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Promoting energy efficiency and climate protection in industry
- Examples from Germany

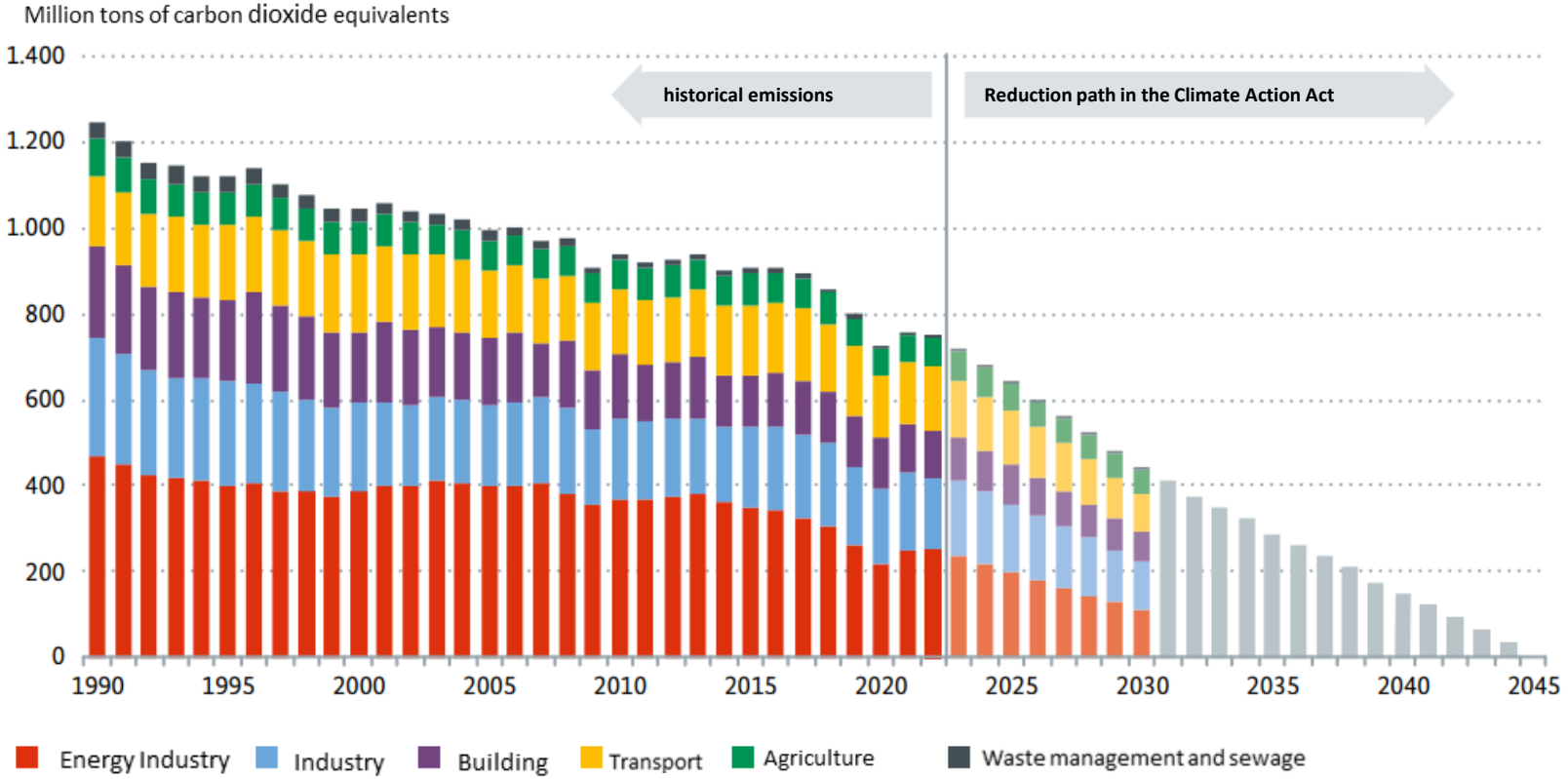
Lisa Neusel

3.12.2024, Bratislava

Facilitator

energie waechter

Industrial sector causes around 24 percent of all GHG emissions in Germany



Source: Bundesministerium für Wirtschaft und Klimaschutz (BMWK) (2024). Energiewende und Klimaschutz – Herausforderungen und Wege der Transformation. https://www.bmwk.de/Redaktion/DE/Publikationen/Klimaschutz/klimaschutz-energiewende.pdf?__blob=publicationFile&v=8

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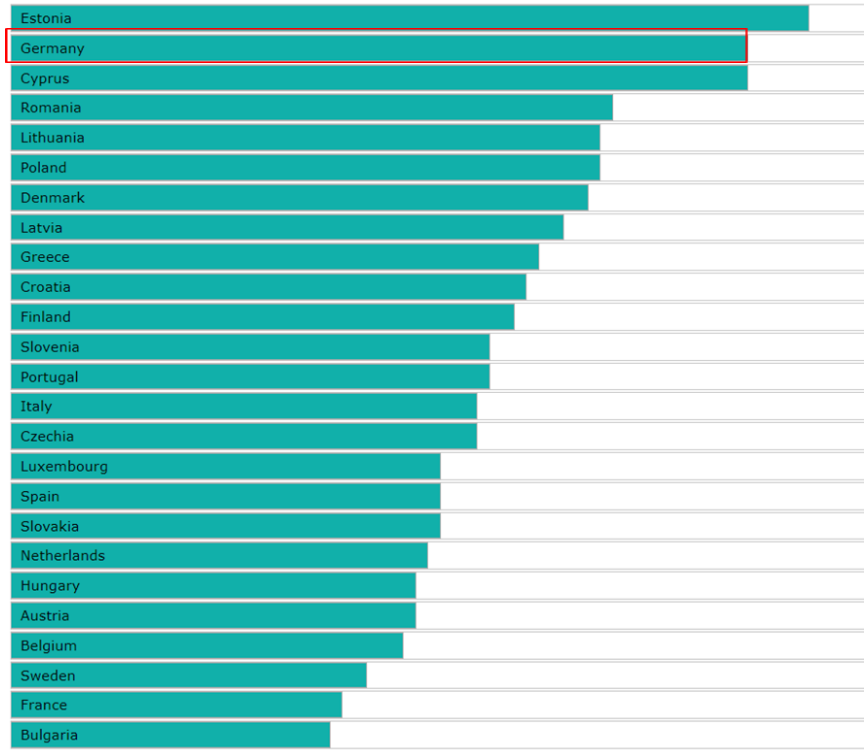
2023 EU Energy Efficiency Scoreboard: Germany is number 2 in energy efficiency in industry among all EU countries

INDUSTRY: OVERALL ENERGY EFFICIENCY SCORE

The overall energy efficiency score is obtained as an average of the three scores obtained for "energy efficiency level", "energy efficiency progress" and "energy efficiency policies" (i.e. one third weighting).



Ranking	Level	Trend	Policies	Combined
Germany	11 / 25	25 / 25	1 / 27	2 / 25
Highest score (benchmark)	Cyprus	Estonia	Germany	Estonia

- The energy savings achieved with the energy efficiency policy measures are decisive for Germany's good position in the industry ranking.

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Source: ODYSSEE-MURE Project, 2023 EU Energy Efficiency Scoreboard. https://www.odyssee-mure.eu/data-tools/scoring-efficiency-countries.html

Impetus from the federal government for transformation

There are essentially three options for action

1. **Inform** (energy efficiency networks)
2. **Fund** (for the industry: EEE, CCfD, etc.)
3. **Regulate** (EnEfG, EDL-G, GEG...)

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Regulation:

Energy Efficiency Act (EnEfG)

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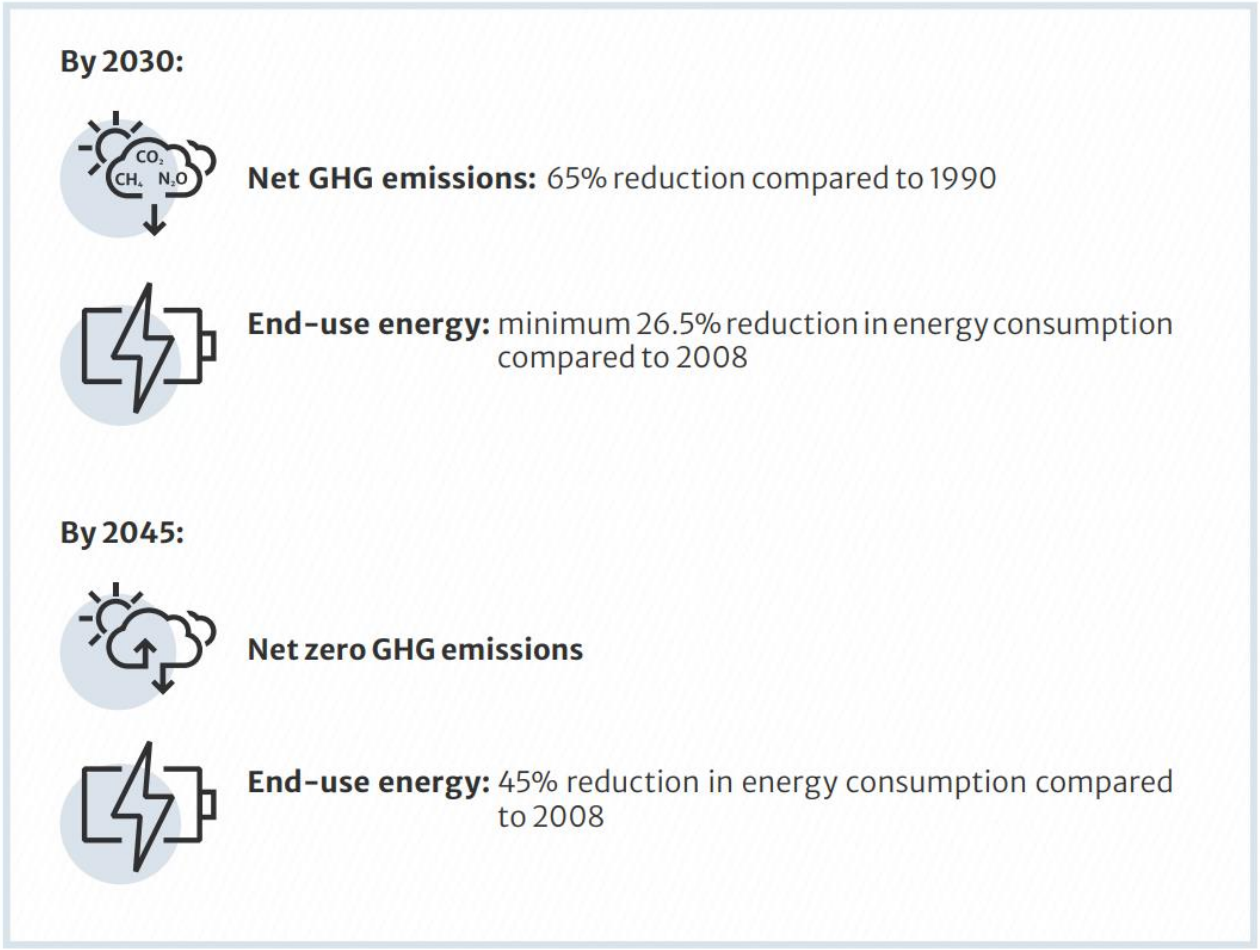
Energy Efficiency Act

- First legal framework to improve energy efficiency in Germany across sectors
- Binding targets for both primary and final energy reduction within the EED



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Source: Jensterle et al. (2024). Global Guide Energy Efficiency Networks. (https://publica.fraunhofer.de/entities/publication/d1ad6443-618b-4233-b8c5-a3be46777ccd)

§ 8 Implementation of EnMS/EMAS

Companies with an average energy consumption > 7.5 GWh

- Obligation to implement a certified energy/environmental management system (ISO 50.0001/ EMAS)
- Identification and examination of waste heat usage

Companies with an average energy consumption of > 2.5 GWh

- Obligation to draft and make publicly available action plans (§ 9)
- Action plans must get certified by an auditor
- Profitability assessment of identified measures (according to DIN EN 17463)

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Funding:

Federal funding for energy and resource efficiency in the economy (EEE)

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Overview of the EEE

Federal Funding Scheme

Energy- and Resource Efficiency in the Economy (EEE)

Funding of:	EEE Modules:	Amount of grant or loan:	Implementing agencies:	
Technology- focused individual measures	**Module 1**: Cross-cutting technologies	up to 25%	**BAFA** Grant	**KfW** Loan with repayment subsidy
	Module 2: Process heat from renewable energies	up to 60%		
	Module 3: I&C, sensors and energy management software	up to 45%		
	Module 6: Electrification in micro and small enterprises	up to 33%		
Technology-open systemic measures	**Module 4**: Optimization of plants and processes	up to 20/45%		
	Funding competition: Optimization of plants and processes	up to 60%	**VDI/VDE-IT** Grant	
Conceptual measures	**Module 5**: Transformation plans	up to 60%		

- Companies of all sectors and sizes, municipal utilities and energy service providers that want to invest in efficient and sustainable technologies and processes can access support with the EEE

Source: Based on BMWK (https://energiewechsel.de/KAENEF/Redaktion/DE/Dossier/eew-energie-und-ressourceneffizienz-in-der-wirtschaft.html)

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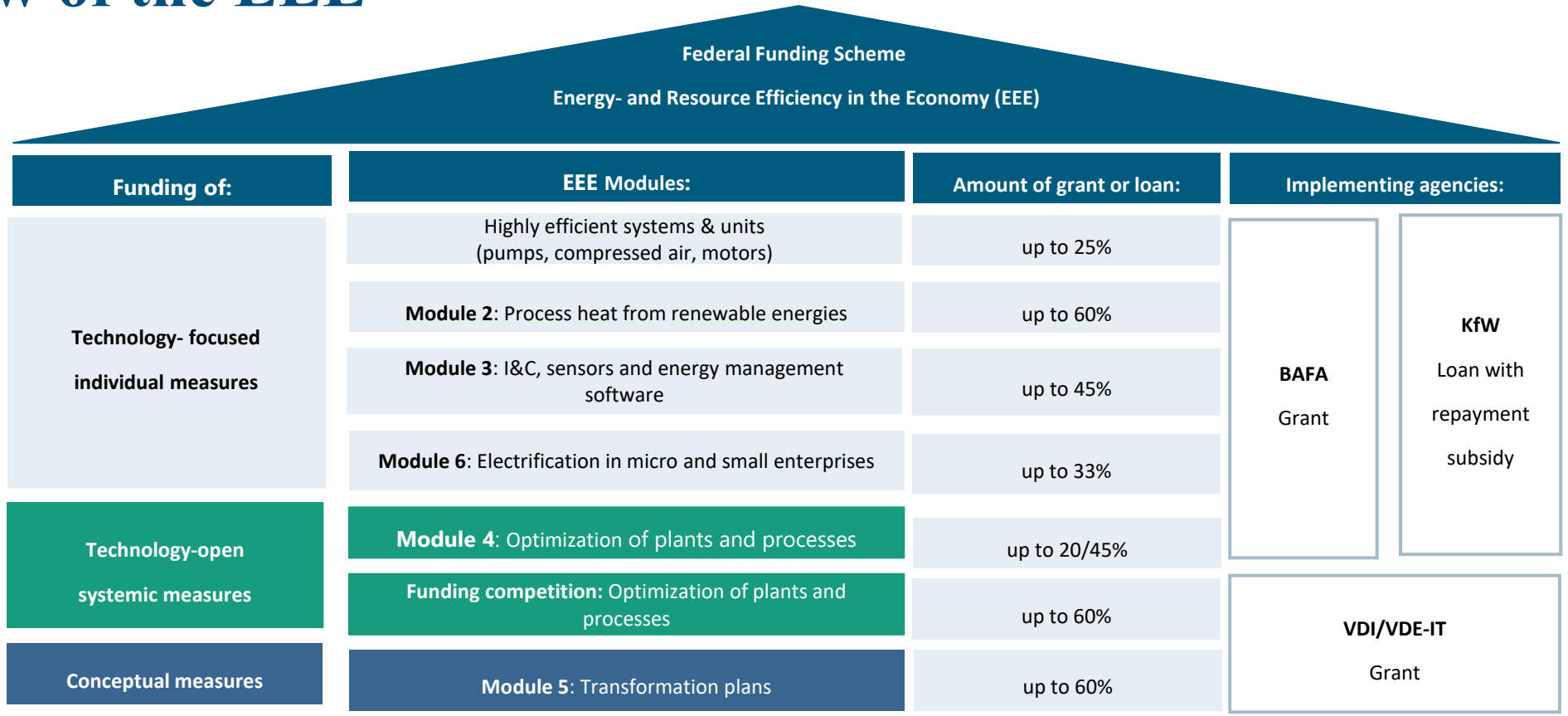
Overview of the EEE



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	Solar collectors, biomass plants, heat pumps, geothermal plants	up to 60%		
	Module 3: I&C, sensors and energy management software	up to 45%		
	Module 6: Electrification in micro and small enterprises	up to 33%		
Technology-open systemic measures	**Module 4**: Optimization of plants and processes	up to 20/45%		
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Technology-open systemic measures	Basic and premium funding	up to 20/45%		
	Funding competition: Optimization of plants and processes	up to 60%	**VDI/VDE-IT** Grant	
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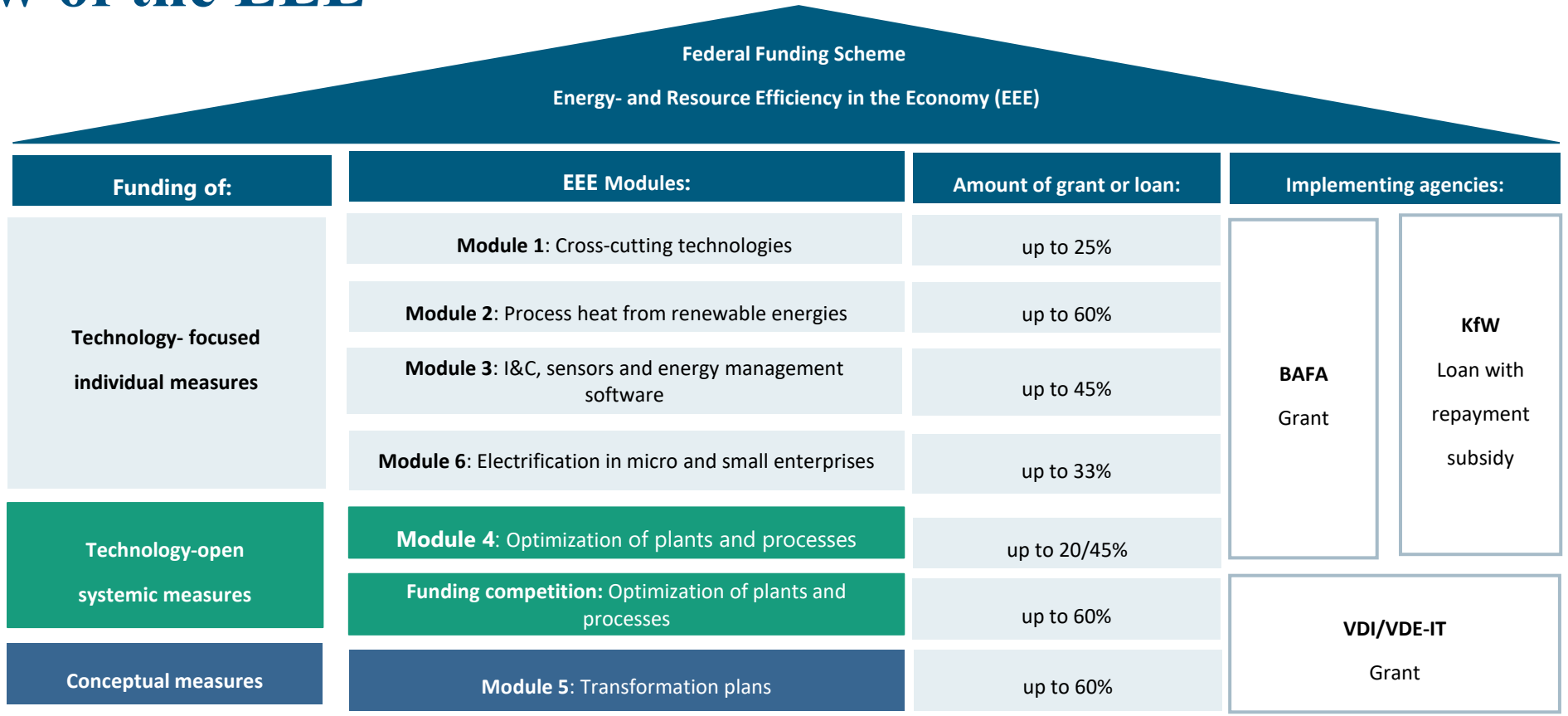
Overview of the EEE



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How the competitive funding works (simplified example)

What is subsidised?

- Technology-open measures
- as in Module 4

Funding conditions

- a maximum of ~~15~~ 20 million euros per project
- up to 60% of the eligible costs (self-selected)

What does competition mean?

- Projects compete for funding budget (6 rounds per year, 2 months each)
- Projects with the best funding efficiency (= funding / CO_2 savings) are funded

Exemplary funding round

Early tender deadline with application volume of € 60 million (150% oversubscription)

Total funding budget of € 40 million

A maximum of 80% of applicants "win" (securing competition)

Ranking	Funding efficiency	Funding applied for
~~32.~~	~~920 €/t~~	~~1.800.000 €~~
~~....~~	~~... €/t~~	~~... €~~
~~17.~~	~~620 €/t~~	~~3.700.000 €~~
16.	570 €/t	1.350.000 €
15.	530 €/t	450.000 €
14.	460 €/t	1.650.000 €
...	... €/t	... €
3.	320 €/t	950.000 €
2.	300 €/t	2.300.000 €
1.	270 €/t	4.500.000 €

Source: Based on BMWK (https://www.effizienznetzwerke.org/app/uploads/2023/10/01_Lipka_230921-Rechtsrahmen-und-Foerderung-EnEff_IEEKN-Jahresveranstaltung.pdf)

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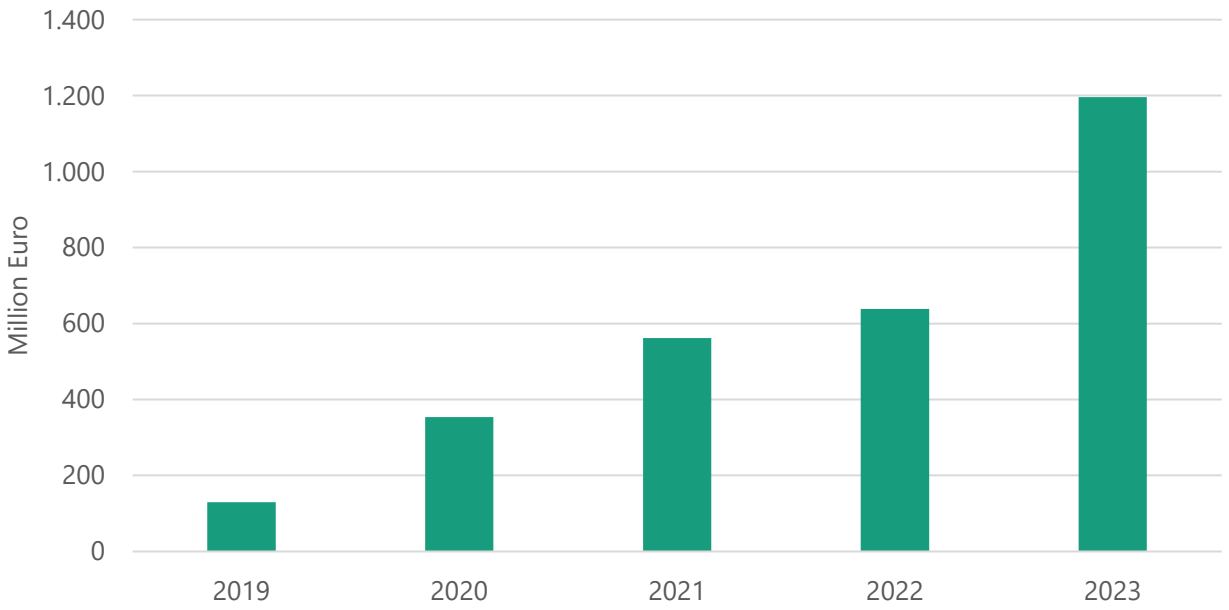
EEE is on a successful growth path

Approved funding volume



- About 55 000 applications between 2019 and 2023
- Approved funding of 2.8 Million Euro between 2019 and 2023

Source: Based on BMWK (https://www.effizienznetzwerke.org/app/uploads/2023/10/01_Lipka_230921-Rechtsrahmen-und-Foerderung-EnEff_IEEKN-Jahresveranstaltung.pdf)

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Inform:

Initiative of Energy Efficiency and Climate Action Networks (IEEKN)

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What is an energy efficiency network?

An energy efficiency network is a collaborative energy management approach,

in which 8-15 companies

identify savings potentials,

set a collective target,

implement measures over 2-4 years,

monitor the results

and establish a continuous exchange on relevant topics

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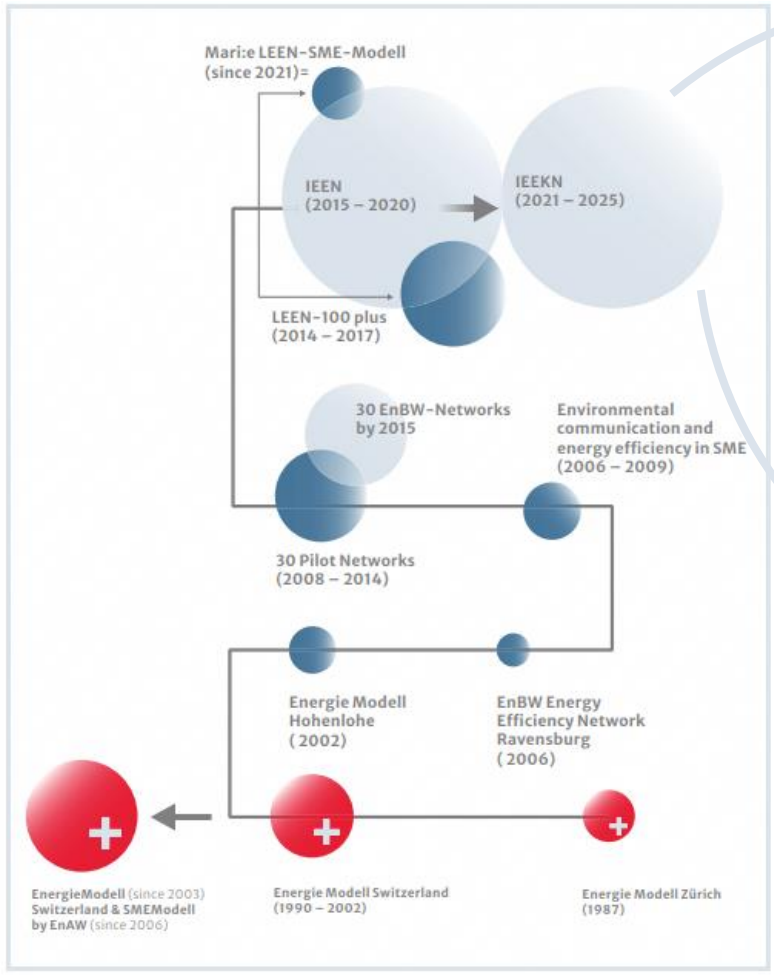
Germany's Initiative IEE(K)N



Phase 1: IEEN (2015 – 2020)

- Part of National Action Plan on Energy Efficiency (NAPE)
- Goals:
  - 500 EENs by 2020
  - 75 PJ/a of **primary** energy savings
  - 5 Mt CO_2-eq./a savings

Phase 2: IEEKN (2021 – 2025)

- Part of Efficiency Strategy 2050 (Part of NAPE 2.0)
- Scope expanded to **climate** protection measures
- Goals:
  - 300 - 350 EENs
  - 9 to 11 TWh of **final** energy savings
  - 5 - 6 Mt CO_2-eq./a savings
- Extra **incentives** for participation

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Source: Jensterle et al. (2024): Global Guide Energy Efficiency Networks (https://publica.fraunhofer.de/entities/publication/d1ad6443-618b-4233-b8c5-a3be46777ccd)

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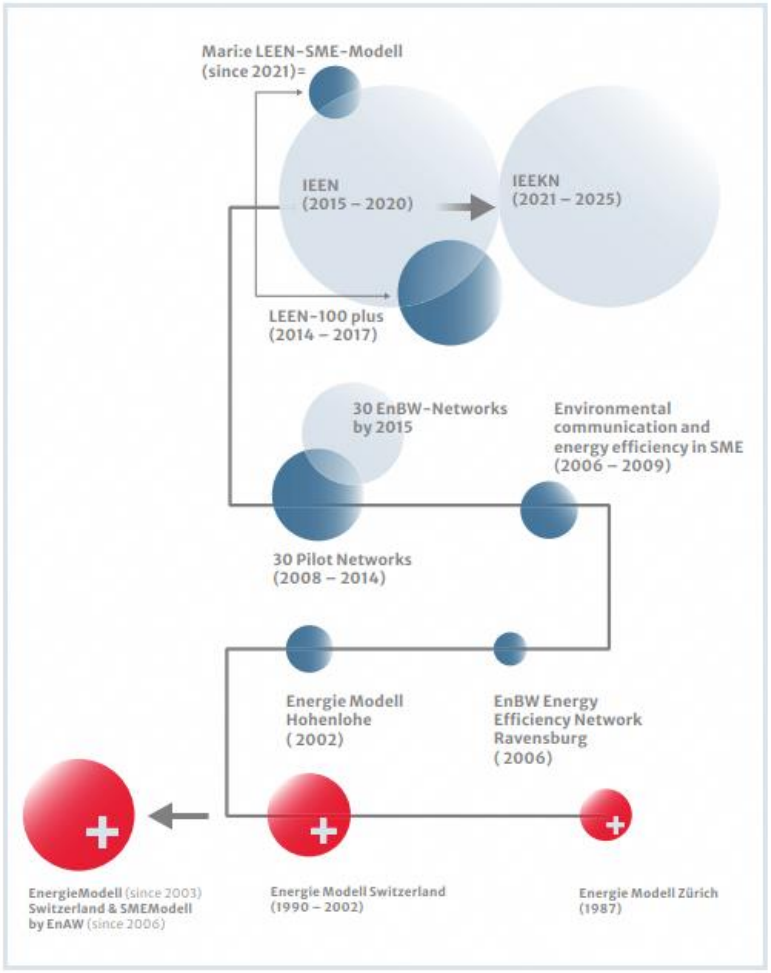

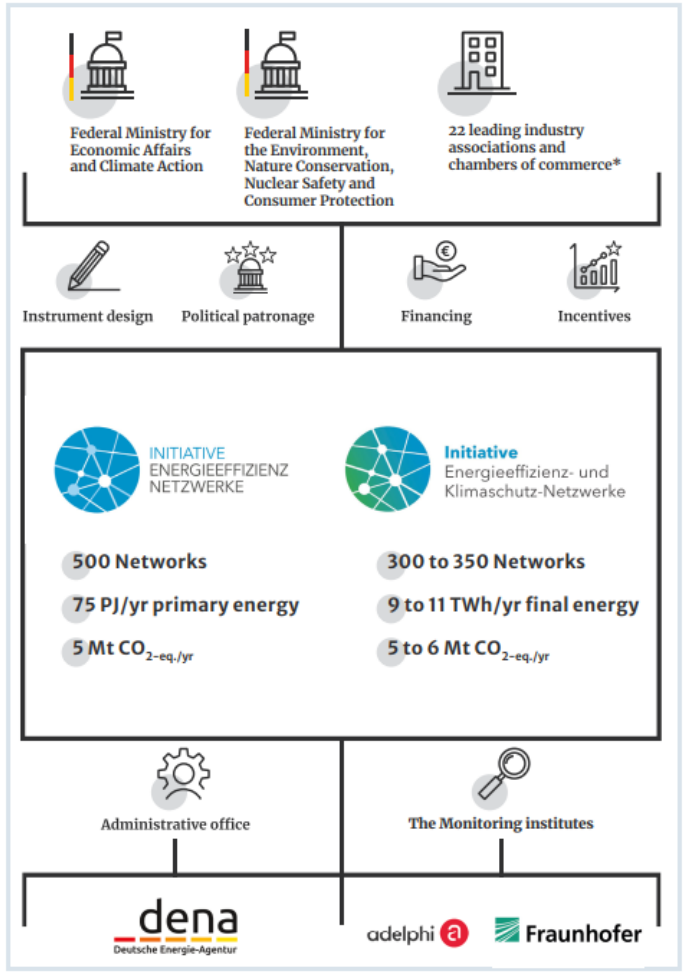

Key features

- Political patronage
- Co-founded by the industry associations
- Funding provided on federal level
- Ambitious but realistic goals
- Administration delegated to dena
- Accompanying monitoring and research

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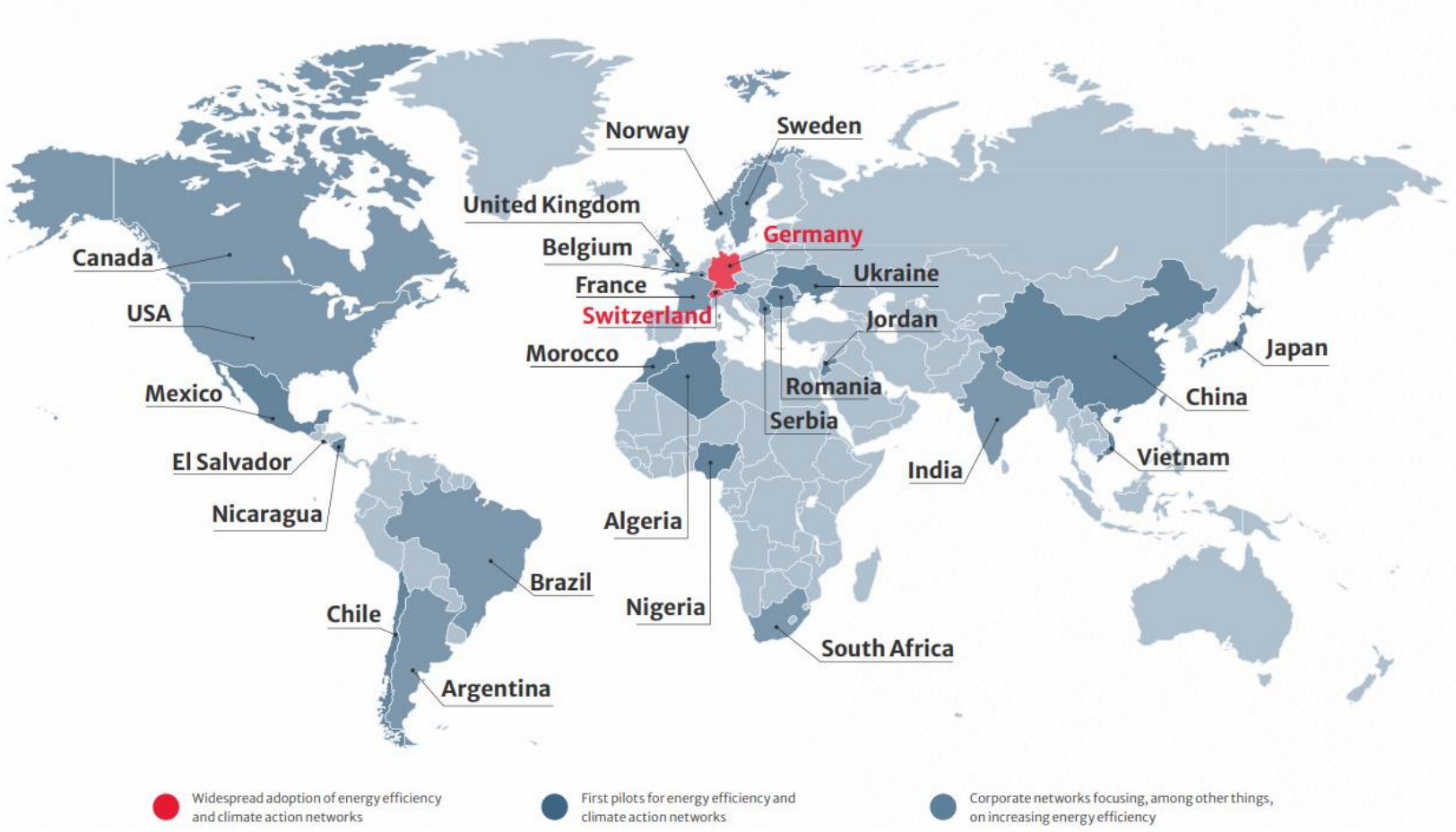
Energy Efficiency Networks worldwide (as of 2021)



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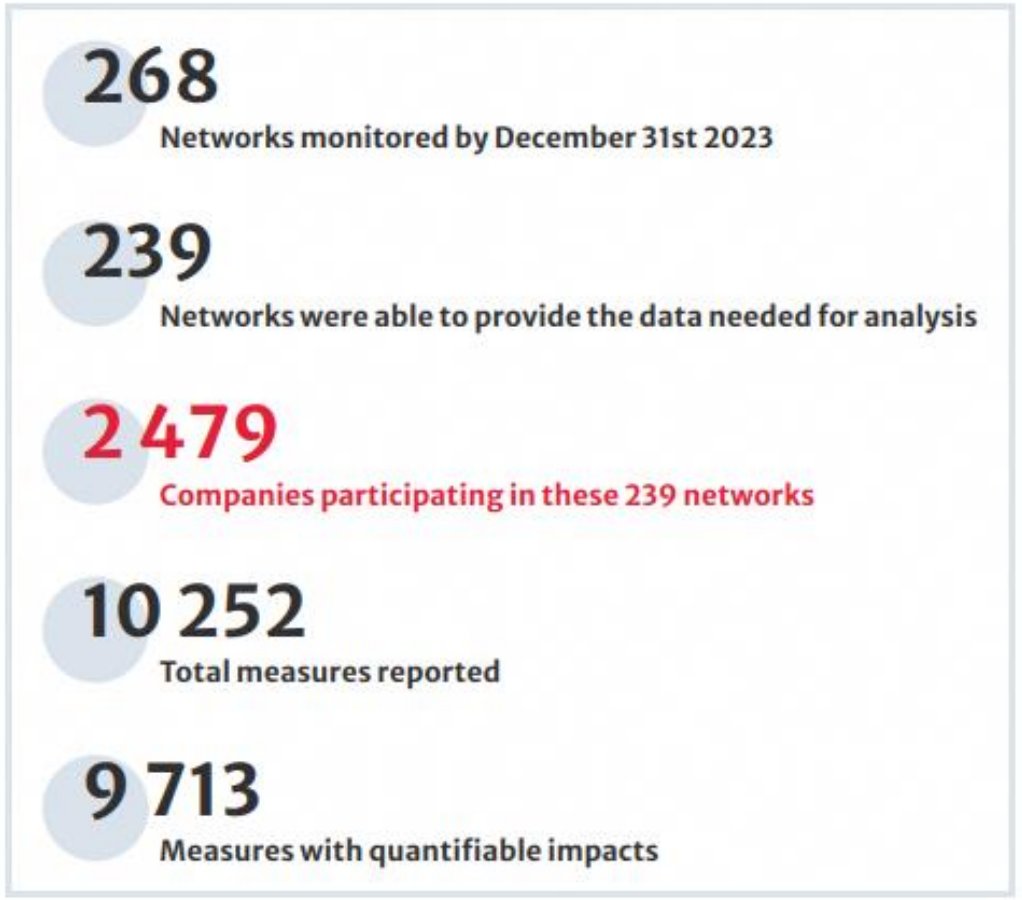
Impacts

→ The initiative has a very broad footing; the **networks**, their **participating companies** and the **measures** implemented are **extremely diverse**



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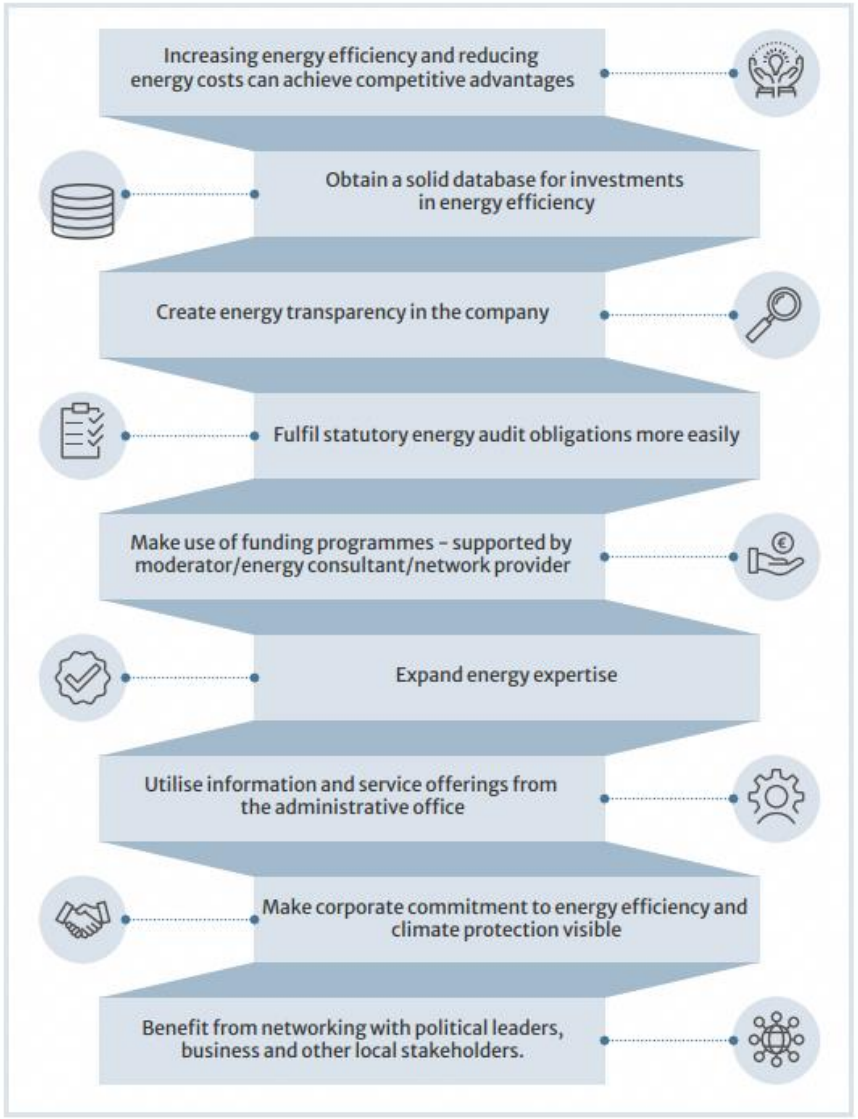
Impacts

→ Benefits of participation **go beyond** energy and CO_2 savings



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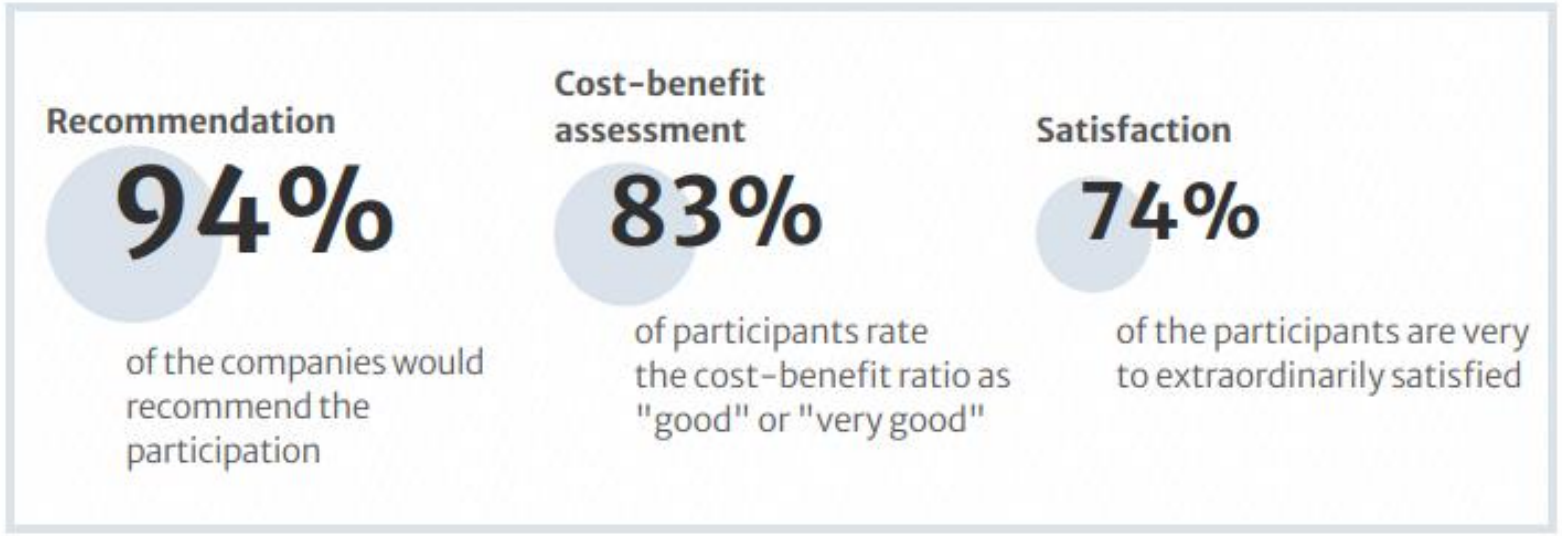
Impacts

→ **Very high satisfaction** on the part of participating companies despite the effort required



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Success Factors from the German Experience

Progressive scale:
Introducing the EEN concept via a pilot phase first enables gradual scaling up to a recognised, legislatively anchored scheme.

Commitment agreements:
Contracts between the federal government and major industrial associations and organisations confirm the EEN targets and establish accountabilities to run networks.

Transfer approach:
Transferring the EEN through industry associations is an important lever.

Skilled administration:
Protecting the integrity of certification by setting up a dedicated coordinating office responsible for registering the EEN, managing the website and disseminating activities, e.g. by organising events, is crucial.

Awareness-raising:
Initiating networks requires strong promotion of the scheme's benefits to potential participants, coordinators and other stakeholders.

Information base:
Providing support material on a comprehensive website (e.g. FAQs, webinars, guidelines with practical information, contract templates etc.) as well as an interactive network map with relevant players and contact information empowers a quick start.

Training:
Qualified moderators and energy auditors are needed in the implementation and operation phase.

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Thank you for your attention!

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