Energy and Climate Funds

DEFINED AS AN ENTITY THAT PROVIDES FINANCIAL SUPPORT FOR ENERGY AND CLIMATE RELATED PROJECTS

KEY CHARACTERISTICS

ENOVA (NORWAY)

- Focus on technological development and market transformation
- Large budget & large no. of projects
- Produces long-term effects

JESSICA-FIDAE FUND (SPAIN)

- Targeted input of limited financial resources
- High uptake in limited time-frame

NATIONAL TRUST ECO FUND (BULGARIA)

- Flexibility in diversification of projects
- High impact with low financial input

NATIONAL CLIMATE INITIATIVE (GERMANY)

- Benefits from diversity and adaptability
- Large budget & large no. of projects
- Produces long-term effects, behavioral changes
- Very effective in municipalities

SUCCESS FACTORS

- A steady and secure line of funding ensures the longevity of a fund and increases its ability to facilitate long-term changes
- A clear objective, scope, in terms of target groups and sectors
- The diversity of projects, target groups, and sectors increases its ability to address untapped reduction potentials and promote changes
- Flexibility ensures that financial support can be re-directed where it is needed and going to be most effective

IMPLEMENTATION & REPLICATION PROCESS

Identify potentials → Set objectives under consideration of available funding → Periodic evaluation and corresponding adaptation

Energy and Climate Funds

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This case study is part of a series of six studies which show good practice examples for reducing greenhouse gas emissions in the sectors covered under the Effort Sharing Legislation. It has been developed on behalf of the European Commission, DG Climate Action.

Energy and climate funds are financial instruments that offer support for a variety of projects. Such funds can vary in size and scope, addressing a variety of different target groups and sectors. Often energy and climate funds specifically address effort sharing sectors and have a diverse portfolio of projects they aim to support. Such funds can be effective in their ability to realize emission reduction potentials in previously untapped areas, in producing long-term changes, changing behavioural patterns, and addressing a multitude of barriers.

This case study considers four best-practice examples of energy and climate funds: The Climate and Energy Fund managed by Enova (Norway), the National Climate Initiative (Germany), the National Trust ECO Fund (Bulgaria), and the JESSICA-FIDAE Fund (Spain). The case study will give an overview of each fund, compare insights from the implementation phases of the funds, and offer an assessment of the four funds in terms of their successes, limitations, and future potentials.

1 Overview of the Case Study

1.1 Description of the case study, its operation and governance

Energy and climate funds can be broadly defined as an entity that provides financial support for energy and climate related projects. They are financed by national governments and managed by government mandated institutions and organisations that may also draw funds from other sources. This case study will focus on those institutions/organisations and how they manage and evaluate the activities funded. After an initial screening[1] of energy and climate funds in EU Member States (MS) a number of funds were identified based on criteria including:

- **Availability of information** both about the fund and in its evaluation
- **Variety in size and scope** to consider how different contexts may require different approaches
- **Geographic region** to ensure an accurate representation of funds across EU MS (see Annex 1).

Funds from Norway, Germany, Bulgaria and Spain were taken further for a detailed examination. These are summarised in Table 1 below (See also see Annex 2)**.**

Table 1 - Overview of selected energy & climate funds

Country	Name	Size of Funds	What is funded?	Time Period
Norway	Climate and Energy Fund - Enova	€540 million (total funds available in 2018)	Individual projects in non-ETS sectors related to technological development and market transformation.	2012-present
Germany	National Climate Initiative	€715 million (2008-2017) / around € 80 million p.a.[2]	Offers information-based and investment incentives for projects including: energy and climate concepts, information and advice projects, networking and exchange, subsidies for energy/climate-related investments.	2008-present
Bulgaria	National Trust EcoFund	€9.2 million (total funds available at end of 2018)	Investment programs for: mineral waters, energy efficiency, electric vehicles, and educational programs.	1995-present
Spain	JESSICA-F.I.D.A.E. Fund	€123 million (2013-2016) / €84 million (actually spent)	Urban sustainable development projects related to energy efficiency projects and energy management.	2013-2016

Norway – Enova

The Norwegian "Climate and Energy Fund" was founded in 2012 and is managed by the public enterprise Enova. In 2018 the fund had a total of NOK 5.4 billion (€ 540 million) available. This money for the fund comes from two avenues. NOK 2.8 billion (€ 280 million)[3] came from government sources including the fiscal budget, a mark-up on the grid tariff, and interest income from the resources in the

[1] This selection was compiled from information in the EEA Policies and Measures database, the Odysee Mure database, the OECD Pine database, and additional research.

[2] Annual funding varies significantly per year and data presented here represents an average over the operational period.

[3] All conversions are approximate (Google Finance, February 2020).

fund. A further NOK 2.6 billion (€ 260 million) was added to the total funding available from funds from previous years and returned funds from cancelled projects.

Enova focuses on projects seeking to reduce GHG emissions in non-ETS sectors. Its objective is to "promote environmentally friendly restructuring of energy end-use and energy production, as well as development of energy and climate technology" (Enova, 2020). Most funds were allocated to the transport sector, followed by industry, and non-residential buildings and property. Examples of projects that are funded by Enova include NOK 50.5 million (€ 5 million) for the development of fast-charging infrastructure for electric vehicles, and NOK 133.6 million (€ 13 million) for a fertilizer producer to move their transport from lorries to zero-emission autonomous freighters.

Enova is also responsible for public information in the field of energy efficiency. Their activities target a variety of groups including businesses, municipalities and households. One of the main instruments is an open hotline providing energy efficiency advice. Another significant part of their awareness raising strategy is the development of energy efficiency networks for specific sectors.

Data and Evaluation

The Norwegian fund is a useful example because of the large amount of funding available and high number of projects funded. It also provides an example from the Scandinavian region in Europe. Additionally, detailed evaluative data is available for the Enova fund as it is evaluated internally every year. The latest evaluation currently available is from 2018. The evaluation contains detailed information about how funds were obtained, how they were allocated (i.e. what projects were funded), and what impact the projects had. This includes information emissions reductions, energy saved & increase in share of renewables, reduced peak demand, and triggered innovation capital. This data provides a good foundation to present the fund as a case study. Because information about the fund is only available through the report produced by Enova itself, no additional sources could be consulted to verify or provide additional information.

Germany – The National Climate Initiative

The "National Climate Initiative" (NCI) was introduced in 2008 to contribute to energy and climate goals in Germany and is financed from the federal budget. Between 2008-2017, the NCI funded around 20.000 projects with € 715 million (Öko-Institut et al, 2017). The NCI issues funding calls for a variety of programs which broadly cover the following categories:

1. Energy and climate concepts and their implementation
2. Individual information and advice projects
3. Networking and best-practice exchange programs
4. Investment subsidy programmes (including micro combined heat and power (micro-CHP) technology cooling, air-conditioning, hybrid busses, street and indoor lighting)

The projects funded within each program cover both information-based measures and investment incentives.

In 2010 all projects and funding for energy and climate related activities was centralised in the "Energy and Climate Fund" (ECF). During this restructuring the NCI became part of this larger fund. The ECF is funded from the federal budget and since 2012 it also uses auctioning revenues from the EU ETS. The ECF is a large and diverse fund. This case study will focus only on the NCI as it is a significant cross-cutting fund[4] that has been evaluated in detail.

Funding for the NCI in 2018 and 2019 (€ 264 million p.a.) doubled in comparison to previous years, which demonstrates how NCI has taken on an increasingly important role in Germany's approach to energy and climate policy.

[4] Other sub-funds within the ECF are sector specific.

The NCI is of interest, because it is a diverse, multifaceted, and flexible initiative. It has provided funding for a range of projects with varying, target groups, action areas, budgets, and timeframes.

Data and Evaluation

The NCI was chosen due to its size and that although smaller than the Norwegian fund has had a significant impact on emission reductions. It is also interesting because of its multifaceted and diverse approach, that often supports smaller community-based projects. The fund was evaluated for the periods 2008-2011 (Arepo Consult et al, 2012), 2012-2014 (Öko-Institut et al, 2017), and 2015-2019 (Öko-Institut et al, 2019). These were extensive evaluations that considered the emissions reductions achieved by NCI funded projects and other criteria, such as its target group and regional coverage, employment effects and mitigation costs, and feasibility and transferability amongst others. The wealth of data available through these external evaluations provide information on various aspects of the fund.

Bulgaria – National Trust ECO Fund

The National Trust ECO Fund (NTEF) was founded in 1995 after Bulgaria signed a swap deal "Debt for Nature" with Switzerland[5]. By 2010, the funds from the swap deal had been exhausted and NTEF was empowered to administer the National Green Investment Scheme (NGIS) and thus gained additional funds. The NGIS was set up primarily to fund energy efficiency measures in the building sector. In 2015, the NGIS was revised and now operates as the Investment Climate Program (ICP). This is now the main funding program within the NTEF. The ICP is financed by the revenues from "early auctions"[6] of EU ETS allowances that were paid into the budget of the Ministry of Environment and Water (NTEF, 2018). The ICP focuses on energy efficiency projects and projects promoting the use of electric vehicles. In 2018, around BGN 4,800,000 (€ 2.5 million) were allocated to finance projects under the ICP.

There are additional programmes within the NTEF. From 2016 onwards the fund also finances projects related to the use of heat energy from mineral waters that lead to a direct or indirect reduction of greenhouse gas emissions (Investment Program "Mineral Waters (IPMW)). Around € 1.4 million were allocated to these projects in 2018.as Additionally, small infrastructure projects, the development of strategies, reports, events, informational and awareness raising projects are financed through the Micro Projects for the Climate Program (PMPC) to which around € 80,000 were allocated in 2018. In total, the NTEF had € 9.2 million available at the end of 2018. This case study considers the whole NTEF and its subsidiary programs, but due to the significant changes that the NTEF underwent, we focus predominantly on activities from 2010 onwards.

Data and Evaluation

The NTEF was chosen as an example from eastern Europe. The fund is significantly smaller in size, but due to the programs that were added to the funds in 2016 beyond the ICP it represents a broad approach to energy and climate funds. The NTEF provides insights into how to effectively work with limited financial means and is thus an important fund to consider in this case study. The fund was evaluated in 2003 (Francis et al, 2003) and for the period up until 2009 (Ecorys, 2011). Since taking on the NGIS/ICP and its other projects the fund has not undergone an extensive evaluation process. The annual report of activities for the period 2018-2019 includes some evaluation data, predominantly of GHG emission reductions within the ICP. Due to the limited evaluative data that is available from 2010 onwards, the fund will not be presented in as much detail as the NCI or Enova.

Spain – JESSICA-FIDAE Fund

[5] With the „Debt-For-Nature" exchange 23 % of Bulgaria's debt owed to Switzerland was forgiven in exchange for an investment in local environmental measures (Buckley, 2011). This amounted to the local currency equivalent of SF 20 million (€ 18.8 million).

[6] Member States agreed to auctions 120 million emission allowances for phase 3 of the ETS in 2012, the year before phase 3 starts. Allowances auctioned in this period before phase 3 are known as "early auctions" (European Commission, 2011).

To ensure that EU energy and climate objectives were being met in Spain the Institute for Energy Diversification and Energy Saving (IDEA) developed the JESSICA initiative (Joint European Support for Sustainable Investment in City Areas). This initiative is funded by the European Regional Development Fund (ERDF).

The Energy Saving and Diversification Investment Fund (FIDAE Fund) is one element of the JESSICA initiative. € 123 million were allocated to the FIDAE Fund with the aim to finance urban sustainable development projects to improve energy efficiency and increase the use of renewable energies. Funded projects supported low carbon public transport, solar and biomass infrastructure, and a variety of energy efficiency improvement actions. The fund was active from 2013 to 2016 and in this time funded 116 projects. A total of € 84 million was used to fund projects, the majority of which were energy efficiency projects (MINETAD & IDAE, 2017).

Data and Evaluation

The JESSICA-FIDAE Fund represents an example of an energy and climate fund that had a limited period of operation and offers insights into how to manage a fund when financial support is limited. It also provides an example from western Europe in contrast to the other regions represented here. An assessment of the impact of the fund was calculated in the context of the Spanish National Energy Efficiency Plan (NEAP 4) in 2017 providing data on final energy savings and emission reductions. The fund was also evaluated in a limited capacity by the Odysee-Mure project[7],[8]. Due to the fact that the fund has been discontinued and only ran for a short period of time limited information is available about the fund.

1.2 Eligibility criteria and target groups

The eligibility criteria and target groups vary for each fund. In the case of the larger (**Norway** and **Germany**) and diverse funds (**Bulgaria**) the eligibility criteria vary by program or funding area within these funds. These criteria often change over time as the funds evolve.

The **Spanish JESSICA-FIDAE Fund**, on the other hand, stipulates strict eligibility criteria. The fund only supported projects in certain urban areas and sectors including building, transport, and industry in addition the project had to conduct work in one of the identified priority issues (MINETAD & IDAE, 2017). Stricter eligibility criteria, such as in the **JESSICA-FIDAE Fund,** can be effective in directing funds towards particular target groups or regions, especially when funds are limited to a specific time period.

The target group for the **JESSICA-FIDAE Fund** was also more specified than that of the other three funds. The **Spanish** fund was specifically addressing energy service companies (ESCOs) and other private enterprises. The Norwegian enterprise **Enova** on the other hand targets companies, private households, as well as regional and local governmental institutions. This is similar to the **NCI** in **Germany** which also has a diverse target group that includes end users, business, municipalities and educational institutions. This ensures that the **NCI** can reach actors and sectors where reduction potentials are not regulated or addressed by other instruments such as the EU ETS.

The **NCI** also specifically targets low-income households and financially weak municipalities to ensure their reduction potentials are also being tackled, produce long-term changes, and offer new chances for deprived areas. The **NTEF** in **Bulgaria** also has an equally broad target group, although these vary according to the different programs within the fund. The ICP, for example, primarily targets municipalities and local government institutions, while their funding for information and awareness campaigns specifically targets educational institutions.

[7] The Odysee-Mure project offers comprehensive monitoring of efficiency trends and policy evaluation. See: https://www.odyssee-mure.eu/

[8] For details of the methodology behind this evaluation please see: http://www.measures-odyssee-mure.eu/successful_info.asp. This is also explained with reference to an example in Section 3.1.1.

Overall, energy and climate funds tend to target a diverse set of actors in non-ETS sectors to ensure that the available funding can address a variety of reduction potentials.

1.3 Key actors involved in the delivery of the scheme

Most energy and climate funds are set up by national governments and the corresponding energy, climate and/or environmental ministry. The administration of the fund, allocation of financial support, organisation, and other day-to-day activities are, however, often run by a separate entity. The relationship between these organisations, government, and the EU varies in the four examples. The key actors involved in the delivery of the energy and climate funds are as follows:

1. The **Norwegian** fund is implemented by the public enterprise **Enova**. The state sets four-year agreements with **Enova** which empowers **Enova** to administer funds and sets the framework and mission for the four-year period. As of 2018, **Enova** has 77 permanent employees.
2. The **German NCI** is managed directly by the Ministry for Environment, Nature Conservation, and Nuclear Safety (BMU). A variety of public implementation agencies are contracted to run application processes, operation and accounting of the many projects funded by the initiative. In terms of delivering the projects that are funded by the scheme it should be noted that the **NCI in Germany** in particular focuses on the involvement of local actors, community leaders, and multipliers that are able to locate, anchor, and support projects in their local communities.
3. The **Bulgarian NTEF** is an independent organisation empowered by the state to administer funds for a variety of programs.
4. The **Spanish JESSICA-FIDAE Fund** receives funding from EU sources and is thus operated by the European Investment Bank (EIB).

1.4 Primary objective(s) of the schemes

The primary objectives of climate and energy funds is to financially support energy and climate activities. These funds aim to contribute to national emission reduction goals, but often also have more long-term goals in terms of facilitating behavioural changes, incentivising technological advancement, and enabling structural changes in the market economy.

Overall, the two key functions of an energy and climate fund can be highlighted here:

1. Overcoming barriers:

   Due to a lack of information or awareness, economic policy instruments might not reach their full potential. Funding informational campaigns, reaching out to communities or raising awareness about the benefits of certain actions can aid in implementing policies and changing behaviour. Funding such complimentary information-based projects can provide additional incentives to undertake significant and long-term changes. In many cases, this applies to actions that from a rational point of view have negative mitigation costs but are still not taken by consumers or investors (energy efficiency gap).
2. Providing investment support:

   Sometimes, (initial) investment costs of climate friendly technology are high or considered too risky for individuals or businesses while associated benefits and savings can only be realized over a longer period of time. Actors might therefore defer from investing. In these cases, financial support through energy and climate funds can improve the rentability of the investment and provide sufficient initial capital for making the investment.

The aims formulated by the funds in **Bulgaria** and **Spain** focused on achieving national emission reduction goals and other energy and climate related objectives. In **Norway** and **Germany**, the primary objectives of the funds are more specific in terms of clearly identifying the barriers the funds should address. While **Enova** has an explicit focus on financing technologies and facilitating market uptake,

the **NCI** takes a broad approach to support previously untapped target groups (e.g. municipalities) and seek long-term behavioural changes in society.

The explicit aim of **Enova** in **Norway** is to invest into projects that enable energy-efficient and climate-friendly solutions to a point where they can succeed in the market without governmental support. **Enova's** focus therefore falls onto technology development and market dissemination. In terms of technologies, the aim is to reduce costs and the level of technological risks associated with technological innovation. Once technologies have reached maturity, the goal is to ensure widespread deployment and market uptake. The use of public funding to develop new technologies has been deemed an important strategy, because new technologies often provide greater benefits for the society than for individual investors. The focus is on long-term effects through dissemination and adoption of new technologies, rather than immediate climate implications. Governmental funding via the **Enova** fund is understood as an important tool to drive innovation and change in instances where other economic mechanisms cannot provide sufficient incentives to induce change.

The main aim of the **German NCI** is to complement other policies and measures to reach national targets for the reduction of GHG emissions by -55 % by 2030 and -80-90 % by 2050 (compared to 1990), to increase the share of renewable energy, and to reach targets for energy efficiency improvements. The initiative aims to address a broad range of barriers to reducing greenhouse gas emissions. The aim is to tackle barriers that market-based mechanisms/instruments or command-and-control approaches cannot address. This takes into account that removing barriers might take a long time and the behavioral changes are often short lived. The fund takes into account that a different kind of instrument is required to address GHG reduction potentials that have remained untapped for various reasons.

1.5 Interaction of schemes with instruments

Energy and climate funds generally interact well with other instruments and compliment other types of support:

- Projects supported by **Enova** work together with several other policy instruments that are directly or indirectly related to the reduction of greenhouse gases, such as support for research and development, taxes, and regulations.
- The **JESSICA-FIDAE Fund** in **Spain** is also compatible with other public and private funding sources and with other subsidies provided by the ERDF and elsewhere.
- The Energy Efficiency Fund (*Energieeffizienzfonds*), for example, in **Germany** also acts alongside the **NCI** and provides funding specifically for energy efficiency projects. The **German NCI** supports activities that are explicitly not funded or eligible for funding under the Energy Efficiency Fund, including investment support for cooling and air-conditioning devices, for landfill ventilation in municipalities or support of informational or educational activities in schools, municipalities, for consumers etc.

However, in order to ensure that energy and climate funds are designed in the most effective way, these funds should target groups, sectors, and projects that do not receive funding from other sources. Cumulating national funding from various sources for the same activity is usually not allowed and supervised by national auditing offices.

There is some evidence of the design of these funds When undesirable interactions do occur, funds can easily be adjusted to minimize or avoid interaction. Originally the **German NCI** provided support to homeowners and small business to install micro-CHP-plants. CHP technology was, however, simultaneously supported by various other means, including a CHP bonus, an energy tax reimbursement etc. The **NCI** reacted on this and revised the funding structure/discontinued the funding.

2 Implementation

2.1 Drivers and key actors for setting up the scheme

Drivers for setting up energy and climate funds

The main driver for setting up the energy and climate funds described in this case study is to meet national and EU climate and energy goals. Often this is specifically to encourage the reduction of GHG emissions in effort sharing sectors. These kinds of funds can focus on different target groups (individuals, municipalities, etc.), change behavioral patterns, improve informational services, and reduce barriers into investments.

The implementation phase is not well documented in all four cases. Existing documentation provides some insight into the key drivers for setting up the scheme, which are often closely linked to the objectives of the scheme as summarized in Section 1.4:

- The **Norwegian Enova** fund was set up reduce greenhouse gas emissions to help reach Norway's climate commitment for 2030. It also sought to increase innovation within energy and climate technology and strengthen the security of energy supply. The key driver for setting up the scheme to ensure that innovative renewable energy solutions were financially viable. **Enova** can provide financial support for projects that would otherwise be costly and risky for individual business.
- The **German NCI** was set up to encourage the development and implementation of innovative approaches and concepts. A key driver was the need to involve stakeholders that were not previously involved such as municipalities, business owners and educational institutions. The **NCI** also aimed to complement existing policies and measures that also work towards national mitigation targets.
- The **Bulgarian NTEF** was set up with the intention of relieving national debt and (re)investing into the experimentation of environmental projects. The key driver behind this decision was to secure a source of funding for environmental, energy and climate related activities that was previously not available from the federal budget.
- The **Spanish JESSICA-FIDAE Fund** was set-up explicitly to ensure that EU energy and climate objectives were being met in Spain.

Key actors for setting up energy and climate funds

The key actors that were involved in setting up the scheme include governmental environment agencies:

- In **Norway**, the fund was established by the Ministry of Petroleum and Energy but has since been transferred to the Ministry of Climate and Environment. The public enterprise **Enova** manages the Climate and Energy Fund on the basis of four-year rolling agreements with the ministry. This means that every four years the administrative activities of **Enova** are re-evaluated by the ministry and the agreement between **Enova** and the ministry can be adjusted according to operational needs.
- The **German NCI** is a direct initiative of the Ministry for Environment, Nature Conservation, and Nuclear Safety (BMU) and hence has much closer operational connection to the ministry than **Enova** does.
- On the other side of the spectrum, while the **NTEF** in **Bulgaria** is mandated by the Environmental Protection Act, it is not overseen directly by a ministry and therefore works more independently.
- Finally, out of the funds considered here the **Spanish JESSICA-FIDAE Fund** is the only one more closely linked to the EU, because the fund is co-funded by the European regional Development Fund (ERDF) and IDEA.

2.2 Lessons to be learned from implementing the scheme

Lessons for development and early implementation

To ensure a successful implementation phase, a number of steps should be followed. First, the main goal of the scheme and the required funding needs to be identified and run through the decision-making levels, in case of a public funds most likely within the government. This might include parliament decision or decisions at the level of head of ministries. Often finance ministers need to approve the scheme so that public money can be made available. Next, administrative implementation needs to be set up. This can be done through ministries itself, private or public (sub)organizations (such as **Enova** in **Norway**) or independent actors. In many cases, setting up a fund is stimulated by research on potentials for GHG mitigation and barriers that might prevent from tapping potentials for emission reductions. Involving scientific (external) advice from the outset on can be helpful to develop the main characteristics of the funds and to identify the main action areas.

Once the fund is set up and running, its operation needs to be monitored. This can be done by the government (e.g. ministries) and/or the national office of auditors. Often, regular evaluations need to be conducted (or submitted to the national auditing office) to ensure that public funding can continue to be allocated to the funds. As mentioned in the introduction, all four funds were evaluated to a varying extent. In some instances, evaluations had an impact on the early stages of implementation and development of the funds, dictating how funds should be used and adjusted to be effective. How this relates to the four funds specifically is covered in the following two sections below.

2.3 Adjustments made during the scheme

Energy and climate funds usually undergo several changes during their lifetime depending on how much money is available in the fund and what emissions reduction potentials have been identified. Due to the short time span of the **Spanish JESSICA-FIDAE Fund**, no changes were made during this time. The three other funds, however, have undergone several changes, which are discussed in detail in below. Such readjustments typically involve redirecting the use of funds to sectors and target groups that require it or were reduction potentials have been identified, but not addressed yet.

The **German NCI** underwent changes in the amount of funding received, ranging from slightly less than € 60 million in 2011 to almost € 130 million in 2014. The funds were assigned for each year depending on the revenues from the sales of EU ETS allowances and public money made available with the national budget.

Three evaluations within the first ten years of the **NCI** offered suggestions on how to adjust the focus and scope of the **German NCI**. The first evaluation was conducted after three years. It showed that some promising, eligible projects were prevented from proceeding by financial, legal or operational barriers. This triggered changes in the criteria that decided which projects received financial support.

One of the most significant changes that can be observed from this initial period and those following is the increased focus on financial support offered to municipalities. The evaluation from the first evaluation concluded that municipalities offered untapped potentials in terms of emission reductions and that the **NCI** would benefit from financing more projects in that target group. The funding has shifted since 2008 from primarily financing innovative climate-protection projects and micro CHPs to dramatically increasing the share of funding going to municipalities from 2012 onwards (Schumacher & Nissen, 2019).

The **Bulgarian NTEF** is particularly interesting: it was founded in 1995 - much earlier than the funds in Germany and Norway. The fund had a broad focus, including reduction of air pollution, clean water protection, and protection of biodiversity, and was responsible for the administration of the fund received through the debt-for environment swap (around € 19 million). This also increased the total funding available to the fund and allows additional emission reduction potentials in other sectors and through other means (for example through information measures and not just investment measures) to be

realised. Information and public awareness campaigns were implemented which include providing schools with training and materials to teach climate-related topics, public awareness conferences, and a website for climate orientated education and awareness.

As already mentioned, the agreement periods between the **Norwegian** state and **Enova** run for a period of 4 years. The regular renewal of the fund means that evaluations are also carried out at regular intervals. These assess whether it is functioning in a way that reflects the government's priorities in terms of energy and climate policy. In 2017, Norway's energy and climate policy increased focus on not only reducing emissions, but also financing new technologies and inducing changes in the market economy. Following this, a new mandate for **Enova** was agreed to ensure that a greater emphasis is placed on reducing emissions from non-ETS sectors and on innovative solutions adapted to a low-emission society. This also demonstrates that not only evaluations of the fund itself are important for the fund to be effective, but that shifts in policy and larger political processes have an impact on how changes and adjustments are made to an energy and climate fund.

Lessons for Adjustments

Three main lessons can be learnt from the adjustments made to the funds:

1. Consistent evaluations of the fund are important to identify where the fund is effective and where changes are necessary. This can be clearly seen in the **German NCI** where evaluations were conducted on a regular basis. Involving external (scientific) advice, supports the monitoring of the funds and allows potential readjustment to be identified.
2. If additional funding becomes available funds need to consider how these can distributed within the fund. The **German NCI** was allocated additional funds and was able to distribute these effectively based on evaluations. The **Bulgarian NTEF** received additional funding which was ear-marked for specific projects and hence diversified their portfolio
3. Changes in relevant national policy and goals should reflect in the scope of the energy and climate fund, as was the case in **Norway**.

3 Assessment

3.1 Successes

Overall, the energy and climate funds examined in this case study are all considered a success in their ability to contribute to the reduction of GHG emissions in the Effort Sharing sectors and contribute to reaching respective national energy and climate goals.

How the four funds were evaluated is described in section 1.1. A brief summary is provided here:

- **Norway – Enova**: internal evaluation, conducted annually, very detailed, latest report from 2018
- **Germany – NCI**: external evaluation, conducted in intervals (2008-2011, 2012-2014, 2015-2017), very detailed, latest report from 2019
- **Bulgaria – NTEF**: internal evaluation, conducted annually, limited to emissions reductions data for ICF projects, latest report from 2018
- **Spain – JESSICA-FIDAE**: external evaluations, once for NEAP 4 (2017), once by Odysee-Mure project (2014), limited in scope

The assessment below, examining how successful the schemes were, is based on information from the evaluations of the four funds.

Both **Enova** and the **NCI** have conducted extensive evaluations of their activities which allows for a more detailed and diverse look into how these funds were successful. This is important, since the impacts of energy and climate funds often go beyond the immediately measurable reduction of GHG emissions and have other long-term, behavioural, or innovation-related impacts. The **Bulgarian** and

Spanish funds have only been evaluated in a limited capacity. The following sections will only briefly mention these two funds based on the information that is available.

3.1.1 How successful was the scheme?

The funds measured their impact in various ways. All funds gave some indication of the greenhouse gas emission reductions achieved through their projects, although the availability (and therefore comparability) of this information varies. An overview with broadly comparable data is provided in Table 2 below in terms of impact, size and scope.

Table 2 - Greenhouse gas emission reductions and related data

Fund	Time Span	No. of projects	Funding	Indicator	Emission Reduction Year	Emission Reduction (kt CO_2eq)
Enova (Norway)	2018	987	€540 million	Climate result*	2017	287
					2018	242
NCI (Germany)	2008-2017**	Around 2,000 (average per year).**	€80 million**	GHG emissions reductions from investment subsidy measures	2008-2017	370 (annual average)**
				GHG emissions reductions from informational measures	2012-2017	420 (annual average)**
NTEF (Bulgaria)	2018-2019	19	€3.2 million***	Annual reduction of GHG emissions over full lifecycle of energy efficiency projects	-	96.64
JESSICA-FIDAE (Spain)	2014-2015	68	€38 million	GHG emissions reduction****	2014	1.41
					2015	18.19

Source: Öko-Institut compilation

Notes:

* Defined as “sum of changes in greenhouse gas emissions not subject to carbon credits as a result of various measures in the projects which Enova has supported” (Enova, 2018)

** All figures vary significantly per year and data presented here represents an average over the operational period.

*** Figure relates to funding reported in relation to emissions reductions. This differs from total funding allocated to ICP projects in 2018 reported in Table 1, as not all

**** Figure includes also sectors other than effort sharing sectors. No detailed or differentiated data is available on types of projects funded and related emission reductions.

Perhaps unsurprisingly, the funds with the largest funding available and widest scope, the **NCI** and **Enova,** record the highest emissions reductions. The GHG emissions reductions achieved through the **NCI** are significant and are considerably higher than those recorded by **Enova**. This can be understood by looking at the types of projects support: While **Enova** has a much larger annual financial scope (almost three times as much) than **Germany's NCI**, fewer projects are financed. The **NCI** focuses on smaller, community-based or municipality projects which means more projects can be supported. **Enova** focuses on technologies and market effects. This means fewer projects are funded, but individual projects tend to receive more financial support. Typically, these projects are focussed on infrastructure development and innovation, which target GHG mitigation in a more indirect way.

In comparison the two smaller funds, **JESSICA-FIDAE Fund** and **NTEF,** achieved fewer GHG emissions reductions. However, the savings are significant for their size. Furthermore, the increase in reductions achieved by the **JESSICA-FIDAE Fund** from 2014 to 2015 indicates that the fund was able to realise its potentials quickly after implementation. The **NTEF** in Bulgaria is also particularly interesting, because with very few funds and through a small number of projects relatively large reduction potentials were achieved. However, since annual data is only available for the ICP of the **NTEF** and not the other projects and investment programs it is difficult to draw comparisons to the other three funds.

Often, the efficiency of funds is considered by comparing the funding to avoided CO_2 emissions. In these cases, CO_2-reductions should be accounted for over the lifetime of savings to accurately reflect on the mitigation induced by each Euro of funding. Lifetimes of savings, however, differ depending on the lifetime of a technology or behavioural change. Overall, it is important to note that direct comparisons between the funds, especially with regards to funding efficiency, should be done with caution due to the large differences in design, approach, and evaluation methods of the funds. Nonetheless, the following can be concluded about the four funds' funding efficiency:

- In **Germany** and **Bulgaria** funding efficiency is relatively good. This indicates that the funds were used in a particularly effective way to reduce CO_2 emissions.
- The **Spanish** fund on the other hand was relatively inefficient. This is in part due to the low emission reductions achieved in 2014 in comparison to 2015, but also indicates that that fund did not operate in the most cost-effective way.
- The funding efficiency for **Enova** in **Norway** is significantly lower. The fund focuses on supporting technological advancement and changes in the market economy. Such interventions are ambitious and require large funding support before such innovations and changes can take hold. The total cost of emission reductions through funding may hence be higher, but the support targets actors and sectors where long-term changes are expected. **Enova** also measures their success along three other criteria (energy results, reduced peak demand, and triggered innovation capital) alongside emissions reductions indicating that funding efficiency can be outweighed where other criteria are being met. These are discussed in more detail below.

The impact of a fund on emission reductions is an important measure of the success of a fund, however indirect effects can also to be considered. These are predominantly related to long-term behavioural changes that are achieved through information and awareness measures and are thus more difficult to quantify. Nonetheless, indirect reductions remain an important and innovative function of an energy and climate fund.

In the "Closer Look" sections below other measures of success are considered where evaluative information is available[9].

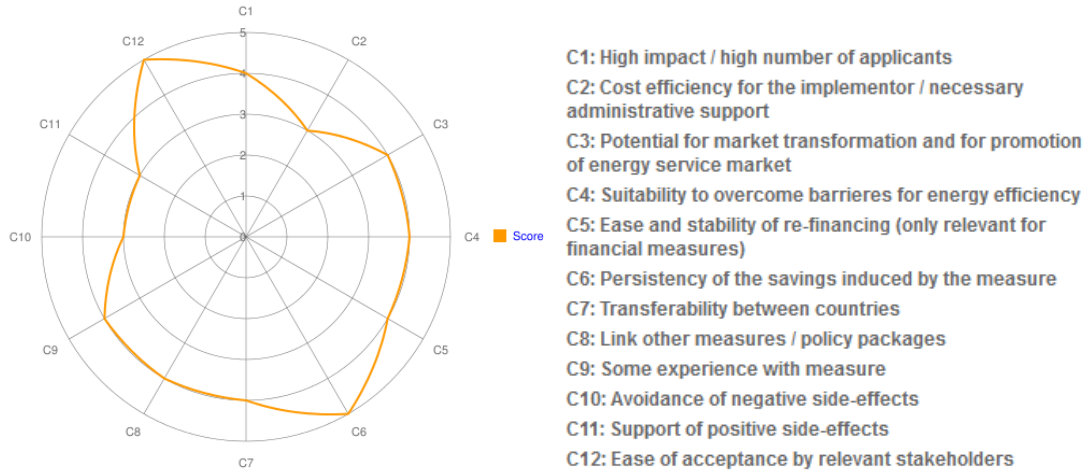
[9] The NTEF has not been evaluated in detail since undergoing significant changes in 2010 and therefore not enough data is available on emissions reductions and other indicators for a "closer look".

A Closer Look – JESSICA-FIDAE Fund

Despite the low funding efficiency, the evaluation from the Odysee-Mure project considers the **JESSICA-FIDAE Fund** successful. The database identifies successful measures in a country and evaluates them along 12 criteria[10] and are each given a score between 1 (worst) and 5 (best).

Figure 1 below shows that the **Spanish JESSICA-FIDAE Fund** scores high (4 or 5) in most criteria. In particular, the fund is expected to have a significant lasting effect (C6) and that is has had a very high degree of acceptance among stakeholders (C12). It also scored well in terms of its potential for market transformation (C3), overcoming barriers (C4), and transferability (C7). This indicates that the Spanish fund was successful in other ways and still provides valuable insights into how energy and climate funds with limited funding can function.

Figure 1 – Evaluation of JESSICA-FIDAE Fund



Source: Odysee Mure, 2017

A Closer Look - Enova

Enova considered four key performance indicators in their evaluation: climate results (i.e. emissions reduction), energy results (energy savings and renewable energy)[11], reduced peak demand, and triggered innovation capital. An overview of their recorded and expected results can be seen in Table 3 below. A particularly important indicator for **Enova** is the triggered innovation capital their work enables, because one of their key objectives is to aid the development of new climate and energy technologies and influence market dynamics. Overall, it is important to note that the direct emission reductions calculated by **Enova** for each project do not represent the entire effect, nor can they be wholly attributed to **Enova** because both individuals and business will implement and draw from a number of different policy instruments, not just the Climate and Energy Fund.

[10] There are differentiated into six high (1-6) and six low priority (7-12).

[11] Defined as „Energy results measure what the projects deliver per year, either through more efficient consumption of energy, increased production and/or use of renewable energy" (Enova, 2018)

Table 3 – Performance of Enova

Performance Indicator	2017	2018	Expected for 2017-2020
Climate result – Emission Reductions (kt CO2eq)	287	242	750
Energy results - Energy saved/increase of renewables (GWh)	1,693	1,561	4,000
Reduced peak demand (MW)	133	123	400
Triggered innovation capital (€ million)	162	120	400

Source: Adapted from Enova (2018)

Not all activities undertaken by **Enova** can easily be quantified along those performance indicators. Especially information and awareness campaigns are difficult to evaluate in this way. The information services provided by **Enova** through "Ask Enova" and "Enova.no" has seen an increase in activity; 35 % more inquiries were made through "Ask Enova" in 2018 compared to the year before. This increase can be attributed primarily to private individuals seeking information and advice about energy use and services and a significant growth in traffic on the website can also be attributed to the private market. This indicates that **Enova** is also increasing its reach to private consumers, which may be a reflection of its shifting focus towards effort sharing sectors.

A Closer Look - NCI

The regular evaluations of the **NCI** also indicate a number of different ways in which to understand the impact of the initiative. The evaluation criteria considered in the latest report for the period 2015-2017 is as follows and the most important evaluative findings from these criteria are discussed in more detail below:

Table 4 - Evaluation criteria for the NCI

Criteria	Sub-criteria
GHG emission reduction	GHG-reduction, energy savings, funding efficiency
Model character	Feasibility, transferability, visibility
Broad impact	Target group coverage, regional coverage
Continuity	Capacity building, continuation of personnel and activities
Economic Effects	Mitigation costs, employment effect, leverage effect

Source: Own compilation

Overall, evaluations show that through investment measures greenhouse gas emissions reductions of around 11 million t CO_2eq (net emissions over lifetime of savings) were triggered by funding between 2008-2018. A further 8.5 million t CO_2eq (over lifetime of savings) are induced through non-investment informational measures.

During the most recent evaluation period 2015-2017 around 50 % of the €260 million of funding was awarded to municipalities, a quarter to industry and the remaining funds to end-users and educational institutions. The municipality investment programme received the majority of the funds during this period and during the entire period of the programme as well although the share of money invested into the municipality programme increased significantly from 2012 onwards. The municipality investment and informational programmes also had the biggest contribution to emission reductions in the **NCI**. In 2017

290 kt CO_2eq were reduced through the investment program for municipalities and 373 kt CO_2eq were saved through the informational program for municipalities. This kind of detailed and differentiated evaluation demonstrates that municipalities are a key target group for the **NCI** and that the **NCI** is particularly well tailored to realising their reduction potentials.

The **NCI** was also evaluated in terms of feasibility, transferability, and visibility. All funding streams of the **NCI** were considered good or very good in all three criteria. The information and strategic program for municipalities in particular was evaluated as very good in this instance. Evaluations show that the **NCI** is able to reach a broad range of target groups across Germany.

The results also show, however, that the former east-German states apply for less project support from the **NCI** than others. This could be due to the fact that these states have specific funding available to them, such as the structural development fund, which the former west-German states do not. Additionally, small municipalities and churches, higher education institutions, and associations (who could also apply for support) do not take full advantage of the possibilities that the **NCI** offers to them.

The most recent evaluation also shows significant economic impacts of the **NCI**. Between 2008-2017 another € 2.5 billion of additional financial investment have been triggered through the around 25,000 completed projects that were supported by the **NCI**. Around € 1.7 billion were from private and third-party funders. In the same period around 26,000 individuals were employed either directly or indirectly in relation to the activities undertaken by the **NCI**.

3.1.2 Key factors that ensured success

There are several factors which influence the success of an energy and climate fund, especially the ability to secure continuous funding, a clear objective from the outset, the fund's diversity in scope and used instruments, its flexibility, and other benefits achieved through its actions.

The first key factor in ensuring the success of an energy and climate fund is securing a *continuous flow of financial input* for the fund. If funding is limited to a certain period, as was the case with the **Spanish JESSICA-FIDAE Fund**, then the impacts that fund can have are limited. Allocating funds from the federal budget, as is the case with **Enova**, the **NCI** and the **NTEF**, requires a national commitment, but ensures the longevity of the fund. For all three funds other sources also provide additional financial input. This diversifies the sources of the fund, allows it to work towards long-term commitments, and enables the fund to expand and fine-tune its actions over a number of years.

Alongside considering financing sources, during implementation a *clear objective* has to be set for the fund. This may be the result of an initial scoping, where barriers and potentials are identified, and a clearly defined space is defined within which the fund operates as was the case in **Norway**, for example. Once objectives are set, the required size of the fund can be considered, and financial sources mobilised. Equally, in cases where the financial means of the fund are predetermined, as was the case in **Spain**, it is important that the objective of the fund is adapted (and limited) to the given circumstances.

The energy and climate funds considered in this case study are also considered successful because of their *diversity* in terms of actions and instruments. **Enova** and the **NCI** in particular target a broad range of groups (consumers, industry, municipalities, etc.), offer a variety of different types of instruments (investment, strategic, information, etc.), and target a number of sectors (predominantly effort sharing sectors). The open nature of these funds means that they can operate in those areas where other policies, measures, and instruments are currently not present or not effective. While this leads to a very diverse fund, the input of financial resources is actually more targeted in the sense that the funds can be tailored to the specific needs of a certain target group, sector, or region. Within such an open and diverse fund, it is important to clearly identify where needs and potentials are, so that the fund can adapt to meet those needs and fulfil those potentials. It should be noted, however, that in instances were funding is limited, the steps undertaken by the **JESSICA-FIDAE Fund** to limit the scope of the fund increases its effectiveness.

The success of these energy and climate funds also lies in their *ability to adapt* to changing circumstances. The adjustments made to the funds discussed in Section 2.2 have already highlighted the importance of allowing changes to take place especially when they are driven by a thorough evaluative process. The **NTEF** in Bulgaria, for example, was able to diversify its portfolio and focus on projects beyond energy efficiency, because the structures within the fund were flexible enough to allow the fund to grow and adapt to new avenues. Experience with the **NCI** and **Enova** have also demonstrated that through the regular/annual and detailed evaluation process, the funds are able to adapt their focus in order to redirect funds to where they are needed and where reduction potentials have been identified. The turn towards municipalities as a key target group for the **NCI**, for example, triggered significant GHG emissions reductions and the explicit shift in focus towards effort sharing sectors by **Enova** means funds are used in new and innovative areas. The flexibility of the funds to readjust their orientation at regular intervals means that the funds are used in the most effective and efficient way.

Finally, these funds can be considered successful because of their *multiple benefits*. The activities undertaken by energy and climate funds have varied impacts which are important to consider when measuring their success. Due to the way these funds function, not only are GHG emissions reductions achieved, but various other positive effects can be observed. These effects include triggered investments, reductions in energy demand, information dissemination and behavioural changes, economic and employment effects. Funds are well suited to overcome economic and non-economic barriers to emission reductions and induce innovation (technological, behavioural).

3.2 Limitations

Energy and climate funds are limited in their scope, size and impact when they are unable to secure continuous funding and demonstrate their effectiveness through evaluations.

Securing a continuous source of funding large enough to support several projects is key to the success of an energy and climate fund. The potential impact of both the **NTEF in Bulgaria** and the **JESSICA-FIDAE Fund in Spain** is limited, because their financial resources are not nearly as extensive as those of **Enova** or the **NCI**. A variety of sources of funding should be considered that could strengthen the funds and allow their work to continue in an effective manner.

Though it should be noted that a considerable size of a fund is not a prerequisite for it to be successful. Rather it should be well targeted and address untapped potentials. It is therefore crucial to be aware of areas with significant mitigation potentials and of barriers that hamper exploring these potentials. As outlined in section 2.2, involving scientific (external) advice from the outset on can be helpful to develop the main characteristics of the funds, to identify the main action areas and to avoid sunk costs.

As noted earlier, the regular evaluations of **Enova** and the **NIC** are crucial to their ability to adapt to the given circumstances. More detailed evaluations of the **Spanish** fund would have been able to give a better idea of which sectors and target groups were benefitting the most from the fund and where potentials were not realised. In the case of the **NTEF** in Bulgaria, currently data is only available for the energy efficiency projects supported by the fund. Conducting a more detailed evaluation of the GHG emissions reductions achieved through the other measures would give a more complete indication of their work. Evaluations are valuable for funds to demonstrate their effectiveness and ensure continuous funding.

3.2.1 External factors

Success of a fund might be influenced by external factors, such as the economic situation of a country and the decisions on allocation of national budgets, the general energy and climate strategy and the policy mix, the distribution of budgets across action areas, new technological development, and by stakeholders.

For the **German NCI**, for example, which was mainly funded by revenues from EU emissions trading schemes, the low EUA price following the financial crisis in 2008 limited funds availability and led to an

immediate stop of a number of **NCI** programmes. The government responded by allocating additional funding from the national budget to the **NCI**, but a few programmes suffered from the stop-and-go approach. Uncertainty about continuity of programmes led to a substantial decrease of applications for funding.

In another case, the auditing office reviewed government spending for the **NCI** and considered a programme aiming mainly at behavioural change having too little direct mitigation impact and consequently requested to stop it. In yet another case, the responsibility of an action area was considered to be a responsibility of a different ministry and was thus no longer eligible under the funds (the responsibility for building and construction in Germany moved from the Ministry of Environment to the Ministry of Interior and funding of use of low carbon materials in construction of buildings was no longer eligible under the **NCI**). Such examples show that external factors might be disruptive and that it is important for energy and climate funds to be set up in a way that they can be flexibly and continuously adapted to new settings and circumstances to continue providing successful incentives.

3.3 Future Potentials

3.3.1 Scalability

Large funds such as **Enova** and the **NCI** already have a prominent role in their respective countries, but the **NTEF** or the **Spanish JESSICA-FIDAE Fund** are limited in their size and funding. Energy and climate funds can generally be scaled-up in their national contexts in a variety of ways:

1. Increase funding:

   One way to scale up a fund is to increase its size. Whether this is feasible depends on where finances for the fund come from and whether those can be easily increased. Money allocated from a national budget may be increased, although this is subject to other economic and political factors.

   The **German NCI**, for example, was able to demonstrate its effectiveness in the evaluations that were conducted and as a result more money was made available to the fund from the federal budget. The funding sources for a fund can also be diversified, as was the case with the **Bulgarian NTEF,** which added other funding programs beside the ICP to its portfolio. An increase in the size of the fund is, however, only appropriate if the fund is able to allocate money in an effective way.

2. Expanding the scope of funds:

   An energy and climate fund can scale-up by increasing its scope. This could mean for example expanding its target group. One reason why the **German NCI** is a good case study example is because it has a wide and diverse coverage of target groups.

   These two potentials for expansion also condition one another. With increased funding, a fund can more easily diversify the types of projects it supports. The **German NCI** and the **Bulgarian NTEF** both benefitted from diversifying, because they were able to reach a broader group of people and be active in a variety of sectors. The **NTEF**, for example, expanded from focusing solely on energy efficiency measures in the building sector to covering a large number of sectors (building, transport, energy) and supporting different types of measures (investment, informational).

Not always is scalability desired, however. For example, the **NCI** identified municipalities as a priority group since the financial support had a large potential to tap into emission reductions not targeted by other instruments. This shows that while diversification and expansion is important, top priority is still to direct support towards groups with largest untapped reduction potentials (even if this implies a narrower set of recipients)..Similarly, the **Norwegian Enova** fund chose to target their funds in a way that produces specific changes in technologies and the energy market, rather than trying to cover the largest possible scope. Especially in terms of expanding the scope of funding, funds therefore need to be

certain in their objectives and the areas where they can have the greatest impact to determine in what ways scaling-up may be useful and effective to meet those objectives and address potentials.

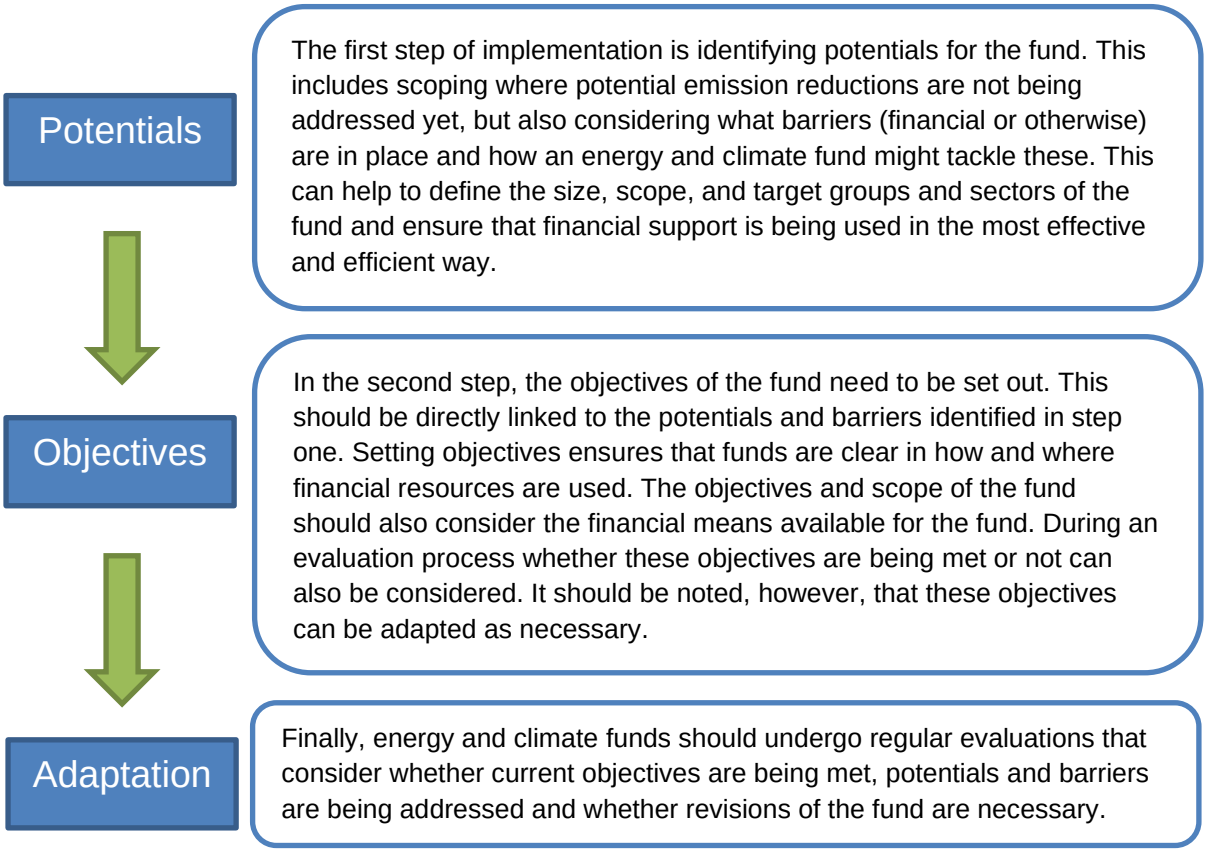
3.3.2 Replicability

Energy and climate funds can be easily adapted to meet national or regional contexts. For example, evaluations of the **NCI** indicated a high replicability potential, especially for the information and investment projects in municipalities (Schumacher & Nissen, 2019). Additionally, the Odysee Mure (2017) evaluation of the **JESSICA-FIDAE Fund** rated highly the transferability of the fund.

There are at least two ways in which the funds presented in this case study can provide insights into how energy and climate funds may be replicated in other regions or countries. The first refers to the lessons learned from the development of the fund. They are described throughout Section 2 and give insight into the *process* of setting up and maintain an energy and climate fund.

The second kind of insights concerns the *substance* of a fund and the key factors that ensure the funds' success. They are summarised in Section 3.1 and refer to how the fund should be designed with regards to size, target, group, objectives, etc. in order to be effective.

The process of implementation (in broad terms) should take the following steps into account:



The other factors to consider when developing an energy and climate fund are the key success factors identified in Section 3.1.2 that allow such a fund to be effective. These can be summarised as follows:

1. The ability to secure continuous funding;
2. Setting clear objectives of what the fund wants to achieve;
3. Setting a diverse scope of the fund yet ensuring that the fund is targeted towards specific needs;
4. Ensuring that the fund is flexible and has the ability to adapt to changing circumstances.

By ensuring that the following criteria are fulfilled the fund is more likely to be effective. The first three points are mostly related to the early stages of implementation, but one of the main strengths of an energy and climate funds is its ability to adapt. This means that even fundamental elements of a fund, such as the objectives or the scope of the fund, can be modified if an evaluation demonstrates such need. Identifying and ensuring that the other criteria are met requires consistent evaluations. These will be able to demonstrate whether the funds are effective in their current form or should adjust some elements of its operation.

It is important to note that energy and climate funds are usually used within a policy mix to complement other policies and measures. Their advantage is that they can tackle specific potentials and address barriers to better tap these potentials. In addition, they can be more flexible than many other policies and measures (e.g. more flexible than carbon taxes), can be tailor-made for specific target groups (for example, low-income households, house owners, municipalities) and provide incentives for specific actions[12].

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[12] . At the same time, it should be noted that from an economic efficiency point of view economic instruments (such as taxes or emissions trading schemes) can be considered more efficient.

5 Annex I – Overview of Energy and Climate Funds in EU MS

Country	Name	Years	Sectors	Type of Measure	Target Group(s)	Size of Funds	What is funded?
Austria	"klima:aktiv" National programme for climate protection	2004-	building, residential, energy	information	companies, municipalities, households, educational institutions	NA	four thematic clusters are: building and renovation, energy efficiency, renewable energy, and mobility - Core levers are: training of klimaaktiv professionals, setting standards and safeguarding quality, providing information and raising awareness, providing advice and support
Austria	Climate and Energy Fund	2007-	buildings, mobility, production and energy supply	financial	diverse	€150 million	goal is the transformation of the energy system - focus on research, transport (through klimaaktiv mobil) and market penetration
Bulgaria	National Trust EcoFund	1995-	transport, building, energy	financial and information	diverse	€9.2 million (available at the end of 2018)	investment programs for: mineral waters, energy efficiency, electric vehicles, and educational programs
Cyprus	Governmental grants/subsidies scheme for the promotion and encouragement of RES, energy saving and the creation of a special fund for financing or subsidising of these investments (natural persons and	NA	energy	financial	natural persons & organizations that provide social services and other services of collective or individual character (school boards, charitable institutions,	NA	projects that fall under the topics: energy conservation, renewable energy, and co-generation

Country	Name	Years	Sectors	Type of Measure	Target Group(s)	Size of Funds	What is funded?
	enterprises without economic activity)				monasteries, churches, municipalities, state agencies etc)		
Germany	National Climate Initiative	2008-	energy, building, public	financial and information	diverse - predominantly consumer-based and local	€715 million (2008-2017)	offers information-based and investment incentives for projects including: energy and climate concepts, information and advice projects, networking and exchange, subsidies for energy-related investments
Germany	Energy Efficiency Fund	2011-	residential, industry, energy	financial	private consumers, industry, municipalities	€462 million (2017)	organisation concepts, energy efficient technological solutions in companies, energy advice programs, technologies & business models, national energy efficiency labels, National Top-Runner Initiative
Norway	Energy Fund	2012-	transport, industry, non-residential buildings and property, energy	financial and Information	diverse - predominantly market-based	€540 million (2018)	individual projects in non-ETS sectors related to technological development and market transformation
Portugal	Energy Efficiency Fund	2010-	transport, residential, non-residential, industry, public sector	financial and Information	diverse	€12.1 million	purchase of equipment with better energy performance (green heat, solar, thermal), energy efficient windows, thermal insulation, energy efficiency in agriculture or

Country	Name	Years	Sectors	Type of Measure	Target Group(s)	Size of Funds	What is funded?
							manufacturing industry, projects that aim to reduce final energy consumption, campaigns and events related to behavioural changes
Slovenia	Ecological Fund of the Republic of Slovenia - ECO-Fund	2005-	building, residential	financial	companies, individuals	NA	provides loans for investments in household energy infrastructure and energy efficiency as well as granting loans to individuals for introducing renewable sources for heating and preparation of sanitary hot water and for various other means of efficient use of energy
Spain	JESSICA-F.I.D.A.E Fund (Energy Saving and Diversification Investment Fund)	2013-2016	building, industry, transport, public service infrastructure related to energy	financial	energy service companies (ESCOs) and other private enterprises	€123 million (2013-2016) / €84 million (actually spent)	urban sustainable development projects related to energy efficiency projects and energy management
Sweden	Local climate investment program (Climate Leap)	2015-	building, industry, transport, energy, residential	financial	diverse	€ 166-175 million (p.a. 2020-2022)	Investments in all sectors (except EU ETS sectors), and all types of organizations have been eligible to apply for grants. The Climate Leap helps municipalities to invest in charging infrastructure for electrical vehicles, fuel switching to biofuels, district heating and cycling infrastructure.

Source: Own compilation

6 Annex II – Selection of Energy & Climate Funds

Country	Name	Sectors	Type of Measure	Target Group(s)	Size of Funds	What is funded?	Impact
Norway	Climate and Energy Fund - Enova	transport, industry, non-residential buildings and property, energy	Financial and Information	Diverse - predominantly market-based	€540 million (total funding available in 2018)	individual projects in non-ETS sectors related to technological development and market transformation	GHG emissions reductions: 287 kt CO_2eq (2017)
Germany	National Climate Initiative	energy, industry, building, public	Financial and Information	Diverse - predominantly consumer-based and local	€715 million (2008-2017)	offers information-based and investment incentives for projects including: energy and climate concepts, information and advice projects, networking and exchange, subsidies for energy-related investments	GHG emissions reductions (investment measures): 3,300 kt CO_2eq (2008-2017) GHG emissions reductions (informational measures): 2,100 kt CO_2eq (2012-2017)
Bulgaria	National Trust EcoFund	transport, building, energy	Financial and Information	Diverse	€9.2 million (available at the end of 2018)	investment programs for: mineral waters, energy efficiency, electric vehicles, and educational programs	Annual reduction of GHG emissions over full lifecycle of energy efficiency projects: 96.64 kt CO_2eq
Spain	JESSICA-F.I.D.A.E. Fund	building, industry, transport, public service infrastructure related to energy	Financial	energy service companies (ESCOs) and other private enterprises	€123 million (2013-2016) / €84 million (actually spent)	urban sustainable development projects related to energy efficiency projects and energy management	GHG emissions reductions: 1.41 kt CO_2eq (2014) GHG emissions reductions: 18.19 kt CO_2eq (2015)

Source: Own compilation