



**OECD Expert Workshop
on Estimating Support
to Fossil Fuels
18-19 November 2010, Paris**

Summary Report

by Trineesh Biswas



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Workshop Rapporteur *

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Background to and purpose of the Workshop

On 18-19 November 2010 the Organisation for Economic Co-operation and Development organised an expert workshop in Paris as part of its ongoing efforts to help understand the extent and nature of government support for fossil fuels, and to develop methods for identifying and estimating the transfers associated with various support mechanisms that can be compared across countries.

Background

Fossil fuels are the principal source of anthropogenic greenhouse-gas emissions. Reforming fossil-fuel subsidies therefore would help fight climate change while saving taxpayers' money and making public expenditures on social protection more targeted. Fossil-fuel subsidy reduction offers some of the lowest-cost emissions cuts, benefiting government coffers and the atmosphere.

In September 2009, leaders from the Group of Twenty (G-20) major economies committed at their summit in Pittsburgh to “Rationalize and phase-out over the medium term inefficient fossil-fuel subsidies that contribute to wasteful consumption,” while recognising the need to provide needy households with access to essential energy services. They requested the OECD, the International Energy Agency, the Organization of the Petroleum Exporting Countries (OPEC) and the World Bank to jointly “provide an analysis of the scope of energy subsidies and suggestions for the implementation of this initiative and report back at the next summit.”

The OECD and the OECD member countries of the G-20 Energy Expert Group (established to review countries' own fossil-fuel subsidy programmes) have been working to identify tax expenditures and direct budgetary spending that effectively support the production as well as the consumption of fossil fuels. These efforts have complemented the International Energy Agency's (IEA's) estimates of fossil-fuel consumption subsidies, mainly in emerging and developing countries.¹

In May 2010 the OECD Secretariat released a background paper, “Measuring Support to Energy –Version 1.0,” describing initial explorations of methods to identify, estimate, and classify support to the energy sector.² This background paper accompanied the OECD-IEA-OPEC-World Bank report on energy subsidies to the June 2010 G-20 summit in Toronto.

The challenges involved in measuring support to the fossil-fuel sector are manifold. Many governments use subsidies to try to achieve various economic, social, and environmental objectives; several subsidise energy in an attempt to alleviate energy poverty and facilitate economic development. However, detailed information about these subsidies is inadequate. There is no international agreement on what elements should be included in an accounting of fossil-fuel subsidies; there is no process at the international level for governments to systematically report support to the sector; accordingly, there are

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1. *World Energy Outlook 2010*. International Energy Agency. (Paris: IEA/OECD, 2010).
 2. The report is available online at www.oecd.org/dataoecd/62/63/45339216.pdf.

also numerous gaps and limitations in existing estimates of energy subsidies.³ Fossil-fuel subsidies come in a wide variety of forms, including direct transfers, government market interventions (e.g. regulations or trade measures) to keep producer prices or consumer prices artificially low, risk-sharing and foregone revenue. Generally speaking, there is more information about subsidies to fossil-fuel consumption, which exist primarily in emerging and developing economies, than production-side support, which is also provided by industrialized economies. Better information is crucial to assessing whether subsidies are indeed cost-effective at achieving the governments' stated goals, whether economic, environmental, or social.

Subsidizing Emissions

- The best estimates place the magnitude of annual subsidies to consumers and producers of fossil fuels at in the neighbourhood of USD 700 billion – equal to about 1% of global GDP.
- According to the International Energy Agency's World Energy Outlook report for 2010, subsidies to fossil fuel consumption in developing and emerging economies amounted to USD 557 billion in 2008 and USD 312 billion in 2009.
- OECD analysis found that most countries would record real income gains from unilaterally removing these subsidies, as a result of a more efficient allocation of resources across sectors. At the same time, global GHG emissions would be reduced by 10% in 2050 compared with business-as-usual.

Purpose

The workshop sought to further develop and refine approaches to measuring fossil-fuel subsidies by bringing together national government experts on measuring tax expenditures and other forms of domestic support, along with a selected group of experts from academia, other inter-governmental organizations, and non-governmental organizations.

The workshop brought participants up to date on what is known and not known about the government support for fossil fuels; discussed the OECD Secretariat's proposed framework for compiling information on support; explored the various challenges to measuring fossil-fuel subsidies; and suggested ways to advance work in the area.

The meeting also sought to leverage the OECD's long experience with estimating producer and consumer support in the agriculture and fisheries sectors to help governments achieve greater transparency and understanding with regard to their own fossil-fuel support measures. Armed with better information and data, governments would be able to make decisions about whether to keep measures in place, to remove them, or to alter them.

3. *Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative*. IEA, OPEC, OECD, World Bank Joint Report, 16 June 2010. (Prepared for submission to the G-20 Summit Meeting, Toronto (Canada), 26-27 June 2010).

The workshop focused on the following areas:

- *Lessons learned from quantifying support to agriculture, fisheries, and biofuels.* What was needed to arrive at the estimates? How valuable was the information? What are the best practices for such an exercise?
- *A framework for organizing information on support to fossil fuels.* What might such a framework look like? What are the challenges involved in measuring the various types of support to fossil fuels in both advanced and developing economies?
- *Tax expenditures.* Government tax policies can support both fossil-fuel consumption and production, while reducing government revenue. They are also hard to identify, buried as they are in government tax codes unlike straightforward budgetary spending. What do some of these measures look like? How can tax expenditures in one country be quantified and compared with those in another?
- *Future work.* What can international institutions do in the short and medium term to help advance the measurement of support to energy, particularly fossil fuels?

Summary of the Workshop

Opening Session

Helen Mountford, deputy director of the OECD’s Environment Directorate, opened the workshop by welcoming participants to the “informal and interactive dialogue” and outlining some of the key challenges facing fossil-fuel subsidy reform efforts.

Many fossil-fuel support measures have unintended effects such as encouraging greenhouse-gas emissions, she said. And despite their high cost, the political economy of fossil-fuel subsidies suggests that phasing them out will be difficult. The OECD has looked at the politics of subsidy reform and lessons learned in a number of individual country reviews.

Understanding the many shapes that fossil-fuel support measures take would help countries understand how large they are, who benefits from them, and who pays for them. “You can’t manage what you can’t measure.” Fossil-fuel subsidies are unusual in that there is much more information about their provision in developing countries than in developed ones. The OECD can help provide increased transparency, information, and data to help inform these decisions, she said.

Session 1: Setting the Scene

This session was chaired by Guillaume Sainteny (Maître de conférences à l'École Polytechnique), and the keynote speech was given by Doug Koplow (President, EarthTrack), an independent researcher on fossil-fuel subsidies.

Session 1.1: Keynote address

Koplow highlighted the importance of tracking the different forms of fossil-fuel support. He observed that even though fuel accounts for a greater share of world trade than farm products, we have far more information about agricultural subsidies than about fossil-fuel subsidies. He underscored that understanding fossil-fuel subsidies, and their full environmental cost, was essential to developing the most cost-effective solutions for reducing carbon emissions and pursuing other social, economic, fiscal, and environmental goals linked to energy issues. A failure to understand the full costs would cause windows of opportunity for cost-effective investment to be missed, and distort industrial restructuring and trade patterns.

Koplow pointed to the large gaps in knowledge about support for production in particular (in contrast with the greater availability of information on consumption subsidies). Support to production comes in many forms, from direct grants to the granting or revocation of property rights. In OECD countries, he noted, the bulk of fossil-fuel support comes through mechanisms that are not simple to measure. Meanwhile, there is no systematic or standardized evaluation of energy subsidies around the world. Where there is information about energy support, reporting requirements tend to be voluntary and different approaches to measurement result in widely differing estimates.

The need, Koplow said, was for near-real time data on support policies that would enable evaluations of their promised versus real outcomes, alongside assessments of whether governments' policies are undermining their trade or climate commitments. Outside scrutiny and benchmarking is needed; official subsidy estimates can otherwise end up much lower than external ones.

The ensuing discussion among delegates noted that the G-20 mandate's focus on "inefficient fossil-fuel subsidies that contribute to wasteful consumption" was broad enough that it allows countries to determine for themselves what constituted "inefficient" or "wasteful". Observations were made about the difficulty in making cross-country comparisons about tax expenditures. For instance, if one country taxes coal and diesel at divergent but high rates, and another country taxes both at an equal, low rate, how can the two be compared? Participants stressed that the challenges were surmountable, as similar obstacles had been in other fields, such as financial accounting. Some suggested that separating reporting from reform might make the former more palatable to governments.

Session 1.2: Lessons learned from quantifying support in other areas

Three OECD officials then described their work quantifying support in other areas, in order to shed light on how those experiences could inform work on fossil-fuel subsidies. Wilfrid Legg, from the Trade and Agriculture Directorate, explained the OECD's work on measuring agriculture support; Anthony Cox, from the Environment Directorate, recounted the experience with fisheries transfers; and Ronald Steenblik, from the Trade

and Agriculture Directorate, spoke about the challenges faced by attempts to measure biofuel subsidies.

Some common themes emerged from the three presentations. First, external influences and mandates played a crucial role in galvanising action on support measurement. For farm subsidies, it was a mandate from finance and trade ministers—not from agriculture ministers—that set the ball rolling in OECD governments. It was a report from the Food and Agriculture Organization suggesting that vast amounts were being spent on subsidies to marine capture fishing that sparked interest in the issue from several important fishing nations. For biofuels, unusually, the pressure was started by a non-governmental organization, the Global Subsidies Initiative of the International Institute for Sustainable Development.

Second, crises, and the associated perception that dramatic action was necessary, seemed to play a role in governments' willingness to engage in attempts to systematically quantify and reform subsidies. For agriculture, it was the chaos in farm production and trade of the late 1970s and early 1980s. For fisheries, awareness of declining fish stocks spurred action. For biofuels the food-price spikes of 2007-08 were instrumental in raising concerns about the effects of diverting crops to energy use.

Third, “champions” favouring accurate measurement or reform, often both, help move international efforts forward. The Cairns Group of low-subsidizing agricultural exporters helped push farm subsidy reform onto the OECD and GATT/WTO agendas. The “Friends of Fish” did it for fisheries subsidies. The OECD committee process served as a forum for a peer review in which, countries that had gone through subsidy reforms discussed the economic, environmental, and social benefits, putting pressure on relative laggards.

Common challenges and lessons emerged for subsidy quantification and reform efforts. In terms of challenges: agreeing on benchmarks is difficult, as is collecting data; self-reporting by governments increases their sense of ownership, but opens the door to inconsistency; serious monitoring requires serious resources (NGOs can valuably serve as “forward scouts” identifying significant issues in subsidy research, but may not be equipped to carry out large-scale investigations). As for the lessons: keep the estimates simple and accessible to policymakers; make the accounting system adaptable enough to incorporate changing policies; get government participation and ownership in the process; transparency is crucial; peer reviews help overcome some of the limits of self-reporting; and keep the scope of methodologies realistic.

Legg reminded participants that during the agricultural trade crisis of the 1970s and 1980s, there was no way of comparing the trade effects of different governments' support. Following a mandate from finance and trade ministers, OECD members eventually adopted the producer support estimate (PSE) methodology, which reflects market price support (usually paid by consumers), budgetary payments from governments to farmers, and budgetary revenue foregone.

On fisheries subsidies, Anthony Cox said that the FAO study, with its \$50 billion estimate for annual support, sparked a huge debate on what constituted subsidies to the fisheries sector. Considerable discussion was necessary just to establish a framework for classifying fisheries support in the OECD fisheries committee. The methodological challenges had been considerable, and self-reporting by governments has led to a degree of inconsistency in the support that they report. Unlike agriculture, the Fisheries

Committee quickly decided not to assess market price support. The Fisheries Committee has agreed to look at fossil-fuel subsidies to the sector as part of the G-20 mandate.

As for biofuel subsidies, Ronald Steenblik said that the most important subsidies were typically tax related, and that while tax rate information was usually available, tax expenditure data were not. Direct budgetary expenditures were a small part of the picture, and often spread across different ministries and jurisdictions. Price support was provided through a combination of high import tariffs, tax credits or exemptions, and blending mandates, with blenders receiving the bulk of the subsidies. While the Global Subsidies Initiative's findings did not originally get a great deal of traction with governments, and met with opposition from industry, they did raise questions among the environmental and development communities, and ultimately permeated the debate on budgetary priorities.

The discussant, Mr. Richard Wallace, a senior agriculture and forestry official from New Zealand, described his country's well-known farm subsidy reform, explaining that having OECD reports on the country's farm support helped build support for reforms by making clear that changes were necessary to boost economic growth. He noted that the farm subsidy reforms had benefited the environment by reducing fertiliser use and sheep-related erosion.

The open discussion that followed highlighted the need for analysis to “follow the money,” i.e. to see whether countries' expenditures are meeting their stated objectives. A more fundamental challenge raised was that actual declines in subsidy spending—“the holy grail”—are few and far between: more common is that payments are made less distorting; subsidies billed as “transitional” tend not to be phased out. It was noted that governments had not pushed back against the OECD's work to track their farm and fisheries support, because the data were useful and either the product of a process that had been co-operatively developed (agriculture) or self-reported (fisheries). Some pointed to an OECD checklist for identifying the environmental effects of subsidies, suggesting that it could help identify reform priorities. The PSE methodology, which has evolved over time, was likened to successive versions of software operating systems: updated to track new support patterns while still capturing older instruments of support.

Session 2. The Framework for Organising Information on Support to Fossil Fuels

This session, chaired by Patrick Messerlin (Professor of Economics, Sciences Po and Director, Groupe d'Economie Mondiale at Sciences Po), focused on the challenges involved in measuring support to fossil fuels in both developed and developing countries, assessing their fiscal cost, and developing a framework for compiling and presenting such information in a format that can be usefully compared across countries. One theme (albeit not universally shared) that started to emerge is that instead of a single unified approach, a flexible one may be more appropriate. Countries have different mechanisms for intervening, and need to be tracked appropriately. In addition, different methods of using data yield different estimates: comparisons need to be made carefully.

Session 2.1. On a framework for compiling and comparing the various support elements

Jehan Sauvage and Ronald Steenblik from the OECD's Trade and Agriculture Directorate presented an organising framework they developed for compiling data on fossil-fuel support, based on the existing methods for estimating producer and consumer support to agriculture. They noted that while a price-gap methodology might suffice to capture most transfers in developing countries, in OECD economies governments intervene at multiple points (in the form of grants, tax expenditures, in-kind transfers, and so forth), for multiple types of fuels (or indeed at different levels of government), and it is necessary to have a framework for adding up all of the various transfers. To account for the different transfers, they developed a matrix looking at to whom and what transfers were made, and what the nature of the transfer was.

Based on this framework, Sauvage and Steenblik outlined some preliminary estimates of fossil-fuel support for three unidentified OECD countries. For the three, the bulk of subsidies, combining those to both producers and consumers, went to diesel, and also to hard coal. Natural gas and jet kerosene got an important share of support. Sector-wise, power generation, road transport, and domestic aviation received a significant share of fossil-fuel support, as did agriculture.

Challenges identified by the speakers included how to account for preferential loans and credit guarantees, the time value of money in accelerated capital-depreciation provisions, and how to treat government funding of oil stockpiling, government fuel-price stabilisation schemes, and sector-specific fuel-tax reductions.

During the open discussion, it was observed that lessons learned from corporate financial accounting could be applied to the challenges identified. Royalty reductions and tax breaks were pointed to as other forms of support that are difficult to measure and compare. Attention was drawn to the difficulties in comparing excise taxes across countries, since some might have high taxes with a significant degree of variability, while others have low taxes across the board. It was suggested that one approach might be to acknowledge that no single measure may be appropriate for addressing excise rates. Also observed was the fact that there is tension between the desire for simplicity and that for a consistent set of time-series data.

Session 2.2: On challenges to measuring support to fossil fuels in advanced economies

The session's first speaker, Cees van Beers of the Delft Institute of Technology, argued that it is not sufficient to simply measure energy subsidies. Their environmental impacts, but also their other effects, such as on innovation, need to be measured. He said that the environmental impact of subsidies would depend not just on their amount, but on price elasticities (whether subsidy-induced price changes have much effect on quantities produced or consumed), regulatory policies, and the complexity of ecosystems. He added that reform efforts should identify winners as well as losers.

David Sawyer, of Enviroeconomics, described an attempt to evaluate support to the oil sector in Canada, looking at the provinces of Alberta, Saskatchewan, and Newfoundland, as well as federal government programmes. Some 68 programmes were looked at, covering a mix of CAD 2.8 billion worth of tax expenditures, royalty relief, direct spending, and credit support. Most support was for development and exploration, less for operation, and still less for research and development. A CGE modelling exercise suggested that the removal of support would leave national GDP unaffected, but cut the oil sector's GDP by 7%. Emissions would decrease 2% nationally; oil sands emissions would decrease by a tenth. Notably, the incentives were not more than offset by royalty taxes. Sawyer estimated the carbon price support equivalent to be equivalent to minus CAD 30 per tonne of CO₂ in the oil sector.

Sawyer said that measuring support to fossil fuels was complicated by the two fundamentally differing perspectives on what constituted support to the industry: (i) the first, "environmental" view, holds that any benefit to the oil sector is a subsidy, irrespective of whether it is available to other sectors; (ii) and the second, "development" view, which sees nothing as a subsidy, and everything as an investment incentive. The latter view holds that support guarantees flows of investment by creating incentives to maximise private returns. Sawyer warned of the potential for a race to the bottom, as neighbouring jurisdictions compete to provide incentives. He proposed a more balanced approach, looking at benefits that are not available to other sectors, such as direct transfers, revenue foregone, or situations in which governments provide goods or services at below their economic value. Insofar as incentives were concerned, he said that the challenge was not to find the data – the data are in fact readily available, since jurisdictions are eager to show off their incentives. Rather, the difficulty is using and interpreting the data, which tend to be a complex mix of measures allocated at the level of wells, with no overall estimates available, making the data non-comparable. One important characteristic of fossil fuels is that, usually, the subsidies pale in comparison with the value of the resource in the ground.

Ian Hawkesworth of the OECD's Budget Division and John Thompson of the Boston Institute for Developing Economies discussed government loan guarantees. Traditionally used to support small and medium enterprises, and more recently for the financial sector, loan guarantees have become an instrument of choice to support the energy sector in several OECD countries. Typically, guarantees are provided to large multinationals, on the grounds that they would not be able to secure private finance for risky investments such as oil pipelines. Cheap government credit may distort investment decisions, and when government loan guarantees account for a significant fraction of the credit market, the effects on the energy sector could be significant. Based on a survey of senior budget officials, Hawkesworth said that expenditures related to loan guarantees often do not appear in government budgets (and thus do not give the appearance of expanding

government budget deficits). He said that there was insufficient information on the subsidy component of interest income from government loans.

The discussion saw participants point to the difficulty in estimating the value to recipients or cost to governments of big one-off loan guarantees. It was also noted that new financial structures, possibly involving equity, may be used to help secure funding for the sort of large projects that often purport to require government loan guarantees.

Session 2.3. On challenges to measuring the fiscal cost of fuel subsidies

When it comes to measuring the fiscal cost of fuel subsidies, Emanuele Baldacci of the International Monetary Fund noted that there is much that the ‘price-gap’ approach can miss, such as indirect subsidies, cross-subsidies, hidden costs, and producers’ subsidies. In his presentation, he described the results of analysis requested by the IMF board in mid-2008 of how developing countries had addressed volatility in petroleum product prices. The aim was to measure the extent to which governments were letting changes in international prices pass through to consumers, and to assess the fiscal costs of government intervention.

Baldacci noted that even establishing a benchmark against which to measure deviations in prices was not simple. Oil markets are not fully competitive, affecting market-clearing costs. Furthermore, a true assessment of how much money governments are forgoing due to interventions would require the benchmark to include some ‘optimal taxes’.

The IMF measured pre-tax subsidies against a benchmark price based on the international US dollar price at the nearest hub adjusted to cover international shipping and in-country retail or marketing costs (each were taken to be USD 0.10 per litre). To measure tax-inclusive subsidies, ‘alternative optimal taxes’ of USD 0.30-0.40 per litre were taken into consideration, to capture some externalized costs.

Of the 155 countries analysed during the economic and commodity price boom years from end-2003 to mid-2008, 102 were not increasing retail prices as much as international prices. Emerging economies had lower pass-through rates—70% for diesel, 57% for gasoline, and 19% for kerosene—than either advanced or developing countries. (Oil exporters passed less than half of the diesel price increases on to consumers; for gasoline and kerosene, the figures were 35% and 11% respectively.) As of mid-2008, the global pre-tax subsidy amounted to USD 519 billion, or 0.7% of world GDP.

If prices are compared with what they would have been with full pass-through and the USD 0.40 optimal tax, the fiscal costs rise to 1.6% of GDP in mid-2008. Several OECD countries, notably Canada and the United States, tax fuel use less than this estimated optimal rate.

The fiscal costs are significant. Of the 58 countries with pre-tax subsidies, 46 have projected fiscal deficits in 2010. In 27 of these countries, deficits exceed 3% of GDP. Halving the subsidies would save over 2% of GDP, and bring deficits under 1% of GDP. Halving tax-inclusive subsidies in the 94 countries that have them would save 1% of GDP and reduce deficits to 5% of GDP for the average of these countries.

Crucially, Baldacci noted, the benefits of subsidies to petroleum products tended to accrue disproportionately to the top income quintile (except for kerosene) in the 20 developing countries measured. This regressive distribution alone, he said, was an argument for reform.

In terms of future work, analysts would need to update the dataset of retail prices and fiscal cost estimates. Challenges would be to improve the benchmarks, capture ‘hidden costs’ and tax exemptions. Baldacci called for the distributive analysis to be extended to more countries.

The open discussion saw several questions raised about what went into the optimal tax estimate – notably, whether the externalities were for congestion and accidents, or for carbon and other pollution externalities, or whether the externalities considered were relevant to the fuel in question. It was suggested that the calculations could be done for an optimal charge meant exclusively to offset carbon-related externalities. The difficulty of subsidy phase-out was discussed, given that some reforms have in the past been met with civil unrest. It was noted that the IMF’s policy advice holds that even if subsidy distribution is skewed, the bottom income quintile might suffer disproportionately from the withdrawal of its (small) share of subsidies. Government budgets and the poor would both be better served by targeted assistance and safety nets that cost less than the fiscal subsidies.

Session 2.4. On challenges to measuring support to fossil fuels in developing and emerging economies

Achmad Askolani, an Indonesian finance ministry official, opened the session with a detailed look at his country’s fiscal policies related to fuel subsidies and climate mitigation over the past decade, along with plans for implementing future reforms. Noting that phasing out fuel subsidies had considerable implications for inflation, poverty, and industrial competitiveness, he described how subsidies had been withdrawn from some types of fuel (diesel for industrial use and fuel oil), retail prices adjusted, and diversification and conversion encouraged (kerosene to LPG for cooking, and to gas for public transportation). He traced how total expenditures on fossil-fuel subsidies rose through 2008, when prices peaked, and described various fiscal incentives for climate-change mitigation and adaptation, notably to support renewable energy.

Gasoline, diesel, and kerosene are still subsidized, even though prices had been allowed to rise considerably. In 2005, the increase was almost 100%, accompanied by a cash transfer to poor people. Notably, the reform was politically successful: parliament passed it, and the president used it to his advantage in his election campaign. The volume of subsidised kerosene had been reduced, and was mainly restricted to remote rural areas.

Nevertheless, the cost of subsidies to fossil fuels has risen substantially—and gasoline prices were still low compared with Malaysia, Singapore, and even Vietnam. On top of that, demand has been growing rapidly: electricity production from fossil fuels has increased significantly, and the number of motorcycles, cars, trucks, and buses is growing rapidly.

In the future, Indonesia hopes to take money out of energy subsidies to deploy on other priorities. There are plans to eliminate fuel-price subsidies for private cars, as well as other untargeted subsidies, particularly for industry. In terms of climate mitigation, there are fiscal incentives and tax expenditures for geothermal energy, as well as price subsidies for biofuels. Medium-term planning projects deficit-reducing cuts to fuel and electricity subsidies. But these targets are fragile: parliament in 2010 rejected a budget proposal for the following year.

María Victoria Lottici, a researcher from the Centre for International Economy from Argentina's Ministry of Foreign Affairs, stressed that the G-20's commitment on fossil-fuel subsidies was limited to those deemed to be "inefficient" and that "encourage wasteful consumption". She noted also that the initiative should be a voluntary process that takes into account countries' particular needs and capabilities.

Lottici explained that country-based disaggregation revealed that while some G-20 members, such as Australia, China, India, and South Africa, are heavy users of coal, others, such as Argentina and Italy, rely more on natural gas and other energy sources. Lottici said that the G-20 should have targeted biofuel subsidies also, since they encourage the use of the fossil fuels with which they are blended, and might thus partially counteract the reduction in greenhouse-gas emissions resulting from the replacement by the biofuel of part of the petroleum in the blended fuel. In addition, she argued that low tax rates should be regarded as an "implicit" support measure, since they, too, affect prices. In this regard, she noted for example that gasoline prices measured in purchasing power parity terms were comparatively lower in the United States than in many G-20 countries – a factor that can encourage higher levels of fossil-fuel consumption.

In the ensuing discussion, questions were raised about how Indonesia decided to compensate the poor and 'near-poor' for the withdrawal of fuel subsidies. It was noted that taxes should be measured as a percentage of the pre-tax cost of gasoline as opposed to as a percentage of the final cost.

Session 3: Identifying and Measuring Tax Expenditures

This session, chaired by Stephen Matthews (Chief Tax Economist and Head of the Tax Policy & Statistics Division, OECD Centre for Tax Policy and Administration) explored how features of government tax policy could promote both fossil-fuel production and consumption. With more direct subsidies being relatively rare in OECD countries, tax expenditures are a major component of support for fossil fuels. Certain features of the tax system, such as favourable tax deductions for depletion of fossil-fuel deposits, or accelerated depreciation allowances for capital equipment, favour fossil fuel production. Others, such as tax exemptions for certain uses of fuel, favour consumption. But quantifying tax expenditures is not simple: there are both practical difficulties with finding data about them, and methodological difficulties related to their measurement.

Session 3.1. What are the tax features that promote fossil-fuel production and consumption?

Jens Lundsgaard from the OECD's Centre for Tax Policy and Administration introduced the topic by emphasizing that the ultimate aim of the exercise would be to establish a tool that national policymakers could use in their efforts to prepare tax reforms that encourage a transition to a low-carbon economy. Identifying and measuring tax expenditures would provide estimates of the revenue forgone from various kinds of tax exemptions. It would also place a spotlight on fiscal inconsistency in the sense of uneven tax rates across types of emissions and fuel use. He stressed that the need is to understand existing excise systems, and whether they can be improved in terms of both the incentives they imply for carbon emissions and revenue generation. More consistent incentives for emissions abatement would help, he suggested.

Countries that maintain domestic retail prices below adjusted world-market levels need to make the biggest reforms, but all countries can improve the way their tax systems affect fossil fuels, Lundsgaard noted. Making useful international comparisons about tax expenditures, however, can be complex. Tax expenditure analysis is typically based on benchmarks taken from national tax systems, which in turn complicates the task of developing a suitable benchmark regime. For instance, many countries tax different types and different uses of fossil fuels at different rates. If country A has a high tax rate on diesel for road use, the measured value of exemptions for the agriculture and fisheries sectors (for example) will be large; if country B has a low general tax rate on diesel, an identical exemption would be measured as a small tax expenditure. At first glance, tax-expenditure estimates would seem to indicate that country A provides more support for fossil fuels, despite the fact that its high tax rate on diesel does more to stem global carbon emissions than the low diesel tax in country B. On the production side, measurement is complicated by the special nature of tax and royalty regimes for natural resources.

Other examples of differential taxation include reduced value-added tax (VAT) rates and VAT exemptions for heating fuels. Even when these do not push prices below the world market rate, they alter incentives to buy polluting appliances. Some tax expenditures are automatic, varying with oil prices. Lundsgaard emphasised that a deeper reflection could be needed about the role of taxes and tax exemptions for public sector activities. Subsidise schools by all means for example, he said, but not through cheap heating fuel.

On the production side, fiscal practice can often differ across fossil fuel deposits with varying costs of exploitation. It was noted that such fiscal practice could reflect an attempt to raise revenues at least economic distortion, collecting more revenue from profitable fields where resource rents are large, while seeking to equate marginal incentives across all fields. Accelerated tax-depreciation allowances for capital equipment, if faster than the rate at which equipment is actually becoming obsolete, can constitute an indirect subsidy, but it would need to be assessed in the context of the nature of the fiscal regimes used by each country for natural resource exploitation. Exempting fossil fuel producers' own energy use from taxation might be justifiable from the perspective of taxing fuel at the point of the final consumer, but not from an emissions standpoint.

During the course of the discussion, many delegates recognised the challenges involved in making meaningful international comparisons of tax expenditures, but concurred that it would be useful to find an approach for doing so. Some noted that arriving at a benchmark for externalities, whether local or otherwise, would also present challenges.

Session 3.2. Tax features supporting production

In this session, Jim Greene, a Canadian finance official, and Andre Plourde, of the University of Alberta, described the Canadian tax-and-royalty regime for the oil-and-gas sector, particularly vis-à-vis Alberta's oil sands. Assessing the subsidy elements in the various tax, royalty, and accelerated capital-depreciation provisions is a complex exercise, with an additional degree of complexity presented by reforms that include grandfathering clauses.

Canada's distribution of responsibilities in terms of natural resource ownership and taxation operates as follows: the federal government levies corporate income taxes; the provinces own most of the resources and levy royalties or up-front payments for resource rights, in addition to corporate taxes of their own. Royalties, though generally a percentage of the value of production, can vary according to a formula that accounts for the productivity of each well. Different structures, more sensitive to costs, apply for oil sands, offshore, and other types of complicated fields.

Canada has over time eliminated a number of tax preferences previously provided for oil and gas production: an "earned depletion" deduction on account of exploration and development that supplemented the deduction for actual costs; a "resource allowance" that in some cases exceeded the royalty costs for which it was intended to be a proxy; and the Syncrude remission order, which allowed deductibility of both royalties and resource allowance for an early oil sands project.

For the oil-sands sector, Greene said, the federal government has an accelerated capital cost allowance provision similar to one used for new mines, allowing for taxes to be deferred by means of early deductions faster than the standard 25% rate, with lower deductions later. This effectively defers tax until the cost of capital assets has been recovered out of project earnings. He acknowledged that it is complicated to determine the revenue cost of this provision, with estimates of the annual cost in cash flow terms at around USD 300 million. With oil sands no longer novel, the government announced in 2007 that the accelerated capital cost allowance would be phased out for this sector by 2015, albeit with grandfathering for existing arrangements. The final part of the presentation discussed different approaches to measuring the tax expenditure associated

with accelerated deductions. The cash-flow approach and the net present value approach can give quite different results; each has advantages and disadvantages.

Plourde traced the evolution of tax and royalty policies for the oil-sands sector, specifically looking at how a 2007 reform affected incentives to invest in *in situ* versus surface oil sands projects. The new royalty framework, which brought in a price-sensitive base royalty and net revenue royalty rates, would discourage investment in some high-cost, low-net present value projects, he said. However, its structure provided incentives for companies to speed up expansions—the added major investment would send projects ‘out of payout’, thus delaying the onset of net revenue royalty payments.

Some delegates suggested that for capital-depreciation provisions it is more relevant to estimate the net present value of the time profile rather than the immediate budgetary impact (the latter would be appropriate for budgetary subsidies).

Some participants pointed to a problem of opposing incentives for governments. Where governments are the owners of resources, they may want to maximize their revenue from the resource. Curbing carbon, however, implies policies that favour leaving more of the fossil fuels in the ground.

Questions were raised about the water and energy costs of oil sands extraction; it was also noted that a net royalty might give companies an incentive to run up higher costs.

Session 3.3. Tax features supporting consumption

In this session, Michael Thöne, managing director of the FiFo institute in Köln, raised several questions about how to make useful comparisons of excise-tax exemptions across countries, given different tax policies. He noted that, even within countries, there are no recognized normative benchmarks for energy taxation, such as energy content, or greenhouse gases, or an agreed blend of the two. Thöne also pointed to the complex overlaps between fossil-fuel taxes. For instance, a country might have low diesel taxes, but very high car taxes on diesel-powered cars. The latter would partly offset the former.

Thöne raised questions about how energy taxes interact with emissions trading systems, arguing that tax rates on activities subject to the EU Emissions Trading System have no effect on carbon dioxide emissions: higher taxes would simply lower the price of emission allowances. He also said that, in the future, technological changes may alter the rationale for taxation: for instance, electro-mobility may ultimately require cars to be taxed on the basis of congestion or vehicle road-miles travelled, rather than fuel use.

In the discussion, it was noted that when it comes to measuring tax expenditures, “the devil is in the details.” The limits of tax expenditure analysis were also pointed to: using an electric car in Australia would imply no tax expenditures for gasoline or diesel—but the electricity would have been produced from coal.

Vincent Marcus, from the French Ministry of Ecology, Energy, Sustainable Development, and the Sea, provided figures and examples for tax expenditures relating to energy use across several sectors in France, from EUR 1.2 billion for agriculture to EUR 350 million in fisheries, and EUR 300 million for road transport (such as rebates for fuel duties for professional vehicle transport). He noted that in some cases, the purpose of the tax expenditures had already been achieved: reduced fuel taxes for agricultural use were introduced to support productivity through mechanization, a process that has already happened. For the fisheries sector, the tax expenditure accounted for a substantial share of the sector’s profits. Marcus refrained from elaborating the extent to which the various tax

expenditures might be considered support to fossil-fuel consumption. He also noted that the absence of taxes on international shipping and aviation fuel were not considered tax expenditures, because of their extra-national aspect.

Marcus argued that the ideal baseline for reform would be a single instrument per externality—for instance, a fuel consumption tax to address greenhouse-gas emissions, congestion fees to address traffic congestion, and so forth. As a second-best policy approach, however, he said it may be necessary to look at revenues and external costs, and try to balance them as best as possible, with whatever instruments are available.

During the discussion, it was observed that tax expenditures was not the full picture: there were important “features of the tax system” beyond tax expenditures that could also generate incentives to consume fossil fuels.

Katri Kosonen of the European Commission described a study of the tax treatment of company cars in the European Union, which had been undertaken by Copenhagen Economics, describing it as an example of how features of tax systems can encourage environmentally harmful behaviour and promote fossil-fuel consumption. Specifically, she argued that the under-taxation of benefits associated with company cars could be described as environmentally harmful subsidies, and unlike subsidies such as those for heating fuel, had no distributional benefits—indeed, they mainly benefit high-income earners.

Favourable tax treatment—principally, fringe benefits at the employee level rather than taxes at the company level—encouraged the use of company cars, Kosonen said. Company cars account for a significant proportion of the total stock of cars in the EU-18, and the share of company cars increases to far above 50% for the largest cars. People who use company cars often do not pay for fuel, and thus tended to live farther from work and even drive faster than they might otherwise.

Kosonen presented the methodology and results of the study, which found that the fiscal losses for the EU-18 in foregone tax revenues related to company cars was EUR 54 billion a year (around 0.5% of GDP). One estimate—based on “heroic assumptions” — suggests that carbon dioxide emissions are 4% to 8% higher than they would have been in the absence of these tax features.

The discussion primarily focused on methodological disagreements, with criticism of the methodology’s focus on car registration data rather than stock figures. Delegates also discussed different countries’ policies for company cars.

Session 4. Looking Forward

Chaired by Jonathan Coppel, economic counsellor in the Secretary-General's office responsible for co-ordinating the OECD's contributions to the G-20, the final session sought to provide guidance for short- and medium-term work on fossil-fuel subsidies, leading up to the Cannes summit in November 2011. The panellists for this session were Colin Brown, a tax expert from the Australian Treasury, Doug Koplow from EarthTrack, Stephen Matthews of the OECD, and Guy Evans from the WTO's Rules Division, speaking in their personal capacity. Their interventions were interspersed with questions and comments from delegates.

There was general agreement that international organisations like the OECD could and should play a key role by developing measurement methods and enhancing transparency around support for fossil fuels. In terms of specifics, it was widely felt that international organizations had an important role to play in contributing analysis of conceptual issues and helping establish common ground. The value of coordination in increasing the returns on finite research capacity was stressed. Different international organizations and national governments are carrying out similar work on similar issues. Pooling expertise—and where possible, data—would enable them to map out areas in which there is agreement, those in which there is partial agreement, and those where there is no agreement whatsoever. In addition, if each outlined the limitations of its own research agenda, whether on modelling, tax expenditures, credit, or insurance, overlaps could be minimised.

Multiple participants reiterated the difficulty of measuring tax expenditures and comparing them across countries. One view envisioned a role for the OECD in helping countries carry out tax expenditure analysis, but stressed that developing appropriate benchmarks would be critical in this regard, since existing analytical frameworks might have been developed for purposes other than looking at support for fossil-fuel subsidies. Another emphasized that the overarching objective was to be able to evaluate whether tax expenditures—which, unlike subsidies, do not flow out of government coffers, but simply fail to arrive in them—“earn their keep.” With fossil-fuels often subject to more than one tax, it was generally accepted that data needs would be considerable—benchmarks, counterfactuals, indications of the extent to which tax breaks are used, etc.

International organizations and governments' should continue to analyze the policies underlying different tax treatments, it was said; co-ordinating information necessary for that exercise would be useful.

There was a call for formally thinking about what sort of institutional model would be appropriate for fossil-fuel subsidy measurement, given the widespread disagreement over how support should be valued and reported. Case studies of institutions that have overcome comparable challenges, such as the International Accounting Standards Board or the International Standards Organizations could be useful.

It was noted that the World Trade Organization has an agreed definition of what constitutes a subsidy: the provision of funds, goods, services, or revenue foregone in a manner that confers a benefit on the recipient. This definition could serve as a common basis for reporting in the context of the G-20 initiative. In principle, WTO disciplines apply to fossil-fuel subsidies, albeit in terms of their effect on trade, not on emissions. Beyond that, the reluctance of some WTO members to directly tackle fossil-fuel subsidies through changes to the Organisation's rules means that the issue is likely to be addressed

only in dispute settlement. A past dispute panel has found below-market stumpage fees for lumber to constitute a subsidy; this logic may apply to the provision of extraction rights for other natural resources. There have been no disputes on fossil-fuel subsidies so far, but one WTO dispute on renewable energy subsidies is already underway.

In the mean time, G-20 countries could set a useful example by providing full notification of specific subsidies in their energy sectors. The OECD and other international organizations could facilitate the development of best-practice fossil-fuel policies. In addition, the OECD could build on its existing work on tax wedges between employer costs and employee receipts to carry out similar analysis of fuel uses. This could help identify where there are subsidies and what they do. Various international organizations could help countries analyse their own systems and develop solutions to their problems.

It was noted that further thinking is necessary on what kind of taxes might be the lowest-cost way of abating greenhouse gases, and that international organizations could play a role in this process. While congestion taxes are a local issue, carbon taxes are by definition an issue for international scrutiny, since carbon emissions are a global issue.

A point repeatedly made over the course of the workshop—that a developing country might find it hard to phase out even a regressive subsidy because they lack the means to target support to poor families who may be working in the informal sector—was pointed to as another example of where international organisations might provide useful assistance.

It was suggested that the G-20's data needs vis-à-vis fossil-fuel subsidies might be best leveraged by separating reporting from reform. This would allow data holes such as transfers created through mandates and credit market intervention to receive attention without setting off political sensitivities. Non-governmental organisations may be able to play an important role in improving transparency, many participants said, serving as a check on the international organizations' activities. Having G-20 governments explain what they included—and did not include—in their own reports could prove useful.

Various ideas were put forward regarding potential priority areas of focus for analyzing fossil-fuel support. For instance, one view held that it made sense to focus finite resources on consumption-side tax subsidies, because that would seem to yield the quickest results. On the other hand, the perception within the G-20 has been that the focus has thus far been mostly on emerging economies' fossil-fuel support, and now a more complete picture is needed, including producer-side subsidies in advanced countries. Others still called for a focus on the shipping, aviation, and road transport sector. It was observed that analysis needs to be about more than the value of support: it needs to analyse which subsidies lead to inefficient and wasteful consumption.

In the end, there was wide agreement that international organizations such as the OECD can and should play a key role in enhancing transparency surrounding fossil-fuel subsidies. It was agreed that the OECD should continue its work on tax expenditures, incorporating the input of tax and environmental experts. The data collection function would have to be kept separate from considerations about how to internalize externalities. A plea was made for realism, based on the experience with the OECD's work on agriculture and fisheries subsidies: building support among governments for work on fossil-fuel subsidies is not a task that can be completed overnight.

For more information on the OECD's work relating to fossil-fuel subsidies, visit:

www.oecd.org/g20/fossilfuelsubsidies