

POLICY BRIEF

Stopping Payments to Polluters: Clearing the air with fossil fuel subsidy reform in China and India

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Introduction

Recent analysis demonstrates that China and India, the world’s most populous countries, also match each other on the scale and severity of urban air pollution due to emissions from coal-fired power plants, the industrial sector, and transport (see Figure 1) (State of Global Air, 2017). In the face of mounting pressure to improve air quality, both countries are considering and implementing policies for emissions reductions. Already, the Chinese government has taken significant steps to reduce air pollution, and committed to further reductions at the 2017 National People’s Congress (NPC) (Phillips, 2017). In the 1990s, India also had some success in improving air quality in Delhi through higher emissions standards for vehicles, but has not yet managed to replicate this success in the 21st century (World Wildlife Fund, 2012).

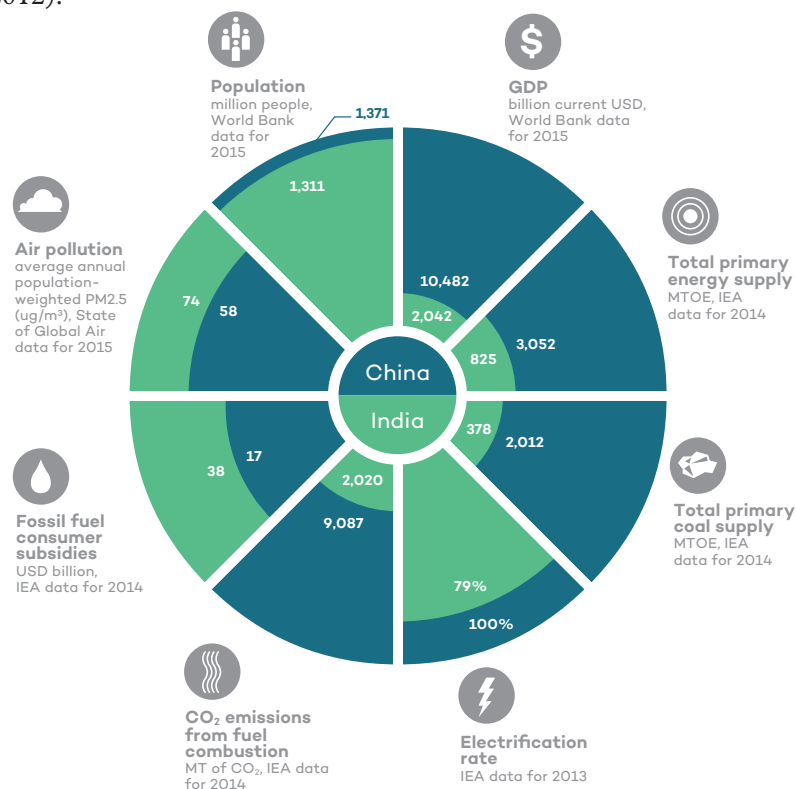


Figure 1: China and India Compared on Key Energy Indicators

Improvements in air quality are in large part dependent upon transitioning away from an energy mix dominated by fossil fuels and toward a lower-carbon energy system. Here, governments have a range of tools at their disposal, most notably financing options, including how to spend their budgets and implement their policies taxing and subsidizing competing energy choices. Subsidies to the production and consumption of fossil fuels, by reducing the price of these fuels, encourage their continued use and thus ongoing air pollution: in contrast, reform of these subsidies can be an important tool in discouraging use and thus reducing emissions.

This policy brief identifies the commonalities that China and India face with respect to fossil fuel subsidies and their reform and identifies specific examples of good practice in each country. In doing so, it seeks to facilitate cross-border learnings—not only between India and China, but also between these two countries and the rest of the world. Additionally, the policy brief draws upon the experiences of a third country—Indonesia—which in 2014 reformed gasoline and diesel subsidies at the same time that world oil prices fell, leading to savings of IDR 211 trillion (USD 15.6 billion). Appended to the policy brief are two case studies that outline in more detail the incidence of subsidies and the status of reform in each of the countries.

Energy pricing and fossil fuel subsidy reform are not just fundamental elements in addressing air pollution concerns and realizing the ambition of a sustainable energy system: they can also generate significant public benefits in terms of reduced and more efficient government spending. However, experience of reform clearly demonstrates that the issue is often politically and economically charged, and that strategies need to be carefully developed and implemented. Learning from international experiences can be useful in addressing the challenges of subsidy reform.

Box 1: What is a subsidy?

In broad terms, a subsidy can be defined as “any government action that lowers the cost of energy production, raises the revenues of energy producers, or lowers the price paid by energy consumers” (World Economic Forum [WEF], 2009). Beyond this, however, there is debate as to whether a specific type of support is a subsidy, with different organizations taking different approaches.

At the centre of the definition are policies that are widely accepted as being subsidies, including direct government spending, tax relief and provision of services below market rates. As the definition expands to include other measures, there is more debate around whether they constitute subsidies or not. Market price support creates an incentive to consume more of a good or service and is widely considered a subsidy, but some specific measures may be excluded from certain definitions. For example, the definition of subsidies used by the World Trade Organization’s (WTO) Agreement on Subsidies and Countervailing Measures (ASCM) does not explicitly include mandates as subsidies, whereas definitions adopted by the International Energy Agency (IEA) and the Global Subsidies Initiative (GSI) do include such measures. Finally, underpricing social and environmental externalities is not generally considered to be a subsidy, but this does generate a cost to society (e.g., pollution, lower investments in other sectors) that the parties liable are not required to pay, and are therefore often included in the discussion of subsidies.

In this policy brief, we largely use the term “subsidy” for tracing whether polluters may receive benefits as a result of a certain government policy.

See: Global Subsidies Initiative (n.d.).





The Context

As members of the G20, both China and India have committed “to phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest” (G20, 2009). In addition to benefits described in terms of reducing air pollution, supporting the transition to a clean and more efficient energy system, and reducing government spending, this reform is a means by which they can realize the reductions in carbon dioxide emissions targeted both within their national legal frameworks as well the Paris Agreement.

Fossil fuel subsidies are significant in each country: in 2014, subsidies to consumers in India were estimated at USD 38.2 billion, and subsidies to producers at USD 103 million (IEA, 2015); a recent review in China identified the value of just nine subsidies (to both production and consumption) at USD 14.5 billion, while the IEA estimated consumption subsidies in 2014 at USD 17.4 billion (see Figure 1). Both countries have shown significant appetite to undertake reform of these subsidies, and to move toward a fiscal system that supports environmental targets. India has reformed its petrol and diesel pricing, introduced taxes on coal and oil production, and has taken steps to reform liquefied petroleum gas (LPG) subsidies. China has reformed—or has earmarked for reform—a range of subsidies to fossil fuel production and transport fuels, and has introduced carbon pricing. As each country moves forward with reform, sharing experiences and lessons learned to date could be a useful tool to inform the design and implementation of reform strategies.

Lessons for Reform

Experiences of previous and current reform attempts can yield instructive lessons on the process of subsidy reform, from supporting the identification of subsidies to managing the reform process, mitigating negative impacts of reform and reallocating savings. The following considers some of the lessons that emerge from reform experiences in China and India, based on this process.

The initiatives discussed are most likely to be successful if they are designed and implemented as part of a broader package of economic and political reform, such as a shift to a green economic system. Success is also likely to require the will and political structure to tackle the vested interests that tend to specifically characterize the energy sector. Here, China has already paved the way for reform by, for example, devolving the taxation of land use to local governments, who have opposed exemptions on taxation granted to fossil fuel producers and have lobbied for reform.

Identifying Fossil Fuel Subsidies

1. Voluntary Peer Reviews: Increasingly, countries are engaging in peer review processes, whereby two countries come together on a voluntary and equal basis to examine and assess one another’s subsidies, often with input from other experts and stakeholders. In addition to improving transparency, peer reviews can help governments in identifying subsidies, determining whether these subsidies can be considered efficient and in designing more effective policies.

Peer reviews of fossil fuel subsidies have been conducted in the Asia-Pacific Economic Cooperation (APEC) forum since 2014, and in 2016 the first G20 peer review took place, with the United States and China (the host of the G20 in 2016) participating in a widely commended and politically significant review process (Organisation for Economic Co-operation and Development [OECD], 2016b). By also participating in a voluntary peer review as part of the G20 process, India could expect to receive focused and expert advice on subsidy reform, as well as sharing its considerable experience in this field to the benefit of its peers. Completing it by 2019 (when India hosts the G20) would send a strong political signal to both other G20 members, and more broadly to other countries.

2. Considering the full range of subsidies: While the focus of subsidy reform is often those subsidies that can be easily assigned a monetary value (tax breaks, direct transfers and provision of services below market cost), other, less easily quantified, subsidies such as market support can also have an important effect on the configuration of the energy system. Evidence from China suggests that the dispatch of renewable generation has been severely curtailed in recent years due to coal generators being guaranteed minimum run hours which take precedence over generation from other sources (Wang, Kitson, Bridle, Gass, & Attwood, 2016). In identifying and implementing measures to

address this subsidy, the Chinese government has taken important steps in removing barriers to a sustainable energy system. In India, the system of non-competitive bidding for coal blocks was recently reformed, reducing one of the non-financial subsidies to production. Further, introduction of competitive bidding in solar and wind sector has brought down the prices of such renewable technologies level with fossil fuel-based generation.

3. Pricing pollution and carbon dioxide emissions:

Typically, definitions of subsidies do not include the benefit bestowed on the producer or consumer by underpricing external effects such as pollution or climate change. Nevertheless, the cost to society arising from these effects is often significant, and there is increasing recognition that efficient taxation policies should transfer the burden of this cost to the polluting entity. Both

India and China have made significant progress in this area, particularly with respect to carbon emissions, with China having introduced pilot trading schemes covering five cities and two provinces (Beijing, Tianjin, Chongqing, Shanghai, Hubei, Guangdong and Shenzhen) in 2012 and extending the scheme nationwide in 2017. India charges a cess (tax) on the production of coal and oil (see also Point 10 below). Sharing challenges and successes encountered when designing and implementing these systems may yield valuable lessons for the future pricing of carbon emissions and other environmental charging mechanisms.



Reforming Fossil Fuel Subsidies

4. Road maps for reform: Once fossil fuel subsidies have been identified, roadmaps can be put in place setting out strategies and actions for the reform of specific inefficient subsidies. The Chinese government compiled such a road map as part of the US-China voluntary peer review under G20, identifying the measures and the timeline for reform of each of the identified subsidies. By being specific, the roadmap commits the government to reform; this is also the case with recently announced plans to suspend the building of over 100 planned and under-construction coal-fired power stations (“In latest move,” 2017). While in some cases, the road map may detail a simple removal of subsidies, in many cases addressing the social and economic effect of reform will require a phased approach with accompanying mitigation options and retargeting of subsidies to those in need (see below). In either case, strategies and plans for reform need to be well-considered and developed to ensure the sustainability of reform.

5. Windows of opportunity: These windows represent moments where either the political, social or economic climate supports the process of reform. The Indian and Chinese governments, as well as the Indonesian government (see Box 1), took advantage of low oil prices in 2014 to increase prices. Going forward, continued concern over pollution and greater pressure on public finances may similarly open up a window of opportunity for reform in both countries, particularly if coupled with a broader commitment to economic reform.

6. Sustainability of the electricity sector: Ensuring availability and accessibility of electricity supply is a fundamental tenet of energy policy, and is of particular concern in India, where close to 300 million people lack access to grid electricity and many more have a limited or unreliable supply (see Figure 1). However, the structure of the electricity sector and the subsidies granted in it are often a barrier to reform; here both countries have a wealth of experience that can serve to inform one another’s reform attempts and those of other countries. In India, underpricing of electricity and subsequent losses in the electricity sector have resulted in accumulated losses in the power distribution utilities equal to over 2.5 per cent of GDP (Energy Transition Advisors, 2016). While electrification rates in China are close to 100 per cent, the sector is heavily subsidized, and progress toward a market-based structure has been slow (see Zhang & Qin, 2015). In both countries, the political power and the vested interests entrenched in the electric utility sector require consideration and careful balancing, and sharing experiences in this respect may yield valuable lessons.



Mitigating the Effects of Reform

7. Protecting the vulnerable consumer: Both countries face challenges ensuring that reform of fossil fuel subsidies does not adversely affect the most vulnerable in society, but instead work to their benefit. Usually, this concern focuses on consumer subsidies, where an increase in the price of fuel can have a real effect on both household disposable incomes and on the type of fuel used. Here, sustainable reform will require a phased approach with accompanying mitigation options and retargeting of subsidies to those in real need. India has considerable experience in the design and implementation of targeted subsidies: for example, the Direct Benefit Transfer (DBT) for LPG focused on identifying those who were in real need of the subsidy and allowed these targeted beneficiaries to receive payment directly into their bank accounts (Jain, Agrawal, & Ganesan, 2016).

8. Protecting vulnerable workers: The effects of reforming subsidies to fossil fuel producers may also be a significant concern, since a decline in production may have economic and social impacts in terms of job losses and local economic decline. The decline in coal prices between 2012 and 2016 and the associated decrease in coal mining in both China and India may give some indication of the nature of these effects and the possible policy options that could be used to address them. For example, in China, the central government set up a 100 billion yuan fund (approximately USD 14.5 billion) to assist in addressing the impacts of industrial restructuring, which has been supplemented by funding from provincial governments, although this funding is subject to availability. Sharing these experiences may yield valuable lessons for both countries.

Reallocating Funds

9. Reallocating subsidies to more sustainable social and economic causes:

Subsidy reform can lead to significant reductions in government expenditures (in the case where subsidies are financed by direct budgetary transfers) or increases in government revenues (in the case where subsidies take the form of tax exemptions and reductions). In either case, this creates so-called “fiscal space” and gives governments the opportunity to allocate funds to programs designed to promote social objectives (such as the provision of health or education services) or economic objectives (such as employment creation). It also allows governments to focus spending on the poor: as described above, when

reforming its LPG subsidies, India retargeted the funds saved to those most in need and plans to do the same with respect to kerosene subsidies; this scheme was based on biometric identification cards. Box 2 describes how the Indonesian government chose to reallocate subsidy savings following reform in 2014.

Box 2: Fossil Fuel Subsidy Reform In Indonesia – Reallocation of Funds

Fuel subsidies in Indonesia have been costly throughout the past decade, creating an enormous burden on the state budget—over 10 per cent of all expenditure in most years. This represents an investment of scarce resources in short-term consumption, rather than long-term investments in infrastructure (driving economic growth) or social assistance (reducing poverty). Such subsidies have also been socially regressive, creating the largest benefit for people who can afford to buy large amounts of fuel: in 2014, over 50 per cent of subsidized gasoline was bought by the richest 20 per cent of the population.

However, at the end of 2014, Indonesia reformed gasoline and diesel subsidies at the same time that world oil prices fell. As a result, it saved IDR 211 trillion (USD 15.6 billion) on fossil fuel subsidies equal to 10.6 per cent of all government expenditure. The fuel subsidy savings in 2015 were reallocated to major investments in social welfare and infrastructure through increased budgets for ministries (IDR 148 trillion or USD 10.1 billion), state-owned enterprises (IDR 63 trillion or USD 4.5 billion) and transfers for regions and villages (IDR 35 trillion or USD 2.5 billion).

Analysis by GSI concludes that fuel subsidy reform and reallocation in Indonesia has been a major step forward in improving public expenditure.

10. Reallocating for energy system transformation: Both China and India have been global leaders in the development and implementation of renewable energy, granting subsidies and support to the sector. However, the primary energy supply and the electricity generation mix remain dominated by fossil fuels, particularly coal. Reform of fossil fuel subsidies can in itself further the implementation of clean energy solutions, since it should lead to a reduced cost differential between the different energy sources. In addition, reallocation of fossil fuel subsidies toward clean energy can provide valuable funding for renewable energy development. As one example, India allocates a small part of the revenues raised from the cess on coal to a clean energy fund to finance renewable investment—extending this type of initiative could release some of the funds required for the transformation of the energy sector.

Conclusions

Both China and India have valuable lessons of energy policy reform to share with one another, not only on the rationalization of fossil fuel subsidies, but also on the development of the energy system more broadly. However, the full value of these lessons is only likely to be realized based on an open dialogue on the subject of reform of both subsidies and the energy sector as a whole. The G20, BRICS (and of course bilateral exchanges) offer an opportunity to open such a discussion and to begin a process of collaboration on these issues.

The lessons described in this policy brief are also likely to prove valuable for other countries, and the influence of both China and India among other emerging economies and developing countries means some of them can be replicated. Commitments to subsidy reform in these countries will likely significantly influence the global political environment and appetite for reform, particularly if these reforms are well-executed and the associated benefits forthcoming.

However, the reach and influence of China and India is likely to go far beyond this “demonstration effect.” The political and economic power of China and India is such that the actions taken by these countries with respect to reform will have repercussions far beyond their borders. First, through influencing the international price of energy sources—both fossil and renewable—China and India exert an influence on relative prices across the globe. Second, by financing overseas energy projects through their state-owned enterprises and banking system, China and India can meaningfully influence the orientation of the energy mix in other countries (notably, China’s “One Belt, One Road” initiative envisages significant investment overseas). By targeting this financing on more environmentally sustainable energy initiatives—such as renewable energy projects or energy efficiency measures rather than fossil fuel investments—both countries have the opportunity to positively influence air quality around the world, not just within their borders.





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Annex: India Case Study

Achieving fossil fuel subsidy reform in India is likely to be difficult, although it is strategically important. India is generally recognized to be an “energy scarce” economy, with close to 300 million people without grid electricity (and many millions more with limited supply), and small reserves of oil and gas.

India has made some progress on climate mitigation and fossil fuel subsidy reform. As part of its commitment to establishing an effective, cooperative and equitable global climate architecture, India has committed to providing 40 per cent non-fossil fuel electricity capacity by 2022, comprising renewable energy, nuclear energy and hydro, as well as to reducing emission intensity by 30–35 per cent while promoting energy efficiency and less carbon-intensive consumption. India has adopted policies to address climate change concerns, including the use of fiscal instruments like a coal cess (tax), cuts in fossil fuel consumption subsidies, increased taxation for petrol and diesel and market mechanisms including the Perform Achieve and Trade (PAT) energy efficiency scheme, Renewable Energy Certificates (REC) and the Renewable Purchase Obligation (RPO).

Recent initiatives by the government to reform energy pricing and subsidies include:

- **Coal:** In January 2015, auctioning of de-allocated coal blocks through competitive bidding, and doubling the cess on coal production from INR 100 per tonne (USD 1.50) to INR 200 per tonne in April 2015 (2.99 USD). The clean energy cess was further doubled in March 2016 budget for coal, lignite and peat from INR 200 per tonne to INR 400 (5.98 USD) per tonne.
- **Petrol and Diesel:** Petrol was deregulated in 2012, but in October 2014, full price de-control happened for diesel which allowed public sector oil marketing companies (OMCs) to price diesel on a cost-recovery basis. This has already resulted in a significant decrease in India’s budget deficit, as well as in the share of diesel vehicles in India’s passenger car fleet.
- **Natural Oil & Gas:** Cess at the rate of 20 per cent on domestically produced crude oil, calculated ad valorem, against the current rate of INR 4,500 per tonne. Natural Gas wholesale prices were increased in October 2014, and amended market-linked pricing was adopted.

In addition, India implemented a number of complementary measures for households. These included direct benefit transfers (DBT) that, in contrast to subsidized pricing, transfer subsidies for cooking gas or LPG to the bank accounts of targeted beneficiaries. In order to receive the subsidy, eligible beneficiaries had to obtain unique biometric identity cards (Aadhaar) linked to their bank account, through which they could receive a refund for purchased LPG cylinders. The government is also adopting the same scheme for kerosene to improve targeting and reduce leakages.

In spite of these reforms, direct spending and tax breaks supporting the extraction and production of crude oil, natural gas, coal and the development of fossil-fuelled power projects constituted USD 103 billion in 2014 (Garg & Bossong, 2015). Fossil fuel consumption subsidies in India are significant, and in many cases provide additional support to fossil fuel production. In fiscal year (FY) 2014–15, the Indian government provided about USD 6.2 billion in subsidies to households for the consumption of LPG. In spite of the deregulation of petrol prices (in 2010) and diesel prices (in 2014) and the global fall in oil prices, costs to the government of price fixing still remained substantial at USD 11 billion in 2014–15 (MoPNG, 2015). Similar consumer subsidies of approximately USD 12 billion in 2012–13 existed in the primarily fossil fuel-based electricity sector. Indeed, the accumulated losses of India’s power distribution utilities equates to about 2.7 per cent of GDP, largely owing to the provision of free or under-priced power. These subsidies may drive demand for further production of fossil fuels and electricity (the majority of which is fossil fuel-based).

There are a number of potential key areas for reform in India’s energy sector. These include: robust independent pricing mechanisms (and independent regulators) and competitive markets for the distribution and sale of fuel; tax reforms; shifting India’s export finance and wider public domestic and international finance away from supporting fossil fuels and channelling these funds to development of clean energy alternatives; and development of parallel support measures to avoid negative impacts of subsidy reform.

Such reforms will support the shift to investment that could rapidly scale up clean and distributed energy.



Reallocation of subsidies from fossil fuels to clean energy technologies will further bring down the cost of renewable energy, as large-scale adoption of such technologies will improve scalability and lead to more technological innovation. This will have a positive climate impact and contribute significantly to the goal of keeping average temperatures from rising more than 2° C. The Global Subsidies Initiative (GSI) of IISD, found USD 49 billion of consumer subsidies in India during 2011–12, with estimated greenhouse gas (GHG) emissions reductions of between 1.3 to 1.8 per cent, from the removal of these subsidies, by 2031. The Indian government recently has started the groundwork for a detailed and granular greenhouse gas emissions inventory that will be generated annually in order to meet one of India’s climate change commitments toward greater transparency under the Paris Agreement. The government will also start climate budgeting from FY18–19, and a robust methodology is being developed to account for budgetary measures that support climate change-related actions across the country.

Moreover, the recent auction of unsubsidized solar (INR 3 [USD 0.045] per unit) and wind energy (INR 3.46 [USD 0.051] per unit) in February 2017 pushed tariffs of such RE technologies low enough to challenge power generated by fossil fuels like coal over the long term. This will dramatically change the energy landscape in the years to come as cost advantage trumps everything else in the power sector including COP21 commitments, environmental imperative and regulatory support.



Annex: China Case Study

Throughout its five-year-plans, China's government has used subsidies widely to steer the development of its energy sector. The country's energy policy landscape is both vast and rapidly changing, and the reform of fossil fuel subsidies is just one element (though a cross-cutting and critical one) of China's commitment to move to a more efficient and low-carbon development model.

As members of the G20, China and India have both committed to phasing out inefficient fossil fuel subsidies. In addition to benefits in terms of reducing air pollution, supporting the transition to a clean and more efficient energy system, and reducing government spending, fossil fuel subsidy reform is a means by which China can realize the reductions in carbon dioxide targeted both in China's Intended Nationally Determined Contribution and under the Paris Agreement, with the goal of peaking GHG emissions around 2030. Along with the United States, China is the first G20 country to undergo a voluntary peer review of fossil fuel subsidies that was published as part of document package for the Hangzhou summit in September 2016.

Domestically, the reform of energy subsidies in China is championed by the National Development and Reform Commission (NDRC) and National Energy Administration (NEA) under the 13th five-year plan adopted in early 2016. The reform process is part of the drive to increase the efficient use of resources and reduce air pollution – two challenges that present a growing threat to China's sound social and economic performance.

In the extractive sector, fossil fuel producers benefited from a range of subsidies including preferential resource tax rates, exemptions from land use tax, reduced tariffs for rail transport, compensation for industrial restructuring and support for investments. In 2013 the value of such support measures was estimated at least CNY 21.7 billion (USD 3.4 billion) (Denjean, Gerasimchuk, Bossong, & Pickard, 2015). However, many of these support measures have been either recently reformed or earmarked for phase out in the mid-term (G20, 2016). Another example of upstream subsidy reform is the support to shale gas that until 2015 received a unit subsidy of CNY 0.4 per m³ of output. In 2016 this subsidy was reduced to CNY 0.3 per m³ and will be decreased to CNY 0.2 per m³ in 2019.

In the transport fuels sector, several vulnerable consumer groups in the public transport, agriculture, forestry and fishery industries receive direct transfers for fuel use. The value of these transfers was estimated at CNY 94 billion (USD 15 billion) in 2013. Due to identified inefficiencies, China plans to reform these support measures in the medium to long term (G20, 2016). In order to curb wasteful consumption of transport fuels, in 2016 China also introduced a price floor that prevents the prices for refined oil products from dropping below what they would cost if crude oil remained at USD 40 per barrel (OECD, 2016a).

Electricity generation is perhaps the most critical the sector for a low-carbon future and fossil fuel subsidy reform in China. At present, the sector is dominated by coal-fired generation where subsidies have previously created overcapacity. In March 2016, NDRC and NEA introduced a warning system to guide investment in coal power generation and to control overcapacity. Twenty-eight provinces were ordered to stop approval or construction of new coal power plants, and those approved plants are requested to delay the construction until 2018 (Boren, 2016).

At the same time, coal generators still receive support through the guaranteed number of operating hours for power purchase to the grid and priority dispatch, which constitutes a significant subsidy. The priority given to coal generators has recently resulted in a substantial curtailment of wind power in China. Coal generators also benefit from other support measures such as infrastructure investment by the government. Even though government support to coal-fired generation in China is sizable (Denjean et al., 2016), it has been largely out of the focus of available research as well as the voluntary peer review of fossil fuel subsidies under G20.

As part of a bigger reform package, the rationalization of China's fossil fuel subsidies is complemented by many other policies supporting the transition to a low-carbon economy. Noteworthy are significant subsidies to renewable energy estimated at CNY 45-103 billion (USD 7 - 16 billion) annually in 2013-2014 (IEA, 2014; Shen & Luo, 2015). More reforms are expected in 2017 that should progressively liberalize electricity tariffs. At the same time, fossil fuels will continue to dominate China's energy system for a long time, and barriers to change remain significant. In part, this explains China's interest in international cooperation on fossil fuel subsidy reform.

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