

OneNet Project

Spanish demo



Western Cluster Demonstrator

Dr. José Pablo Chaves Ávila (Comillas Pontifical University)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957739

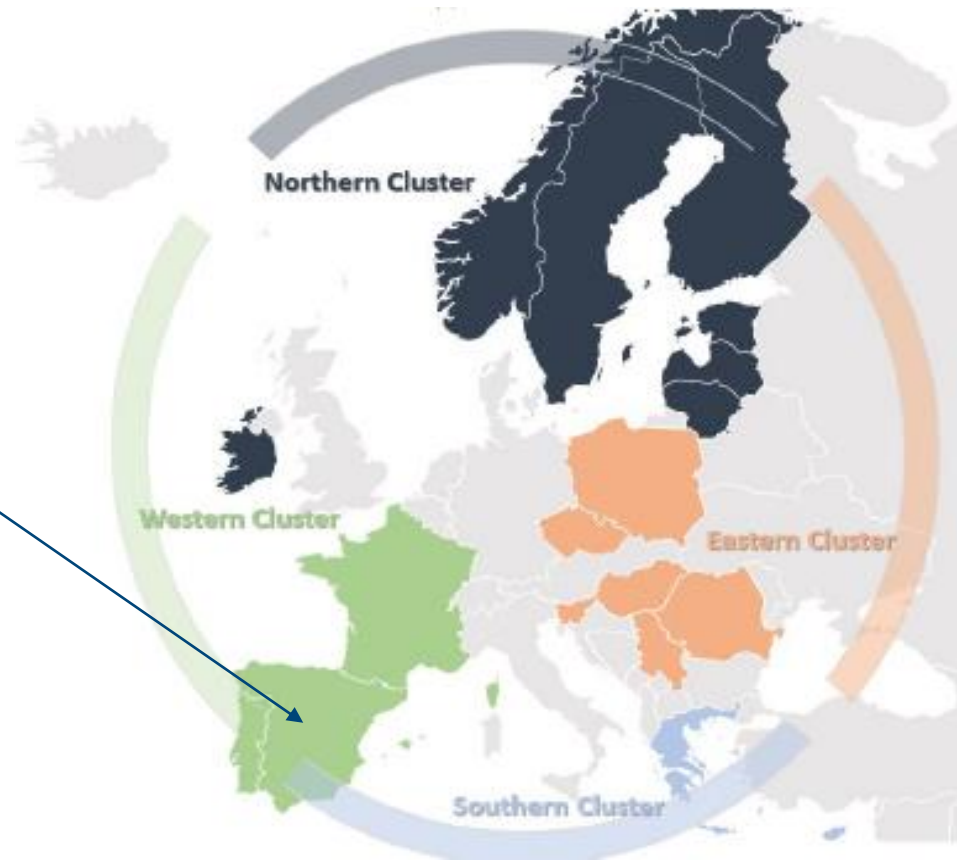
Agenda

1. Introduction
2. Demonstration description
 - 2.1 National use cases
 - 2.2 Demos overview
 - 2.3 Timeline
3. Implementation (current state/issues)
 - 3.1 i-DE Demos
 - 3.2 UFD Demos
 - 3.3 Platforms
4. Identified challenges
5. Next steps



1. Introduction

Partners



Description:

- Congestion management at the distribution level
- Local markets
- Local market platform (LMP)
- Market participants:
 - 2 DSOs
 - 1 IMO
 - FSPs

FSPs located in Murcia and Madrid



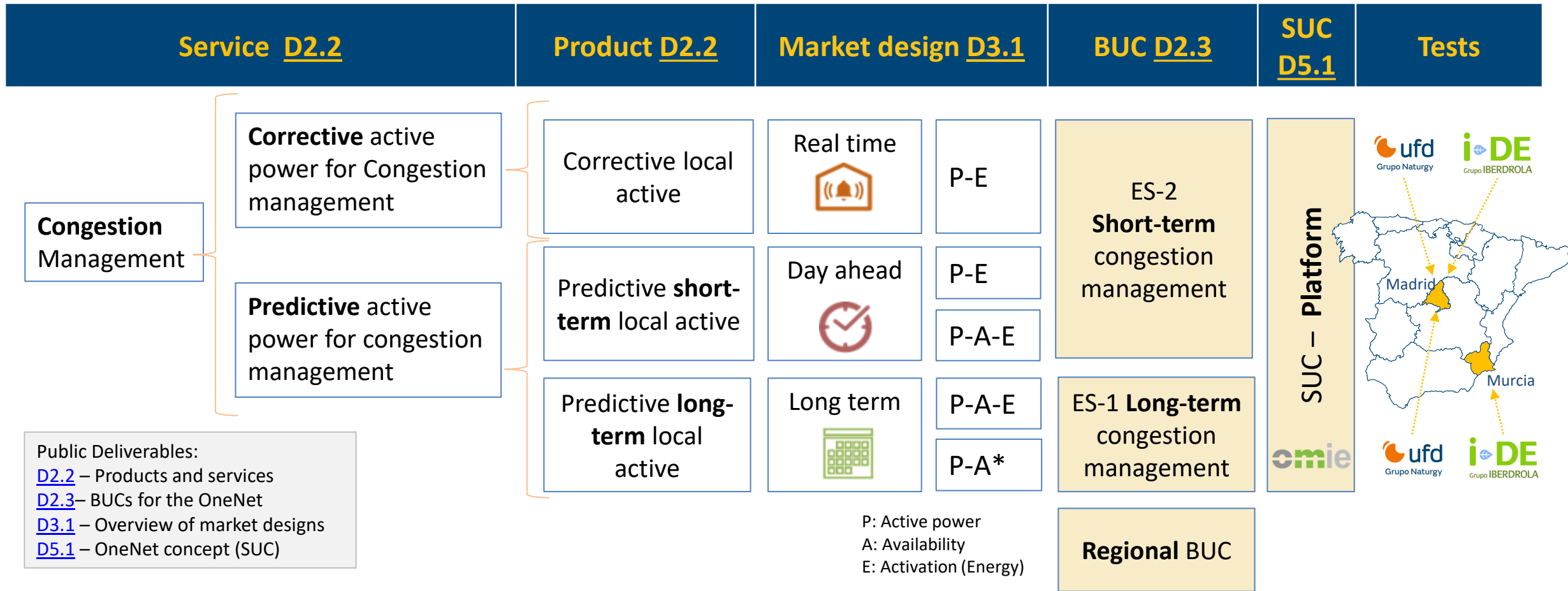
Agenda

1. Introduction
2. Demonstration description
 - 2.1 National use cases
 - 2.2 Demos overview
 - 2.3 Timeline
3. Implementation (current state/issues)
 - 3.1 i-DE Demos
 - 3.2 UFD Demos
 - 3.3 Platforms
4. Open questions
5. Next steps



2.Demonstration description

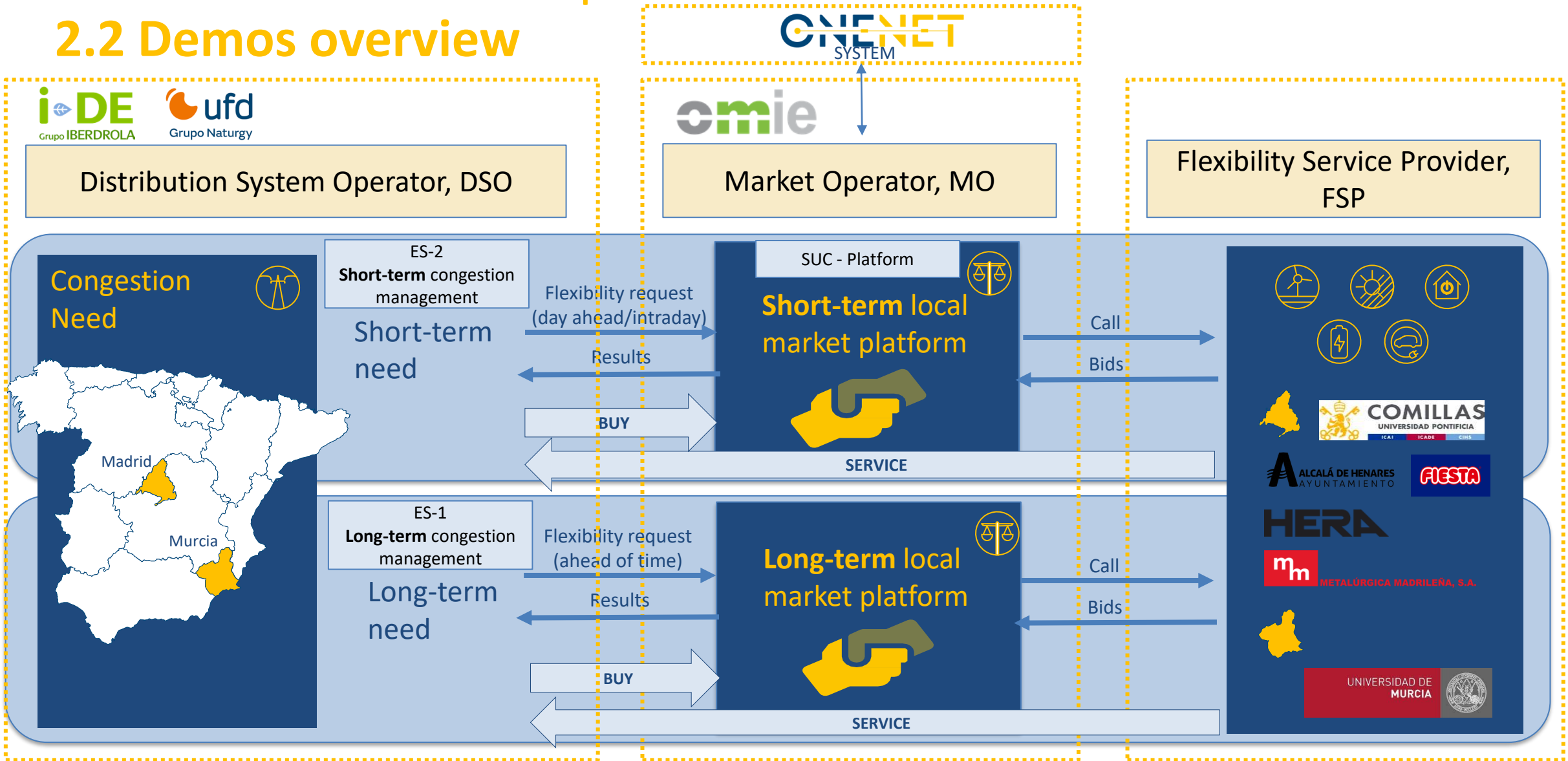
2.1 National use cases [D9.1](#)



*short-term activation submarket (P-E) after long-term availability market (before need time)






2. Demonstration description

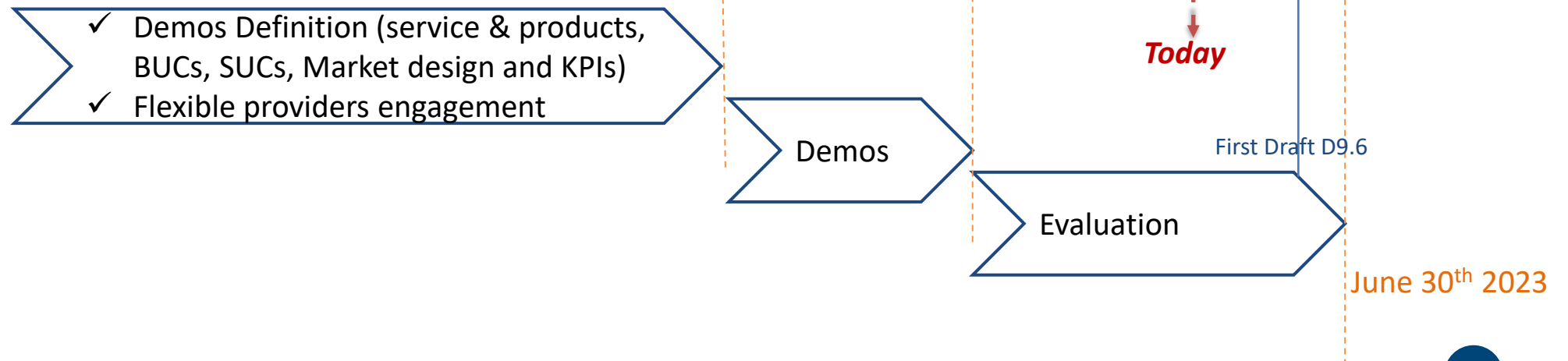
2.2 Demos overview



2.Demonstration description

2.3 Timeline

	2020			2021												2022												2023																											
	Oc	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36																			
9.3.1- SET-UP, ALIGNMENT AND INTEGRATION OF SOLUTIONS  																																																							
9.3.2 – DEMONSTRATION AND TEST 																																																							
9.3.3 – DATA COLLECTION 																																																							



Agenda

1. Introduction
2. Demonstration description
 - 2.1 National use cases
 - 2.2 Demos overview
 - 2.3 Timeline
3. Implementation
 - 3.1 i-DE Demos
 - 3.2 UFD Demos
 - 3.3 Platforms
4. Next steps



3. Implementation (current state/issues)

3.1 i-DE Demos

Tasks	Status	Issues	OneNet approach
Problem assessment: <ul style="list-style-type: none"> i-DE Murcia area i-DE Cantoblanco Area 	DONE <ul style="list-style-type: none"> March March 	<ul style="list-style-type: none"> No real congestion problem Customer engagement – lack of incentives Base line calculation 	<ul style="list-style-type: none"> Cascading funds Simulation
FSP prequalification <ul style="list-style-type: none"> i-DE Murcia area i-DE Cantoblanco Area 	DONE: <ul style="list-style-type: none"> July January 		
Field tests <ul style="list-style-type: none"> i-DE Murcia area i-DE Cantoblanco Area 	DONE: <ul style="list-style-type: none"> July/September January/Febr 		

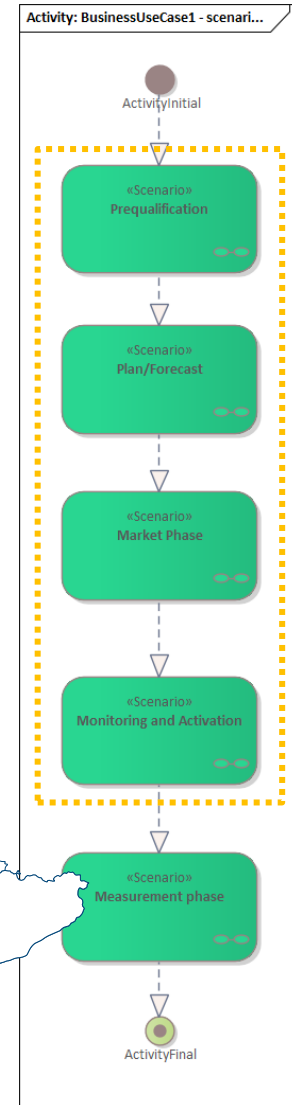
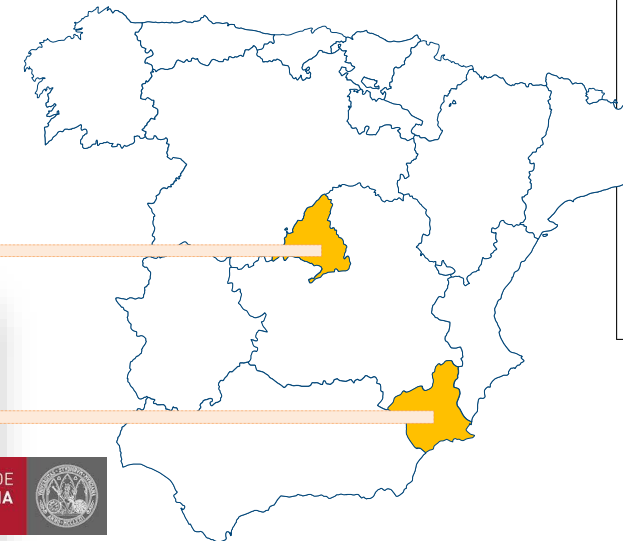
North of Madrid,
Cantoblanco



Murcia,
Espinardo neighbourhood



UNIVERSIDAD DE
MURCIA



3. Implementation (current state/issues)

3.1 i-DE Demos: Murcia area assessment problem



Murcia area: (ES-1) LT Congestion management - Circuit overloading

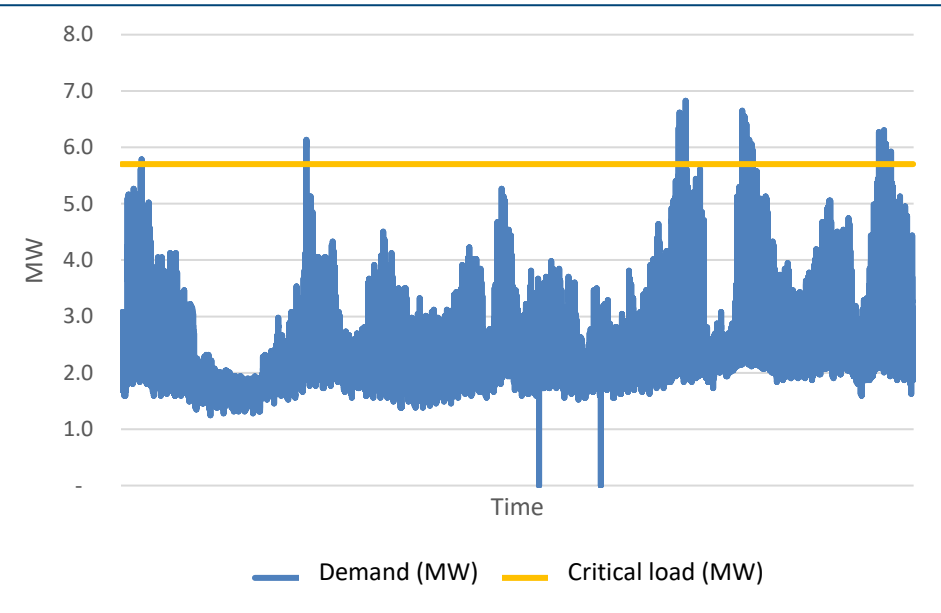


ISSUE:

Max. demand at Murcia area is greater than the circuit rating

REINFORCEMENT SOLUTION:

Increase circuit capacity



Flexibility Services Required: Congestion management, Predictive long term local active

Year	Demand reduce (MW)	Period	Service window	Days	Duration
2022/23	1,1	July & September	10:00-19:00	M-F	3 hours
	0,6	January	10:00-13:00	M-F	
2023/24	1,1	July & September	10:00-19:00	M-F	3 hours
	0,6	January	10:00-13:00	M-F	
2024/25	1,1	July & September	10:00-19:00	M-F	3 hours
	0,6	January	10:00-13:00	M-F	

AREA: Resources connected to the overloaded circuit

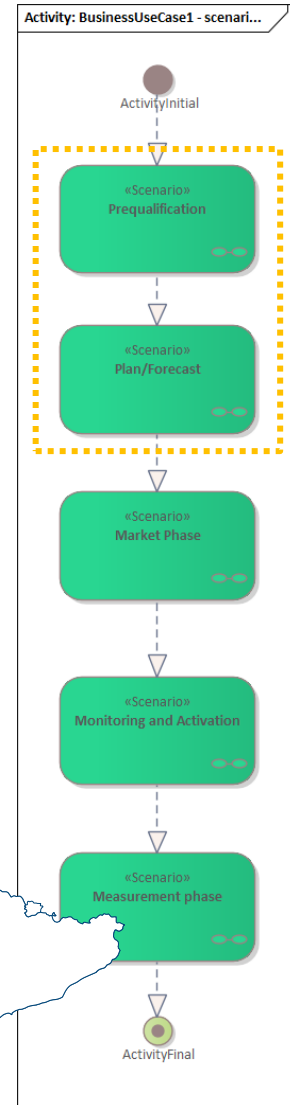
Scheme Cost: 170,814€

Annual Ceiling Cost: 8,634€

3. Implementation (current state/issues)

3.2 UFD Demos

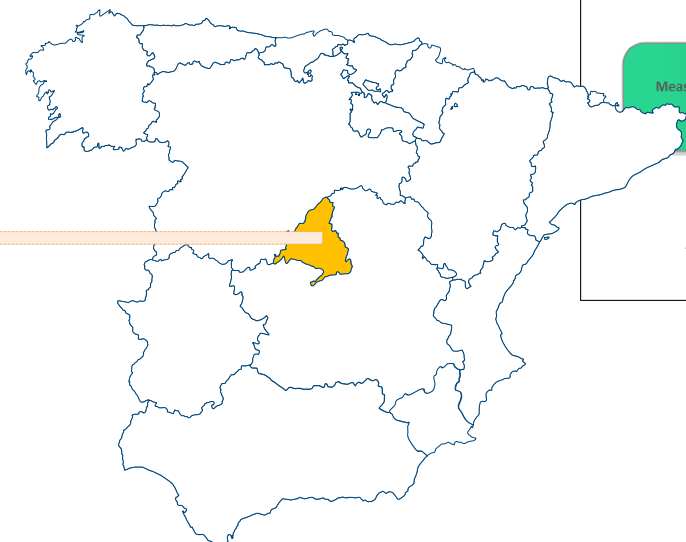
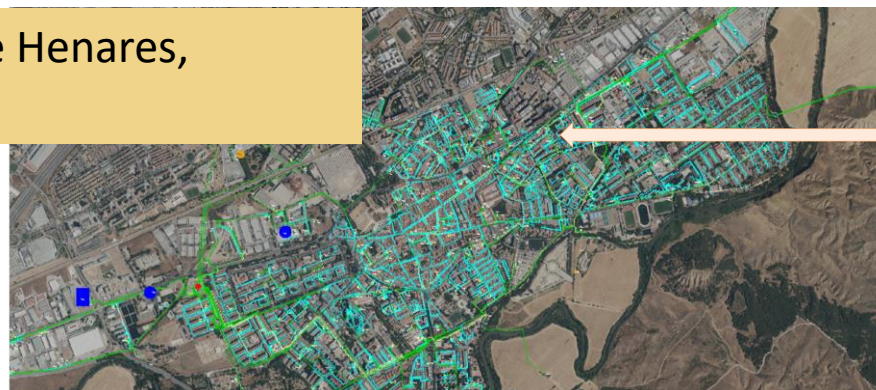
Task	Status	Issues	Comments
Problem assessment: • UFD Alcalá de Henares	DONE, April	<ul style="list-style-type: none"> No real congestion problems Customer engagement – difficulty to engage several customers from the same network Lack of incentives Lack of automation and monitoring 	<ul style="list-style-type: none"> DONE: installation of monitoring devices in customer facilities
FSP prequalification • UFD Alcalá de Henares	DONE, September		
Field tests	DONE, October	<ul style="list-style-type: none"> Local liquidity to develop efficient market Coordination of market test schedule and customer availability 	



ALCALÁ DE HENARES
AYUNTAMIENTO



Alcalá de Henares,
Madrid



3. Implementation (current state/issues)

3.2 UFD Demos: Programmed maintenance



Alcalá de Henares area – (ES-2) ST Programmed maintenance



Flexibility Services Required: Congestion management

Year	Demand reduce (MW)	Period	Service window	Days	Duration
2022/23	0,4	Any month	8:00-16:00	L-V	8 hours

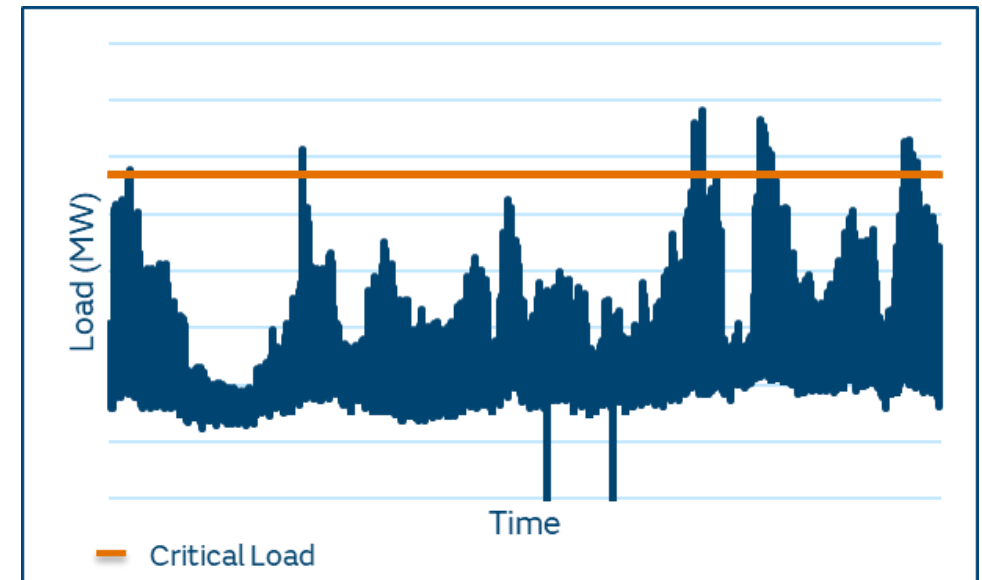
Flexibility Area: Resources connected to the overloaded circuit

ISSUE:

Programmed maintenance work from 8:00 to 16:00.

TRADITIONAL SOLUTION:

8 hour 3 x 250 kVA diesel generator group

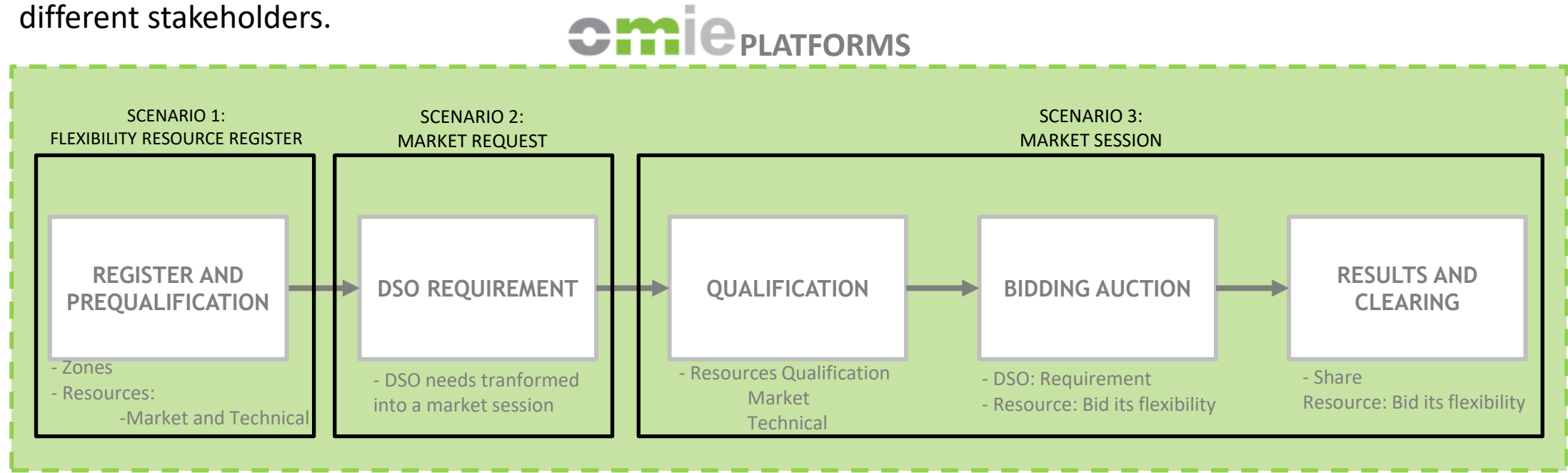


Scheme Cost: 2.747,61 €

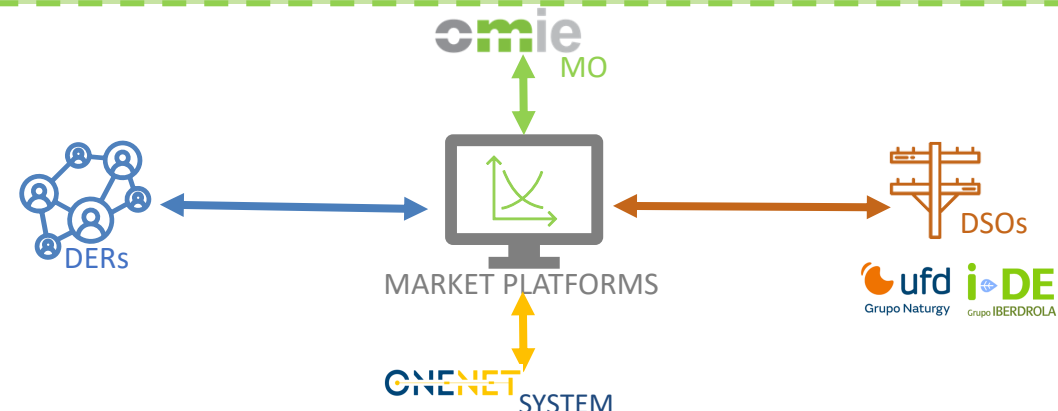
3. Implementation (current state/issues)

3.3 Platforms

The local market platform is the system responsible for receiving the DSO needs on market sessions for flexibility procurement, the bids from FSPs, the market clearing and the communication of market results to different stakeholders.

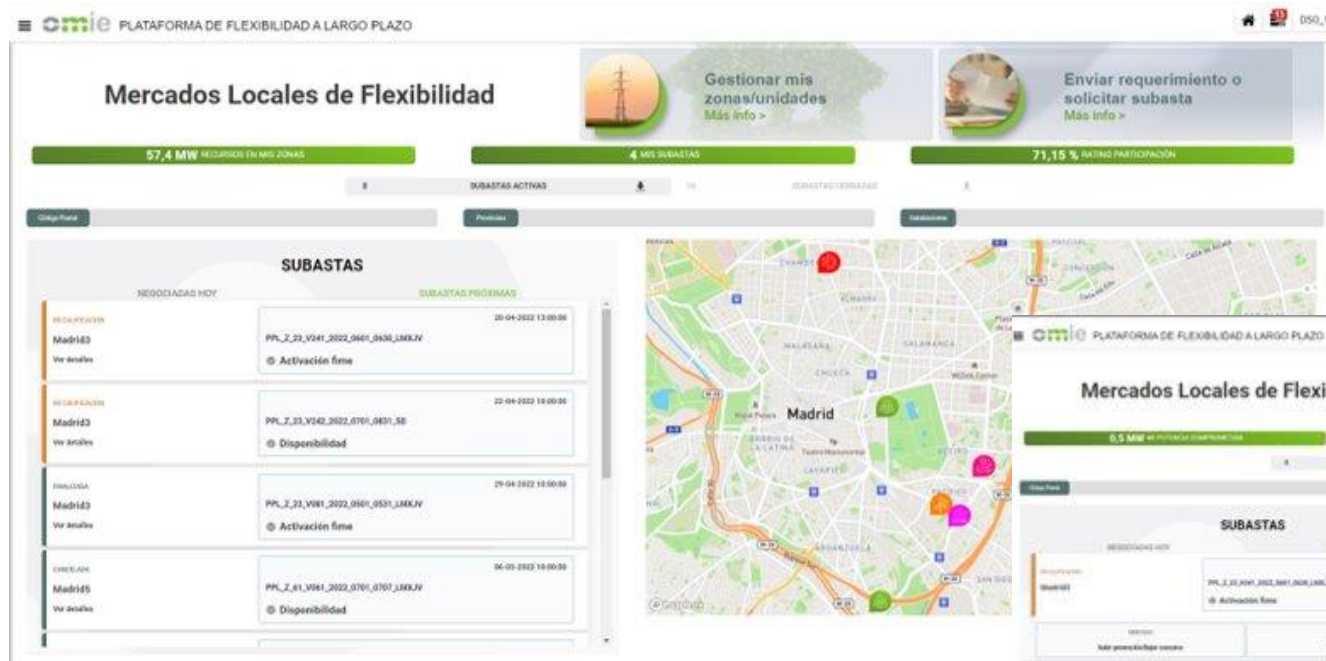


The market platform will be the main information **exchange enabler** and will also act as a **Flexibility Resource Register**, as proposed by the Active System Management (ASM) report.



3. Implementation (current state/issues)

3.3 Long-Term Market Platform



FLEXIBILITY RESOURCE REGISTER.

Includes the information exchange during the pre-qualification process, and registration once it is finished, and the maintenance of the register for the period in which the FSP is active.



MARKET REQUEST

The DSO requests to OM the creation of a Market Session that solves the future congestion. The DSO requests the creation of a Market Session

MARKET SESSION

Includes the processes of DERs qualification, bidding and clearing.



3. Implementation (current state/issues)

3.3 Short-Term Market Platform

MARKET REQUEST

The screenshot shows the OMIE Markets Locales interface. The top navigation bar includes 'Mercado Local Continuo', 'Mercado Requerimientos DSO', 'Liquidaciones', 'Datos de Agentes', 'Descargas', and 'Distribuidores'. The main content area is divided into 'Contratos Finalizados' and 'Consultas'. The 'Consultas' section has a dropdown menu with options: 'Nuevo requerimiento local: Por pantalla | Por fichero', 'Cancelar requerimiento local: Por pantalla | Por fichero', and 'Nueva limitación local: Por pantalla | Por fichero'. A blue arrow points from the 'Por pantalla' option to the 'Insertar Requerimiento Local' form below. The form includes fields for 'Código de zona agregada' (MADRID-CENTRO), 'Sentido' (Subir generación/Bajar consumo), 'Cantidad' (MW/h), 'Precio Limite' (€/MWh), and 'Fecha de entrega' (with start and end time selectors).

DSO can request a short-term market in order to solve an unplanned congestion through the platform. Day-ahead or Intraday.

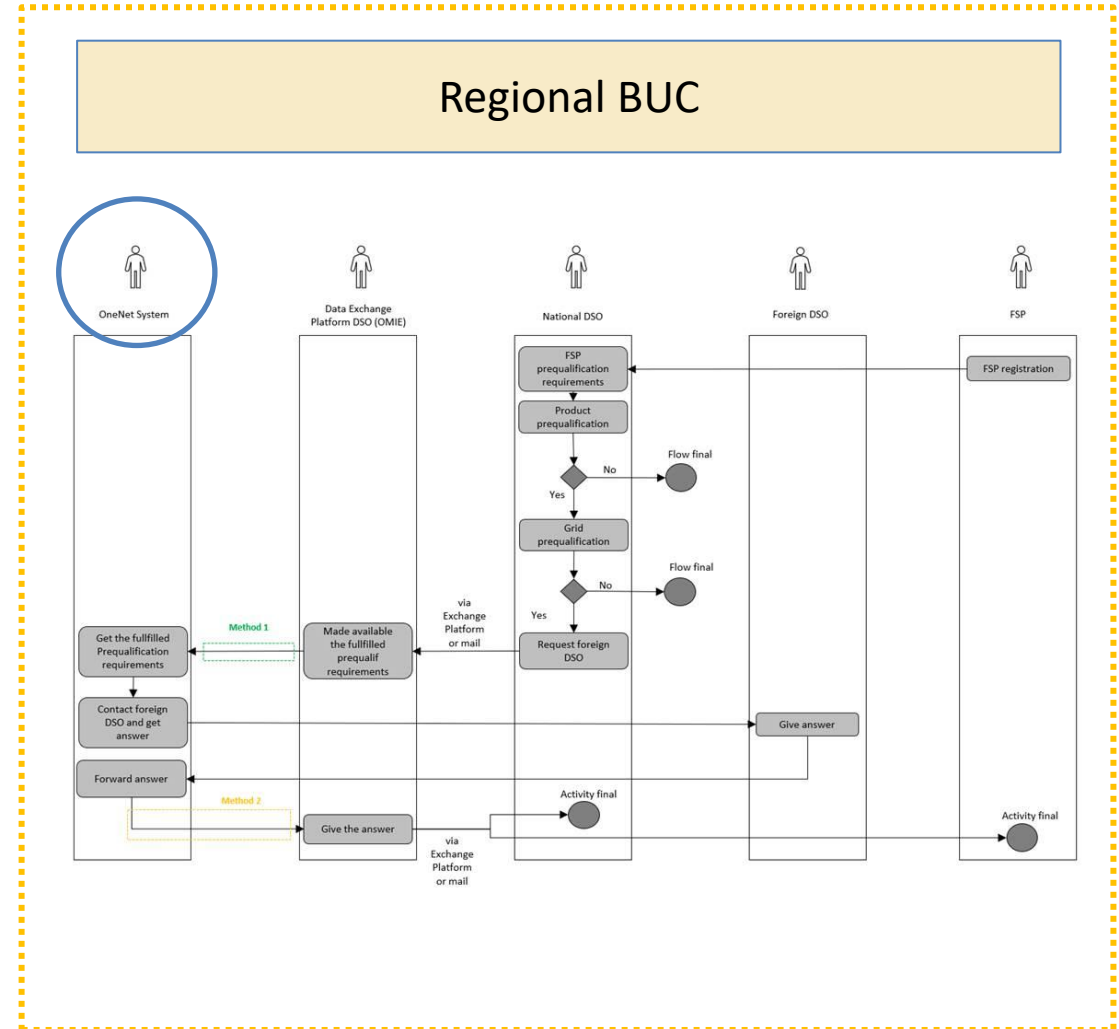
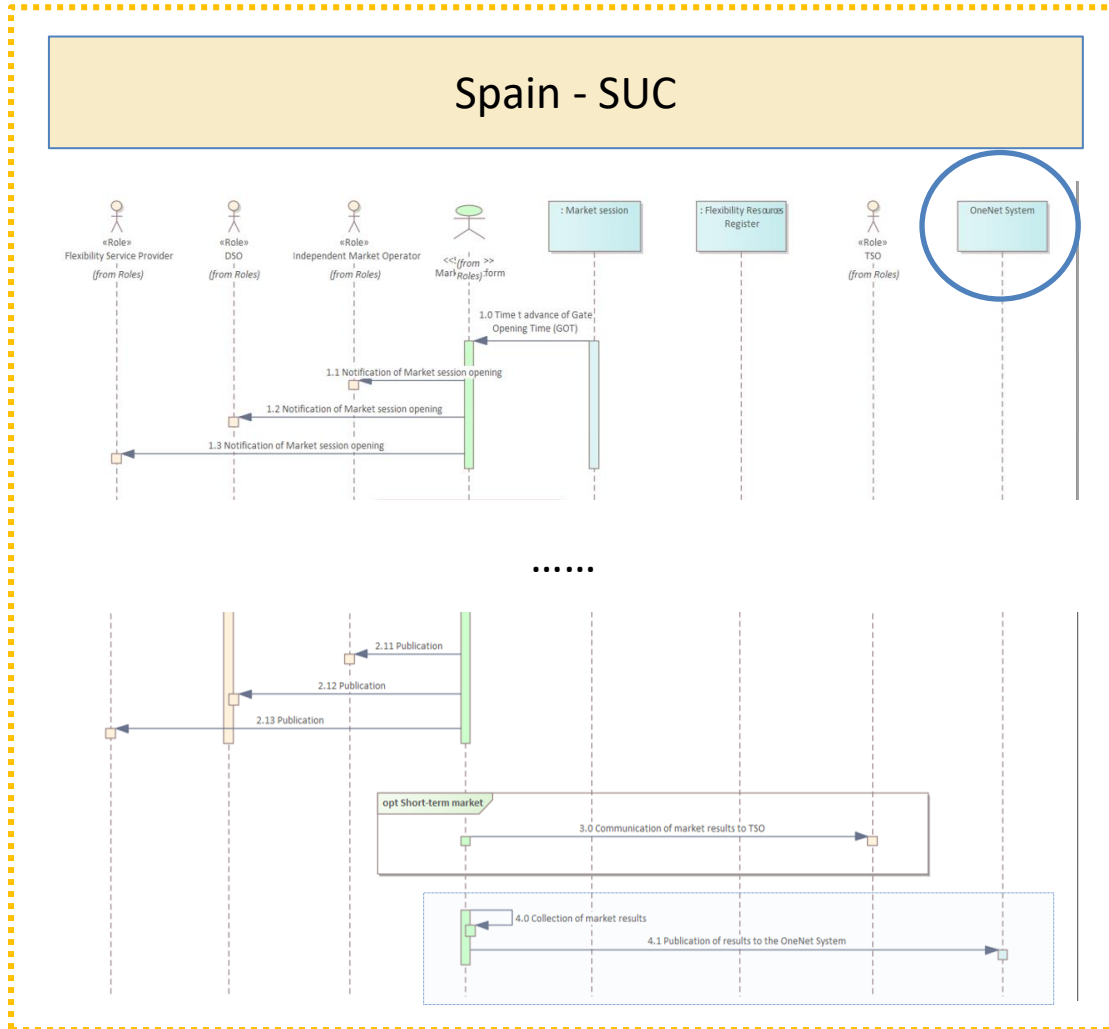
MARKET SESSION

The screenshot shows the Intraday Trading System interface. The top navigation bar includes 'Contracts - MIC', 'My Orders - MIC', 'My Trades - MIC', 'My Units - MIC', 'Basket orders - MIC', 'Local Continuous M - LM', 'DSO Requirements M - LM', and 'Activity Log'. The main content area displays a table of 'DSO Requirements M.' with columns for Status, Contract, Closure time, Qty, Bid, and Ask. A 'New Bid order' form is open, showing fields for 'Unit' (A91JUL2 - AGFLEX91-CANILLAS), 'Qty and Prc' (Qty: 10 MW, Prc: 55 Euros), and 'Trading conditions' (Immediate or Cancel (IOC), Fill or Kill (FOK)). The form also includes an 'Info' section with an 'Order description message' field and a 'Submit bid order' button. The bottom status bar indicates 'Creating new bid order for contract (23478) 12/04/2022 H16'.

Prepared for **integration with Global Markets**. Designed on the XBID OMIE's Local Trading Solution (LTS) to facilitate the real operation.

3. Implementation (current state/issues)

3.3 Platforms – OneNet System interaction

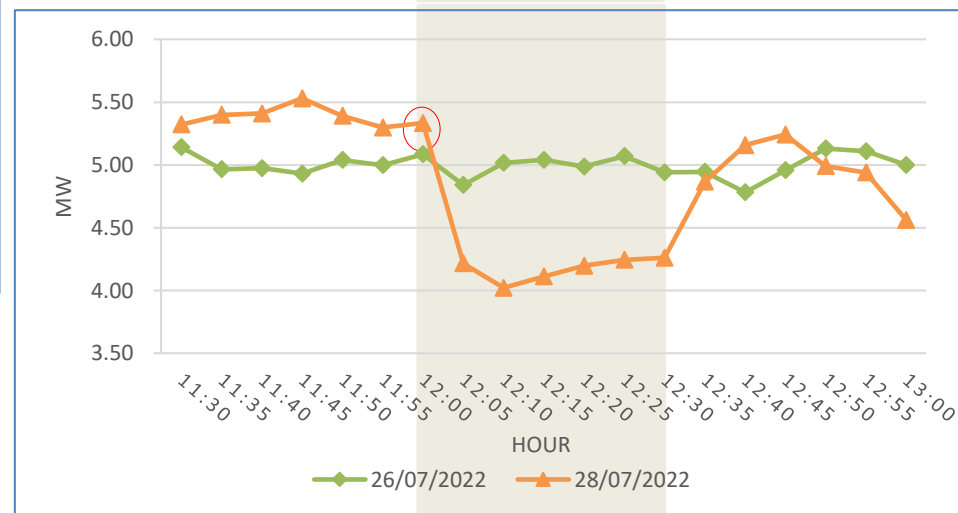
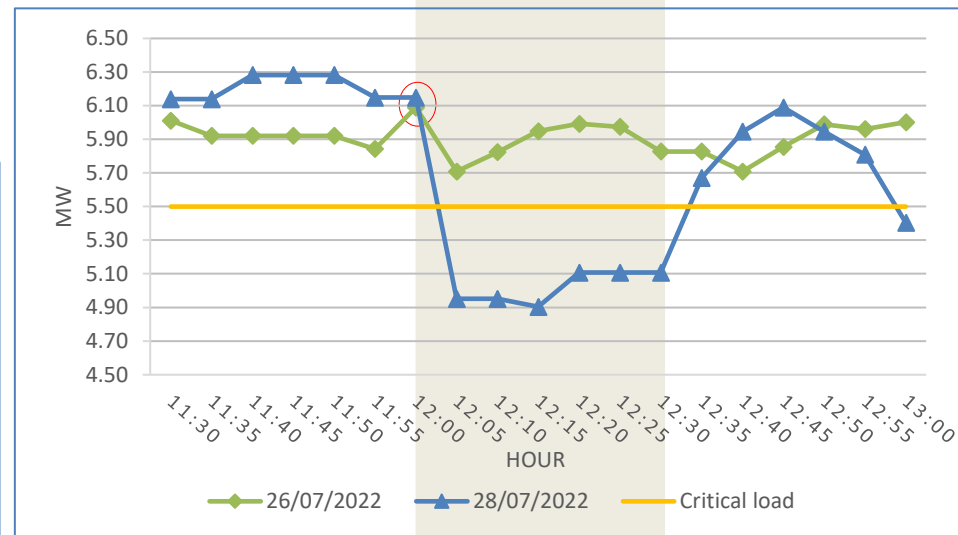
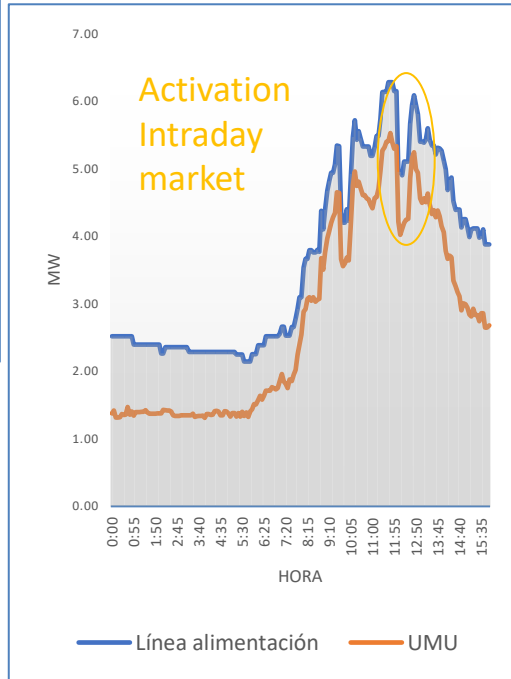


Results: Intraday market Murcia

Request	
Day	28/07/2022
Hours	12:00-12:30
Reduction	500kW/0,25MWh
Line load	<5,5MW

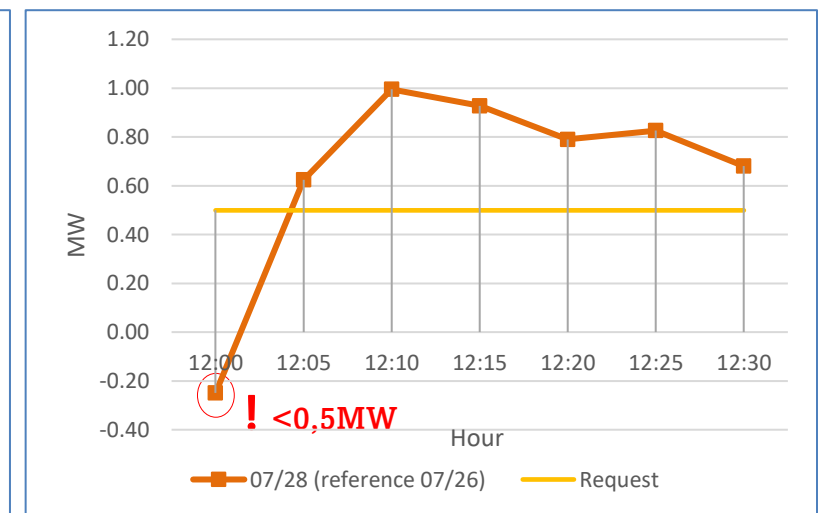
Congested line

Resource



- ✓ Short-term flexibility acquisition
- ✓ Identification of the congested line
- ✓ Delay on the provision of the service
- ✓ After 5 minutes, the service was provided

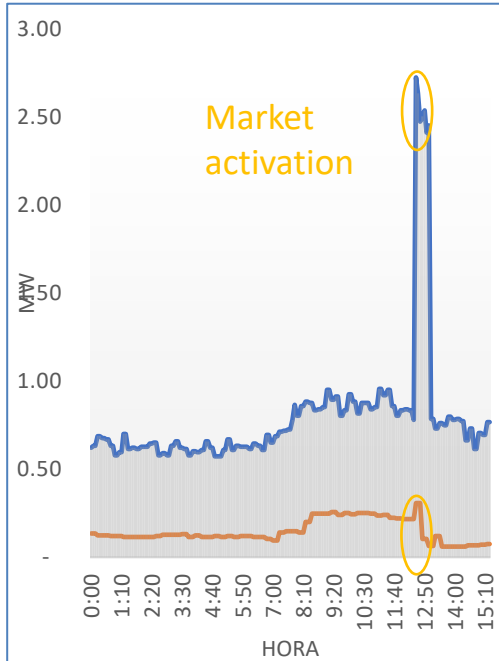
Partial fulfilment of requirement: 80%



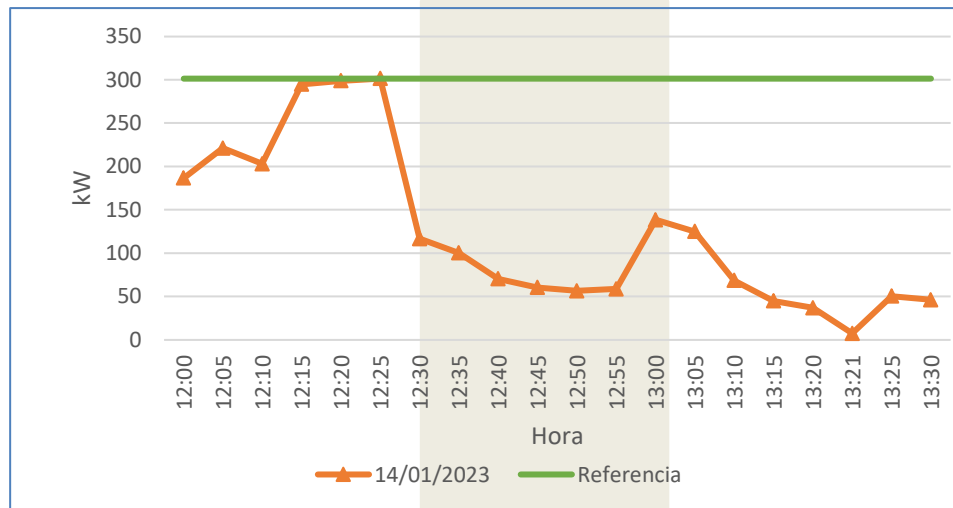
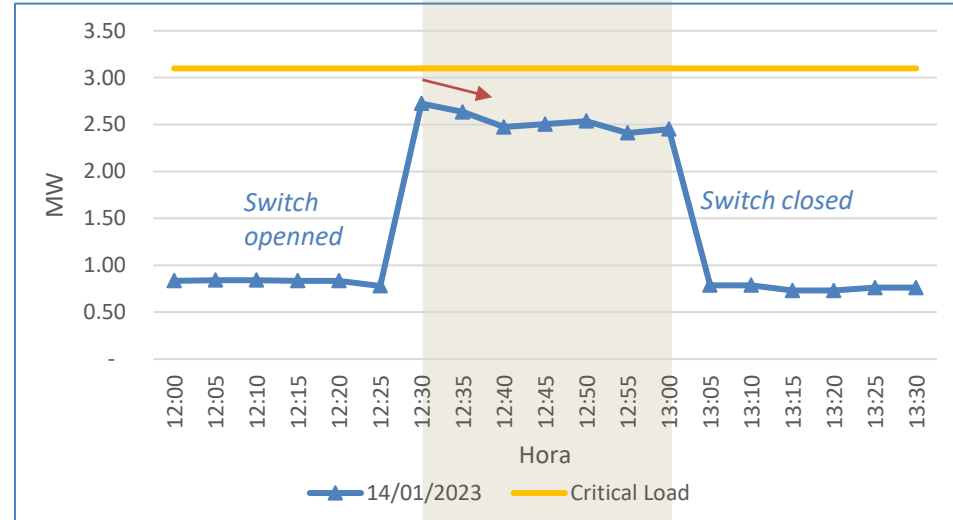
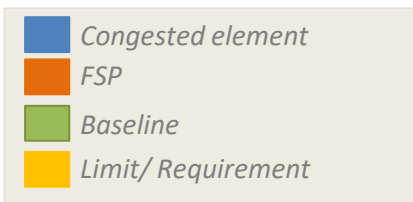
Results: Day Ahead market Cantoblanco (Madrid)

Request	
Day	14/01/2023
Hours	12:30-13:00
Reduction	100kW/0,05MWh
Line load	<3,1MW

Congested line

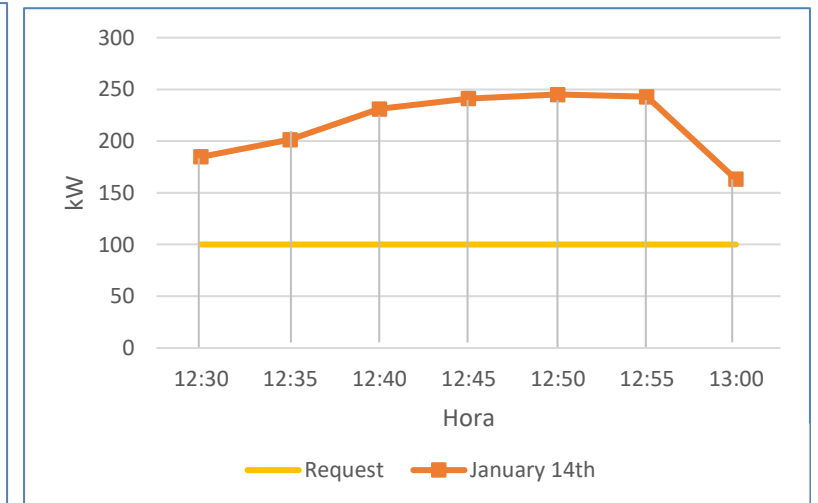


Resource



- ✓ Short-term flexibility acquisition
- ✓ Not congested line
- ✓ Fast activation
- ✓ Quantity reached instants

Fulfilment of requirement: 100%

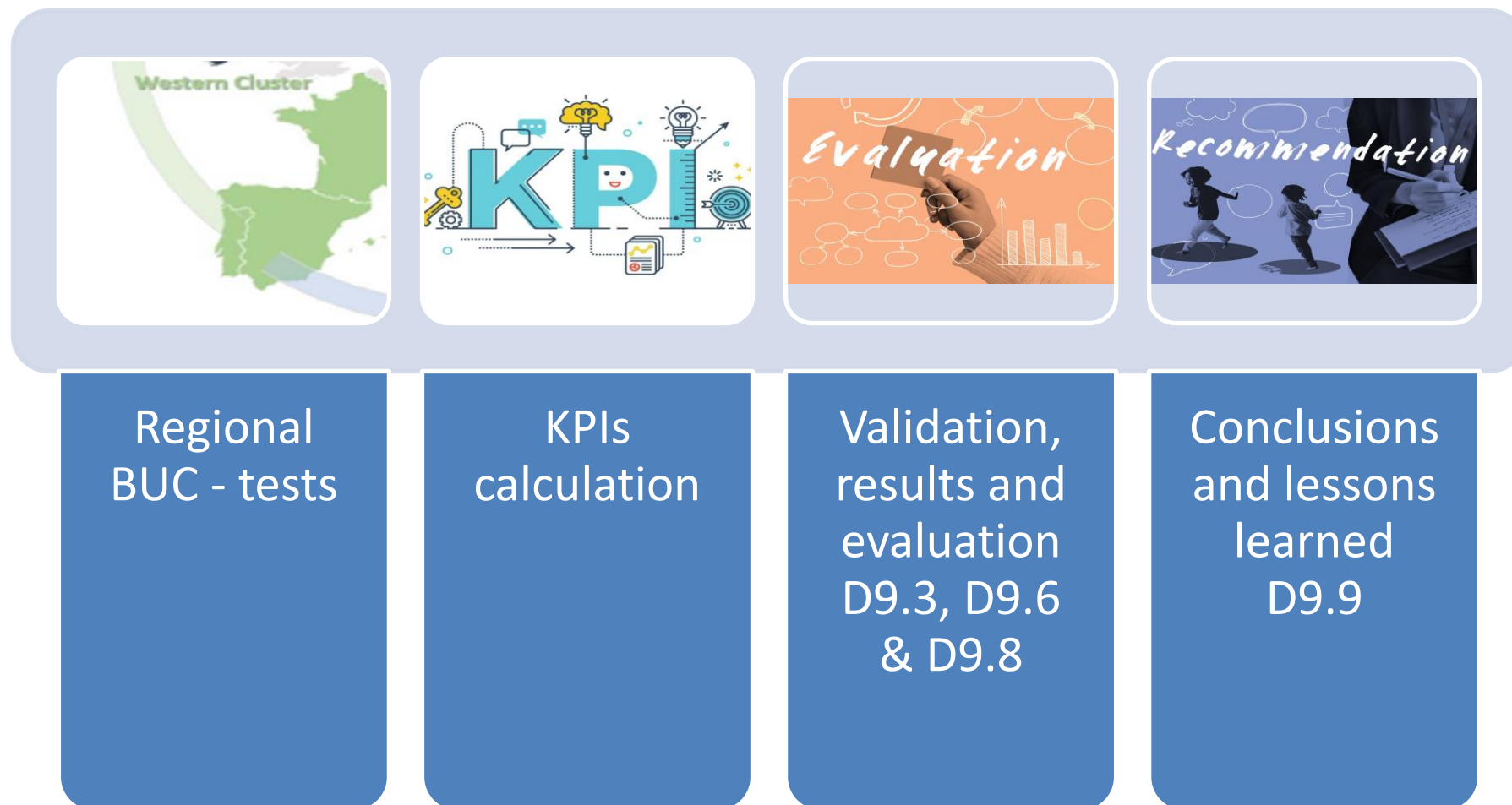


Agenda

1. Introduction
2. Demonstration description
 - 2.1 National use cases
 - 2.2 Demos overview
 - 2.3 Timeline
3. Implementation (current state/issues)
 - 3.1 i-DE Demos
 - 3.2 UFD Demos
 - 3.3 Platforms
4. Next steps



5. Next steps



Thank you for your attention

Dr. José Pablo Chaves: jchaves@comillas.edu

Further details: <https://onenet-project.eu/>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957739