



# Energy reforms and sustainability in Saudi Arabia

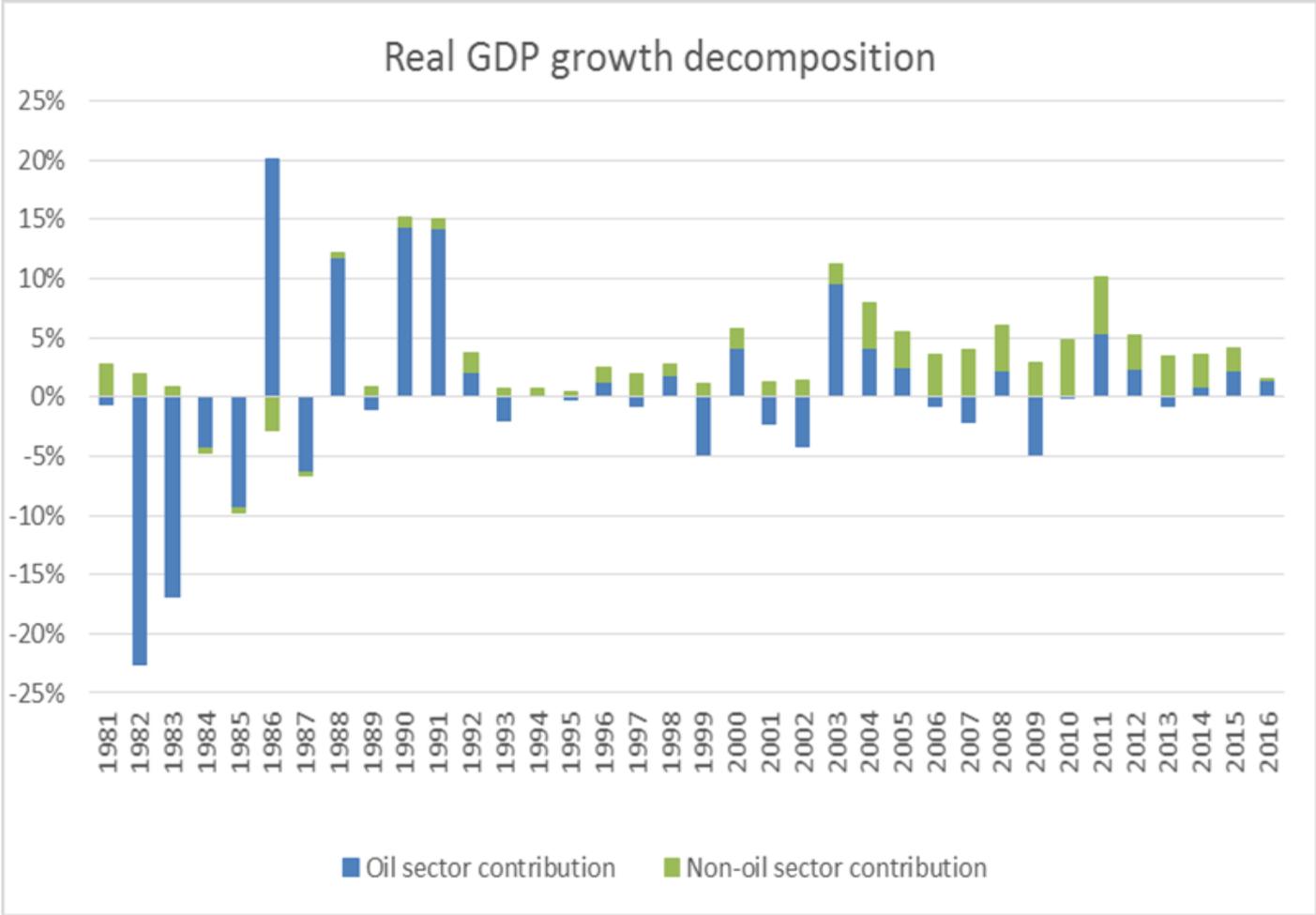
Salaheddine SOUMMANE

Globalization, Inequality,  
Energy

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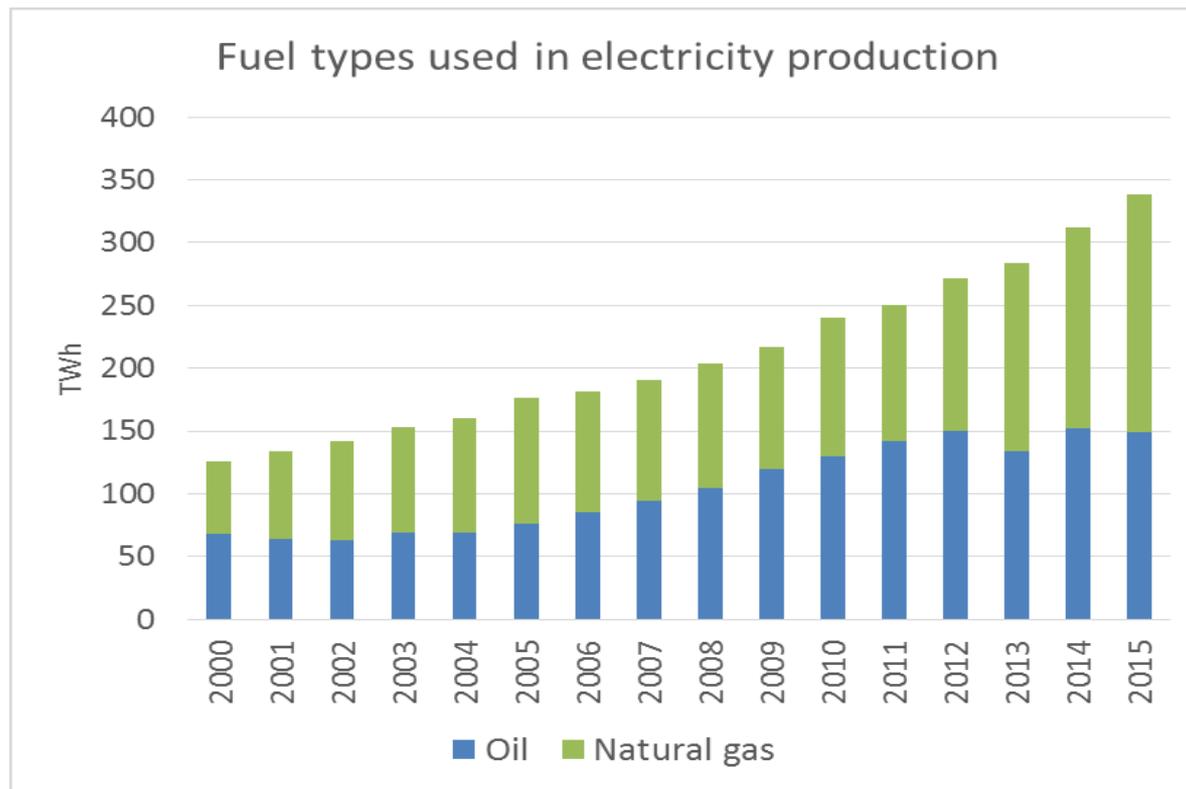
# Context: A dominant energy sector and heavy reliance on oil revenues.



Source: GASTAT, Oxford Economics.

# An unsustainable current energy demand growth, driven by low domestic prices.

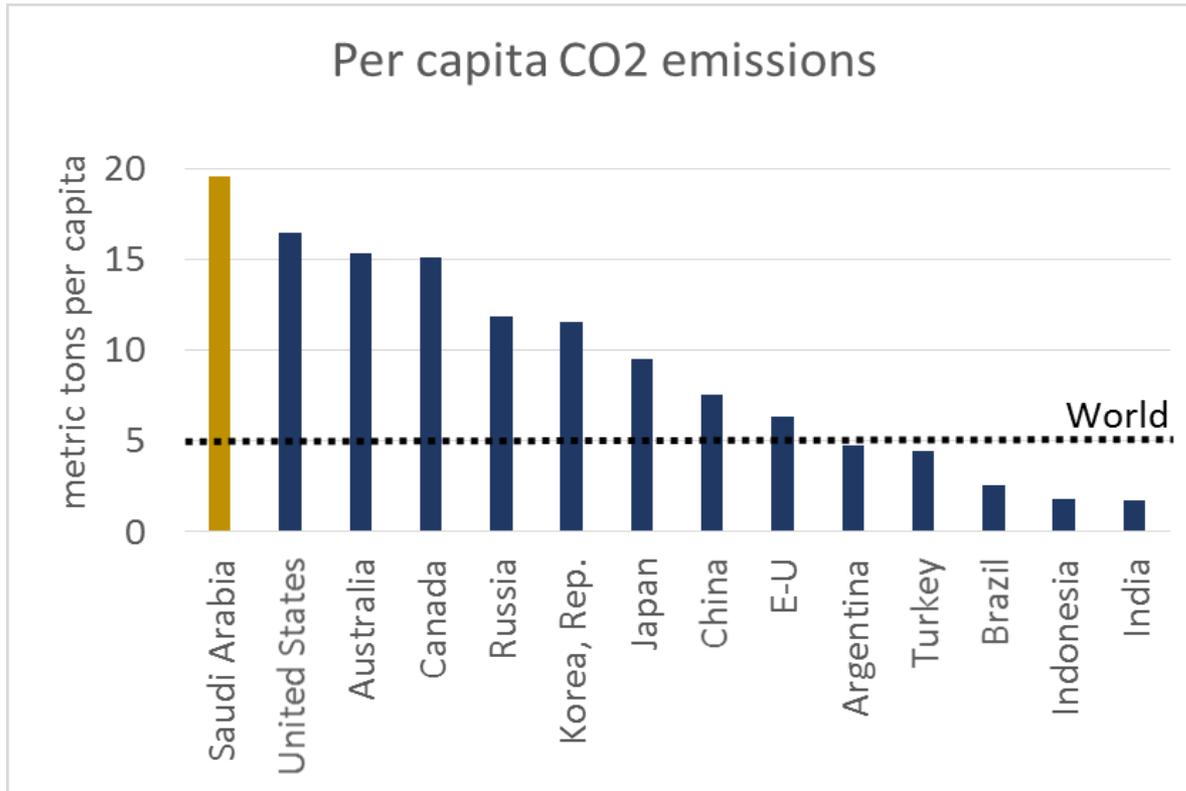
Electricity remains generated from fossil fuels despite high renewable energy potential.



source: Enerdata.

# Resulting in high CO2 emissions.

Saudi Arabia ranks 10<sup>th</sup> in terms of total CO2 emissions and 6<sup>th</sup> in terms of CO2 emissions per capita.



Figures as of 2014. source: World Bank.

# Electricity producers are not incentivized to switch to high efficiency/clean energy sources.

Subsidies for the electricity sector costed around \$12.5 billion annually.

Fuel Type	Price (US\$/million BTU)	
	Paid by the Kingdom's Electricity Producers	International
Heavy fuel oil	0.43	15.43
Gas	0.75	9.04
Diesel	0.67	21.67
Crude oil	0.73	19.26

Tariffs as of 2014, source: ECRA.

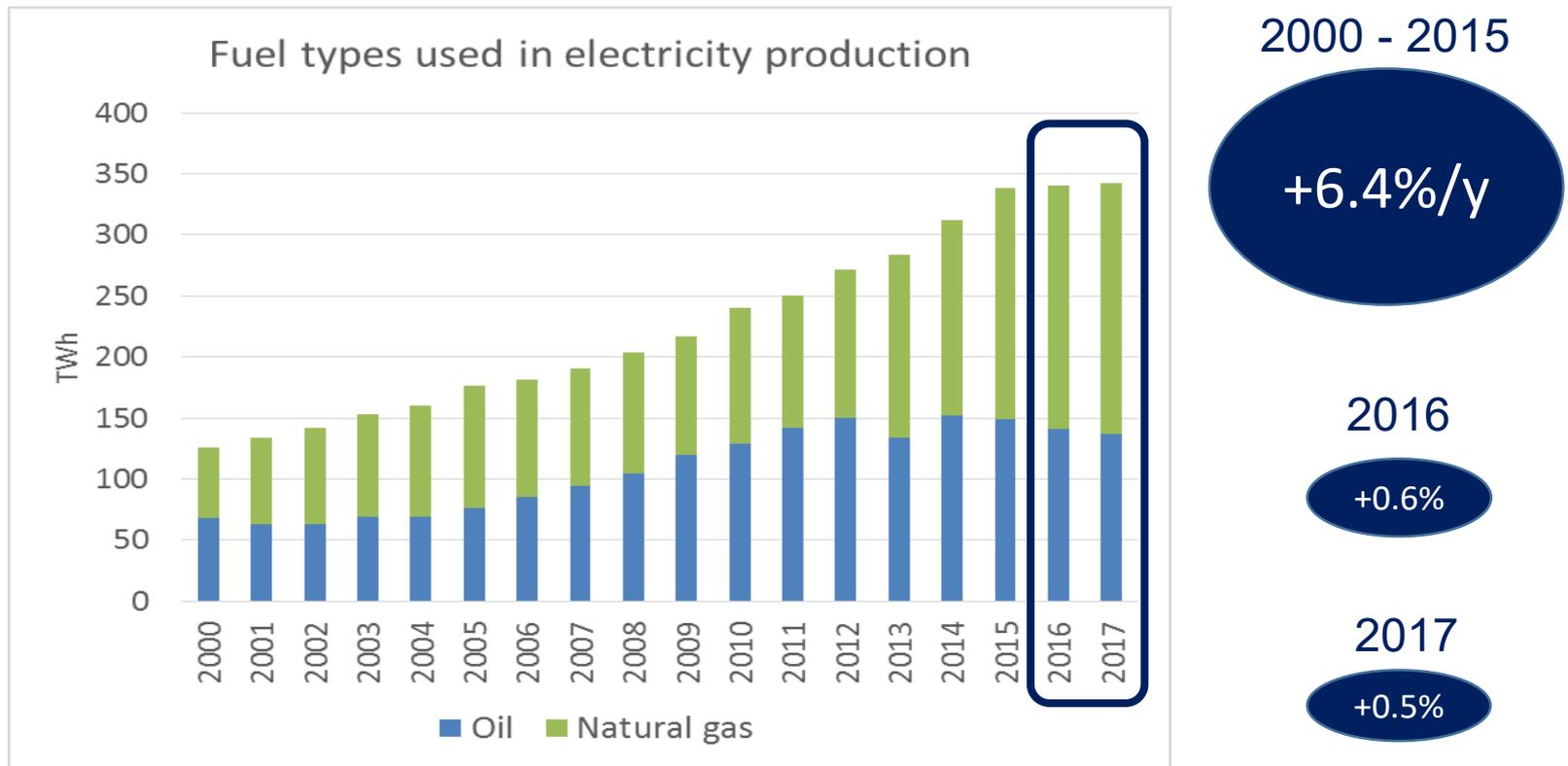
# Triggering the change towards sustainability: Energy price reform (1)

Oil price drop in 2015 pushed the government to adopt a wide reform of energy prices. However, domestic prices remain low compared to international references.

Product	Unit	2015	2016	Increase
Natural Gas	(\$/mmbtu)	0.75	1.25	67%
Ethane	(\$/mmbtu)	0.75	1.75	133%
Arab Light Crude	(\$/barrel)	4.24	6.35	50%
Arab Heavy Crude	(\$/barrel)	2.67	4.4	65%

# Triggering the change towards sustainability: Energy price reform (2)

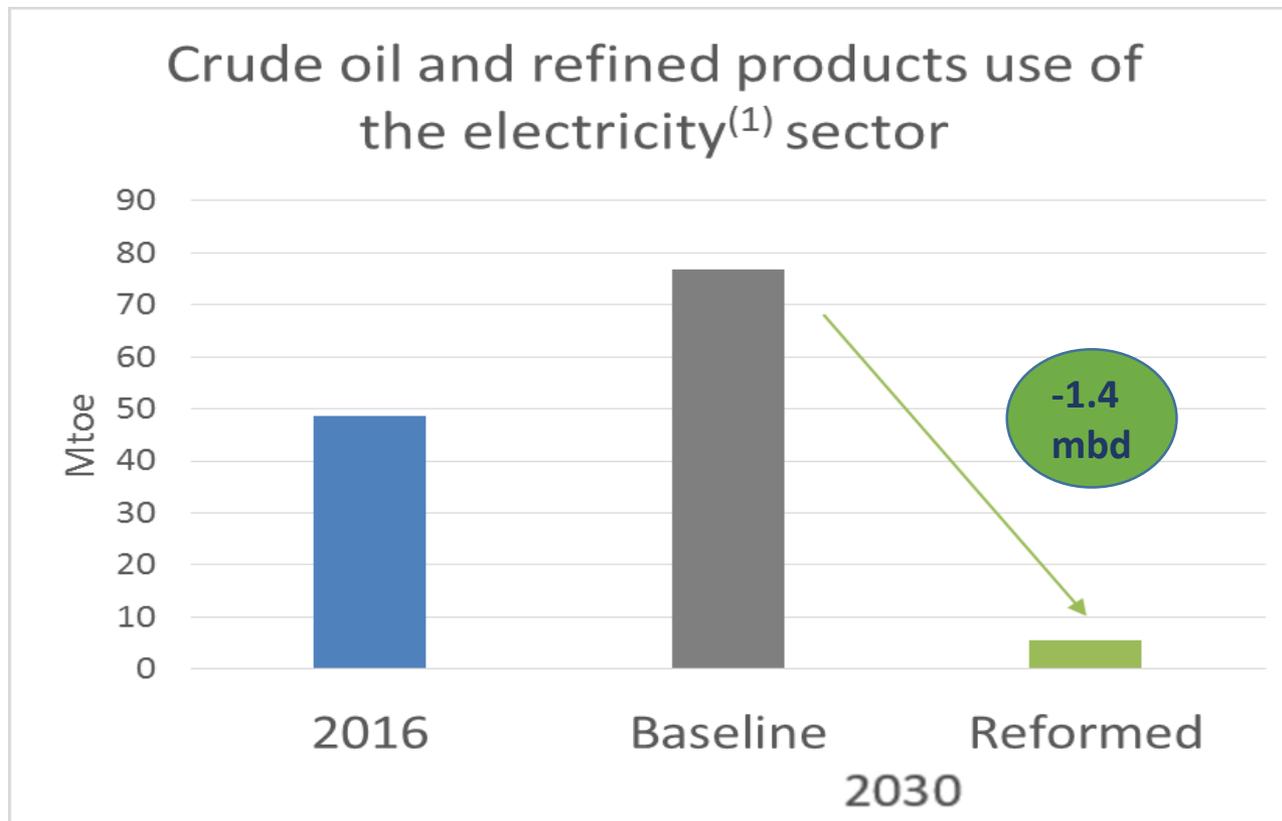
First results after implementing price reforms show a slowdown of electricity demand.



source: Enerdata.

# Energy price reforms will result in oil savings, generating additional revenues if exported.

Additional energy reforms will phase out oil from electricity production, and foster investments in cost-effective generation sources (PV, nuclear and combined cycle gas plants).

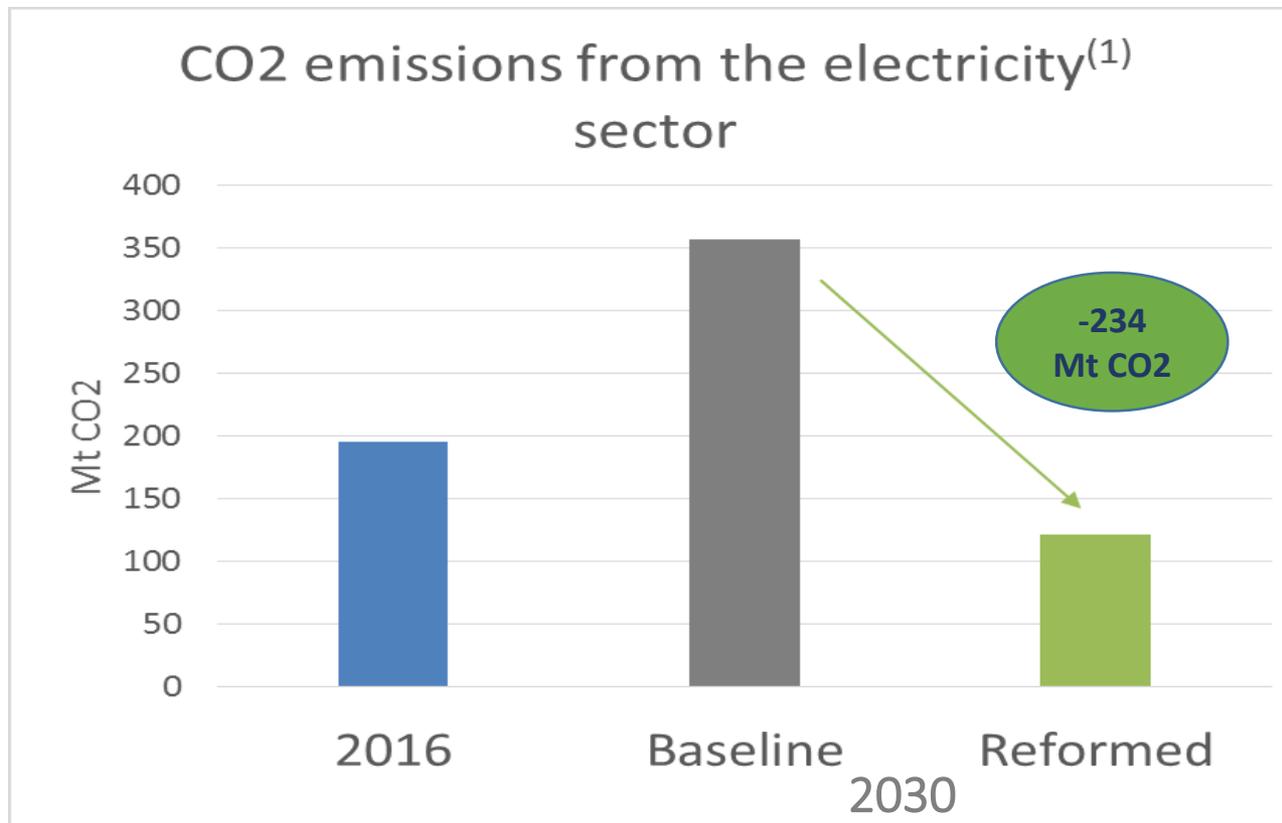


(1) Includes cogeneration plants.

Source: simulations from KEM model. Model description available in Matar et al. (2016)

# Dealing with climate challenge: Electricity sector accounts for around 50% of the Kingdom's CO2 emissions from fuel combustion.

Implementing additional reforms, to align domestic prices with international references, will reduce significantly future CO2 emissions compared to baseline scenario.



(1) Includes cogeneration plants.

Source: simulations from KEM model. Model description available in Matar et al. (2016)

# Conclusions

- Saudi Arabia is experiencing an unprecedented reform of its energy sector. This aims to curb domestic energy demand by increasing tariffs and adopting efficiency measures.
- However, at current energy price, alternative energy sources (solar, wind and nuclear) are not competitive compared to oil and gas.
- In addition, the country could face some challenges given its expected population growth and industrial expansion.

Thank you for your attention

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