gridX

Retrofit Report 2025

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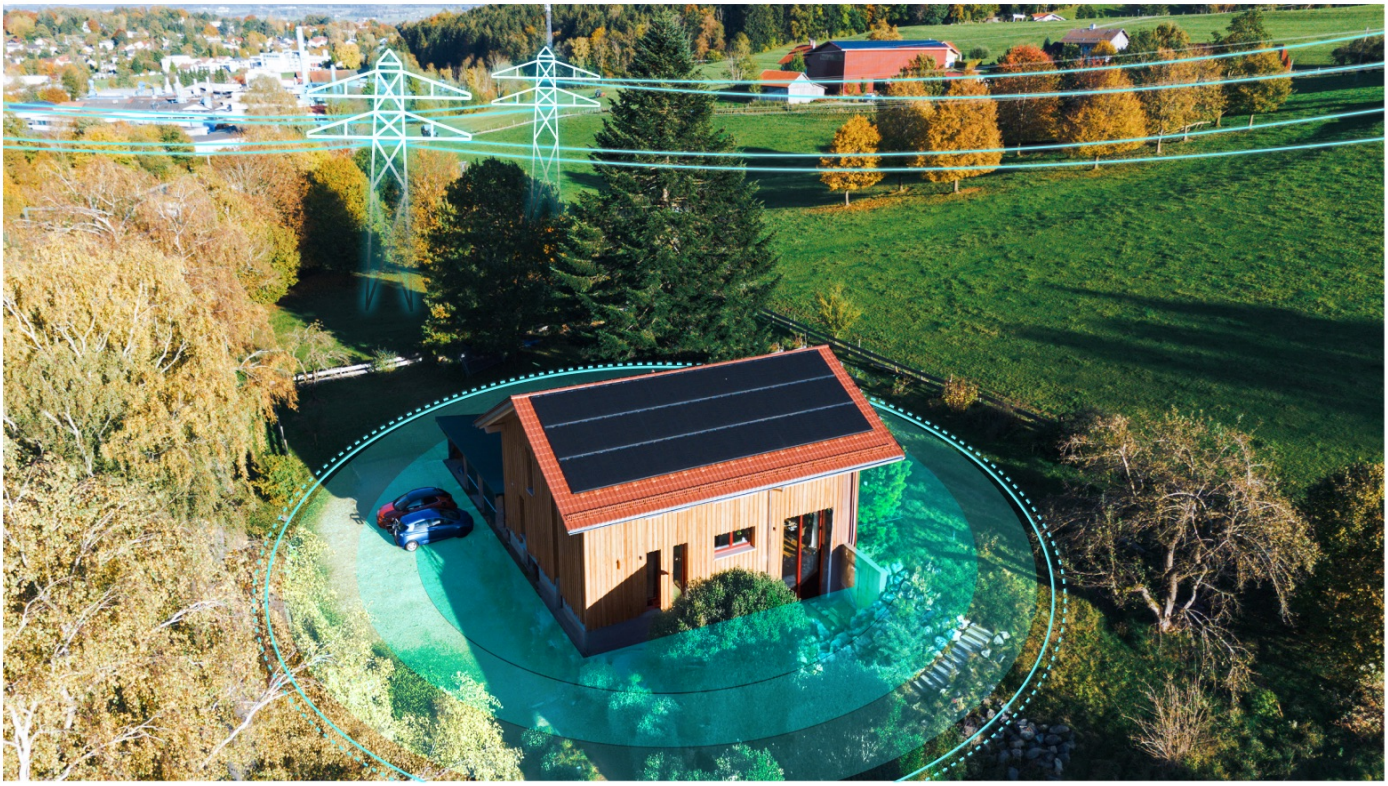
This report explores the growing retrofit market in Europe and shows how intelligent energy management unlocks the full value of existing assets – for OEMs, installers, households and the grid.



Executive summary

In this report, we explore the growing importance of retrofitting in today's energy landscape: what it is, how it works and why connecting existing assets to an EMS is key to unlocking flexibility, efficiency and new value. We also introduce retro-connect and retro-expand as practical pathways to modernize legacy systems at scale and open up new revenue and upselling schemes.

Tap into 63M legacy assets

Europe already has more than 63 million PV systems, heat pumps and wallboxes, but between 70-85% remain unconnected to any form of "smart" control, making these assets "analog". Retrofitting with an energy management system adds intelligence to this huge base, transforming the isolated devices into smart, optimized, grid-ready systems.

Benefits for energy players

Retrofitting enables OEMs, installers and utilities throughout the energy ecosystem to acquire and retain customers, upsell new solutions and tap into additional revenue streams – all while preparing legacy systems for a more flexible, connected and robust grid. By turning existing assets into smart, controllable ones, retrofitting supports business growth and boosts operational efficiency.

Customers ready for retrofits

A gridX survey of 265 asset owners found that 66% plan to add more devices within two years, making them strong retrofit candidates. Market demand varies: batteries lead in Germany and the Netherlands, while the UK will focus on adding EV chargers. 88% of respondents want all assets to work seamlessly together, making smart EMS crucial, especially as users look to save money, boost self-consumption and automate control.

Smart retrofits = great savings

Savings simulations make it clear: households that combine existing assets (i.e., retrofit) with a battery, dynamic tariffs and an EMS can unlock substantial annual savings: up to €782 in the Netherlands, £1,492 in the UK and €1,301 in Spain. In Germany, optimized setups that enable §14a Module 3 can even push yearly energy bills below zero, meaning customers make money rather than spend.

Subsidy shifts ignite demand

In 2032, over one million German PV systems will exit their 20-year EEG contracts, joining millions more facing higher, market-based tariffs. In the Netherlands, 34% of homes already have PV and will soon lose net-metering benefits. Together, these shifts push households to avoid massive price increases with smart storage and control, creating a massive retrofit opportunity.

gridX makes retrofitting simple

With XENON, existing energy assets become connected and flexible without costly replacements. Adaptable integrations, fast commissioning and strong OEM partnerships unlock major savings, new service revenues and access to millions of retrofit-ready customers. With scalable approaches, gridX turns complexity into opportunity and accelerates the energy transition.

Glossary

DER - Distributed energy resource
EMS - Energy management system
GCP - Grid connection point
HEMS - Home energy management system
OEM - Original equipment manufacturer
PV - Photovoltaic
ToU - Time of use

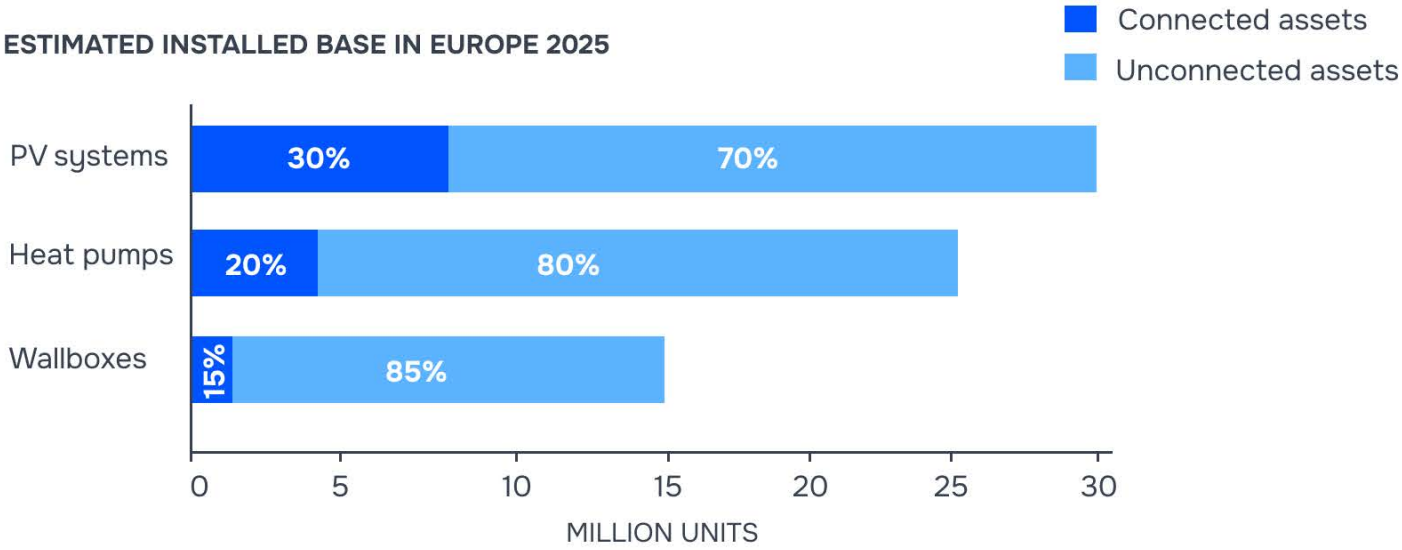
Retrofitting: The smarter way to upgrade existing energy systems

Retrofitting is the next growth phase of the energy transition

Across Europe, more than 63 million solar PV systems, heat pumps and wallboxes have already been installed – and the number keeps climbing. That includes roughly 25–30 million rooftop PV systems, around 26 million heat pumps and 12–15 million home wallboxes. The majority are unconnected to an energy management system (EMS) or any form of smart control (making them "analog" systems): close to 70% of PV systems, 80% of heat pumps and 85% of wallboxes. All that unmanaged capacity is both a technical burden and a commercial opportunity.[1-5]

Retrofitting builds on this existing base. Instead of replacing hardware, it adds intelligence, automation and connectivity to what's already there, so previously isolated devices start operating as part of a unified digital setup.

ESTIMATED INSTALLED BASE IN EUROPE 2025



Sources: 1-5

When an EMS is added into the mix, the impact grows significantly. By integrating existing PV systems, batteries, wallboxes and heat pumps into a single EMS, energy service providers can unlock real-time optimization, higher self-consumption and compliance with new grid regulations — all while opening new revenue streams. Turning analog assets into smart, connected ones not only strengthens grid stability but also enables providers to grow their customer base, sell value-added services and foster long-term loyalty.

Two approaches make it possible (more on pg. 7):

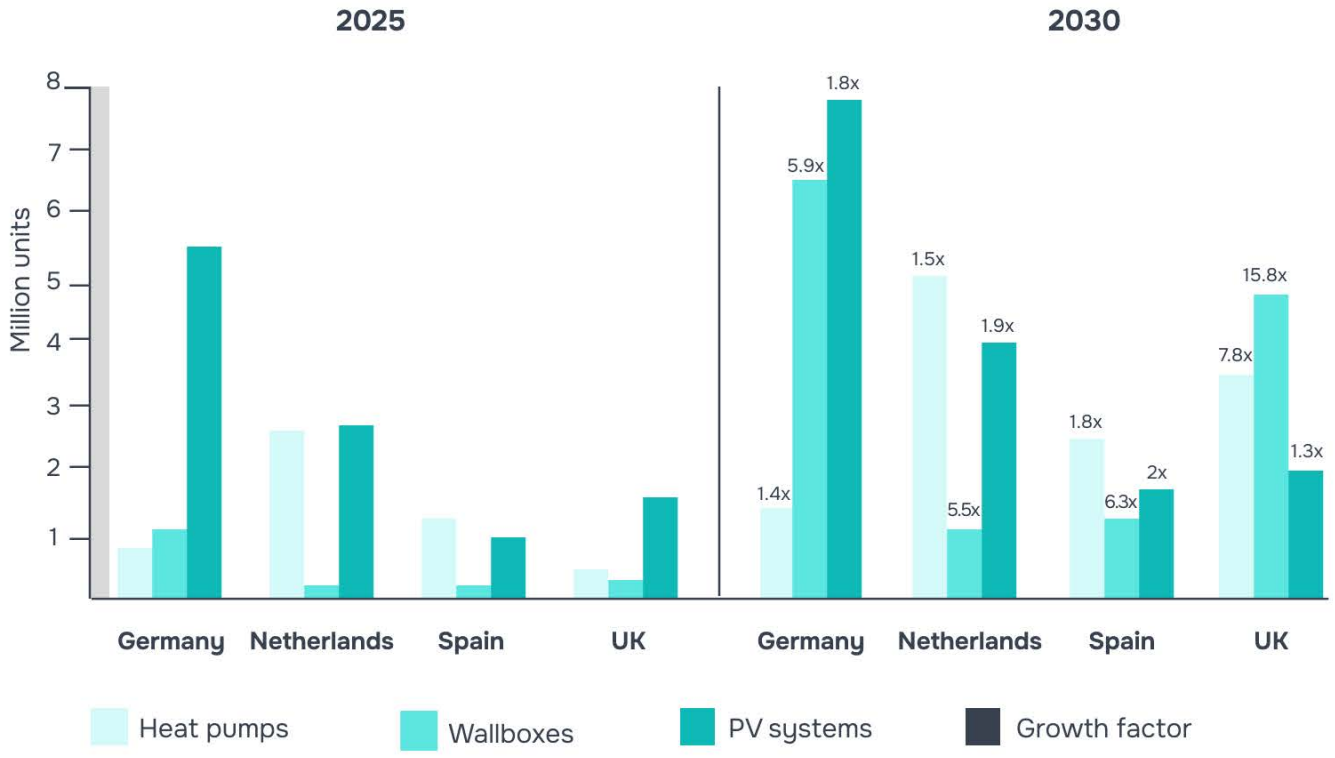
- **Retro-connect:** Links existing energy assets to an EMS through a local gateway or cloud-to-cloud integration, enabling real-time monitoring, control and optimization.
- **Retro-expand:** Connects existing assets to the EMS while adding new components – such as a battery or heat pump – to create an integrated, flexible and fully optimized multi-asset energy system.

These approaches turn existing installations into intelligent, grid-ready systems. And this is where retrofitting with an EMS delivers its real impact.

The biggest retrofit players in Europe

Millions of installed assets are waiting to be made smart. Germany alone has roughly five million households that could be retrofitted today; the Netherlands nearly four; Spain and the UK over three.[6-9] By 2030, the numbers will climb even more as PV systems, EV chargers and heat pumps continue to multiply. It's now a race to smartify and connect these millions of isolated DERs. Those who move first will capture the biggest share of this rapidly expanding market.

UNMANAGED ASSETS IN EUROPE TODAY VS PROJECTED RETROFIT POTENTIAL BY 2030



Sources: 6-12

Please note: All numbers are estimated figures, analyzed by gridX using numerous sources.

Retrofitting is what will bring the energy transition to scale. The market is alive, tangible and already embedded in existing infrastructure, yet tapping into this potential isn't simple. Every home, every device, every grid connection has its quirks. Integrating a patchwork of legacy systems requires more than hardware upgrades. It demands a digital backbone that can coordinate them all. The opportunity is massive, but so is the complexity. Connecting what already exists is where the real work begins.

> "For us, the real value of retrofitting lies in hardware independence. Many homes already have their own mix of brands and technologies, and when new components like batteries are added or inverters are replaced, the challenge is to make everything work together. An open energy management system allows seamless integration across multiple OEMs, turning complexity into simplicity for the installer, the customer and for us."

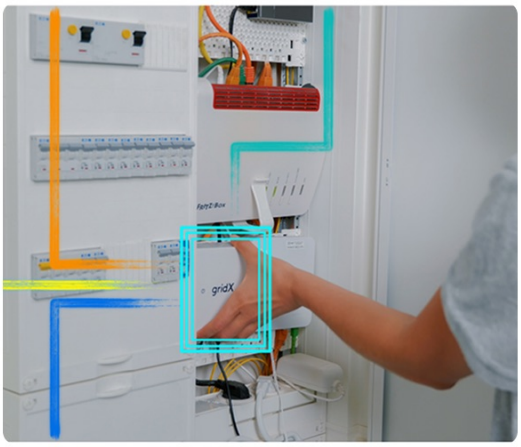
Thijmen van Nijnanten
Chief Product Officer
Pan-European PV installer

Retrofitting + EMS = The perfect match

Retrofitting only delivers real value when all energy assets – old and new – operate as one seamlessly coordinated system. An EMS enables this by acting as the digital layer that connects, monitors and optimizes every component, turning isolated infrastructure into an intelligent, robust network that can respond to conditions and price signals in a grid-friendly way.

How an EMS brings every retrofit together

Unifies diverse technologies
Older and newer devices speak different "languages." An EMS bridges protocols and manufacturers, ensuring seamless communication and centralized control.



Modernizes without replacement
Instead of unnecessary and costly hardware swaps, an EMS adds digital intelligence to existing assets – extending their lifespan and performance. Other assets can also be easily added to the household setup, creating upsell opportunities for installers and energy service providers, while simultaneously saving money for end users.

Reduces complexity
By standardizing integration and providing a single interface, an EMS eliminates the technical headaches of combining legacy systems with modern assets.

Creates new business value
For utilities and installers, retrofitting through an EMS opens up new business opportunities for service-based revenue streams that have a predictable cash flow. This includes optimization services, flexibility programs and smart asset upgrades. Likewise, a detailed administrator dashboard enables service providers and installers to view and track installed systems and perform remote maintenance.

XENON simplifies retrofitting from start to scale

gridX's EMS, XENON, has a wide range of device integrations, intuitive interfaces and a plug-and-play setup that make connecting a variety of assets fast and reliable.

With XENON, utilities and installers can modernize existing systems without replacing them to unlock efficiency, scalability and new market potential.

> "For us, retrofitting represents the next step in the evolution of smart energy. Through seamless integration with a smart EMS, we ensure our technology remains adaptable, reliable and ready for the energy transition."

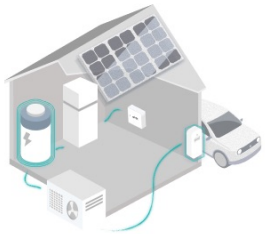
Sebastian Fassbender
Technical Sales Manager
SUNGROW

Retrofit setups to connect and expand

Every customer's energy journey starts differently – some with a PV system plus battery, others with an EV charger or a heat pump. Regardless of where they begin, the challenge remains the same: connecting diverse assets into one intelligent system. Retrofitting makes it possible to integrate all legacy and new components seamlessly, creating a unified, future-proof energy ecosystem.

Retro-connect and retro-expand

Retro-connect: The simplest form of retrofitting, retro-connect integrates existing systems – PVs, heat pumps, EV chargers – into XENON to enable intelligent control and monitoring. This retrofit setup supports plug-and-play that can be executed by the end user.

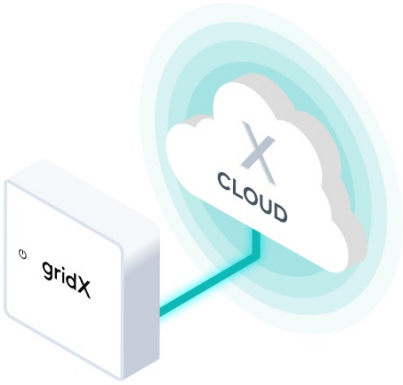


Retro-expand: Includes all the advantages of retro-connect, but also involves installing new hardware – for example, adding a battery or EV charger alongside an existing PV system. Connection(s) must be completed by an installer.

Together, these two retrofit pathways offer a scalable, low-barrier way to modernize existing energy setups. They unlock access to millions of legacy installations, create opportunities for system enhancements and enable advanced use cases like battery arbitrage or EV load shifting. End customers who want to take advantage of a new incentive program can also use retrofitting as a way to join the money-saving scheme without replacing their entire setup. This leads to long-term customer relationships and, ultimately, makes it easier to build a smarter, more flexible energy ecosystem without starting from scratch.

Cloud or gateway: The choice is yours

Retrofits can be connected cloud-to-cloud or via cloud-plus-gateway. Cloud-to-cloud setups are simple, cost-effective and require no extra hardware, while cloud-plus-gateway connections offer control, a tangible value and added reliability, even during outages. A gateway is able to handle greater complexity, and is thus more suited for multi-asset households. However, neither option is better – the right choice depends on the customer's setup and preferences.



> "Retrofitting is the key to unlocking the next phase of the energy transition. By upgrading existing systems with smart management, we can maximize performance, extend asset life and make clean energy smarter for everyone."

Michael Gutwein
Solution Manager DACH
GOODWE

How retrofitting aids customer acquisition and increases revenue

Retrofitting opens up new business potential throughout the entire energy ecosystem. Installers, OEMs and utilities each benefit in distinct ways – from expanding customer relationships to unlocking new revenue streams and accessing markets that were previously out of reach. As millions of households in Europe become retrofit-ready, the opportunity is no longer just about upgrading devices, but about strengthening entire business models.

How installers, OEMs and utilities each stand to benefit from retrofitting

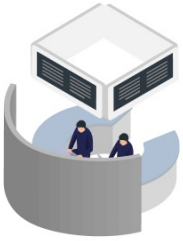
Installers

Retrofitting for installers is a solid upsell play. Past installs turn into new touchpoints to add connectivity, bring in extra devices or expand what's already there. It boosts revenue per customer and keeps installers in the picture long after the original job.

Original equipment manufacturers (OEMs)

By offering retrofit-ready products, manufacturers expand the potential value that can be captured from each customer, thus allowing them to maximize revenue from their installed base.

Once their hardware is installed, OEMs can layer simple monitoring or automation features. The real value lies in getting their devices into previously closed setups and preventing customers from drifting to competitors with more flexible ecosystems.



Utilities

Retrofitting gives energy providers a direct path to new customers. Once existing PV systems, chargers and heat pumps are connected, utilities can finally offer energy supply tariffs to households they previously couldn't reach. These connected assets also provide controllable flexibility that reduces grid stress, lowers operating costs and opens revenue opportunities without building new infrastructure.

> "To be a leader in the energy transition, no company can continue with the status quo. Providing ever-growing customer value is the only way to stay top of mind. Smart energy management opens up new revenue streams by tapping into a huge pool of customers, who have already installed energy assets in their homes. These homeowners are usually early adopters, who want to benefit from more advanced use cases and greater savings. In turn, energy service providers lock in and upsell more customers."

Lucía Rodríguez
Head of Distributed Generation Products & Services
Naturgy

End users' willingness to retrofit

265 respondents, who already have at least one asset

65 | 100 | 100

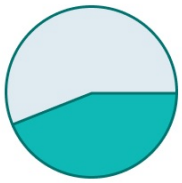
PV-Only 33%	Consumer 20%	PV + asset 46%
PV + battery	PV/heat pump/ EV	PV + heat pump/ EV/battery

63% purchased their device **≤3 years ago**

49% have no inter-device coordination

19% react automatically to dynamic prices

PLANNED ADDITIONAL HARDWARE PURCHASES IN THE NEXT TWO YEARS



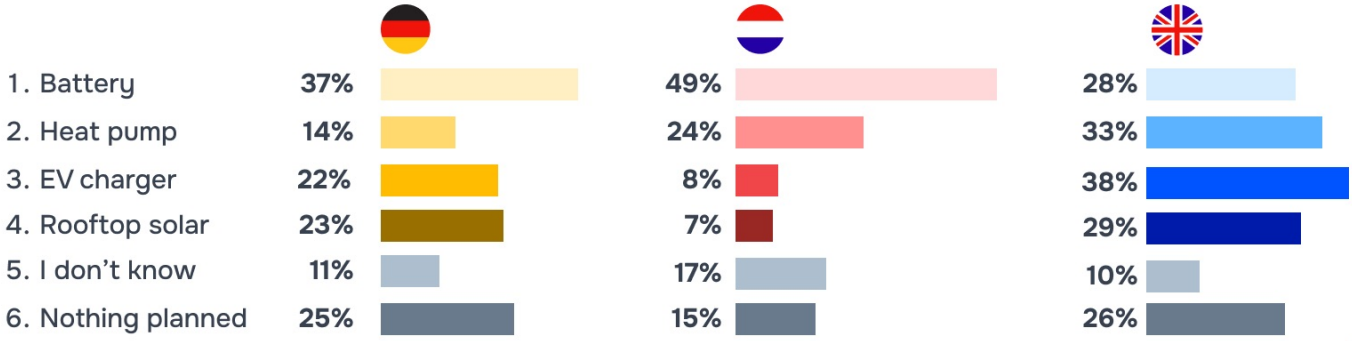
44% with PV-only plan to buy a battery

38% of consumers plan to buy a PV system

40% with PV + assets plan to buy a battery

Only **22%** of survey respondents do not currently plan to purchase additional hardware in the next two years.

PLANNED ADDITIONAL HARDWARE PURCHASES IN THE NEXT TWO YEARS BY COUNTRY



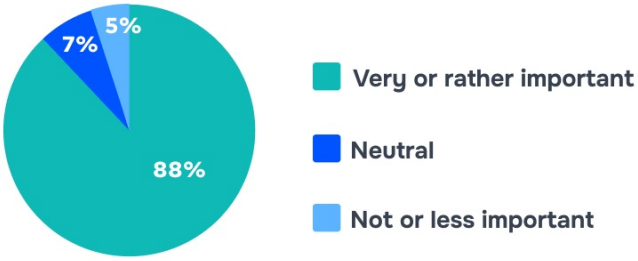
End users want to retrofit

Even though the majority of survey respondents (63%) purchased their existing energy assets less than three years ago, nearly two-thirds are planning on purchasing an additional asset in the next two years. Almost half of Dutch prosumers want to add batteries to their PV, likely due to the phase-out of net metering. Batteries are also in high demand in Germany, followed by rooftop PV. In the UK, EV chargers are the most sought-after asset, aligning with expected EV growth, then heat pumps.

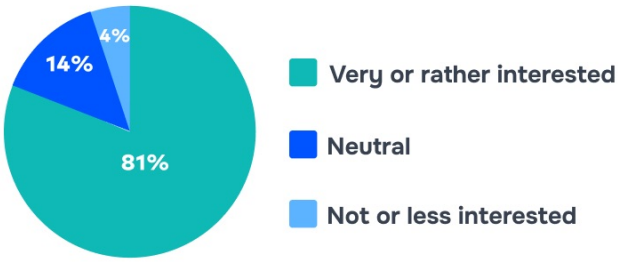
88% of the respondents want these assets to work seamlessly together, highlighting the need for smart energy management. While the primary retrofitting trigger for UK and German participants is the purchase of new assets (32%/37%), the most Dutch respondents (35%) state they are ready to get a HEMS as soon as the savings are clearly proven. Across all respondents, the key drivers are savings, maximizing solar power and automated control, all of which are achievable with XENON.

End users' willingness to retrofit

IMPORTANCE THAT THE NEW SYSTEM WORKS DIRECTLY WITH THE EXISTING SYSTEM



LEVEL OF INTEREST IN HEMS



MOST IMPORTANT BENEFIT OF HEMS

1. Save money 45%
2. Use more solar 15%
3. Automated control 12%

WHEN RETROFITTING IS MOST RELEVANT

1. When savings are clearly proven 30%
2. When I'm buying new assets 29%
3. Right now, if the price is right 19%

BIGGEST BARRIER TO HEMS (MULTIPLE ANSWERS)

1. High acquisition costs 52%
2. Technical effort 31%
3. Fear of incompatibility 29%

CORE END USER PREFERENCES FOR HEMS

45% of respondents are willing to pay a one-time fee of **€500 or more**

78% want the investment in an EMS to reach a break-even point **within 5 years**

72% would be happy with annual savings of **up to €500** due to a HEMS

39% don't care if the solution has a gateway or is cloud-only, as long as it's **secure** and **it works**

OPEN COMMENTS FROM RESPONDENTS ABOUT HEMS

"I really need this."

"I think it is the future."

"It should work automatically."

"You need to have a sophisticated enough system, with EV and heats pumps, to make it worth it."

"I believe it is the next big thing."

"I would like it to be fully transparent."

"I would prefer affordable options and clear data on how much energy I am saving."

"Our energy management system allows us to offer to millions of customers with existing assets the opportunity to actively contribute to the flexibilization and stabilization of the energy system, empowering them to achieve significant cost savings while unlocking new business models for us and our partners."

Sebastian Schmieder
VP Partnerships
e·on

Savings for end users - Germany

The following savings charts showcase how much average households with existing assets can save per year when adding additional energy assets, dynamic tariffs and an EMS.

In Germany, the trend is clear: each added component (asset or use case) delivers more flexibility and more savings. The combination of self-consumption optimization, compensation for §14a EnWG-compliance (€150 with Module 1 per year) and dynamic tariff optimization with multiple asset types can even bring an end user's energy bill into negative, meaning they make money from their devices. §14a Module 3, which leverages dynamic grid fees, could provide significant savings on top of this, particularly in combination with a dynamic tariff.

SIMULATION ASSUMPTIONS

10 kWp | 10 kWh | 5,000 kWh/y

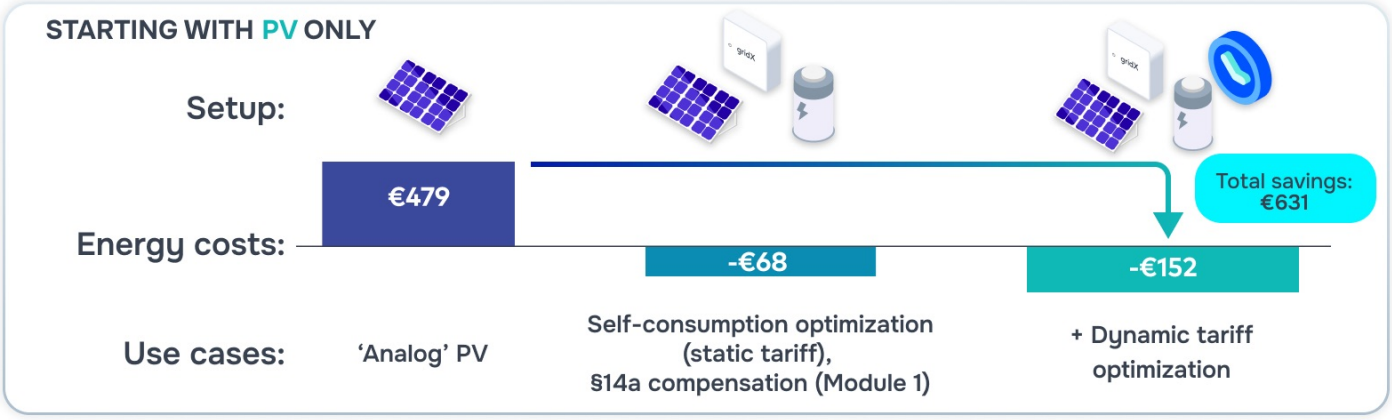
10,000 km per year
17.5 kWh/100 km
Charged 75% at home
Plugged in: 6 PM - 6 AM

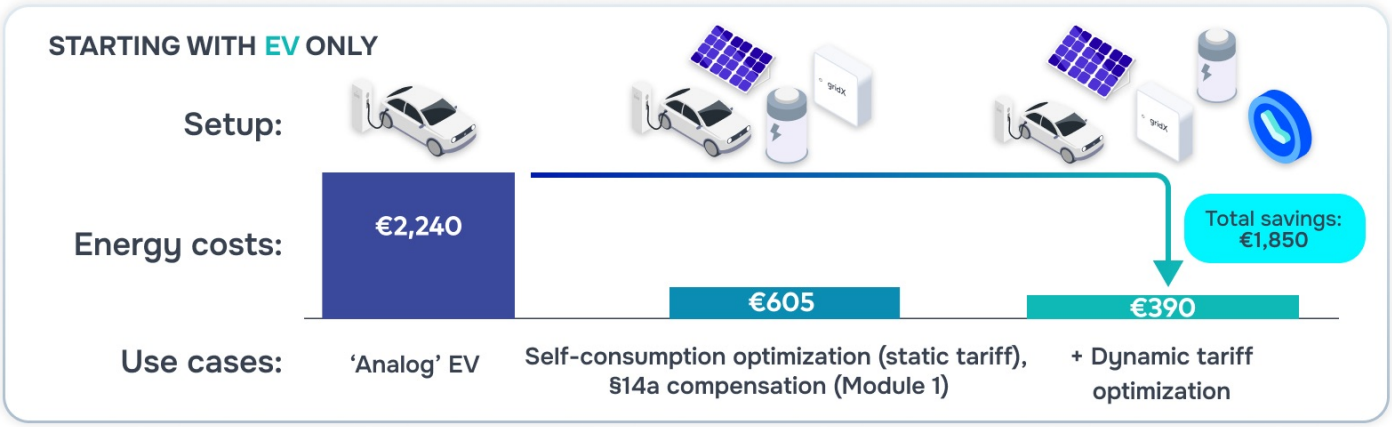
Consumption: 4,000 kWh

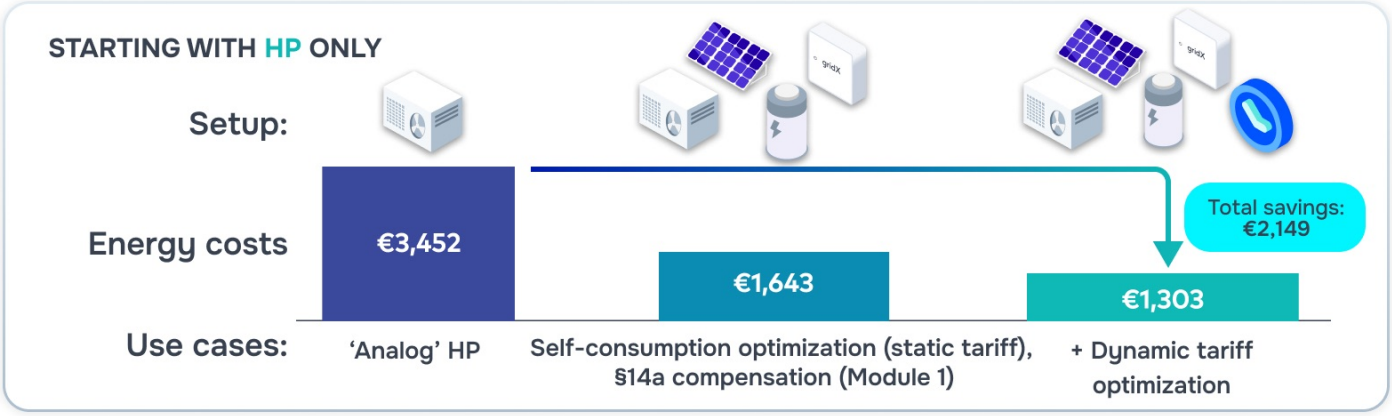
Fixed electricity price: 38.35 c/kWh
Fixed feed-in price: 7.94 c/kWh
Provider margin: 2 c/kWh
VAT: 19%, Taxes & levies: 7.94 c/kWh

Sources: 13-17

AVERAGE ANNUAL ENERGY BILL FOR 3-PERSON HOUSEHOLD & SAVINGS VIA ADDITIONAL ASSETS, EMS AND DYNAMIC TARIFFS







Savings for end users - Netherlands

Dutch households can already save up to almost €1,000 per year if they add an EMS and additional assets to their home. Given that average PV and battery sizes are lower in the Netherlands, the average savings are also slightly lower. However, the phase-out of net metering in the coming years will make self-sufficiency, storage and smart feed-in much more important in the coming years, also notably increasing the potential savings. As feed-in compensation decreases, households are increasingly rewarded for using their own solar power efficiently, making flexibility and smart energy management key to reducing costs and maximizing value.

SIMULATION ASSUMPTIONS

6 kWp | 7 kWh | 4,500 kWh/y

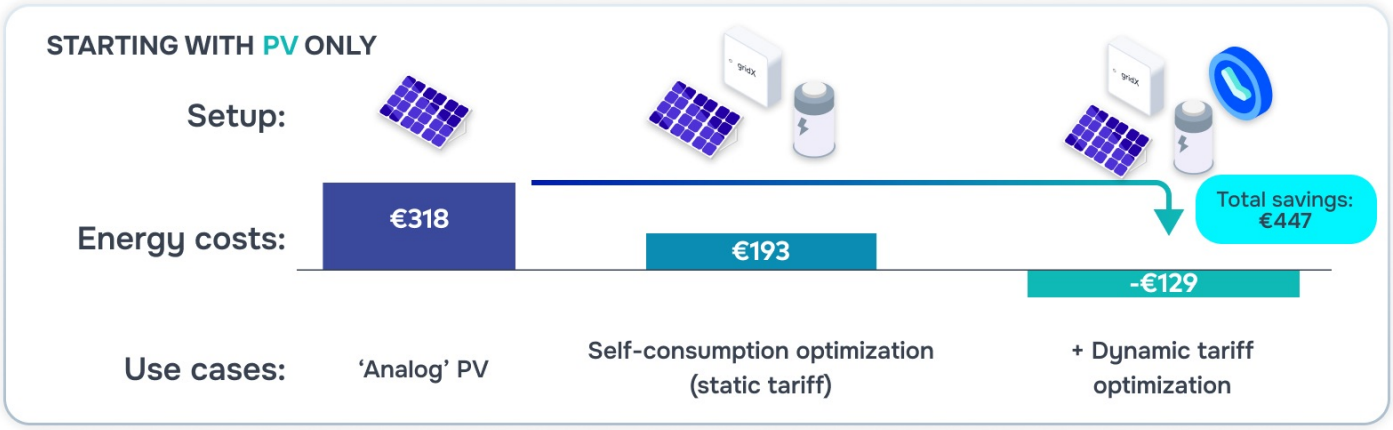
10,000 km per year
17.5 kWh/100 km
Charged 75% at home
Plugged in: 6 PM - 6 AM

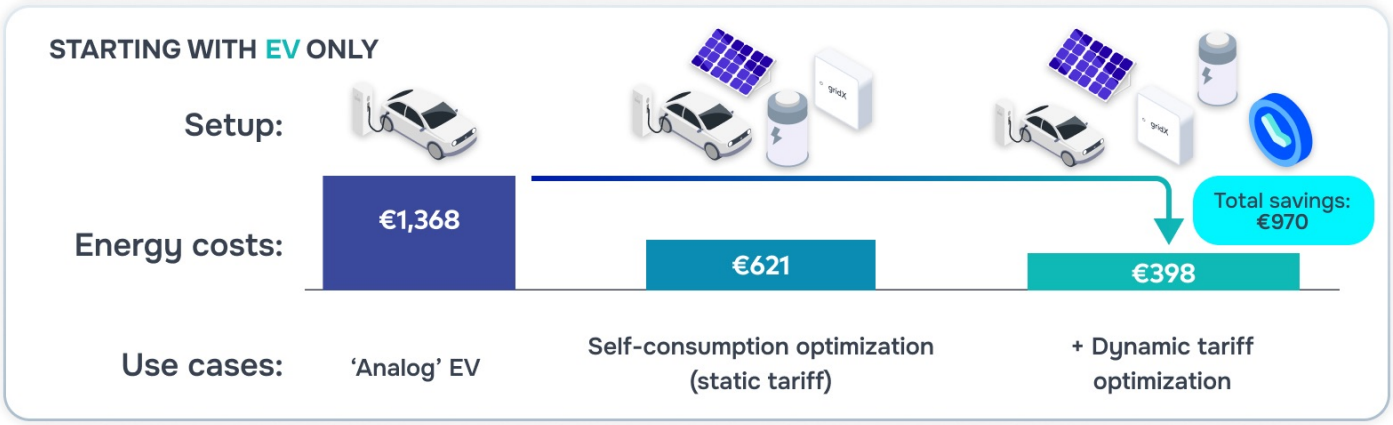
Consumption: 4,000 kWh

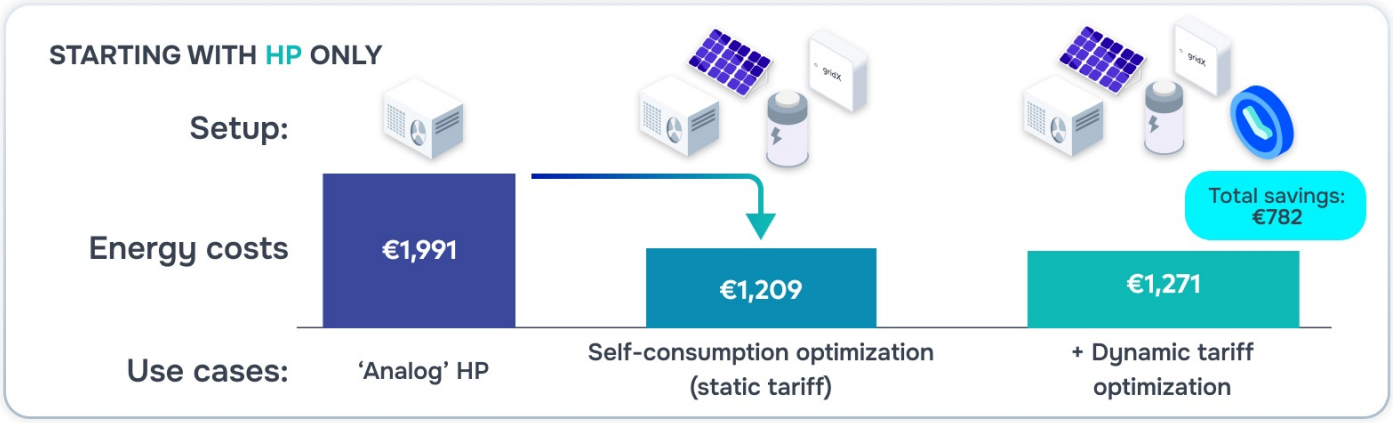
Fixed electricity price: 23.42 c/kWh
Fixed feed-in price: 10 c/kWh
Provider margin: 2 c/kWh
VAT: 21%, Taxes & levies: 4.06 c/kWh

Sources: 13, 14, 18

AVERAGE ANNUAL ENERGY BILL FOR 3-PERSON HOUSEHOLD & SAVINGS VIA ADDITIONAL ASSETS, EMS AND DYNAMIC TARIFFS







Savings for end users - Spain

Spain has both a high rollout and adoption of dynamic tariffs (PVPC) tied to wholesale market prices, making real-time optimization and load shifting increasingly valuable. With new measures approved to push flexibility and battery adoption, HEMS-equipped homes should soon be able to monetize their flexibility – not just save costs. Retrofitting is especially relevant, as most existing systems consist of PV only, though battery adoption has surged since the April 2025 blackout. While EVs and heat pumps remain relatively uncommon, Spain is poised for rapid growth in these energy solutions in the coming years.

SIMULATION ASSUMPTIONS

6 kWp | 8 kWh | 4,000 kWh/y

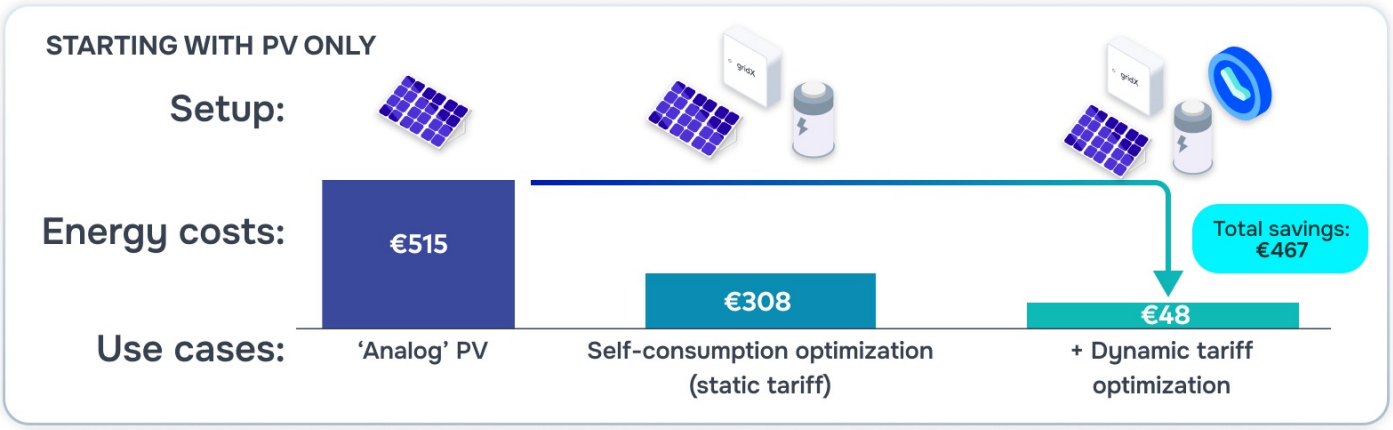
10,000 km per year
17.5 kWh/100 km
Charged 75% at home
Plugged in: 6 PM - 6 AM

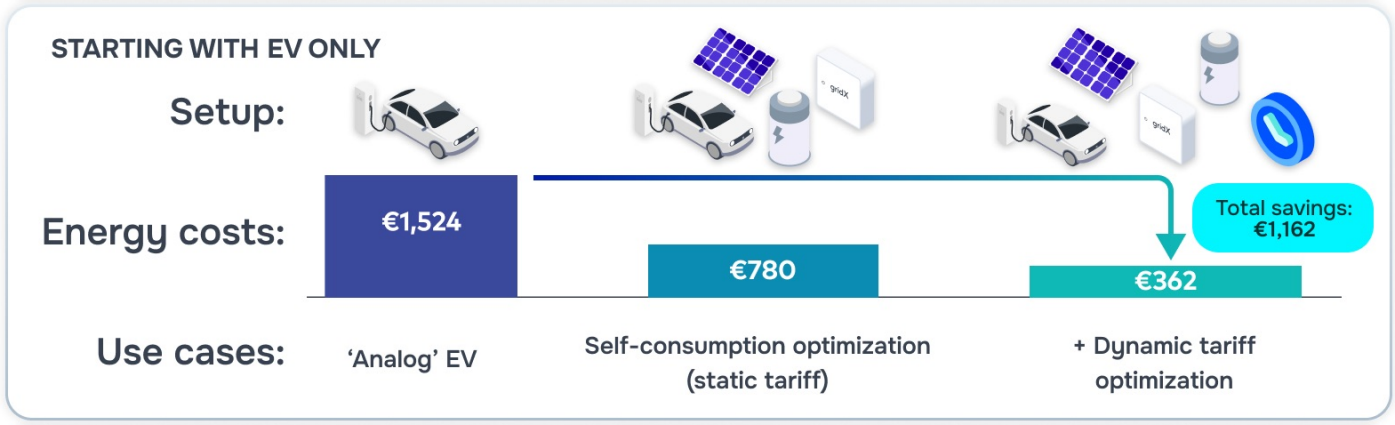
Consumption: 4,000 kWh

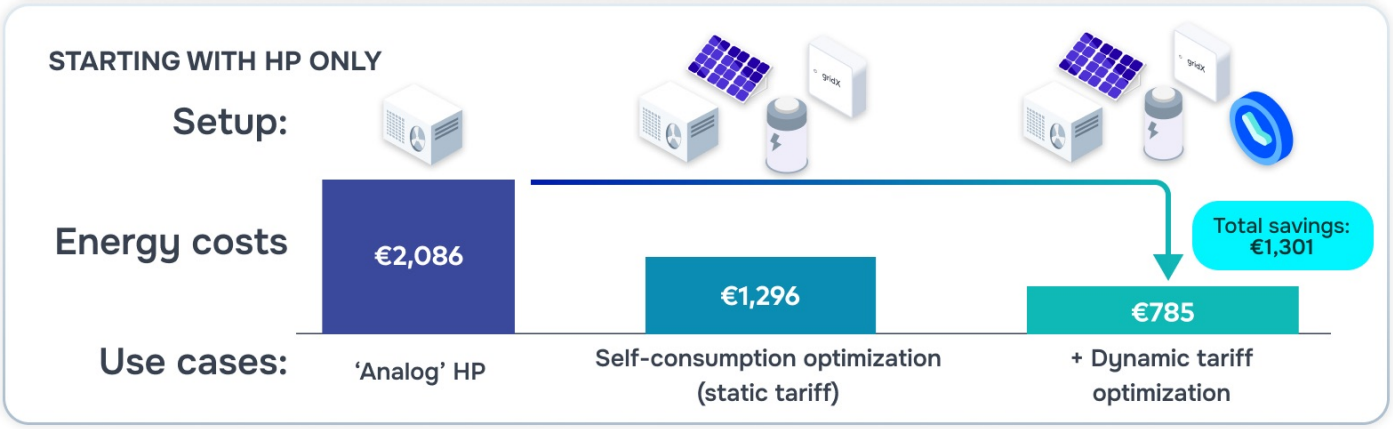
Fixed electricity price: 26.08 c/kWh
Fixed feed-in price: 5.5 c/kWh
Provider margin: 2 c/kWh
VAT: 21%, Taxes & levies: 1.69 c/kWh

Sources: 13, 14, 19, 20

AVERAGE ANNUAL ENERGY BILL FOR 3-PERSON HOUSEHOLD & SAVINGS VIA ADDITIONAL ASSETS, EMS AND DYNAMIC TARIFFS







Savings for end users - UK

With energy prices in the UK continuing to rise, households are under growing pressure to manage their consumption more intelligently. Since the UK can no longer trade electricity across borders as freely as before Brexit, local self-sufficiency and flexibility have become essential. By optimizing when and how energy is used, households can reduce costs, ease grid strain and increase their resilience against market volatility.

Given that the number of electric cars and wallboxes is expected to increase by a factor of almost 16 by 2030, it is particularly crucial that chargers are intelligently connected to solar, storage and the grid to minimize costs and ease grid congestion.

SIMULATION ASSUMPTIONS

6 kWp | 10 kWh | 4,000 kWh/y

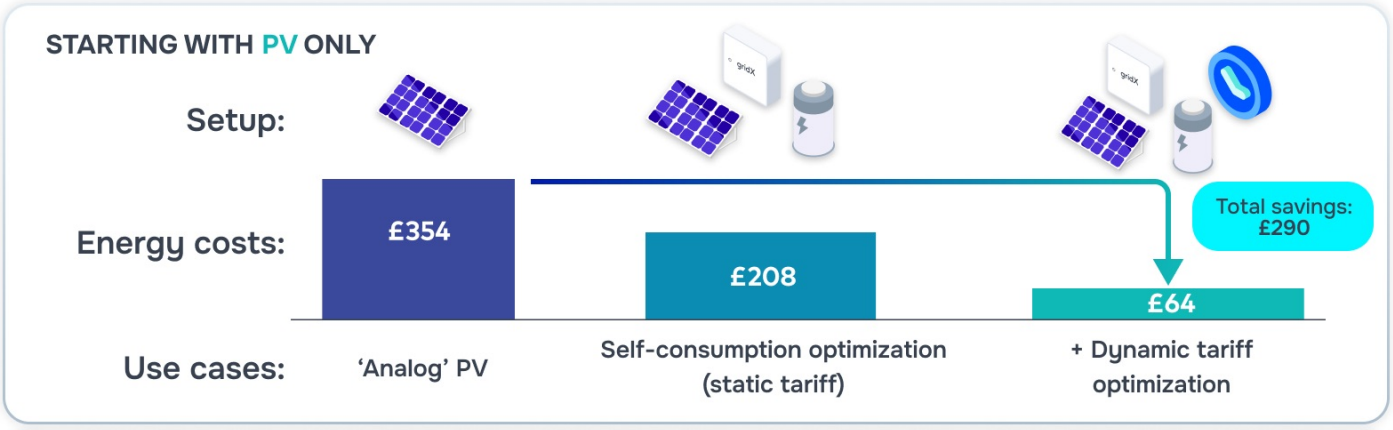
10,000 km per year
17.5 kWh/100 km
Charged 75% at home
Plugged in: 6 PM - 6 AM

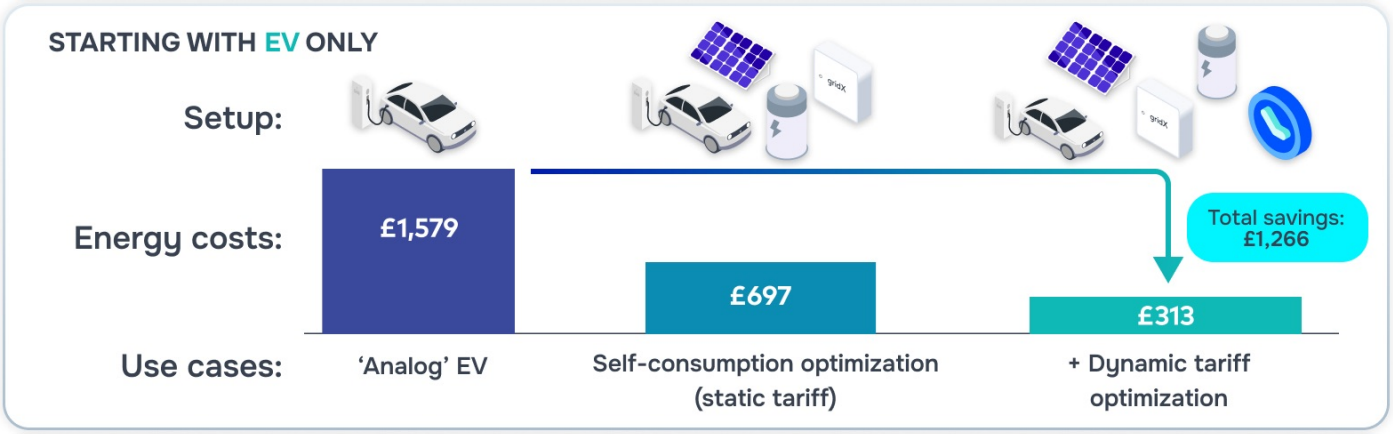
Consumption: 4,000 kWh

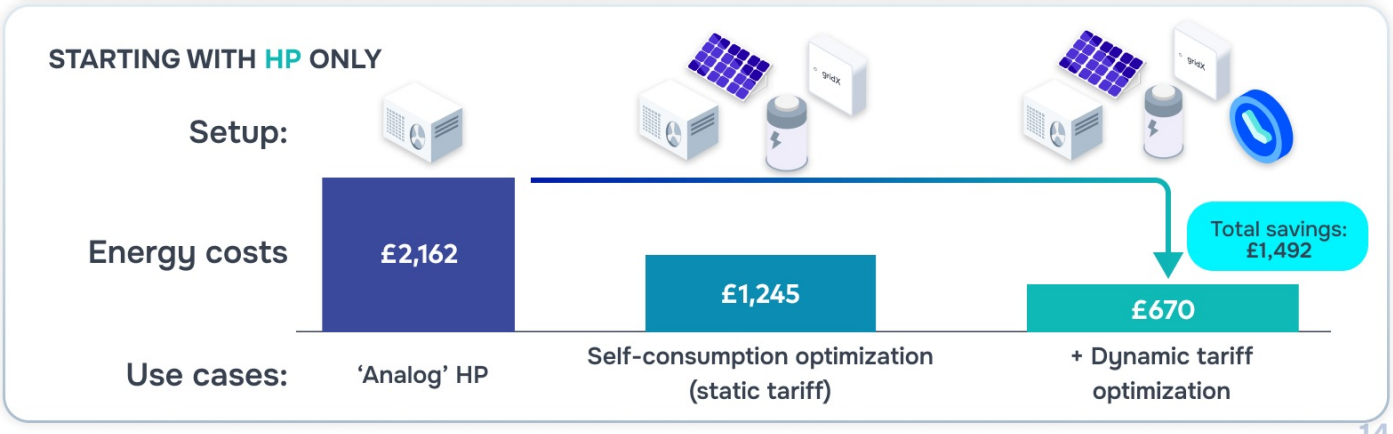
Fixed electricity price: 27.03 p/kWh
Fixed feed-in price: 12 p/kWh
Provider margin: 2 p/kWh
VAT: 5%, Taxes & levies: 4 p/kWh

Sources: 21-23

AVERAGE ANNUAL ENERGY BILL FOR 3-PERSON HOUSEHOLD & SAVINGS VIA ADDITIONAL ASSETS, EMS AND DYNAMIC TARIFFS





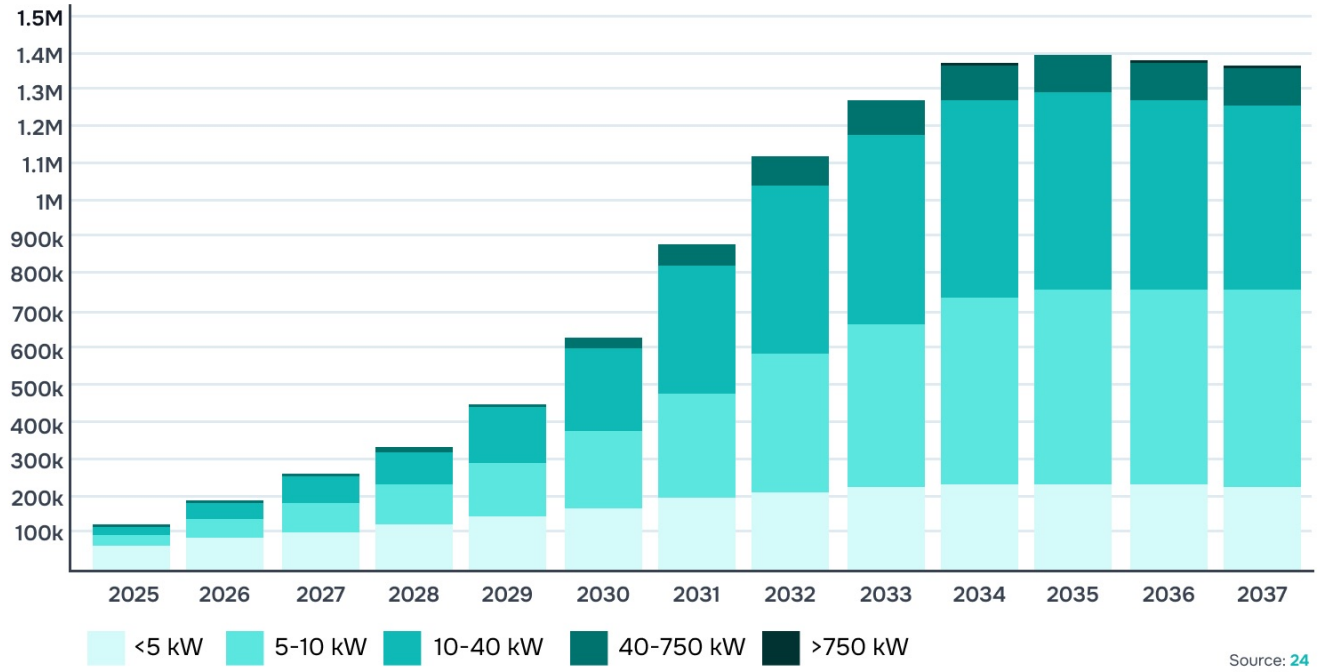


Regulatory drivers for retrofitting

Europe's biggest markets face similar goals but different roadblocks for retrofitting, ranging from smart meters to grid operator approvals. Yet all share one challenge: limited grid connection points (GCPs) that struggle to handle the rising consumption that comes with electrifying heat and mobility. This turns smart load shifting from optional to essential.

Germany experienced a solar boom between 2009-2012, largely driven by an EEG-subsidy program that provided a guaranteed fixed feed-in tariff for 20 years from installation. Many PV systems will come out of this 20-year period in the coming years (in 2032, over one million systems will enter the 'free' market) resulting in higher, market-based feed-in tariffs for millions of homeowners.[24]

NUMBER OF PV SYSTEMS IN GERMANY EMERGING FROM THE EEG-SUBSIDY PROGRAM PER YEAR



Source: 24

The emergence of millions of German households from the EEG-subsidy will provide a massive financial incentive for these prosumers to look for other ways to reduce their bills and maximize the usage of their self-generated solar power. This is particularly crucial in the Netherlands, where 34% of homes (2.9 million) have solar panels.[25]

ENCOURAGING A SHIFT FROM PV-ONLY FEED-IN TO MULTI-ASSET SELF-CONSUMPTION OPTIMIZATION

Unlimited feed-in is no longer the answer for these homes. Now, end users will be looking for ways to intelligently use surplus solar power directly in their household, for example by storing it in a home battery, using it to charge an electric vehicle or powering a heat pump. In short, this will result in an increased desire for additional assets and smarter energy management in multi-asset homes.

gridX makes the complex, simple – and the existing, smart

Retrofitting may be complex, but with gridX, it becomes effortless. XENON offers a smarter path to retrofitting by connecting existing assets to instantly modernize legacy setups. This transforms outdated infrastructure into flexible, digital systems without disruption or expensive rebuilds.

Technology that adapts

With different connectivity models – either with a local gateway to cloud-to-cloud connectivity – XENON ensures seamless communication between assets of varying brand, age and protocols, plus dedicated OEM partnerships with the most important players. Whether integrating a single inverter or coordinating complex multi-asset sites, gridX makes it plug-and-play simple.

Greater flexibility for greater savings

Connected assets are controllable assets, and gridX empowers customers to leverage flexibility for cost savings, grid stability and sustainability. In markets like the Netherlands, retrofitting with a smart EMS like XENON helps households store excess energy and avoid feed-in penalties – delivering tangible financial benefits.

Unlock new markets and new ways to scale

By connecting existing systems, utilities and installers unlock an enormous untapped market: millions of customers who already have energy assets and want to make them smarter. This not only expands reach but also increases customer lifetime value by enabling upgrades like batteries and EV chargers. It also opens the door to new service opportunities, as remote and predictive maintenance can significantly improve the quality and reliability of retrofitted legacy setups.

Partnerships

Retrofitting only succeeds when every part of the energy ecosystem works seamlessly together. That's why our 'Ready for gridX' label creates a unified standard for secure, effortless connectivity. Without Ready for gridX, commissioning often requires moving between multiple apps, navigating different menu structures and manually entering passwords, addresses and parameters. Each step introduces the potential for errors, inconsistent configurations and slow rollouts – challenges that scale poorly when managing thousands of installations.

With Ready for gridX, the entire process becomes automated, secure and consistent. Devices configure themselves the moment they connect to the network, guided by a single workflow in one app. Commissioning is completed in under two minutes, backed by a robust security concept and a connectivity standard designed for long-term reliability.

READY FOR gridX

Retrofitting for a smarter energy future

When combined with intelligent EMS integration, retrofitting is the most effective way to modernize existing setups, balance the grid and accelerate decarbonization and digitalization. It allows existing infrastructure to become part of the future – smarter, connected and more flexible than ever before. gridX has already retrofitted almost 10,000 systems (end of 2025) and plans to massively scale this capability in the coming years, together with our network of OEMs, installers and energy providers.

Retro-connect and retro-expand

With retro-connect and retro-expand, gridX provides simple, scalable pathways to upgrade existing systems without replacing hardware. These approaches empower OEMs, installers and utilities to expand their market potential, strengthen customer relationships and unlock new sources of value across millions of homes.

Check out our list of compatible OEMs and devices here:

Tap into the power of retrofitting, together

Collaboration is essential to making retrofitting work at scale. No single player can modernize millions of legacy systems alone. When OEMs deliver devices that are Ready for gridX, installers deploy them efficiently and utilities orchestrate them intelligently, retrofitting becomes a powerful force multiplier for the energy transition.

By aligning standards, simplifying integration and sharing data securely through an EMS, we can turn disconnected assets into a coordinated, flexible ecosystem. This collective effort unlocks new services, improves grid stability and ensures end customers get the reliable, future-proof energy experience they expect.

> “gridX already offers the simplicity, transparency and savings that end users desire from an energy management system. Now we need to work with stakeholders across the value chain to ensure that these plug-and-play retrofit solutions are rolled out en masse. Our multiple connectivity approaches, extensive partnerships and cutting-edge technology ensure that every household – including those with existing energy assets – can minimize their costs, while contributing to a cleaner, smarter energy system.”

Anne Bicking
CEO & Managing Director
gridX

GET IN TOUCH TODAY TO LEARN HOW RETROFITTING WITH GRIDX CAN TRANSFORM YOUR ENERGY INFRASTRUCTURE – ONE CONNECTION AT A TIME.

gridX

Connecting new and existing assets to enable a smart energy future.

About us

57+

Supported OEMs

Integrate energy devices from over 57 different manufacturers.

>200,000

Assets connected

An EMS built for future-proof scalability and adaptability.

99.95%

Average monthly uptime

Industry-leading availability, 99.95% uptime guaranteed.

200+

Talented team members

Passionate and knowledgeable experts who Get. Shit. Done.

XENON: Your EMS for guaranteed success.

Want to become a gridX partner?
Scan the QR code to learn more or get in touch!

Sources

1 SolarPower Europe, EU Market Outlook for Solar Power 2024–2028

2 European Heat Pump Association, Market data

3 European EV Charging Infrastructure, National Infrastructure Initiatives Help Drive Rising European EV Sales

4 SolarPower Europe, European Market Outlook for Battery Storage 2025-2029

5 European Automobile Manufacturers' Association, Charging Infrastructure and EV Market Statistics 2025

6 RVO (Netherlands Enterprise Agency), EV Monitor 2025: Electric Mobility and Infrastructure in the Netherlands

7 DESTATIS, 4,2 Millionen Photovoltaikanlagen in Deutschland installiert

8 Department of Energy Security & Net Zero, Energy Trends: Solar Photovoltaics and Heat Pumps

9 Spanish EV Industry Association (AEDIVE), Electromobility Infrastructure Report 2024-2025

10 BMWK, System Stability Roadmap

11 IDAE, Informe Anual de Energías Renovables y Eficiencia Energética

12 Red Eléctrica de España (REE), Estadísticas de Generación Renovable

13 Eurostat, Electricity prices for household consumers, 2025 Semester 1

14 E-Mobility Europe, European E-mobility at a crossroads

15 BSW-Solar, Statistical data on the German Solar Battery Storage & E-Mobility Market

16 Nature, Dataset on electrical single-family house and heat pump load profiles in Germany

17 Clima-Air, Die Einspeisevergütung 2025

18 Lunergy, Here's how to stay smart after the end of net metering in 2027

19 Quierosol, Surplus compensation: what is it and how does it work?

20 Grupo Iberdrola, Heat Pump: What It Is and How Many kWh It Consumes

21 Ofgem, Changes to energy price cap between 1 April and 30 June 2025

22 Viessmann, Do heat pumps use a lot of electricity?

23 Solar Energy UK, Smart Export Guarantee League Table

24 PWC, Ablauf der EEG-Förderung für Photovoltaik-Anlagen

25 SolarQuarter, Netherlands Leads the Charge with One in Three Homes Solar-Powered

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