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D1.1 – Detailed workplan and time frame

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Deliverable 1.1 – Detailed Workplan and Timeframe

TwInSolar

(Improving Research and Innovation to achieve a massive integration of Solar renewables)

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This document has been developed as part of the project titled “**TwInSolar – Improving research and innovation to achieve a massive integration of solar renewables**”



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Executive summary

The core of the TwInSolar project is a knowledge transfer between UR and two internationally leading research organizations in the domain of energy, DTU and Fraunhofer ISE. To maximize the impact of the project, an ambitious dissemination plan is also proposed and coordinated by the CPMR and Nexa. To ensure that the UR but also the other players in La Réunion's energy R&I system effectively gain new knowledge and skills, close collaboration between the partners and a well-defined framework must be put in place.

This document, based on the implementation part of the proposal, provides a refined workplan and timeframe of the project. The aim is two folds:

1. To detail the content of the work packages and more specifically the actions of knowledge transfer and dissemination.
2. To schedule the events planned during the duration of the projects.

Indeed, 16 knowledge transfer activities (visits, workshops, webinars and summer schools) and 8 dissemination events (workshops and seminars) are planned during the project. A detailed description and timetable of all these actions will ensure good coordination within the TwInSolar project.

I. Framework

The TwInSolar project involves 5 partners from 3 different countries (see Table 1). TwInSolar aims at strengthening the research and innovation capacities of the UR that belongs to the outermost region (OR) of Europe in order to create new opportunities inside and outside of Europe and more specifically in the zone surrounding La Réunion. This capacity building will be done through the establishment of effective partnerships and knowledge transfers with the Technical University of Denmark (DTU) and the Fraunhofer Institute for Solar Energy Systems (Fraunhofer-ISE), which are internationally renowned research organizations, and with the support of the regional R&I agency of La Réunion Nexa and the Conference of Peripheral Maritime Regions (CPMR). Particular emphasis will be placed on issues related to the massive integration of solar energy production in insular territories.

Table 1: List of participants

Participant #	Official name	Short name	Country
1 (Coordinator)	University of La Réunion	UR	FR
2	Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V. for its Fraunhofer Institute for Solar Energy Systems ISE	Fraunhofer	DE
3	Danmarks Tekniske Universitet	DTU	DK
4	Nexa, "Agence Régionale de Développement, d'Investissement et d'Innovation"	Nexa	FR
5	Conference of Peripheral Maritimes Regions	CPMR	FR

In terms of management structure and decision-making, the consortium proposes a variant to the “classic” structure with an Executive Committee consisting of WP Leads and the Coordinator dealing with day-to-day management and a general assembly with one vote per partner as the ultimate decision-making body. Indeed, with 5 partners and a WP division that involves almost all the partners as WP leaders, the consortium is small enough to bring together the Executive Committee and the General Assembly in a unique decision-making body. This simplified organization should make the project management more flexible and therefore should reduce decision-making times. The Executive Committee/ General assembly is composed as follow:

- UR: 3 WP leaders (1 is the coordinator) and 1 vote,
- Fraunhofer: 1 WP leader and 1 vote,
- DTU: 1 WP leader and 1 vote,
- CPMR: 1 WP leader and 1 vote,
- Nexa: 1 representative and 1 vote.

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The Project Quality Plan (PQP: D6.1) will be released in approximately 1 month (due month 3). It will detail this management structure, the applicable guidelines on project documentation, reporting, approval and submission of deliverables.

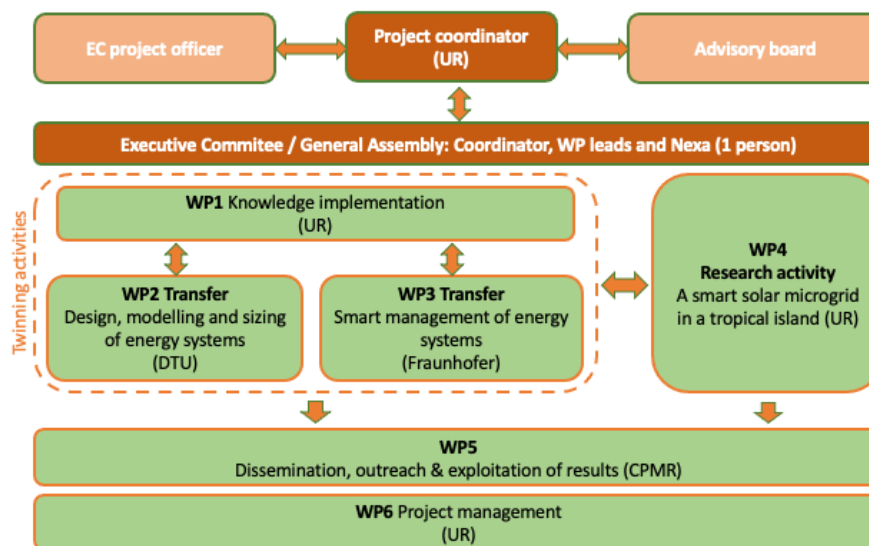
A collaborative workspace dedicated to TwInSolar has been set-up in Microsoft TEAMS to support efficient collaboration between the partners, acting as an internal document repository, an internal communication center and a collaborative editing tool. Key project items such as contractual documents, planning, meeting minutes, templates for producing project deliverables and presentations, etc. are available in this workspace.

II. Detailed Workplan

A) Overview

The WP division in TwInSolar follows a simple logical breakdown, which respects the overall methodology of the project (i.e. knowledge transfers, one research activity, dissemination and management). To meet the objectives of the project, TwInSolar is sub-divided into 6 WPs:

- **WP1, WP2 and WP3** are the heart of the twinning activities and of the knowledge transfer.
- **WP4** is dedicated to the research activities but it also supports the knowledge transfer by providing a relevant case study for WP2 and WP3.
- **WP5** provides a comprehensive set of communication and dissemination activities to maximize the impact of the project at local and international levels. It also deals with the exploitation plan and the IPR.
- **WP6** is devoted to the management of the project in order to ensure that all contractual, financial, technical and gender equality obligations are respected.



• *Figure 1: TwInSolar project PERT and management structure*

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B) WP1 – Knowledge implementation

WP leader: Jean- Castaing-Lasvignottes (UR)

Participants: Fraunhofer, DTU, Nexa and CPMR

Objectives

The main objective of WP1 is to ensure that UR and other stakeholders of La Réunion energy R&I system will effectively gain new knowledge and skills. The activities physically connect the partners at the beginning of the project in order to initiate the collaboration and to refine the framework and the timeframe for the different WPs and tasks of the project (i.e. aim of this first deliverable). This WP involves all the partners of the project and external stakeholders of the energy sector with an emphasis on European insular territories. The expected discussions will highlight the current state of the art and the future requirements for the massive integration of solar power generation. An evaluation of the energy stakeholders' needs will be made to define a relevant scientific strategy for UR and for the next coming years.

The main outcomes of this WP are:

- A collaborative framework that ensures the knowledge transfer from the top-level research institutions to the R&D players of La Réunion,
- A collaborative definition of the scientific strategies of UR and of R&D players of the energy sector of Reunion Island,
- Identification of relevant applications to initiate partnerships and to support the knowledge transfer activities (WP2 and WP3).

Description of work

Task 1.1 Twinning methodology and framework (M1-M21)

This task aims at ensuring that UR and external stakeholders of the energy sector will effectively gain new knowledge and skills.

First, this task physically connected the partners at the beginning of the project. In order to initiate the collaboration 3 site visits are planned:

1. Visit of DTU at Risø campus, September 15-16, 2022,
2. Visit of Fraunhofer-ISE in Freiburg, September 19-20, 2022,
3. Visit of UR in La Réunion, February 2023.

Grouping the second visit to Fraunhofer-ISE with the kick-off meeting allowed people to meet physically and to refine the project work plan and the timetable of the project (D1.1).

Second, UR creates a management and administrative team, dedicated to support the research activities of the laboratory PIMENT in the field of energy. This team is composed of 5 people:

- A project manager granted by TwinSolar, who will be hired before end of 2024,
- The administrative and financial manager of the laboratory PIMENT, Vanessa Dijoux,
- A financial manager (UR central office support, Simon Forestier,

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- An expert in international collaborative project management (UR central office support), Juan-Manual Mora-Rey,
- A legal advisor (UR central office support), Marc Ramillien.

2 roundtables will be organised between the partners of the project and the energy sector stakeholders, with an emphasis on European insular territories. The discussions will highlight the current state of the art, the future requirements and a relevant set of case studies (D1.2). A set of possible study cases has already been considered:

- The campus of Terre Sainte microgrid (also part of WP4),
- The whole Island electricity grid for which production and demand of electricity data are freely available on <https://opendata-reunion.edf.fr/>,
- Utility scale PV power plant with storage and forecasting of generation profiles.

The evaluation of the needs of the energy stakeholders will define a relevant scientific strategy for UR for the next coming years in line with Reunion Island's RIS3 energy transition roadmap. The first round table will be organized as side events of the best practices workshops planned in Task 1.2 below.

Task 1.2 Best practices sharing on R&I systems (M4-M22)

This task entails to enhance the profile of UR and more widely of the R&D capacity of La Réunion and ideally similar insular territories. On-site visits (Task.1.1) and online interviews with representatives from DTU and Fraunhofer and their respective R&I systems will be carried out to understand the strategies, policies and initiatives initiated within the research institutions and at the regional system-level.

A workshop involving all TwInSolar partners will be organised to share best practices about important activities needed to build a competitive and internationalized R&I system in the energy transition field (D1.3). This workshop will take place in La Réunion and online, to discuss on best practices to implement in La Réunion.

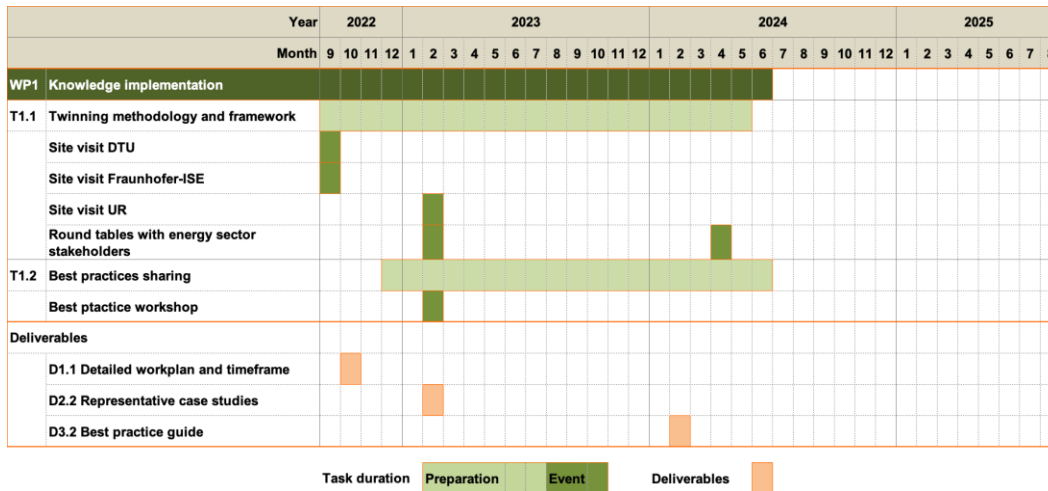
Concrete implementation of these best practices will be shared during short-term exchanges of UR's staff within the two top-class research partners. These exchanges will involve researchers, engineers, project managers and administrative staff. The site visits planned in Task 1.1 will support these staff exchanges.

Table 2: Knowledge implementation events

Events	Topic	Target audience	Duration	Location & Date
Site #1 visit	<ul style="list-style-type: none"> - Organisation of DTU Wind dpt. and DTU Solar research group - Visit of DTU Wind and DTU Solar facilities 	UR TwInSolar team: lecturers, manager, technician, data scientist and research fellow	2 days	Risø campus, Roskilde, Denmark September 2022
Site visit #2	<ul style="list-style-type: none"> - Organisation of Fraunhofer ISE Modules and Power Plants dpt. - Visit of Fraunhofer facilities 	UR TwInSolar team: lecturers, manager, technician, data scientist and research fellow	1 day	Freiburg, Germany September 2022
Site visit #3	<ul style="list-style-type: none"> - Organisation of UR and laboratory PIMENT - Visits of PIMENT and Energy Lab Facilities 	<ul style="list-style-type: none"> - DTU TwInSolar team: lecturers, manager, technician, data scientist and research fellow - Fraunhofer TwInSolar team: lecturers, manager, technician, data scientist and research fellow 	2 days	La Réunion, February 2023
Round table #1	<ul style="list-style-type: none"> - Current state of the art and the future requirements - Case studies 	Reunion's energy sector stakeholders: economic actors, policy makers, R&I actors	2-3 hours	La Réunion and online, February 2023
Best practices workshop	Best practices sharing	<ul style="list-style-type: none"> - UR's lecturers and researchers - Administrative and financial managers of UR 	Half a day	Reunion and online, February 2023
Round table #2	Current state of the art and the future requirements with a focus on EU insular territories	Energy sector stakeholders of La Réunion and CPMR Island commission members: economic actors, policy makers, R&I actors	2-3 hours	La Réunion and online, April 2024

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Detailed timeframe



C) WP2 –Transfer: Design, modelling and sizing of energy systems

WP leader: Nicolaos Cutululis (DTU)

Participants: UR, Nexa and CPMR

Objectives

In this WP, the partners share their skills regarding the design, sizing and modelling of energy systems highly penetrated by solar renewables. Focus is given on the selection of the most relevant system architecture, combinations sub-systems, and on the sizing of the component of the system to achieve a reliable and resilient RES energy system. A selection of study cases from WP1 and WP4 will be used as applications for the workshops, training and summer schools. In addition to the partners, the workshops and the summer school will be open to some key players of the R&D of La Réunion and to the members of the CPMR IC. The main outcomes are documentation for the state-of-the-art workshops and educational material for the summer school & training activities, as well as supportive material for WP4.

Description of work

Task 2.1 Solar PV based energy systems (M4-M24)

The main focus of this task is on the design and simulation methods/tools for the development of renewable energy systems, with solar PV as the dominant generation. It will address all stages, from generation technology (solar PV plants and other RES/storage) to components modelling, sizing and system architectures, PV system design and simulation tools used in research and industry. The main outcome of the task will be to provide the foundation for the workshops, the training activities and the summer school (D2.1).

Task 2.2 Workshops (M6-M30)

This task focuses on the knowledge transfer between the partners. Three workshops will be organised, focusing on the state-of-the art in technology, methods and tools for the design,

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modelling and simulation of renewable energy systems. The topics of the workshop are technologies for renewable energy systems, renewable energy system design, simulation and sizing. The main outcome of the task will be the 3 workshops detailed in Table 3.

Task 2.3 Summer school (M7-M12)

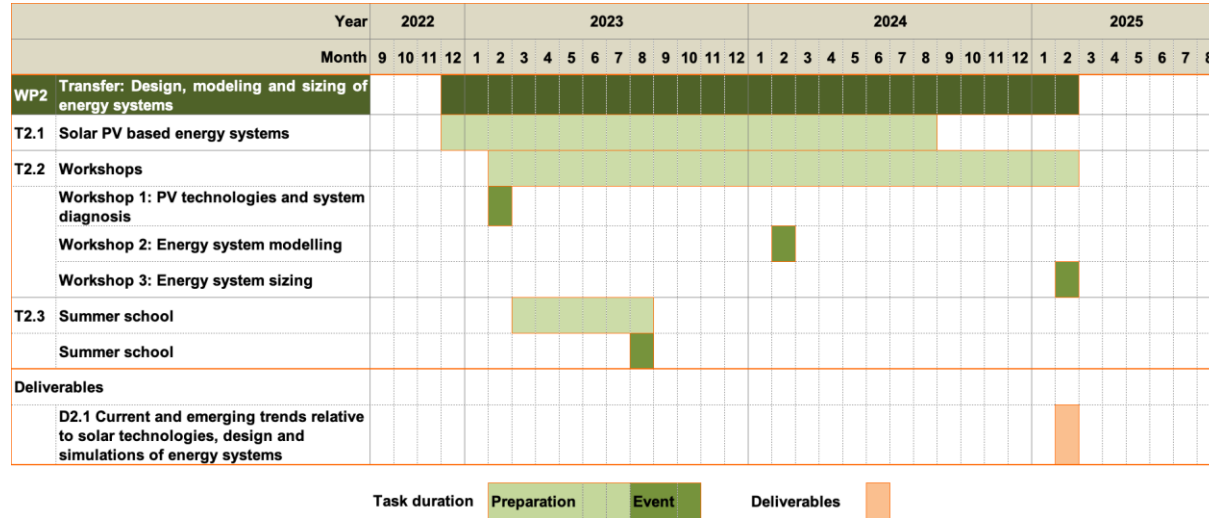
This task focuses on the development and delivery of a summer school on the broad topic of design, modelling and sizing of energy systems. It will use the educational material (lectures & exercises) developed in T2.1, augmented by hands on group work material using the cases from WP1 and WP4 to be done during the summer school. The main outcome of the task will be the summer school (D2.1).

Table 3: DTU's workshops and summers school details

Events	Topic	Target audience	Duration	Location & Date
Workshop #1	<ul style="list-style-type: none"> - BIPV and PIPV (technologies, properties, yield estimation, techno-economic sizing) - PV system failure diagnosis (hotspot, PID, IV curves and flash test, IR imagery, electroluminescence) 	<ul style="list-style-type: none"> - UR's Master students, PhDs and postdocs - Technical staff of private companies in the energy sector in La Réunion and from the CPMR network (DSO, PV system designers, system monitoring, etc.) 	1.5 day	UR, La Réunion and online February 2023
Summer school	Modelling, sizing and testing of an energy system based on a PV plant with storage	<ul style="list-style-type: none"> - Master students, PhDs and postdocs from UR and from the CPMR network (10 to 15 people) 	1 week	DTU, Denmark August 2023
Workshop #2	Modelling individual components and a whole energy systems (from production to load), which integrates a large share of intermittent renewable (solar and wind)	<ul style="list-style-type: none"> - UR's Master students, PhDs and postdocs - R&I staff of private companies of La Réunion and from the CPMR network 	1 day	Online February 2024
Workshop #3	Sizing of energy systems (smart grids with intermittent renewables and storage) with consideration of uncertainties	<ul style="list-style-type: none"> - UR's Master students, PhDs and postdocs, Research assistants, lecturers and professors 	1 day	Online February 2025

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D) WP3 – Transfer: Smart management of energy systems

WP leader: Elke Lorenz (Fraunhofer)

Participants: UR, DTU, Nexa and CPMR

Objectives

In this WP, the partners share their skills regarding the smart management of energy systems highly dominated by solar renewables. A main focus of the work is on the use of load and solar power generation forecasts of PV and on stochastic optimization. Also, operation and maintenance (O&M) and quality control of PV power plants are addressed to ensure a reliable operation and to provide high quality data for the development of forecasting models. A selection of study cases from WP1 and WP4 will be used as applications for the workshops, training and summer schools. Beyond the partners, the workshops and the summer school will be open to some key players of the R&D of La Réunion and to the members of the CPMR IC. The main outcomes are improved research capacities and the awareness raising of project managers and administrative staff about data collection and data management involving external stakeholders (individuals, DSO, communities, etc.).

Description of work

Task 3.1 Forecasting and monitoring of PV power for smart management of RES (M4-M24)

One main focus of this task is on methods for sky-imager based forecasting of solar irradiance and adaptation of the methodology, based on the case of La Réunion with solar PV as the dominant generation technology. The other main focus is on concepts for monitoring of PV systems and storage in the context of smart management of RES. The main outcome of the task will be to provide the foundation and material for the workshops, the training activities and the summer school, using for example a case study adapted to La Réunion specific situation (D 3.1).

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Fraunhofer will adapt its knowledge and skills to La Réunion context. It is worth noting that this task is based on a close cooperation with Task 4.3 (WP4) and it should include also research results. To do so, Fraunhofer will:

- Install all sky imagers (ASI) at university campus of Terre Sainte (La Réunion) and will adapt Machine Learning models for La Réunion,
- Provide and evaluate satellite-based forecasts for La Réunion,
- Develop and benchmark probabilistic forecasting models blending different input data jointly with UR.

The sky imager algorithm and the processing chain developed by Fraunhofer aims at providing high-resolution forecasts with horizons up to 15 minutes ahead, a temporal resolution ranging from seconds to minutes and a spatial resolution of 50-100m. The method used 2 low-cost webcams to detect clouds shape, motion and height, a pyranometer and a computer that store and sends the data in real-time (see Figure 2).



Figure 2: Fraunhofer's equipment for sky imager based solar forecasts

Solar forecasts issued with blending models will use as input irradiance predictions based on current measurements (UR), sky imager (Fraunhofer) satellite data (Fraunhofer) and Numerical Weather Predictions (UR). Machine Learning techniques will be used to automatically compute the weight associated to input models depending on the forecast horizon.

Analysis of PV power plant data of La Réunion: application of operation and maintenance and quality control of PV power measurements.

Data sets of PV power plants of La Réunion will be handed over to Fraunhofer by UR. A quality control of the data will be carried out by Fraunhofer, based on relevant standards and best practices in the industry (i.e. IEC61724). The quality-controlled data can be used in the forecasting case study.

Task 3.2 Workshops and Webinar (M6-M33)

The task focuses on the knowledge transfer between the partners. Two workshops (D3.1) will be delivered (1 at Fraunhofer and 1 at UR), focusing on (i) solar irradiance forecasting, on integration of solar forecasts in the management of energy systems and (ii) on smart management of PV power generation with an emphasis on operation, maintenance and reliability. A virtual training

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(webinar, D3.1) on smart management of RES will focus on PV systems and storage. This virtual training involves external stakeholders of the energy sector at the international scale.

Task 3.3 Summer school (M7-M21)

This task focuses on the development and delivery of summer school about solar irradiance forecasting and integration of solar forecasts in the management of energy systems. It will use the educational material (lectures & exercises) augmented by hands on group work material using the cases from WP1, WP4 and Task 3.1 to be done during the summer school. The main outcome of the task will be the summer school (D3.1).

The educational material will partly be based on the lecture on “Solar Energy Meteorology Applications” already available. This lecture corresponds to 1 semester with 2 hours per week involving questions and short exercises. The topics are:

- Requirements for solar resource data from different applications,
- Solar radiation measurements,
- Models for solar resource assessment,
- Access to solar resource data,
- Models for solar radiation forecasting,
- Benefits and drawbacks of different models/data sets,
- Methods to assess the quality of solar resource data.

In addition, topics related with O&M and quality assurance of PV power plants will be covered:

- Monitoring of PV power plants
- Power plant maintenance
- Data analysis (data quality evaluation, data cleansing, KPI’s calculation)
- Onsite visit to PV power plant of University of La Reunion (ideally from any of those whose datasets will be used in the project).

During the summer school both practical exercises and e-learning modules will be combined. The e-learning platform will provide the participants of the summer school with contents that can be self-paced consulted before or during the practical activities.

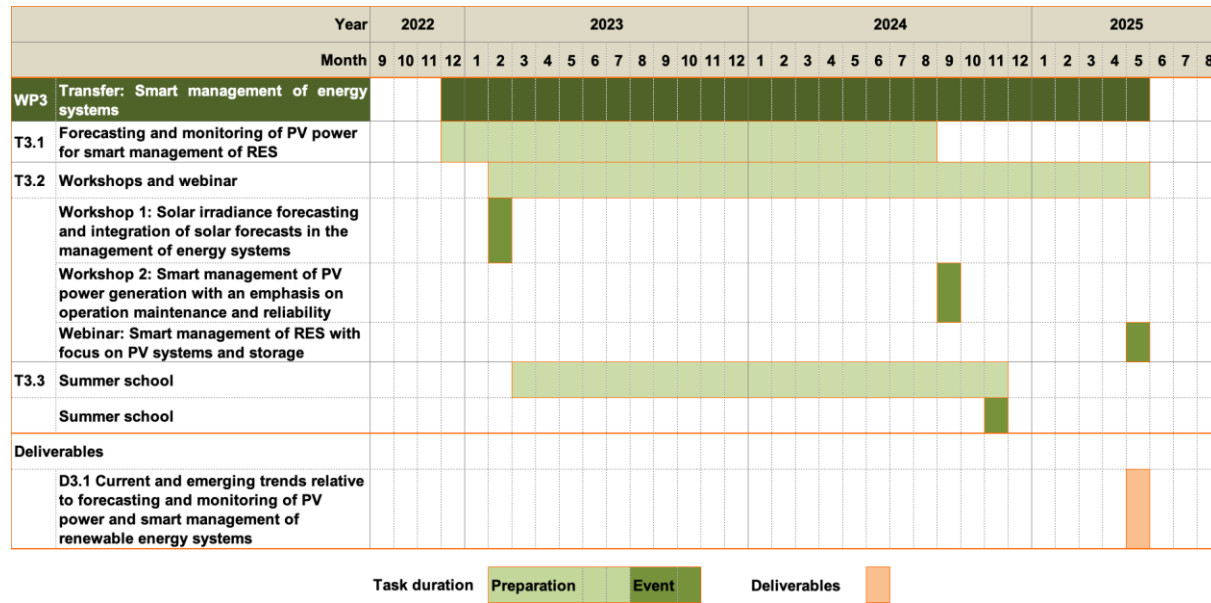
In the case study, participants will be assigned a project for which they will have to design and develop a programming code related to the analysis and processing of the monitoring data of a photovoltaic plant. The data sets used will be those provided by the UR. Participants will receive support and guidance from Fraunhofer members and will have access to the learning material.

A visit to a photovoltaic plant will provide an insight into the sensors, the data acquisition hardware and its importance in obtaining data suitable for further processing and evaluation.

Table 4: Fraunhofer's workshops, webinar and summer school details

Events	Topic	Target audience	Duration	Location & Date
Workshop #1	Solar irradiance forecasting and integration of solar forecasts in the management of energy systems	- UR's Master students, PhDs and postdocs - Technical staff of private companies in the energy sector in La Réunion and from the CPMR network (DSO, PV system designers, system monitoring, etc.)	1 day	UR, La Réunion and online February 2023
Workshop #2	Smart management of PV power generation with an emphasis on operation maintenance and reliability	- UR's Master students, PhDs and postdocs - Technical staff of private companies in the energy sector in La Réunion and from the CPMR network (DSO, PV system designers, system monitoring, etc.)	1 day	Fraunhofer, Germany and online September 2024
Summer school	Solar irradiance forecasting, operation and maintenance of PV systems, and integration of solar forecasts in the management of energy systems	- Master students, PhDs and postdocs from UR and from the CPMR network (10 to 15 people)	1 week	UR, La Réunion November 2024
Webinar	Smart management of RES with focus on PV systems and storage	External stakeholders of the energy sector at the international scale	2 hours	Online May 2025

Detailed timeframe



E) WP4 – A smart microgrid in a tropical island

WP leader: Philippe Lauret (UR)

Participants: Fraunhofer, DTU

Objectives

The aim of this WP is to design an innovative and affordable solution to supply energy to the university campus of Terre Sainte, La Réunion (see Figure 3) with a massive integration of solar power generation. With two net-zero energy buildings (NetZEB) on this site, UR has already set up an efficient energy saving policy for this campus. This WP will go one step further by studying a solution to significantly reduce the carbon emissions by feeding the microgrid with at least 80% of on-site solar production. The main outcomes are the optimal design of possible solutions, a predictive energy management system based on operational forecasts and a case study for the workshops and summer schools (WP2 and WP3). During this research activity, DTU and Fraunhofer will be involved in the co-supervision of the young researchers (Masters, PhDs and postdocs) hired by UR.

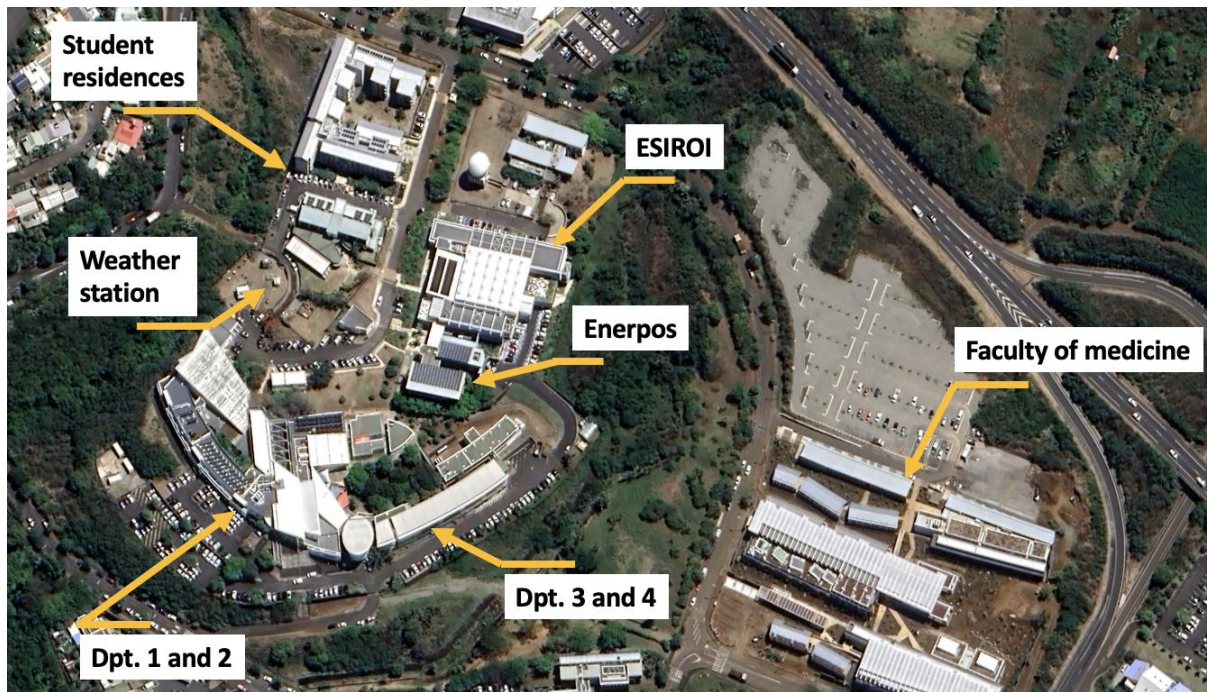


Figure 3: Overview of the university campus of Terre Sainte, La Réunion

Description of work

Task 4.1 Definition and data preparation (M1-M12)

This task aims at defining the scope of the study and at preparing a consistent data set for the simulations. UR, Fraunhofer and DTU will define the perimeter of the microgrid and the appropriate technologies (especially storage technologies) to be modelled. Then, considering the issues of an isolated grid, a set of relevant indicators and features to optimized will be selected. UR will collect and prepare a consistent dataset characterising the microgrid (D4.1). The data concern the energy demand by the type of loads, the current solar production and the meteorology with a sub-hourly time step (see Table 5).

Table 5: University campus of Terre Sainte key figures

Building name	Commitment year	Floor area (m ²)	Energy demand (kWh/m ² .y)	PV power (kWp)
ESIROI	2020	3505	50	100
ENERPOS	2008	739	20	50
Faculty of medicine	2023	-	-	200
Dpt. 1 and 2	1998	4557	100	17
Dpt. 3 and 4	2006	1643	100	0
Old residence	2008	44 rooms	-	0
Lemuria residence	2019	200 rooms	-	0

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The outcome of this task is a dataset of energy demands and energy productions for a period of at least 1 year with a time step of 1 hour or less. Data from the following sources will be collected:

- The monitoring of the electricity demand carried out by the DSO at the level of the campus transformers (1 for the university building and 1 for the student residences) with a 10-min time step,
- The monitoring of the PV field done by external contractors that maintain and/or manage the PV farms,
- The monitoring carried out by the building maintenance service of the university that records a wide variety of parameters with a 10-min time step (cooling and electricity demands by type of loads, PV generation, etc.),
- The on-site weather station of the laboratory PIMENT,
- The all sky imager installation at the campus.

Task 4.2 Optimal architecture and component size (M7-M36)

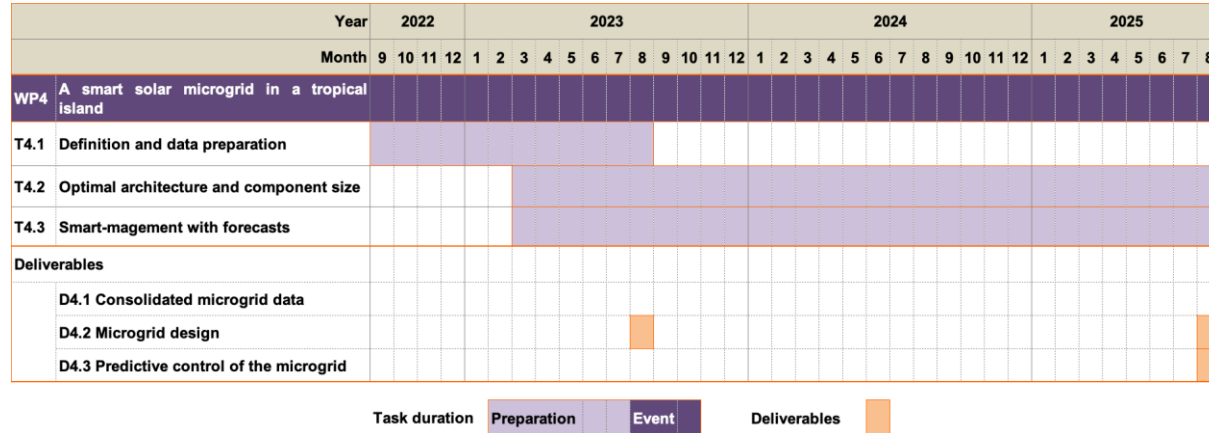
UR and DTU will first model different possible architectures of the microgrid (i.e. solar generators, converters and energy storages) based on the technologies selected in the previous task 4.1. Then, they will develop a stochastic optimisation algorithm to size the different components. The impact on the sizing of the predictive algorithm developed in the task 4.3 will also be studied. Finally, from the different simulations, they will find the best architecture (D4.2), which will be the starting point of a new R&D project involving equipment and industrial partners.

Task 4.3 Smart-management with forecasts (M7-M36)

Fraunhofer will install on-site a sky-imager to generate very short-term forecasts (several seconds up to 30 minutes). UR and Fraunhofer will develop and benchmark a statistical forecasting model that will blend the solar forecasts generated by sky-imager with past records, satellite forecasts and numerical weather predictions. The aim will be to get rapid updates of probabilistic forecasts ranging from several seconds to 3 days ahead. UR and Fraunhofer will then develop a stochastic optimization algorithm that will integrate the generated forecasts for the scheduling and the operation of the microgrid (D4.3) (storage systems and demand side management).

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F) WP5 – Dissemination, outreach & exploitation of results

WP leader: Claire Helly (CPMR Islands Commission)

Participants: UR, Fraunhofer, DTU and Nexa

Objectives

The objectives of WP5 are to ensure and maximize the regional and EU spill overs of TwInSolar, through dissemination, outreach and networking activities beyond the consortium. Specifically, WP5 aims at:

- Raising awareness about the project and its outputs towards a targeted public;
- Strengthening the local energy R&I quadruple helix;
- Increasing the international reputation and connections of UR and La Réunion, with key actors of the integration of solar energy in islands and remote areas for an increased performance in Horizon Europe and the ERA;
- Influencing policy makers at different levels to highlight the challenges of remote areas and contribute to EU Energy and ERA policies;
- Ensuring the greatest replicability and sustainability of the project, so to be beneficial for other territories facing similar challenges – starting from some CPMR IC members – inspiring the effective capitalization of the project results.

Description of work

Task 5.1 Implementation of Communication/Dissemination Strategy (M1-M36)

This task ensures a wider communication/dissemination of TwInSolar activities and results, increasing the level of awareness on the integration of solar energy in remote areas, to reach the greatest possible audience and promote relevant synergies in the different activities. A structured Communication/Dissemination Plan (D5.1) will be drafted and implemented by the CPMR, including contributions and updates from all partners. The CPMR will support the partnership in relation to the overall activities described in the Plan, among others:

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- A website dedicated to the project to target a wide audience (general public, academics, policy makers, etc.); this website can include an interactive display showcasing the project results like the microgrid energy productions and loads (historics, real-time and forecasts),
- A Twitter account to inform policy makers on the project,
- Publication of data on scientific website dedicated to data dissemination (Zenodo or Mendeley Data) to provide public datasets to the scientific community and to a wider audience; a first online version of the website is expected in the middle of the year 2023,
- A general dissemination material production (including press releases, news, publications, etc.)
- Participations in relevant external events/conferences.

Task 5.2 Networking and best practices sharing with other insular and remote territories (M19-M34)

As La Réunion, most islands and remote areas in the EU face similar challenges in terms of lack of capacity and good critical mass in R&I. Nexa has strong capacities to connect with R&I stakeholders, dealing with RIS3 and is part of the Outermost Regions R&I networks. In complementarity, as a network of regions, the CPMR IC is very well placed to facilitate the exchange of good practices among policymakers at regional level in the field of energy transition, with a focus on solar energy, that has great potential for insular territories. Capitalizing on such networks, two specific best practice online workshops (D.5.2) will be organised to discuss key challenges/solutions found linked to R&I and solar energy: One by Nexa with research and innovation policy makers from the Outermost Regions and other islands and remote regions; One by CPMR involving relevant regional/local policymakers in the field of energy transition from other member regions of the CPMR IC and beyond.

Task 5.3 Strengthening La Réunion energy R&I quadruple helix (M7-M34)

Taking stock of the knowledge transferred during WP1 from DTU and Fraunhofer and in line with RIS3, this task will implement activities to reinforce the capacities of the stakeholders that make up the energy regional R&I system. First, Nexa will organize 3 seminars to promote and to adapt the identified best practices to set up an efficient entrepreneurial discovery process involving the quadruple helix, to increase the participation in Horizon Europe and to facilitate knowledge transfer into innovations and solutions. Second, Nexa will organise the regional Science-Policy dialogue in the energy transition through a workshop bringing together partners from the project and policymakers to discuss the results and their contribution to the regional energy strategy. The conclusions of such workshop will be translated into a policy brief (D5.3).

Task 5.4 Exploitation and sustainability of results through outreach and networking with other major EU stakeholders and partners (M19-36)

This task will increase the connection of UR and La Réunion stakeholders with high-profile EU organisations to foster its participation in the ERA Area and Horizon Europe, as well as, maximize the replicability potential and outreach of the project results. Nexa, will produce a mapping of

Deliverable 1.1 – Detailed Workplan and Timeframe

the most dynamic stakeholders in the past EU programmes and invite 5 of the most relevant ones that could contribute to the regional R&I agenda to participate in a “Horizon Europe forum” (D5.4) in La Réunion. To enhance the impact of this event and to facilitate the on-site participation of the DTU and Fraunhofer, this forum should be merged with activities of the other WPs. For instance, a workshop or a summer school of WP2 or WP3. In parallel, the DTU and the CPMR will support UR, on behalf of the partnership, to approach the EERA and participate in thematic Joint Programmes.

CPMR will facilitate the involvement of other insular and ORs representatives in the follow-up of TwInSolar activities, by organising an international workshop (D5.4), to present and discuss the main results of the project as well as their contribution to the broader objectives of the EU Green Deal, involving EU representatives and relevant stakeholders in the field of energy transition, coming from different countries. The CPMR will try to find another event to connect to in order to attract as many people as possible.

UR will produce the TwInSolar business development plan, ensuring a broad integration of the results with other components of the EU projects and initiatives and a proper IPR coordination before communicating any TwInSolar sensitive information. This will be performed in full transparency with the EU authorities fully capitalising on all outcomes of TwInSolar and contributing to the production of the Exploitation roadmap (D5.5).

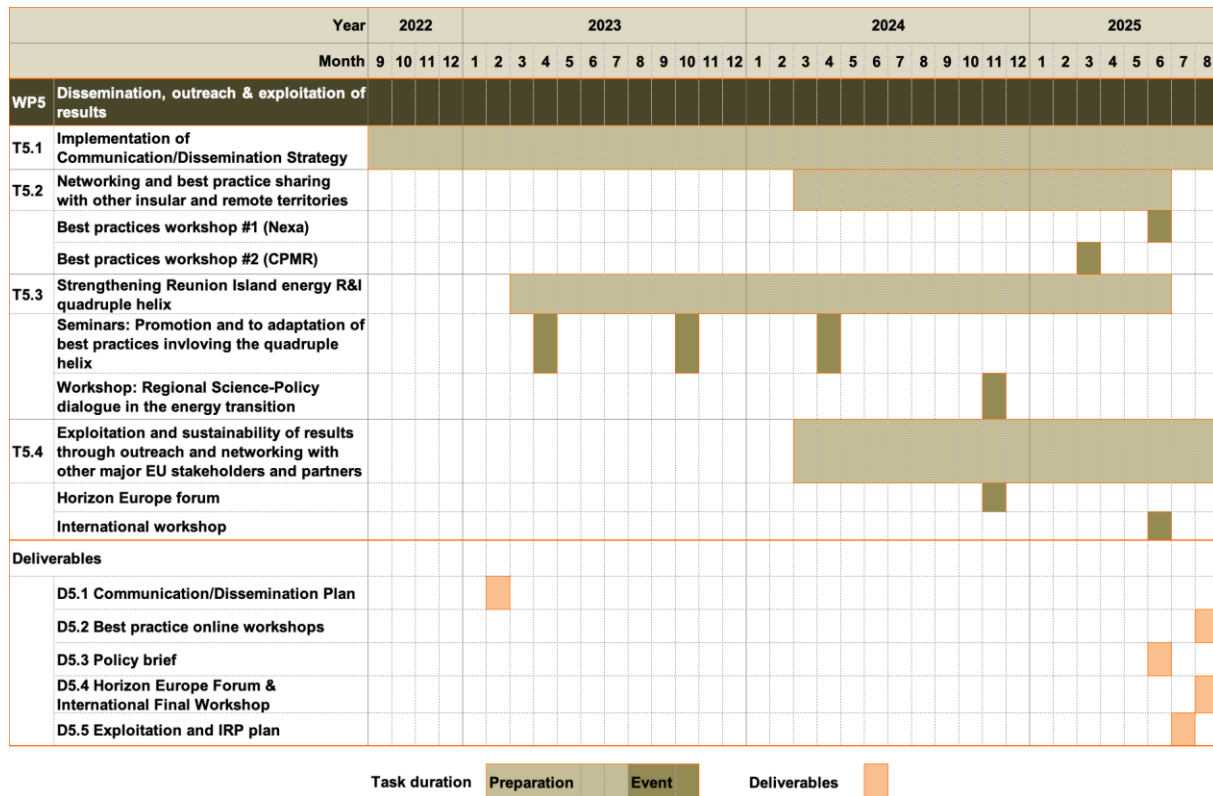
Table 6: Dissemination and outreach events

Events	Topic	Target audience	Duration	Location & Date
Seminar #1 (Nexa)	Promotion and to adaptation of best practices to set up an efficient entrepreneurial discovery process involving the quadruple helix, to increase the participation in Horizon Europe and to facilitate knowledge transfer into innovations and solutions	- stakeholders of the energy regional R&I system	2 hours	La Réunion April 2023
Seminar #2 (Nexa)			2 hours	La Réunion October 2023
Seminar #3 (Nexa)			2 hours	La Réunion April 2024
Workshop #3 (Nexa)	Regional Science-Policy dialogue in the energy transition	- La Réunion policymakers	3 hours	November 2024
Horizon Europe forum (Nexa)	Modelling, sizing and testing of an energy system based on a PV plant with storage	- UR and La Réunion stakeholders - Most dynamic stakeholders in the past EU programmes	3 days	La Réunion November 2024

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Workshop #2 (CPMR)	Best practice	- Regional/local policymakers in the field of energy transition from other member regions of the CPMR IC and beyond	2 hours	Online March 2025
Workshop #1 (Nexa)	Best practice	- Research and innovation policy makers from the Outermost Regions and other remote areas	2 hours	Online/hybrid Brussels June 2025
International workshop (CPMR)	Contribution of the project to the broader objectives of the EU Green Deal	- EU representatives and relevant stakeholders in the field of energy transition	1 day/1 day and a half	Brussels June 2025

Detailed timeframe



G) WP6 – Project management

WP leader: *Mathieu David (UR)*

Participants: *Fraunhofer, DTU, Nexa and CPMR*

Objectives

The main objective of WP6 is to carry out an effective technical, scientific, legal, financial and administrative coordination, establishing the mechanisms and management procedures to that end. The main outcomes of this WP are:

- An appropriate governance structure and internal communication methods,
- Project monitoring & risk management,
- Project Quality Plan, Data Management Plan, Gender Action Plan,
- Interactions with the Advisory Board,
- Monitoring and mitigating the carbon footprint of the project,
- Enforcing gender equality.

Description of work

UR is the Coordinator of the project and carries out the following tasks: monitor that the actions are implemented properly, strategic orientations of the project, acting as the intermediary for all communications between the beneficiaries and the EC, requesting and reviewing any documents or information required by the EC and verify their completeness and correctness, submitting the deliverables and reports to the EC, ensuring that all payments are made to the other beneficiaries without unjustified delay and inform the EC of the amounts paid to each beneficiary, ensuring the integration of the gender dimension.

Task 6.1 Project coordination (M1-M36)

This task aims at ensuring the project is running smoothly and that an equal flow of information is maintained between all partners. The task will comprise of general consortium coordination and facilitation, Project Quality Plan (D6.1), monitoring of project implementation, putting in place a validation process for deliverables and monitoring, online document workspace, GDPR compliance, risk management and monitoring, organizing project meetings, administrative and financial management, carbon footprint measurement and mitigation (D6.3). Regarding this former point, the TwInSolar consortium will try as often as possible to gather events (i.e. workshops, forum, visits, etc.) in the same place and at the same time to limit the number of air travels.

Task 6.2 Advisory Board (M1-M36)

This task entails the chairing and support to the work of the Advisory Board (AB), including setting up a dedicated online workspace where selected documents can be shared (methodologies, draft reports, specific documents, etc.) with the AB, as well as meetings of the AB linked to project

Deliverable 1.1 – Detailed Workplan and Timeframe

plenaries. The AB will be composed of at least 3 members that will be invited to participate at least once a year to review TwInSolar results and to advise on technical issues. For confidentiality purpose, the members of the AB will be required to sign a Non-Disclosure agreement (NDA). The choice and agreement of the AB members is expected by February 2023. The following organisations have been already approached and have a potential interest for being part of this consultative body:

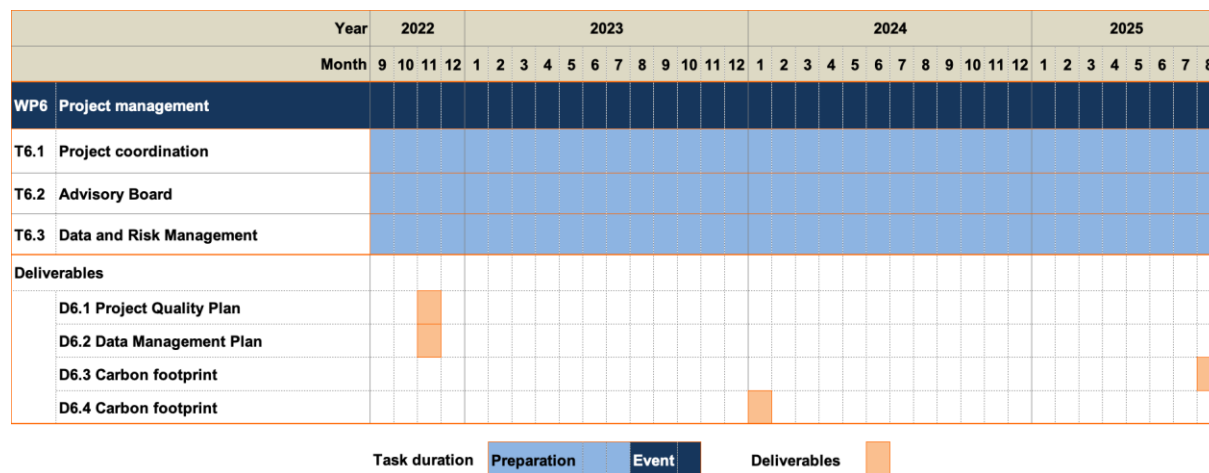
- EDF (French DSO), Region Réunion,
- The regional council of Reunion Island,
- The New Energy Solutions Optimised for Islands (NESOI).

Task 6.3 Data and Risk Management (M1-M36)

This task includes the management of datasets and risks in the project, continuous control of the corresponding processes, informing partners of their obligations and overseeing their work, as well as the creation and regular updates of the key documents and information (Data Management Plan (DMP - D6.2), risk management information on the Funding and Tenders Portal). The Data Management Plan will outline the conditions for data preservation, adherence to FAIR principles, publication, and clearly make a distinction between potentially sensitive or confidential information and open access data.

The first version of DMP is expected by November 2022 and will be created with the online tool DMP Opidor (<https://dmp.opidor.fr>).

Detailed timeframe



III. Global synthetic timeframe

Year	2022				2023				2024				2025													
	Month	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	
WP1	Knowledge implementation																									
T1.1	Twinning methodology and framework																									
	Site visit DTU																									
	Site visit Fraunhofer-ISE																									
	Site visit UR																									
	Round tables with energy sector stakeholders																									
T1.2	Best practices sharing																									
	1st best practice workshop																									
WP2	Transfer: Design, modeling and sizing of energy systems																									
T2.1	Solar PV based energy systems																									
T2.2	Workshops																									
	Workshop 1: PV technologies and system diagnosis																									
	Workshop 2: Energy system modelling																									
	Workshop 3: Energy system sizing																									
T2.3	Summer school																									
	Summer school																									
WP3	Transfer: Smart management of energy systems																									
T3.1	Forecasting and monitoring of PV power for smart management of RES																									
T3.2	Workshops and webinar																									
	Workshop 1: Solar irradiance forecasting and integration of solar forecasts in the management of energy systems																									
	Workshop 2: Smart management of PV power generation with an emphasis on operation maintenance and reliability																									
	Webinar: Smart management of RES with focus on PV systems and storage																									
T3.3	Summer school																									
	Summer school																									
WP4	A smart solar microgrid in a tropical island																									
T4.1	Definition and data preparation																									
T4.2	Optimal architecture and component size																									
T4.3	Smart-magement with forecasts																									
WP5	Dissemination, outreach & exploitation of results																									
T5.1	Implementation of Communication/Dissemination Strategy																									
T5.2	Networking and best practice sharing with other insular and remote territories																									
	Best practices workshop #1 (Nexa)																									
	Best practices workshop #2 (CPMR)																									
T5.3	Strengthening Reunion Island energy R&I quadruple helix																									
	Seminars: Promotion and to adaptation of best practices ivloving the quadruple helix																									
	Workshop: Regional Science-Policy dialogue in the energy transition																									
T5.4	Exploitation and sustainability of results through outreach and networking with other major EU stakeholders and partners																									
	Horizon Europe forum																									
	International workshop																									
WP6	Project management																									
T6.1	Project coordination																									
T6.2	Advisory Board																									
T6.3	Data and Risk Management																									
T6.4	Ensuring the integration of the gender dimension																									