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TTIP and Fossil Fuel Subsidies: Using international policy processes as entry points for reform in the EU and the USA

By Constanze Adolf, Jacqueline Cottrell, Amani Joas, Claudia Schulz

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TTIP, G 20 and SDGs:

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Abbreviations

APEC	Asia Pacific Economic Cooperation
ASCM	Agreement on Subsidies and Countervailing Measures
CO ₂	Carbon dioxide
CSO	Civil Society Organisation
EC	European Commission
EESC	European Economic and Social Committee
EU	European Union
EUR	Euro (European Monetary Unit)
FF	Fossil Fuels
FFS	Fossil fuel subsidies
G20	Group of finance ministers and central bank governors from 19 major economies and the EU
GDP	Gross domestic product
GHG	Greenhouse gas
IEA	International Energy Agency
IMF	International Monetary Fund
MDGs	Millennium Development Goals
OECD	Organisation for Economic Co-operation and development
OPEC	Organisation of the Petroleum Exporting Countries
SDGs	Sustainable Development Goals
TAFTA	Transatlantic Free Trade Agreement
TTIP	Transatlantic Trade and Investment Partnership
UN	United Nation
UNCSD	United Nations Conference on Sustainable Development
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USA	United States of America
USD	United States Dollar
WTO	World Trade Organisation

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Executive Summary

In this report, we assess the potential of three relatively promising international processes – the focus on fossil fuel subsidy (FFS) reform in the G20 group, the Sustainable Development Goals (SDGs), and the Transatlantic Trade and Investment Partnership (TTIP) – to act as possible routes to reform in a transatlantic context.

Phasing out fossil fuels on both sides of the Atlantic would:

- Internalise at least some of the costs of fossil fuel use and thus reduce market distortions;
- Bring about a shift towards low-carbon energy and thus boost employment in the renewable energy sector;¹
- Create stronger price signals in favour of energy efficiency and low-carbon innovation;
- Bring about GHG emissions reductions in the US and the EU;
- Could contribute to reducing budget deficits with the least possible negative impact on growth and employment (Vivid Economics 2012).

One of the major challenges for FFS reform revealed in this report is the form and magnitude of subsidies, and the complexity of the legal and economic systems at both sides of the Atlantic. FFS subsidy definitions and thus quantification methodologies vary substantially, and to make progress in phasing out FFS it is necessary to agree on a common definition and standard approaches to quantification. The G20, the SDGs and the TTIP all have the theoretical potential to act as vehicles for such a development.

Compared to the “soft law” processes within the G20 and the SDGs, the potentially binding nature of any agreement to phase-out FFS within the TTIP makes it the most promising tool to face out FFS – in spite of very serious concerns around the impact of the TTIP in undermining democratic policies and environmental, climate and health standards.

So far, FFS have not been on the agenda and TTIP have not fulfilled its potential. Yet if a TTIP is approved, it is of fundamental importance that FFS reform is part of the agreement – otherwise, the TTIP is predicted to increase CO₂ emissions in both the EU and the USA, reversing a trend of declining emissions since the mid-2000s – a significant retrograde step.

Within the TTIP process, a possible model for reform could be:

- 1. Get FFS reform on the negotiation agenda**, e.g. through the TTIP Advisory Group;
- 2. Agree national reporting processes** – develop a detailed template for all countries to identify and quantify FFS within a transparent framework;
- 3. Cost-benefit analysis of FFS reform**, estimate distributional impacts;
- 4. Develop a coherent reform policy** on the basis of 2 and 3;
- 5. Build support with a good communications strategy** and disseminate information about pricing reforms before they are introduced;
- 6. Set up an independent body** to assess progress and deal with legal questions.

All three policy processes looked at in this report have the potential to have a substantial impact on FFS reform. For the TTIP, or the SDGs, or the G20 process to become a catalyst for subsidy reform, policy-makers will have to step up to the mark. Without political will, lasting reform will be hard to achieve.

1 5 million new jobs are predicted in the renewable energy sector by 2020 in the EU alone (EC 2012a: 173 final).

1 Introduction

1.1 A brief introduction to FFS reform

Energy is a basic need in an economy. Modern industrial states came into being as a result of new technological innovations centred around new ways of harnessing the power of fossil fuels. The assumption of cheap, concentrated sources of energy became embedded in the everyday life of our societies. In recent times, it has become clear just how serious this dependency on cheap fossil energies has become, and signatories of the Kyoto Protocol have agreed, in principle at least, on the necessity to reduce global greenhouse gas emissions in order to prevent dangerous climate change.

In spite of this recognition that climate change should be prevented, many fossil fuel subsidies have survived, creating a significant incentive to consume fossil fuels and thus, a significant incentive to emit CO₂. According to IEA Chief Economist Fatih Birol, annual global post-tax² fossil fuel subsidies currently worth 1.3 trillion EUR are providing an incentive to emit CO₂ equivalent to 80 EUR per tonne.³ In contrast, IEA estimates – based on a survey of established national policies – indicate that renewable energy received a global subsidy total of just 101 billion EUR in 2012, of which 60% were paid in the EU and 21% in the USA (IEA 2013).

Fossil fuel subsidies are damaging for a number of reasons. First and foremost, the incentives they create undermine sustainable development by creating false price signals – or market distortions – which result in the misallocation of resources to fossil fuel-intensive activities – and thus increased CO₂ emissions, which are associated with a high environmental and social cost.⁴ In this way, FFS act as a direct obstacle to a transition to a green, low-carbon economy by undermining the competitiveness of renewables and other low-emission energy technologies. In addition – and this is all the more important in times of fiscal and economic crisis – FFS are a wasteful and inefficient use of scarce government resources, and divert investment from other priority areas, such as health and education. FFS

have a negative impact on a country's balance of payments in net energy-exporting countries and exacerbate energy-price volatility by blurring market signals. No wonder Fatih Birol has described fossil fuel subsidies as “public enemy number one” (EWEA 2013)!

FFS phase-out would create a win-win scenario (Whiteley 2013). Eliminating FFS would help facilitate the transition to renewable energy sources. In the case of the USA and the EU, it might also unlock new opportunities for energy policy cooperation between the two trade blocs, e.g. in terms of research and development, technology transfer, and investment in more cost-efficient and job-creating technologies and solutions.

The FFS that Birol describes as “public enemy number one” are prevalent in the EU and the USA. Tax concessions for oil and gas extraction are commonplace, as are direct transfers of funds to support particular industries, e.g. uncompetitive hard coal mining in Germany, or the provision of reduced tax rates for “pink” diesel for agricultural use. The incentives these FFS create are among the most important factors behind ongoing high CO₂ emissions in the USA and the EU, which in 2012 accounted for 14% and 10% of global CO₂ emissions respectively (Global Carbon Project 2013). In the same year, per capita emissions in the USA amounted to 4.4 tonnes of carbon on average, while in the EU, they amounted to 1.9 tonnes (Global Carbon Project 2013).

The rewards of reform could be considerable. The IMF has estimated that the phasing out post-tax FFS would reduce CO₂ emissions by 4½ billion tons, a 13% reduction (IMF 2013). This amount is significant and points to the substantial benefits of using fiscal instruments to achieve climate change objectives. Concerted action on FFS in the EU and the USA could act as a driver of more ambitious GHG emissions reduction policies globally – and potentially boost prospects for a wider climate deal at the key 2015 Climate Change Summit in Paris.

² Post-tax subsidies are the sum of pre-tax and tax subsidies. Post-tax subsidies are four times larger than pre-tax subsidies.

³ A detailed analysis of FFS estimates in the USA and EU are described in detail in section 4, below.

⁴ Indeed, the German Federal Environment Agency estimated in 2012 that the external environmental cost of carbon amounted to 80 EUR per ton CO₂ emissions (Federal Environment Agency, 2012).

1.2. The political will to reform? The case of the EU and the USA

Internationally, momentum behind FFS reform is growing. Across several international forums, such as the G20, APEC and the UNFCCC, 134 countries have declared their support for FFS phase-out, including the USA, the EU, Russia, Brazil India and China (for details see Heinrich Böll Stiftung 2012). More and more countries and international organisations are discussing FFS reform, recognising the harm it does, and thinking about how to initiate action and pick this “low-hanging fruit”.⁵ Thus far, however, no binding multilateral action has been agreed.

This report sets out to explore possibilities to ride the wave of this reform momentum, specifically, in the EU and the USA. It will examine selected international policy processes – the G20 process, the Sustainable Development Goals (SDGs), and the Transatlantic Trade and Investment Partnership (TTIP) – as possible vehicles of reform.

Particularly in the EU, but also in the USA, the political will to reform FFS is becoming increasingly clear. The EU has an explicit aim to phase out environmentally harmful subsidies by 2020 and has taken decisive steps towards sustainable development, including a resource efficient, low-carbon and circular economy. This ambition is explicitly integrated in several documents: the “Sustainable Development Strategy” of 2001, revised in 2006, the “Seventh Environment Action Programme”, the flagship initiative “Resource Effective Europe” under the Europe 2020 strategy, the “Roadmap to a Resource Efficient Europe”, and the “Roadmap for Moving Towards a Competitive Low-Carbon Economy in 2050”.

However, in spite of these good intentions, the European Economic and Social Committee, using OECD data, has estimated that EU Member States spend around 78 billion Euros per year on fossil fuel subsidies, including costs for

the health system related to CO₂ emissions, financed by public budgets.⁶ Post-tax subsidy estimations from the IMF are higher, amounting to 87 billion EUR (IMF 2013).

Similarly, although it is the leading producer and consumer of energy in the world, with an 84% share of fossil fuels in primary energy supply (OECD 2013), the USA has been an important – and on paper at least – a willing contributor to the G20 process relating to FFS reform, although no subsidy reform is yet to result. There is political will behind the reform agenda in the USA, and a certain momentum behind more radical change can be discerned. In the USA too, though, FFS estimates are high – estimates range from 10.2 billion EUR (on the basis of OECD data (2013) to the IMF’s post-tax FFS estimation for the USA of 318 billion EUR (IMF 2013).⁷

Bearing this in mind, this report will look at the potential for international policy processes to act as catalysts to drive forward reform in these two powerful trade blocs, the EU and the USA.

1.3 Structure of the Report

This report sets out to highlight windows of opportunity for the reform of FFS in early 2014, and to highlight the potentials of current international negotiations and discussions as possible entry points to reform of FFS in the EU and the USA.

The first part of the report looks at FFS in practice, examines typical examples of FFS, and presents a possible model of reform.

The second part of the report goes on to explore possible routes towards reform of FFS in the context of the G20 process, the Sustainable Development Goals (SDGs) and the negotiation of the Transatlantic Trade and Investment Partnership, the TTIP. The focus of this section is on the potential of these processes to drive forward the FFS reform agenda in a meaningful way.

5 The term “Low-Hanging Fruit” is often used to describe the reform of FFS, as they are widely regarded in theory at least as a relatively obvious way of reducing GHG emissions. For this reason, “Low Hanging Fruit” is also the title of a 2012 Heinrich-Böll-Stiftung publication.

6 Estimates of the EESC based on the OECD 2013 data http://www.keepeek.com/Digital-Asset-Management/ocd/environment/inventory-of-estimated-budgetary-support-and-tax-expenditures-for-fossil-fuels-2013_9789264187610-en#page1 and EU Commission data. http://ec.europa.eu/environment/enveco/taxation/pdf/fossil_fuels.pdf (accessed 25.11.2013)

7 Because the OECD approach is based on the calculation of specific government programmes that support fossil fuels, the most transparent OECD member states may seem to have higher FFS than countries which do not report all their FFS policies. This means that the OECD methodology does not provide comparable data. The IMF post-tax estimations include an allowance for optimal taxation in their reference price, and therefore are much higher.

The third part of the report discusses different assessments and definitions of fossil fuel support in the US and the EU and gives an overview of underlying quantification methods, building on the work of the OECD, IEA and IMF. Improving the knowledge of the scale and effects of energy subsidies on both sides of the Atlantic requires progress in several areas, starting with the basic data. Therefore, the

study aims to review existing literature, to identify, classify and quantify fossil fuel subsidies at EU and US level.

Finally, the concluding section of the paper makes a series of recommendations on how a phase-out of fossil fuel subsidies could be linked to these processes.

2 Fossil Fuel Subsidies – a brief introduction

2.1 The political economy of FFS reform: The case of the EU and the USA

“State subsidies are a \$1 trillion political-economy problem, rather than the result of an inescapable conflict between growth and the environment” (Economist 2012). This describes, in a nutshell, why FFS remain in place: Interactions between the political environment and institutions, and economic actors in the market, are a major obstacle to reform.

The USA and the EU have implemented a number of different fossil fuel subsidies in order to protect specific industries or sectors or lower prices for consumers. All subsidies, whether for fossil fuels or renewable energies, tend to outlive their initial rationale – usually an economic or social purpose – and their negative impacts come to outweigh the positive benefits they generate. Thus, a point is reached where subsidies should logically be reviewed and as a general rule, reformed.

However, resistance to reform of producer subsidies – the type of FFS more commonly implemented in the EU and USA – is often extremely powerful. Proposals to withdraw direct budget transfers to coal producers, such as the provision of safety education for miners in Kentucky, or to remove accelerated rates of depreciation for coal exploration in the USA, inevitably meet with strong opposition from beneficiaries. Because these industries tend to

have strong lobbying power and to exercise influence on Ministries of Finance and Trade, their subsidy dependency and fierce defence of the benefits they currently enjoy can pose an insurmountable obstacle to reform.

Furthermore, many investments in the energy sector have a long time horizon of 30 years or more, meaning that high-emitting, inefficient technologies become “locked in” and create subsidy dependence. Hence, even if the rationale for a particular subsidy no longer holds, FFS become entrenched as industry and domestic consumers become dependent on a particular technology or cheap source of fossil energy. Powerful lobbies fight tooth and nail for the preservation of the benefits conferred upon them through existing subsidy practices. A good example of this are subsidies to hard coal mining in Germany, which were widely acknowledged in the early 2000s as costly, wasteful and inefficient, but which were reformed only with great difficulty over a number of years (subsidies will be finally phased out in 2018).

In addition to the substantial obstacles posed by the political economy of subsidy reform and the need to deal with vested interests, there are also a number of difficulties associated with methodologies. Agreement on a consistent definition of FFS, and on quantification methodologies, has not proved easy, and this lack of consistency has undermined the G20 process of FFS reform. We will return to this topic in section 4.

2.2 Different types of fossil fuel subsidies (FFS)

In order to illustrate the challenge of phasing out FFS on both sides of the Atlantic, we give some examples of subsidizing policies for the reader to understand the kind of policies a phase out could address.

FFS come in various forms. While it is generally agreed that FFS are economically distortive and environmentally harmful, researchers do not agree on the size and scope of fossil fuel subsidies.

For the year 2011, the OECD estimates that producer and consumer FFS in the United States and in the European Union⁸ amounted to 37.2 billion EUR, whereas the IMF estimates total post-tax subsidies at 405 billion EUR (IMF 2013; OECD 2013).⁹ These diverging estimates can be explained by the variety of policies that are counted to qualify as a subsidy.

Some of the most obvious fossil fuel subsidies are to be found outside the EU and the US. Especially oil-exporting countries **reduce domestic consumption prices** of fossil fuels to a level below global market prices. The IEA estimates that Saudi Arabia subsidizes fossil fuels with 47.2 billion EUR in 2011, equalling about 79.5 % of the full costs of supply for its consumers (IEA 2013). In the European Union and the United States, fossil fuel prices are generally above global market levels, which is why subsidies in these countries are usually identified as policies that favour fossil fuel production or consumption without depressing prices below world market levels.

The most evident subsidies in the EU and the US are direct transfers or guarantees for producers of fossil fuels such as the so-called “coal penny”. This subsidy has been abandoned in most European countries, however Hungary still imposes levy, paid by final electricity consumers (per kWh), to finance otherwise unprofitable coal mining operations. In 2011, this subsidy was estimated to cost Hungary 51 million EUR per year (OECD 2013). Direct transfers also often come in the form of R&D spending as in 2011 the US spent 454 EUR on R&D in fossil fuel related projects. These kind of direct transfers are included in the budget and can be retraced easily.

Another source of FFS relate to **foregone government revenues** usually in the form of tax credits. In France, excise tax exemptions for oil- and gas refiners and producers amounted to 107 million EUR in 2011 (OECD 2013). However, forgone government revenue also comes in more obscure forms, which are harder to estimate. For instance, countries provide access to land and resources at reduced rates. Germany’s exemption from mining royalties granted to hard-coal production is estimated to have led to 153 million EUR in forgone revenues in 2011 (OECD 2013). Especially in times of rising prices for fossil fuels, many governments concede reduced tax rates for low income households. In the United States, the federal “Low-Income Home Energy Assistance Program” accounted for more than 1.3 billion EUR, while in the UK reduced VAT rates for fuel and power from natural gas is estimated to cost 4.2 billion EUR in forgone revenues in 2011 (OECD 2013).

Going further, some research institutes (such as earth track, IMF) not only count government action but also a lack of government action, for instance a failure to implement policies ensuring full-cost pricing, to constitute a de-facto subsidy. The **costs of externalities** caused by the use of fossil fuels in traffic, such as local pollution, carbon emissions, road congestion, accidents, noise and road damage are estimated by the International Monetary Fund (IMF) resulting in global post-tax FFS values of 1.5 trillion EUR or 2.5 % of global GDP and 8 % of global government revenues in 2011 (IMF 2013).

With this in mind it should become clear, that a key element in the phase-out process is an agreed upon definition of what constitutes a FFS (see section 4 for a detailed discussion).

2.3 A model of fossil fuel subsidy phase out

Both the USA and the EU aim in theory to develop their economies in a way that creates and delivers more benefit with less input. Both seek to develop – in very different ways – an economy that uses resources more sustainably and that minimises the associated environmental impacts. However, at the current time, FFS such as fuel tax rebates and artifi-

⁸ OECD data for the United States only includes the federal level and ten states. For the EU, a study by the IVM using the same methodology complements data for six EU members that are not in the OECD. Thereby, all countries that were EU-members in 2011 are included.

⁹ The OECD and IMF data used was converted into Euros using the IMF official exchange rate on Dec 31st, 2011 (1€ = 1,2932 US\$). The IMF data is not taken from the report directly, but was made available in absolute dollar amounts upon request.

cially low energy prices stimulate the use of fossil fuels and greenhouse gas emissions and counteract these policies.

In order to redistribute the burden and facilitate a level playing field for competition between renewable and non-renewable energy sources, phasing out FFS might be an appropriate tool to set price signals for producers and consumers and to make the polluter pay for its behaviour.

Inspired by GSI/IISD (2010) and the IMF (2013), a step-by-step approach to phase out FFS at both sides of the Atlantic to improve attempts to reform could include the following steps:

1. Get FFS reform on the political agenda, e.g. through the EU TTIP Advisory Group or a joint action from CSOs on both sides of the Atlantic, and build support;

2. National reporting – establish subsidy reporting processes and develop a detailed template for all countries to identify and quantify all FFS within a transparent framework;

3. Cost-benefit analysis of FFS reform, and estimate their distributional impacts;

4. Develop a coherent reform policy on the basis of 2 and 3. This would establish a timeframe for implementation, ensure that prices increases are phased in gradually or that targeted and transparent compensatory measures for economic restructuring or poverty alleviation are developed to offset any undesired secondary impacts and maximise the potential for success;

5. Develop a communications strategy to build support for FFS reform and disseminate information about pricing reforms before they are introduced;

6. Set up an independent body to assess progress and legal questions – create an automatic linking mechanism between domestic and international prices so that energy pricing is depoliticized as soon as possible, to minimise the risk of policy turnaround.

3 International policy processes with potential to drive forward fossil fuel subsidy reform

As highlighted in the previous section, FFS create significant distortions in energy markets. Upholding measures which reduce the cost of fossil fuels creates price incentives in favour of high-GHG-emitting consumption and production practices and discourages investment in renewable, clean sources of energy. The need to reduce budget deficits by reducing wasteful spending in both the USA and the EU provides a strong case for phasing out of FFS.

On the other hand, international momentum for FFS reform is growing. Across several international forums, such as the G20, APEC and the UNFCCC, 134 countries have declared their support for FFS phase-out, including the USA and the EU, as well as Russia, Brazil India and China (for details see Heinrich Böll Stiftung 2012). In the USA and the EU there is theoretical agreement at least that FFS are harmful – and perhaps also that they are a “low-hanging fruit” in the spectrum of measures available to reduce GHG emissions and target government spending more effectively.¹⁰

This international focus on FFS has grown out of a number of international policy processes, which may have potential to drive forward global subsidy reform. It is also a product of concerted efforts on the part of CSOs, such as Green Budget Europe and the Global Subsidies Initiative, to push for reform, as well as national governments – in the “Friends of Fossil Fuel Subsidy Reform” group – and the pioneering work of the OECD and the European Commission to define, quantify and develop methodologies for the phase-out of FFS.

In this report, we will assess the potential of three relatively promising international processes – the focus on FFS in the G20 group, the Sustainable Development Goals, and the Transatlantic Trade and Investment Partnership (TTIP) – to act as possible routes to reform.

¹⁰ The term “Low-Hanging Fruit” is often used to describe the reform of FFS, as they are widely regarded in theory at least as a relatively obvious way of reducing GHG emissions. For this reason, “Low Hanging Fruit” is also the title of a 2012 Heinrich-Böll-Stiftung publication.

3.1 The G20 process

The G20, representing the 19 largest global economies and the EU, and accounting for over 80 % of global economic output, is mandated to “broaden the discussions on key economic and financial policy issues [...] and promote cooperation to achieve stable and sustainable world economic growth that benefits all” (G20 1999).

3.1.1 What is the G20 process towards FFS reform?

At the Pittsburgh Summit in 2009, the G20 countries pledged “to phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest” – at least those subsidies which “encourage wasteful consumption” (G20 2009, paragraph 24). At Pittsburgh, the G20 leaders also called on their respective Energy and Finance Ministers “to report to us their implementation strategies and timeline for acting to meet this critical commitment at our next meeting” (G20 2009, paragraph 25).

The declaration represented a significant step forward in creating an international consensus that FFS should be reformed. One immediate result was in-depth research into FFS – quantifying first consumer and then producer subsidies, estimating their effects on global GHG emissions, and developing proposals for reform – in a joint report by the IEA, OECD, World Bank and OPEC (see IEA et al 2010). This research has increased awareness of the problem of FFS subsidies globally and has fed into an ongoing dialogue acknowledging the necessity for reform.

The G20 process is also symptomatic of a broad shift in international discourse recognising the importance of FFS reform as an essential element within a shift towards a low-carbon and green economy. Thus, the G20 countries envisaged a global process of reform in 2009, and directed their call to phase out FFS at all nations that subsidise fossil fuels (IEA et al 2010). The 2009 declaration was mirrored by an APEC declaration in the same year and by 2012, 134 countries had declared their commitment towards FFS reform.

3.1.2 What is the current state of play?

Since 2009, G20 member countries have been called on to report on “inefficient fossil fuel subsidies [...] which en-

courage wasteful consumption” and to report on progress towards their elimination. Reporting has thus far been only moderately successful, for several reasons: The main barrier to reform is the absence of a common subsidy definition. This has created loopholes, and even small differences in use of terminology have a significant impact on the extent of subsidy reporting and thus the potential for reform (Koplow 2012). The weak language used – “inefficient FFS which encourage wasteful consumption” – acts as a pretext for inaction on the part of many countries, or for selective reporting. In 2012, for example, both the UK and France did not report any FFS to the G20, while OECD estimates for FFS in the two countries were 4.9 billion EUR and 2.8 billion EUR respectively and the IMF complex price gap approach produced estimates of 11.4 billion EUR and 4.9 billion EUR respectively.

Where reporting does take place within the G20 process, this has been only moderately successful. Reporting is voluntary, with no oversight mechanism, and there are no penalties for non-reporting or incomplete or inaccurate data – which has meant that some countries do not report at all, while others deliver incomplete inventories, or focus on a narrow subsidy definition. The USA, for example, reporting largely on “tax preferences”, e.g. accelerated depreciation, while ignoring the majority of other measures which directly or indirectly transfer government funds to producers and consumers (G20 2012b). Similarly, in 2012 Germany only reported on direct subsidies to coal mining, which already have a fixed and legally binding timetable for phase-out by 2018, while other third parties, e.g. the NGO Green Budget Germany, has identified many more harmful subsidies to fossil fuels in the country (Meyer 2012). Such inaccurate reporting is a very real barrier to the development of FFS reform proposals.

In 2012, Doug Koplow of Earthtrack was unable to identify a single FFS which had been phased out as a result of the G20 process (Koplow 2012).

3.1.3 The G20 process and windows of opportunities for FFS reform

In 2012 a G20 working group identified the lack of an agreed definition and methodology for subsidy quantification, and the resulting non-standardised reporting process, as an obstacle to efficient reporting and reform (G20 2013b). In response, the G20 called on Finance Ministers to

start to develop a methodology for a voluntary peer review process between countries – which was presented at the 2013 G20 summit in St Petersburg (G20 2012a, G20 2013b).

Peer reviews began in July 2013 and were expected to take 6-12 months to complete. No reviews were available in the public domain in February 2014. Finance Ministers will report on progress in November 2014 in Brisbane. The peer review process has a number of loopholes which may hinder progress. Primary outputs of peer reviews are decided at the outset, and publication of reviews and associated materials is described in the methodology as “usual” but not compulsory – thus creating space for an unambitious and opaque process (see G20 2013b). Without transparency or an effective compliance mechanism, voluntary peer reviews are unlikely to be sufficient for countries to hold each other accountable on FFS phase-out (WWF 2013).

On a more optimistic note, the introduction of a peer review approach is a step in the right direction. It has the potential to increase transparency and accountability, facilitate peer-to-peer learning and act as a conduit for expert input and advice and ultimately, result in better policy making (Gerasimchuk 2013). However, to realise this potential in practice, a more tightly structured peer-review process is necessary. Rather than agreement on outputs at the start of the review process, a common template for all reviews could be developed, facilitating better and more comprehensive data collection.

A common approach to peer review could be supplemented by agreement on a common subsidy definition and a requirement to report all subsidies to fossil fuels – not only those which are considered inefficient. This would enhance the transparency and comprehensiveness of the inventory process, as well as fostering a discussion of how a FFS should be defined, what constitutes an “inefficient” FFS, and indeed if such a thing exists.¹¹

Slow progress thus far in the G20 reflects an ongoing lack of commitment or a sense of urgency to implement reform. Inaccurate and incomplete FFS inventories are an obstacle to progress. It is crucially important that third parties continue work to draw up comprehensive subsidy inventories to challenge the assumptions made by G20 governments (Koplow 2012). Even rather poor reporting opens

up a space for dialogue and exchange between pro-reform groups and policy-makers. Lack of enforcement mechanisms have also been an obstacle to progress.

Nonetheless, the 2009 statement of G20 leaders has focussed minds and brought FFS reform into the political mainstream. In the medium term, the G20 process might prove to be a powerful vehicle for subsidy reform, particularly if its weaknesses are ironed out and it is linked to other, possibly binding, processes.

If a subsidy definition can be agreed – even if the relatively narrow WTO definition is used –, as well as a common methodology for reporting and review, the G20 process would have huge potential to act as a driver for global FFS phase-out.

3.2 The Sustainable Development Goals (SDGs) and the post-2015 development agenda

3.2.1 What are the Sustainable Development Goals?

For decades, the United Nations (UN) have made efforts to foster international dialogue and negotiations on FFS reform. At the 1992 UN Conference on Environment and Development (the Rio Earth Summit) governments agreed on a range of voluntary measures in the seminal Agenda 21: A Programme of Action for Sustainable Development. This included proposals that governments reform environmentally harmful subsidies (see paragraph 8.32, UNCED 1992).

Twenty years later, at the UN Conference on Sustainable Development (the UNCSD, also known as Rio+20), existing commitments countries have made to phase out “inefficient fossil fuel subsidies that encourage wasteful consumption and undermine sustainable development” were reaffirmed (paragraph 225, UNCSD 2012). Stronger reform commitments included in the zero-draft of the outcome document were removed from the final version (see von Moltke, forthcoming).

Thus, there may also be potential to make progress on fossil fuel subsidy reform within the Rio+20 agenda. The Rio +20 outcome document, *The Future We Want*, includes a commitment to develop a set of Sustainable Development Goals (SDGs). These are to be “action oriented, concise and

¹¹ Whether there is such a thing as an “efficient” fossil fuel subsidy is a point for debate. It is possible to contend that FFS are by their very nature inefficient. There is no scope within this paper to discuss this issue in more depth.

easy to communicate, limited in number, aspirational, global in nature and universally applicable to all countries” (UNCSD 2012, paragraph 247).

The SDGs are part of a broader post-2015 development agenda which will replace the Millennium Development Goals (MDGs) due to expire in 2015. They “should address and incorporate, in a balanced way, all three dimensions of sustainable development” (UNCSD 2012, paragraph 246). Thus, the SDGs will be more holistic than the MDGs and focus on social, economic and environmentally sustainable development, and will be applicable to all UN member countries.

3.2.2 What is the current state of play?

At the time of writing, the SDGs, within an overarching post-2015 development agenda, were being developed within an Open Working Group at the UN General Assembly (OWG). The development of the SDGs will involve input from UN institutions and the involvement of a wide range of stakeholders, including UN member states, NGOs and business. Numerous NGOs, the European Union, and a number of think tanks and other international organisations have proposed FFS reform, either as a possible SDG, or as an indicator of progress. The European Union has proposed to link FFS reform and the SDGs to the G20 process.

Aside from a wide range of organisations being strongly in favour of FFS reform, a further indication that fossil fuel subsidies are likely to make it onto the final version of the SDGs is that the UN High Level Panel of Eminent Persons advising UN Secretary General Ban Ki-Moon on the post-2015 development agenda has proposed FFS reform as part of goal 7: Secure Sustainable Energy, in its illustrative goals and targets within the SDG process. However, the High-Level Panel’s proposal relates to the G20 process, and uses the same language: “Phase out inefficient fossil fuel subsidies that encourage wasteful consumption” (UN 2013a). This use of terminology is regrettable, as it is weak and contains inherent loopholes – i.a. Which FFS are inefficient? Which encourage wasteful consumption? The more positive wording proposed by the NGO major groups input to the OWG: “ensure Universal phase out of fossil fuel subsidies by 2020” is more precise and proposes a concrete phase-out of ALL subsidies, thus creating less room for manoeuvre (EEB 2014).

It is not yet certain where the SDGs will be located in the post-2015 development agenda. A wide range of diverse

organisations are proposing fiscal policy goals for the SDGs. This is an extremely crowded field. The involvement of a large number of influential stakeholders – UN institutions and member countries, NGOs, and business – might lead to FFS reform being “crowded out” (Pingeot 2014). FFS reform might not be mainstreamed as an element within an SDG, but included within the overarching sustainable development agenda instead. Although this would also embed subsidy phase-out in the sustainable development framework, it is likely that the SDGs will act as a focus for governments, rather than parallel post-2015 agenda, and non-inclusion entails a risk of drawing attention away from this very important issue.

Finally, the SDGs will be agreed in inter-governmental negotiations in 2015. Just as the Rio+20 outcome document was in many respects a disappointment for those hoping to see real progress and commitment to sustainable development, so the SDGs too may well end in a race to the bottom, and in an agreement on the lowest common denominator.

3.2.3 The SDGs and of opportunities for FFS reform

The MDGs became a framework for concerted efforts to end poverty and replaced a previous unhelpful focus on macro-economic goals. They can be criticised, however, for having reduced sustainable development to a series of goals related to poverty alleviation (Martens 2013). Furthermore, very many of the MDGs will not be achieved by 2015 (UN 2013b).

Whether the SDGs can achieve more remains to be seen. The development of an overarching post-2015 agenda, making sustainable development the responsibility of all, is a positive step forward and puts an end to the current artificial dichotomy between North and South (Martens 2013). Although they will not be legally binding in “hard law” terms, resistance to reform will be more difficult for governments to maintain in the face of an SDG calling for FFS phase-out.

Opportunities for reform will be maximised if a timeline can be agreed for FFS reform. However, the UN High Level Panel has not proposed one, noting instead the extent of possible GHG emissions reductions by 2050 if FFS are phased out (UN 2013). Environmental NGOs have proposed total phase-out by 2020.

If the SDGs are to fulfil their potential as a catalyst for FFS reform, they must represent a real step forward and should not undermine existing commitments to subsidy reform. The Aichi biodiversity targets, for example, state: “By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed”.¹² A strong SDG along these lines, with a concrete timeline, would build on existing commitments within the G20 and elsewhere to reform FFS.

Linking the SDGs to the G20 process makes sense for a number of reasons and has the potential to be a catalyst for more serious reform efforts. The G20 process is already established and has the backing of the world’s most powerful economies. Bringing the two processes together might bring both more into the public eye. The G20 call has global reach, in theory at least, and has been the focus of discussions about a single agreed definition of FFS, the establishment of subsidy inventories, and the development of reform methodologies. The process has access to esteemed international organisations to support subsidy quantification and reform, including the IEA, OECD, World Bank and OPEC.

If FFS reform became an SDG applicable to all countries, it would open up potential for the G20 process to drive reform forward all over the world. It would also bring pressure to bear on G20 member countries, upping the stakes for all parties concerned. Pioneer countries could win international recognition for their efforts to achieve the SDGs, and lead the way for other countries. If the two are brought together, the SDGs and the G20 process might act as a catalyst for change.

If FFS reform is not an element within an SDG, but a part of the broader post-2015 sustainable development agenda, there is a risk that it will receive less attention than has been the case in recent years. Even a weak SDG would create an obvious entry point to put pressure on governments to reform subsidies.

While there is some potential to bring FFS reform into the public eye by linking the SDGs and the G20 process, both processes are non-binding and will be relatively ineffective in bringing about FFS reform without political will – and willingness to take risks, including losing power – on the part of national governments. Unless national govern-

ments are determined to make changes, or are in a position where they cannot do anything else, business as usual will be the end result.

In the light of this, the TTIP offers an important opportunity to introduce more binding commitments to FFS reform to the international stage.

3.3 The Transatlantic Trade and Investment Partnership (TTIP)

3.3.1 What is the Transatlantic Trade and Investment Partnership?

The intention to start negotiating a free trade agreement between the EU and the USA was first stated at the G8 meeting in Northern Ireland in June 2013. On 14 June 2013, the European Parliament and the European Council gave the European Commission a mandate to negotiate the “Transatlantic Trade and Investment Partnership” (TTIP), with the aim of concluding a “Transatlantic Free Trade Agreement” (TAFTA).

Shortly afterwards, negotiations to create a trans-Atlantic free-trade area covering the European Union and the United States of America began (COM 2014). The ambitions of the EU and the US mark the start of a renewed and strengthened “trans-Atlantic alliance” in the world.

Despite the fact TTIP is a complex undertaking covering a wide range of issues relevant in the everyday lives of more than 820 million citizens, the negotiations are moving at a very fast pace. In total, they are expected to last around 2 years. The fourth round took place at the beginning of March 2014, only 8 months after the Commission was given the negotiation mandate. Between mid-April until autumn 2014, negotiations are expected to be suspended, in view of the European elections in May and the subsequent creation of a new European Parliament and European Commission.

The official hope behind this free-trade agreement is to boost the bilateral economic relationship between the USA and the EU, to strengthen growth, and create jobs on both sides of the Atlantic. According to a study commissioned by the European Commission, the partnership will boost the EU’s economy annually by 120 billion EUR, the US econo-

12 The Aichi biodiversity targets are available online at <http://www.cbd.int/sp/targets/> (accessed 18.02.2014).

my by 95 billion EUR and the rest of the world by 100 billion EUR per year (COM (2013); Francois 2013).

An additional objective is to make regulations in the EU and the USA more compatible. According to the European Commission “regulations are laws that protect people from risks to their health, safety, environment and financial security. What the European Union wants to do with TTIP is to find common-sense ways to make regulations set by the EU and the United States more compatible, while keeping people protected” (EC 2013b). However, some critics of the TTIP have voiced their concerns that this will undermine EU environmental and social legislation and lead to a “race to the bottom” (see section 3.3.2 for details).

3.3.2 What is the current state of play?

The European Commission’s official Impact Assessment analysing different scenarios for US-EU trade hopes for beneficial effects also for the environment and states: “Increased economic cooperation between the EU and the US should, in principle, facilitate greater cooperation on climate protection as well as on other environmental issues including biodiversity, natural resources and waste, given that trading does encourage technology transfers” (SWD (2013) 68, p. 47).

However, this greater cooperation is not predicted to result in reduced GHG emissions. On the contrary, the most ambitious TTIP scenario predicts an increase of 11.8 million tonnes of CO₂ emissions: 3.9 million tonnes in the US, 3.6 million tonnes in the EU and 4.3 million tonnes in China due to carbon leakage attributable to its “less environment-friendly product techniques” (SWD 2013). These predictions/modelling results assume a business as usual scenario and not one in which FFS reform is linked to the TTIP negotiations. But what they highlight very strongly is the importance of FFS reform becoming an integral part of the negotiations. If FFS reform remains off the agenda, the TTIP will reverse current emissions trajectories, which have declined slightly since the mid-2000s in both the USA and the EU (Global Carbon Project 2013). If subsidy reform is included, it could offset the TTIP’s adverse impact on climate and the environment.

The Impact Assessment does not reveal any policy ambitions beyond political statements, neither on climate change resulting from CO₂ emissions (SWD 2013), nor on the potential impact of the policy options on biodiversity, natural resources and waste, and the environmental consequences for firms and consumers (SWD 2013).

Thus, in the absence of FFS reform, the TTIP will be a step in the wrong direction. In addition, the US federal government has a poor record on climate change mitigation and is not a signatory to the Kyoto Protocol.

In opposition to Commission claims, sceptical commentators are concerned that the trade agreement will result in a downward harmonisation of environmental and social standards (Monbiot 2013). They argue that if existing public interest policies are deregulated as a result of the TTIP, the development and implementation of new regulations to address pressing environmental challenges in the future will also be hindered. Thus, the mooted comprehensive free-trade agreement could pose a direct threat to the EU’s ability to implement and develop new regulations.

Some also fear that the TTIP will undermine democratic decision-making processes by expanding the role of especially created extrajudicial tribunals, – the “investor-state dispute settlement mechanism”¹³ (ISDS). Such a mechanism would allow EU and US based corporations to bypass national courts and lodge private legal cases directly against governments for passing regulations in the area of public health, environmental or social protection, if they perceive that they harm their interests. In January 2014, the Commission decided to postpone negotiations on an ISDS due to public opposition from Civil Society Organisations and launched a consultation (COM 2014).

In part in response to these criticisms, the European Commission has established an Advisory Group of experts representing consumer interests, labour law, the environment and public health, business, manufacturing, agriculture and services sectors. This consultative group is supposed to help to assess specific challenges regarding their field of expertise in the context of the TTIP negotiations. This group could play a key role in bringing FFS reform on the TTIP agenda.

13 http://trade.ec.europa.eu/doclib/docs/2013/november/tradoc_151916.pdf (accessed 22.01.2014).

3.3.3 The TTIP and windows of opportunities for FFS reform

FFS have the potential to become an integral part of the TTIP negotiations on several different levels, because FFS have the potential to “distort markets and resource allocation and hence trade flows” – particularly in industries with energy as an intermediate input, like cement or aluminium production (IISD 2013).

In principle, it is up to the European Commission and the USA to shape the TTIP negotiations – and, in the case of the Commission, to ensure that the EU’s own climate and energy policies are taken into account (Zeit 2014). The European Commission claims that “[...] agreed rules on trade and investment in raw materials and energy would also contribute to developing and promoting sustainability” (EC 2013a: 2). It is fundamental that the EU’s democratic institutions, Civil Society Organisations (CSOs) and the media put pressure on the Commission to work hard to realise this in practice.

There is nothing to prevent the negotiating parties discussing transatlantic cooperation on sustainable development policies – such as FFS reform, removal of all trade barriers for pioneering green technologies, and a greener economy. Indeed, it might be possible for negotiators to integrate FFS reform within broader green stimulus initiatives, using saved revenues from FFS phase-out for temporary support for renewable energy, energy efficiency infrastructure and eco-innovation.

In spite of this very obvious opportunity to make progress on the EU’s climate and energy policy agenda, subsidy reform appears not to have been on the table during the TTIP negotiations so far – although as they have been relatively opaque, we cannot make this statement with absolute certainty at the time of writing.

Below, we explore the three broad areas covered by the TTIP negotiations and evaluate potential entry points for the reform of FFS.

1) Market access includes issues such as access to public and private markets for goods and services, invest-

ment, grants, etc. For instance, it seeks to align **tariffs**, which are already at low levels¹⁴ (removal of all duties on transatlantic trade in industrial and agricultural products, with a special treatment of the most sensitive products), **services** (open services sectors, including services markets in new sectors, such as in the transport sector), investment (highest levels of liberalisation and **investment** protection), and **procurement** (opening up access to government procurement markets at all levels of government) (COM 2013).

Part of the TTIP negotiations will be focussed on “raw materials and energy, including e.g. non-discrimination, the elimination of import and export duties and other restrictions” that have a similar effect (EC 2013a: 2). The EU has already identified the dual pricing of energy, i.e. subsidised energy sales to industrial users, which penalise foreign buyers and exports, as something that should be prohibited.¹⁵ Dual pricing can be directly linked to FFS reform – e.g. reform of fuel tax exemptions for the agricultural sector in the USA, or development credits for certain transport fuel users (OECD 2013). However, it should be noted that WTO members do not notify FFS as much as they should under the WTO Agreement on Subsidies and Countervailing Measures – which, unless measures were taken to ensure that reporting on FFS would be improved, might also be similar for the TTIP (IISD 2013).

On the other hand, some forms of FFS are directly related to market access – and there is a reporting process for these kinds of subsidies within the EU. This is acknowledged by EU reporting to the G20, where it drew attention to its State Aid Rules as a primary mechanism for subsidy monitoring and control within the single market. These rules “aim to ensure that government interventions do not distort competition and trade inside the EU internal market [...] and ensure that national subsidies to firms are justified by wider socio-economic considerations” (EC 2013e). Perhaps one entry point to negotiations on FFS might be the development of a similar system to the State Aid Scoreboard, including setting up an independent body to scrutinise all government interventions which may potentially impact upon fossil energy prices or distort competition between the EU and US markets.

14 In 2013, tariffs applied by the EU to the United States are on average of 4.8% for agricultural products and 1.5% for non-agricultural products. Those applied by the United States to the EU are 2.1% for agricultural products and 1.1% for non-agricultural products (Fabry/Garbasso/Pardo, 2014, p. 12).

15 For details see http://trade.ec.europa.eu/doclib/docs/2013/july/tradoc_151624.pdf (accessed 05.03.2014).

It is of note that subsidies to renewable energy, energy efficiency and sustainable public procurement may also be considered trade barriers. From a climate and environment perspective, it is important that existing EU policies are protected, by ensuring they receive special treatment within any TTIP agreement – not least because it has been estimated that procurement alone accounts for 31 million jobs in the EU (EC 2013). Indeed, the Harrison Institute for Public Law has proposed that a separate agreement be made to protect efficient, targeted and time-limited renewable energy and energy efficiency subsidies. Examples of similar agreements exist, e.g. in WTO agreements (see Harrison Institute for Public Law 2014).

The European Commission has already proposed to give each party the right to “maintain or establish standards and regulation concerning e.g. energy performance of products, appliances and processes, while working, as far as possible, towards a convergence of domestic EU and US standards or the use of international standards where these exist” to secure the promotion of renewable energy and energy efficiency (EC 2013a: 3).

2) Regulatory Issues and Non-Tariff Barriers

Non-tariff barriers derive from regulation, e.g. technical or safety standards, licensing requirements, custom administration, access to public procurement markets and statutory restrictions on trade.

Some forms of regulation constitute indirect support for FFS, such as deviation from standard rules for preferred industrial sectors, or differing licensing requirements for certain types of business. Thus, here too there may be potential to address the issue of FFS reform and address those regulations in the EU and the USA which favour fossil fuels.

On the other hand, deregulation could also prove damaging to the EU’s climate and energy targets. Deregulation of crude oil or shale gas exports from the USA – which are currently banned to conserve domestic oil reserves and discourage imports – would increase fossil fuel energy imports to the EU and have a downward effect on energy prices. Cheaper fossil energy would incentivise increased fossil fuel use and slow the energy transition in the EU, likely resulting in higher GHG emissions.¹⁶ This is a serious issue, as

industry estimates that crude oil exports could generate upward of 11 billion EUR a year in revenue by 2017 at today’s prices (Clayton 2013).

3) Addressing Shared Global Trade Challenges and Opportunities that go beyond bilateral trade and contribute to the **strengthening of the multilateral trading system** such as **intellectual property rights, trade and sustainable development and other globally relevant challenges and opportunities**: both sides intend to tackle trade-related aspects of customs and trade facilitation, competition and state-owned enterprises, raw materials and energy, small- and medium-sized enterprises and transparency (COM 2013).

It is this part of the TTIP negotiations which appears at first glance to be most closely related to FFS and their reform. Numerous international policy processes have highlighted the fundamental part FFS reform must play during the transition to a sustainable economy. Dangerous climate change cannot be prevented without a broad shift from the current dependence on fossil energies to low-carbon energy sources, e.g. wind and solar energy – and without a mechanism to reduce FFS, TTIP will actually make climate change worse.

To build on existing reform structures, it would of course be possible to link subsidy definition, identification, quantification and phase-out to the G20 process of FFS reform, as has already been suggested for the SDGs, should FFS reform be included in the post-2015 agenda. However, it may be that the creation of a new, binding process between the EU and the USA will be more effective and easier to enforce.

3.4 International processes and their potential: TTIP, SDGs, G20

The TTIP has considerable potential to drive forward the FFS reform agenda because of the binding nature of any future agreements. While the G20 process and the SDGs are voluntary in nature and at best can be imposed by the application of “soft law”, agreements under the TTIP will take the form of a legally binding treaty with an enforcement mechanism, such as trade sanctions. The TTIP thus has the potential to generate a common, binding approach to FFS reform, and one which might show the way for other countries around the globe.

¹⁶ At the time of writing, the political context was rather uncertain as regards fossil fuel imports – and it may be that fossil fuel imports from the USA replace imports from Russia. Currently, the EU is dependent on Russia for about one third of its oil and gas. (<http://www.reuters.com/article/2014/03/26/us-usa-eu-summit-idUSBREA2P0W220140326>)

Another advantage of including FFS reform within TTIP negotiations is that it appears to be in the interest of both sides to strike a deal and make compromises where necessary. One study has predicted that the TTIP will boost the EU's economy annually by 120 billion EUR and the US economy by 95 billion EUR (COM (2013); Francois 2013).

Having examined the three broad focus areas of the negotiations, it seems most likely that limits on FFS are set as part of TTIP's new rules that respond to shared challenges and opportunities. To return to the idea of a model of FFS reform, the reform process might take the form of:¹⁷

1. The EU TTIP Advisory Group, or a joint action from pressure groups and CSOs on both sides of the Atlantic, campaign to bring FFS reform to the negotiating table;
2. Agreement within TTIP negotiations on clear restrictions and prohibition of specific forms of FFS – to avoid complicated and expensive economic analysis to demonstrate, in each individual case, that subsidy programmes are trade distorting;
3. Agreement within TTIP negotiations on a definition of relevant FFS relevant to the TTIP – i.e. focusing on subsidies which act as a barrier to trade due to their market distorting effect – to enable the effective identification and quantification of FFS;

4. Agreement within TTIP negotiations on measures obligatory transparency and reporting requirements, including the imposition of sanctions for failing to provide timely and accurate notifications;

5. Development of nationally coherent and socially acceptable reform policies based on reporting results, ensuring that sufficient flanking measures are introduced to protect low-income groups;

6. Creation of an independent body to assess progress and legal questions – possibly along the lines of the EU's State Aid mechanism.

If the TTIP is to act as a true catalyst of FFS reform and reverse current predictions – that the agreement will increase GHG emissions in both the USA and the EU, the globe's second and third largest emitters – then it is fundamental that negotiations become more transparent and that sufficient political support can be found for the inclusion of FFS reform within the negotiations.

There are more and more trade agreements out there than ever before. What a difference it would make, if the TTIP could be an international trade agreement working in favour of climate and environment – and what a precedent it would set! The only thing that is needed is political will, on both sides of the Atlantic.

4 Comparing fossil fuel subsidies (FFS) in the EU and the United States – Definitions, Methodology and developing an inventory of fossil fuel subsidies

This section of the report analyses empirical challenges and opportunities for eliminating FFS on both sides of the Atlantic, with a view to identifying possible bargaining chips in the TTIP negotiations.

A fundamental challenge of comparing fossil fuel subsidies in the United States and the EU – and between different jurisdictions in general – is that this exercise depends decisively upon the question of what kind of financial transfer for fossil fuels is perceived as a subsidy, what kind of methodology is used to measure and interpret the data and most essentially, which kind of data are available (IEA/OPEC/OECD/World Bank 2010).

While the IMF, the OECD and the World Bank recognise the substantial market distorting effects of FFS there is no agreed definition and no uniform way of measuring fossil fuel subsidies up to this day. As a result, some research reports include only budgetary relevant transfers to fossil fuel producers and consumers, while others employ a far wider definition and include e.g. non-internalised external costs.

We have divided this section of the report into two parts: First we explain common definitions and estimation techniques for FFS used by the International Energy Agency (IEA), the Organisation for Economic Co-operation and Development (OECD) and the International Monetary Fund

¹⁷ For more details of some aspects of this proposal, see Harrison Institute for Public Law, 2014.

(IMF). Then, we critically compare the FFS estimations of these three organizations in order to give the reader an understanding of both the magnitude and importance of FFS.

4.1 Definition and Methodology

Given the variety of support schemes for fossil fuel subsidies, it is clear that the definition and methodology of how fossil fuel subsidies are identified and measured is crucial to understand the variety of results that are led by and lead to political decisions. The following section therefore explains how governments, international organizations and researchers commonly identify and estimate fossil fuel subsidies. The challenges identified and conclusions drawn in each of the subsections are essential for the correct interpretation of data, since it is far from obvious what defines a subsidy to fossil fuels and how it should be measured.

4.2 Identifying and defining fossil fuel subsidies

Starting with the narrowest definition, fossil fuel subsidies are generally understood as direct government transfers, which carry a benefit to a particular industry. Government accounts of national subsidy programmes often use this narrow subsidy definition of budget relevant transfers, such as the German Federal Government, which defines a subsidy as “financial assistance, particularly federal funding for adaptation-, conservation- and productivity assistance to private businesses and industries” (Bundesregierung 2013).

While this definition has the benefit of simplicity and clarity it lacks conceptual strength. For instance, from the point of industry it is not essential whether a transfer is paid directly or whether transfer payments, that are usually made to the state, such as taxes or fees, are reduced or waived entirely. Therefore, a more inclusive definition is given by the World Trade Organization (WTO), which in Article 1 of its Agreement on Subsidies and Countervailing Measures (ASCM) defines a subsidy as involving “a financial contribution by a government or any public body within the territory of a Member [...] or price support [...] that confers a benefit”. This definition covers a range of financial contributions including (a) direct transfers of funds (e.g. grants, loans, and equity infusion), potential direct

transfers of funds or liabilities (e.g. loan guarantees); (b) the foregoing or non-collection of government revenue that would otherwise be due (e.g. fiscal incentives such as tax credits); and (c) goods or services (other than general infrastructure) provided by a government in kind, or goods purchased from companies in a way that confers a benefit to that company (e.g. by paying above market prices) (IEA/OPEC/OECD/World Bank 2010). The WTO (1994) definition, however, excludes market price support schemes and payments for general infrastructure (IEA/OPEC/OECD/World Bank 2010).

The IEA, the OECD,¹⁸ and the EU define an energy subsidy as “any government action that lowers the cost of energy production, raises the price received by energy producers, or lowers the price paid by energy consumers” (IEA 2011; OECD 2006). Essentially, this definition includes both direct budgetary expenditures and tax expenditures that in some way provide a benefit or preference for fossil fuel production or consumption relative to alternatives. Additionally, this encompassing definition includes measures, which could change the relative prices of fossil fuels leading to market transfers between different consumer and producer groups (OECD 2013).

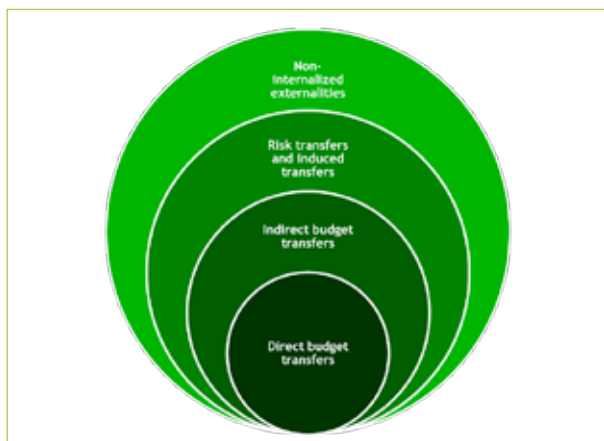
The IEA definition above, however, refers to “any government action” (leaving out government inaction) and therefore does not include implicit subsidies resulting from non-internalisation of externalities or a lack of full cost pricing (IEEP 2009). This is problematic, however, since there is no a-priori reason to exclude non-internalized societal costs.¹⁹ If subsidies are viewed as a benefit given by governments on behalf of society as a whole, then all economic and societal costs are relevant. This would lead to a very broad definition of subsidies as “transfers that distort the allocation of economic resources” (IEA/OPEC/OECD/World Bank 2010). Using such an inclusive definition, Koplow (2004) defines subsidies as “government-provided goods or services that would otherwise have to be purchased in the market or special exemptions from standard required payments or regulations; subsidies may be in cash but often involve shifting risks from private parties to taxpayers or the public.” While estimating the subsidy value of externalities is often prohibitively complex, one should bear in mind that the inclusion of externalities is conceptually sound. For instance, an

18 Given the wide scope of this definition, the OECD deliberately and carefully speaks of “support” rather than of “subsidies”.

19 The failure to internalise the marginal societal cost of transport modes (mainly road and air transport) as well as the failure to include the full cost of water provision through water and water services pricing is commonly considered to be a subsidy (OECD 2005).

exclusion of liability for damages caused by pollution and climate change can be reasonably considered as much a subsidy as being exempted from paying fees for rubbish-collection. *Figure 1* illustrates the rough scope of policies included in the various definitions for fossil fuel subsidies.

Figure 1: Scope of Fossil Fuel Subsidy Definitions



Source: Own figure based on (IEA/OPEC/OECD/World Bank 2010)

Fossil fuel subsidies are often not only identified by the type of policy action, to which they refer but also by their incidence. This means that a distinction is made between subsidies that are formally targeted at consumers and producers.

Consumer subsidies occur when a policy reduces the prices paid by consumers below a benchmark price, while producer subsidies exist when government action lowers the cost of energy production or raises the price received by suppliers beyond a benchmark. A producer subsidy encourages suppliers to increase the output of a particular product by partially offsetting the production costs or losses sometimes without an immediate effect on final prices, which makes *them much more difficult to assess* (IMF 2013; ODI 2013). *Figure 2* gives some examples of FFS within each definition, divided into producer and consumer subsidies.

While the theoretical definitions of fossil fuel subsidies used by the IEA, the OECD and the IMF are rather inclusive, the empirical measurement strategies used by these organizations often ignore subsidies which should be in-

Figure 2: Policy examples for FFS within the various definitions²⁰

	Producer Subsidy	Consumer Subsidy
No full-cost pricing	<ul style="list-style-type: none"> Health damages due to production of FF Landscape destruction in the production process 	<ul style="list-style-type: none"> Greenhouse gas emissions Noise and air pollution Accidents Congestion Road damage
Induced market transfers	<ul style="list-style-type: none"> Tariff- and market protection Credit controls Deviation from standard rules Regulatory support mechanisms 	<ul style="list-style-type: none"> Regulated prices Cross subsidies
Transfer of risk to gvt.	<ul style="list-style-type: none"> Credit guarantees Liability limits on producers 	<ul style="list-style-type: none"> Price triggered subsidies Cold weather grants
Other gvt. revenue forgone	<ul style="list-style-type: none"> Underpricing of access Underpricing of goods, services and general infrastructure 	<ul style="list-style-type: none"> Underpricing of access to a resource harvested by final consumers
Tax revenue forgone	<ul style="list-style-type: none"> Tax credits for: production, income, R&D, property etc. Higher depreciation allowances 	<ul style="list-style-type: none"> VAT / excise concession on fuel Income based deductions
Direct transfer of gvt. funds	<ul style="list-style-type: none"> R&D grants Input price subsidies Capital grants Provision of goods, services and special infrastructure 	<ul style="list-style-type: none"> Unit subsidy Consumption grants

Source: Own figure based on (IEA/OPEC/OECD/World Bank 2010)

²⁰ *Figure 2* provides examples of FFS in the various categories; however it should not be interpreted as an exhaustive account of all possible subsidies.

cluded on a conceptual level. This becomes most clear with the IEA, which defines FFS broadly as including the interior three levels of Figure 1 and explicitly includes policies that “increase the price received by energy producers”. This would include tariff- and market protection for local energy producers (see Figure 2). However, due to their estimation technique, such a policy would not be included in the IEA’s subsidy quantification (see estimation section for explanation). Moreover the OECD lists many FFS it is unable to estimate due to a lack of data. For example, the excise tax exemption on fuel consumed by the ministry of defence in France was identified as a FFS, but could not be quantified due to a lack of data.

It is very important to understand that there is a clear distinction between the theoretical definition of a subsidy and its practical estimation: While it is conceptually reasonable to define subsidies broadly, as is done by most organizations, it is often practically impossible to find satisfying measurements that are capable of estimating the true costs of all subsidizing policies. Most researchers therefore ask their readers to interpret their estimations as “lower bounds” to the true costs generated by subsidies (Koplow 2004; Koplow 2009a). Accordingly, it is crucial to understand not only the different definitions but also the various estimation approaches used by these organizations when assessing US and the EU fossil fuel subsidies.

4.3 Estimating and measuring fossil fuel subsidies

There have been numerous attempts to quantify fossil fuel subsidies (IMF 2013; OECD 2013; FÖS 2012; GSI/IISD 2011; IEA 2011; Federal Environmental Agency 2010; WTO 1992). However, given the different definitions and estimation strategies mentioned above, results often diverge dramatically.

Efforts to quantify subsidies generally focus either on measuring the value transferred to market participants from particular policy programs (programme-specific approach) or on measuring the difference between the observed price and an idealized benchmark price for fossil fuels (price gap approach).

This leads to the case that according to the IEA’s estimate, the United States does not subsidize petroleum, while according to the OECD, petroleum support to producers and consumers amounted to 10.2 billion EUR in 2011. The IMF’s post-tax subsidy petroleum estimate for the United States comes to 184 billion EUR in 2011. While it is normal that data on FFS are incomplete, these differences are not the result of diverging data and sources but can be explained by the differences in estimation techniques.

4.3.1 The programme-specific approach

Programme-specific transfer assessments capture the value of government programmes benefiting (or taxing) a particular sector, whether these benefits end up with consumers (as lower prices), producers (through higher revenues), or resource owners (through higher rents). Unless integrated into a macroeconomic model, this information tells little about the ultimate incidence of the subsidy programmes and their effect on market prices (Koplow 2004). The programme-specific approach is usually used to estimate the costs of specific policies, such as tax breaks for fuels used in agriculture.

The benefit of this approach is that it creates a list of government programmes and their associated costs within a country, which can serve as a basis for policy evaluation. Additionally it can capture transfers that do not affect end market prices, such as transfer payments to small fossil fuel producers. The downside is that it is often difficult if not impossible to obtain programme level data, which means that outcomes often depend on the availability of data and it is not straightforward to decide which programmes should be included. The programme-specific approach is furthermore not helpful for inter-country comparisons, since the calculations often take country taxes and legislation as a benchmark.²¹

21 For instance, if country A has an excise tax on diesel of 50 ct/litre and a reduced rate of 25 ct/litre for agricultural purposes, one would calculate the subsidy cost of the reduced-rate subsidy to agriculture as $\text{subsidy} = [(50 \text{ ct/litre} - 25 \text{ ct/litre}) * \text{amount of litres used in agriculture}]$. However, assuming that country B had a comparatively low excise rate of 5 ct/litre without any exceptions, this country would end up to have no subsidies since $\text{subsidy} = [(5 \text{ ct/litre} - 5 \text{ ct/litre}) * \text{amount of litres used in agriculture}]$. In this case it makes sense to speak of a fossil fuel subsidy within country A, however, it is not sensible to say that when comparing country A to country B, country A is subsidizing FFS while country B is not.

The programme-specific approach is used by the OECD, because it permits the capture of producer subsidies and can serve as a basis for policy recommendations.

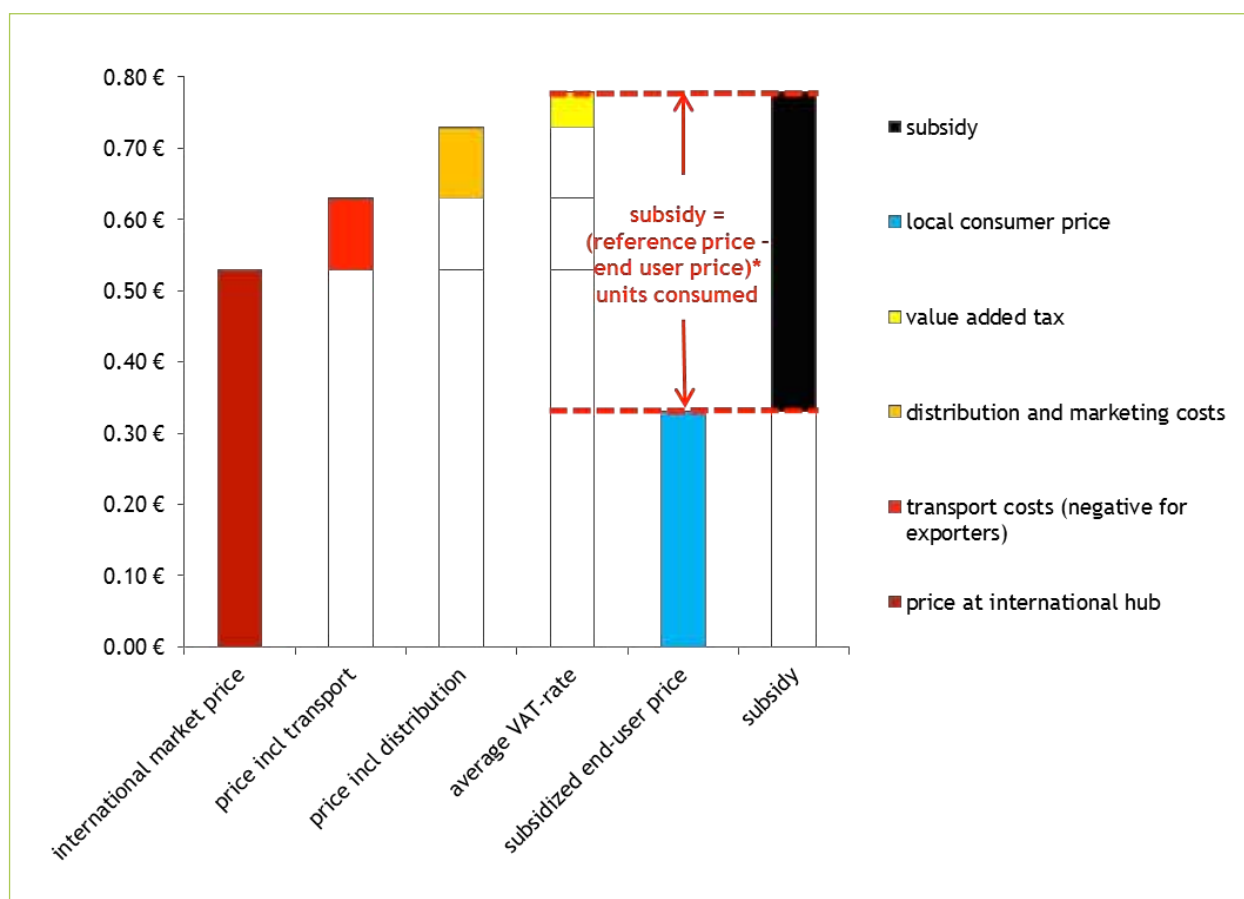
4.3.2 The (simple) price gap approach

The price gap approach measures the difference between an observed end-user price for fossil fuel consumers in the economy and a hypothetical reference price that would occur without government intervention. Final results are sensitive to the way in which end-user- and especially reference prices are calculated.

$$\text{Subsidy} = (\text{Reference price} - \text{End-user price}) \times \text{Units consumed}$$

We distinguish between a “simple” and a “complex” price gap approach, as the former takes real international commodity prices for fossil fuels as the reference price, while the “complex” approach takes hypothetical, idealized prices (including an allowance for optimal taxation) as the reference price. The IEA uses the simple approach: it takes international commodity prices adjusted for transport, distribution & marketing costs and average VAT²² as a reference price against which local end-user prices are compared. *Figure 3* shows, how subsidies are calculated using the simple price gap approach.

Figure 3: simple price gap approach (for a net FFS importer)* used by the IEA



* The values in this example are hypothetical; however they can be interpreted as measuring the value of a consumer subsidy for gasoline.

Source : Own figure based on a stylized example for illustrative purposes

22 VAT is added to the reference price where the tax is levied on final energy sales, as a proxy for the tax on economic activities levied across an economy.

When looking at *Figure 3* it should become clear that the simple price gap approach only captures subsidies when local prices (including taxes) are below adjusted international market prices (including costs for transport, distribution and average VAT). Given that in the US and the EU local prices tend to be higher than this benchmark, the simple price gap approach fails to deliver useful results, which is why it is used by the IEA only to calculate consumption subsidies (IEA 2014).

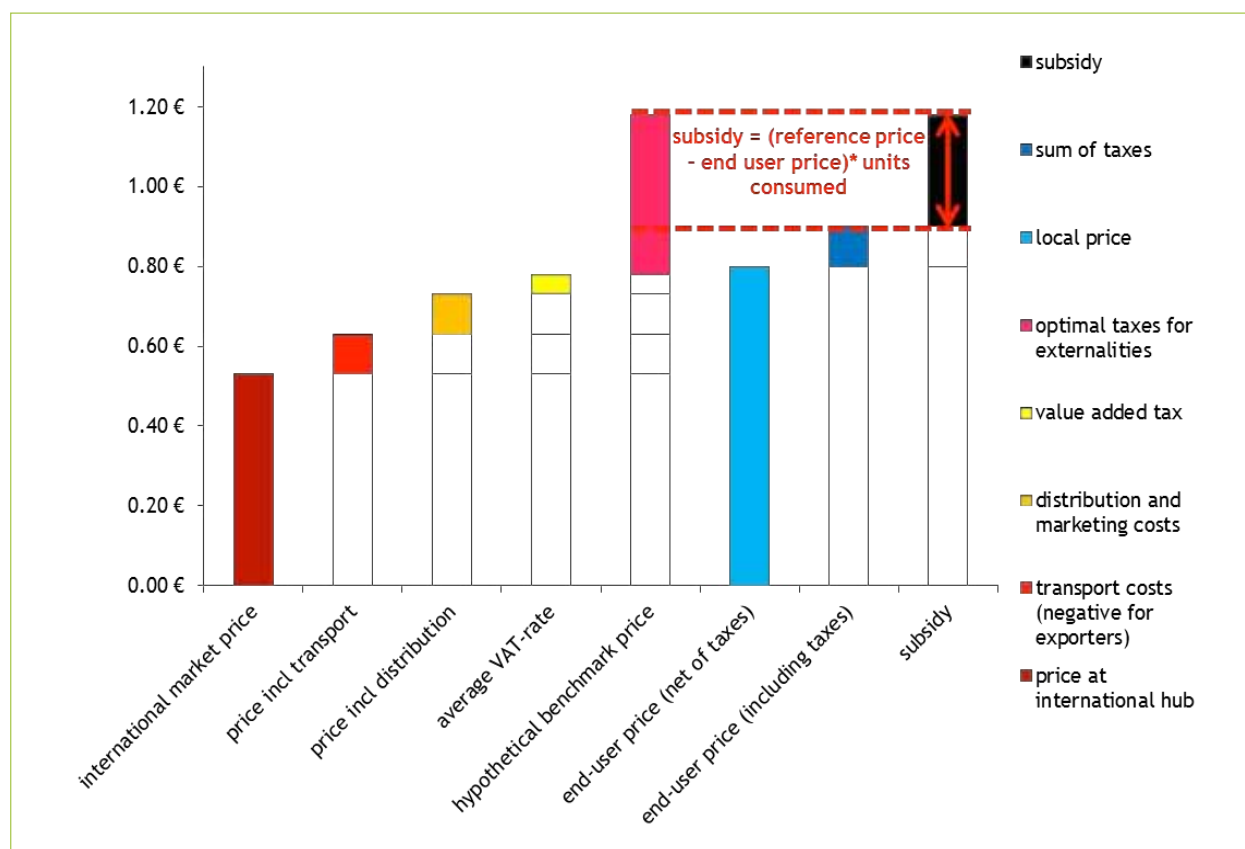
By definition, the price gap approach ignores government policies that support industries or people without affecting final consumer prices. For instance, government support to unprofitable mining firms, which are too small to affect final consumer prices, would not be captured by the simple price gap approach, while they are considered a subsidy under every definition. The simple price gap approach is therefore useful to capture consumer subsidies

and to make country comparisons, while the fact that it leaves out a large amount of (especially producer) subsidies means that its results should be interpreted as an absolute lower bound (Koplow 2009b).

4.3.3 The (complex) price gap approach

The “complex” price gap approach only differs from the “simple” approach in that it uses a reference price, which includes an allowance for hypothetical optimal taxes encompassing, in theory, all relevant externalities. This is theoretically sound, as there is no conceptual reason to exclude societal costs, which due to government programmes or government inaction, are not attributed to its source (i.e. fossil fuel production or consumption). However, practically it is not clear which externalities should be included and it is even more difficult to measure the societal costs and therefore the respective optimal taxation allowance for a unit of consumption (FÖS 2012).

Figure 4: Complex price gap approach (for a net FFS importer)* used by the IMF



* The values in this example are hypothetical, however they can be interpreted as measuring the value of a post-tax subsidy for gasoline.

Source: Own figure based on a stylized example for illustrative purposes

Taking on this challenging endeavour, the International Monetary Fund has led the way and created its so-called post-tax subsidy estimate which includes an allowance for efficient taxation reflecting both revenue needs and a correction for negative consumption externalities. The allowance takes account for the effects of fossil fuel consumption on global warming; on public health through the adverse effects on local pollution; on traffic congestion and accidents; and on road damage (IMF 2013). *Figure 4* shows how the complex price gap approach captures subsidies.

Figure 4 it makes clear how the complex price gap approach can deliver subsidy estimates for countries even when their final consumer prices lie above adjusted international market prices. The two price gap approaches deliver different results for cases in which the local taxes on fossil fuels are not high enough to cover the assumed optimal taxation allowance and therefore push the end-user price above the post-tax reference price.

The complex price gap approach is useful as it allows us, at least in theory, to make meaningful comparisons between countries and could be used to evaluate and criticise countries for deviating from an ideal benchmark price. In practice, however, it is not yet possible to calculate a consistent benchmark price. However, if countries were to agree on an optimal taxation allowance, including for example CO₂ costs of 80 EUR/tonne, it would be possible to make consistent comparisons of FFS for different fuels.

4.4 Fossil Fuel Subsidies in the EU and the US – comparing apples, pears and puppies

The following results are based on studies by the IEA, the OECD and the IMF, which have contributed the most comprehensive data and analysis to the discussion. However, it should be noted that while the OECD research was not designed for cross country comparisons and is often troubled by a lack of available data, the IEA and IMF approaches ignore a large amount of FFS by design. All three organizations are aware of their shortcomings and mention the limitation of their results explicitly and frequently in their publications (IEA 2014; IMF 2013; OECD 2013).

4.4.1 International Energy Agency (IEA): results based on the simple price gap approach

The IEA estimates FFS on an annual basis and publishes its results in the World Energy Outlook. Theoretically, data for almost all countries are available. However, the simple price gap approach as it is used by the IEA only incorporates subsidies which reduce the consumer price below the supply price, which entails the costs for extraction & production, transport, distribution & marketing and average VAT. As end-consumer prices in the European Union and the United States are always above these supply costs, the IEA does not attribute any fossil fuel subsidies to those regions. Data for FFS measured with the price gap approach are therefore only available for a small number of countries.

4.4.2 Organisation for Economic Co-operation and Development (OECD): results based on the programme-specific approach

OECD data is available for the 34 member states only, which does not include several Member States of the European Union, and which limits the range of countries included, compared for example with the IMF data. OECD data is supplemented by a study by the IVM Institute for Environmental Studies, which calculated support for six EU-, non-OECD members using the same methodology (IVM 2013). Therefore, data originating from this approach are available for the US and all EU-states except for Croatia, which only became a member in July 2013.²³

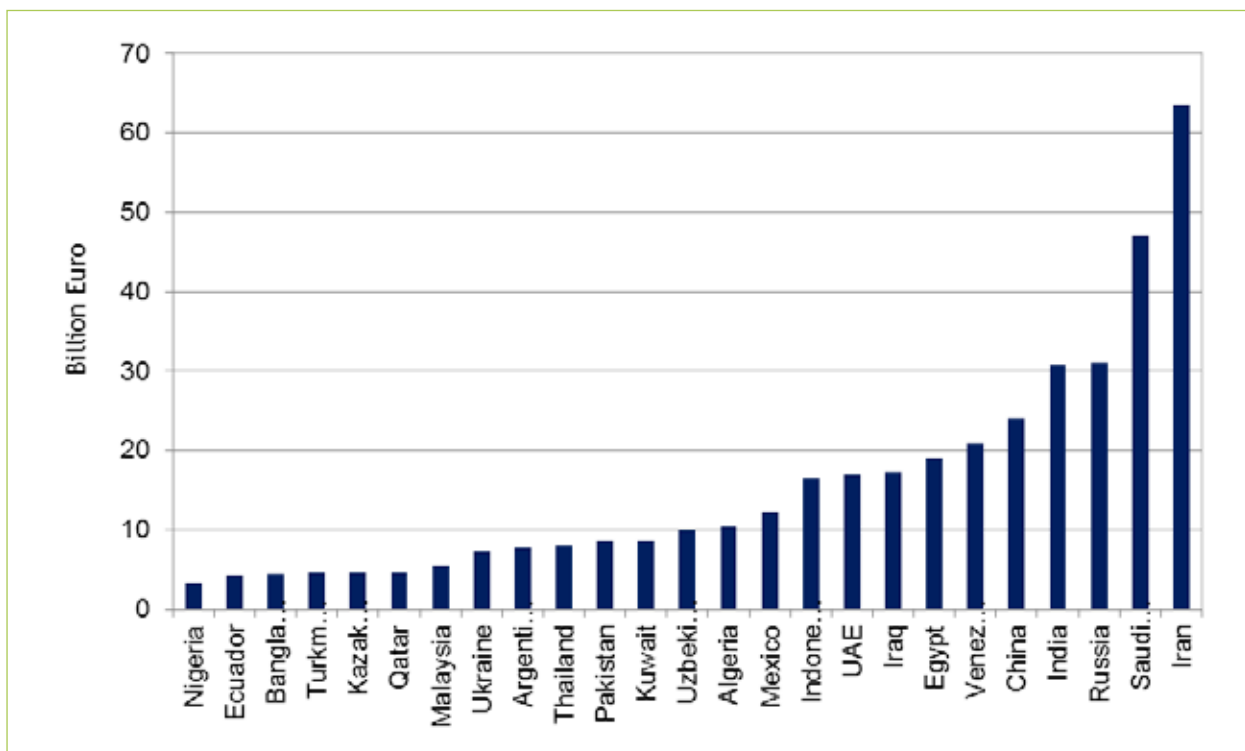
According to the OECD's most recent publication, the United States and the European Union (except Croatia) supported fossil fuels with a total of 37.3 billion EUR in 2011. Of this total, subsidies in the European Union (27.1 billion EUR) appear to be much higher than in the US (10.2 billion EUR) (see *Figure 6*). Regarding the figures for the United States, however, a limitation has to be mentioned. As a federal country, estimations of policy programmes need to take into account both the national and the sub-national level.²⁴ For the US, OECD data only includes ten states,²⁵ leaving out fossil fuel subsidies in the other 40 states. The US results are therefore likely to be vastly underestimated.

²³ OECD and IMF data are available for the year 2011, which is why we use this year as a reference point for estimating FFS.

²⁴ In Germany for instance, some coal mining regions run support programs for mining activities within their territory (Länder).

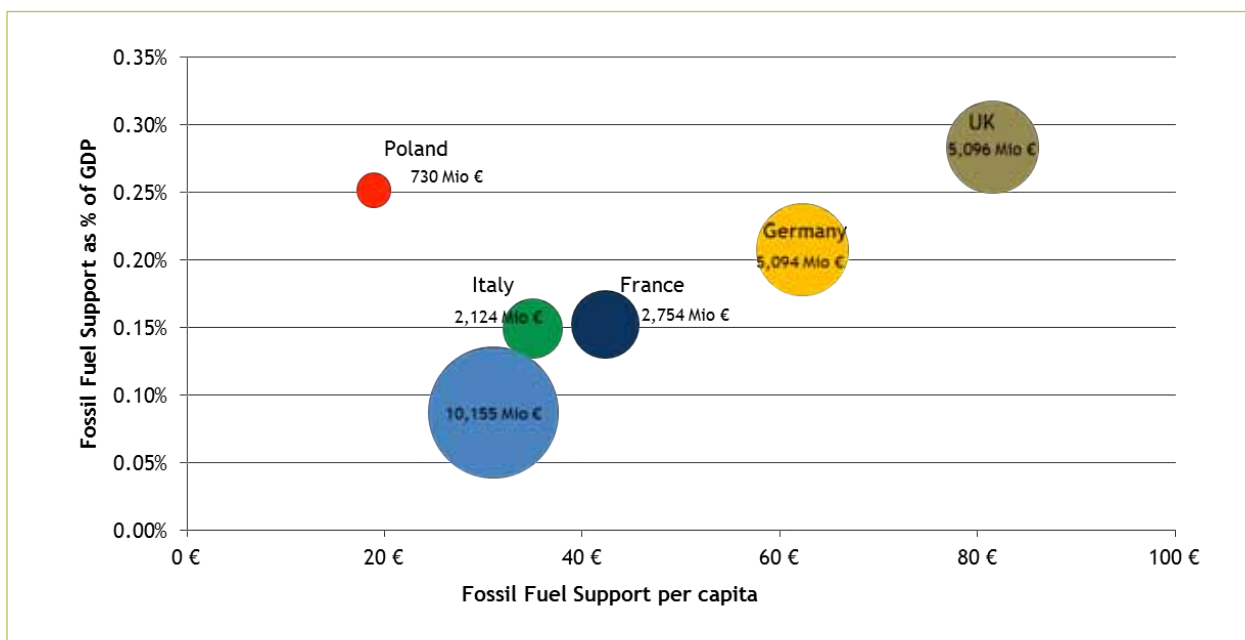
²⁵ The sample comprises the following states: Alaska, California, Colorado, Kentucky, Louisiana, Oklahoma, Pennsylvania, Texas, West Virginia and Wyoming.

Figure 5: Fossil Fuel Consumption Subsidies in Top 25 Countries, 2011 – the IEA price gap approach



Source: Own Figure based on data from IEA (2011), and from IEA, Fossil Fuel Subsidy Database, at www.iea.org/subsidy/index.html

Figure 6: 2013 Fossil Fuel Support as measured by the OECD’s programme-specific approach



Source: Own figure and calculations based on data from IVM (2013), and OECD (2013)

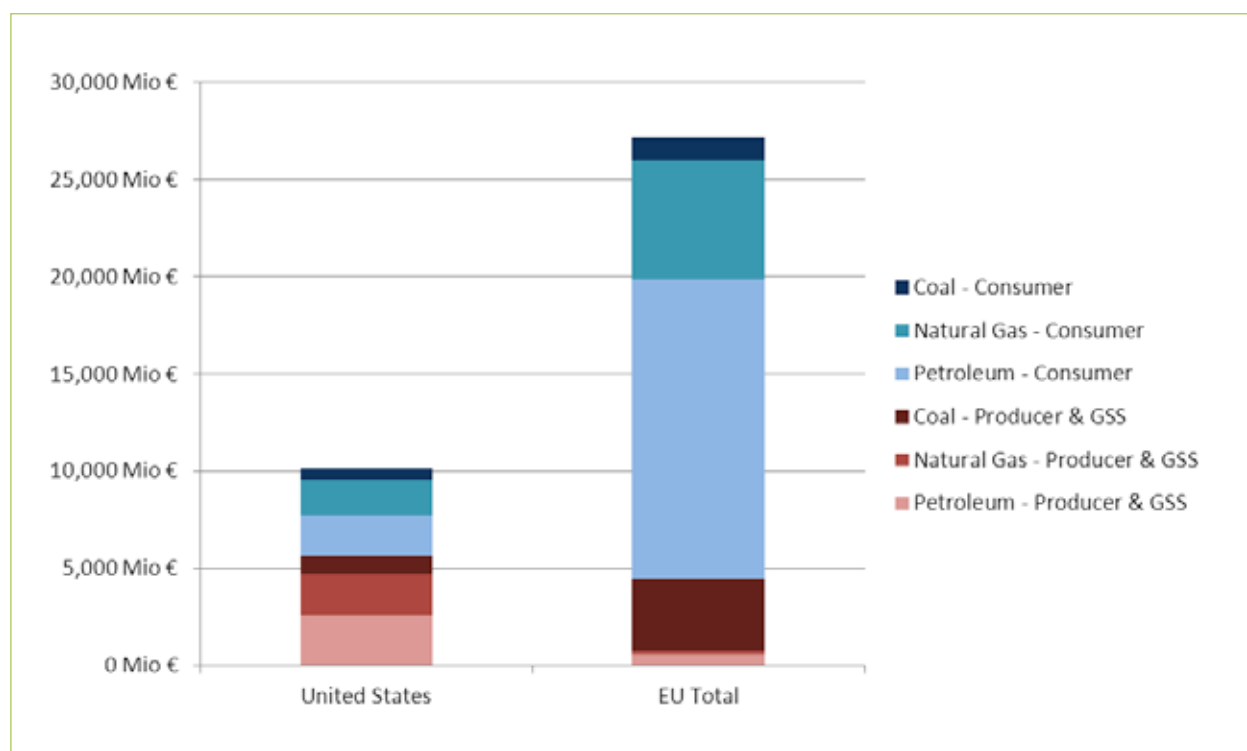
According to the OECD, the UK leads the EU in fossil fuel subsidies, which can be mostly attributed to a reduced VAT rate for domestic electricity and gas, which is estimated to cost around 4.7 billion EUR in 2011. 88% of this subsidy can be attributed to the consumption of natural gas. At 10.1 billion EUR the US²⁶ has the highest absolute subsidies within the OECD, while the most expensive subsidy programme is the “*Low-Income Home Energy Assistance Program*” costing 1.5 billion in 2011. Germany stands out with the highest subsidies to coal production, which came to 2.3 billion EUR in 2011.

Within the European Union, 79 % of fossil fuel subsidies are related to the consumption of petroleum and natural

gas (see *Figure 7*). Here, data entails mainly programmes for reduced tax rates for specific groups of consumers such as industrial firms or low-income households. Additionally, coal production is heavily subsidized, with a total of 3.7 billion EUR (14 % of total FFS) in 2011 (OECD 2013).

In the United States, the picture is much more balanced. The share of producer subsidies is 5.7 billion EUR and thereby much higher than the one in Europe and bigger than the one of consumer support, both being about 4.5 billion EUR (OECD 2013). Considering the fact that 40 US states are missing from the data, one can be sure that real US figures are much higher than this estimate.

Figure 7: Fossil Fuel support in the US and the EU in 2011 as measured by the OECD



Source: Own figure based on OECD (2013)

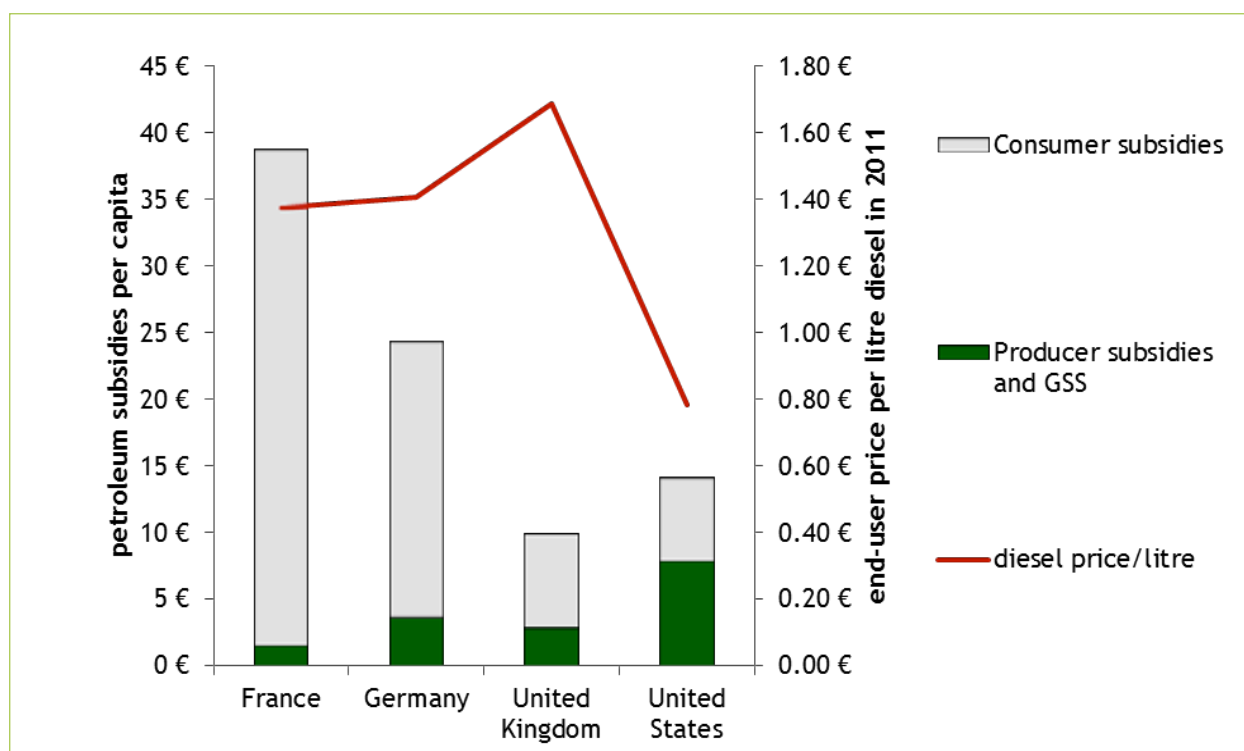
26 Different studies such as the Green Scissors report (Friends of the Earth u. a. 2012) estimate that FFS subsidies will have potential costs to the US tax payer of 122,4 billion EUR from 2013-2022 i.e. 12,4 billion EUR a year.

As the OECD approach is based on the calculation of specific government programs that support fossil fuels, results depend to a great extent on the question which measures are identified as a subsidy and which ones are reported. This means that the most transparent member states can have higher figures than those who do not report all policies. Country experts assessing support programs can equally have problems defining which measure has to be included and which does not. Thus, there is a lack of cross-country comparability in OECD results, as shown in *figure 8*. OECD data for France attributes 1 billion EUR per year for a reduced fuel tax rate for fuel oil used as diesel oil as a FFS. At the same time, however, France's reduced-rate on diesel is still much higher than the tax rate in the US,

which is reported to have much lower subsidies per capita (OECD 2013). Furthermore, the OECD does not include reduced tax rates for diesel compared to gasoline into their estimations for Germany, a measure to which other institutions attribute annual foregone government revenues of 6.6 billion EUR (FÖS 2011).

Tax-expenditure accounting was not designed for international comparability. For this reason, cross-country comparisons of tax expenditures need to be interpreted with caution. Additionally, it is often not possible to attribute concrete costs to each and every policy, which is why data is often incomplete.

Figure 8: Fossil Fuel Support 2011 as measured by the OECD and final consumer prices for gasoline



Source: Own figure based on OECD (2013) and IEA (2013)

4.4.3 International Monetary Fund (IMF): results based on the complex price gap approach

IMF estimates cover a total of 176 countries in both the developed and the developing world. Data are available for 2011 only so far. IMF data entail a pre- and a post-tax subsidy component.

The IMF's pre-tax estimations²⁷ are comparable with the simple price gap approach used by the IEA.²⁸ Pre-tax subsidies only exist in a few European states and are mostly related to coal or petroleum. In the United States, all types of fossil fuel benefit from pre-tax subsidies: petroleum with 8.2 billion EUR, natural gas with 2.1 billion EUR and coal with 0.5 billion EUR (IMF 2013).

The IMF's post-tax estimations²⁹ differ significantly, because a different reference price is used. The post-tax reference price includes the VAT rate as well as an allowance for optimal taxation, including the costs of negative externalities. Hence, post-tax estimates are much higher. For instance, the United Kingdom has pre-tax subsidies of 347 Million EUR, but post-tax estimations amount to 11.4 billion EUR. The IMF estimates that globally, fossil fuel subsidies accounted for 1.47 trillion EUR in 2011. Roughly 40 % of FFS can be attributed to what the IMF refers to as "advanced economies" and about 30 % to oil-exporting countries (IMF 2013).

Like the price gap approach used by the IEA, IMF data do not take into account producer subsidies that do not directly influence the price. Therefore, OECD data for producer support is used in some cases to complete the estimations.

In general, post-tax subsidy estimations from the IMF are much higher than those from the OECD, because they include an allowance for optimal taxation in their reference price. Therefore, the IMF calculates that fossil fuel support is much higher in the United States (317.6 billion EUR) than in the whole of the European Union (86.9 billion EUR, including Croatia). By introducing a benchmark which is comparable across countries, the IMF estimations take into account that the general tax level on fossil fuels is much lower in the US than in Europe. To put this into perspective, the US FFS costs of 317.6 Billion EUR in 2011 cost the economy a little more than the country's entire Medicaid³⁰ spending in the same year (315.3 billion EUR). The EU countries' spending on FFS of 86.9 billion EUR comes to 69 % of total European Union expenditures (125.5 billion EUR) in 2011 (European Commission 2012). *Figure 9* shows the IMF post-tax estimates for a set of countries in absolute numbers as well as in relation to their respective GDP and their population. Given low taxation on FF, the US has the highest absolute spending as well as the highest spending per capita and share of GDP.

Compared with the programme-specific approach, data do not only differ in absolute figures, but also with respect to the shares of support for specific types of fossil fuels (see *Figure 10*). Given the comparatively low petroleum prices in the US, petroleum subsidies account for the lion's share of US annual subsidies and are estimated at 184 billion EUR, while subsidies to natural gas and coal amount to 42 billion EUR and 91 billion EUR³¹ respectively. With high end-user petroleum prices in the EU, subsidies only amount to 4.5 billion EUR with the larger shares going to gas (32 billion EUR) and coal (50 billion EUR).

27 Pre-tax subsidy = $\text{price}_{\text{supply}} - \text{end-user-price}_{\text{consumer}}$

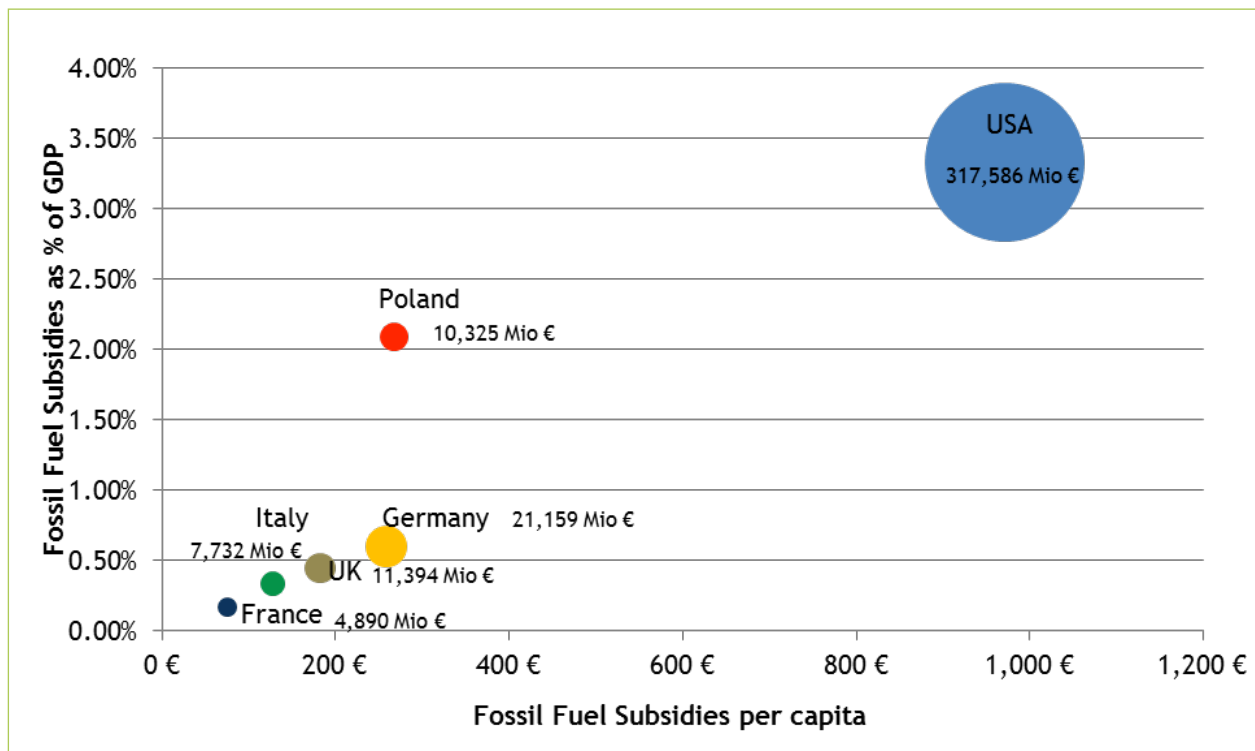
28 The IMF measures the difference between supply costs (including import, transport and distribution) and consumer prices before taxes, while the IEA includes an average VAT rate in its reference price.

29 Post-tax subsidy = $(\text{price}_{\text{supply}} + t^*) - \text{end-user-price}_{\text{consumer}}$; where t^* is an allowance for optimal taxation.

30 Medicaid is the US health care programme for the poor; data was taken from CMS.gov (2014).

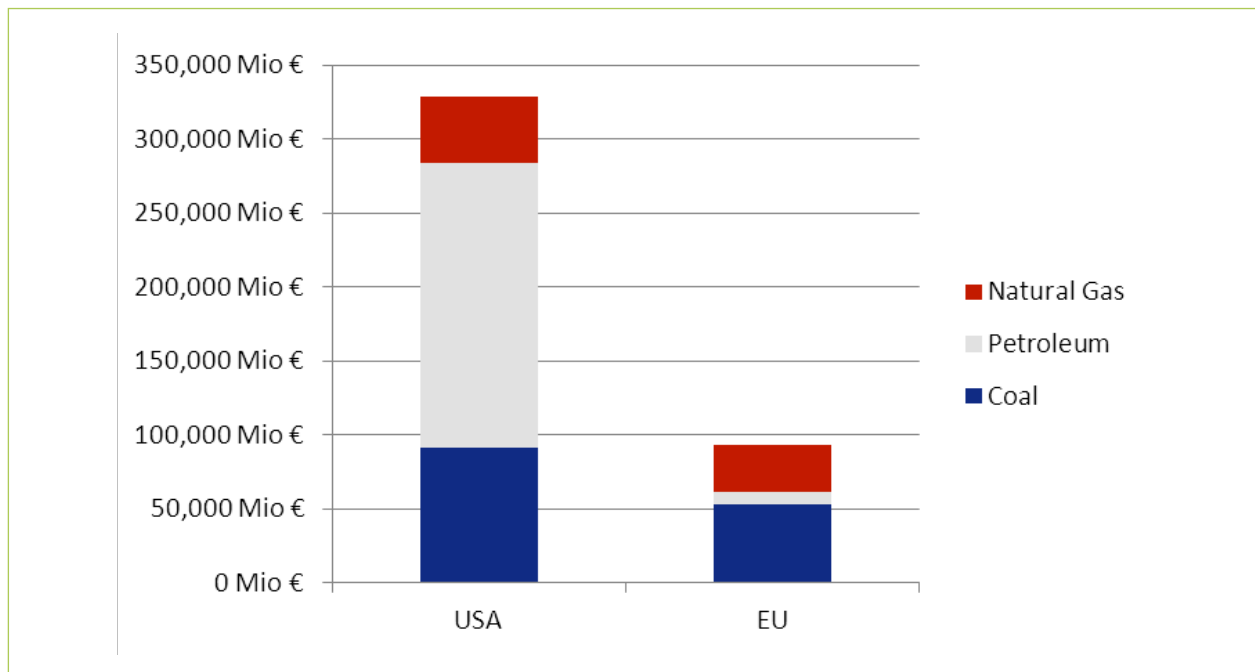
31 While this estimate seems high in comparison to OECD data, Epstein (2011) estimates that merely the external costs of coal production and consumption in the US sum up to 251,2 billion EUR in 2008.

Figure 9: Fossil Fuel Subsidies 2011 as measured by the IMF's³² complex price gap approach



Source: Own figure based on IMF 2013

Figure 10: Post-tax fossil fuel subsidies in the US and the EU by fuel type, 2011, IMF approach



Source: Own figure based on IMF 2013

32 The countries presented here had the highest overall subsidies in the sample (the EU and the United States), except for Belgium who ranked before France but was excluded for reasons of simplicity.

Figure 11: Comparison of IEA, OECD and IMF methodology and results

	IEA	OECD		IMF	
		Producer & GSS	Consumer	Pretax	Posttax
Estimation technique	simple price gap	programme-specific	programme-specific	simple (adjusted) price gap	complex price gap
Petroleum EU	-	593 Mio €	15,348 Mio €	3,267 Mio €	4,502 Mio €
Petroleum USA	-	2,597 Mio €	2,051 Mio €	8,201 Mio €	183,950 Mio €
Natural Gas EU	-	186 Mio €	6,139 Mio €	194 Mio €	32,098 Mio €
Natural Gas USA	-	2,116 Mio €	1,849 Mio €	2,108 Mio €	42,325 Mio €
Coal EU	-	3,717 Mio €	1,158 Mio €	3,083 Mio €	50,321 Mio €
Coal USA	-	957 Mio €	585 Mio €	489 Mio €	91,311 Mio €
Total EU	-	4,497 Mio €	22,645 Mio €	6,544 Mio €	86,921 Mio €
Total USA	-	5,669 Mio €	4,486 Mio €	10,797 Mio €	317,586 Mio €

Source: Own figure based on IMF (2013), OECD (2013) and IEA (2011)

4.4.4 Summary and recommendations

Figure 11 gives a quick overview over the methodology and results used by the examined studies. All values were converted into Euros using the exchange rate on Dec 31, 2011.

This brief overview of fossil fuel subsidies in the EU and the US gives us two crucial takeaway messages:

Meaningful comparisons of FFS require unified definitions and measurement techniques

The fact that according to (incomplete) OECD data, FFS are more than twice as high in the EU than in the US, while according to IMF results they are three times higher in the US than in the EU shows that before discussing FFS reductions, one needs to agree on unified definitions and measurements. Given that the IMF has the most inclusive approach, we recommend that cross country comparisons should generally be based on the complex price gap approach. This approach should include an agreed upon optimal taxation allowance for each fuel, which would make it possible to arrive at consistent cross country comparisons that can be used for trend and progress analysis. Data transparency on all levels of government is necessary.

While the complex price gap approach is useful for cross country comparisons it tells us little about the costs of specific policy programmes. Therefore we suggest complementing the complex price approach with the OECD's programme-specific measurements. For this to work, countries need to agree to continually publish cost data on all programmes that have been identified as supporting the use and production of fossil fuels. To make rational decisions and compare a country's programme costs with those elsewhere, it is crucial that subsidies should be consistently included in national accounts.

Fossil fuel subsidies need to be scaled back

Whichever methodology is used, it becomes clear that wasteful, distortive and environmentally harmful fossil fuel subsidies abound in the EU and the US. Given the shortcomings in estimation techniques, all results claim to fall short of measuring all FFS, which are included in their definition. The previous results should therefore be interpreted as "lower bounds" to the real figures. Especially programmes subsidizing uncompetitive fossil fuel producers, as well as those subsidizing demand for environmentally harmful fuels, should be prioritized for elimination.

5 Conclusions – international entry points for FFS reform

Both the USA and the EU aim in theory to develop their economies in a way that creates and delivers more benefit with less input. Numerous international policy processes have highlighted the fundamental part FFS reform must play during the transition to a sustainable economy. Dangerous climate change cannot be prevented without a broad shift from the current dependence on fossil energies to low-carbon energy sources, e.g. wind and solar energy. However, at the current time, FFS such as fuel tax rebates and tax exemptions on energy use stimulate the use of fossil fuels and greenhouse gas emissions and counteract these processes.

The three processes analysed in this report – the G20 and the SDG process and the TTIP – all have the potential to spawn a blueprint for phasing out FFS, not only on both sides of the Atlantic, but worldwide.

This report has demonstrated that FFS subsidy definitions, and thus quantification methodologies, vary substantially. This means that in order to progress in phasing out fossil fuel subsidies it is necessary to agree on a common definition and standard approaches to quantification. The G20, the SDGs and the TTIP all have the theoretical potential to act as vehicles for such a development.

Concerted action on FFS in the EU and the USA could act as a driver of more ambitious GHG emissions reduction policies globally – and potentially boost prospects for a wider climate deal at the key 2015 Climate Change Summit in Paris.

Compared to the G20 process and the post-2015 development agenda and the SDGs, the binding nature of any agreement to phase-out FFS within the TTIP makes it a very promising political vehicle to reform FFS. Given that trade in diesel and petrol between the USA and EU was worth 23 billion EUR in 2012 (Energy Post 2013) and is set to increase in the future, as the EU comes to rely more on oil and gas from the USA to replace fossil fuel imports from Russia. Thus, any decision about FFS within the TTIP is hugely significant.

Whichever process acts as a catalyst for reform, phasing out FFS both sides of the Atlantic would:

- internalise at least some of the costs of FFS and thus reduce market distortions;
- create stronger price signals in favour of energy efficiency and low-carbon innovation;
- Bring about a shift towards low-carbon energy and thus boost employment in the renewable energy sector;³³
- bring about GHG emissions reductions in the US and the EU;
- could contribute to reducing budget deficits with the least possible negative impact on growth and employment (Vivid Economics 2012).

Thus far, however, FFS do not seem to be a part of the TTIP negotiation agenda – although the high levels of confidentiality applied to the negotiations, and the piecemeal release of documents by both negotiating parties, stands in the way of any analysis of what exactly is being negotiated within the TTIP process (EEB 2014). What is more, if FFS reform remains off the agenda, the TTIP will reverse current emissions trajectories, which have declined slightly since the mid-2000s in both the USA and the EU (Global Carbon Project 2013).

To introduce FFS into the TTIP negotiations will require a strong political will and well-informed networking on both sides of the Atlantic. In general, to avoid the negative impacts on EU environmental and social regulations feared by critics and discussed in section 3.2.2, careful and deliberate negotiations will be necessary. However, at the time of writing, big corporations are better and earlier informed about the negotiations than Members of Parliaments. Members of national parliaments, the European Parliament, Civil Society Organisations, and citizens need to be fully involved in order to assess the impacts of TTIP. The Advisory Group set up in early 2014 has the potential to meet at least part of this need.

³³ 5 million new jobs are predicted in the renewable energy sector by 2020 in the EU alone (EC 2012a: 173 final).

Within the TTIP process, a possible model for reform could be:

7. Get FFS reform on the negotiation agenda, e.g. through the Advisory Group;

8. Agree national reporting processes – develop a detailed template for all countries; to identify and quantify FFS within a transparent framework;

9. Cost-benefit analysis of FFS reform, estimate distributional impacts;

10. Develop a coherent reform policy on the basis of 2 and 3;

11. Build support with a good communications strategy and disseminate information about pricing reforms before they are introduced;

12. Set up an independent body to assess progress and deal with legal questions.

Under an ambitious TTIP scenario, the European Commission's Impact Assessment predicts GDP increases for the EU of 0.48% (or an increase in national income of 86 billion EUR) compared to baseline and an increase in GDP of 0.39% (or 65 billion EUR) in the USA (SWD 2013). These predicted growth rates are a strong incentive for the TTIP negotiations to succeed for both parties. Hence, if TTIP negotiations could be linked to subsidy phase-out, this would represent a huge opportunity to drive forward FFS reform.

The theoretical potential of the TTIP is impressive: If FFS reform is agreed, it will be binding – something no other international policy process is likely to achieve. However, realising the potential of a binding reform process is completely dependent on sufficient political will driving the political agenda. At the moment, political will is evidently not

there – or at least only behind closed doors – but this could change in the future.

Indeed, TTIP could set a precedent of including FFS reform in trade agreements and have a knock-on effect on bilateral trade agreements all over the world. In this best-case scenario, free trade agreements after TTIP would follow the precedent it sets on FFS reform – thus, a green TTIP could become a “best practice” example of a free trade agreement.

Other, non-binding international policy processes may also have a substantial impact through “soft” law – for example, the inclusion of a total phase-out of FFS by 2020 as one of the Sustainable Development Goals would have an impact on the focus of sustainable development policy all over the globe.

In the end, political will is key. If the TTIP is going to become a catalyst for subsidy reform, it will be because policy-makers step up to the mark and push for an innovative, green and future-oriented trade agreement.

The three processes examined here are by no means the only international routes to FFS reform. FFS subsidy reform could also be part of a wider climate deal at the 2015 Climate Change Summit in Paris. The work of other international organisations, such as OECD, IEA, IMF or World Bank, have demonstrated within the G20 process that they have considerable potential to locate FFS reform within mainstream political dialogue, and deliver high-quality research to inventorise and quantify subsidies. Without a tremendous amount of political will, whether related to the SDGs, the G20, the TTIP, or something else, real reform will be hard to achieve.

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