



Efficiency as a Service
Plugging a new energy model

EaaS Briefing

Key learnings from the
Efficiency-as-a-Service Initiative
in Europe



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Executive Summary

The Efficiency-as-a-Service (EaaS) initiative, launched in 2020 and funded by the European Union's Horizon 2020 research and innovation programme, focused on tailoring and mainstreaming the innovative business model of servitisation in energy intensive applications in Belgium, The Netherlands and Spain. The programme, under the coordination of BASE and in partnership with Agoria (leading EaaS in Belgium), EiT InnoEnergy (leading EaaS in The Netherlands) and Anese (leading EaaS in Spain) focused on developing and deploying the model of EaaS to enable and facilitate the market transition and adoption of energy-efficient equipment-as-a-service in the built infrastructure.

This briefing paper outlines the specificities of the EaaS model, how it brings value to the markets, key activities the consortium worked on throughout the duration of the programme, and the tools that were developed to support solution providers, customers and financiers. In addition, the report also outlines some of the key findings that were established during the project: from the opportunities of the model, its status in the respective countries, implementation challenges, and the areas where it currently works best. These findings should be considered as a means of support for stakeholders interested in deploying the model or those interested in learning more about it.

With considerable fluctuations in energy prices and rising climate change impacts, it is key for European markets to shift to more sustainable technologies through energy efficiency and renewable solutions. Efficiency-as-a-service offers an interesting solution which can also incentivise the implementation of a circular economy, benefiting the economy, people and the planet.

To continue supporting the market beyond the programme duration, the learnings of the EaaS initiative have been integrated into the global Servitisation for Energy Transition (SET) Alliance. This strategic alliance is dedicated to sustaining momentum in markets, facilitating the widespread adoption of the servitisation model, and expediting the transition to a more sustainable future. Composed of forward-thinking companies and individuals, the SET Alliance invites organisations enthusiastic about embracing the servitisation model to become part of this transformative movement. Together, we aim to propel collective efforts towards a more sustainable and innovative future.

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Glossary

AI	Artificial Intelligence
ANESE	Asociación Nacional de Empresas de Servicios Energéticos
BASE	Stiftung BASE (Basel Agency for Sustainable Energy)
CAPEX	Capital Expenditure
EaaS	Efficiency-as-a-service
EE	Energy Efficiency, Energy-efficient
EPC	Energy Performance Contract
ESCOs	Energy Service Companies
EU	European Union
EV	Electric vehicle
FIs	Financial Institutions
GHG	Greenhouse Gas
IEA IETS	IEA Industrial Energy-related Technologies and Systems
IFRS	International Financial Reporting Standards
InnoEnergy	EiT Innoenergy
IOs	International Organisations
M&E	Monitoring & Evaluation
IPMVP®	International Performance Measurement and Verification Protocol
MRV	Measurement, Reporting and Verification
NGOs	Non-governmental Organisations
PPA	Power Purchase Agreement
PV	Photovoltaic
SBTi	Science-Based Target Initiative
SLA	Service Level Agreement
SMEs	Small and Medium-sized Enterprises
TCO	Total cost of ownership
TP	Technology Provider (also called Service Provider) provide EaaS service contracts
WP	Work Package(s)

1. Introduction

1.1 WHY: the need for energy efficiency uptake

Energy efficiency represents a strong solution to tackle climate change, with the potential to achieve 50% of CO2 reductions needed to achieve net zero by 2050¹. When paired with renewable energy, it offers a compelling way to significantly reduce both energy consumption and emissions.

At the 2023 UN Climate Change Conference (COP28) held in Dubai, governments worldwide acknowledged the critical role of energy efficiency, committing to the goal 'Doubling Global Progress on Energy Efficiency'.

In the context of the European Union, regulations and incentives play a pivotal role, exemplified by initiatives like the Fit For 55 package.

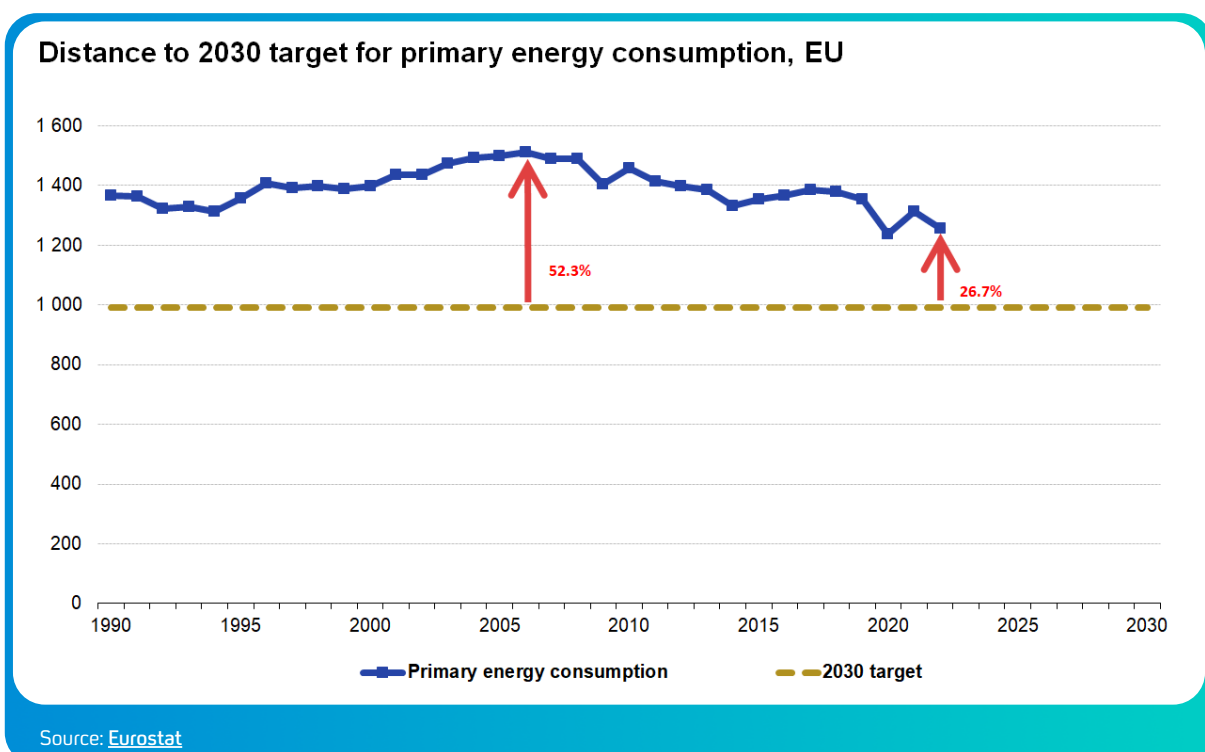
The REPowerEU initiative further underscores the importance, of unlocking €56 billion in additional investments for energy efficiency, heat pumps, and solar rooftop projects².

These financial commitments, totalling €1150 billion by 2027 and €1650 billion by 2030, emphasise the imperative for substantial investments in energy efficiency and demand-side measures.

Beyond economic considerations, the profound impact of energy efficiency extends to geopolitical stability, mitigating conflicts over resources and reducing the environmental footprint of economic activities. Furthermore, Small and Medium-sized Enterprises make up over 99 % of all EU businesses³ and represent a substantial market opportunity for energy efficiency improvements.

However, investments in energy efficiency remain largely untapped due to several barriers, including performance uncertainties for modern systems and long returns on investment, conflicting investment priorities, a lack of accessible financing instruments, and a lack of experience in financing energy efficiency.

Addressing these barriers is paramount to realising the full potential of energy efficiency to achieve global energy goals, combat climate change and foster sustainability.



1.2 WHAT: the Efficiency-as-a-service (EaaS) model

With the EaaS model, end customers pay for the service they receive, rather than purchasing the physical product, therefore avoiding the upfront costs of often more expensive and modern energy-efficient systems.

The technology provider installs and maintains the equipment, recovering the costs through periodic payments made by the customer. This fee includes implementation, maintenance, repairs, and potentially running costs such as electricity and water.

1.3 HOW: the EaaS project

The EaaS project, led by BASE, received funding from the European Union's Horizon 2020 research and innovation programme and ran from June 2020 until November 2023.

The project objectives were to develop and deploy the model of servitisation (also referred to as pay-per-use) to support the transition and accelerate market adoption of energy-efficient solutions by SMEs in the EU, and in particular in Belgium, The Netherlands and Spain with the support of Agoria, EIT Innoenergy and ANESE respectively.

Throughout the duration of the EaaS project, the consortium developed tools for the deployment of the servitisation model. The tools include:

- **Standardised contracts** for Belgium, the Netherlands and Spain
- **A pricing tool** for the simulation and demonstration of financial costs and cash flows for the servitisation model of a high-efficiency system in comparison to upfront purchase of a system with customer loan financing, and the legacy use of a low-efficiency system;

- Summarised **guidelines of risk mitigation**, evaluating the risks potentially occurring in such projects
- and **guidelines and best practices for the measurement, reporting and verification (MRV)** of energy (MWh) and greenhouse gas (GHG) savings of the solutions.

Throughout the project, the EaaS consortium conducted extensive stakeholder consultations for the development and the improvement of the tools. Capacity-building workshops and webinars were organised to raise awareness and disseminate these deliverables.

Case studies collected through matchmaking sessions and exchanges with various stakeholders illustrated how servitisation contributes to customer ambitions towards sustainability.

These case studies allowed the consortium to explore the different parameters of the servitisation model, from circular economy to fee structures and possible financing mechanisms (such as sale and lease back, sale of receivables, or SPV) for solution providers.



2. EaaS project tools

2.1 Pricing tool

This pricing model is a useful tool for the three main stakeholders involved in an EaaS agreement: providers, financial partners and clients. The EaaS pricing model explores four scenarios:

Scenario 1 represents the situation of a customer engaging in an EaaS agreement with a high-efficiency system. All other scenarios are compared against Scenario 1 to understand how the implementation of EaaS would affect customer spending.

Scenario 2 represents the upfront purchase of a medium-efficiency system with customer loan financing. This scenario is representative of a common transaction in the market today. Equipment purchased in this scenario is significantly improved from scenario 3 in terms of energy efficiency but is not 'cutting edge' in comparison to the systems used in Scenario 1.

Scenario 3 represents the legacy use of a low-efficiency system. Scenario 3 assumes that the equipment purchase was made a decade prior to modelling and is intended to represent the factories or buildings that operate older and low-efficiency equipment (for the purposes of this analysis set at 10 years old) to avoid the upfront costs associated with the purchase and installation of a new system.

It is assumed that maintenance and electricity costs are very high in this scenario due to the deterioration of an already low-efficiency system.

Scenario 4 represents the upfront purchase of a high-efficiency system with customer loan financing. This scenario is considered an uncommon transaction in the market today since businesses tend to invest in technologies which are typically significantly less energy-efficient than the best systems available in their respective markets (such as in the cooling sector, with over two-thirds of customers engaged with cooling systems that are less than half as efficient as the best system available in their market)⁴.

Overall, this easy-to-use economic and pricing tool can be useful for solution providers who want to engage with EaaS to compare their existing pricing strategy with the recommended price calculated by this model. It is important to note that while the prices suggested in this model are cost-based, many solution providers may prefer to design a value-based pricing strategy.

For interested EaaS customers and investors, this model provides a useful overview of the economic performance of an EaaS project compared to the self-purchase of a high-efficiency equipment, medium-efficiency equipment or continuing to use existing low-efficiency equipment.

This model should be used for indicative purposes only, and users must be aware of the underlying assumptions made and overall methodology. Every EaaS project requires a tailored analysis of loads and costs and might require more complex modelling and functionalities than those offered by this tool. For companies engaging in EaaS, other costs need to be considered such as the cost of developing new services, insurance costs, applicable taxes and/or incentives.

2.1 The Standardised contracts

To ensure successful partnerships between solution providers and customers, standardised "Efficiency-as-a-service" contracts have been developed for Belgium, The Netherlands and Spain in collaboration with diverse stakeholders.

The resulting set of standardised contracts complies with relevant local regulations of each respective country and cover the key aspects to consider for service delivery as a solution provider and a customer when receiving an energy-efficient solution as-a-service. The development of these EaaS contracts is designed to accelerate the implementation of energy-efficient solutions in the three countries.

The EaaS contracts serve as a tool for solution providers, their clients, as well as financiers when negotiating an EaaS proposition and outline the key contractual arrangements between these parties when entering into an EaaS agreement. The contracts are technology agnostic and thus need to be adapted to cater for the specificities of individual projects. Schedules are outlined in which services delivered by the solution provider are to be thoroughly described and where specific terms and fees are to be set.

The contracts list the rights and obligations of both parties, including liabilities and confidentiality guidelines, as well as dispute resolution in case either party breaches the contract. Legal consultants in each country provided inputs to ensure compliance with the national commercial and fiscal regulations, (e.g. link with IFRS 16 International Financial Reporting and national Standards).

2.3 Measurement, Reporting and Verification (MRV) Principles

The servitisation business model functions as a market mechanism that naturally promotes the use of the technologies with the lowest life-cycle cost. EaaS offerings with the most competitive prices are then automatically those with the most energy-efficient technologies, given that operational costs are the largest portion of the life-cycle cost of equipment targeted by EaaS.

There is no business incentive to deliver servitisation with cheaper and less efficient systems, as technology providers must cover all the operating costs. In essence, servitisation positions the solution provider as the decision maker on the technology used to deliver the output (cooling, heating, compressed air, etc.), a decision which will be based on a long-term vision rather than on short-term upfront investment considerations. In this sense, the model aligns the interests of people (end-users who receive the benefit of a good output generated with a clean technology at a convenient price), business (providers who increase profits by being efficient and deploying their

best technologies) and the planet (efficiency translates into lower GHG emissions). Servitisation creates an economic incentive for companies to deploy the adequate tools (digital and hardware) and processes to reliably measure the energy and resource consumption of solutions implemented. Should measurements be inaccurate, this would directly impact revenues and profit margins. For the development of the MRV principles, technology/service providers and potential clients shared best practices in measuring, reporting and verifying the MWh and GHG savings of the solutions implemented, including IMPVP® and IEA IETS Annex XVI.

2.4 Guidelines for Risk Management

As part of the Efficiency-as-a-service initiative, the risks potentially occurring in such projects were assessed. These were studied from the perspective of the provider, the financial partner and the client.

In addition, the study included existing solutions available to manage risks occurring in EaaS projects (such as insurances and guarantees). Due to the complexity of risks occurring in energy-efficiency infrastructure projects, it is recommended that solution providers adopt a holistic view of potential risks occurring and how to potentially mitigate them.

The list of supplier-facing risks includes aspects such as inadequate pricing, counterparty demand, performance, early contract termination, variation in electricity and energy tariffs, and credit risk. When it comes to the risks that customers face, these can include the providers' existential risk, performance risk, system breakdown, slow response to repair and data protection issues. As the market for EaaS grows, additional solutions will appear on the market which allow technology providers to hedge their risks. For instance the inclusion of reinsurance entities who also provide financing for EaaS offerings, or financial institutions offering guarantees to the technology provider instead of the end-customer. As demand continues to mature, we expect more of these types of solutions to appear across Europe.

3. Efficiency-as-a-Service status today

3.1 EaaS in the Belgian market



On the customer side:

Companies that have very ambitious goals when it comes to reducing their energy consumption and their CO₂ emissions, such as those aiming for climate neutrality by 2050 and signing to the Science Based Target Initiative (SBTI) provide great market potential for the EaaS or similar models.

The incentives behind the decision for large companies to engage in such models are both financial and operational. Extremely large amounts of investment are currently needed to meet ambitious climate goals and companies are often not in a position to allocate all of their available capital expenditure (CAPEX) to their green transformation at the expense of investment into their core business and operational processes.

The off-balance aspect of the servitisation contract is of critical importance for such organisations. Furthermore, as green technologies become increasingly sophisticated and complex to operate, outsourcing of the maintenance and operational activities, as provided under servitisation models, will become more attractive.

This suggests customers will be more inclined to accept the higher total cost of ownership (TCO) servitisation models may entail.

For large industrial operations, examples of the implementation of servitisation models are numerous and include water treatment facilities, renewable energy production, energy storage, and lighting.

As investments are usually larger in size for such projects and facilities, customers encounter less issues

in finding interested suppliers and suppliers in turn manage to gather interest from financial partners.

For smaller customers notably SMEs, the servitisation model is picking up at a slower rate, for the following reasons:

- Investing in energy efficiency is most often not (yet) of high priority
- The culture of ownership remains quite strong
- SMEs often ask for a comparison between the TCO associated to the purchase of the equipment vs that of entering into a servitisation contract and are generally reluctant to enter in a contract where the TCO will be higher (which is often the case).

Nevertheless, there are particular assets for which the servitisation model is gaining increased interest amongst SMEs:

- Lighting and Light-as-a-Service: it is estimated that approximately 40% of companies still utilise fluorescent lamps. As the phase-out of fluorescent lamps has been introduced by the revision of the Restriction of Hazardous Substances Directive (RoHS), many companies are looking into lighting retrofit projects.

Light-as-service solutions have been offered by manufacturers and Energy Service Companies (ESCOs) for several years and the model is considered to be mature. The importance of energy usage reduction and the spread of investment over long term contracts (usually 10 years) allow companies to replace their outdated installation while remaining cash flow positive from the start.

- Solar PV: as third-party investment coupled with a Power Purchase Agreement (PPA)
- Charging stations for electric vehicles: in order to accelerate the transition towards clean mobility, the Belgian Federal Government introduced a shift in fiscal incentives with regards to company

cars. As of 2026, only electric vehicle (EV) company cars will benefit from a tax deduction. As a result, many companies are electrifying their fleets and need to install charging stations on their premises. For some, the servitisation model is an opportunity to fully outsource such a project.

We have also recently observed an increasing interest in the servitisation model within the public sector, where the main incentives lie more in the potential to accelerate the circularity of the built environment and operational outsourcing, rather than financial aspects.

In Belgium, the three Regions' governments have published a strategy to engage citizens and all economic actors in a circular economy. These strategies fully recognise the potential of service-oriented business models to enable circularity as well as the role of public institutions to act as role models for transformation.

When it comes to energy related assets and buildings, the public sector will have to massively invest to improve their energy efficiency. With many of the buildings dating back to the early or mid-20th century, a more integrated approach is often needed, i.e. one that looks at the building envelope as well as existing equipment and systems.

Energy Performance Contracts (EPC) rather than EaaS may be a more suitable option as they allow facility managers to have one counterparty for all required investment whilst benefiting from guaranteed energy savings.

Furthermore, as the public sector benefits from lower interest rates and can more easily obtain loans, the financial incentive to opt for servitisation models does not come into play.

On the supply side:



The readiness and appetite to engage in servitisation models amongst technology providers varies. When looking at manufacturers, we observe an increasing interest in developing as-a-service solutions motivated by:

- the need to differentiate from the competition (in terms of services and value added to the customer). This can be done through the development of new services utilising monitoring, digital technologies and AI. In other cases, manufacturers offer free services to their customers together with the products they sell. For these entities, EaaS could be a way to monetise the added value customers currently receive for free.
- the need to become more price competitive. Manufacturers that place high quality and durable products on the market are facing very strong competition from lower quality products and products originating from countries where labour is less costly and legal requirements less stringent. Servitisation offers a way to circumvent this barrier.
- the opportunity to increase revenues and create recurring revenues.

ESCOs, being service oriented companies, are well equipped to offer EaaS. However, not all display a willingness to cater for smaller-sized projects, as EaaS can entail more risks in some cases and therefore requires additional efforts in terms of risk assessment and mitigation. Many will therefore only engage with larger customers with a strong financial record.

3.2 EaaS in the Dutch market



On the customer side:

Similar observations to the Belgian market were made in the Dutch market, with the following additional points:

- Several customers saw the shift to EaaS as too big of a step for the organisation to take, considering their current circumstances. This feedback stands in contradiction to the main EaaS sales argument, which promises a hassle-free experience for the customer and end-user. EaaS business developers should ensure that a hassle-free service can be delivered upon, and that it is effective in convincing potential customers of the relative ease of switching to EaaS.
- Integrated energy-efficiency solutions for buildings are in high demand, as the energy transition brings numerous challenges. In order to ease this process for clients, a holistic approach and a single point of contact would be preferred by many potential clients.
- Customers often request examples of similar pilots in the same region or sector. The ability to deploy a pilot can ease a customers' transition to EaaS. In some cases when deploying pipeline-generating activities, clients noted that they first needed to deploy a singular pilot, before procuring more EaaS propositions.

Similar to Belgium, the servitisation model is gaining momentum for several different assets. These include cooling equipment under Cooling-as-a-service, Heating-as-a-service, Battery-as-a-service, Compressed-air-as-a-service, Lighting-as-a-service and Solar-as-a-service.



On the supply side:

The following key observations were noted for companies approached with an interest in deploying EaaS:

- Providers have a hard time gaining customer interest in the model. This was due to the novelty of the model, and also due to challenging market conditions (such as covid). Nonetheless, with the increase in energy prices, an increased interest from customers towards projects was noted.
- There is a strong need for Capacity-building and training for suppliers to effectively communicate the value of EaaS offerings to customer higher management.
- Standardised contracts are key to easing the deployment and adoption of EaaS opportunities. The market is in need of reduced complexity, from an operational as well as contractual standpoint.
- Access to affordable capital is key. As clients may have access to capital at lower cost, reducing the cost of capital for EaaS business models is high priority for providers. This underlines the importance of designing for a scalable business model as a provider.
- Technical personnel working for technology providers remain scarce in the Dutch market. Business model innovation which monetises remote maintenance can, over time, reduce the workload for installers as maintenance and repairs for equipment can be optimised. This in turn brings value to clients who have to worry less about unexpected maintenance and repairs, or getting hold of the adequate installers and maintenance personnel.

3.3 EaaS in the Spanish market

At the beginning of this project, the servitisation model was little known in Spain. Whilst awareness has increased over the project's duration thanks to all the actions and activities undertaken, there is still a need to continue such efforts in the Spanish market.

Customers motivated to adopt EaaS solutions have justified the model based on the outsourcing of operating and maintaining complex equipment and. Nevertheless, from the perspective of potential solution providers, EaaS is also regarded as complex to implement and there are numerous risks associated with the implementation of projects.

The assessment of an EaaS project is therefore time consuming as a number of parameters need to be evaluated. Securing smaller EaaS projects remains difficult because most of the current players on the financing and EaaS supply side are only interested in larger-sized projects to bear the larger transaction costs. A possible solution to counter this is to pool smaller projects together.

This has however proved difficult in practice, as there is not yet wide enough interest from customers.

The higher risk perceptions and the novelty of the model makes EaaS overall more costly than a traditional sales model. More than one manufacturer expressed the difficulty in being able to sell EaaS solutions because their TCO was 1.5 to 2 times higher than a traditional sales model with an associated service-level agreement (SLA).

Some manufacturers have even decided to opt out of EaaS in some markets for that reason. Higher costs are often linked to the higher costs of financing EaaS in comparison to debt financing (as higher risk), while financiers requests for tenure periods which are typically shorter than the contract duration with the customer (example, a financier might request for the debt to be paid back within 5-8 years while the contract duration is 15 years).



4. Success cases for EaaS: what works and what doesn't?

4.1 Favouring factors

EaaS thrives in sectors facing specific challenges and seeking comprehensive solutions beyond traditional product sales. Scenarios where servitisation is envisaged to work particularly well include:

Debt ceilings and capital validation (off-balance contracts):

For customers close to reaching their debt ceiling, servitisation can enable them to execute required retrofits for energy savings promptly without the need to wait and unlock more capital. Projects that allow the investment to be off-balance for both the customer's and the supplier's balance sheet (especially if a company is publicly traded) have the best chance of success. In a similar manner, companies often need several months (sometimes up to 18 months) to validate internal capital for investments in energy efficiency. In such instances, servitisation can enable clients to transition faster to better solutions.

Solutions' not part of customer's core activity

For systems which are not part of a customer's core business processes, but still critical and require a high level of specialised delivery, EaaS can provide an interesting solution for clients to focus on their core activities. For instance, this can include a hotel which does not have a highly specialised manager for its heating, cooling, lighting solutions, but a facility manager overseeing the service ensuring hotel guest comfort.

This is also relevant in the context of hospitals and healthcare facilities, where the engineering team may need to ensure optimally functioning ancillary systems for core medical activities. Any EaaS offer for machinery operating directly as part of a customer's core processes, for example in manufacturing processes, will likely be a harder sell.

Increasing technology complexities

Servitisation offers an appealing solution to simplify customer operations and the requirement for inhouse personnel where technological complexities are increasing (such as heating, cooling, energy storage, energy management, ...) and where managing energy (efficient) systems requires specific and in depth knowledge.

Servitisation eases the burden of training personnel on new technologies or services by outsourcing this to dedicated providers. Providers take on the responsibility of managing and maintaining systems, reducing the need for extensive in-house training, while the customer can focus on core activities.

Addressing customer's fluctuating needs

For customers with fluctuations in production, and who therefore experience volatility in consumption and usage related to specific assets involved in their business activities (for example an increase in refrigeration consumption in food processing industries), EaaS offerings can introduce greater flexibility and better forecasting for customers. Note however that this flexibility in usage may also come at a higher risk to the provider, but these risks can be edged within the contract with specific clauses and, when possible, by bringing forward modular and mobile systems which can be scaled or moved as necessary.

Compliance with Regulations

In industries facing stringent regulations to lower energy consumption, emissions, and compliance with new standards (for example stricter F-gases regulation), servitisation provides an interesting pathway. Service providers offer tailored solutions to swiftly meet regulatory requirements without capital-intensive investments, removing this complexity from the scope of the customer.

Financing collaterals

Servitisation arrangements allow for solution providers to benefit from external financing options while end-customer contracts act as securities or collateral. This enables the solution providers to secure financing without relying solely on their balance sheets.

Secondary markets

Solutions where there are established and recognised second-hand markets for equipment benefit from more accessible finance. For example, car-sharing businesses have been rapidly scaling across Europe, as well as Solar Power Purchase Agreements.

For such assets, the residual value of the equipment is well understood and a secondary market catalyses investments. An increasing interest can be seen in the HVAC market, where key components can now be more easily refurbished and receive a second life either as a replacement component or in a new system. In general, however, market growth and maturity are required.

4.2 Inhibiting Factors

In addition to enabling factors, EaaS faces implementation challenges such as:

Business Risks

Start-ups deploying EaaS pose greater business risks for financiers due to their limited financial capacity and higher perceived risk. For SMEs and smaller ESCOs, financiers request a complex due diligence process, during which the SME or ESCO need to provide critical information to approve their eligibility to receive finance. This process might be lengthy and expensive for these enterprises acting as a barrier to EaaS engagement. In addition, customers may perceive long-term contracts with a provider without an extensive track record to be a risky decision.

Asset Ownership

In an EaaS agreement, the service provider remains the owner of the underlying equipment, both legally and economically. For the provider, it is essential that the ownership of the equipment remains with the provider and that third parties are aware of this

Nevertheless, in civil law in many countries, goods incorporated into a building in a lasting and habitual manner are considered as assimilated into the building, becoming 'immovable goods' because of their incorporation into a building. Consequently, the doctrine of accession applies. Accession is a way of acquiring ownership under civil law, based on the idea that the owner is entitled to everything that the property produces and to what is either naturally or incidentally united with the property.



This means that in case of accession, the landowner becomes the owner of all buildings and immovable goods that are incorporated into or onto the building.

In short, the user will become the owner of the incorporated underlying EaaS equipment. The retention of the right of ownership by the provider can, therefore, become problematic. When entering into an EaaS agreement, due consideration must be placed on how the provider can retain their rights of ownership and how this right can be invoked against third parties.

EaaS Providers supplying equipment face a financial risk as any transaction (sale, mortgage) of the building would also involve the equipment incorporated therein.

On/Off-Balance contract

With the new IFRS16 regulations, the qualifications for an asset to be considered as off-balance from a customer balance sheet can be tedious to implement. IFRS16 Accounting rules need to be well understood and applied. If not applied properly, a contract might be considered an embedded lease, or on the balance sheet of the customer.

Customer Behaviour

The ownership dilemma remains a significant barrier. Clients often face psychological and financial challenges when relinquishing ownership, impacting decision-making around EaaS and alternative business models. Shareholder expectations and how companies are valued based on ownership can also deter the transition to servitisation models.

Evaluation of Residual Value

Assessing residual value, crucial for financiers, becomes complex, especially for newly developed technologies. The absence of a robust second-hand market for certain technologies adds uncertainty to residual value estimation.

Financing costs and limited financial options

The high cost of financing and the limited availability of financiers willing to invest in EaaS projects present significant hurdles. The lack of diverse financing options or the high cost of capital can deter potential projects from moving forward.

Weak Project Pipeline

The current pipeline of EaaS projects might not be robust enough to attract financing from larger institutions with a preference for larger scale projects. Insufficient project volume could hinder the interest of large financiers, impacting the growth of EaaS initiatives.

5. Transitioning to EaaS: what to consider

5.1 Key points for solution providers

For Solution Providers looking to deploy EaaS offerings, key aspects to consider are:

- **System design:** Ensure your solution is designed for an EaaS offering. This may include technology obsolescence, upgradability, ease of maintenance and repair.
- **Maintenance:** It is crucial to accurately estimate maintenance and repair costs of the solution you are deploying throughout the contract duration and asset life cycles.
- **Data Access:** Agreement should be reached with the customer to enable access to data critical to the optimal operation and maintenance of the asset.
- **Performance:** The solution's performance and its respective degradation should be well understood within an EaaS offer in order to properly estimate the revenues of the contract and its value.
- **Residual Value:** sharing the residual value of the solution with the customer will make the offer more attractive and reduce TCO.
- **Indirect EaaS costs:** Consider appropriately the costs of resources needed to set up an EaaS offer (new services, new monitoring tool, strengthen sales and after-sales team).
- **Inflation:** There are standardised methods to index inflation to the pricing of the EaaS solution; such as contractually agreeing to a lower inflation index against a higher EaaS fee, versus a lower EaaS fee with a higher inflation correction.
- **Contractual clauses:** Ensure all rights and obligations are clearly mentioned in the EaaS contract; ensuring a clear scope of responsibilities.
- **Commercial Opportunities:** Build EaaS offerings with customers to ensure values and incentives

are aligned, and preferably select initial customers with strong existing relationships.

- **Develop your EaaS offering:** EaaS solutions can be progressively built, starting with a rental or leasing offering combined with an SLA (Service Level Agreement). Build partnerships with actors that are experts in the various fields needed to offer a complete EaaS experience/solution. If external financial support is needed for your offer, start exchanging with financial partners early into your offering.

5.2 Key points for customers

For customers looking to sign EaaS offerings, below are some of the key aspects to consider:

- **Procurement process:** Within the procurement process of an EaaS solution, request as much transparency by a provider as possible. This includes transparency regarding track record, scope of the solution, pricing, regulatory compliance, data sensitivity, flexibility and scalability, and end-of-term proceedings, which should be reflected in the contractual clauses of the EaaS offer received. It is advisable to conduct due diligence for each respective provider considered.
- **Circularity:** Customers may seek clarification with regards to the circular economy strategy or practices of the provider.
- **Monitoring technologies:** the use of widely known MRV processes, such as IPMVP and sensors and management tools for monitoring the operation of the equipment can ensure the provider is able to respond quickly to operational challenges and can also report on the efficiency of the system.
- **Flexibility and scalability:** According to specific needs and variability of operations, the customer can request specific contractual clauses dictating flexibility and scalability of the system.

- **Off-balance structure:** The contract must comply with accounting regulations allowing for an off-balance structure.
- **Provider disruption:** Should the provider file for bankruptcy or is no longer capable of delivering the solution, the contractual agreement should enable the client to switch providers.
- **Green finance opportunity:** EaaS projects present an opportunity for financiers to invest in projects which lead to lower energy consumption and the deployment of renewable energy. This presents a strong lever for green financing. Financiers have the opportunity to position sustainable finance services and deploy debt with varying costs of capital should sustainability-related KPIs be met by the providers (for example reduction of CO₂, GHG targets, EE targets).

5.3 Key points for financiers

When looking to finance energy efficiency measures using EaaS solutions, financiers should pay close attention to the following:

- **Understanding EaaS:** this involves developing an understanding of the opportunity of the model on the market (pipeline of projects with a customer), as well as project viability, risks, the contractual framework, technology and market risks, data security and compliance, regulatory requirements and exit strategies.
- **Provider Due Diligence:** financiers undertake due diligence on the provider and its track record including an analysis of the project documentation along with how the solution is to be deployed on the customer's site and provisions for monitoring and reporting.
- **Blended finance:** Similar to other investments, financiers can embed a blended finance approach to reduce risk exposure on the project and ultimately offer a lower cost of capital to the solution provider, as energy efficiency measures are in high demand and incentivised by government programmes looking to support widespread implementation.
- **Insurance, risk mitigation, guarantee fund:** Several solutions exist on the market to mitigate risk exposure from EaaS projects. These can include insurances, financial structures and products, and guarantee funds.



6. Mainstreaming EaaS in Europe: the path forward

6.1 Engaging the public sector

The public sector has a strong role to play in scaling EaaS. Their role is twofold: on the one hand, they are potential customers of EaaS and can benefit from energy efficiency implementation for example in buildings. On the other hand, they can act as catalysts by developing regulations and policies which incentivise a sustainable deployment of EaaS contracts.

6.2 Unlocking finance

Scaling access to capital

Scaling EaaS requires increasing awareness of the EaaS model among financiers. Various profiles are relevant, such as Private Equity, Venture Capital, sustainability funds (gov. and infrastructure funds, pension funds, Sovereign funds, corporate investors, impact and ESG-focused funds) and banks. The involvement of private capital could also catalyse market movement by offering alternative funding sources and enabling quicker decision-making. Their participation might mitigate the challenges associated with traditional financing structures. It is important to note however, that especially for banks, the amount of investment required is often too large for the current market status of EaaS (banks typically consider investments of more than 100 million to be scalable).

Risk mitigation

Onboarding insurances for EaaS offerings can help to yield the right balance of trust between stakeholders, with financiers gaining the security to invest, providers gaining the security support to deploy solutions, and customers gaining protection against solution providers not delivering on contracts or going bankrupt.

Furthermore, European guarantee funds could support providers to share a “risk-free” opportunity for investors to support projects. Currently, more efforts are required to enable these funds to support solution providers.

6.3 Integration into EU frameworks

Regulatory barriers or the absence of supportive policies may impede the implementation of EaaS, requiring a conducive regulatory environment to foster growth. EaaS is part of a wider set of possible instruments that could act as a reference for the financial component of the upcoming [EU Heat Pumps Accelerator](#). Moreover, new financing instruments will also support the roll-out of heat pumps. From 2026, all EU countries will be able to benefit from the Social Climate Fund, a new €86.7 billion EU Fund that will notably allow EU countries to support energy efficiency measures and the decarbonisation of heating and cooling in buildings, including the installation of heat pumps for vulnerable households (in particular those considered to be living in energy poverty) and micro-enterprises.

6.4 Bringing EaaS into Net Zero pathways

Companies that have set ambitious goals related to reducing energy consumption and CO2 emissions, such as those aiming at becoming climate neutral or Net Zero by 2050, and those who have set targets under the SBTi, provide great market potential for EaaS solutions or similar models.

6.5 Reinforcing the Circularity aspect of EaaS

There is a general assumption that EaaS solutions incentivise circular practices. However, it remains unclear if the potential for circular practices within EaaS solutions, and the potential value such practices

can offer, are being fulfilled. Developing the necessary capabilities and ecosystems is an ongoing process that is currently challenging to evaluate. In addition, it is unclear how such practices should translate into EaaS contracts.

Throughout the EaaS project, it was identified that a continuation of the work with, for example, the development of contract guidelines (between the solution provider and the customer, the financier and the solution provider, as well as between the provider and its sub-suppliers) can improve clarity among stakeholders, contribute to consensus-building, and serve as a foundational tool for training, awareness, and potential benchmarking initiatives for EaaS offerings and their circular impacts.

The primary objective of such guidelines would be to facilitate and incentivise the transition to more circular EaaS solutions in European building projects.

This could form a valuable tool for stakeholders to better understand, evaluate and enhance circularity within contracts and identify opportunities to improve aspects such as resource efficiency and the extension of product life cycles.

These guidelines aim to stimulate interest and adoption of EaaS solutions and support solution providers, building owners and managers to align with relevant regulations concerning the circular economy and reduction of environmental impacts such as EU Taxonomy.

In 2023, BASE launched a programme together with the Circular Building coalition to study the topic. A white paper will be released early 2024 with initial findings.

7. What's next: the SET Alliance

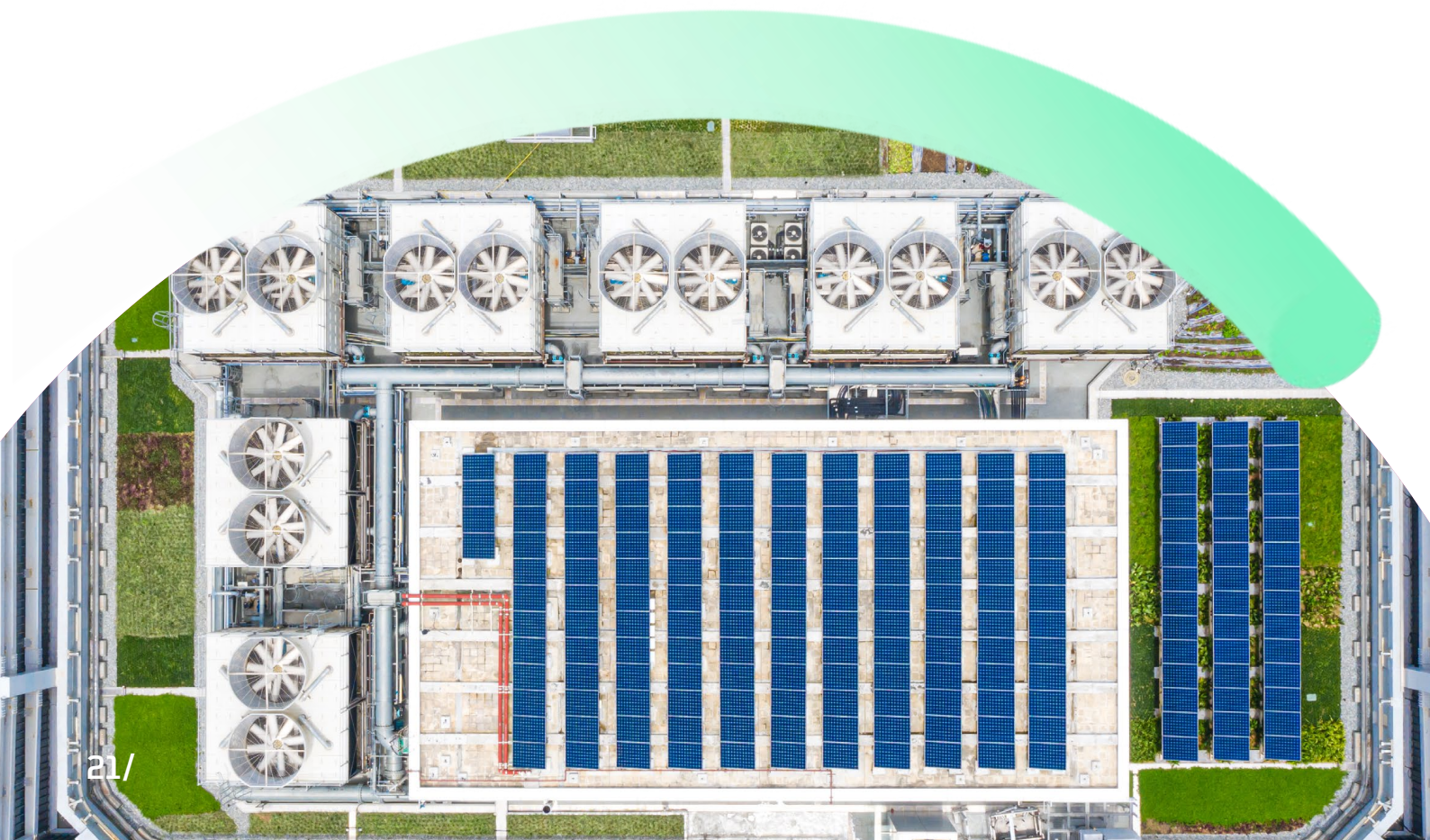
The journey of the Efficiency-as-a-service (EaaS) project has been instrumental in advancing servitisation in the European energy sector. The learnings from the programme have laid a solid foundation for transformative change in markets and industries across Belgium, the Netherlands and Spain.

Building upon the success and insights gained, and to carry forward the momentum generated by EaaS, BASE launched the Global Servitisation for Energy Transition (SET) Alliance in 2022. This ambitious initiative aims to accelerate the mainstream adoption of the servitisation model and contribute significantly to the decarbonisation of the built environment and reduction of environmental impacts.

BASE is the acting secretariat of the SET Alliance, and is governed by an esteemed steering committee

consisting of professionals with a proven track record in deploying service solutions across different regions and industries. On board of the Alliance are member companies interested in, or already deploying the EaaS model, aiming to accelerate the energy transition.

In this new chapter, the SET Alliance envisions more collaborative efforts to amplify the impact of servitisation on the global stage, bringing forward EaaS learnings and experience. By leveraging the knowledge, networks, and collective passion of experienced and innovative organisations, the Alliance aims to not only advance the transition towards more efficient and sustainable energy solutions but also to contribute to the broader goals of environmental stewardship and resilience.



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