EV4EU – Electric Vehicles Management for carbon neutrality in Europe

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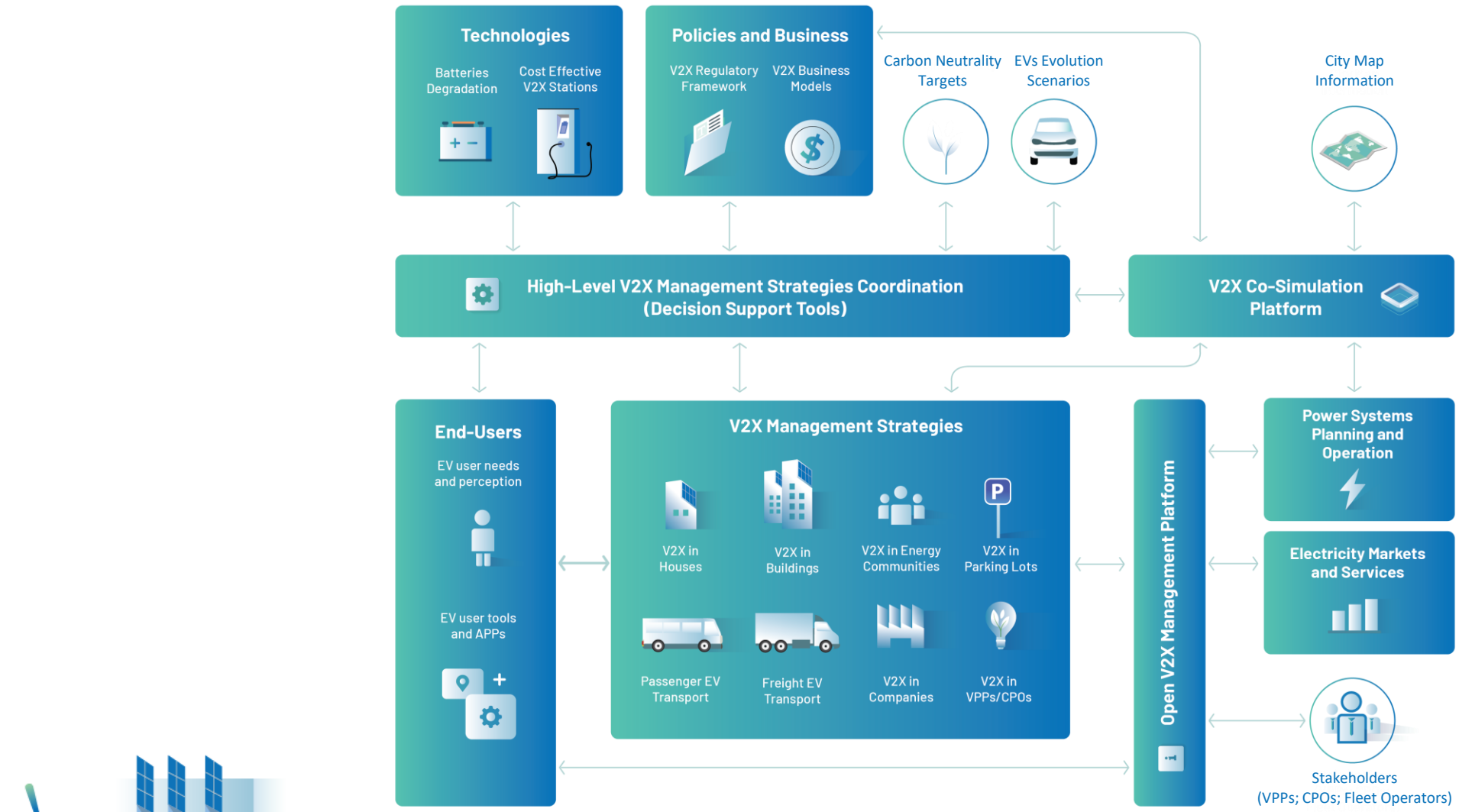
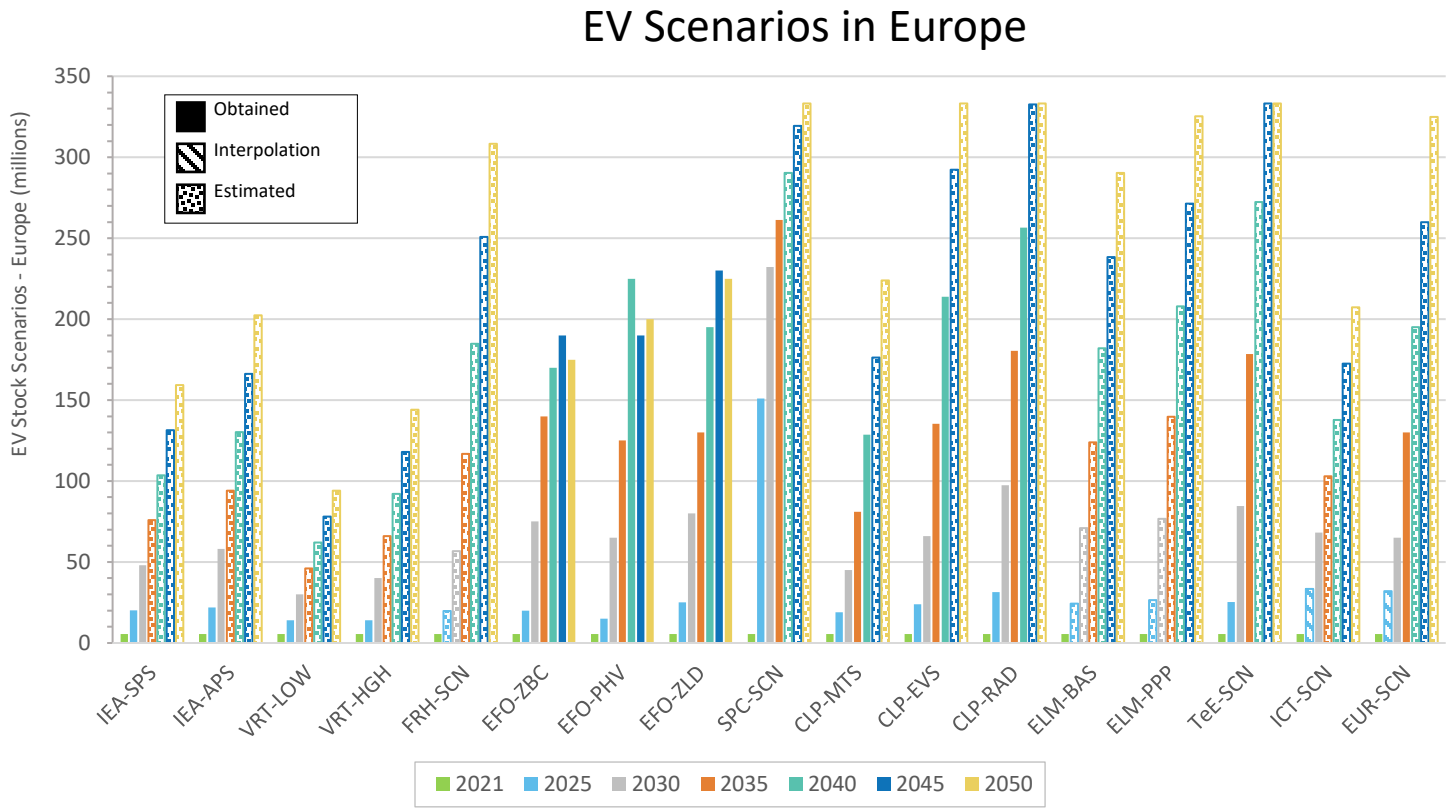
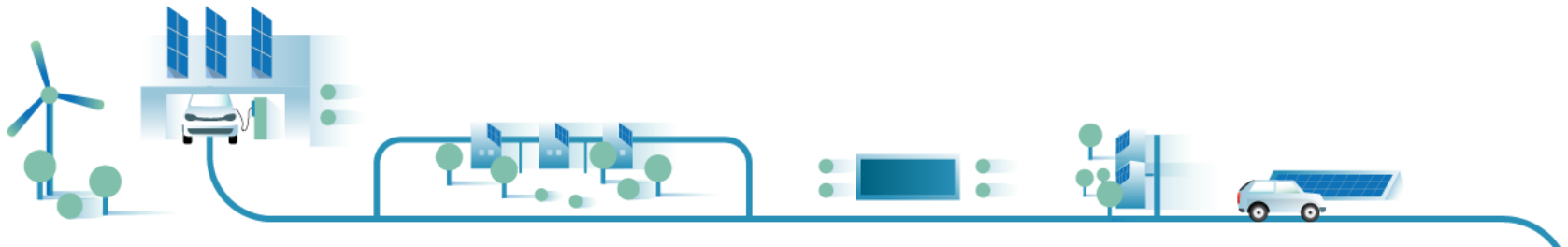
EV4EU – Consortium

EV4EU – Concept



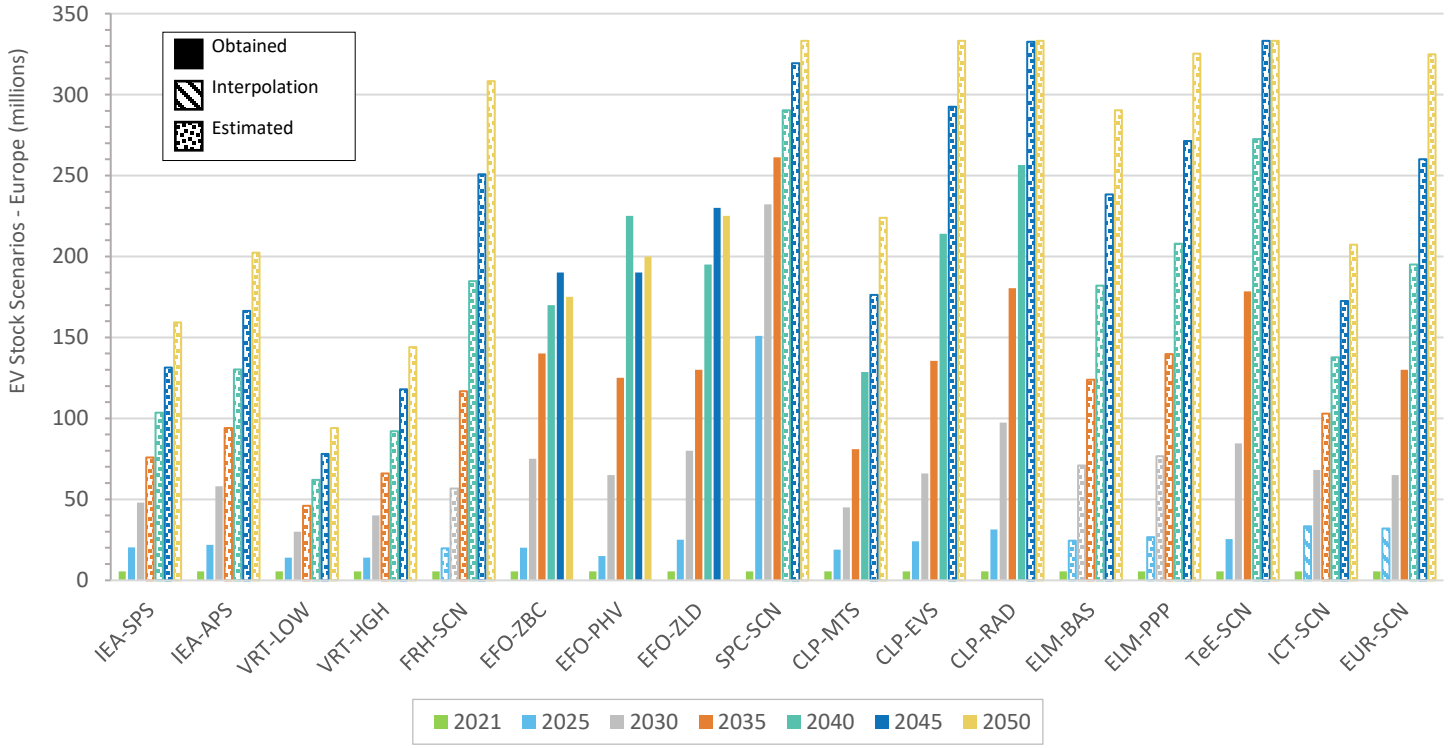
EV4EU – EVs Evolution Scenarios



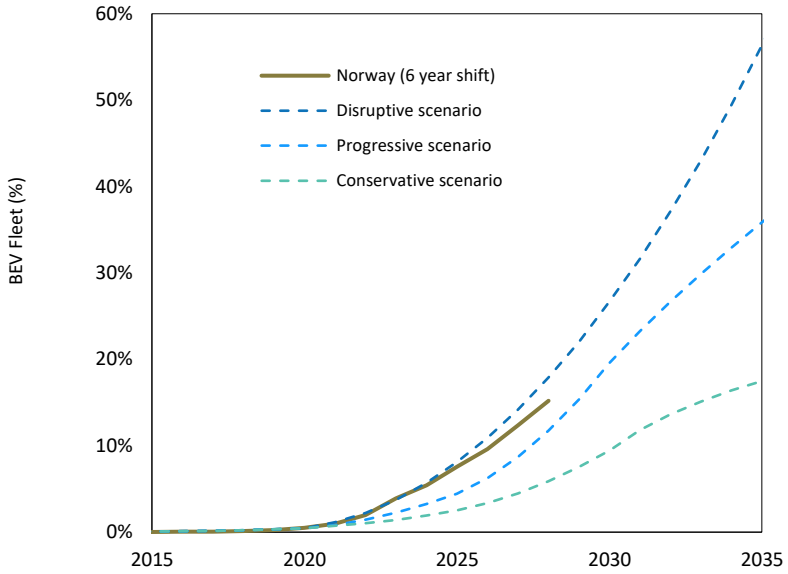


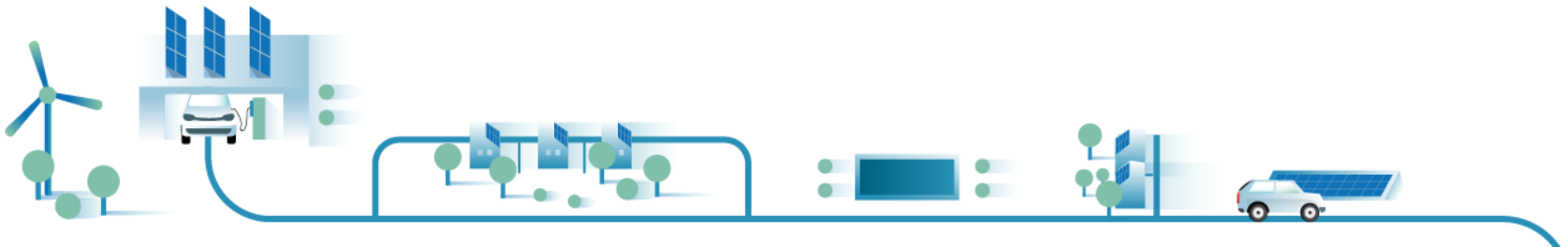
EV4EU – EVs Evolution Scenarios

EV Scenarios in Europe

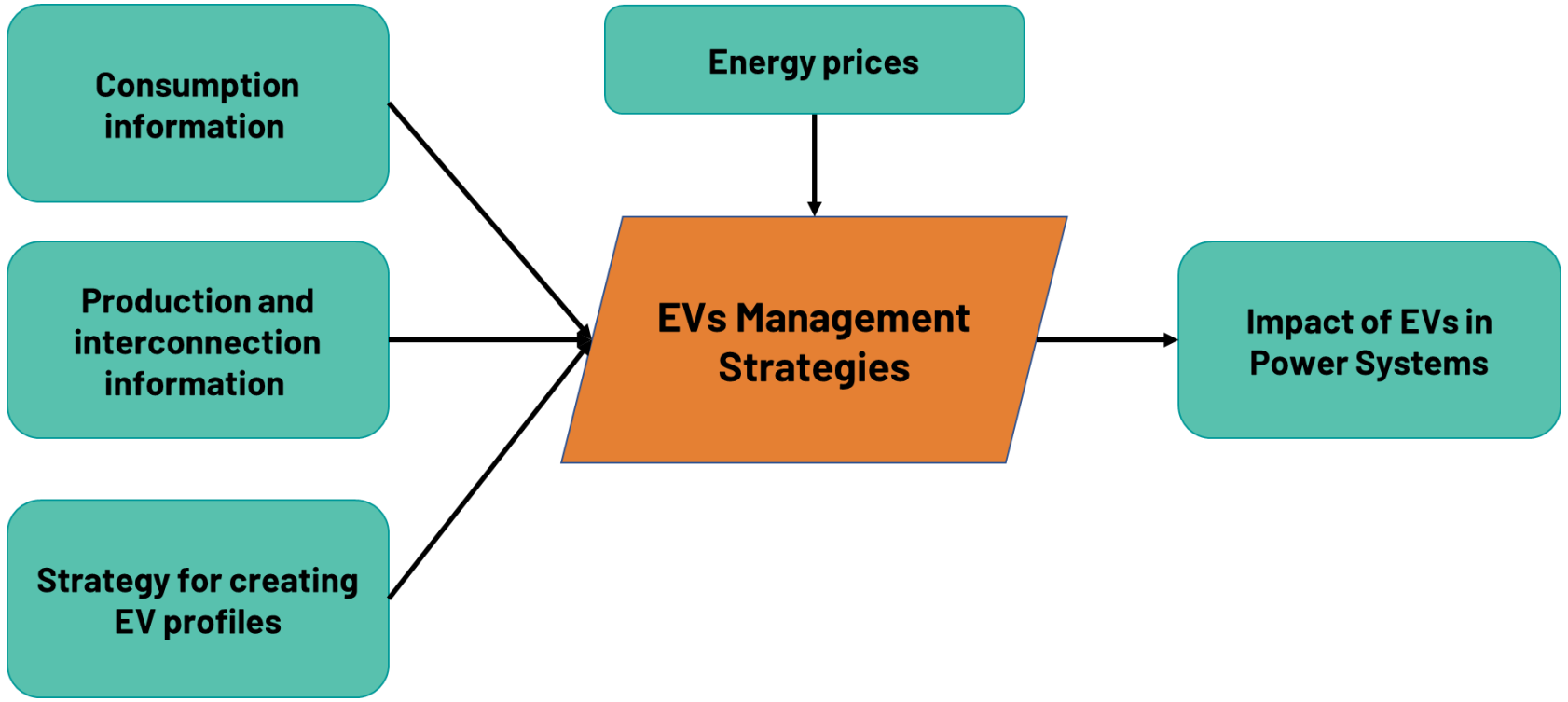


EV Scenarios in Portugal

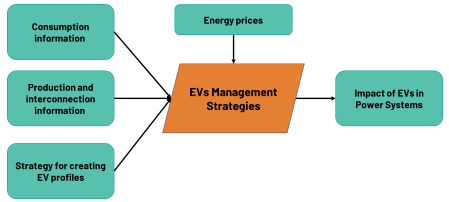


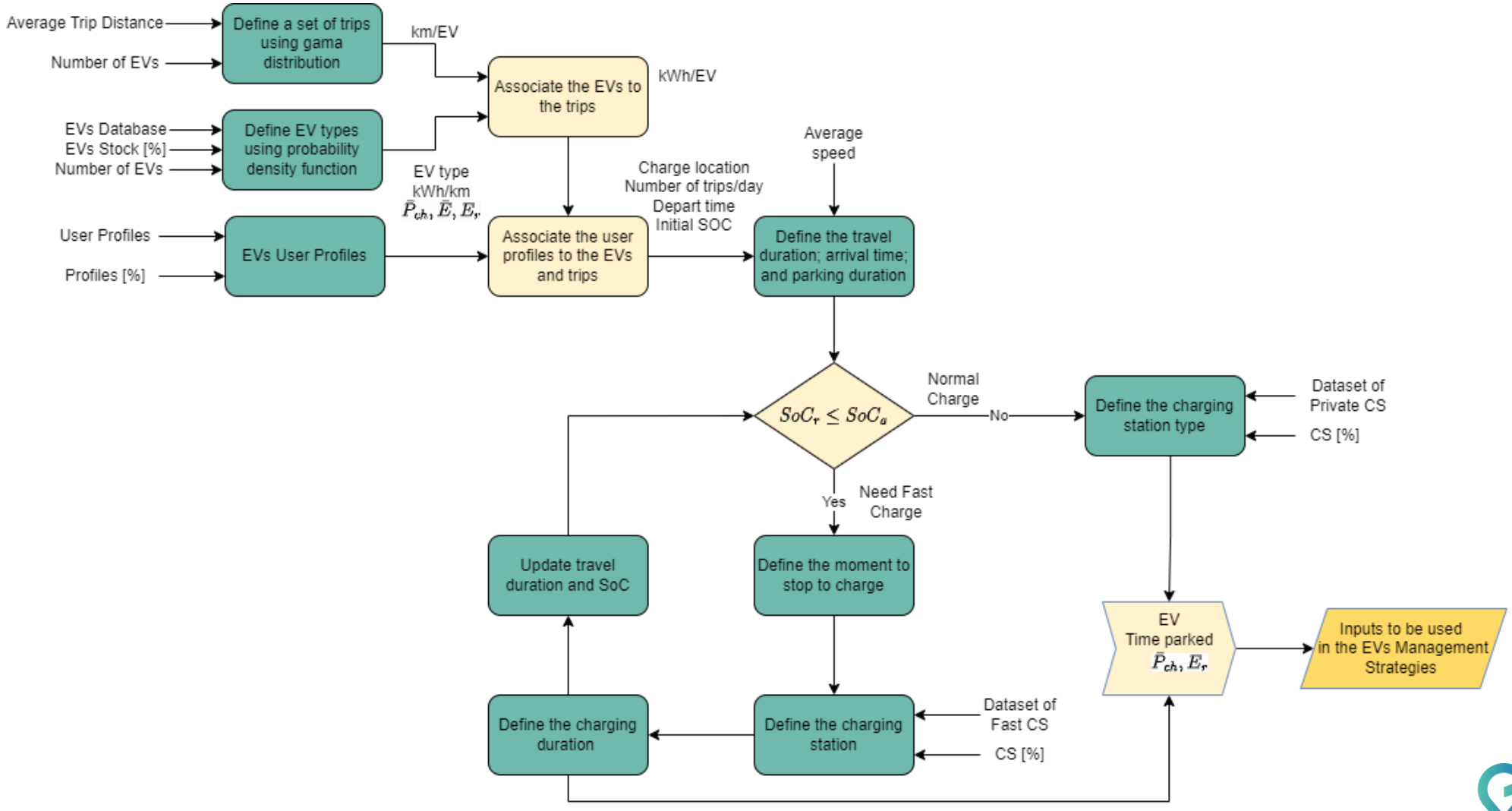


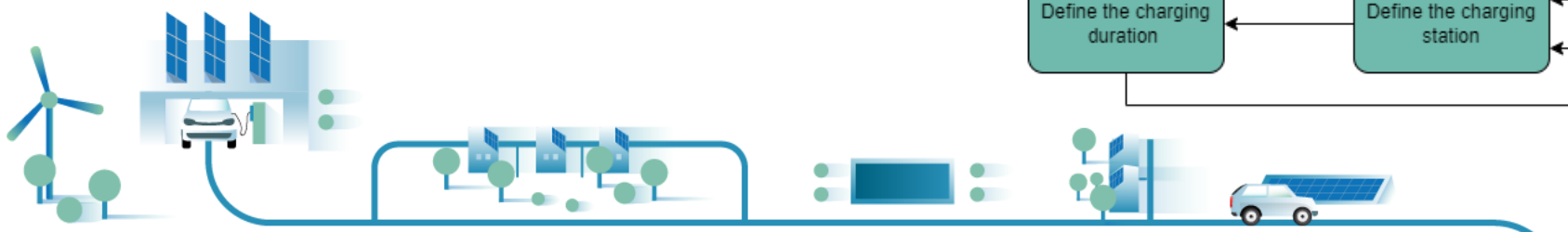
EV4EU – EVs Impact in Energy Systems



EV4EU – EVs Impact in Energy Systems

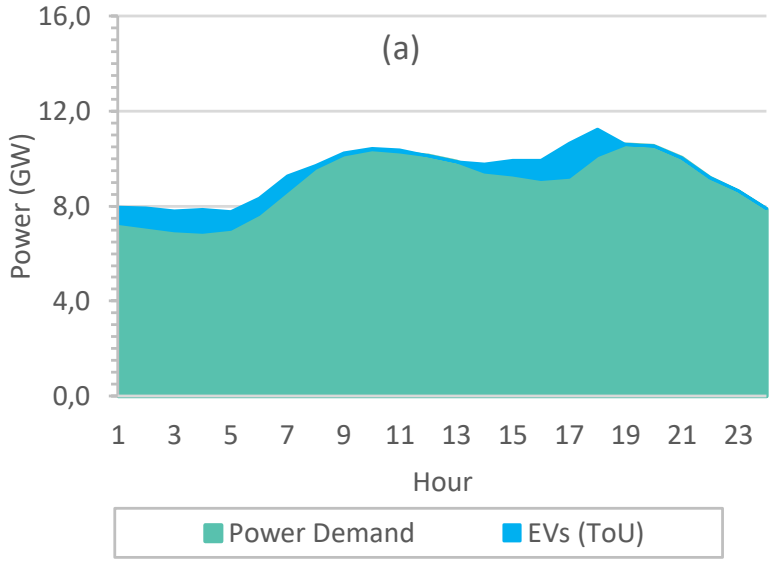


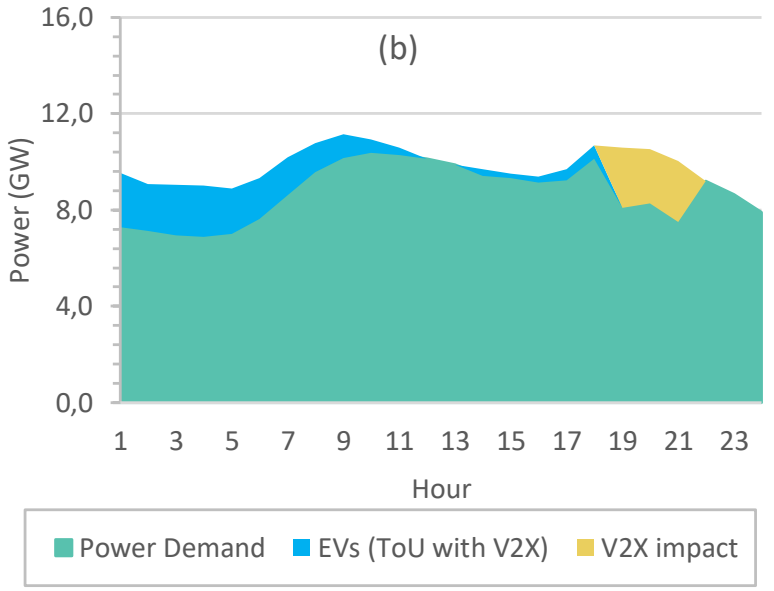


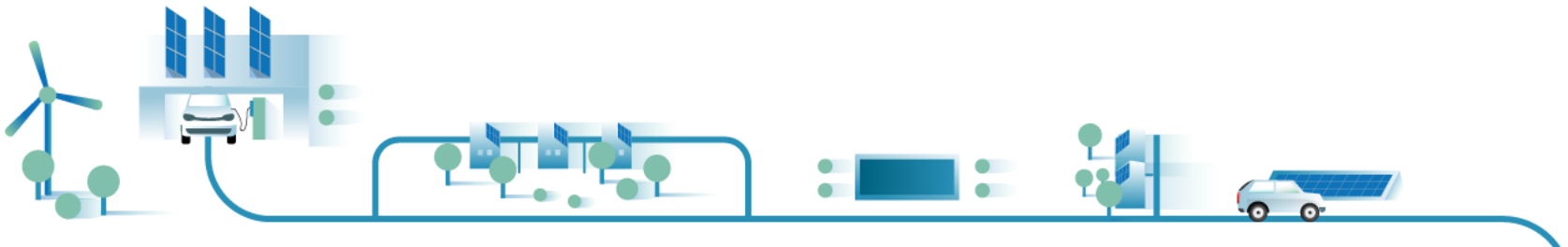


EV4EU – EVs Impact in Energy Systems

Impact of Price-based DR in Greek System in 2050

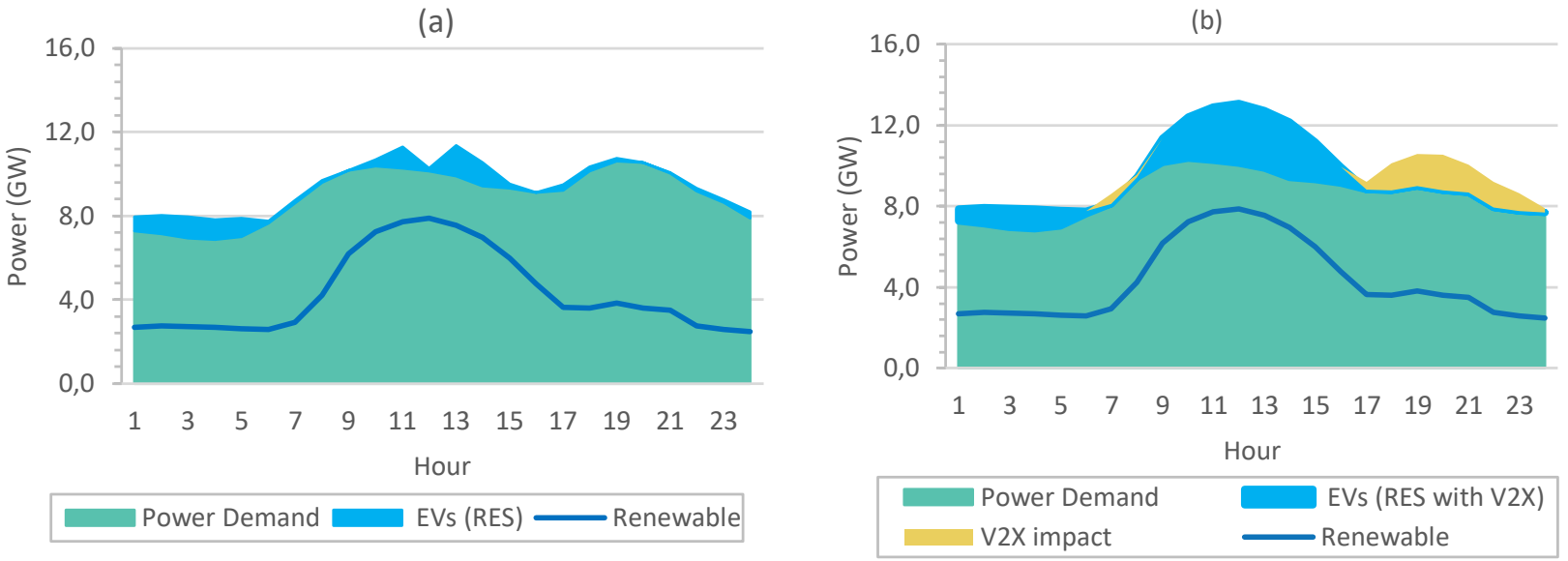


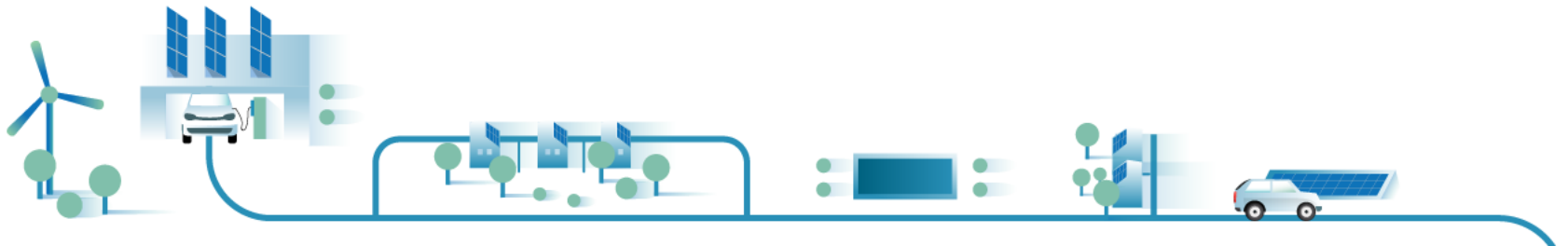




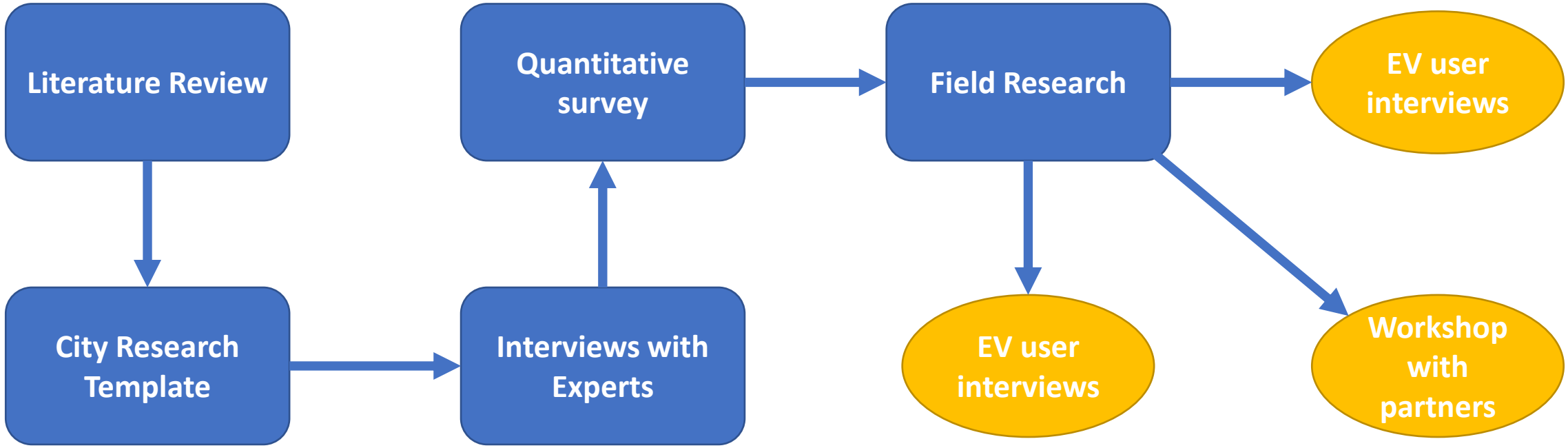
EV4EU – EVs Impact in Energy Systems

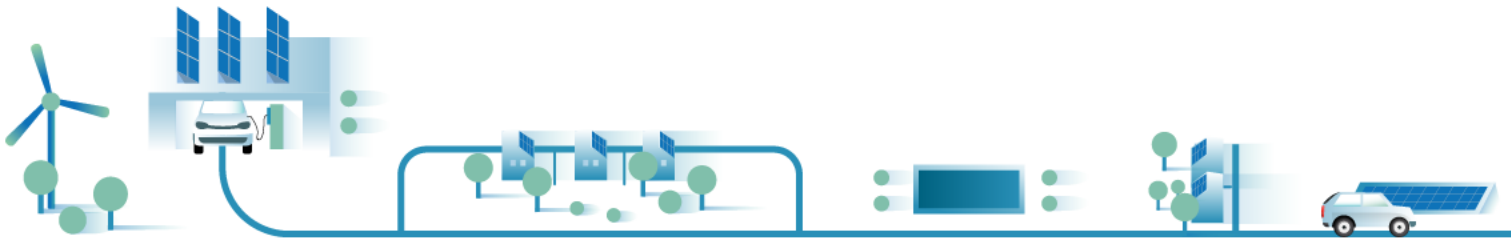
Impact of EV / RES coordination in Greek System in 2050

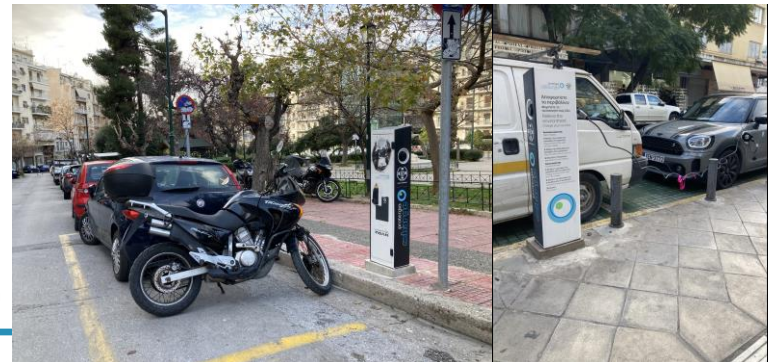




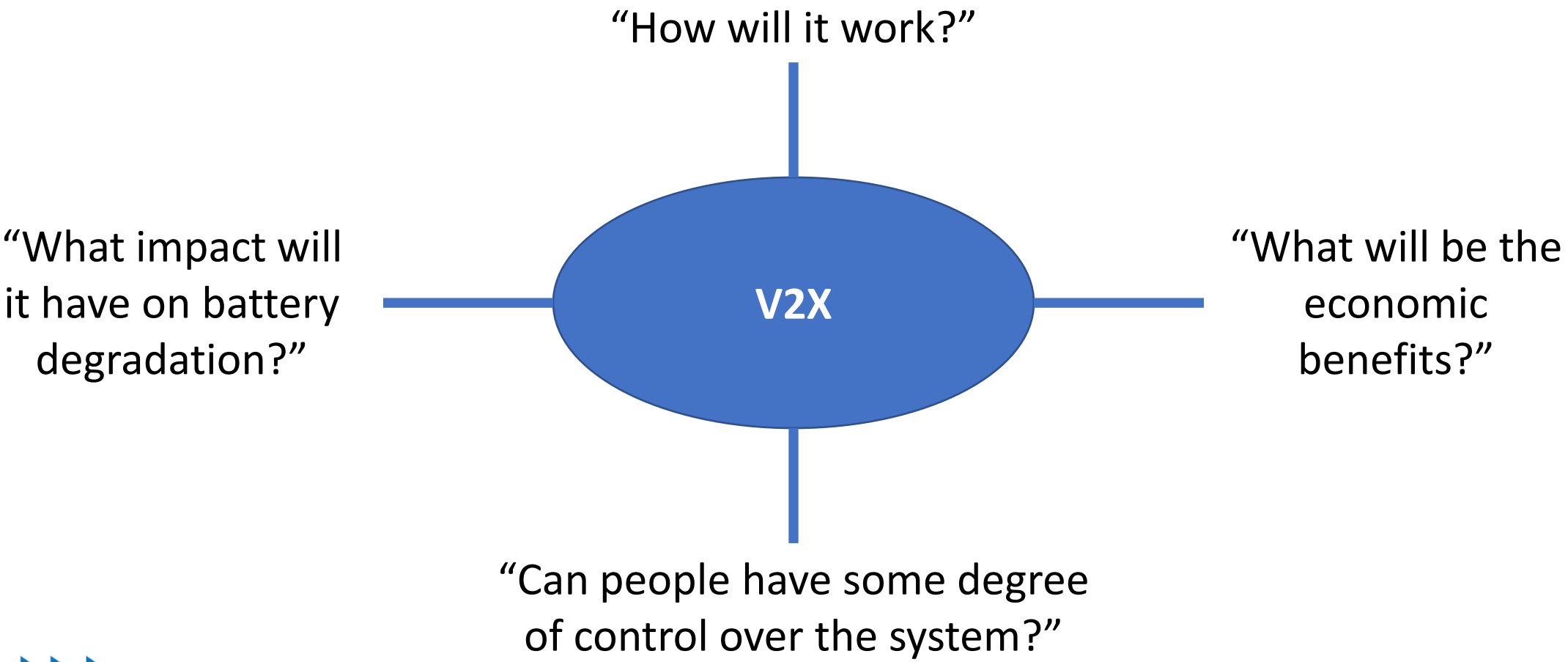
EV4EU – Users perspectives





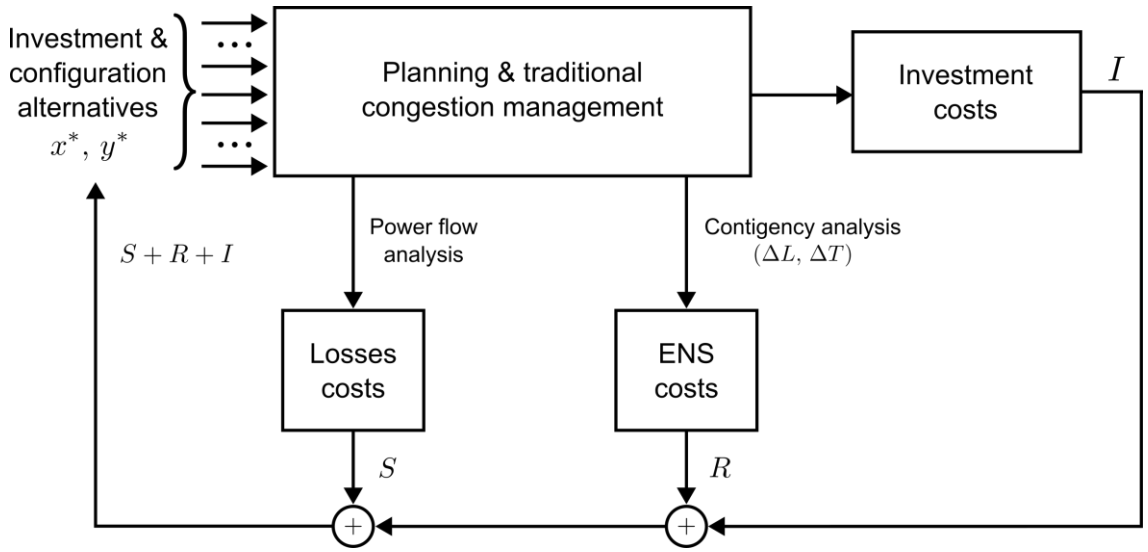


EV4EU – Users perspectives

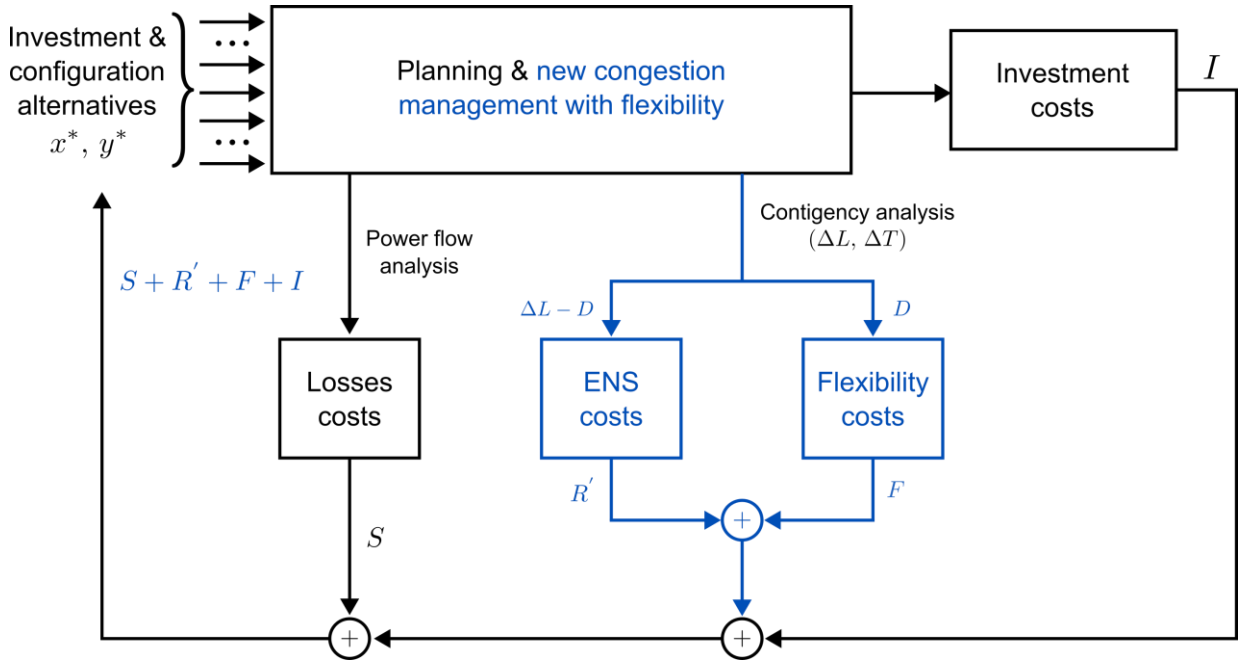


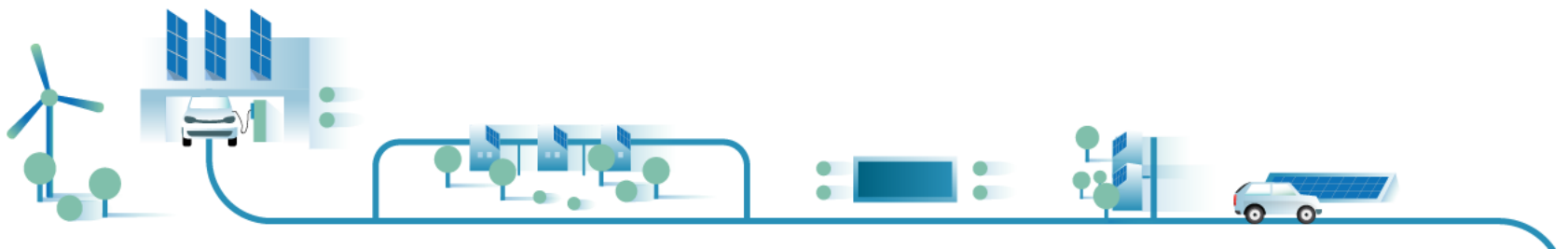
EV4EU – Modeling EVs flexibility in distribution system planning

OPTION 1
Low Flexibility Availability

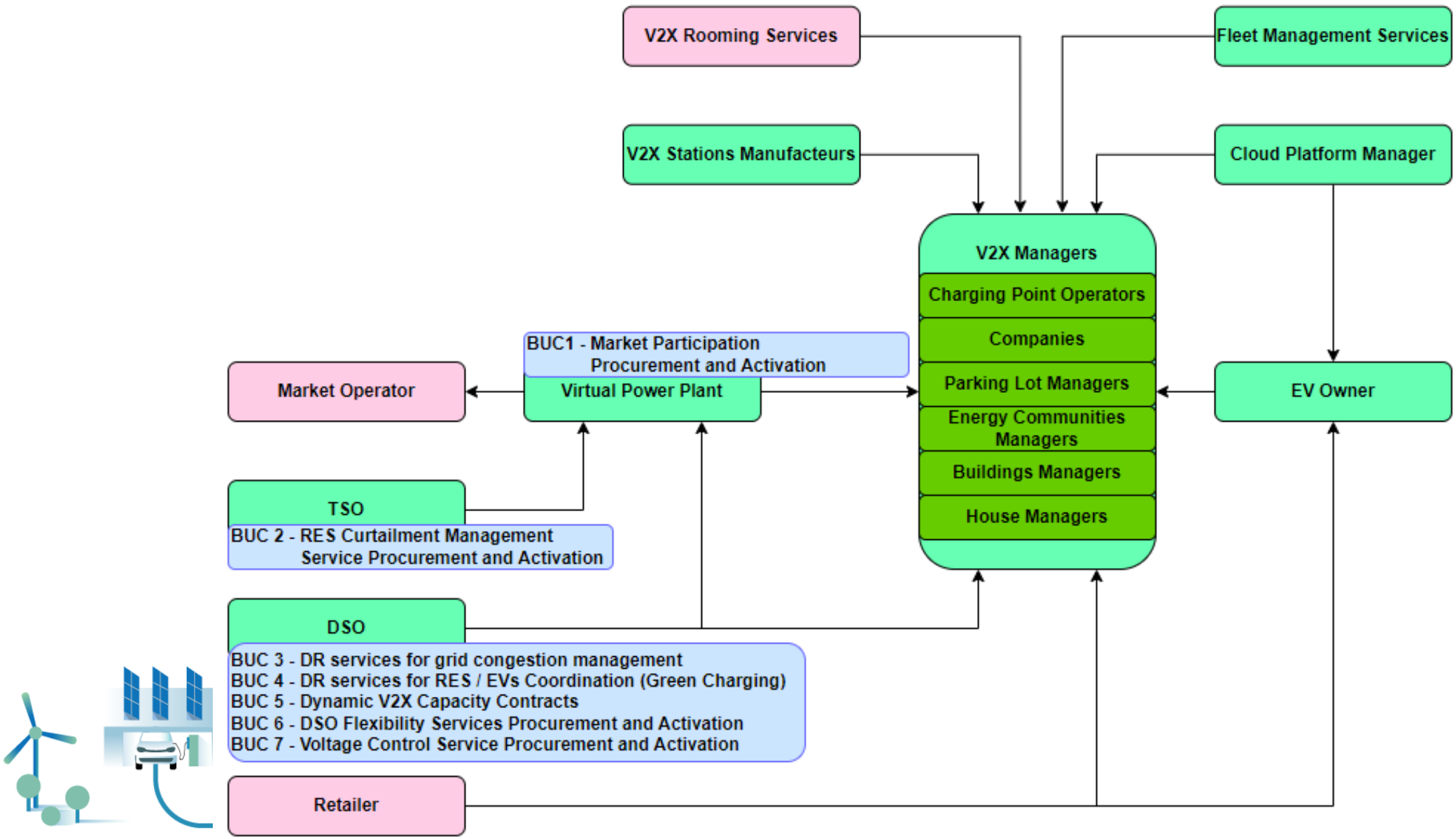


OPTION 2
High Flexibility Availability





EV4EU – Business Use Cases and Business Models



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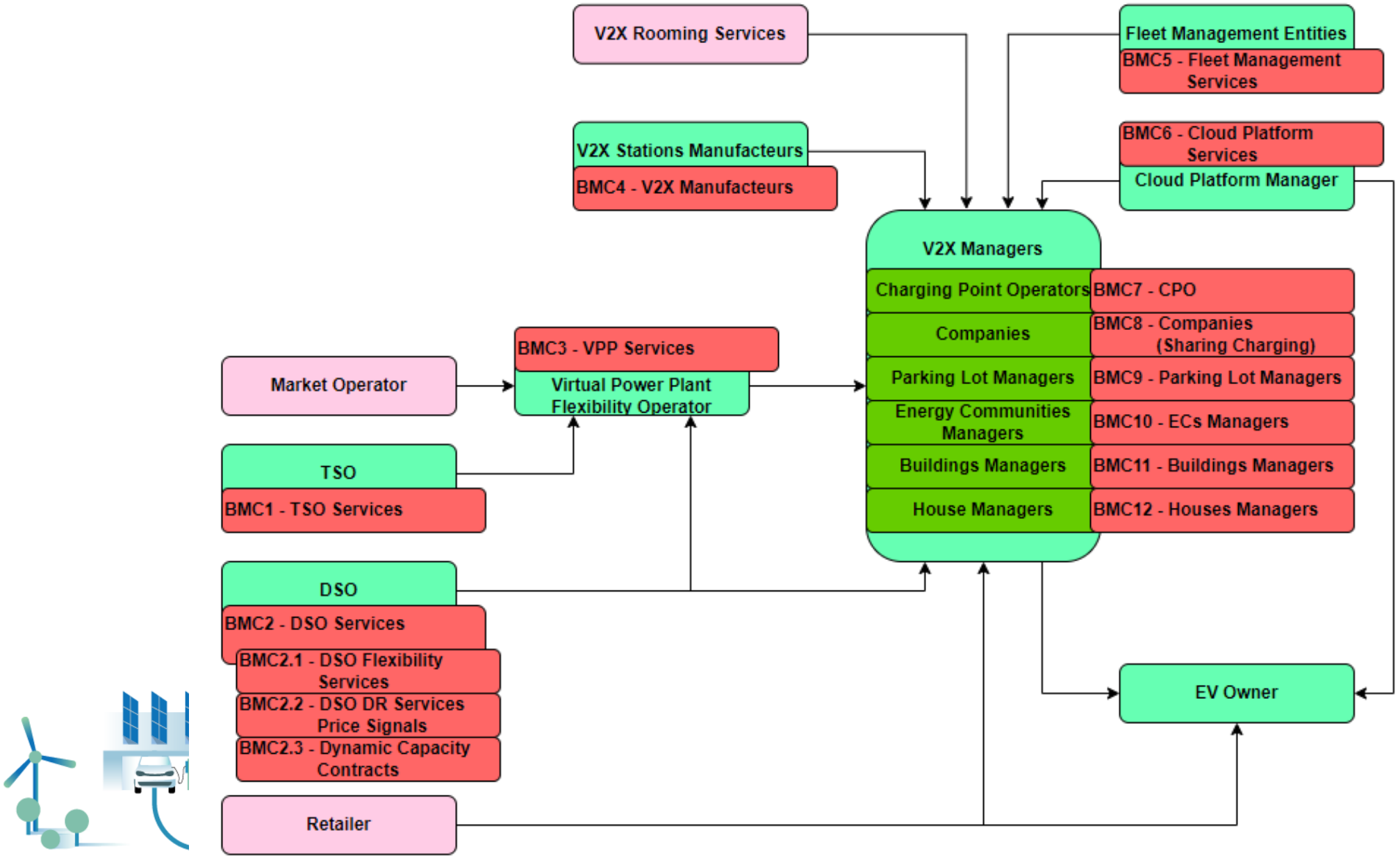
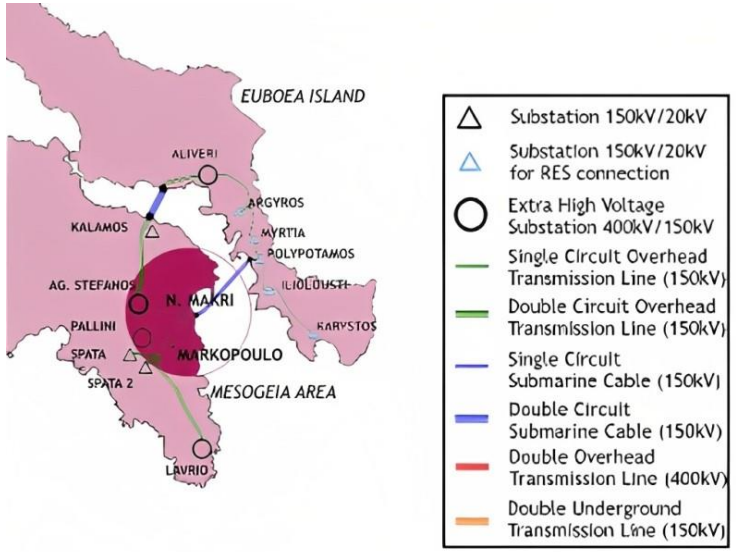
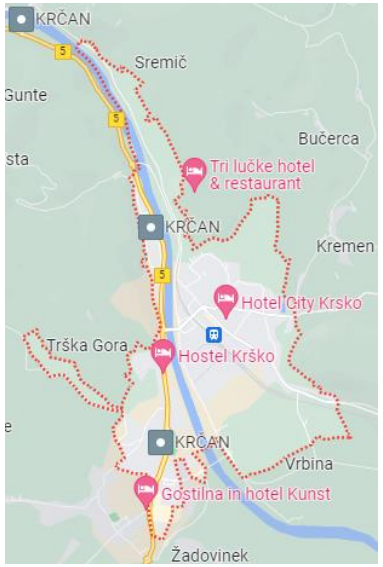


EV4EU – Demonstrators

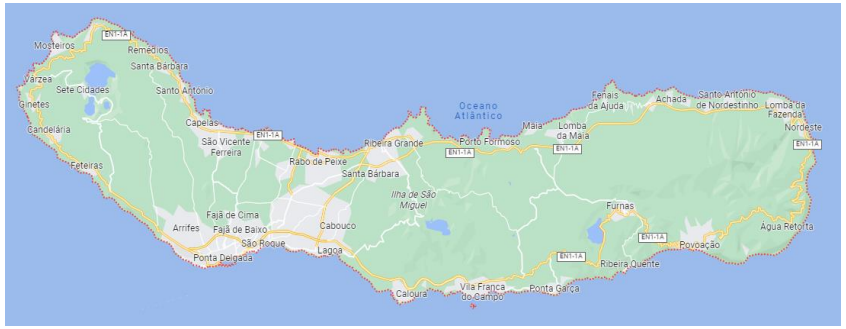
Greece
CPO / DSO
Services



Slovenia
VPP / Market / DSO
Services



Portugal
Houses / Buildings / Companies



EV4EU – Demonstrators (DK)

Designing the parking lot case at Risø (B330) – 8 chargers – 16 EVs

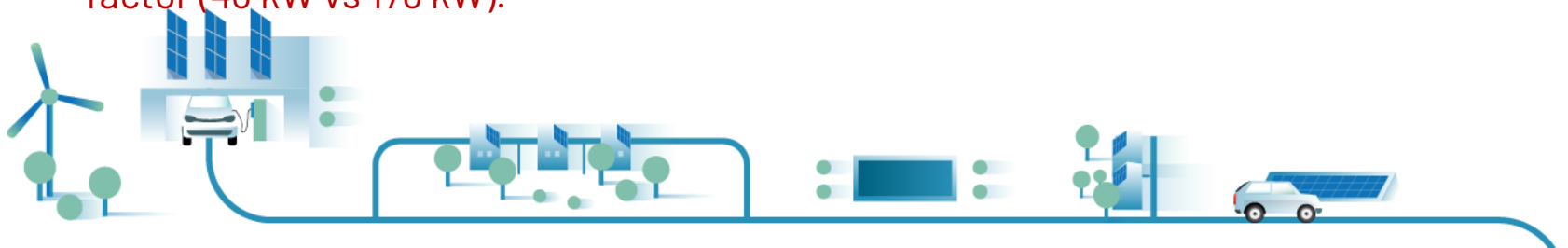
Objectives – 3 chargers (up to 6 cars connected)

- Power limitation/sharing (considering various mixes of cars)
- Follow the (renewable) generation (real syslab or fake signal)
- Phase balancing
- Energy scheduling (priorities)
- Charge by price/CO2 (spot-based)
- Robustness against loss of comm. (low power mode)
- Frequency control

PCC with 43 kW capacity

Objectives – 8 chargers (up to 16 cars connected) – currently 3 chargers

- **Timeline: Installation in June 2023**
- The grid capacity we will get is 43 kW (63A 3p), therefore a 25% utilization factor (43 kW vs 176 kW).



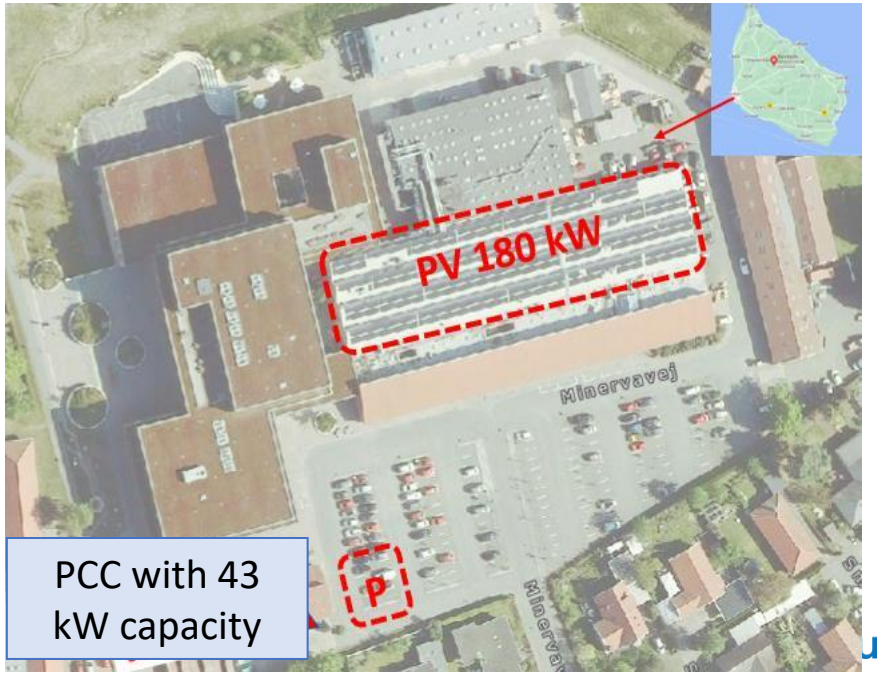
EV4EU – Demonstrators (DK)

Pilot at Campus Bornholm part of EV4EU project – 6 chargers (12 EVs)

Objectives:

- To demonstrate the technical feasibility of the autonomous distributed charging process of independently controlled EVs to fulfil grid services and maximize utilization of locally produced renewable energy.
- To demonstrate and compare, in parking lots and buildings, the benefits of V1G with V2X.
- To measure the power exchange rates between parking lots and distribution grid considering DR programs (UC3) based on price signals sent by the DSO (UC12).
- See previous demo, but with more focus on the price signals.
- Phase switching/shuffling
- **Timeline: installation to begin in August 2023 onwards**
- The grid capacity we will get is 43 kW (63 A 3p), therefore a 33% utilization factor (43 kW vs 132 kW).

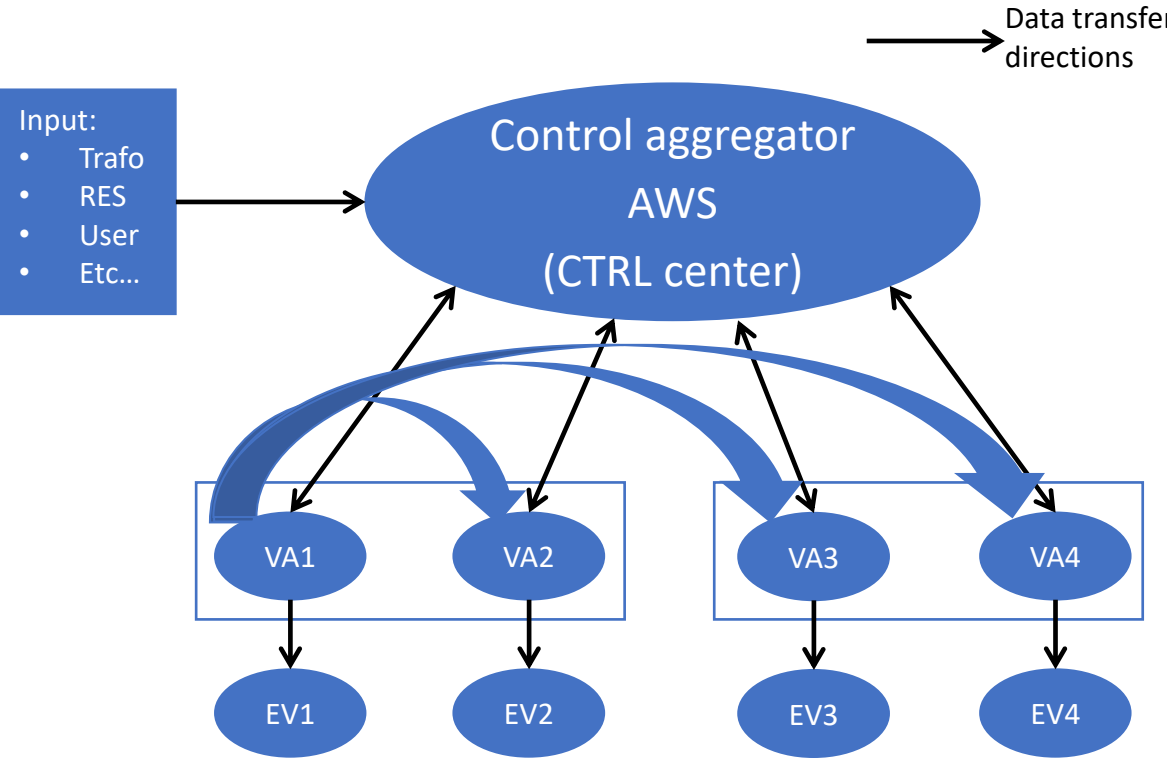
Campus Bornholm Minervavej 1 Rønne Parking lot



PCC with 43 kW capacity

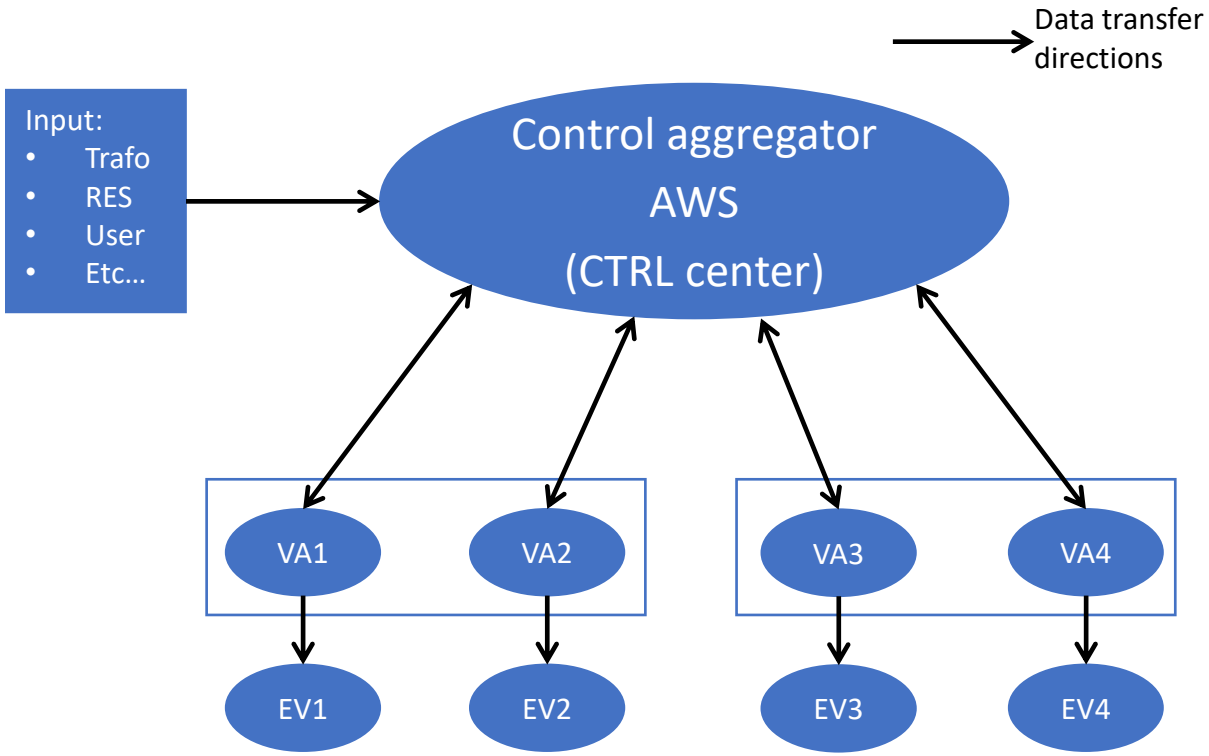
EV4EU – Demonstrators (DK)

Semi-distributed Control



”you do this, you do this, you do this, you do this…”

Distributed Control



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Part of decision making happens in each VA (e.g. priority)

EV4EU – Demonstrators (DK)

Demonstration of ACDC and EV4EU projects in Roskilde

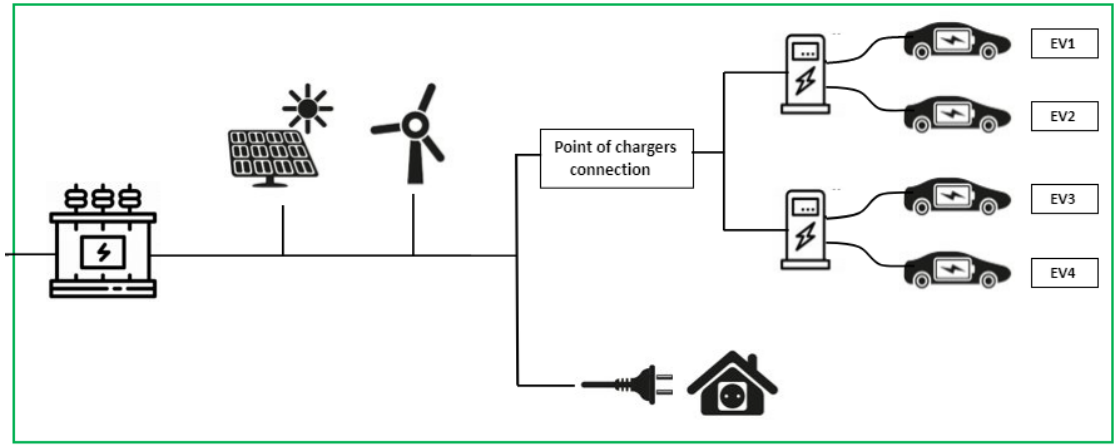
Next live demo 20-21 September 2023, Risø campus (DK)

Test cases demonstrated at last demo 9 November 2022

-) Power sharing & power limitation

-) Follow the (renewable) generation

-) Communication failure



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