

POLIS

CITIES AND REGIONS FOR TRANSPORT INNOVATION

ANNUAL
CONFERENCE

2022

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1 December, 2022
Brussels, Belgium



#POLIS2022

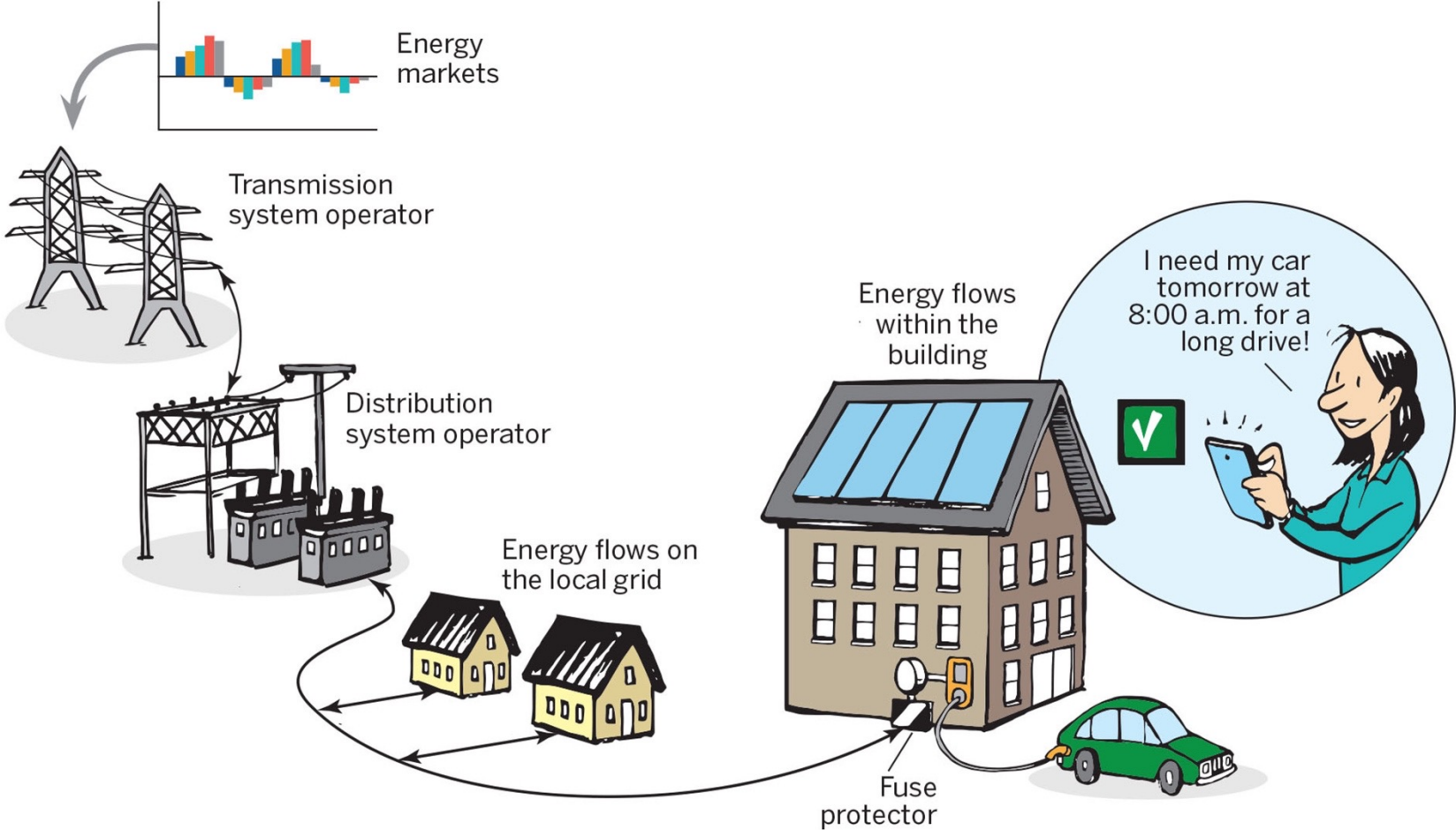
Time is now: smart charging of electric vehicles

1E: Changing Gears: Accelerating the Uptake of Electromobility



*Jaap Burger
Senior Advisor
Regulatory Assistance Project*

What is smart charging?

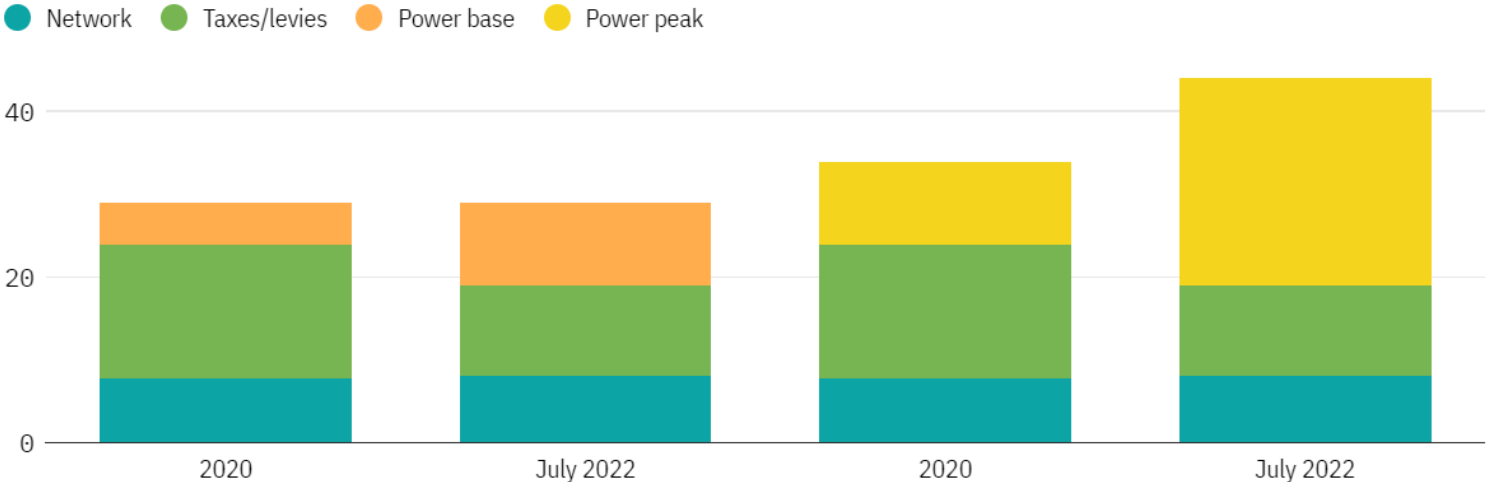




Smart charging helps to optimize in times of high energy prices

In Germany the difference between base and peak power prices grew from 17% to 52% between 2020 and July 2022

Residential power supply in Germany in Ct./kWh

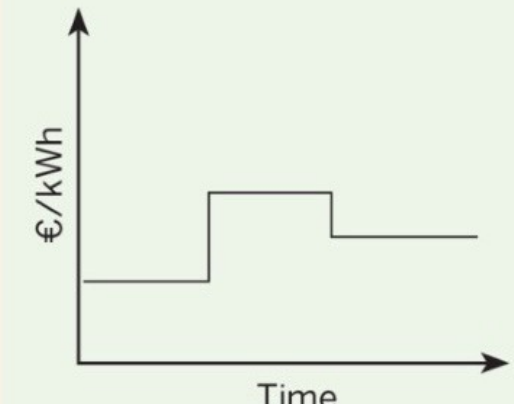
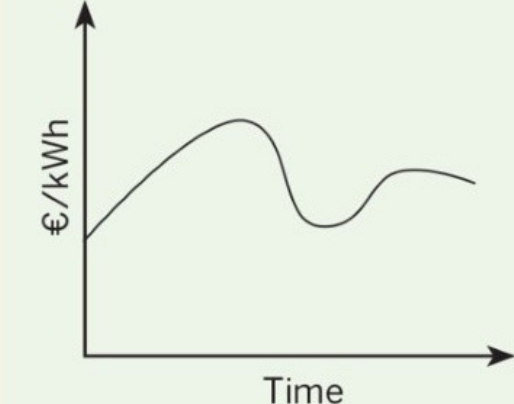


Average common indices for base prices in 2020 and July 2022.

Source: BDEW

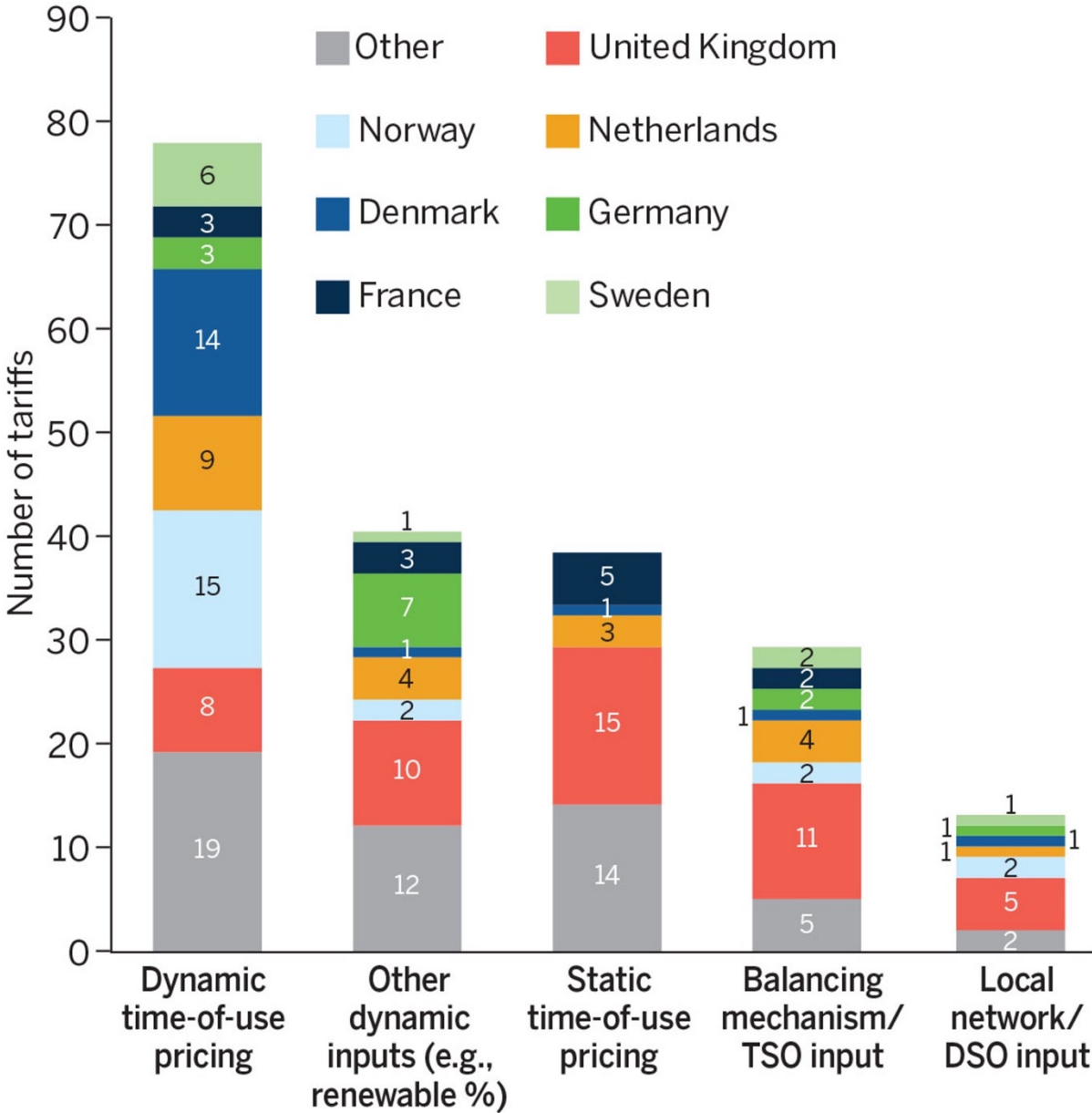
ENERGY MONITOR

Tariffs

Type of tariff	Nature of pricing	Illustrative graphical representation
Static TOU pricing	Static	 <p>The graph shows a step function representing price over time. The vertical axis is labeled '€/kWh' and the horizontal axis is labeled 'Time'. The price starts at a low level, then jumps to a higher level for a period, and then jumps to a medium level for the remainder of the time.</p>
Real-time pricing	Dynamic	 <p>The graph shows a smooth, fluctuating curve representing price over time. The vertical axis is labeled '€/kWh' and the horizontal axis is labeled 'Time'. The price starts at a low level, rises to a peak, falls to a trough, and then rises to a second, lower peak.</p>

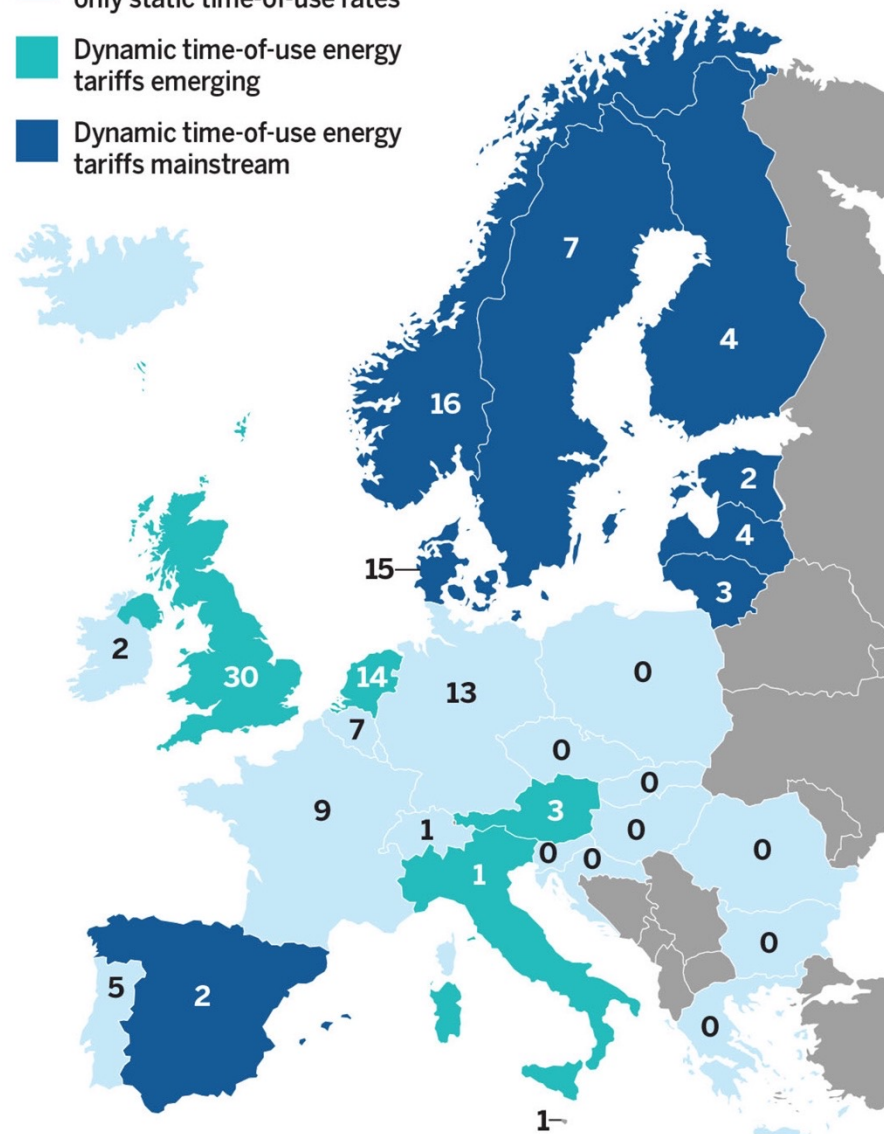
Source: IRENA 2019

139 Smart tariffs and services found across Europe



Tariffs and services distributed unevenly across Europe

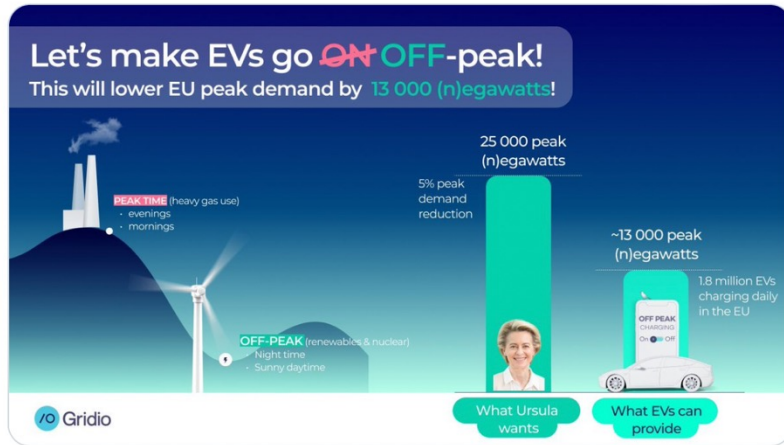
- No time-of-use energy tariffs or only static time-of-use rates
- Dynamic time-of-use energy tariffs emerging
- Dynamic time-of-use energy tariffs mainstream



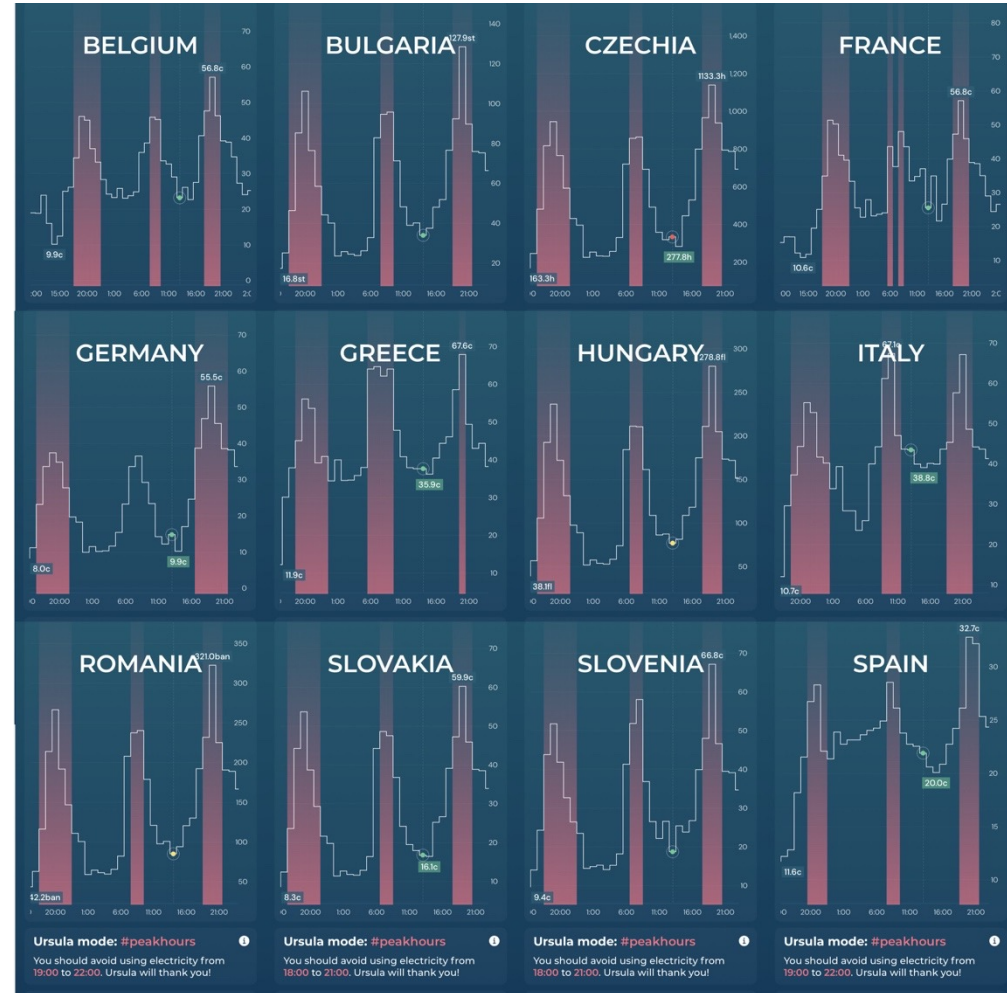
Peak demand reduction

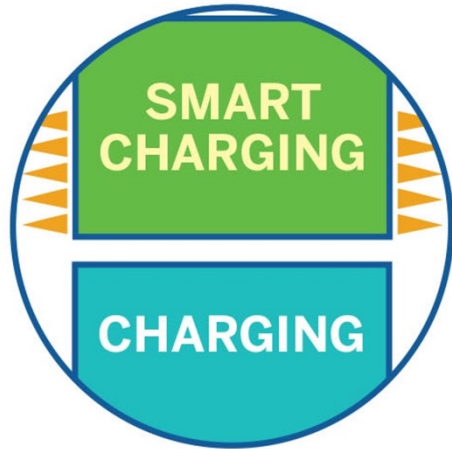


There are 8 million electric cars on EU roads, and by shifting their charging away from peak hours, we can meet up to half of the European Commission -5% reduction goal - without causing any disruption, as your car will be charged up in time!

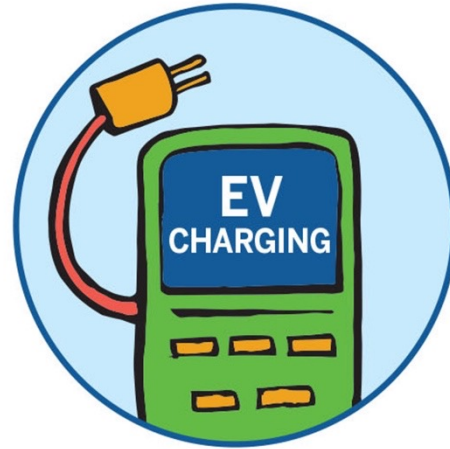


Source: [GridioApp](#)





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.'

Smart public charging, what's needed?

- Ensure the right signals are in place
- So EV drivers can choose what works best for them
- Fair remuneration & cost-reflective pricing
- Advance the exchange of information across actors and devices for effective smart charging;
 - less impact on the grid, improved utilisation rates and profitability for operators, better charging experience for all drivers

Smart public charging strategies for affordable EV charging

- Long-term renewable energy purchasing & adjusting charging demand for actual supply
 - Local value creation: Energy Communities
- Energy supply roaming via E-Mobility Service Provider
 - Range of propositions
- Dynamic (day-ahead) pricing
 - Works in & with all the above, too

Conclusion

- EVs benefit drivers, local grids and communities when smart charging is implemented well
- Public charging infrastructure can be a key enabler for services
- Services make it easy for users to participate in smart charging and make EVs responsive to (price) signals

Upcoming guide

Standards for EV smart charging – a guide for local authorities.
Planning for future-proof charging infrastructure in cities



Launch webinar 15 December, 10:30 h (CET)

[Register here](#)



About RAP

The Regulatory Assistance Project (RAP)[®] is an independent, non-partisan, non-governmental organisation dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org



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Resources

- [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](#)
- [The time is now: smart charging of electric vehicles](#)
- [Europe needs smart charging of all EVs now](#)
- [Building a market for EV charging infrastructure: A clear path for policymakers and planners](#)

