



## Geographical Islands FlexibiliTy

### Deliverable **D10.4**

## Contribution to the WG of BRIDGE for cooperation between Smart Grids projects – mid-term report

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## DELIVERABLE 10.4 – VERSION 1.0

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R	Document, report (excluding the periodic and final reports)	X
DEM	Demonstrator, pilot, prototype, plan designs	
DEC	Websites, patents filing, press & media actions, videos, etc.	
OTHER	Software, technical diagram, etc.	

Dissemination Level		
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CO	Confidential, restricted under conditions set out in Model Grant Agreement	
CI	Classified, information as referred to in Commission Decision 2001/844/EC	

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## EXECUTIVE SUMMARY

GIFT is an innovative project that aims to decarbonise the energy mix of European islands, launched in 2019. Its objective is to develop innovative systems to facilitate islands integrating vast amount of renewable energy sources, reducing their needs for fossil fuel generation and relevant greenhouse gases emissions [1].

This deliverable addresses the participation of GIFT project in the BRIDGE initiative through its appointed persons and the interaction between the BRIDGE initiative and the project GIFT.



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## 1. INTRODUCTION

### 1.1. SCOPE OF THE DOCUMENT

This document describes the activities, performed by the GIFT partners as part of the BRIDGE initiative. The document is structured into 3 main sections: section 2 describes scope of contribution, where high-level goals and objectives are defined, together with the content link to appropriate BRIDGE objective. In section 3 we present the work performed in the first reporting period. This chapter is structured into working groups that reflect the BRIDGE organization. In chapter 4 we present the interaction and main focal areas.

### 1.2. GIFT PROJECT

GIFT is an innovative project launched in 2019 that aims to decarbonise the energy mix of European islands. Its objective is to develop innovative systems to facilitate islands in integrating vast amount of renewable energy sources, reducing their needs for fossil fuel generation and relevant greenhouse gases emissions.

Through the development of multiple innovative solutions, such as a virtual power system, energy management systems for harbours, factories, homes, better prediction of supply and demand and visualisation of those data through a GIS platform, and innovative storage systems allowing synergy between electrical, heating and transportation networks.

During the 4 years of the project, the solution will be developed and demonstrated in two lighthouse islands, in Hinnøya, Norway's largest island and in the small island of Procida in Italy, whilst a replicability study of the solution will be done for the Greek and Italian islands at minimum (respectively Evia and Favignana).

### 1.3. ACRONYMS AND ABBREVIATIONS

Term	Definition
EC	European Commission
DoA	Description of Action
TF	Task Force
WG	Working Group
SWG	Sub Working Group

## 2. SCOPE OF GIFT CONTRIBUTION TO THE BRIDGE INITIATIVE

BRIDGE is a European Commission initiative gathering all the Horizon 2020 projects on Smart Grid, Energy Storage, Islands and Digitalisation. In June 2020, BRIDGE gathers a total of 64 projects, involving 713 organisations from 38 countries for a total EC funding to all projects of 668 M€. BRIDGE is organised around 4 Working Groups (WG) and 4 Task Forces (TF).

The main purpose of BRIDGE is to foster cooperation between projects and provide field feedback from the contributing projects to help highlight and overcome the faced barriers. Its final objective is to provide coordinated, balanced and coherent recommendations to policy makers in view of removing barriers to



innovation deployment.

As one of the Innovation Projects funded under the call LC-SC3-ES-4-2018-2020, focusing on the decarbonisation of European geographical islands, the contribution from GIFT to BRIDGE can cover several topics: data exchange architecture, interoperability, regulatory framework, role models, consumer engagement, business models, scalability & replicability analysis, local energy communities, ... This work is carried out by the dedicated task T10.4, involving mainly the following partners: INEA, TRIALOG, CRES and Intracom Telecom.

## 2.1. ROLE OF GIFT WITHIN THE BRIDGE INITIATIVE

GIFT participates within the BRIDGE initiative as a member project of the initiative and in several BRIDGE Working groups and Task Forces.

GIFT project has designated the responsible project partners and appointed experts to the following Working Groups and Task Forces:

- Regulation WG: INEA
- Data Management WG: TRIALOG
- Business Models WG: Intracom Telecom
- Consumer and Citizen Engagement WG: CRES
- Energy Communities TF: TRIALOG

These experts actively contribute to the WGs and TFs, and to the General Assembly plenary and parallel sessions in which the orientations of BRIDGE are defined each year. In addition, TRIALOG is Chair on the Data Management WG, leading several activities on architecture, interoperability, use-cases and cyber-security.

## 2.2. PARTICIPATION AT BRIDGE GENERAL ASSEMBLIES

In 2019, GIFT representatives attended the General Assembly of March 2019, contributing to discussions on the following topics:

- Cybersecurity and
- TSO-DSO Cooperation.

In 2020, GIFT representatives attended the General Assembly of February 2020, with contributions and presentations in the following parallel sessions:

- Parallel Session 1: TSO – DSO Cooperation #1 – Market organization
- Parallel Session 3: Scalability and replicability
- Parallel Session 5: TSO – DSO Cooperation #2 – Data management
- Parallel Session 7 – Sector Integration

Additionally, they participated in adjoint Workshop on flexibilities.



### 3. PARTICIPATION IN BRIDGE WORKING GROUPS AND TASKFORCES (M1-M24)

#### 3.1. COORDINATION

GIFT designated representative in Coordination group is Coordinator Sašo Brus of INEA. The coordination activities were rather low. In 2020, GIFT signed up for participation of BRIDGE at the EUSEW as a digital event held at the end of June 2020. GIFT representative was a runner up for the speaker at the BRIDGE session called “Status of demonstrators and effect of COVID-19 on the demo operation and results - a session organized by Bridge WG on regulation”. The intention of the session organizers was to invite several (4-5) BRIDGE projects to share their experience on the impact of COVID-19 on their demo preparation, operation and evaluation. The GIFT representative prepared its presentation and speaker biography but was not selected for presentation as the project had not yet advanced to the demonstration phase.

#### 3.2. REGULATION WG

GIFT has appointed representative to the Regulations WG: Zoran Marinšek of INEA.

In 2020, the main activities of GIFT representative were:

- Participation at the BRIDGE GA 2020, Parallel Session #1 TSO-DSO Interactions - Market Design, one of the proposers of the HEMRM [1] Sub-Group Action.
- Participation and presentation at BRIDGE GA 2020, Parallel Session 5 TSO-DSO Cooperation #2 – Data Management, GOFLEX Role Model Update [2]
- Participation in Regulation Group action “Common taxonomy for services, products and markets” by filling out the Questionnaire to First Selected Bridge Projects, BRIDGE Regulation Working Group 1/2/7 Survey on Services & Products, Coordination models, Integration aspects [1].
- Participation in the core group of Regulation WG sub-group - joint Action with Data Management WG, set up after BRIDGE GA in February 2020, “Update Harmonized Electricity Market Role Model” (HEMRM). Contributions with inputs and discussions to „Differential analysis With Respect to the ENTSO-E Model“. From July 2020 on, the group worked on a continued basis with several successive versions of the document were produced:
  - Version 3.3.2020
  - Version 23.9.2020 (1st draft September 2020)
  - 2nd draft (October, November 2020)
  - Consolidated version (December 2020)

Our main contributions were in the segment of new roles of HEMRM:

- Extension of the HEMRM downwards to local subsystems following the concept of vertically nested subsystems, both in the grid segment and in the market segment. The concept is based on observation of the characteristics of the (existing) Harmonized Electricity Market Role model that the electricity market system in Europe is vertically structured into vertically nested fractal-like systems. This means that the subsystems into which a system is decomposed are fully contained in the original system (“parental” system), and that the new subsystems have essentially the same functions as their parental system (“fractal-like”). In the grid segment, the DSO territory can be structured into several sub-DSOs. In market



segment, the Balance Group of BRP can nest sub-Balance Groups with sub-BRPs. Local Energy community is also a type of nested subsystems.

- Introduction of Energy transfer cost calculator, a role – service that calculates the cost of energy transfer between the point of injection of energy flexibility into the grid and the location where it is needed to service the congestion or energy balancing problem on the grid. The costs of energy transfer, if included in the cost of supplied energy flexibility, make possible a system wide techno-economical optimization, stimulating local supply of flexibility which facilitates (dispersed) production and inclusion of renewable energy on the grid.

In 2021, the work is planned to be extended to interaction with authors of the original HEMRM (ENTSO-E, EbIX, EFET), the DSO associations and other external parties.

- Participation at the General Assembly of WG Regulation, Mid-term meeting, 17th November 2020.

### 3.3. DATA MANAGEMENT WG

GIFT has appointed two representatives to the Data Management WG: Olivier Genest from TRIALOG, who is Chair of the Data Management WG, and Dune Sebilliau from TRIALOG.

GIFT representatives attended the General Assembly of March 2019, contributing to discussions on Cybersecurity and TSO-DSO Cooperation. Then, during the year 2019, they contributed to the two topics:

- TSO-DSO Cooperation, as contributor mainly on the interoperability, protocols, information models and standards topics [4];
- Cybersecurity and resilience, as leader of this topic.

These activities resulted in two reports published in early 2020: “D3.12.f\_BRIDGE-TSO-DSO-Coordination-report [3]” and “D3.12.e\_BRIDGE\_Cybersecurity-report [4]”.

In 2020, GIFT representatives attended the General Assembly of February 2020 with contributions and presentations [5], [6] and [7]. Subsequently, they were active in the following topics of Data Management WG:

- Action #1 Use-case repository, in which GIFT shared its experience of IEC 62559-2 standard, and volunteered to host its use-cases on the BRIDGE use-cases repository;
- Action #2 EU data exchange architecture, in which GIFT replied to the questionnaires sent in August 2020 to explain how data exchanges are conveyed in GIFT;
- Action #3 Interoperability of flexibility assets, in which the flexibility business processes defined in GIFT WP2 were used as a starting point for the definition of the generic business processes, and GIFT provided one use-cases to perform the 1st run of the interoperability analysis methodology that will lead to the first results of this action.

GIFT representatives participated to the Data Management WG plenary of September 30<sup>th</sup> 2020, and actively contribute to the three reports that will be published in early 2021.



### 3.4. CONSUMER AND CITIZEN ENGAGEMENT WG

In the frame of BRIDGE our project GIFT is participating in the activities of the Consumer and Citizen Engagement Working Group. GIFT is represented in the WG by Evangelos Rikos from CRES. As part of the preparatory work, the WG coordinator has organized a number of regular meetings starting from April 2020. These meetings are held approximately every 3-4 months. Until now GIFT has been represented in all three meetings that were held in April 29, July 24 and November 26, 2020 respectively. The main highlights of these meetings are the refinement of the scope of this WG which included also the renaming of the WG title from 'Customer' to 'Consumer and Citizen Engagement'. However, the most important highlight of these discussions is the breaking down of the analysis into seven sub-groups covering the following topics:

- Governance models
- Organizational models
- Group building
- Smart tools
- Assessment of engagement
- Incentives and drivers
- Socio-economic drivers of engagement

GIFT is participating in two of these sub-groups, namely Group building and Smart tools. In the frame of these sub-groups' work, CRES is taking part in focused meetings and discussions organized by the sub-group leaders while, we have had substantial contribution in the following items:

- Refinement of the scope of each sub-group by identifying the needs and relevance of them within the whole WG analysis as well as taking into account the projects of BRIDGE as a whole.
- Specification of the methodological steps towards collecting and processing information from the BRIDGE or, to a lesser degree, outside of BRIDGE projects.
- Contribution in the preparation of one template that explains the methodology of group building in collaboration with the sub-group leader.
- Preparation of one template [1] for collecting responses from BRIDGE projects regarding the group building procedures [10].
- Contribution in the preparation of one template for the collection of information from BRIDGE projects regarding the use of smart tools [11].
- Communication and presentation of these tools within GIFT.

So far, in the frame of these subgroups, our project has participated in four focused discussions organized as online meetings by the sub-group leaders. The ultimate objective of the whole WG is the production of one report at around Spring 2021 which will summarize the outcomes of the activities in the various sub-groups.

### 3.5. ENERGY COMMUNITIES TF

GIFT is represented in the Energy communities Task Force by Dune Sebilliau from Trialog, and Jure Ratej from Etreel. GIFT representatives have participated in several meetings and workshops in 2019. They also contributed in gathering knowledge from the GIFT project in the living documents of the task force, in particular:



- Chapter 1. What are Citizen Energy Communities (CEC) and Renewable Energy Communities (REC)? In this document, the concepts of local energy communities developed in the GIFT use-cases have been taken into consideration in the definition of a local energy community.
- Chapter 6. What are feasible tariffs to allow for the implementation of a CEC as part of the overall energy system? The specificities of the GIFT Norwegian pilot in terms of constraints on pricing have been considered to answer this question.

Additionally, the report of the TF Energy communities has been submitted in December 2019. The GIFT representatives participated in the knowledge gathering for this document through a questionnaire on Energy Communities applications in the GIFT project, and in the review of the report.

The year 2020 have occasioned less activities, however the GIFT representatives still participated in the organisation of future interests for this task force; and attended a webinar in collaboration with CEER.

### 3.6. BUSINESS MODELS WG

GIFT is represented in the Business Models WG by Ilias LAMPINOS, who is member of the Intracom Telecom team in the project. Besides following the activities within this WG and transferring knowledge about best practices and the state of play within the project, we contributed in the formulation and preparation of the Final Report of this WG that was produced in June 2019 [1]. The emphasis of our contribution was on the analysis of business model aspects in regulated activities that are applicable in the Smart Grids domain. In this context a focused sub-group was formulated, namely the SWG on “Business Models aspect in regulated activities” with the aim to assess business model conditions related to regulated grid activities and including new grid devices and the involvement of flexibilities for grid planning, operation and control. Within the SWG, 5 main issues have been determined and analysed:

1. The first issue deals with the incentives provided to operators and market players in order to facilitate the development of a positive business case for smart equipment;
2. The second issue focuses on market design to meet efficiency and scalable demands;
3. The third issue relates to data and financial flow-organization for the different players, specifically about data enabling business models (excluding issues related to transitive energy management and data management dealt in other BRIDGE groups) as at this stage there is no framework for data exchange between the different players at the local level.
4. The fourth issue relates to the use of flexibility by the Distribution System Operators (DSOs) for planning and/or operation purposes; and
5. The fifth issue deals with the concept of local flexibility markets, the trading of flexibility and the stakeholders involved in such local markets.

To sum up, the sub –WG on “Business Model aspects in Regulated Activities” has achieved to deliver conclusions and recommendations about some of the topics related to the use of smart technologies at DSO level, to data enabling innovative business models, to market design issues (particularly related to flexibility products and the stakeholders involved in these new markets). To some extent these sectors are applicable also in GIFT and are being considered internally in the project.



During 2020 we kept following the BRIDGE WG on Business Models, though its overall activity was low and mainly focused on organizational aspects (migration to a new online share repository [2]).

### 3.7. OTHER WORKING PARTICIPATION

GIFT representatives participated also in other activities under the umbrella of BRIDGE, not falling within the Working groups above:

Presentation at BRIDGE GA, February 12th 2020, Parallel session #7 – Sector integration. GIFT partner presented Sector integration in GIFT: The project GIFT addresses the problem of congestion avoidance through flexibility trading. On the one hand, in the GIFT project, the integration of different energy vectors and mobility is a way to provide flexibility to the electricity grid. On the other hand, since flexibility is provided through the flexibility market, the GIFT project promotes the business case of sector integration delivering flexibility to the electricity market.

Participation at Workshop on flexibilities 13th Feb 2020 with shared presentation in the Session 2: “How is the link to other markets organised” presenting the concept of uses cases as segments of the market in the vertically structured electricity market system, with scalability aspects and FlexOffer protocol.

## 4. INTERACTION OF BRIDGE ACTIVITIES WITH GIFT PROJECT AND ALL GIFT PARTNERS

### 4.1. INTERNAL MEETINGS AND REPORTING

The activities related to participation in BRIDGE Working groups were reported and discussed at the GIFT TSC meetings on event driven basis. In particular:

- Participation of GIFT partners at the BRIDGE General Assembly 2020
- Engagement in the working group/task force on HEMRM (Harmonized Electricity Market Model)
- Activities and potential synergy with Consumer and Citizen Engagement Working Group.

### 4.2. INTERACTION

Activities in BRIDGE interact with concepts and objectives of GIFT in the following fields

1. GIFT Roles and process model  
GIFT roles and process model is based on the concept of the Harmonized Electricity market model of vertically nested subsystems. GIFT uses and elaborates this concept, that was first observed in FP7 project MIRABEL and further developed in H2020 project GOFLEX. The joint Action of WG Reg and WG Data Management “Update HEMRM” interacts with GIFT concept. Also, GIFT business processes have been used as a basis for the “Generic Business Process” developed in the “Interoperability of flexibility assets” topic carried out by the Data Management WG in 2020.
2. GIFT Use cases  
GIFT use cases are defined as segments of the market that incorporate process and roles engaged in flexibility trading on different markets; they interact with market organization. These use-cases are



used in Data Mgt WG activities in 2020, within the “Use-case repository” and for the “Interoperability of flexibility assets” report.

3. FlexOffer protocol for flexibility trading

FlexOffer is an open high-level parametric protocol aimed at facilitating automated flexibility trading of prosumers and other actors, in particular in the emerging local flexibility markets. It enhances the introduction of renewables in the local grid and provides for replicability in deployment of solutions. FlexOffer is part of the solutions identified and studied in 2019 under „TSO-DSO cooperation“ topic and in 2020 under „Interoperability of flexibility assets“ topic.

4. GIFT dissemination and exploitation plans

Vertically structured electricity market system, characterized by extended HEMRM, provides favourable boundary conditions for GIFT solutions which are highly scalable and thus influence the GIFT dissemination and exploitation plans both in extension of the pilot demonstrations and the follower islands.



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