

Rapid Assessment on the readiness of Indonesia towards an Environmental Fiscal Reform for greening the economy FINAL DRAFT as of 15.12.2011

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Abbreviations

BAU	Business as usual
BRT	Bus Rapid Transportation
CCL	Climate Change Levy (in the UK)
EFR	Environmental Fiscal Reform
EHS	Environmentally Harmful Subsidies
ETR	Environmental Tax Reform
ERP	Electronic Road Pricing
GDP	Green Domestic Product
GHG	Greenhouse Gas Emissions
GoI	Government of Indonesia
ICP	Indonesian Crude Price
IDR	Indonesian Rupiah
IEA	International Energy Agency
KLH	Indonesian Ministry for the Environment (Kementerian Lingkungan Hidup)
MINAS	Surplus Nitrogen and Phosphorous Levy (Netherlands)
NAMA	Nationally Appropriate Mitigation Actions
OECD	Organisation for Economic Cooperation and Development
PLN	Perusahaan Listrik Negara, the state-owned electricity supplier
RAN-GRK	National Mitigation Action Plan on Greenhouse Gas Emission Reduction (Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca)
RP	Indonesian Rupiah
SUTP	Sustainable Urban Transport Project ²
UK	United Kingdom of Great Britain and Northern Ireland
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WEO	World Energy Outlook

² Refer to

(http://www.sutp.org/index.php?option=com_content&task=blogcategory&id=143&Itemid=184), accessed 04.12.2011.

Structure of the report

This report aims at assessing whether Indonesia is ready in different respects to introduce new environmental fiscal elements or to broaden and increase existing ones. To this end first the greenhouse gas (GHG) emission reduction as major commitment in the environmental policy is presented. General means of environmental policy instruments and more specifically of an Environmental Fiscal Reform (EFR) follow. Past experiences with EFR-elements in Indonesia are presented, supplemented by a very comprehensive presentation of international experiences. Eventually Indonesia's readiness is assessed against several criteria. Then the concrete opportunities for the introduction and strengthening of EFR-elements are assessed. Finally, conclusions and recommendations are drawn.

Introduction to Indonesia's greenhouse gas reduction

In 2009, the Government of Indonesia has committed to reduce the country's greenhouse gas emissions in 2020 by 26 % with national resources, and up to 41% with international support to the mitigation efforts, benchmarked to the emission level from a business as usual (BAU). To stipulate the implementation of this commitment, a presidential decree on a National Mitigation Action Plan on Greenhouse Gas Emission Reduction (RAN-GRK) has been signed by the Indonesian President Susilo Bambang Yudhoyono on 25th September 2011³. The RAN-GRK decree is an action plan for implementing several activities, directly or indirectly, to reduce greenhouse gas emissions according to the national development target. The RAN GRK document will be followed by the development of internationally accepted "Nationally Appropriate Mitigation Actions" (NAMAs) according to the United Nations Framework Convention on Climate Change (UNFCCC). NAMAs refer to a set of policies and actions countries undertake as part of a commitment to reduce greenhouse gas emissions. This commitment is currently the most important driver for environmental policy and hence it is here taken as an indicator for the efforts required which are naturally also necessary in other areas of environmental policy. Efforts of reducing emissions should mainly stem from the forestry sector. Indonesia's geographical location makes it prone to the impacts of climate change.

General Means and Objectives of an EFR

The following aspects for the introduction of elements of an EFR should be considered when designing them:

The means that are generally used in environmental policy are:

- Information/Communication/Education
- Standards/Restrictions/(Top-Runner⁴): These are often applied first in environmental policies as environmental policy is/was a health policy, avoiding threats to the people.
- Incentives, often called Market Based Instruments, such as elements of an Environmental Fiscal Reform (EFR) which comprises the following:
 1. Taxes on pollution and natural resource exploitation
 2. Phasing out environmentally harmful subsidies
 3. Financing and building up a green infrastructure
 4. Restructuring taxes, integrating the environment

³ Refer to http://www.thejakartaglobe.com/nvironment/yudhoyono-signs-decree-to-reduce-greenhouse-gas-emissions/467797#Scene_1, accessed 13.12.2011.

⁴ Top-Runner is a relatively new approach applied mainly in Japan, but successfully. It combines a tough regulation with the market-dynamics and hence has interesting advantages.

An EFR is often complementary to the other two instruments, indeed, it supports these when combined and hence its impacts can thus be maximised (e.g. eco-labelling combined with tax differentials).

The objectives of an EFR are the

- Internalisation of external costs so that in a market economy the „polluter pays principle“ is fully applied by making prices tell the ecological, social and economical truth. In a nutshell, it is about getting prices right.
- Incentivising the society to become resource-efficient, clean and to use renewables.
- Integration of environmental aspects into all other policies. An illustrative example is the integration of advanced and instead of „end-of-the-pipeline“-approaches (technically and politically)
- Streamlining all policies so that they are in line with environmental requirements.
- Development of a Green Economy. This is an economy which
 - a) respects the boundaries of nature
 - b) provides green sustainable industry and jobs
 - c) follows a socially inclusive growth which allows all people to benefit from the increasing welfare

More specific objectives are provided in the following chapters.

Past experiences with EFR-elements in Indonesia

Although Indonesia has a long standing experience with EFR-elements, the implementation of them did hardly follow any strategy and was limited mostly to user charges applied to forestry and water sectors. Between 1990 and 2000, various initiatives of economic instrument have been implemented. The lessons learned from these experiences can be summarised as follows⁵:

- Lack of common understanding about economic instrument for environmental management among stake holders in Indonesia
- Lack of sectoral support to implement economic instrument
- Lack of legal framework, especially with regard to fiscal instruments
- Many conflicting regulatory instruments with regard to fiscal initiatives for natural resource extraction and environmental regulation
- Lack of clear targets for implementation of economic instrument both at local scale and national scales
- Spatial planning and a huge gap of land rent in agriculture areas pushed a sporadic land conversion so that the incentive for conservation is diminishing as the value of land for commercial purposes is increasing, accelerated by local decisions for increasing regional incomes.

More details on past experiences and an overview of all kinds of existing EFR elements can be found in another report written for KLH.⁶ The specific problems in reducing the substantial fossil fuel subsidies are addressed there, but will also be dealt with further below in this chapter.

⁵ Refer to Kacindo Danatya: Final Concept Note of Economic Instrument for Environmental Management in Indonesia, 15 March 2010.

⁶ See LPM Equator: Review of existing fiscal policy for Environmental Management in Indonesia, Report F, August 2011.

In 2009, fuel subsidies amounted to USD 6 billion which represents almost 8% of total expenditures. Yet, against 2000, when it made up around 30% of these expenditures, it has been substantially reduced. Though energy intensity could thus be reduced, the negative impact was that the use of then relatively cheaper coal has been increasing substantially, particularly by industry. Here, the implementation of an overall energy taxation, or at least a carbon taxation, would provide a level playing field and avoid such partly counteracting developments.

This is of particular importance since the investments now done in certain technologies such as coal power plants, will determine the ghg emissions in 2050 and beyond. The operation time of such plants is at around 40-50 years and thus once this technology path is taken, there is a technological carbon lock. According to the recent World Energy Outlook (WEO) from the IEA without further action all CO₂-emissions permitted in the 450 ppm-scenario will be “locked-in” by existing power plants, factories, buildings etc. already in 2017.⁷

A very detailed and useful description and analysis including recommendations for reforming fossil fuel subsidies is in a recent OECD economic survey Indonesia on which the following parts build.⁸ OECD argues that the oil price hike in 2007-08 underlined the vulnerability of Indonesia’s energy subsidy policy to oil price volatility. In addition to entailing significant economic and environmental costs, energy subsidies put pressure on the public budget and benefit mostly rich households. Phasing them out would benefit both the economy and the environment. At the same time, past experience in Indonesia and elsewhere suggests that such a reform is likely to face stiff opposition and will therefore need to be carefully designed and communicated. Compensation in the form of targeted cash transfers will help to shield low-income households from the expected rise in energy prices. However, in the case of farmers, on-site research has shown that direct transfers to farmers cannot be made because they are not yet capable to receive such direct transfers, mainly for administrative reasons.⁹

The OECD finds that the Indonesian energy subsidy policy has focused on consumer subsidies in the form of under-pricing of energy, though producer subsidies in the form of tax expenditure also exist. The central government subsidises the price of several energy products, including gasoline, kerosene and diesel, and it sets tariffs for electricity.

Compensation for the revenue loss is provided to the state-owned energy companies. It is determined administratively and is a function of the inputs used in the production process. Subsidies were introduced in Indonesia for social considerations to make available a “basic need” at a price affordable to the poor. This holds in particular for kerosene, which is the only fuel product consumed by the low-income urban population and is second to wood as an energy source for rural consumers. Originally, energy subsidies were available for all segments of the population, but coverage has shrunk over the years. The number of fuel products eligible for the subsidy was reduced in 2005. Since 2008, electricity subsidies are no longer available for larger industrial consumers. High-volume household customers benefit from the subsidised rate only up to a certain threshold.

The size of energy subsidies fluctuated widely over the past decade, following movements in international prices and the exchange rate and adjustments to the subsidy regime. Subsidies increased markedly from 1997 to 2001, reflecting the sharp depreciation of the rupiah. They fell drastically in 2002 due to a policy of incremental adjustment to oil price and the appreciation of the rupiah. Hikes in international prices led to a sharp rise in subsidies in 2004 and 2005. They declined thereafter as the government tightened its subsidy policy in March and October 2005.

⁷ See http://www.worldenergyoutlook.org/docs/weo2011/key_graphs.pdf (figure 6.12, slide 8) and more generally on the WEO <http://www.worldenergyoutlook.org/>.

⁸ See OECD (2010), OECD Economic Surveys: Indonesia, OECD Publishing, November 2010, Volume 2010/18, <http://dx.doi.org/10.1787/9789264000000-en>, on which major parts of the following section are based upon.

⁹ Refer to personal communication with the KIN Office, the Innovation Committee of the President.

Increasing international oil prices and a recovery in consumption led to a peak in energy subsidies at 4.5% of GDP in 2008. By comparison, public capital expenditure and spending on social programmes amounted to only 1.5% and 1.2% of GDP respectively that year.

Energy subsidies declined to 1.7% of GDP in 2009 and are expected to cost the government a total of IDR 144 trillion (USD 15.7 billion) in 2010, corresponding to 2.3% of GDP. Those estimates are based on an assumed oil price of USD 80 a barrel. Oil subsidies account for the bulk of energy subsidies. Kerosene is the most heavily subsidised oil product and absorbs about half of the total. Gasoline and diesel each represent roughly one quarter. Electricity subsidies were larger than oil subsidies in 2009 for the first time in five years and amounted to 0.9% of GDP in 2009.

Because of these subsidies, fuel and electricity tariffs are much lower than the cost of provision and in particular lower than in regional peers. In addition, subsidies smooth the volatility of international prices by lowering the level of pass-through onto domestic retail prices. This pass-through is estimated to be significantly smaller in Indonesia than in peer countries for all types of fuels, especially kerosene. The counterpart is that oil-price volatility is transferred to public finances.

In addition to the direct price subsidies, Indonesia also grants implicit subsidies through a range of tax expenditures. Capital costs are subsidised through government-backed loans to Perusahaan Listrik Negara (PLN), the state-owned electricity supplier, for the development of coal-powered generation. The government also provides subsidies for the production of renewable energy in the form of interest rate subsidies or funding for research and development. Total government allocations for biofuel development between 2006 and June 2008 are estimated to have been around IDR 1,793 billion (USD 197 million). In 2010, a ministerial decree encouraged investment in renewable energy, such as geothermal, solar and biofuels, including a 5% tax cut over six years for renewable energy producers, as well as exemptions from value-added tax and import duties on equipment. Another provision allows investors to use accelerated depreciation and amortisation on assets to reduce taxable income. Subsidies could also be provided through preferential treatments in production sharing contracts between the State, which owns all natural resources, and companies, which offer technical and financial services for oil exploration and development operations. However, little information is publicly available on this issue, and it is difficult to gauge the importance of this potential implicit subsidy.

An issue which is often not discussed so much in public is the problem of weak governance or also called corruption. To this end the Indonesian Government has committed itself to rooting out corruption among its tax officials and has launched a new website for whistleblowers. The public can use the website to report any offences by tax, customs and excise officials.¹⁰

¹⁰ See <http://www.internationaltaxreview.com/Article/2946006/Indonesia-strives-to-improve-official-compliance.html?LS=EMS596592>; <http://www.integrity-indonesia.com/47663/whistleblower-hotlines.htm>.

International experiences with EFR-elements¹¹

Green Tax Reforms in OECD Countries: Main Features

Since the early 1990s, several countries, mainly in the EU, have introduced comprehensive Green Tax Reforms (GTR), in most cases, in a context of a *constant tax burden*, in the sense that new environmental taxes are offset by reductions in existing taxes (tax shift). In OECD (Organisation for Economic Cooperation and Development) countries, a constant tax burden seems essential for the *acceptability* of environmental taxes, although some countries which need to reduce public deficits or with relatively low tax revenue could consider a revenue-raising tax reform.

In the context of revenue neutral tax shifts a particular focus has been put in some countries on the “*double dividend*” hypothesis. The purpose of the double dividend is dual: 1) increased environmental protection through the tax increase on environmentally-relevant tax bases and 2) increased employment through reduced tax wedge on labour, in particular reduced employers’ social security contributions, thus decreasing the cost of labour. All EU countries, and Norway, having implemented green tax reforms have followed this double dividend approach.

Table 1. OECD tax wedges on labour 2005

High		Low	
Belgium	57%	Korea	16%
Germany	52%	Mexico	14%
France	48%	New Zealand	19%
Sweden	48%	Australia	26%
Hungary	51%	Japan	24%
Italy	47%	Switzerland	30%
Finland	47%	Iceland	24%

Note: The tax wedge represents income tax plus employee and employer contributions less cash benefits as a percentage of labour costs. The figures in this table are for a single worker with no children earning the average production worker wage in each country.

Source: OECD 2002, 2006, Barde & Braathen (2005).

There is controversy as to the likelihood of any double dividend. In particular, the employment dividend is subject to a number of restrictive assumptions: environmental taxes can also fall on labour through increased prices; reduced unemployment can result in increased wages, thus offsetting (part of) the reduction in labour cost (a key variable is the structure of the labour market); if taxes fall on capital, there could be “leakages” with capital moving abroad¹². However, several studies suggest that such a double dividend does exist.¹³

¹¹ This chapter builds on Jean-Philippe Barde, Mikael Skou Andersen, Kai Schlegelmilch (2009): Long-term Incentive Strategies for Energy Efficiency. Report on international experiences in environmentally related taxes. Study for the “Task Force on Economic Instruments for Energy Efficiency and the Environment” of the China Council on International Cooperation on Development and Environment (CCICED), summary:

http://www.foes.de/pdf/Final_TF_Summary%20Report_29_10_2009_v3_English.pdf; full report:

http://www.foes.de/pdf/Research_Report_EN_FINAL.pdf, both accessible at

<http://www.foes.de/themen/oekologische-finanzreform/studien/#international> – 2009.

Another informative and comparative source is

http://s3.amazonaws.com/zanran_storage/www.rprogress.org/ContentPages/17905117.pdf#page=22.

¹² For a double dividend to work, several conditions must be met, *inter alia*: the tax can be passed on to under-taxed production inputs; taxes fall heavily on non-workers; the country has international market power (the tax can be passed easily on to prices); capital is not internationally mobile and labour can easily substitute for energy (in case of energy taxes). A number of simulations (general equilibrium models) have been done; all

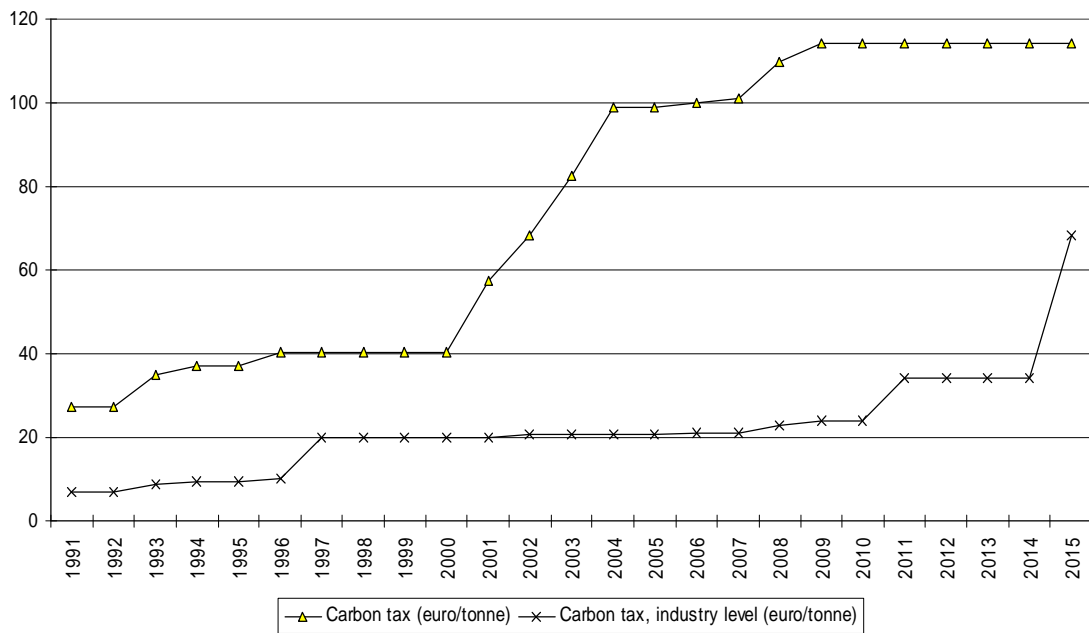
Other studies suggest that there is a “multiple dividend” including also the positive impacts on innovation, on ageing societies, on the fiscal structure/system and on competitiveness.¹⁴

Nevertheless, environmentally related taxes do provide win-win opportunities when the revenue is used to reduce other distortionary taxes or tax provisions in the economy and when well designed revenue recycling provide efficiency gains (e.g. for energy saving investments), while keeping the incentive effect at the margin.

Box 4. Green tax reform in Sweden

In Sweden, a major tax reform was introduced in 1991 in a strict revenue neutral context. It was based on a significant reduction in income tax, which was offset by a broadening of the VAT tax-base and by a series of new environmental taxes, especially on carbon and sulphur. In 2001 a green tax reform was applied, resulting in a yearly tax shift of 300 million €. When a CO₂ tax of SEK 250 per tonne (23 €) was introduced in 1991, the energy taxes on industry was halved, nevertheless resulting in higher energy taxation overall. In 1993, the manufacturing sector was granted a 75% cut on the CO₂ tax and was totally exempted from the general energy tax. In 1997, the rebate to the manufacturing sector was reduced to 50%. In 2009, the rates of the CO₂ tax is 100 €/per ton (21 €for industry). The sulphur tax (SEK 30 per kg (2.7 €) was imposed on peat, coal, petroleum, coke and other gaseous products. A tax differentiation is applied to three different categories of diesel oil, according to their sulphur content. Other energy-related taxes with an environmental purpose are also applied (e.g. consumer and producer taxes on electricity, tax on domestic air traffic, etc.). Sweden also has a charge on nitrogen oxides emissions (4 €/per kg in 2009) – where all the revenue is refunded to the power plants covered by the charge, in proportion to the amount of energy they generate.

Development of the Swedish CO₂ tax, general level and industry level



indicate very modest employment increases; the greatest effects can be expected with cuts in social security contributions targeted to low wage / low skilled workers.

¹³ See http://www.rprogress.org/publications/2001/eurosurvey_2001.pdf.

¹⁴ See <http://www.eea.europa.eu/publications/92-9167-000-6>, p. 19.

Major green tax reforms have been introduced in Finland (1990), Norway (1991), Denmark (1992), Sweden (1992 and 2001), Netherlands (1992), Germany (1999).

In the *United Kingdom*, an interesting case of policy mix has been implemented. Fuel duty excises were increased by 5-6% p.a. in real terms between 1993 and 1999 (hence the nominal increase was about 6-10%), this “Road Fuel Duty Escalator” was designed to reduce CO₂ emissions and to take into account other environmental factors. A “Climate Change Levy” on energy use by business and the public sector was introduced in April 2001¹⁵. Industries entering into environmental agreements can get 80% refund of the Climate Change Levy. As from 2002, firms can opt into a CO₂ emission trading scheme to meet their targets. The revenue is recycled back to industry through lower employers’ National Insurance Contributions, tax breaks for investments in energy efficiency and renewable energy. The revenue of the “Landfill Tax”, introduced in 1996, is also paid back through reduced employers’ National Insurance Contributions; and a similar approach is taken for a new tax on the extraction of mineral aggregates.

The effectiveness of environmentally related taxes: Selected examples in OECD countries

The environmental effectiveness of environmental taxes is now amply proven. Twenty years experience from OECD countries indicates that environmentally related taxes are effective and efficient. In 2006, 375 different taxes were in use in OECD countries, of which 150 on energy and 125 transport-related. Other taxes apply to specific air and water emissions and to products such as packaging, batteries pesticides, fertilizers, lubricants, household appliances etc. Most taxes have proven to be successful, triggering significant emission reductions.

Concerning energy and transport taxes, data indicate that the price elasticity of demand for petrol or gasoline whilst relatively low in the short run (-0.15 to -0.28), is significantly higher in the long term (-0.51 to -1.07 - OECD 2000b). *This indicates that significant effects could be expected in the longer term.* Increases of oil prices caused real reduction of fuel consumption in EU countries. This underlines that green tax reforms must be seen in a medium/long term context, as it takes time to the economy to adapt to evolving market signals, in particular in terms of technical change. We present below a few examples of the effects of environmental taxes.

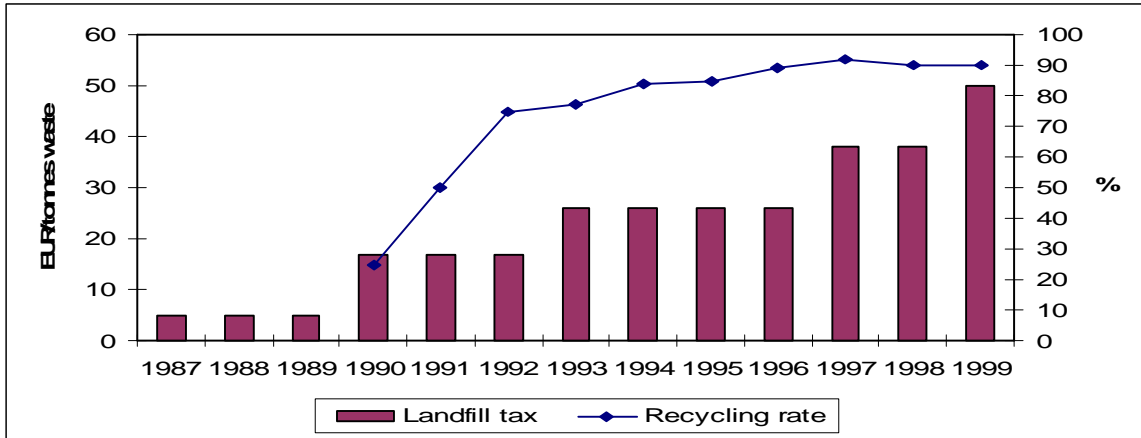
In *Belgium*, the tax differentiation between heavy fuels with a sulphur content below or above 1% induced a decrease in the use of the fuel with the higher sulphur content from 20% of the market in 1994 to less than 1% in 1998 (also due to a switch to natural gas). Taxes on non-reused or recycled beverage containers, disposable cameras, batteries and diverse packaging, introduced in 1993, led industry to meet all recycling and reuse targets, thus avoiding paying the taxes.

In *Denmark*, the sulphur tax caused a significant reduction of emissions by 84 per cent in the decade from 1995 to 2004, so that Denmark now has the lowest SO₂-intensity per unit of GDP in the OECD area; 0,1 kg SO₂/1000 US\$ - as compared to an OECD average of 1,1 kg SO₂/1000 US\$ (OECD, 2008: 35). The large reduction is mainly due to installation of desulphurisation equipment and use of low-sulphur oil. The tax on solid waste has reduced

¹⁵ For a detailed analysis of the Climate Change Levy, see Pearce (2005).

the net delivered waste to municipal sites by 26% in the period 1987-1996, and waste to smaller fills and private waste sites by 39% (1990-1996). Industrial waste, however, increased by 8%. Recycling also increased considerably: +77% for paper and cardboard, +50% for glass (Andersen, 1998).

Figure 5. Landfill tax and recycling rate in Denmark



Source: Andersen/Dengsøe (2002)

In *Korea*, the volume-based waste disposal fee introduced in 1995, resulted in 2002 (compared with 1994) in a 20% decrease in the volume of household waste generated per capita, a 43% reduction in the volume of land filling or incinerated and a 146% increase in recycling.

In *Germany*, the ecological tax reform resulted in a 2-3% reduction of overall CO₂ emissions over the period 1999-2003. Together with the quadrupling of the world oil price between 1998 (8 USD) and mid 2000 (35 USD) the introduction of the environmental tax reform was taking place. These two facts triggered a turn around in the transport sector. For the first time since the foundation of Germany in 1949, the transport fuel sales went down until end 2008 by about 17%. Furthermore, after decades of decrease of passenger numbers in public transport, a clear turn-around took place in 1999 since when the number of passengers increased by 3-5% p.a. The sulphur tax supplement on transport fuels triggered a shift of the entire market at the turn of the year 2000/1 towards fuels with practically no or a very low sulphur content (Schlegelmilch 2005).

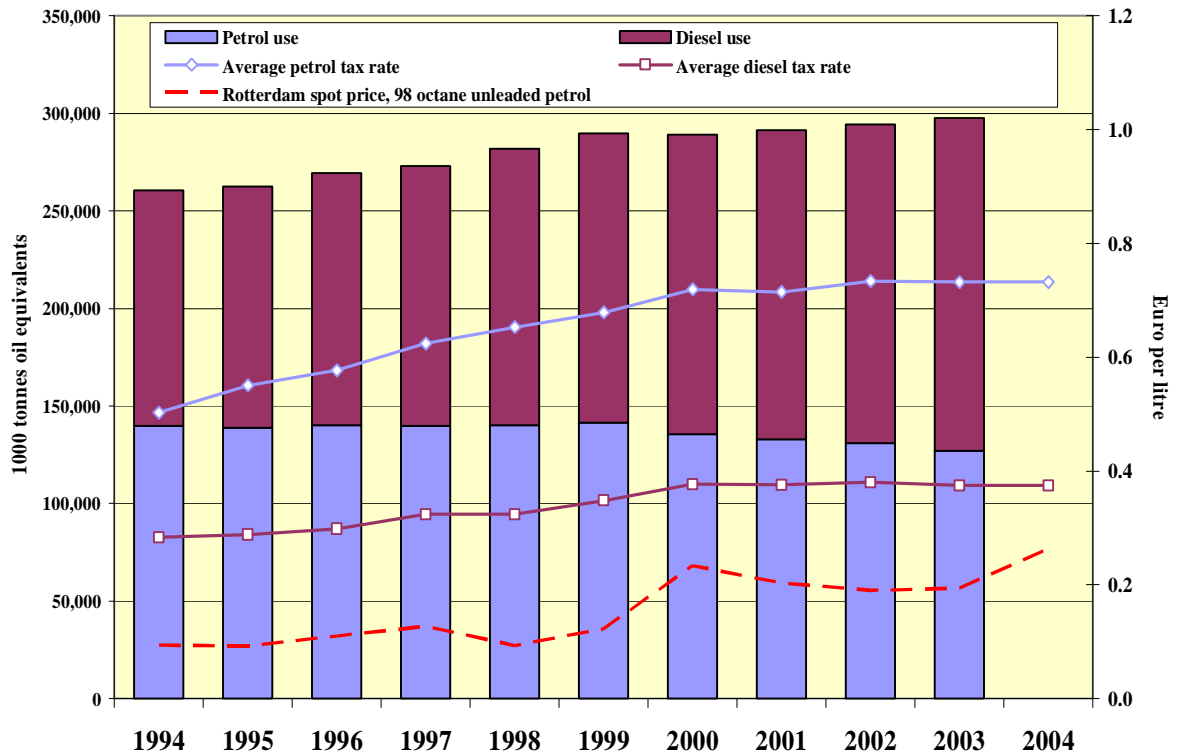
The *Swedish* sulphur tax (introduced in 1991) led to a fall in the sulphur content of oil-based fuels of more than 50% below the legal standards. The sulphur content of light oils has then fallen below 0.076% (*i.e.* less than half the legal limit of 0.2%). The tax is estimated to have reduced emissions of sulphur dioxide by 94% compared to 1970 (Nordic Council of Ministers, 1999, and Brännlund&Lundgren, 2009). NO_x emissions decreased by 20 % and CO₂ emissions by 54 % since 1970 (Brännlund&Lundgren 2009).

In *Finland*, it is estimated that, in the absence of CO₂ taxation, carbon emissions would have been 7% higher in 1998, if taxes had remained at the 1990 level.

In *Norway*, it is estimated that CO₂ emissions produced by mobile household combustion devices fell by 2 to 3% as a consequence of the CO₂ tax (Larsen and Nesbakken, 1997). It is also estimated that CO₂ emissions per unit of oil produced by the Norwegian oil sector fell by 1.5% due to measures taken by the industry in response to the CO₂ tax (ECON, 1994).

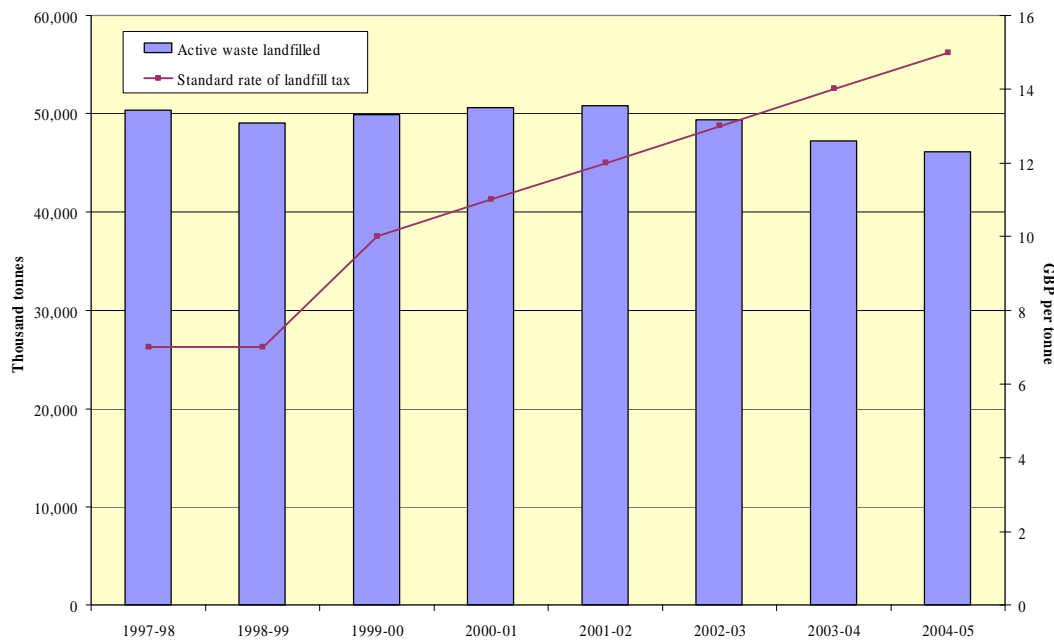
In most countries, the tax differentiation between *leaded* and *unleaded petrol*, combined with a series of measures such as regulations making it compulsory for service stations to offer unleaded petrol and introducing new emission standards for motor vehicles, implying the use of catalytic converters, led to a heavy fall in consumption and in the share of leaded petrol, which is now withdrawn from sale in virtually all OECD countries. The fiscal incentive greatly speeded up the process, despite slow penetration of new vehicles equipped with catalytic converters.

Figure 6. Sales and motor vehicle taxes in OECD Europe



Source: OECD 2006

Figure 7. Landfilling of active waste and the standard tax rate of the Landfill Tax in United Kingdom. 1997-98 – 2003-04.



Source: HM Revenue and Customs 2009: A general guide to landfill tax.

The case of energy-carbon taxation

While taxation of energy carriers is widespread in all OECD countries, taxation of carbon/CO₂ is a more recent phenomenon which only gradually is expanding. The European Commission's Directorate General for Taxation and Customs Union publishes on its website the "Excise duty tables" which provides an overview of the general situation in individual EU member states for energy taxation.¹⁶ Information for all OECD countries can be found in the OECD/EEA database on environmentally related taxes.¹⁷ However, neither of the two sources provide transparent tables for CO₂/carbon taxes. The co-existence of new CO₂-taxes with pre-existing energy taxes in fact renders it rather difficult to provide general statements about the exact scope of taxation.

Energy taxes are usually product specific excise duties. It is only rarely the case that energy taxation reflects appropriately the energy carriers' different GJ-content. CO₂-taxes on the other hand are not product specific, but aim to reflect the carbon content of fuels, although often at different rates for different target groups (industry and households for instance).

For practical purposes the term "carbon-energy taxation" is normally used as a catch-all phrase to refer to the aggregate level of taxation of energy carriers. The European Commission has proposed to aim for maintaining an energy tax component as well as a carbon tax component - while energy taxation can support energy efficiency as a whole, carbon taxation provides incentives for fuel shifting. Carbon/CO₂-taxation should be regarded as a complement to energy taxation, not a substitute. The European Union has established minimum rates of energy taxation for a range of energy products for its member states.

¹⁶

http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/rates/excise_duties-part_II_energy_products-en.pdf

¹⁷ <http://www2.oecd.org/econinst/queries/index.htm>

Several countries have restructured their energy taxation system in order to integrate the carbon aspect. Slovenia, for instance, altered its pre-existing taxes of mineral oils into a tax referring only to the CO₂-content of fuels. The Netherlands, on the other hand, added a CO₂-component to the pre-existing energy tax (see also the cases of Sweden, Finland and Norway above).

Generally speaking the area of carbon-energy taxation is rather complex and it is difficult to provide a simple table for the present situation. Gasoline, for instance, is taxed at many different rates, depending on its specific properties, not only referring to lead. There are many different fuels in use, and the taxes work out differently for different user groups. Derogations can be targeted towards specific industries and are not explicit in tables referring to the general situation.

Implicit levels of carbon-energy taxation for fossil fuels – industry

It is somewhat arbitrary what is labelled energy tax and what is labelled carbon tax. For this reason it can be misleading to compare separately energy taxes and carbon taxes. Instead we here provide an overview of the implicit levels of carbon-energy taxation for industries.

Figure 8

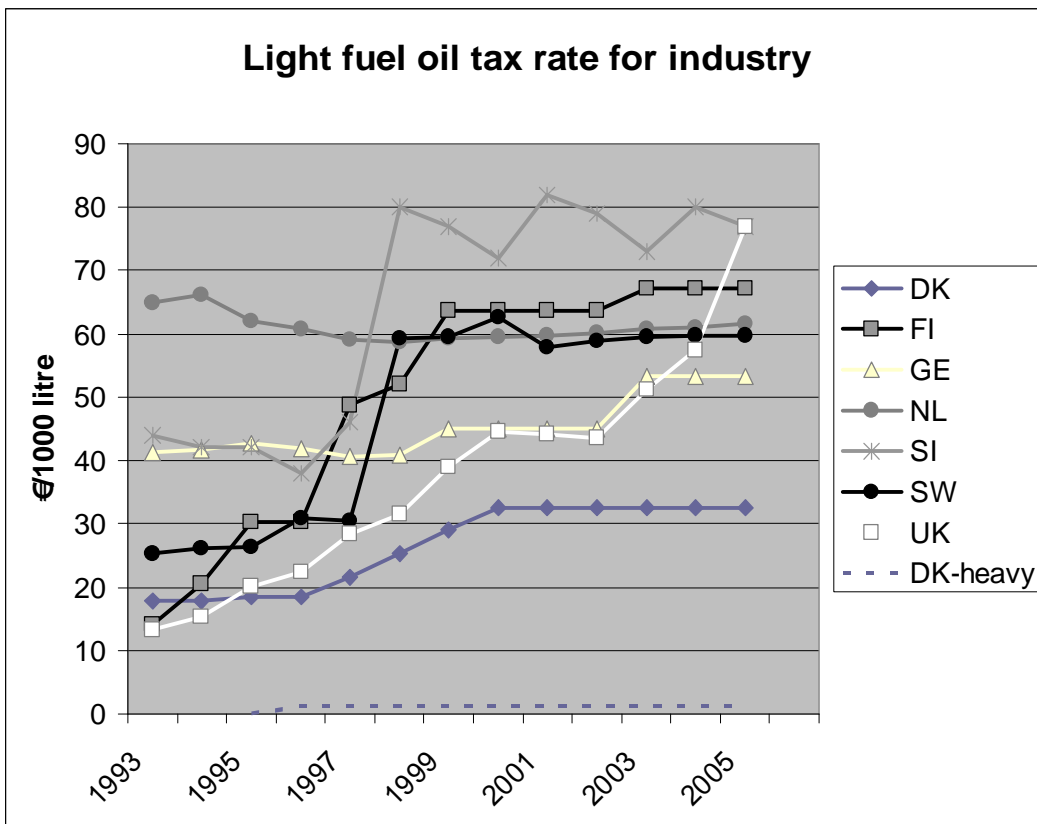


Figure 9

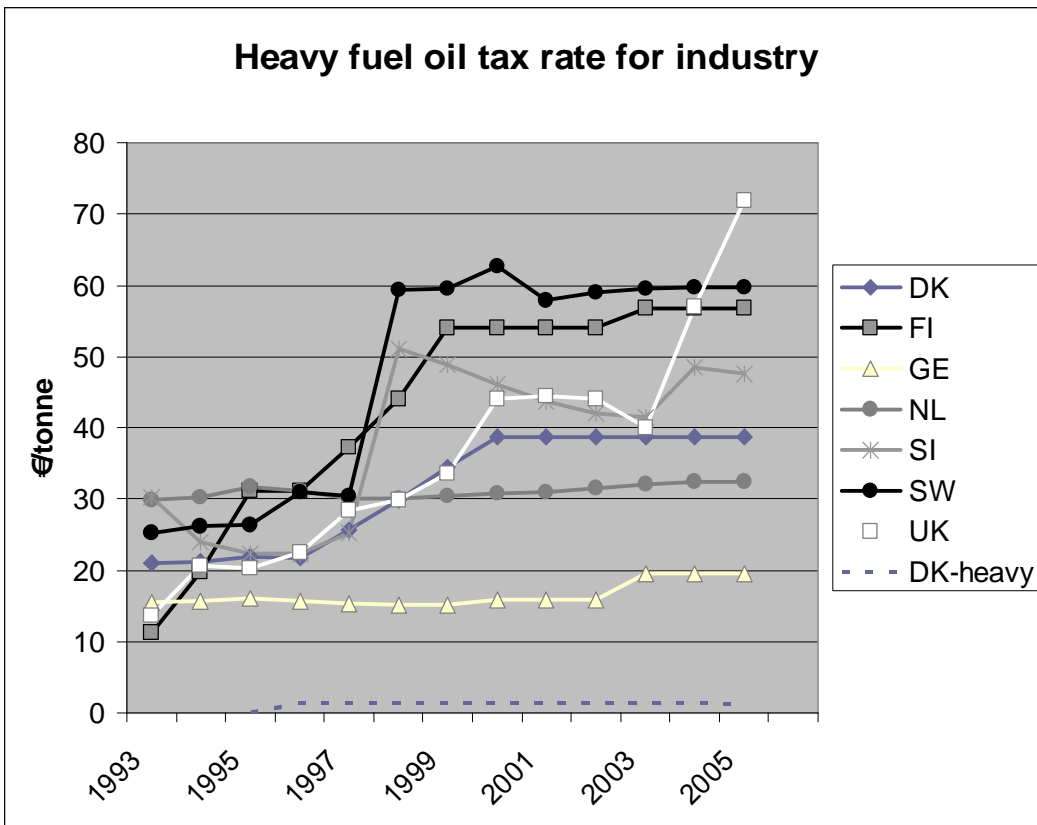


Figure 10

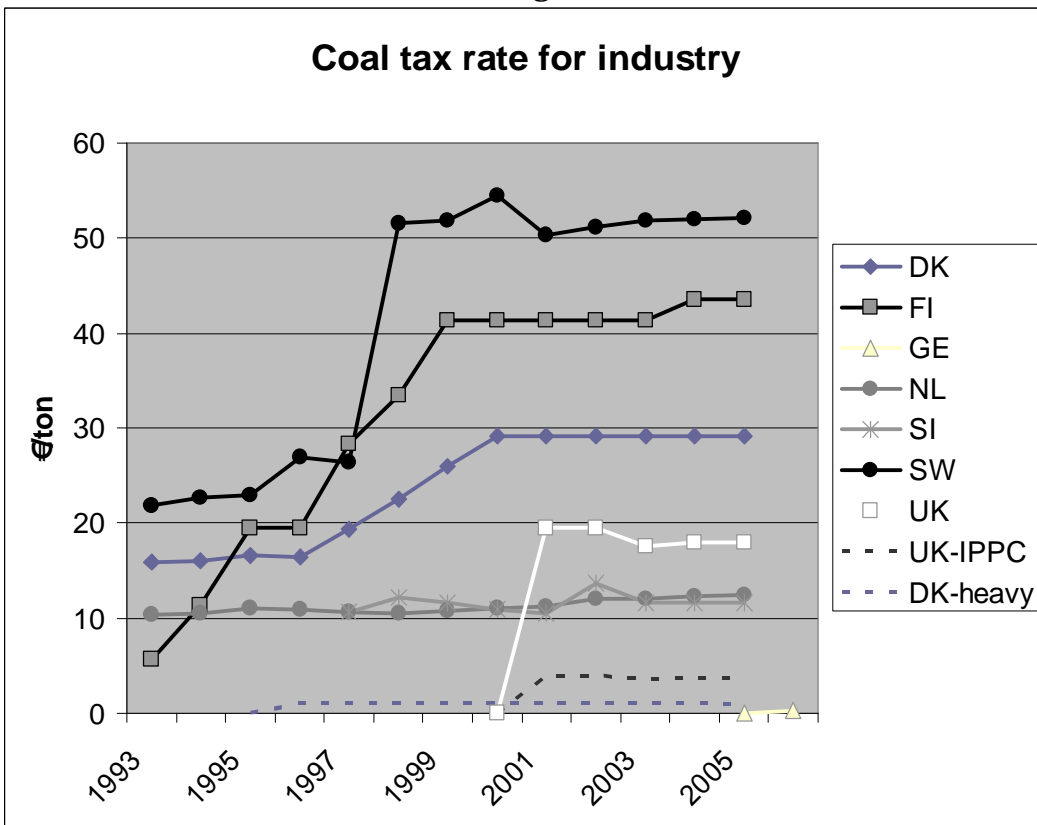


Figure 11

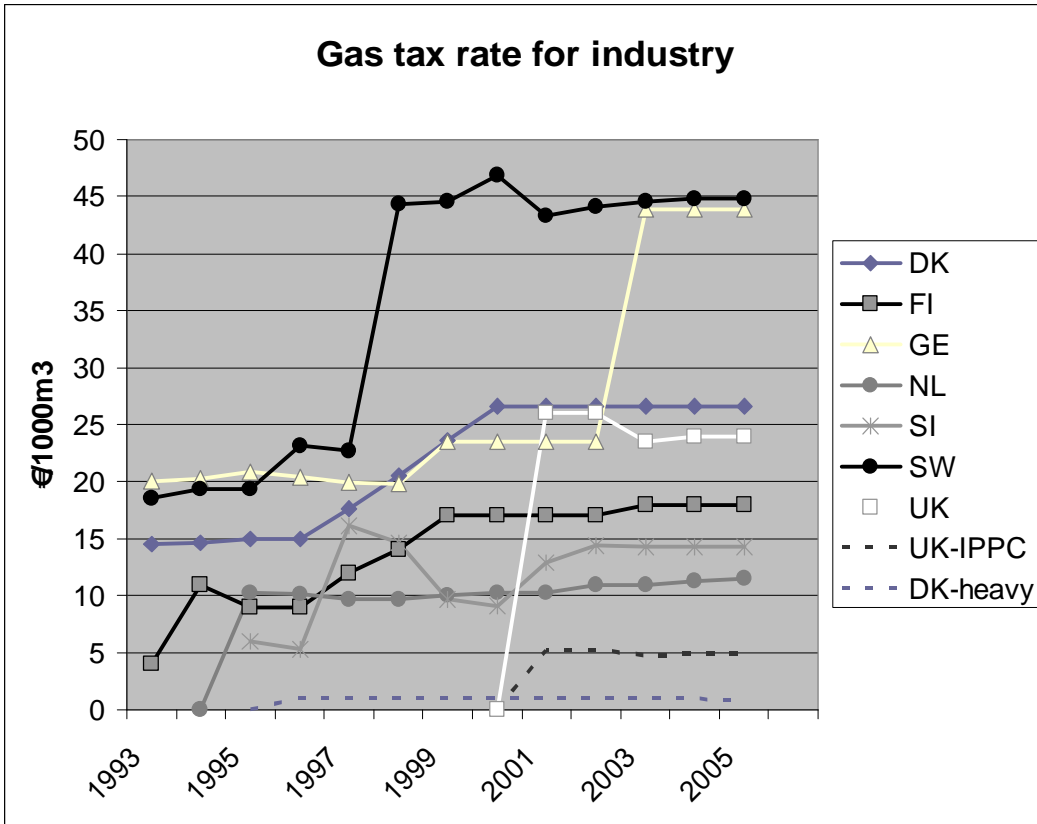
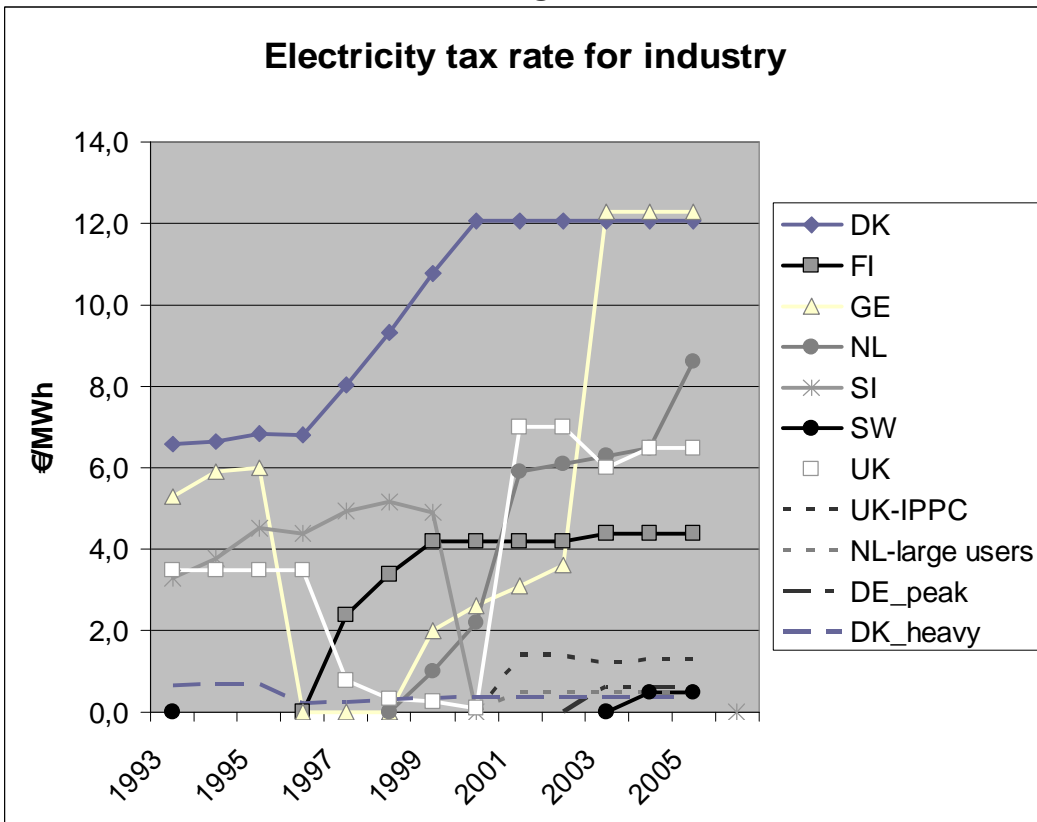


Figure 12



Source for all tax rate figures: Barker et al. 2009.

Reduced rates available for selected industries are indicated in the figures, however the schemes that allow for reductions are complex and the interested reader is referred to Andersen and Speck (2009) for a more detailed account.

Sweden has the highest tax level for three energy carriers, but for electricity which is the most important source of energy in Sweden the tax is only at the minimum level. Germany has high tax levels for gas, transport fuels and electricity, but only a symbolic tax for coal. Denmark has the highest tax rate for electricity. UK leads on tax rates for mineral oils. Slovenia has for a transition economy relatively high taxes on mineral oils, not at least it was the first Central and Eastern European Country to start an Environmental Tax Reform back in 1998, but perhaps also on the background of its considerable hydro and nuclear power resources. In fact several discrepancies indicate, on the one hand inconsistencies (e.g. rather high taxation of natural gas) on the other hand, the numerous tax breaks and exemptions provided in particular to industries. This is particularly visible when looking at actual tax revenue from different sources.

Another way to compare the carbon-energy tax rates is to analyse the implicit tax burden per tonne of CO₂ and per GJ. Table 2 provides an overview of the implicit tax rates when assessed against GJ. Alternatively table 3 shows the implicit tax rates when assessed per tCO₂.

Table 2. Implicit carbon-energy tax (Euro per GJ) in seven EU countries (source: Barker et al. 2009 – COMETR).

€/GJ	DK	FI	GE	NL	SI	SW	UK	Average
Fuel oil	1,0	1,4	0,5	0,8	1,2	1,5	1,8	1,2
Coal	1,1	1,6	0,01	0,5	0,4	2,0	0,7	0,9
Gas	0,7	0,5	1,1	0,3	0,4	1,1	0,6	0,7

Table 3. Implicit carbon-energy tax (Euro per t CO₂) in seven EU countries (source: Barker et al. 2009 – COMETR).

€/tCO ₂	DK	FI	GE	NL	SI	SW	UK	Average
Fuel oil	12,2	18,0	6,2	10,3	15,0	18,9	22,7	14,8
Coal	11,6	17,3	0,1	5,0	4,6	20,7	7,1	9,5
Gas	12,0	8,1	19,7	5,2	6,4	20,2	10,8	11,8

Taxes on mineral oil tend to be higher than taxes on other fuels; this is because mineral oils have a long tradition for excise taxes. On balance coal is taxed slightly more per GJ than gas, which however is not proportional to its CO₂-content.

Only one country, Denmark, explicitly has balanced its CO₂ tax on industry around a consistent level per tonne CO₂, while industry is exempt from the energy taxes. For the other countries the figures here reflect the combined energy and carbon taxes and so it is difficult to judge whether a

common CO₂ tax has been aimed for. In average, however, fuels appear to be taxed at a level of 10-15 €/tCO₂.

Australia is an important trading partner for Indonesia, hence it is reasonable to look at the developments there, too. However, this does not mean Indonesia should not take steps on its own if another country does not move ahead. There are enough benefits to go it ahead. Two-way trade in goods and services between the two countries reached \$12.9 billion in 2010, making Indonesia our 12th largest trading partner and 11th largest export market. Australian investment in Indonesia was worth an estimated \$5.2 billion in 2010. Austrade estimates that there are more than 400 Australian companies operating in Indonesia, in sectors including mining, agriculture, construction, infrastructure, finance, health care, food and beverage and transport.¹⁸

The Australian government decided the following features for the CO₂-tax, of which these are the key points:¹⁹

- The Government will deliver household assistance ensuring millions of households are better off.
- There will be tax cuts, higher Family Tax Benefit and increases in pensions and allowances.
- The tax-free threshold will be more than trebled to \$18,200 in 2012-13. Together with \$445 of low-income tax offset, this means people on annual incomes of \$20,542 will pay no net tax.
- Household assistance for pensions, allowances and family benefits will be permanent and will keep pace with the cost of living, automatically rising in line with the consumer price index (CPI).
- Tax cuts will increase over time with a second round of tax cuts in 2015-16 that will further raise the tax-free threshold to \$19,400, matching the impact of the carbon price to 2020.
- These two rounds of major tax reform will free over 1 million people from having to lodge a tax return and boost the returns to work.

Impacts of carbon-energy taxation

There have been many attempts to model *ex-ante* the impact of carbon-energy taxation, trying to figure out the environmental impacts as well as the macro-economic implications. However, many economists regard the *ex-ante* modelling as speculative in nature, and to some extent dependent on the properties of the specific modelling frameworks employed. Many economic models are not capable of simulating all the relevant substitution possibilities in the energy sector, in particular not the relevant opportunities for fuel shifting as a response to carbon taxation, which require that all relevant energy carriers are well represented in the modelling framework. Also the models often use average energy prices and cannot account for the frequently discounted energy prices available to large, energy-intensive industries. In addition the long-term effect of carbon-energy taxation on innovation activities with respect to production processes and the development of new products *per se* are difficult to predict.

More reliable estimates of the impacts of carbon-energy taxation can be achieved “counterfactually” where economic models are calibrated *ex-post* to disentangle the specific effect of having added a tax to energy prices. By calibrating the model to fit the actual outcome of the macro-economic development and the related emissions it becomes possible to run the model in a scenario without the taxes added, whereby the impact on emissions and economic parameters can be extracted. Also such ex-post modelling requires the availability of a comprehensive modelling framework, however.

¹⁸ See <http://www.dfat.gov.au/fta/iacepa/index.html>, accessed 17.11.2011.

¹⁹ See <http://www.cleanenergyfuture.gov.au/clean-energy-future/securing-a-clean-energy-future/chapter-4-helping-australian-households/>, accessed 17.11.2011.

The first such *ex-post* modelling was a study of the CO₂-tax in Norway (Larsen and Nesbakken, 1997). It found that as a result of a differentiated CO₂-tax scheme emissions had over a period of 3 years been reduced with 3-4% compared with business-as-usual, mainly as a result of reduced transport activities.

Other approaches to *ex-post* analysis of the impact of carbon-energy taxes have included bottom-up modelling frameworks, such as the MARKAL energy sector model, or have relied on more sectoral ad-hoc approaches to report on the implications for emissions. A report from the Nordic Council of Ministers (2001) identifies about 20 different such studies that have attempted to disentangle the effects of carbon-energy taxation.

In one of the more rigorous approaches Bjørner, Togeby and Christensen (1999) established a micro-panel database of about 5,000 companies and could on basis of company-specific energy consumption establish the impacts of Denmark's CO₂-tax. In their econometric analysis they found that companies had in a few years and in response to a modest tax level reduced CO₂-emissions by 8 % compared to business-as-usual. Higher reductions were identified for companies that also were subject to energy savings agreements with the authorities (in average 13%).

Enevoldsen (2005) relied on a comparative approach, whereby the impacts in Denmark were carefully contrasted to developments in the Netherlands and Austria. This study also comes to the conclusions that Denmark's CO₂-tax on industrial energy consumption curbed CO₂-emissions with about 10 per cent. These high impacts may reflect that many win-win opportunities were available, as Denmark had previously refunded energy taxes on industrial energy consumption.

The most comprehensive *ex-post* study so far was undertaken by Cambridge Econometrics as part of the EU-funded COMETR project (Barker et. al., 2009). In this study the macro-economic model E3ME was applied to disentangle the impacts of environmental tax reforms based on carbon-energy taxation. Seven countries were included in the study, which relied on an EU-wide economic modelling framework; Germany, UK, Sweden, Netherlands, Denmark, Finland and Slovenia. As a result of the environmental tax shifts, whereby carbon-energy taxation replaced employers' social security contributions or in some countries income taxation on employees, there were implications both for CO₂-emissions and for economic activities. The magnitude of the tax shifting differed among the seven countries, with the highest share recorded for Denmark and Germany. Altogether about 25 billion Euros in taxes were shifted as a result of the ETR's in the countries mentioned (Slovenia did not introduce ETR, but exchanged excise duties with a CO₂-tax on industry).

For the years 1995-2003 the modelling framework E3ME was able to capture *ex-post* the implications, but it also made an *ex-ante* forecast for the final impact of ETR's up to year 2012, as the effects have come through more fully and for what is the final year for compliance with the Kyoto protocol. The results differed between the countries, but in average CO₂-emissions were reduced with about 3-4% compared to business as usual. Emissions were reduced mainly as a result of energy savings, as fuel-shifting was difficult to capture. This result appeared on basis of relatively modest rates of carbon-energy taxation, as the ETR's in many cases only added incremental tax changes on top of pre-existing tax rates.

Competitiveness

As to the wider economic impacts the study did not establish that they had been negative for economic growth. In fact, for five of the countries the macro-economic modelling indicated a very small positive effect on GDP in the magnitude of 0,5 per cent of GDP. Only for the UK the ETR (introduction of the climate change levy was treated as an ETR) shifted so little revenue, that no discernible macro-economic impact could be identified.

Based on several case studies and thus empirical evidence an OECD report from 2006²⁰ states:

A main finding drawn from policy-making experience is that significant “competitiveness” pressures are indeed a reality in certain cases, depending on the type and design of a given environmentally related tax, and the characteristics of the markets and firms affected. While it is often said that it is difficult to find examples of environmentally related taxes having a serious negative impact on the competitiveness of any sector, it must be remembered that this situation results directly from provisions to protect industry (to date, primarily exemptions) that typically accompany the introduction of such taxes.

However, those strongly opposed to introducing environmentally related taxes on competitiveness grounds sometimes tend to forget that alternative policy instruments used to reduce pollution, such as regulations, also affect firm’s costs and impact on the competitive position of individual sectors and the country as a whole. By enhancing the economic efficiency by which a given target is reached, properly designed taxes will help minimise adverse effects on competitiveness nation-wide –compared to e.g. direct regulation or “voluntary approaches”. Furthermore, the opposition tends to overlook that environmentally related taxes are one of a number of factors determining a firm’s overall competitiveness. Research on economic performance shows that skills and capital investment largely determine sectoral competitiveness.

Political economy lessons from ex post case studies²¹

A first lesson from several ex post case studies is that policy-makers should take steps to ensure that competitiveness pressures are adequately assessed and addressed. In doing so, it is important to consider the mitigation measures against any legal obligations and to ensure that the measure will not be found to provide a prohibited subsidy (e.g. industrial energy consumption tax in France). A second lesson is that when loss of competitiveness is an issue, different mitigating measures can be considered and they will have different effects on both environment and competitiveness. When considering different measures it is important that they do not reduce abatement incentives. When levying taxes that raise revenue, many countries have used compensational measures by reducing other taxes (for instance as in case of the Norwegian aviation fuel tax) or other kinds of budgetary compensation. Some countries have introduced sectoral exemptions or reduced rates (as for instance was the case in the UK Climate Change Levy - CCL). Finally, sometimes international co-ordination at different levels can be useful and even necessary for implementing market based instruments addressing environmental problems. (as in the case if the Swiss heavy vehicle fee where the bilateral agreement with the EU was important for the implementation.)

However, we should note that there often seems to be a trade-off between the size of the administrative costs and measure to create a “fair” or “politically acceptable” scheme. Often mechanisms introduced for non-environmental reasons, to address competitiveness or income distribution concerns are responsible for the increase of the administrative costs; e.g. the CCL in the UK and the MINAS²² nutrients accounting system in the Netherlands. Additionally, relatively

²⁰ OECD 2006: The Political Economy of Environmentally Related Taxes, Paris, p. 110f.

²¹ OECD 2006, p. 128f.

²² See <http://www.economicinstruments.com/index.php/land/article/140->.

modest compensation mechanisms can often suffice when introducing a tax or a trading scheme (even based on auctioning), in order to make the owners of the firms equally well-off as before – but the size of the “necessary” compensation depends on how insulated the domestic market is from international competition. However, there is a risk that the affected firms could be seriously over-compensated. If so, the economic efficiency costs will increase because, for example, less money would be available to reduce distortionary taxes.

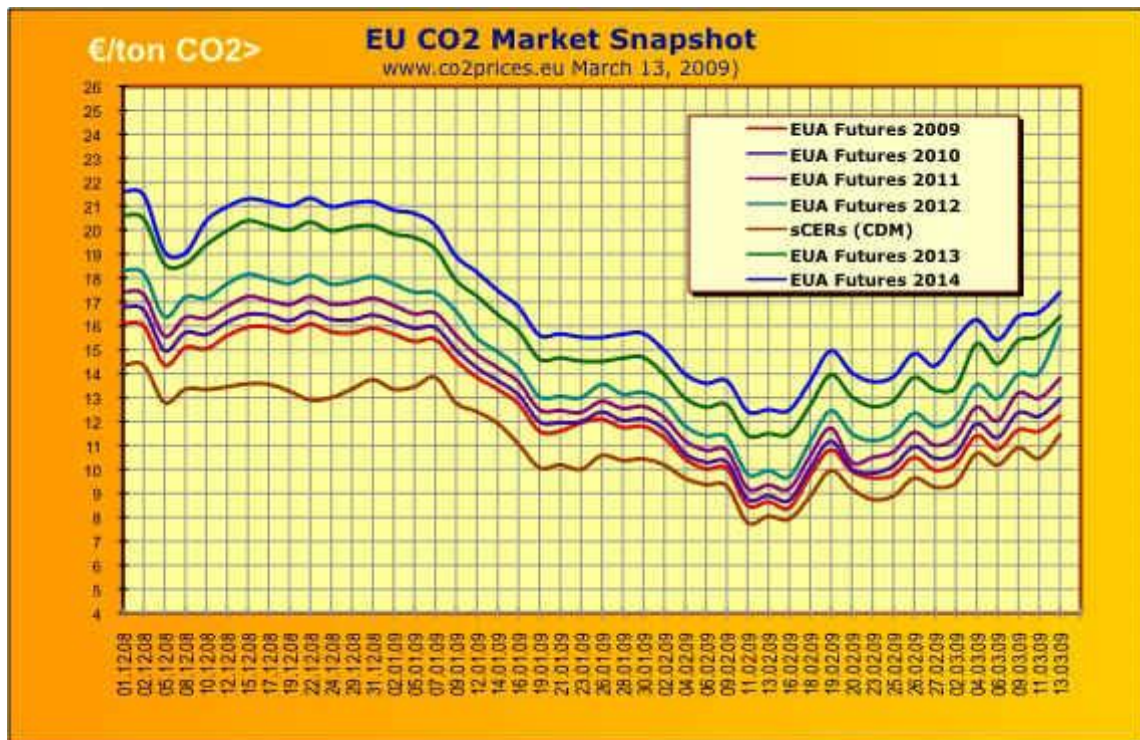
The “acceptance” of an economic instrument among the public at large seems to be related to the degree of awareness of the environmental problem the instrument is to address. In the case of the Irish plastic bag tax there seemed to be a wide public awareness of the environmental problem caused by littering of plastic bags. The tax therefore seems to have great public support. Therefore, a third policy implication is that it is advisable to “prepare the ground” for later instrument implementation by providing correct and targeted information to the public on the causes and impacts of relevant environmental problems. In general, political acceptance could be strengthened by – as far as possible – creating a common understanding of the problem at hand, its causes, its impacts, and the impacts of possible instruments that could be used to address the problem. One way to build such a common understanding is to involve relevant “stakeholders” in policy formulation, for example through broad formal consultations and/or in committees or working parties preparing new policy instruments. For example, the Swiss heavy duty vehicle tax acceptance was established through referenda and the aviation fuel tax in Norway was seen as a part of a policy shared by most political parties; an ambition to play a role as an international pioneer in environmental policy and particularly green taxes. This acceptance building has been important in many “green tax reforms” in OECD countries over the last decades.

Additionally, the Swiss case is also a good example of the importance of seizing the right moment for pushing through a delicate project on the political agenda. Therefore, a fourth lesson is that a project that at some point in time is impossible to implement might appear to be feasible when the circumstances are more favourable. A fifth lesson is that countries should strive for broadest possible tax bases to ensure cost-efficient emission reductions. Broad based tax bases and introduction in connection with a broader reform strategy might make it somewhat easier to get acceptance for the tax from affected parties and thus might contribute to a smooth implementation. This strategy also seems to have been followed in many countries that have introduced green tax reforms.

The case study of the Irish plastic bag tax shows the importance of doing thorough initial research and carefully considering other relevant policy options. Introducing a tax is not always the right answer. This study assessed several policy options/instrument to address the environmental problems created by plastic bags in Ireland. The tax measure was not obvious, especially considering the administrative costs related to the tax measure. When, even after careful consideration of other measures, a tax still seems the best measure to tackle an environmental problem, it is more likely that the right measure is chosen and this prepares the ground for easier implementation of a tax. Therefore, a sixth lesson is that, in addition to environmentally related taxes, one should also consider other measures to tackle an environmental problem. This case study also shows that when implementing an administratively challenging levy like the plastic bag tax it is important to carefully consider alternative implementation methods and use existing tax collection methods, in this case the VAT system, to help reduce administrative costs.

Finally, based on the case of the Swiss heavy vehicle fee, one can also draw the lesson that a gradual phasing in of taxes can soften the immediate cost impact and give companies time to adjust to reduce the tax burden.

Revenue neutrality was very important for these macro-economic results. Additional modelling showed that if the overall tax burden had been increased as a result of the introduction of carbon-energy taxes, the impact of such new taxes would have become overall negative. However, as the new tax burden was offset by lowering of other taxes, it was possible for the economies to respond by becoming more efficient. Whether this finding can be interpreted to substantiate the “double dividend hypothesis” (see also section 7) remains an issue of debate. In any case, the macro-economic impact was very small, but whether more significant tax shifts of higher order of magnitudes also would yield more significant positive impacts on GDP should not be ruled out a priori. As such the study brought the double dividend hypothesis into debate again, while underlining more strongly than before the importance of revenue neutrality.



Source: www.co2prices.eu, 2009.

Interplay between ETS and ETR

The introduction in EU of an emissions trading system (ETS) for CO₂ emissions has added a new dimension to taxation of carbon and energy. Emitters need to hold and possibly purchase CO₂ allowances, even if the same emissions are also liable to taxation. As the allowances are so far not auctioned, but “grandfathered”, the ETS does not generate revenue in the way that carbon-energy taxation will do under ETR. As a result the impacts of ETS cannot be mitigated by recycling revenue to lower other tax burdens in return for the allowance costs that companies will meet once the market begins to trade CO₂. The macro-economic impacts of ETS are hence believed to be less favourable than the impacts of revenue-neutral ETR. This is because once allowances are traded the acquiring emitters will be facing a monetary burden that cannot be offset.

The ETS applies only to fossil fuel power generation and to certain sectors among energy-intensive industries, many other sectors including transport are not part of the ETS system. ETS-sectors are subject both to the CO₂-allowance costs as well as to carbon-energy taxation, and as a result there are complaints about alleged “double-regulation”. Still, it follows that “double-regulation” only should be regarded as a “double-burden” to the extent that allowances are fully auctioned. Allowances allocated for free in fact constitute an asset, and the receiving emitters will benefit if the allowances can be traded on the market. A double burden may nevertheless materialise for those emitters that increase their emissions above the historical baseline and come in need of extra allowances.

CO₂-allowance prices have in the short period of the EU ETS proven to be relatively volatile. In the first allocation period (2006-07) the ETS market collapsed towards the end as there were too many allowances for sale on the market. In the second allocation period (2008-12) the initial CO₂-allowance price of about 20€/tCO₂ has been undermined by the financial crisis and the downturn in economic activities. In early 2009, prices dropped to less than 10€/tCO₂. The volatility of the allowance price is unfortunate, as investors in low-carbon technologies consequently face high uncertainties on the return on investments.

Recent discussions have focused on the opportunities for combining ETS and ETR. There are two positions in this debate, one well-known arguing for governments to provide an intervention ceiling for allowance prices, the “safety valve approach”, another more recent for carbon taxation to provide a floor or minimum price for CO₂-emissions. Under the safety valve, to introduce a ceiling on allowance prices, governments would have to issue additional allowances at a guaranteed price once demand for allowances cause the market price to exceed this level. The advantages of the safety valve is the certainty created in the market that the carbon price will not endanger competitiveness by exceeding pre-determined levels (the US Congress is considering a proposal for a safety valve of 12 US\$/tCO₂).

Martin Weitzman, a famous economist specialised in the properties of prices versus quantities, has stated that “A very strong safety valve is equal to a tax. If you don’t allow the price to vary very much it’s the equivalent to taxing it”. Weitzman himself favours a carbon tax.

Further difficulties with ETS are caused by the free allocation principle and the lack of auctioning. Once ETS allowances are auctioned the macro-economic implications of choosing between ETS and ETR narrow considerably. Unfortunately the EU was not able to agree on introducing full auctioning in the near future; the recent Climate Package deal will gradually introduce auctioning, but only by year 2027 will such a system be fully implemented. Hence the differences between trading and taxing remain.

Alternatively, if a CO₂-tax is introduced to provide a price floor some of the windfall profits that otherwise accrue to the ETS traders would be returned as tax revenues, and could be recycled so as to offset the economic burdens of the grandfathered ETS. While the safety valve approach could endanger the carbon cap and drain the government for revenues, the CO₂-tax floor would combine the advantages of revenue-neutral ETR with the environmental stringency of a cap-and-trade scheme of allowances.

Criteria for assessing Indonesian’s readiness

In order to assess the readiness of Indonesia for the introduction of EFR-elements, the following criteria are used:

- Political
- Institutional
- Scientific/Methodological

- Environmental Urgency
- Need for offering alternatives via innovation and investment
- Need for increasing competitiveness
- Societal discussion so far
- Failed attempts of EHS removal
- Social/Distributional impacts

However, it is stressed that these criteria can just give some guidance to what is relevant and important for such an assessment. But they would have to be applied for the concrete EFR-elements separately in order to provide an in depth insight. Hence, in the following chapter these criteria are mostly applied more generally and only in some cases, specific EFR-elements are considered in more detail.

Application of these criteria

Political

The current President of Indonesia cannot be re-elected again. In principle, this gives him a strong position as he does not have to care too much about specific interests any more, but can take decisions which may seem unpopular at first sight, but which turn out to be beneficial for society. Hence, he could in fact be the strongest supporter for introducing EFR-elements.

However, in reality he may be trying to organise for his political inheritance for his family members, relatives and friends and thus ensure his lasting might even after him stepping down. This could undermine his position as credible leader of the GoI as it seems that personal interests conflict with the interests of the Indonesian society. Yet, there is at least the potential for him to take a visionary approach and now decide on reforms with long-lasting character.

In a democracy it may seem more difficult to get acceptance for EFR-elements, but indeed by appropriate involving stakeholders, information sharing and timing, there is a good chance of making it a societally accepted long-term strategy. This has been well demonstrated by many European countries (see above), mainly in the past two decades.

Institutional

The Ministry of Finance is the Ministry responsible for taxation and fiscal issue. Hence, this Ministry needs to take ownership of EFR-elements if this is going to be a success. In fact, this is also recognize, indeed claimed by the Ministry of Finance²³: “Central to such principles is the appropriate pricing of carbon and ensuring that climate change mitigation policies across the board are both effective and economically efficient. This emphasizes the need for the Ministry of Finance to play a central role in shaping Indonesia’s response to the climate change challenge.”

However, advice from and exchange with other Ministries, like the active KLH, are more than reasonable and strengthen the often less good cooperation between ministries. However, it is particularly a better cooperation from which such EFR-elements would benefit a lot, because environmental affairs are by definition cross-cutting issues which can hardly be tackled by single institutions or experts alone.

²³ See Ministry of Finance (2009), Ministry of Finance Green Paper: Economic and Fiscal Policy Strategies for Climate Change Mitigation in Indonesia, Ministry of Finance and Australia Indonesia Partnership, Jakarta, p. iii.

Scientific/Methodological

There are several studies carried out, various models available which make it possible to model the most important features of EFR-elements. However, it depends critically which EFR-element is chosen and considered as some may be too marginal that they hardly have an impact on macro level. In the following an overview of the available models is given:

Table 4: Stocktaking current economic modelling initiatives related to climate change or green economy

Type	Name	What	Initial objective of analysis	Institution	Contact	When
Economy-wide model	INDOTERM-30	30 regions inter-regional CGE models	Connectivity issues, with potential application on climate change	ADB, Monash, UNPAD	Edimon Ginting	On-going
	IRSA-INDONESIA-5	5 regions inter-regional CG models	Various issues inc. Climate change mitigation	CSIRO, BAPPENAS, ANU, UI, UNPAD	Budy Resosudarmo	2009
	INDONESIA-E3	National CGE model with distributional module	Income distribution effect of various policies or shocks (carbon emissions from energy and land-use)	ANU, UNPAD	Arief Yusuf, Budy Resosudarmo	2008
	AGEFIS-E	National CGE model for fiscal policies	Fiscal instruments (climate change mitigation from energy)	BKF	Kindy Sjahrir, Arief Yusuf	2009
	n.a.	Low carbon energy modelling	Low-carbon planning	BAPPENAS, ADB	n.a.	Planning, on-going
	WAYANG (+IMPACT)	National CGE model combined with IFPRI Impact model	Impact of climate change in agriculture on Indonesian economy	IPB, IFPRI	Rina Octaviani	2011

	BAPPENAS National CGE model	National CGE model	Various issues such as fuel subsidy reduction	BAPPENAS, UNPAD, UI	Economic Deputy, Bappenas	On-going
	BAPPENAS GAMS-Based CGE models	National CGE model	Various issues	BAPPENAS, UI	Djoni Hartono (oil company expert)	
Other model	OSIRIS-INDONESIA	A spatial-based model of market-induced land-use change	Economic Incentive Policies for REDD+ in Indonesia	Conservation International et al.	Jonah Busch	2011
	INDONESIA MARKAL Model	Bottom-up energy options modelling	Indonesia climate change sectoral road map	BAPPENAS	n.a.	2009
	Kalimantan T21 Model	Kalimantan System Dynamic modeling	Options and opportunities of Kalimantan green corridor		UNEP	On-going

Environmental Urgency

In the case of energy and carbon taxation the urgency is clearly given regarding climate and energy issues. This has been sketched out in the beginning, so that here it is just referred to the Government of Indonesia's commitment of reducing the country's GHG emission in 2020 by 26% with national resources, and up to 41% with international support to the mitigation efforts, benchmarked to the emission level from a business as usual (BAU). But also regarding air pollution there is a high priority for measures in that field not least since the population in large cities is very much suffering from emissions and their health is substantially affected.

Need for offering alternatives via innovation and investment

If EFR-elements shall be introduced it is of utmost importance that society has choices available to respond to the incentives in an appropriate form. Therefore one has to check if those alternative forms of infrastructure, technology and behaviour are available or can be made available in what form and with what efforts in what time frame. This is so crucial as price incentives will only be able to achieve environmental objectives if such alternatives are available. If demand is price-inelastic due to missing alternatives then there will just be fiscal revenues increased without environmental impact. These alternatives can be triggered e.g. via price incentives, regulation, public and/or private investment.

In the following such alternatives are looked at as an example in the transport sector. Such examples need also to be identified for all other sectors affected by the chosen EFR-elements:

According to the UNEP 2010 Stocktaking report²⁴, the Ministry of Transportation has set out policies called “Green Transport for Sustainable Development” and “national transport system with low emission” to support such a policy. Several strategies have been developed to implement the policies. Only one out of six is incentive related. It is the development of a traffic demand management such as electronic road pricing (ERP). The others rather offer alternative modes of transport which are also very important as providing choices for other means of transport are essential if incentives are to work for the environment. Without realistic choices the behaviour will hardly change, expressed in economic terms: the price elasticity of demand would remain inelastic. These strategies comprise i.a.:

- developing bus rapid transit system (BRT)
- developing traffic demand management such as electronic road pricing (ERP)
- supporting the use of alternative energy such as gas and biodiesel for public transportation
- developing non – motorised transportation system
- developing integrated land use and transportation system
- developing integrated modes of transportation (land, sea and air transport)

Some of those strategies have been implemented successfully, while others are still in the planning process. The Bus Rapid Transportation system has been implemented in other cities outside Jakarta. In 2009, the BRT has been implemented in four cities of Pekanbaru (Riau Province), Manado (North Sulawesi Province), Semarang (Central Java), and Bandung (West Java). Until the end of the year 2011, the same system has been implemented overall in 13 cities, such as in Palembang (South Sumatera), Gorontalo (Gorontalo Province), Surakarta (Central Java), Surakarta (Solo), Yogyakarta, Bogor and South Bali. In all those cities the system is expanded, new corridors are installed and the quality is improved. The GIZ-project SUTP²⁵ supports the local administration regarding the regulation and planning and the operating companies regarding quality standards. However, those systems are no fully fledged BRT, but modest and reduced versions of it. Even the one in Jakarta, called Transjakarta, cannot be fully considered a BRT as not in all cases, particularly not at junctions, priority is given to them and the standard of the buses is far below the one of a BRT.

Even though, at this stage, there are no assessments available yet as what was the impact of the BRT system on the economic activities in those cities, the initiative was hailed as bold move to ease chronic traffic congestion in those cities. The BRT system could be considered as initial steps toward better management of transportation system in big cities which had been neglected for decades. Most public transport systems such as buses and minivans during Suharto’s administration was mostly provided and managed by private companies. It was difficult to control when the number of vehicles kept increasing contributing to traffic congestion, pollution and high consumption of fuel.

Need for increasing competitiveness

Competitiveness of the future will be increasingly determined by the ability to produce in a resource-efficient and clean manner. EFR-elements would support such production processes and will hence be generally useful. However, they must be well phased in, designed, communicated, announced ahead to provide investment certainty and reliability.

In fact, the appropriate phasing-in is the critical part of the introduction of EFR-elements. As often, the perception or fear of some industries, particularly energy-intensive industries is that these EFR-elements, particularly environmentally-related taxes, are introduced too fast or at least faster than for competing companies in other countries. However, there is no evidence reported

²⁴ UNEP (2010): Stocktaking Study on Greening Initiatives in Indonesia, prepared by Akhmad Fauzi, December, 2010.

²⁵ Refer to http://www.sutp.org/index.php?option=com_content&task=blogcategory&id=143&Itemid=184.

that countries have been introducing such EFR-elements too fast and that companies had to reallocate abroad for that reason.

Failed attempts of the removal of environmentally harmful subsidies

The removal of environmentally harmful subsidies (EHS) is often considered politically critical and in fact has advanced much slower than intended. The past slight reduction of energy subsidies in Indonesia yet demonstrates that the government is well aware of potential problems so that it has only slightly reduced these subsidies; actually it has proceeded too slow and with too much caution. Hence, it can be assumed that further steps will be taken at a pace, which hardly stresses energy-intensive companies too hard. However, in conclusion it can be assumed that competitiveness concerns of energy-intensive companies are well taken into account. It is rather the question whether the incentives for improving energy efficiency and renewable energy and resources use will be strong enough to soon become more independent and thus more competitive. In the end it is always about keeping the balance between energy-intensive companies and environmental front runners.

Social/Distributional impacts

Most case studies evaluated by the OECD²⁶ show that the direct effects of environmentally related taxes, and especially energy taxes, can have a regressive impact on the income distribution of households. However, empirical analysis indicates that the degree of regressivity decreases once the indirect distributional effects from price increases on taxed products and the environmental effects of the tax are taken into account. Further, when taking account of mitigation or compensation measures the regressive impact of environmentally related taxation can in most cases be softened and even removed. Then the net effect of the environmental policy can even end up being progressive. Therefore, a full assessment of the income distributional effects of levying environmentally related taxes should also include indirect distributional effects from price increases on taxed products, effects arising from the use of environmental tax revenues and/or compensational measures, and also and the distribution of the environmental benefits resulting from the tax.

Mitigation practices reduce the environmental effectiveness of taxes. In the case of regressivity, governments should seek other, and more direct, measures if impacts on lower-income households are to be alleviated. Such compensation measures can maintain the price signal of the tax whilst reducing the negative impact of the tax on household income. Undesirable distribution effects can in general be addressed through the social security systems and tax systems. Relief from an environmental tax through a personal income tax system can i.a. include; increases in a basic personal allowance, introduction of non-wastable or wastable tax credits. Wastable tax credits are attractive, relative to tax allowances, because they avoid inter-actions with the tax rate structure. However, wastable tax credits do not deliver in full the intended amount of tax relief where an individual has insufficient income to fully absorb the tax credit. Disregarding any budgetary concerns, non-wastable tax credits might be preferred because they provide cash transfers for credit amounts that cannot be used to offset personal income tax liabilities.

Sometimes when implementing environmentally related taxes some categories of households seem to be in special need for compensation. Compensation measures to specific groups of individuals should be targeted directly at the factors that cause the equity problems in order to make the compensational measure efficient.

Experiences from some member countries show that regressive impacts from implementing environmentally related taxes are often softened by using the revenue to reduce other taxes i.a. on income. Then the tax reductions can be targeted at lower income groups. In other cases the

²⁶ OECD 2006: The Political Economy of Environmentally Related Taxes, Paris, p. 142ff.

distributional concerns have not been addressed at all or have come up late in the process and tackled in a more ad hoc fashion. This might lead to large opposition and failure to implement effective environmental measures and implies higher costs to society than necessary. In order to assure that distributional concerns are properly addressed, member countries should consider introducing measures that implement considerations of distributional concerns into the decision making process. Some countries have therefore introduced specific institutional arrangements as for instance specialised working groups or committees. Other countries have developed specific guidance documents for policy makers.

Examples of guidance on policy appraisal addressing distributional issues²⁷

At the European Union level, the Commission established a new integrated framework for impact assessment with the objective to ensure that social aspects like distributional issues are considered for each policy proposal, together with environmental and economic impacts. One of the potential social impacts highlighted is the “distributional implications such as effects on the income of particular sectors, groups of consumers or workers, etc.”.

This extended impact assessment is to be performed for major proposals from 2004 onwards [COM(2002)276]. The United Kingdom has formalised central government advice on how to take account of distributional implications in policy appraisal in the new edition of the Treasury Green Book (HM Treasury, 2003). This guidance applies also to the retrospective evaluation of a policy, programme or project and its completion or revision. According to the significance of the distributional incidence across different groups, including income groups, action may be required to modify the policy in question (Davies and Dunn, 2003).

In the United States, the guidance documents for incorporating environmental justice considerations into developing environmental impact statements (EIS) or environmental assessment (EA) issued by the Environmental Protection Agency (EPA) are being implemented.

The OECD recommends widespread communication of the benefits of subsidy removal and recourse to existing well-targeted cash-transfer schemes to overcome resistance to reform.

Assessing the Concrete Opportunities for EFR-elements in Indonesia

Economic instruments in the law 32/2009

The law 32/2009 as such is a good basis for the development and application of further fiscal and economic instruments. However, apart from the general listing of such instruments it also comprises indicators such as the Green GDP. To increase transparency it would be useful to rename the law accordingly, but also not to overemphasise the relevance of a Green GDP given the methodological challenges such an approach faces. But it is certainly valuable to gain insights into such indicators and enhance knowledge that the ordinary GDP is by far not comprehensive enough to mirror the real well-being of people.

The law 32/2009 does not yet deliver a breakthrough, but it establishes the principles and basis for economic and environmental fiscal elements. It is an important prerequisite, but not sufficient. Further actions like the regulation derived and currently under preparation from KLH are necessary. But even the draft regulation does not look like delivering the concrete design of the instruments, but just sketches out some features of these instruments. Eventually a concrete law/decreed is required which specifies all design features and elements of an environmental fiscal instruments in such a way that it can be directly implemented without requiring further laws or

²⁷ See OECD 2006: The Political Economy of Environmentally Related Taxes, Paris, p. 143.

regulations. Only then, the implementation of such instruments will eventually have impacts, if designed appropriately.

Environmentally related taxes

Indonesia has already a very good basis of EFR-elements in its fiscal system. Yet there is still a great potential for further expanding and improving these incentives.

Within the process of decentralisation, the law on provincial and local taxes (28/2009) was adopted and the tax bases determined therein have a direct or indirect relevance for the environment. According to the definition of environmentally related taxes by OECD, IEA and the European Commission²⁸ these are “any compulsory, unrequited payment to general government levied on tax-bases deemed to be of particular environmental relevance. The relevant tax-bases include energy products, motor vehicles, waste, measured or estimated emissions, natural resources, etc. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments. Required compulsory payments to the government that are levied more or less in proportion to services provided (e.g. the amount of wastes collected and treated) can be labelled as fees and charges. The term levy covers both taxes and fees/charges.”

Furthermore regions are prohibited from collecting taxes other than those types of taxes. This supports the conditions for further implementing EFR-elements.

The following types of taxes are determined for:

1. provinces:

- a. Motor Vehicle Taxes;
- b. Excise/Taxes For Transfer of Ownership of Motor Vehicle;
- c. Taxes on Fuel for Motor Vehicles;
- d. Surface Water Taxes;
- e. Cigarette Taxes.

2. districts/towns:

- f. Hotel Taxes;
- g. Restaurant Taxes;
- h. Entertainment Taxes;
- i. Advertising Taxes;
- j. Street Lighting Taxes²⁹;
- k. Taxes on Non-Metal and Non-Rock Minerals;
- l. Parking Taxes;
- m. Ground Water Taxes;
- n. Taxes on Swallows' Nests;
- o. Rural and Urban Land and Building Taxes;
- p. Excise/Taxes for Acquiring Right on Land and Building.

Within these taxes and their design, there is also still room for improvement. And there is an excellent basis for further expanding environmentally related taxes.

²⁸ OECD 2006, p.26.

²⁹ The street lighting tax is nothing but an electricity tax as the local administrations try to receive back their expenditures for the lighting costs of streets. To this end they charge all electricity consumers according to their consumption. It could thus be renamed an electricity tax which would add to the transparency and clarity of fiscal laws.

Deforestation and fossil fuel subsidies

Given the large share of ghg emissions from the forestry sector in Indonesia, this is the sector of high urgency for action. Recently, in the context of the conditional donation from Norway regarding forestries, the Government has decided to stop all deforestation. As much as this is reasonable and appreciated, it remains to be seen to what extent this is enforced. If the government is really committed, it also has to change the fiscal drivers supporting deforestation so far. Here, the Ministry of Forestry has an important role, apart from the Ministry of Finance. It provides the concession permits as stipulated by Act 41/1999 on forestry, it collects non-tax state revenue tariff for forest use and non forest use, reforestation fee and timber and non timber products. All these different incentives have to be screened and analysed regarding their incentives for deforestation and also for oil palm plantations. If such negative impacts are found, the incentives have to be abolished immediately, phased-out over time or at least restructured so that there are no more negative impacts. Otherwise the economic incentives for ignoring this moratorium and illegal deforestation might likely be far too strong.

This is proven e.g. by very recent protests against oil palm plantation, which even reached final producers and consumers in Germany. At the headquarters of Unilever, Hamburg, a large manufacturer of food products, indigenous Indonesian people protested against their displacement due to palm oil plantations.³⁰ With around 1.3 million tons per year the Dutch-British company is one of the largest palm oil consumers globally. Palm oil has become one of the most important resources globally as it is used for biofuels, margarine, shampoos, skin cream, chocolate cream and more. On Sumatra, every hour wood on a land equivalent to 88 soccer fields is cut, mostly for palm oil plantation. The high use of pesticides in the monocultures spoils rivers and ground water. Around half of the land is said to be illegally used for plantation. To this end indigenous people were displaced, yet without getting compensation for their destroyed buildings.

In 2010, a ministerial decree encouraged investment in renewable energy, such as geothermal, solar and biofuels, including a 5% tax cut over six years for renewable energy producers, as well as exemptions from value-added tax and import duties on equipment. Another provision allows investors to use accelerated depreciation and amortisation on assets to reduce taxable income. Subsidies could also be provided through preferential treatments in production sharing contracts between the State, which owns all natural resources, and companies, which offer technical and financial services for oil exploration and development operations. However, little information is publicly available on this issue, and it is difficult to gauge the importance of this potential implicit subsidy.

The reform proposal for the renewable energies is thus to keep those incentives for all renewable energies, indeed to strengthen them substantially. But to exclude palm oil from these incentives as too many negative developments are associated with it so that the overall value added seems to be negative.

Regarding the reduction and finally phase out of fossil fuel subsidies, the government is at least more or less on track and generally has the political will to take according steps though it seems there is always the danger of steps back again due to political constraints.³¹

In November 2011 the government reaffirmed and revived the plan to raise the price of

³⁰ See <http://www.spiegel.de/wirtschaft/unternehmen/0,1518,803778,00.html>, www.regenwald.org, <http://www.regenwald.org/news/palmoel/3945/interview-augenzeugenbericht-der-indonesischen-regenwaldkampfer>, <http://www.regenwald.org/news/palmoel/3957/occupy-unilever-aktueller-stand> (all in German only).

³¹ See also the description of fossil fuel subsidies in the chapter "Past experiences with EFR-elements in Indonesia".

subsidized Premium gasoline by between Rp 1,000 and Rp 1,500 per liter from the current price of Rp 4,500 (50 US cents).³²

According to the plan, only owners of private cars with engine capacities below 1,300 cc would be entitled to buy Premium at the new price, while owners of cars with more powerful engines would have to buy non-subsidized fuel, according to the Energy and Mineral Resources Ministry. Commercial vehicles owned by small and medium enterprises and public transportation vehicles shall still be eligible to buy Premium at Rp 4,500. After that, the plan is to gradually reduce the Premium supply and replace it with gas-based fuels. The price of gas-based fuel may be raised from Rp 3,100 to Rp 4,100 per liter. “The price is still lower than the current Premium price so it should be easy to persuade private car owners to use gas.

Another element of the plan is that all public transportation vehicles shall be obliged to use gas-based fuels. Furthermore, the government plans to subsidize converter kits for private car owners so that their cars could use gas. The price of the kit is estimated to reach Rp 10 million per unit.

The 2011 revised state budget allows the government to raise the price of Premium if the Indonesian Crude Price [ICP] increases to more than 10 percent of the government assumption.” In November, the ICP is \$111,49 per barrel or 16.5 percent above the government’s assumption of \$95.

The House agreed in July 2011 to increase the energy subsidy in the 2011 state budget to Rp 195.28 trillion, from the original Rp 187.16 trillion, to help the government cope with the sharp increase in oil prices.

With the revision, fuel subsidy spending increased to Rp 129.73 trillion from Rp 95.9 trillion, while the subsidy for electricity increased to Rp 65.65 trillion from Rp 40.7 trillion.

The initial aim was to keep a budget deficit at no more than 2.1 percent of GDP. Indonesia’s parliament in March agreed the delay to the government’s previous plan to limit subsidies, as rising oil prices pushed up inflation, though finance minister Agus Martowardojo warned at the time that if the plan was delayed to next year it would add up to 6 trillion rupiah (\$703 million) to the state budget.

Slightly different overall subsidy numbers are presented in a press article one month later in December 2011 according to which the fuel subsidies expanded to the total subsidies value of IDR 123 trillion.³³ The subsidized fuel quota has been raised from 38.5 million kiloliters to 40.5 million kiloliters. However, the additional quota failed to meet the demands for subsidized fuel before the end of this year. This can be considered as an indication that the subsidised fuel stimulates artificial demand which then contributes to a vicious circle which puts more pressure on politicians to further expand subsidies as the amount of subsidised fuel is not sufficient, all contributing to a larger budget deficit.

Assessing these plans, it is reasonable to announce the plans well ahead to prepare people for further steps of reducing subsidies. The price increase of between Rp 1,000 and Rp 1,500 per liter from the current price of Rp 4,500 (50 US cents) still seems quite a large step in one go which should rather be split up in smaller steps. Yet, it is very reasonable taking social concerns into account by allowing cars with a low engine capacities to further use the subsidised fuel for some time and to offer alternative fuels/technologies and support the transition financially. However, the government could face problems of incredibility if plans

³² See <http://www.thejakartapost.com/news/2011/11/16/govt-reaffirms-plan-raise-premium-gasoline-price.html>.

³³ See <http://www.tempointeractive.com/hg/nasional/2011/12/02/brk.20111202-369585.uk.html>.

are revised too fast and the intended reduction of subsidies is postponed. For social reasons it may still just be acceptable if limited in time as seems to be the case here until end of the year 2011.

Yet, such positive reform plans regarding the subsidised Premium gasoline as mentioned further above should not be undermined by holding back plans to reduce subsidies in the electricity sector by increasing electricity rates as opinions in the Parliament seem to suggest, commenting on the government plans.

Phasing out oil and electricity tariffs would have a number of advantages. The resulting spare resources could be efficiently used through direct income support, for instance targeted cash transfers to protect low-income households from expected energy price rises. These transfers have been found to be more effective than subsidy policy in helping to boost incomes of the poorest segments of the population. Increasing subsidised energy prices would also facilitate the financing of additional spending on health, education and infrastructure, which are crucial to raising living standards in the longer term.

The Indonesian government is clearly aware of these issues and has expressed its intention to reform the system. A key to success will be to remove energy pricing from the political process. A first-best solution would be to fully liberalise energy prices. This would free the government from the responsibility of directly setting such prices. This solution may, however, not be feasible in the short term, as it would require a strengthening of the regulatory framework to minimise the risk of anti-competitive behaviour.

The approach adopted by the Indonesian authorities appears to be a more realistic though second-best approach. The government joined the G20-pledge to phase out subsidies for fossil fuels, and a complete removal of fossil fuel subsidies has been announced for 2014. In addition, the government plans a gradual reduction of total subsidies by 10%-15% on average per year from 2011-14. These are welcome steps, and the authorities should stick to the planned removal timetable for fossil fuels. However, further efforts will be required to deeply reform the energy-subsidy policy. As it stands, the current commitment could be met without making any change to electricity subsidies, which also entail significant economic, social and fiscal costs. Electricity subsidies are also detrimental to GHG-emission reductions to the extent that power is generated from coal-fired plants. Extending the current pledge to fully remove fossil-fuel subsidies by 2014 to a medium-term elimination of electricity subsidies would enhance the government's credibility and diminish uncertainties associated with ad hoc changes in electricity tariffs.

Subsidy reform must also go hand in hand with reform to establish a more rational structure of energy taxes. At the moment energy-related taxes are fairly small relative to total revenue collected. Greater emphasis on energy taxes could encourage a shift toward cleaner energy sources: the increase and broadening of the energy tax or the introduction of a carbon tax, as suggested by the Ministry of Finance in 2009³⁴, would go in the right direction. In addition to providing incentives for pollution abatement, it would also encourage innovation for new products and processes and reduce emission levels at a low economic cost as long as it is broad-based. Revenues from the carbon tax could be recycled to finance programmes in priority areas. The vulnerability of the economy to oil-price developments could be further reduced by shifting the energy mix toward less-polluting sources of energy. The government has already taken measures to encourage the development of renewable energy, in particular geothermal power. A conversion programme from kerosene to LPG has also been implemented, with promising results. However, it is not clear whether the focus of current policies on certain energy sources, such as ethanol or biodiesel, is appropriate. Indeed, there is still a debate concerning the level of full-cycle energy savings associated with particular energy sources. When soil acidification, fertiliser use, biodiversity loss and toxicity of agricultural pesticides are taken into account, the

³⁴ See Ministry of Finance (2009), Ministry of Finance Green Paper: Economic and Fiscal Policy Strategies for Climate Change Mitigation in Indonesia, Ministry of Finance and Australia Indonesia Partnership, Jakarta.

overall harmful environmental impacts of ethanol and biodiesel can exceed those of petrol and mineral diesel. In the case of Indonesia, if palm oil is used for biodiesel production and palm-oil plantations are converted from forests the net environmental impacts are likely to be negative. The use of *Jatropha curcas* in biodiesel production could be envisaged, but there is currently limited evidence on its energy efficiency and environmental impacts from a life cycle point of view.

There may be scope, however, for biodiesel to play a useful role in supplying energy in rural communities, where the cost of fossil fuel supply is high. Given the latest available knowledge on the development costs of biodiesel and ethanol and their life-cycle environmental impact, current support to ethanol and biodiesel needs to be reviewed.

As reforming energy subsidies would reduce the purchasing power of the poorest households, the authorities should introduce compensating measures that support their real incomes in more direct and effective ways. International experience shows that transition support must be well targeted, coherent with underlying broader policy settings of economies and carefully planned. Among all the available social policy tools, cash transfers present advantages. They distort markets and incentives less than other programmes, can be easily targeted and their cost is usually known with certainty. When properly implemented, most of the cash transfer funds can be channelled to the poor.

This would be a particularly relevant tool for Indonesia, which already has a long tradition of targeted cash-transfer programmes, using statistical information to identify beneficiaries. One obvious cost of this option is nonetheless that the large informal sector may discourage individuals from registering for the programme. Regarding electricity, another possible compensation measure would be to subsidise new connections for households that have no access to the grid. This would complement the use of volume-differentiated tariffs for poor households that are already in place.

Handling the short-run social impacts of a dismantling of subsidies is challenging and has been the main reason for backlash against past reforms both in Indonesia and in other countries. Indeed, while the costs of subsidies are spread widely throughout the domestic economy, their benefits are concentrated disproportionately on certain segments of the population. The resistance to cutting subsidies can stem from: special interests with strong links to the political system (traditional rent-seeking behaviour); anxiety over the social consequences and dislocation from reform of subsidy programmes; “myths” surrounding either the need for subsidies or the costs of reform; absence of a well-accepted “justification” for reform (presumably relating to a lack of understanding of either costs of subsidies or benefits of reform). As a result, reforming energy subsidies in practice requires strong political will to take tough decisions that benefit society as a whole. The following approaches can help policymakers to overcome opposition to reforms:

- Implementing reforms in a phased manner can help to soften the financial pain of those who will lose from the change and give them time to adapt. Nonetheless, the gradual removal of subsidies carries some drawbacks: the benefits are delayed, and the reforms run the risk of being reversed later.
- The role of transparency on subsidy objectives, impacts and costs is essential in motivating the reform process. Politicians need to disseminate information on the economic and fiscal costs of current subsidies in a transparent way. Indonesia appears to be more advanced than many other countries in this regard, as it explicitly records subsidies in the budget documents. However, very little information is currently publicly available on implicit subsidies that some firms may be granted through preferential treatment in production-sharing contracts in the oil sector. A National Energy Council (Dewan Energi Nasional) was set up in 2009 to analyse energy-policy issues. Because of its composition there are reasons to believe that this body is not fully independent from the political process, despite its wide mandate and the partly democratic

election of its governing board members. Moreover, the institution is still missing a balanced and transparent decision-making structure.

- As well, it will be important to rigorously estimate the overall benefits of subsidy reform and communicate them to the general public. In particular, an understanding of the distribution of costs and benefits is essential to designing the optimal path of the reform process. OECD experience suggests that permanent and independent institutions to investigate the benefits of reforms often carry more weight than ad hoc working groups or commissions. Two well-known examples are the Productivity Commission in Australia and the German Ministry of Finance whose reports significantly influence the debate on reforms, in the case of Germany it is a biyearly subsidy report. Publishing specific subsidy reports and communicating broadly about the benefits of reforms in the media could also help raise public awareness. In the case of Indonesia, these tasks could be conferred to an independent productivity commission. Such an institution could be created as a permanent body, which would be used subsequently to estimate the benefits of reforms in a wider range of areas.
- It is also very important to consult with stakeholders in formulating reforms. Co-opting opponents to reform in the decision making or mobilising counter-interests has been found to be successful in overcoming opposition to reforms, when the latter comes from private stakeholders.
- Policy coherence is a critical aspect of successful outcomes from subsidy reform. Indeed, whole-of-government partnerships are crucial, given the multidisciplinary nature of such reform.

Conclusions and Recommendations

Overall, Indonesia is well prepared for further expansion of existing environmentally related taxes and the introduction of new elements. Hence, this report and assessment comes to a positive conclusion.

However, there are also barriers, when it comes to the elimination of fossil fuel subsidies. Here, the political environment is less favourable, not at least given that several governments already tried to abolish them and partly failed. Yet, the recent attempts of reducing them in small steps seem to be well accepted and hence politically feasible. A sophisticated strategy needs to be worked out, taking into account the various principles mentioned above in order to ensure a broad acceptance of such measures.

The likely strongest supporter for introducing EFR-elements could be the current President of Indonesia. He cannot be re-elected again. This gives him a strong position as he does not have to care too much about specific interests any more, but can take decisions which may seem unpopular at first sight, but which turn out to be beneficial for society. However, there are limitations to this due to the likely personal interests of ensuring a large inheritance to his relatives and friends as media reports. On the other hand, launching and implementing an EFR-strategy would show his leadership and ensure a positive image as courageous President.

Such announcements ahead of EFR-elements introduced or extended are very important for the society – companies, private households and others – as this allows for better planning and decision making. The summary of policy recommendations for energy subsidies is as follows:

- Stick to the commitment and the planned timetable to phase out fossil fuel subsidies by 2014 and extend the commitment to a medium-term removal of electricity subsidies
- Increase and broaden the energy taxation or introduce a carbon tax. Revenues could be recycled to finance programmes in priority areas.
- Rely exclusively on targeted compensatory measures to protect low-income households from the rise in energy prices. These measures could take the form of cash transfers or subsidies to encourage connection to the electricity grid.

- Review support to palm oil plantations and thus also biodiesel and ethanol.
- Mandate an independent productivity commission to investigate the size and costs of energy subsidies and the benefits of their removal, along with the associated distributional impacts, and disseminate the results broadly.
- Consult with stakeholders in formulating subsidy policy reforms and ensure policy coherence by involving all the Ministries dealing with energy subsidies.

Based on several reports, but mainly on several personal communications with the Ministry of Finance and GIZ, the following findings and recommendations are made:

1. General appraisal of the law on provincial and local taxes (28/2009) as it comprises many environmentally related taxes.
2. Analyse all regulations in the law 28/2009 with potentially negative environmentally impacts e.g. through exemptions and phase them out.³⁵ In fact, such an analysis should be applied to all tax laws, possibly on a regular basis like every two years including the adoption of actions how and when to phase them out.
3. The draft KLH regulation on Economic Instruments (derived from law 32/2009) compliments this law 28/2009 with potential for further
 - a) increases of tax and charge rates of law 28/2009 (as not all provinces and local administrations apply the full rates yet), and
 - b) economic instruments outside the law 28/2009.
4. Independent of the KLH regulation, KLH (in fact, any Ministry) can propose to MoF changing the tax law. Hence, a proposal for a tax shift³⁶ could be:
 - a. Reduce share of federal state value added and income taxes by lowering rates
 - b. Abolish the maximum rates for the taxes in law 28/2009 and thus allow for higher tax rates and hence also share of local and provincial environmentally related taxes
 - c. Reduce transfers from the federal to the local level to the amount that local/provincial tax revenues increase to keep balance of revenues
 - d. Make transfers increasingly depending on environmental performance of the recipient.

Recommendations for elements of a strategy for the implementation of EFR-elements:

- Announce long ahead that further EFR elements will be introduced as often many investments are done before the real introduction and application.³⁷
- Take small steps and be credible by not making sudden changes or cause shock effects

³⁵ E.g. it is not rationale to exempt any governments from the street lighting tax as these should also receive an incentive for economising its use and saving electricity. However, it has to be ensured, e.g. via different accounts and responsibilities that this payment is not just borne by a different unit within the government, but that there is a reward given to the unit which saves more than others.

³⁶ Tax „bads“, not „goods“.

³⁷ A particular striking example was the waste water charge in Germany. The tax was first proposed in 1974 and federal law on the German wastewater tax was passed in 1976. The tax regime remains regulated by this law as amended in 1986, 1990 and 1994. The federal law had to be transposed into Länder legislation, and the tax came into effect in the majority of Länder in 1981, with some following in 1982-83. Upon unification, the tax regime was extended to the five new Länder with effect from 1991, and in the case of industries not liable to previous GDR-wastewater taxes, from 1993. According to the original law, the rate of the tax was scheduled to increase from 12 DM to 40 DM from 1981 to 1986. It was subsequently increased to 50 DM in 1991, 60 DM in 1993 and 70 DM in 1997. Most investments were done between 1978 and 1983, hence the real payments of the charge were rather low, but the objective was more than achieved: investments in sewage treatment plants were accelerated.
<http://www.economicinstruments.com/index.php/component/zine/article/166->

- Allow time for adaptation of private households and industries
- Start with easy EFR-elements first
- Communicate intensively with population and stakeholders
- Build allies with them
- Use revenues for the top national priorities to build broad allies and gain acceptance.
- Inform about alternative technologies/behaviours allowing for avoiding paying taxes.
- Regular monitoring of EFR, particularly reporting on environmentally harmful subsidies (EHS) of all kinds – not “just” fossil fuel subsidies for which a commitment to phase them out until 2014 already exists –, identifying them and agreeing on a roadmap for phasing them out.