Energy Efficiency in the context of Subsidy Reform

Armin Mayer

Issyk-Kul, Kyrgyzstan, 26 June 2018

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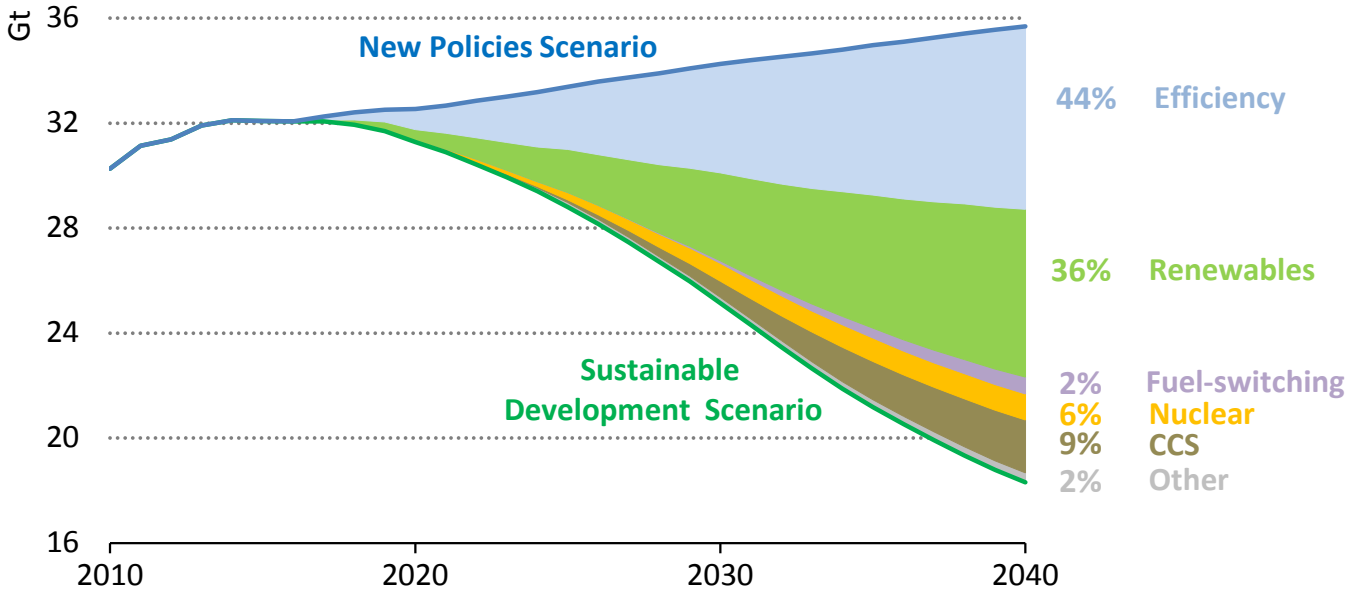
The Bigger Picture

Energy efficiency as cornerstone of energy strategy

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Energy efficiency is key to the global energy transition

Global CO_2 emissions reductions in the New Policies and Sustainable Development Scenarios



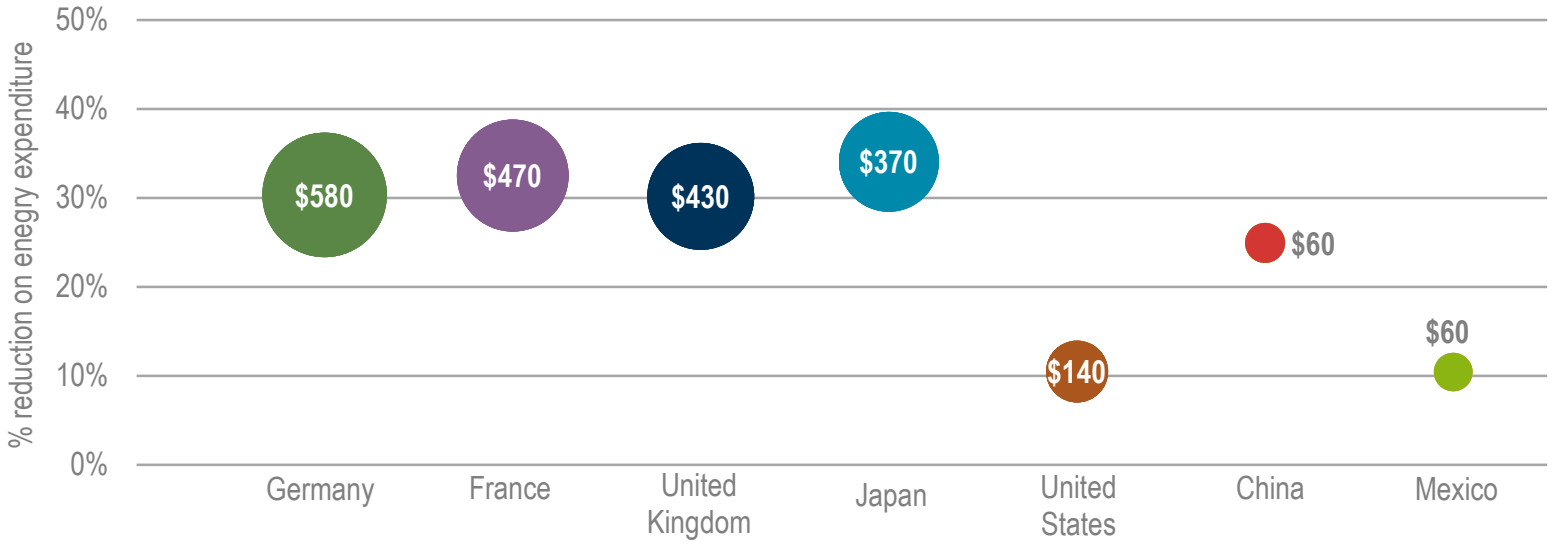
Energy efficiency and renewables account for nearly 80% of the cumulative CO2 emissions savings in the Sustainable Development Scenario

Source: World Energy Outlook 2017, IEA

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Efficiency translates into big savings for consumers

Per capita household energy expenditure savings due to efficiency (2000-16)



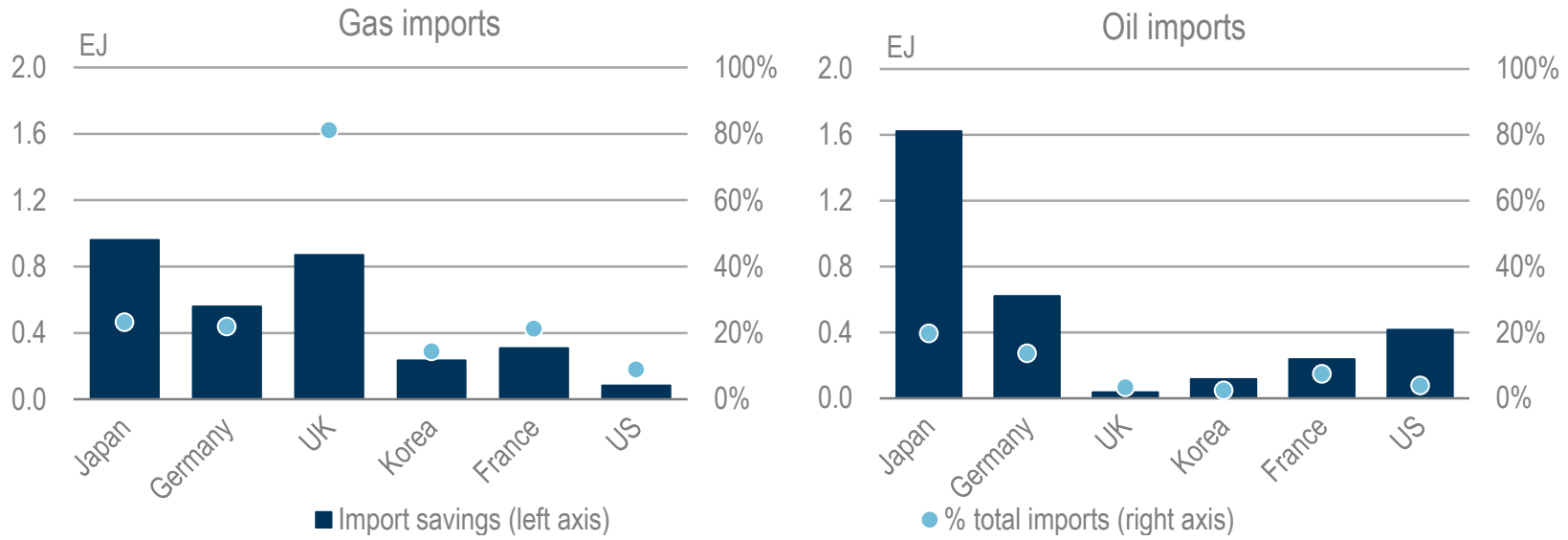
Efficiency improvements have reduced household energy spending from 2000-2016. German consumers saved nearly USD 50 billion on their annual home and travel energy costs.

Source: Energy Efficiency 2017, IEA

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Energy efficiency reduces import costs, increases energy security

Reductions in energy imports from efficiency improvements (2000-16)



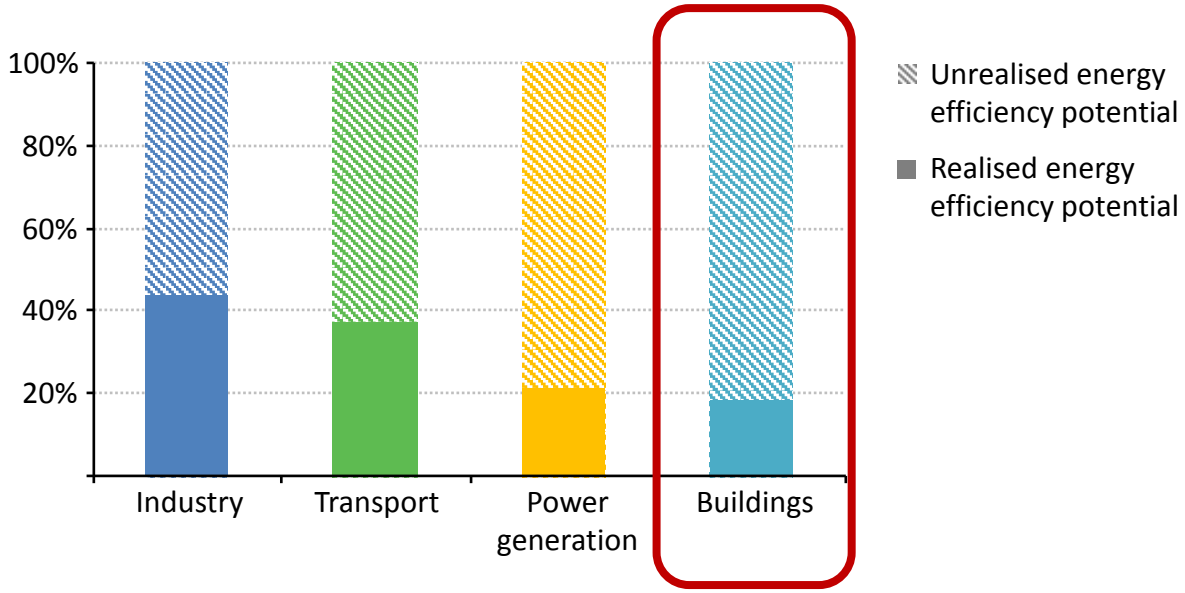
Overall, energy efficiency improvements have reduced energy imports by nearly USD 50 billion

Source: Energy Efficiency 2017, IEA

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Buildings offer largest energy efficiency potential globally

Energy efficiency potential by sector



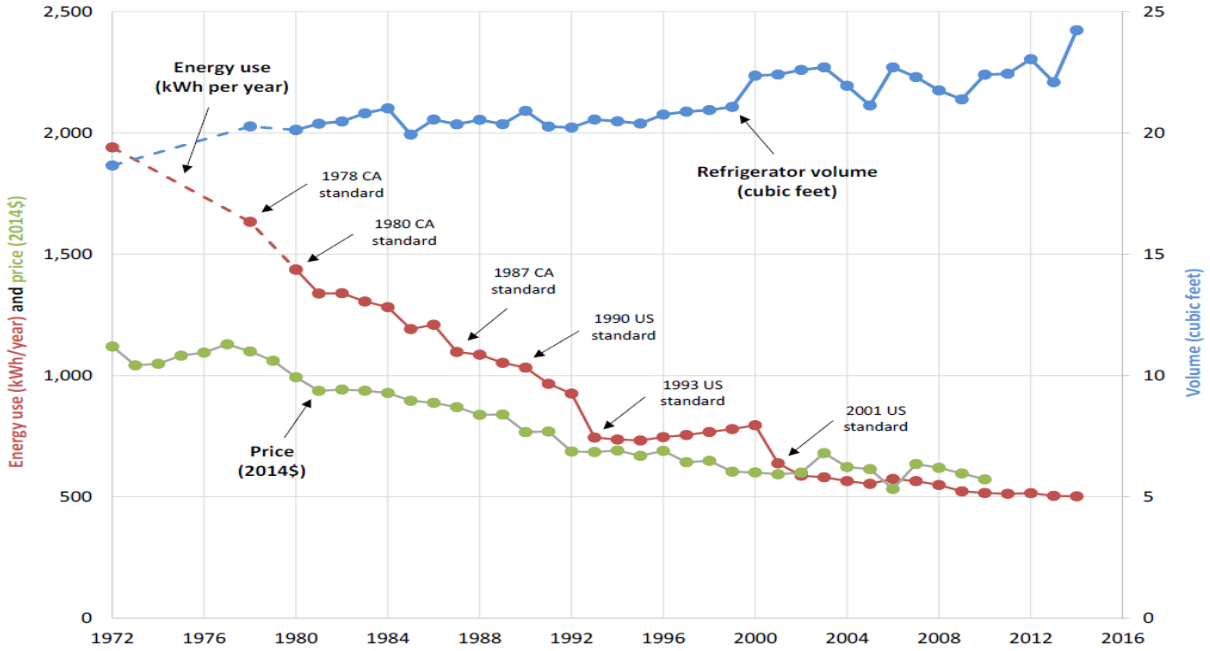
80% of the economic potential to improve energy efficiency in buildings remains untapped

Source: World Energy Outlook 2012, IEA

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Standards force down appliance energy use

US refrigerator capacity and standards impact 1972 - 2016



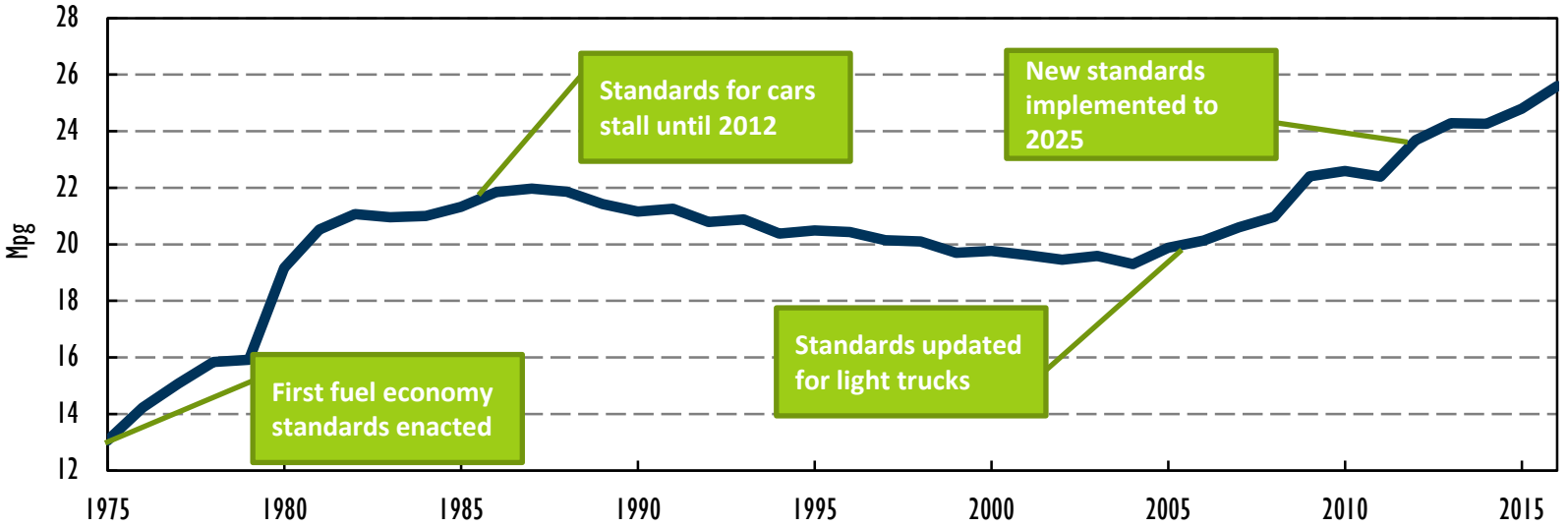
New refrigerators in the US use 75% less electricity than ones sold in 1972, but offer more capacity
Modern refrigerators also cost 50% less (on average) than older, more inefficient ones

Source: ACEEE, 2017

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Stalling policy development hinders efficiency progress

Average fuel economy of passenger vehicles sold in the United States

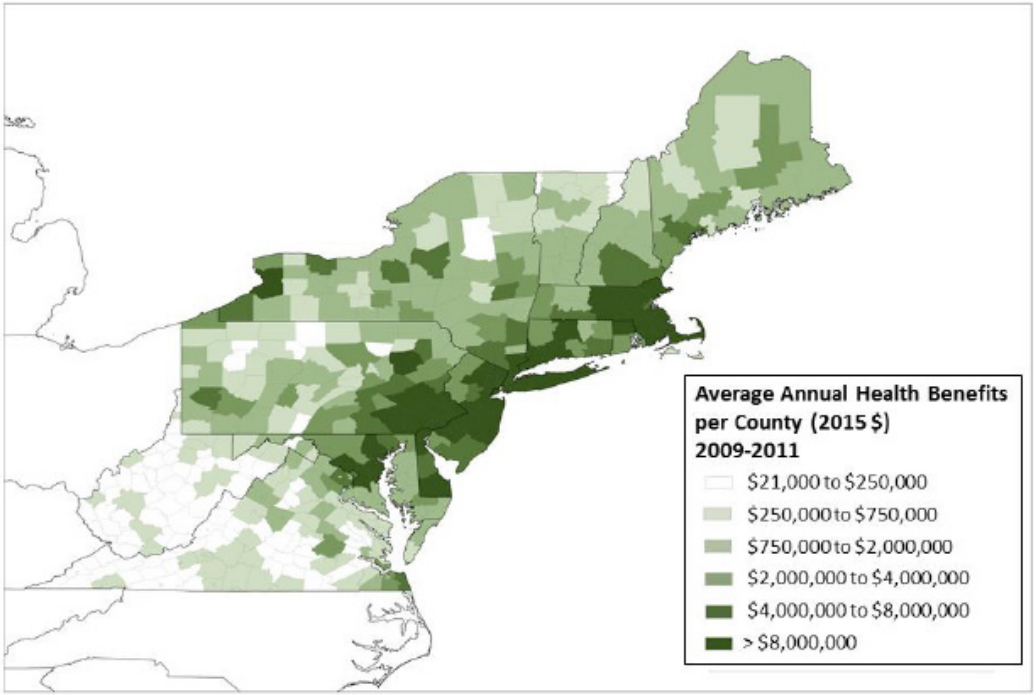


Average vehicle fuel economy in the US fell by 10% from 1985 to 2005 when standards stalled

Source: Energy Efficiency 2016, IEA

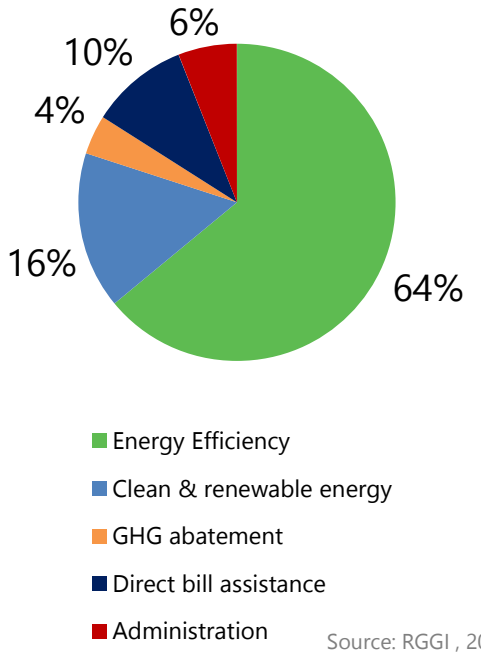
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Reduced health care costs



Source: Abt Associates analysis (2017).

US Regional Greenhouse Gas Initiative (RGGI) funding



Source: RGGI , 2017

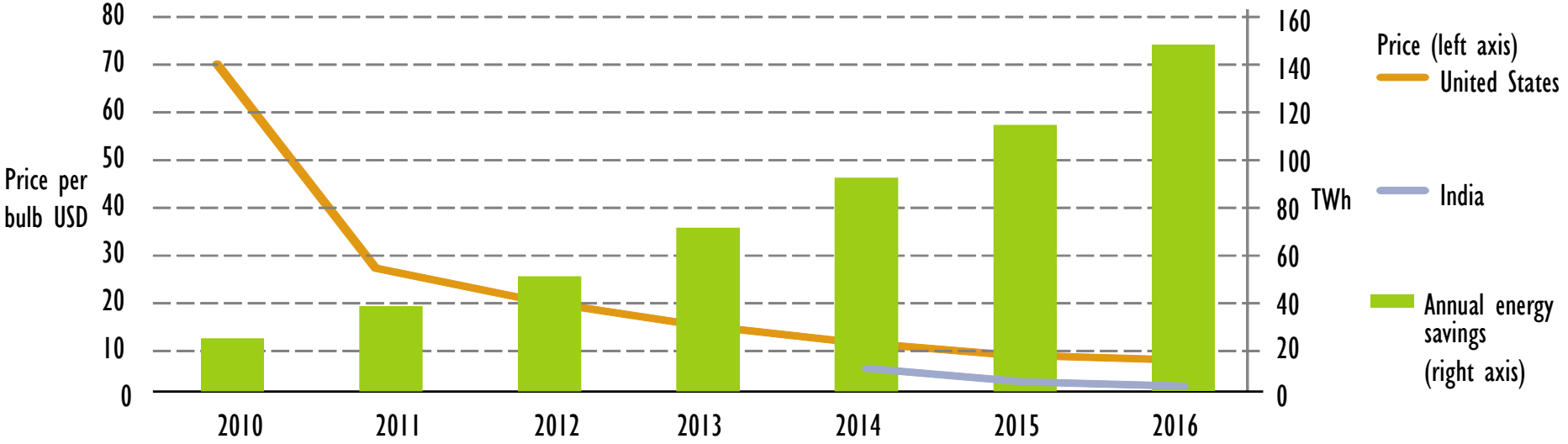
In some US states, energy efficiency is resulting in millions of dollars in avoided health costs.

Source: IEA workshop on multiple benefits, March 2018

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Energy efficiency can drive markets for new products

Global annual energy savings from efficient lighting and LED bulb prices



Falling LED prices boosted global investment to $6 billion and generated incremental annual savings of 140 TWh.

Source: Energy Efficiency 2016, IEA

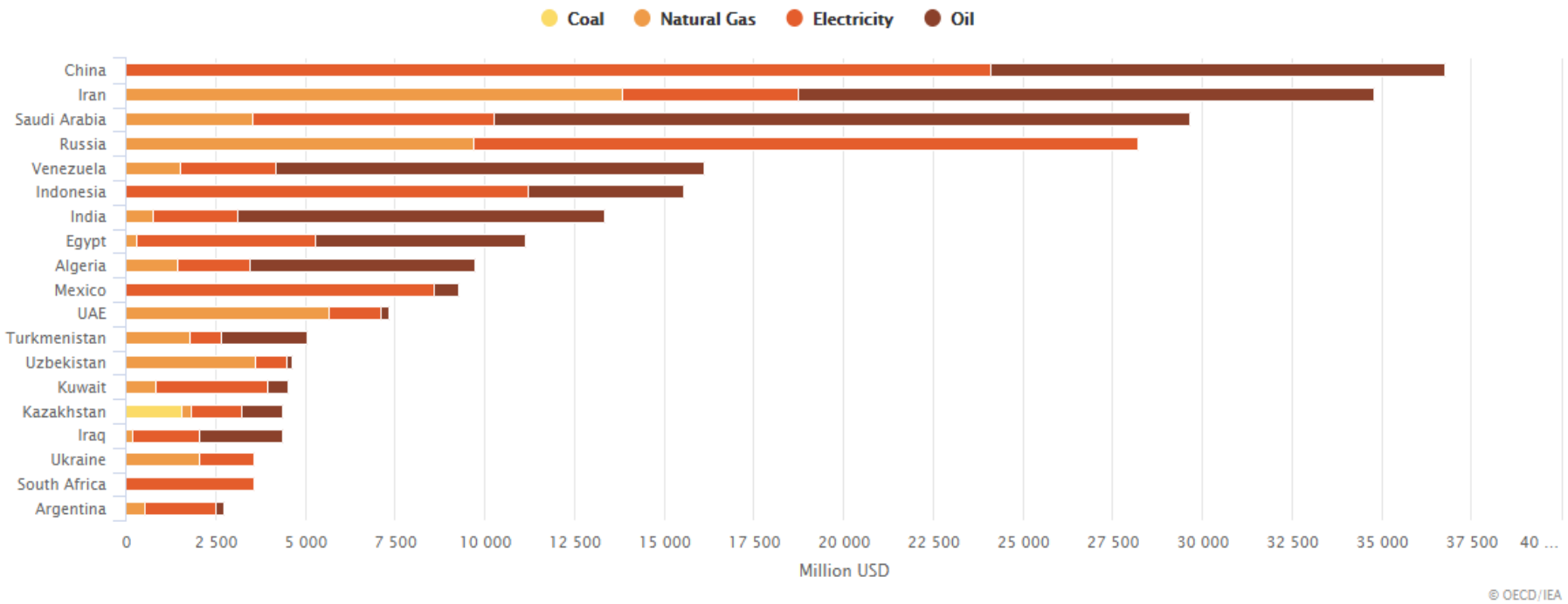
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A Closer Look at Subsidies

Exploring the link between efficiency and subsidies

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Global Fossil Fuel Subsidies in numbers

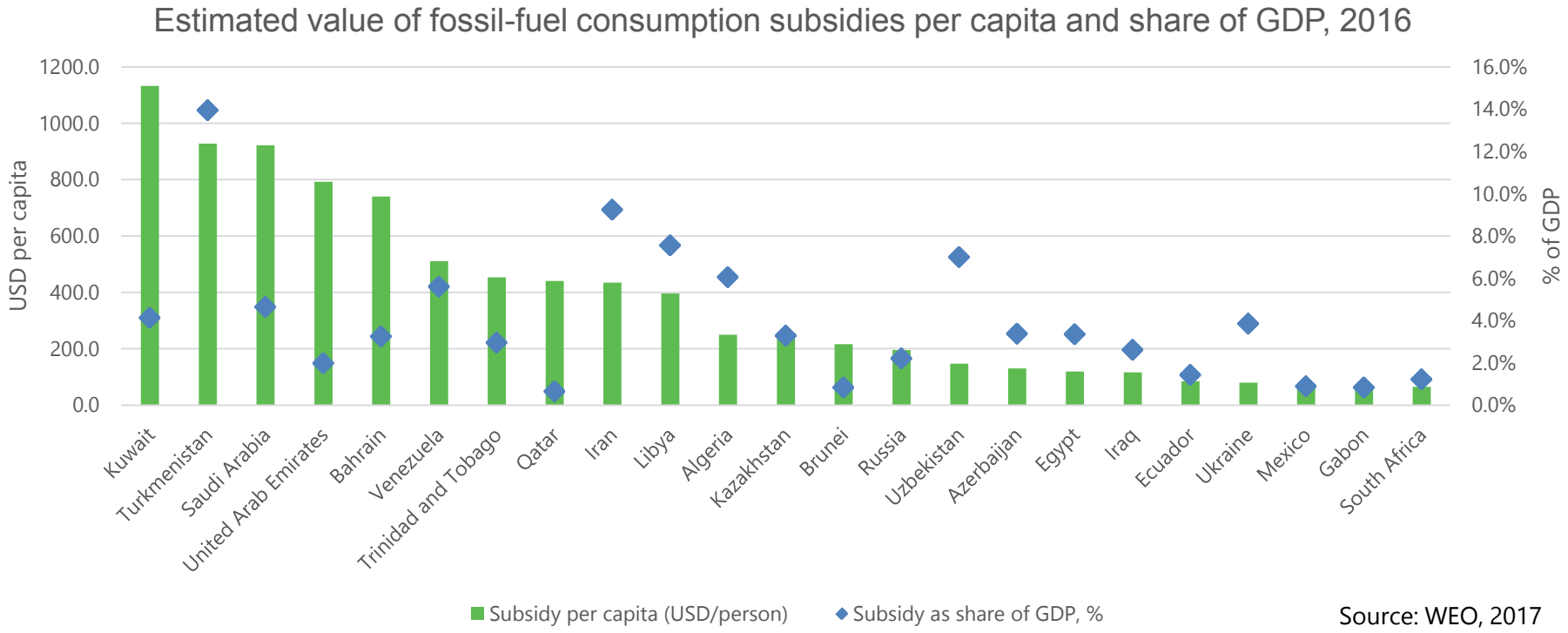


The total subsidies of the world amounted to around 262 billion USD in 2016, of which 41% is for electricity and 40% for oil

Source: WEO, 2017

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Global Fossil Fuel Subsidies and Public Budget



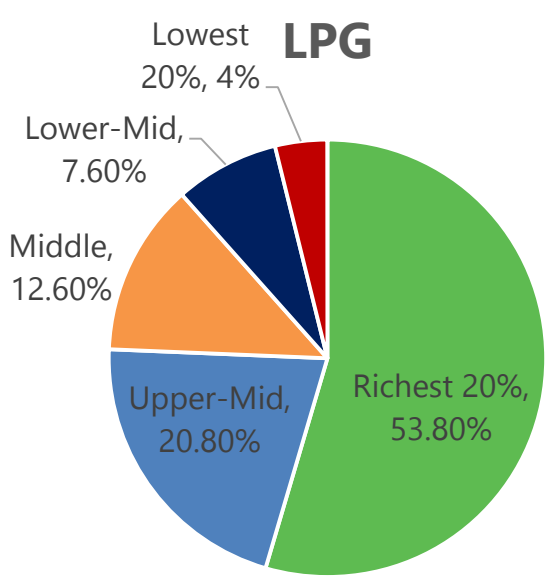
Source: WEO, 2017

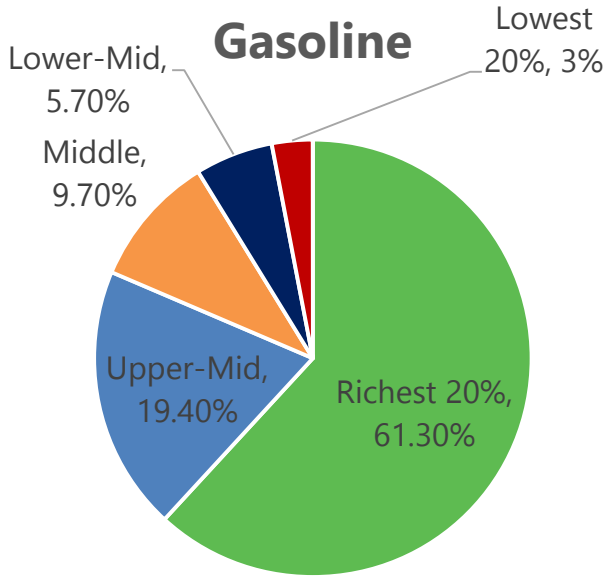
Based on available data, in 2016 the highest subsidy per capita is 1132 USD in Kuwait, while the highest subsidy as share of GDP is 14% in Turkmenistan

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Who are the real beneficiaries of subsidies?

Global survey of energy subsidy beneficiaries

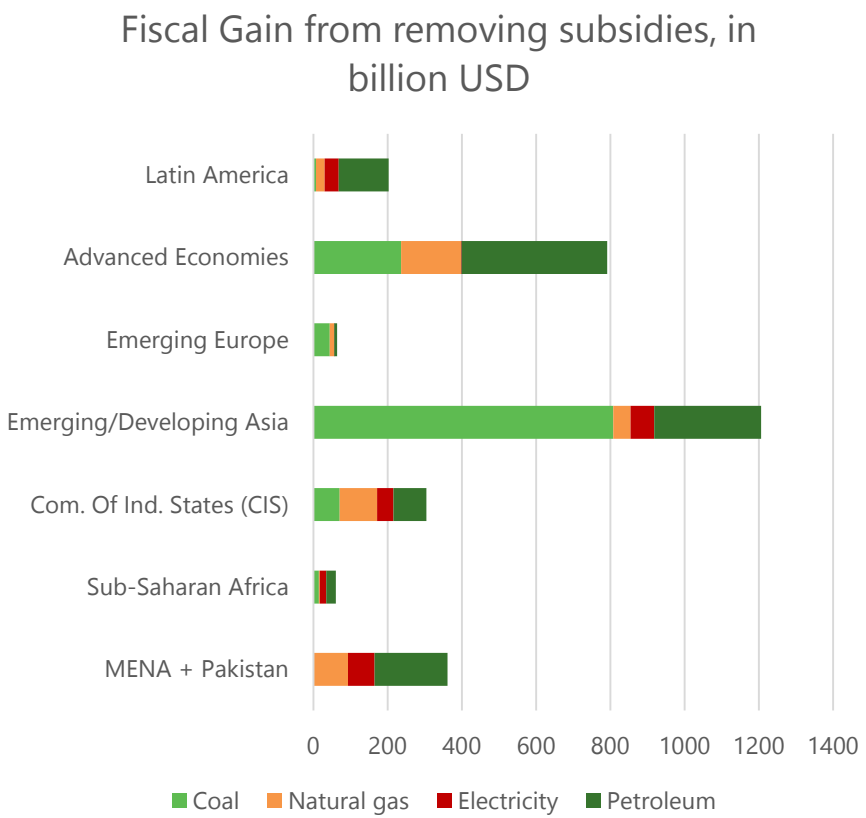


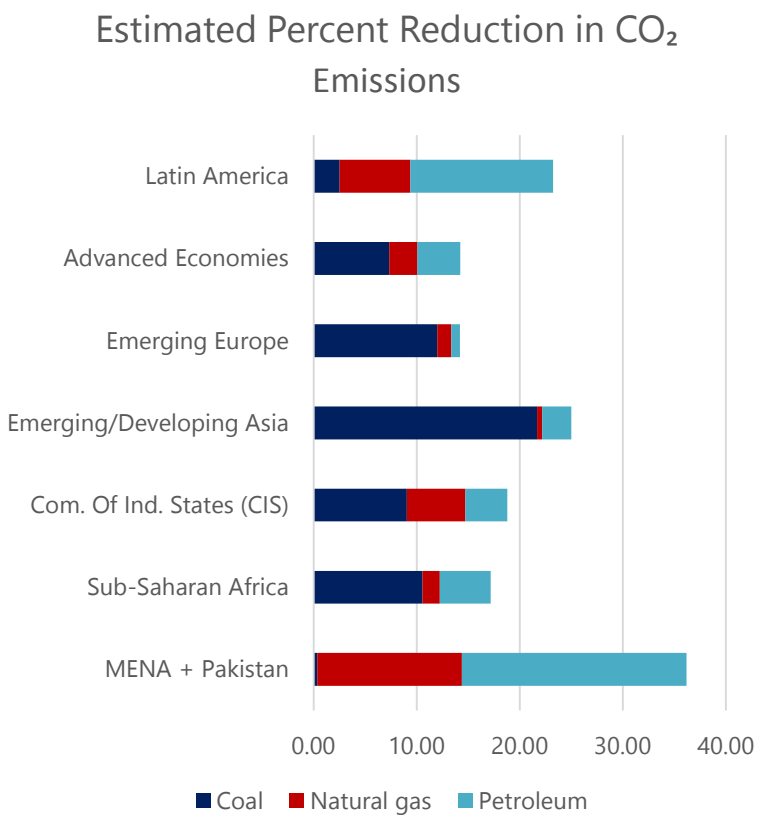


Source: IMF Working Paper 2010

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Benefits of removing subsidies





Source: IMF Working Paper, 2015

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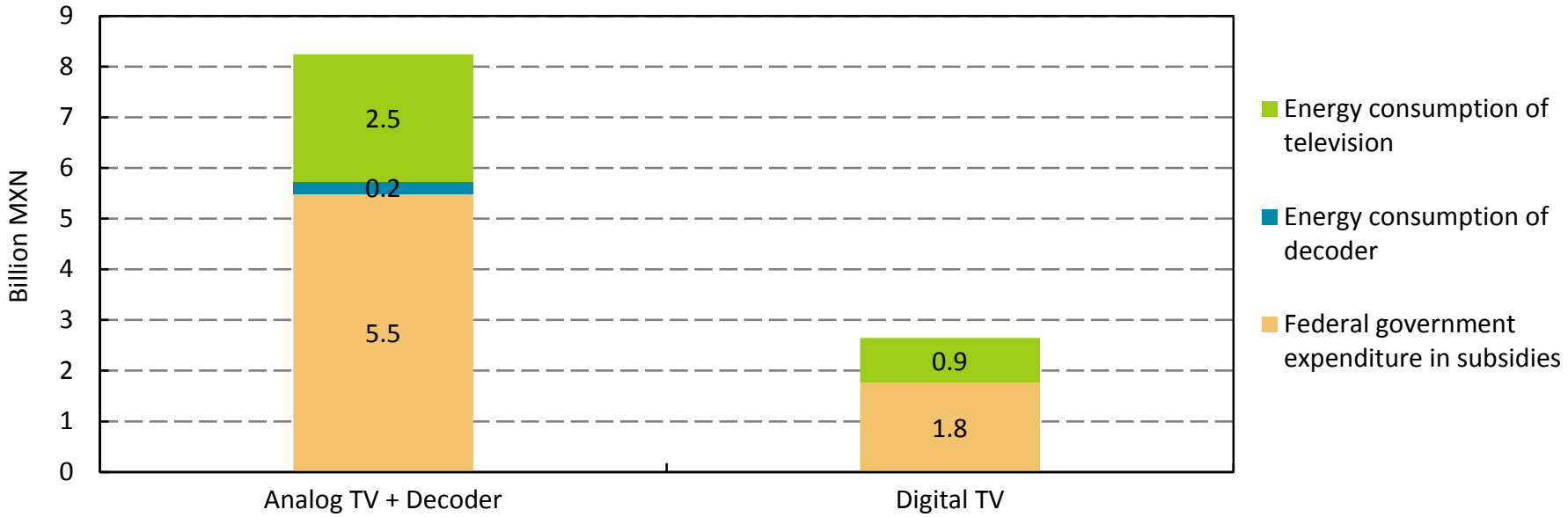
Recent Developments in Fossil Fuel Reform in Mexico

- In 2011, subsidies amounted to 1.95% of GDP.
- Finance Ministry estimated that for each peso assigned to the poorest 20% of the population, 19.5 pesos were given to the richest 20%.
- Phase-out of subsidies on gasoline, diesel and LPG at moderated rate – 1% per month for gasoline and diesel.
- Gradual increase of final consumer prices
- Residential and agriculture electricity tariffs still subsidized.
  - Mexico currently revising the complex electricity tariff structure
  - Ensuring subsidies are directed to low-income households.
- Of the 8 residential electricity tariffs – 7 receive subsidies

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Efficiency reduces the impact of subsidy reform

Comparison of annual expenses by households and Mexican government with analogue television and decoder versus digital television



The Mexican government is providing 14 million LED TVs to low-income households. The USD 102.4 million cost is expected to be recovered through avoided consumption and reduced subsidies

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Reduced subsidies (and local jobs!)

- Replacing 1.6 million inefficient refrigerators among Mexico's low-income households led to…

$22.4 **million / year** in avoided energy subsidies

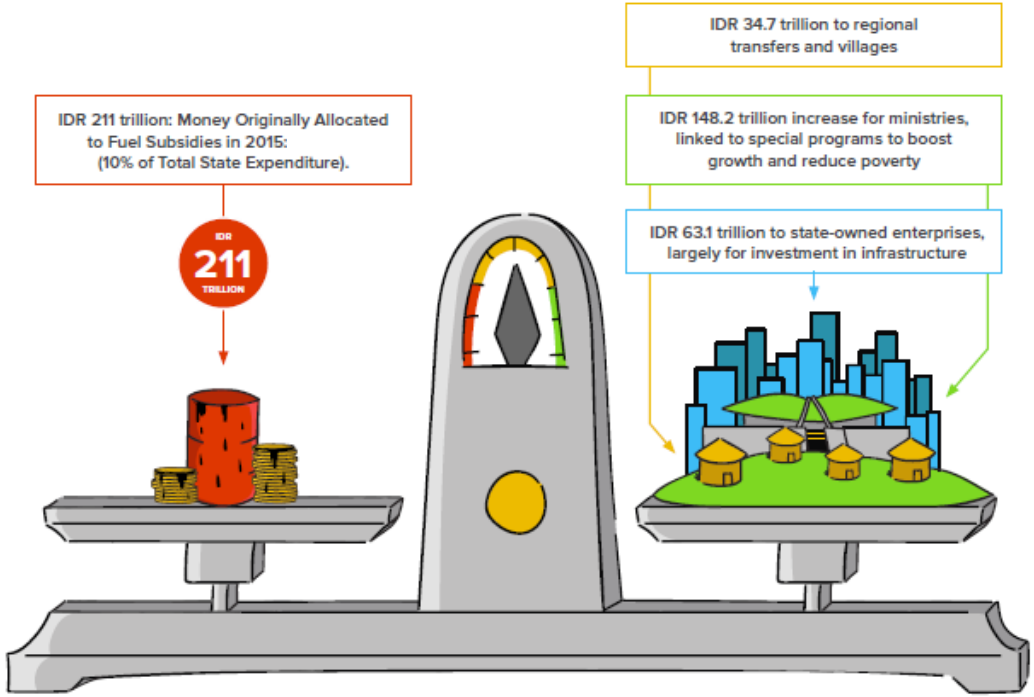
>1500 permanent jobs in manufacturing and inefficient refrigerator destruction

Source: IEA workshop on multiple benefits, March 2018

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Reduced subsidies free up funds for other purposes

Fuel subsidy savings and major increase in revised Indonesian government budget, 2015



Subsidy savings in 2015 in Indonesia led to investments in social welfare and infrastructure through increased budgets for ministries, state-owned enterprises, regions and villages

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Subsides can be switched to other forms of support









Switching support away from fossil fuel subsidies to energy efficiency and renewable energy will improve climate outcomes

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Key Messages

- Energy subsidies are a significant draw on public budgets
  - Around 261 billion USD around the world, with national share of GDP reaching even as high as 14%
- Subsidy reform is progressing across the world
  - Focus more on (larger) consumer subsidies rather than producer subsidies
  - Reducing public expenditure often a primary driver, not efficiency
  - Concerns centre on the poor and vulnerable, and industrial competitiveness
- Energy efficiency reduces the impact of subsidy reform
  - Only few examples of formally reallocating fiscal savings to energy efficiency

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IEA Energy Efficiency Online Resources

Energy Efficiency 2017 – our annual market report, stay tuned for 2018 edition
http://www.iea.org/efficiency/

The Future of Cooling, new special report in 2018
https://www.iea.org/cooling/
featuring interactive web page
http://www.iea.org/exchange/cooling/

Energy Efficiency Indicators
http://www.iea.org/publications/freepublications/publication/EnergyEfficiencyHighlights_2017.PDF

Our dedicated web pages on iea.org provide a wealth of information
http://www.iea.org/topics/energyefficiency/

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