



RAP[®]

REGULATORY
ASSISTANCE PROJECT



28 Nov 2024

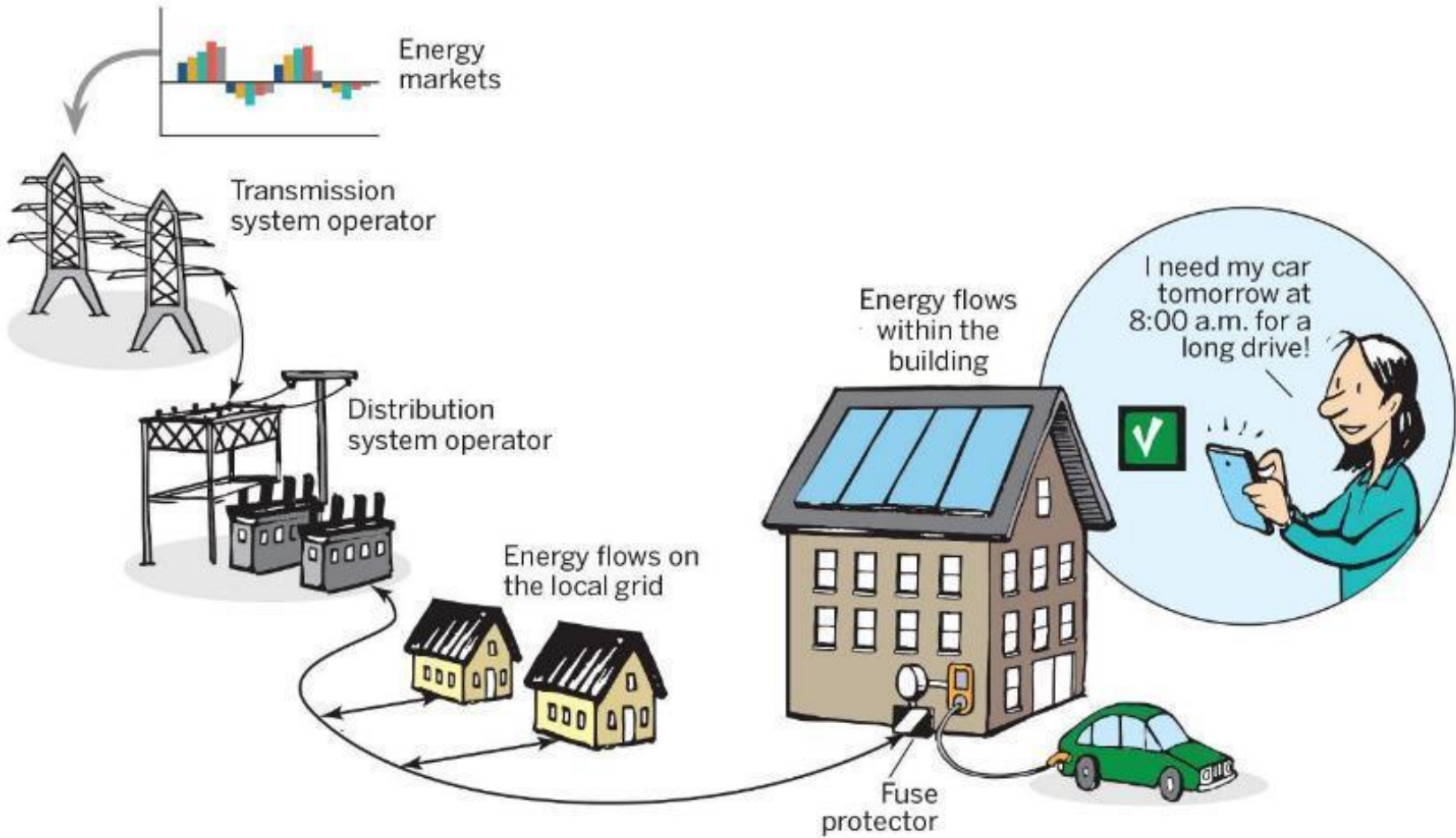
How regions can prepare for smart transport electrification

Polis Annual Conference

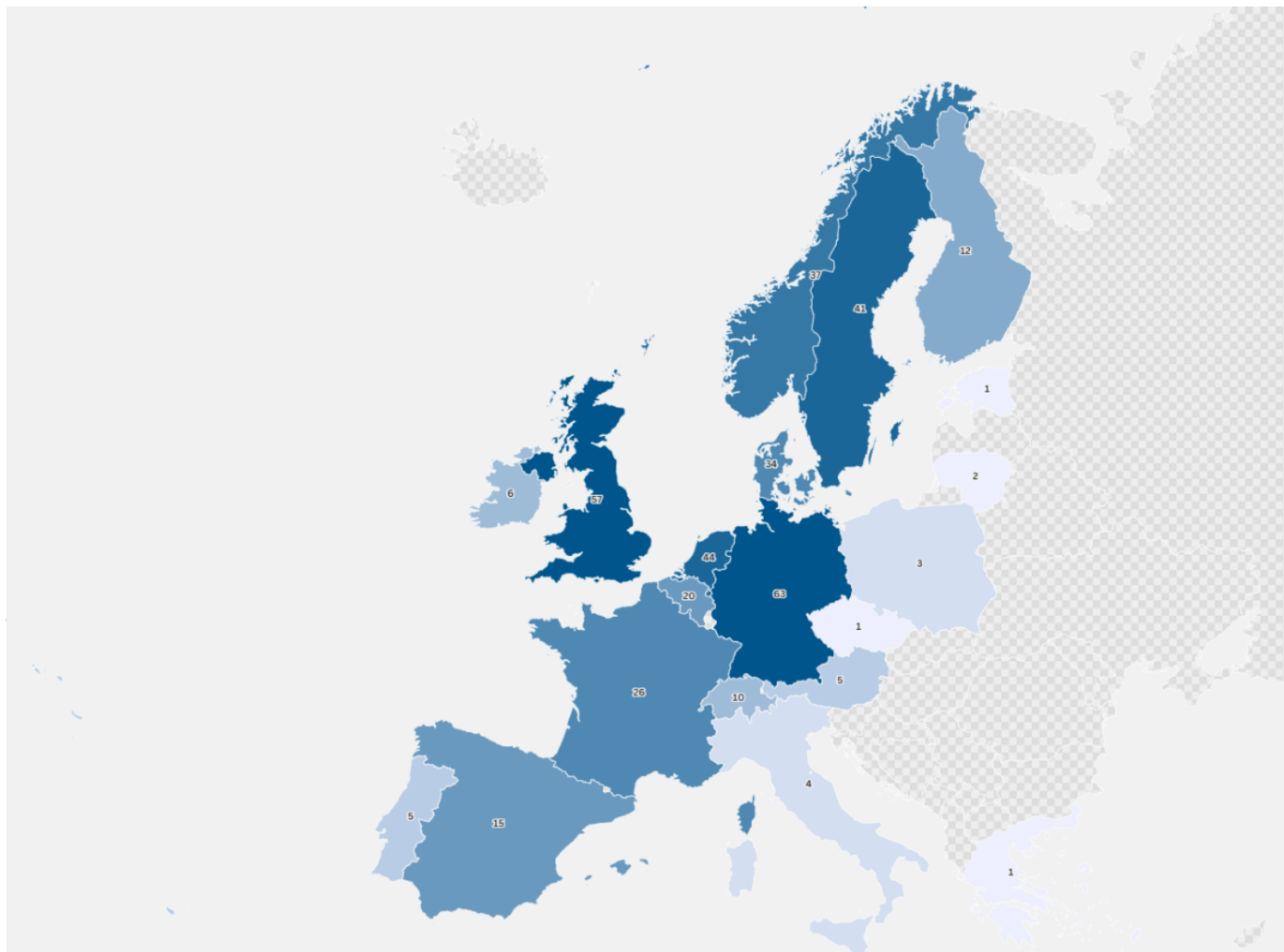
Dr. Julia Hildermeier
Senior Associate
jhildermeier@raponline.org



Smart EV charging is a win-win-win

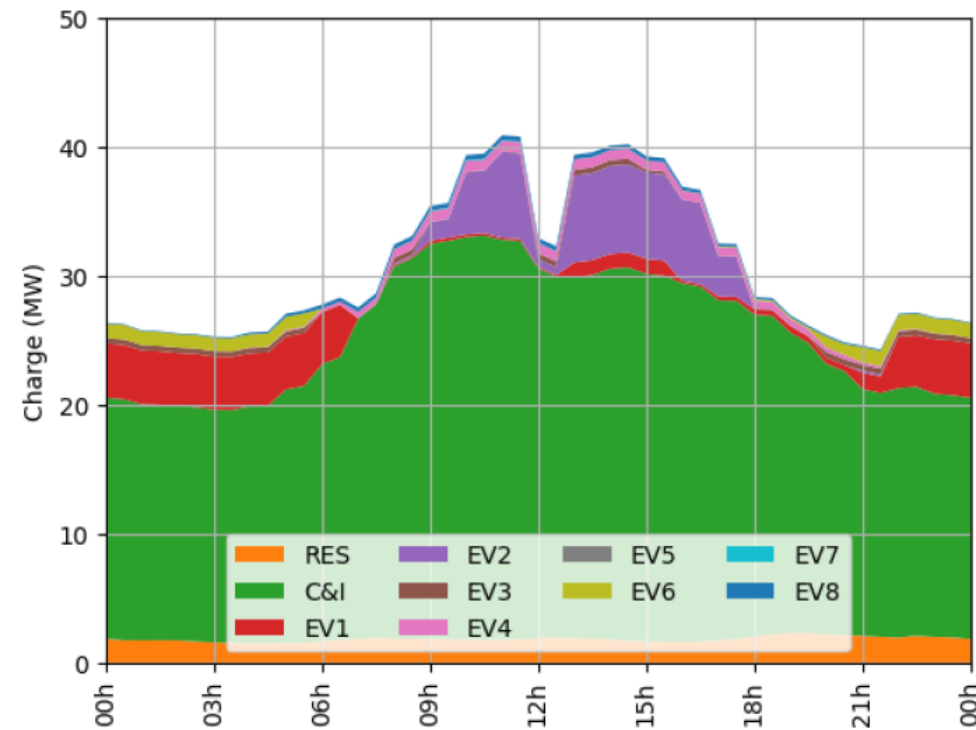
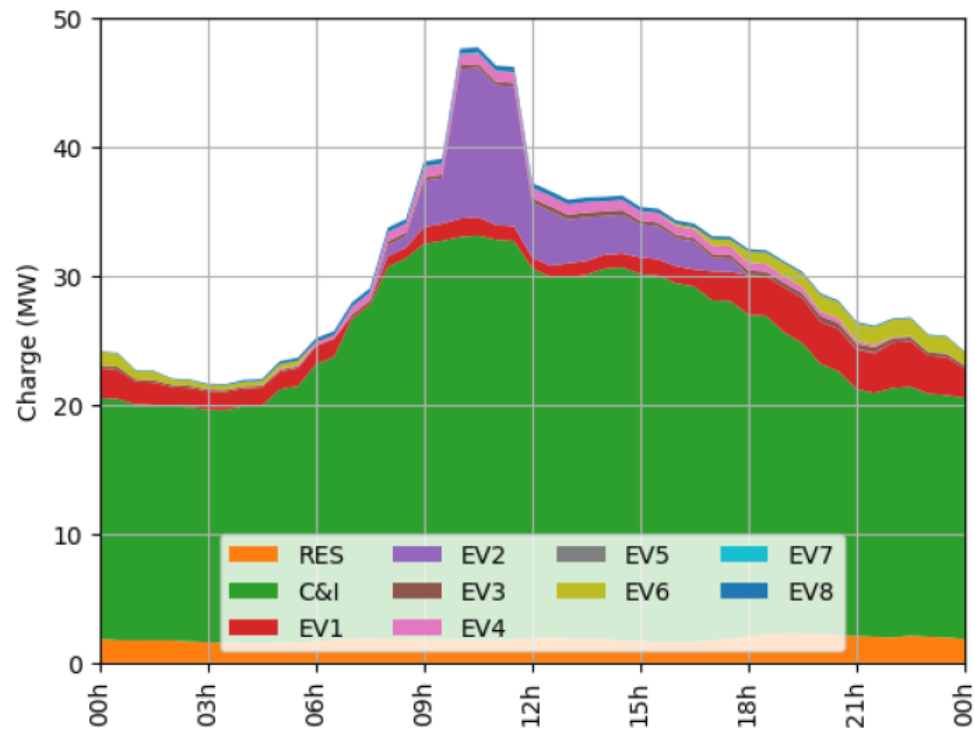


EU market for flexibility tariffs is growing



Case study France: smart workplace charging

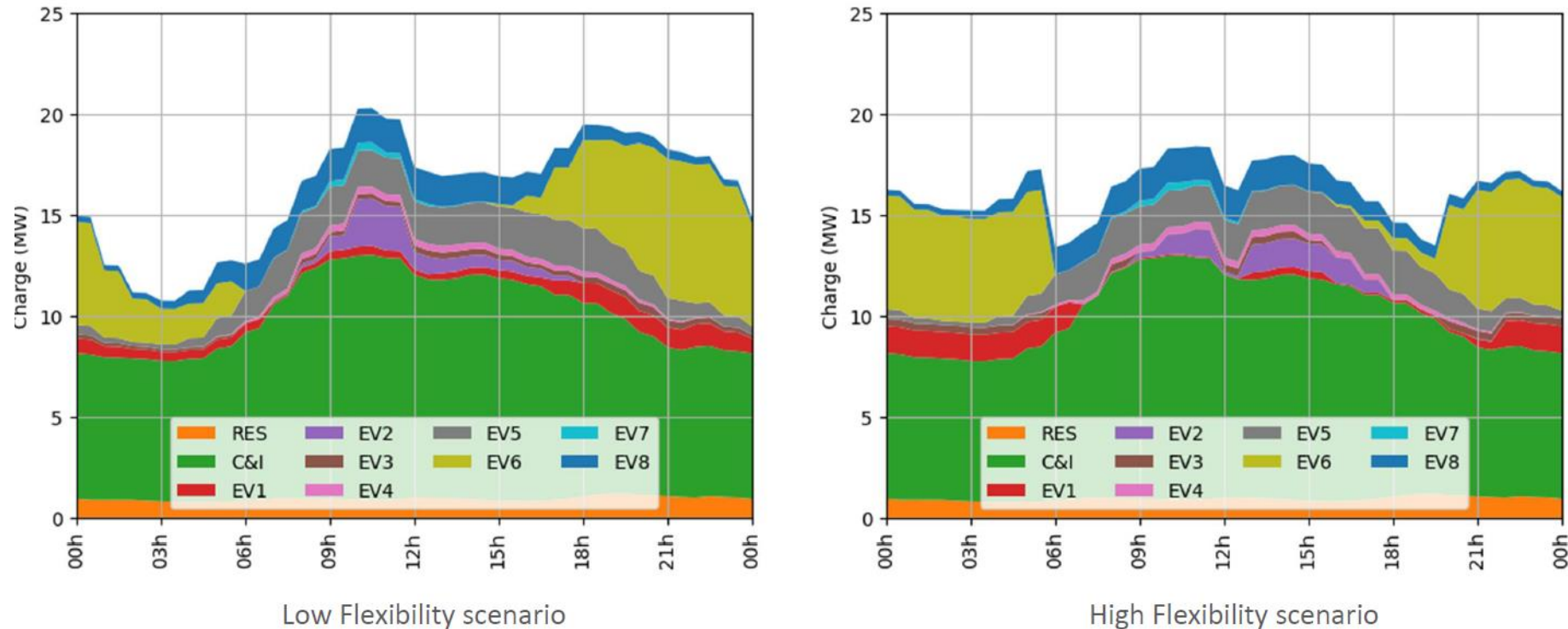
▲ Load curves in a business zone at the peak consumption in low flex and high flex scenarios.



Case study results for grid modelling in Essonne, France. Source: Artelys for RAP/ICCT, unpublished

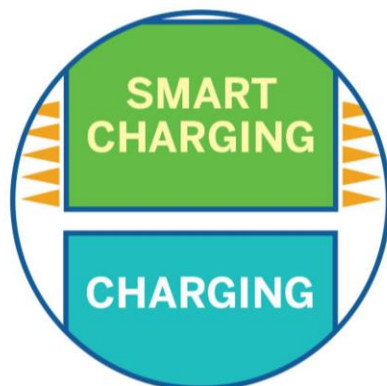
Case study France: smart depot charging

▲ Load curves in a highway station area at the peak consumption in low flex and high flex scenarios.

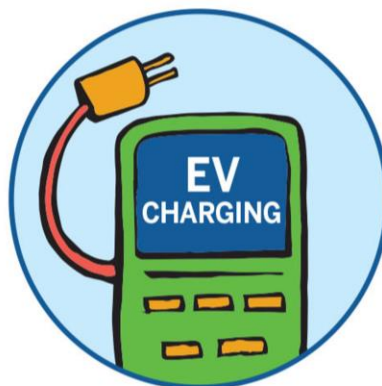


Case study results for grid modelling in Essonne, France. Source: Artelys for RAP/ICCT, unpublished

Policies for smart EV grid integration



Make smart charging the default everywhere.



Make public charging smart too.



Empower consumers to make informed choices.



Improve rewards for consumer flexibility.



Stack multiple services for smart charging.



Make local grids 'smart charging ready.'

More information

- Flex and the City: cities need dynamic pricing for public charging
- EV smart charging: A golden opportunity for distribution system operators
- The joy of flex: Embracing household demand-side flexibility as a power system resource for Europe

RAP
REGULATORY ASSISTANCE PROJECT

How to develop smart EV charging infrastructure

A guide for public authorities

With the Alternative Fuels Infrastructure Regulation (AFIR) now in force, national, regional and local authorities need to get EV grid integration right from the outset.

Below we present the building blocks to ensure public EV charging is accessible, transparent, and affordable for all users, contributes to greater flexibility in the energy system and helps public authorities meet decarbonisation targets.

Smart charging can help integrate more renewables, use existing grid infrastructure more efficiently to connect more grid users, and reduce system costs. By shifting EV charging load that is flexible (and most of it is), every electricity user benefits from lower overall system costs.

- Pricing**
The guiding signal for adapting charging.
 - Make user costs and benefits transparent** (€)
 - Time-varying prices are needed to signal grid and system needs and provide consumers reliant on public charging infrastructure with lower-cost charging options.
 - By shifting EV charging, users save on charging costs, help alleviate pressure on the grid and support the integration of renewables. **This reduces costs for all electricity system users.**
- Planning**
Plan with the grid and users in mind for quicker rollout, better experience and more cost-efficient operation.
 - Include smart charging in planning** (Calendar icon)
 - Ensure the right type of EV charging infrastructure is built **based on current and future user needs, feasibility, and benefits** for the grid, transport, energy, and users. Especially locations where cars typically park for longer periods of time, allowing for flexible charging.
 - Consider **smart charging in planning by addressing flexibility** to include new chargers in limited capacity areas and to make local grids smart charging-ready.
- User at the centre**
Putting the user in control.
 - Focus on the user** (User icon)
 - Look at different needs for different users, such as professional drivers, and ensure coverage in underserved areas.
 - Give users information and control over smart charging, so that users can choose and be informed about options.
- Market access**
Taken together, EVs are like a large power plant. Give them equal market access.
 - Ensure equal market participation for EVs** (Scales icon)
 - Distributed energy resources (DERs) such as EVs **should be allowed to participate in all energy markets** – also ideally for local flexibility – as they're a readily available and highly responsive flexible resource to the grid.



About RAP

Regulatory Assistance Project (RAP)[®] is an independent, global NGO advancing policy innovation and thought leadership within the energy community.

Learn more about our work at raponline.org