IRIS

Integrated and Replicable Solutions for Co-Creation in Sustainable Cities

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Deliverable 6.2

Coordination of NCA integration and demonstration activities

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Version History

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0.1	13/07/2018	JC.Maleysson + P.Patsar – CERTH as QAM
0.2	31/08/2018	Nice Ecosystem Partners
0.8	20/09/2018	Final version for internal review
1.	15/10/2018	Final version for release to EC

Disclaimer

Executive Summary

According to DoA, *"T6.2 will ensure the optimal coordination, collaboration and communication between the Nice ecosystem partners and involved stakeholders, supporting optimal preparation and implementation of all foreseen Nice lighthouse interventions".* The task further facilitates the interface between the activities of WP6 and other WPs. Task execution comprises the following activities:

- Developing coordination structures and procedures concerning governance, communication, monitoring and impact analysis, local risk assessment, periodic reporting.
- Organizing periodic meetings with Nice lighthouse partners and involved stakeholders for regular progress follow up.
- Aligning planning and investment agendas between ecosystem partners, both during and after the project.

The successful completion of the task is measured in terms of participation and satisfaction of the Nice ecosystem partners, the IRIS project partners, as well as involved stakeholders, and achievement of project results in accordance with the established planning and budget, including replication at the district, city, region and national level.

The deliverable provides detailed information on the way that IRIS Lighthouse city of Nice has planned the coordination into its ecosystem not only to ensure an effective implementation of demonstration activities, but also:

- to maximize the lessons learnt thanks to a cross-cultural approach that offers a EU-funded project
- to facilitate the Replication within LH cities and Follower cities.

The deliverable will also facilitate the common understanding of the demonstration activities and the action plan foreseen within local ecosystems as well as between LH and follower cities.
From the kick-off of the project, a recurrent identification of a need for a joint approach has been identified, focusing at first stage for both D567.1 and D567.2, and aiming at lasting during the whole project lifecycle. Therefore, LH cities have cooperated to use common methodology (tables, planning, figures and so forth) for D567.1 and D567.2, while keeping the freedom to adapt according to local needs and context.

D6.2 is closely related to D6.1. D6.1 contains a SWOT analysis of the Nice LH city that could be replicated in Utrecht and Gothenburg, enabling these cities to identify the strength, weaknesses, opportunities and threats of seven functions (entrepreneurial experimentation and production, knowledge development, knowledge exchange, guidance of search, market formation, resources mobilization, counterfactual resistance to change/legitimacy). Additionally, the results of the analysis were complemented with a social acceptance study.

By collecting and consolidated information of foreseen action plans of the Tasks T6.3 to T6.7, D6.2 offers an up-dated overview of the action plans (operated and/or foreseen according to the status of advancement), and a global understanding of the activities.

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List of Abbreviations and Acronyms

Abbreviation	Definition
CE	Citizen Engagement
CIP	City Innovation Platform
D	Deliverable
DoA	Description of Activities
DSO	Distribution System Operator
EU	European Union
FC	Follower City
GOT	Gothenburg
IS	Integrated Solution
LH	Lighthouse Cities
NCA	Nice Côte d'Azur
ROI	Return on investment
TT	Transition Track
UNS	University of Nice Sophia Antipolis
UTR	Utrecht
QAM	Quality Assurance Manager
WP	Work Package

1 Introduction

According to DoA, D6.2 is dedicated to the planning of Nice integration and demonstration activities.

1.1 Scope, objectives and expected impact

D6.2 aims at providing a detailed and up-dated (at M12) action plan of the demonstration activities foreseen in the territory. This will facilitate the identification of interaction between Transition Tracks and the respective demonstrators. It will also be used as a referral up-date for the later coordination of activities. Finally, the deliverable will facilitate LHs and Follower Cities in the identification of demonstrators that are of interest for replication.

This Deliverable provides detailed information on the way that IRIS Lighthouse city of Nice has planned the coordination into its ecosystem not only to ensure an effective implementation of demonstration activities, but also:

- to maximize the lessons learnt thanks to a cross-cultural approach that permits a EU-funded project
- to facilitate the replication within LH cities and Follower Cities

1.2 Contributions of partners

1.2.1 Joint Approach between LH

The 3 LH (Utrecht, Nice and Gothenburg) have identified early in the project that they will deliver a common set of Deliverables: D5.1 and D5.2 for Utrecht, D6.1 and D6.2 for Nice, D7.1 and D7.2 for Gothenburg. The recurrent identification of a need for a joint approach led by **D567.1/D567.2** lead editors to organise a dedicated Working session “Session 1B: Lighthouse Cities site exchange” during the Consortium Plenary Board in Goteborg (27-29th of March 2018).

Conclusions of this Working session were to set-up a “LH Task Force” that aims at facilitating the common approach. It has been decided that this “LH Task Force” will learn by doing, and therefore will adopt a joint approach (from tables, process, chapters, sections, etc.) focusing at first stage for both D567.1 and D567.2 and aiming at lasting during the whole project lifecycle.

Final conclusions of the workshop were that despite the need for a joint approach, LH cities keep having their own specificity: local context, geographical features, and national financial & legal regulations. As a consequence, when appropriate, some chapters will integrate a focus part dedicated to each LH (while remaining in the template structure provided by the coordinator).

All in all, the 3 lead-editors together with the Coordinator and the Quality Assurance Manager held many conference calls in order to deliver the most harmonized set of chapters & sections for D5.2, D6.2 and D7.2

1.2.2 Contribution of local partners

Deliverable D6.2 has been authored by NCA and reviewed by GOT and UNS, in compliance of Quality Assurance Management process of IRIS.

At the time of specifying their local action plan, partners in Nice were consulted and asked for contribution (descriptions of action plan, budget, planning, review) in order to specify their action plan (see below specific sections of Chapter 4 for each transition track and IS).

Besides, considering the portfolio of running cooperation projects between NCA and UNS, the latter plays a key-role in Nice Ecosystem. In IRIS, UNS involves two departments:

- UNS-GREGED, lead editor of T6.1
- UNS-IMREDD, involved in a transversal manner in the demonstration activities (T6.3, T6.4, T6.5, T6.6).

The above two departments cooperate on a regular basis all along the first year of the project with industrial partners. As a consequence, UNS-GREGED has studied operational baseline and barriers in D6.1.
Being involved in TT1, TT2, TT3 and TT4, UNS-IMREDD has initiated since the beginning of the project a global scenario that encompasses all the energy and mobility aspects of IRIS: from PV on the buildings, to energy management, up-to e-mobility. The following architecture scheme offers a good understanding of the connection between TT inside IRIS, but also the way IRIS contributes to the overall UNS's Smart City activities:

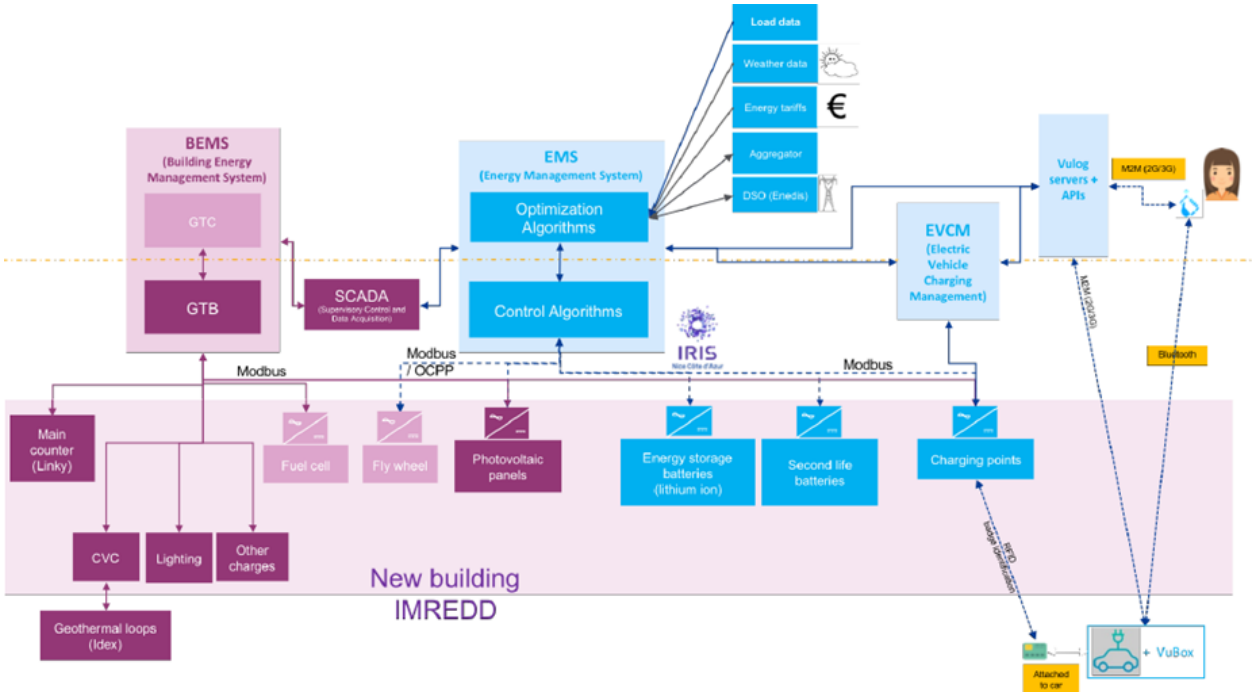


Figure 1: Overall UNS's Smart City activities

Legend: blue: activities foreseen as part of IRIS/ Grey: action necessary for the implementation of the project, but non-funded by IRIS.

1.3 Relation to other activities

D6.2 is directly connected to all WP6 tasks (T6.1 as an input, and T6.2 is dedicated to coordinate the tasks held in T6.3 to T6.7), but also related to horizontal WP, and recurrently to WP10 dedicated to communication activities. Later in the project, it will be used as an input for WP2 and WP8. The report documents these points in the following paragraphs.

1.3.1 Input from D6.1

D6.1 report established a baseline review enabling to move to relevant objective-setting with the elaboration of adequate action plan and monitoring.

To do so, UNS developed an integrated SWOT analysis (including survey, face-to-face methodology and social acceptance study) based on a TIS (Technological Innovation System) approach. Moreover, the report covers an inspiring reflection on Smart city ranking.

The core content of D6.1 being the SWOT analysis, it comes to show-up the field covered by the study. The following seven specific functions where addressed in order to depict strengths, weaknesses, opportunities and threats of both Transition Tracks and Nice Ecosystem:

- Entrepreneurial experimentation and production
- Knowledge development
- Knowledge exchange
- Guidance of Search
- Market Formation
- Resources mobilization
- Counterfactual resistance to change/legitimacy

We encourage reader to go through D6.1 report to have an in-depth understanding of the analysis. Still, the main conclusions expressed below permit to disentangle the major features of Nice Ecosystem:

- Nice local ecosystem innovates in line with smart city objectives
- Major actors are involved in this innovation process
- Size of the smart city market opportunities is expected to be high
- Challenge on how to optimize resources (human, physical, financial) and whether key resources are available
- Challenge to foster changes of habits in consumption, development and production.

In the Chapter 5 “Guidelines for the development of IRIS action plan” of D6.1, UNS has delivered for each transition tracks a list of recommendations, focused on the two specific functions with lowest scores observed on the SWOT. These recommendations concerns opportunities that could be consolidated in terms of “entrepreneurial experimentation and production” as well as “market formation”.

Moreover, the set of recommendations for Nice Ecosystem highlights the collective agreement that the way forward to build a smart city would be trough co-creation amongst stakeholders and fostering citizen engagement. Building a community-driven approach would be a driver for social acceptance. Technology and policies can only go as far as citizens are willing to accept changes. But in order to adapt

citizen mindsets, there needs to be an equal change in all range of stakeholders and ecosystem, starting from adopting an end-user approach that permits a good match between services deployed and user needs.

1.3.2 Relation with Task related to WP6

Basically, WP6 being the demonstration activities held in Nice LH, it has interactions with every horizontal tasks. In this section, only really close-related tasks will be detailed.

D6.2 has relation with the Tasks inside the WP6 itself since its aims at coordinating these tasks. To this end, the present report displays a set of cards (1 per Integrated Solutions - See Chapter 4.1) with detailed explanations of the activities foreseen for (from T.6.3 to T6.7) whilst providing a global picture of the demonstration activities that will be implemented in Nice Ecosystem.

Table 1 presents the deliverables that are directly related to D6.2.

Table 1: Deliverables related to D6.2

Number	Title	Relation
D6.1	Report on Nice baseline, ambition and barriers	"Baseline, ambition and barriers" has helped to set-up a comprehensive set of demonstrators.
All D of WP4	City Innovation Platform (CIP)	The set-up of CIP will enable to collect and integrate data created by up-coming IS. Later these data can be used to create new ones and/or news services.
D5.1 and D7.1	Report on baseline, ambition and barriers for Utrecht and Gothenburg lighthouse interventions	To ease replication of Solutions.

1.4 Structure of the deliverable

Chapter 2 presents the methodology on which D6.2 is based, highlighting specifically the joint approach adopted that aims at lasting for the whole project and fostering exchange of good practices amongst LH.

Chapter 3 reports on horizontal activities such as monitoring and evaluation (WP9), communication, events and workshops organized (WP10).

Chapter 4 provides an updated status of advancement of the transition tracks, detailing a card for each Integrated Solution.

Chapter 5 aims at identifying interdependencies amongst work packages and tasks.

2 Methodology

2.1. Task 6.2

The work undertaken in T6.2 in the first year consists of setting up current coordination structures and procedures that will benefit an effective implementation of the integrated solutions. Therefore, thefollowing key activities have been undertaken:

- Setup of coordination structures aligned with the TTs and horizontal WPs of IRIS.
- Defining roles and responsibilities (Transition Track Animators).
- Coordinate a regular periodic meeting schedule with a coordination team and the NCA-project-team
- Coordination of communication at Nice ecosystem level through the setup of a Local News Desk (appointing UNS partner) and cooperation with WP10-lead ESCI.
- Cooperation with WP1 and WP9 partners to set up a process to select Key Performance Indicators as the basis for a strategy for monitoring and impact analysis.
- Setup a joint approach with the 3 LH cities aimed at lasting the duration of the IRIS project.
- Reporting to the European Commission, the project coordinator and the Nice ecosystem on the progress in the IRIS project.
- Identification of local risks and mitigation measures based upon the work reported in D6.1
- Identification of the barriers and drivers per integrated solution.

2.2. Deliverables D6.1 and D6.2

Deliverable D6.1 and D6.2 together form a reference document of the demonstration activities in Nice. From this reference point the deployment of activities will be carried out, providing all involved international IRIS project partners, reviewers and readers (public document) a good understanding of the ambitions of the Utrecht demonstration and how it is organized.

The Joint approach amongst LHs led LH cities to define a common set of chapters and Sections (see 1.2.1).

3 Coordination of Nice integration and demonstration activities

3.1 Developing coordination structures and procedures concerning governance

The structure of IRIS project is based on the 5 following Transition Tracks (TT):

Figure 2: List of the 5 IRIS Transition Tracks

For each one of this TT, LH cities have assigned a partner per "Transition Track", who provides a technical approach with concerned stakeholders and oversees activities during the 3 phases of the project, form documentation of Pre-pilot, through Demonstration activities, up to Replication activities. "Transition Track animators" alongside with NCA when appropriated, organize task meetings that associate the concerned local partners (basically those with staff cost associated to the task).

Table 2: List of Transition Track animators for Nice Ecosystem

List of Transition Track animator for Nice Ecosystem		
Transition Track (TT)	**Organisation**	**Contact person**
TT1	CSTB	Dominique CACCAVELLI
TT2	EDF	Christian KEIM
TT3	VULOG	Eric SIMONS
TT4	NCA	Lionel CHAUDANSON
TT5	VEOLIA	Philippe MAILLARD

3.2 Communication

Communication is deployed in compliance with the overall communication strategy designed by ESCI as part of WP10.

In Nice Ecosystem, local partner UNS- IMREDD is the main contact point for communication aspects, namely "Local News Desks" in the sense of IRIS. UNS - IMREDD has pointed a specific staff contact to facilitate the coordination of actions. UNS - IMREDD has set-up a local action plan (non-exhaustive) that integrates the actions presented in Table 3.

Table 3: Nice Local News Desk Communication activities

IRIS Smart Cities WP10 C&D Reporting - NICE					
Target	**Date**	**Action**	**Description**	**Channel**	**Performance Indicators & Comments**
COMMUNICATION: Public, social and multiple audiences beyond the project's own community (e.g. media, stakeholders)					
Interested public, media	2017/09/29	*Press release*	iCapital award finalists	press, social media	
Interested public, media	2017/09/26	*Press release*	IRIS launch	press, social media	31 favorites, 21 RTs
EU public	2017/10/17	*EU media release & video profile*	iCapital award finalists	press, social media	1500+ video views
IRIS all partners	2018/03/01	*Online article*	laying of NEXITY Ywood foundation stone	IMREDD website IMREDD Facebook IMREDD twitter	IMREDD Facebook: 77 users reached IMREDD Twitter: 1.498 impressions, 42 engagements
IRIS Nice partners	2018/03/02	*Online article*	Laying of IMREDD foundation stone	IMREDD website IMREDD Facebook	IMREDD Facebook: 99 users reached
IRIS all partners	2018/04/23	*Interview*	JC Maleysson's interview	IMREDD website IMREDD Facebook	77 views (video)
IRIS Nice partners	2018/06/11	*Online article*	HKU TT5 Workshop (2018/05/22)	MNCA website IMREDD website	Twitter: 2.008 impressions, 54 engagements
IRIS all partners	2018/06/18	*Online article*	Harnessing the power of commerce, computing and collaboration in Métropole Nice Côte d'Azur	IRIS website	
Smart City professionals & policy makers	2018/06/27	*Event*	Innovative City 2018	Event	3248 attendees - Twitter: 2.451 impressions, 40 engagements
Smart City professionals & policy makers	2018/07/28	*Presentation*	Innovative City 2018	Event session	Jacky Krafft (Directeur de recherche CNRS au GREDEG) présente IRIS lors du salon Innovative City - Environ 200 stendees - Twitter: 3.477 impressions, 44 engagements
IRIS all partners	2018/07/17	*Online article*	MNCA first-ever geothermal network	IRIS website	
IRIS all partners	2018/07/23	*Online article*	Innovative City Highlights	IRIS website	
DISSEMINATION: Audiences that may uptake and use IRIS results (e.g. academia, political decision-makers)					
Political exchange & stakeholders	2018/02/16	E4SM Forum	Utrecht Mayor Jan Van Zanen in Nice	Conference	
IMCG (Ulrika & Jonas)	2018/04/18	*Visit tour*	visit of the technical plateform : SCIC + NCA smart city data	on site visit	
IRIS Coordination team - Ultrecht (Roel & Haye)	2018/06/05	*Visit tour*	visit of the technical plateform : SCIC + NCA smart city data	on site visit	
European Clusgrid	2018/06/08	*Visit tour*	visit of the SCIC + NCA smart city data + Nice Meridia project	on site visit	
UPCOMING: Notable events, campaigns, actions in next 6 months					
	October 16-18th 2018	Dissemination : visit of the SCIC Communication : article, interviews (tbc)	3rd Consortium Plenary Board Meeting IRIS / Nice		

3.3 Monitoring and impact analysis

This section provides a focused up-date on the way that Nice Ecosystem integrates the input of WP9 "Monitoring and Evaluation". Many of the KPIs set in IRIS are applied from 2 previous European initiatives: CityKEYS and SCIS. In addition, RISE (lead of WP9) has animated a workshop in Nice (18th of April 2018) with the local Ecosystem in order to collect info from industrial partners on the best way to proceed.
In D9.2, RISE has offered a "pyramid-house" approach (Figure 3) that displays the set of KPIs at different levels: IRIS Project level, LH level, TT level, IS level.

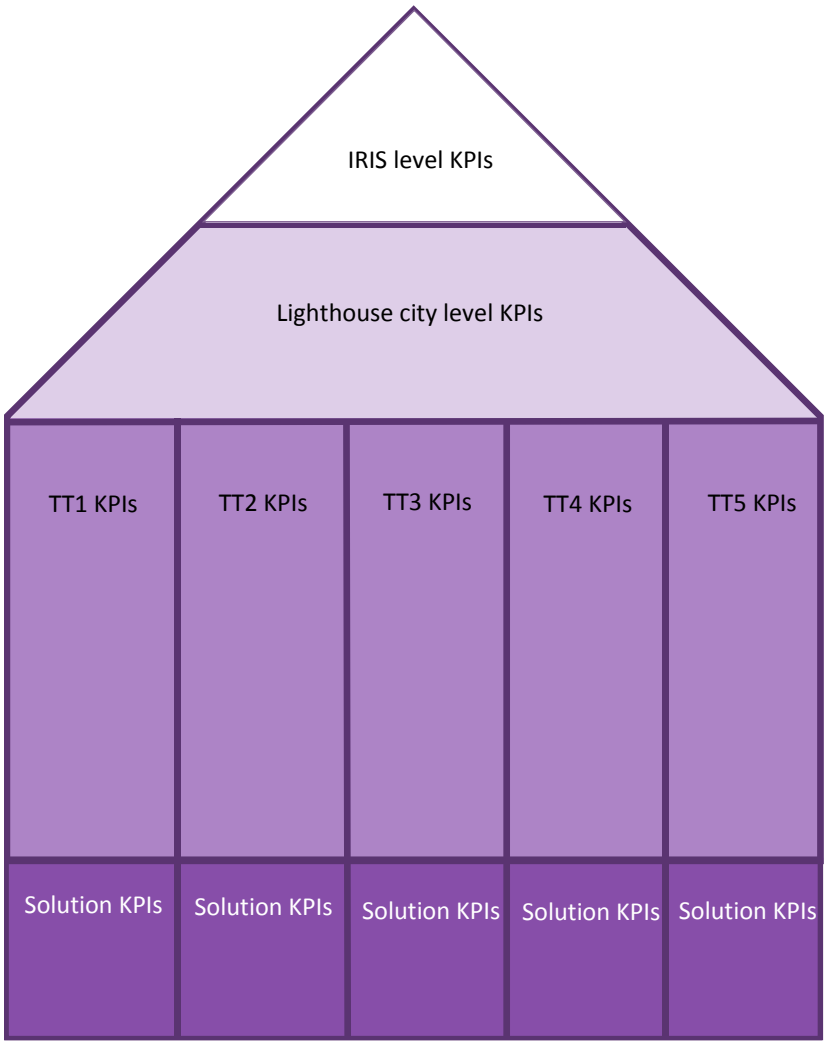


Figure 3: IRIS generic pyramid-house displaying KPIs at different level

This methodology has been applied to the set of demonstrators in Nice, taking into consideration that each level of the pyramid is flexible and can be further detailed conforming the evolution of the IS.

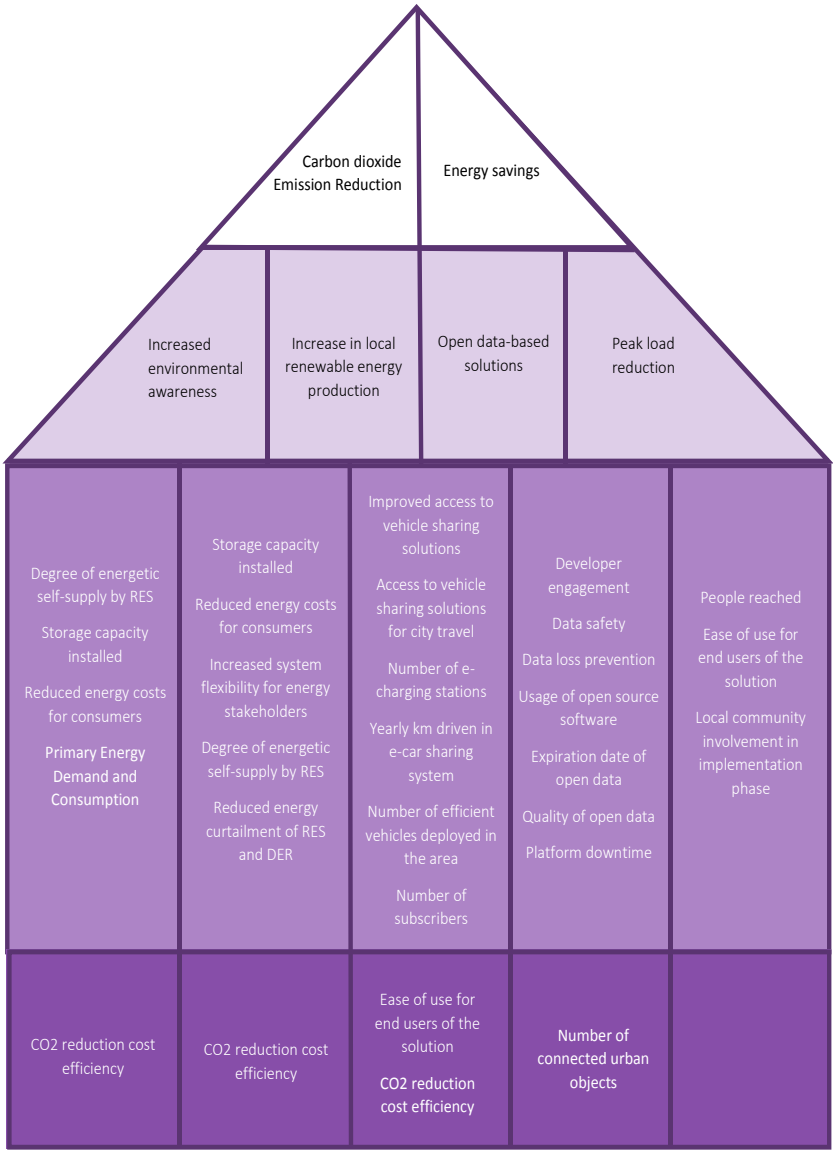


Figure 4: IRIS Nice Ecosystem pyramid-house displaying KPIs at different levels

3.4 Periodic reporting

Nice LH is conducted to report on the progress of the project as part of H2020 programme procedures. Additionally, internal progress reports have been organised to ensure a good control of financial and administrative issues within the consortium. Appointed Transition Track Animators contribute and support the documentation of these progress reports. presents a compilation of the both kind of periodic reporting executed and foreseen:

Table 4: Agenda of IRIS periodic reporting

Nr of periodic reporting	Description	Month of delivery
1	Intermediate progress report initiated by IRIS Project Management UTR	M6 (and every six months afterwards)
2	Deliverable D6.1	M12
3	Deliverable D6.2	M12
4	Progress report after reporting period 1	M12
5	Deliverable D6.3/4/5/6/7	M24
6	Progress report after reporting period 2	M30
7	Progress report after reporting period 3	M42
8	Deliverable D6.8	M48
9	Deliverable D6.9	M60
10	Final progress report at end of project	M60

3.5 Organizing periodic meetings

Two different kinds of periodic meetings are organized:

- Local Ecosystem meetings are organized in order to prepare and coordinate the demonstration activities.
- Cross-WP workshops are organized with horizontal partners in order to take into account output from others running WPs.

3.5.1 NCA Ecosystem meetings

NCA organises a mix of remote-meetings and face-to-face meetings with local stakeholders according to importance of issues to be addressed. An agenda is sent in advance in order to give structure to the animation.
A review of WP-progress from WP1 to WP11 is done (when appropriate) in order to provide to the entire Ecosystem the opportunity to interact and detect potential opportunities (Detect a IS in another LH to be replicated, communicate on an event, etc.) and threats (interdependencies with another WP, overlapping of activities, etc).

3.5.2 NCA cross-WP workshops

In order to ease the understanding of horizontal activities, some partners have organized face-to-face workshops in Nice in order to explain into details their methodology and contributions to IRIS, and also gain an insight understanding of the local context in Nice.

During the first year (oct 2017 – oct 2018) two thematic workshops animated by horizontal partners and involving local ecosystem partners:

WP3/WP9 workshop – 18th of April 2018:

The purpose of this workshop was to discuss LH solutions and possible monitoring strategies for technologies, indicators and data collection. Instead of directly supplying data collection sheets, RISE (together with IMCG as part of WP3 Business models) came to collect input on relevant data to be collected, discuss the purpose of utilisation of collected data and goals for the project. See minutes in *annex 1" Minutes IRIS WP9 NICE Workshop 18th April 2018 on Monitoring Strategy"*

TT5 citizen engagement – 22th of May 2018:

During this workshop, HKU explained the ladder model approach and enable Nice Ecosystem to map all the planned Integrated Solutions onto the so-called approach. This has helped to clear up which of these integrated solutions have an intrinsic need for citizen engagement in terms of co creation. The end result of this phase led to a division in integrated solutions in four categories. Only category 3 and 4 allow for co-creation and citizen engagement activities. Category 1 and 2 solutions might require extra communication but no co-creation activities.

Later during the day, the attendees took one specific integrated solution (Service Bleu – see specific card in chapter 4) and simulate a walk-through of a solution using our scenario toolkit.

Figure 5: Pictures from Nice TT5 citizen engagement workshop

All in all, this workshop has permitted to raise awareness on the added-value to associate at the earliest stage possible the end-users for the definition of a digital service. Whether a new service is initiated by a private company or public authority, co-creating fosters the match between end-user needs and functionalities of the service.

See minutes in *annex 2 "Minutes of IRIS TT5 Citizen Engagement in Nice"*

On the 16th-18th October 2018, Nice will host the consortium on the occasion of the 3rd Consortium Plenary Board, which will be the opportunity to set-up dedicated working sessions and to display a status of advancement of all activities foreseen in the project.

4 Planning of Lighthouse demonstration activities and investments

In this chapter, the 3 LH have taken full benefit of the joint approach and came up with the following common sections to describe their investment agenda:

- Planning of the demonstration activities, task per task (4.1)
- Map of demonstration area and location of implementation of Integrated Solutions, when known (4.2)
- Local Risk Assessment (4.3)

4.1 Planning of the demonstration activities

In a 5-years cooperation project, diverse factors lead to changes from the original planning and the real implementation of activities: maturity of technologies available, evolution of prices of equipment and energy, turnover of staff and board, internal reorganization of companies and public authorities, new strategic plans, turnover of subcontractors selected on the occasion of public procurement. With regards to IRIS project, these factors have led partners to adapt somehow the scenario of the activities in order to optimize the foreseen solutions and their impacts. Below is a set of sections that provides an up-dated status of the scenario and planning of demonstration activities.

4.1.1 Planning of TransitionTrack#1 activities

Integrated Solution: IS1.1 Positive energy building
Demonstrator: Collective self-consumption at building scale (p1/3)

Description:

Collective self-consumption at building scale is a new concept for commercial and residential customers in France while only a small number of projects have been done in Europe so far. This concept will be tested in Nice Meridia on two positive energy buildings under construction. The table below lists the main features of the two positive energy buildings under construction that will host the use case.

Table 5: Main features of the two buildings supporting the demonstration

Building name	PALAZZO MERIDIA	UNS-IMREDD
Picture	 *Figure 6: Sketch of Palazzo Meridia*	 *Figure 7: Sketch of UNS-IMREDD*
Building category	Office building	Educational building
Building owner	NEXITY (private)	Nice university (public)
End of construction	April 2019	September 2019
Total floor area (m²)	7860	4970
Total height (m)	34.75	15.66
Energy target	Positive energy building	Positive energy building
Energy system	District heating &cooling system	District heating &cooling system
PV surface (m²)	445 m² on roof top	848 m² on roof top
Type of storage system	Electric battery	Electric battery
Impact of battery sizing	See Annex 3	See Annex 4

Demonstrator: Collective self-consumption at building scale (p2/3)

Objectives:

The main objective of this use case is to assess the benefits and analyse the barriers (legal, financial, technical) that prevent the development of the collective self-consumption market at building scale. One sub-objective will be to experiment different technologies to increase the ratio of PV self-consumption.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

From oct 2017 to sept 2018, different strategies to maximize the ratio of PV self-consumption have been studied with or without energy storage. Software to size electric battery has been developed and used on the two buildings supporting the demonstration (see graphic below). The metering system needed to assess the impact of different technologies (energy storage, active load shifting) to increase the ratio of PV self-consumption has been developed.

Dimensioning of PV and batteries are defined according to the foreseen energy consumption of the building.

Figure 8: Latest photo of the construction work of PALAZZO and IMREDD buildings (Sept 2018)

Organization of work:

CSTB is coordinating IS1.1 and is in charge of demonstration activities. UNS-IMREDD (owner of the IMREDD building) and NEXITY (owner of the PALAZZO building) are strongly associated as end-users. ENEDIS (the French Distribution System Operator - DSO), in charge of reading the PV production meter and splitting the energy production data among energy consumers of the buildings, is also supervising the compliance with the legal framework.

EDF will provide the energy management system enabling to optimize the operation of the PV and battery system for both the IMREDD as well as NEXITY buildings.

Since oct 2017, 3 meetings have been organized to report on-going activities and plan future activities.

Demonstrator: Collective self-consumption at building scale (p3/3)

Assigned resources (investment, staff):

From oct 2017 to sept 2018, 12% of staff resources have been spent. The investment budget has not been impacted so far.

Involved subcontractors:

No subcontractors

Next step:

End of construction phase is planned on October 2019 for the PALAZZO building and September 2019 for the IMREDD building. The monitoring of the two buildings is planned to start by December 2019, meaning that a two-month period is allocated to the full deployment and test of the metering system

Risk management:

No risk foreseen

Integrated Solution: IS1.2 Near zero energy retrofit building (page ½)
Demonstrator: Optimization of heating load curve

Description:
The optimization of the heating load curve will permit to improve the efficiency of heat distribution into multi-storey buildings through a more accurate follow-up of the temperature inside the dwellings, and therefore to better adapt the use of energy according to the needs (inside comfort temperature targeted 19 degrees C). The target of social building owner Côte d'Azur Habitat (CAH) is to reach high level of energy savings and short ROI (Return on investments), that is why two solutions have to be compared before implementation:

Solution A (budgeted in the IRIS proposal): modification of heating distribution and individual load curve monitoring for each distribution circuit (North circuit and South circuit).

Solution B (not budgeted in the IRIS proposal): individual energy supply regulation for each half-storey (2 dwellings).

Objectives:
The solution is planned to reach a 10% (solution A) to 20% (solution B) of energy savings according to the final chosen option. The performance will be compared on the basis of the baseline consumption of the buildings after their thermal retrofitting which was terminated in May 2018.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any).

Optimization of heating load curve is planned to be implemented in 2 multi-storey buildings (towers 13 and 14) managed by the social landlord Côte d'Azur Habitat (CAH). Preparatory meetings during the first year were the opportunity to adapt and up-date the initial scenario in order to better match with CAH needs. A feasibility study is planned to be launched in October 2018 in order to design and compare the possible solutions to be implemented in this pilot framework in order to validate a final scenario based on a cost/efficiency analysis.

Organization of work:

Governance model:
Partners involved in the related Task (T6.3): NCA/CSTB/CAH/VEOLIA

Assigned resources (investment, staff):
Mainly staff costs at this stage. 500 k€ NCA budget (200 k€ Equipment and 300 k€ subcontracting) dedicated to the "Optimization of heating load curve" demonstrator and the "CUSA" demonstrator to be fine-tuned according to the results of Feasibility Study.

Involved subcontractors:
Subcontractor for preliminary study under definition.

Integrated Solution: IS1.2 Near zero energy retrofit building (page 2/2)
Demonstrator: Optimization of heating load curve

Next step:

Q4 2018:
Decision to launch the Feasibility Study

Q1 2019:
Realization of the Feasibility Study
Instrumentation of the two buildings (inside temperature, space heating and hot water consumptions) to monitor parameters during the baseline period
Presentation to Côte d'Azur Habitat, choice of the solution to be implemented (solution A or solution B)
NCA budget revision
Pilot detailed planning
Detailed design and specification of the demonstrator

Q2 2019: Calls for tender

Provisional planning according to the results of call for tender

Q3 2019: Purchase orders to subcontractors

Q4 2019: Implementation preparation +End of baseline period

Q2 2020: solution implementation (after the end of heating season)

Q4 2020: start of performance monitoring

Q4 2020/Q4 2021: first year of performance monitoring

Q4 2021/Q4 2022: second year of performance monitoring

Risk management:

Impact of the solution on district heating operation and performance

Mitigation: R&D agreement between Métropole NCA, CAH, CSTB and VEOLIA specifying the roles of partners, the solution implementation conditions, the termination of the experimentation, the performance assessment

Integrated Solution: IS1.2 Near zero energy retrofit building
Demonstrator: Commissioning process from the design of the operation

Description:
The REPERE service is a dedicated commissioning process elaborated to check from the design to the operation that energy efficient measures have been correctly implemented in refurbished apartment buildings. This service is based on monitoring and measurement data acquisition. Measurements are performed both before and after refurbishment and used to build an energy model of the building. This model is then processed to compare the performance after refurbishment with the performance or bills before refurbishment (bills are used when measurement before refurbishment is not possible

Objectives:
The REPERE service will be tested on two high-rise buildings built in 1974 and located in Les Moulins, a social housing area densely populated characterized by a majority of low-income and multicultural households. These two buildings (towers 13 and 14) have been recently refurbished with a large panel of energy-efficient measures.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)
Refurbishment works on towers 13 and 14 started on September 2016 and are achieved since May 2018. A meeting was organized on Dec 2017 to define the right level of measurements and plan future activities.

Organization of work:
Governance model:
CSTB is coordinating IS1.2 and is responsible for the implementation and test of the REPERE method (energy analysis of the refurbished buildings and comparison with the forecasted energy savings). CAH (owner of the two refurbished high-rise buildings) is strongly associated as end-user. VEOLIA is in charge of the full deployment and test of the metering system.

Assigned resources (investment, staff):
From oct 2017 to sept 2018, 3% of staff resources has been spent. The investment budget has not been used so far.

Involved subcontractors:
No subcontractor

Next step:
The agenda will be up-dated based on the result of the preliminary study project (called APS: avant-projet sommaire in French) that is planned to be launched in September/October 2018 in order to validate a final scenario based on a cost/efficiency analysis.

Risk management:
Well-proportioned deployment of metering system according to conclusion of preliminary study project. Mitigation: deep analysis of conclusion.

Integrated Solution: IS1.3 Symbiotic waste heating networks (page 1/3)
Demonstrator: Dashboard

Description:

The demonstration is located in Nice France in the Grand Arenas development district.

The demonstration leans on a waste heat recovery system that is conceived as a low temperature district heating/cooling network. This will be sourcing waste heat energy at the outflow batch of the Haliotis waste water treatment plant (WWTP) (summer: 25-30°C / winter: 13-8°C) located on the west side of the airport of Nice and owned by the city of Nice. The water is then distributed to the buildings substations which will be equipped with reversible heat pumps to provide the needed heating, cooling and sanitary hot water to the end users (foreseen are 19 MW heating, 15 MW cooling by 2022, however the distribution perimeter might vary depending on the customer subscriptions). In certain Plots among the district, thanks to different or complementary energy profiles, a heat pump will be able to take cool from one building (evaporator side of heat pump) and then transfer it at higher temperature to another building (condensing side of heat pump), this is the so called “thermo-frigo pump” mode and increases the recuperation energy and efficiency of the heat pumps.

Based on such system, the demonstration of an innovative district scale “Local Energy Management Dashboard”will be put in place. The dashboard will provide real time or near to real time information of the energy and environmental performance of the system to the community by mapping all energy fluxes related to the district. Thanks to IRIS, the dashboard will be enhanced in its functionalities concerning its capabilities of monitoring the energy fluxes, forecast the potential optimal demand-supply balance and the information quality made accessible to the end user or provided via push notifications.

Objectives:

It is expected that the Dashboard implementation will enable to raise awareness within the local community, and of end users, about the deployed energy solutions, its role and impact within the local energy mix, raise the active involvement in energy usage and also achieve, thanks to the monitoring, a positive feedback on the overall operation of the system. Within IRIS, the Dashboard will be enhanced towards more detailed forecast and optimization functionalities. This will potentially give a better insight into potential energy transfers among the buildings with the aim to improve the operational efficiency of the network.

Demonstrator: Dashboard - (p2/3)

As can be evinced from the scheme below, it is foreseen to have first customers to be connected to the DHCN by end 2019/beginning 2020 and as building construction works advance, connect further customers along the period 2020-2022. The advancement of the construction works and the success in commercialising energy supply from the District Heating and Cooling Network (DHCN) for the district's future population will be crucial factors for the advancement of the Dashboard development.

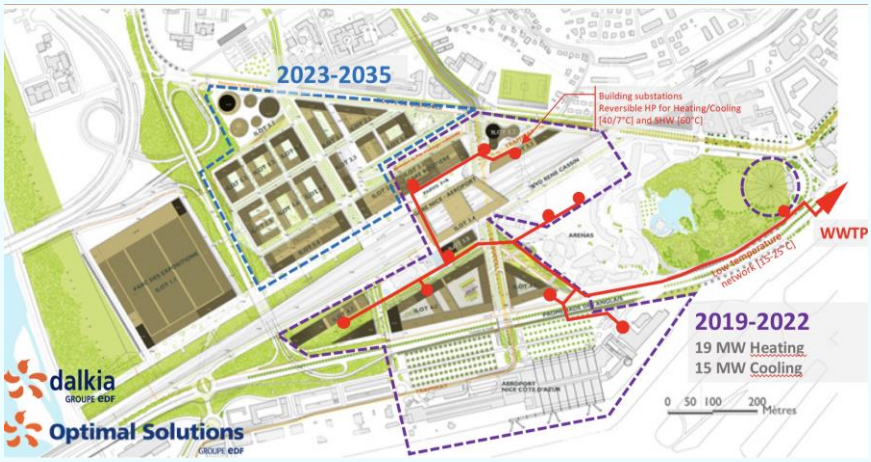


Figure 9: Scheme of foreseen work of Grand Arenas – IS1.3

The dashboard will be interfaced with different systems and sources of information. While technical specifications are not done yet, it is foreseeable that the dashboard will have to ensure following connections: remote control system of the district heating/cooling network operator (Dalkia), the CIP from the public authority (NCA), the Local Energy Manager (EDF) and potential user information from engaging customers. Other information sources might be considered. The user interface will be a web based platform and made compatible and accessible from different portable devices and screen (computers, screens or mobile phones).

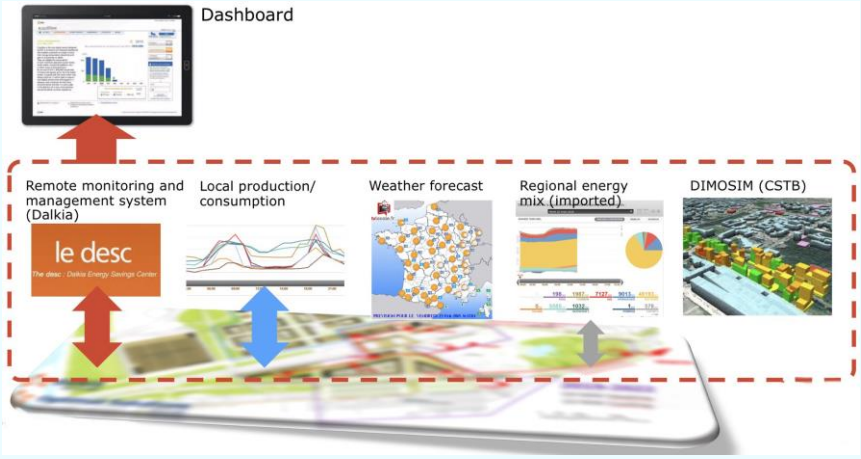


Figure 10: General conceptual scheme of the Dashboard - IS1.3

Demonstrator: Dashboard - (p3/3)

Within the IRIS project, the integrated information and forecast functionalities will be enhanced, testing more advanced algorithms and related methodologies. Needing the Dashboard to be installed and running, these activities are planned to be developed in 2020. Crucial will be the previous advancements of both network construction and customer connection, as well as the Dashboard implementation and maturity.

Organization of work:

Governance model:

The Dashboard will be solely developed by EDF. It will further take charge of coordinating the interfaces with NCA and the DHCN operator DALKIA (100% subsidiary of EDF).

Assigned resources (investment, staff):

The Dashboard enhancement works are foreseen to be about 14 MM. No other direct associated costs are foreseen at the present time.

Involved subcontractors:

No subcontractors are foreseen at the present time.

Next step:

1) Identification of technical and functional specifications to be addressed in IRIS > 1st semester 2020
2) Development and implementation of calculation models > 2nd semester 2020
3) Monitoring of new implemented functionalities > 2021-2022

Risk management:

Commercialisation of heating/cooling provision and progress of DHCN realisation
Mitigation: Adaptation of scope of development of the enhanced Dashboard functionalities

Availability of data to enable testing of the developed functionalities
Mitigation: Early identification of legal constrains to respect and adapt possible contractual arrangements with involved parties (DHCN customers, DHCN operator or NCA). In the worst case scenario, a simulation based approach has to be foreseen.

GANTT of T6.3 - Demo of TT#1:

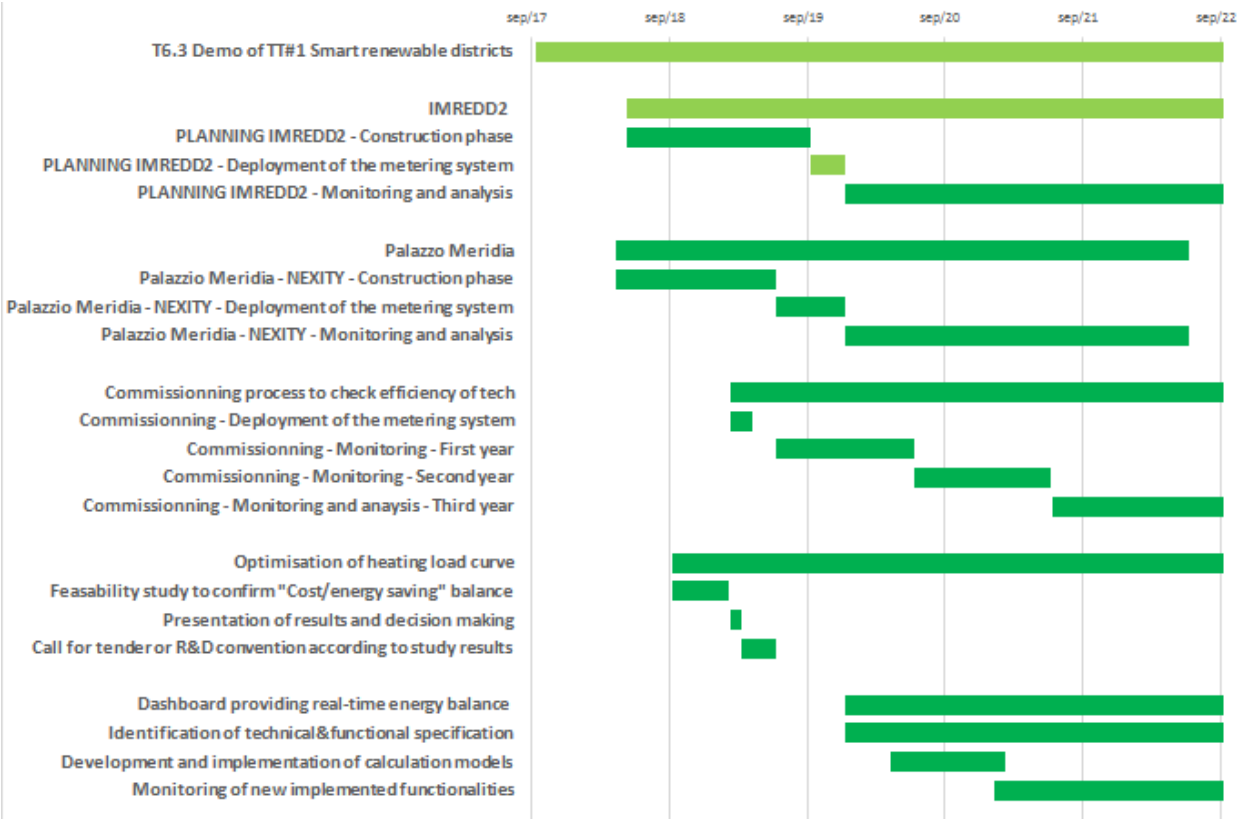


Figure 11: GANTT of Transition Track 1 activities

4.1.2 Planning of TransitionTrack#2 activities

Integrated Solution: IS2.1 Flexible electricity grid networks
Demonstrator: Local Energy Management system (LEM) - (p1/2)

Description:

The LEMS to be deployed is considered as a transversal platform which integrates different IS solutions and TT. The objective is to deploy an operation optimization strategy enabling to increase the revenue streams of each individual asset, by offering flexibility services or products to different markets: the DSO for reducing grid congestion on the medium and low voltage level, the TSO and national energy market to bid on different flexibility services for ensuring day ahead and intraday supply-demand balance or just by optimizing the operation of certain assets and thus, adopting an "ESCo" (Energy Service Company) type of approach.

The demonstration of the LEMs (Local Energy Management System) will lean on one of the two demonstration area in Nice, notably the Nice Meridia or Grand Arenas districts.

Objectives:

The demonstration will enable to further develop and identify the viability of a LEMS, enabling to balance the iteration between local grids and assets with the overall energy markets. The current market design does not give any market incentive to develop local based approaches as an aggregation of locally bounded flexibilities. The LEMS will provide a first pilot on how to combine local available products to provide services in a TSO led market design.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

Based on the partners involved in IRIS and the different energy systems installed in its framework, EDF will take charge of developing the needed EMS components enabling the testing of an LEMS. These components will enable the operational testing of following main functionalities: promotion of self-consumption coupled with storage, flexibility provision by smart charging management of EV charging infrastructure and balancing of the iteration between local grids and assets with the overall energy markets. Thanks to the LEM, the demonstrations of TT 1,2 and 3 will be connected and optimized in terms of grid flexibilities, based on the IMREDD and NEXITY demonstration buildings and the further potential deployed EV charging infrastructure, by putting the related EMS in communication.

Demonstrator: Local Energy Management system (LEM) (p2/2)

Organization of work:

Governance model:

EDF will take charge of the development and delivery of the EMS components for the integration of PV, storage and electric vehicle charging infrastructure for the provision of system optimisation and grid flexibility. Furthermore is will provide the overall LEMS and ensure correct interfaces among components and other possible software platforms.

It will thus closely collaborate with the demonstration involved parties (IMREDD/UNS, NEXITY, NCA, ENEDIS, Vulog among others).

Assigned resources (investment, staff):

For the time being, the overall work is estimated at about 26MM and 9 000 EUR of equipment costs (industrial PC for running the EMS, licenses, gateways among others).

Involved subcontractors:

At the time being, EDF has not foresee any subcontractor.

Next step:

- Start of development of EMS for IMREDD > 09/2018
- Identify common working schedule with NEXITY > 10/2018
- Delivery of EMS for IMREDD and NEXITY > 2nd semester 2019 (depending on delivery of the buildings and related infrastructure)
- Monitoring of EMS and implementation of LEMS > 2019-2022

Risk management:

Problems in interfacing different equipment installed in the 2 demo sites

Mitigation: Close cooperation with partners, share of technical specification of the EMS and if needed, testing of equipment (batteries, charging points, converters) from the provider before delivery of EMS.

Any third party has the right to compete commercially and the future owners/operators of the demo site have the right to refuse to participate to the demonstrations

Mitigation: Follow close up communication with partners and identify most adapted contractual or formal arrangements to ensure to comply with the IRIS GA.

Integrated Solution: IS2.2 Smart multi-sourced low temperature district heat with innovative storage solutions
Demonstrator: Smart District Heating and Cooling (DHC) optimization algorithm

Description:
This IS plans the deployment of a Smart DHC optimization algorithm, aggregating DHC connected building consumptions and production forecast by optimally matching production with the actual and forecasted energy needs. Since the application of IRIS, NCA launched in 2017 a 25-years tender for the temperature heat of Méridia district for a total amount of 24, 4 M€ (18,8 M€ for initial investment, 5,6 M€ for major maintenance work).This bid was won by IDEX, with official contract signed with NCA on the 14th of August, 2018. The total energy consumption foreseen over the 25 year is 285 GWh of heat (139 GWh for heating and 146 GWh for hot water) and other 285GWh of Cold + 1, 4 GWh for Geo Cooling. To provide this, the equipment foreseen requires an installation power of 6, 5 MW for Heating and 12 MW for Cooling (NB: Cooling is foreseen to be twice more importance than heating due to local needs and uses). These equipments are foreseen for a building project of 537.000 m².

Objectives:
Optimisation of equipment (network, pumps, components of network) in order to optimise the distribution of energy according to the needs. Minimisation of the production of heat/cold/electricity.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)
The 25-year tender includes a smart grid mission stating that smart grid activities must not totalize more than 20% of the global turnover. The smart DHC optimization will be deployed within local consortium leaning on the IRIS partner's infrastructures and assets in the framework of IRIS, simultaneously and according to the long term smart grid specification and mission of IDEX operational contracting with NCA. Nonetheless, the IDEX/NCA contract allows to any third party to offer their auxiliary smart grid optimization services at the customer level. The architecture of the production site will enable to develop a smart operation strategy which will be able to optimize the synergies among heating and cooling production, leaning on innovative storage technologies as for thermal and electric energy, and make an optimal use of the geothermal source.

Organization of work:
Governance model:
Supervision of construction works of Méridia district by NCA (Directorate of Energetic Performance) together with the urban development agency called "Éco-Vallée Plaine du Var".

Assigned resources (investment, staff):
NCA (Directorate of Energetic Performance) according to the PMs dedicated to T6.4

Involved subcontractors:
No subcontractor foreseen at the time being

Next step:
Synchronisation of work together with IRIS partners

Risk management:
No risk

Integrated Solution: IS2.3 utilizing 2nd life batteries for smart large-scale storage schemes
Demonstrator: 2nd life batteries (p1/2)

Description:

At this stage, the opinion of the Nice Ecosystem's experts leads to focus on a battery system with a capacity of about 50 kWh, based on e-vehicle batteries, i.e. Li-Ion technology. The latter, will be integrated into an additional 100-150 kWh battery system, also based on Li-Ion technology. The storage system will be connected to the Building Energy Management System, which will define the operation strategy of the system. Its technical and functional specifications are not defined yet and under assessment.

Although no final choice has been done neither on the dimensioning nor on the technology providers, it is foreseen that the system will be composed by different cabinets containing the battery batches (new and 2nd life batteries), equipped with inverters, battery and energy management systems, room cooling system and fire safety equipment. It is estimated that the overall system will occupy a surface of about 5m x 2,5 m and be about 3m in height.

Objectives:

This building will be equipped with 848 m² of PV panels, corresponding to a capacity of about 175 kWp. The second-life EV battery technologies will come in addition to a medium-scale electrical storage capacity.

The aim of this is the comparison of the efficiency of these technologies for dynamic energy balancing within a local micro grid, coupled with PV energy production.

Another objective is to characterize the notion of "2nd life" and assess whether these vehicle's batteries are actually adapted for smart buildings

Integrated Solution: IS2.3 utilizing 2nd life batteries for smart large-scale storage schemes
Demonstrator: 2nd life batteries (p2/2)

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

In terms of the exact allocation of the storage system, two scenarios are considered. The first consists to host the system in a room in one of the underground storeys of the building, while the other is to install it outside of the building premises thus, a dedicated shelter system will have to be foreseen.

By any mean, being battery storage a still "young" and fast evolving sector, it has to be expected that the legal and regulatory framework might evolve within the project's life time. Therefore, if this is the case, changes will have to be implemented accordingly. UNS is currently benchmarking available technologies and meets with experts in the sector in order to identify the best value for money products.

Organization of work:

Governance model:
UNS currently meets with expert in order to set the volume and performance of the batteries that will better match with the need of the building.

Assigned resources (investment, staff):

- Staff Cost used accordingly to PM foreseen in the G.A
- Costs of the studies is under definition as it includes the valorisation of the 2nd life battery (and not yet known at this stage), as well as the implementation of the battery inside the building, and finally the security protocol. Additional non-IRIS budget will be invested consequently.

Involved subcontractors:
UNS has been operating a benchmark with different automobile constructors in order to experiment this solution at broader scope than demonstrator foreseen within IRIS.

Next step:
Q2 - 2019: Validation of the internal studies dedicated to the "architecture of system and electric plugs".
Q3 - 2019: Study on the qualification of "what is considered as a 2nd Life battery?"
Q4: Start of 2nd life batteries test on site.

Risk management:
No risks

GANTT of T6.4 - Demo of TT#2:

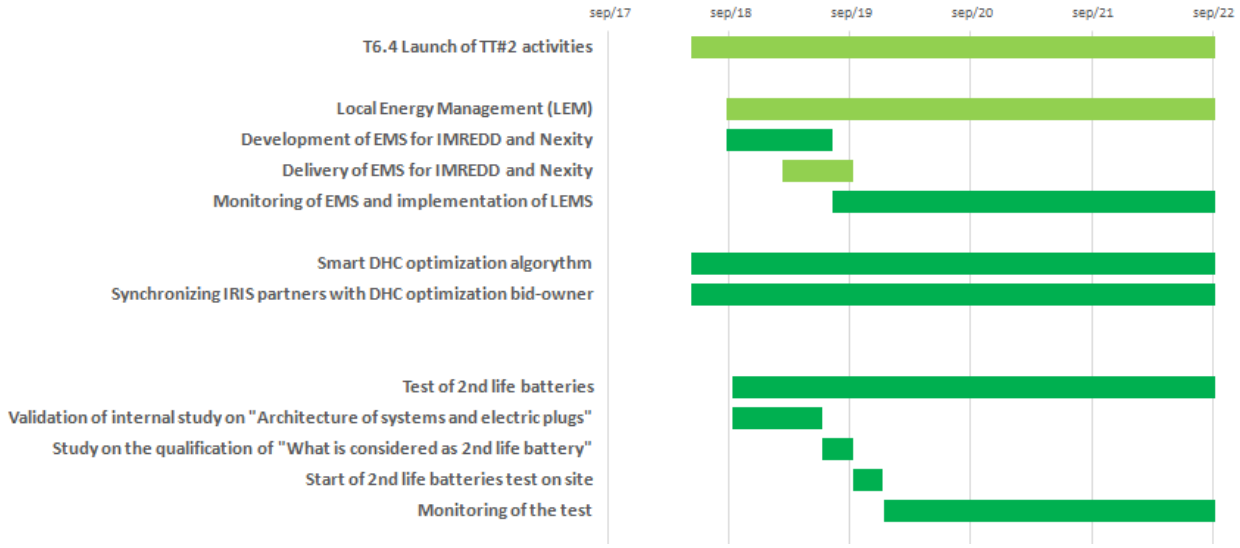


Figure 12: GANTT of Transition Track 2 activities

4.1.3 Planning of TransitionTrack#3 activities

Integrated Solution: IS3.1 Smart Charging
Demonstrator name: Smart Solar V2G EVs charging (p1/3)

Description:

Free floating is the most advanced operating system of car sharing. Nevertheless, it yet comes with a coupled model: both car fleet and charging infrastructure are operated together, independently of the latter are implemented as a centralised (all in the same place) or decentralized model (disseminated charging stations). It seems a potential business model, to decouple the car fleet operator from the EV charging infrastructure operator. A System as a Service (SaaS) could be foreseen, referring here as a system focused on the operation of the charging infrastructure. This could be interfaced with other SaaS, as the car sharing operator or others.

Moreover, in a changing regulatory environment on parking policies, EV charging stations are imposed for all new public as private parking plots. This choice will most probably lead to a temporary divergence (short to mid-term) between available charging points and running e-vehicles: charging points will outrun in numbers the existing e-vehicles adoption number. The charging infrastructures will probably be growing faster than car adoption. In this upcoming landscape, it will be important to maximise the mutualisation of charging infrastructure, within both private and public premises. This would lead to a win-win situation for both EV users and infrastructure owners: the first needs proximity and the second one, the maximisation of the usage time of his charging points. Both should be done at a “reasonable cost”.

Objectives:

The focus is on the charging infrastructure operation and the optimization of the charging service and the integration of the notion of “smart charging”

The constrains are on one side the electricity costs during a given charging cycle, the need of the EV user and the charging level of the EV. Those three factors have to be put together to ensure a more viable business model for the EV charging infrastructure owner. “Smart charging”, so developing a dynamic charging plan, seems a way to reduce overall costs.

Nevertheless, the building, the user and the EV have to provide sufficient information to take decisions on the charge plan to be implemented. It could be foreseen that such an “intelligence” might be located at the building level or within a third party platform, working as a “System as a Service”, managing both EV charging infrastructure as well as the interface with a user (private or of a free floating car sharing service alike).

Identifying the feasibility and validity if such a “smart charging” approach, is the focus of the use cases to be tested.

Integrated Solution: IS3.1 Smart Charging
Demonstrator name: Smart Solar V2G EVs charging (p2/3)

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

A system gives the information to an end user, that a charging point, or several ones, is available at a given location. Such information could be made available through any of the 2 main systems: a charging infrastructure operator (private/public) or the free floating operator himself. Both are not mutually exclusive but could be synchronised through dedicated software, enabling thus a private EV owner and a free floating car user to mutually access such information. The charging point could be reserved/blocked for the user or just be put in hold for other users while the EV is plugged into the system. The appropriate way to make such a service available has to be understood, both from a technical point of view as well as a user experience point of view.

The main scenario is considering a charging point located in a private premise. The latter is connected to a system equipped with PV and a battery storage system. This could enable to have more adjustment variables that a simple grid connected charging point. The price of the charging could be variable depending on the energy retail tariffs of the building operator, the availability of stored PV energy and the PV production forecast during a charging cycle and on the other side, the foreseen charging cycle, dependent on the charging level of the EV and the time the EV will be plugged to the charging point (possibly known but probably unknown).

The question about the economical optimisation of such system needs a certain level of intelligence able to manage those factors all together. It could be argued, that such smart charging could even lead to the determination of a variable price for the charging service, before the user decides to plug the car or not. Depending on such factors, “smart charging” could even be used to provide flexibility to the grid by 2 options:

- Temporal modulation or shifting the charging of the car
- Modulation of the charging power at the charging point.

Such action might be valued as “flexibility” to the electricity market or for a more advanced scenario, where the DSO needs to modulate charging of EV due to congestions in the distribution grid.

The latter is a main issue for the upcoming EV market and DSO alike, as the penetration rates of EV are very optimistic however, the existing distribution system hasn’t been sized for such a usage. It might be forecasted that in the long term, distribution grid congestion might become a predominant problem for a DSO, due to the coincidence of charging loads for EV in certain geographical locations. Smart charging could provide relief to the distribution system: such a use case is considered as important to be implemented, so enabling a DSO to provide a flexibility demand to a flexibility operator, able to modulate or shift the charging of EV through smart charging.

Integrated Solution: IS3.1 Smart charging
Demonstrator name: Smart Solar V2G EVs charging (p3/3)

Organization of work:

Governance model:
Development of a "smart charging" scheme by EDF – focus on the "smart charging" implementation and related infrastructure (EMS, charging infrastructure operation and related services, charging infrastructure itself).

Vulog, IMREDD, ENEDIS, NEXITY (to be confirmed) – interfaces with EV users, EV charging infrastructure owners, DSO and grid in general.

Assigned resources (investment, staff):
As stated in the GA in T6.5 – The breakdown is yet not defined, as it will vary based on the affected charging points and the number of locations to be coordinated.

Involved subcontractors:
No subcontractors needed at the present time.

Next steps:
Follow-up of deployment of and findings in T6.3, T6.4 and IS3.2 to adapt this IS3.1 accordingly

Risk management:
No risk at this stage.

Integrated Solution: IS3.2 Smart e-mobility
Demonstrator: Free-floating optimization: Testing public/pro car sharing efficient mix (p1/2)

Description:

Free floating is the most advanced operating system of car sharing as it permits the user to drop the car out of a charging station (VS traditional car-sharing system that obliges user to drop a car to dedicated car-sharing stations). Nice ecosystem partners work on scenario that permit EV car (private owner or car sharing system) to access to charging points located in private car park.

Objectives:

People living in cities will own less cars in the next years and public charging stations are not common in the streets. A key factor to make free-floating a success is to ensure that a car will be available close to users' location when they need one. Due to the high cost of charging stations, we consider that they will not be developed only in public spaces (streets, avenues, etc.) In addition, private charging stations are rarely used.

The demonstrator aims at enlarging mapping offering new charging points, not only located in the streets but by now in private car-parks/buildings (e.g.: University, Commercial malls, etc.).

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

A citizen comes to Nice Meridia with an IZZIE car and parks the EV in the street. If he finds a charging point he plugs the car. If there is no charging point available and the car battery is empty, the operator puts the car out of service for users and plugs the car in a private car park (a convention may be required), this could be IMREDD-car park or another private car park. Battery charging has a cost and it depends of:

- Operator's need
- The availability of the energy in the building (T6.3)
- The availability of the energy in the district (T6.3)
- Users needs (a quick charge maybe be required but will cost a lot)

Notes:
UNS-IMREDD collaborators will have a specific offer. Scenarios will be according to the charge plan:

- Free for slow recharge or for recharge monitored by the building or the district energy plan
- Pay for quick charge or for a charge out of the monitoring strategy
- Operator pays for the recharge, but it could be the user
- Operators costs will be reduced as the charging points will be installed in the buildings and will not have to be supported by the operator during the deployment of the car sharing service

A dynamic charge plan (IS3.1) will be defined between the operator of the free-floating and the electricity-seller to secure the business model. The DSO needs to be associated in order to validate the amount of energy required at the distribution grid scale. Since July 2018, an app to access into the actual building of UNS has been developed and tested. This is the first milestone of this scenario.

Integrated Solution: IS3.2 Smart e-mobility

Demonstrator: Free-floating optimization: Testing public/pro car sharing efficient mix (p2/2)

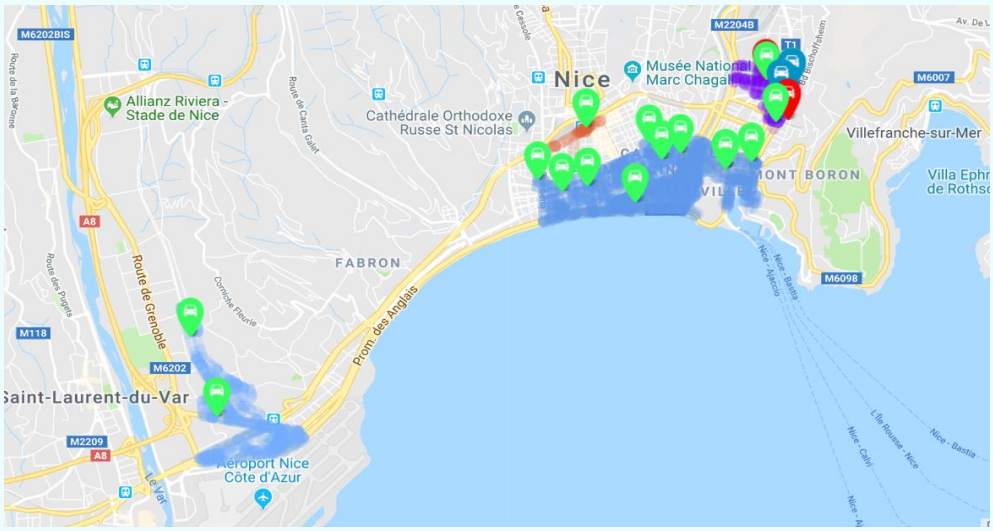


Figure 13: VULOG back office screenshot - Green: cars are available, Blue: cars are in use, Red: cars are not visible by end users

Organization of work:

Governance model:

Partners that have staff costs on T6.5 meet on a regular basis

Assigned resources (investment, staff):

Staff accordingly to PM foreseen in G.A

One "smart charging point" will be invested to enable the communication between the test-EV-car: provisional budget: 20K€ investment.

Involved subcontractors:

Selected charging point distributor

Next step:

Q3- 2018: Smart connection to set-up the tested EV-car.

Q1-2019: Installation of the "smart charging point" and the connection with the EV-car.

Q4- 2019: Test of the whole "use experience" of an EV car that would like to access to a private building.

Q1-2020: For the test, a EV-car (own by IMREDD) will be equipped in order to test and debug the access to a private car-park.

Risk management:

A new free-floating bid on free-floating was launch in 2018 and is due to start in 2019. Mitigation: T6.5 Partners have defined activities that aims at proving that free-floating will require in the next few years a mix of public and private charging points. The findings of this work plan will be fruitful for the deployment of free-floating, whosoever win the up-coming bid.

Also NCA is getting organized to deploy a charging infrastructure for electric vehicles for its own car-fleet (including UNS-IMREDD car-fleet as well), which are equipped with Vulog technology.

GANTT of T6.5 - Demo of TT#3:

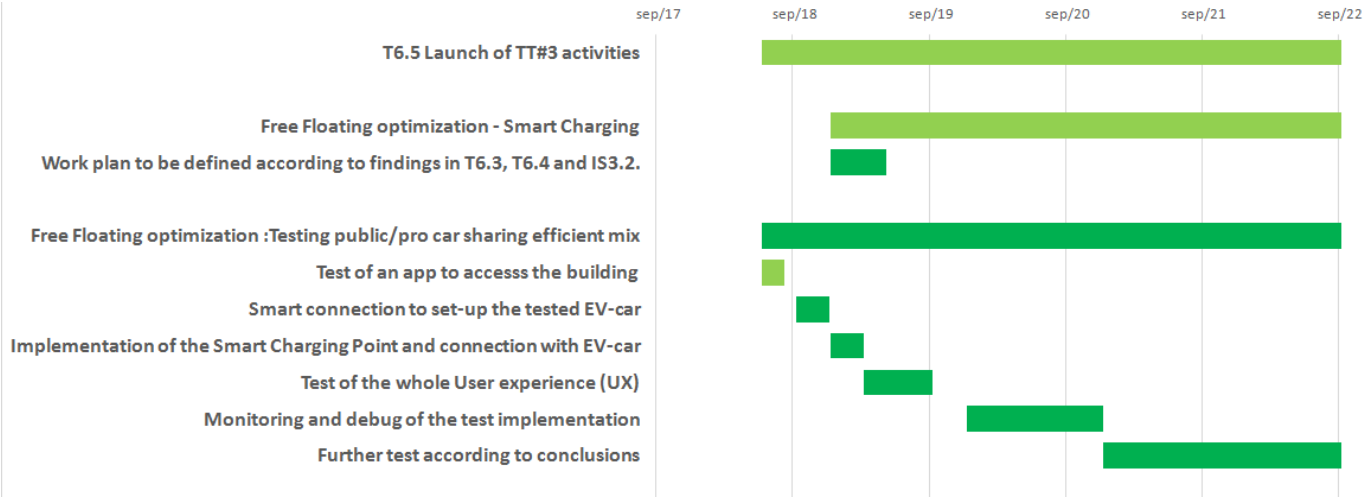


Figure 14: GANTT of Transition Track 3 activities

4.1.4 Planning of TransitionTrack#4 activities

Integrated Solution: IS4.1 "Services for Urban Monitoring" and "IS4.3 Services for mobility" (page 1/2)
Demonstrator: CIP Services deployment

Description:

In IRIS Work Package 4 City Innovation Platform the backbone architecture of the CIP is developed, while T6.6 services will nourish the CIP and will be integrated on the top of it. Integrated Solutions from other TT (TT1, TT2, TT3, and TT5) will be later deployed as services to be integrated into the CIP.

T6.6's description of activities are interlinked with the development of CIP (WP4). As these Integrated Solutions are not yet deployed, CIP is being defined on the basis of potential "use-cases", in order to anticipate and identify the maximum requirements needed for these later deployed IS. Since both IS 4.1 and IS4.3 are based on use-case scenario, the present report focus on the working process explained above rather than on these potential use-cases that are speculative.

Still, the following description will provide a global understanding of the context.

Objectives:

The overall objective of the CIP is to diversify NCA's economy and to reinforce its positioning as "land of experimentation". To reinforce the existing set of initiatives, the CIP will permit to collect, aggregate and share of data. The CIP will not only permit the Métropole to have a smarter management of its activities and facilities, but will also permit the development of added value services (whether they are developed by start-ups, large account companies, or public authorities themselves) thanks to a secured, reliable and consistent catalogue of data.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

During Year 1, the definition of "Functional & technical requirements" (WP4) has permitted to start the set-up of the "Integration & deployment of core CIP components" (WP4). However, drafting accurate, consistent, reliable and reusable "Functional & technical requirements" has required to anticipate the architecture design of technical services (apps, antenna, whatsoever services or equipments that require to be interfaced with CIP in order to collect its data) to be deployed at a later stage.

Since T6.6 services (IS 4.1 and IS4.3) will be deployed later-on respectively in T6.3 and T6.5, "Functional & technical requirements" were made on the basis of potential use-cases with dedicated "use-cases workshops" organized.

Coordination of activities is here paramount in order to ensure that the set-up of CIP integrates the technical requirements of services, not only as part of T6.6 but beyond IRIS.

Integrated Solution: IS4.1 "Services for Urban Monitoring" and "IS4.3 Services for mobility" (page 2/2)
Demonstrator: CIP Services deployment

Organization of work:

Governance model:
Both T6.6 and WP4 is led by NCA which offers a global understanding of technical barriers to overcome. To do so, NCA organize recurrent meetings and have regularly pointed out many interdependencies between tasks and deliverables.

Assigned resources (investment, staff):
25K € budget executed by NCA for CIP by 2018 for "technical specifications".

Involved subcontractors:
Atos

Next step:

2019: 100K€ foreseen in 2019 for WP4 (dedicated to common components of the CIP) & T6.6 (dedicated to specific components adapted to local context)

Risk management:

Risk1: Anticipating as much as possible long –term need and technical requirements.
Mitigation: associating Nice Local ecosystem

Risk 2: Barrier to access data
Mitigation: use lessons learnt from the existing portfolio of prepilots (legal aspect such as GDPR, specifying an article to data access within convention)

GANTT of T6.6 - Demo of TT#4:

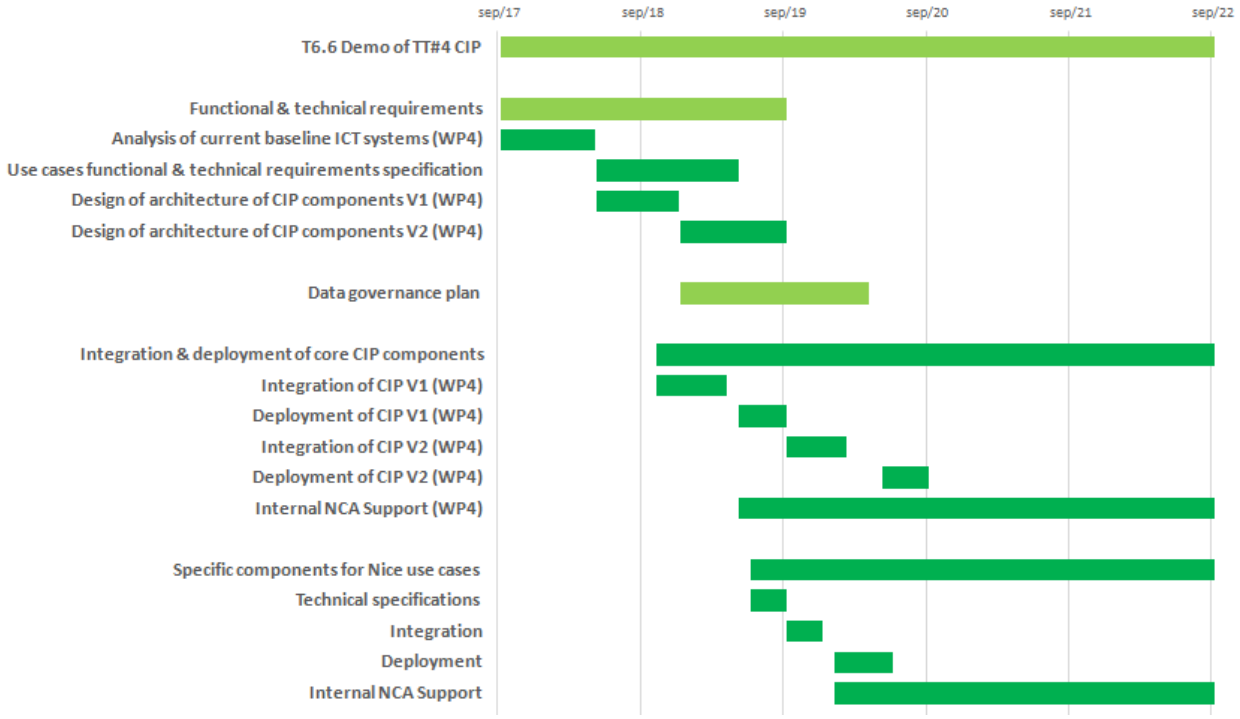


Figure 15: GANTT of Transition Track 4 activities

4.1.5 Planning of TransitionTrack#5 activities

Integrated Solution: IS5.1 co-creating the energy transition in your every day environment (page1/2)
Demonstrator name: Smart Management of Peak Pollution

Description:

This solution is aimed at reducing the pollution peaks through information and incentives supplied to travellers and cars drivers in order to use alternative pathways or mobility solutions by means of notifications transmitted through an application. In the framework of this project, the impact of incentive supplied to travellers and drivers will be experimented: when they accept to change their behaviour by following the propositions transmitted through the application, they will get credits which will be transformed into incentives.

Air quality informations will be provided by AtmoSUD with the contribution of low-cost air quality sensors which have been implemented in the framework of the Environmental Urban Monitoring.

Objectives:

The expected impacts will be measured through the following KPI :

- Citizen participation (number of participants)
- Reduction of individual car transport (km)

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

In case of pollution peaks alerts, notifications will be sent to travellers and car drivers to propose alternative paths or mobility solutions. If they accept to follow these propositions, they will be get credits which will be transformed into incentives. The nature of the incentives has to be defined, but could consist in free access to Métropole NCA services like Velo Bleu and Auto Bleue (car-sharing service in Nice).

Figure 16: Photo of pollution sensors IS5.1

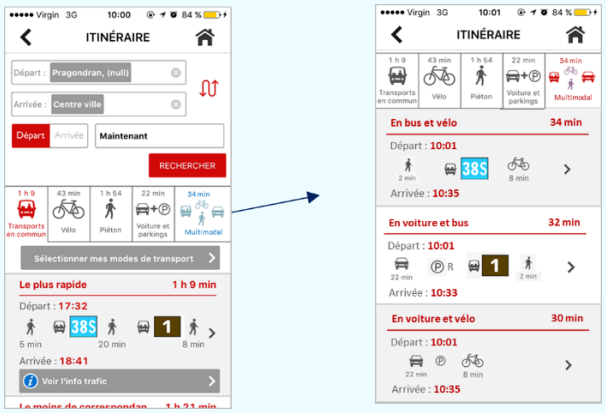


Figure 17: Screenshot of app front office IS5.1

Integrated Solution: IS5.1 co-creating the energy transition in your every day environment (page2/2)
Demonstrator name: Smart Management of Peak Pollution

Organization of work:

Governance model:
The pilot will be managed by Veolia Innove and one or more of their Linked Third Parties. Veolia and their Linked Third Parties will design, operate and assess the performance of the service which will be tested in the framework of the pilot demonstrator

The community management of the service and the organization of the attribution of incentives on the basis of individual credits transmitted is to be defined.

The other partner of the project will be AtmoSUD who will supply the peak pollution maps and alerts.

Assigned resources (investment, staff):
The implementation of the pilot will include 46 MM from Veolia, 3MM from NCA, and subcontracting.

Involved subcontractors:
Mobility paths calculation will be subcontracted as follow:

- Transit calculation service: under definition
- Web Hosting: Amazon Web Services
- User Interface design: Y&Y

Estimation: 170 k€

Next step:
Due to the modification of the project governance which in ongoing and to be finalize, no significant work was realized during year # 1.

September 2018:

- Demonstrator organization : Veolia Innove/Métropole NCA/AtmoSUD
- Demonstrator budget and planning finalization
- Benchmark on comparable existing solutions/experimentations
- Feedback of HKU regarding the experimentation of the city of UTRECHT on the same topics

Q4 2018: initialization of the project

Q1/Q2/Q3 2019: design and implementation of the demonstrator

Year 3 and 4: performance assessment of the solution

September 2021: project closing (the total duration of the project will be 4 years).

Integrated Solution: IS5.1 Co-creating the energy transition in your every day environment
Demonstrator name: Service Bleu

Description:

Service Bleu is an app that permits citizen to interact with in an efficient manner with the municipality by reporting small incidents of daily life can be resolved quickly thanks to the proximity inspectors: potholes on the sidewalks or the pavement, unblocked posts, damaged signage, degraded urban furniture, fall of tree branches. This app is meant to be up-graded during the lifetime of IRIS project:

- being merged into a global apps that will encompass overalls risk identification in the territory.
- integrating co-creation with citizens.

This app has been used as a Use Case on the occasion of *TT5 citizen engagement workshop* (see section 3.5.2)

Objectives:

Development of apps, increasing the number of users, integrating user-feedback for improvements, identifying opportunity to report posts leading to energy saving.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

Identification of this service as an existing available for citizen in order to actively interact with the municipality.

IRIS Workshop held with HKU on Citizen Engagement and more especially co-creation activity, that includes an end-user approach, led NCA to include Service Bleu as service for Citizen engagement.

Organization of work:

Governance model:
Developed internally by NCA, Directorate in charge of apps.

Assigned resources (investment, staff):
To be confirmed according to running national TIGA-call conclusions that integrate a robust chapter on citizen Engagement

Involved subcontractors:
Developed internally

Next step:
Q3 – 2019: To be aligned according to TIGA-call conclusion.

Risk management:
Misuse of citizens *via* abusive or irrelevant posts.
Mitigation: checking relevance before intervention on site.

Integrated Solution: IS5.1 Co-creating the energy transition in your every day environment
Demonstrator name: Civocracy

Description:
Civocracy is an on-line platform on which NCA can launch open discussions with its own community with the aims to integrate citizen feedback in the decision-making process

Objectives:
Civocracy enables to connect with other cities using the same tool and launching joint discussions to exchanges on best practices and common issues.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

This activity is under track. The 3 following official threads of discussions was launched in May 2018:
- Would secured bike-park instigate you to use your bike?
- How to promote urban agriculture?
- Get to know Neighbourhood Councils

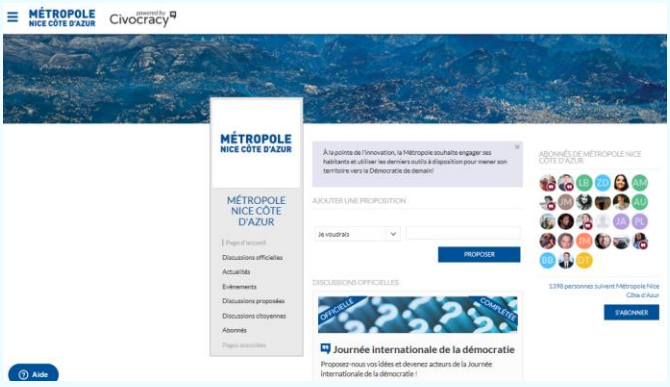


Figure 18: Screenshot of Civocracy civitech app IS5.2

Organization of work:

Governance model:
Contract between NCA and the civitech

Assigned resources (investment, staff):
PMs as foreseen in T6.7

Involved subcontractors:
Civocracy - civitech

Next steps:
Q3 – 2019: To be aligned according to TIGA-call conclusion.

Risk management:
Posts deviated from original title.
Mitigation: mediation

Integrated Solution: IS5.1 Co creating the energy transition in your every day environment (page 1/2)
Demonstrator name: Citizen Utilities Savings through citizen Awareness (CUSA)

Description:

CUSA is planned to be implemented in towers 13 and 14 owned and managed by Côte d'Azur Habitat (CAH). Preparatory meetings during the first year were the opportunity to adapt and up-date the initial scenario in order to better match with CAH needs and requirements, ie high level of energy savings and short ROI. Due to the configuration of floor heating existing in these two buildings, it will not be possible to implement individual metering for heating (two dwellings at least in solution B of the "Optimization of heating load curve" demonstrator) : in these condition, it will be difficult to promote individual engagement to manage the heating consumptions.

Objectives:

The target is to reach a 10% to 15% of energy savings.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

In the framework of the Feasibility Study of the "Optimization of heating load curve" demonstrator, the CUSA solution dedicated to space heating (involving smart heating meters for each two dwellings) will be evaluated as an option of solution B for one of the two buildings, in order to compare the performance with and without this solution.

Organization of work:

Governance model:

Partners involved in the related Task (T6.3): NCA/CSTB/CAH/VEOLIA

NB : CUSA is a cross-task activities. It is also appointed in T6.7

Assigned resources (investment, staff):

Mainly staff costs at this stage.

500 k€ NCA budget (200 k€ Equipment and 300 k€ subcontracting) dedicated to the "Optimization of heating load curve" demonstrator and the "CUSA" demonstrator to be fine tuned according to the results of Feasibility Study

Involved subcontractors:

Subcontractor for preliminary study under definition.

Integrated Solution: IS5.1 Co creating the energy transition in your every day environment (page 2/2)
Demonstrator name: Citizen Utilities Savings through citizen Awareness (CUSA)

Next steps:

September 2018: decision to launch the Feasibility Study

October 2018:

- realization of the Feasibility Study
- presentation to Côte d'Azur Habitat, choice of the solution to be implemented (solution A or solution B)
- NCA budget revision
- Demonstrator detailed planning

Risk management:

Poor ROI and difficulty to implement individual citizen engagment

- Mitigation : Feasibility Study

Integrated Solution: IS5.4 Apps and interfaces for energy efficient behaviour (page 1/2)
Demonstrator name: Evaluation of CityOpt

Description:

CityOpt is a European project that went on between 2014 and 2017. The general objective of the project was to develop new solutions for an optimal energy management in cities that engage users, create new partnerships connecting city leaders and stakeholders and create new business models. The project has delivered a set of applications and related guidelines that support efficient planning, detailed design and operation of energy systems in urban districts. In the context of the CityOpt project, experimentation has been conducted in the NCA metropolitan area for testing an operational demand-response tool amongst 150 households.

This experimentation has associated NCA, EDF (local energy supplier) and CSTB (tool developer). See https://www.youtube.com/watch?time_continue=6&v=gkdUwbDqOyc

Objectives:

The objective of the work in IRIS is to lead interview on this experimentation regarding the level of engagement of end-users and potential benefits if rolled out at a large scale. In particular, it will synthesize how the associated business model has been assessed.

The follow-up of the CityOpt Operational Tool will consist in an analysis led by sociologists, conducting interviews of participants.

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

The scenario is the one developed in the CityOpt project. When receiving a notification (from an energy supplier or a DSO) to reduce or shift his/her electrical loads during a peak period to come (a few hours later), the end-user selects (on a tablet) the saving measures he will adopt amongst a list of potential measures proposed by the system according to his/her consumption habits. At the end of the event, by comparing the actual overall consumption with the predicted one (baseline) for the same period, it will be possible to assess the actual energy savings. These savings are converted into “points” that are attributed to fund a local collective eco-project. So, households do not only contribute to control the energy balance between production and consumption of their electrical networks, but they also participate to setting-up a real social energy network. Initially, it was expected to have a follow-up of the CityOpt project through another project that would explore the possibility to automatically control the equipment instead of having the end-users implementing saving measures manually, but this was not done.

Integrated Solution: IS5.4 Apps and interfaces for energy efficient behaviour (page 2/2)
Demonstrator name: Evaluation of CityOpt

Organization of work:

Governance model:
The CityOpt Operational Tool has been developed by CSTB. NCA has coordinated the recruitment of households and animated the social energy network with all other partners. EDF used the information provided by the Linky smart meters and the results of a prediction algorithm to calculate the baseline and assess the savings.

Assigned resources (investment, staff):
CSTB (3 pm), EDF (2 pm), ENEDIS (1 pm)

Involved subcontractors:
None

Next steps:

End 2018: Assessment of CityOpt results
1st semester 2019: Prospective analysis

Risk management:

No risk

GANTT of T6.7 - Demo of TT#5:

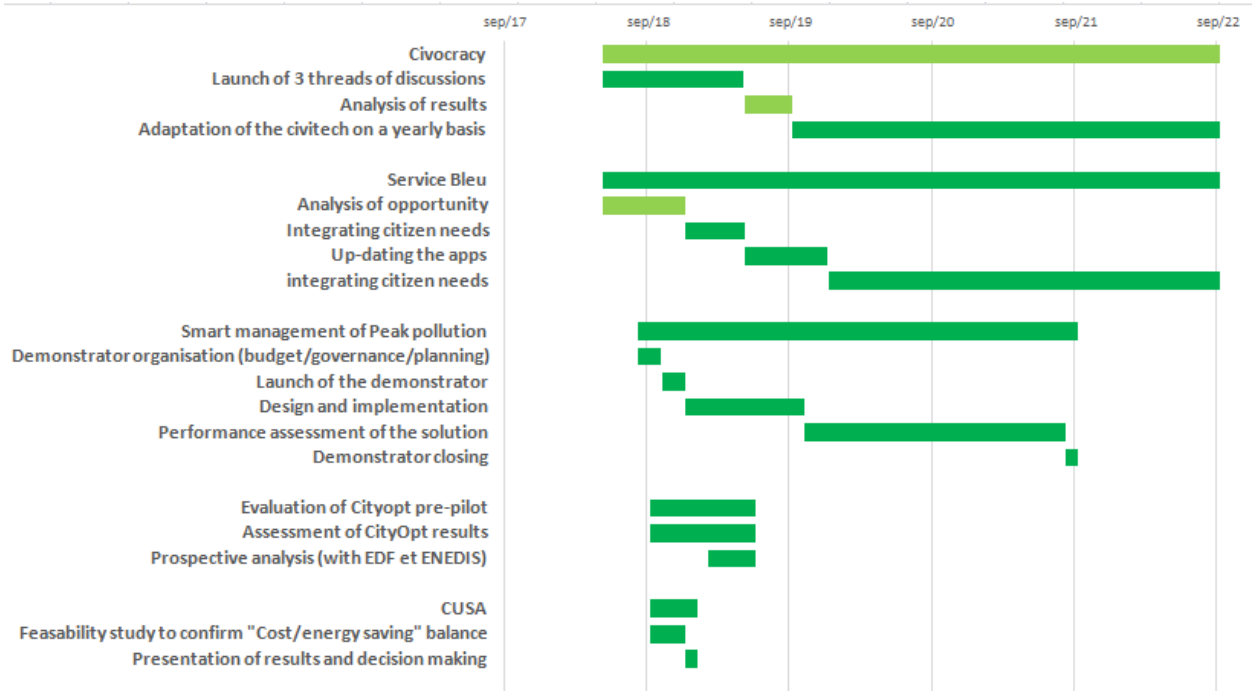


Figure 19: GANTT of Transition Track 4 activities

4.2 Map of demonstration area

Most of IRIS Integrated solutions will be deployed within the West territory of the Metropolitan area of Nice, where a major urban undertaking is on the way. The State and the Local Authorities, based on a shared diagnosis on the status and potential of the western territory of Nice, decided to design together a new territorial project.

At the initiative of the Mayor of Nice, Christian Estrosi, the state has put a lot of resources at stake: it has made the area one of the "Operations of National Interest" (OIN) of France, with sustainable development as a guideline. The perimeter of this undertaking is the so called "Nice Eco Valley". He entrusted the "Public Establishment for Development (EPA) of the Plaine du Var" with the implementation of this ambitious project.

Ambitious because global: while proposing a new model of planning and urban planning, economics and ecology have to be combined. It also aims, for the 30 years to come, to modify in depth the economic structure of the metropolis, the modes of displacement and habitat.

Figure 20: Contextualisation of the demonstration area (bottom image) compared to iconic historic centre of Nice and its port (top image) – (Google Maps and © EPA / Mateoarquitectura)

Figure 21: Localisation of the development district and the two demonstration sites of IRIS, Nice Meridia and Grand Arenas. On the bottom right the Nice Airport – (EPA plaine du Var)

Nice Grand Arenas

The new international business district of the Métropole Nice Côte d'Azur will be that of the "Grand Arénas". The Grand Arénas represents a highly strategic sector, at the gateway to the city of Nice and in the immediate vicinity of Nice Côte d'Azur international airport. Its articulation with the international airport and the future multimodal exchange hub of Nice-Airport gives it exceptional accessibility and rapid connections with the whole of the Eco-Valley and the metropolitan area. To the existing tertiary site of 10 hectares, a complementary area of 49 hectares will be added, corresponding to potentially 700 000 m² of new floors-pace.

Within the Eco-Valley, the goal of the Grand Arénas is to create a lively, innovative and eco-friendly neighbourhood, as the two driving principles of the new international business centres are urban diversity and eco-exemplarity. In addition to the offices and other facilities, a diversified housing offer is ensured (social mix), accompanied by services, shops, hotels or public facilities. The first development phase will be realized by 2021, achieving up to 140.000 m² of new mixed developments.

Figure 22: Plan of the Nice Grand Arenas project (EPA plaine du Var)

Figure 23: North to south bird eye view of the project (EPA plaine du Var)

Nice Meridia

High priority operation of the eco-valley, the technological pole of Nice Meridia will have a first development area of 24 ha or 537 000 m^2 of new mixed-use floor-area, with the objective to achieve 200 ha in the long term.

Its location and its mixed used program will make it an outstanding eco-district, aiming at providing high quality living and working conditions. Its vocation is to be a catalyser of Innovation, thanks to its dedicated R&D and educational spaces with a vocation to attract businesses and institutions dedicated to technology and services from the sustainability and health care branches. This target should be achieved by first attracting public and private R&D and innovative organizations which should self-

reinforce themselves by speeding up the developments of incubators, start-ups, co-working spaces and business centres among other.

Aiming at functioning as an «eco campus», the development program wants to enable short circuits between knowledge and innovation. With such aim, the IMREDD (A Branch of UNS, IRIS partners) and the CEEI (European centre for businesses and innovation) have been opened on site, promoting innovation and the creation of businesses related to the sustainable development and “green tech”.

The leitmotif of the land use and transport organization is “accessibility”: this should enable to provide an integration of offices, shopping and housing areas among the districts, as well as access to services connected to the sport centre situated in the same perimeter.

Figure 24: Land use plan of the Destination Meridia project - (D&A - Devillers et Associés)

Figure 25: East to west bird eye view of the Nice Meridia area (EPA plaine du Var)

Figure 26: Méridia tower by Sou Fujimoto Architects (Worldarchitecture.org)

4.3 Local risk assessment

Table 6 presents a compilation of the main risks and the related mitigation measures.

Table 6: Local Risk Assessment compilation

Integrated Solutions	Identified risk (including technical risks)	Mitigation measures
IS1.2 - Optimization of heating load curve	Impact of the solution on district heating operation and performance have to confirmed	Launch (Q1-2019) of a feasibility study to validate the "cost/energy saving" balance
IS1.2 - Commissioning process from the design of the operation	Well-proportioned deployment of metering system according to conclusion of preliminary study project.	Sound analysis of conclusion
IS1.3 - Dashboard	Commercialisation of heating/cooling provision and progress of District Heating and Cooling Network realisation	Adaptation of scope of development of the enhanced Dashboard functionalities
IS1.3 - Dashboard	Availability of data to enable testing of the developed functionalities	Early identification of legal constraints to respect and adapt possible contractual arrangements with involved parties
IS2.1 - Local Energy Management	Problems in interfacing different equipment installed in the 2 demo sites	Close cooperation with partners and if needed testing of equipment from the provider before delivery of EMS
IS2.1 - Local Energy Management	Any third party has the right to compete commercially and the future owners/operators of the demo site must be associated to participate to the demonstrations	Follow close up communication with partners and identify most adapted contractual or formal arrangements to ensure to comply with the IRIS GA.
IS3.2 Smart e-mobility	A new free-floating bid on free-floating was launch in 2018 and is due to start in 2019	T6.5 Partners have defined activities that aim at proving that free-floating will require in the next few years a mix of public and private charging points. The findings of this work plan will be replicable for any free-floating deployment. Also, NCA deploys a charging infrastructure for electric vehicles for its own car-fleet (equipped with Vulog

		technology).
IS4.1 – IS4.3 CIP Services deployment	Interoperability of data produced by digital services	Anticipating as much as possible long-term needs and technical requirements. Associating Nice Local ecosystem
IS4.1 – IS4.3 CIP Services deployment	Barrier to access data	Use lessons learnt from the existing portfolio of prepilots (legal aspect such as GDPR, specifying an article to data access within convention)
IS5.1 - CUSA	Poor Return on Investment and difficulty to implement citizen engagement	Launch (Q1-2019) of a feasibility study to validate the “cost/energy saving” balance
IS5.4 - Civocracy	Posts deviated from original title	Mediation

5. Output to other work packages

Being a coordinating work package, WP6 has interdependencies with most of the other WPs.

Interdependencies with WP1

Deliverables D1.2 to D1.6 recently provided preliminary planning of the demonstration and activities of each Transition Tracks based on information provided by Ecosystems. These valuable documents define each solution's requirements/specifications (for example geographical, technical, operational, legislative, regulatory framework, business) before the solutions are being deployed and demonstrated in the selected LH cities and potentially replicated in the FCs. In order to avoid duplication, the present D6.2 deliverable offers in a complementary manner additional information: governance, local context, planning and investment.

Interdependencies with WP3

WP3 being a work package focused on identifying bankable and replicable solutions will benefit from the activities in the three LHs. In Nice Ecosystem, the following pathways will provide input to WP3:

- Implementation of the IS in the TT#1-3: Each IS to be implemented as part of the TT#1-3 has a business model or may lead to a business model. Workshop held in Nice on the 18th of April together with WP3-leader IMCG has permitted to provide quantified information to WP3.
- Development of data services in TT#4: the development of data services aims at fostering new business opportunity, from the emergence of startups to new services developed by IRIS industrial partners and beyond.

Interdependencies with WP4

According to DoA, WP4 aims at "offering an open, reusable and reliable platform for sharing data, speeding-up innovation, standardisation and implementation of smart application". An alignment of the visions of the CIP amongst LH cities is under definition according to the work plan: which user needs? Which users? Which standards? Priority to the set-up of future apps must be given rather than trying to cope with past/existing private standards. If CIP is set-up taking into account a maximum of actors in the value chain (start-up, citizen, large account companies,), then CIP have more chances to be successful and to lead these actors to set-up their digital services/Apps in compliance with the designed CIP-standards. Guidelines from D6.1 list a set of opportunities that could be consolidated in "entrepreneurial experimentation and production", such as "Extension of public private partnership as a promising sustainable solution" and "Expectation to use mobility apps to foster smarter mobility behaviors".

Interdependencies with WP9

The workshop organized by RISE (WP9 leader on the 18th of April 2018 has permitted to specify the need and potential data that can be collected to define the list KPIs. In addition, Nice industrial partners make themselves available to hold any necessary phone interview to increase the accuracy of KPIs.

6. Conclusions

D6.2, together with D6.1, is the first step in the foreseen implementation of the demonstration activities in Nice Lighthouse City.

D6.2 presents the work undertaken in Task 6.2 “Coordination of Nice integration and demonstration activities” during the first year. T6.2 is a task that lasts the entire duration of the IRIS project.

The coordination structures operated has aimed at permitting an optimal execution of activities between local ecosystem partners as well as with IRIS partners from other Lighthouse Cities and horizontal work packages.

The “Joint Approach” initiated between the 3LH on the occasion of D567.1 and D567.2 has led LH to share their local context, their approach at the time of preparing the demonstration activities, and in some occasion to share best practices to make the most of opportunities offered by horizontal partners. This Joint Approach shall continue over the whole project cycle in order to boost replication within LH as well as within Follower Cities and beyond.

Annex 1. Minutes of IRIS WP9 NICE Workshop 18th April 2018 on Monitoring Strategy

Date: 18 April

Time: 09:00-17:00

Venue: 455 Promenade des Anglais, Nice

Participants: Inger-Lise Svensson (RISE), Carl-Magnus Capener (RISE), Jutta Schade (RISE), Malin Bosaeus (RISE), Ulrika Wahlström (IMCG), Jonas Norrman (IMCG), Jean-Charles Maleysson (Nice), Dominique Caccavelli (CSTB), Renaud Bonneviale (VULOG), Christian Keim (EDF), Stéphane Roux (Nice), Lionel Chaudanson (Nice), Alain Chateau (Nice), Régis Martin (Nice), Eric Simons (VULOG)

Introduction

Inger-Lise presented the agenda for the day and the content of T9.1 and each task leader presented their transition track as an introduction to the workshop. The participants were divided into two groups based on transition track. One group discussed transition track 1 and 2 and the other group transition track 3 and 4. Since Philippe Maillard from VEOLIA was unable to attend, transition track 5 was not discussed.

First round workshop

In the first round of the workshop, the focus was on WHAT to measure and how to couple this to KPIs. Questions discussed were e.g; What is the goal with each solution? What should we measure? What do we need to report to the EU and other partners? What needs to be measured to analyse upscaling/replication possibilities?

Business models (IMCG)

IMCG presented their work in WP3 (Development of bankable business models and exploitation activities) and held a workshop to learn more about how the cities are preparing for handling innovations. The discussions showed that it is not always the city that will be the potential buyer of the solutions provided by IRIS partners. Instead, cities often play the part of enabling the market for the solutions. Real estate owners proved being important and can often play the part of a buyer since they handle mobility, energy and ICT matters with focus on increased value creation related to their properties. Together with developers and owners of new infrastructure for mobility, energy and connectivity they also create new values on a district level which is positive for their property portfolios in the district. Real estate owners interact regularly with their tenants and through them they can engage citizens and move the tenants towards the necessary behavioural change needed for cities to become even smarter.

Second-round workshop

The second round of the workshop focused on HOW to measure the suggested KPIs. Based on the outcome of the first round of the workshop, the discussion focused on; How we collect the data needed? Who we need to involve when collecting the data? How do we measure the baseline?

Results and continued process

A summary of the results from the KPI workshops will be distributed when the KPIs from WP9 have been harmonised with the KPIs from WP1. The harmonisation will result in a common list of KPIs for the Integrated Solutions that will be distributed to the LH cities and the fellow cities for review.

Annex 2. Minutes of IRIS TT5 Citizen Engagement in Nice

IRIS WORKSHOP DEBRIEFING DOCUMENT

Dear colleagues,

We are looking back at two workshops, one in Gothenburg and one in Nice. First of all, we owe a big thank you to both Malin Bosaeus and Jean-Charles Maleysson who took such good care of organising the workshops locally. We had a very good turnout for the workshops and excellent facilities and coordination. We know from experience in European project how vital the role is of our local partner coordinators so a big thanks to you.

We knew before we came over it would be a tough day with a lot of ground to cover for one day. Under different circumstances we would have been able to use a different and more creative approach, but the time-frame did not allow this unfortunately. Thank you all for bearing with us and still making it productive.

There are numerous reasons why we advocate the approach. First of all, because the title of the IRIS project promises something fundamental: *Integrated and Replicable solutions* ***for co-creation*** *In Sustainable cities*. Secondly, because we have had many good results with this approach in other projects and situations. Thirdly, because we hope this provides all key cities with a contextual framework to express their activities in a shared language which will foster better collaboration and also to send a strong message to the Commission and its reviewers that we can provide evidence of our collaboration in actions and writing.

In both cities we followed a similar schedule for the workshop. This followed on developing and testing of the constituent components in the Utrecht demo area. In Utrecht we did not do an integrated workshop in one go but tested the components in subsequent meetings of the Utrecht stakeholder assembly. Once stress-tested, we used them for the workshop design to deliver the entire setup to Gothenburg and Nice in a one day workshop.

Awareness phase

To build a collective frame of understanding how to go about citizen engagement in the context of the IRIS project to cater for the need of a common frame of reference, terminology and definitions to be able to collaborate and communicate effectively.

The LADDER model

The Ambition ladder model to map all planned Integrated Solutions and identify between its four levels which of the integrated solutions have an intrinsic need for citizen engagement in terms of co-creation. In both cities this lead to a reduced set of key integrated Solutions that fulfil the requirements to be able to co-create in a productive way.

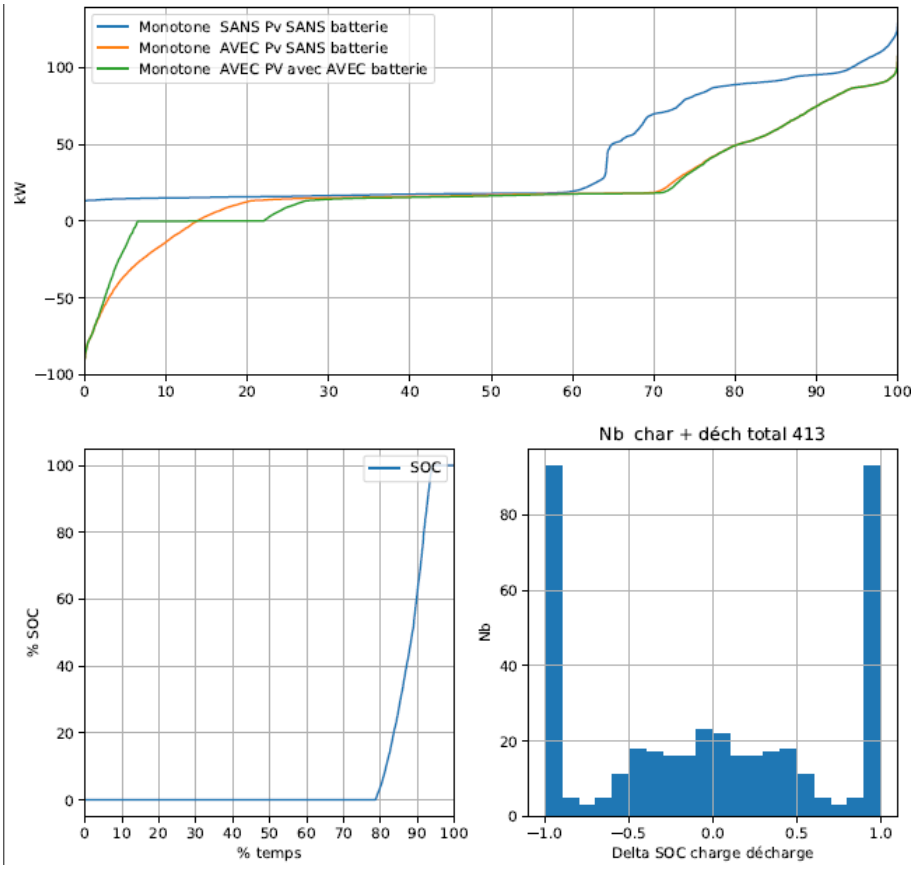
The SCOPE model

A brief introduction of the SCOPE model to help you identify a potential lack of understanding of your end users demands and to be able to demarcate the Solution Space within which the citizens can actively participate in the process.

SCENARIO exercise

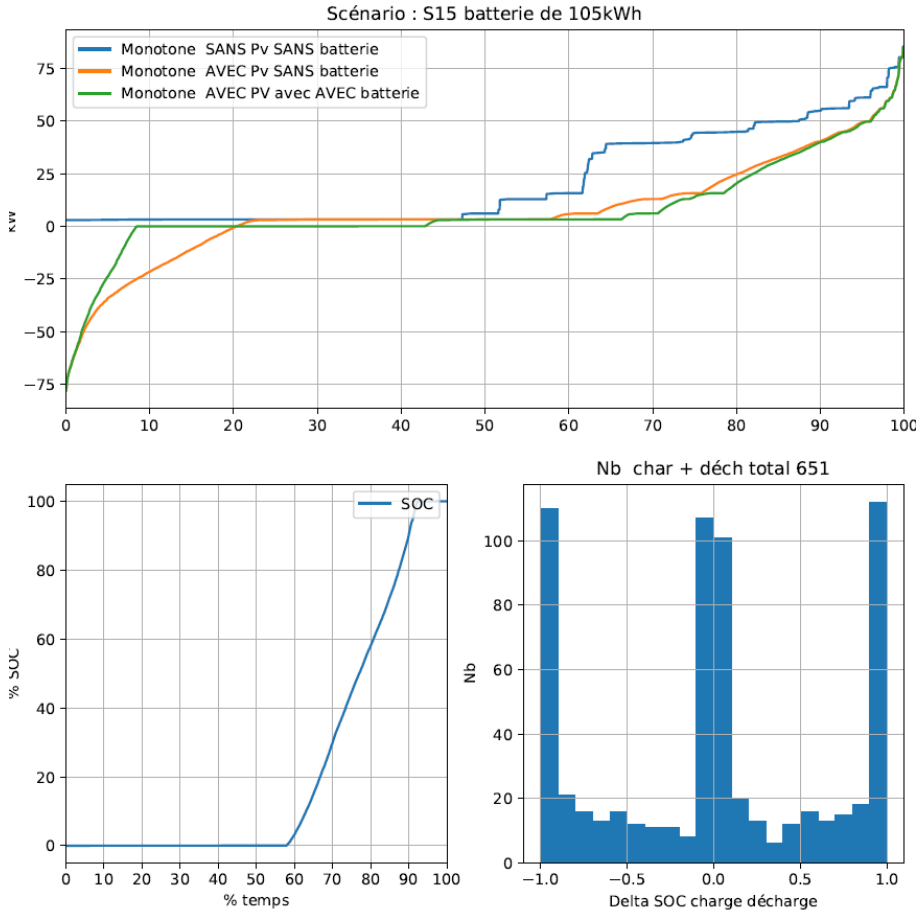
In both cities we choose one particular integrated solution to explore the co-creation process as a process. In Gothenburg we discussed the Min Stad solution, in Nice we discussed an Urban Environment Monitoring Platform.

Annex 3. Impact of battery sizing Palazzo Meridia



Impact of battery sizing PALAZZO MERIDIA –on PV self-consumption ratio

Annex 4. Impact of battery sizing IMREDD building



Impact of a 100Kwh battery sizing on PV self-consumption ratio - IMREDD Building

Annex 5. Detailed and technical description of Local Energy Manager – IS2.1

Integrated Solution: IS2.1 Flexible electricity grid networks
Demonstrator: Local Energy Management system (LEM) - (p1/4)

Description:

The demonstration of the LEMS (Local Energy Management System) will lean on one of the two demonstration area in Nice, notably the Nice Meridia or Grand Arenas districts.

Within this perimeter, different case studies are potentially available for allowing the implementation of an LEMS. Leaning on the IRIS partner's infrastructures and assets, which represent the pool of potential case studies to be considered, specific use cases will be identified, representing an economical and technical interest.

The LEMS to be deployed is considered as a transversal platform which integrates different IS solutions and TT: it will leverage the works done in TT1 by integrating the technologies and energy conversion assets deployed into a higher level operation strategy (optimization of operation towards the energy market), that of TT3 concerning the electric charging infrastructure by identifying potential additional revenue streams from a smart and flexible vehicle charging management, integrate IS 2.2 and 2.3, as well as additional potential assets on site.

Globally, the objective is to deploy an operation optimization strategy enabling to increase the revenue streams of each individual asset, by offering flexibility services or products to different markets: the DSO for reducing grid congestion on the medium and low voltage level, the TSO and national energy market to bid on different flexibility services for ensuring day ahead and intraday supply-demand balance or just by optimizing the operation of certain assets and thus, adopting an "ESCo" (Energy Service Company) type of approach.

The challenge here relies mainly in the global-local economical optimization. It has to be understood that the LEMS works on three different levels which might potentially have redundant or diverging optimization objectives, mostly due to the de-correlation of the local level (first two levels) with the global one (energy markets):

1) B/EMS – first level of optimization: a system which searches to optimize costs of energy provision and a certain service quality level (building's HVAC system and other electric usages, a substation equipped with HP and SHW boilers, a system for managing self-consumption of PV, battery storage and electric usage, a management system of the charging infrastructure of a private parking or car sharing pool)
2) Distribution networks – second level of optimization: for the medium/low voltage grid as well as heating/cooling network ensure supply balance performance and service quality and provision security.

Demonstrator: Local Energy Management system (LEM) (p2/4)

The LEMS will have to identify the optimum management behaviour for each asset/system to be able to identify the most economically reasonable flexibility product or service to prioritise, this from a weekly perspective down to near to real time (in the latter the most remunerating bids are found).

The LEMS will be composed of 4 main components or functionalities:

1) Monitoring: monitoring of the local assets as well as the energy markets
2) Forecast: weather forecast; load and production forecast among the different levels; forecast of product and service availabilities; potentially price forecast on different markets
3) Optimisation: optimise the assets' operation based on market needs on the different time scales (day-ahead, intra-day) and among the potential set of products and services to be provided to customers or markets
4) Valorisation: Valorise the accepted products by managing their timely and proper activation and clearing of the market transactions – opportunity has to be validated

Objectives:

The demonstration will enable to further develop and identify the viability of a LEMS, enabling to balance the iteration between local grids and assets with the overall energy markets.

The current market design, being by definition technology agnostic, does not give any market incentive, nor is it blocking it, to develop local based approaches as an aggregation of locally bounded flexibilities. The LEMS will provide a first pilot on how to combine local available products to provide services in a TSO led market design. The algorithms that will be integrated in the LEMS platform will be a key determinant of the feasibility of such higher level EMS.

The integration of the local portfolio toward a national global portfolio will be analysed and thus, identify the opportunities that are given by a wider adoption of LMES among districts and cities.

Demonstrator: Local Energy Management system (LEM) (p3/4)

Description of scenarios (including scheme/illustration if existing; explanation of deviation from original planning if any)

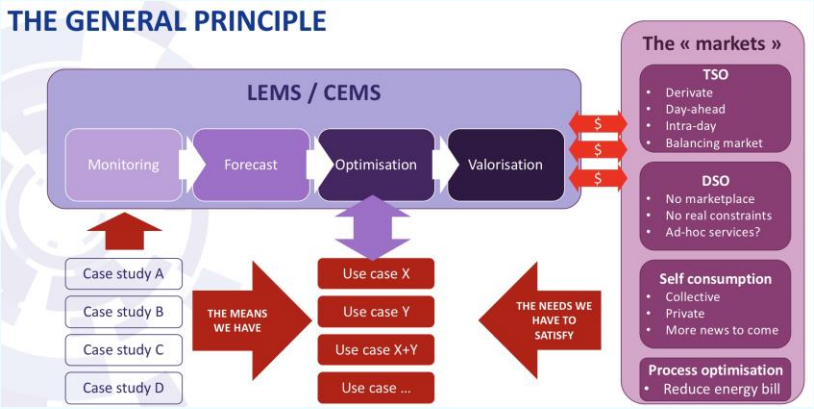


Figure 22: LEM – general principle- IS1.3

Based on the partners involved in IRIS and the different energy systems installed in its framework, EDF will take charge of developing the needed EMS components enabling the testing of an LEMS. As stated in the previous deliverable D1.3, these components will enable the operational testing of following main functionalities: promotion of self-consumption coupled with storage, flexibility provision by smart charging management of EV charging infrastructure and balancing of the iteration between local grids and assets with the overall energy markets. Thanks to the LEM, the demonstrations of TT 1,2 and 3 will be connected and optimized in terms of grid flexibilities, based on the IMREDD and NEXITY demonstration buildings and the further potential deployed EV charging infrastructure, by putting the related EMS in communication. It will be tested, together with the emulation of further assets, how the LEM could provide even higher degrees of optimization and grid flexibility by the interconnection of such EMS.

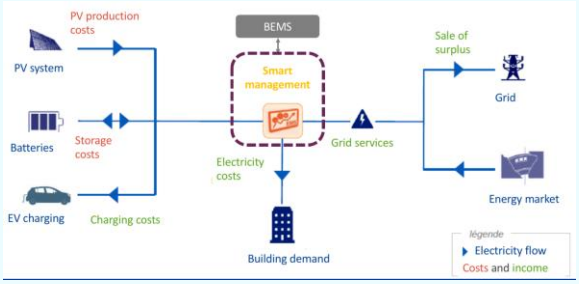


Figure23: minimal LEMS component at the building level IS1.3 – EMS. To notice, it does not substitute a BEMS

Demonstrator: Local Energy Management system (LEM) (p4/4)

Organization of work:
Governance model:

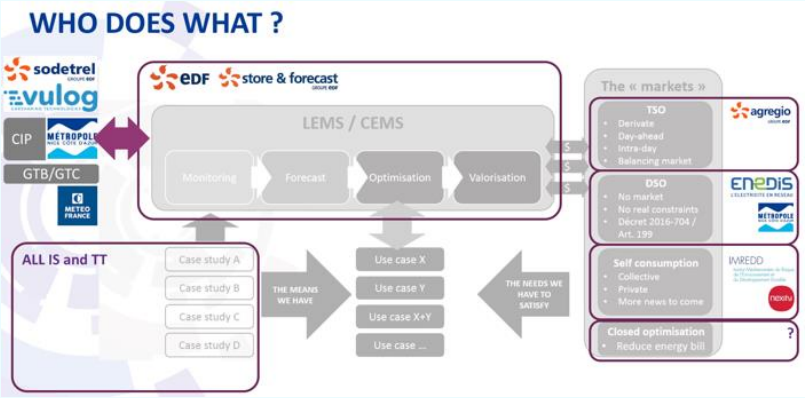


Figure 24: LEM – general principle of IRIS involved parties- IS1.3

EDF will take charge of the development and delivery of the EMS components for the integration of PV, storage and electric vehicle charging infrastructure for the provision of system optimisation and grid flexibility. Furthermore is will provide the overall LEMS and ensure correct interfaces among components and other possible software platforms.

It will thus closely collaborate with the demonstration involved parties (IMREDD/UNS, NEXITY, NCA, ENEDIS, Vulog among others).
Assigned resources (investment, staff):
For the time being, the overall work is estimated at about 26MM and 9 000 EUR of equipment costs (industrial PC for running the EMS, licenses, gateways among others).
Involved subcontractors:
At the time being, EDF has not foreseen any subcontractor.

Next step:

1) start of development of EMS for IMREDD > 09/2018
2) Identify common working schedule with NEXITY > 10/2018
3) delivery of EMS for IMREDD and NEXITY > 2nd semester 2019 (depending on delivery of the buildings and related infrastructure)
4) Monitoring of EMS and implementation of LEMS > 2019-2022

Risk management:

Problems in interfacing different equipment installed in the 2 demo sites
Mitigation: Close cooperation with partners, share of technical specification of the EMS and if needed, testing of equipment (batteries, charging points, converters) from the provider before delivery of EMS

Any third party has the right to compete commercially and the future owners/operators of the demo site have the right to refuse to participate to the demonstrations
Mitigation: Follow close up communication with partners and identify most adapted contractual or formal arrangements to ensure to comply with the IRIS GA.