

# The Cost of Subsidizing Fossil Fuel Production In Turkey:

Why Turkey Should Implement the G20

Commitment To Phase Out Fossil Fuel Subsidies



## Executive Summary

Market distorting subsidies to fossil fuels contribute to greenhouse gas (GHG) emissions and impede the transition to sustainable, low-carbon development. In 2009, G-20 countries committed to phase out “inefficient” fossil fuel subsidies in an effort to specifically address climate change and boost investment in clean energy sources.<sup>1</sup> It has been five years since the G-20 commitment, yet very little progress has been made to end these subsidies.

This year, Turkey holds the G-20 Presidency and as such sets the agenda for the G-20 Summit taking place in Antalya in November 2015. The G-20 Presidency’s Priorities rightly include a continued discussion on phasing out fossil fuel subsidies, and the recognition that 2015 is a crucial year for climate change with the United Nations climate negotiations set to agree a global deal in December. *The G-20 context provides an excellent opportunity for Turkey to lead the G-20 to fulfill its commitment to phase out fossil fuel subsidies and make a significant contribution towards a global climate agreement.*

One type of fossil fuel subsidy that is highly inefficient, as it supports the creation of stranded assets, is exploration subsidies. Scientists have determined that at least two-thirds of the world’s current, proven reserves of oil, gas, and coal must not be burned if we are to avoid raising global temperatures above 2 degrees Celsius – the globally agreed limit. Thus, any activities involved in fossil fuel exploration are incompatible with preventing the worst impacts of climate change, and even most of already-proven reserves will end up as stranded assets, which can never be used or burned. Despite this reality, G-20 governments continue to provide an estimated US\$88 billion annually to encourage further exploration.<sup>2</sup>

Furthermore, with the cost of renewable energy technologies rapidly declining and the vast solar and wind resources available in Turkey, it is important to examine fossil fuel subsidies that hamper the development of clean, climate friendly technologies. As such, the following assessment is an effort to understand the types and costs of fossil fuel subsidies in Turkey, with a focus on producer subsidies that drive further expansion of fossil fuel extraction.

## Key Findings for Turkey

- The Turkish government provides an estimated US\$300 million to US\$1.6 billion (TRY 683 million to TRY 3.6 billion)<sup>3</sup> per year in fossil fuel producer subsidies, depending on what investments are made in a given year.
- In 2013, Turkey provided some US\$500 million in public funding specifically for fossil fuel exploration. Turkey’s government-funded coal exploration program has increased coal reserves by over 50 percent since 2005, opening up 5.8 billion tons of new coal to be mined.
- The single largest persistent subsidy identified equals US\$250 million to over US\$400 million (TRY 569 million to TRY 910 million) a year in support to hard coal enterprises.
- The 2012 New Investment Incentives Regime provides a higher level of subsidies to oil and coal investments than to renewable energy – encouraging carbon-intensive infrastructure projects over clean energy sources. The elevated incentives represent a potential subsidy for coal alone of US\$11.6 billion (TRY 26.4 billion) based on planned new lignite coal power plant capacity of 14.5 GW for 2012 to 2030.
- Government guarantees for loans and power purchase agreements involving fossil fuels represent significant contingent liabilities for the central budget. Such liabilities can ultimately threaten the country’s credit rating and, hence, cost of borrowing.
- Since 2007, fossil fuel projects in Turkey have received more than US\$5 billion (TRY 11.38 billion) in international public finance from multilateral development banks, export credit agencies and national development banks. Of this total, over US\$1.5 billion (TRY 3.4 billion) went to coal projects.

- Fossil fuel subsidies pose an enormous cost to Turkish society. Negative externalities for damages due to carbon dioxide (CO<sub>2</sub>) emissions and local air pollution account for a large portion of the US\$31.2 billion (TRY 71.1 billion) in annual fossil fuel subsidies for Turkey estimated by the IMF.

## Recommendations

Fossil fuel subsidies threaten Turkey's economy, straining the budget, increasing government liabilities, and heightening the risk of stranded assets. More importantly, these subsidies negatively affect public health, climate stability, the transition to clean energy, and prospects for EU membership. Given these concerns, it is recommended that the government of Turkey reduce fossil fuel subsidies domestically and at the same time, while holding the G-20 Presidency, encourage the G-20 to implement its commitment to phase out inefficient fossil fuel subsidies.

Fossil fuel subsidies that directly threaten the goal of limiting global temperature rise to as far below 2 degrees Celsius as possible, and those for new fossil fuel investments that serve to lock countries into carbon-intensive infrastructure for the next 20 to 50 years, need to be immediately eliminated. With this in mind, Turkey and the G-20 should specifically:

- **Agree to immediately eliminate all subsidies for fossil fuel exploration.** In particular, Turkey should:
  - End government-funded fossil fuel exploration activities such as those conducted by MTA, TPAO, and TKI;
  - Eliminate tax exemptions for exploration activities; and
  - Exclude coal exploration from the Mining Fund's below-market rate loans.
- **Ensure infrastructure investment frameworks do not provide subsidies to fossil fuel projects, both nationally and bilaterally, including ending public finance for fossil fuels through loan guarantees and export credit support.** In particular, Turkey should:
  - Exclude fossil fuel projects from the 2012 Infrastructure Investment Incentives regime (or at least take oil, coal power and coal mining

off the “strategic investments” list with elevated subsidies, thereby establishing a more level playing field for renewables);

- Exclude fossil fuel projects from government guarantees; and
  - Support a commitment to end OECD Export Credit Agency finance of coal projects.
- **Adopt a strict timeline for phase-out of remaining fossil fuel subsidies with country-specified measurable outcomes.**
    - For Turkey, a timeline should be set to phase out all producer fossil fuel subsidies starting with coal. A strategic transition, i.e., one that ensures new employment opportunities for miners, reduces budget support to hard coal mining operations, and phases out existing power plants that utilize hard coal, should be a priority.

## Introduction

Market distorting subsidies to fossil fuels contribute to greenhouse gas (GHG) emissions and impede the transition to sustainable, low-carbon development. In 2009, G-20 countries committed to phase out “inefficient” fossil fuel subsidies in an effort to specifically address climate change and boost investment in clean energy sources.<sup>4</sup> It has been five years since the G-20 commitment, and despite a re-statement of that commitment at every G-20 Summit since, very little progress has been made to end these subsidies.

In 2015, Turkey holds the G-20 Presidency and as such sets the agenda for the G-20 Summit taking place in Antalya in November. In emphasizing its concern over long delays in the implementation of G-20 commitments, the Turkish G-20 Presidency has marked this year as “2015 Year of Implementation.” As such, Turkey's G-20 Presidency's Priorities rightly include the commitment to phase out fossil fuel subsidies and the recognition that 2015 is a crucial year for climate change, with the United Nations climate negotiations set to reach a global agreement in December.

The G-20 context provides an excellent opportunity for Turkey to lead the G-20 in fulfilling its commitment to phase out fossil fuel subsidies, while making a significant contribution to the global climate agreement. The following assessment is an effort to identify

the types and costs of fossil fuel subsidies in Turkey, with a focus on producer subsidies that drive further expansion of fossil fuel extraction. The assessment concludes with specific recommendations to phase out fossil fuel subsidies both for the G-20 as a whole and for Turkey.

## Background on Turkey's Energy Sector

Turkey's importance in world energy markets is growing, both as a regional energy transit hub and as a growing consumer. Turkey serves as a major transit hub between oil and gas-rich Former Soviet Union and Middle East countries, and the European demand centers. Key pipelines include: the Blue Stream gas pipeline from Russia, the Baku-Tbilisi-Ceyhan oil pipeline from Azerbaijan and the Kirkuk-Ceyhan oil pipeline from Iraq, with further pipelines planned for the future, such as the Trans-Anatolian Natural Gas Pipeline Project.

With limited domestic oil and gas reserves, Turkey imports nearly all of its oil and gas. According to the International Energy Agency, in 2012 Turkey produced only 44,900 barrels per day of oil against a demand of 670,300 barrels per day. Turkey's dependence on natural gas imports is even higher, with domestic production of 632 million cubic meters per year against 45 billion cubic meters per year of demand. As a result of the high net imports, and spurred by recent large gas discoveries by nearby countries offshore in the east Mediterranean deep marine basin, Turkey is in the midst of an intensified oil and gas exploration program.

On the coal front, Turkey has significant proven reserves of lignite but limited reserves of hard coal. As such, it imports around 90 percent of hard coal demand.<sup>5</sup> In 2012, Turkey's electricity production was made up by 29 percent coal (hard coal 13.9 percent and lignite 14.5 percent), 44 percent natural gas, 24 percent hydropower, less than 1 percent oil, and 3 percent wind and other renewable sources.<sup>6</sup>

In 2013, Turkey produced 76 million tons of coal, ranking 12<sup>th</sup> in the world. Hard coal accounts for only 5 percent of production; the rest is lignite.<sup>7</sup> In total, Turkish coal-fired plants have a capacity of approximately 14.6 GW. Turkey's current energy strategy involves rapid expansion of coal-fired generation and

coal production to both meet the needs of a growing economy and reduce the country's dependence on imported natural gas. In fact, Turkey is promoting the construction of more coal plants than any other OECD country – with over 65 GW of capacity proposed or under construction.<sup>8</sup> However, several plants have been cancelled or put on hold due to difficulties obtaining finance.

According to a recent study by WWF-Turkey and Bloomberg New Energy Finance (BNEF), Turkey's official electricity plan to 2030 involves a 145 percent increase in coal-fired generation.<sup>9</sup> The expansion of coal in Turkey is particularly problematic since most of the domestic coal is lignite, the dirtiest type of coal.<sup>10</sup> If all the currently planned coal plants were built, Turkey's greenhouse gas emissions would grow by an estimated 94 percent by 2030.<sup>11,12</sup> While Turkey plans to expand climate change-causing coal-fired power, the Mediterranean region has been identified as one of the future climate change hot spots.<sup>13</sup> Sensitivity studies conducted for Turkey indicate that climate change could result in increased risks of flooding and landslides, increased intensity and duration of droughts and hot spells leading to more water stress, and rising sea levels that threaten coastal areas.<sup>14,15</sup>

Turkey does not have to follow this carbon-intensive development path. The WWF-Turkey and BNEF study found that it would cost almost the same (around \$400 billion) to build up and run Turkey's electricity generation to meet the growth in power demand between now and 2030, whether the new capacity is generated with a mix of domestic lignite resources and hard coal or with a mix of clean energy technologies.<sup>16</sup> The latter approach would take advantage of expected significant reductions in the levelized cost of electricity per MWh for both solar photovoltaics and wind over the next decade and a half.

## Turkey's Producer Subsidies for Fossil Fuels

It deserves to be noted that subsidies do not ultimately reduce the costs of energy or electricity; subsidies simply distribute the costs to society in different ways. Someone always pays – either through higher taxes, foregone government revenue, or foregone government expenditure, such as on social programs or other forms of infrastructure, e.g., renewable energy.

Moreover, subsidies to fossil fuels undermine efforts to avert dangerous climate change, functioning as a negative carbon price and driving more production and consumption of fossil fuels than would otherwise be the case without subsidies.

As a member of the G-20, Turkey has pledged to phase out inefficient fossil fuel subsidies. Furthermore, Turkey has cost-competitive renewable energy alternatives to fossil fuel-based development. Therefore, on both counts, it is important to examine fossil fuel subsidies that impede Turkey's transition to clean, climate-friendly technologies.

As noted above, Turkey's government has given priority to increasing oil, gas, and coal exploration and coal-fired power generation in order to meet growing energy demands and reduce costly imports of natural gas. This priority has been supported through government policies and subsidies. For 2013, the IMF estimates that an incomplete list of fossil fuel consumer and producer subsidies in Turkey (including externality costs) equaled 3.8 percent of GDP<sup>17</sup> or approximately US\$31.2 billion (TRY 71.1 billion), with subsidies and externalities related to coal accounting for US\$21.5 billion, natural gas accounting for US\$4.9 billion, and petroleum accounting for US\$4.8 billion. The breakdown of this IMF estimate demonstrates that this estimate is based mostly on the cost of externalities for Turkey.

Given the IMF estimate does not attribute costs to specific subsidies and does not consider all forms of fossil fuel subsidies, the following assessment is an effort to understand the types and value of fossil fuel subsidies in Turkey. In addition, this assessment focuses only on producer subsidies for two main reasons: 1) producer subsidies receive far less reform attention than consumer subsidies by institutions like the IMF and World Bank; and 2) producer subsidies are often key to new energy investments driving further expansion of fossil fuels and thereby reducing investments in renewable energy.

Producer subsidies distort the market by making it easier for firms to enter and operate within the exploration, mining, processing, transportation, and power generation sectors, implicitly conferring a competitive advantage over non- or less-subsidized industries, such as renewables, and making the fossil fuel busi-

nesses more profitable or financially viable than they otherwise would be.

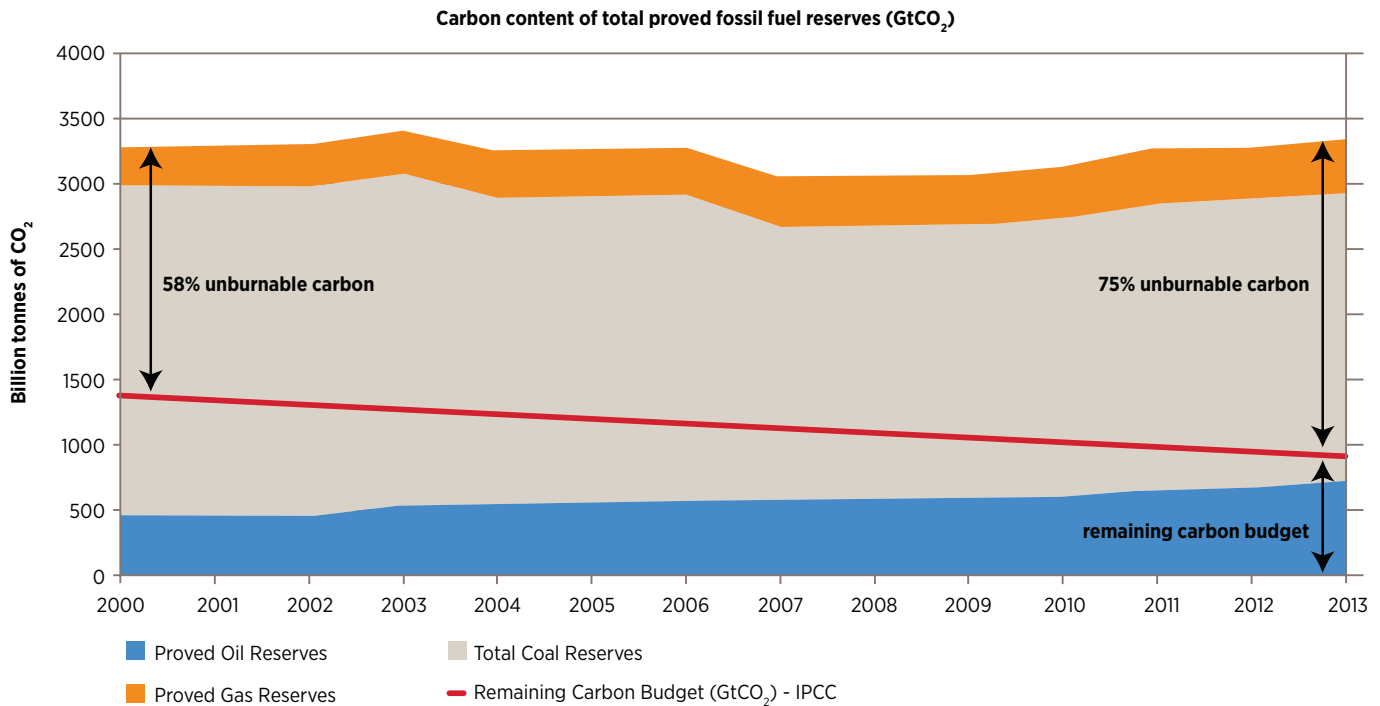
Table 1 presents a list of fossil fuel producer subsidies provided by the Turkish government for exploration, research, development, mining, production, and power generation. As summarized in Table 1, this assessment identified **fossil fuel producer subsidies estimated at US\$300 million to US\$1.6 billion a year** depending on investments made in a given year, and not including several types of subsidies lacking data on which to base estimates. Given the number of subsidies for which data is not available, this estimate is likely highly conservative. In addition to national subsidies, **international public finance institutions have contributed to producer subsidies in Turkey with over US\$5 billion since 2007** (see Table 3 below). The remainder of the document provides a description of the major types of producer fossil fuel subsidies in Turkey.

## Producer Subsidies for Exploration

In 2014, the Intergovernmental Panel on Climate Change (IPCC) released its Fifth Assessment Synthesis Report.<sup>18</sup> This report determined that in order to keep global warming below the globally agreed-upon definition for the threshold of dangerous climate change, 2°C above pre-industrial levels, cumulative human CO<sub>2</sub> emissions must remain below 2,900 GtCO<sub>2</sub>. About two-thirds of that budget – 1900 GtCO<sub>2</sub> – had already been emitted by 2011, according to this latest IPCC report. The IPCC noted that, *“Estimated total fossil carbon reserves exceed this remaining amount by a factor of 4 to 7, with resources much larger still.”* That means that at least 75 percent of current proven fossil fuel reserves, are unburnable in a safe climate world. (See Figure 1.)

Thus, any activities involved in fossil fuel exploration are incompatible with preventing the worst impacts of climate change. However, throughout G-20 countries, governments continue to provide subsidies that encourage further exploration. A recent study found that G-20 governments are spending approximately US\$88 billion a year to find new fossil fuel reserves.<sup>19</sup> Topping the list is the United States, which provided US\$5.1 billion in subsidies for fossil fuel exploration in 2013 – almost double the level in 2009 when the G-20 pledged to phase out fossil fuel subsidies.

**Figure 1: The carbon content of fossil fuel reserves in comparison to the carbon budget**



Given that the world cannot use the large majority of known fossil fuels and maintain a stable climate, it is highly inefficient for governments to continue subsidizing exploration to develop new fossil fuel resources, particularly when these investments can be used to fund climate action both at home and internationally. In a carbon-constrained world, further expanding fossil fuel reserves may be opening the door to increased risk of stranded assets. G-20 governments pledged to both phase out fossil fuel subsidies and take action to limit climate change. Immediately ending exploration subsidies is the clearest next step on both fronts. Turkey maintains a number of fossil fuel exploration subsidies, detailed below.

#### **Budget Support for State Economic Enterprises.**

The Turkish Government engages in direct spending for fossil-fuel exploration by providing budget support to exploration programs run by state economic enterprises (SEE) including: the General Directorate of Mineral Research and Exploration (MTA), Turkish Petroleum Corporation (TPAO) and the Turkish Lignite Enterprises (TKİ).

Target 1.1 of Turkey's Ministry of Energy and Natural Resources' (MENR) Strategic Plan for 2010 to 2014 stipulated an increase in domestic oil, natural gas and

coal exploration. Over this time period, the MENR Strategic Plan budgeted **US\$16 to US\$25 million a year** to increase exploration works. The exploration spending is likely much larger, as in 2010 budget support for coal exploration alone exceeded US\$20 million.<sup>20</sup> These trends have continued in the MENR Strategic Plan for 2015-2019, which proposes that public support for exploration activities be intensified, with a number of explicit targets primarily under the strategy's second goal.<sup>21</sup>

From 2005 to 2013, the MTA coal exploration works added a total of 5.8 billion tons of lignite reserves, increasing existing reserves by well over 50 percent.<sup>22</sup> These newly discovered coal fields have been turned over to private sector or foreign state-owned enterprises for development.

In 2007, MTA discovered 1.8 billion tons of lignite reserves in Konya province, becoming the country's second largest coal reserve after Afsin-Elbistan.<sup>23</sup> In November 2013, the Saudi state energy firm, ACWA Power, signed a memorandum of understanding with the Turkish state electricity generation firm, Elektrik Üretim (EÜAŞ), to develop the new Konya coal mine site and a 5,000 MW coal power plant complex at an estimated investment of US\$7 to US\$8 billion.

**Table 1: Turkey: Fossil Fuel Producer Subsidies**

Subsidy	Subsidy Type	Targeted Fossil Fuels	Estimated Annual Amount (million USD)*	Timeframe for subsidy estimate	Stage
Value added tax (VAT), corporate tax, and special consumption tax exemptions <sup>24</sup>	tax exemption	Oil	NA	NA	exploration
Budget support for TPAO exploration <sup>25</sup>	direct spending	oil & gas	\$500	2013	exploration, production
Exploration activities through MENR <sup>26</sup>	direct spending	oil, gas & coal	\$16 to \$25	2010-2014	exploration
New Petroleum Law – reduced income tax and customs duty, levies and stamp tax exemptions	tax exemption, reduction	oil and gas		2013- present	exploration, extraction
Mining Fund below-market rate loans <sup>27</sup>	foregone interest revenue	coal	NA	2007 -present	research, exploration, development, production
Incentives for “strategic” investments - social security premium support <sup>28,29</sup>	government contribution	oil and coal			extraction, production, power generation
Capital injections from Treasury to Turkish Hard Coal Enterprises <sup>30</sup>	transfer payments	coal	\$250 to \$400	2005-2011	mining
Rehabilitation of state-owned coal mines and power plants for privatization <sup>31</sup>	direct spending	coal	\$20 to \$51	2009-2011	mining and power generation
Underground mining incentives – 50% reduction in royalty rate <sup>32</sup>	tax rate reduction	coal		2010 - present	
Research & Development (e.g., coal gasification, etc.) <sup>33</sup>	direct spending	coal			
Treasury loan guarantees	contingent liability	coal, oil and gas			power generation
Treasury power purchase guarantees	contingent liability	coal, natural gas			power generation
VAT and property tax exemptions for pipeline transportation of foreign crude oil and gas <sup>34</sup>	tax exemption	oil and gas	NA		distribution
Incentives for “strategic” investments - reduced rates for income and corporate taxes <sup>35</sup>	tax rate reduction	oil and coal	\$610.5**	2012-2030	extraction, production, power generation
<b>Total</b>			<b>\$300 - \$1,585</b>		

\*Many of Turkey’s fossil fuel producer subsidies lack data on which total volumes of a given subsidy can be estimated; thus, totals from subsidies estimated in this table should be considered highly conservative.

\*\* Estimate represents the potential subsidy based on planned new coal power plant capacity (does not include oil or other types of coal investments). The annual amount was obtained by dividing the \$11.6 billion total estimate for 2012-2030 by nineteen years.

While Turkey’s coal exploration subsidies are not its largest subsidies by funding volume, they are important on the climate change front, given the role they play in locking Turkey into long-term carbon intensive infrastructure, as they incentivize new coal power plants. Figure 2 illustrates the volume of exploration subsidies relative to total quantified producer subsidies in Turkey.

On the oil and gas front, MENR’s five-year Strategic Plans (including the most recent: 2010-2014 and 2014-2018) place a particular focus on the expansion of TPAO’s oil and gas exploration and production activities both within Turkey and overseas, including partnerships and acquisitions in Azerbaijan, Georgia, Iraq, Libya and Syria, and in the Aegean, Caspian, Mediterranean and Black Seas. In 2012, TPAO teamed-up with Shell to begin exploring for shale gas. In 2013, the government budgeted **US\$500 million for oil and gas exploration support to TPAO.**<sup>36</sup>

**New Petroleum Law Incentives.** In 2013, Turkey revised its Petroleum Law, aiming largely to attract foreign investment in oil and gas exploration and extraction in its territorial waters. The New Petroleum Law contains the following incentives for oil and gas investors:

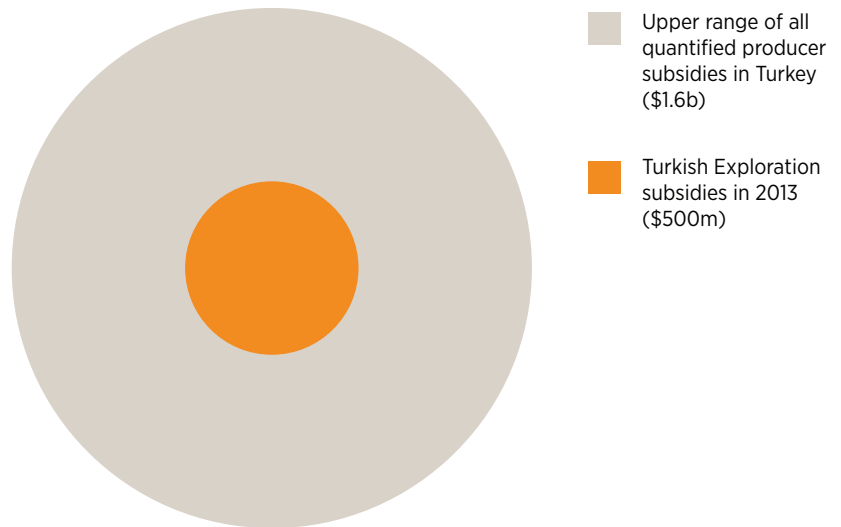
- Reduced ceiling for income tax from 55 percent to 40 percent;
- Customs duty, levies, and stamp tax<sup>37</sup> exemptions for imported oil and gas equipment;
- Simplified license application procedures;
- Extended duration for exploration licenses; and
- Removed barriers on repatriation of registered capital by oil companies through eliminating corporate withheld taxes and income taxes.

## Producer Subsidies for Extraction and Power Production

### Budget Support to Turkish Hard Coal Enterprises.

One of the most substantial subsidies supporting coal energy production in Turkey is capital injections from

**Figure 2: Exploration subsidies as a share of total quantified Turkish producer subsidies**



the Treasury to the hard coal (anthracite and bituminous coal) industry.

Two state economic enterprises (SEEs) dominate the coal sector in Turkey: the Turkish Lignite Enterprises (TKI) and the Turkish Hard Coal Enterprises (TTK). TTK has a de facto monopoly in hard coal production, processing, and distribution, including distribution of imported hard coal. These SEEs set the domestic prices of hard coal and lignite.

Large-scale surface operations allow lignite to be produced at relatively low cost in Turkey. TKI is therefore able to set prices that cover its costs. By contrast, due to geological conditions, the mining of hard coal is very labor intensive in Turkey. In 2008, TTK’s production costs averaged US\$289 per ton, whereas the price per ton obtained in the domestic market ranged from US\$50 to US\$55 in power generation to US\$180 in iron and steel production.<sup>38</sup> Thus, for every ton of coal extracted by TTK, the Turkish people lose money. As a result, TTK accumulated losses of some US\$2.3 billion between 2000 and 2009, covered by capital injections from the Treasury.<sup>39</sup> According to the OECD, Turkey’s government provides **US\$250 to US\$400 million** annually in subsidies to support hard coal enterprises.<sup>40</sup> This persistent annual subsidy to hard coal represents a substantial drain on the budget.

In addition, the government provides incentives to underground mining operations including a 50 percent



reduction in royalty rates.<sup>41</sup> This serves to prop up the more costly, i.e. less economical, underground mining operations, which in the coal sector are mainly hard coal operations. No data were available to estimate the value of this subsidy.

**Investment Incentives Favoring Oil and Coal.** Starting in January 2012, the government initiated the New Investment Incentives Regime providing subsidies across the board to investments, including VAT and customs duties exemptions.<sup>42</sup> In addition, these new investment incentives define certain types of investments as “strategic investments” and offer them a higher level of government subsidy. Oil and coal investments, including coal mining, coal exploration, and investments in power generation using local coal are granted “Region 5” incentives regardless of the region where the investment is located. Region 5 is one of the least developed regions in Turkey and thus, investments here receive higher levels of subsidy. The higher benefits of Region 5 include<sup>43</sup>:

- **Higher Tax Rate Reduction:** The income or corporate tax is calculated on basis of reduced rates until the total amount of reduced tax reaches the amount of contribution to the investment. The contribution rate to investment refers to the rate of the fixed investment subject to tax reduction. Tax rate reduction by region: Region 1 - 50%; Region 2 - 55%; Region 3 - 60%; Region 4 - 70%; and **Region 5 - 80%.**
- **Higher Social Security Premium Support:** For additional employment created by the investment, the employer’s share of the social security premium calculated on basis of the legal minimum wage will be covered by the government. A certain portion of total investment amounts are set as upper limits for this support. Limit by region: 10% for Region 1; 15% for Region 2; 20% for Region 3; 25% for Region 4 and **35% for Region 5.**

The higher benefits represent a substantial subsidy for oil and coal investments. One estimate from the Global Subsidies Initiative, based on potential benefits to planned new coal power capacity out to 2030, puts the value of these subsidies at **US\$11.6 billion.**<sup>44</sup> This estimate only applies to investments in new coal power plants and does not include the additional amount of subsidies afforded to oil and other coal investments.

It should be noted that investments in renewable energy are not included on the strategic list receiving higher subsidies – only energy related investments in coal, oil, and nuclear power make it onto the priority list. By providing greater investment incentives for coal and oil than renewables, Turkey is not promoting low-carbon development in its energy sector, which potentially threatens production targets for increasing wind and other renewable energy sources by 2023.

Moreover, according to CEE BankWatch and Greenpeace, the Feed-in Tariff (FiT) for renewable energy pales in comparison to these oil and coal subsidies.<sup>45</sup> In Turkey, the FiT for wind electricity is 7.3 USD cents / kWh, and for solar electricity, it is 13.3 USD cents / kWh, both guaranteed for a 10-year period.<sup>46</sup> This compares favorably for power purchase guarantees for for the Akkuyu Nuclear Power Plant, which amounts to 12.35 USD cents / kWh guaranteed for 15 years for a portion of the generation,<sup>47</sup> while a power purchase guarantee for ERG Verbund in Unit A of Afşin coal fired power plant amounts to 9.3 USD cents / kWh guaranteed for 20 years.<sup>48</sup> In addition, two main shortcomings of the Turkish FiT scheme are (i) that the Turkish FiT are much lower in comparison with EU countries, and (ii) to effectively catalyze investment, FiT rates need to be guaranteed for 15 to 20 years, instead of 10 years as planned by the Turkish FiT law.

**Rehabilitation of State-Owned Coal Mines and Power Plants.** For two decades, a significant aim of Turkey’s energy sector reform program has emphasized the privatization of state-owned assets with substantial assistance and guidance from the World Bank and IMF. The Turkish government has provided at least **US\$20 to US\$50 million annually from 2009 to 2011** for rehabilitation programs as part of the privatization process for coal power plants and hard coal mines.<sup>49</sup>

Part of preparing state-owned enterprise electricity generation assets for privatization involves a significant rehabilitation program, which included 16 thermal power plants with at least 5 coal plants (Afsin-Elbistan A 1355 MW; Çatalağzı B 300 MW; Kangal 457 MW; Soma 510 MW; and Yeniköy 420 MW).<sup>50</sup> While the rehabilitation measures typically improve the efficiency of existing state-owned enterprise plants, the subsidized rehabilitation program also involves the target of extending the operational life of the coal plants.<sup>51</sup> In

addition, the Turkish Hard Coal Enterprises (TTK) expenditures for its Re-structuring Program were US\$23 million in 2009 and US\$19 million in 2010.<sup>52</sup>

The privatization process for coal has resulted in more coal production and more coal power plants (mainly through the Royalty Tender system), as was the aim of the program.

**Mining Fund Below-Market Rate Credits.** In 1985, a Mining Fund was established (Article 34 of Law No. 3213) under the supervision of MENR to provide financial credits to mining projects, including coal, for exploration, technical research, development, project preparation, installation, construction, production, and export activities. The Mining Fund is financed under the general budget (Law No. 5177, and Communiqué of 14 June 2002 published in the *Official Gazette* No. 24785).<sup>53</sup> Table 2 lists the five schemes that provide credits at well below market rates. No data were available to estimate the value of this subsidy.

**Government Guarantees.** The government props up the fossil fuel industry by providing several types of guarantees, including guarantees for power purchase agreements and loan guarantees. Such guarantees transfer risk, i.e., contingent liabilities, to the government.

In 2006, the World Bank commented that private sector investment in the energy sector in Turkey, which now makes up more than 50 percent of electricity generation, “has been made possible only by significant contingent liabilities on the government in the form of guarantees and off-take agreements.”<sup>54</sup> This statement stems from the fact that Turkey’s privatization of the power generation sector is based on 15 to 20 year-long power purchase agreements with predetermined quantities of power and price formulae backed by Treasury guarantees.

Up until 2009, the public budget was covering the cost deficit between consumer electricity tariffs and prices guaranteed in the power purchase agreements

**Table 2: Mining Fund Credit Schemes**

Credit Scheme	General Features	Nominal Interest Rate*
Mine research and development	Maximum three-year credit; no repayment on principal for the first year; amounts cannot exceed 50% of expenditure on exploration and definition of mineral reserves and other properties in the permitted area. If the exploration is done by the General Directorate of Mineral Research and Exploration the amount of the credit can cover 75% of expenditure.	11%
Installations, enlargement, and development	Maximum five-year credit; no repayment on principal for the first two years; amount is proportional to self-source rate; and cannot exceed 50% in normal circumstances. If an incentive certificate is granted it cannot exceed 60%. Credit covers expenditure on expansion of facility, enlargement and renovation investment, and infrastructure in the permitted area.	13%
Management (operating) credit	Maximum three-year credit; cannot exceed the working capital; no repayment on principal for the first year.	15%
Exports	One-year credit; 50% of total expenditure to meet the needs of production and exports (excluding the costs of transportation) of the mineral.	13%
Stock credit		
(i) Export stock credit	Maximum 40% of the stock cost for minerals produced and prepared.	13%
(ii) Domestic stock credit	Maximum 20% of the stock cost for minerals produced and prepared for domestic consumption.	15%

\*These were interest rates offered in 2007.

Note: All credits require a bank guarantee letter covering 1.3 times the credit amount.

Source: WTO Secretariat, based on information provided by the Turkish authorities.

– a direct subsidy to the power producers. In 2009, Turkey implemented a cost-based pricing mechanism for electricity, which resulted in more than a 50 percent increase in consumer electricity tariffs.<sup>55</sup> Even though the cost-based pricing mechanism has substantially reduced the government’s actual cost burden, it is still held liable to paying the full price for the power quantities guaranteed in the power purchase agreements in case of any payment defaults or general tariff deficits. Thus, the contingent liabilities still remain and can negatively impact the government’s credit rating and, as a consequence, the cost of government borrowing. In addition, given that power purchase agreements and associated government guarantees are often granted for new investments before a power plant is built, they can serve to lock in fossil fuel energy projects and hinder more cost-effective, clean energy projects.

Another form of guarantee provided by the Turkish government is a loan guarantee. At least two recently commissioned coal power plants have received loan guarantees from the Turkish Treasury (including Cayirhan and Iskenderun plants). The value of these guarantees is not publicly disclosed. The loan guarantees operate much the same as the power purchase agreement guarantees as the debt liability of the loan is passed on to the government.

Government loan guarantees will be essential for any large-scale fossil fuel project, such as any power plant 500 MW or larger, because such projects need long-term financing that is not currently easy to come by in Turkey. In fact, the government has had to cancel some energy privatization projects as winning bidders have failed to secure financing.<sup>56</sup>

In April 2014, the Turkish government announced the availability of new Treasury-provided guarantees to large infrastructure projects. The new regulation allows the Turkish Treasury to provide a loan guarantee to companies investing in public infrastructure projects which have a value of more than US\$470 million, in a move which could apply to projects which have already been tendered, as reported by the Financial Times.<sup>57</sup>

Should a project be terminated due to the project company’s default, the Treasury will cover 85 percent of the principal loan amount. In the event of termination of the agreement due to reasons other than the

project company’s default, then the debt assumption undertaking will cover 100 percent of the principal loan amount, along with all financing costs – a major liability transferred to Turkish taxpayers.

Government guarantees issued through state-owned banks largely triggered the financial crisis in Turkey in 2001. Consequently, observers have criticized the decision to provide a new series of government guarantees, nothing that these guarantees yet again put the public budget balance at risk.<sup>58</sup> A grave problem is the lack of transparency around which projects will be awarded government guarantees, as the regulation does not require the names of such projects be disclosed to the public.<sup>59</sup>

## Negative Externalities: Public Health and Climate Change

The exploration, mining, transportation, and burning of fossil fuels are all associated with major health and environmental costs – costs that the fossil fuel industry passes on to the public as externalities. Estimates vary widely, but negative externalities account for a large portion of the US\$31.2 billion (TRY 71.1 billion) in annual fossil fuel subsidies estimated by the IMF. Even so, the IMF is only accounting for certain damages: for example, in calculating the costs of local air pollution, sulfur dioxide emissions and fine particulates (that permeate the lungs) are considered,<sup>60</sup> but these estimates leave out major sources of pollution, such as mercury and heavy metals; pollution from mining and transportation; water pollution and availability; crop damages; among other damages. None of these costs are being paid for by the fossil fuel industry, and these unpriced externalities represent a huge implicit subsidy. A study by the Health and Environment Alliance (HEAL) estimated the health cost of coal in Turkey at US\$3.96 billion per year.<sup>61</sup>

This situation in Turkey is compounded by low environmental and social standards and a lack of enforcement of standards, and the issuing of permits without proper environmental and social assessment. A recent study produced by CEE Bankwatch and Greenpeace found<sup>62</sup>:

- Environmental impact assessments for the planned coal power plants are incomplete, as are assessments of the cumulative impacts of associated facilities planned to serve the coal plants,

including mines, transport infrastructure and transmission lines; and

- Strategic environmental assessments are missing for the power plants expecting approval for construction on the national level (between 50 to 86 new plants).

This lack of enforcement of proper assessment and permitting further reduces the costs, such as for mitigation of expected damages, paid by coal operations, and heightens the social and environmental costs that will ultimately be paid by society.

On the climate change front, sensitivity studies indicate Turkey is highly vulnerable to increased risks of flooding and landslides, increased intensity and duration of droughts and hot spells leading to more water stress, and rising sea levels.<sup>63, 64</sup> Turkey's current GHG emissions total 459.1 mt CO<sub>2</sub>e, an increase of 110 percent when compared to 1990 levels (218.2 mt CO<sub>2</sub>e).<sup>65</sup> Yet Turkey's subsidization of coal will exacerbate global climate change. If Turkey goes ahead with all of its planned coal plants, Turkey's CO<sub>2</sub> emissions will grow by an estimated 94 percent.<sup>66</sup>

According to the European Commission's 2013 Progress Report for Turkey, "alignment with the EU acquis in the field of climate change has not progressed,"<sup>67</sup> and Turkey's unabated development of coal may threaten its prospects for EU accession.

## International Public Finance

In addition to national subsidies, international public finance institutions also contribute to fossil fuel producer subsidies in Turkey through direct project finance and guarantees, support for policy and institutional reforms, technical assistance, and advisory services. This financing can come from multilateral development banks (MDBs) or bilateral institutions, including export credit agencies (ECAs) and international operations of national development banks.

Since 2007, fossil fuel projects in Turkey have received more than **US\$5 billion in international public finance** (see Table 3 below). Of this total, coal projects received over **US\$1.5 billion**, mainly from bilateral institutions (e.g., ECAs or national development banks).

In 2013, the World Bank Group (including IFC), the European Bank for Reconstruction and Development

(EBRD), and the European Investment Bank (EIB) all adopted policies that restrict funds going to coal power plants. The coal restriction policies only apply to power plants, and not coal mining or other associated infrastructure.

This year, the wealthy nations of the Organization for Economic Cooperation and Development (OECD) are discussing proposals to restrict OECD public ECA finance for coal power plants globally. As noted above, most of the US\$1.5 billion of international public finance going to coal in Turkey came from ECAs, specifically OECD export credit agencies. As a member nation of the OECD on the receiving end of these coal credits, it would send a strong and significant message if Turkey were to support ending OECD ECA finance for coal projects, especially since 47 percent of overseas public finance for coal came from ECAs globally between 2007 and 2014.<sup>68</sup>

The international public finance figures should be considered incomplete because data is not available for many institutions, and it does not capture every fossil fuel project for every year. For example, fossil fuel funding taking place through financial intermediaries or policy lending is rarely accounted due to lack of data transparency.

Since 2007, the International Finance Corporation (IFC) – the World Bank's private sector arm – the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the Japan Bank for International Cooperation (JBIC) have provided over **US\$8.6 billion** to Turkish banks/funds with active fossil fuel portfolios who act as financial intermediaries and on-lend the public finance to various projects. Top Turkish banks with fossil fuel portfolios, which have received public funds from the listed institutions, include Yapı Kredi, İş Bank, Garanti Bank, Deniz Bank and AKBANK; these banks have provided significant support for fossil fuel projects.<sup>69</sup> Though a portion of this international public finance has been designed to be used for renewable energy and energy efficiency activities, financial intermediaries receiving funding from these public finance institutions are not required to disclose their sub-projects. Thus, it is not possible to determine the total amount of international public finance specifically going to fossil fuels in Turkey.

**Table 3: International Public Finance for Fossil Fuels in Turkey**

Company/Project	Capacity/ Fossil Fuel	Public Institutions	Amount (USD million)	Year Approved
Delta Petroleum	oil and gas distribution	International Finance Corporation (IFC-World Bank Group)	\$45 \$15	2007 2009
Environment & Energy Framework Loan - Gas	gas	European Investment Bank (EIB)	\$42 \$43	2008 2009
Ugur Enerji gas plant	gas	US EXIM	\$18 (guarantee)	2008
ASKA Enerji Üretim CCGT plant	800 MW gas	US EXIM	\$100 (guarantee)	2008
IZGAS natural gas distribution	gas	IFC-World Bank Group EBRD	\$50 \$114	2009 2009
Thermodyn Steam Turbines	unclear	COFACE (France)	\$18 (guarantee)	2009
Samsun CCGT plant	240 MW gas	US EXIM European Investment Bank (EIB)	\$105 (guarantee) \$260	2009 2011
ZETES III coal plant <sup>70</sup>	1320 MW	KfW (Germany) <sup>71</sup>	\$65	2010
Bosen Enerji Elektrik Uretim - CCGT Plant in Turkey	800 MW	US EXIM	\$43 (guarantee)	2010
Enerji SA Enerji Üretim 2011-2014 investment program	natural gas and coal	IFC-World Bank Group <sup>72</sup>	\$248 \$98	2008 2010
Aydin CCGT power project	62 MW gas	US EXIM	\$37 (guarantee)	2011
Enerjisa Power Plants	860 MW gas	KfW (Germany)	\$28	2011
Yunus Emre sub-critical plant	290 MW coal	Czech Republic Export Credit Agency	\$454	2011
Tufanbeyli subcritical coal plant	450 MW coal	Korea Export Insurance Corp (K-sure)	\$750 (guarantee)	2012
Farcan Enerji Uretim Anonim Sirketi CCGT plant	835 MW gas	IFC (World Bank Group)	\$125	2012
Habas Sinai Ve Tibbi Gazlar Istihsal CCGT plant	800 MW gas	US EXIM	\$122 (guarantee)	2012
Bursa CCGT plant	gas	US EXIM	\$66 (guarantee)	2012
ACWA Power - Kirikkale CCGT plant	800 MW gas	EBRD Export-Import Bank of Korea Korea Development Bank	\$200 \$150 \$45	2012 2014 2014
Energaz Financing - distribution	gas	EBRD	\$50	2013
Kanyon Enerji Uretim ve Ticaret Anonim Sirketi CCGT	543 MW gas	IFC - World Bank Group	\$125	2013
STAR Rafineri (oil refinery) and associated coal plants	800 MW coal and oil	Japan Bank for International Cooperation (JBIC) <sup>73</sup> Nippon Export & Investment Insurance (NEXI-Japan)  US EXIM <sup>74</sup> K-SURE Export Development Canada (EDC) SACE-Italy CESCE-Spain	\$291 \$485 (guarantee) \$641 NA \$150 NA NA	2014 2014  2013  2014
TransAtlantic Petroleum exploration and production	oil and gas	IFC (World Bank Group)	\$50	2014
<b>Total</b>			<b>\$5,033*</b>	

\*Because of a lack of transparency in data on international public finance, and no availability of data on project finance passed through financial intermediaries, this estimate should be considered conservative.

## Key Findings

- The Turkish government provides an estimated US\$300 million to US\$1.6 billion a year in fossil fuel producer subsidies, depending on what investments are made in a given year.
- In 2013, Turkey provided some US\$500 million in public funding specifically for fossil fuel exploration. Turkey's government-funded coal exploration program has increased coal reserves by over 50 percent since 2005, opening up 5.8 billion tons of new coal to be mined.
- The single largest persistent subsidy identified equals US\$250 million to over US\$400 million a year in support to hard coal enterprises.
- The 2012 New Investment Incentives Regime provides a higher level of subsidies to oil and coal investments than to renewable energy – encouraging carbon-intensive infrastructure projects over clean energy sources. The elevated incentives represent a potential subsidy of US\$11.6 billion based on planned new coal power plant capacity for 2012 to 2030.
- Government guarantees for loans and power purchase agreements involving fossil fuels represent significant contingent liabilities for the central budget. Such liabilities can ultimately threaten the country's credit rating and, hence, cost of borrowing.
- Since 2007, fossil fuel projects in Turkey have received more than US\$5 billion in international public finance from multilateral development banks, export credit agencies and national development banks. Of this total, over US\$1.5 billion went to coal projects.
- Fossil fuel subsidies pose an enormous cost to Turkish society. Negative externalities for damages due to carbon dioxide (CO<sub>2</sub>) emissions and local air pollution account for a large portion of the US\$31.2 billion (TRY 71.1 billion) in annual fossil fuel subsidies for Turkey estimated by the IMF.

## Recommendations

Fossil fuel subsidies threaten Turkey's economy by straining the budget, increasing government liabilities, and heightening the risk of stranded assets. More

importantly, these subsidies negatively affect public health, climate stability, the transition to clean energy, and prospects for EU membership. Given these concerns, it is recommended that the government of Turkey reduce fossil fuel subsidies domestically and at the same time, while holding the G-20 Presidency, encourage the G-20 to implement its commitment to phase out inefficient fossil fuel subsidies.

Fossil fuel subsidies that directly threaten the goal of limiting global temperature rise to as far below 2 degrees Celsius as possible, and those for new fossil fuel investments that serve to lock countries into carbon-intensive infrastructure for the next 20 to 50 years, need to be immediately eliminated. With this in mind, Turkey and the G-20 should specifically:

- **Agree to immediately eliminate all subsidies for fossil fuel exploration.** In particular, Turkey should:
  - End government-funded fossil fuel exploration activities such as those conducted by MTA, TPAO, and TKI;
  - Eliminate tax exemptions for exploration activities; and
  - Exclude coal exploration from the Mining Fund's below-market rate loans.
- **Ensure infrastructure investment frameworks do not provide subsidies to fossil fuel projects, both nationally and bilaterally, including ending public finance for fossil fuels through loan guarantees and export credit support.** In particular, Turkey should:
  - Exclude fossil fuel projects from the 2012 Infrastructure Investment Incentives regime (or at least take oil, coal power and coal mining off the "strategic investments" list with elevated subsidies, thereby establishing a more level playing field for renewables);
  - Exclude fossil fuel projects from government guarantees; and
  - Support a commitment to end OECD Export Credit Agency finance of coal projects.
- **Adopt a strict timeline for phase-out of remaining fossil fuel subsidies with country-specified measurable outcomes.**

- For Turkey, a timeline should be set to phase out all producer fossil fuel subsidies starting with coal. A strategic transition, i.e., one that ensures new employment opportunities for miners, reduces budget support to hard coal mining operations, and phases out existing power plants that utilize hard coal, should be a priority.

While in the leadership position of holding the G-20 Presidency, Turkey has a tremendous opportunity to lead by example in eliminating certain fossil fuel subsidies immediately, while committing to a timeline in which to phase out others. By combining this with an effort to move a fossil fuel subsidy phase-out up the G-20 agenda, Turkey can leave a strong and lasting legacy through its term as G-20 president.

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Oil Change International (OCI) exposes the true costs of fossil fuels and identifies and overcomes barriers to the coming transition towards clean energy. Oil Change International works to achieve its mission by producing strategic research and hard-hitting, campaign-relevant investigations; engaging in domestic and international policy and media spaces; and providing leadership in and support for resistance to the political influence of the fossil fuel industry, particularly in the United States.

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## End Notes

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