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The negative role of non-renewable
energy subsidies for successful
implementation of renewable energy
technologies in Russia,
comparison of the situation in Mexico

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- Russia and its economy
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Russia

- Area: 17 075 400 sq. km (Mexico: 1 972 550 sq. km)
- Population: 143 200 000 (Mexico: 113 910 608)
- GDP per capita:
\$16,736 (PPP) (Mexico: \$14,609)
- one of the world's fastest growing major economies



Economy of Russia

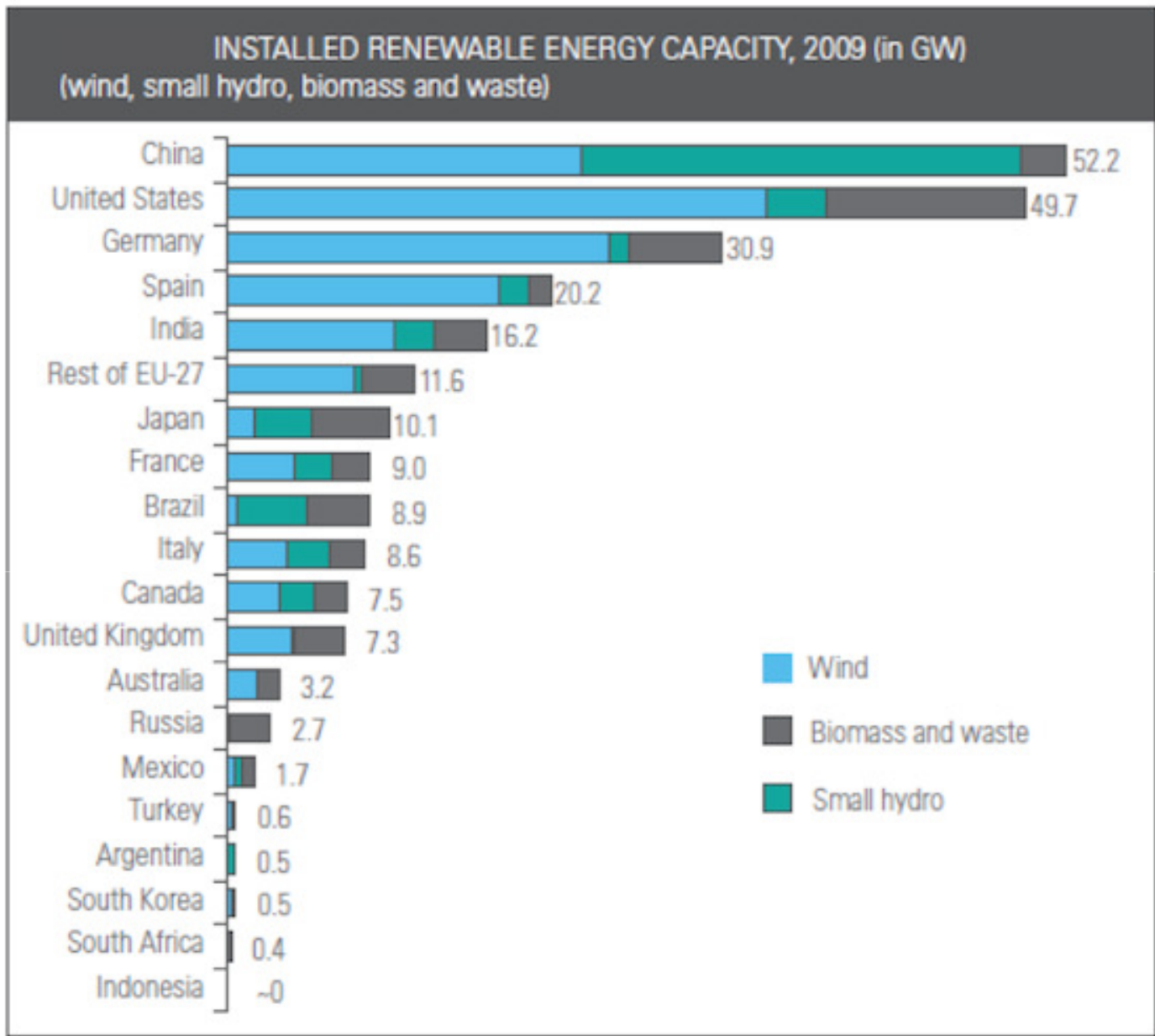
- Developing economy
 - The 9th largest economy in the world by nominal value
 - The 6th largest by purchasing power parity
 - From 2012 member of World Trade Organisation
-
- Has an abundance of natural gas, oil, coal, and precious metals





MAIN OIL AND GAS PIPELINES IN EUROPE





Source: <http://www.merar.com/weblog/2011/03/28//>

Potential for renewable energies in Russia

- The country is the fifth largest producer of renewable energy in the world,
- although it is 56th when hydroelectric energy is not taken into account.
- 16% of Russia's electricity is generated from hydropower,
- only 18% of its hydropower potential has been developed.



World top 10 renewable electricity producers (2010)

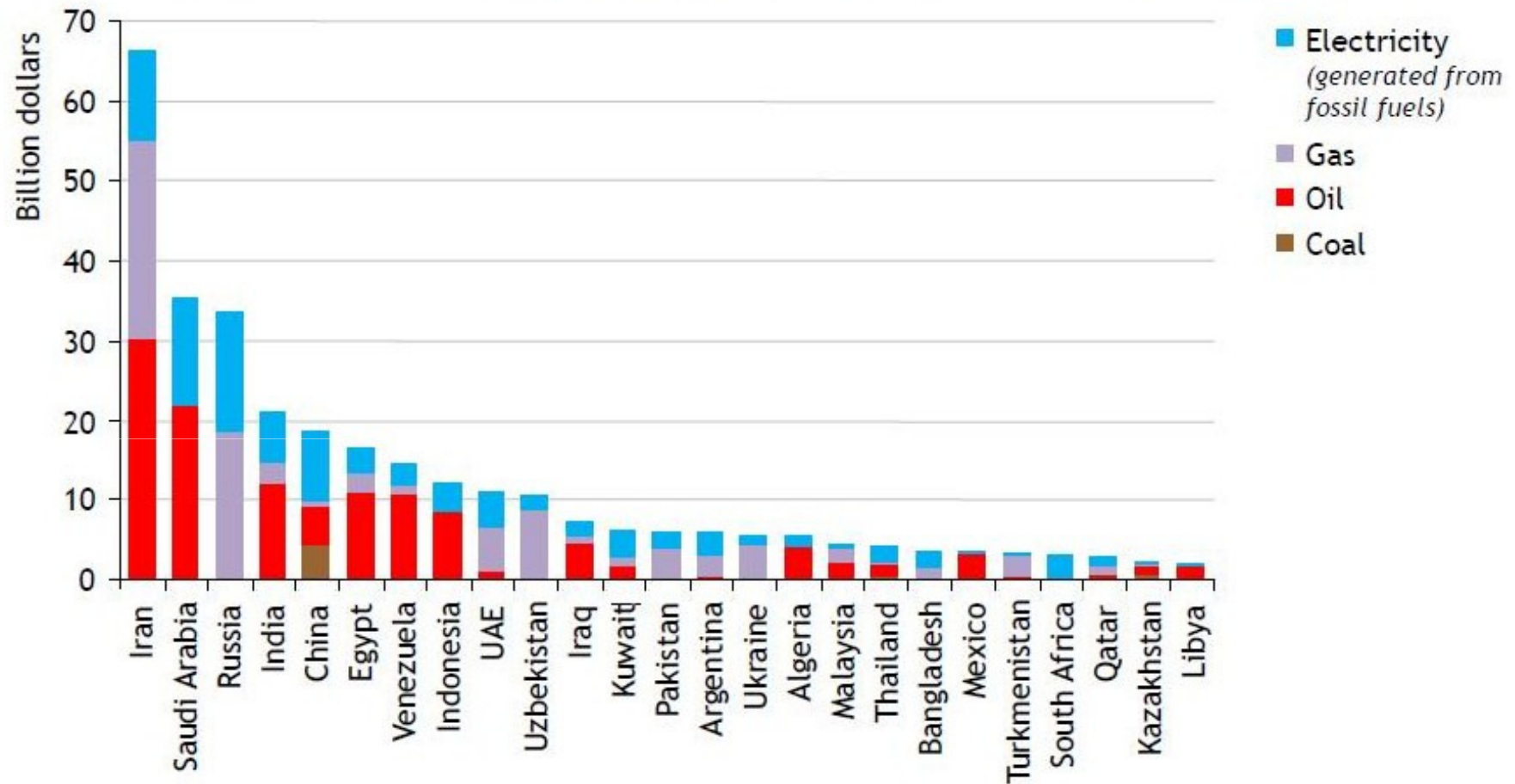
Ranking	Country	Total	Hydroelectricity	Wind Power	Biomass	Solar	Geothermal
	European Union	834.5					
1	China	764.5	721.160	40.2	3.0	0.140	
2	USA	436.4	272.1	70.8	54.3	0.808	15.2
3	Brazil	429.6	387.1	1.37	21.3		
4	Canada	360.2	363.2	2.5		0.017	
5	Russia	167.4	163.2	0.007			0.48
6	India	132.3	106.7	14.7			
7	Norway	117.7	125.0	0.977	0.2		

Potential for renewable energies in Russia

Energy source:	Technical Potential (Mtoe)
• Wind	• 1551.2
• Solar	• 6786.5
• Small hydro	• 88.2
• Biomass	• 90.3
• Geothermal	• 8308.3



Economic value of fossil-fuel consumption subsidies by country, 2009



Source: IEA, 2010

Subsidising fossil-fuels in Russia

- International Energy Agency (IEA): in 2009 Russian subsidies for consumption of fossil-fuels were US\$ 34 billion
- IEA: global consumer subsidies for fossil-fuels were US\$312 billion



Russia: Impacts of fossil-fuel subsidies

- Middle-class and rich levels of society are benefiting more:
 - due to correlation between wealth and energy consumption
- Possible solution:
 - sell energy at market prices and use the revenue for direct assistance, e.g. cash payments, housing, education, health services.



Russia: Impacts of fossil-fuel subsidies

- Reduced prices for fossil-fuels encourage higher consumption of them
- And discourage investment in new energy infrastructure and efficiency measures
- Example:
gas consumption per capita in Russia is similar to this in Canada,
but consumption per unit GDP is roughly 5 times higher than in IEA countries



Russia: Impacts of fossil-fuel subsidies

- Low prices on fossil-fuels result in lack of investments in new production (also of renewable energy) and distribution infrastructure
- Consequences:
 - in electricity sector: shortages and large energy losses from inefficient electricity grid
 - in gas sector: under-development of new gas production and distribution infrastructure



Russia: Impacts of fossil-fuel subsidies

- Higher consumption of fossil-fuels results in higher greenhouse-gas (GHG) emissions and local air pollution
- Estimations:
 - OECD: 10% less emissions of CO₂ by 2050 in case of removal of the subsidies for fossil-fuels till 2020
 - IEA: 5,8% less of CO₂ emissions if the consumption subsidies for fossil fuels will be globally abolished between 2011 and 2020

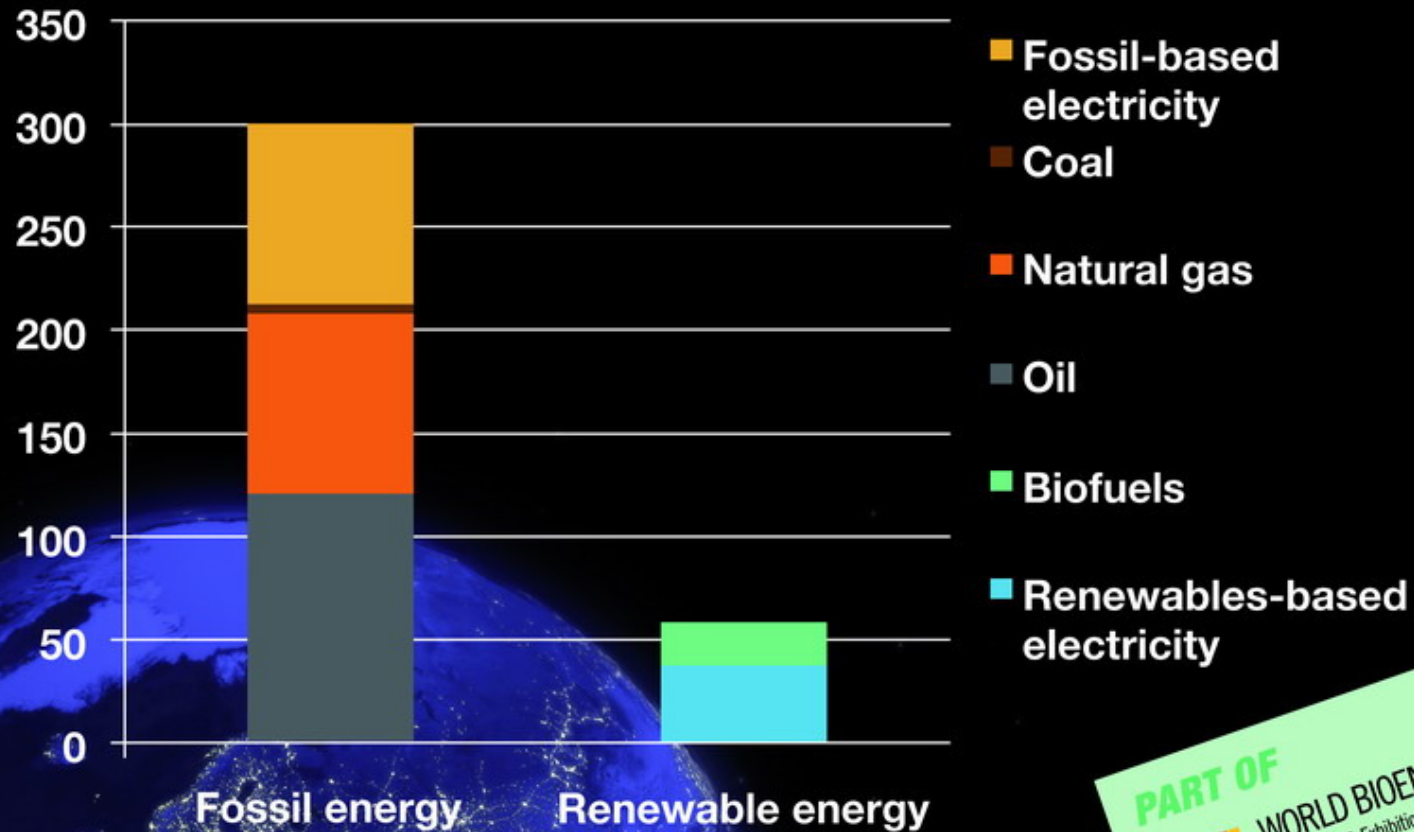


Russia: Impacts of fossil-fuel subsidies

- No incentive to invest in existing cleaner energy sources and technologies
- Discourage innovation in the production and development of cleaner types of energy

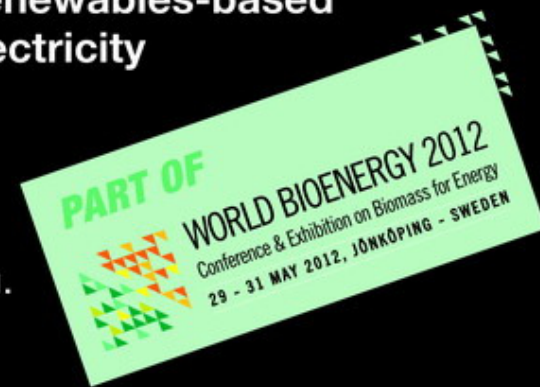


World subsidies to fossil fuel consumption vs renewables in 2009 (billion USD)



Based on: IEA – World Energy Outlook 2010 and IEA – World Energy Outlook 2011.

WWW.WORLDBIOENERGY.COM

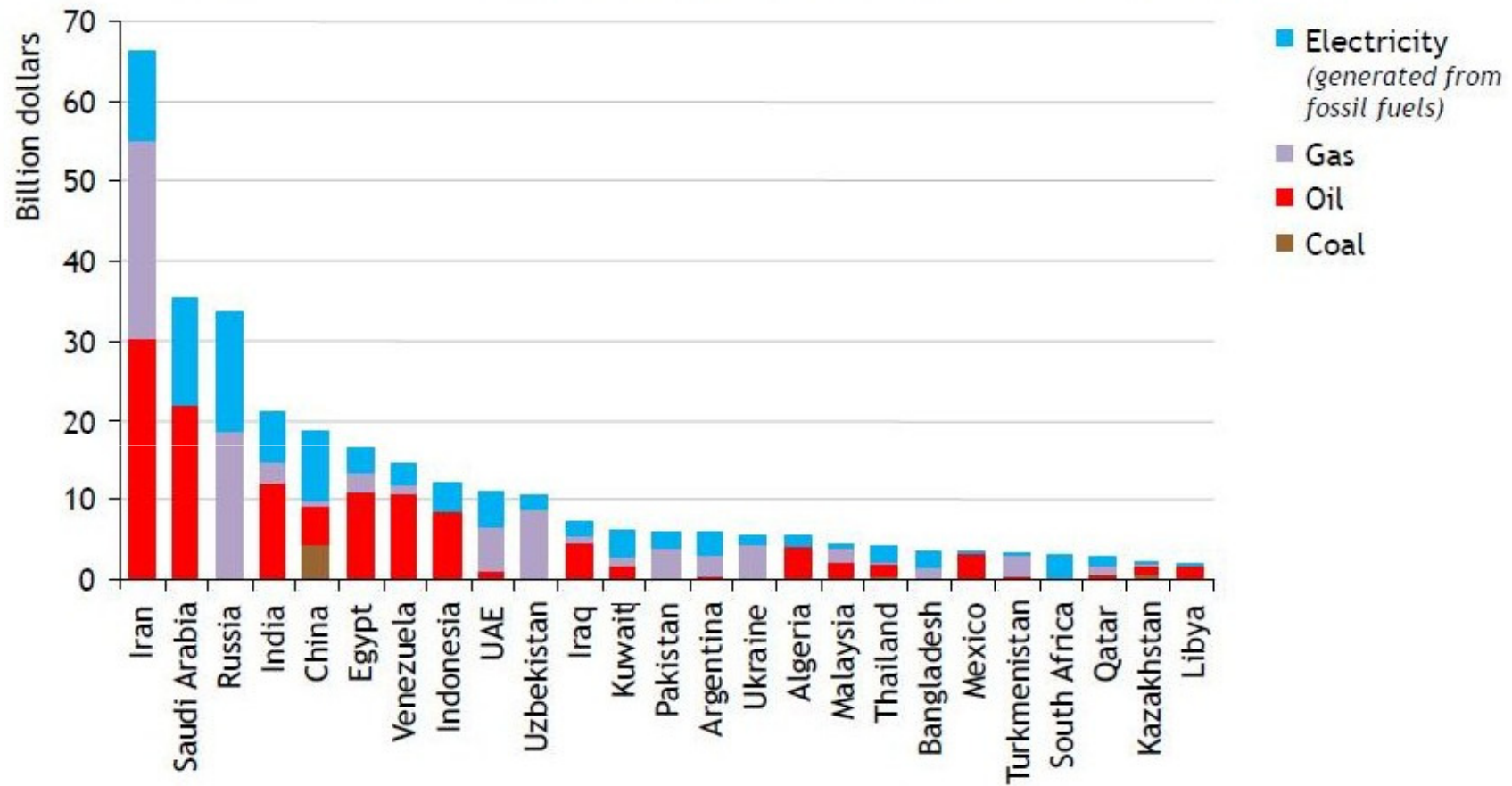


Measures from the side of Russian Government

- In 2011 all the drawbacks of subsidies were recognised by Russian Government,
- And starting from 2011 it started a program of rising gas and electricity prices up to market levels,
- But household electricity will continue to be subsidised until at least 2014
- Lack of competition in this sector is another problem to manage



Economic value of fossil-fuel consumption subsidies by country, 2009



Source: IEA, 2010

Subsidising of fossil-fuels consumption in Mexico

- Over 2005-2009 subsidies for electricity, gasoline, diesel and liquefied petroleum gas on average accounted for more than 1,5% of GDP
- There are large electricity subsidies for the agricultural sector,
- In particular, a subsidy of more than two thirds of the electricity cost, for farmers, who pump irrigation water – causing major environmental problems



Example

Over-exploitation of groundwater:

- 100 of Mexico's 282 major aquifers are overexploited
- Results include:
- water scarcities that hazard supply to households and farmers,
- drying of wetlands and rivers,
- a subsequent loss of the aquatic ecosystem, and intrusion of heavy metals into the groundwater, with serious consequences for agricultural production and farmers' livelihoods.



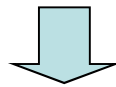
Solutions of the problems caused by fossil-fuels subsidising

- Cash-transfer scheme connected to *Oportunidades*
- Increasing efficiency in the production of the energy would lower prices and higher quality in electricity sector
- Investing in energy efficiency at all levels
- Allowing competition on the energy market
- Introducing an emissions trading system (ETS) – especially attractive if the USA establish the system, Mexico would be able to sell allowances to the USA



Solutions of the problems caused by fossil-fuels subsidising

- subsidies for households that invest in energy-efficient equipment and appliances
- As a result:
- Promoting energy efficient appliances helps to lower the cost of energy subsidies by reducing demand



Costly



Conclusions

Subsidies on fossil-fuels in both Russia and Mexico have many negative sides, in particular:

- Supporting inefficiency in energy sector, causing environmental problems
- Not giving benefits to those, who need them
- Prevent development of cleaner and renewable energies

And possible solutions could be:

- Proper targeting of subsidies
- Abolishment of inefficient subsidies and improvement of energy efficiency and development of renewable energy technologies



Thank you for your attention!

Questions?

