

Low Hanging Fruit

Fossil Fuel Subsidies, Climate Finance, and Sustainable Development

Oil Change International for the Heinrich Böll Stiftung North America
with Natural Resources Defense Council and contributions from the Vasudha Foundation (India) and Greenovation Hub (China)



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The Green Political Foundation



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Heinrich Böll Stiftung North America

The Heinrich Böll Stiftung North America is a political non-profit organization striving to promote democracy, civil society, equality and a healthy environment internationally. Headquartered in Berlin/Germany, the Heinrich Böll Stiftung has 28 offices worldwide and cooperates with more than 200 partners in more than 60 countries. Visit www.boell.org for more information.

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Oil Change International campaigns to expose the true costs of fossil fuels and facilitate the coming transition towards clean energy. We are dedicated to identifying and overcoming political and economic barriers to that transition. Visit us at www.priceofoil.org for more information.

Vasudha Foundation

Vasudha Foundation primarily works to promote environment friendly, socially just and sustainable models of energy by focusing on renewable energy and energy efficient technologies. While our work with communities is largely to develop pilot energy access models, we also translate the experience to push for policy reforms accelerating energy access. Visit us at www.vasudha-india.org for more information.

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The Natural Resources Defense Council (NRDC) is an international nonprofit environmental organization, combining 1.3 million members and online activists with the expertise of more than 350 scientists and other professionals. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. For more information, please visit www.nrdc.org.

TABLE OF CONTENTS

Executive Summary	6
1. Growing Global Political Momentum for Fossil Fuel Subsidy Removal	8
Multiple Government Subsidy Removal Initiatives, But Slow Progress	9
High Level Support for Fossil Fuel Subsidy Removal	10
Looking Towards the Mexican G20 Presidency, Rio+20, and Beyond	11
2. Background on Fossil Fuel Subsidies	12
What Are Fossil Fuel Subsidies?.....	12
Estimates of Fossil Fuel Subsidies	15
Inside the Data	15
Benefits of Fossil Fuel Subsidy Removal	17
3. Fossil Fuel Subsidies, Climate, and the United Nations Framework Convention on Climate Change	19
Shifting Annex II (Developed Country) Subsidies to Provide Climate Finance	20
Fossil Fuel Subsidies vs. Climate Finance Pledges: A Comparison of Key Countries	22
Fossil Fuel Subsidy Reporting and National Communications in the UNFCCC	23
Reporting on Existence of Subsidies	24
Reporting on Reform of Subsidies	25
Closing the Gigatonne Gap with Subsidy Removal	26
Important Progress Already	27
4. Developing Country Fossil Fuel Consumption Subsidies: Not Protecting the Poor	27
Reform Frees up Resources to Fund Better Safety Nets and Access to Cleaner Energy	27
Why Fossil Fuel Consumption Subsidies Just Don't Work	30
Better Policy Tools Exist to Protect and Provide Energy Access to the Poor	31
Fossil Fuel Consumption Subsidies: An Examination of a Few Key Countries	32
India: Targeted Subsidies Still Not Reaching the Poorest	32
Nigeria: Challenges with Subsidy Removal	38
Iran: Successful Subsidy Removal?	40
Improving the Structure of Consumption Subsidies for Energy Access and Gender Equity	42
5. Developing Country Fossil Fuel Production Subsidies: A Growing Contradiction to Sustainable Development	44
Fossil Fuel Production Subsidies and Sustainable Development	44
Fossil Fuel Production Subsidies in Emerging Economies	45
China Development Bank (CDB)	46
Brazilian National Development Bank (BNDES)	50
Fossil Fuel Production Subsidies from International Sources	54
Development Banks	54
Export Credit Agencies and Bilateral Aid	56
6. Political Opportunities for Ending Fossil Fuel Subsidies	57
Possibilities in the Context of the G20 and Rio+20 in 2012	57
Possibilities in the Context of the UNFCCC in 2012 and Beyond	58
Conclusion	60
Appendix 1: OECD Country Subsidies	61
Appendix 2: Fossil fuel subsidy reform supported by 134 countries in official communications	64

EXECUTIVE SUMMARY

Recent estimates of global fossil fuel subsidies for production and consumption are staggering, putting the total near US\$775 billion annually or higher. In a time of economic hardship, dangerous climate change, and growing demand for reliable and cleaner sources of energy, these fossil fuel subsidies are a reckless and irrational use of taxpayer money and government investments.

Indeed, in 2009, G20 leaders recognized this and committed to “phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest.” A similar commitment was agreed at a subsequent Asia Pacific Economic Cooperation (APEC) Leaders meeting, which brings the total number of countries with such a commitment to more than fifty. However, progress towards meeting the goal of phasing out fossil fuel subsidies has been quite slow.

In January 2012, the UN Secretary General’s High Level Panel on Global Sustainability (GSP) unequivocally called for the removal of these subsidies in their consensus report, “Resilient People Resilient Planet: A Future Worth Choosing.” Co-chaired by the presidents of Finland and South Africa, the panel was comprised of major policy makers from 20 nations and the European Union, including the United States, Brazil, India and China, the Russian Federation and others. The report recommends to “*phase out fossil fuel subsidies and reduce other perverse or trade distorting subsidies by 2020.*”¹

In international political discussions regarding climate finance and sustainable development, the conversation is often focused on the effectiveness and potential results of climate finance as justification for any potential financial support. Annex II countries – those developed countries that are obligated to provide climate finance under the United Nations Framework Convention on Climate Change – often point to the responsibility their governments have to taxpayers to use scarce public funds wisely.

This same standard – responsibility to the taxpayers - must be applied to fossil fuel subsidies. A recent Organization for Economic Cooperation and Development (OECD) study found that there were more than US\$60 billion in fossil fuel subsidies in 2010 in Annex II countries. Scarce public funding can and should be used more wisely.

Key Findings

- A) Momentum for subsidy reform is growing. 134 nations have declared their support for fossil fuel subsidy removal in at least one of five different international forums (The G20, G8, APEC, the United Nations Framework Convention on Climate Change (UNFCCC) and the informal alliance known as the Friends of Fossil Fuel Subsidy Reform). This includes the United States, the European Union, the Least Developed Countries (LDCs) the Alliance of Small Island States (AOSIS), Saudi Arabia, Russia, Brazil, India and China.
- B) In 2012 global fossil fuel subsidies could amount to at least US\$775 billion and possibly to US\$1 trillion or more.
- C) Greater transparency in reporting is essential in order to reveal all subsidies – in particular producer subsidies in both developed and developing countries.

- D) Equity considerations must be central for subsidy removal to succeed – both within and between countries.
- E) International coordination and agreement is needed, or producer subsidy removal in particular will remain rare and incomplete.

There are four key steps that governments should take in the near term to translate their commitments into concrete action to eliminate fossil fuel subsidies:

- 1) Define Plans to Phase out Fossil Fuel Subsidies by 2015:** In Pittsburgh in September 2009, G20 leaders pledged to “phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest.” Progress however has been slow. In order to fulfill this historic commitment, leaders should immediately establish a timeline for this process. Countries should agree to eliminate fossil fuel subsidies by 2015.
- 2) Increase Transparency and Consistency in Reporting of Subsidies:** An obvious first step to removing subsidies is to catalog all existing fossil fuel subsidies. Reporting and reform should be separate processes. Up to now, the disclosure of producer subsidies in particular has been lacking in many countries. It is imperative that governments commit to fully and fairly disclosing the existence and value of all fossil fuel subsidies in order to inform robust plans for reform.
- 3) Incorporate assistance and safeguards to developing countries, as well as poor and vulnerable groups:** Fossil fuel subsidy removal, particularly consumption subsidies, will only be successful by incorporating gender-aware safeguards for poor and vulnerable groups, and by assisting with financial, technical and capacity building in developing countries, where needed.
- 4) Establish or identify an international body to facilitate and support Fossil Fuel Subsidy Reform:** An international body should be created or identified to support the global effort to phase-out fossil fuel subsidies. This body, wherever it is housed, should be transparent, inclusive to allow for civil society participation and representation, include balanced representation from developed and developing countries, and sufficiently empowered to assess commitments by countries.

The body would be tasked to define and review proper and regular reporting by all countries. This reporting should include all fossil fuel subsidy types as well as the actions and expenditures taken by countries to reduce subsidies, and be subject to independent measurement and verification.

It has been three years since the historic G20 commitment. The number of countries engaged in discussions around subsidy reform is increasing, as is the number of forums in which the topic is being discussed.

The time is now to strengthen political commitments to fossil fuel subsidy phase out with action to begin the transition from dirty fossil fuels to a cleaner energy economy. Continuing to subsidize fossil fuels makes no sense given the need to greatly reduce our collective reliance on fossil fuels that are contributing to global warming. The steps described in this report represent critical initial, overdue elements of that transition, and civil society globally stands at the ready to support government efforts to implement deadlines for phase out, reporting and international support for effective fossil fuel subsidy removal.

Fossil fuel subsidy removal is indeed the low hanging fruit of climate change actions. It is time to pick it.

1. GROWING GLOBAL POLITICAL MOMENTUM FOR FOSSIL FUEL SUBSIDY REMOVAL

Over the last several years, there has been an increase in political momentum for the removal of subsidies to the oil, gas and coal industries. In 2009, the G20 and Asia-Pacific Economic Cooperation (APEC) nations pledged to phase out inefficient fossil fuel subsidies. Since that time the effort has grown significantly, with 134 nations declaring their support for fossil fuel subsidy removal in at least 5 separate international forums.²

President Obama has made efforts to reduce fossil fuel subsidies in the United States for the last three years, and fossil fuel subsidy removal was recently mentioned by 111 nations as a tool to decrease emissions under the UN Framework Convention on Climate Change (UNFCCC).

However, despite the increased rhetoric and a number of high-level statements, progress in many areas has been slow.

Moving into the 2012 G20 Summit in Mexico, the Mexican presidency has included in its priorities for the summit promoting 'sustainable development with focus on infrastructure, energy efficiency, green growth and financing the fight against climate change.' It would be prudent for Mexico to take on eliminating fossil fuel subsidies as part of this discussion as a key source of climate finance for developing countries, including for the new Green Climate Fund, from Annex II countries³ to developing countries. Mexico internationally has long been one of the first proponents of such a global green fund. The Rio+20 Summit with its focus on the "green economy" and likely follow-up processes post-Rio such as the proposed Sustainable Development Goals (SDG) also presents an opportunity to increase political momentum for fossil fuel subsidy removal.

Mexico internationally has long been one of the first proponents of a global green fund.

In October 2010, 193 parties to the Convention on Biological Diversity (CBD) adopted the Aichi Targets as part of the 10-year Strategic Plan of the CBD. The plan "includes 20 headline targets, organized under five strategic goals that address the underlying causes of biodiversity loss, reduce the pressures on biodiversity, safeguard biodiversity at all levels, enhance the benefits provided by biodiversity, and provide for capacity-building."⁴

The third target specifically addresses harmful subsidies, stating:

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.⁵

The harmful impacts of fossil fuel subsidies, specifically, were discussed in the CBD study, titled, the "Economics of Ecosystems and Biodiversity," which states: "Subsidies to fossil fuels are of particular concern. Fossil fuel subsidies lead to increased noxious and GHG emissions while extraction of some fuels creates a huge eco-

logical footprint. They also act as a disincentive to use alternative technologies or introduce efficiency measures, and can thus lead to a technology 'lock-in.'⁶

Although the language in the CBD is less specific than other forums, if one considers the Aichi Targets to be an additional endorsement of fossil fuel subsidy removal, there is virtual global consensus on the topic. So why has progress been so slow?

Multiple Government Subsidy Removal Initiatives, But Slow Progress

In September 2009, in the Communiqué from the Pittsburgh Summit, the G20 nations⁷ committed to "rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption."⁸

However, an examination by Oil Change International and Earth Track of the state of subsidy reform in G20 countries a full year after the pledge found that "no country has initiated a subsidy reform specifically in response to the G20", and "G20 reporting of fossil fuel subsidies remains spotty."⁹

The Asia-Pacific Economic Cooperation (APEC) nations¹⁰ made a similar pledge to phase out fossil fuel subsidies in November 2009, and reaffirmed this at the recent meeting in November 2011, stating that "we agreed to rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption, while recognizing the importance of maintaining essential energy services to those most in need."¹¹

A group of non-G20 countries have come together as "Friends of Fossil Fuel Subsidy Reform" to support the subsidy commitments in the G20 and APEC. These countries include Costa Rica, Denmark, Ethiopia, Finland, New Zealand, Norway, Sweden and Switzerland.¹² This grouping is a loose but significant gathering that is active in a number of international forums.

The G20 and APEC initiatives were championed by the United States, and the Obama administration has, for the last several years, proposed eliminating roughly US\$4 billion annually in oil and gas subsidies from the U.S. federal budget. While these are not all the subsidies available to the industry in the United States, they are some of the most obvious.

But for three years straight, the U.S. Congress has not approved President Obama's budget cuts, and Congress again seems unlikely to act in 2012 – a Presidential election year.

In the fall of 2011, there was some hope that fossil fuel subsidy reduction could be included in a proposal to Congress for US\$1.5 trillion in deficit-reduction measures over the next ten years. There was support for this: In an October letter to the "Super Committee," a bipartisan group of lawmakers charged with suggesting budget cuts, 36 House Democrats urged the committee to end subsidies to the fossil fuel industry that would have saved up to US\$122 billion over the next ten years.¹³

But in the end, it proved to be an uphill battle to get the Super Committee to take a stand on fossil fuel subsidies – and perhaps that's not so surprising, given the influence of fossil fuel industry money on the Super Committee. Eight Super Committee members had received over US\$300,000 in contributions from the fossil fuel industry since 1999. This same dynamic exists in the U.S. Congress at large, and in fact the current Congress is on track to take more money than ever before from the fossil fuel industry in campaign contributions – US\$16 million and counting.¹⁴

Producer subsidy reform faces stiff political opposition because of the access that industry voices have to many levels and branches of government.

Despite that failure, two of the most progressive members of Congress, Senator Sanders of Vermont and Representative Ellison of Minnesota have introduced the End Polluter Welfare Act that would eliminate US\$113 billion over ten years in fossil fuel subsidies.¹⁵ While this bill is unlikely to pass in the near term, a large coalition of NGOs is using it as a platform for public education on the extent of fossil fuel subsidies in the United States.

Ironically, Congress has managed to cut one subsidy recently: the Low Income Heating Assistance Program (LIHEAP) was cut by 20% last year, over the vocal objections of impacted communities, mostly in the Northeast United States.

The situation in the United States reflects the global politics of subsidy reform. As seen in countries such as Ethiopia, Nigeria, and India, consumer subsidy reform is possible, but must be gradual and incorporate protections for the poorest if it has a hope of succeeding. It does not always require international coordination to succeed, although international support could certainly ease and speed reforms by providing assistance to vulnerable groups.

Producer subsidy reform is much more politically complicated. It faces stiff political opposition in every country because of the strength of industry voices in Trade and Finance ministries and because of the access that industry voices have to many levels and branches of government.

Producer subsidy reform requires international coordination, in order to alleviate national and corporate concerns about loss of competitiveness. A clear example of the need for this happened at the 2010 G20 Summit in Seoul Korea. According to numerous accounts, the final draft of the Leaders Statement contained language that would have revealed and phased out fossil fuel lending by export-credit agencies (ECAs). There is very little transparent data available on ECA lending for fossil fuels, but what is there suggests that global export credit financing could be in between US\$50 and US\$100 billion annually. Several countries reportedly balked at the idea of removing this support for their industries, and the initiative failed in the 11th hour because of fears that some countries would be disproportionately impacted.¹⁶ Because countries perceive “their companies” as being in competition with other nations’ companies, there is a perceived first mover disadvantage to producer subsidy reform that can only be overcome with international coordination. The Korean G20 effort was not enough on its own – the effort needs to be sustained and carefully built by a dedicated international staff.

It is worth noting that producer subsidy reform usually enjoys tremendous public support, while consumer subsidy removal is viewed less positively because of the impression that it helps the poor.

High Level Support for Fossil Fuel Subsidy Removal

An increasing number of high-profile public figures and reports have voiced support for removing fossil fuel subsidies. Many of these sources propose using the money from fossil fuel subsidies for climate finance.

Former World Bank Chief Economist Lord Nicholas Stern has long cited fossil fuel subsidies as an inefficient policy lever. The Stern Review on the Economics of Climate Change, published in 2006, establishes climate change as “greatest and widest-ranging market failure ever seen” and says that “at the economy-wide level, climate-change policy may be a lever for reforming inefficient energy systems

and removing distorting energy subsidies, on which governments around the world currently spend around US\$250bn a year."¹⁷

UN Secretary General Ban Ki Moon and Former U.S. Vice President Al Gore have also spoken to the need to reduce fossil fuel subsidies. In a 2009 op-ed in the Financial Times, the two stated, "Indeed, continuing to pour trillions of dollars into carbon-based infrastructure and fossil-fuel subsidies would be like investing in subprime real estate all over again."¹⁸

At the UNFCCC negotiations in Durban in 2011, Sir Nicholas Stern drew additional attention to the importance of reducing fossil fuel subsidies. In a follow-up report to the Stern Review released at the talks, this report specifically on climate finance, Stern and co-author Mattia Romani cite both World Bank numbers and the numbers given by a 2010 report of a UN High Level Advisory Group on Climate Change Financing (AGF)¹⁹ for the amounts that could be redirected from climate finance to fossil fuel subsidies.²⁰

Stern also drew additional publicity to fossil fuel subsidy removal at the climate talks in Durban, stating, "if rich nations were to stop subsidizing fossil fuels to the tune of billions of dollars a year, the money raised could go a substantial way to providing the cash needed to help poor countries develop a "green" economy and cope with the effects of climate change."²¹

A comprehensive list of high profile statements on subsidy removal can be found here: <http://priceofoil.org/fossil-fuel-subsidies/international/key-quotes/>.

Looking Towards the Mexican G20 Presidency, Rio+20, and Beyond

Moving towards the G20 Summit in Mexico in June 2012, there is hope that climate finance will be seriously discussed, including in a newly formed climate finance working group, with fossil fuel subsidy removal as a key component of Annex II countries' climate finance packages. The Mexican priorities for the summit include promoting "sustainable development with focus on infrastructure, energy efficiency, green growth and financing the fight against climate change."²²

The B20, the business advocacy grouping in the G20 process led by multinational corporations, in their Green Growth Task Force has likewise urged G20 Leaders in advance of the June Summit to "[d]evelop national transition plans to phase out inefficient fossil fuel subsidies *within the next four years*, with annual disclosure of steps taken to achieve these targets", and to "[d]isclose annually the full range of measures that support fossil fuel exploration, production and consumption..."²³

Even before the G20 pledge, Mexico had already taken some significant steps with regard to phasing out fossil fuel subsidies, with policies already in place that, based on current market conditions, will phase out subsidies to gasoline, diesel and LP gas in the medium term.²⁴ As a developing country, Mexico is not required to contribute money to the Green Climate Fund, but its significant cuts in fossil fuel subsidies put it in a good position to encourage reforms by other countries. What Mexico plans to do with the savings is not clear at this time.

The Mexican government has also already taken advantage of significant international resources to promote climate-friendly and clean energy projects, having received funding from the Inter-American Development Bank (IDB), the World Bank, and the governments of Norway and Germany for climate change-related

Mexico is not required to contribute money to the Green Climate Fund, but its significant cuts in fossil fuel subsidies put it in a good position to encourage reforms by other countries.

initiatives. While reviews of the success of these projects are mixed with regard to climate impacts,²⁵ the Mexican government has a clear interest in climate finance funding.

The Rio+20 United Nations Conference on Sustainable Development is also a venue where fossil fuel subsidy removal can be taken up. A group of 24 non-governmental organizations has initiated a bold proposal that “countries adopt a pledge to phase out fossil-fuel subsidies and provide the necessary technical and financial support to assist developing countries reform their subsidies” at the conference.²⁶ New Zealand supports the inclusion of fossil fuel subsidy reform on the Rio+20 agenda,²⁷ as does Switzerland.²⁸ The Rio+20 outcome could also include a clear timeline for the phase-out, and it could also be an important venue to advance fossil fuel subsidy reporting at the national level (and aggregated internationally)—to ensure that the general public has access to information about budget expenditures and bilateral financing to fossil fuels.

As initiatives move forward on fossil fuel subsidy reform, it is critical that the reform efforts target all levels of subsidies. Special attention must be given to reforming consumption subsidies, as the removal of these subsidies could adversely affect the poorest populations. However with the proper protections—requiring financial and technical assistance and a more phased, sequenced approach to end subsidies in line with the building up of national programs to redirect energy consumption—they need not. Phasing out production subsidies will not require technical or financial assistance, but will require international coordination.

2. BACKGROUND ON FOSSIL FUEL SUBSIDIES

Global subsidies to the oil, gas, and coal industries – including developed and developing countries’ production and consumption subsidies – will be on the order of US\$775 billion or more in 2012. It is important to look at the purposes of various subsidies, such as whether they are production or consumption subsidies, as well as their effectiveness, in evaluating the impact of the subsidies. It is clear, however that the potential benefits of fossil fuel subsidy removal are substantial.

What Are Fossil Fuel Subsidies?

According to the International Energy Agency definition, a fossil fuel subsidy is any government action that lowers the cost of fossil fuel energy production, raises the price received by energy producers or lowers the price paid by energy consumers.

According to the World Trade Organization, a subsidy exists if there is a financial contribution by a government or any public body where:

- a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees);
- government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);

- a government provides goods or services other than general infrastructure, or purchases goods;
- a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments; or
- if there is any form of income or price support and a benefit is thereby conferred.²⁹

There are many activities under these definitions—tax breaks and giveaways, but also loans at favorable rates, price controls, and purchase requirements. Figure 1 shows various types of government subsidies. This figure also helps explain why estimates of subsidies vary greatly. The large variety of subsidies means that accounting methods and exact definitions vary.

Figure 1 Types of Government Subsidies³⁰

Intervention Type	Description
Access	Policies governing the terms of access to domestic on-shore and off-shore resources (e.g., leasing).
Cross-Subsidy [‡] *	Policies that reduce costs to particular types of customers or regions by increasing charges on other customers or regions
Direct Spending*	Direct budgetary outlays for an energy-related purpose.
Government Ownership*	Government ownership of all or significant part of an energy enterprise or supporting service organization.
Import/Export Restriction	Restrictions on the free market flow of energy products and services between countries.
Information*	Provision of market-related information that would otherwise have to be purchased by private market participants.
Lending*	Below-market provision of loans or loan guarantees for energy-related activities.
Price Controls [‡]	Direct regulation of wholesale or retail energy prices.
Purchase Requirements [‡]	Required purchase of particular energy commodities, such as domestic coal, regardless of whether other choices are more economically attractive.
Research and Development*	Partial or full government funding for energy-related research and development.
Regulation [‡]	Government regulatory efforts that substantially alter the rights and responsibilities of various parties in energy markets, or exempt certain parties from those changes.
Risk*	Government-provided insurance or indemnification at below-market prices.
Tax ^{*‡}	Special tax levies or exemptions for energy-related activities.
* Interventions included within the realm of fiscal subsidies.	
[‡] Can act either as a subsidy or a tax depending on program specifics and ones position in the marketplace.	
Source: Koplow, D. (1998). <i>Quantifying Impediments to Fossil Fuel Trade: An Overview of Major Producing and Consuming Nations</i> . Prepared for the OECD Trade Directorate.	

Further, the calculation as to what a subsidy entails also varies substantially. For example, environmental and consumer groups might calculate how much the elimination of subsidies would save the taxpayer or the public. A less conservative estimate might include additional value to the subsidy recipient beyond the direct cost to the government. And often subsidy estimates will not include items such as defense spending. In a country like the United States, including the costs of U.S. military “defense” of the Persian Gulf region, defense spending relating to Iraq, or quantification of the environmental externalities associated with oil would substantially increase estimates of U.S. subsidies.

Additionally, fossil fuel subsidies from development banks or export credit agencies are often not included in subsidy calculations, but these institutions send billions of dollars of public money to fossil fuel projects annually.

Figure 2 shows how some of the energy subsidies work – whether by lowering the cost of production, raising the price to producers or lowering the price to consumers.

Figure 2 Main Types of Energy Subsidies³¹

Government intervention	Example	How the subsidy usually works		
		Lowers cost of production	Raises price to producer	Lowers price to consumer
Direct financial transfer	Grants to producer	•		
	Grants to consumers			•
	Low-interest or preferential loans	•		
Preferential tax treatment	Rebates or exemptions on royalties, sales taxes, producer levies and tariffs	•		
	Tax credit	•		•
	Accelerated depreciation allowance on energy-supply equipment	•		
Trade restrictions	Quotas, technical restrictions and trade embargoes		•	
Energy-related services provided directly by government at less than full cost	Direct investment in energy infrastructure	•		
	Public research and development	•		
	Liability insurance and facility decommissioning costs	•		
Regulation of the energy sector	Demand guarantees and mandated deployment rates	•	•	
	Price controls		•	•
	Market-access restrictions		•	

Estimates of Fossil Fuel Subsidies

The figures below provide estimates of various groupings of subsidies, showing a range of existing subsidies from at least US\$775 billion to perhaps US\$1 trillion or more in 2012. *Greater transparency is essential to account for actual aggregate spending as a prerequisite to inform reform efforts.*

No matter how conservatively the numbers are calculated, eliminating global fossil fuel subsidies represents a tremendous opportunity for increased efficiencies in spending, reductions in global reliance on fossil fuels and greenhouse gas emissions, and for generating a significant additional source of finance for climate-related activities and other efforts. Some countries may choose to retain some fossil fuel subsidies that they deem “efficient”. But regardless, both the subsidy and any rationale for not removing it should still be revealed.

There are also a number of additional costs of fossil fuels that, depending on how subsidies are defined, could be added to this calculation. For instance: Recently, the United States’ National Academy of Sciences estimated that externalities (mainly health costs) attributed to the use of fossil fuels are on the order of US\$120 Billion annually in the U.S. alone.³² These costs should be factored into the cost of fossil fuels, however governments have chosen to do just the opposite in subsidizing the costs of these dirty fuels. In this way, the world’s governments (and hence their taxpayers) are subsidizing fossil fuel production by not including these health costs in the price of fossil fuels. In addition, the costs associated with the impacts of climate change is in the hundreds of billions of dollars annually as well.³³ These costs will only continue to rise if fossil fuel use continues and is subsidized at the current rates.

The world’s governments (and hence their taxpayers) are subsidizing fossil fuel production by not including health costs in the price of fossil fuels.

Inside the Data

There are two institutions responsible for most of the existing reliable data on fossil fuel subsidies – the IEA and the OECD. As part of its annual World Energy Outlook, IEA now includes data on consumption subsidies in the developing world. The IEA’s analysis of energy subsidies “utilizes the price-gap approach which compares the end-use prices paid by consumers, with reference prices (i.e. prices that would prevail in a competitive market). The difference between the consumer price and the reference price is the price gap, and subsidy removal amounts to its elimination.”³⁴ The OECD further explains about price-gap methodology that:

For countries that import a given product, subsidy estimates derived through the price-gap approach are explicit. That is, they represent net expenditures resulting from the domestic sale of imported energy (purchased at world prices in hard currency), at lower, regulated prices. In contrast, for countries that export a given product – and therefore do not pay world prices – subsidy estimates are implicit and have no direct budgetary impact. Rather, they represent the opportunity cost of pricing domestic energy below market levels, i.e. the rent that could be recovered if consumers paid world prices. For countries that produce a portion of their consumption themselves and import the remainder, the estimates represent a combination of opportunity costs and direct government expenditures.³⁵

Figure 3 Estimates of Fossil Fuel Subsidies³⁶

Amount (in USD annually)	What type/ from where?	Explanation and sources
\$630 Billion	Consumption Subsidies in Developing Countries	The most widely cited figure for fossil fuel subsidies, although it only covers consumption subsidies for developing countries. The International Energy Agency expects this figure could \$630 billion in 2012. ³⁷ This number fluctuates widely with the price of oil – it was \$409 billion in 2010 and \$557 billion in 2008.
+ \$45 billion	Consumption Subsidies in Developed Countries	Conservative accounting of fossil fuel subsidies compiled by the OECD ³⁸ and analyzed by Oil Change International ³⁹ . \$45 billion is the 2008-2010 average of annual consumption subsidies.
+ \$100 Billion	Producer Subsidies Globally	This figure was cited in the June 2010 Report for G-20 leaders ⁴⁰ from OECD, IEA, World Bank and OPEC (Page 4), among other places. Greater transparency is certainly needed here to further refine this figure.
<p>\$775 BILLION in fossil fuel subsidies -- This year, based on best available data, there will be \$775 Billion worth of global fossil fuel subsidies that can be reliably estimated.</p> <p>There are many additional subsidies that support fossil fuel production and consumption around the world. Some of these additional sources are listed below:</p>		
+???	Production Subsidies in Developing Countries	While it is difficult to fully gauge the amount developing countries spend to subsidize production of fossil fuels, there are clearly a number of countries in the developing world where these subsidies exist. Countries such as Brazil, Indonesia, China, India, South Africa and elsewhere have large fossil fuel production industries, often supported heavily by governments (if not state-owned entirely).
+???	International Financial Institutions (IFIs) and National Development Banks	As of 2010, Oil Change International, in its "Shift the Subsidies" ⁴¹ database, has identified over \$15 Billion in annual fossil fuel support from international, regional and bilateral public financial institutions around the world. This database does not currently include lending from Chinese and Brazilian institutions and preliminary data indicates they may add \$100 billion or more annually. It is likely that not all of this financing actually qualifies as a subsidy; however, lack of transparency prevents a more thorough analysis currently.
+???	Export Credit Agencies (ECAs)	ECAs are bilateral organizations that provide financial services to support the overseas trade and investment activities of private domestic companies. While exact figures on ECA support for fossil fuel projects are difficult to obtain, ECA financing often dwarfs official development assistance and historically a large portion of projects have been fossil fuel related. Like IFIs, it is likely that not all of this financing actually qualifies as a subsidy; however, lack of transparency prevents a more thorough analysis currently.
+ ???	Securing fossil fuel supplies (Military Subsidies for Fossil Fuels)	The cost of protecting shipping lanes in the Middle East, defending oil pipelines, etc. is quite substantial, and not currently accounted for in standard fossil fuel subsidies reporting. From the United States alone, some estimates put the cost of defending fossil fuel supplies at \$500 billion annually. ⁴²
<p>Approaching \$ 1 TRILLION estimated annual global fossil fuel subsidies</p> <p>These additional subsidies bring the total amount of annual global fossil fuel subsidies up to \$1 Trillion annually or even more. It is clear that greater transparency and reporting from governments is needed to arrive at a more robust accounting of total fossil fuel subsidies.</p>		

Understanding this methodology is important to understanding the politics of fossil fuel subsidy reform internationally. Fossil fuel exporting nations argue that because the resource is coming from their lands, and because transport and distribution costs are substantially less because they're not going far, they are only offering the product for less because their costs are less in country.

Separately, the OECD has begun compiling data on subsidies that *"uses a broad concept of support that encompasses direct budgetary transfers and tax expenditures that provide a benefit or preference for fossil-fuel production or consumption, either in absolute terms or relative to other activities or products."*

The topic of subsidy removal in developed countries is still very politically sensitive – particularly producer subsidy removal. OECD notes that *"(s)uch measures are classified as support without reference to the purpose for which they were first put in place or their economic or environmental effects. No judgment is therefore made as to whether or not such measures are inefficient or ought to be reformed."*⁴³

It is of note that the IEA and OECD reports completely exclude production subsidies in emerging economies and developing countries, which would add billions of dollars to the total subsidy figure (see chapter 5 on production subsidies in developing countries). These subsidy estimates also do not include public money from development banks and export credit agencies, which provide tens of billions of dollars a year to the fossil fuel industry globally.

An examination of subsidies policy by policy (or budget item by budget item), as was done in the OECD study, may produce very different results than a more general price gap approach that estimates subsidies by comparing domestic fuel prices to an international reference benchmark, which was done in the IEA study.

The fact that these two studies are quite different is evidenced by a disparity in subsidy amounts for two countries, Mexico and Korea, which are analyzed in both studies. In 2010, the IEA data finds that Mexico has US\$9 billion in consumption subsidies, while the OECD data describes approximately US\$700 million in consumption subsidies. Conversely, the IEA data finds that Korea has US\$180 million in consumption subsidies in 2010, while the OECD data describes US\$1.6 billion in consumption subsidies.⁴⁴

Finally, the OECD notes prominently that because the methods of subsidy estimation by OECD and IEA vary so greatly, the subsidy numbers from both studies should not be added together. We have chosen to acknowledge but ignore this advice for the purpose of this analysis, as it seems valid to us to add these two number sets together because they focus for the most part on both different countries and different types of subsidies.

A lot of space is devoted to debating and revealing data around international fossil fuel subsidies. While there is an obvious need for this, what this debate primarily reveals is the urgent need for greater transparency around this issue. If subsidy reform is to be successful, it is imperative that governments reveal all of the different ways in which they support fossil fuel production and consumption.

If subsidy reform is to be successful, governments must reveal all of the different ways in which they support fossil fuel production and consumption.

Benefits of Fossil Fuel Subsidy Removal

One of the most obvious benefits of removing fossil fuel subsidies is increasing the availability of public money. Particularly in challenging economic times, when

governments are on tight budgets and need to reduce unnecessary expenditures, the elimination of production subsidies that directly benefit the already profitable oil, gas and coal industries makes economic sense. Removal of these subsidies can generate hundreds of millions if not billions of dollars.

According to a Global Subsidies Initiative review of six respected modeling and empirical studies of fossil fuel subsidy reform, all of the studies the review examined, “found that fossil-fuel subsidy reform would result in aggregate increases in gross domestic product (GDP) in both OECD and non-OECD countries. The expected increases among the studies ranged from 0.1 per cent in total by 2010 to 0.7 per cent per year to 2050.”⁴⁵

In addition to the economic gains from ending subsidies for fossil fuels, subsidy removal would also reduce greenhouse gas emissions that lead to global warming. According to the International Energy Agency, if fossil fuel subsidies were completely phased out by 2020 global primary energy demand would be cut by nearly 5 percent and carbon dioxide emissions by 5.8 percent, or 2.6 gigatons.⁴⁶

Further, reducing fossil fuel subsidies would also create local environmental benefits. Although there is less research quantifying these benefits, as with greenhouse gases, the reduced point source pollution, air quality and water quality impacts could be substantial. Added to these are other social benefits, such as reduced health impacts - for example from reduction in gas flaring.

Ending fossil fuel subsidies is a key policy step for transitioning to a clean energy economy. For global warming to be addressed in a meaningful way, a fundamental shift in energy production is needed. As the UN Environment Programme (UNEP) notes, “in the absence of radical intervention by governments, fossil fuels will remain the dominant energy sources.”⁴⁷ Fossil fuel subsidy removal puts renewable energy on a level playing field, giving these new, clean technologies a chance by reducing the cost differential.

All of these benefits from fossil fuel subsidy removal make redirecting fossil fuel subsidies a good option for public climate finance contributions in the context of fulfilling developed countries’ financing obligations to developing countries, including through the Green Climate Fund. UNFCCC Annex II countries would be able to raise public money for climate finance in developing countries without having to increase budgets or make financial choices that might hinder economic recovery. Additionally, the resulting climate and environmental benefits further the goal of the climate convention, to “prevent dangerous anthropogenic interference with Earth’s climate system,” as an added benefit.

Box 1 Inefficient Subsidies

The G20 pledge and other subsidy reform efforts have emphasized the phase out of economically “inefficient” subsidies, as opposed to a blanket phase out of all fossil fuel subsidies. Generally, economically efficient subsidies would not “undermine incentives for suppliers or consumers to provide or use a service efficiently, minimizing market distortion.”⁴⁸ The G20 countries have decided to determine their own definitions of efficient and inefficient subsidies, and many countries have chosen to declare many of their fossil fuel subsidies as “efficient.”

However, a reasonable definition of an ‘inefficient subsidy’ would disqualify many, if not all fossil fuel subsidies. According to UNEP, an economically efficient subsidy should not: lead to higher

energy use or reduce incentives to use energy more efficiently by lowering end-use prices; undermine a producer's ability to invest in new and cleaner infrastructure because the price they receive has been lowered; reduce incentives for producers to minimize costs due to lack of competition; drain government finances; lead to physical shortages due to artificially low prices; increase reliance on imports as a result of increased demand; or undermine the adoption of other technologies.⁴⁹

UNEP further suggests that a well-structured subsidy program, in addition to being economically efficient, might be:

- Appropriately targeted, meaning that subsidies would only go to those who are meant to receive them;
- Justified through cost-benefit analysis;
- Affordable to the government or entity providing the subsidy;
- Transparent, with information on the amount of government money spent on the subsidy disclosed; and
- Limited in time, with sunset clauses that discourage dependency and wildly increasing costs to the program.⁵⁰

If the interests of a subsidy are to provide for the poor and to minimize costs, a program should target the poorest segments of the population or those without access to energy services, paying particular attention to the gender differences in energy access and energy usage, and should take into account the externalities of the promotion of the technology in question. With the high environmental costs of fossil fuel subsidies, such as local pollution and greenhouse gas emissions that lead to climate change, fossil fuels should not be favored for subsidies. Decentralized, renewable energy targeted at the lowest income people and those people without energy access make economically more sense.

3. FOSSIL FUEL SUBSIDIES, CLIMATE, AND THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

There are two important ways that a fossil fuel subsidy phase out can benefit the climate. First, elimination of fossil fuel subsidies, and thus a reduction in the production and consumption of fossil fuels, can contribute to closing the gigatonne gap that exists between current mitigation pledges and the level of emissions reductions needed to stay below 2°C, let alone 1.5°C.⁵¹ Second, eliminating fossil fuel subsidies can free up finance needed for urgent mitigation and adaptation to climate change.

In the context of the United Nations Framework Convention on Climate Change (UNFCCC), three important avenues exist for pursuing these goals

- 1) Shifting Annex II (Developed Country) Subsidies to Provide Climate Finance;
- 2) Reporting on Subsidies under National Communications & Biennial Reports;
- 3) Increasing ambition for emissions reductions through subsidy phase out.

Each of these areas is examined below.

Shifting Annex II (Developed Country) Subsidies to Provide Climate Finance

While developed country governments are struggling to fulfill their promise of mobilizing US\$100 billion a year by 2020 for climate mitigation and adaptation, much, if not all, of that money may be right in front of them. Fossil fuel subsidies in developed countries – specifically Annex II countries⁵² under the UNFCCC – have particularly been targeted as a source of public climate finance contributions, including those to be channeled through the Green Climate Fund (GCF). Fossil fuel subsidies in Annex II countries have the potential to be a significant source of climate finance, as their total may approach US\$100 billion a year.

Under the UNFCCC, developed countries have committed to providing funding for developing countries to transition from fossil-fuel-based economies to clean energy, climate resilient development pathways.

The UNFCCC and related agreements lay out some of the principles of climate finance, and, in addition, other important principles from environmental agreements and Parties' existing human rights obligations are instructive as the climate finance regime develops. The Heinrich Böll Foundation and others have identified some of the key principles relevant to the mobilization of climate finance:

Key principles to mobilize climate finance include transparency, accountability, the polluter pays principle, new and additional assistance, adequacy and finance predictability.

- The measurement of the amount of public climate finance from developed to developing countries, the reporting of the amounts and flows of that finance, and the verification of those flows should be *transparent and accountable*.
- The contributions towards climate finance should reflect the *polluter pays principle* ("common but differentiated responsibility") and *respective capability* of the country.
- Climate finance should be *new and additional* to current overseas development assistance and other pre-existing financial flows from developed to developing countries.
- The amount of climate finance should be *adequate and precautionary* in that it should be sufficient to keep global temperatures at a safe level.
- The flows of climate finance should be sustained in the medium and long term in such a way that the finance is *predictable*.⁵³

The scale of finance required – particularly to be 'adequate and precautionary' – is substantial, and may well outweigh current commitment levels. However, at present, countries have committed to supplying US\$30 billion in "fast start finance" for the period 2010 to 2012, and to scale up finance to US\$100 billion annually from public, private and innovative sources by 2020. The timeliness and scale of these commitments, as well as how they are managed, will be critical to ongoing negotiations under the convention, as they will reflect the level of trust between developed and developing countries.⁵⁴

The Green Climate Fund (GCF), which was established at the 16th Conference of Parties in Cancun, is being developed as the main multilateral financing mechanism for climate finance. The GCF was envisioned as the key repository for the pledged long-term climate finance of US\$100 billion a year by 2020, although it is unclear how much money will be channeled through the Fund.⁵⁵ Regardless of how the money is channeled, however, the possible sources for the significant amount of resources pledged for climate finance, and the public portion of these funds, continues to be a hot topic of discussion.

The UN Secretary-General's High-level Advisory Group on Climate Change Financing (AGF) identifies a number of possible sources of climate finance, including:

- **Public sources of finance**, such as revenues generated by removing fossil energy subsidies in developed countries, revenues from fossil fuel extraction royalties/licenses, revenues from carbon taxes, revenues from a financial transaction tax, revenues from the international auctioning of emission allowances or the auctioning of emission allowances in domestic emissions trading schemes, revenues from offset levies, revenues generated from taxes on international aviation and shipping, revenues from a wires charge on electricity generation, or direct budget contributions;
- **Development bank instruments**, such as resources generated via multilateral development banks using current balance sheet headroom (which could be used for climate finance but would not necessarily be considered new and additional), resources created via potential further replenishments and paid-in capital contributions, or potential contribution to a fund dedicated to climate-related investment financed through special drawing rights;
- **Carbon market finance**, or "transfers of resources related to purchases of offsets in developing countries"; or
- **Private capital**, or "flows of international private finance resulting from specific interventions by developed countries."⁵⁶

Figure 4. 2010 Annex II Total Fossil Fuel Subsidies (in millions of USD)

Country	2010
Australia	7,356.31
Belgium	2,286.43
Canada	2,025.82
France	3,463.56
Germany	10,376.07
Iceland	0.00
Ireland	0.00
Italy	2,051.60
Japan	416.09
Netherlands	471.67
New Zealand	40.82
Norway	953.07
Spain	3,547.18
Sweden	3,335.47
United Kingdom	5,646.42
United States	15,087.32
TOTAL	62,683.19

Source: OECD, November 2011

The report clearly shows that achieving US\$100 billion in climate financing by 2020 is an achievable goal – even if the numbers used by the AGF are absurdly low. In terms of fossil fuel subsidies, the report suggests that fossil fuel subsidies are between US\$3 to US\$8 billion in those Annex II countries, which are members of the G20 and assumes 100 percent of these resources are used for climate finance.

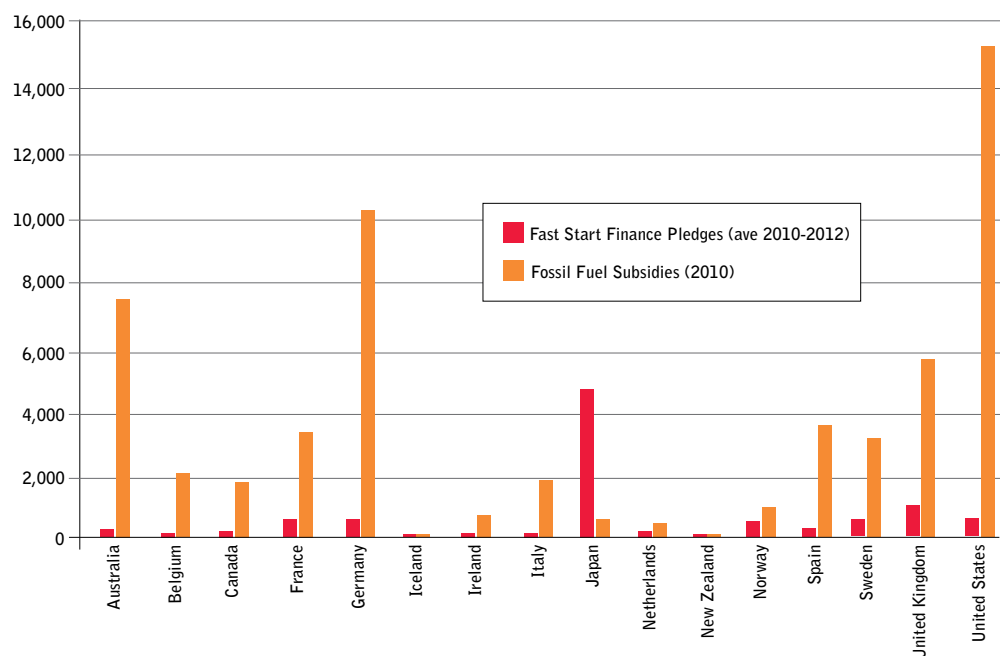
This low estimate is based on country self-reporting in the 2010 G20 report⁵⁷ from OECD, IEA, the World Bank and OPEC.

By comparison, an October 2011 OECD report that actually investigated tax codes found an order of magnitude more fossil fuel subsidies in these same countries in 2010, totaling more than US\$60 billion in 2010. This strongly suggests that there is potentially much more additional funding for climate change action available from this finance source.⁵⁸

Fossil Fuel Subsidies vs. Climate Finance Pledges: A Comparison of Key Countries

The combined country pledges for fast start climate finance from 2010 to 2012 approach the US\$30 billion that was originally proposed, although it is obvious that a significant part of these pledges are neither new money, nor additional to existing development aid, but often redirected development funding given in form of loans, not grants. However, the fossil fuel subsidies in nearly all the countries that pledged fast start finance significantly overshadow the climate finance pledges (See Figure 5). For the countries where there is data available for both fossil fuel subsidies and fast start finance pledges, the existing fossil fuel subsidies total six times the fast start climate finance pledges.

Figure 5 Fossil Fuel Subsidies vs. Climate Finance Pledges for Annex II Countries (in millions of USD)⁵⁹



The countries with the highest levels of fossil fuel subsidies – United States, Germany, and Australia – have generated only fractions of those amounts for climate finance. Japan is the only country with a higher climate finance pledge than fossil fuel subsidies, although it is important to point out that this pledge is based on data that is not transparent and is only a pledge, not yet paid.

Fossil Fuel Subsidy Reporting and National Communications in the UNFCCC

Under the UNFCCC, there is a need for specific and *transparent*, measuring, reporting and verification guidelines regarding the reporting of fossil fuel subsidies of all types by all Parties.

There is broad, high level political agreement on the need to eliminate both production and consumption fossil fuel subsidies. The G20 and APEC processes are ongoing, but to date have produced reporting of varying quality. Because the UNFCCC has a Secretariat and a well functioning reporting arm in National Communications, it should be used to augment these existing processes in the interests of transparency.

However, basic transparency is lacking. An obvious first step to removing subsidies is to catalog all existing fossil fuel subsidies. Reporting and reform should be separate processes, in order to establish a clear understanding of where fossil fuel subsidies exist. Up to now, the disclosure of producer subsidies in particular has been lacking in many countries. It is imperative that governments commit to fully and fairly disclosing the existence and value of all fossil fuel subsidies to form the policy basis for informed, robust plans for reform.

Fossil fuel subsidy reporting requirements in reporting guidelines should be part of:

- The revision of guidelines for the review of national communications for Annex I Parties;
- The revision of the common reporting format, in the interests of transparency and common understanding of national circumstances.
- The development of modalities and guidelines for biennial reports as part of national communications from non-Annex I Parties.

As agreed, Non-Annex I Parties cannot be required to report on anything that Annex I parties do not. Cancun LCA Para 60, (a) states “The content and frequency of national communications from non-Annex I Parties will not be more onerous than that for Parties included in Annex I to the Convention”. Therefore reporting of all types of subsidies should eventually be mandatory for all Parties to the UNFCCC, but with Annex I countries setting the best practice example.

In its March 2011 submission⁶⁰ relating to a work program for the development of modalities and guidelines, New Zealand noted:

Improved transparency will also be an important element in helping countries demonstrate a complete picture of what climate change action is being taken at the national level. Measuring, reporting and verification (MRV) guidelines should encourage countries to include in their national reporting, actions taken primarily under other international commitments but which also have valuable mitigation

Under the UNFCCC, there is a need for specific and transparent, measuring, reporting and verification guidelines regarding the reporting of fossil fuel subsidies.

benefits. One example is the reform of fossil fuel or energy subsidies. These reform commitments to phase-out inefficient fossil fuel subsidies have been made in the G20 and APEC contexts, but their mitigation potential creates clear linkages to the UNFCCC agenda. New Zealand would like to see progress in implementing related mitigation actions, such as progress in reforming fossil fuel subsidies, included as part of the transparency framework. Reporting on fossil fuel subsidy reform is also helpful from a domestic policy perspective as it clarifies for governments the cross-linkages and impacts between policies with different objectives, but which have mutually reinforcing outcomes.

In order to facilitate comprehensive reporting, the guidelines should encourage reporting of action that might not have mitigation as primary objective but still have mitigation benefits. Reform of fossil fuel subsidies is one example in this regard.

Reporting on Existence of Subsidies

Where: National Communications

The status of fossil fuel subsidies should be reported on in a sub-section of a country's national circumstances, based on an agreed definition and common reporting format. As the purpose of reporting on subsidies should be to simply increase transparency, reporting under the national circumstances section is the most appropriate location.

The current guidelines provide a great deal of flexibility for countries to report on their national circumstances, as is to be expected in light of the diversity amongst countries. That said, given the potential contribution to close the gigatonne gap that phasing-out of fossil fuel subsidies can make, it is clear that countries should, as a first step, start to report on the current status of their subsidies.

This reporting should be mandatory for developed countries and highly encouraged for developing countries. However, as G20 and APEC nations (a total of 53 countries, both Annex I and Non-Annex I) have already undertaken a firm commitment to phase-out fossil fuel subsidies, it is expected that all of those countries would report fully on current subsidies in their national communications.

Where: Biennial Reports

Under the Convention, developed countries committed to reporting on policies and practices which may lead to greater levels of emissions than would otherwise occur,⁶¹ though reporting to date has been limited. In fact, expert review teams have regularly recommended that Parties consider the impact of certain policies and measures on increasing emissions in future reports. Clearly, if the world is going to have any chance of limiting warming to 2°C or 1.5°C and succeed in transitioning to a low-carbon future, consideration of measures counterproductive to such aims is prudent. That discussion is broader than the provision of fossil fuel subsidies alone; however its consideration should be central. Given their commitments since the adoption of the Convention, such reporting should be mandatory for developed

countries and highly encouraged, for developing countries, as it will be beneficial for their own domestic planning purposes.

While updates of a country's national circumstances are not envisaged as part of the biennial reports, this does not mean that any changes to fossil fuel subsidies provided should only be reported every four years. Rather, if a country has started to phase-out its subsidies, reporting on such activities should be included in the discussion of its mitigation policies and measures (see section below on reporting on reform).

How: Agreed Definition & Common Reporting Format

Past reporting experience demonstrates that the only way to ensure comprehensive reporting from countries will be through agreeing on a common definition for subsidies and establishing a common reporting format and methodology. There is no need, however, to reinvent the wheel or to lose precious negotiating time on discussing possible definitions. The *WTO's definition of subsidies* already has broad support and should be incorporated into the reporting rules here, especially given the fact that all WTO parties are also parties to the UNFCCC.⁶²

Reporting on Reform of Subsidies

Where: Mitigation Actions section of Biennial Reports & Policies and Measures section of National Communications

Reporting on the phasing out of fossil fuel subsidies should be highly encouraged of all Parties, given its potential contribution to bridging the gigatonne gap. G20 and APEC countries have already committed to phasing out subsidies. While such commitments were made in other forums, their contributions to stopping climate change are clear and any specific actions taken to eliminate subsidies should, at a minimum, be reported on in the UNFCCC.

There is significant scope for the development of supported NAMA projects related to the provision of technical and financial assistance to support developing countries in phasing out their own fossil fuel subsidies. Reporting of fossil fuel subsidy reform by developing countries could occur in both the biennial reports and support NAMA reporting structures.

Developing countries are expected to produce Nationally Appropriate Mitigation Actions (NAMAs). Reform of existing consumer subsidies seems ideally suited to being described as a NAMA, and doing so could potentially entail financial and technical support to make subsidy reform politically possible. Such actions would be win-win for national budgets and the climate.

In short, there are multiple paths forward for subsidy reform advocates in the UNFCCC. Because the Climate Convention has a Secretariat and a functioning reporting arm, it should be used to augment the existing processes in the interests of transparency. Subsidy reform is in fact too important an issue to leave to one institution. Its progress in any or all forums will require the engagement of country champions, and there is a thriving community of subsidy reform advocates ready and willing to support them in their efforts.

Comprehensive reporting will need agreement on a common definition for subsidies and a common reporting format and methodology.

Closing the Gigatonne Gap with Subsidy Removal

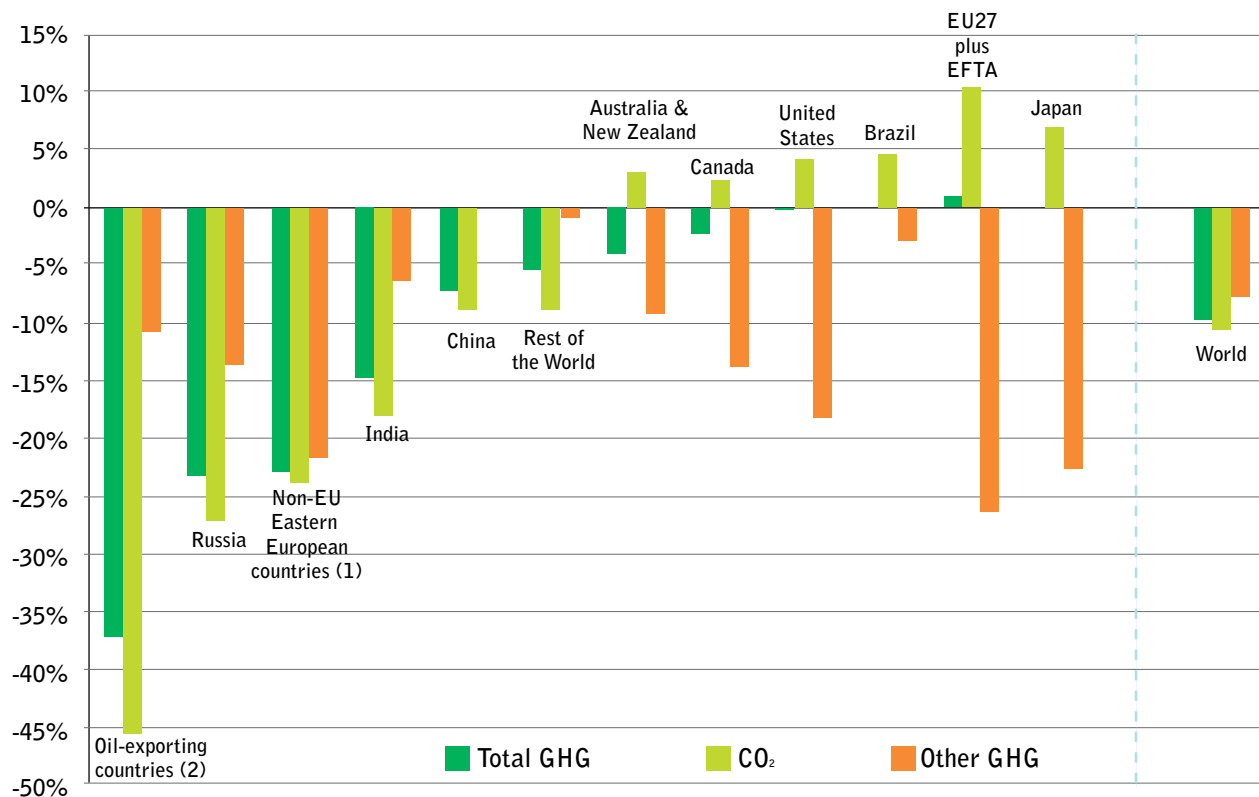
Fossil fuel subsidies increase greenhouse gas emissions. Analysis by the International Energy Agency (IEA) shows that phasing out subsidies to fossil-fuel consumption in the 37 largest developing countries could reduce energy related carbon dioxide emissions by 6.9% in 2020 compared to business as usual, or 2.4 gigatonnes.⁶³ These reductions alone would be roughly 40% of the reductions needed between now and 2020 to put the world on the path to 2 degrees by 2050.⁶⁴

The IEA analyzed projections of three policy scenarios: the New Policies Scenario, the Current Policies Scenario and the 450 Scenario in its World Energy Outlook (WEO) 2011. The 450 scenario is the only one that achieves an energy pathway with a "50% percent chance of meeting the goal of limiting the increase in average global temperature to two degrees Celsius (2°C), compared with pre-industrial levels."⁶⁵

Fossil fuel subsidy removal is a key factor to place the world on the road to stabilizing the climate. The WEO 2011 states "removal of fossil fuel subsidies in the 450 Scenario accounts for a cumulative 7.9 Gt of abatement from 2010 to 2035, relative to the New Policies Scenario."⁶⁶ Again, it is important to remember that IEA is only modeling consumption subsidy removal in developing countries.

Additional analysis by the OECD of consumption subsidy removal in developing countries is revealing. As shown below, while the model used indicates roughly a 10% possible reduction in global greenhouse gases by 2050, it does project emissions actually increasing in many developed countries. This is a direct

Figure 6 **Removal of Fossil Fuel Subsidies when Emissions in OECD Countries are Capped⁶⁷**



result of the fact that the impact of subsidy removal in developed countries, or producer subsidy removal in any countries, has not been modeled, to date.

Therefore, what this chart shows us is that information on the emissions reductions possible from fossil fuel subsidy removal is quite incomplete. This is precisely why transparency in the form of accurate and comprehensive reporting via a common reporting format and methodology is such an important requirement for this effort.

Important Progress Already

Even while increased transparency is still needed, countries have begun to recognize the emission reduction potential of eliminating fossil fuel subsidies. Ahead of the first negotiating session of 2012 under the auspices of the UN Framework Convention on Climate Change, Parties were requested to submit “views on options and ways for further increasing the level of ambition” under the newly created “work plan on enhancing mitigation ambition” within the Durban Platform for Enhance Action. Among these submissions, 111 countries were represented in submissions that called for phase out of fossil fuel subsidies to be considered as a way to increase mitigation ambition.⁶⁸ This includes all members of the Least Developed Countries grouping, the Alliance of Small Island States, the European Union, New Zealand, Norway, Switzerland, and the United States.

All of these submissions specifically reference reform, removal, reduction or phase out of fossil fuel subsidies in some fashion as a means to achieve greater emission reductions. With such a large portion the most vulnerable countries to the impacts of climate change as well as a bulk of the wealthiest countries all converging on this potential source of additional emission reductions, it seems clear that this option should remain a live element of discussions in this forum.

4. DEVELOPING COUNTRY FOSSIL FUEL CONSUMPTION SUBSIDIES: NOT PROTECTING THE POOR

Reform Frees up Resources to Fund Better Safety Nets and Access to Cleaner Energy

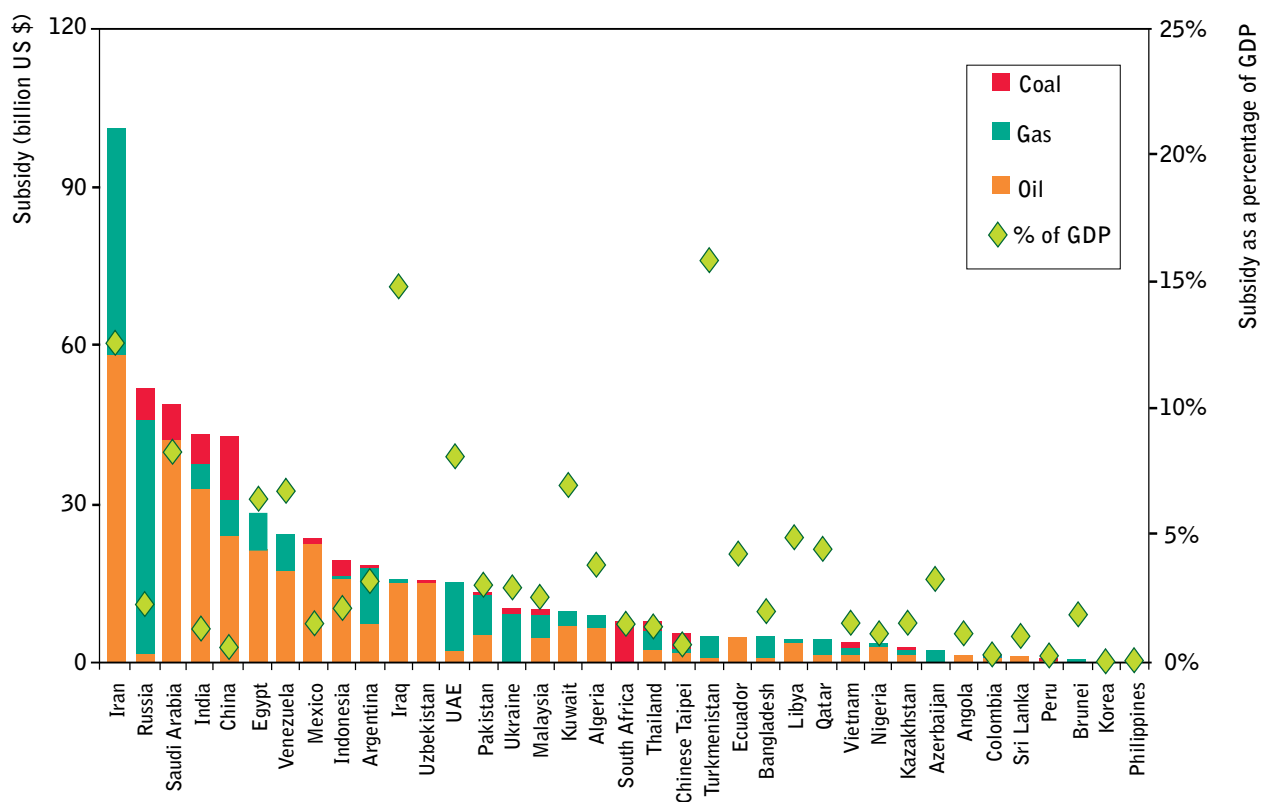
At around US\$409 billion in 2010 and growing to potentially US\$630 billion in 2012,⁶⁹ fossil fuel consumption subsidies in developing countries rarely benefit the poor, despite being justified as either a means of helping the poorest households or necessary to provide energy access to those without electricity or modern cooking facilities, a majority of which are women.

The truth is these subsidies more often benefit the elites and upper classes than the poor in developing countries.⁷⁰ To add insult to injury, major multilateral

development banks claiming that their missions are to combat climate change and finance energy access to the poor are more often lending to large fossil-fuel dependent energy projects than to gender-responsive projects to bring clean, renewable energy access to the people who need it the most.⁷¹

According to the International Energy Agency's study of 38 developing countries,⁷² "fossil fuel consumption subsidies amounted to US\$409 billion in 2010, with subsidies to oil products representing almost half of the total."⁷³ This figure is up from US\$300 billion in 2009, when oil prices were lower, but still less than the US\$554 billion in 2008. Figure 7 shows the countries and consumption subsidies included in the World Energy Outlook figures.

Figure 7 **Consumption Subsidies in Key Developing Countries⁷⁴**



Developing country fossil fuel consumption subsidies are significantly higher than the subsidies in developed countries. However, the IEA only examines 38 countries for its estimate of consumption subsidies. Of these 38 countries, 10 have consumption subsidies of less than US\$1.5 billion annually (See Figure 8). Only a fraction of developing countries have substantial consumption subsidies, not to mention the largest consumption subsidy provider, Iran, began phasing out its subsidies in 2011 (See case study on Iran).

Several studies in recent years have quantified fossil fuel consumption subsidies and examined whether they are effective tools for poverty alleviation. Generally, lower-income populations only receive a tiny share of the benefits and thus fossil fuel consumption subsidies are not an effective strategy to protect "real incomes of poor households, since they involve substantial leakage of benefits to higher-income groups."⁷⁵

Figure 8 IEA Estimates of Developing Country Fossil Fuel Consumption Subsidies (Billion dollars)⁷⁶

		2007	2008	2009	2010
1	Iran	64.56	101	64.63	80.84
2	Saudi Arabia	32.31	48.51	32.54	43.52
3	Russia	33.33	51.5	32.97	39.21
4	India	24.31	44.1	20.42	22.29
5	China	16.31	43.9	16.52	21.32
6	Egypt	19.39	27.93	14.86	20.28
7	Venezuela	18.02	24.21	14.08	19.97
8	UAE	8.03	15.02	11.16	18.15
9	Indonesia	13.17	19.02	12.56	15.94
10	Uzbekistan	8	15.21	11.5	11.9
11	Iraq	10.17	15.72	6.75	11.31
12	Algeria	5.6	8.83	5	10.59
13	Mexico	17.61	22.51	3.43	9.5
14	Thailand	2.82	7.38	3.8	8.47
15	Ukraine	6.09	9.78	6.35	7.67
16	Kuwait	6.44	9.52	6.19	7.62
17	Pakistan	7.62	12.74	5.38	7.3
18	Argentina	12.02	18.1	5.87	6.5
19	Malaysia	4.6	9.78	3.85	5.67
20	Bangladesh	2.08	4.4	3.6	5.03
21	Turkmenistan	3.55	4.82	3.11	5.01
22	Kazakhstan	1.75	2.71	1.27	4.32
23	Libya	3.35	4.32	2.21	4.21
24	Qatar	2.47	4.16	2.83	4.15
25	Ecuador	3.18	4.58	1.62	3.74
26	Vietnam	2.1	3.56	1.2	2.93
27	Nigeria	2.37	3.51	0.54	2.91
28	South Africa	5.16	5.74	2.96	2.12
29	El Salvador	0	0	0	1.19
30	Angola	0.64	1.18	0.27	1.12
31	Philippines	0.16	0.12	0.03	1.1
32	Azerbaijan	1.34	2.44	0.79	0.83
33	Chinese Taipei	2.11	5.03	1.14	0.58
34	Sri Lanka	0.44	0.9	0.05	0.51
35	Colombia	0.68	1.01	0.25	0.48
36	Brunei	0.21	0.37	0.23	0.34
37	Korea	0	0.21	0.18	0.18
38	Peru	0.16	0.62	0	0

Of the US\$409 billion total in consumption subsidies in 2010, the International Energy Agency (IEA) found that only US\$35 billion, or just 8 percent, reached the poorest 20 percent of income groups.

Of the US\$409 billion total in consumption subsidies in 2010, the International Energy Agency (IEA) found that only US\$35 billion, or just 8 percent, reached the poorest 20 percent of income groups. Furthermore, a survey of eleven developing economies comprising 3.4 billion people found that only 2 percent to 11 percent of the poorest populations were actually benefitting from fossil fuel subsidies. South Africa had the lowest share, 2 percent, of poor beneficiaries.⁷⁷

Energy financing from multilateral development banks, including the World Bank Group and regional development banks, also does not achieve the aim of increasing energy access for the poor. A study by Oil Change International of the 2010 energy financing by multilateral development banks found *that of the total US\$41.6 billion in energy financing in 2010, just US\$1.6 billion, or less than 4 percent, was explicitly directed to projects and programs to provide energy access for the poor.*⁷⁸

These figures are shockingly low when related to the pressing need to provide energy access to around 1.3 billion people worldwide and clean cooking facilities to 2.7 billion people, mostly living in rural sub-Saharan Africa or developing Asia. On this point, the IEA observes that “at present, energy access funding tends to be directed primarily toward large-scale electricity infrastructure. This does not always reach the poorest households. Access to funding at a local level is essential to support initiatives that cater effectively for local needs, building local financial and technical capacity and stimulating sectoral development... The prize would be a major contribution to social and economic development, and helping to avoid the premature death of 1.5 million people per year.”⁷⁹

Why Fossil Fuel Consumption Subsidies Just Don't Work

Fossil fuel consumption subsidies are often justified to offset the costs of petroleum, liquid petroleum gas (LPG), kerosene and electricity. Subsidies intended to reach the poorest population groups are often economically inefficient because richer households use more fuel and benefit much more from the subsidy, while poor households are only able to afford a small amount, even at subsidized rates. Artificially low prices can also lead to the fuel being diverted to other uses than for which the subsidy was intended, including selling fuel across borders or on the black market or being used for less efficient end uses.⁸⁰

The UN Environment Programme also points out that energy subsidies can hurt the poor in other ways, specifically by supporting conventional, centralized energy over small-scale, distributed, labor intensive alternatives. This can mean fewer job opportunities within a community and can also mean more pollution from power plants and refineries, which the poor are less able to move away from.⁸¹

The Vasudha Foundation conducted on-the-ground surveys of energy services to the poor in eight states in India and found that in “almost every policy design, subsidies and budgetary allocations intended to benefit the poor, end up benefiting primarily the well-off sections of the society thereby compounding the continuously ‘poor’ state of India’s rural energy infrastructure.”⁸²

In electricity subsidization, where the generation is dependent on coal, oil or gas, subsidies assist households that are already connected to a grid. In India, for example, this accounts for only about 56 percent of the population. Gasoline and diesel subsidies benefit people who own cars or other vehicles. In this case,

poorer households simply cannot afford the car, let alone the fuel. Vasudha found that “the case remains the same with regard to the supply of other energy fuels, such as liquefied petroleum gas (LPG) and kerosene, with the urban rich being the major beneficiaries of these subsidies with very little trickling down to the rural population.”⁸⁴

Better Policy Tools Exist to Protect and Provide Energy Access to the Poor

Fossil fuel consumption subsidies are a drag on developing country economies and should be redirected to invest in more efficient, well-targeted social safety nets, social services and decentralized, renewable energy services. According to a Global Subsidies Initiative review of six respected modeling and empirical studies of fossil fuel subsidy reform, all of the studies the review examined, “found that fossil-fuel subsidy reform would result in aggregate increases in gross domestic product (GDP) in both OECD and non-OECD countries. The expected increases among the studies ranged from 0.1 per cent in total by 2010 to 0.7 per cent per year to 2050.”

Reform is tricky, however, and social unrest has erupted during national efforts to eliminate consumption subsidies, demonstrating how carefully efforts need to be designed and implemented. Where subsidy reform has been successful, gender-aware social safety nets, including targeted payments to the poorest in a population have been effective. One study on the effectiveness of 24 targeted cash or near-cash transfer schemes, found that their use “has been relatively successful in ensuring that the benefits reach the poor. Out of 24 schemes analyzed for the period 2005–2008, two thirds were transferring more than half of the funds to the poorest quartile of the population.”

In addition to social safety nets, developing countries that opt for fossil fuel subsidy reform will free up resources to expand access to cleaner and cheaper forms of energy development for their populations. This point was well made recently by the IEA in an article in *The Guardian* newspaper:

*Sub-Saharan Africa received about US\$15.6bn (£9.7bn) in overseas development aid last year, but this was outweighed by the US\$18bn cost of importing oil. Fatih Birol, IEA’s chief economist said, “If you diversify the sources of energy, that is a good thing and clean energy means using free, homegrown resources so that will bring down the import bill.” When industrialised economies were developing, oil was the equivalent of US\$13 a barrel, but now developing countries must pay US\$120 to US\$130 a barrel.*⁸⁵

Clearly, fossil fuel consumption subsidies are punishing the poor in more ways than one: they divert resources from important social programs and they lock countries into highly fossil fuel addicted development pathways, throwing up barriers to decentralized, renewable energy. It is time to bring down these barriers, strengthen social safety nets, and protect people and the environment.

Fossil Fuel Consumption Subsidies: An Examination of a Few Key Countries

The following case studies demonstrate some of the challenges both of continuing fossil fuel subsidies and of reforming them.

India: Targeted Subsidies Still Not Reaching the Poorest

Fossil fuel subsidies are not new in India. They were first introduced during World War II, when India was still under British rule, and have been a practice right from the time India gained its independence in 1947. Post-independence, one of the first institutions created in India was the "Planning Commission" – the lead agency in guiding the country's growth and development, which prepared advance five-year plans for growth and development. From the very first plan, the basic parameter for energy growth has been that "per-capita energy consumption" is a key index for material development and standard of living in the country.

Fuel subsidies take various forms, including:

- direct subsidies to kerosene through a "public distribution system" established shortly after India's independence;
- subsidies to liquefied petroleum gas (LPG), started in the late 1960s, with the aim of encouraging households to use LPG as cooking fuel and gradually phasing out the use of "traditional biomass" for cooking;
- the introduction of an "administrative pricing mechanism" in 1976, which fixed the prices of all petroleum products in response to oil price shocks following the Arab oil embargo; and
- subsidized electricity supply, which involves both direct subsidies from the government, as well as cross-subsidies, where some consumers pay a higher tariff to cover the costs of consumers who pay lower tariffs.

The subsidization also extends to the government-owned oil and coal companies. Under the administrative pricing mechanism, oil companies were guaranteed a minimum rate of return. Kerosene and LPG were cross-subsidized by higher-priced petrol, diesel and other products, in addition to direct subsidies by the government, enabling the oil companies to stay afloat. The National Thermal Power Corporation, which today is the largest electricity producer in the country, and Coal India Limited, which is the largest producer of coal in the country receive support to keep the prices of electricity generation from coal as low as possible through subsidies for electricity.

The Indian government continues to face stiff opposition to either hike the prices of petroleum or discontinue the practice of subsidizing petroleum products, and the justification for opposing it is that the poor and vulnerable communities would be affected the most. Targeted assistance via climate finance and/or energy access funds could make a critical difference in moving forward with subsidy reform in India.

What attempts has India made to reform fossil fuel subsidies?

In 2002, with great fanfare, the government dismantled the administrative pricing mechanism (APM), which set fixed prices on all petroleum products. Oil companies

Targeted assistance via climate finance and/or energy access funds could make a critical difference in moving forward with subsidy reform in India.

were given some freedom to price their products based on market prices. The government also announced a gradual phasing out subsidies for kerosene and liquefied petroleum gas (LPG) over a span of 3 years.

However, two key events – the general election in 2004 and the increase in the price of crude oil in 2003 – led to the decision being put on hold. In 2004, a new coalition Central government was formed, with the support of a number of political parties, including the communist parties. The communist parties have always supported an administrative price mechanism for petroleum products and have also been staunchly opposing market-based pricing.

When crude oil prices rose to above US\$60 per barrel, the government disallowed oil companies to pass on the extra cost of refining the oil to consumers, which resulted in companies selling gasoline and diesel at a price far lower than their cost of production, which meant that the subsidies for petroleum products were broadened to include gasoline and diesel. On record, these are shown as “losses” to oil companies. But because the oil companies were largely public sector enterprises, the government plowed monies into the companies in the form of “equity,” which in actual terms was subsidizing the cost of fuel to consumers.

Further, the government also ensured that the price for kerosene supplied through the public distribution system was kept at the same rate, while also ensuring that the prices of LPG supplied to residential users remained unchanged.

From 2004-2009, the compulsions of coalition government politics led to subsidies increasing by more than 100 percent, as indicated in Figure 9 below. In 2002-03, the petroleum subsidy in India was Rs. 65 billion, which was slightly less than half a percent of India’s GDP at that time and a little over 1% of the expenditure of the Central Government.⁸⁶

Figure 9 Under Recoveries of Government-Owned Oil Companies for Petroleum Products (In USD Billion)⁸⁷

Fuel	2005-06	2006-07	2007-08	2008-09
PDS Kerosene	3.25	4.20	4.47	6.14
Domestic PG	2.31	2.51	3.86	3.83
Gasoline	0.62	0.48	1.82	1.13
Diesel	2.86	4.41	8.73	11.37
Total	9.03	11.61	19.16	22.45

Further, the financial assistance provided by the government to oil companies was a whopping US\$15.85 Billion in 2007-08, through a combination of direct budgetary subsidies for LPG and kerosene and through a direct payment to oil companies and by way of floating oil bonds. Figure 10 gives an overview of the payments made by the government to oil companies.

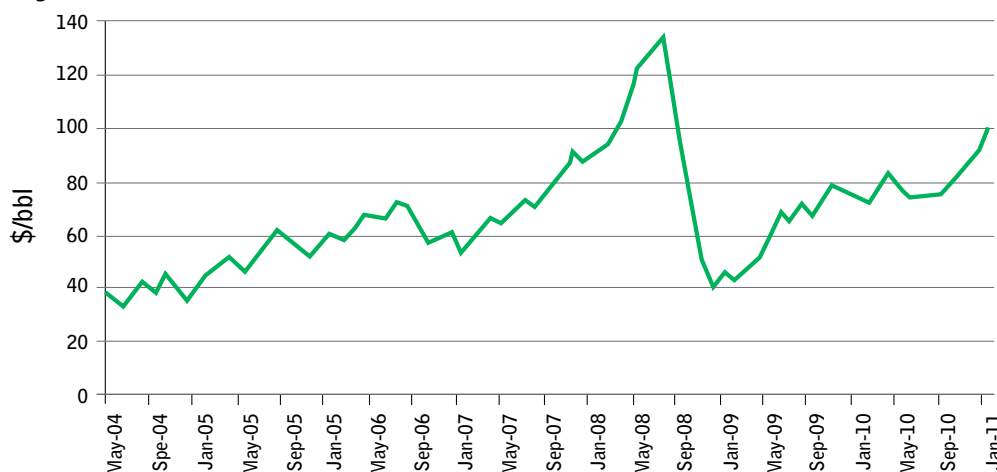
Despite the political compulsions to hold down oil prices, the government has in fact managed to increase the price of gasoline and diesel over 8 times in the last couple of years with the rising prices of crude oil (See Figure 11). Given the price increases in gasoline and diesel, the government could not either phase out subsidies, or increase prices for kerosene and LPG, though the price of LPG was increased marginally in 2011. Diesel continues to be subsidized.

Figure 10 **Financial Outflow from the Government of India to Oil Companies (in USD Billion)**⁸⁸

Type of Assistance	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
Payment made by government to oil companies (largely to offset the loss due to the gasoline and diesel prices being less than the cost of production)	0	0	1.34	3.16	4.82	6.39
Budgetary allocation towards subsidies for kerosene and LPG	1.08	1.38	0.67	0.66	0.72	0.70
Oil bonds (used to partially pay the under-recoveries by oil companies)	0	0	0	2.60	5.67	8.77
TOTAL	1.08	1.38	2.01	6.42	11.21	15.85

Despite the political compulsions to hold down oil prices, the government has in fact managed to increase the price of gasoline and diesel over 8 times in the last couple of years with the rising prices of crude oil (See Figure 11). Given the price increases in gasoline and diesel, the government could not either phase out subsidies, or increase prices for kerosene and LPG, though the price of LPG was increased marginally in 2011. Diesel continues to be subsidized.

Figure 11 **Prices of Indian Basket of Crude Oil**⁸⁹



To regulate the usage of kerosene and gasoline, the government has had to resort to other means. In 2005, the government started to fix global positioning systems in kerosene distribution trucks to prevent its diversion. This effort did not really prove effective, and the government started to add specialized dye to kerosene, which was also discontinued in 2008. That same year, the government also discontinued distribution of kerosene to all under the public distribution system, but only made it available to families below the poverty line. The government also put in place regulations that included penalization for vehicles that use LPG as fuel.

What are current fossil fuel consumption subsidies in India?

The World Energy Outlook 2011 has computed the total subsidy to the energy sector in India (See Figure 12).

Figure 12 **Subsidies for Energy Sources in India, World Energy Outlook (USD Billion)⁹⁰**

Fuel Source	2009	2010
Coal		
Oil	11.49	16.20
Gas	2.72	2.22
Electricity	6.21	3.87
Total	20.42	22.29

The percent of subsidized fossil fuels is only 10 percent of the total consumption. However, 25 percent of electricity consumers pay a highly subsidized price or pilfer electricity at no cost.

Do consumption subsidies ensure energy access in India?

If the subsidies to oil, electricity and gas worked out to US\$22.29 billion in 2010, how much of this has actually gone to address the issue of providing affordable energy for all?

Liquified Petroleum Gas (LPG). While the logic for the Government to heavily subsidize the LPG cylinder is part of “pro-poor policy,” it should be noted that even today, only 5% of the rural consumers have access to LPG, with the remaining rural consumers continuing to use firewood for heating purposes. Figures 13 and 14 give an overview of the usage of various forms of fuel for cooking and heating purposes in India, and on the usage by various income-category households.

Figure 13 **Energy Source and Usage for Cooking Purposes: 2007 Survey rices of Indian Basket of Crude Oil⁹¹**

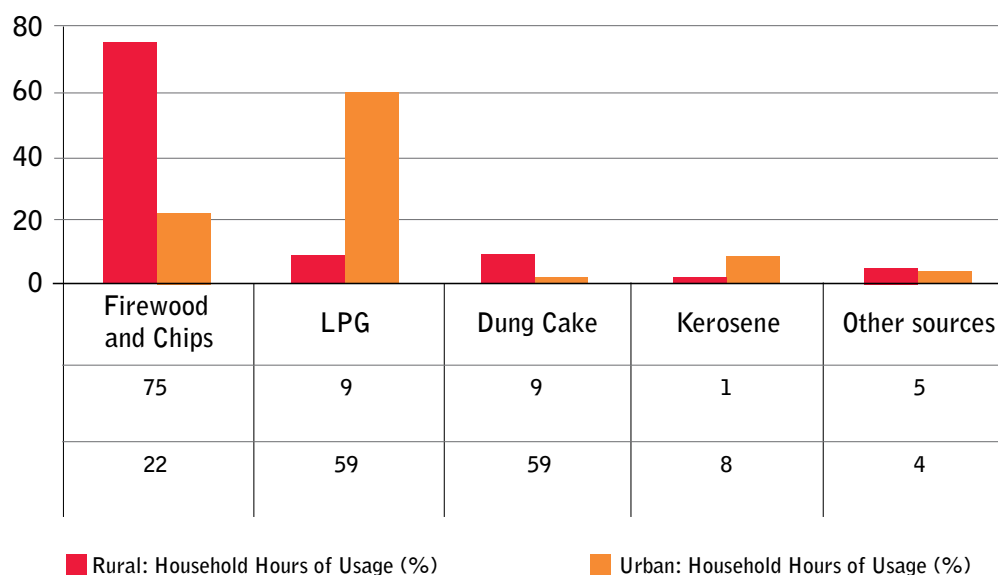


Figure 14 Energy Source and Usage for Cooking Purposes by Various Income Categories of Households – 2007 Survey⁹²

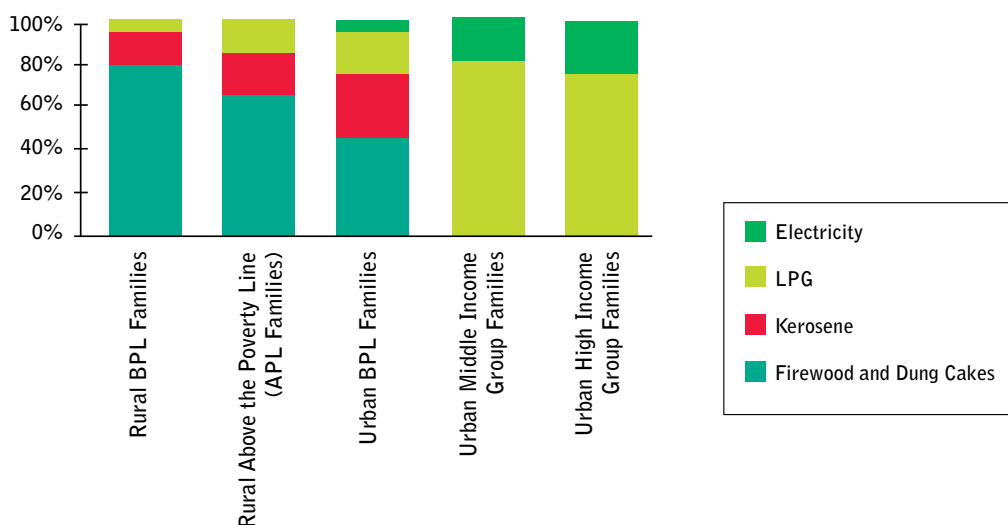
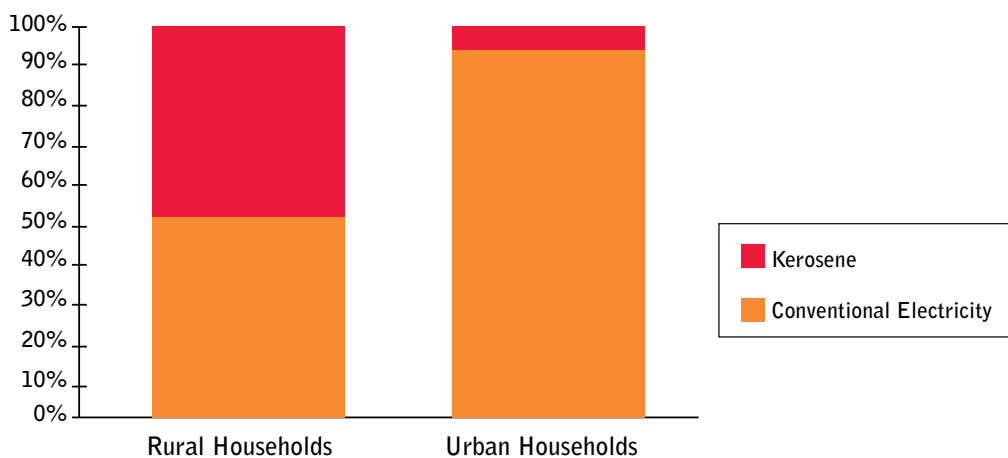


Figure 15 Percentage of Households with Primary Source of Energy Used for Lighting⁹³



It is evident from these figures that the subsidy of Rs. 150 to Rs. 200/- that is being provided for every LPG cylinder in India is largely benefiting rich- and urban middle-income group of families, rather than poor and vulnerable communities.

Kerosene and Electricity. Both kerosene and electricity are primarily used for lighting purposes in India, and the kerosene and electricity subsidy is supposed to ensure adequate lighting for all households at an affordable price. The subsidy for kerosene, as is mentioned earlier, works to roughly Rs. 15/- per litre, while the subsidy for electricity works to roughly Rs. 100/- per month per family.

The usage of kerosene is contingent on of the availability of electricity for those households that are connected to the grid. For those who do not have access to electricity, kerosene is the primary fuel for lighting.

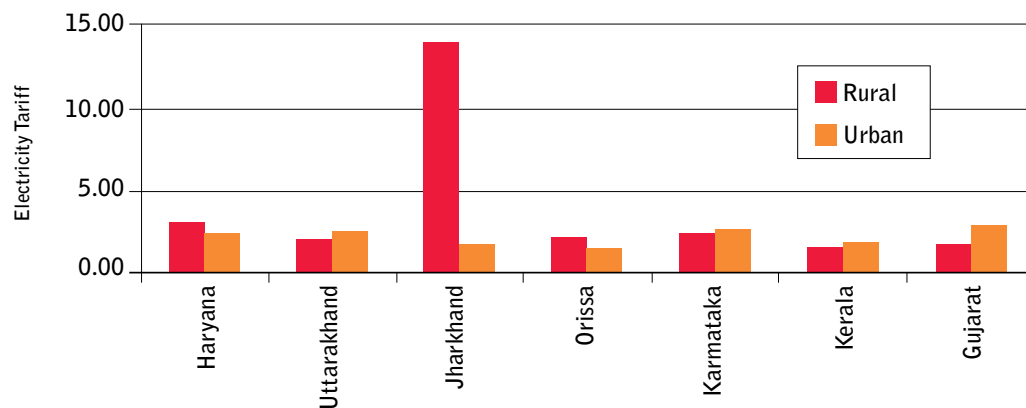
As can be seen from Figure 15, close to 50% of the rural households do not have access to electricity for lighting purposes. The huge subsidy for electricity reaches only 25% of the total electricity consumers.⁹⁴

One would imagine that with subsidized electricity for 25% of the total electricity consumers, the outgo of subsidies on kerosene would reduce substantially. However, that is not the case, largely because the electrified households do not get access to electricity at the time it is most required.

In short, the fact that India’s electricity supply for rural areas is so intermittent, means that the subsidy is not effective.

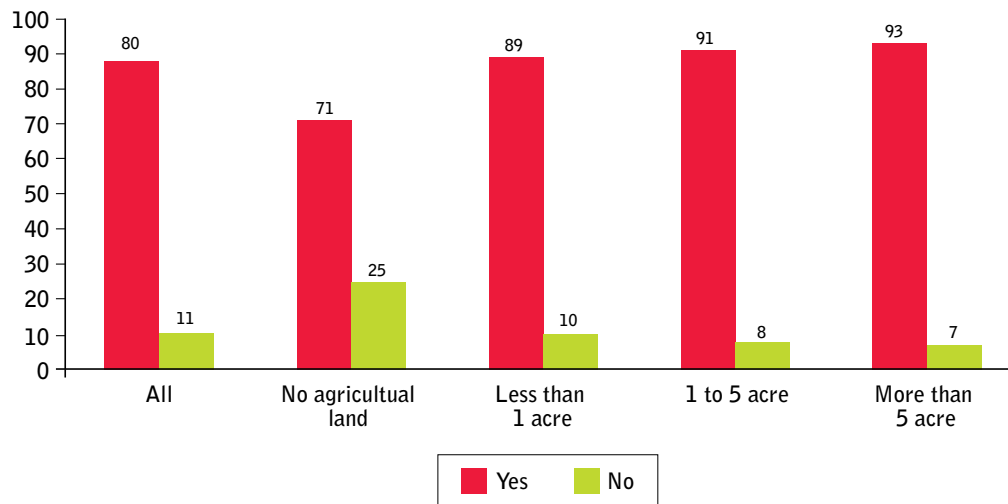
In a survey done by Vasudha Foundation in 2011 covering 7 states, 30 villages and 1,920 households, it was estimated that even the so called subsidized electricity consumers in rural areas end up paying as much tariff as their non-subsidized urban consumers would pay. The conclusion, shown in Figure 16, was based on the average subsidized tariffs for rural consumers, the hours of supply, and the actual usage of electricity per month.

Figure 16 Rural Vs. Urban Electricity Tariffs in India – A Case Study of 7 States – 30 Villages Across 14 Districts and 1,920 Households⁹⁵



Further, the survey looked at kerosene consumption in electrified households in the last year. Not surprisingly, an average of 80% of the households, irrespective of their land-holding status, had to resort to the use of kerosene for lighting purposes. (See Figure 17.)

Figure 17 Household reporting use of kerosene in last one year⁹⁶



Consumption subsidies in India do not address the issue of equitable energy access. Subsidies meant for the poor and vulnerable communities are not reaching them.

It is therefore evident that kerosene, electricity and LPG subsidies, which are justified on welfare grounds, are not reaching the targeted population. LPG subsidies are clearly going to the rich and the urban middle income group, while electricity and kerosene subsidies are two huge subsidies given for the same purpose, which makes them redundant.

Further, with subsidies given to both electricity and kerosene, there are ample indications that a good quantum of kerosene meant for the poor is being diverted and sold in the "grey market" at high prices for use in generators, water pumping systems, and even to adulterate gasoline and diesel.

Is there a way to move forward by targeting increased energy access?

It is clear that consumption subsidies in India do not address the issue of equitable energy access. In fact, the subsidies which are meant for the poor and vulnerable communities are not reaching them, and are surely not benefiting them. The government should consider "connection subsidies" to address the issue of "energy access" and phase out from "consumption subsidies". The connection subsidies are then given to the most appropriate and suitable energy source, which in many cases would be decentralised renewable energy options, particularly in rural India.

A substantial percentage and quantum of subsidies could be avoided if the government were to have an effective policy to ensure quality electricity through reliable source to all. The subsidies given to kerosene could perhaps be completely avoided, if people were to get quality electricity supply. Given the current system of electricity, it is again, obvious that the conventional and grid connectivity is not reliable in many parts of rural India and therefore, priority needs to be given to decentralised renewable energy solutions, where ever, grid connectivity is not addressing the issue of energy access.

Subsidies need to be time-bound with an exit policy. The exit policy would be contingent on the objective for introducing subsidies. But, unfortunately, "subsidy" becomes a permanent solution, as it is a politically sensitive issue.

Nigeria: Challenges with Subsidy Removal

On January 1, 2012, Nigerian President Goodluck Jonathan removed the nationwide fuel subsidy that kept kerosene, oil, and gas prices low, more than doubling the price of gasoline. It was a sudden end to a 38-year fuel subsidy that had kept a liter of petrol priced at just 65 naira (40 cents or US\$1.70 per gallon). Gas prices rose to between 130 and 140 naira a liter on January 2.

The sudden subsidy removal was met by protest by citizens, civil society and strikes by the labor unions that sparked violence and debilitated the country. The eight days of strikes were estimated to have cost the country as much as 207.4 billion Naira, or US\$1.2 billion.⁹⁷ On January 16, the government agreed to partially reinstate the subsidy, and the price of gasoline dropped from US\$3.50 to US\$2.27 per gallon.⁹⁸

Although many observers point to the failure of this subsidy reform, some officials connected with the Nigerian government contend that it was in fact a success. "We reduced the subsidy by more than 25% - which is not a bad start," said one official. "This is the way we have to do things in Nigeria to get them done."⁹⁹

What was the rationale for this subsidy reform?

Although the execution of the subsidy removal wreaked havoc, the government did have an economic rationale to reform the fuel subsidy. In 2011, demand for subsidized oil in the country skyrocketed, costing the government between 1.3 trillion Naira (US\$8 billion), according to the Ministry of Finance and 1.76 trillion Naira (US\$11 billion), according to Nigeria's central bank.¹⁰⁰ According to President Jonathan, the government's capital budget was only 1.14 trillion Naira in 2011, and the government had to borrow the entire amount.¹⁰¹ By eliminating the fuel subsidy, the government estimated it could save as much as 1 trillion Naira (US\$6.2 billion) in 2012.¹⁰²

The government has further found a significant gap between the amount of oil imported and the amount of oil consumed in Nigeria, suggesting that as much as 24 million gallons a day of subsidized gasoline is being smuggled out of the country, costing the country as much as US\$4 billion.¹⁰³

There is some dispute from civil society about the veracity of the amount of the fuel subsidy from the government. The massive increase in subsidy amount in 2011 may be due to the fact that it includes arrears from 2009 and 2010.¹⁰⁴ Further, the Nigerian National Petroleum Corporation (NNPC)'s and the government's methods of tracking fuel imports and exports may lead to further losses and increased subsidization.¹⁰⁵

Even so, it seems apparent that, in addition to subsidizing the price of gas for the country's poor, a significant amount of the fuel subsidy is going to those who do not require it.

Reasons for challenges

Nigeria is one of the top oil producing countries in the world, with over 2.2 million barrels a day of production,¹⁰⁶ but the country's history with oil is a textbook example of the resource curse. In spite of significant oil wealth, over 80 percent of the population is estimated to live on less than US\$2 a day.¹⁰⁷ According to one recent study, only 40% of Nigerians have access to electricity.¹⁰⁸

Nigeria's four oil refineries are barely functioning, and only produce at a quarter of their installed capacity.¹⁰⁹ The unrefined oil is exported, and the Nigerian government then imports gasoline and other refined petroleum products and sells at subsidized prices.

Although it appears that only a fraction of the overall fuel subsidy is going to Nigeria's poor, a high percentage of Nigerians living in poverty are reliant on that subsidy to meet their basic needs. Because so much of the economy is based on oil as a fuel, it is not just oil prices that rise with subsidy removal, but the prices of basic goods are also affected due to the increased cost of transport and production.

The fuel subsidy is one of the only ways that the majority of the Nigerian people feel they are sharing in the country's oil wealth:

The fuel subsidy is the principal way ordinary Nigerians benefit from the country's oil wealth. The Roman Catholic archbishop of Abuja and former head of the Christian Association of Nigeria observes that the subsidy is a tiny resource transfer to the Nigerian

people, who otherwise receive little or nothing from the current political economy. It is, therefore, morally justified, "no matter what the World Bank says." (Notably, the most recent statement¹¹⁰ from the World Bank says that Nigeria should focus on fuel supply, not necessarily the fuel subsidy.)¹¹¹

It is perhaps not surprising, then, that the blanket subsidy removal did not go over particularly well.

Is there a way to successfully reform fuel subsidies in Nigeria?

Citizens, labor unions, and civil society groups all joined together to protest the subsidy removal, creating a political backlash that was impossible to ignore. The straight subsidy removal had too large of an adverse impact on the poorest in the country, without providing any safety cushion for soaring prices. Further, the subsidy removal does not directly address the corruption that plagues the country, or the lack of refining capacity that forces Nigeria to import refined oil products.

The subsidy could clearly be better targeted towards the portion of the population most affected by high-energy prices. As with India, policies that focused on improving the access of the poor to energy services, first and foremost, would ease the challenge of eventual subsidy removal. The policies could be significantly facilitated by the provision of international climate finance and energy access funds.

The International Energy Association estimates that in 2010, Iran had the highest fossil fuel consumption subsidies of any country in the world at US\$80 billion.

Iran: Successful subsidy removal?

The International Energy Association estimates that in 2010, Iran had the highest fossil fuel consumption subsidies of any country in the world at US\$80 billion.¹¹² The main consumption subsidies in Iran came through a fixed price for energy, which were set to just cover the cost of production. As global energy prices increased, the price of oil in Iran became increasingly out of line with the international price of oil – getting as far out of line as US\$.10 per liter in Iran when the world price was US\$2.00 per liter in 2008. The artificially low price of oil in Iran also increased demand, forcing Iran to import oil and further increasing the cost to the Iranian government to cover the lower domestic oil price.¹¹³

Then, on December 18, 2010, President Ahmadinejad announced "*Targeted Subsidies Reform*," which raised prices the following day on natural gas, electricity, and water tariffs and later on taxi and public transit tariffs.¹¹⁴ Gasoline prices increased four times, natural gas prices rose eight times, diesel fuel nine times.¹¹⁵ Simultaneously to the price hikes, nearly 80 percent of the population was given access to compensatory payments in bank accounts that had been created starting several months earlier.¹¹⁶

Unlike consumption subsidy reform efforts in other countries, this reform occurred without riots or general unrest. The reform appears to have had a positive effect on the Iranian economy, both broadly as a result of increased governmental resources and as a result of the compensation scheme, which has significantly reduced overall inequality in the country. The effort has gained significant recognition internationally as a success, including institutions such as the International Monetary Fund (IMF).

Because of the unique nature of the Iranian regime, few think this reform is a replicable formula for success. Nonetheless, some insights and ideas may prove useful elsewhere.

What worked about this reform?

In the past, a number of Iranian politicians had tried to address the issue of fossil fuel subsidization, but were unable to gain enough traction with their plans to reduce or eliminate the fossil fuel subsidies.¹¹⁷ In 2009, the discussion on subsidy reform began again in earnest in the Iranian government, and in January 2010, a reform bill passed parliament. Initially, the plan was to implement the reform by March 2010 for the Iranian new year, but preparations took longer than expected.¹¹⁸ Many of the issues that were addressed during the period from March to December undoubtedly facilitated the relatively smooth transition.

The government's decisions about who would be compensated, how much they would receive, and how that compensation would be distributed were perhaps some of the most significant reasons that the subsidy reform proved successful. The compensatory cash payments did not screen for income; rather everyone was allowed to apply for them. By the time the price hikes came into effect, 80 percent of Iranians received direct payments of about US\$45 per month per individual,¹¹⁹ and those who had not yet signed up for those payments were allowed to apply retroactively.¹²⁰

This system actually changed the socio-economic distribution of the country overnight. For the poorest 10 percent of the Iranian population that were living under US\$2 a day, the additional US\$1.50 from the cash payment made a huge impact on their income, and as a consequence of significantly raising the incomes of the poorest in the country, the reform reduced the Gini coefficient (a measure of income inequality) for Iran by 8 points from .42 to .34.¹²¹

The significant financial support for the country's poorest undoubtedly helped the transition, while the fact that everyone received a payment ensured that there would not be unrest at the middle and upper income levels. Further, in the lead up to the subsidy removal, the government implemented policy measures to ensure price stability for non-energy essential goods. The government also provided time and support to energy companies in preparation for the reform.¹²²

The government also ran a substantial public relations campaign in the lead up to the subsidy removal.¹²³

What did this reform effort not address?

The subsidy reform plan, while addressing poverty by way of redistributing the subsidy revenues in its first phase, has not delivered on all of its potential. Additionally, as subsequent phases of the plan are implemented, higher gas prices and changes in the distribution of cash payments could impact its success. Further, the plan does not address gender issues or specific development goals, nor does it promote clean energy as an alternative.

Manufacturers have complained that they have not received the industry and agricultural support that the reform bill promised. Further, energy prices are set to rise again as the reform is phased in. In the second phase, upper income fami-

lies are to be removed from the cash payment system.¹²⁴ As plans are implemented further, the government will need to be careful about impacts on the economy and the population to avoid unrest.

The reform program does not effectively address gender issues, as the bank accounts for the cash transfers were set up largely in the name of male account holders as heads of families.¹²⁵ Consequently, male representatives of families have the majority of control over this new money, which could have adverse affects on women and children in some cases.

The reform program was also not aimed directly at promoting development goals, such as education or health. While the purely redistributive nature of the program promotes greater economic equality, a more focused emphasis on development goals might better reinforce the economy – and fight poverty – in the long run. The reform program was also not set up to provide clean energy alternatives to fossil fuels, however, the program has reduced fossil fuel consumption in the first year by an estimated US\$5.3 billion.¹²⁶

Is this subsidy removal plan replicable?

There are certainly elements of the reform measures undertaken in Iran that are positive and replicable, but there are also other parts of the plan that are likely not easily done under different circumstances. The design of the system that compensates people equally is likely replicable in other places. Certainly, some measures like these would have helped the situation in Nigeria. Adding additional policy measures that carefully structure and sequence the implementation of the reform and ensure that other prices will not be affected by fossil fuel prices are also helpful measures.

There do appear to be some characteristics of Iran that could make it very difficult to replicate elsewhere. The nature of the Iranian government and society and the sheer amount of money in question that the government was able to marshal internally for subsidy reform are almost unique features. It is highly likely that other governments would have greater trouble implementing this sort of measure. The ability of the government to prepare for and make the announcement without raising suspicion or having the information leak out early would also be difficult in many government situations.

Improving the Structure of Consumption Subsidies for Energy Access and Gender Equity

As the case studies show, subsidies that are not targeted are extremely inefficient. Even when subsidies are targeted, they may not effectively reach the intended recipients.

A blanket subsidy rate means that a significant amount of the subsidy will be going to those who can afford to pay. Further, if there is no limit on the amount of subsidized fuel or energy, then those who can pay more will receive even more benefit from the subsidy. For a subsidy to be economically efficient – so that the subsidy reaches its intended recipients – subsidies must be targeted at those who need them.

If access to affordable energy for the poorest is the intention of the subsidy, then that must be the focus of a program that also includes responsiveness to the gender differences in access to and usage of affordable energy. For areas where there are few connections to the grid, a grid-based electricity subsidy will not be the most effective means of increasing access to affordable energy. A targeted gender-responsive program for energy access would likely be a better use of resources. This may mean subsidizing initial costs of the energy service or subsidizing an interest rate so that a loan can be made affordable, in the case of a solar home system.

The program should both target only those households that need the support and it should only support up to a certain amount of energy use per period of time. In that context, it is important to be mindful of the gender-dynamics within the household and for example prioritize female-led households in order to improve gender-equitable outcomes. There should also be a timeline to end or phase out any subsidies so that the provision of services is not made dependent on them.

A more focused program for energy access is also likely to also support gender equity. The burden of energy poverty disproportionately impacts women, who often need to spend large amounts of time on subsistence activities like collecting firewood, cooking and heating, and boiling water. A program that improved access to energy and promoted clean, decentralized energy would decrease the time women spend on collecting fuels and thus the overall care burden of women in households and communities, reduce gendered health impacts of indoor pollution of unclean heating, cooking and lighting sources and also would increase the time women have available for economic and educational opportunities.

However, a specific focus on improving gender equity in whatever program is implemented would also be important – the differentiated impacts of the program on men and women and their respective social and economic roles within their households and communities should be identified and measured via gender-sensitive indicators if that is part of the desired result.

Unfortunately, the political barriers to fossil fuel subsidy removal in some of the countries with consumption subsidies make implementing better programs difficult. Lack of up-front funding and planning to prepare for subsidy removal, lack of public trust in governments to follow through on promises for alternative support programs, and other issues are barriers that governments will have to face in transitioning away from fossil fuel subsidies.

Developed countries should provide technical and financial assistance to countries that are contemplating fossil fuel subsidy removal. Additionally, countries should not be pushed too fast into removing subsidies. It is clear that in most cases, a good deal of preparation is needed to implement a subsidy removal program and replace it, as needed with more targeted pro-poor and social inclusion policies. The process cannot be rushed and must work in the country's context.

The burden of energy poverty disproportionately impacts women, who often need to spend large amounts of time on subsistence activities like collecting firewood, cooking and heating, and boiling water.

5. DEVELOPING COUNTRY FOSSIL FUEL PRODUCTION SUBSIDIES: A GROWING CONTRADICTION TO SUSTAINABLE DEVELOPMENT

Of all the forms of fossil fuel subsidies, production subsidies in developing countries and emerging economies are among the most opaque. Tens – if not hundreds – of billions of dollars in public money are flowing each year to fossil fuel production in developing countries. Instead of investing this money in the development of clean energy sources as economies grow and expand, this financing continues reliance on the fossil fuel economy and creates financial barriers to development of renewable energy resources.

Multilateral development banks (MDBs) and export credit agencies (ECAs) – supported for years only by developed nations, laid the groundwork for the fossil fuel led development model by pushing it for decades as a key to growth and industrialization. Today, the reality of fossil energy finance is that even more resources are coming from inside developing countries than are being provided by the MDBs and ECAs.

This financing is coming from multiple sources including internally from national development banks. We have not been able to examine tax breaks and other subsidies in national budgets. However, to gauge and provide a snapshot of energy finance and development in key emerging economies, the national development banks of Brazil and China were examined.

Fossil Fuel Production Subsidies and Sustainable Development

Fossil fuel subsidies support global energy development models that have become key drivers of anthropogenic climate change and present barriers to the urgently needed expansion of clean energy access, and cleaner, decentralized renewable energy and energy efficiency systems. Ending fossil fuel production subsidies in emerging economies and developing countries would be a strong step towards sustainable development.

Developing country production subsidies should be considered differently from production subsidies in Annex II countries, as developing countries (including emerging market countries) are not required under the UNFCCC to provide finance for international climate actions. For developing countries, redirecting subsidies from domestic budgets and national development banks could be focused on internal resource reallocation, such as increased funding for clean energy, improving social equity or addressing domestic emission reductions and climate change adaptation needs.

Likewise, official overseas development assistance and funding through the multilateral development banks should not be directed towards meeting existing international climate finance commitments, as the funding for climate finance should be new and additional. However, using the principle of “do no harm,” international

financial flows going to fossil fuels should be redirected towards clean energy and energy access so that they also contribute to sustainable development.

The potential benefits of decreasing funding for fossil fuels and increasing funding for energy access and clean energy should be clear to all countries – North and South. Reducing fossil fuel subsidies will decrease local pollution and reduce greenhouse gas emissions. It will also free up national resources to be put to better use. If these funds can be redirected to specifically target increased energy access and clean energy initiatives, the results could be substantial gains towards development goals.

Fossil Fuel Production Subsidies in Emerging Economies

Energy financing by key development banks in Brazil and China demonstrate that these emerging and rapidly growing economies are eagerly adopting large-scale centralized northern energy development models. Producer subsidies, through national public concessionary loan financing, are largely directed at fossil fuel industries, nuclear power, and large-scale centralized hydroelectric power, as well as much smaller investments in clean, renewable energy. There are differences in each country's main energy development pathway; however, research into Brazilian and Chinese national development bank financing between calendar years 2008 and 2010 demonstrates that these emerging economies are both investing national public development monies in large-scale, centralized electricity generation and much smaller amounts in clean, renewable energy or energy access.

It is important to understand the roles of the China Development Bank (CDB) and the Brazilian National Development Bank (BNDES) within their national contexts and the limits each bank presents to independent public research and monitoring of energy lending portfolios. Both the CDB and BNDES are large-scale financing arms for national development policy in each country and in energy development, direct public financing is directed to projects and entities that support national planning objectives. As the CDB states in its "Performance Highlights:"

In support of the government's aspirations to accelerate the model shift in its economic development, China Development Bank (CDB) took the initiative to tap its advantages in development finance and longer-term investment and financing in 2011, underpinning national development strategies in a market-oriented approach and rendering strong support to the real economy.¹²⁷

The BNDES describes itself as "the main financing agent for development in Brazil. Since its foundation, in 1952, the BNDES has played a fundamental role in stimulating the expansion of industry and infrastructure in the country."¹²⁸

Neither the CDB nor the BNDES have adequate mechanisms to improve transparency, public disclosure of financing information, or formulation and disclosure of environmental and social safeguards. Information presented here limited by the small amount of information that is made available to the public by these institutions.

China Development Bank (CDB)

Chinese Energy Development Policy: The Chinese Central Government develops a series of five-year development plans, and CDB financing from 2008 to 2010 fell within the context of China's 11th Five-Year Development Plan.¹²⁹ The report on the accomplishments of the 11th Five Year Plan stated: "the development of energy, particularly renewable and clean energy, and newly added non-fossil fuel-based power-generating capacity exceeded 34 million kilowatts, which accounted for more than one-third of the country's total. The annual output of raw coal was 3.52 billion tons, up 8.7%; crude oil output was 204 million tons, up 0.3%; and electricity production totaled 4.7001 trillion kilowatt-hours, up 11.7%.¹³⁰ "That plan also foresaw cutting end-use energy consumption as a unit of GDP by 20 percent in the plan, and results appear to be positive.¹³¹

Limits to Independent Monitoring: The CDB does not publish a database of individual project or policy financing, which if made public could be similar to the information presented in Summary of Proposed Investments (SPIs) and environmental documents and others made available on World Bank Group (WBG) and regional development bank websites to enable the public to gauge whether environmental and social safeguards have been developed and are followed prior to approving finance. The CDB publishes an annual report in Chinese and English, which outlines overall Bank financing and provides percentages of the "total outstanding loan balances by industry sectors," which for the energy sector are: Electric Power, Petrochemical, and Coal. The reports also present short narratives of major financing by sector and specific large projects within each general sector. Total amounts of financing in the general sector narratives, and for some but probably not all, specific projects are also presented in the annual reports. For the purposes of this analysis, the 2008, 2009 and 2010 Annual Reports were analyzed to compare total outstanding loans and percentages by energy sector against the total financing discussed in the narratives on major sectors and specific project financing within them. The conclusions provide a general snapshot of the Chinese states' energy development priorities within the country, and to some extent, internationally.

Calculations to gauge CDB bank investments in the specific areas of clean, renewable energy, energy efficiency and what the CDB titles "New Rural Communities" for rural road networks, power networks and drinking water systems, are based on gross calculations and assumptions because the Bank does not make precise information public about specific investments in these areas, both of which are critical for development to be considered sustainable. For example, it is assumed that CDB financing for "new rural communities" does at least in part aim to provide energy access through "power network" investments in "new" communities, which are assumed to be lacking electricity currently in China.

Finally, it is important to note that CDB energy financing is analyzed against the "total outstanding loan" amounts, percentages by sector, and total financing amounts included in annual report narratives. This is because, again, the severe lack of public disclosure of precise information constrains the research to very gross baseline numbers, such as total outstanding loans and percentages, and what is not likely comprehensive reporting of project or policy financing.

Key China Development Bank Findings

Massive centralized power generation and transmission financing: Large, large, large appears to be a mantra of the CDB. It discusses prioritizing as principles, “large enterprises, large industrial bases, large projects,” and poured the bulk of its outstanding energy loans in 2008 (a total of approximately US\$62.34 billion); 2009 (a total of US\$69.62 billion) and 2010 (US\$62.31 billion) in massive power distribution and transmission projects. For comparison purposes, the CDB producer subsidies in power generation and transmission are on the order of four times higher than the approximately US\$15 billion in public concessionary energy financing provided annually by the World Bank Group.

Specifically, the CDB had US\$397.11 billion in outstanding loans in 2008, a full 15 percent, or US\$62.34 billion, of which was directed at major centralized power projects, including the Three Gorges Power Station and Power Transmission Project; the Shenzhen Daya Bay Nuclear Power Station; the Zhejiang Qinshan Nuclear Power Project Phase III; the Guangdong Yangjiang Nuclear Power Station, and the Xiluodu and Xiangjiaba Hydropower Plant on the Jinshajiang River.

Twelve percent, or US\$69.62 billion, of the CDB’s total US\$541.52 billion in outstanding loans in 2009, were directed at power generation and transmission. According to the Bank narrative, US\$68.8 billion was invested in this sector, and the major projects highlighted include the Longtan Hydropower Station Project in Guangxi; the Hongshui River West-to-East Electric Power Transmission project; and Haiyang Nuclear Power Station Project Phase I, Shandong.

In 2010, CDB outstanding loans totaled US\$658 billion, of which 11 percent or US\$62.31 billion was directed at major power generation and transmission projects: Among them the Guangdong Yangjiang Nuclear Power Station and the Xiluodu and Xianjiaba Hydroelectric plants on the Jinshajiang river. In 2010, the Annual Report narrative for this sector added that “renewable energy projects and equipment producers, such as Goldwind wind turbine manufacturer, were also supported.”

Major Oil and Gas Financing: Total CDB investments in the petroleum industry, classified as petrochemicals and focused on oil and gas in the narrative, were second in scale of energy investments after power generation and transmission for all the years examined. What is troubling is that financing to this sector as a percentage of total outstanding loans has been growing over the last three years, rising from 4.42% in 2008 to 8.92% in 2009 and 9.29% in 2010.

In 2008, US\$16.88 billion was directed at fossil fuel industries so that CDB “plays an active role in relieving the bottleneck effect on economic development caused by constraints in the petroleum and petrochemical industries,” according to the 2008 Annual Report. Projects included in the 2008 narrative are the State Strategic Oil Reserve Base, the PetroChina Daqing Oilfield project, the China National Offshore Oil Corporation (CNOOC), Bohai Oilfield Project, Xinjiang Tianye Petroleum and Chemical, and the Shaanxi-Beijing Natural Gas pipeline projects, and others.

Subsidies to fossil fuel industries in 2009 totaled US\$47.7 billion “to continue its support of this sector, with financial assistance to petroleum, petrochemical and natural gas companies, as well as oil and gas pipelines.” Apparently, some portion of this total was directed at international investments, as well, and which are detailed in the discussing CDB’s international investments.

Coal financing: The CDB's financing of coal industries hovers around one percent of its total outstanding loans for the three years examined. It is a priority sector, according to the bank and total financing is growing from less than one billion in 2008 to US\$6.39 billion in 2009 to different segments and US\$7.3 billion in 2010. Coal financing is also part of CDB's large, large, large mantra. As its Annual Report states:

The coal industry is vital to China's economic development and the security of its strategic energy supply. Under the principles of prioritizing "large enterprises, large industrial bases, large projects," the Bank supported construction of 13 large coal production bases, in both mining and coal-consuming industries, in order to provide a stable production-use platform for large coal enterprise groups in China. CDB has contributed significantly to key projects in this industry, covering areas such as the development of major coal mines for a large coal production base, mine-mouth coal-fired electricity generation plants, the development of advanced coal chemical industry, coal mine rehabilitation programs...coal bed methane extraction and utilization, as well as key projects in implementing the strategy of "Go Global."

The Bank highlighted two specific coal projects in 2008, its US\$0.26 billion financing of the Inner Mongolia Yital Group's Suancangou Coal Mine, with a production of 12 million tons of coal annually. This coal mine "is one of the ten high-yield, high efficiency ten-million ton mines" and is included in the Chinese Eleventh Five Year Plan. The second project is an "indirect liquefaction model project, with annual production capacity of 160 thousand tons. Proprietary coal-based synthetic oil slurry technology is used with coal as the raw material to produce diesel oil, naphtha, LPG, and other products."

The 2009 and 2010 annual reports contained less specific information about coal projects, but continued describing Bank public subsidies to "coal base development, coal and energy integration, coal-bed methane extraction and development, coal based chemistry, along with coal energy saving and emissions reduction initiatives."

Clean, renewable energy development and energy access in rural communities: As explained in the introduction to this section, the severe lack of precise information regarding the Bank's public financing invariably means that gross assumptions are necessary to gauge Bank investment in clean energy and rural energy access.

At more than 1.3 billion people, China has the world's largest population and high demands for energy. The portion of the population, which has no access to electricity is primarily rural and totals about 8 million people, according to a report by the UN Development Programme in September 2011.¹³² Fuel wood, crop residues and coal are primary cooking fuels for the rural population lacking energy access. Overall, China's primary energy output "reached 2.4 billion tce (tonnes of coal equivalent). The greatest portion of this output was crude oil (76.6 percent), followed by coal, natural gas, hydropower, wind-power and nuclear power. Energy consumption was 2.7 billion tce."¹³³

CDB total outstanding loans in both rural community development and “environmental protection, conservation and emissions reduction” categories have been climbing; total amounts remain low when compared to the CDB’s financing of massive power generation projects, and the oil, gas and coal industries.

In 2008, a total of US\$13.54 billion was reportedly invested in environmental restoration, some portion of which went toward wind power development. The Sanmenxia Yellow River Wind Power project and Helanshan Wind Power farm project were highlighted. Cumulative investment was reportedly US\$25.5 billion in 2009 and grew to US\$33.8 billion in 2010. Note that industrial parks, river basin restoration, and energy efficiency buildings are all lumped into this category.

The CDB also reports financing in a “New Rural Communities” category for each year. Some portion of the total amounts reported is dedicated to rural road networks, power networks and drinking water systems. Only very crude assumptions can be made based on the public information available about these investments. In 2008, the Bank reported that 85 percent, or US\$37.5 billion, of its outstanding loans to support rural Chinese development were dedicated to rural roads, power and drinking water systems. In 2009, 72 percent, or US\$49.7 billion of total outstanding loans to support rural development were dedicated to roads, power networks and water systems. By the end of 2010, this total fell to US\$16.9 billion.

CDB international investments: In addition to its primary focus on funding massive centralized power generation, as well as oil, gas and coal industries nationally, the CDB’s international investments, reported as part of its “Go Global” strategy in calendar years 2008, 2009, and 2010, all support dirty energy industries abroad.

To put this into context, a SinoLatin Capital white paper, published in 2010, said, “Also, not long ago, Chinese commercial banks have been allowed to lend money for overseas acquisition opportunities. In this way, the Chinese are setting the foundations of a leveraged buy-out market for overseas investment activity, a market that counts on very deep pockets: China boasts one of the highest savings rates in the World (more than 50% of GDP), and more than US\$7 trillion sit in the coffers of state-owned and private Chinese commercial banks.”¹³⁴

With so much capital and ingenuity available, it is lamentable that China is not a leader in clean energy financing or development but instead finances and exports large-scale centralized energy development models, largely dependent on fossil fuels, which neither expand energy access for the poor nor supports climate-friendly energy models.

In 2008, this “Go Global” financing amounted to half a billion to Brazil for coal plant development, and US\$8.1 billion for the Central Asia Natural Gas Pipeline Project. CDB international investment in dirty energy really took off in 2009, totaling US\$36 billion just in the general projects highlighted by the Bank. These projects include a US\$25.0 billion “Oil for Loan Agreement” signed in February, with Rosneft Oil and Rosneft Oil Transneft. Under this agreement, “China will provide Russia loans in exchange of 300 million tons of crude oil from 2011 to 2030, and construct the ‘China Lateral’ of the ‘Eastern Siberia-Pacific Ocean Pipeline,’” according to the 2009 Annual Report. CDB also reported US\$10 billion in investments in the “Sino-Brazil Oil Financing Cooperation Loan Project” and financing for “The First Batch of 10 Million Kilowatts Coal-Fired (Replacement of Oil-Fired)

With so much capital and ingenuity available, it is lamentable that China is not a leader in clean energy financing or development but instead finances and exports large-scale centralized energy development models.

Power Plant Project” to build 40 coal-fired power plants in Indonesia. In this project, CDB provided syndicated loans of US\$1,005 million to four projects, including Rembang, Adipala and others.

By the end of 2010, CDB total loans to Indonesian coal plant projects totaled US\$39.5 million. Though emphasis on reporting international energy financing decreased in its 2010 Annual Report, the CDB reported that total loans also continued its “support for petroleum reserves and petroleum purchases, through financial support to CNPC’s joint bid with Royal Dutch Shell for Australian Arrow Energy and SINOPEC’s purchase of 40 percent of the shares of Repsol Brazil.”

Brazilian National Development Bank (BNDES)

Brazilian Energy Development Policy: Long-term energy development planning in Brazil began in 2004—following the energy crisis and blackouts in 2001 and 2002—with the establishment of the state-run Energy Research Company (EPE). The first national energy plan (O Plano Nacional de Energia – PNE 2030) was released in 2007 but was replaced in 2010 by the Decennial Plan of Energy Expansion 2020.¹³⁵

Limits to Independent Monitoring: The BNDES disclosure of public development financing is slightly more precise than the CDB, but still greatly lacking when compared to the amount and quality of information disclosed by multilateral development banks (MDBs). Spreadsheets of direct and indirect contracts are published in Portuguese on the BNDES website.¹³⁶ Direct contracts spreadsheets are classified under the following super-sectors: Social Inclusion, Infrastructure, Basic Inputs, Industrial and Environment. Foreign export funding is disclosed on an annual spreadsheet, which provides total amounts according to countries. In the super-sector spreadsheets, each project is listed by client company receiving financing; its tax identification number (called CNPJ in Portuguese); a brief project description; the state (UF in Portuguese); the contract date; and the value of the operation. The BNDES does not disclose information about proposed financing, nor has it implemented mechanisms to track social and environmental impacts of projects (safeguards).

For the purposes of energy production subsidy research for this report, the direct energy project contracts in each super-sector spreadsheet for calendar years 2008, 2009, and 2010 have been separated and included project by project in Oil Change International’s database at <http://shiftthesubsidies.org>. Energy financing through indirect operations are those financed through private banks, which follow the norms set out by BNDES and are credentialed by the Bank. Indirect contracts were not included in the Shift the Subsidies database because they cannot be strictly defined as public development monies used to subsidize (finance) energy projects directly by the Bank. BNDES indirect contracts for energy development are substantial, however, and because of this, the conclusions drawn from analysis of the Bank’s direct operations in energy development should be considered a snapshot of much larger energy investments in Brazil.

Finally, direct contract amounts are entered into the Shift the Subsidies database in the original currency, Brazilian Reais, and converted to U.S. dollars based on the amounts available in Google currency on a daily basis. Because the value of the Brazilian real is based on a floating rate, the total financing amounts in this

report may be different than those in the Shift the Subsidies database, depending on the exchange rate on the day the database is consulted. Nevertheless, financing demonstrates the general energy development pathways that Brazil and Brazilians, through the national development bank, BNDES, are prioritizing.

Key Brazilian National Development Bank Findings

Total direct energy financing operations for calendar years 2008 through 2010 totaled US\$59.37 billion, of which only a tiny portion was dedicated to clean, renewable energy development, primarily of wind resources. Sharp increases in overall BNDES energy financing can be noted, particularly comparing total direct energy financing in 2008, a total of US\$6.581 billion, to the US\$26.38 billion spent in 2009 and US\$26.407 billion in 2010. (See Figure 18.)

Figure 18 Brazilian National Development Bank Energy Financing (Direct Contracts in USD billion)

	Total amount	Clean	% Clean	Fossil Fuel	% Fossil Fuel
2008	6.581	0.196	3%	0.893	14%
2009	26.385	0.268	1%	18.367	69%
2010	26.407	0.407	1%	20.392	77%

Source: Oil Change International Shift the Subsidies database at <http://shiftthesubsidies.org>.

Massive investments in oil and gas development, and some coal: The more than quadrupling in BNDES energy finance from 2008 to 2009 is large part due to the massive amounts of public monies being directed at developing what are popularly promoted as immense offshore oil and gas reserves in ultra-deep-water, under layers of rock and salt, known as Pre-Salt. The reserves were discovered in 2007 and by 2010, BNDES invested US\$14.1 billion in what it called “a one-off and non-recurring” capitalization of Petrobras, the primarily state-owned oil and gas exploration company.¹³⁷

BNDES directly financed US\$893 million in oil and gas projects in 2008. In 2009, BNDES direct financing began focusing heavily on oil and gas exploration and production, and a much smaller amount in dirty coal-fired power generation. Of the Bank’s total US\$26.38 billion in public direct energy financing, approximately US\$14 billion, went to oil development projects, mainly for refineries and tanker construction, and almost US\$4 billion financed natural gas expansion and distribution. While coal has not been a traditional fuel source for electricity generation in Brazil, the BNDES contributed financing of US\$432.5 million in 2009 to funding a 360-Megawatt (MW) coal-fired thermal generation plant in the state of Maranhão, northeast of Brazil.

Direct public energy finance by BNDES reached its highest levels in 2010, with a total of US\$26.407 billion. Again, the lion’s share, approximately US\$20 billion went to the Petrobras capitalization, refinery expansion, and loans to companies in the Petrobras supply chain for construction of oil tankers, as well as gas distribution expansion and pipeline construction.

A small portion of public monies support sustainable and renewable clean energy development: While the Brazilian government and its development bank BNDES are financing a dangerous rush to exploit ultra-deepwater oil and gas reserves, only a tiny portion of public funds supported development of the country's renewable energy potential from 2008 to 2010. Solar power received no direct funding in the three years examined. Brazilian development support for renewable energy was primarily directed toward ramping up wind power, but these investments only made up 3 percent of the BNDES direct contracts in 2008, and 1 percent of energy funding in both 2009 and 2010.

Significant financing of hydroelectric plants and sugar cane ethanol expansion: The development of some 'renewable' energy sources — notably large hydropower, biofuels, and biomass — can have significant social and environmental impacts that make it difficult to consider them totally clean..'

In 2008, Brazil's investment in hydroelectric and biofuels made up 83 percent of its direct contracts and was primarily focused on large and smaller hydroelectric plant¹³⁸ construction and sugar cane ethanol and biomass development. Total financing of hydroelectric power in 2009 grew to US\$4.4 billion, and fell to US\$763 million in 2010, indicating that Brazil is likely reaching its hydropower potential and increasingly looking toward development of larger, more socially and environmentally damaging hydropower projects, such as Belo Monte.

Expansion of sugar cane and ethanol cogeneration financing has also grown, but nowhere near as much in terms of the percentage of total energy financing that oil and gas development has received. Direct financing of ethanol and sugar cane cogeneration capacity remained at approximately US\$1.2 billion to companies in 2009 and in 2010. Note that sugar cane field expansion, ethanol production and cogeneration are all promoted as renewable energy climate solutions. Yet environmental and social problems caused by many projects have given rise to strong public protest of this sector's impacts.

Energy transmission and access: The BNDES has been a relatively small player in Brazil's efforts to achieve full access to energy for its population. Its direct public financing of transmission financing was not focused directly on providing energy access. This does not mean, however, that efforts to achieve universal energy access have not received public support. The Brazilian program Light for All (Luz para Todos), begun in 2004 and extended to 2014, was partially funded by three government funds: The Energy Development Fund (Conta de Desenvolvimento de Energia, CDE); the Global Reversion Reserve (Reserva Global de Reversao, RGR), and the Fuel Consumption Fund (Conta de Consumo de Combustivel, CCC) into which tax revenues are designated. These funds essentially provided the subsidies for both implementation and operation of the program, and to offset the costs of individual electrical consumption in the most remote—and expensive—regions.¹³⁹

Overall, LPT was estimated to cost R\$20 billion, of which R\$14.3 was to be provided by the federal government. The rest was to be funded by state governments (R\$2.3 billion) and by power companies (R\$3.4 billion). By 2010, the government had R\$13.5 billion in contracts, funded by the CDE and RGR. State governments had spent R\$2.081 billion and power companies, R\$3.164 billion.

The second phase of LPT, extended in March 2010 to end in 2014, foresees a total investment of R\$5.5 billion and the government is likely to extend the RGR, set to expire in 2010 and which has R\$7 billion available, to cover the next phase.

Program costs per installed electrical connection rose over time as more distant areas were connected to the grid. The average cost per connection in 2004 was R\$4,300. By 2010, connection costs had risen to between R\$7,000 to R\$9,000 per connection.

Box 2 Looking Ahead: Brazil's Investments in Fossil Fuels through 2020 to Skyrocket

Brazil's 10-year plan energy plan foresees massive investments of up to US\$405 billion to expand its oil and gas refining, exploration, and production. As Figure 19 demonstrates, the petroleum and natural gas sector will receive a full 67 percent of Brazilian energy investments planned for 2011 to 2020. Fifty percent of this total is planned for exploration and production of petroleum and natural gas, primarily to exploit the ultra deepwater offshore oil and gas reserves, called pre-salt, located in the Campos and Santos oil fields, off the coasts of Rio de Janeiro and Sao Paulo states, respectively.

Figure 19 **Brazilian Planned Energy Investments (2011-2020)**

Synthesis of estimated investment				
		R\$ billions Perdioid 2011-2012		Percentage
Electrical Energy Supply		236		23%
	Generation (1)	190		18%
	Transmissions (2)	46		5%
Petroleum and Natural Gas		686		67%
	Exploration and Production of Petroleum and Natural Gas	510		50%
	Supply of Petroleum Derivatives	167		67%
	Refining		151	16%
	Transport Infrastructure		16	1.50%
	Supply of Natural Gas	9		1%
Supply of liquid biofuels		97		10%
	Ethanol--Production units	90		9%
	Ethanol--pipelines and ports	6.5		0.90%
	Biodiesel--Production units	0.6		0.10%
Total		1,019		100%

Notes: (1) Includes plants already planned and authorized, among them the plants with signed contracts from the auctions of new energy. Without including these installations, the value is on the order of R\$100 billion. (2) Includes already licensed installations that will begin operations in this 10-year period. Without computing these installations, the value is on the order of R\$29 billion. The reference exchange rate: R\$1.69/US\$1 (commercial, average sale, December 2010).

Source: *Brazilian Energy Planning Company, Ministry of Mines and Energy*

Investments of approximately US\$289.3 billion to expand exploration and production of petroleum and natural gas are expected to be mobilized through the federal program, called the Mobilization of the National Petroleum and Natural Gas Industry (Prominp), which was instituted by the federal government in 2003.

A total of US\$99 billion is planned for expansion of Brazil's refinery, infrastructure and transport capacity. And US\$5 billion is planned to expand the supply of natural gas.

Currently, Brazilian oil and gas is refined in 11 Petrobras-owned refineries and four privately-owned refineries, with a total capacity of around 2 million barrels a day. Investments of US\$30.1 billion are planned to expand these existing plants. Additional investments of US\$59.3 billion are planned for construction of five new refineries by Petrobras and its partners. Brazil hopes to position itself as an exporter of liquid petroleum during the entire expansion period, "with the expectation of reaching, by 2020, an export volume of almost 3 million barrels a day, principally of petroleum from the fields in the pre-sal region," the plan asserts.

In addition to the investments in refinery expansion, the Petrobras group, comprised of a mix of national and private capital, plans to invest US\$9.4 billion in four pipelines, terminals and new ships, as well as US\$1.4 billion in a pipeline for gasoline, diesel and liquid petroleum gas (LPG).

How much of these billions in investments will be financed by the BNDES and public fossil fuel production subsidies is not clear in official planning documents and demonstrates that significant work is necessary in Brazil to improve transparency and public accountability.

Fossil Fuel Production Subsidies from International Sources

Developed countries provide billions of dollars annually for fossil fuel projects in developing countries through multilateral development banks, bilateral aid, and export credit agencies. These institutions support projects at subsidized rates or provide grants.

It should be noted that the precise value of these subsidies is almost never available. It is difficult to quantify the value of a government guarantee in attracting private capital to an otherwise risky project. It is possible to calculate the difference between what loan rate a public institution offers, and what the entity seeking the loan could receive on the private market – however to do that properly, one must have access to project documents which are deemed proprietary and confidential. Therefore we present the full amounts of financing made available.

Development Banks

Multilateral development banks continue to loan heavily for greenhouse gas producing fossil fuel projects. Between FY2008 and 2011, the World Bank Group and between FY 2008 and 2010 at the major regional development banks – the African Development Bank (AfDB), the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the Inter-American Development Bank (IADB) – financed over US\$40 billion in fossil fuels, largely in developing countries.¹⁴⁰

Figure 20 shows the fossil fuel funding at these major multilateral development banks from 2008 to 2010. Both the European Investment Bank and the Eu-

ropean Bank for Reconstruction and Development lend primarily in Europe, while the other banks lend to developing countries.

Figure 20 Multilateral Bank Funding for Fossil Fuels from FY2008 to FY2010¹⁴¹

	FY 2008	FY 2009	FY 2010	Total 08-10
European Investment Bank	\$6,165,846,450	\$5,061,252,863	\$5,963,895,785	\$17,190,995,098
World Bank Group	\$4,111,324,000	\$3,617,021,273	\$7,615,560,000	\$15,343,905,273
European Bank for Reconstruction and Development	\$583,800,378	\$2,694,452,299	\$1,048,241,706	\$4,326,494,383
Asian Development Bank	\$651,500,000	\$352,500,000	\$649,245,000	\$1,653,245,000
African Development Bank	\$341,001,974	\$1,312,228,114	\$237,262,655	\$1,890,492,743
Inter-American Development Bank	\$500,000	\$198,410,000	\$58,000,000	\$256,910,000
Total				\$40,662,042,497

Although development banks often cite the need to alleviate energy poverty as a reason to continue funding fossil fuels, the targets of multilateral development bank energy financing suggest that this is not, in fact, the reason for fossil fuel funding because most bank projects examined did not target energy access with their lending. An examination of the fossil fuel projects funded in developing countries by these institutions shows that only 10 percent of multilateral development bank financing targeting developing countries from 2008 to 2011 was actually targeted to support energy access for the poor.

Between FY2008 and FY2011, just 9 percent of the energy policy and project loans from the World Bank Group targeted energy access for the billions of people worldwide without electricity or modern means to cook and heat their homes. Less than 1 percent of the loans or financial guarantees provided by the private sector arms of the World Bank Group – the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Association (MIGA) – were targeted at the world’s energy poor, while the International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD) had 40 percent and 5 percent, respectively, of project and policy loans and grants targeted at energy poverty alleviation.¹⁴²

In fact, an examination of the World Bank projects that do focus on providing energy access for the poor show that they are often decentralized, renewable energy projects, as opposed to large fossil projects.¹⁴³ The development banks are in a strong position to provide support for clean energy and energy access in line with the UN’s goal of universal energy access by 2030 for the 1.3 billion people without access to electricity and the 2.7 billion people without clean cooking facilities. However, to achieve this, these banks will need to follow the IEA recommendation that multilateral—and bilateral—development financing needs to be

concentrated “on those difficult areas of access, which do not initially offer a commercial return.”

In the paper written for the G20 on climate finance, the World Bank recognizes that the multilateral development bank funding subsidizes development and multilateral development banks could redirect their lending. The paper cites development banks “as mechanisms for reallocating subsidies – that is, resources that they derive from their preferred creditor status and access to a subsidized shareholder capital base, which they are able to use for development objectives, for example through concessional lending.”¹⁴⁴

Export Credit Agencies and Bilateral Aid

Another area where public money in developed countries goes to financing for fossil fuel production in developing countries is through export credit agencies and bilateral aid.

Information on fossil fuel project lending at export credit agencies is greatly hindered by the lack of transparency and requires further research, however, indications are that this financing is substantial. Of the US\$14.5 billion in export credit loans and long-term guarantees authorized by U.S. Ex-Im Bank in 2010, US\$4.9 billion was for fossil fuel projects (See Figure 21).¹⁴⁵

Figure 21 U.S. Export-Import Bank Fossil Fuel Long-Term Loans and Guarantees FY 2010¹⁴⁶

Date	Country	Entity	Project	Loan	Guarantee
12/3/09	Papua New Guinea	Papua New Guinea LNG Global Co. LDC	Equipment and Services for LNG Plant	\$2,200,000,000	\$800,000,000
	Russia	Stroigazconsulting-Sever	Pipeline Equipment	\$0	\$46,097,661
2/4/10	Israel	Oil Refineries, Ltd.	Refinery Equipment and Services	\$0	\$302,164,325
2/24/10	Slovak Republic	Teplaren A.S.	Gas Turbine for Cogen Power Plant	\$0	\$19,963,236
7/8/10	Saudi Arabia	VTB-Leasing Europe	Gas Turbines	\$381,526,044	\$0
7/26/10	Korea	National Agricultural Cooperative Federation	Gas Turbines and Generators	\$0	\$134,213,390
9/29/10	Mexico	Pemex	Equipment and Services for Oil and Gas Field Projects	\$0	\$200,000,000
9/29/10	Mexico	Pemex	Equipment and Services for Upstream Projects	\$0	\$400,000,000
9/29/10	Mexico	Pemex	Equipment and Services for Upstream Projects	\$0	\$200,000,000
9/29/10	Mexico	Pemex	Equipment and Services for Cantarell Project	\$0	\$200,000,000
Total Long-Term Fossil Fuel Loans and Guarantees				\$2,581,526,044	\$2,302,438,612

According to the U.S. Export Import Bank's 2010 Competitiveness Report, the total G7¹⁴⁷ medium and long-term export credits in 2010 totaled US\$65.4 billion. By comparison, for only Brazil, India and China, credits equaled US\$72.7 billion.¹⁴⁸ Even if a fraction of this financing goes to fossil fuels, it could be a significant amount. In no other area of subsidy reform is transparency more urgently required.

Bilateral aid also supports fossil fuel projects, although at a lower level. An OECD analysis¹⁴⁹ of aid for energy finds that in 2007-2008, Development Assistance Committee countries¹⁵⁰ provided 4.6 billion for energy projects. According to the OECD, about 12 percent of that went to non-renewable energy and over 55 percent went to energy policy and electrical transmission, which often support fossil fuel energy production.

6. POLITICAL OPPORTUNITIES FOR ENDING FOSSIL FUEL SUBSIDIES

With significant international momentum for reforming fossil fuel subsidies and the clear benefits of moving away from fossil fuel financing, it will be important to take advantage of key upcoming political opportunities to advance this agenda.

Possibilities in the Context of the G20 and Rio+20 in 2012

Both the G-20 in 2009 and Asian-Pacific Economic Cooperation (APEC) have declared support for reform of "inefficient" fossil fuel subsidies, and a small group of developed and developing nations have created the Friends of Fossil Fuel Subsidy removal group. These are political levers to take the first steps toward reform.

The G20 Summit in Mexico in June 2012 presents an opportunity for global leaders to support fossil fuel subsidies as a component of Annex II countries commitments to climate finance. Mexico has already taken some significant steps with regard to phasing out fossil fuel subsidies, with policies already in place that, based on current market conditions, will phase out subsidies to gasoline, diesel and LP gas in the medium term.¹⁵¹ As a developing country, Mexico is not required to contribute money to the Green Climate Fund, but its significant cuts in fossil fuel subsidies put it in a good position to encourage reforms by other countries.

At the Rio+20 United Nations Conference on Sustainable Development in June 2012, countries should commit to phasing out fossil-fuel subsidies and to providing the necessary technical and financial support to assist developing countries reform their subsidies, with a clear timeline for the phaseout. This initiative in Rio is supported by a coalition of non-governmental organizations, as well as New Zealand¹⁵² and Switzerland.¹⁵³ Rio+20 could advance fossil fuel subsidy reporting at the national level – to ensure that the general public has access to information about budget expenditures and bilateral financing for fossil fuels.

In May 2012, a large coalition of environmental, faith, development, trade, indigenous peoples, youth, and health organizations representing millions of citi-

zens worldwide, called on world leaders to seize these opportunities and fulfill their promises to eliminate these wasteful and dangerous subsidies as soon as possible, and instead put that money to work in creating a more sustainable future.

The NGO Letter, entitled "*No Time to Waste: Implementing Leader Pledges to Phase Out Fossil Fuel Subsidies*" recommended four key steps that governments should take in the near term to translate their commitments into concrete action to eliminate fossil fuel subsidies:

1) Define plans to phase out fossil fuel subsidies by 2015

In Pittsburgh in September 2009, G20 leaders pledged to "phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest." Progress however has been slow. In order to fulfill this historic commitment, leaders should immediately establish a timeline for this process. Countries should agree to eliminate fossil fuel subsidies by 2015.

2) Increase transparency and consistency in reporting of subsidies

An obvious first step to removing subsidies is to catalog *all* existing fossil fuel subsidies. Reporting and reform should be separate processes. Up to now, the disclosure of producer subsidies in particular has been lacking in many countries. It is imperative that governments commit to fully and fairly disclosing the existence and value of all fossil fuel subsidies in order to inform robust plans for reform.

3) Incorporate assistance and safeguards to developing countries, as well as poor and vulnerable groups

Fossil fuel subsidy removal, particularly consumption subsidies, will only be successful by incorporating gender-aware safeguards for poor and vulnerable groups, and by assisting with financial, technical and capacity building in developing countries, where needed.

4) Establish or identify an international body to facilitate and support Fossil Fuel Subsidy Reform

An international body should be created or identified to support the global effort to phase-out fossil fuel subsidies. This body, wherever it is housed, should be transparent, inclusive to allow for civil society participation and representation, include balanced representation from developed and developing countries, and sufficiently empowered to assess commitments by countries.

The body would be tasked to define and review proper and regular reporting by all countries. This reporting should include all fossil fuel subsidy types as well as the actions and expenditures taken by countries to reduce subsidies, and be subject to independent measurement and verification.

Possibilities in the Context of the UNFCCC in 2012 and Beyond

The UNFCCC continues to be the only multilateral policy-making space that has a near universal country participation with more equitable voice and vote as well as a stronger input and participation of global civil society. From national reporting and communications tools, to an operational structure for climate finance, and

advancement of regional institutions on technology transfer and capacity building, the UNFCCC space has been building some of the multilateral systems needed to grapple with climate complexities. The UNFCCC is also the only international climate body that includes the world's richest and poorest nations, and all the others in between, thus increasing its possibility of addressing climate complexities in a more globally democratic manner.

The newly agreed Durban Platform to be negotiated over the next three years presents some important opportunities to put political declarations on fossil fuel subsidy reform into concrete action. The first steps are to create instruments to fill the knowledge gap and to more clearly define subsidy types. Currently the Organization for Economic Cooperation and Development (OECD) and the International Energy Agency (IEA) are building fairly comprehensive datasets and models to analyze consumption, and more recently, production subsidies. There is further scope to supplement this reporting through the UNFCCC reporting mechanisms. Fossil fuel subsidy reporting is the first step in measuring, and subsequently managing reform. Specific tools for measuring, reporting, and verifying fossil fuel subsidies are amending national communications to include subsidy reporting, as well as the inclusion of subsidy reporting in biennial reports for developed countries, to be revised in 2016, and biennial update reports for developing countries, set for revision in 2017.

One outcome of Durban, pushed strongly by the European Union, was to conduct a review and begin a work program to close the gigaton gap between what countries have pledged in emissions reductions and what science says is needed to avoid catastrophic climate change. The issue is likely to heat up when the Intergovernmental Panel on Climate Change (IPCC) releases its Fifth Assessment Report, scheduled for September 2014. It is likely that this report will raise more serious warnings about climate consequences than the Fourth Assessment did.

The Durban outcome also included agreement on a structure for the Green Climate Fund (GCF), however, as one negotiator said, it is a "well-structured empty shell" because developed countries have not been forthcoming with real financing commitments and the Durban package did not include any clear commitments to scale-up fast start financing after 2012, nor an elaboration of sources and processes to secure the needed long-term financing. There is clearly still an opportunity for redirecting fossil fuel subsidies to be a part of the long-term climate finance mix in addition to innovative sources such as financial and currency transaction taxes, levies on international maritime and air transport or special drawing rights. However, needed finance that can support both early adaptation action and the early shift to low carbon development among vulnerable countries is not expected to flow quickly. Action is needed both at the country and international levels to realize redirecting fossil fuel subsidies as an important long-term source of climate finance.

CONCLUSION

There are currently a number of political opportunities to make significant and take concrete steps toward implementing and benefitting from fossil fuel subsidy reform. Moving forward, it will be important for governments to act to phase out fossil fuel subsidies in a fair and equitable manner, both inter-governmentally and within their own countries.

The upcoming Rio+20 Earth Summit in June will focus on furthering commitment to sustainable development, based upon the social, environmental and economic pillars agreed 20 years ago at the first Earth Summit. This goal is being characterized as building a Green Economy, and the Zero Draft document, "The Future We Want," includes Paragraph 126, committing nations to "Phase out of market distorting and environmentally harmful subsidies that impede the transition to sustainable development, including those on fossil fuels..."

Clearly, an economy is not green if built upon fossil fuel-dependent energy infrastructure. Subsidization of the oil, gas and coal industries worldwide demonstrates that nations and the world are not currently pursuing deployment of sustainable, green and renewable energy with adequate dedication to the task.

Transparency is urgently required. Coordination internationally is imperative to mitigate legitimate concerns about competitiveness. But fossil fuel subsidy reform is easily within the world's grasp as a low-hanging fruit, if we choose to pick it.

APPENDIX 1: OECD COUNTRY SUBSIDIES¹⁵⁵**Total Subsidies, including production, consumption and general (in millions of USD)**

Country	Avg 2000-02	Avg 2008-10	y2008	y2009	2010p
Australia	3,198.61	7,369.86	5,580.57	6,509.77	7,356.31
Belgium	1,843.27	2,322.44	2,576.91	2,396.99	2,286.43
Canada	576.09	1,199.90	1,155.69	2,243.20	2,025.82
Chile					
France	3,077.76	3,347.81	3,733.45	3,802.35	3,463.56
Germany	6,954.52	10,379.13	10,997.92	11,002.24	10,376.07
Hungary	72.47	445.85	608.45	542.31	378.85
Iceland					
Ireland	0.00	62.43	64.92	0.00	0.00
Israel	0.00	531.43	433.72	487.69	606.52
Italy	0.00	2,051.60	0.00	0.00	2,051.60
Japan	0.00	466.23	0.00	454.25	416.09
Korea	799.93	1,981.12	1,717.36	1,944.64	2,005.75
Luxembourg					
Mexico	0.00	5,780.74	14,212.08	711.82	713.38
Netherlands	58.43	449.14	475.18	452.33	471.67
New Zealand	12.95	41.83	29.83	42.00	40.82
Norway	562.76	932.11	769.01	936.49	953.07
Poland	445.68	765.71	255.71	1,052.61	1,170.55
Spain	2,162.86	3,050.50	2,788.96	3,155.66	3,547.18
Sweden	0.00	3,598.27	3,308.37	3,371.05	3,335.47
Turkey	179.36	732.43	564.12	747.48	750.30
United Kingdom	4,218.71	5,269.29	5,449.63	4,573.44	5,646.42
United States	4,341.50	12,481.98	9,833.09	12,515.55	15,087.32
TOTAL	28,504.89	63,259.81	64,554.97	56,941.86	62,683.19

Consumption Subsidies

Country	Avg 2000-02	Avg 2008-10	y2008	y2009	2010p
Australia	2,933.53	6,683.92	5,023.59	5,892.44	6,672.86
Belgium	1,843.27	2,322.44	2,576.91	2,396.99	2,286.43
Canada	130.77	221.96	172.21	370.77	384.91
Chile					
France	2,158.56	3,200.39	3,585.91	3,632.36	3,320.59
Germany	1,893.75	6,180.58	6,010.66	6,765.42	6,496.54
Hungary	72.47	401.30	556.27	494.89	336.07
Iceland					
Ireland	0.00	0.00	0.00	0.00	0.00
Israel	0.00	489.88	394.53	449.12	565.25
Italy	0.00	2,051.60	0.00	0.00	2,051.60
Japan	0.00	5.07	0.00	7.57	1.53
Korea	508.92	1,645.84	1,388.69	1,636.27	1,687.69
Luxembourg					
Mexico	0.00	5,780.74	14,212.08	711.82	713.38
Netherlands	58.43	449.14	475.18	452.33	471.67
New Zealand	12.95	28.32	20.17	26.48	29.76
Norway	562.76	740.05	591.35	737.65	785.45
Poland	247.28	290.18	255.12	305.75	323.53
Spain	1,484.04	2,112.83	1,806.70	2,125.71	2,632.42
Sweden	0.00	3,598.27	3,308.37	3,371.05	3,335.47
Turkey	0.00	475.44	306.35	481.38	493.31
United Kingdom	2,125.54	4,426.38	4,332.95	3,894.97	4,950.55
United States	1,446.68	3,992.11	2,492.98	4,649.46	4,842.20
TOTAL	15,478.94	45,096.46	47,510.01	38,402.43	42,381.21

Production and General Subsidies

Country	Avg 2000-02	Avg 2008-10	y2008	y2009	2010p
Australia	265.07	685.94	556.98	617.33	683.45
Belgium	0.00	0.00	0.00	0.00	0.00
Canada	445.33	977.94	983.48	1,872.43	1,640.91
Chile	0.00	0.00	0.00	0.00	0.00
France	919.20	147.42	147.54	169.99	142.97
Germany	5,060.77	4,198.55	4,987.26	4,236.82	3,879.54
Hungary	0.00	44.55	52.18	47.41	42.79
Iceland	0.00	0.00	0.00	0.00	0.00
Ireland	0.00	62.43	64.92	0.00	0.00
Israel	0.00	41.55	39.19	38.57	41.26
Italy	0.00	0.00	0.00	0.00	0.00
Japan	0.00	461.16	0.00	446.68	414.56
Korea	291.01	335.28	328.67	308.37	318.06
Luxembourg	0.00	0.00	0.00	0.00	0.00
Mexico	0.00	0.00	0.00	0.00	0.00
Netherlands	0.00	0.00	0.00	0.00	0.00
New Zealand	0.00	13.51	9.66	15.52	11.06
Norway	0.00	192.06	177.67	198.84	167.63
Poland	198.40	475.52	0.59	746.85	847.02
Spain	678.82	937.68	982.26	1,029.96	914.76
Sweden	0.00	0.00	0.00	0.00	0.00
Turkey	179.36	256.99	257.77	266.10	256.99
United Kingdom	2,093.17	842.91	1,116.67	678.47	695.87
United States	2,894.82	8,489.87	7,340.11	7,866.09	10,245.12
TOTAL	13,025.95	18,163.35	17,044.95	18,539.43	20,301.98

APPENDIX 2: FOSSIL FUEL SUBSIDY REFORM SUPPORTED BY 134 COUNTRIES IN OFFICIAL COMMUNICATIONS

Fossil fuel subsidies reform has been referenced in official communications by governments in a growing number of forums. Indeed some countries have stated their support of removing fossil fuel subsidies in as many as four of the following international forums.

UNFCCC: A recent call for submissions regarding “Views on options and ways for further increasing the level of ambition” under a new work plan on enhanced mitigation action included a number of references by parties to eliminating fossil fuel subsidies as a way to achieve greater greenhouse gas emission reductions.¹⁵⁶

G20: First stated at the 2009 Pittsburgh summit by the Heads of State of G20 nations, the G20 grouping has reiterated its goal a number of times “[t]o phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest.”¹⁵⁷

G8: As recently as May of 2012, Heads of State from the G8 nations have supported the G20 call for eliminating inefficient fossil fuel subsidies.¹⁵⁸

APEC: A statement in November 2010 by leaders in the Asia-Pacific Economic Partnership (APEC) grouping of countries mirrored the G20 statement on eliminating inefficient fossil fuel subsidies.¹⁵⁹

The Friends of Fossil Fuel Subsidy Reform (Friends of FFSR) was created by eight non-G20 countries to support efforts to reform fossil fuel subsidies.¹⁶⁰

Country	UNFCCC submission	G20	G8	APEC	Friends of FFSR
Afghanistan	•				
American Samoa	•				
Angola	•				
Antigua and Barbuda	•				
Argentina		•			
Australia		•		•	
Austria	•				
Bahamas	•				
Bangladesh	•				
Barbados	•				
Belgium	•				
Belize	•				
Benin	•				
Bhutan	•				
Brazil		•			
Brunei				•	
Bulgaria	•				
Burkina Faso	•				
Burundi	•				
Cambodia	•				
Canada		•	•	•	
Cape Verde	•				
Central African Republic	•				
Chad	•				
Chile				•	
China		•		•	
Comoros	•				
Cook Islands	•				
Costa Rica					•
Cuba	•				
Cyprus	•				
Czech Republic	•				
Democratic Republic of the Congo	•				
Denmark	•				•
Djibouti	•				
Dominica	•				
Dominican Republic	•				
East Timor	•				
Equatorial Guinea	•				
Eritrea	•				
Estonia	•				
Ethiopia	•				•
European Union	•	•			
Federated States of Micronesia	•				
Fiji	•				
Finland	•				•
France	•	•	•		
Gambia	•				
Germany	•	•	•		
Greece	•				

Grenada	•				
Guam	•				
Guinea	•				
Guinea-Bissau	•				
Guyana	•				
Haiti	•				
Hungary	•				
India		•			
Indonesia		•		•	
Ireland	•				
Italy	•	•	•		
Jamaica	•				
Japan		•	•	•	
Kiribati	•				
Laos	•				
Latvia	•				
Lesotho	•				
Liberia	•				
Lithuania	•				
Luxembourg	•				
Madagascar	•				
Malawi	•				
Malaysia				•	
Maldives	•				
Mali	•				
Malta	•				
Marshall Islands	•				
Mauritania	•				
Mauritius	•				
Mexico		•		•	
Mozambique	•				
Myanmar	•				
Nauru	•				
Nepal	•				
Netherlands	•				
New Zealand	•			•	•
Niger	•				
Niue	•				
Norway	•				
Palau	•				
Papua New Guinea	•			•	
Peru				•	
Philippines				•	
Poland	•				
Portugal	•				
Republic of Korea				•	
Romania	•				
Russia		•	•	•	
Rwanda	•				
Samoa	•				
Sao Tome and Principe	•				
Saudi Arabia		•			
Senegal	•				
Seychelles	•				
Sierra Leone	•				

Singapore	•			•	
Slovakia	•				
Slovenia	•				
Solomon Islands	•				
Somalia	•				
South Africa		•			
South Korea		•			
Spain	•				
St. Kitts & Nevis	•				
St. Lucia	•				
St. Vincent and the Grenadines	•				
Sudan	•				
Suriname	•				
Sweden	•				•
Switzerland	•				•
Tanzania	•				
Thailand				•	
Timor-Leste	•				
Togo	•				
Tonga	•				
Trinidad and Tobago	•				
Turkey		•			
Tuvalu	•				
Uganda	•				
United Kingdom	•	•	•		
United States	•	•	•	•	
Vanuatu	•				
Vietnam				•	
Yemen	•				
Zambia	•				

REFERENCES

- 1 Resilient People Resilient Planet: A Future Worth Choosing, Recommendation 27f., page 18, available at <http://www.un.org/gsp/The GSP>.
- 2 See Appendix 2.
- 3 Annex II countries are those countries under the UNFCCC with financial obligations to developing countries. These countries include: Annex II countries of the UNFCCC include: Australia, Austria, Belgium, Canada, Denmark, European Economic Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, and United States of America.
- 4 Press Release, "A new era of living in harmony with Nature is born at the Nagoya Biodiversity Summit" at <http://www.cbd.int/doc/press/2010/pr-2010-10-29-cop-10-en.pdf>.
- 5 See Aichi Targets at <http://www.cbd.int/sp/targets/>.
- 6 The Economics of Ecosystems and Biodiversity: TEEB for national and international policymakers, 2009, page 25, at <http://www.cbd.int/financial/doc/teeb-reforming-subsidies-en.pdf>.
- 7 Members of the G20 include: Argentina, Australia, Brazil, Canada, China, European Union, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, United Kingdom, and United States.
- 8 G20 Leaders' Statement, the Pittsburgh Summit, 25 September 2009. http://www.g20.org/Documents/pittsburgh_summit_leaders_statement_250909.pdf.
- 9 Oil Change International and Earth Track. G20 Fossil-Fuel Subsidy Phase Out: A review of current gaps and needed changes to achieve success. By Doug Koplrow with contributions from Steve Kretzmann. November 2010.
- 10 Members of APEC include: Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States and Vietnam.
- 11 2011 APEC Ministerial Meeting Statement. November 2011. http://www.apec.org/Meeting-Papers/Ministerial-Statements/Annual/2011/2011_amm.aspx.
- 12 New Zealand Ministry of Foreign Affairs and Trade. "Friends of Fossil Fuel Subsidy Reform: Who are the Friends?" February 2011. <http://www.mfat.govt.nz/ffsr/tabs/friends.php>.
- 13 http://welch.house.gov/index.php?option=com_content&view=article&id=1709%3AWelch-to-super-committee-save-122-billion-end-wasteful-subsidies-to-the-oil-industry&catid=39%3A2011-press-releases&Itemid=32.
- 14 <http://priceofoil.org/2012/05/09/dirty-energy-money-pouring-into-congress-faster-than-ever-before/>.
- 15 <http://priceofoil.org/wp-content/uploads/2012/05/SandersSummaryFinal.pdf>.
- 16 Various personal communications with Stephen Kretzmann.
- 17 Stern, Nicholas. Stern Review on the Economics of Climate Change. October 2006. http://www.hm-treasury.gov.uk/Independent_Reviews/stern_review_economics_climate_change/sternreview_index.cfm.
- 18 Ban Ki-Moon and Al Gore, "Green Growth Is Essential to Any Stimulus." Financial Times, February 16, 2009. <http://www.ft.com/cms/s/0/0fa98852-fc45-11dd-aed8-000077b07658.html>.
- 19 UN High Level Advisory Panel on Climate Change Financing , Final Report 2010. http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF_reports/AGF%20Report.pdf.
- 20 Mattia Romani and Nicholas Stern. Delivering climate finance: principles and prac-

- tice for funding the Fund, December 2011. Centre for Climate Change Economics and Policy Grantham Research Institute on Climate Change and the Environment. <http://www2.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PP-climate-finance-fund-Romani-Stern.pdf>.
- 21 Harvey, Fiona. "Lord Stern: rich nations should stop subsidising fossil fuel industry," *The Guardian*, December 7, 2011. <http://www.guardian.co.uk/environment/2011/dec/07/lord-stern-rich-nations-fossil-fuels>.
 - 22 The Mexican priorities for the 2012 G20 summit include: 1) Economic stability and structural reform for growth and employment. 2) Strengthening of financial systems and procurement of financial inclusion for economic growth. 3) Improve international financial architecture in a interconnected global economy. 4) Mitigate negative effects on price level and volatility of commodities, in particular those affecting food security. 5) Promote sustainable development with focus on infrastructure, energy efficiency, green growth and financing the fight against climate change. From "Priorities of the Mexican Presidency," accessed online January 2, 2012 at <http://www.g20mexico.org/en/mexican-presidency-of-the-g20/priorities-and-agenda-of-the-mexican-presidency>.
 - 23 B20 Task Force Recommendations. Draft Report, April 17 2012, p. 26. Available at: http://www.boell.org/downloads/FINAL_B20_first_draft_B20_recommendations_embargoed_17_April_v._1.pdf.
 - 24 Oil Change International and Earth Track. G20 Fossil-Fuel Subsidy Phase Out: A review of current gaps and needed changes to achieve success. By Doug Koplow with contributions from Steve Kretzmann. November 2010.
 - 25 Emilio Godoy, "Has Mexico's climate aid really slowed carbon emissions?" *Interpress Service*, May 4, 2011. <http://www.guardian.co.uk/environment/2011/may/04/mexico-climate-aid-carbon>.
 - 26 "Joint Submission to the UN Conference on Sustainable Development, Rio+20: A pledge to phase out fossil-fuel subsidies." August 2011. <http://www.globalsubsidies.org/resources/august-2011-high-impact-initiative-rio20-pledge-phase-out-fossil-fuel-subsidies>.
 - 27 New Zealand Ministry of Foreign Affairs. "Environment: Rio+20." <http://mfat.govt.nz/Foreign-Relations/1-Global-Issues/Environment/1-Governance/Rio-20.php>.
 - 28 Swiss Platform for Rio+20. "Swiss Objectives for Rio+20." <http://rio20.ch/en/green-economy/goals/>.
 - 29 World Trade Organization, "Uruguay Round Agreement: Agreement on Subsidies and Countervailing Measures, Article 1-9." http://www.wto.org/english/docs_e/legal_e/24-scm_01_e.htm.
 - 30 Source: Doug Koplow. "Quantifying Impediments to Fossil Fuel Trade: An Overview of Major Producing and Consuming Nations." Prepared for the OECD Trade Directorate, 1998.
 - 31 Source: United Nations Environment Programme Division of Technology, Industry and Economics, "Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda," 2008.
 - 32 <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12794>.
 - 33 http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/sternreview_index.htm.
 - 34 http://www.oecd.org/document/26/0,3746,en_21571361_48776931_48804954_1_1_1_1,00.html.
 - 35 *ibid.*
 - 36 Source: United Nations Environment Programme Division of Technology, Industry and Economics, "Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda," 2008.
 - 37 The International Energy Agency expects this figure to reach \$630 Billion in 2012. <http://www.iea.org/weo/quotes.asp>.

- 38 Compiled by the OECD, http://www.oecd.org/site/0,3407,en_21571361_48776931_1_1_1_1_1,00.html.
- 39 <http://priceofoil.org/wp-content/uploads/2012/05/OECD-Country-Subsidies-01-25-12.xlsx>.
- 40 June 2010 Report for G-20 leaders, <http://www.oecd.org/dataoecd/55/5/45575666.pdf>.
- 41 Shift the Subsidies, <http://www.shiftthesubsidies.org/>.
- 42 From the United States alone, some estimates put the cost of defending fossil fuel supplies at \$500 billion annually, <http://www.princeton.edu/oeme/articles/US-military-cost-of-Persian-Gulf-force-projection.pdf>. In addition, while it is likely that the US share of spending in this area is the largest slice, it can be expected that countries such as Saudi Arabia, Iran, Russia and China also would contribute substantial amounts to this figure. For more details, see "EIA Energy Subsidy Estimates: A Review of Assumptions and Omissions" (http://www.earthtrack.net/files/uploaded_files/EIA_subsidy_review_final_17Mar10.pdf) and "Defending Oil Supplies, Chapter 4 of "Fueling Global Warming: Federal Subsidies to Oil in the United States" (http://www.earthtrack.net/files/legacy_library/GP_Ch4_Defending_Oil.pdf).
- 43 *ibid.*
- 44 Mexico and Korea exist in both data sets and the careful student of these methods should be aware of that.
- 45 Jennifer Ellis, PhD, For the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD), "The Effects of Fossil-Fuel Subsidy Reform: A review of modelling and empirical studies." Geneva, Switzerland: March, 2010.
- 46 OECD/IEA, "World Energy Outlook 2011," Paris: 2011. www.worldenergyoutlook.org
- 47 United Nations Environment Programme Division of Technology, Industry and Economics, "Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda," 2008.
- 48 "Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda," United Nations Environment Programme Division of Technology, Industry and Economics, 2008.
- 49 *ibid.*
- 50 *ibid.*
- 51 Article 2.1 of the Kyoto Protocol recognizes the contribution that the phasing out of fossil fuel subsidies can make to the achievement of developed countries' emission reduction targets.
- 52 Annex II countries of the UNFCCC include: Australia, Austria, Belgium, Canada, Denmark, European Economic Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, and United States of America.
- 53 Schalatek, Liane. "A Matter of Principle(s): A Normative Framework for a Global Compact on Public Climate Finance." Heinrich Boell Foundation, 2011.
- 54 Liane Schalatek and Neil Bird, "Climate Finance Fundamentals: The Principles and Criteria of Public Climate Finance – A Normative Framework," Heinrich Böll Stiftung North America and Overseas Development Institute, November 2011.
- 55 Liane Schalatek, Smita Nakhooda and Neil Bird, "Climate Finance Fundamentals: The Design of the Green Climate Fund," Heinrich Böll Stiftung North America and Overseas Development Institute, November 2011.
- 56 United Nations. Report of the Secretary-General's High-level Advisory Group on Climate Change Financing. 5 November 2010.
- 57 G20. "Report to leaders on the G-20 commitment to rationalize and phase out inefficient fossil fuel subsidies." June 2010. www.g20.org/exp_04.aspx.
- 58 Original OECD report here: http://www.oecd.org/site/0,3407,en_21571361_48776931_1_1_1_1_1,00.html and here is a Spreadsheet with the

- numbers aggregated by Oil Change International: <http://priceofoil.org/wp-content/uploads/2012/05/OECD-Country-Subsidies-01-25-12.xlsx>.
- 59 OECD. http://www.oecd.org/site/0,3407,en_21571361_48776931_1_1_1_1_1,00.html#data and WRI. http://pdf.wri.org/climate_finance_pledges_2011-11-18.pdf.
- 60 listed in decision 1/CP.16, paragraph 46.
- 61 See UNFCCC Art. 4.2(e)(ii) and Annex I National Communication guidelines (FCCC/CP/1999/7) at para. 16.
- 62 See Article 1, Agreement on Subsidies and Countervailing Measures.
- 63 www.iea.org/files/energy_subsidies.pdf - Note that these numbers vary annually along with the price of oil, as they are linked to the value of consumption subsidies globally.
- 64 <http://www.trucost.com/article/18/iea-calls-for-faster-scrapping-of-fossil-fuel-subsidies>
- 65 IEA/OECD, "World Energy Outlook 2011," page 55.
- 66 Ibid, page page 215.
- 67 Burniaux, J. and J. Chateau (2011), "Mitigation Potential of Removing Fossil Fuel Subsidies: A General Equilibrium Assessment", OECD Economics Department Working Papers, No. 853, OECD Publishing. <http://dx.doi.org/10.1787/5kgdx1jr2plp-en>.
- 68 A compilation of these submissions can be found at <http://unfccc.int/resource/docs/2012/adp1/eng/misc01.pdf>.
- 69 Fatih Birol, IEA Chief Economist, on April 2, 2012, available at <http://www.iea.org/weo/quotes.asp>.
- 70 IEA WEO 2011.
- 71 <http://priceofoil.org/educate/resources/access-to-energy-for-the-poor-the-clean-energy-option/>.
- 72 The countries included in this study are: Algeria, Angola, Argentina, Azerbaijan, Bangladesh, Brunei, China, Chinese Taipei, Colombia, Ecuador, Egypt, El Salvador, India, Indonesia, Iran, Iraq, Kazakhstan, Korea, Kuwait, Libya, Malaysia, Mexico, Nigeria, Pakistan, (Peru), Philippines, Qatar, Russia, Saudi Arabia, South Africa, Sri Lanka, Thailand, Turkmenistan, UAE, Ukraine, Uzbekistan, Venezuela and Vietnam.
- 73 OECD/IEA, "World Energy Outlook 2011," Paris: 2011. www.worldenergyoutlook.org
- 74 OECD/IEA, "World Energy Outlook 2010," Paris: 2010. www.worldenergyoutlook.org
- 75 IMF Working Paper, "The Magnitude and Distribution of Fuel Subsidies: Evidence from Bolivia, Ghana, Jordan, Mali, and Sri Lanka", WP/06/247, available at "<http://www.frp2.org/english/Portals/0/Library/Fiscal%20Policy/The%20Magnitude%20and%20Distribution%20of%20Fuel%20Subsidies%20.pdf>".
- 76 Source: http://www.oecd.org/site/0,3407,en_21571361_48776931_1_1_1_1_1,00.html#data, PDF: <http://www.oecd.org/dataoecd/41/46/48802785.pdf>.
- 77 IEA WEO 2011, page 45.
- 78 <http://priceofoil.org/educate/resources/access-to-energy-for-the-poor-the-clean-energy-option/>.
- 79 Ibid., page 469.
- 80 "Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda," United Nations Environment Programme Division of Technology, Industry and Economics, 2008.
- 81 Ibid.
- 82 Krishnaswamy, S. and Chatpalliwar, S. "Energy Services to the Poor: Are they truly subsidized? An assessment of 'Economics and Willingness to pay'" Vasudha Foundation and & Samvad, November 2011, available at http://vasudha-india.org/publications/900385358_Energy%20Services%20to%20the%20Poor%20-%20Are%20they%20Truly%20Subsidized_November%202011.pdf.
- 83 Jennifer Ellis, PhD, For the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD), "The Effects of Fossil-Fuel Subsidy Reform: A review of modelling and empirical studies." Geneva, Switzerland: March, 2010.
- 84 "Subsidies in the Energy Sector: An Overview," Background Paper for the World Bank

- Group Energy Sector Strategy, July 2010, available at http://siteresources.worldbank.org/EXTESC/Resources/Subsidy_background_paper.pdf.
- 85 IEA, April 2, 2012, available at <http://www.iea.org/weo/quotes.asp>.
- 86 UNDP/ESMAP report of 2003
- 87 Source: Lessons learnt from Attempts to Reform India's Kerosene Subsidies, Dr. Bhamy V Shenoy, IISD (http://www.iisd.org/pdf/2010/lessons_india_kerosene_subsidy.pdf)
- 88 Source: Lessons learnt from Attempts to Reform India's Kerosene Subsidies, Dr. Bhamy V Shenoy, IISD (http://www.iisd.org/pdf/2010/lessons_india_kerosene_subsidy.pdf) and further double checked with the Chaturvedi Committee Report on Petro Product Pricing, 2008, Planning Commission and also with the balance sheets of Public Sector Oil Companies
- 89 Source: Indian Oil Corporation Limited
- 90 Source: <http://www.iea.org/subsidy/index.html>
- 91 Source: Computed based on information from National Sample Survey Organization (NSSO) and Planning Commission
- 92 Source: Computed based on Information from NSSO and Planning Commission)
- 93 Source: Computed based on the information on Electrified Villages and Households, Ministry of Power.
- 94 As per the estimates of Prof. Kirit Parikh, member of the expert committee on fossil fuel pricing. (<http://www.indiapolicyforum.org/node/28>)
- 95 Source: Vasudha Foundation, 2011.
- 96 Source: Vasudha Foundation, 2011.
- 97 Reuters. "Nigeria fuel strike cost economy \$1.2 bln: stats." January 18, 2012. <http://af.reuters.com/article/investingNews/idAFJ0E80H07D20120118>
- 98 David Kenner, "Morning Brief: Nigeria backs down on fuel subsidy," Foreign Policy, January 17, 2012.
- 99 Personal communication from anonymous source with Steve Kretzmann
- 100 Platts. "Nigeria fuel subsidy hit \$11 billion in 2011: central bank." January 25, 2012. <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/Oil/8847779>
- 101 Kunle Akogun, Ahamefula Ogbu and Onwuka Nzeshi. "Jonathan - We Can't Continue Subsidy With Borrowed Funds." This Day, December 16, 2011. <http://allafrica.com/stories/201112160100.html>
- 102 James Jukwey. "Nigeria investigates \$4 billion fuel subsidy fraud." Reuters, January 12, 2012. <http://www.reuters.com/article/2012/01/19/us-nigeria-fuel-scam-idUSTRE80I1R220120119>
- 103 James Jukwey. "Nigeria investigates \$4 billion fuel subsidy fraud." Reuters, January 12, 2012. <http://www.reuters.com/article/2012/01/19/us-nigeria-fuel-scam-idUSTRE80I1R220120119>
- 104 Nnimmo Basse, "Tell it to the President." <http://nnimmo.blogspot.com/2012/01/tell-it-to-president.html>
- 105 Nnimmo Basse, "Oil Subsidy: Fight Corruption, Not the People." <http://nnimmo.blogspot.com/2012/01/oil-subsidy-fight-corruption-not-people.html>
- 106 Index Mundi "Country Comparison – Oil Production." <http://www.indexmundi.com/g/r.aspx?c=ni&v=88> Accessed online January 27, 2012.
- 107 World Bank Group. "PovcalNet: An Online Poverty Analysis Tool." Data for Nigeria is from 2003. <http://go.worldbank.org/WE8P1I8250>
- 108 <http://www.thisdaylive.com/articles/nnaji-only-40-of-nigerians-have-access-to-electricity/87123/>
- 109 James Jukwey. "Nigeria investigates \$4 billion fuel subsidy fraud." Reuters, January 12, 2012. <http://www.reuters.com/article/2012/01/19/us-nigeria-fuel-scam-idUSTRE80I1R220120119>
- 110 Emma Amaize, Kingsley Omonobi, Demola Akinyemi, Peter Eguatu, Inalegwu Shaibu, Victor jeme & Akpokona Omafuaire. "Nigeria: Fuel Subsidy Removal - World Bank

- Chief Cautions Jonathan." AllAfrica.com, October 24, 2011. <http://allafrica.com/stories/201110240084.html>
- 111 Michael Levi, "Guest Post: Nigeria's Fuel Subsidy Is More than Economics," Council on Foreign Relations Energy, Security and Climate Blog, December 21, 2011. <http://blogs.cfr.org/levi/2011/12/21/guest-post-nigeria%E2%80%99s-fuel-subsidy-is-more-than-economics/>
- 112 OECD/IEA, "World Energy Outlook 2011," Paris: 2011. www.worldenergyoutlook.org
- 113 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 114 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 115 Djavad Salehi-Isfahani. "Iran: Subsidy Reform amid Regional Turmoil." The Brookings Institution, March 3, 2011. http://www.brookings.edu/opinions/2011/0303_iran_salehi_isfahani.aspx
- 116 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 117 The Economist. "Economic jihad: Iran has undertaken reforms that other governments in the region should envy," June 23, 2011. <http://www.economist.com/node/18867440>
- 118 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 119 Djavad Salehi-Isfahani. "Iran: Subsidy Reform amid Regional Turmoil." The Brookings Institution, March 3, 2011. http://www.brookings.edu/opinions/2011/0303_iran_salehi_isfahani.aspx
- 120 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 121 Djavad Salehi-Isfahani. "Iran: Subsidy Reform amid Regional Turmoil." The Brookings Institution, March 3, 2011. http://www.brookings.edu/opinions/2011/0303_iran_salehi_isfahani.aspx
- 122 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 123 International Monetary Fund Middle East and Central Asia Department. "IMF Working Paper: Iran—The Chronicles of the Subsidy Reform," Prepared by Dominique Guillaume, Roman Zytek, and Mohammad Reza Farzin, July 2011. www.imf.org/external/pubs/ft/wp/2011/wp11167.pdf
- 124 "Iran to begin stage 2 of subsidy reforms." Press TV, January 10, 2012. <http://presstv.com/detail/220308.html>
- 125 Djavad Salehi-Isfahani. "Iran: Subsidy Reform amid Regional Turmoil." The Brookings Institution, March 3, 2011. http://www.brookings.edu/opinions/2011/0303_iran_salehi_isfahani.aspx
- 126 "Subsidy Reform Plan saves Iran \$5.3b in fuel consumption." Tehran Times, January 11, 2012. <http://www.tehrantimes.com/economy-and-business/94462-subsidy-reform->

- plan-saves-iran-53b-in-fuel-consumption-
- 127 See CDB Performance Highlights at: <http://www.cdb.com.cn/english/NewsInfo.asp?NewsId=415>
- 128 See the BNDES at http://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/
- 129 here are some useful links for 11th FYP: http://english.gov.cn/special/115y_index.htm
http://en.ndrc.gov.cn/hot/t20060529_71334.htm
<http://greenleapforward.com/2010/01/18/assessing-chinas-five-year-plan-energy-conservation-programs-5-year-plan/>
- 130 Report on the Implementation of the 2011 Plan for National Economic and Social Development and on the 2012 Draft Plan for National Economic and Social Development, which was submitted on March 5, 2012 for review at the Fifth Session of the 11th National People's Congress and was adopted on March 14, Fifth Session of the Eleventh National People's Congress, National Development and Reform Commission, available at http://english.gov.cn/official/2012-03/16/content_2093432_4.htm.
- 131 "Assessing China's 11th Five-Year Plan Energy Conservation Programs," at <http://greenleapforward.com/2010/01/18/assessing-chinas-five-year-plan-energy-conservation-programs-5-year-plan/>.
- 132 "Towards an 'Energy Plus' approach for the poor: A review of good practices and lessons learned from Asia and the Pacific" ENVIRONMENT AND ENERGY RENOVATIONS: BIOGAS PLANTS FOR RURAL CHINA, Page 1, UNDP, September 2011, available at <http://www.snap-undp.org/eLibrary/Publications/Case5-DPBURC.pdf>.
- 133 Ibid.
- 134 Barreda, Jorge J., "China and Brazil in the Context of the Pre-Salt Discoveries," April 2010, at <http://www.sinolatincapital.cn/Upload/2010421232030.pdf>.
- 135 Brazil, Ministry of Mines and Energy, Energy Research Company, "Decennial Plan of Energy Expansion 2020" Brasília: MME/EPE 2011 (Brasil, Ministério de Minas e Energia, Empresa de Pesquisa Energética Plano Decenal de Expansão de Energia 2020 / Ministério de Minas e Energia. Empresa de Pesquisa Energética. Brasília: MME/EPE, 2011) available in Portuguese at <http://www.epe.gov.br/PDEE/Forms/EPEEstudo.aspx>.
- 136 BNDES posts spreadsheets in Portuguese in its BNDES_Transparente (BNDES_Transparent) section of its website at http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/BNDES_Transparente/Consulta_as_operacoes_do_BNDES/.
- 137 See BNDES in Numbers for 2010 at http://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES_in_Numbers/performance_2010.html.
- 138 Note that according to Brazilian law, small hydroelectric plants are those with 30MW or less generating capacity. Oil Change International classifies small hydroelectric plants as those with 10MW or less generating capacity.
- 139 A case study providing more details on the Brazilian Light for All program is included in the report: "Energy Access for the Poor: The Clean Energy Option." Oil Change International, ActionAid International, and Vasudha Foundation (India), June, 2011 at <http://priceofoil.org/wp-content/uploads/2011/06/Access-to-Energy-for-the-Poor-June-2011.pdf>
- 140 Shift the Subsidies Database. <http://shiftthesubsidies.org>
- 141 Source: Shift the Subsidies Database. <http://shiftthesubsidies.org>
- 142 Oil Change International. "Shift the Subsidies Database Key Findings." December 2011.
- 143 Oil Change International, ActionAid International, and Vasudha Foundation (India), "Energy Access for the Poor: The Clean Energy Option." June, 2011 at <http://priceofoil.org/wp-content/uploads/2011/06/Access-to-Energy-for-the-Poor-June-2011.pdf>.
- 144 World Bank Group. Mobilizing Climate Finance: A Paper prepared at the request of

- G20 Finance Ministers. October 6, 2011. www.g20-g8.com/g8-g20/root/bank_objects/G20_Climate_Finance_report.pdf
- 145 U.S. Export-Import Bank. "U.S. Ex-Im Annual Report Financial Authorizations, 2010." 2010.
- 146 Source: U.S. Ex-Im Annual Report Financial Authorizations, 2010.
- 147 The G7 includes Canada, France, Germany, Japan, Italy, the United Kingdom and the United States.
- 148 U.S. Export-Import Bank. "Report to the U.S. Congress on Export Credit Competition and the Export-Import Bank of the United States for the Period January 1, 2010 through December 31, 2010." June 2011.
- 149 OECD-DAC. "Measuring Aid for Energy." April, 2010. www.oecd.org/dac/stats/energy
- 150 Development Assistance Committee countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.
- 151 Oil Change International and Earth Track. G20 Fossil-Fuel Subsidy Phase Out: A review of current gaps and needed changes to achieve success. By Doug Koplrow with contributions from Steve Kretzmann. November 2010.
- 152 New Zealand Ministry of Foreign Affairs. "Environment: Rio+20." <http://mfat.govt.nz/Foreign-Relations/1-Global-Issues/Environment/1-Governance/Rio-20.php>
- 153 Swiss Platform for Rio+20. "Swiss Objectives for Rio+20." <http://rio20.ch/en/green-economy/goals/>
- 154 <http://priceofoil.org/wp-content/uploads/2012/05/FossilFuelSubsidiesNGOstatement.pdf>
- 155 Source: http://www.oecd.org/site/0,3407,en_21571361_48776931_1_1_1_1_1,00.html#data
- Currency exchange: <http://www.x-rates.com> for last day of year or last day of last year in range
- 156 <http://unfccc.int/resource/docs/2012/adp1/eng/misc01.pdf>
- 157 <http://www.g20.org/images/stories/docs/eng/pittsburgh.pdf>
- 158 <http://www.whitehouse.gov/the-press-office/2012/05/19/camp-david-declaration>
- 159 http://www.apec.org/Meeting-Papers/Leaders-Declarations/2010/2010_aelm.aspx
- 160 <http://mfat.govt.nz/fffsr/index.php>



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