



Energy Subsidies and Sustainable Development

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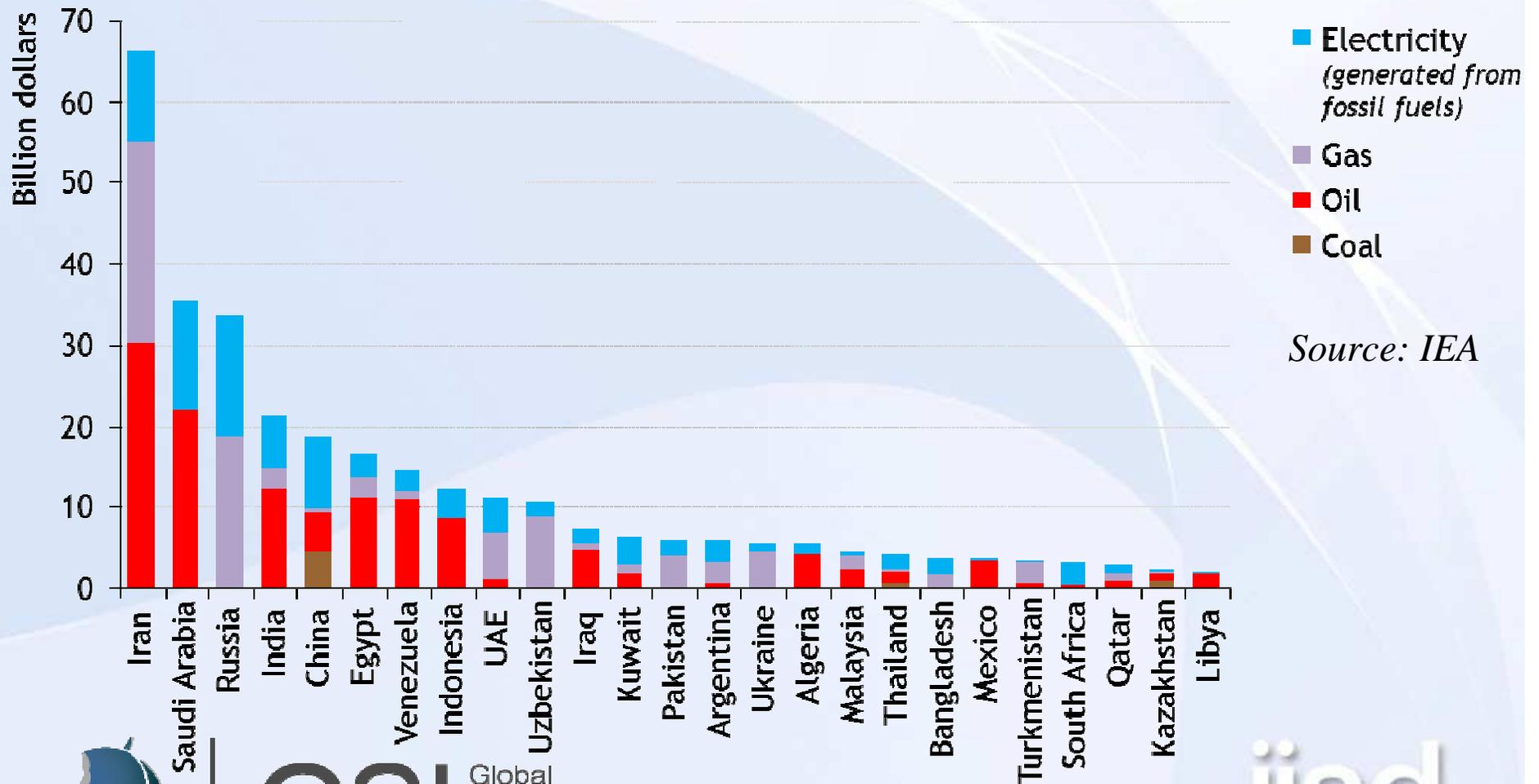
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Better living for all—sustainably

Fossil-Fuel subsidies for consumers

Global estimate: \$312 billion in 2009



Source: IEA



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Fossil-Fuel subsidies for producers

- GSI's global estimate: \$100 billion per year
- Used in many developed and developing countries
- Many different types (e.g. financial transfers, tax breaks, royalty reductions, income and price support)
- *Fossil Fuels – At What Cost?* research series
 - Indonesia: US\$ 1.8 billion in 2008
 - Canada: CA\$ 2.84 billion in 2008



Fossil-Fuel subsidies: economic & social impacts

Subsidies are...

- **Expensive:** up to 1% of global GDP
- **Poorly targeted:** bottom 40% low-income households receive only 15-20% of the subsidies
- For importing countries: a **lost opportunity** to spend public funding on other development priorities
- For exporting countries: encourage energy inefficiency/**high energy intensity** and **reduce export revenues**



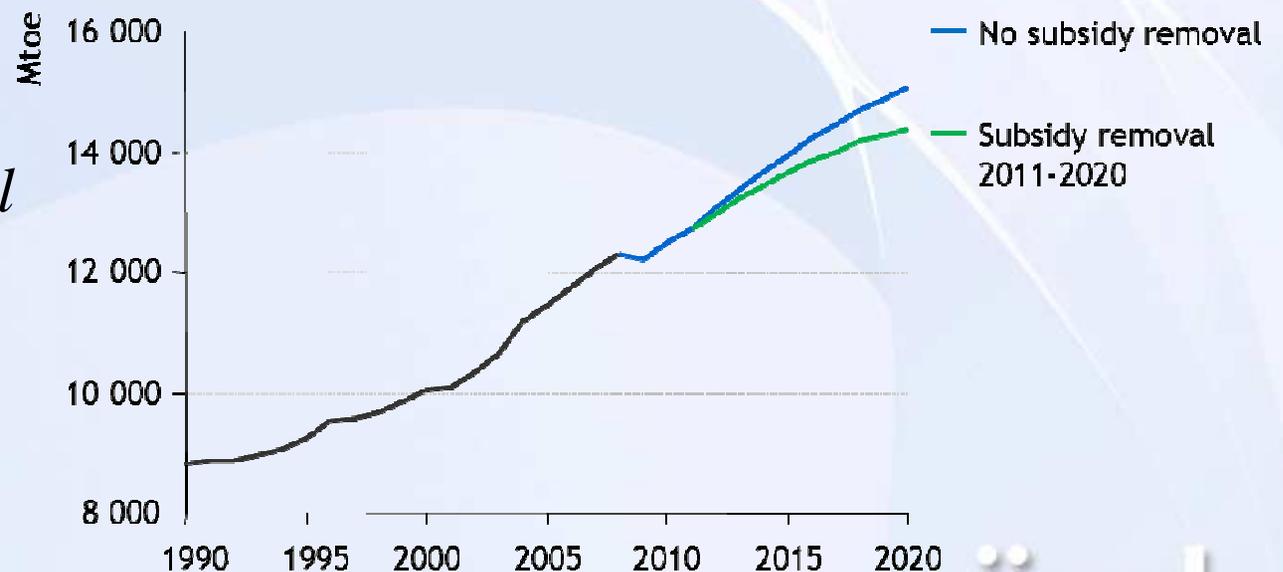
Fossil-Fuel subsidies: environmental impacts

Removing subsidies could...

- Reduce global energy demand by ~5%
- Reduce global **GHG emissions by 5-10%** between 2020 and 2050

Impact of subsidy phase-out on global primary energy demand

Source: IEA



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Biofuel subsidies: estimates

	2006	2007	2008	2009
Global		\$14.4 billion	\$18 billion	\$20 billion
Brazil		\$2.3 billion	\$2.5 billion	\$2.6 billion
China	\$115 million	\$300 million	\$600 million	\$500 million
EU	\$5.4 billion	\$6.3 billion	\$8 billion	\$7.9 billion
U.S.		\$ 4.9 billion	\$ 6.6 billion	\$ 8.1 billion

Sources: IEA and GSI



Biofuel subsidies: impacts

- **Rapid expansion of the industry:** increasing production and consumption (esp. in OECD countries)
- **Lowered the price and obligated the use of biofuels** for transport
- Potentially significant negative environmental effects linked to **direct and in-direct land use changes**
- Concerns about the social impact of increased biofuel production – the **Food vs. Fuel debate**



Biofuel subsidies: commonly-held assumptions

Assumptions	Results
Subsidizing biofuels is a cost-effective way of reducing reliance on fossil-fuels	The per unit use of fossil fuels is generally higher, owing to the significant use of fossil fuels in many biofuel production systems.
Subsidizing biofuels is a cost-effective way to reduce greenhouse gas emissions in transport	<p>The cost of biofuel subsidies removing carbon from the atmosphere range from US\$ 150 to over US\$ 1500 per metric tonne of CO₂-equivalent avoided.</p> <p>Whereas the carbon price in emissions trading schemes is around \$20-30 per tonne.</p>



Subsidies for renewables-based electricity

(wind, geothermal, PV and biomass)

	2007	2008	2009
Global	\$26.6 billion	\$26 billion	\$37 billion
China		\$0.5 billion	\$1 billion
EU	\$17.7 billion	\$15 billion	\$23 billion
Japan	\$2.3 billion	\$2.3 billion	\$2.3 billion
US	\$6 billion	\$7.3 billion	\$9.6 billion

Source: IEA



Renewables subsidies: impacts

- Not enough data and analysis of total cost and cost effectiveness of subsidies for renewable energies
- Developed countries have spent much \$ but can't expect developing countries to do the same
- Need more:
 - Research and analysis of the total cost and the cost-effectiveness of subsidies
 - Policy advice and best practice on how to design and implement effective subsidy policies



Nuclear subsidies: US estimates

Subsidy type	Legacy costs (¢/kWh)	Ongoing costs (¢/kWh)	New utilities (¢/kWh)
Factors of production	7.20	0.06	3.51-6.58
Intermediate inputs	0.10-0.24	0.29-0.51	0.21-0.42
Output-linked support	0.00	0.00	1.05-1.45
Security & risk management	0.21-0.22	0.10-2.50	0.10-2.50
Decommissioning & waste management	No data available	0.29-1.09	0.13-0.48
Total	7.5-7.66	0.74-4.16	5.01-11.42
Subsidies as share of power price	139% - 142%	13% - 70%	84% - 190%

Source: Koplou (2011)



Nuclear subsidies

- No global estimate, very little transparency
- 50 years on: nuclear power still not viable without subsidies
- Subsidies shift long-term economic, waste disposal, safety and security risks to the public and future generations



Comparing subsidy estimates

Not the right angle to look at the problem:

- What are your government's policy objectives?
- Does government expenditure support those objectives?
- Is the subsidy the most cost-effective means of achieving those objectives?
- Are there other (more effective) measures that can be used?
- If a subsidy is necessary, then is it designed and implemented well? (targeted, transparent, sunset clause)



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How can UNECE take this forward?

- Include subsidies in the Global Strategy as a policy instrument in need of more attention:
- Better reporting and analysis of all subsidies
- Reform those that work against sustainable development
 - IEA, OECD, World Bank, IMF have plenty of research and policy advice esp. on fuel subsidy reform
- Support further research and best practice policy advice



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Thank you.



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