WEBINAR - October 30th - 12:30 AM (CET)

Powering the Future

Smart Charging Services & Interoperability Challenges

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INSTITUT VEDECOM

About MOBENA

The initiative at a glance

Mission & objectives :

Mobena-X **coordinates** key stakeholders from the EV charging ecosystem to address interoperability and cybersecurity issues, thereby facilitating the scale-up of EV charging services.

- Accelerate the shift toward a stronger and more scalable EV charging infrastructure
- Reducing deployment risks and costs while building a fair, open, and trusted market.
- Harmonized rollout of EV charging services aligned with the latest standards and protocols.

Industry/Business sectors :

Electromobility — **Building** — **Energy**

Pillar objectives :

MOBENA Label

Interoperability	Strategic guidance	*Security & Data Protection*	*Collaborative testing*
Standardization & Protocols	*Regulations*	*Cybersecurity*	*Plugfests & Demo*

Roles :

Consensus Builder — **Catalyst** — **Pain Reliver**

Joining MOBENA initiative means being part of a unified, future-ready EV ecosystem

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About MOBENA

Project stakeholders

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Coordinator

INSTITUT VEDECOM

OPERATIONAL PARTNERS (Steering Committee)

Electric Vehicle Manufacturers

STELLANTIS
RENAULT

Charging operators & mobility service providers

TotalEnergies
WattzHub
freshmile
GÉNÉRATION eCOMOBILE
VINCI ENERGIES

Charging Station Manufacturers

hager
legrand
Schneider Electric

Ecosystem providers (roaming, PKI, pools)

eTAS
HUBJECT
Gireve

Test equipments suppliers

VECTOR
Transpolis

Technology suppliers

THALES

INSTITUTIONAL PARTNERS (Initiative Committee)

E-Mobility

Avere FRANCE
PFA FILIÈRE AUTOMOBILE & MOBILITÉS
CSIAM CHAMBRE SYNDICALE INTERNATIONALE DE L'AUTOMOBILE ET DU MOTOCYCLE

Infrastructure & buildings

GIMELEC Nous décuplons les énergies
Sigeif SERVICE PUBLIC DU GAZ, DE L'ÉLECTRICITÉ ET DES ÉNERGIES LOCALES EN ÎLE-DE-FRANCE

Energy

think SMARTGRIDS
UFE Union Française de l'Électricité
MEDEE Maîtrise Énergétique des Entraînements Électriques

AGENDA

1. Smart Charging: Definition and clustering proposals | 10 min

2. European Legislative framework, Roles & Responsibilities in EV charging ecosystem | 10 min

3. Zoom on several use cases – Key challenges
    - Smart Charging for E-Truck Depots : When Energy Meets Intelligence | 15 min
    - Smart charging/Smart Tariff | 15 min
    - Charging at residential premises | 15 min
4. Perspectives on Charging Service Interoperability - Task 53 | 15 min
5. Introducing FlexReady– Think Smartgrids | 15 min

Smart Charging
Definitions And Clustering Proposals
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Understanding Smart Charging

What the service is ?

Smart Charging definitions vary widely across regulatory frameworks (e.g., AFIR, RED III), standards bodies, and industry sectors, leading to ambiguity and inconsistent interpretations.

Some illustrative examples :

- **STF Proposal:** A smart charging operation is defined as a controlled energy transfer operation that influences actual charging behavior, which can be unidirectional or bidirectional. The control of energy transfer is coordinated between the Charging Station and the Electric Vehicle, and adjustable over time.

- **IEC:** No definitive proposal up to date

- **IRENA:** Smart charging means adapting the charging cycle of EVs to both the conditions of the power system and the needs of vehicle users. This facilitates the integration of EVs while meeting mobility needs.

- **AFIR (Article 2)/RED III directive:** "Smart recharging" means a recharging operation in which the intensity of electricity delivered to the battery is adjusted in real-time, based on information received through electronic communication.

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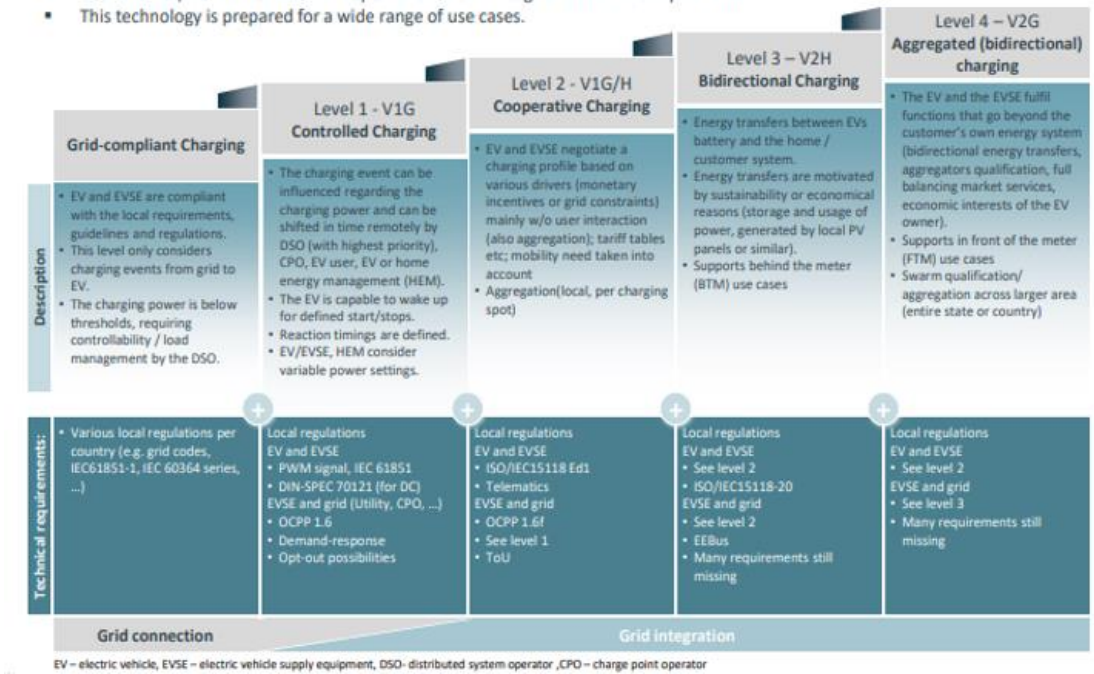
Understanding Smart Charging

A Spectrum of Classification Attempts

Illustrative example 1 from CharIn

- There are many levels of Grid Integration that can generate value
- CCS with ISO/ISO 15118-20 is the key enabler of Grid Integration and is ready for V2G
- This technology is prepared for a wide range of use cases.



EV – electric vehicle, EVSE – electric vehicle supply equipment, DSO- distributed system operator ,CPO – charge point operator

Source : *here*

❖ 4 Levels of Smart Charging

❖ **Classification criteria :**

- Each level of grid integration requires its own dedicated framework for standardization and regulation.
- Uni/Bi-directional charging : V1X/V2X
- Business objectives

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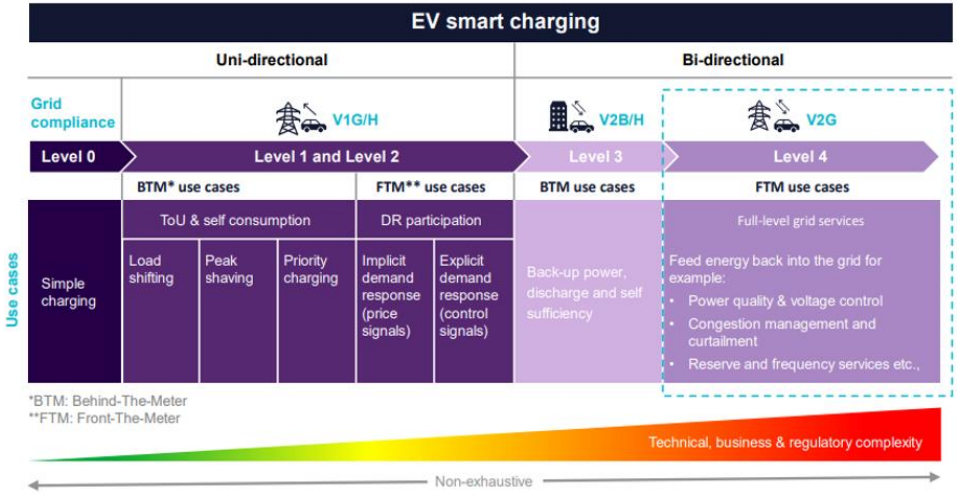
Understanding Smart Charging

A Spectrum of Classification Attempts

Illustrative example 2 from Hubject



- 4 Levels of Smart Charging

- **Classification criteria :**

  - Behind or In front of The meter use cases (BTM Vs FTM)
  - Charging control techniques : Load shifting, peak shaving, etc.
  - Uni/Bi-directional charging : V1X/V2X
  - The addressed energy markets : Grid stability (voltage and frequency), curtailment, congestion management, etc.
  - Charging stations location
  - …

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Understanding Smart Charging

Synthesis

- Numerous approaches have been explored to classify smart charging services, aiming to converge toward a unified taxonomic framework.
- To date, no universally accepted definition or taxonomic reference exists. Work is still ongoing across various organizations at national, European, and international levels.

- **Why ? Complexity – Interoperability – Cybersecurity:**
  - Smart Charging services involves many actors from the EV, energy and building sectors
  - A need to clarify roles and responsibilities of each actor within the SC ecosystem
  - Standards and regulation maturity still in progress and require intense collaboration efforts
  - Lack of clarity in terms of data exchange models
  - Economic relevance of these services regarding investment and technical costs

- **MOBENA-X iterative approach for Smart Charging:**

  Business use cases → System use cases → Functional Analysis → Implementation requirements → Tests and demonstrations → Com & Dissemination

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Smart Charging Ecosystem

European Legislative framework, Roles & Responsibilities

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End 2025 : A momentum for the smart charging industry ?

Smart charging : A "game changer" to shift to a low-carbon energy system

Many cross-sectorial Initiatives

International & European

- Energy
- E-Mobility
- Automotive
- Smart Buildings
- Digital

One Goal

Create a "Blueprint" that will accelerate EV charging integration and unleash the potential of EVs as dynamic grid resources

1. Harmonised Role Model
2. Prioritized High-value Use cases
3. Standardized interoperable data exchange protocols
4. Harmonized Regulatory provisions at the European level
5. Digital services streamlining data exchanges between players

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European Legislative framework for Smart Charging

Progress underway in harmonising regulatory provisions at European level : Key Milestones for 2026

DG ENER

- Network Codes (Demand Response DR / Generators)
- Implementing Act on Data interoperability for DR
- Grid Electrification Action Plan

DG MOVE

- AFIR Revision
- RED III
- EPBD
- Industrial action plan for the European automotive sector

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entsoe ELECTRIFYING EUROPE

DCOO ENTITY DSOs FOR EUROPE

Smart **E**nergy **E**xpert **G**roup /**D**ata For **E**nergy **D4E**

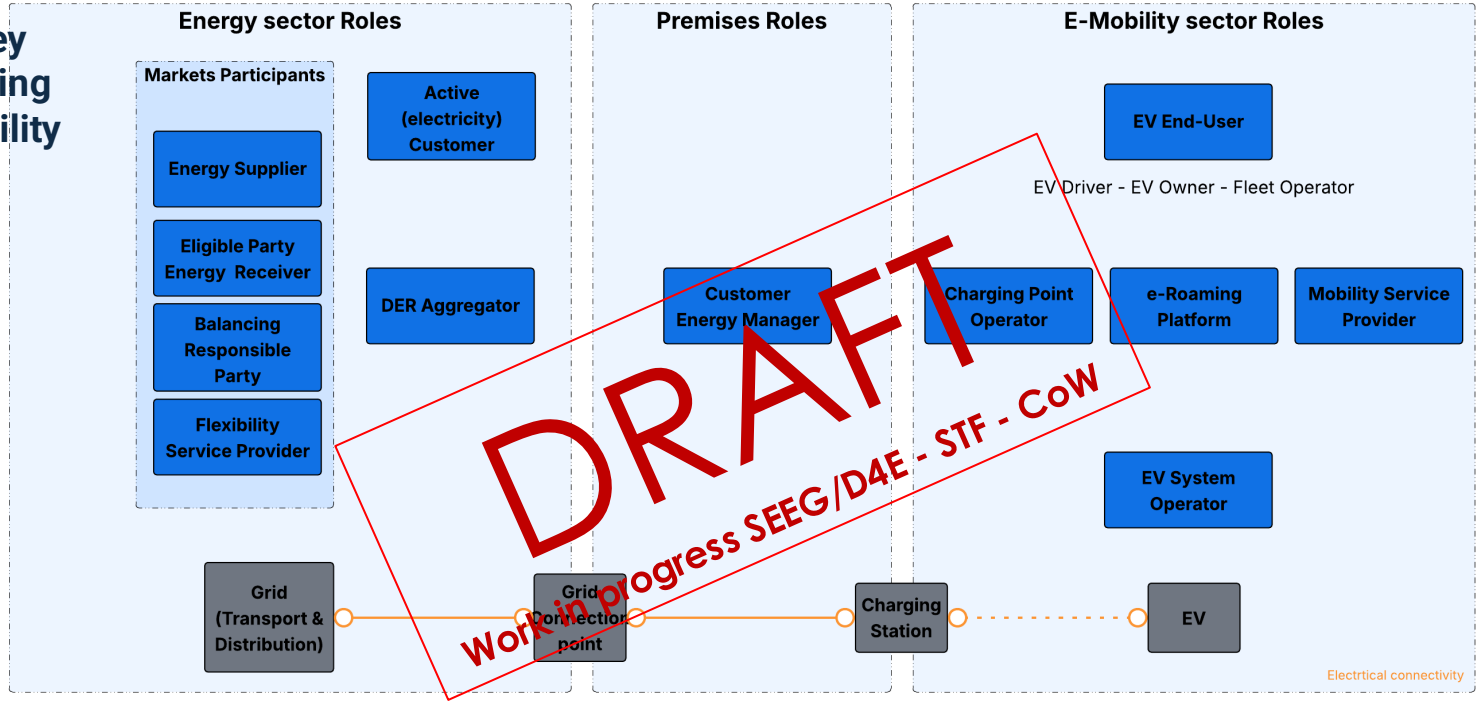
Coalition of the Willing (**CoW**)

IAE **Task 53**

Sustainable **T**ransport **F**orum

Roles and Responsibilities in Smart Charging

Focus on key roles requiring interoperability



Roles and Responsibilities in Smart Charging

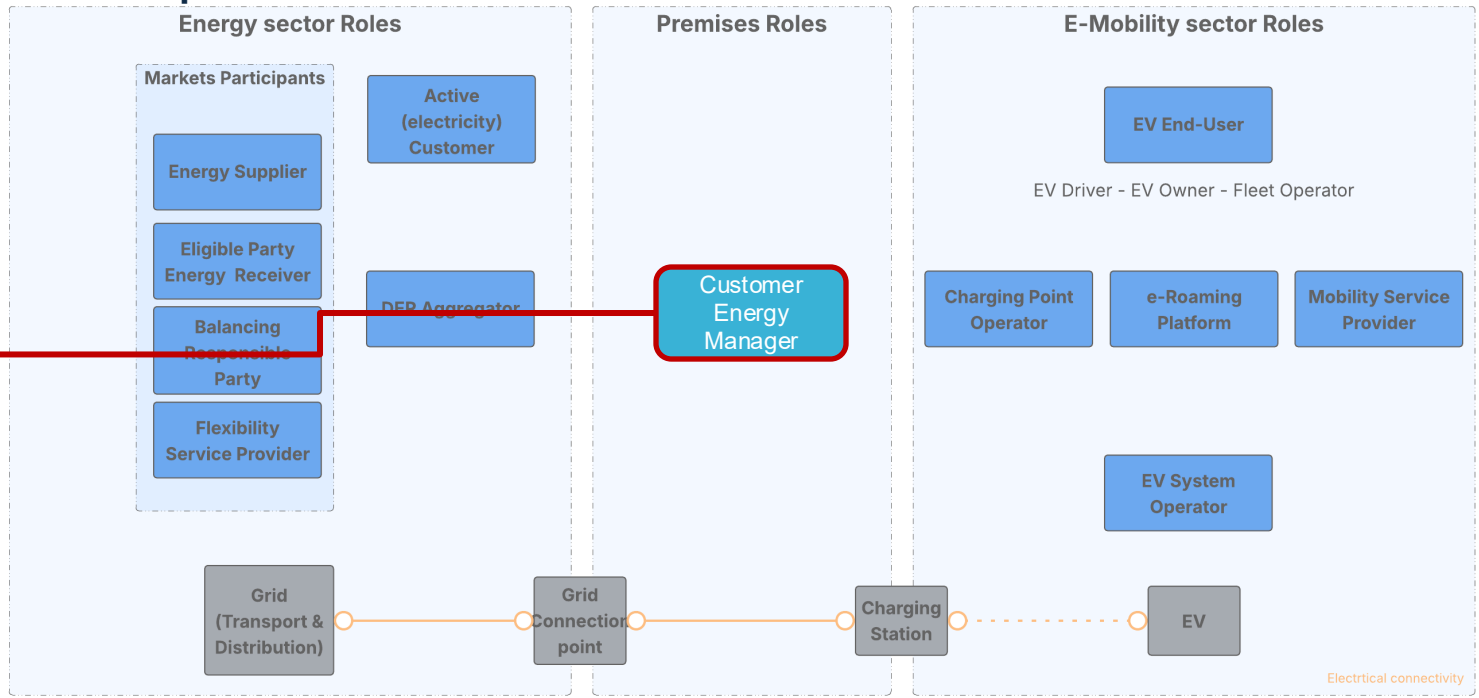
DRAFT

Work in progress SEEG/D4E - STF - CoW

Examples of some Role's Responsibilities

Orchestrates electricity consumption and production patterns adjustments within the premises

Ensures cost/revenue optimization and grid-services compliance for the active (electricity) customer



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Roles and Responsibilities in Smart Charging

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Examples of some Role's Responsibilities

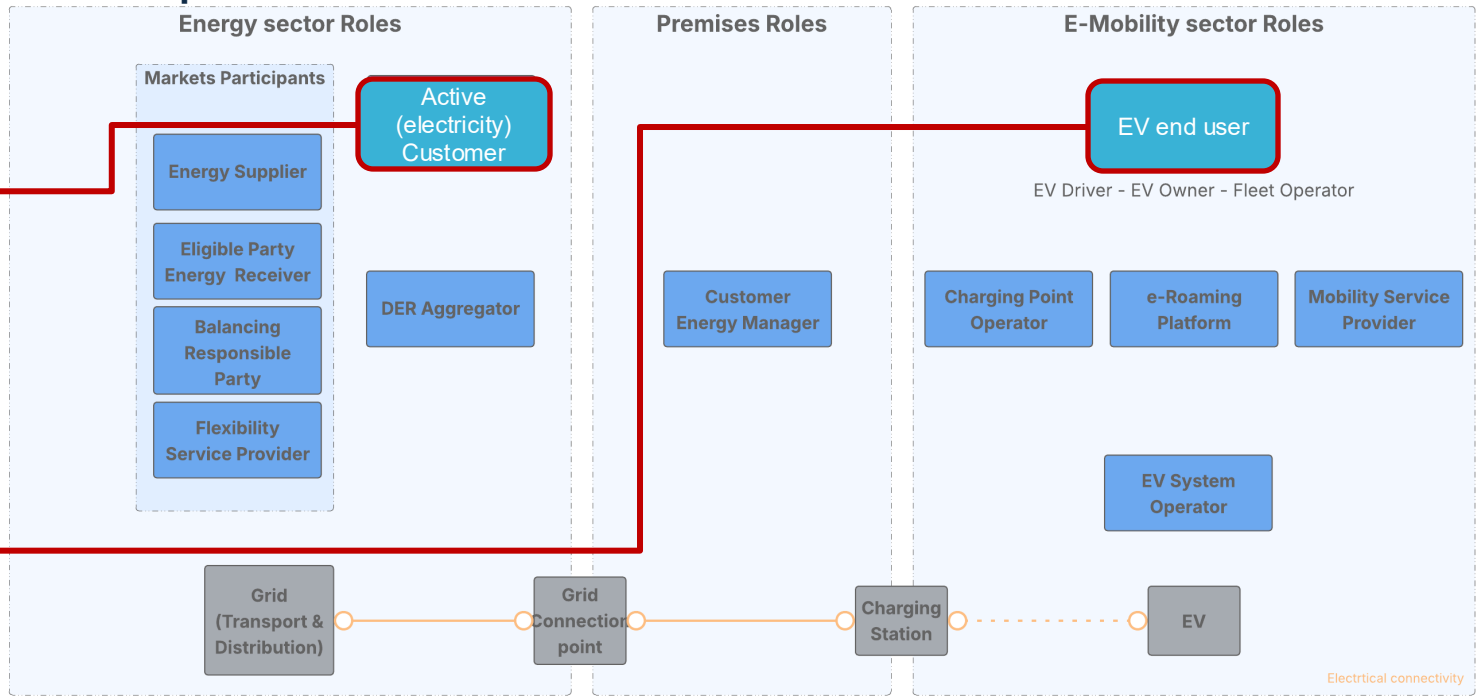
Purchases **electricity** for own use

May participates in flexibility or energy efficiency schemes, alone or with others

Purchases a **charging services** for direct use in a vehicle

May also operate an EV Fleet

May also drive or own the EV



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Roles and Responsibilities in Smart Charging

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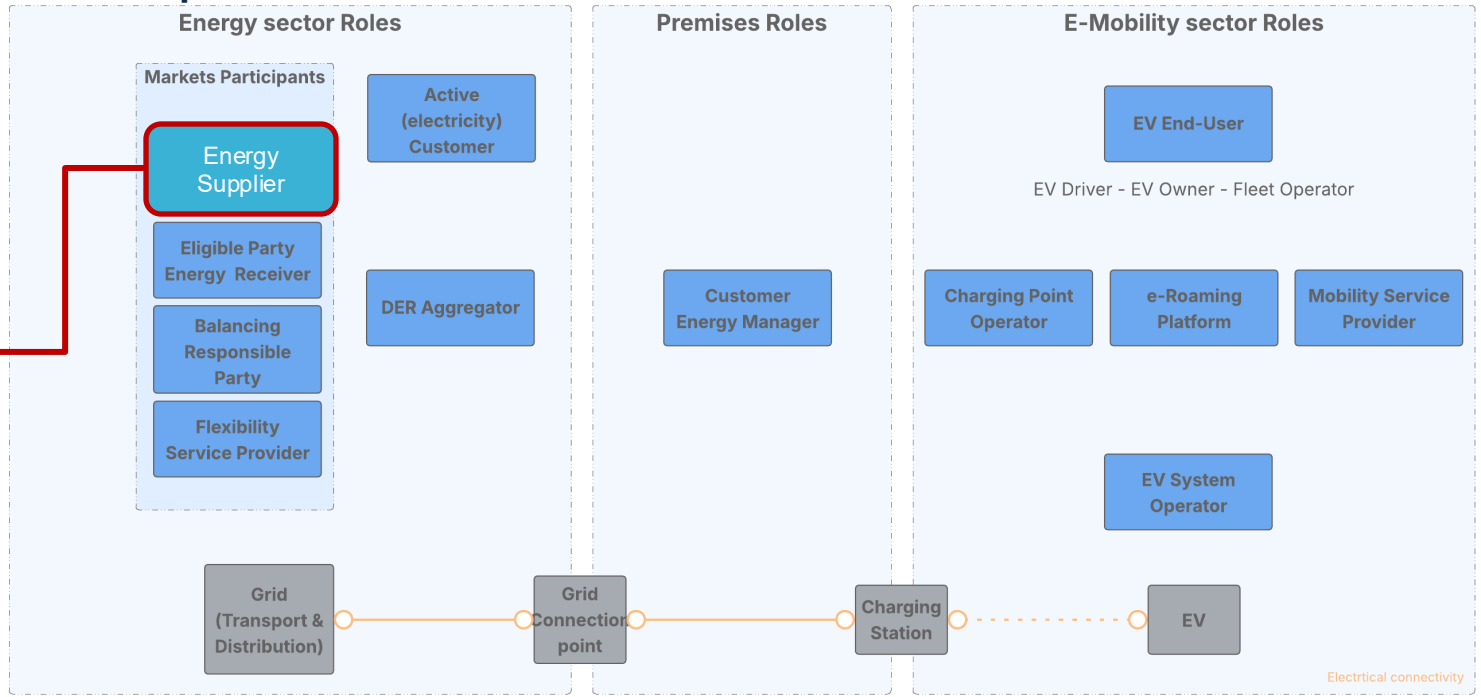
Examples of some Role's Responsibilities

Supplies electricity to a party connected to the grid at an Accounting Point.

Billing and settlement of Electricity Supply.

Balacing group management



Roles and Responsibilities in Smart Charging

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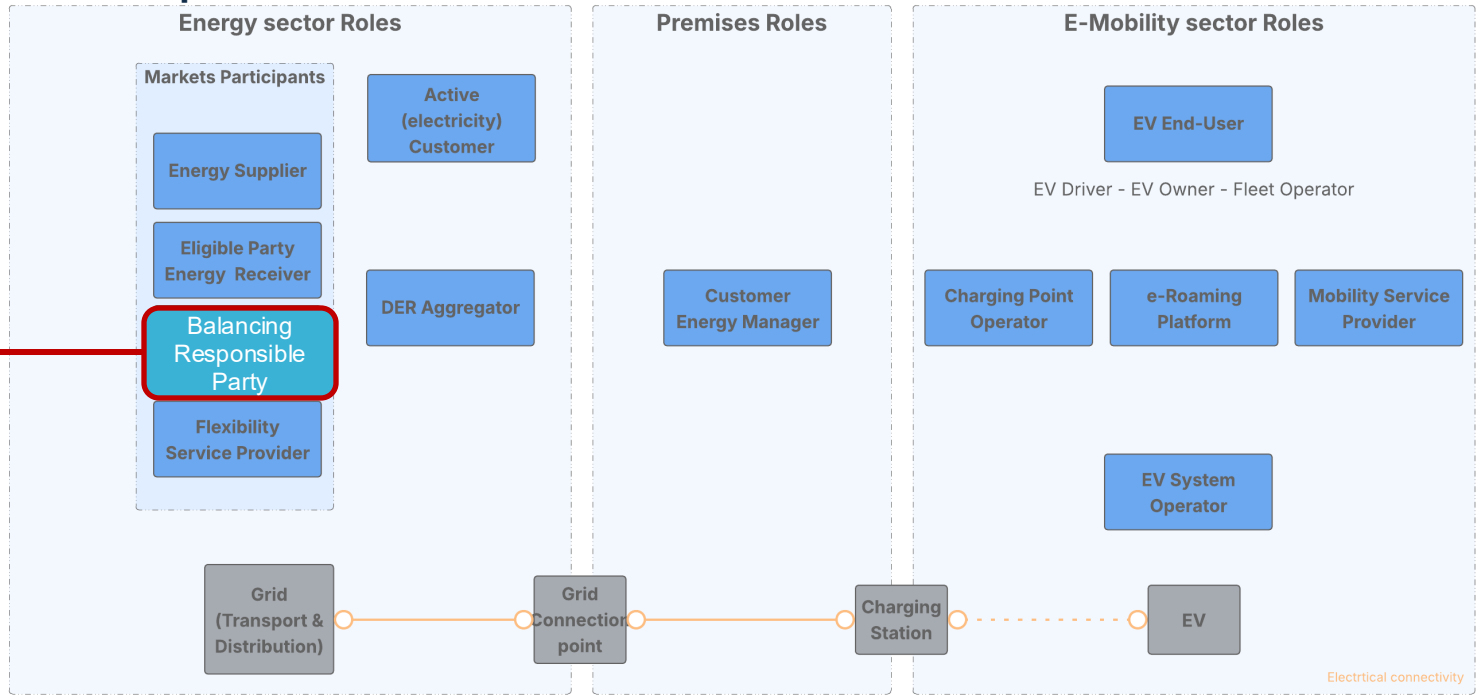
Work in progress SEEG/D4E - STF - CoW

Examples of some Role's Responsibilities

Ensures that the electricity **supply and demand** within the portfolio of the "Energy Supplier" // OR that that the electricity **reception and re-export** within the portfolio of the "Elligible Party Energy Receiver are balanced in real-time



Roles and Responsibilities in Smart Charging

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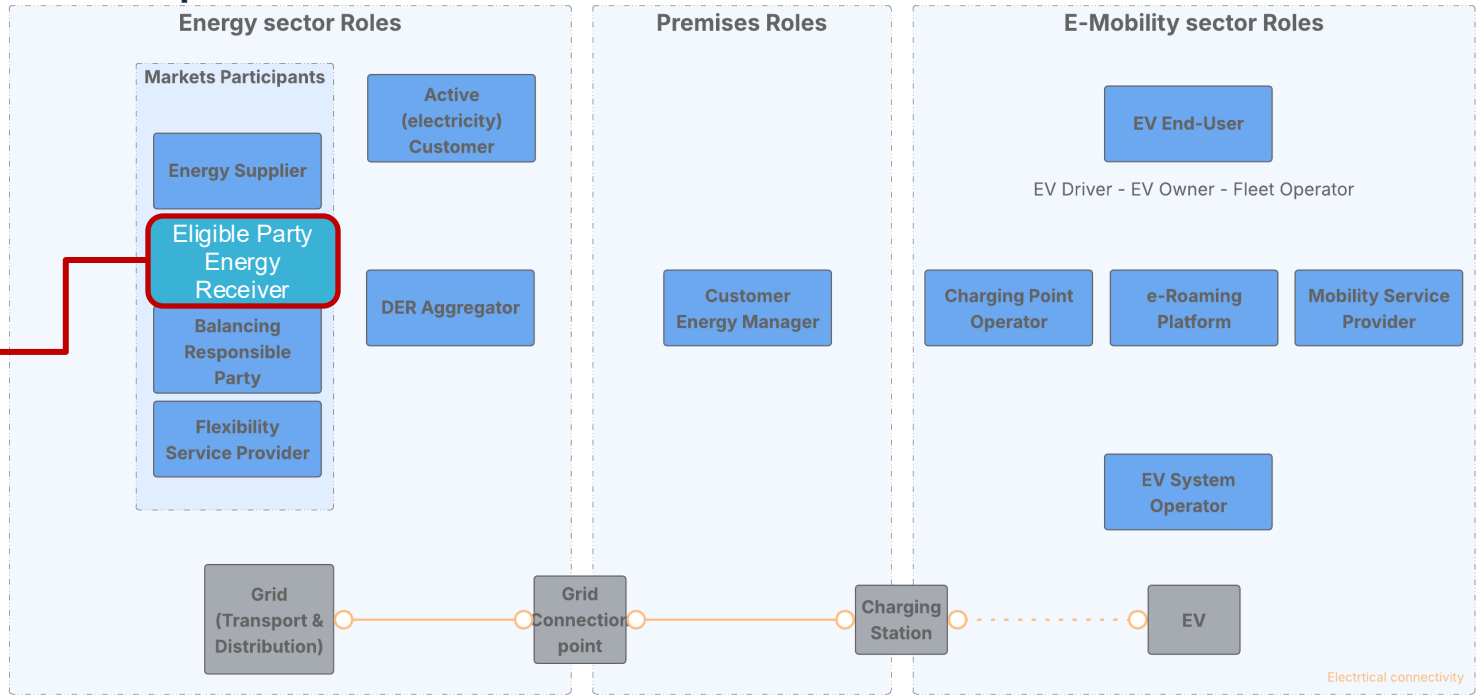
Examples of some Role's Responsibilities

Takes electricity from a party connected to the grid at an Accounting Point.

Billing and settlement of Electricity "Re-export."

Balacing group management



Roles and Responsibilities in Smart Charging

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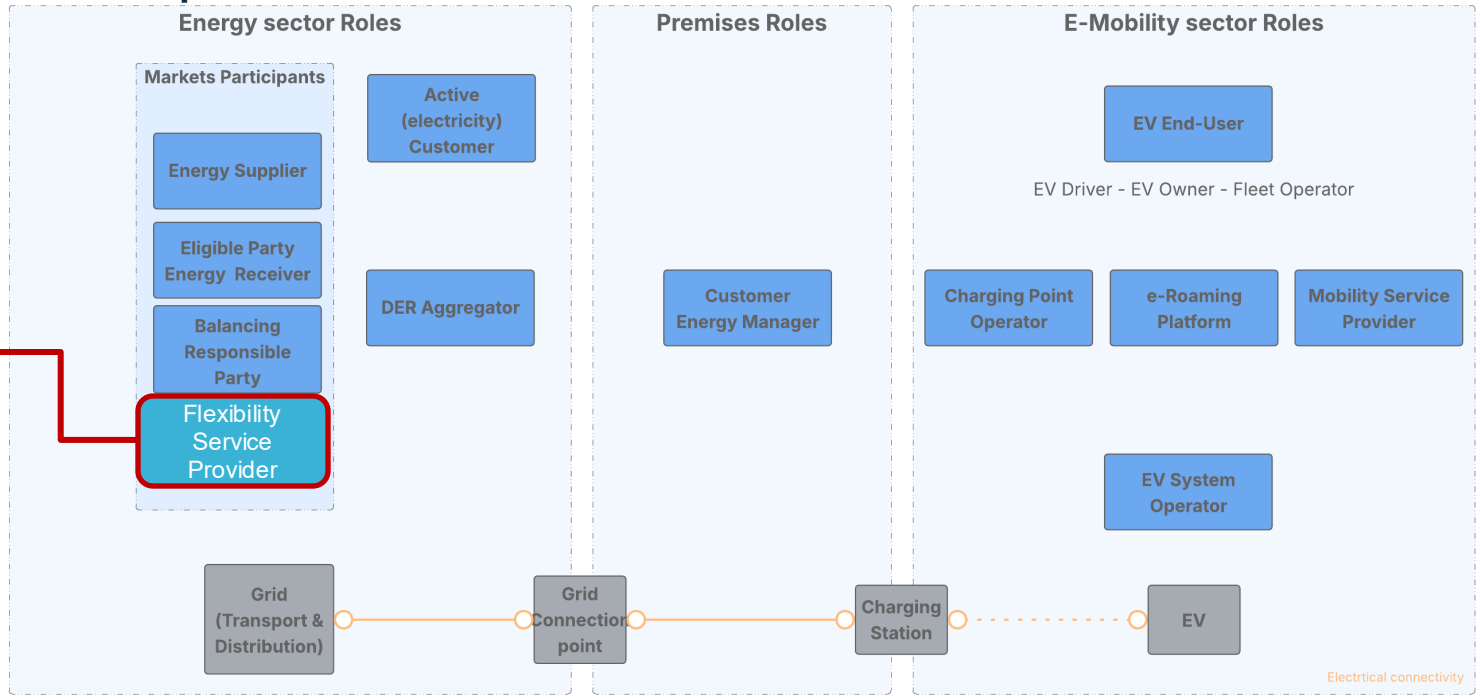
Examples of some Role's Responsibilities

Trades/ Bids in Grid Balancing and Ancillary Service Markets (mfrr, afrr,) as well as local congestion markets



Roles and Responsibilities in Smart Charging

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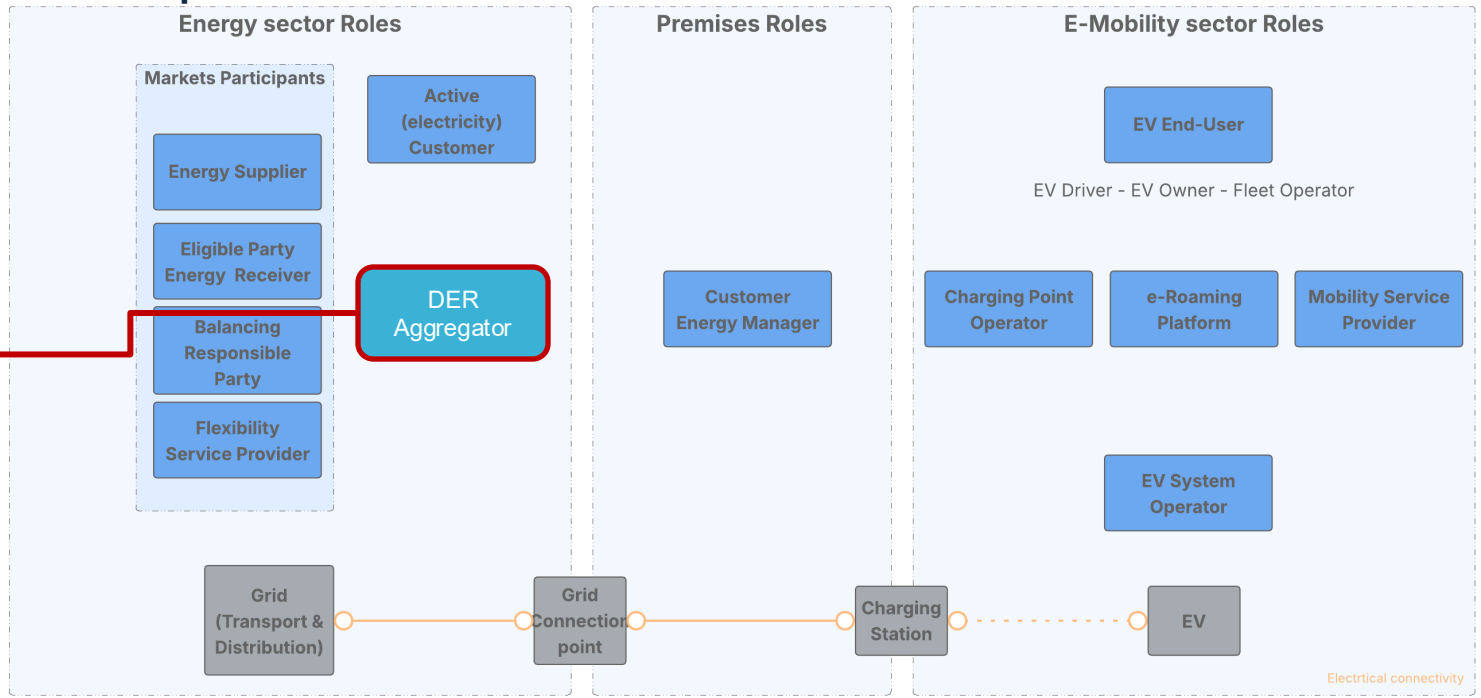
Examples of some Role's Responsibilities

Pools , manages and activates flexibility from various Distributed Energy Resources (DER), including EV Charge)

…for usage by a 'Market Participant for **energy wholesale** and/ or **grid flexibility services**



Roles and Responsibilities in Smart Charging

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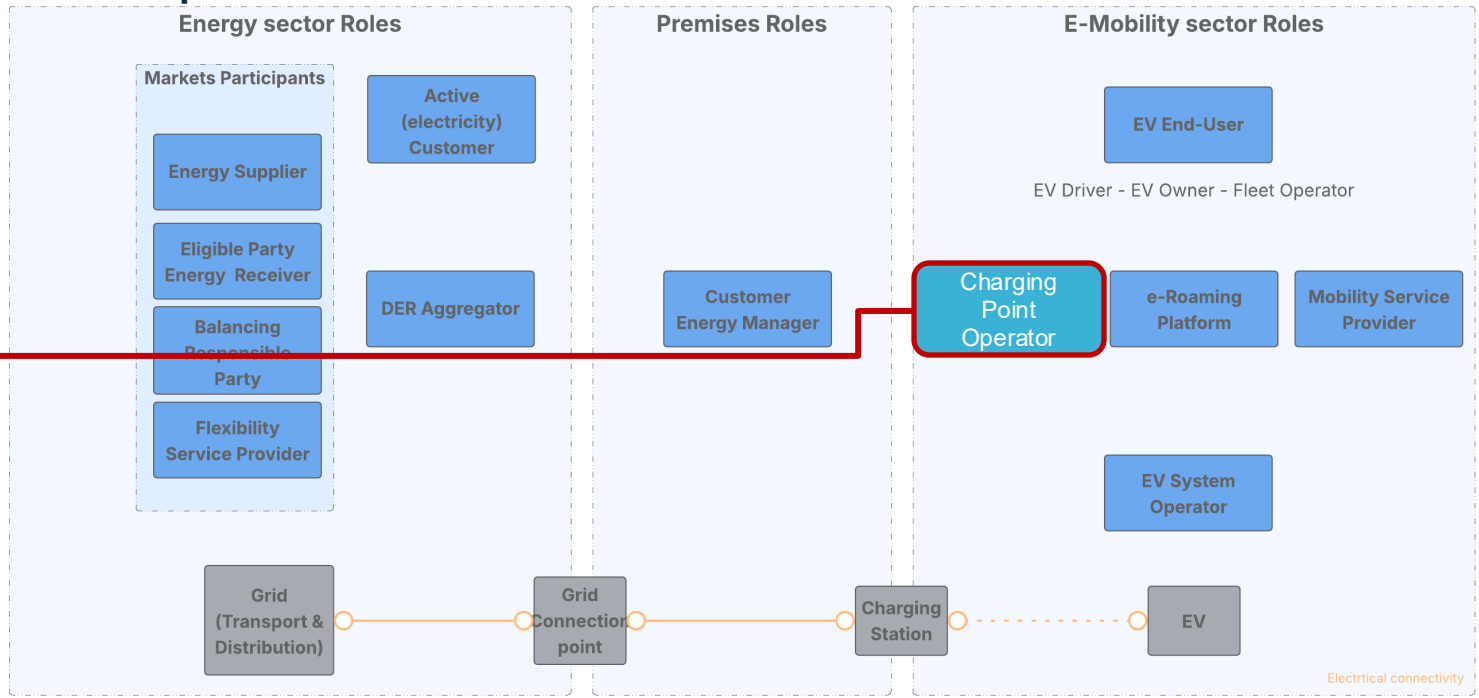
Examples of some Role's Responsibilities

Installs manages, operates, and maintains the charging infrastructure.

Monitors energy consumption

Roaming Management

Direct Access Management (ad-hoc charging)



Roles and Responsibilities in Smart Charging

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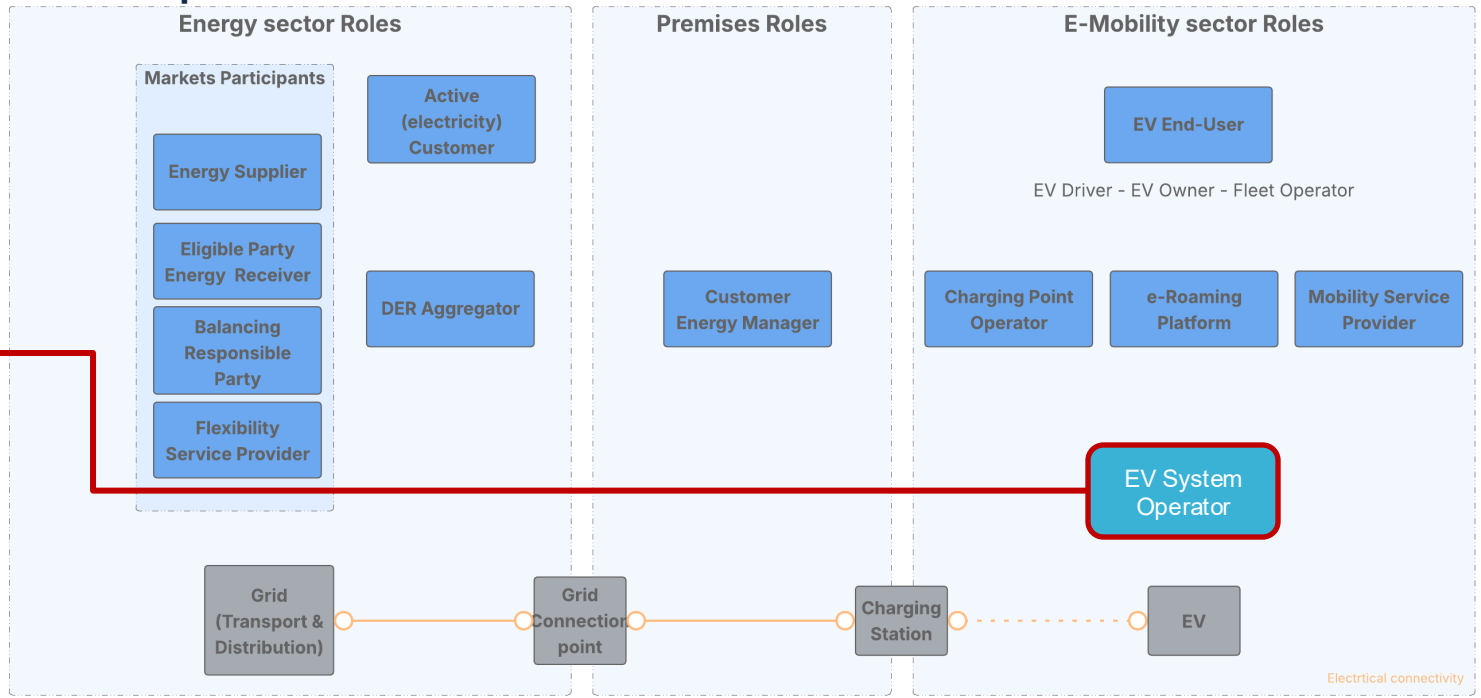
Examples of some Role's Responsibilities

Manages data generated by the EV

Manages the enablement of EV features based on EV user consent.

May also provide data into the EV.



Roles and Responsibilities in Smart Charging

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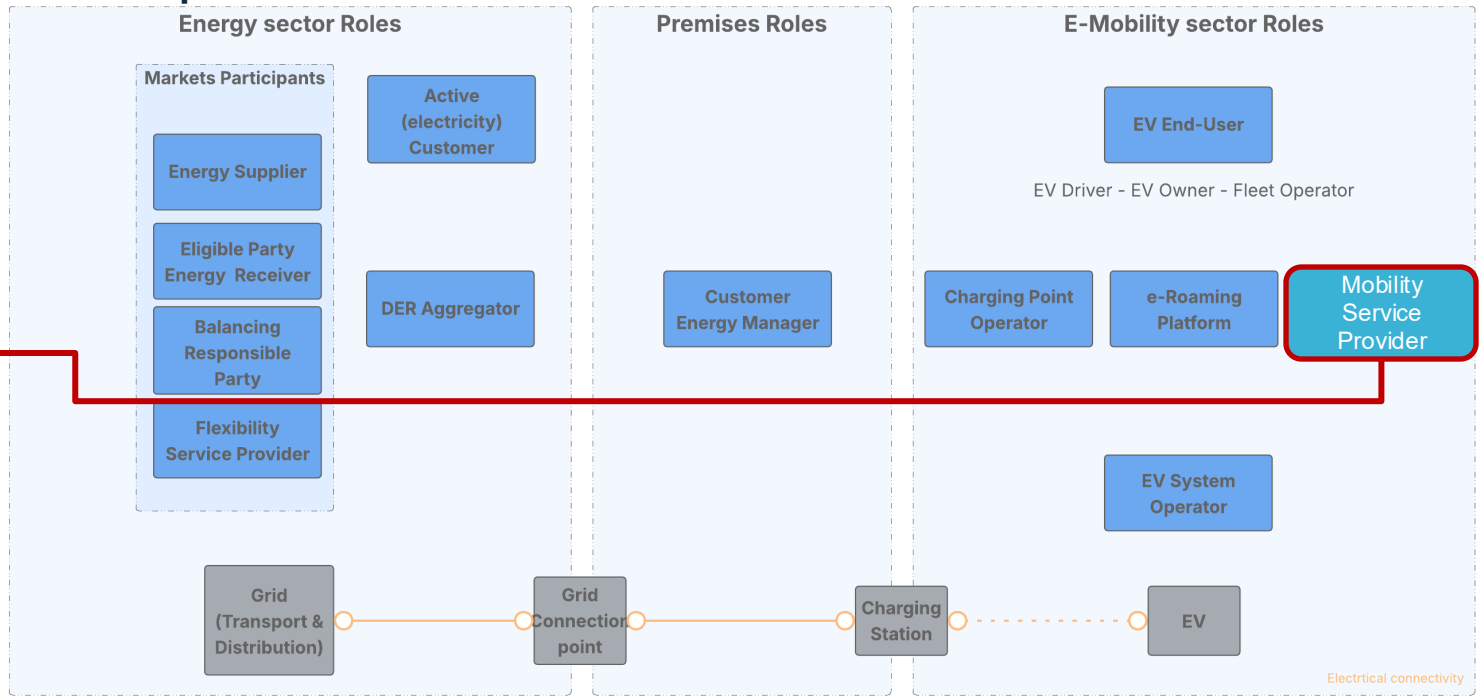
Examples of some Role's Responsibilities

Offer the EV End-users the ability to use the charging service of a CPO

Billing and settlement of charging service to the EV end user

Ensures the payment of charging services to the CPO



Roles and Responsibilities in Smart Charging

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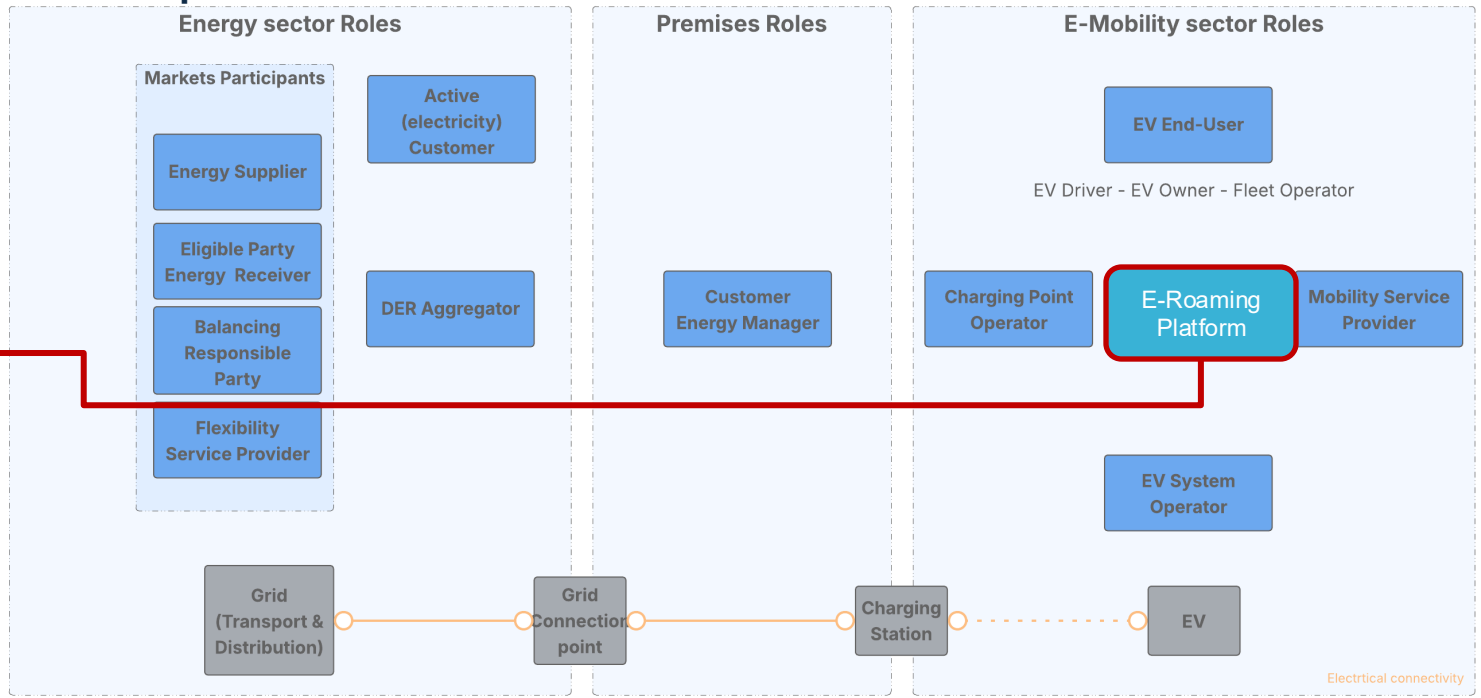
Examples of some Role's Responsibilities

Facilitate scalability & market competitiveness

Secures and strengthen the quality of the exchange of data and payments



Smart Charging for E-Truck Depots
When Energy Meets Intelligence
VECTOR

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Vector at a Glance

Employees:
> 4,500
Vectorians

Subsidiaries:
33 locations in
14 countries

Development
partner for over
35 years

Customers:
> 9,000 companies
in 76 countries

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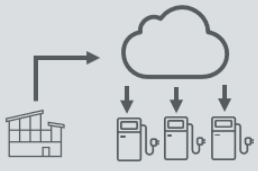
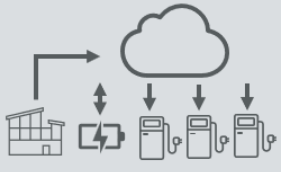
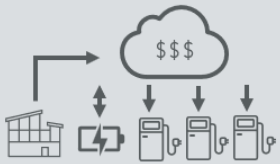
Save Money – Through Intelligent Infrastructure Control

No management	Static Load Management	Dynamic Load Management	Battery Storage Integration	Tariff-based Charging	Grid Friendly Charging
					
	more charging stations possible	even more charging stations possible	buffer energy to increase the max. power for charging	save electricity costs by postponing charging sessions	generate turnover through energy provision

Enable Charging → **Reduce Charging Costs**

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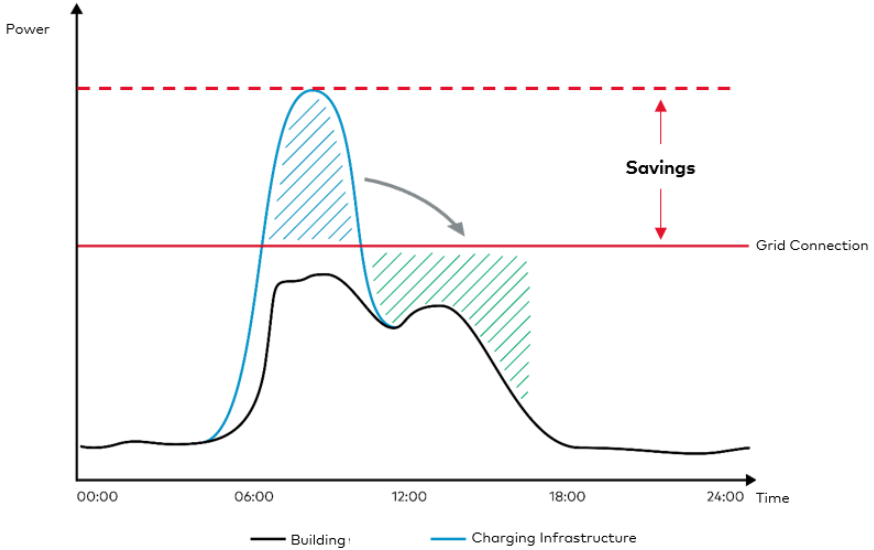
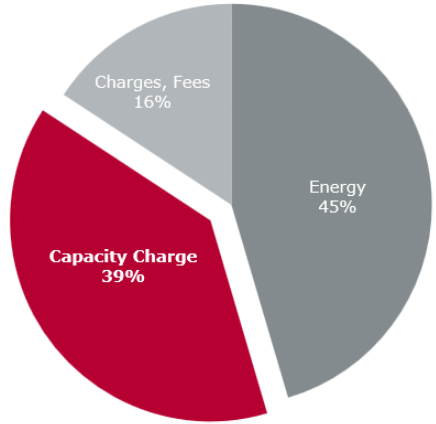
Enable Heterogeneous charging infrastructure – OCPP

Enable charging & save capacity charge costs



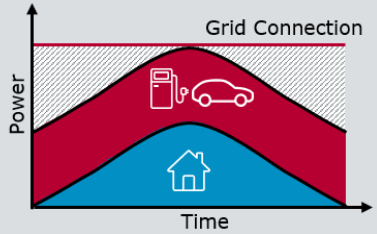
20-50% savings by using **peak shaving** compared to spontaniously charging Laden



Electricity price composition for large businesses with RLM meter
Example: 400,000 kWh per year with 200kW peak power

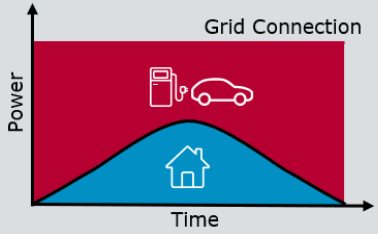
Peak Shaving

Static Load Management



- Defined total power for all charging stations
- Each vehicle receives the same charging power
- The more vehicles are connected, the less power is available for each vehicle
- Phase correct load management
  - Unbalanced load detection
  - Takes phase rotation of charging station installation into account
  - Prevents charging when phase overload would occur

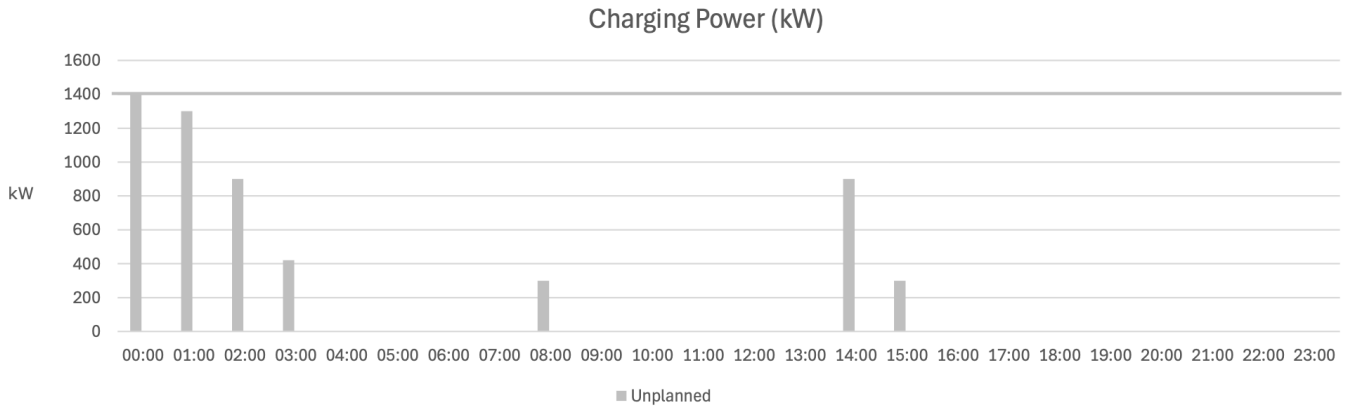
Dynamic Load Management



- No costly extension of the house connection due to maximum use of available power
- Charging power adapted to building consumption
- Local hardware vCharM.edge for low latency and against internet outages
  - Local execution of load management
  - Local authorization
- Configuration and monitoring in the cloud
- Integration of photovoltaic systems (project specific)

Peak Shaving Example – Trip planning

Vehicles	Consumption (kWh/km)	Battery Capacity (kWh)	Max. Charging Power (kW)	Trips
Vehicle1	1,1	620	375	520 km --> 575 kWh
Vehicle1	1,1	620	375	520 km --> 575 kWh
Vehicle3	1,3	530	375	340 km --> 445 kWh / 340 km --> 445 kWh
Vehicle4	1,3	530	375	340 km --> 445 kWh / 340 km --> 445 kWh
Vehicle5	1,3	530	375	150 km --> 195 kWh / 150 km --> 195 kWh / 150 km --> 195 kWh
Vehicle6	1,3	530	375	150 km --> 195 kWh / 150 km --> 195 kWh / 150 km --> 195 kWh
Vehicle7	1,2	550	400	420 km --> 510 kWh
Vehicle8	1,2	550	400	420 km --> 510 kWh
				00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00



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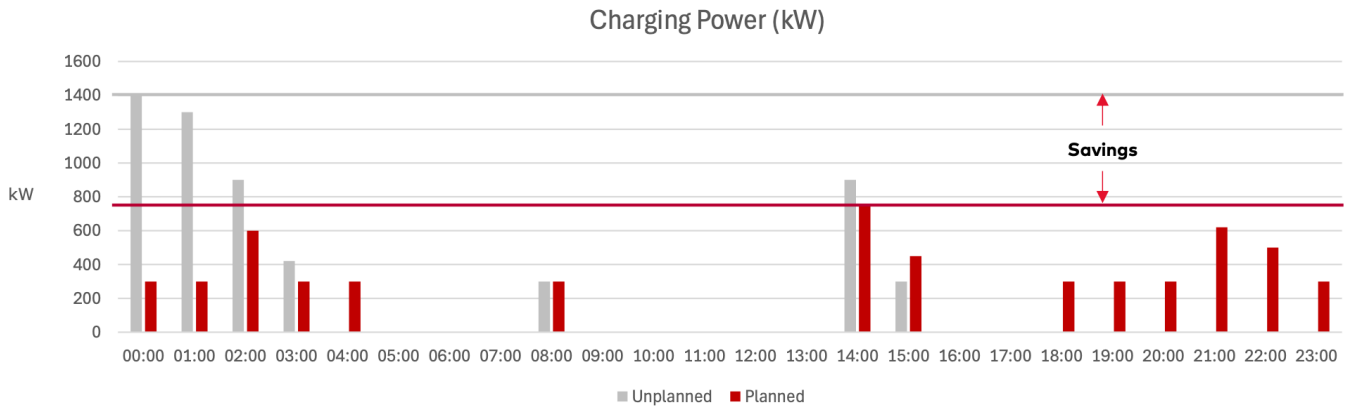
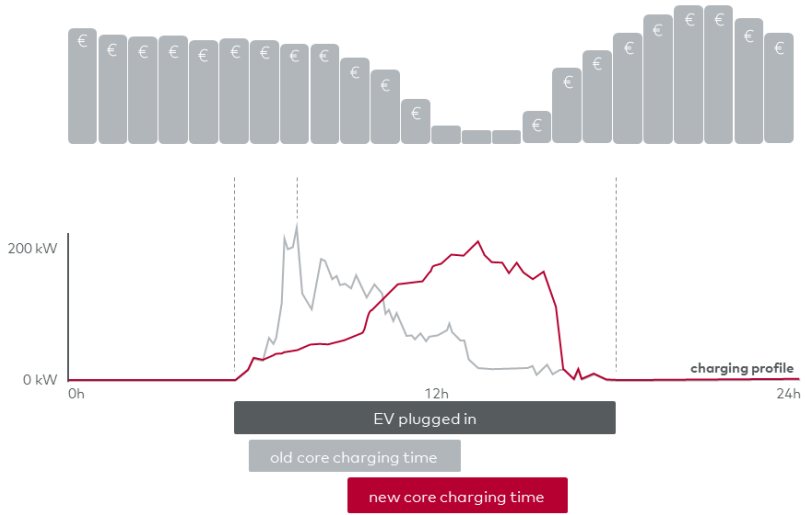
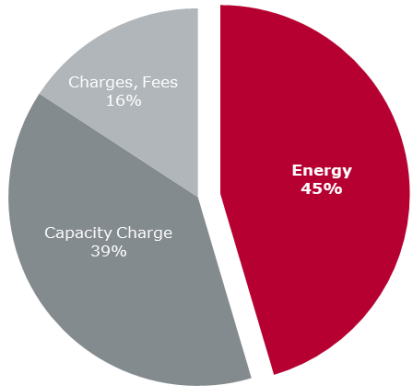


Save energy costs – Use of Dynamic Tariffs



20-50% savings by using **dynamc tariffs** compared to fix price

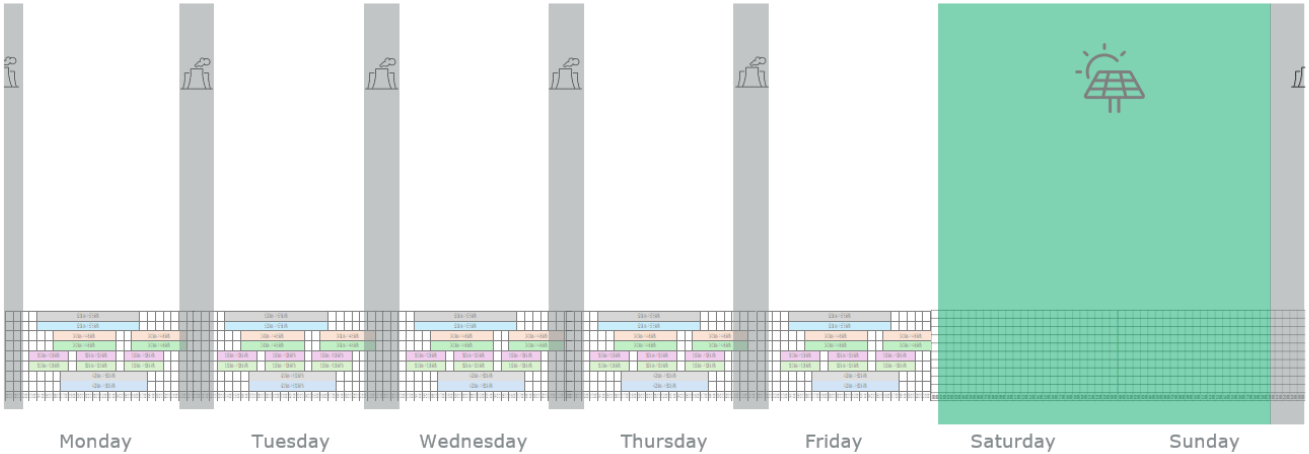


Electricity price composition for large businesses with RLM meter
Example: 400,000 kWh per year with 200kW peak power

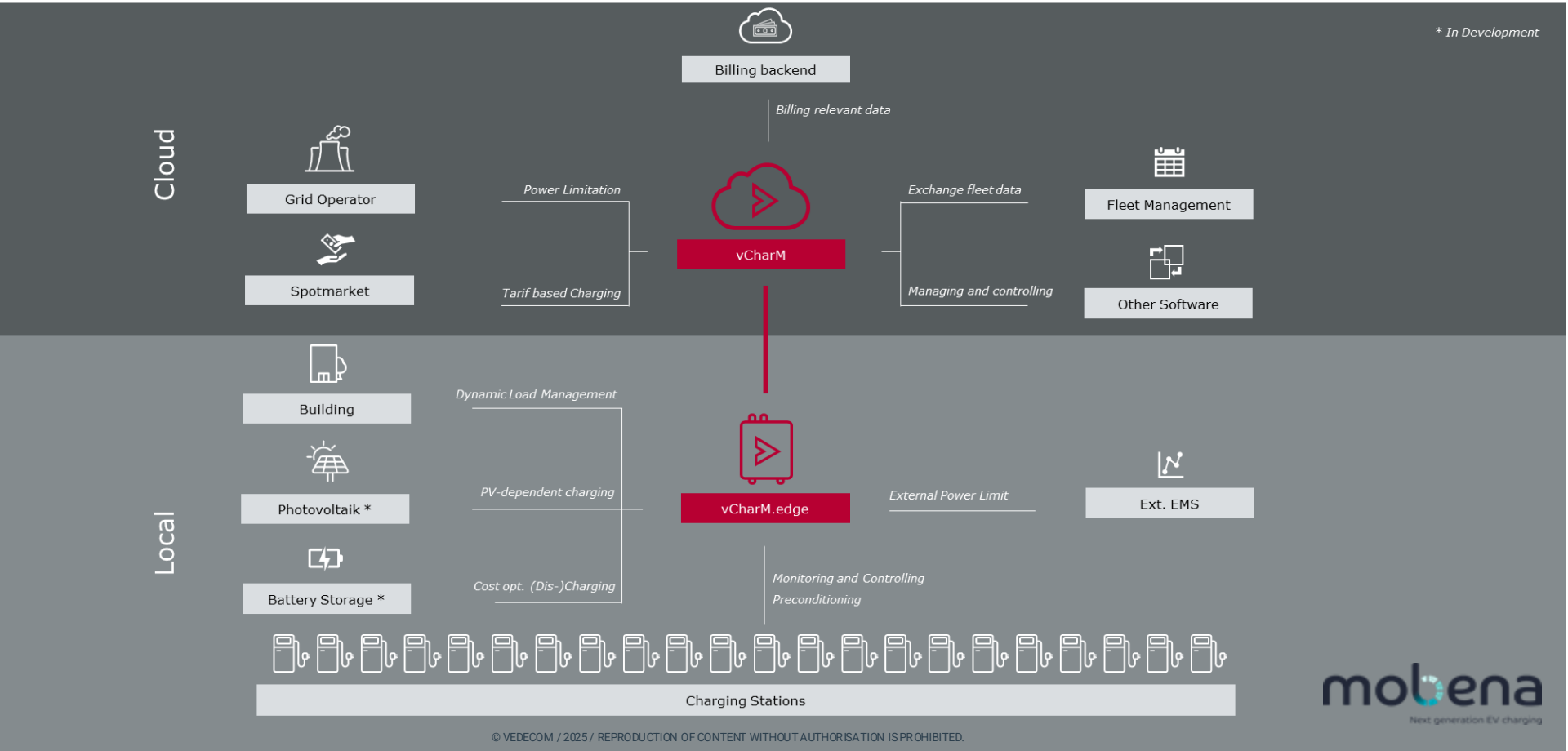
Save energy costs – Use of Dynamic Tariffs

- Only charge with PV on weekends.
- Recharge residual energy on Sunday evening.
- Prerequisite: No trips on weekends.

- Simplified sample calculation:
  - 8 vehicles with 4.900 kWh energy consumption between days
  - 20 cents/kWh
  - 52 weeks per year. Assumption: 26 sunny weekends
  - **Savings: 25.500€ /year**



Vector vCharM – System Overview



Vector vCharM – System Overview

30-day free trial version of vCharM

- Experience our intuitive user interface
- Configure and monitor multiple charging stations
- Compare the effects of different charging strategies
- Discover the numerous reporting options
- Test the compatibility of the OCPP interface

Access to
full functionality

30 days
free trial

For more information visit
vector.com/vcharm

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Next generation EV charging

Smart charging/Smart Tariff:

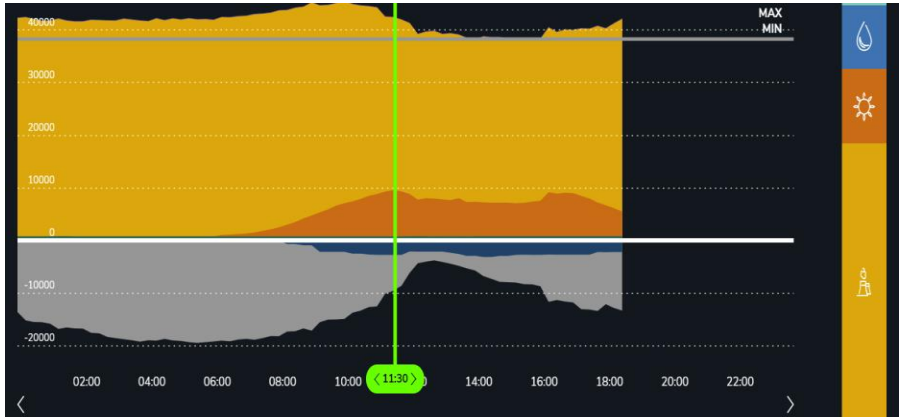
WATTZHUB

mobena
Next generation EV charging

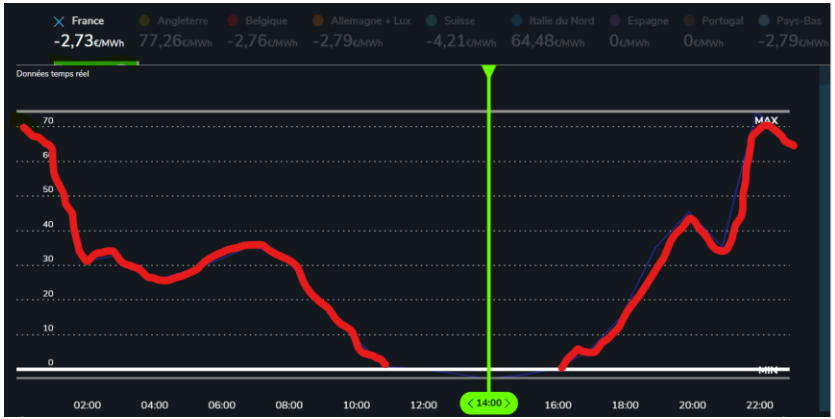
Energy market

The imbalance between energy supply and demand

Variations in energy production
Over one day:



Variations in the hourly spot rate
In one day:



European context and framework

Dynamic Tariff is a balancing lever

Directive 2019/944 :	Objectives:	Deployment
→ Dynamic pricing incentive	→ Flexibility → Integration of renewable energies → Reduction of consumption peaks	→ Heterogeneous according to European countries

Types of offers and benefits

Dynamic Pricing is already launched!

TYPES :	BENEFITS :	AREAS :
TOU (PEAK/OFF-PEAK HOURS), RTP (REAL-TIME), CPP (CRITICAL PEAKS)	→ Better demand management → Integration of renewable energies → Economic optimization	→ Aggregators → Electric vehicles → Energy storage

Challenges and levers for acceleration

Dynamic Pricing is a solution for the future

Challenges :

→ Complexity of the offers - Consumer protection - Interoperability regulatory framework.

Levers :

→ Deploying smart meters
→ Transparent communication
→ Regulatory Support.

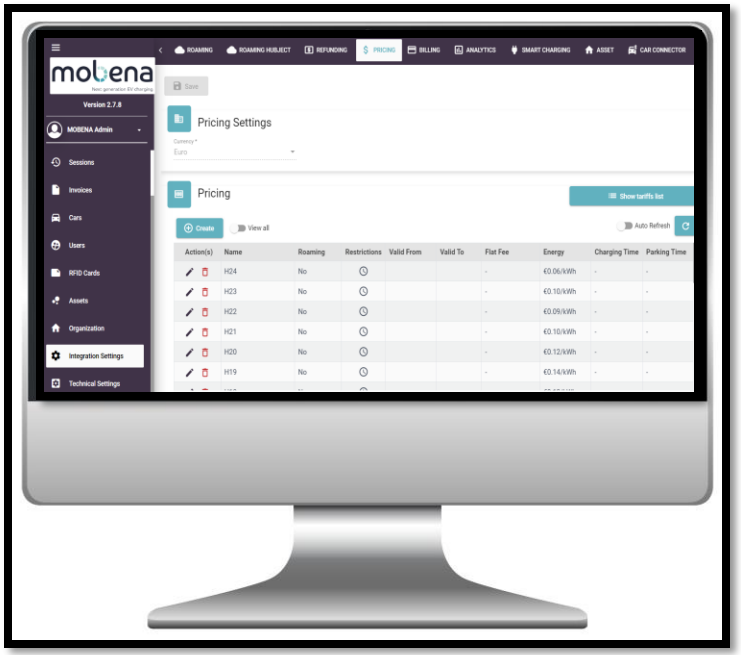
Recommendations :

→ Coordination between actors
→ Simplification of offers
→ Digitization of monitoring.

Flexee: Solution proposed by WattzHub

Dynamic pricing helps reduce the cost of charging the EV fleet

- A charging station
- Charging stations
- WattzHub CPO Monitoring
- Flexee Smart-Charging
- A fleet of electric vehicles
- A pricing offer based on Spot Price



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Smart Charging
Residential premises
VEDECOM

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Current situation

- Majority of charging is done in residential context (More than 80% in France)
- Low percentage of Residential customers report actively controlling the charging of their electric vehicles (32% in France)
- Most of them do it manually (50% in France)
- Without proper charging management, the power demand from electric vehicles during peak times would be substantial, leading to a greater need for peak production resources,

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Barriers to residential smart charging

- Lack of Awareness: Many users don’t know about smart charging options or their benefits (cost savings, grid impact, etc.)
- Habitual behaviour of users
- Higher Upfront Costs: Smart charging may require higher initial investment
- Incentives: Few financial or regulatory incentives for households to use smart charging
- Data Concerns: Some users are wary of sharing charging data with utilities or third parties
- Compatibility/ Interoperability Issue: Not all EVs or home chargers support smart charging protocols
- Challenging Setup and operation: Installation and configuration of smart chargers or apps can be perceived as technical or inconvenient.

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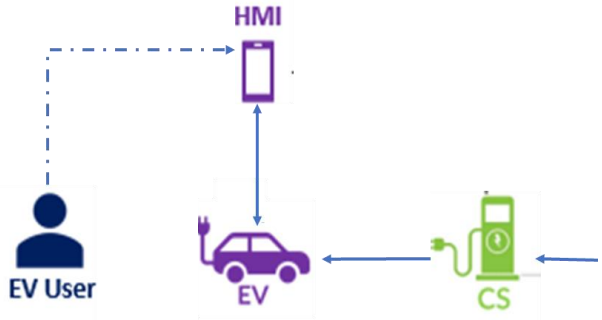
Actors and stakeholders

- EV user/owner/ Homeowner/Driver: goals (target SoC by X:XX), arrival/departure times.
- EV: to be charged
- EVSE (charger): charging the EV
- HEMS (local controller): holds schedules, does real-time adjustments
- CPO/ CSO: Operating the charging infrastructure through CSMS
- Optimizer (may be inside HEMS or the charger): optimize the charging
- EMSP:
- Utility/Supplier publishes tariff (ToU or day-ahead).
- (Optional) Aggregator: coordinates multiple homes; not required for a single home.

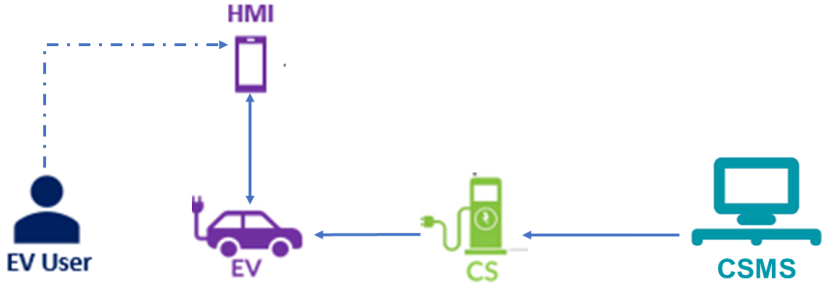
Multiple possible Configurations

- EV charger has independent connection point
- EV charger share the same connection point
  - Only EV as controllable load
  - EV charging plus other DERs and uncontrollable loads.
- multiple charging stations--> needing a CPO
- Guests/ external drivers –> needing an eMSP

Some Possible architectures (simplified)



(1)



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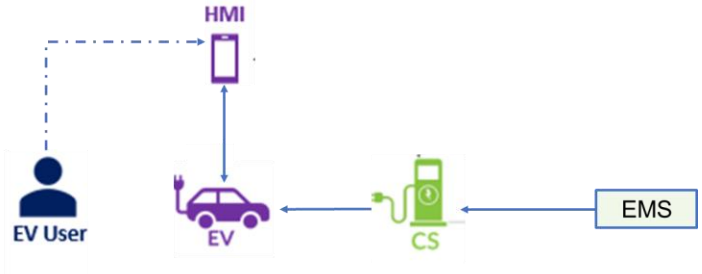
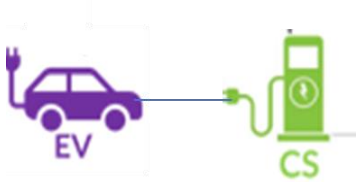


(3)

Protocols

- ISO 15118 (-2, -20, New Amds)



- IEC 63584 (OCPP 2.0.1, 2.1)

- IEC 63380

- Other protocols: OpenADR, OCPI...

A step back: Why smart charging in residential context?

- Ensure User/driver Convenience
- Optimize Energy Costs
- Support Grid Stability and Flexibility
- Enable Intelligent Energy Management
- Maximize Self-Consumption of Local Renewable Energy
- Enable new revenue streams (e.g. V2G)

Data exchange

- User need and Preferences
  - arrival–departure times
  - Target SoC/ driving need
  - priority
  - Comfort constraints
- Tariff data
- Grid data/Flexibility
- Total home load / contracted power
- Home Constraint and status (PV, battery, loads)

Challenges & Actions

- Multiple protocols and vendors
- Different configurations and cases
- Who takes the decision (EMS vs CPO)?
- Evolving standards
- Data model inconsistency
- Integration with energy world
- Several HMIs: conflict of data
- Non-nominal cases

- Studying the use cases (nominal and non-nominal ones)
- Testing between multiple providers
- Protocol gap analysis
- Convergence on roles and responsibilities
- Data model harmonization

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Perspectives on Charging Services Interoperability

TASK 53 – IEA

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Patrick Eugster – Project Coordinator at Task 53

https://www.linkedin.com/in/patrick-eugster-2ba24859/overlay/photo/

Education:

2022-2025	MSc, Mechanical Engineering, ETH Zurich Master thesis with Swiss Solar Group: *Analysing the readiness of the Swiss Energy Industry regarding bidirectional charging*
2019-2022	BSc, Mechanical Engineering ETH Zurich

Work Experience:

Since 2025	Task 53 Project Coordinator
2023	AMAG Venture LAB Intern Innovation & Startup Scouting
2022-2023	Russel Reynolds Associates Research Intern

About me:

Language	German, English, French, Spanisch
Interests	Car Industry, Sports, Outdoor Experiences

What is Task 53?

From IEA to Task 53 (fee-based and non-profit organization).

International Energy Agency

https://www.iea.org/about/membership

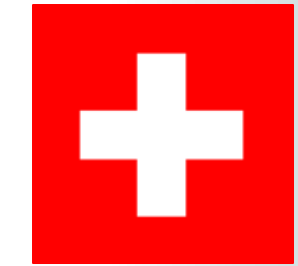
Electric Vehicle Technology Collaboration Programme

https://evtcp.org

Task 53 Interoperability of Bidirectional Charging

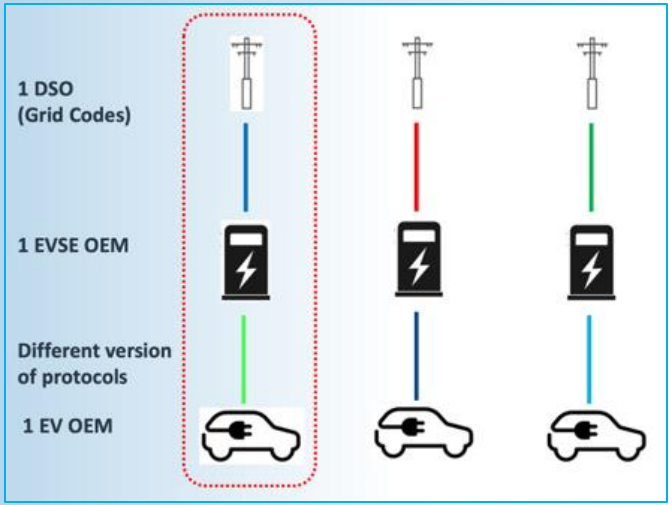
https://task53.org

Task 53 Proposed by Switzerland



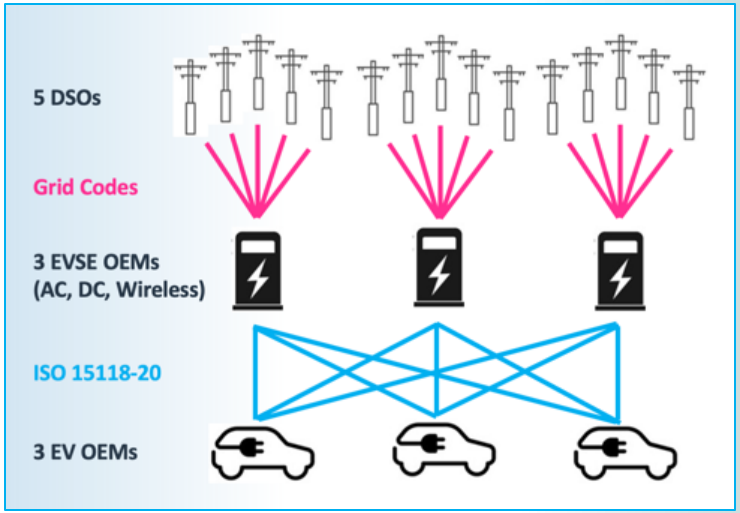
Interoperable Solutions: the Task 53 Target

Mostly based on proprietary
EV – EVSE DIN or ISO 15118-2 protocols
and singular Grid Code support



TODAY

Using the consortium **Golden Guidelines for Multi-Party Interoperable Bidirectional Charging** (derived from ISO 15118-20) and supporting Harmonized Grid Codes derived from CA Rule 21 & ACER.



WITH TASK 53

Task 53 Countries (20.10.2025)

All 18 EV-TCP-Countries + EC are actively supporting Task 53!

	Fee tasks paid	Info exchange	LEV infrastructure	e-Ships	Electrified Roadways	LCA of Trucks, Buses, V2X-	Electrification in Ports	Battery Swapping	EV fire safety	Light electric vehicles	Battery re-use	EVs & circularity	Bidirectional Charging Inter/Op	Recycled Materials for EVs
Task no.		1	23	38	45	46	47	48	49	50	51	52	53	54
fee or free	-	-	-	-	-	-	-	-	fee	fee			fee	
Austria	4	X			X	OA						OA	X	
Belgium	1	X	X										X	
Canada	7	X											X	
China	1													OA
Denmark	4	X												
Eur. Comm.	7													
Finland														
France	7													
Germany	7												X	X
Ireland	1												X	
Italy	1												X	
Korea	4	X								X	OA		X	(X)
Luxembourg	1	X											X	
Norway	1	X		OA	X	X	X		X		X	X	X	
Spain	1	X	X			X			X		X	X	X	X
Swe														
Swit														
UK														
USA	4	X		X	OA	X	OA		X		X	X	X	X

X Notification of participation submitted, Task officially joined
(X) Participating, but notification of participation not yet submitted
OA Operating Agent

ALL EV-TCP COUNTRIES + EC SUPPORT TASK 53!

THANK YOU ALL!!!

Confirmed

Switzerland

USA

South Korea

China

EU

Spain

Denmark

Germany

Italy

Belgium

Ireland

France

Finland

Norway

Austria

UK

Canada

Luxembourg

Sweden

Confirmed observers

South Africa

RACE for 2030
RELIABLE AFFORDABLE CLEAN ENERGY

Australia

the electric MISSION

India

GRID INTEGRATION LABORATORY IIT BOMBAY

Task 53 Partners and Cooperations (20.10.2025)

Industrial Partners, Laboratories and Organizations

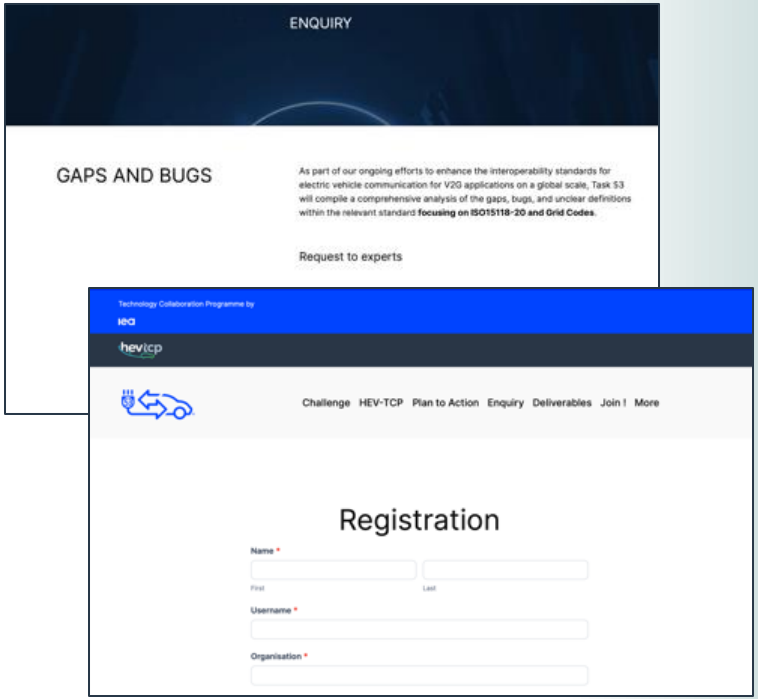
Task 53 objectives for scaling V2G globally

Key objectives include:

1. **Identifying Gaps and Bugs:** focusing on ISO15118-20 and GridCodes. Experts are uploading GAPs and BUGs on https://task53.org/#enquiry

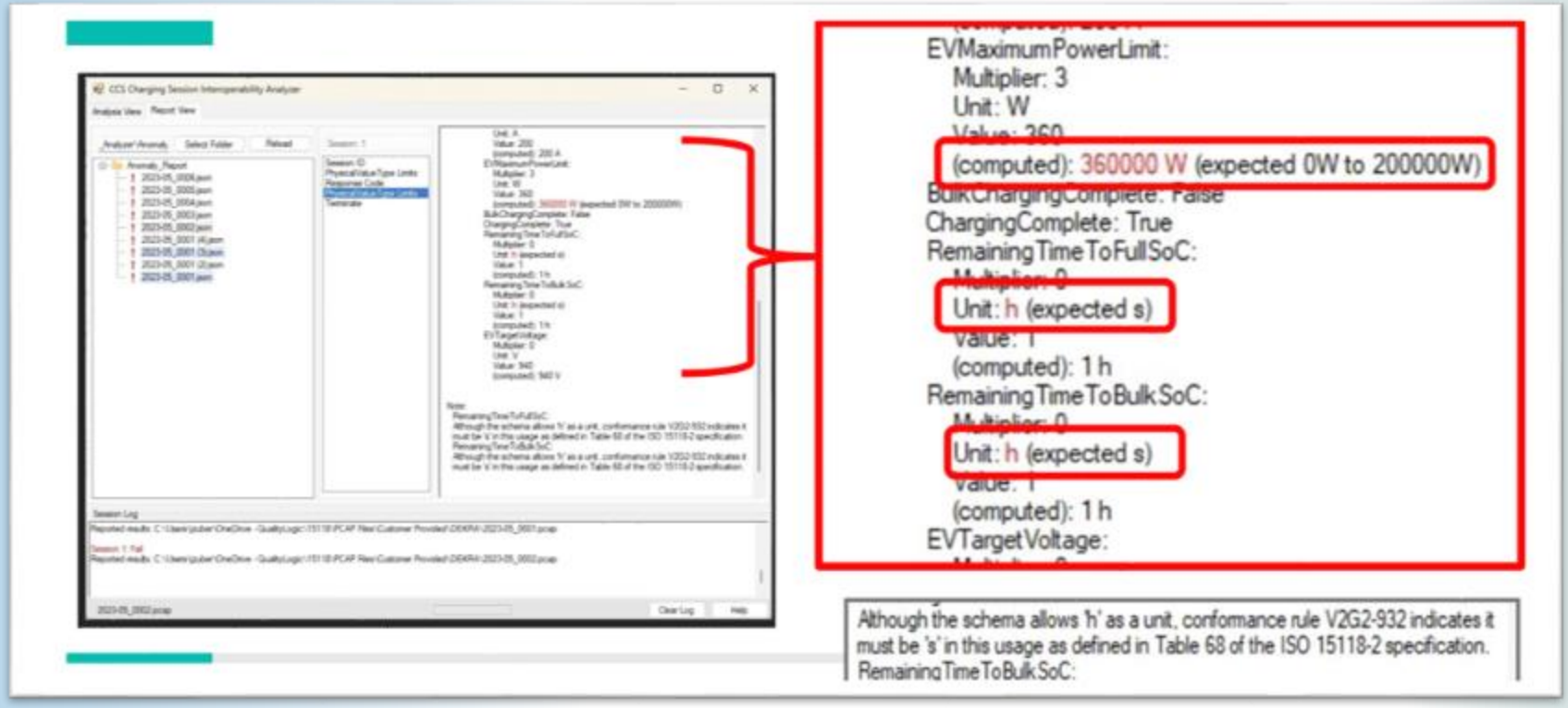
2. **Testing:** at EU Joint Research Center (JRC) and Argonne National Laboratories, DEKRA, CharIN, VGIC, etc. – for **AC, DC, Wireless** for harmonizing Bidirectional charging between vehicles (EV), charging stations (EVSE) and distribution grids (DSO).

3. **Awareness and Advocacy:** promote interoperable "Golden Guidelines" for V2G.



Enquiry re. GAPS & BUGS

Sample from “Quality Logic” for ISO 15118-2



First Workshop, March 3-5 2025, JRC Ispra

Overview and quintessence

https://www.linkedin.com/feed/update/urn:li:activity:7304881617066409984/

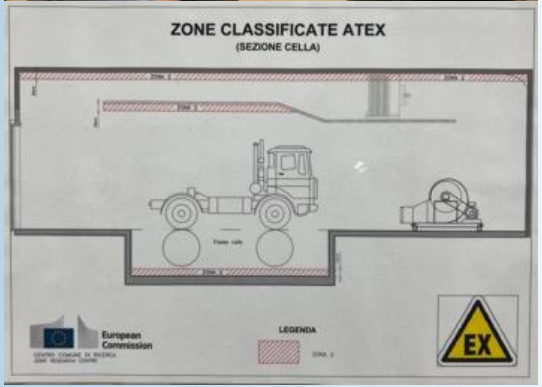
Workshop Nr 1 in Ispra - Impressions

Knowledge-sharing - Networking - Focus on interoperability – Start of a venture…

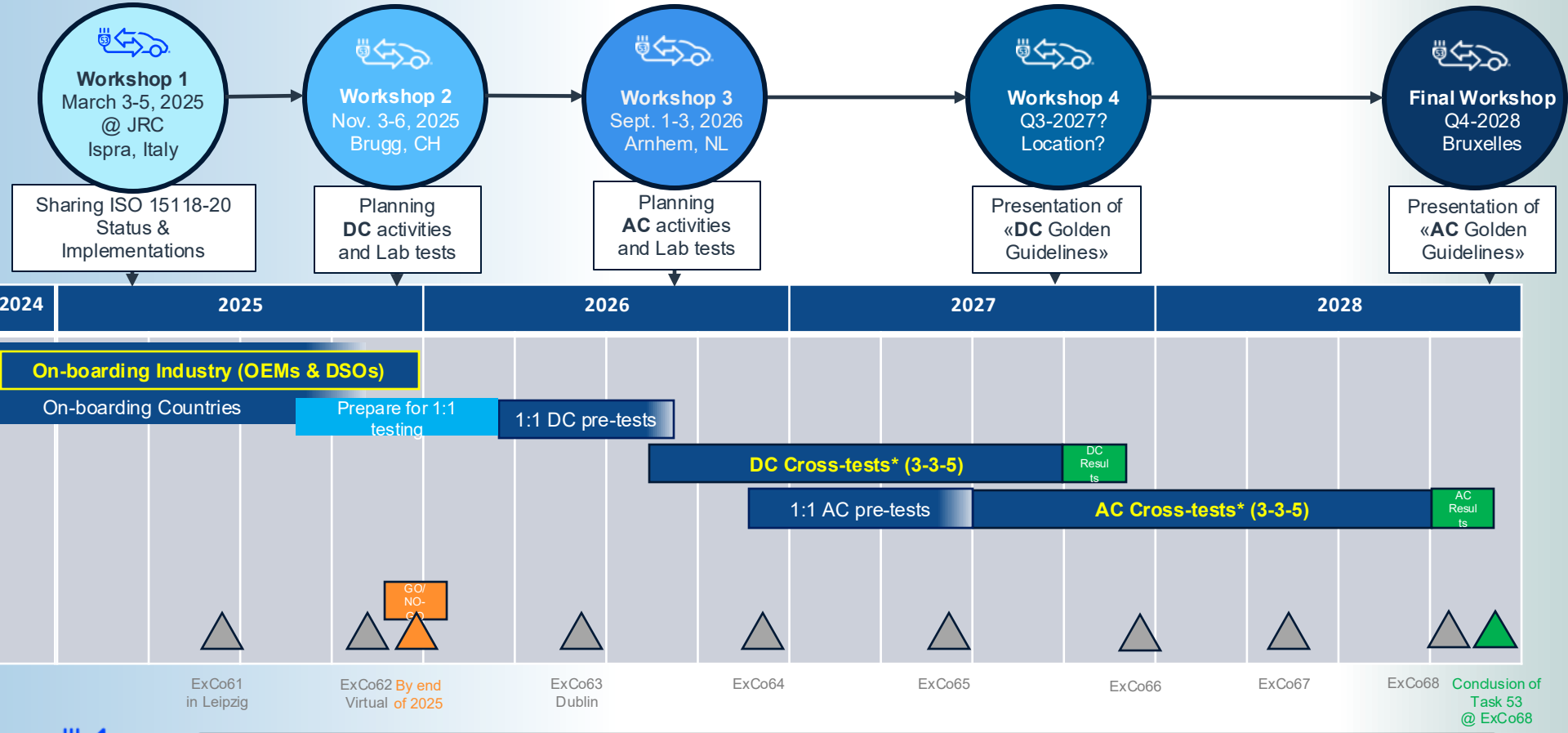
European Commission
JOINT RESEARCH CENTRE

Workshop Nr 1 in Ispra - Impressions

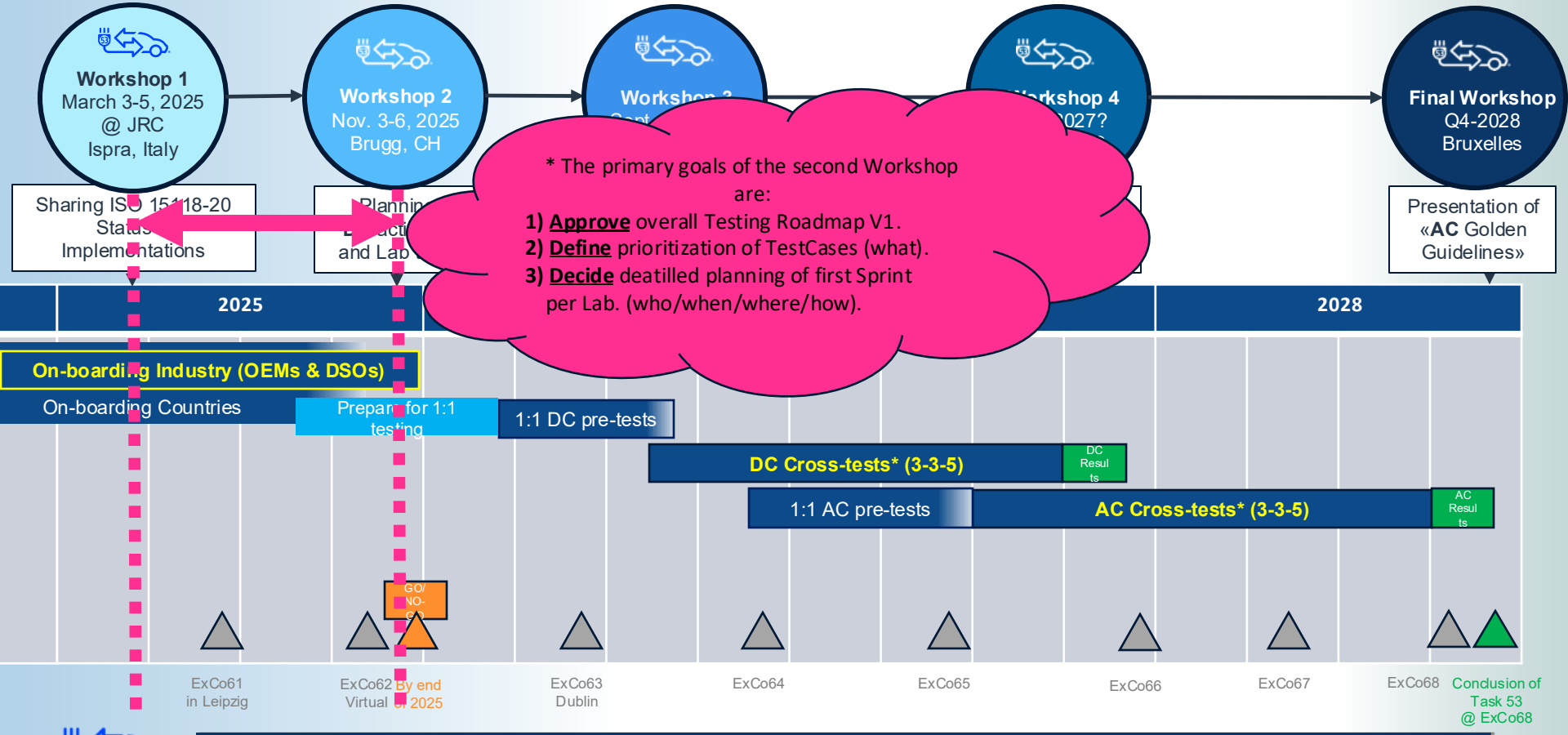
e-Trucks size-Lab...



Task 53 Timeline



Task 53 Timeline & WS-2 Goals



Join Task 53 ! Call To Industry-Partners

Become an ACTIVE industry-partner!

Task 53 is open - regardless of their country being one of the 18 full members of EV-TCP.

To companies, universities, institutions, etc., wishing to participate in the process of making bidirectional charging interoperable, please join as an industry partner:

- **Test-Company** (vehicle-OEM, EVSE-manufacturer, aggregators, DSO, test-equipment suppliers) and **LABs.**
- **Enabler** (SW-solution provider, key-component-suppliers, standard-defining organizations)
- **Expert** (universities, consultants, researchers, fleet-operators, specialized media, etc.)

Interested? Contact Task 53 secretariat:

regina.flury@task53.org www.task53.org

Benefits of Joining Task 53

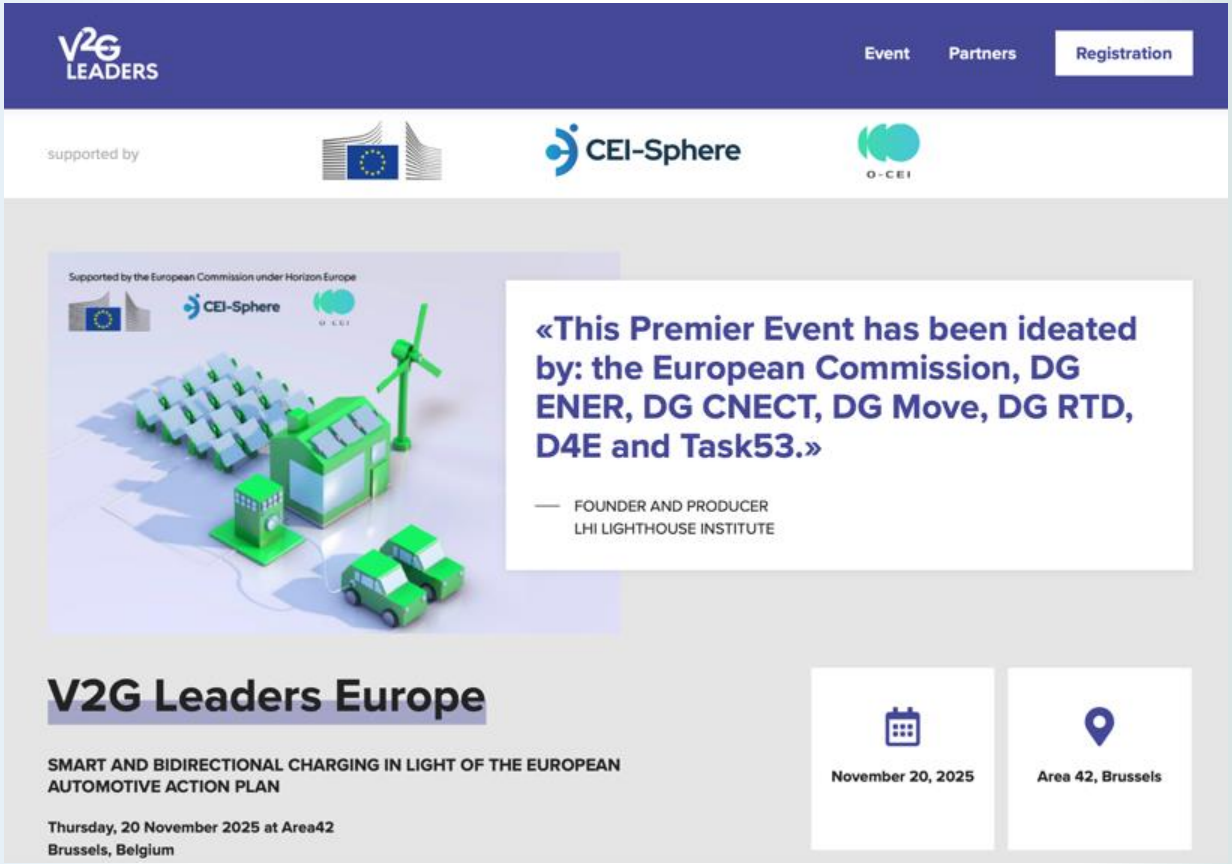
Dramatic Reduction of Cost/Resources/Time to reach interoperable V2G Solutions

- Access to an ISO 15118-20 protocol that is shared by a consortium of EV/EVSE OEMs and DSOs – **“Golden Guidelines”.**
- (Permanent) **access to world-class labs** and testing expertise (JRC*- Ispra, Argonne National Laboratory).
- Leverage experts and facilities of JRC, Argonne National Laboratory and others (DEKRA, HSNW, KERI) for interested INBID collaborators **- exchange**.
- **Access to larger markets** at dramatically lower cost/resources and accelerated timing.
- **Complying with** state/region **requirements in** California (SB 59) and other US States.

* JRC = Joint Research Center

V2G Leaders Forum, Brussels, Belgium

20.11.2025



https://v2gleaders.com

We encourage you to join Task 53!

More information: www.task53.org

www.task53.org

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INBID representative for Northern America

Regina Flury von Arx
INBID Secretariat

Marco Piffaretti
INBID Operating Agent (OA)

Nicole Waechter
INBID Communication

Patrick Eugster
INBID Project Management & Partner Relations

Introducing Flex Ready

Think Smartgrids

mobena

Next generation EV charging

Introducing Flex Ready®

October 30, 2025

Titouan CHILOU – Smartgrids Project Manager

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think SMARTGRIDS

FRENCH SOLUTIONS FOR SMARTGRIDS

THINK SMARTGRIDS BRINGS TOGETHER AND PROMOTES THE FRENCH SMARTGRID SECTOR

Xavier Piechaczyk,

président Think Smartgrids,
CEO RTE

Membres observateurs

COMMISSION DE RÉGULATION DE L'ÉNERGIE

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE ET DE LA COHÉSION DES TERRITOIRES

Membres associés

Rte Le réseau de transport d'électricité

ENEDIS L'ELECTRICITE EN RESEAU

ABB

accenture

ceatech

Capgemini

EQUANS

EDF

EY Building a better working world

Grid Solutions

EIFFAGE ÉNERGIE SYSTÈMES

VINCI ENERGIES

sopra steria

MINES ParisTech

UGA Université Grenoble Alpes

Nexans

Schneider Electric

think SMARTGRIDS

Membres partenaires

APL NES

KPMG

Colombus

Aets

algorus CONSULTING

ALTANA

Sagemcom

COSMOTECH

siapartners

ENGIE

octopus energy

efficacity

Energy Pool

CSTB

Entech smart energies

SURVOLTAGE

Voltalis

Icare Energie

EPT

TRACTEBEL

WAVESTONE

KPMG

enki

Institut smart grids

Itrón

Trialog

SEE YOU SUN

Landis Gyr

3M

naelis

tiko

stations-e

TERAFIELD

orange Business Services

PcVue Solutions

Yélé

SWEEN ÉNERGIES ET MOBILITÉ

Odit-e

LACROIX Solvel

setec

smartside

smile

STRASBOURG ELECTRICITÉ RESEAUX

STREINN

dwdg DoWell DoGood

Synapse Grid

SICAME Groupe

PULSADIS

Megger.

DIGITALGRIDS

alerion AVOCATS

Clusters, autorités locales

SYDEV

sdem50

SDE35

sdey

ufe

FNCCR

noréhom

MEDEE

communauté de l'auxerrois

territoire d'énergie LOIRE-ATLANTIQUE

Universités, écoles et centres de recherche

LNE

L2EP

CentraleSupélec

ifp SCHOOL

CSTB

École des Ponts ParisTech

estp

le cnam Pays de la Loire

Partenaires internationaux

APIUX

BUSINESSFRANCE

PLN

AFD

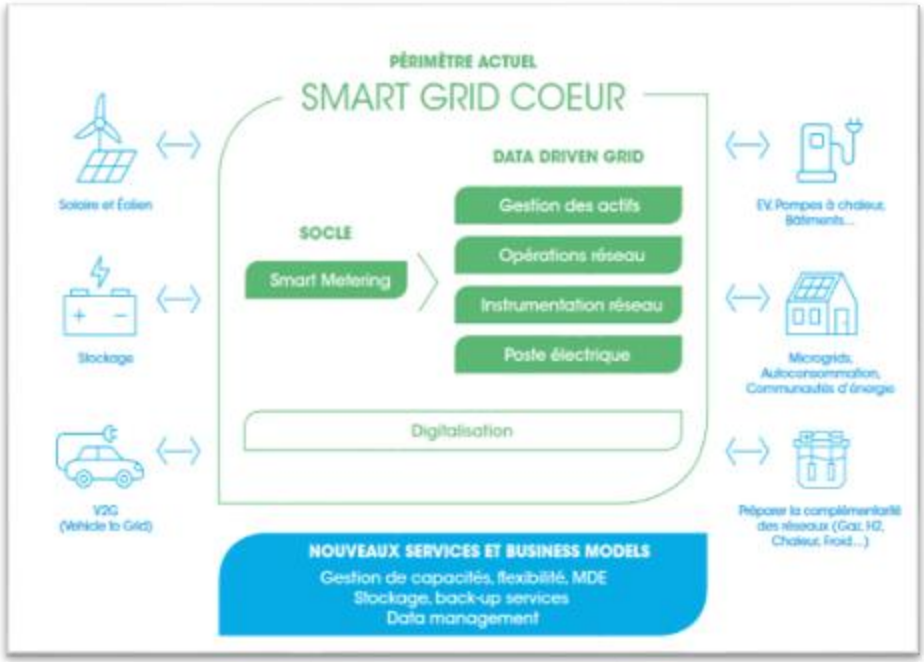
ISGF India Smart Grid Forum

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

MINISTÈRE DE L'EUROPE ET DES AFFAIRES ÉTRANGÈRES

THE WORK THEMES:
FROM DECENTRALISED GENERATION TO ELECTRICAL USES

From smart meters and sensors to smart substations and virtual power plants, smart grids are the integration of digital solutions into the power grid to make it more flexible, scalable and efficient.



Think Smartgrids' mission is to represent and develop the **French Smart Grid sector**, within **french** and **international** territories, for the benefit of the **consumer**, the attractiveness of the **territory** and the **ecological transition**.

The association carries the voice of the sector to stakeholders, contributes to the scaling up and implementation of solutions for the sector and its members. **Think Smartgrids promotes the benefits of these solutions**, which contribute to the sobriety, security of supply and competitiveness of the electricity system.

Think Smartgrids also enlightens the sector on the solutions to be tested for tomorrow.

SUMMARY: Working in and with the territories, for the benefit of the consumer. the attractiveness of the territory and the ecological transition

GUIDE POUR LE DÉPLOIEMENT
DES SMART GRIDS DANS LES TERRITOIRES
2023

https://www.thinksmartgrids.fr/actualites/un-guide-pour-accelerer-le-deploiement-des-smart-grids-dans-les-territoires

Assets

- The technologies exist
- French players are present in the value chain
- Rules and laws are evolving in the right direction
- The regulator also supports developments

Challenges

- Acceptability & pedagogy
- Skills
- Cost-benefit analysis
- Project sustainability
- Infrastructure Pooling
- Data collection and processing

Priority use cases

- Flexibilities
- Collective self-consumption
- EV charging management

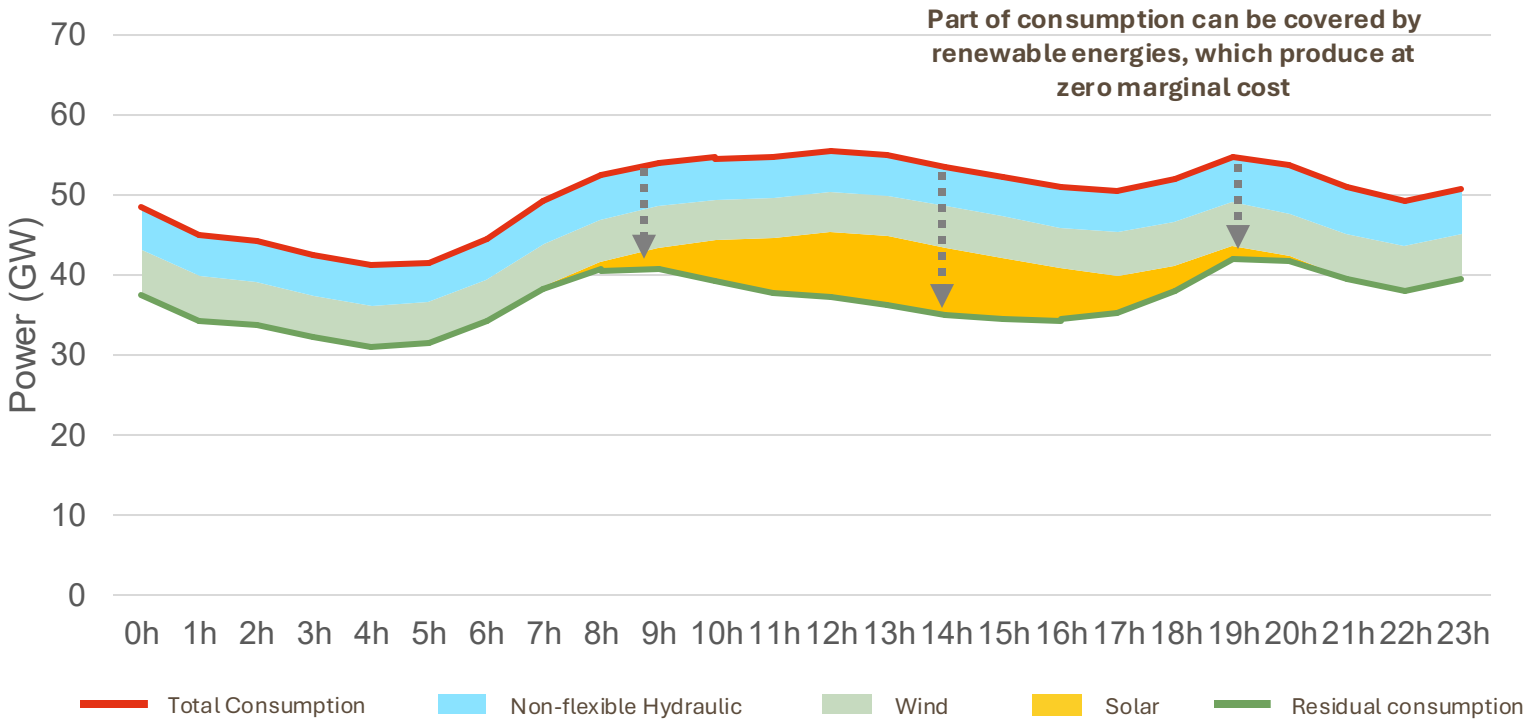
A barometer structured around four main axes

- The needs and expected effects of electricity consumption flexibilities
- Technical prerequisites for flexible power consumption
- The economic prerequisites for flexibility in electricity consumption
- Sector sheets

Online on the partners' websites:

The right times of the day, to take advantage of electricity that is cheaper to produce: at night and in the middle of the day

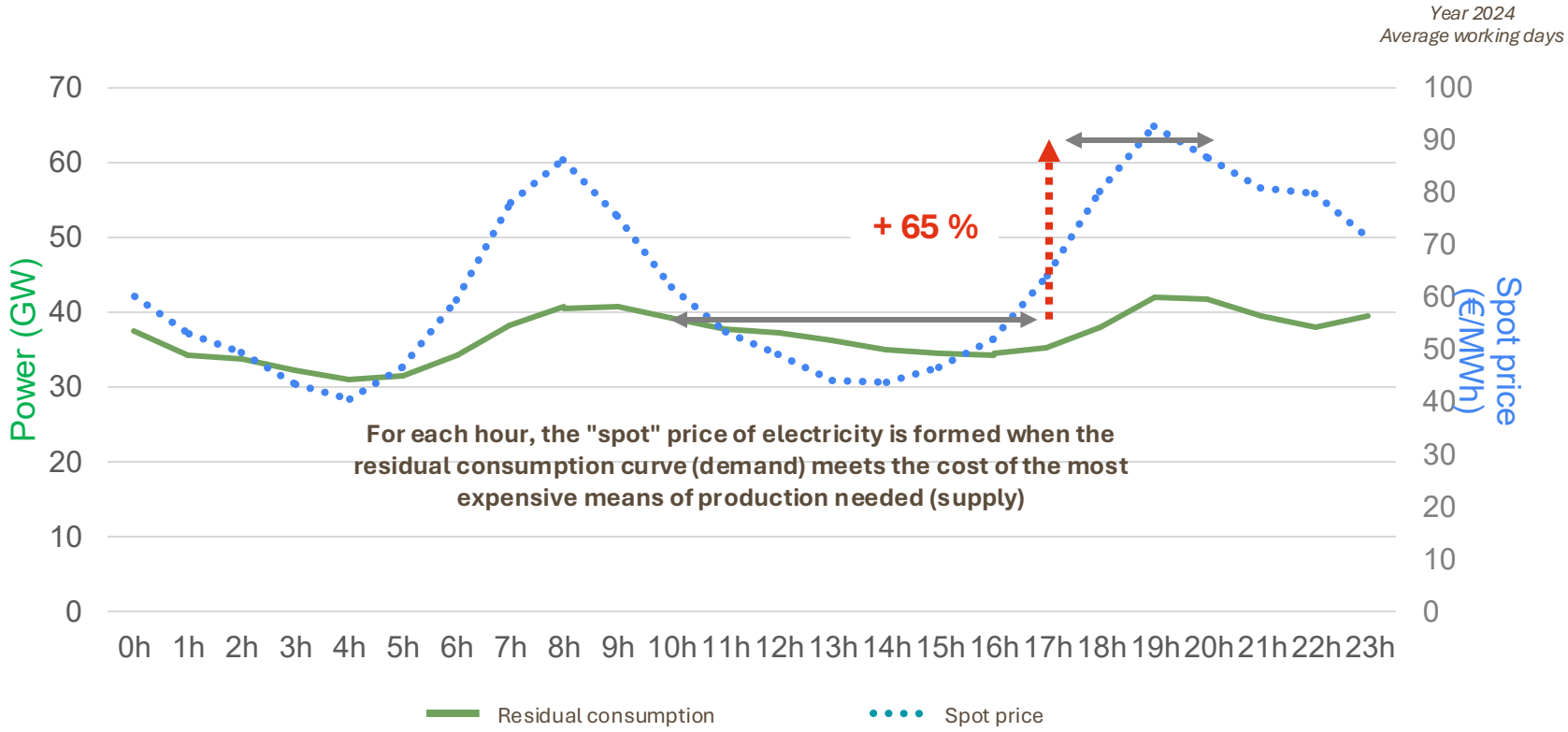
Year 2024
Average working days



Source : RTE, Baromètre des flexibilités de consommation d'électricité, 2024

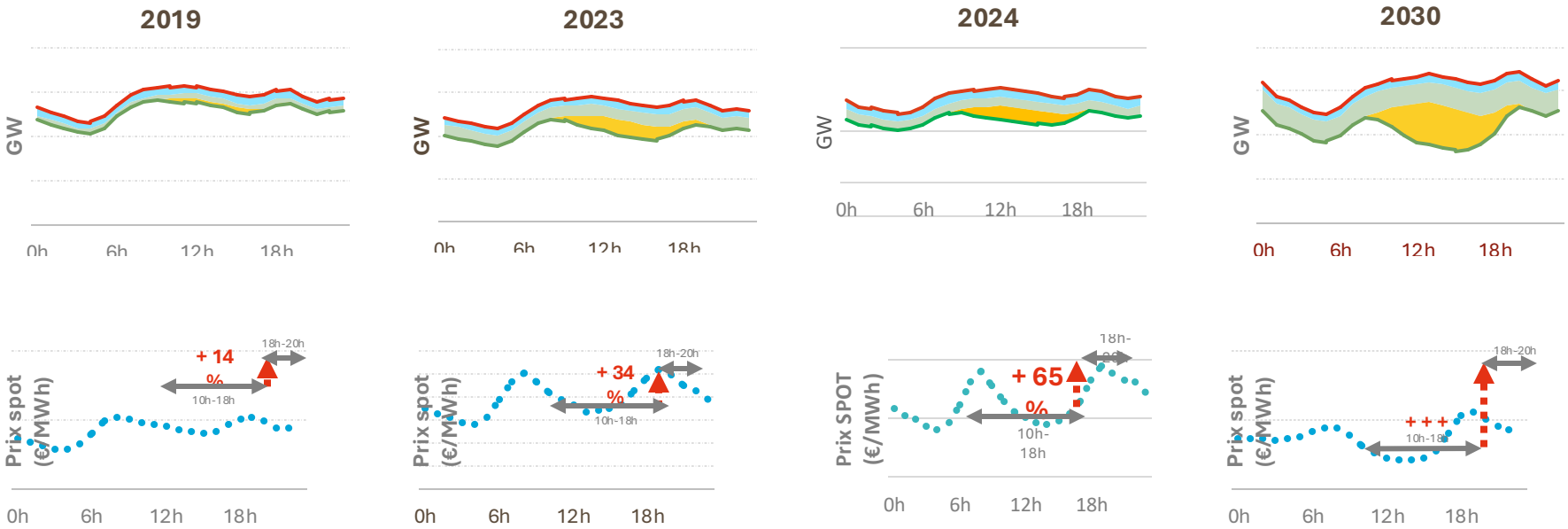
Opportunity for consumption flexibilities

The right times of the day, to take advantage of electricity that is cheaper to produce: at night and in the middle of the day



Source : RTE, Baromètre des flexibilités de consommation d'électricité, 2024

The opportunity to modulate consumption is growing and sustainable



Source : RTE, Baromètre des flexibilités de consommation d'électricité, 2024

The appearance of negative spot prices and RE capping: a revelation of the need for flexibility

Évolution du nombre d'heures à prix *spot* négatif, de 2014 à 2024, par année et par mois

Nombre d'occurrence de prix spot négatifs de 2014 à 2024, par mois. Plus la couleur d'une case est foncée, plus le nombre d'heures à prix spot négatif correspondant a été important.

Source RTE

	Jan.	Fév.	Mar.	Avr.	Mai	Juin	Juil.	Août	Sept.	Oct.	Nov.	Déc.	Total
2014	0	0	0	1	3	0	4	0	0	0	0	0	8
2015	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	2	0	0	0	0	0	0	0	2
2017	0	0	0	2	0	0	0	2	0	0	0	0	4
2018	8	0	0	0	3	0	0	0	0	0	0	0	11
2019	0	0	9	2	5	10	0	0	0	0	0	1	27
2020	0	4	8	31	27	5	12	0	0	3	6	6	102
2021	0	2	3	2	18	8	5	23	0	3	0	0	64
2022	0	0	0	0	0	0	0	0	0	0	0	4	4
2023	8	0	4	2	25	14	47	0	15	3	0	29	147
2024	8	0	5	84	60	69	50	46					322

Cumul du nombre d'heures à prix *spot* négatif, de 2014 à 2024, par jour de la semaine et par heure

Cumul du nombre d'heures à prix spot négatifs de 2014 à 2024 par jour et par heure du jour. Plus la couleur d'une case est foncée, plus le nombre d'heures à prix spot négatif correspondant a été important.

Source RTE

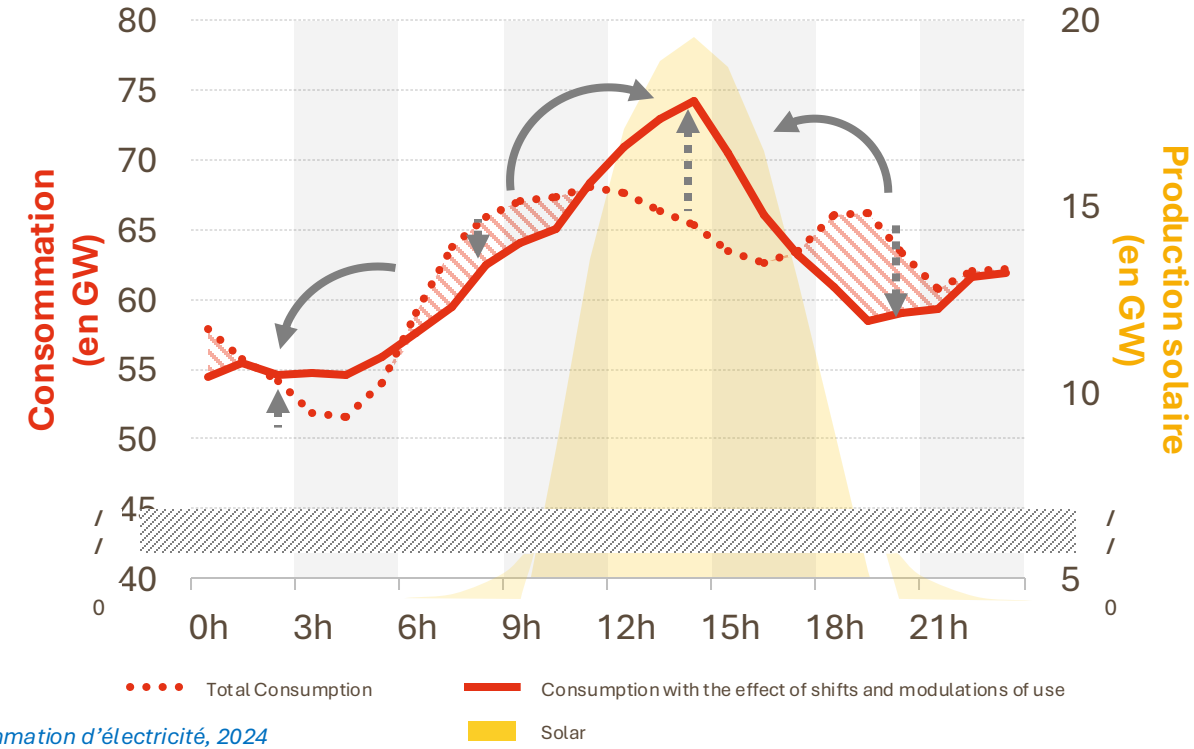
Jour / Heures	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	TOTAL
Lundi	0	0	2	4	4	1	0	0	0	0	0	0	2	3	3	2	4	1	0	0	0	0	0	0
Mardi	0	2	3	5	6	3	0	0	0	0	3	3	2	4	7	5	4	2	0	0	0	0	0	0
Mercredi	0	0	1	3	4	1	0	0	0	0	0	0	0	2	4	2	1	0	0	0	0	0	0	0
Jeudi	0	0	2	3	4	2	0	0	0	0	0	0	2	2	2	2	1	0	0	0	0	0	0	0
Vendredi	0	0	1	3	3	2	1	0	0	0	0	0	1	3	6	7	2	1	0	0	0	0	0	0
Samedi	0	0	0	2	4	2	2	0	0	1	6	10	13	17	22	20	14	6	1	0	0	0	0	0
Dimanche	0	1	1	9	12	13	10	7	9	13	18	24	27	40	52	54	40	10	2	0	1	1	1	1
Jour férié	1	2	2	3	4	5	5	5	4	2	5	5	4	6	9	11	7	2	0	0	0	0	0	0

Residual consumption, a key indicator for the electricity system

The key indicator for sizing and operating the electricity system is the residual consumption

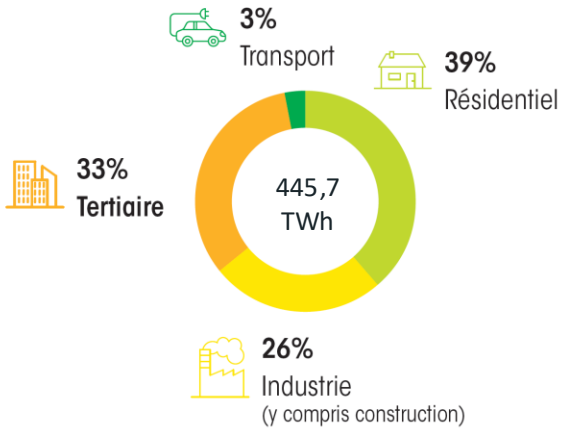
Shifting part of your consumption to the night and the middle of the day becomes a source of savings...

Illustration of the effect of shifts and modulations of use on electricity consumption



Source : RTE, Baromètre des flexibilités de consommation d'électricité, 2024

Key figures for the tertiary sector



Breakdown by sector of national electricity consumption in France in 2023
Source: Ministries of Spatial Planning. Ecological transition - 2024

Key figures:

- **Tertiary** sector represents **~150 TWh**
- **4.3 million** buildings

- **393,701 Tertiary buildings** have a subscribed power of more than 36 kVA
- They represent **74% of the sector's consumption**
- 2/3 concern offices, shops and education

Sources :
RTE, Baromètre des flexibilités de consommation d'électricité, 2024
CEREN, 2023

CREATION CONTEXT OF FLEX READY®

January 2024
Understand the **need for flexibility** and take stock of the available deposits

October 2024
Identify the **technical** and **organisational obstacles** and conditions for scaling up **flexibilities** in buildings
Estimate the size of **existing deposits** in buildings and the progress of the deployment of management solutions

October 2024 – 2025

Centralize the tools available to building managers to encourage deployment

BRAND CREATION BY THINK SMARTGRIDS

FLEX READY, A BRAND FOR LESS AND BETTER CONSUMPTION IN BUILDINGS

MACRO-OBJECTIVES

Develop the management of electricity consumption in France through the deployment of solutions, services and best practices that meet the needs of the electricity system and for the benefit of the customer and the territories.

The applications for the registration of the Flex Ready trademark were filed by Think Smartgrids for a:

- **French figurative collective brand**
- **EU figurative individual brand**

A brand owned by Think Smartgrids, collectively animated by :

OBJECTIVES

FLEX READY, A BRAND FOR LESS AND BETTER CONSUMPTION IN BUILDINGS

Promoting the mass adoption of "coordinated management of flexible electricity consumption" in buildings

Identify the ability of a control system to:

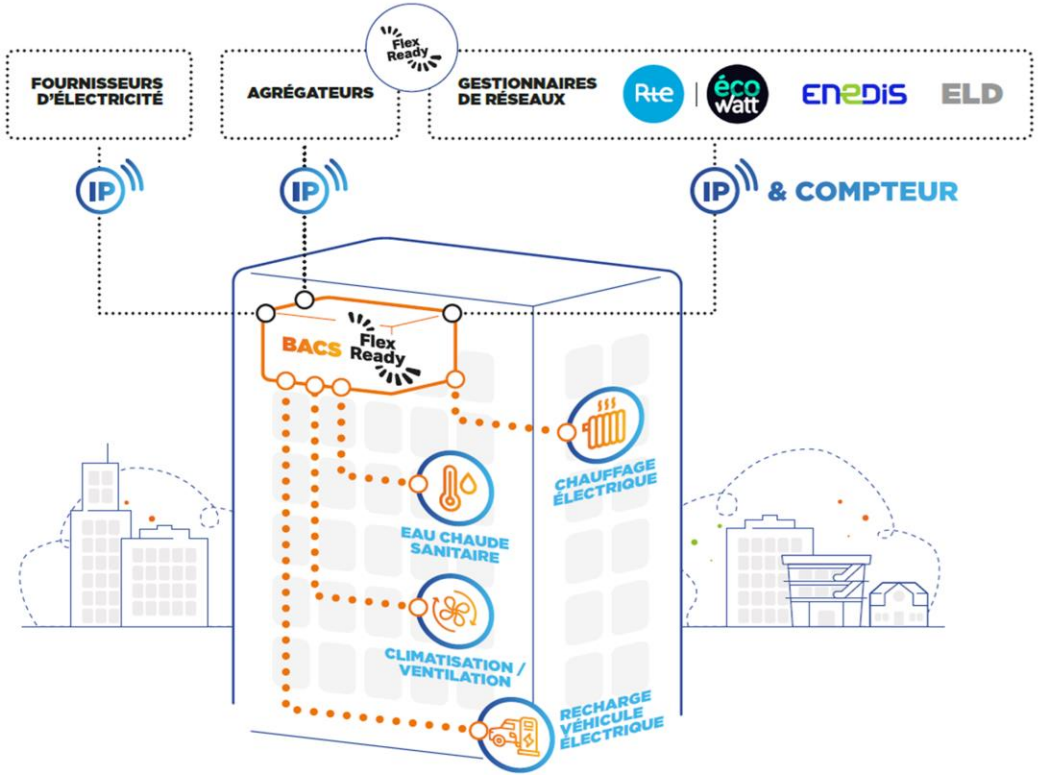
1. **Automatically** manage the building's **day-to-day uses** (CVAC, ECS, IRVE, etc.) by taking into account the **price of electricity** or **additional remuneration**, guaranteeing the optimisation of the daily consumption of final electricity,

2. Activate a **coordinated one-off modulation** of uses at the building level on a **specific request** for so-called **explicit flexibility**, and this without the installation of additional equipment other than the vessel's control system,

3. Interpret signals from electricity **system operators**, allowing for example the system to be backed up in the event of a red **EcoWatt**.

FLEX READY, A COLLECTIVE BRAND FROM AND FOR THE SMART GRID SECTOR.

DATA AND COMMUNICATION STANDARD FOR BUILDING CONTROL SYSTEMS (BMS/BACS) WITH THE AIM OF FACILITATING THE PLACEMENT OF ELECTRICITY CONSUMPTION AT THE TIME OF DAY WHEN ELECTRICITY IS ABUNDANT AND CARBON-FREE.



1. Maximum instantaneous power (in kW)
2. The price of electricity (in €/kWh)
3. Subscribed power (in kVA)
4. The carbon footprint of electricity (in t.eq. CO2/kWh)

-> Within a 15 minutes timestamp (minimum)

CURRENT FLEX READY® ARCHITECTURE

Versioning **:**

- **Pilot version** ➔ June 2025
- Version 1 ➔ S1 2026

Flex Ready® Application Guide:

- Brand Purpose & Context
- Application Process

2.1 Flex Ready Rules of Use
2.2 Comity Governance Principles

3. Flex Ready Terms of Use and Promotion

4.1 Pilotage Systems Repository
4.2 BACS standards

5. Self-declaration report

6. Cybersecurity Guideline

7. Attestation of compliance

8. List of compliant actors

Drawer architecture to allow the addition of other reference bricks in future versions:

- Extension of the products and services concerned (EVSE, etc.)
- Flex Ready practices (e.g. recommissioning, standardized flexibility contracts, etc.)

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Documents available on the Think Smartgrids & GIMELEC website

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THEY GOT STARTED: The first Flex Ready® pilot projects:

Kergrid

Building Manager

Intencity

Building Manager

BEMS Supplier

Financial Agregator

Technical Agregator

BEMS Supplier

Agregator

Flex Ready's® Tour de France

Actors present:

- Suppliers
- Aggregators
- Manufacturers
- Developers
- Integrators
- Site Manager
- Landowners
- Development Agencies
- Competitiveness clusters
- GRT & DSO
- Funders

And many more

Flex Ready's® Tour de France

Would you like to participate?

Registration is free but mandatory

Conclusions

- **Think Smartgrids is positioned as a key player in Smartgrids and flexibility:**
  - International component
  - Territorial component
  - Technical component

- **Economic sources of flexibility exist and are already exploitable**
- **Technical solutions exist today, especially in the industrial sector.**

- **Flex Ready® is positioned as an accelerator of flexibility in the tertiary sector by allowing standardized, interoperable exchanges between:**
  - The building and its users
  - EMS, BACS, BEMS, …
  - Its energy supplier
  - Its demand response operator / aggregator

Q&A

mobena
Next generation EV charging

Together, let’s drive towards a sustainable and interconnected future!

Got questions? Get in touch!

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