis Damousis, CERTH/ITI (InteGRIDy, eDREAM).

5. Survey results

All 30 partners responded to the survey. The results are tabulated in Table 2.

The responses revealed the following results:

- Involvement in projects funded under the same LCE-02-2016 topic as inteGRIDy:
7 partners (ASM, CERTH, EAC, ENG, M7, SIEMENS (UK), UCY).
- Presented work from Projects under the LCE-02-2016 topic inteGRIDy hosted event:
1 partner (SIEMENS-UK).
- Member of DR projects managed by EASME:
1 partner (SIEMENS-UK).
- Represented inteGRIDy at events hosted by DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME:
1 partner (SIEMENS-UK).
- Represented inteGRIDy in activities ran by IntEnSys4EU:
1 partner (UCY)
- Represented inteGRIDy in activities ran by BRIDGE:
6 partners (ATOS, SIEMENS-UK, SIVECO, SOREA, TEES, UCP).

The results summary was further analysed to see the following:

- Organisations' percentage involvement within the thirty inteGRIDy consortium;
- Percentage involvement of organisations participating in other projects funded under the same LCE-02-2016 topic.

The analysis shows that 23.33% of the inteGRIDy consortium organisation is involved in another Project consortium funded under the same LCE-02-2016 topic as inteGRIDy. However, out of the organisation that are funded under the same LCE-02-2016, only 14.29% of those organisations were involved in more than one project.

The results also revealed only one organisation (3.33%) has represented inteGRIDy at events hosted by DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME and the same applies for activities ran by IntEnSys4EU.

Finally, 20% of the consortium organisations represented inteGRIDy in activities ran by BRIDGE of which ATOS were involved in all categories including Business Models, Data Management, Customer engagement and Regulations. See Table 3 for more details.

Table 2. Key survey responses from inteGRIDy partners.

Responding inteGRIDy partners	Key Survey Responses to Survey Questions					
	Involved in Projects funded under the same LCE-02-2016 topic as inteGRIDy	Presented work from Projects under the LCE-02-2016 topic inteGRIDy hosted event	Member of DR projects managed by EASME	Represented inteGRIDy at events hosted by: DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME	Represented inteGRIDy in activities ran by IntEnSys4EU	Represented inteGRIDy in activities ran by BRIDGE
ASM	WiseGRID					
ATOS						Business Models; Data Management; Customer Engagement; Regulations
CERTH	SMILE					
EAC	GOFLEX					
ENG	WiseGRID					
M7	InteGrid					
Siemens-UK	InteGrid	InteGrid	DRBoB	DRBoB		Business Models; Customer Engagement
SIVECO						Data Management
SOREA			DRIMPAC			Customer Engagement
TEES			DRBoB			Regulations
UCP						Business Models
UCY	GOFLEX, InteGrid				Used results of InteGRIDy to support work at ETIP SNET Governing Board	

Table 3. Analysis to Key survey responses from inteGRIDy partners.

Activity	Percentage of involvement within the InteGRIDy Consortium	Percentage of involvement of organisations participating in other projects funded in the same LCE-02-2016 topic
Organisation involved in another Project consortium funded under the same LCE-02-2016 topic as inteGRIDy	23.33%	-
Organisation involved in more than one Project consortium funded under the same LCE-02-2016 topic as inteGRIDy	3.33%	14.29%
Organisation involved in WiseGRID Project consortiums funded under the same LCE-02-2016 topic as inteGRIDy	6.67%	28.60%
Organisation involved in GOFLEX Project consortiums funded under the same LCE-02-2016 topic as inteGRIDy	6.67%	28.60%
Organisation involved in InteGRID Project consortiums funded under the same LCE-02-2016 topic as inteGRIDy	10.00%	42.90%
Organisation has represented inteGRIDy at events hosted by DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME	3.33%	14.29%
Organisation represented inteGRIDy in activities ran by IntEnSys4EU	3.33%	14.29%
Organization represented inteGRIDy in activities ran by BRIDGE	20.00%	14.29%

6. Conclusions

The survey responses revealed that:

- Involvement in projects funded under the same LCE-02-2016 topic as inteGRIDy and representing inteGRIDy on BRIDGE were the categories in which inteGRIDy partners were most active.
- SIEMENS UK has the most diverse range of activities in categories; including presenting work from projects under the LCE-02-2016 topic inteGRIDy hosted events; participating in of DR projects managed by EASME; representing inteGRIDy at events hosted by DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME.
- LCE-02-2016 funded InteGrid, which is under the same topic as inteGRIDy, is the project which inteGRIDy partners engaged most.
- LCE-02-2016 funded SMILE, EASME funded DRIMPAC and INEA funded IntEnSys4EU were engaged only by one inteGRIDy partner per project (CERTH, UCY and SOREA).
- Activities on BRIDGE were well engaged, with ATOS involvement at the Business Models; Data Management, Customer Engagement and Regulations Working Groups.

Overall, the involvement of inteGRIDy partners under the LCE-02-2016 and BRIDGE programmes had an activity rate of 23% and 20% respectively. Given the increased activities in WP4, WP5, W6 and W7 will produce technical dissemination in 2019, there is scope for improvement as the project continues.

It is recommended that more inteGRIDy partners should:

- Be encouraged to Present work from Projects under the same LCE-02-2016 topic as inteGRIDy;
- Represent inteGRIDy at events hosted by DR-BOB, Sim4Blocks, RESPOND, TABEDE, HOLISDER, DRIMPAC or EASME;
- Participate in the activities ran by IntEnSys4EU.

This document serves also as reference guide (Annex 1 and 2) of most similar projects. For the next report release, the objective is set to identify the tools used inside those projects (at least the ones in the top list of commonalities/scope) and compare them to the ones used in inteGRIDy. This will allow pointing out at similarities, value added by inteGRIDy and extract and use best practices from other projects.

The list of projects to be further investigated (Annex 2) contains the following initiatives:

- **CROSSBOW** (773430) <http://crossbowproject.eu>
- **EnergyKeeper** (731239) <http://www.energykeeper.eu>
- **EU-SysFlex** (773505) <http://eu-sysflex.com>
- **GOFLEX** (731232) <https://www.goflex-project.eu>
- **InterFlex** (731289) <https://interflex-h2020.com>
- **INVADE** (731148) <https://h2020invade.eu>
- **SmartNet** (691405) <http://smartnet-project.eu>
- **SMILE** (731249) <https://www.h2020smile.eu>
- **Storage4Grid** (731155) <http://www.storage4grid.eu/pages/index.html>
- **TILOS** (646529) <https://www.tiloshorizon.eu>

7. References

- [BRI18a] <https://www.h2020-bridge.eu/wp-content/uploads/2018/02/Brochure-of-BRIDGE-projects-V16.pdf>
Accessed on 21.11.2018.
- [BRI18b] <https://www.h2020-bridge.eu/>.
Accessed on 21.11.2018.
- [BRI18c] BRIDGE, (2018). Regulations Working Group Recommendations on Selected Regulatory Issues. Pages 17, 18.
https://www.h2020-bridge.eu/wp-content/uploads/2018/10/BRIDGE_REG_short_report_FINAL_Sept18.pdf
Accessed on 17.10.2018.
- [BAD18] Badajoz, C., Dourlens-Quaranta, S. Maldonado, D.H., Peirano E (2018.)
How the BRIDGE projects are addressing the battery topic
https://www.h2020-bridge.eu/wp-content/uploads/2018/09/BRIDGE_Battery_report_Aug18.pdf
Accessed on 17.10.2018.
- [COR20] Integrated Energy System - A Pathway for Europe
https://cordis.europa.eu/project/rcn/207653_en.html
Accessed on 17.10.2018
- [ECE18] Innovation and Networks Executive Agency
<https://ec.europa.eu/inea/en/welcome-to-innovation-networks-executive-agency>
Accessed on 13.12.2018.
- [EUC18] European Commission (2018). Research and Innovation Participation Portal, LCE-03-2016 Support to R&I strategy for smart grid and storage.
<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-03-2016.html>
Accessed on 17.10.2018
- [INE18] INEA H2020 projects in the "Grids & Storage, Energy Systems" field
<https://ec.europa.eu/inea/en/horizon-2020/h2020-energy/projects-by-field/881>
Accessed on 20.11.2018.
- [NCP18] NCP Energy Germany Funded Projects under Horizon 2020
Secure, clean and efficient energy
Low Carbon Energy Call 2016-2017
CORDIS – Community Research and Development Information Service
(European Commission)
(http://cordis.europa.eu/projects/home_en.html)
https://www.nks-energie.de/lw_resource/datapool/systemfiles/elements/files/684CD3FFE07B4EBFE0539A695E86241A/current/document/NKS-E_Projects_funded_2016-2017_LCE_fin.pdf
Accessed on 17.10.2018.

8. ANNEX 1 Description of EASME funded DR projects

8.1 Sim4Blocks

The growing share of variable renewable energy necessitates flexibility in the electricity system, which flexible energy generation, demand side participation and energy storage systems can provide. Sim4Blocks (695965) will develop innovative demand response (DR) services for smaller residential and commercial customers, implement and test these services in three pilot sites and transfer successful DR models to customers of project partners in further European countries. The pilot sites are blocks of highly energy efficient buildings with a diverse range of renewable and cogeneration supply systems and requisite ICT infrastructure that allows direct testing of DR strategies. Sim4Blocks' main objectives are to specify the technical characteristics of the demand flexibility that will enable dynamic DR; to study the optimal use of the DR capability in the context of market tariffs and RES supply fluctuations; and to develop and implement market access and business models for DR models offered by blocks of buildings with a focus on shifting power to heat applications and optimization of the available energy vectors in buildings. Actions toward achieving these objectives include: quantifying the reliability of bundled flexibility of smaller buildings via pilot site monitoring schemes; combining innovative automated modelling and optimization services with big data analytics to deliver the best real time DR actions, including motivational user interfaces and activation programs; and developing new DR services that take into account the role of pricing, cost effectiveness, data policies, regulations, and market barriers to attain the critical mass needed to effectively access electricity markets. Sim4Blocks' approach supports the Work Program by maximizing the contribution of buildings and occupants and combining decentralized energy management technology at the blocks of building scale to enable DR, thereby illustrating the benefits achievable (e.g. efficiency, user engagement, cost).

8.2 DrBOB

The aim of the DR-BOB (696114) project is to demonstrate the economic and environmental benefits of demand response in blocks of buildings for the different key actors required to bring it to market. To achieve its aim the DR-BOB project will:

- Integrate existing technologies to form the DR-BOB Demand Response Energy Management solution for blocks-of-buildings with a potential ROI of 5 years or less.
- Demonstrate the DR-BOB integrated solution at 4 sites operating under different energy market and climatic conditions in the UK, France, Italy and Romania with blocks-of buildings covering a total of 274,665 m², a total of 47,600 occupants over a period of at least 12 months.
- Realise up to 11% saving in energy demand, up to 35% saving in electricity demand and a 30% reduction in the difference between peak power demand and minimum night time demand for building owners and facilities managers at the demonstration.
- Provide and validate a method of assessing at least 3 levels of technology readiness (1-no capability, 2-some capability, 3-full capability) related to the technologies required for consumers' facilities managers, buildings and the local energy infrastructure to participate in the Demand Response Energy Management solution at any given site.
- Identify revenue sources with at least a 5% profit margin to underpin business models for each of the different types of stakeholders required to bring demand response in the blocks-of-buildings to market in different local and national contexts.
- Engage with at least 2,000 companies involved in the supply chain for demand response in blocks of buildings across the EU to disseminate the projects goals and findings.

8.3 RESPOND

RESPOND (768619) will aim to deploy and demonstrate an interoperable, cost effective, user centred solution, entailing energy automation, control and monitoring tools, for a seamless integration of cooperative DR programs into the legacy energy management systems. In this endeavour, RESPOND will be leveraged upon an integrated approach for real-time optimal energy dispatching, taking into account both supply and demand side, while exploiting all energy assets available at the site. Owing to its flexibility and scalability, RESPOND solution will be capable of delivering a cooperative demand response at both building and district level. To provide a seamless integration of all DR enabling elements and ensure a high replication potential, RESPOND will be leveraged upon open standards for interoperability with smart home devices and automation systems, connectivity and extendibility towards smart grid and third-party services such as for provision of energy prices, weather forecasts, etc. Underpinned by the smart energy monitoring infrastructure, RESPOND will be able to perform reliable energy data analytics and forecasting in order to detect potential energy conservation opportunities, and to adapt, in real time, to the operational environment considering indoor and outdoor conditions, while retaining the requested comfort levels. Through the interaction with the end users, RESPOND will aim to raise their awareness by delivering measurement driven suggestions for energy demand reduction and influence their behaviour making them an active indispensable part of DR loop. In order to demonstrate the high replication potential, RESPOND will target different types of residential buildings, situated in different climate zones, having different forms of ownership (both rental as well as home-owners), population densities and underlying energy systems.

8.4 TABEDE

TABEDE (766733) aims to allow all buildings equipped with Building Energy Management Systems to integrate energy grid demand response schemes, overcoming limitations linked to missing interoperability, at reduced cost. To that aim, TABEDE will allow connection of all dispatchable loads to the Building Energy System through a dedicated TABEDE interface, whatever the communication protocol. A dedicated smart grid communication protocol translator will be provided to ease the acceptance of the TABEDE system as well as a database of dispatchable load drivers. Moreover, in order to improve building efficiency, novel building energy management strategies will be proposed, in terms of electric load and thermal management, adapting to the evolving environment, as well as building continuous monitoring. TABEDE solution will be demonstrated and assessed through extensive simulation-based testing. The proposed solutions will be deployed on three test sites (residential and tertiary) representative of EU building stocks and conditions.

8.5 HOLISDER

HOLISDER (768614) introduces a Holistic Demand Response Optimization Framework that will enable significant energy costs reduction (~45%) at the consumer side, while introducing buildings as a major contributor to energy networks' stability in response to network constraints and conditions. HOLISDER brings together a wide range of mature technologies and integrates them in an open and interoperable framework, comprising in a fully-fledged suite of tools addressing the needs of the whole DR value chain. In this way it will ensure consumer empowerment/transformation into active market players, through the deployment of a variety of implicit and hybrid DR schemes, supported by a variety of end-user applications for Personalized Informative Billing, Human-Centric Energy Management, Load Scheduling and Intelligent Controls, Self-consumption promotion and cost-effective storage, Predictive Maintenance, along with Context-Aware Automation. The backbone of HOLISDER project consists in an "open" and modular interoperability and data management framework that will enable open standards-based communication along the DR value chain. It will integrate two main commercial technologies/ products (JACE, EF-i) to ensure seamless information exchange, communication and operation on top of any Building and District EMS, as well as, Smart Home systems/devices. On the business side HOLISDER will focus on the definition of new business models for intermediaries and third parties (aggregators, energy retailers, facility

managers, ESCOs) that will facilitate consumers' involvement into energy markets by acting on their behalf and making the most out of their flexibility value. The HOLISDER framework will be validated in 4 large-scale demonstrators/pilot sites, located in Greece, UK, Finland and Serbia, incorporating diverse building types, heterogeneous home, building and district EMS and devices, a variety of energy carriers and spanning diverse climatic conditions, demographics and cultures.

8.6 DRIMPAC

Buildings constitute a vast, yet currently untapped, source of energy demand flexibility that can provide invaluable services to the energy system. This flexibility currently remains unattainable due to the lack of a technological framework that can connect the multitude of buildings and building systems with the energy system in a cost-effective manner as well as the reluctance of energy consumers to enrol in demand response programs. DRIMPAC (768559) offers a comprehensive solution to empower consumer to become active participants in the energy markets. It comprises three main pillars:

- a) A legacy and Standards-compliant interoperability framework to interconnect building energy loads/appliances and expose their demand flexibility as price-responsive demand to the grid or for market actors to aggregate and bid in ancillary service markets.
- b) A human-centric, intelligent building energy management system that will lift the burden of demand response from the consumers shoulders and reduce reluctance and fear of participation in DR programs. It will infer user comfort preferences and dynamically control building loads to minimize energy cost and use for the building occupant leveraging dynamic prices, while always preserving comfortable and healthy indoor conditions.
- c) Innovative business models and service offering for energy retailers in order to facilitate their transformation from commodity suppliers to digital energy service suppliers and kick-start the deployment of the DRIMPAC solution in the market. The DRIMPAC technological framework and business models will be validated by four retailers supplying three energy carriers – electricity, natural gas and district heating – in four different national markets across the EU - France, Cyprus, Germany and Spain. Pilot demonstrations will take place in a range of building types, including residential, office, educational and others, in order to validate the DRIMPAC benefits across most building typologies.

9.ANNEX 2 Description of INEA projects on Grids & Storage, Energy Systems

The Innovation and Networks Executive Agency (INEA), started activities on 1 January 2014 with main objective is to increase the efficiency of the technical and financial management of the programmes it manages [ECE18]. INEA implements the following EU programmes:

- Connecting Europe Facility (CEF)
- Parts of Horizon 2020 – Smart, green and integrated transport + Secure, clean and efficient energy
- Legacy programmes: TEN-T and Marco Polo 2007-2013

A list of H2020 projects on the "Grids & Storage, Energy Systems" field is presented in Table 4. This list includes a preliminary analysis on project objective commonalities (projects highlighting DR file means that they cover Demand Response objective, SG for those investigating on Smartening the distribution Grid, ES those dealing with Energy Storage and EV for Smart integration of users from transport, green highlighted) and the selection of interesting project (* column, red highlighted) to investigate further. This extended study, to be done for the next release of the report, will include the tool analysis and comparison with inteGRIDy tools to search for synergies and make sure inteGRIDy technical scope remains relevant.

Finally, projects funded under the same LCE-02 topic are also highlighted in green.

Table 4. H2020 projects on Grids & Storage, Energy Systems.

Project	Description	DR	SG	ES	EV	*
AnyPLACE (646580) http://www.anyplace2020.org/	Developing a modular smart metering platform to allow remote energy metering (electricity, gas, heating and cooling), exploiting electricity networks in a more efficient manner and turning end users in active energy markets players.					
AURES (646172) http://auresproject.eu/	Developing best practices and policy recommendations for future auction design to significantly improve the performance of renewable electricity support in Europe.					
BAoBaB (646435) http://www.baobabproject.eu/	Developing a novel, environmentally-friendly acid/base battery for storing energy which could help integrate more renewables in the EU energy system.					
BestRES (691689) http://bestres.eu/	Identifying and improving best-practice business models for renewable electricity generation in Europe, making use of the aggregation of various renewable sources, storage and flexible demand.					
CHESTER (764042) https://www.chester-project.eu/	Developing and validating an innovative system combining a power-to-heat-to-power energy storage system with smart district heating in order to manage, store and supply energy from different renewable energy sources.					
CROSSBOW (773430)	Fostering cross-border transmission networks' management of variable					

http://www.gridsolproject.eu/	integrated with PV under a dynamic control system, to provide more stable and efficient electricity produced from RES.				
IndustRE (646191) http://www.industre.eu/	Researching how large industries are working with the renewable energy community to identify and implement business models.				
inteGrid (731218) https://integrid-h2020.eu/	Demonstrating how DSOs can enable all stakeholders to actively participate in the energy market with a high share of distributed renewable energy sources by developing and implementing new business models.				
InterFlex (731289) https://interflex-h2020.com/	Fostering stability of the distribution grid and coordination of distributed energy resources, virtual power plants and collaborative storage schemes in the energy system with an increasing share of renewable energy.				
INTERPLAN (773708) http://interplan-project.eu/	Exploiting the flexibility potentials throughout the grid, providing grid equivalents at all network levels and improving the operational planning with cluster and interface controllers able to intervene in presence of criticalities.				
INVADE (731148) https://h2020invade.eu/	Development of an advanced ICT flexibility management system to support integration of renewable energy sources in the smart grid and in the market.				
MAGNITUDE (774309) https://www.magnitude-project.eu/	Real-life case studies of multi-energy systems in different countries, under different regulatory and geopolitical environments and with different technological development levels.				
MEDEAS (691287) https://www.medeas.eu/	Developing a leading-edge policy modelling tool incorporating input-output analysis that allows for accounting of environmental, social and economic impacts of the energy system.				
MIGRATE (691800) https://www.h2020-migrate.eu/	Finding solutions for the technological challenges of the grid by developing new approaches, paving the way for the implementation of power electronic devices in large scale.				
NAIADES (646433) http://www.naiades.eu/	Developing batteries based on sodium-ion technology.				
Net2DG (774145) http://www.net2dg.eu/	Developing a solution to improve outage diagnosis, efficiency and voltage quality in low voltage distribution grids, by integrating the data from the distribution system operator's systems and the smart meters and inverters deployed in the grid.				

NETFFICIENT (646463) http://netfficient-project.eu/	Testing different local energy storage technologies in a real electrical grid on the German island of Borkum to complement and encourage the use of variable renewable energy sources.				
NOBEL GRID (646184) https://nobelgrid.eu/	Developing and demonstrating innovative ICT solutions for smart grids in five electricity cooperatives and public organisations in Belgium, Greece, Italy, Spain and the UK.				
OSMOSE (773406) https://www.osmose-h2020.eu/	Four TSO-led demonstrations aiming to increase the techno-economic potential of flexibility solutions required to integrate a high share of renewables in the energy system.				
P2P-SmarTest (646469) http://www.p2psmartest-h2020.eu/	Demonstration of a smarter electricity distribution system integrated with advanced ICT, regional markets and innovative business models.				
PENTAGON (731125) http://www.pentagon-project.eu/	Fostering flexibility in the low-voltage and medium-voltage energy grid by deploying energy conversion technologies and strategies at a district level.				
Plan4Res (773897) https://www.plan4res.eu/	Developing an end-to-end planning tool for the power system stakeholders with the aim to increase the share of renewable energy in the European Energy system without compromising on system reliability.				
PLANET (773839) https://www.h2020-planet.eu/	Developing a holistic Decision Support System for grid operations planning and management.				
PROMOTION (691714) https://www.promotion-offshore.net/	Developing and demonstrating three key technologies in order to overcome the barriers for linking off-shore wind parks with on-shore grids.				
PUMP-HEAT (764706) http://www.pumpheat.eu/	Demonstrating an innovative concept based on the coupling of a fast-cycling highly efficient heat pump (HP) with Combined Cycles turbines.				
RE-SERVE (727481) http://www.re-serve.eu/	Developing an innovative 5G ICT system to allow nearly real-time control of the distributed energy network.				
RealValue (646116) http://www.realvalueproject.com/	Testing whether using domestic smart electric radiators and boilers to store heat brings cost reductions to consumers and if it increases the use of energy generated from variable renewable sources.				

REEEM (691739) http://www.reeem.org/	Developing an integrated European energy system model determining the cost optimal technology pathway to match energy supply with demand in all EU countries.					
REFLEX (691685) http://reflex-project.eu/	Analysing the development towards a low-carbon energy system with focus on flexibility options in the EU to support the implementation of the SET-Plan.					
RESOLVD (773715) https://resolvd.eu/	Improving the efficiency and the hosting capacity of low-voltage distribution networks, in a context of highly distributed renewable energy generation by introducing flexibility and control.					
SABINA (731211) http://sabina-project.eu/	It focuses on the conversion of excess electrical energy to thermal energy and its storage in the building fabric by using the thermal inertia of buildings.					
SENSIBLE (645963) https://www.projectsensible.eu/	Demonstrating different types of small-scale energy storage that can be integrated into buildings and communities in Evora (Portugal), Nottingham (UK), and Nuremberg (Germany).					
SET-Nav (691843) http://www.set-nav.eu/	Supporting strategic decision making in Europe's energy sector by developing a broad and technically-advanced modelling portfolio, evaluating policy-sensitive technology pathways and ensuring stakeholder dialogue and dissemination.					
SHAR-Q (731285) http://www.sharqproject.eu/home	Development of an ICT solution for the optimised use of energy storage capacities.					
SmarterEMC2 (646470) http://www.smarteremc2.eu/	Developing and testing IT tools supporting grid management that takes into account increased generation of renewables and households using smarter appliances.					
SmartNet (691405) http://smartnet-project.eu/	Providing architecture for optimised interaction between TSOs and DSOs in managing the exchange of information for monitoring and for the acquisition of ancillary services at national level and in a cross-border context.					
SMILE (731249) https://www.h2020smile.eu/	Demonstrating on 3 different islands a set of solutions adapted to local conditions targeting the distribution grid to enable demand response, smart grid functionalities, storage and energy system integration.					
SOGNO (774613)	Accelerating the ability of distributed system operators (DSOs) to introduce innovations,					

https://www.sogno-energy.eu/	to increase their flexibility and to reduce their need for fixed investments.				
Spine (774629) http://www.spine-model.org/	Developing an open source toolbox for modelling integrated energy systems from data acquisition to processing of the results.				
Storage4Grid (731155) http://www.storage4grid.eu/pages/index.html	Developing innovative energy storage systems to provide utilities and end-users with new tools for optimal grid planning, use and evaluation of storage technologies.				
STOREandGO (691797) https://www.storeandgo.info/	Demonstrating three innovative "power-to-gas" concepts in Germany, Italy and Switzerland that convert excess electricity produced from renewable energy sources to gas (methane).				
STORY (646426) http://horizon2020-story.eu/	Testing the potential of different energy storage concepts and technologies in real-life settings.				
TDX-ASSIST (774500) http://www.tdx-assist.eu/	Novel ICT tools and techniques facilitating scalable and secure information and data exchange between transmission system operators and distribution system operators.				
TILOS (646529) https://www.tilohorizon.eu/	Testing the integration of an innovative local-scale energy-storage system on the island of Tilos (Greece) to improve micro-grid energy management and grid stability, increase renewable energy use and provide services to the main grid.				
TURBO-REFLEX (764545) https://www.turbo-reflex.eu/	Looking at technical, economic, environmental and regulatory aspects of selected technologies for retrofitting critical parts of thermal power plants.				
UNITED-GRID (773717) https://united-grid.eu/	Developing a tool box to secure and optimise operation of the future intelligent distribution networks with unprecedented complexity due to the arrival of new distributed market actors along with emerging technologies.				
UPGRID (646531) http://upgrid.eu/	Developing, deploying and demonstrating innovative solutions for advanced operation and exploitation of low and medium voltage networks in a fully smart grid environment and improving the capacity of the networks.				
WiseGRID (731205) https://www.wisegrid.eu/	Integrating, demonstrating and validating advanced ICT services and systems in the energy distribution grid in order to provide secure, sustainable and flexible smart grids				



	and give more power to the European energy consumer.					
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<http://www.integrity.eu>