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INTERLINKAGE AND SYNERGIES BETWEEN SELECTED OTHER POLICY AREAS AND ENERGY EFFICIENCY

PART OF WORK PACKAGE 1: MAPPING OF ENERGY EFFICIENCY POLICY INSTRUMENTS AND AVAILABLE TECHNOLOGIES IN BUILDINGS AND TRANSPORT

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ACRONYMS

BAFA – Bundesamt für Wirtschaft und Ausfuhrkontrolle, Federal Office for Economic Affairs and Export Control

EER – Energy Efficient Renovation

KfW – Kreditantstalt für Wiederaufbau, Bank for Reconstruction

MAP – Marktanreizprogramm, Market Incentive Programme

RSE – Renovation Support for the Elderly

VCD – Verkehrsclub Deutschland, German Association for Transport

EXECUTIVE SUMMARY

When taking a close look at implemented policy instruments in Germany, there are several ones that could be combined with energy efficiency. As the energy transition is a major policy stream of the German government and energy efficiency is one of its central pillars, advantages regarding reducing the burden on the environment, pushing the national environment economy, or securing jobs could be high. This is more and more seen by politics, as some of the described policy instruments are already recommended to be combined with energy efficiency issues.

This is for example the case with the “Renovation Support for the Elderly”. It is a KfW programme for renovating buildings regarding the increasement of living comfort for the elderly. When renovating anyway, it makes sense to include an energy efficient refurbishment. Therefore, KfW recommends the combination with such a programme.

A more direct link to energy efficiency is the construction of buildings with renewable energy systems. Described here is the example of the MAP programme for big solar thermal used for hot water generation, that can be combined with the KfW programme for energy efficiency construction.

The same applies for the transport sector. In this sector as well, policy areas are given that could be combined with energy efficiency policies. Examplarily described here are the CO_2-related motor vehicle tax, this tax was reformed in 2009 in order to include a CO_2-component, and the company car taxation. This tax does not include any environment-related component and even supports high fuel usage.

CHAPTER 1: ACHIEVING ENERGY EFFICIENCY THROUGH INTEGRATION IN OTHER POLICY AREAS

1.1 POLICY INSTRUMENTS WITH A DIRECT LINK TO ENERGY

1.1.1 CASE STUDY FOR THE BUILDINGS SECTOR – MARKET INCENTIVE PROGRAMME

Introduction

In Germany, several financial policy instruments for the support of energy-efficient construction / renovation, as well as for the use of renewable energies (e.g. for heating, cooling, electricity) exist. These instruments are closely interlinked (Federal Ministry for Economic Affairs and Energy 2014) and some of these instruments already can be combined, some not. Two programmes that can be combined, are described here: The **BAFA-MAP-programme** (Marktanreizprogramm zur Förderung von Maßnahmen zur Nutzung erneuerbarer Energien im Wärmemarkt / market incentive programme for supporting measures for using renewable energies in heating) **for big solar thermal used for hot water generation** (BAFA 2015) and the **KfW-programme "Energy-efficient Construction / KfW-55 Efficiency House"** (KfW 2014).

The **BAFA** support for the use of big solar thermal panel systems for hot water production supports innovative big solar thermal panel systems of 20 sqm up to 100 sqm gross panel surface, that are used for hot water generation in residential buildings with at least three dwelling units or in non-residential buildings with at least 500 sqm useful area. The BAFA-allowance is 75 EUR per sqm gross panel surface at the initial installation. The target groups of this programme include private persons, local authorities, registered associations, churches, companies, and contractors.

This programme can be combined with the support programme of **KfW** that includes long-term and low interest rate loan financing in order to build or to first-buy KfW Efficiency houses with low energy consumption and low CO2 emissions (BAFA 2015, KfW 2014). The support further aims to reduce the financial burden of building and heating costs make these costs calculable for the user in the long-term. The target group of this programme are all investors into new-build residential buildings (for own use or rent) and owner-occupied flats. Investors in this case are e.g. private persons, flat owner communities, housing corporations, housing cooperatives, owners / operators of residential homes, public corporations, public agencies, and contractors.

Relation to Energy Efficiency

Impacts on energy efficiency due to the combination of these instruments can be expected. Unfortunately, there is no study on this available.

BAFA support was raised in April 2015 and the number of applications was 32% higher in June 2015 than in the year before (Sonnenhaus-Institut 2015). In 2013 close to 12,000 applications for KfW-55 Efficiency houses have been accepted. In total (all KfW Efficiency Houses), 336 GWh/a have been saved in 2013 compared to the reference case (IWU et al. 2014).

Existing barriers might be the complexity of the support programmes and the fact that not all support programmes can be combined. BAFA only supports innovative technologies and not each KfW energy efficiency programme can be combined with other support for installation of renewable energy devices. On the other hand, possibilities for the combination of support programmes are often displayed in the description of programmes.

Actors that would benefit from a full consideration of energy efficiency would be the investors buying / constructing buildings that are energy efficient and solely use renewable energies.

Interaction between objectives

Both programmes want to push the energy transition. While the MAP aims to motivate building owners to base their heating system on renewable energies, the KfW programme focusses on the energy efficiency of buildings. As both, renewable energy and energy efficiency, are important pillars of the German energy transition, the combination of the described programmes is useful and in line with the national energy policy.

Interaction between target groups

The described programmes have a common target group. In principal, building owners is the main target group of both programmes. An indirect common target group are energy consultants. While for the KfW programme it is mandatory to include an energy consultant, in the MAP programme it is recommended.

Interaction between Rules-Influencing Mechanisms

The MAP and KfW programmes do not interact due to any trading commodities, they interact due to common energy policy targets. However, they both affect the market of energy consultant services, as such services are relevant for both programmes.

Interaction between the Implementation Network / governance structures

The MAP programme is implemented by BAFA, which is a superior federal authority subordinated to the Federal Ministry for Economic Affairs and Energy. The KfW programme "Energy Efficient Construction" is supported by the Federal Ministry for Economic Affairs and Energy as well. While both organisations are working independently, they have the backing of the Ministry. This has the advantage, that overlappings in the financial support schemes can be prevented.

1.1.2 Case Study for the Transport Sector – CO_2-related Motor Vehicle Tax

Introduction

The motor vehicle tax is an annual tax which the registered keeper of a vehicle is liable for. Until 2009 the motor vehicle tax was a matter of the Federal States and it was based on the cylinder capacity and the European emission class. Since 2009 the motor vehicle tax is a matter of the national level and the taxable base has changed as CO_2 emissions influence the tax rate. Since then, the motor vehicle tax consists of a base tax which is still based on the cylinder capacity and of a CO_2-tax which is

based on the CO_2 emissions for all new vehicles which are firstly registered after the 1st July 2009. (There are no changes for cars which were firstly registered before.)

Main goal of the reformation is a contribution to climate protection by giving incentives to choose low emission vehicles when considering the purchase of a new one as the CO_2 tax is proportional to emissions above a certain threshold.

Such a CO_2 tax was claimed by e.g. environmental organisations like the VCD (German Association for Transport 2009).

Relation to Energy Efficiency

In principle, the annual motor vehicle tax can provide stronger incentives to choose low emission vehicles when considering the purchase, since they must be paid annually as for example any kind of tax which has to be paid only once. Thus, impacts on energy efficiency can also be expected. As lower CO_2 emissions are also an indicator for a lower fuel consumption, vehicles with low CO_2 emissions are also energy-efficient vehicles.

In order to unfold the full impact, exisisting barriers and remaining weaknesses have to be overcome. One remaining weakness consists of comparatively low CO_2 tax rates. Higher CO_2 tax rates than 2 EUR per g/km emitted above a certain threshold could unfold a higher steering effect.

However, the high share of commercial vehicles on new registered cars (61,8%) in comparison to a relatively small share of private vehicles on new registered cars (38,2%) in 2012 (Website Kraftfahrtbundesamt 2015) is another barrier in regard to energy efficiency. Because of the existing company car taxation scheme (compare chapter 1.2.2), there is no real incentive for considering low operating costs when purchasing a car.

Interaction between objectives

The CO_2-related motor vehicle tax can be linked with the eco tax on motor fuels. With its ecological tax[1] reform the German Government aimed to encourage energy saving and promote renewable energies. Whereas the motor vehicle tax is an annual tax with no direct link to the actual level of use, the eco-tax has a direct connection to the level of use and aims at internalising a part of the external costs.

Both policy instruments have been implemented to improve the efficiency of the vehicles fleet as well as vehicle use and influence the modal choice. It was estimated that the implementation of the CO_2-based motor vehicle tax will lead to GHG emission reduction of about 3 million tons CO_2e per year by 2020 (Federal Environmental Agency 2009).

Interaction between target groups

The described policy instruments have the more or less the target groups: The motor vehicle tax directs the vehicle owner and the eco-tax on motor fuels directs the vehicle driver. The category of persons is often identical.

[1] Additionally, the ecological tax reform aimed at creating new jobs, as parallel to the introduction of the eco-tax, contribution rates for statutory pensions insurance – and consequently the nonwage labour costs – were reduced.

Interaction between Rules-Influencing Mechanisms

The motor vehicle tax as well as the eco-tax would tackle the same trading commodity – vehicles. However, both instruments are completely independent from each other.

Interaction between the Implementation Network / governance structures

Both taxes (motor vehicle tax and eco tax) have been implemented by the national government and are taxes on the national level. The customs authorities are responsible for the assessment and levying the motor vehicle tax all the way to enforcement. The local customs offices, under supervision of the Federal Ministry of Finance, ensure the collection of the eco taxes.

1.2 POLICY INSTRUMENTS WITH AN INDIRECT LINK TO ENERGY

1.2.1 CASE STUDY FOR THE BUILDINGS SECTOR – RENOVATION SUPPORT FOR THE ELDERLY

Introduction

The programme Renovation Support for the Elderly (RSE; Germ.: Altersgerechter Umbau), managed by the Kreditanstalt für Wiederaufbau (KfW), is quite a good example of an instruments with an indirect connection to energy efficiency measures in the building sector. In particular, Renovation Support for the Elderly aims at removing barriers in buildings and, ultimately, increases the living comfort for elderly people.

While the programme is a financing instrument, it actually consists of two elements. On the one hand, there is the loan component, which provides a low-interest loan of up to EUR 50,000 to building owners seeking to remove barriers of their building or investors that invest in residential buildings without barriers. On the other hand, as an alternative to the loan sum, a grant of up to EUR 5,000 is offered to house or apartment owners. Moreover, the grant is also available to tenants if the landlord approves to removing barriers in a residential building. Please note that there is no age limit for respective target groups to gain access to the instrument.

Funding is eligible for the installation of a stairlift, removal of certain barriers (e.g. stairs) at the house entrance or canopies for car parks or exterior doors to, e.g., reduce the danger of slipping.

Relation to Energy Efficiency

The policy instrument itself does not include an energy efficiency criteria. Even those few elements, which are eligible for funding and consume energy (e.g. stairlifts, lifts), do not include any energy efficiency requirements. However, KfW recommends to combine the Renovation Support for the Elderly programme with the Energy Efficient Renovation (EER) programme, which is also managed by KfW (KfW 2015a, 2015b). The combination of both instruments is alo recommended by the Federal Ministry for Economic Affairs and Energy (Federal Ministry for Economic Affairs and Energy 2014a).

KfW's Energy Efficient Renovation programme, described already in D.1.2., aims at facilitating energy efficiency in Germany's existing building stock. It does so – similarly to the Renovation Support for the Elderly programme – by offering either a soft-loan (including a grant redeployment) or a direct grant. The conditions of the financing support are dependent on the degree of energy efficiency sought to be realised. The loan of the Energy Efficient Renovation programme may amount to EUR 100,000. Hence, if an investors combines the loan components of RSE with EER, up to EUR 150,000 can be made available through KfW financing. EER's direct grant does not exceed EUR 30,000, but combined with the RSE-grant, an investor can receive up to EUR 35,000.

The nexus between RSE and energy efficiency has not be assessed in close detail yet. According to Prognos (2015), 30% and 50% of interviewed building owners and tenants, respectively, said that energetic building renovation was the primary reason for taking up measures to remove barriers in their buildings. Unfortunately, this figures does not provide any information, whether interviewees, in fact, also opted for the EER programme. Further research on the relation between these two issues is to be done for the future.

Interaction between objectives

The Renovation Support for the Elderly and the Energy Efficient Renovation programmes can be seen as perfect complements. Both instruments require relatively comprehensive renovation activities carried out by experts. Hence, if a building owner makes use of both instruments, two objectives (elderly-appropriate *and* energy-efficient living space) can be achieved more or less simultaneously. For the Government, these programmes are also beneficial as complements. First, through the RSE, the Government provides living space for the elderly. Second, through the EER, the energy consumption in the building sector is reduced.

Interaction between target groups

The direct target group of RSE and EER consists building of owners and of tenants. According to Prognos (2015), the majority (>70%) of applicants for the RSE are older than 55 years, even though there is no such thing like an age limit for application.

Apart from that, both policy instruments address different types of building experts and crafts men realising the different measures funded by RSE and EER. Hence, through the programmes, a greater variety of actors can be involved in building renovation.

Interaction between Rules-Influencing Mechanisms

While the interaction between the discussed policy instruments is intended, KfW does not make this combination mandatory. However, for building owners that seek to renovate a building, it appears reasonable to gain access to both, the RSE and the EER. In particular, it is unreasonable to, first, renovate a building in order to increase it energy efficiency and, then, to again renovate the same building to remove barriers only a few years later.

Interaction between the Implementation Network / governance structures

It is of great advantage that KfW is responsible for implementing both, the RSE and the EER. As mentioned above, both instruments consist of two alternative options for building owners to be accessible – a soft-loan option and a direct grant option. With respect to the latter, building owners can apply with KfW straightaway. However, for the loan option(s) interested parties have to go to their house banks, which check the clients' creditworthiness and, then, facilitate the application to KfW.

The state-owned bank KfW can be considered an ideal implementing agent for both programmes, since it has substantial experience in providing financing to enhance the German building sector. The institution was founded after the Second World War in order to ease the living situation in the country. Since KfW does not have any local branches, the choice to make use of existing structures (house banks) for facilitating loans reduces the administrative (and financial) burden for KfW and is also beneficial to respective house banks, which receive a profit margin due to processing the loan.

1.2.2 CASE STUDY FOR THE TRANSPORT SECTOR – COMPANY CAR TAXATION

Introduction

Purchasing and operational cost of company cars are tax deductible. The employee has only to pay a very low tax on the vehicle ("1%-method"[2]). De facto, as the 1% method is far too low to reflect the actual benefit received, there are strong incentives for the employees to drive fuel-inefficient vehicles as much as possible. Thus, the taxation of company cars thwarts the objectives of reducing greenhouse gases and improving energy efficiency in the transport sector.

From the companies point of view, it is also very attractive to provide a company car instead of increasing the employee's salery, because the employer has to pay lower contributions for the social security ("1%-method"). However, even more important are the regulations for the depreciation of company cars. The employer can depreciate the full acquisition costs as well as operating costs. Thus, the more expensive (in purchasing and in operating, e.g. because of high fuel consumption) , the more can be deducted.

Since more than 60% of the German new car registrations are company cars in 2012 (Website Kraftfahrtbundesamt 2015), this tax-exempt is a major gap for the regulative effectiveness of CO_2-related car taxation and counteracts the efforts to increase the energy efficiency in the transport sector.

Relation to Energy Efficiency

As mentioned above, the company car taxation thwarts the objective of improving energy efficiency in the company vehicle fleet. However, the company vehicle fleet influences the fleet of private cars significantly. As company cars are usually replaced sooner than private vehicles and most of the replaced company cars are up for sale on the used-car market. Thus, there is a oversupply of big cars with high fuel consumption.

A solution would be a CO_2-related tax exemption which would be effective beyond a margin that refers to the shifting fleet emission limits (e.g. 100 g when the emission limit is 130 g, 90 g when the limit is 120 g, etc.) as suggested by a joint expert report from Green Budget Germany (/'Forum Ökologisch-Soziale Marktwirtschafft) (Görres and Meyer 2008).

Within the research project "tax treatment of company cars in Germany" several improvements of the company car taxation system have been developed in order to – among others – contribute to a reduction in CO_2 emissions instead of subsidizing big, unefficient vehicles.

It is suggested to introduce a CO_2 element ("climate factor") which is oriented towards the European Regulation for the reduction of CO_2 emissions from light-duty vehicles. "Either a bonus-malus system, or a penalty-based system, are possible options. The increments are related to emission values and time. The range of deduction extens from 50% (very poor emission values) to 150% (very good emission values) of the purchase cost. The CO_2 component also relates to the deductibility of the cost of fuel" (Finanzwissenschaftliches Forschungsinstitut an der Universität zu Köln 2011).

[2] These so-called benefits in kind are calculated using the so-called „1%-method", which adds 1 % of the car's list price to an employee's taxable income each month.

Interaction between objectives

Currently, there is no interaction between the objectives of the company car taxation and energy efficiency policy. This would become the case, if the suggested introduction of a CO_2 element would be implemented into the company car taxation.

Interaction between target groups

The target group of the company car taxation are companies and their employees. So far, this target group has not been directly focused by national energy efficiency policy.

Interaction between Rules-Influencing Mechanisms

There is a strong interaction between a proposed CO_2-related company car taxation and a CO_2-related motor vehicle tax possible, as the CO_2-related company car taxation could include many issues of the motor vehicle tax.

Interaction between the Implementation Network / governance structures

The same national authorities would be responsible for the implementation of a CO_2-related company car tax as for the CO_2-related motor vehicle tax. Therefore, already existing governance structures could be used.

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