

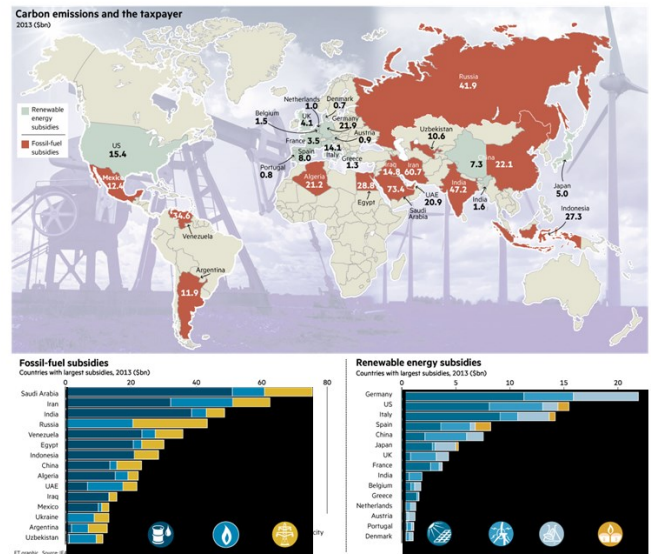
# Air and Greenhouse Gas Polluting Government Subsidies

Peter Carter

## US\$ Trillions a year

The IMF estimates the full global amount of fossil fuel energy subsidies (direct and indirect) at US\$ Trillions a year, \$5.3 trillion in 2105. This was published in the World Development Journal in 2017 by D. Coady et al. How Large Are Global Fossil Fuel Subsidies? The International Energy Agency reports on direct subsidies, at \$300 billion in 2015. The last IEA of fossil-fuel subsidies estimate for in 2017 was put at more than USD 300 billion, 12% higher than the estimate for 2016. We can conclude then that global fossil fuel total subsidies are over US\$5.3 Trillion.

In 2014 World Economic Forum published an article **Why we need to Abolish Fossil Fuel Subsidies**. Fossil-fuel subsidies encourage investors to put resources into the fuels that are driving climate change. They generate the terrible local pollution that blights cities in China and India. And most of the benefits of the subsidies are captured by the middle class, not the poor. G-20 governments are spending twice as much on exploration as the 20 largest private energy companies.

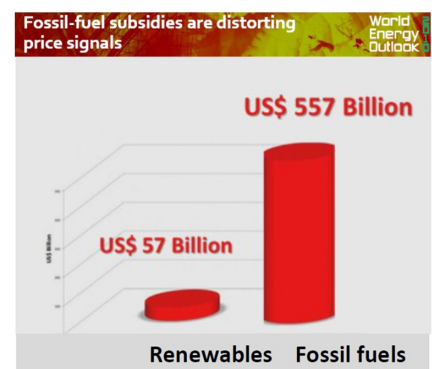
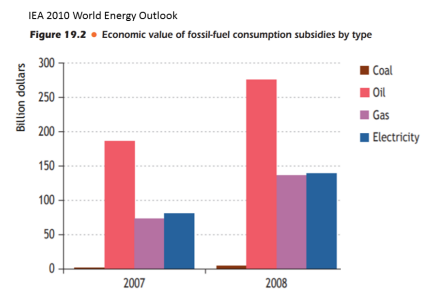


June 2016 Financial Times

## \$557 Billion 2008

Perverse and unjustified fossil fuel subsidies made headlines with The International Energy Agency's 2010 World Energy Outlook that calculated a record \$557 billion in fossil fuel subsidies for 2008, pointing out that this was distorting market price signals. The IEA estimated fossil fuel subsidies at \$330 for 1006, \$350 in 2007 and \$557 billion in 2008, about ten times higher than world renewable energy subsidies. It said that removing subsidies on energy consumption, which amounted to a "staggering \$310 billion" in the 20 largest non-OECD countries in 2007, could make a major contribution to curbing demand and emissions growth. Fossil subsidies were very high in non OECD countries.

In most non-OECD countries, at least one fuel or form of energy continues to be subsidised, most often through price controls that hold the retail or wholesale price below the true market level. Other forms of direct financial intervention by government, such as grants, tax rebates or deductions and soft loans, are commonplace. Indirect interventions also occur, such as the free provision of energy infrastructure and services. Some of these interventions are more justified than others; for example, support to overcome market obstacles to the development and deployment of new technology. According to our calculations,<sup>2</sup> energy-related consumption subsidies, which encourage consumption by pricing energy below market levels, amounted in 20 non-OECD countries (accounting for over 80% of total non-OECD primary energy demand) to about \$310 billion in 2007.



## 2°C by 2050

Today, we are fixed on a world energy economic scenario that will lead to a global temperature increase of 2°C before 2050. The UN negotiations are deadlocked, and by all accounts will remain so for years. We really are looking at the end of everything, but though governments have promised for years to end the fossil fuel subsidies, they remain in the hundreds of billions of dollars a year. the issue of government subsidies to GHG-polluting industries is not on the climate negotiation agenda.

## \$545 2013

The IEA estimated 2013 global fossil fuel subsidies at \$548 billion

A 2013 comprehensive study of fossil fuel subsidies by the UK Overseas Development Bank concludes that fossil fuel subsidies undermine international efforts to avert dangerous climate change and represent a drain on national budgets. They also fail in one of their core objectives: to benefit the poorest. Phasing out fossil fuel subsidies would create a win-win situation. It would eliminate the perverse incentives that drive up carbon emissions.. ( ODB Time to change the game: fossil fuel subsidies and climate).

## No Justification

A 2009 World Bank study reported Energy subsidies are expensive, damage the climate, and disproportionately benefit the well- off. Their reduction can encourage energy efficiency, increase the attractiveness of renewable energy, and allow more resources to flow to poor people and to investments in cleaner power. (Climate Change World Bank Group. An Evaluaton of World Bank Win-Win Energy Policy Reforms 2009).

## US\$ 700 billion a year - roughly equivalent to 1% of world GDP .

A 2010 joint report Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 initiative by the International Energy Agency OPEC, OECD and the World Bank (Prepared for submission to the G-20 Summit Meeting Toronto (Canada), 16 June 2010.) Using the price-gap methodology, the IEA estimates that fossil-fuel-related consumption subsidies amounted to US\$ 557 billion in 2008 (IEA, 2010). Furthermore, subsidies provided to producers of fossil fuels may be on the order of US\$ 100 billion per year (GSI, 2009). The total order of magnitude of subsidies to consumers and producers – almost US\$ 700 billion a year - is roughly equivalent to 1% of world GDP .

Fossil fuel subsidies are many times larger than the IEA reports.

Years ago the OECD has said the direct fossil subsidies should be phased out (June 2011). The direct subsidies are a small proportion of all the economic benefits afforded to fossil fuel industries as subsidies. The full amount of hand outs to the fossil fuel industry is \$ trillions.

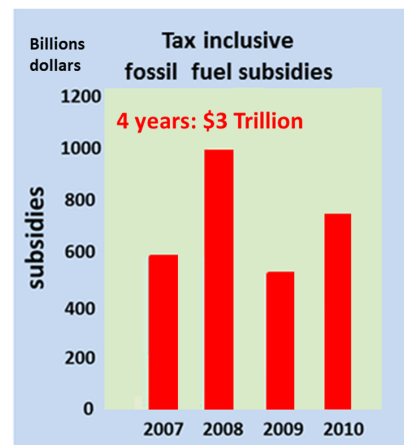
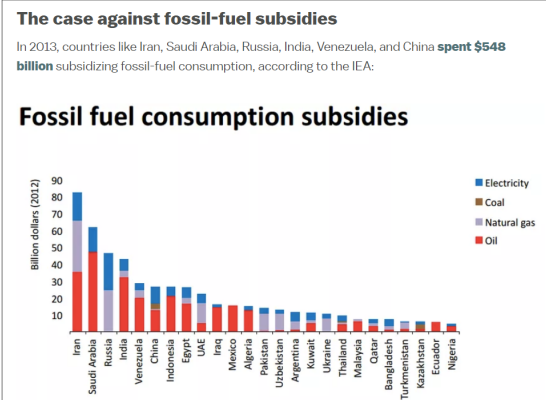
## Tax inclusive subsidies IMF

A 2010 IMF report on energy subsidies, Petroleum Product Subsidies: Costly Inequitable and Rising, showed that the subsidies to the oil industry are much larger than even the International Energy Agency's estimates - by including favorable tax treatment.

## Externalities: indirect subsidies

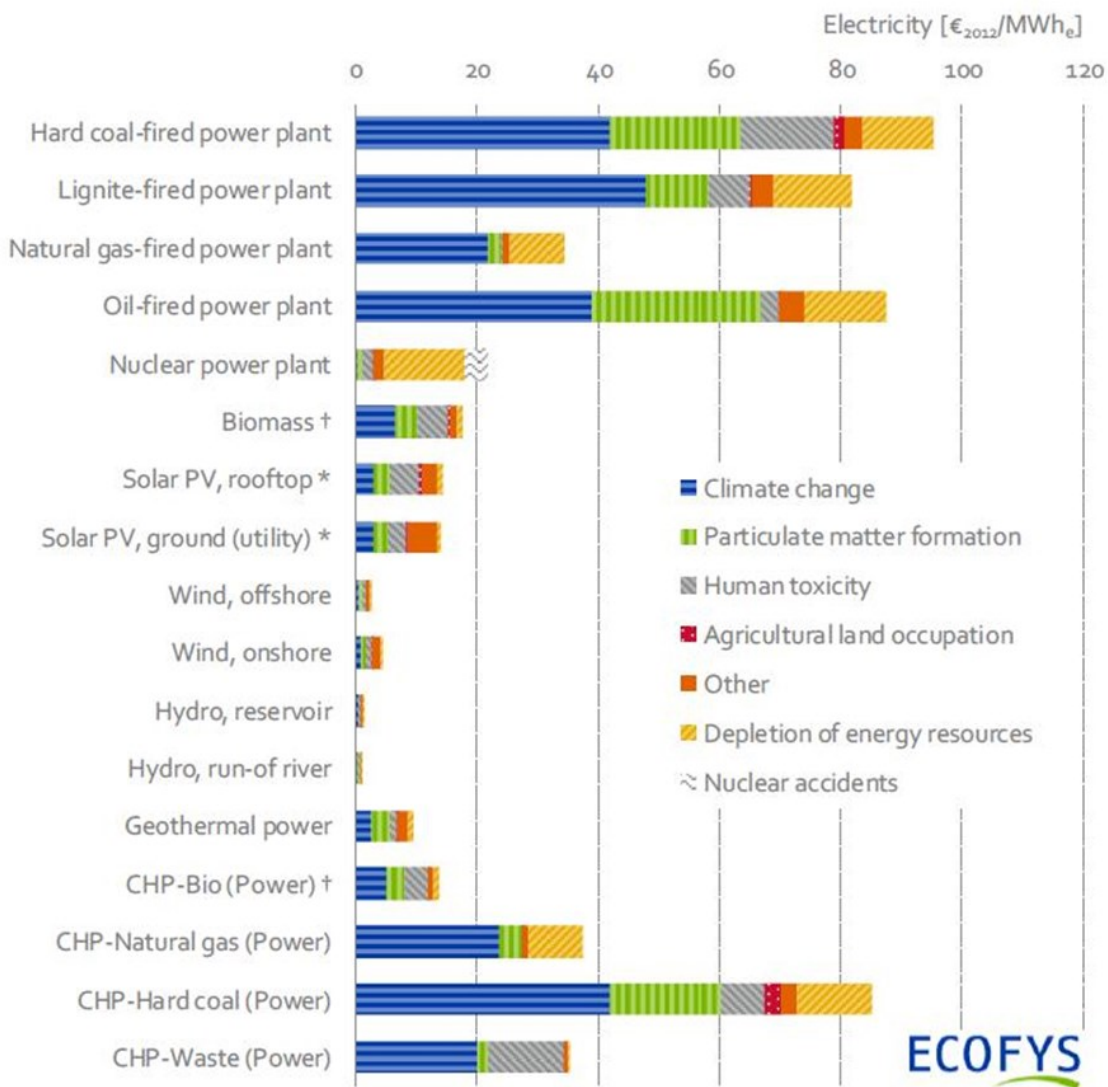
The economic practice of externalizing socio-environmental costs is a massive subsidy.

**2010 US externalized costs for coal** were an estimated \$1/2 trillion per year (Full Cost Accounting for the Life Cycle of Coal, P. Epstein 2011).



## External costs of energy sources

Ecofys provides the enormous difference between external costs for fossil fuels and for renewable energy sources



**Figure 3-8: External costs per technology for electricity technologies, EU28 weighted averages (in  $\text{€}_{2012}/\text{MWh}_e$ ).**

## US\$ Trillions a year

Headlines were made in 2015 on fossil fuel subsidies, when the IMF calculated them at US\$5.3 trillion in 2015, or 6.5 percent of global (IMF Survey : Counting the Cost of Energy Subsidies , 2015)

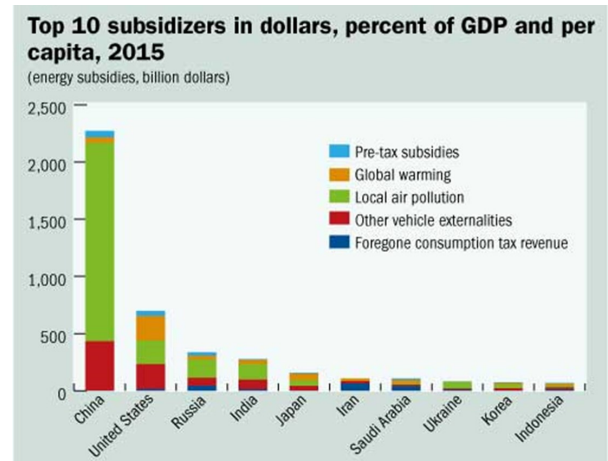
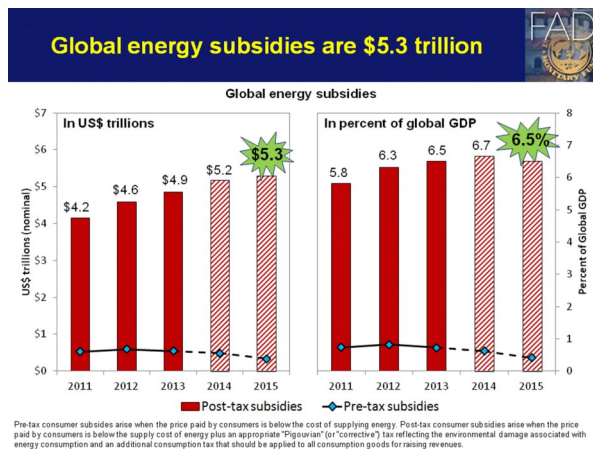
Most arises from countries setting energy taxes below levels that fully reflect the environmental damage associated with energy consumption.

Energy subsidies are dramatically higher than previously thought. Estimates for global energy subsidies in 2011 have been revised to US\$4.2 trillion.

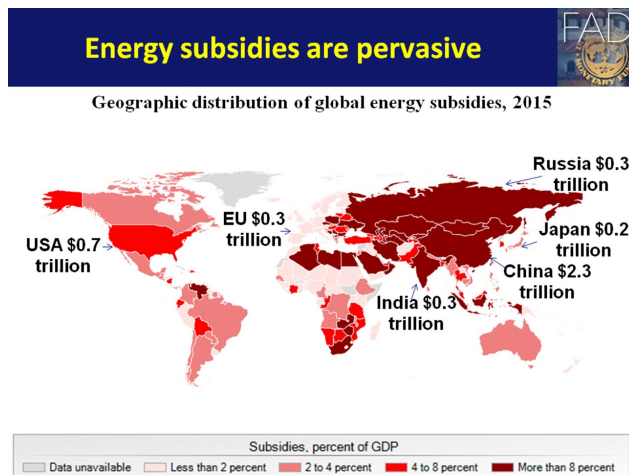
Energy subsidies are sizable in nearly all countries, advanced and developing economies alike. China is the top subsidizer in dollar terms, Ukraine in percent of GDP and Qatar in per capita subsidies (Chart 1). Subsidies in dollar terms in part reflect the size of the economy. The bulk of energy subsidies in most countries are due to undercharging for domestic environmental damage, including local air pollution—especially in countries with high coal use and high population exposure to emissions—and broader externalities from vehicle use like traffic congestion and accidents. In many top subsidizers in percent of GDP and in per capita terms, these also reflect the setting of domestic energy prices below their supply cost.

The IMF study found substantial benefits for terminating fossil fuel subsidies.

With far reaching costs the IMF found that eliminating global energy subsidies could reduce deaths related to fossil-fuel emissions by over 50 percent and fossil-fuel related carbon emissions by over 20 percent. The revenue gain from eliminating energy subsidies is projected to be US\$2.9 trillion (3.6 percent of global GDP) in 2015.

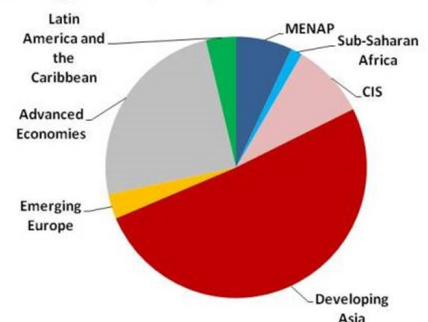


## Fossil fuel energy subsidies are pervasive



## Energy subsidies are pervasive

(Share of global energy subsidies, 2015)



Sources: International Energy Agency; Organisation for Economic Co-operation and Development; and IMF staff estimates.  
Note: MENAP = Middle East, North Africa and Pakistan; CIS = Commonwealth of Independent States.

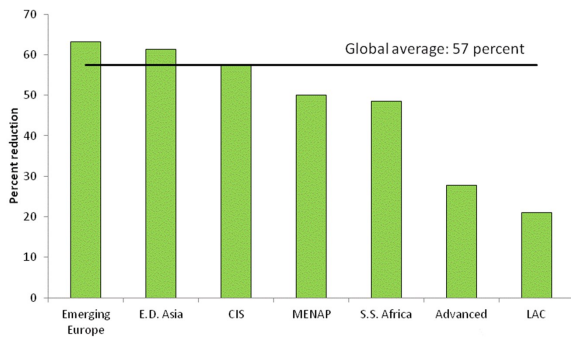


## Great health and greenhouse gas pollution benefits from terminating fossil fuel subsidies

### Energy subsidy reform can generate substantial health benefits .....



Reduction of fossil-fuel emissions-related deaths, 2015

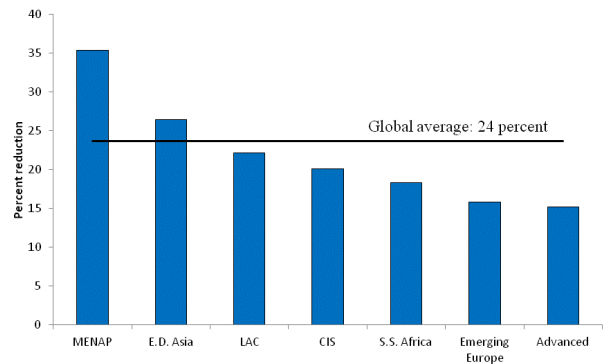


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### ..... and carbon emission reductions .....



Reduction of fossil-fuel related CO<sub>2</sub> emissions, 2015

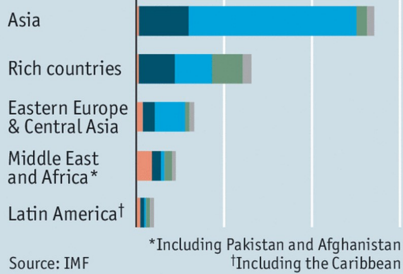


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### Self harm

Energy subsidies, \$trn

Direct subsidies  
Global warming  
Air pollution  
Congestion  
Forgone tax



Economist.com

Total subsidies now over \$US 5.3/year.

With the IEA estimate of direct subsidies at over \$US 300 in 2017, we can conclude that total subsidies (as calculated by the IMF at \$US 5.3 trillion) is running at over \$US 5.3/year

IEA estimate for direct fossil fuel subsidies in 2017: more than USD 300 billion

