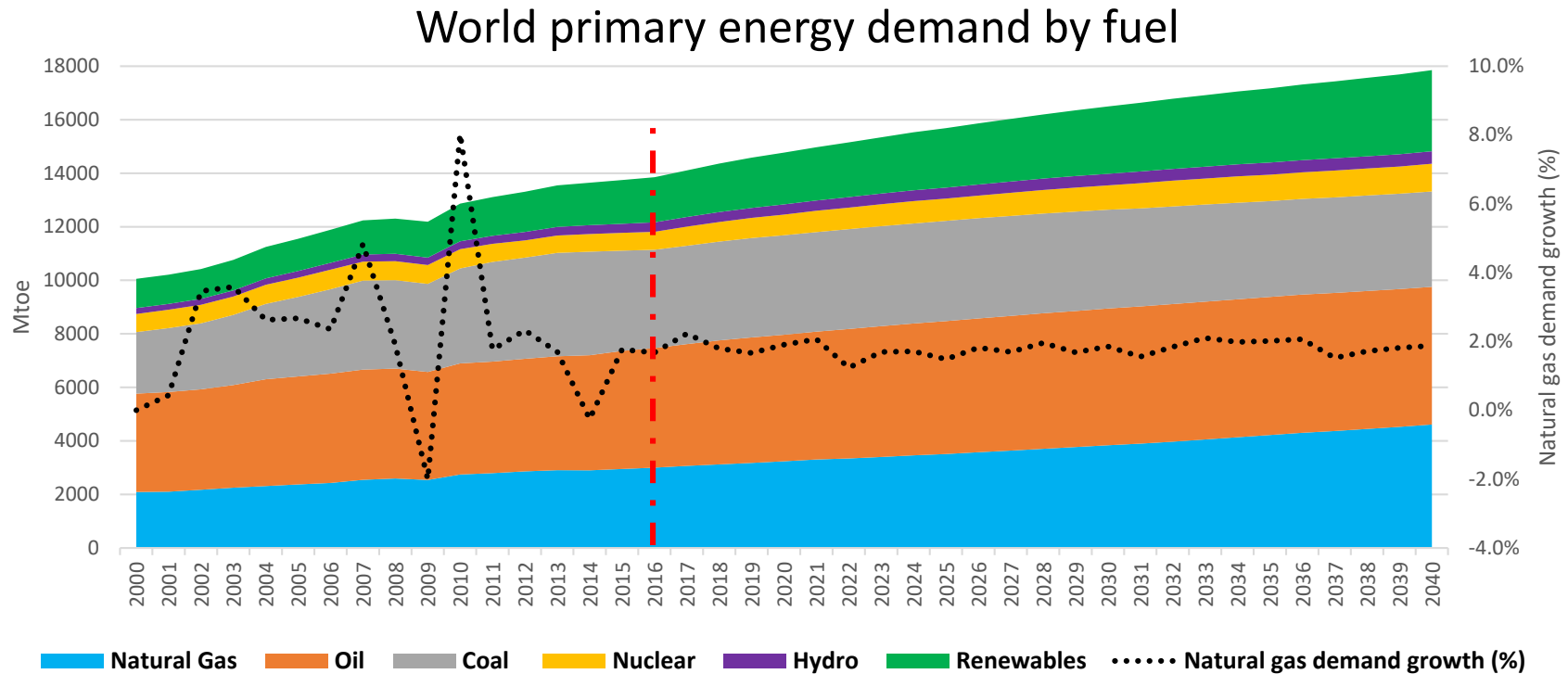


# Gas in Southeast Asia

**HE. Dr. Seyed Mohammad Hossein Adeli**  
**Secretary General**

**7TH ASIAN MINISTERIAL ENERGY ROUNDTABLE**  
**02/11/2017**

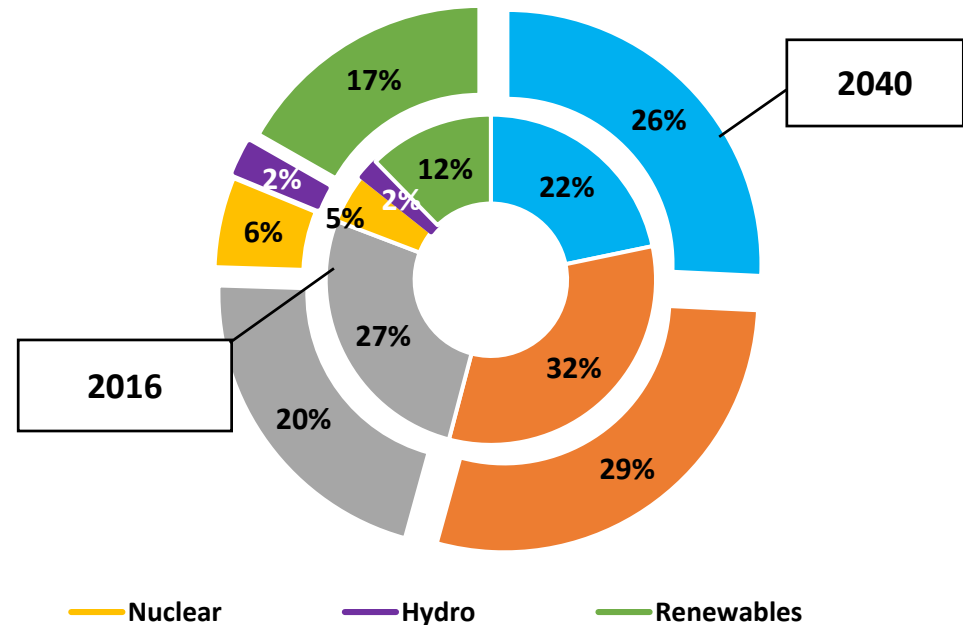
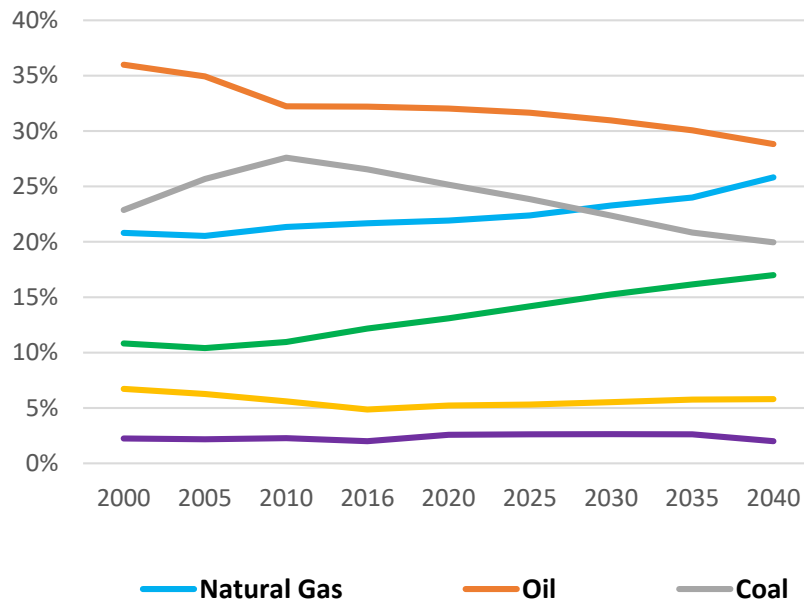
# Global energy demand rises 29% between 2017 and 2040



- World energy demand is projected to grow by 1.1 % per annum between 2017 and 2040, climbing from 13.8 Gtoe to almost 17.8 Gtoe.
- Main drivers are;
  - ✓ Increasing world's population in the next 24 years.
  - ✓ Global economy prosperity increases mainly due to the emerging economies.
  - ✓ World will experience higher living standards in the future.
- Natural gas by 1.8% growth per annum, will be the fastest growing fossil fuels in 2040.

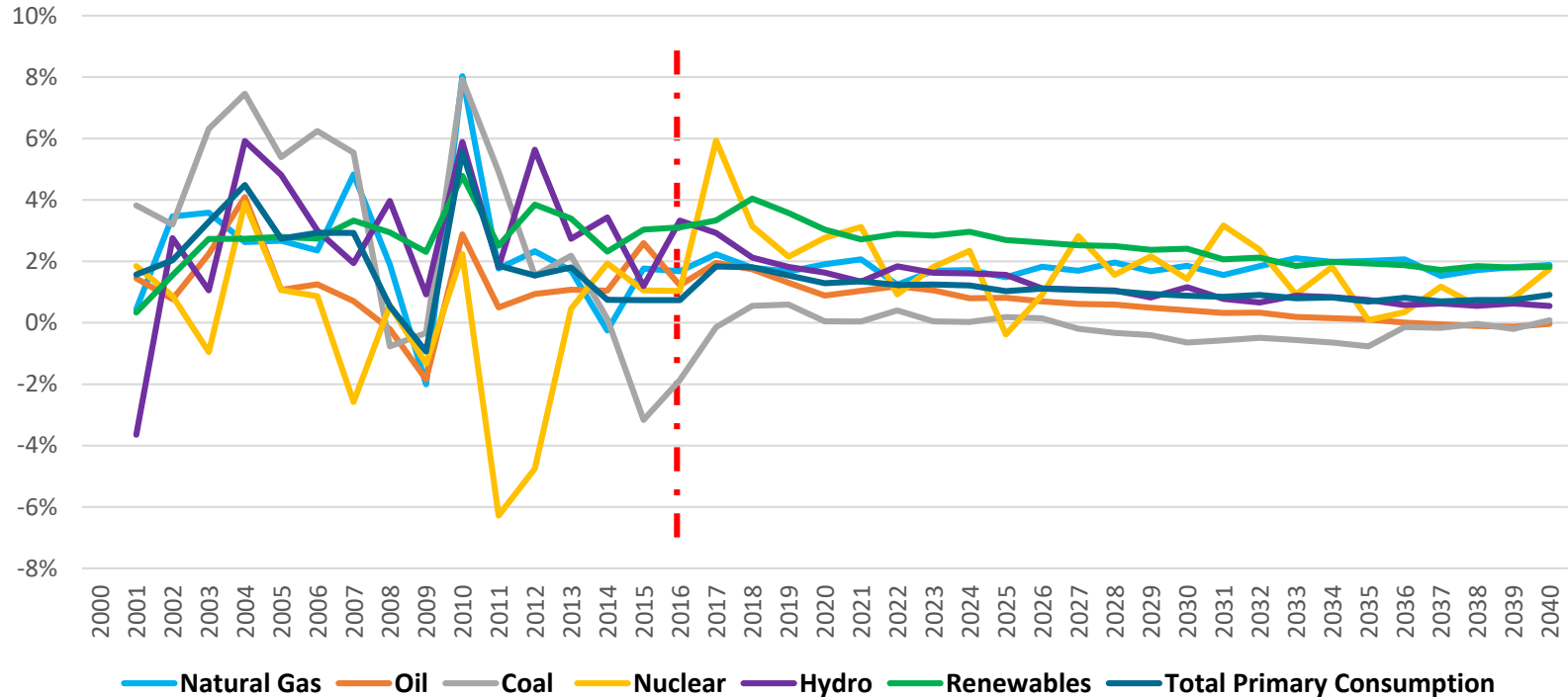
# Coal is the biggest loser in the global energy mix in 2040

## Global energy mix trends



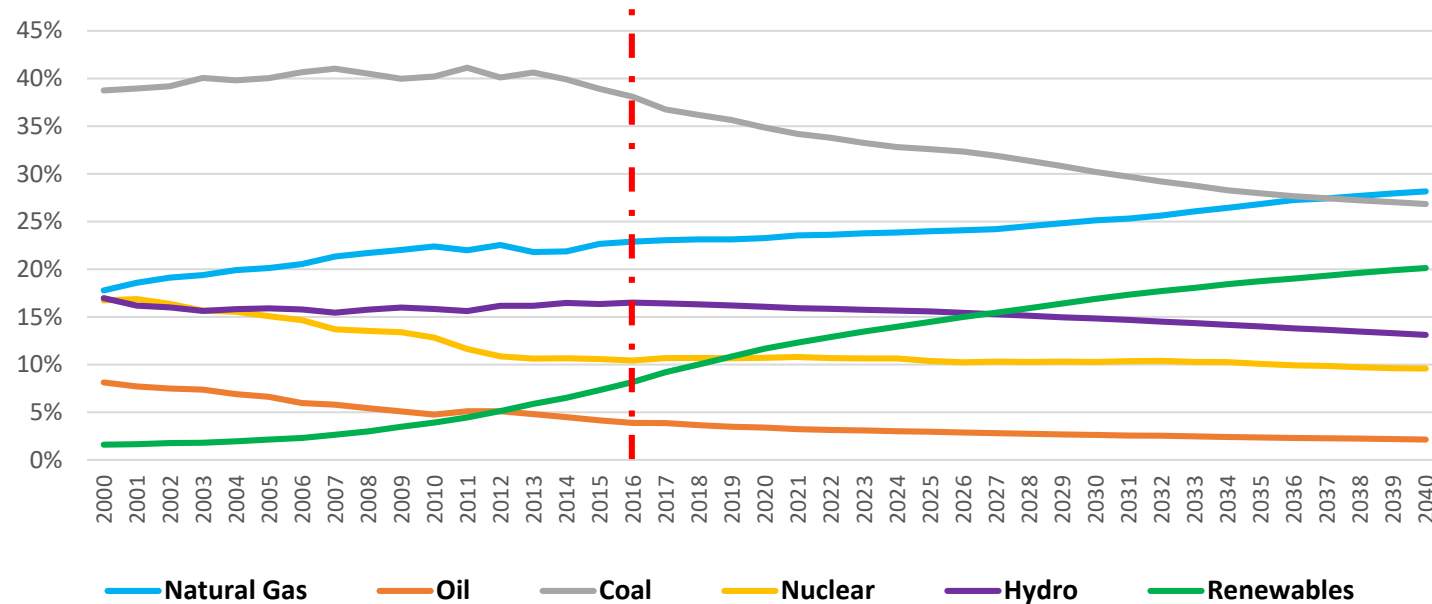
- Fossil fuels are expected to meet 75% of the world's energy demand.
- Coal is increasingly replaced by natural gas, renewables, and nuclear power in power generation.
- The share of gas in the overall energy mix will increase from 22% in 2016 to 26% in 2040:
  - ✓ Cheaper prices than renewables.
  - ✓ Ample global natural gas reserves and over supply.
  - ✓ Clean fuel – the impact of international and national policies e.g. COP 21.

# Global growth rate of fuels



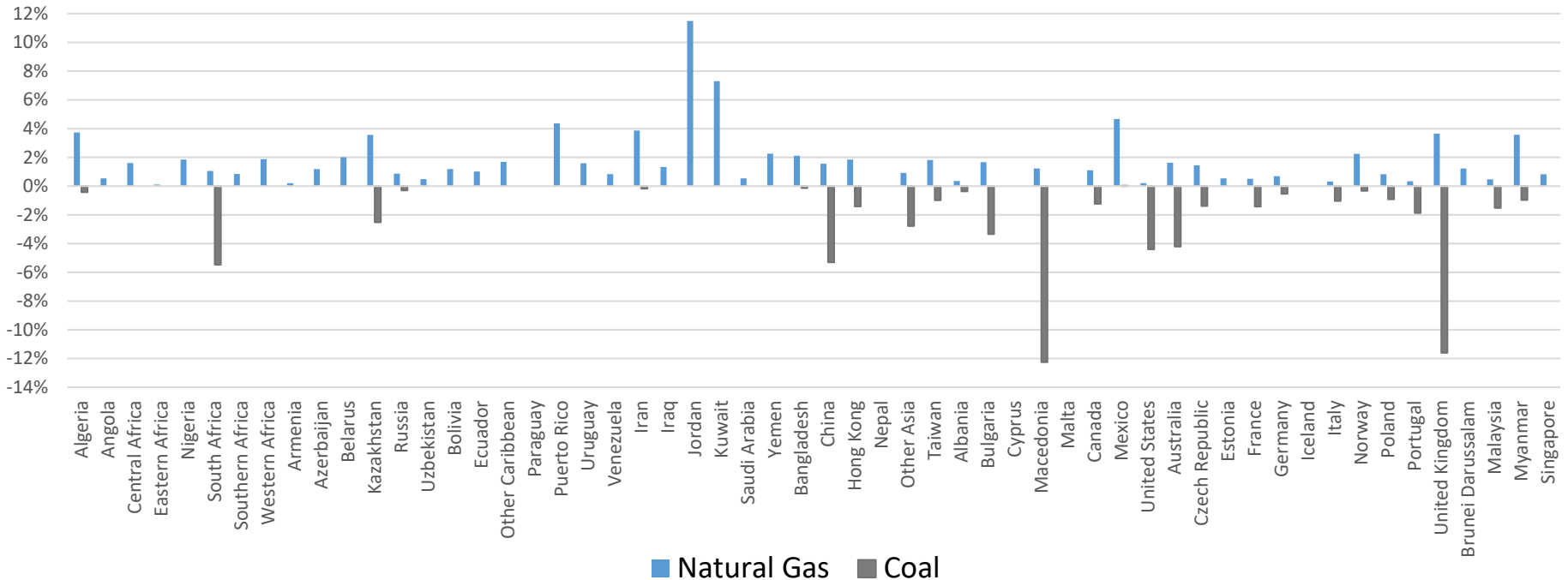
	2000-2016	2017-2040
Natural Gas	2.3%	1.8%
Oil	1.2%	0.6%
Coal	3.0%	-0.1%
Nuclear	0.0%	1.8%
Hydro	2.8%	1.2%
Renewables	2.8%	2.5%
Total Primary Energy Consumption	2.0%	1.1%

# Global share of primary energies in electricity generation



- The share of gas in the power generation sector increased from 18% to 23% between 2000 and 2016, and will continue to rise over the outlook period, reaching 28% in 2040. This represents the largest market share of any fuel.
- In 2016, the share of renewables in the global electricity mix was only 8%. However, renewables will be the fastest growing fuels for electricity generation in 2040, with the share of 20%.
- In 2040, the share of nuclear in the global electricity mix, remains stagnant at 10%.
- The share of hydro will drop from 17% in 2016 to 13% in 2040.

Between 2012 and 2016, in 56 countries and areas, the share of gas increased and the share of coal was stable or declined...



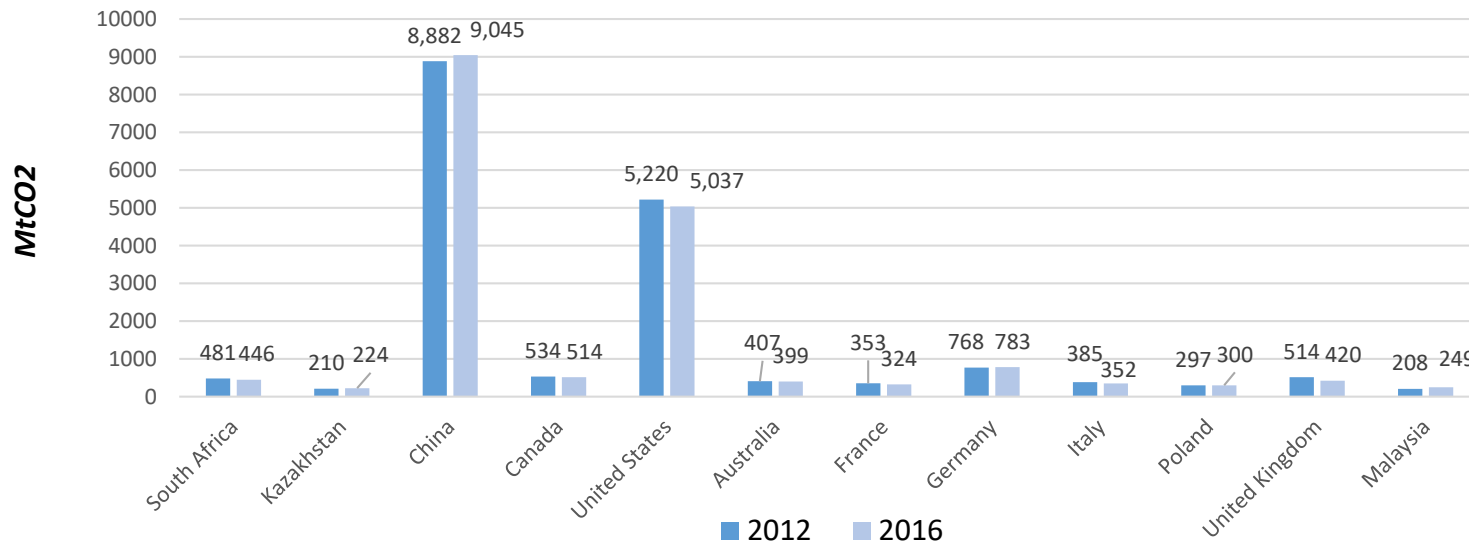
Between 2012 and 2016:

Global energy consumption: 68.1 Gtoe

Energy consumption of above 56 countries: 50.2 Gtoe, or 74% of the global consumption

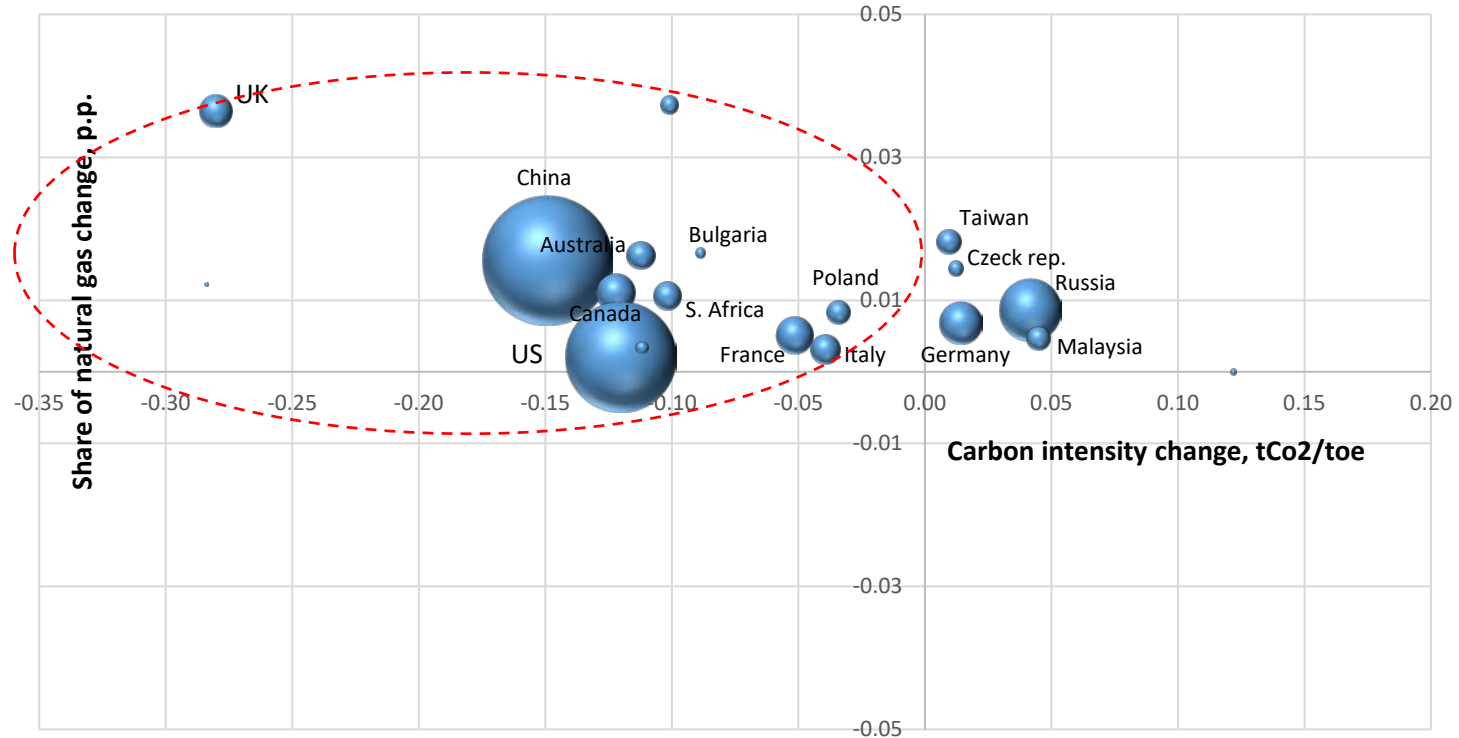
- Natural gas is far from zero-carbon, but reduces CO2 emissions because it mostly displaces high-carbon coal.
- Asian gas demand grew due to its flexibility and government policies, such as climate change.
- EU's gas demand recovered, as the retirements of coal and nuclear power plant.

# ...In many of these selected countries, CO2 emissions have been slowing down, or even declining...



- Between 2012 and 2016, many countries with increasing natural gas share, have seen their emissions declined (Ex: United States (-4%), Italy (-9%), France (-8), UK (-18%), or stabilized (ex. South Korea, and Mexico).
- China has increased their CO2 emissions, but the average growth rate of its emissions decreased significantly compared to previous period, marking an important slowdown (For China emissions, Average Annual Growth Rate 2008-2012: 7.6% Vs. AAGR 2012-2016: 0.5%).
- Natural gas penetration against carbon intensive fuels is a main contributor to the recent CO2 emissions slowdown and reduction of carbon intensity.
- In 2016, coal-to-gas switching in the US power sectors, accounting for 33% of the emissions reduction, while wind generation was responsible for only 19% of the emissions reduction.

# Indeed, many of the countries increasing natural gas and decreasing coal shares have achieved decrease in their carbon intensity



Bubble size: Share in global energy consumption

Source: GECF GGM database

- Our analysis of the selected countries showed that large part of these countries including big consumers of Energy have reduced their carbon intensity, mainly by increasing the role of natural gas against coal between 2012 and 2016.



# Southeast Asia

## Population:

2016: 632 million (Urban population: 150 million)

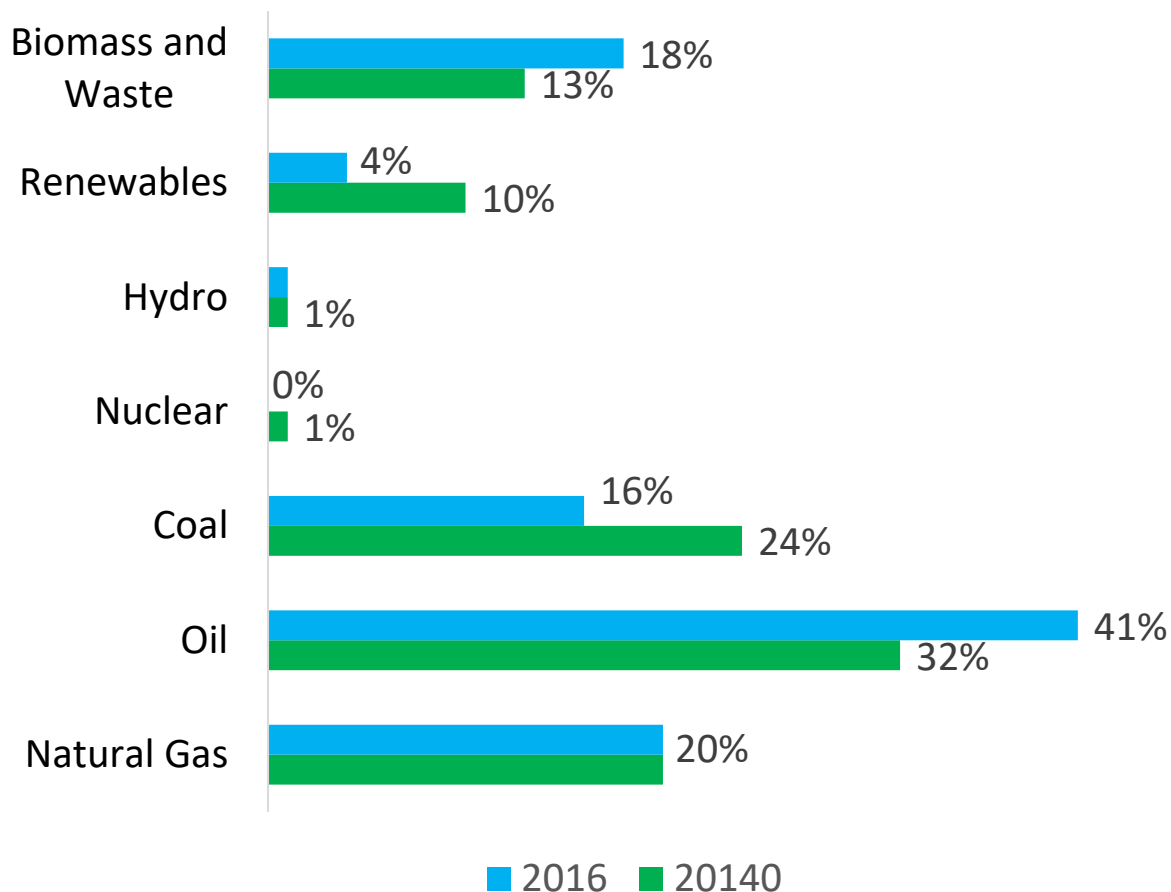
2040: 736 million

## In 2016, 65 million people remain without electricity:

- 41% of the Myanmar
- 40% of the Cambodia
- 10% of Philippines



# Southeast Asia primary energy demand in 2016 and 2040



**Total primary energy demand will increase by 75% over the outlook period:**

- 2016: 736 Mtoe
- 2040: 1289 Mtoe
- 2.4% growth rate per annum

# Southeast Asia energy demand and production in 2016 and 2040 by fuel type

Energy demand (Mtoe)	2016	2040
Natural Gas	143	244
Oil	173	285
Coal	117	309
Renewables	32	131
Hydro	10	15
Biomass	133	161

Energy supply (Mtoe)	2016	2040
Natural Gas	194	234
Oil	132	59
Coal	292	294
Renewables	32	131
Hydro	10	15
Biomass	134	161
Nuclear	0	17

**The region becomes the net energy importer in 2040**

Energy demand (Mtoe)	2016 Export	2040 Import
Natural Gas	51	10
Oil	159	352
Coal	172	15

# Concluding Remarks

- The most important factor determining the course of events in the region is affordability
- Competitiveness is highly important
- Gas should compete with Coal in the first place
- Infrastructure is a challenge
- Gas will help the clean environment for Asia and could support the renewables.
- Security of energy should not be comprised as energy remains the main fuel for development

Thank you for your kind  
attention!