German-Japanese Energy Transition Council

How to Improve Energy Efficiency Policy for the Industry in Japan and Germany

Short study and results of the discussions at the GJETC meeting and Stakeholder Dialogue on 19 February 2026

Imprint

Publisher

Wuppertal Institute for Climate, Environment and Energy
Döppersberg 19
42103 Wuppertal
Germany
www.wupperinst.org

The Institute of Energy Economics Japan
Inui Bldg. Kachidoki, 10th, 11th Floor
13-1, Kachidoki 1-chrome, Chuo-ku
Tokyo 104-0054
Japan
https://eneken.ieej.or.jp/en/

Authors

Stefan Thomas, Lotte Nawothnig (Wuppertal Institute)
Seonghee Kim, Toshiyuki Sakamoto, Junya Nishi, Arina Sato (IEEJ)

Please cite the publication as follows

Thomas, S., Kim, S., Nawothnig, L., Sakamoto, T., Nishi, J., Sato, A. (2026). How to Improve Energy Efficiency Policy for the Industry in Japan and Germany. Short study and results of the discussions at the GJETC meeting and Stakeholder Dialogue on 19 February 2026 at Berlin, Wuppertal: IEEJ and Wuppertal Institute.

Contact

GJETC Secretariat
gjetc@wupperinst.org
Phone: +49 202 2492-184

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Executive Summary

Against the background of climate change and geopolitical disruptions, energy efficiency in industry is gaining relevance. Improving energy efficiency is often cost-effective for industrial companies as well as for the society as a whole. In this case, implementing the cost-effective improvements will improve the companies' competitiveness and the security of energy supply as well as contribute to mitigating climate change. Hence, the doubling of the worldwide rate of energy efficiency improvements by 2030 has been defined as one common goal at the UNFCCC COP-28.

However, although energy efficiency in the industrial sector has made progress in the past years, studies demonstrate that further enormous cost-effective potentials – enabling up to 40% of energy savings in Germany, for example – and many co-benefits can be realized when market barriers are removed. Thus, improving energy efficiency policy is key to implementing more of the cost-effective energy efficiency potentials in the industry sector.

This short study seeks to dive deeper into the discussion on how to improve the policy mix for industry, with two descriptive case studies: The first case study analyses potential improvements of the existing benchmark regulation of industrial energy efficiency in Japan, and what could be implications for Germany and the EU. The second case study focuses on how to improve practical support for industries, particularly SMEs, to support them in implementing potential energy efficiency projects that were identified through energy management or audits. This case study highlights One-Stop-Shops and Energy Efficiency Networks as potentially important approaches for both countries alike.

Based on this short study and on the results of a Stakeholder Dialogue on the topic conducted by the GJETC on February 19th 2026, the following joint recommendations have been derived:

1. Aim to harness the cost-effective potential as much as possible
2. Strengthen the policy mix for energy efficiency in industry
3. Improve affordability while promoting energy efficiency through carbon pricing
4. Provide more practical support for energy efficiency project implementation with national coordination
5. Take a holistic approach for system thinking and practice
6. Utilize AI and digitalization to maximize energy efficiency, while ensuring the energy efficiency of data centers and AI
7. Beyond energy efficiency for industry: Consider the services from energy that we need and how we communicate about this

1 Introduction

Against the background of climate change and geopolitical disruptions, energy efficiency in industry is gaining relevance. Improving energy efficiency is often cost-effective for industrial companies as well as for the society as a whole. In this case, implementing the cost-effective improvements will improve the companies' competitiveness and the security of energy supply as well as contribute to mitigating climate change. Hence, the doubling of the worldwide rate of energy efficiency improvements by 2030 has been defined as one common goal at the UNFCCC COP-28.

However, although energy efficiency in the industrial sector has made progress in the past years, studies demonstrate that further enormous cost-effective potentials and many co-benefits can be realized when market barriers are removed. Thus, improving energy efficiency policy is key to implementing more of the cost-effective energy efficiency potentials in the industry sector.

To better understand these barriers and to develop effective policies, the German-Japanese Energy Transition Council (GJETC) has already conducted a study on the more effective overall governance for energy efficiency and the specific policy mix for the industry sector in 2023/24 (Labunski et al., 2024).

This short study seeks to dive deeper into the discussion on how to improve the policy mix for industry, with two descriptive case studies on 1) The benchmark regulation of industrial energy efficiency in Japan and 2) How to improve practical support for industries, including SMEs, to implement energy efficiency in Germany and Japan, based on which (policy) recommendations are derived. Here, the results of a Stakeholder Dialogue on the topic conducted on February 19th 2026 have also been incorporated.

The report is structured as follows: First, a brief overview on the development and remaining potential of energy efficiency, competitiveness and greenhouse gas (GHG) emission reduction (chapter 2) will provide the ground for a closer look at the situation/political framework in each country respectively (chapter 3). Then, the two case studies will allow a deep dive into the above-mentioned examples (chapter 4), before presenting the GJETC's recommendations (chapter 5).

2 Energy efficiency, competitiveness and GHG reduction

Energy efficiency improvements achieved since the year 2000

Overall, both Japan and the EU with Germany already made considerable progress in energy efficiency throughout the years: Since 2000, the energy intensity of the Japanese industry fell by 2.1 % per year compared to 1.9 % per year in the industry of the EU (IEA, 2025). In the EU manufacturing industry, due to energy efficiency but also structural change, the energy intensity even fell by 3.4 % annually.

These improvements in the energy efficiency rate also contribute significantly to the reduction of GHG emissions in both countries: The emissions of the German industry sector have been reduced by a total of 17 % between 2010 and 2024 (UBA, 2025). This trend is mostly due to the reduction in the overall energy consumption, which was 14 % in the same period, mostly deriving from energy efficiency (ODYSSEE-MURE, 2026). In Japan, the GHG emissions of the industry sector even fell by 22 % between 2010 and 2024 (NIES, 2025). Here too, the trend in GHG emissions was mostly due to the trend in energy consumption, which was reduced by 24 % between 2010-2023 in Japan (EDMC, 2025). This parallel development can also be seen in Figure 2-1.

Only a third of this change is due to changes in the Indices of Industrial Production (IIP), reducing by 8 % between 2010 and 2023 in Japan, which means that roughly two thirds are due to energy efficiency improvement. This is reflected in the decrease in industrial energy intensity by 17 % between 2010 and 2023. The increase in GHG emissions after 2011 in this graph is due to the increase of the fossil fuel share in the power mix after the Great Earthquake in March 2011.

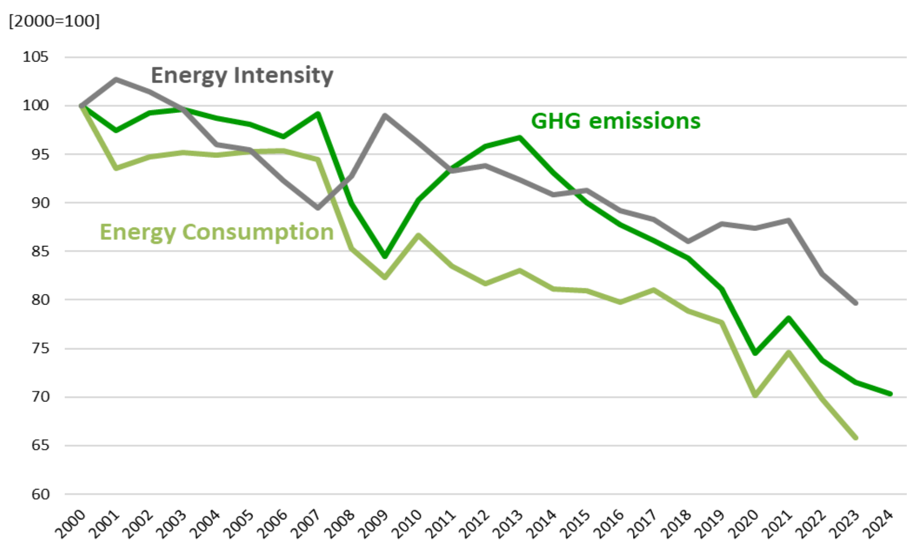
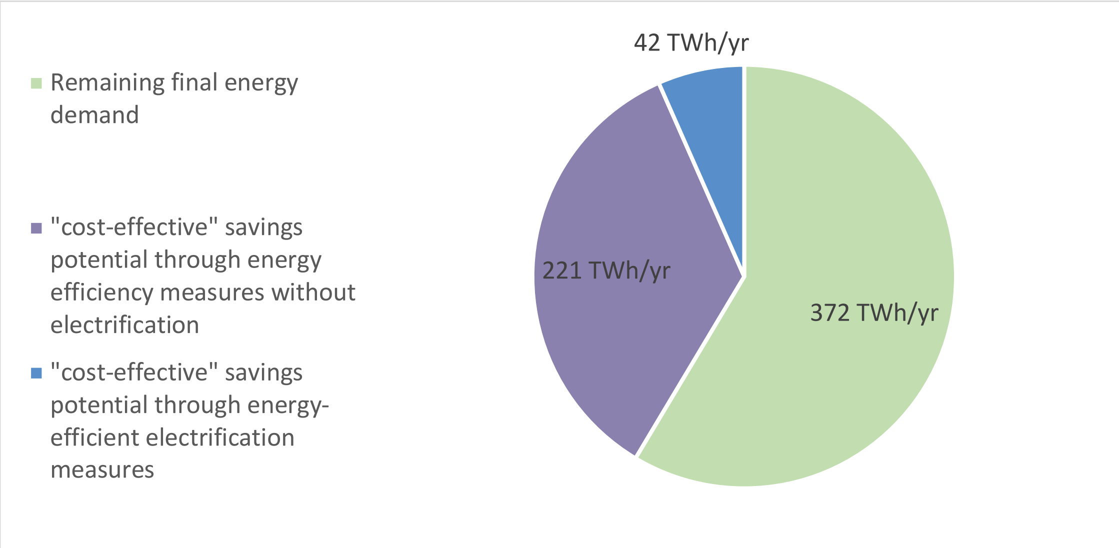


Fig. 2-1 Japan's GHG emissions, energy consumption and energy intensity in industry

Sources: NIES, 2025 and EDMC, 2025

Large cost-effective potential for energy savings still exists

Despite these noteworthy overall improvements in the energy efficiency of the industry sector since 2010, there is still a lot of cost-effective potential for energy savings through energy efficiency: Meyer et al. (2025) estimate a cost-effective energy savings potential of 40 % of the current industrial energy consumption in Germany, i.e., these investments have a positive net present value over their useful life. Of this potential, 28 % of the current consumption could even be saved with payback rates below three years (named "market-oriented" potential in Figure 2-2). The following graphs show the annual energy savings potential with and without electrification measures (upper graph) and in specific end-use areas (lower graph).



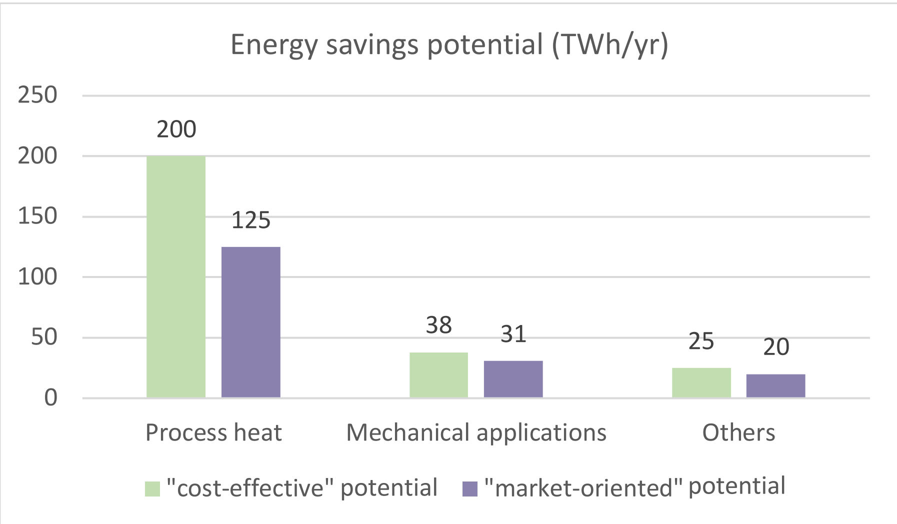


Fig. 2-2 Economic and business assessment of energy efficiency in industry

Source: Meyer et al. (2025); for explanation of "cost-effective" and "market-oriented" potential, see text above

Importance of harnessing energy efficiency for industrial competitiveness

The IEA survey results on industrial competitiveness underscore that respondents expect high average values of ROI for most energy efficiency investments and overall competitive advantages.

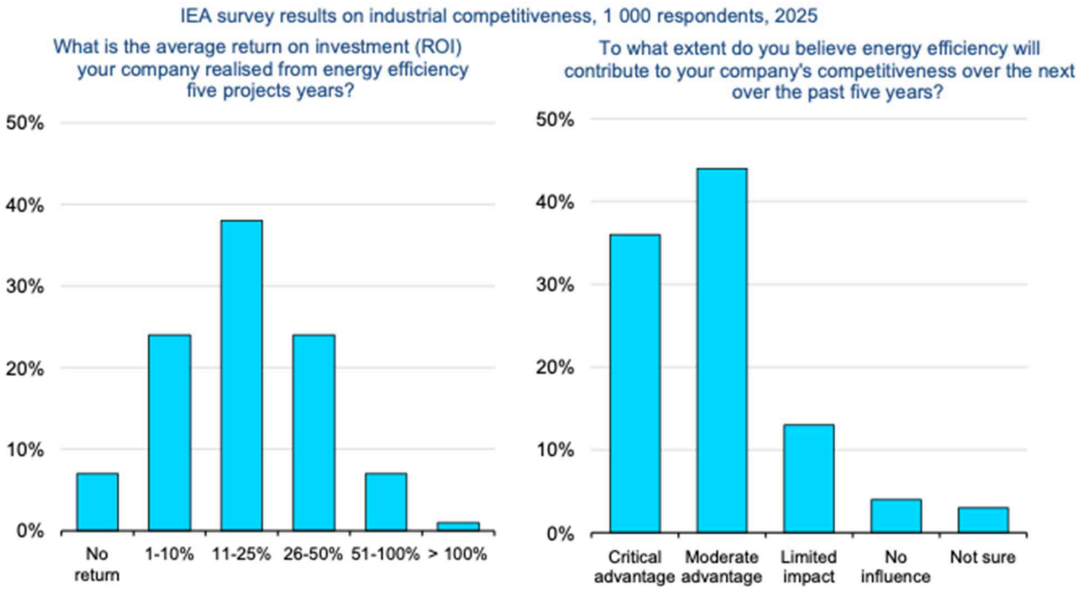


Fig. 2-3 IEA survey results on industrial competitiveness, 1000 respondents

Source: IEA (2025): Gaining an Edge. The Role of Energy Efficiency in Industrial Competitiveness.

These data indicate that the **energy productivity** reflected in the energy bills is the **better indicator of competitiveness** than the energy price, which is widely being understood as being critical.

Wider benefits of energy efficiency for the company and the overall economy

Moreover, successful energy efficiency measures also lead to wider benefits for the company and the overall economy, including:

For the company

- *Increased productivity*: Efficiency measures reduce process instability, leading to less downtime, fewer equipment failures, and higher quality control.
- *Improved resource utilisation*: Optimisation of energy use frequently leads to simultaneous reductions in material and water inputs, enhancing resource efficiency.
- *Enhanced operational performance*: Better energy management improves working conditions, extends equipment lifespan, and lowers maintenance costs.
- *Innovation and market position*: Investing in cutting-edge efficient technology enhances a firm's image, improves its resilience to future price shocks, and increases the appeal of its products to increasingly sustainability-conscious global markets.

For the overall economy

- *Contributions to the value added*: From sales of energy efficient technologies, productivity increase and possibly from an increased spread between resource costs and sales prices.
- Increases in *employment*.
- *Expanding rippling effects* from the sales of energy efficient technologies.

3 Status and trends in energy efficiency policy for industry in Germany and Japan

In both countries a number of policies have already been put into place. The study of the GJETC conducted in 2023/2024 presented these policies along the following typology of instruments (Labunski et al., 2024). As the table shows, both countries have instruments of all types in place, forming a complete policy package in this respect. Still, there is room for further improving the effectiveness of the instruments and the policy packages, as will be discussed below.

Tab. 1 Existing or planned energy efficiency policies in Germany/EU and Japan

Policy type	Existing or planned policies in Germany/EU	Existing or planned policies in Japan
Targets and strategies	No sectoral EE target, but overall – absolute savings: 26.5% of final energy /39.3 % of primary energy by 2030 compared to 2008; policy mix included in NECP	Overall law on energy conservation; Strategic Energy Plan every 3 years, 6th SEP: saving 18% final energy vs. BAU by 2030; 7th SEP: saving 25-28% final energy vs.2013 by 2040
EE policy infrastructure and funding	**Agencies:** German energy agency (dena), BfEE; State and local energy agencies; KfW and BAFA: handling subsidies. **Funding:** Government budget (Climate and Transformation Fund) and KfW (raising capital from markets), 2025 infra-structure package: €100 bn over 12 yrs; support for energy services development	**Agencies:** ANRE; NEDO; SII (Sustainable open Innovation Initiative): handling subsidies (application, review, decisions for subsidy provisions, and report to METI); for industry EE regulation: Groups for each industry, ministries and agencies have jurisdictional organization for them; **Funding:** Government budget, GX Economy Transition Bonds
Eliminating market distortions	Energy taxation, EU emissions trading systems I and II, national ETS	Energy taxation, Emissions trading systems (GX ETS), GX surcharge
Regulation	**If energy usage > 7.5 GWh/yr:** Mandatory energy or environmental management system **If energy usage > 2.5 GWh/yr:** develop & publish mandatory EE implementation plan; government now wants to increase thresholds; **EU Ecodesign MEPS and efficiency labelling for equipment**, e.g. motors and VSDs, fans, air heaters/coolers, pumps, transformers, lighting	**If energy usage > 1,500 kloe/yr** Appointment of a qualified energy manager. 2) Submission of medium- to long-term plans (including Shift to Non-fossil Energy). 3) Periodic reports on energy usage (Fossil & Non-fossil). 4) Efforts to improve energy efficiency by 1% annually (now using benchmarks). **Top-Runner scheme and label for equipment**
Planning	Heat and cold supply plans for municipalities; Waste heat inventory	Submission of qualitative targets for the installation of rooftop solar power generation facilities

Policy type	Existing or planned policies in Germany/EU	Existing or planned policies in Japan
Information and Advice	Subsidies for energy advice mainly for SMEs; Advice offered by energy agencies	Energy conservation audits for SMEs via ECCJ or subsidies through SII. Public recognition (S-class status) for companies achieving benchmark targets.
Incentives and financing	Investment subsidies, also for energy management equipment&tools: Federal Support for Energy and Resource Efficiency in Businesses (EEW), ca. EUR 1 bn /yr	Investment subsidies: JPY 700 bn over 3 yrs; higher rates for SMEs
Capacity Building and Networking	• Commercial training programs; • 500 ‚Learning Energy Efficiency Networks' (LEEN networks); • Local ‚Ökoprofit' networks mostly of SMEs and possibility to join a club	• National energy manager training and certification; • Networking/exchange of industrial energy managers • Energy conservation local partnership system
RD&D and BAT promotion	• BMWE and BMFTR energy research program; • EU Horizon program; • Federal states using EU structural funds; • Public procurement of BAT	• NEDO support for RD&D; • Annual award program for factories and offices with high levels of energy efficiency measures

Based on the analysis of the existing policy instruments to improve the energy efficiency in the industry sector in both countries, the study team identified a number of remaining policy gaps in Germany (3.1) and Japan (3.2), which will be outlined in the following before presenting new approaches for improving effectiveness of the policy mix (3.3).

3.1 Remaining policy gaps in Germany

Although German industry has made continuous progress on energy efficiency, with the support from government through all nine major types of the policy instruments introduced above, technology progress still creates high cost-effective EE potential, as discussed in chapter 2. Therefore, it is highly important to further improve the policy mix, so that this potential can be harnessed.

In the area of **targets and strategies**, Germany so far did not set a sectoral energy efficiency/savings target for the industry sector. In addition, the EU Energy Efficiency Directive (EED) requires that the ‚Energy Efficiency First' principle must be strategically adopted in German legislation and governance. However, this has not yet been implemented in Germany.

Regarding **EE policy infrastructure and funding**, there is not yet a comprehensive energy efficiency governance structure for coordination and process responsibility to reach decided national efficiency targets, but a multitude of ministries and agencies with scattered responsibilities. Here too, the ‚Energy Efficiency First' principle still needs adoption. EE obligations for energy companies are not in place either; instead, Germany relies on government-funded energy efficiency programs. Although the market for energy performance contracting is mature in Germany in principle, it is scarcely used in industry.

Moreover, in the area of **specific policies,** there is the need to strengthen the link between the potential actions identified in energy management or energy audits and implementation of these actions through practical support and strong incentives, especially through the provision of independent active guidance and coaching through projects. This is particularly important for SMEs.

3.2 Remaining policy gaps in Japan

Since the oil crises in the 70s, Japan's industry has been taking strong efforts to explore additional room for energy efficiency and conservation. Due to these incessant as well as relentless efforts, finding additional room for improving energy intensity faces difficult challenges. Policies are in place, while additional regulatory approaches may require balance against economic competitiveness of industry.

Nevertheless, further substantial progress in energy efficiency is possible by overcoming the following barriers:

- Relatively *slow progress on digitalization and AI use* for the optimal industrial production and energy use
- *Shortage of human resources, understanding and capital among SMEs* for energy efficiency
- *Lack of coordination and policies to enhance the role of third parties,* such as banks, and local experts (such measures already being implemented as "local partnership system")

3.3 New approaches for effective energy efficiency policies

To further improve the effectiveness of the energy efficiency policies in industry and the overall energy efficiency governance, it is important to consider new approaches to overcome the remaining barriers and close policy gaps such as those identified in chapters 3.1 and 3.2.

Regarding the overarching Energy Efficiency Governance (targets, roadmaps, policy infrastructure and funding as well as prices), which constitutes the framework of the sector-specific energy efficiency policies for the industry, five important areas of such new approaches can be identified (Labunski et al., 2024):

- *Developing an Energy and Resource Efficiency Roadmap up to 2030/2045* and extended *Energy Efficiency Laws* with ambitious and binding efficiency targets for 2030 and 2045/50 as well as an effective *Energy Efficiency Governance structure*
- *Conducting comprehensive bottom-up studies on energy saving potentials, benefits, costs and co-benefits* to motivate ambition, covering cross-sectoral technologies and processes as well as multiple impacts (including integrated energy and material efficiency analysis) have to be taken into consideration
- *Setting up a National Energy Efficiency Agency* within a polycentric institutional setting that is dedicated to EE and resource efficiency with own funds, bundling efforts (in Germany) and with a local network of One-Stop-Shops can be considered a crucial step
- Through *improved monitoring of progress and gaps* via a yearly (as in Japan) or biyearly monitoring, key indicators that can well represent the policy targets can easily be identified.

- Finally, *establishing a strong organization lobbying for efficiency* can potentially accelerate policy and implementation progress: In Germany, it is advisable to strengthen the existing DENEFF organization, while Japan would need such an organization in the first place.

With regard to **sector-specific EE policies for industry,** according to Labunski et al. (2024) and additional analysis for this study, it is important to

- *Strengthen links between energy management/audits and implementation*, e.g. through implementation plans, One-Stop-Shops, networks, active linking to financial incentives.
- *Establish Efficiency networks for each sector* to share information between energy managers and with SMEs. Here, a solid coordinator is required.
- *Foster the policy link between energy and resource efficiency/circular economy* approaches to use synergies wisely, as for example in the Ecoprofit schemes, and through Energy and Resource Efficiency Agencies and incentive schemes.
- *Promote ESCOs and Energy Performance Contracting* to address initial investment barriers, through policy support such as loan guarantees and subsidized independent coaching of customer companies.
- *Create an Accelerated Depreciation Allowance for energy efficiency* to boost cost-effectiveness and increase the appetite for investments.
- *Use the industrial waste heat for heating supply* in buildings and other industry processes. Especially in Germany, support e.g. via a registry of potentials, default guarantees or insurance can be said to be crucial.
- *Integrate demand-side response for system flexibility and energy efficiency,* particularly by providing price incentives for flexibility, and by making demand response an integral part of energy efficiency policy instruments.
- *Promote the utilization of digital tools,* such as AI-supported energy management.

4 Case studies

Out of the many existing and new approaches to improve the energy efficiency policies of both countries, the following two case studies were chosen as examples, because they address current needs or important policy gaps. They outline possible strategies that might be applied to both countries Japan and Germany, respectively, or expanded/intensified: The first case study analyses potential improvements of the existing benchmark regulation of industrial energy efficiency in Japan, and what could be implications for Germany and the EU (chapter 4.1). The second case study focuses on how to improve practical support for industries to support them in implementing potential energy efficiency projects that were identified through energy management or audits. This case study covers both countries alike (chapter 4.2).

4.1 Case study 1: How to improve the benchmark regulation of industrial energy efficiency in Japan

Japan introduced the benchmark regulation in 2009. Prior to this, the legal target was an annual improvement in energy efficiency of 1 %. However, after many decades of efforts to become more energy efficient, some companies had achieved very high efficiency, so improving by 1 % every year became difficult. In these circumstances, the benchmark regulation was developed. The aim of the regulation is to evaluate high-efficiency companies fairly, while also incentivizing low-efficiency companies to catch up with the higher-efficiency group. After 15 years of experience, Japan is discussing further improvements to the benchmark regulation.

This section discusses the efforts that have been made to improve the system by also taking into consideration the revised Energy Conservation Act (ECA). It will then shed light on the question of what is required to make the system more advantageous for companies, instead of burdening them, and will also explain primary concerns about the relationship between the CO_2 benchmark in the GX-ETS and the energy efficiency benchmark in ECA.

4.1.1 Benchmark System

Benchmarks (BM) mean energy efficiency targets that businesses in a given industry sub-sector should achieve over the medium to long term. On an annual basis the BM system assesses whether energy efficiency improvement is progressing or lags behind in comparison to other companies. The Japanese BM system now covers seven industries and 12 categories for the industry (coverage of 70 % of industrial & commercial energy consumption). The target of each industry is to be at the Top Level (among the 10 to 20 % most energy-efficient companies), so this system may be called the “Top runner program for industries”. Figure 4-1 presents key steps of defining a benchmark and provides an example from the iron and steel industry.

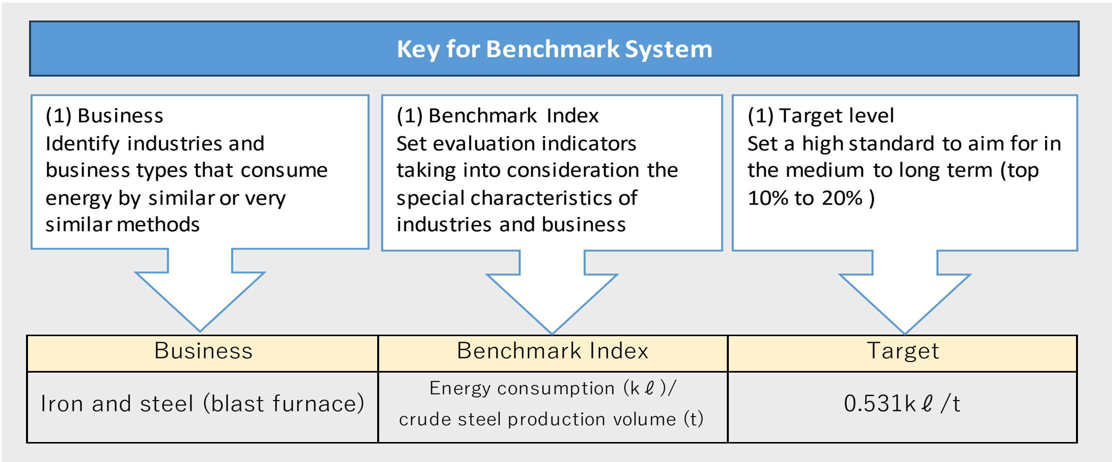


Fig. 4-1 The Japanese Energy Efficiency Benchmark System for Industry

Sources: Agency for Natural Resources and Energy (2016.11).「ベンチマーク制度の概要について」(Overview of the benchmark system); edited https://www.meti.go.jp/shingikai/enecho/shoene_shinene/sho_energy/kojo_handan/pdf/2016_001_03_00.pdf

The progress of the industry sectors towards the BM targets is assessed annually. To further improve the BM system, consideration is given to whether to review the BM indices and to expand them into new industrial sectors.

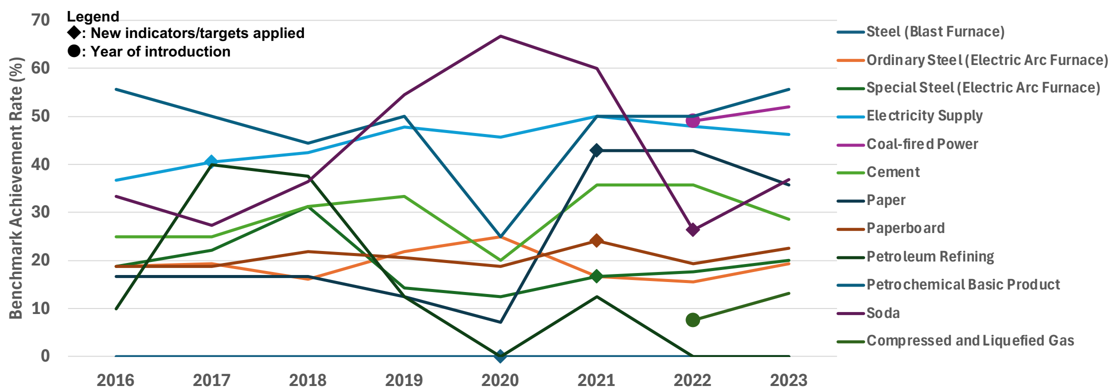


Fig. 4-2 Development of the benchmark system throughout different industrial sectors.

Source: Prepared by IEEJ from periodic reporting data based on the Energy Conservation Act

A next step to enhance the system was taken in 2016 through the introduction of a classification evaluation system. This system classifies companies into four categories (S, A, B, C) based on their energy efficiency performance. While the S class receives public recognition from METI (see Figure 4-3), the B class might be subject to on-site inspections and to submission of a report to verify compliance. If the investigation finds that the compliance status is not sufficient, it will be designated as a Class C and receive guidance.

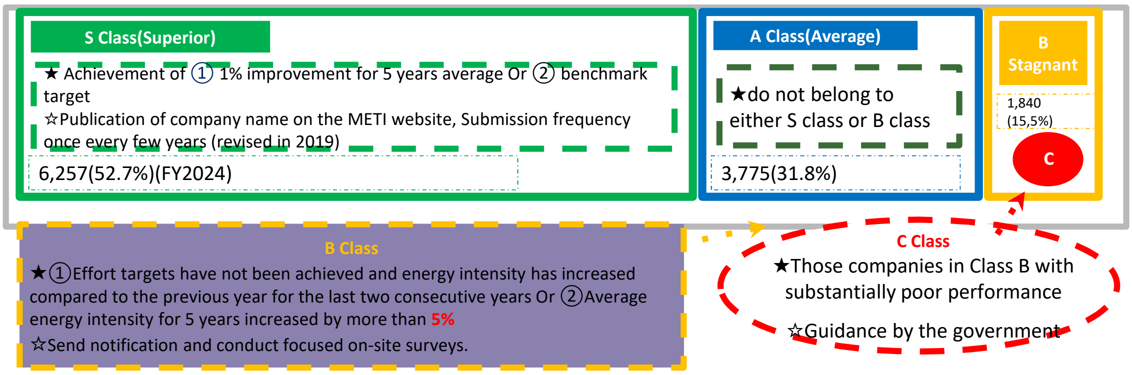


Fig. 4-3 The Classification Evaluation System

Source: Agency for Natural Resources and Energy 省エネポータルサイト（Energy saving portal site); edited

Challenges and potential solutions for the future development of the benchmarking system

In the further development of the BM system, our analysis found two current challenges.

Through the revision of the Energy Conservation Act (ECA), effective from April 1, 2023, non-fossil energy sources are now subject to periodic reporting along with existing fossil energy sources, and the **overall energy consumption (fossil and non-fossil)** needs to be reduced. Before the amendment, switching from fossil-based energy to non-fossil-based energy was considered energy conservation (albeit there was a possibility that overall energy consumption would increase). In addition, there are sectoral targets for the use of non-fossil electricity and/or fuels.

This change is strengthening energy efficiency improvements along with the switch to non-fossil energies, but may create the need to review approaches and targets as well as the calculation method for the BM indicator to maintain the incentive to switch to non-fossil energies. This may be a challenge for the future development of the system.

Another recent change in the policy framework is the fact that the emission trading scheme (ETS), as a part of Japan's Green Transformation (GX), has been in full operation since April 2026. It was possible to quickly formulate the CO_2 BM based on the existing energy efficiency BM. Despite the policy purposes of the two systems being different, considering ways to reduce the reporting burden is necessary.

Tab. 2 Comparison of the Energy Efficiency BM and the CO_2 BM

	Energy Efficiency BM	CO_2 BM
Threshold	Energy consumption more than 1,500kl/year (oil equivalent)	Corporations whose direct CO_2 emissions have averaged over 100,000 tons over the past three years
Introduction	2009-2010: for energy-intensive industrial sectors such as steel, electricity supply, and cement	Mandatory from April 2026
Target Sector	Industry, Power and energy conversion, Commercial	Industry, Power and energy conversion, Transportation
Number of Businesses Covered	Total: 1,656（Industry: 290, Commercial: 1,366）(2024 periodic reporting data based on the Energy Conservation Act)	300-400
Index	Energy consumption per activity (production, sales, etc.)	CO_2 emissions per activity (production, fuel consumption)
Purpose	Businesses are evaluated on their energy conservation status using industry-wide indicators, and each business strives to achieve their energy conservation goals.	Criteria for free allocation

Source: Compiled by IEEJ from various sources.

Summary of the research findings regarding Japan's industrial energy efficiency BM system

1. The use of BM allows for comparison of efforts between companies within the same industrial sub-sector and evaluation of cumulative energy conservation efforts.
2. The benchmark target level is set in a way that only the best 10-20% of companies can meet it, which is also high by international standards.
3. The review will be conducted in the year 2030 or when the majority of companies in the industry have reached their benchmark targets.
4. To date, the BM system has focused on raising BM targets, improving indicators, and expanding the range of industries covered.
5. The revised Energy Conservation Act, which took effect in April 2023, mandates the rational use of all energy sources, including non-fossil energy sources, as well as fossil energy sources.
   In addition, there are sectoral targets for the use of non-fossil electricity and/or fuels.
6. It was possible to quickly formulate the new CO_2 BM based on the existing energy efficiency BM. Despite the policy purposes of the two systems being different, considering ways to reduce the reporting burden is necessary.

4.1.2 Potential implications for the EU/Germany

In the EU, energy efficiency benchmarks are defined through the Best Available Techniques (BAT) based on which new (energy-intensive) industrial plants are approved, while CO_2 benchmarks of existing operations are used for free allocation of ETS-1 allowances. The free allocation is also incentivized by a link to the obligatory energy management systems.

The energy efficiency BM in Japan is designed to assess a company's energy-saving efforts fairly and encourage further efficiency progress. Efforts will be made to achieve even greater efficiency by presenting indicators that can be compared among companies while taking into consideration the competitiveness of the company. Reconsidering the definition of indicators, the appropriateness of categories, and devising ways to improve data reliability is necessary.

Policies such as benchmarks and targets for energy efficiency, renewable energies, and CO_2 emission reductions for companies all have their specific benefits, but create the challenge of coordination and coherent integration.

In Japan, these challenges exist with the EE and CO_2 BM systems for industry companies. In the EU and Germany, the BAT for *new* plants and the ETS-1 CO_2 BM for *existing* operations may be distinct enough, but similar coordination challenges exist for the overall EU targets system set and directed towards Member States, including Germany.

4.2 Case study 2: How to improve practical support for industries to implement energy efficiency

Both countries have obligations for energy management or energy audits and financial incentive schemes to support implementation. Still, practical support may be needed to overcome a lot of barriers for actual implementation. The following section will highlight major implementation barriers and potential instruments how to address these (4.2.1). Here, particular light will be shed on One-Stop-Shops and Energy Efficiency Networks (4.2.2).

4.2.1 Major implementation barriers and suggested instruments to cope with them

According to previous research (e.g., Labunski et al., 2024), major implementation barriers include:

- Given the competitive pressure companies are facing, investing in products and production usually takes priority over efficiency for energy and resource cost savings.
- In addition, the requirement of short payback times (often < 3 yrs) that is evidenced by high ROIs reported in the IEA survey (see Figure 2-3) is also identified by existing literature as one crucial barrier for industrial energy efficiency.
- Lacking trust in savings combined with the fear of negative impacts on production and the lack of knowledge/trust in positive wider benefits are psychological barriers to taking the necessary action.
- Practical barriers include the lack of knowledge and dedicated staff (e.g., due to general shortage of human resources) that are necessary for the detailed assessment, planning, and implementing energy efficiency implementation projects, for managing applications to incentive programs, and also for using Energy Performance Contracting services.

Important instruments to address these barriers include the following: Financial incentive programs may change economic priorities and awareness of the top management. In addition, energy performance contracting can address all barriers, but may itself need coaching of customers. The before-mentioned One-Stop-Shops can be a crucial instrument to overcome the lack of knowledge and dedicated staff while also building trust. Energy efficiency networks of companies and energy managers likewise facilitate building trust and knowledge. The latter two instruments are, therefore, important for providing practical implementation support.

4.2.2 One-Stop-Shops and Energy Efficiency Networks

One-Stop-Shops

One-Stop-Shops could be created through the cooperation of local or regional energy and resource agencies and other stakeholders with technical and financial support by a national Energy Efficiency Agency ('polycentric governance'). They provide a single contact point and support for (a) energy management or audits and particularly (b) the implementation of cost-effective actions (including the acquisition and management of financial incentives and loans).

The EU is already developing and requiring such dedicated agencies named One-Stop-Shops for practical support of energy efficiency projects, including for SMEs and micro-enterprises. All EU Member States, including Germany, must implement them.

It may be useful for Japan as well to consider introducing or strengthening similar support infrastructures.

The following figure illustrates how the One-Stop-Shops support the client through the whole journey of energy efficiency projects by a number of various tasks. The services shown at the top of the figure focus on the creation of knowledge and trust in the feasibility and benefits of energy efficiency improvements, while the services shown underneath focus on the practical support for implementation of energy efficiency projects.

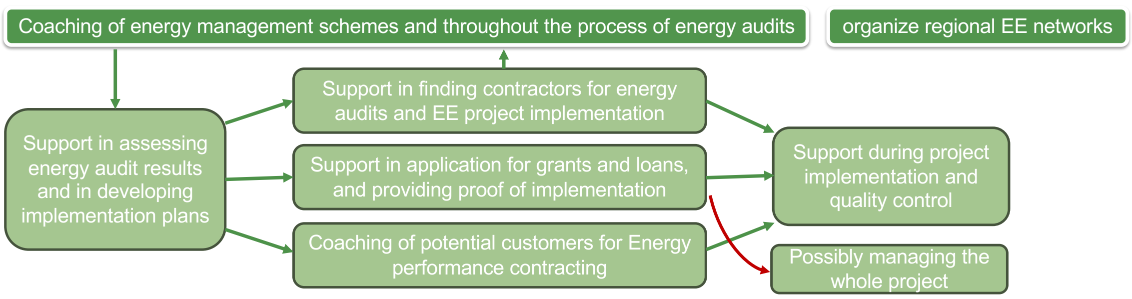


Fig. 4-4 Services of One-Stop-Shops

Source: Wuppertal Institute, developed for this study

One-Stop-Shops should not limit their focus to saving energy via energy efficiency, but likewise aim to strengthen the link between energy and resource efficiency as well as between energy efficiency and demand-side response for flexibility in the power system.

In order to succeed, One-Stop-Shops need basic funding. In turn, they potentially make the current dispersed funds more effective. The funding likely needs a mix of public basic funding and fees plus subsidies for specific activities to support clients' projects.

A continued basic funding is needed to keep attracting clients and starting their project journeys. It will be used to

- Provide general information and finance communication activities
- Set up a physical office
- Offer initial advice on energy management, audits, solutions and projects
- And if that is part of the mandate, to set up energy efficiency networks.

For providing the concrete support and coaching activities to clients and their projects, the One-Stop-Shops may be able to raise fees. However, to convince more of the clients, subsidies for a number of activities would probably still be needed. These activities of practical support may include (see Figure 4-4):

- Support in project assessment, planning, funding applications, implementation, quality control
- Coaching for energy management
- Coaching of potential customers for energy performance contracting
- Professional training of energy and resource efficiency consultants and (e)
- Managing an energy efficiency network.

Finally, competitive fees may be appropriate if One-Stop-Shops manage the implementation of a whole project on behalf of the client.

Energy Efficiency Networks

Energy Efficiency Networks can further contribute to the spreading of energy efficiency actions in industry. Their main purpose is to provide room for peer-to-peer exchange on opportunities and good practice. Elements of cooperation that have proven useful include an initial energy review/audit for each participant, a (joint) commitment to targets and the corresponding monitoring and pragmatic reporting as well as voluntary benchmarking.

Peers can come from the same sector in a different region or from different sector at local level. A moderator should facilitate the management and coaching of such a network. In Germany, further support functions include an operator and specialized energy and resource efficiency consultants.

In order to set up such a network, basic public funding is advisable. Once set-up, the management of the network could be financed by participant fees.

Examples of networks are already in place and can serve as role models: In Germany, the Learning Energy Efficiency Networks Initiative (LEEN; *in German*: Initiative Energieeffizienz- und Klimaschutz-Netzwerke) was launched in 2014. Since then, over 465 networks have been registered, of which currently 117 are active and 11 in creation. They have connected and supported more than 3,500 companies; 56 % of these are bigger companies and 44 % SMEs. Monitoring revealed that the networks on average saved 28.7 GWh/yr, which is about 1% more than companies not participating in such a network. The most common actions have been addressing energy efficiency in lighting (27%), process engineering (16%), compressed air (8%), water heating (7%), and motors (7%) (Quezada, 2026).

Japan more recently created the Energy conservation local partnership system. It may be considered to be a combination of One-Stop-Shops and Energy Efficiency Networks. The Agency for Natural Resources and Energy (ANRE) launched a framework in Japan that builds a system to support energy conservation in SMEs in the region with over 200 financial institutions (local banks) and energy conservation support organizations as partners. In support of energy conservation in the region, ANRE and the Partnership Secretariat will share information on energy conservation policies and initiatives with partner organizations, who are convenient consultation points for SMEs.

5 Joint recommendations

The following recommendations are the result from intensive discussions during the Stakholder Dialogue (SHD) on Energy Efficiency Policies in Industry that was held in Berlin on February 17, 2026. Here, the study team first presented some recommendations that were then discussed with the stakeholders attending the event. Following the SHD, the Members of the German-Japanese Energy Transition Council further discussed the results and developed the following joint recommendations.

1. Aim to harness the cost-effective potential as much as possible

Both Japan and Germany have already achieved strong energy efficiency improvements in industry, supported by the respective national policies. Still, as technologies develop, there is considerable further cost-effective energy efficiency potential in industry, and a large part of it is cost-effective for society.

Harnessing this cost-effective potential offers a triple win: for climate change mitigation and other environmental improvements (1), for affordability of energy costs and competitiveness (2), and for security of energy supply (3).

2. Strengthen the policy mix for energy efficiency in industry

In order to better harness the cost-effective potential of energy efficiency in industry for climate change mitigation and improving competitiveness, it will be highly important to strengthen the existing policy mix further in both countries. This is needed to overcome many practical barriers to implementation of energy efficiency projects as well as to ensure that industrial companies also fully experience the benefits of energy efficiency investments that are cost-effective to society.

Policy instruments at hand concern both (1) **the overarching governance framework** with a) policy targets and strategies serving as a signal to the market actors, b) the agencies, budget funding, and private finance needed to implement policies and investments, and c) appropriate energy and carbon pricing, and (2) **the sector-specific instruments** of a) information and targeted advice, b) financial incentives and financing, c) regulation, such as the requirement to install energy management or conduct energy audits, or energy performance requirements for equipment, d) local or industrial cluster energy planning, e) networking and professional training, and f) support for research, development, and demonstration.

3. Improve affordability while promoting energy efficiency through carbon pricing

High energy prices provide an incentive for energy conservation. However, excessively high prices may lead to industrial hollow-out, which both the Japanese and German governments aim to avoid. Therefore, **careful design is required** for carbon pricing schemes to provide incentives for energy conservation while simultaneously maintaining energy prices at an affordable range for industry. Furthermore, **revenues generated** by the carbon price in industry should be used to support energy conservation, decarbonization, and innovation of industry.

4. Provide more practical support for energy efficiency project implementation with national coordination

The number of implementation projects needs to be increased, and their effectiveness improved, by providing practical support to initiate and accomplish actual project implementation. This will improve the link between the existing regulation, information, and financial incentive policies by overcoming the practical implementation barriers, such as lack of expertise and trust in energy efficiency solutions.

Such practical support could be provided by local or regional **One-Stop-Shops**, connecting not only industry companies to solution providers, but also networking with the providers. It could also be enhanced by organizing industrial **Energy Efficiency Networks** enabling peer-to-peer exchange and commitment to energy efficiency. It can build on existing local energy and climate agencies/managers and their networks. Such a structure for practical support will need core funding from the national level as well as provision of tools, coordination and monitoring of activities from a national energy agency that is responsible for achieving national energy and climate targets.

5. Take a holistic approach for system thinking and practice

Such system thinking and its implementation in policy-making is required not only for the practical support policies, but for all energy efficiency policies for all sectors, including industry. Examples are:

- Applying the *Energy Efficiency First Principle to all policies and planning activities for energy supply*. Whenever energy efficiency is able to achieve the objectives of matching supply and demand in a more cost-effective way than building or upgrading energy grids or power plants, implementing efficiency should be given priority.
- *Integrating energy and material efficiency*: improving material efficiency alongside energy efficiency is crucial, and achieving an optimal balance between the two is desirable. For example, regulating the embodied carbon of building materials can encourage relevant manufacturers to save energy.
- *Integrating i) energy efficiency that leads to energy savings and ii) demand-side response*. Energy efficiency does not mean to reduce energy consumption in any case, but also includes demand-side flexibility: For instance, when the output from variable renewable energies exceeds demand, it may be appropriate to increase energy consumption.

These examples also demonstrate that the goal should be to optimize the entire energy system, rather than focusing solely on energy conservation or individual industries.

6. Utilize AI and digitalization to maximize energy efficiency, while ensuring the energy efficiency of data centers and AI

It is important to ensure the energy efficiency of data centers and AI, e.g., with efficient processors, software, cooling, and use of waste heat. At the same time, harness digitalization and especially artificial intelligence to make the use of energy and other resources as efficient as possible.

For example, the carbon intensity and price of electricity fluctuate every second. Therefore, in order to maximize greenhouse gas (GHG) emission reductions and economic benefits through energy conservation, it is essential to obtain high-resolution information and implement measures accordingly. AI and digital technologies are the tools that enable this, and their effective utilization is anticipated.

7. Beyond energy efficiency for industry: The services from energy that we need and how we communicate about this

Today, many people take a certain level of services from energy (such as for living space with space and water heating, a car for mobility) for granted. However, much depends on infrastructures and social practices, culture, and how we communicate social norms and, therefore, can vary between individuals/generations, cities, and even countries. For example, Europeans are washing their clothes at 30 or 60°C, while Japanese use cold wash. Younger people in both Japan and Germany often achieve mobility without owning a car, through active and public transport, accompanied by car sharing when needed.

More research is needed to understand such differences and how energy could be saved by changing such infrastructures and social/cultural practices, and how policy could support this.

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