EU-MORE

EUropean MOtor REnovation initiative

Austria

Review of past and existing policy options for the acceleration of electric motor renovation

EU-MORE

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List of Acronyms

Acronym	Description	English
AWS	Austria Wirtschaftsservice Gesellschaft	Austrian Economic Service
BMK	Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie	Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology
CHP		Combined Heat and Power
EEffG	Bundes-Energieeffizienzgesetz	Federal Energy Efficiency Act
KPC	Kommunalkredit Public Consulting	Municipal loan Public Consulting
UFI	Umweltförderung Inland	National Subsidy Programme for Environmental Measures
EMS	Energiemanagementsystem	Energy Management System
SME		Small and Medium Enterprises
UMS	Umweltmanagementsystem	Enviromental Management System
WKO	Wirtschaftskammer Österreich	Austrian Economic Chamber

EU-MORE is an acronym for
EUropean MOtor
REnovation initiative

1. Austria

Introduction and description of the national policy framework and important related national programmes, measures and/or developments:

"The main energy policy making is taking place at the federal level in a number of government ministries and institutions. The Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology is the main government institution responsible for energy matters at the federal level.

This Ministry is also responsible for transport, energy R&D and environmental protection, including climate action and emissions from combustion. The Federal Ministry of Finance is responsible for setting energy taxes.

At the regional level, the governments of the nine federal provinces have responsibility for policymaking, setting subsidy levels, and implementing regulatory control of energy companies.

The E-Control Commission is the federal regulator for electricity and gas in Austria. The E-Control GmbH is a government-owned company providing advice on regulation to the commission. The energy institute for Austrian businesses was initiated by the Austrian chamber of commerce and established in 2008.

Two official bodies – the National Climate Protection Committee (Nationales Klimaschutzkomitee, NKK) and the National Climate Protection Advisory Board (Nationaler Klimaschutzbeirat, NKB) – accompany the implementation of the Austrian Climate Change Act on a continuous basis."[1]

"The Austrian Energy Agency was established by the federal government and states to promote clean energy use in Austria. Besides the Austrian Energy Agency, which acts as a national energy agency, regional institutions performing the tasks of an energy agency exist in all Austrian federal provinces. This corresponds to the important role the federal provinces play in energy policy. In some federal provinces these institutions are incorporated into the administration, in others energy agencies have been formed as legal bodies.

The most important and innovative nation-wide campaign is klimaaktiv, which is the Austrian government's climate change information and grant programme. The programme is overseen by the Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, and managed by the Austrian Energy Agency. The aim of the programme is to support energy efficiency and increased use of renewables in all sectors of the economy, through direct grant support and accompanying measures, such as information and advice.

....

In 2007, the Austrian government funded the Climate and Energy Fund (Klima und Energiefonds – KLIEN), which has since its inception delivered clearly visible impetuses for the Austrian Climate Policy and the restructuring of the Austrian Energy System. The Climate and Energy Fund supports R&D in renewable energy and energy efficiency as well as market demonstration and deployment."[2]

Furthermore, the two entities Public Sector Credit Consulting (Kommunalkredit Public Consulting, KPC) and Austria Economic Service (Austria Wirtschaftsservice Gesellschaft, AWS) are responsible for the processing of funding/subsidies to companies, see details below.

Description of the general direction / course of action taken by the country.

In accordance with "Fit for 55" initiative, Austria aims to reduce carbon emissions by 49 % compared to 2005 levels by 2030 for sectors outside of Emission Trading System.

[1] Energy efficiency trends and policies in Austria, Austrian Energy Agency 2021, page 13, 14
[2] Energy efficiency trends and policies in Austria, Austrian Energy Agency 2021, page 14

In the government agreement for the years 2020 to 2024, the federal government has already set the year 2040 as the deadline for achieving climate neutrality. By 2030, the target is to achieve a production of 100% renewable electricity and 5 terawatt hours (TWh) of renewable gas.[3]

Overview of major national programmes related to energy efficiency.

In Austria there are at least four major instruments to increase the energy efficiency in companies in the production and service sector.

"Large companies must in accordance with § 9 EEffG either (1) carry out an external energy audit every four years, or (2) implement a management system (Energy Management System, Environmental Management System or EMS or UMS equivalent, intra-nationally recognized management system). Persons who carry out these energy audits must meet certain qualification standards. In addition, external auditors must be listed in a public register.

For small and medium sized enterprises (SMEs) there are the federal support programmes in Austria: each province of the nine provinces of Austria has its own support programme. These programs subsidize consulting services for SMEs related to energy and other environmental aspects within different programs. Topics include energy efficiency, mobility management, waste, resource efficiency, greenhouse gas emissions.

The Environmental Support Programme ("Umweltfoerderung im Inland, UFI") is one of the most important subsidies for companies with the emphasis on climate protection, energy saving, renewable energies, and prevention of air pollution. The basis of this subsidy is regulated in the federal law "Umweltfoerdergesetz". The UFI incentive scheme is financed from the budget of the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK). The KPC is entrusted as a settlement agency with the practical development of support programmes. Since 1993, KPC has managed the environmental support schemes of the Federal Government. Until the end of 2022, the funding under the UFI amounted to approx. € 150.000 million per year. The subsidy programmes provide grants of up to 30% of the investment costs. Multiple grants by public (e.g. by the EU or by provincial governments) are also possible within the maximum limit of the EU. There are grants for energy-saving and efficiency measures, improving thermal insulation, combined heat and power (CHP), district heating and heat from renewable energies.

One of several Austrian klimaaktiv programmes within the Austrian Climate Strategy is the national programme for energy efficiency in companies, which started in 2005 under the management of the Austrian Energy Agency."[4]

Related policy developments in the past, present, or (near) future

The most important policies/programmes are subsidies in the field of energy efficiency investments, within the "Umweltförderung Inland". Here, motor replacement and certain motor optimisation measures can be subsidised.

In 2011/2012 "Energy-efficient drives" programme subsidised the replacement of electric motors and the installation of frequency converters with a flat rate per kW. The programme was not continued.

Within the klimaaktiv programme audit guides for pumps, fans were published around 2010, including information on motor replacement and high efficient motors. For these audit guides trainings for consultants were and are still organized.

In December 2023 potential energy savings by the replacement of electric motors and other saving measures (as insulation of pipes, introduction of building automation systems, hydraulic optimisation of

[3] www.oesterreich.gv.at/themen/bauen_wohnen_und_umwelt/klimaschutz/1/Seite.1000310.html
[4] Energy efficiency trends and policies in Austria, Austrian Energy Agency 2021, page 18,19

heating systems) in Austria were discussed, including a potential subsidy programme for these purposes.

Brief evaluation of the overall size and scope of national actions in relation to the replacement of electric motors and the EU-MORE project as a whole

In principle, energy efficiency measures also in the electricity sector, where Austria has a high share of renewables, are promoted by the BMK. Energy consultancy, energy auditing, awareness raising, and investment subsidies are in place, but, for all these instruments no specific motor replacement programme exists. One exception are the specific motor replacement tips within the klimaaktiv pumps and fan system audit guides. Within this programme awards are given for measures in the optimisation of such systems. Within EU-MORE project the programme on energy efficient drives will be analysed.

1.1 Measure 1: Umweltförderung im Inland (UFI)

	Overview
Short Description	UFI has been an important promotion instrument at the federal level for Austrian companies investing in environmental and climate protection measures since 1993. Measures for the efficient use of energy in commercial and industrial production processes as well as in existing buildings and heat recovery systems with predominantly operational use are promoted.
Responsible Authority	Kommunal Kredit Public Consulting (KPC)
Status	Ongoing
Issue Date	
Start Date	1993
Ending Date	Ongoing
Duration	
Reference:	https://www.umweltfoerderung.at/

1.1.1 Main Description

A detailed description of the policy measure and how it relates specifically to EU MOREs topic of electric motors – including references to (if applicable) anchoring national law, EU directives, other schemes

All companies except private individuals are eligible to funding with UFI program.

In 2011/2012 the program "Energy efficient drive systems" was directly directed to the replacement of motors and to fund their replacement. Submissions were able between February of 2011 up to end of December of 2012. The funding flat rate was per kW[5]:

- IE3 drives with a rated power < 7.5 kW: 15 Euro/kW
- IE3 drives with a rated power ≥ 7.5 kW: 10 Euro/kW
- Installation of a frequency converter for existing drives 20 EUR/kW

*An additional grant of 300 Euro was available for a minimum of eight hours of external energy consulting. An additional system bonus was possible if the project was implemented in a building with excellent energy performance.

The target was the change of old electric drive systems from 0,75 kW up to 375 kW. Also, the retrofitting of variable speed drive systems independent from the efficiency class of the drive system was a part of the funding program. Funding conditions were:

- The new drive systems should be IE3 according to Commission Regulation (EC) No 640/2009 of 22 July 2009 with regard to eco-design requirements for electric motors.
- The used drive systems should have CE marking.
- The electric nominal power of the retrofitted drive systems should be minimum 30 kW.

In total during the period 2011-2012, 40 projects were considered in this period, from which 27 were approved and granted.

Furthermore, the UFI-Framework on energy savings in companies, though not explicitly targeting at motor replacement, has funding opportunities available within the framework of the support programs.

Mainly there are three subprograms of relevance for electric motors. They are called "Energy-saving Measures in Enterprises" (in German: Betriebliche Energiesparmaßnahmen), "Air Conditioning and Cooling" (in German: Klimatisierung und Kühlung) or "Energy Centers for internal heat and cold supply" (in German: Energiezentralen zur innerbetrieblichen Wärme- und Kältebereitstellung). In all these funding areas, measures related to motors can potentially be included as part of the projects.

The following saving measures are eligible for subsidies for these three programmes:

1. "Energy-saving measures in enterprises"[6]
    a. Efficiency improvements in industrial processes and systems that significantly differ technologically and ecologically from existing installations.
    b. Heat recovery from refrigeration systems (cooling and deep-freezing systems, process cooling systems), and ventilation systems (utilization of heat from exhaust air to heat indoor air) with heat exchanger capacity over 100 kW or a nominal air flow rate of more than 50,000 m^3/h in recirculating air systems.
    c. Heat recovery or utilization of previously unused heat streams (e.g., compressed air compressors, industrial processes, waste heat from wastewater), as well as heat pumps for utilizing low-temperature waste heat.
    d. Heating optimization in existing buildings (retrofitting of storage systems, variable speed control, efficient pumps, heating distribution systems, control technology) resulting in a minimum of 10% energy savings.
    e. Optimization of fossil-based process heat generators (if conversion to renewable energy sources is not possible).
2. "Air conditioning and cooling"[7]

[5] Kommunalkredit Public Consulting GmbH (2012): Förderungsprogramm „Energieeffiziente Antriebe in Betrieben"
[6] https://www.umweltfoerderung.at/betriebe/energiesparmassnahmen/unterkategorie-anlagen-und-prozessoptimierung

[7] https://www.umweltfoerderung.at/betriebe/klimatisierung-und-kuehlung/kaelte

a. Systems for climatisation of office buildings and process cooling (absorption and adsorption heat systems working with renewable energy or industrial waste heat, free cooling systems)
b. Systems for industrial process cooling with refrigerants with GWP < 150.

3. "Energy centers for internal heat and cold supply" Three from five criteria should be completed:[8]
   a. Construction of a renewable heat generation system or a climate-friendly refrigeration system (heat pump, biomass boiler, connection to district heating, climate-friendly refrigeration systems, use of waste heat, solar thermal energy).
   b. Installation of a heat recovery or free-cooling system.
   c. Construction or expansion of internal primary distribution networks.
   d. Optimization of energy supply/distribution (e.g. heating optimization in existing buildings, higher-level measurement, control, and regulation technology using state-of-the-art technology, optimized storage systems including storage and load management, anergy network, 3- or 4-wire network).
   e. Measures for sector coupling (e.g. integration of own photovoltaic systems for the operation of heat or cold generators, provision of systems for the control energy market).

In the period between 2018-2022 a total of 371 renovation projects with motor-relevance were approved and granted. This period was analysed within a subcontract for EU-MORE project.

<table>
<tr><th></th><th>Characteristics</th></tr>
<tr><td>Budget</td><td>

Budget for the total program, incl. renewable energy in 2022: 151 Mio. EUR

Funding rate max. 30% (for SMEs up to 35%)
Evaluation for 2022[9]:

<table>
<tr><th>Category</th><th>Nr. of projects</th><th>Enviromentally relevant investment [EUR]</th><th>Funding value [EUR]</th></tr>
<tr><td>Efficient energy use of energy</td><td>2.041</td><td>315.716.405</td><td>51.990.435</td></tr>
<tr><td>Renewable energy</td><td>1.970</td><td>388.083.115</td><td>83.031.085</td></tr>
<tr><td>Others</td><td>53</td><td>68.474.883</td><td>16.486.006</td></tr>
<tr><td>Total</td><td>4.064</td><td>772.274.403</td><td>150.507.526</td></tr>
</table>
</td></tr>
<tr><td>Financing of the measure</td><td>National fund</td></tr>
<tr><td>Policy focus</td><td>Physical intervention</td></tr>
<tr><td>Intervention Type</td><td>equipment upgrade</td></tr>
<tr><td>Main Barriers Addressed</td><td>initial costs, return on investment, emission reduction</td></tr>
<tr><td>Key Driver(s)</td><td>Unknown</td></tr>
</table>

[8] https://www.umweltfoerderung.at/fileadmin/user_upload/umweltfoerderung/betriebe/Energiezentralen/UFI_Standardfall_Infoblatt_ENERZEN.pdf
[9] https://www.bmk.gv.at/dam/jcr:8ea7566f-f34a-4822-88e7-4afa89741d1b/UFG-Jahresbericht-2022.pdf

Replicability	High
EU Inclusion	Included in NECP
Related Characteristics	

1.1.2 Impacts

A detailed description of the final (expected) results of the measure implementation and any achievements related to the measure implementation. Where possible specific to electric motors

Projects 2022 in the relevant areas (general)[10]

	Number of projects	Environmentally relevant investment EUR	Funding Value EUR	CO2 reduction in t per year	CO2 reduction in useful life	Energy from Renewables MWh/a	Energy-savings MWh/a
Energy-saving Measures in Enterprises	247	103 668 541	21 174 249	49 641	496 408	0	185 094
Energy Centers for internal heat and cold supply	8	9 356 636	1 819 285	4 463	66 945	3 464	15 144
Air Conditioning and Cooling	118	35 842 751	5 240 338	14 290	142 895	8 777	39 082

For electric motors KPC conducted a more detailed analysis under a subcontract for EU-MORE:

The programme "Energy efficient drive systems" as part of UFI achieved the following results for the period 2011-2012[11]:

- 27 motor projects granted
- 1.938 tCO_2/a carbon savings for all projects
- 1.306.334 € investment costs for all projects
  - from which 119.076 € were granted
- 67,4 €/CO_2 funding efficiency (under the assumption of 10 years life span of the project)
- 5.337 MWh energy savings
- 891 kWel implemented motor optimization
- 5.589 kWel implemented speed control optimization

The three programmes (Energy-saving measures ins enterprises, air conditioning and cooling and energy centers) for the period 2018-2022 achieved the following results:

There were a total number of 2.490 projects funded, see following table. In the course of analysis, the motor relevant projects were reduced according to different criteria down to 371.

[10] https://www.bmk.gv.at/dam/jcr:8ea7566f-f34a-4822-88e7-4afa89741d1b/UFG-Jahresbericht-2022.pdf
[11] Results of subcontract between KPC and AEA within the EU-MORE project

Part of motors-system optimisation	Number of projects with motor-relevance
Motors	22
Drive-Chain	3
Transmission	2
Frequency Converters	20
Compressors	1
Fans	3
Compressed Air	161
Optimisation of heating systems, incl. e.g. circulation pumps	73
Pumps	86
Total	371

Number of projects 2018-2022	Enviromentally related investments [EUR]	Funding value [EUR]	Funding EU value [EUR]	CO_2-savings [t/a]	Energy (electricity) savings*** [kWh/a]
Total for 3 Programmes 2.490*	716.940.812	101.657.340	14.296.375	373.583	36.501.530
Total with motor relevance 371**	56.804.362	10.237.594	1.764.134	31.060	46.756.717

* Number of projects in the the subprogrammes of relevance (efficient energy use, air conditioning and cooling, energy centers)

**Reduction to projects which, due to their measures, project name and project size, may contain relevant measures on motor systems. Also only electricity-saving projects were classified as relevant.

***The increase in electricity savings results from the summation of all projects: many projects show an increase in their electricity use instead of savings, since these projects replace other energy sources with electricity.

From the 371 potential projects, a total number of 22 projects included detailed information on electric motor-replacement. These projects achieved the following results:

- 22 motor projects granted
- 4.893 tCO_2/a carbon savings for all projects
- 7.387.709 € investment costs for all motor relevant projects
    - from which 1.751.000 € were granted
- 35,8 €/CO_2 funding efficiency(under the assumption of 10 years life span of the project)
- 18.537 MWh energy savings
- 5.600 kWel implemented motor optimization

	Impacts
Case level impact	High
Policy level impact	High
Size	For the period 2011-2012 for energy efficient drives programme:[12] No information about motor efficiency classes were found. For the period 2018-2022 for these selected projects where information was available: number of new motors: 281 overall* divided in IE classes: ○ IE3: 15 motors ○ IE4: 31 motors ○ IE5: 2 motors divided in power range: ○ 0-10 kW: 29 motors ○ 10-100 kW: 51 motors ○ 100-1000 kW: 8 motors ○ 1000-2000 kW: 1 motor *information about number of motors in efficiency classes or in power range is uncompleted
Energy	Evaluation for the whole funding program in 2022 in category "Efficient energy use", including all projects, not only motor-systems[13]: ○ 92.353 tCO_2/a saved. ○ 337.559 MWh/a
Impact evaluation	[Short, bulleted list of the main (expected) results and/or key achievements of the measure implementation] (see detailed impacts description section above)

1.1.3 Lessons Learnt

Description of the lessons learnt and/or (initial) feedback gathered in response to the measure's implementation specific to electric motors

- Very successful, long lasting and well-known subsidy programme
- Long lasting effort to optimise application process (online)
- Current funding offer includes measures on electric motor driven systems, tough not specifically mentioned as stand-alone measure.
- Compared to the total number of funding projects, a low share of projects with measures specifically addressed to optimisations of electric motors but:

[12] Results of subcontract between KPC and AEA within the EU-MORE project
[13] https://www.bmk.gv.at/dam/jcr:8ea7566f-f34a-4822-88e7-4afa89741d1b/UFG-Jahresbericht-2022.pdf

- Frequent replacement of entire component groups with integrated motors (e.g. pumps, compressors, etc.)
- No funding requirement for mapping the technical details of system components, as savings effects are calculated over the entire system.
- Potential to explicitly mention drive systems in programme description.

Efficient Drives Program (2011-2012)

- Low demand for explicit subsidies compared to total applications in other programmes, however, for energy-saving projects whose energy savings were not exclusively due to motor replacement, funding applications could be submitted under the programme "Operational Energy Saving Measures".
- Higher refusal rate compared to whole subsidy programme.
- Discontinuation or non-renewal of the funding offer due to:
    - The low number of funding applications did not justify a flat-rate funding, which should above all optimise the submission process for applicants and the funding agency and make it more attractive (a similar programme for LED-optimisation is still operational)
    - Still existing funding opportunities under the funding offer "Operational Energy Saving Measures" (therefore this kind of measures are still eligible for funding)

UFI Energy saving measures (efficient energy use) in companies[14]

	Lessons Learnt
Key takeaways	See above
Recommendations	Potential to explicitly mention drive systems in programme description.
Linked measures	In Austria, several programmes on consultancy for energy efficiency in companies are available on regional basis. Recommended measures can be subsidised within this programme.
Reference(s)	https://www.umweltfoerderung.at/foerderinstrumente/betriebliche-umweltfoerderung-im-inland https://www.umweltfoerderung.at/betriebe/energiesparmassnahmen/unterkategorie-anlagen-und-prozessoptimierung Annual Evaluation Report: Umweltinvestitionen des Bundes, Klima und Umweltschutzmaßnahmen 2022, BMK, Vienna, 2023: https://www.bmk.gv.at/dam/jcr:8ea7566f-f34a-4822-88e7-4afa89741d1b/UFG-Jahresbericht-2022.pdf Results of subcontract with EU-MORE project
Other	Kommunalkredit Public Consulting GmbH Türkenstraße 9 | 1090 Wien T +43 1 / 31 6 31-DW | F: DW 104 umwelt@kommunalkredit.at

[14] Results of subcontract between KPC and AEA within the EU-MORE project

Thoughts, comments, considerations ...	

1.2 Measure 2: OekoBusiness Wien/Vienna

	Overview
Short Description	OekoBusiness Wien is the city's environmental service programme for companies with a business location in Vienna. Within the framework of OekoBusiness Wien, companies receive a co-financed environmental service package.
Responsible Authority	City of Vienna
Status	Ongoing
Issue Date	[Month, Year] (date of announcement)
Start Date	1998
Ending Date	Ongoing
Duration	25 years
Reference:	https://www.wien.gv.at/umweltschutz/oekobusiness/

1.2.1 Main Description

OekoBusiness Vienna is part of the SMART CITY VIENNA framework, which is the city's long-term and holistic strategy to meet the challenges of the 21st century. The aim is to ensure the best quality of life for all of Vienna's citizens and to save resources through comprehensive innovations. An important part of this aim is for companies in the city to do business in an environmentally sustainable way.

The purpose of OekoBusiness Vienna is to help companies generate *green and clean* profits through environmental management practices that benefit both the environment and the companies, ensuring financial rewards and high quality for each company.

OekoBusiness Wien is the city's environmental service programme for business companies located in Vienna. Within the framework of OekoBusiness Wien, companies receive a co-financed environmental service package. The amount of co-financing varies depending on the advisory service provided.

There are three steps to becoming an OekoBusiness company:

"OekoBusiness Wien funds certain consultancy services to encourage businesses to take action to reduce their environmental impact. In individual meetings consultants develop solutions tailored to the needs of each business in three stages:

- Stage 1: Consultants working within OekoBusiness Wien network conduct an environmental check-up together with the company to find savings potentials and detect environmental weak points in the operation.
- Stage 2: On this basis, the company management can decide to participate in the programme and select a suitable consultancy module.
- Stage 3: Supported by tailored consultancy services and expert input, the company develops its environmental project(s) and starts implementation already during the first year of

participation. An independent commission assesses the progress made and takes a decision about the award. All measures taken are documented in OekoBusiness Wien database."[15]

Consultants must fulfil certain criteria and must be listed (OekoBusiness Wien – BeraterInnenpools).

A lot of documented measures include motor renovation in the form of compressed air, chiller, pump, and fan systems optimisation, including change of equipment.

The programme is a co-financing 60 EUR per consulting hour, with maximum rates.

The most important and relevant programmes include:

- First Check, incl. checking of energy bill: supported are 8 h, with a maximum co-financing of 480 EUR.
- ECOPROFIT (Ökoprofit): for companies in Vienna above 30 employees, esp. above 50 employees. Co-financed are: 6 whole-day workshops, 40 hours consultancy (max. 4.400 EUR)

The focus of ECOPROFIT is on water, residual waste, hazardous waste, solvent emissions, electricity, natural gas and heating and process heat. The companies learn how to develop and implement environmental measures and reduce operating costs at the same time.

Most of the motor-relevant measures were reported in this programme. Examples included replacement of compressors, of fans including motors and similar optimisation measures in all fields.

- ECOBONUS (Ökobonus): target group-companies below 50 employees, with higher energy intensity,

The aim is to develop and implement appropriate environmentally friendly measures in the companies and thus also to reduce operating costs.

The report template is to be used by listed consultants and measures must be presented for potential award. Co-financed with max. 1.800 EUR.

- Efficiency (Effizienz): The aim of the advisory service is to reach energy efficiency as well as changes in behaviour and optimisations in the process. Co-financed with max. 1.200 EUR (20 hours).

Contents of the consultation are:

Recording of all relevant energy variables and their costs, Evaluation of the potential for change and savings from a feasibility point of view, divided into measures that can be implemented immediately and those that can be implemented in the medium to long term, and Summary assessment and evaluation of measures taken[16]

[15] https://www.wien.gv.at/english/environment/protection/eco/consultancy.html
[16] MA 22 – 1569/2021 - OekoBusiness Wien – Kofinanzierungsrichtlinien 2021-2024

	Characteristics
Budget	Annual total Budget is not published. Depending on the programme 800 to 4.400 EUR are available per company per year.
Financing of the measure	Public authorities, interest groups and companies all work together on OekoBusiness Vienna to implement preventive and integrative environmental protection policies and actions that also benefit businesses' bottom line. Public subsidies are granted for consultancy and training, and capital investments are made by the private sector, in some cases with support from additional public sources.
Policy focus	Service intervention: Consultancy and moderated workshops
Intervention Type	Consultancy and capacity building (Workshops)
Main Barriers Addressed	[Brief description of the main barriers addressed by the measure e.g. high initial cost, lack of information, general financial viability, return on investment, ease of regulation, emission reduction, waste reduction, …] "OekoBusiness Vienna aims to:[17] • Reduce adverse environmental impacts of economic activity through integrated environmental protection strategies • Improve the competitive position of Viennese businesses through more efficient use of resources (making full use of innovative potentials and cost saving opportunities), sustaining employment over the medium term • Strengthen the advisory component in the relationship between the city administration and private sector enterprises • Contribute to the sustainable development of the City of Vienna • Support the exchange of information, nationally and internationally, with city administrations and enterprises running similar programmes • Extend and support environmental protection efforts both nationally and internationally • Contribute to de-coupling economic growth from resource consumption and environmental damage"
Key Driver(s)	See above
Replicability	High: "An important advantage of OekoBusiness Vienna is its universal applicability, which allows the programme as a whole, or individual aspects of the programme, to be implemented in other regions and countries. In 2004, five Austrian provinces (Lower Austria, Salzburg, Styria, Vorarlberg and Upper Austria) began cooperating with OekoBusiness Vienna by using the database. Now all nine Austrian provinces offer environmental consulting services to businesses and cooperate in further development with OekoBusiness Vienna. The European Union has provided €674,000 in support for various joint projects over the last 15 years. These funds were awarded within the framework of the INTERREG IIIA „Vienna-Györ" project, which focuses on energy efficiency and exchange of training between the Hungarian city of Györ and Vienna. Other environmentally conscious cities such as Athens, the capital of Greece, and Chennai (Madras), India's fourth-largest city, are developing OekoBusiness programmes of their own modelled on Vienna's programme. UN Habitat has included OekoBusiness Vienna in its Best Practices Database, which lists the best sustainability projects worldwide. Likewise, the European Commission

[17] https://www.wien.gv.at/english/environment/protection/eco/philosophy.html

	regards the environmental service package of the City of Vienna as an example of best practices."[18]
EU Inclusion	Only general comment on energy consultancy in NECP For subsidies general is relevant: 200.000 EUR de minimis (but in this case not very relevant, as the financing is quite low, max. 4.000 EUR) (Verordnung (EU) Nr. 1407/2013 der Kommission)
Related Characteristics	

1.2.2 Impacts

Description of the final (expected) results of the measure implementation and any achievements related to the measure implementation. Where possible specific to electric motors

"The effort to integrate environmental policies and measures in economic activities throughout Vienna is backed by an evaluation report by the Austrian Institute for Industrial Ecology. About 98% of participants in OekoBusiness Vienna rated the programme as „excellent" or „good".

Businesses responded very positively to some of the programme's strong points, including consultancy services, the incentive to make changes, the raising of environmental awareness, the opportunity for a systematic analysis of a business's current situation, and the enhanced company image as a result of winning an award. The innovative impact of the measures proposed was also greatly appreciated by the participating businesses. The high-quality consultancy services provided by OekoBusiness Vienna have spawned a wide variety of new policies and measures. A look at the results clearly shows that the environment is the real beneficiary of OekoBusiness Vienna."[19]

From 1998 to 2021, the OekoBusiness Wien companies have collectively achieved the following savings:[20]

- 170.7 mill. EUR operating expenses saved
- 792,000 t carbon dioxide emissions avoided; for 2021: 4596,22 t CO2 total energy (not only electricity!)
- 3.3 Millionen m3 drinking water consumption reduced.
- 2.6 TWh final energy savings; for 2021: 21.4 GWh electricity
- 225.8 Km total transport mileage reduced
- 127,836 t solid waste output reduced

	Impacts
Case level impact	See above
Policy level impact	High

[18] https://www.wien.gv.at/english/environment/protection/eco/philosophy.html
[19] https://www.wien.gv.at/english/environment/protection/eco/benefits.html
[20] https://www.wien.gv.at/umweltschutz/oekobusiness/erreichtes.html

Size	Not available
Energy	
Impact evaluation	

1.2.3 Lessons Learnt

Description of the lessons learnt and/or (initial) feedback gathered in response to the measure's implementation specific to electric motors. Also include (if applicable) the main barriers that would hamper and/or the conditions that are necessary for the implementation of the measure.

Very successful, long lasting local programme, here are some success factors:

- Low barrier for first contact (8 h consultancy), high share of subsidy
- Reporting of measures public database (for external reporting)
- Evaluation of whole programme important for continuing financing, now done annually; publication of evaluation report
- Standardised templates for reports can increase the quality of the audits/consultancy activities and outputs.
- Support of the implementation of measures/activities is important (done in another programme in Austria)
- Different modules to address SMEs: e.g. OekoBonus is a good module for smaller SMEs to start with environmental activities, OEKOWIN is a module to involve larger companies, Eco-label Tourism (Umweltzeichen Tourismus) is focusing on tourism sector.
- Particularly important is the evaluation of the modules of the programme (once a year).
- Awarding of companies for good environmental practises is important.
- Publish good practises and activities of companies on the internet.

Potential improvements in discussion are establishing an energy service center, a one-stop shop for companies and households, targeting resource efficiency and circular economy.

In general important for communication to SMEs are short formats, tailored formats, energy check and at the same time also subsidy advice.

	Lessons Learnt
Key takeaways	
Recommendations	See above
Linked measures	
Reference(s)	
Other:	
Thoughts, comments, considerations	Measure Database (German): https://unternehmen.oekobusiness.wien.at/massnahmen/#top
Contact Persons:	Stadt Wien – Umweltschutz Dr. Thomas Hruschka, DI Bertram Häupler

	Telefon: +43 1 4000-73573 Fax: +43 1 4000-73573 E-Mail: office@oekobusiness.wien.at

1.3 Measure 3: Energy Audits

	Overview
Short Description	Large companies have to conduct energy audits or implement a management system. Energy Audits for large companies according Energy Efficiency Directive
Responsible Authority	BMK/E-Control
Status	Ongoing
Issue Date	2014: Bundes-Energieeffizienzgesetz – EEffG, StF: BGBl. I Nr. 72/2014 (was renewed in June 2023)
Start Date	2015
Ending Date	2019
Duration	4 years
Reference:	www.monitoringstelle.at

1.3.1 Main Description

Description of the policy measure and how it relates specifically to EU MOREs topic of electric motors

Large companies have to either conduct an external energy audit in accordance with § 17 and § 18 of the National Energyefficiency Law (Bundes-Energieeffizienzgesetz – EEffG (2014). This law was revised in Jun 2023, this information is based on the version of 2014.

at regular intervals, at least every four years or implement:

- A certified energy management system in accordance with EN 16001 or ISO 50001 or equivalent successor standards, or
- A certified environmental management system in accordance with ISO 14000 or any subsequent equivalent standard, or in accordance with Article 13 of Regulation (EC) No 1221/2009 allowing voluntary participation by organisations in a Community eco-management and audit scheme, or
- A nationally recognised management system equivalent to an energy management or environmental management system, which shall also include a regular internal or external energy audit in accordance with § 17 and § 18.

The introduction of the management system shall be documented and maintained. Energy audits have to fulfil certain criteria § 18 plus Annex. The audits must cover three main energy consumption areas: 1) buildings, 2) industrial processes and 3) transport, provided that each of these accounts for at least 10% of the total energy consumption of the entire company.

In the Annex for the energy audits in industry, it is stipulated that data collection and analysis must include (among other things) the following, relevant in this context:

- Manufacturing processes (technical data on product and product quality, current operating conditions concerning set points), and
- Associated utility processes (e.g. steam, hot water, compressed air, electrical drives (motors), heat recovery systems, pumps, fans and ventilation systems, lighting, IT infrastructure).

The recommendations for action shall address, among others not that relevant for this project, at least the following issues:

- Measures to reduce or recover energy losses;
- Replacement, modification or upgrading of equipment.[21]

Obligated companies must register with the National Energy Efficiency Monitoring Agency via an online platform. A list of the obligated companies is published on the website of the National Energy Efficiency Monitoring Agency and updated annually. Companies that have carried out the audit must at least provide a summary of the energy audit on the online reporting platform and enter data on energy consumption and potential energy savings in an online form.

Energy auditors had to fulfil certain criteria specified in § 17. Regarding the qualification of the auditors, Austria has introduced a rating system to assess energy service providers separately in each of the three main energy consumption areas (buildings, processes, transport). The rating system takes into account both professional experience and training.[22]

They are listed on: https://www.monitoringstelle.at/monitoring/energiedienstleister/energieberater

For training, courses in the area of motor systems are valid.

The national energy efficiency monitoring body checks whether the audit report complies with the requirements of the EEffG. There are no monitoring activities for the measures identified in the energy audits, but there are several subsidy programmes at national and regional level to promote the implementation of energy measures.

[21] Bundes-Energieeffizienzgesetz – EEffG, StF: BGBl. I Nr. 72/2014
[22] www.monitoringstelle.at (last access: 30.3.2023)

	Characteristics
Budget	Not available.
Financing of the measure	Audits have to be paid by company
Policy focus	Mandatory energy audits for big companies
Intervention Type	Mandatory Service
Main Barriers Addressed	
Key Driver(s)	Implementation of Energy Efficiency Directive
Replicability	High
EU Inclusion	Implementation of European Energy Efficiency Directive
Related Characteristics	

1.3.2 Impacts

A detailed description of the final (expected) results of the measure implementation and any achievements related to the measure implementation.

In 2020, 2,072 companies were registered as obligated large companies according to § 9 EEffG, regardless of any group connections. The personal services sector (e.g. laundry or hairdressing chains) and associations accounted for the majority of obligated large companies with 679 registered companies. The manufacturing sector came in second with 524 enterprises.

In total, energy audits were carried out for 1,910 companies. The manufacturing sector has the highest share in the total energy consumption with 29%, followed by energy supply with 26%.

The majority of the energy consumption examined in the energy audits is attributable to the processes sector. The main reason for this is that 25 % of the large companies subject to the obligation come from the manufacturing sector (industrial sector). The energy consumption of industrial companies is proportionally higher than that of service companies.

If the energy consumption of the energy audits of each obligated company is added up, this results in an Austria-wide annual energy consumption of 192,538.9 GWh or 693,140.1 TJ for large companies. Compared to the Austrian energy balance (Statistik Austria, 2019a), energy audits reach 47.6% of gross domestic consumption in 2019 (1,453,874 TJ).

64% of all reported energy audits show an energy savings potential in the company of between 1-10%.[23]

[23] Klima- und Energieziele: Monitoringreport gemäß §§ 7 und 30 Bundes-Energieeffizienzgesetz, Berichtsjahr 2021, BMK,2021

	Impacts
Case level impact	High
Policy level impact	High/Unknown
Size	Unknown
Energy	
Impact evaluation	As per above

1.3.3 Lessons Learnt

Description of the lessons learnt and/or (initial) feedback gathered in response to the measure's implementation specific to electric motors.

The main source of this chapter is DEESME, Nationale Programme für Energieeffizienz in KMU Unterstützung für die Umsetzung von Artikel 8 EED in Österreich:

While energy audits and energy management systems help companies identify potential energy efficiency measures, a practical challenge is that the recommended measures are not always implemented.

Common barriers that prevent companies from introducing energy audits or energy management systems and implementing measures include lack of knowledge about the benefits and available support schemes, and fear of hidden costs.

Member States providing concise information can reduce the importance of such barriers by increasing awareness and knowledge in companies.

An important lever to increase the implementation rate could be a stronger link between the measures proposed in the audits and the corresponding funding programmes that could be used for implementation.

Auditors should be encouraged to provide appropriate funding opportunities for the identified measures and also include links to available tools for further cost estimation (several are available on the klimaaktiv website) or to best practice examples of companies that have successfully implemented similar solutions.

For this purpose, the existing best practice examples on the website of the national energy efficiency monitoring body could be enriched with examples from industry, e.g. by adding experience reports from business owners.

In Austria, according to Article 17 (4) of the EEffG the energy auditor is responsible for reporting on the energy audit. Furthermore, the National Energy Efficiency Monitoring Agency provides a detailed guideline for the submission process in the corporate service portal (Unternehmensserviceportal, USP) and a Word template for the audit report to facilitate the reporting process.

Thus, the effort for the companies in the submission is already quite low. However, Austria could expand the scope of specific audit information to be submitted. For example, the query of the identified measures together with the expected savings can provide useful information on the potentials that certain technologies may have for the national energy efficiency targets. In combination with the implemented measures from the last audit period, the implementation rate can be tracked, providing valuable insights, e.g. on the need for additional support programmes or general improvements to the audit or reporting process.[24]

Personal opinion (10 years of random checks of audit reports): A lot of time is needed by consultants for the analysis of energy consumption. This should be automated: most important energy consuming equipment should be automatically monitored by the companies, data for energy management should be available before starting the audit in a standardised manner. Furthermore, there should be up-to date inventory lists of most important electric motors with age and efficiency class, available.

	Lessons Learnt
Key takeaways	
Recommendations	
Linked measures	
Reference(s)	www.monitoringstelle.at Monitoringstelle Energieeffizienz, Österreichische Energieagentur: Marktentwicklungen von Energieeffizienz-maßnahmen, Energieaudits und anderen Energiedienstleistungen gemäß § 24 Abs. 2 Z 8 EEffG Berichtsjahr 2017 BGBl. I Nr. 72/2014: Bundesgesetz über die Steigerung der Energieeffizienz bei Unternehmen und dem Bund (Bundes-Energieeffizienzgesetz – EEffG)
Other	
Thoughts, comments, considerations ...	

[24] DEESME, Nationale Programme für Energieeffizienz in KMU Unterstützung für die Umsetzung von Artikel 8 EED in Österreich; https://www.deesme.eu/; https://www.deesme.eu/knowledge-hub/

1.4 Measure 4: Energy management systems in small and medium enterprises

	Overview
Short Description	Integration of an energy management systems in small and medium enterprises.
Responsible Authority	Ministry of Climate Action and Energy (Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie)
Status	Ongoing
Issue Date	
Start Date	mid 2018
Ending Date	30.06.2025
Duration	84 months (expected)
Reference:	https://www.aws.at/fileadmin/user_upload/Content.Node/media/richtlinien/ab_2022_05_aws_EnMS_Richtlinie.pdf

1.4.1 Main Description

A detailed description of the policy measure and how it relates specifically to EU MOREs topic of electric motors – including references to (if applicable) anchoring national law, EU directives, other schemes

Providing financial support for the implementation of energy management systems in businesses, including funding for the installation of measurement technologies for electricity consumption, power, mass flow rate, compressed air volume, and training costs for integrating the energy management systems.[25]

When introducing an energy management system, the energy condition of the company is initially subjected to a comprehensive inventory (initial review or actual analysis of the energy situation). This includes topics such as reviewing energy data, identifying significant energy consumers, and analyzing energy costs. Based on this inventory, significant energy-saving potentials are identified and concrete proposals for energy-saving measures are developed.

Eligible costs for funding include external consulting costs for the development, preparation, documentation, and external certification of an energy management system. The funding application must include a proposal from the external consultant. Additionally, all material and immaterial investment costs related to the implementation of an energy management system, such as energy monitoring software, are eligible for funding. Stationary measuring equipment that can measure at least one of the following parameters is also eligible: current, voltage, electrical power, temperature, heat and/or cold quantity, volume flow (liquid, gaseous), illuminance, and compressed air quantity. The measuring equipment must be directly related to the energy management system and provide it with the necessary data.

[25] https://www.aws.at/fileadmin/user_upload/Content.Node/media/richtlinien/ab_2022_05_aws_EnMS_Richtlinie.pdf

	Characteristics

Budget	• 5.000.000 EUR (total budgeted)
	  ○ Up to 50.000 EUR for grants
	  ○ If available range of funding/budget per beneficiary

Financing of the measure	
Policy focus	Focus is energy. Small enterprises (not obliged to energy management and energy audits) should establish an energy management system.
Intervention Type	External consulting for introduction of energy management system, training, investments in measuring equipment.
Main Barriers Addressed	SME are not obliged to energy management systems, energy costs are small part from the company expenses. The funding program addresses barriers such as low awareness and importance of energy costs in relation to revenue, lack of evaluation of the risks associated with fossil-based energy supply, and absence of legal requirements for implementing energy management in SMEs. Key factors such as legal regulations, energy prices, EU Taxonomy Regulation (green investments/companies), and customer demands for energy management could act as important drivers. [26]
Key Driver(s)	energy saving measures
Replicability	medium
EU Inclusion	Yes, in NECP
Related Characteristics	

[26] Interview with Dipl.-Ing. Dr. Wilhelm Hantsch-Linhart

1.4.2 Impacts

A detailed description of the final (expected) results of the measure implementation and any achievements related to the measure implementation. Where possible specific to electric motors

In total, there have been around 130 projects completed, averaging around 40 projects per year. Typical project volume ranges from 15.000 to 30.000 EUR, with the main cost factors being consulting, training and certification. Hardware costs are a minor component of the total project costs.

No information about the saved CO_2 or any relevant energy savings was published yet, evaluation is in planning phase (information: spring 2023).[27]

	Impacts
Case level impact	Unknown
Policy level impact	Unknown
Size	no projects related to electric motors were submitted as of 2022
Energy	No information was found
Impact evaluation	

1.4.3 Lessons Learnt

Description of the lessons learnt and/or (initial) feedback gathered in response to the measure's implementation specific to electric motors.

The energy management program for SMEs has achieved several positive outcomes. The project has been successful and is viewed as uncomplicated due to its digital application process, with information on approval provided within two weeks. The start rate is disbursed promptly to make the program attractive to small businesses, without requiring bank guarantees. However, the effort required for all businesses and projects is equal, making it relatively cumbersome for smaller projects.[28]

Promotions are made through the Austrian Economic Chamber (Wirtschaftskammer Österreich, WKO) and BMK, and the program is scheduled to be evaluated in 2023.

It could be useful to promote the programme in sector specific information campaigns/workshops.

	Lessons Learnt
Key takeaways	• The program has been successful in promoting energy management systems in businesses.

[27] Interview with Dipl.-Ing. Dr. Wilhelm Hantsch-Linhart
[28] Interview with Dipl.-Ing. Dr. Wilhelm Hantsch-Linhart

	• The digital application process is simple and efficient, with a response time of two weeks • However, the application process can be equally time-consuming for small and large projects. • It can be difficult to recover funds if a project is not completed.
Recommendations	It could be useful to promote the programme in sector specific information campaigns/workshops.
Linked measures	
Reference(s)	Description of the program: https://www.aws.at/fileadmin/user_upload/-Downloads/Sonstiges/Einfuehrung_eines_EnMS.pdf
Other	AWS as funding organisation. Contact person: Dipl.-Ing. Dr. Wilhelm Hantsch-Linhart
Thoughts, comments, considerations ...	The "Meisterfrost" frozen food production introduced an energy management system. The system was set up with the help of the funding for the two locations in Sinnersdorf and the third in Rohrbach an der Lafnitz at the beginning of 2020. It is now possible to track in detail when, where and how much energy is consumed or generated. The system enables the company to systematically build energy know-how in their operations, and provides detailed insights into when and how much energy is consumed or generated. The system also includes energy monitoring and automation to ensure efficient use of self-produced eco-energy. The electricity comes primarily from six photovoltaic systems and a small hydroelectric power plant with a total capacity of 600 kW. Two larger photovoltaic systems currently feed electricity into the public grid, with the aim of achieving carbon-neutral cooling of all products.[29]

[29] https://energieinstitut.net/sites/default/files/enms_meisterfrost.pdf

1.5 klimaaktiv Energy Efficient Enterprises

	Overview
Short Description	The funding program "klimaaktiv Energy Efficient Enterprises" supports industrial and commercial enterprises in optimizing their energy efficiency
Responsible Authority	Federal Ministry of Climate Action, Environment, Energy , Mobility, Innovation and Technology (Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie)
Status	Ongoing
Issue Date	2005
Start Date	2005
Ending Date	
Duration	15 years
Reference:	https://www.klimaaktiv.at/energiesparen/energieeffiziente_betriebe.html

1.5.1 Main Description

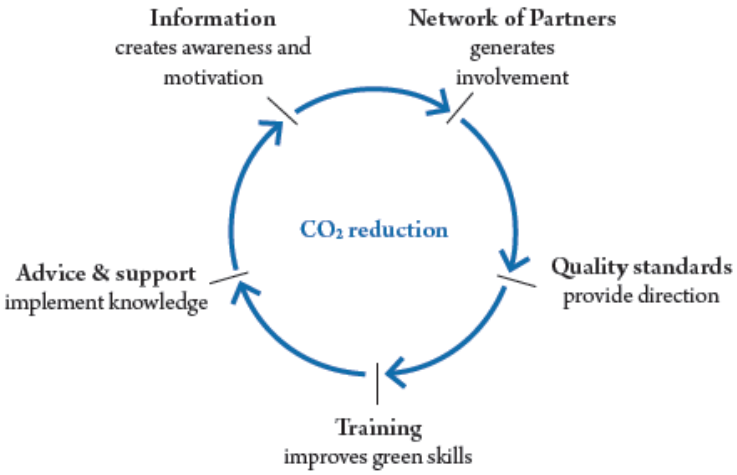
A detailed description of the policy measure and how it relates specifically to EU MOREs topic of electric motors – including references to (if applicable) anchoring national law, EU directives, other schemes.

The program "klima**aktiv** Energy Efficient Enterprises" supports industrial and commercial enterprises in optimizing their energy efficiency

- Training and webinars for businesses and energy consultants
- Information and contacts for subsidized business consultations
- Guidelines, fact sheets and assessment tools on operational energy efficiency measures
- Posters and videos to raise awareness among employees
- Networking and exchange for implementing energy efficiency measures

klimaaktiv works on five levels:

klimaaktiv has developed a fine-tuned activity cycle. The five spheres of influence in the transition cycle initiate a positive feedback process and support all players in tackling the energy transition.



In more detail, in order to find companies interested in reducing energy costs, a wide range of marketing activities is set within klimaaktiv:

"Cooperation: The klimaaktiv management cooperates with market-partners for specific technologies, e.g. compressed air, variable speed drives, pumps, fans, lighting systems, steam systems and waste heat to answer the need of companies for very detailed and professional support. Information, Awards: Information on these advanced technologies are spread via newsletters and trainings. Until April 2015, more than 550 consultants have been trained in using tools for energy audits and about 200 companies have been awarded by the Minister of Environment for implementing energy efficiency measures.

Energy Audit Guides: The technological approach of the programme has been dedicated to motor driven systems so far: Since 2008 specific PR-materials, tools, and a training concept for consultants for different technologies were developed: compressed air, pumps, fans, steam, cooling systems, lighting, and waste heat. In 2015 the programme emphasises on the different possibilities to meter energy and calculate energy savings. For all technologies the most relevant saving measures are described for a very quick on-site evaluation. For the evaluation of all measures, the necessary data to be collected are stipulated, and rough economic and technical criteria are developed to decide if and how a specific technology component should be improved. Furthermore, a standard report is developed. Consultants and energy managers are trained with this tool and check their company or customers and provide their results to AEA.

Sector specific information and benchmarking: Sector specific information is developed within the branch concepts. So far five concepts have been published. For these concepts information on energy consumption and other relevant indicators are surveyed and energy performance indicators are developed. This information forms also the basis for the „Benchmarking simple" tool which comprises at the moment 11 branches with 52 sub-categories."[30]

[30] Energy efficiency trends and policies in Austria, Austrian Energy Agency 2021, page 19

	Characteristics
Budget	300.000 – 500.000 EUR, annually
Financing of the measure	National funds
Policy focus	The program aims to promote energy efficiency in industrial and production companies, as well as energy-intensive service sectors, and has recently included renewable energy as a topic. The primary audience consists of energy managers and auditors, who are supported by energy audit guidelines. The program covers various topics that are relevant to motor operations.
Intervention Type	As part of the program audit guides for various systems including pump, fan, chiller, and compressed air and machine tools were developed. These guides contain methods for calculating energy savings and data collection sheets, and also provide information on motor replacement. As part of the program various trainings with technology providers to teach these methods were organised. The pump training (2022) and fan training (2023) have utilized the EMSA motor systems tool for accurate motor replacement calculations. Additionally, the program has published purchasing recommendations for electric motors, pumps, and compressed air systems, and developed fact sheets and posters for each technology to educate both managers and ground-level operators on these issues.
Main Barriers Addressed	Lack of information: Businesses may not be aware of the potential benefits of energy efficiency measures or may not have access to the information they need to make informed decisions. The program provides trainings and advices to help businesses understand the options available to them and the benefits of investing in energy efficiency. Emission reduction: The program provides guidance and support to help businesses reduce their emissions and improve their environmental performance.
Key Driver(s)	The klimaaktiv Energy Efficiency Enterprises program in Austria was not implemented due to a single driver, but rather a combination of factors and initiatives at the national, EU, and international levels.
Replicability	high
EU Inclusion	Not in NECP
Related Characteristics	

1.5.2 Impacts

A detailed description of the final (expected) results of the measure implementation and any achievements related to the measure implementation. Where possible specific to electric motors

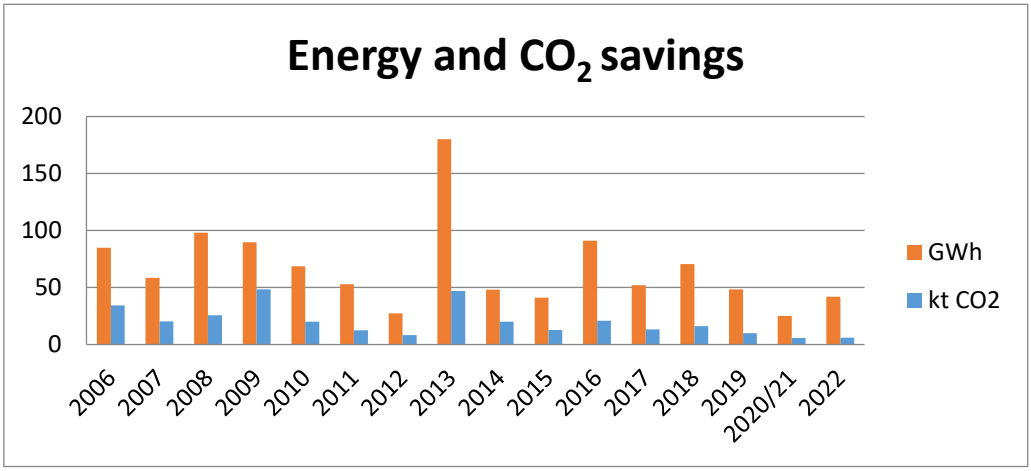
There are several good examples of best practices in the motor system field that can be found online. These examples include:

- 25 examples of good practices involving the replacement of compressed air systems or the installation of frequency converters on motor systems to optimize performance
- 15 good practice examples involving the optimization of the operating hours of compressed air systems.
- 6 good practice examples involving the optimization of the performance of pump systems, when frequency converter was introduced for variable speed control
- 8 good practice examples involving the optimization of the operating hours or the introduction of frequency converter for motors in refrigeration systems
- 13 good practice examples involving optimization of the operating hours or the introduction of frequency converter for motors in ventilation and air conditioning systems

The number of participants, which successfully completed the training programs (2008-2022):

- 279 – compressed air systems training
- 289 – pump systems training
- 222 – ventilation and air conditioning training
- 161 – steam generation systems training
- 22 – driving systems training
- 11 – machine tools training

Since the beginning of the program up to 2018 according to the summary of the good practice examples following results have been achieved:



- Energy savings of 1.078 GWh
- 322.000 tonnes of CO_2 were saved

	Impacts
Case level impact	High

Policy level impact	High
Size	
Energy	1.078 GWh (as of 2022) 322.000 t CO_2(as of 2022)
Impact evaluation	to raise awareness

(If available) Description of the method used for calculating the final energy- and/or cost-savings achieved by the measure and specific to that of electric motor replacement. For

Based on various good practice examples, data on individual measures taken by companies were collected and evaluated.

1.5.3 Lessons Learnt

Description of the lessons learnt and/or (initial) feedback gathered in response to the measure's implementation specific to electric motors. Also include (if applicable) the main barriers that would hamper and/or the conditions that are necessary for the implementation of the measure.

The main success factors of the overall klimaaktiv programme are the multilevel governance and close cooperation with the national and regional support systems and governments.

For the energy-efficient business programme specifically, crucial success factors are "time", "quality", and "public image". In order to establish high quality contents for the programme and to set up partner networks, a long-term duration is essential. Initially, the klimaaktiv programme was scheduled for the period 2004–2012. This first term was then prolonged for a further eight years (2013–2020) with a third extension already being planned for 2021–2030. A long-running programme offers sufficient resources to develop the contents and the partner networks continuously. The awareness of the brand "klima**aktiv**" is already quite high in Austria as 36% of Austrian citizens know klima**aktiv**. Companies see an advantage in cooperating with the programme, and in using the klimaaktiv logo and their energy efficiency success stories for public relation activities.

The programme has been evaluated three times from external organisations until now. The main findings of the evaluation for the efficient business programme were:

- klimaaktiv is an outstanding example of an integrative climate protection programme which highlights relevant and measurable effects like awareness raising, knowledge transfer, and CO_2 savings
- it is very well known throughout Austria
- it has an effective overall operational management

Relevant areas for improvement for the business programme were identified and implemented consequently:

- consolidated cooperation with financial support programmes
- strengthened cooperation with regions and other climate protection programmes
- up-scaling of existing cooperation with partners

	Lessons Learnt
Key takeaways	The success of the klimaaktiv programme is due to its multilevel governance and close cooperation with national and regional support systems and governments. For the energy-efficient business programme, "time", "quality", and "public image" are crucial success factors. A long-term duration is essential for establishing high-quality contents and partner networks. The awareness of the brand "klimaaktiv" is high in Austria, and companies see advantages in cooperating with the programme and using the klimaaktiv logo and their energy efficiency success stories for public relation activities. The klimaaktiv programme has been evaluated twice, and the findings show that it is an outstanding example of an integrative climate protection programme with relevant and measurable effects like awareness raising, knowledge transfer, and CO2 savings.
Recommendations	
Linked measures	
Reference(s)	Official website of the programm

	Source: https://www.klimaaktiv.at/energiesparen/energieeffiziente_betriebe.html
Other	Program management Austrian Energy Agency Mag. Petra Lackner
Thoughts, comments, considerations ...	https://www.klimaaktiv.at/energiesparen/energieeffiziente_betriebe/good_practice.html

Table 1: National Policy Measure Overview - Austria

#	Measure Title	Short Description	Type of Measure	Start Year	End Year	Duration	Target Groups	Source link / Reference	Case Level Impact of the measure
1	Umweltförderung im Inland (UFI)	Investments in environmental and climate protection measures	Grants	1993	-	since 30 years	All companies except private individuals	Link	High
2	OekoBusiness Wien/Vienna	Companies receive a co-financed environmental service package	Consultancy and capacity building (Workshops)	1998	ongoing	since 25 years	business companies	Link	High
3	Energy Audits	Energy audits for large companies	Mandatory Service	2015	2019	4 years	large companies	Link	
4	Energy management systems in small and medium enterprises	Integration of an energy management systems	Energy management system	2018	2025	7 years	SMEs	Link	
5	klimaaktiv Energy Efficient Enterprises	Supports industrial and commercial enterprises in optimizing their energy efficiency	Consultancy	2005	2030	15 years	Industrial and commercial enterprises	Link	High