



Natural Gas is the Fuel of Choice for the 21st Century: GECF Global Gas Outlook Insights for East Asia and Asian Gas Hubs

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The 1st East Asia Energy Forum (EAEF)

How to supply and use fossil fuel?

Session 3. Gas : Keynote speech

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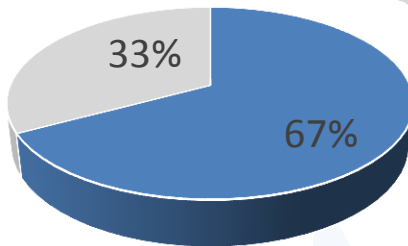
We are the Gas Exporting Countries Forum (GECF)

GECF: the Reliable source of supply for the reliable source of energy - Natural Gas

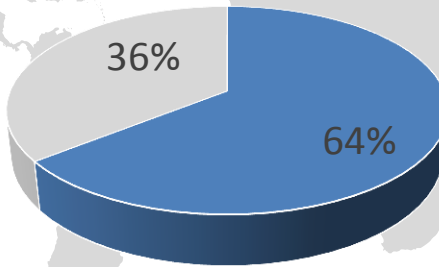
RELIABLE SOURCE OF ENERGY

-  Algeria
-  Bolivia
-  Egypt
-  Equatorial Guinea
-  Iran
-  Libya
-  Nigeria
-  Qatar
-  Russia
-  Trinidad and Tobago
-  United Arab Emirates
-  Venezuela

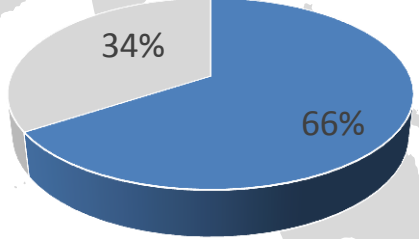
Gas Reserves



Pipeline Trade



LNG Trade

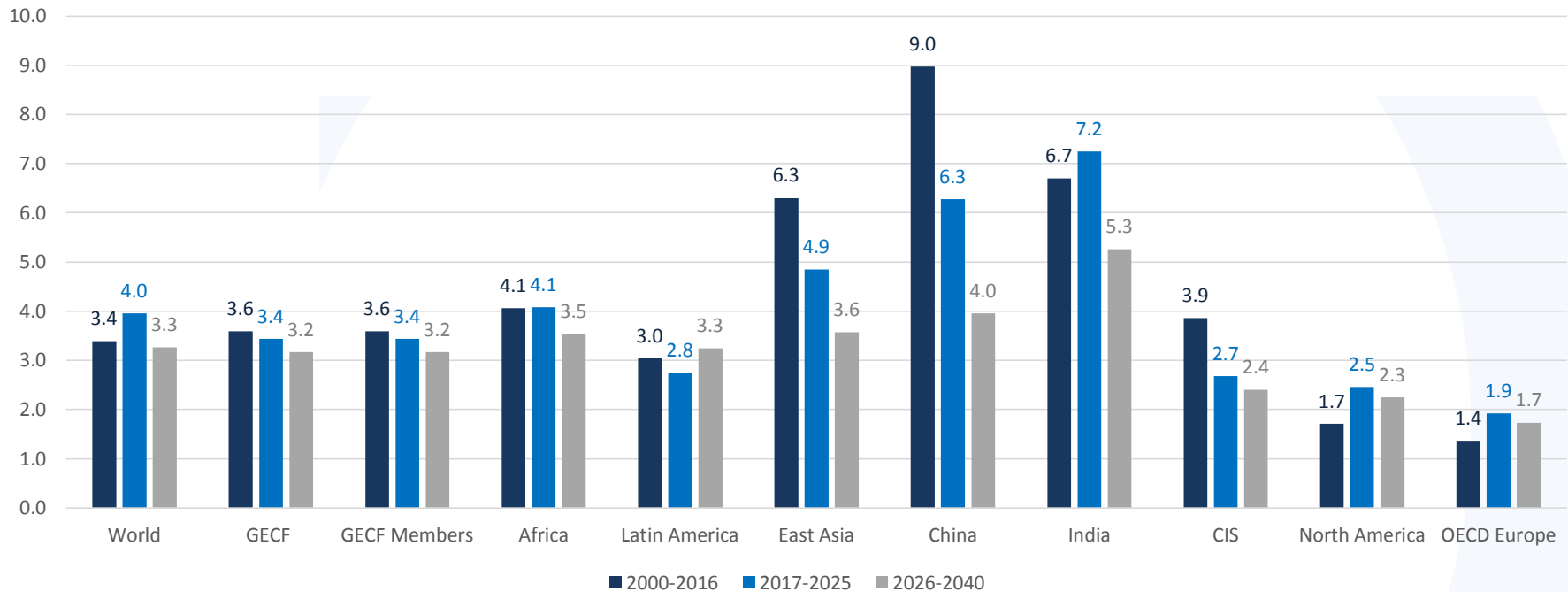


■ Total GECF* ■ Rest of World

Observers (7):

-  Azerbaijan
-  Iraq
-  Kazakhstan
-  The Netherlands
-  Norway
-  Oman
-  Peru

Global economic long-term outlook



Source: GECF Secretariat based on the data from GECF GGM

- Global GDP growth is to accelerate between 2017 and 2020, at 3.5% per year, but starts to slow down after 2025 as developing Asia, including China and India, slow to a more sustainable long-term rate.

East Asia long-term outlook

	Historical			Forecast					
	2000	2015	Rate 2000-2015	2020	2025	2030	2035	2040	Rate 2016-2040
Real GDP growth, %	5.8	5.1	6.3	4.7	4.5	3.8	3.3	3.2	3.9
GDP PPP per capita, 2016 USD	7477	16584	5.5	19811	24575	29640	34842	40755	3.7
Population, mn	2048	2303	0.8	2355	2402	2432	2449	2454	0.3
Urbanization rate, %	40.8	56.6	15.9	60.9	64.5	67.3	69.5	71.1	14.5
Car fleet, mn	137.9	375.4	6.9	464.7	564.6	649.6	722.7	777.6	3.0
Number of households, mn	572.7	759.8	1.9	797.7	842.3	884.2	923.6	959.1	0.9

Source: GECF Secretariat based on the data from GECF GGM

- The main medium-term risks for East Asian economies are rapid expansion of private credit, currency rate turbulence and overdependence on growth of a single large economy
- Motorisation rate in East Asia has almost tripled since 2000, but at 0.16 cars per capita still stays at global average. GECF expects it to grow 100% up to 2040 to significantly exceed global average

Global energy demand to 2040: key figures

30%

Primary energy demand is set to increase by 30% between 2015 and 2040

1%

Over the next 25 years, primary energy demand grows by 1% per annum showing an increase of 3.9 Gtoe from 13.8 in 2015 to 17.7 Gtoe by 2040

50%

Gas demand will rise by 50% over the outlook period, increases from almost 3500 bcm in 2015 to over 5200 bcm by 2040

25%

Gas demand grows by 1.6% per year, stronger than growth in primary energy demand. Then gas share in primary energy mix increases from over 21% today to 25% in 2040

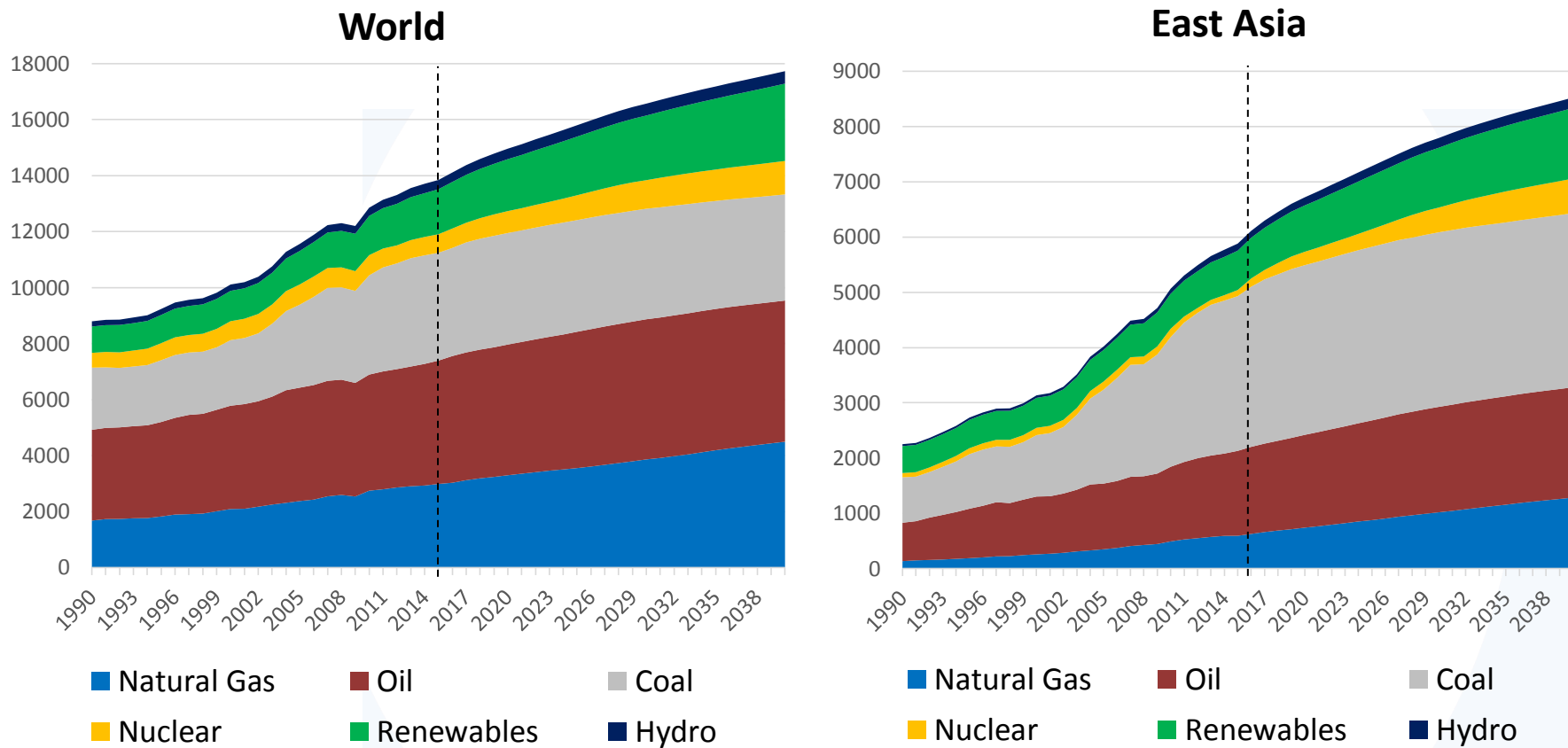
2.2%

Gas for power sector will grow by 2.2% over the outlook period, make power sector the main source of additional gas demand

16%

Non-hydro renewables are also growing strongly over the outlook period, their share rises from 12% today to 16% in 2040, still well below of that for gas (25%)

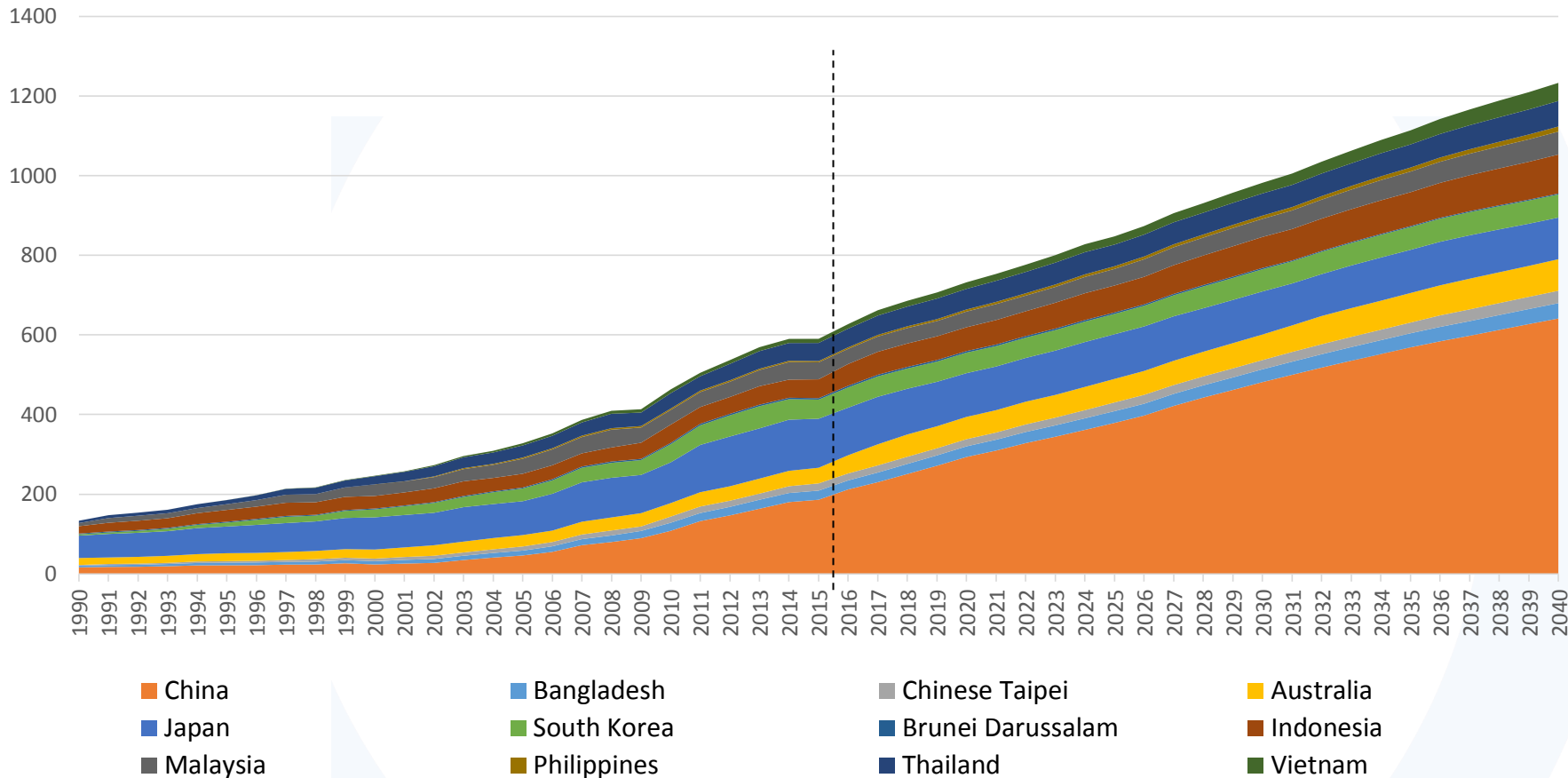
Primary energy demand by fuel (Mtoe)



Source: GECF Secretariat based on the data from GECF GGM

- World energy consumption is projected to grow by 1% per annum, climbing from 13.8 Gtoe to 17.7 Gtoe (almost 30% increase).
 - Natural gas will be the largest contributor to the increase in total primary energy consumption, with a share of almost 40%.
- In East Asia energy consumption will increase sharply from 5.8 Gtoe in 2015, to 8.5 Gtoe by 2040.
 - The share of gas will be doubled from 592 Bcm in 2015, to 1284 Bcm in 2040.

East Asia gas demand by selected countries (Bcm)

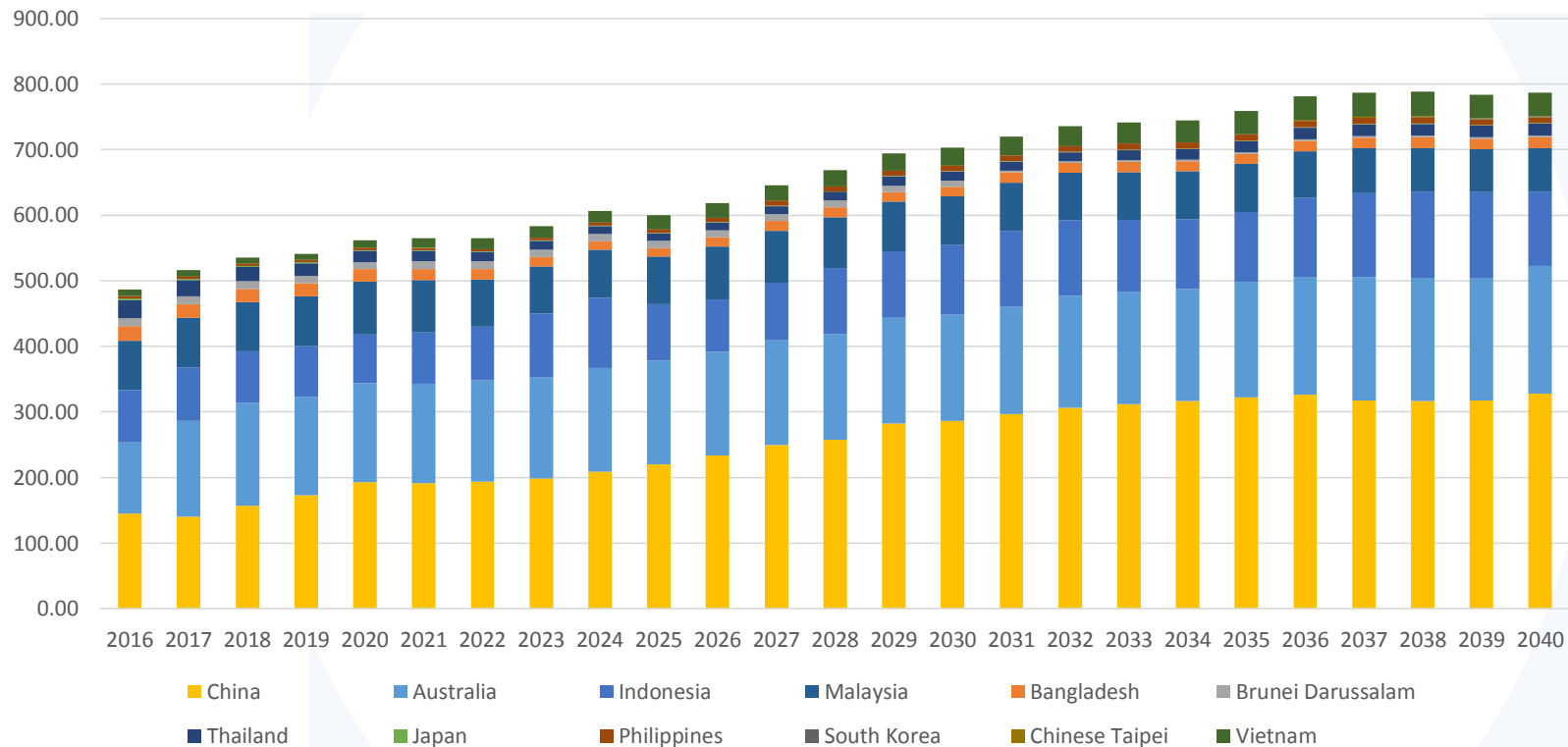


Source: GECF Secretariat based on the data from GECF GGM

- Natural gas demand in East Asia is projected to increase dramatically over the forecast period.
- China has the strong growth of the gas consumption from 190 Bcm in 2015, to 640 Bcm in 2040.
- Over the projection period the use of gas in Australia will go up from 39 Bcm in 2015 to 80 Bcm by 2040.

East Asia production

Outlook of East Asia natural gas production (Bcm)

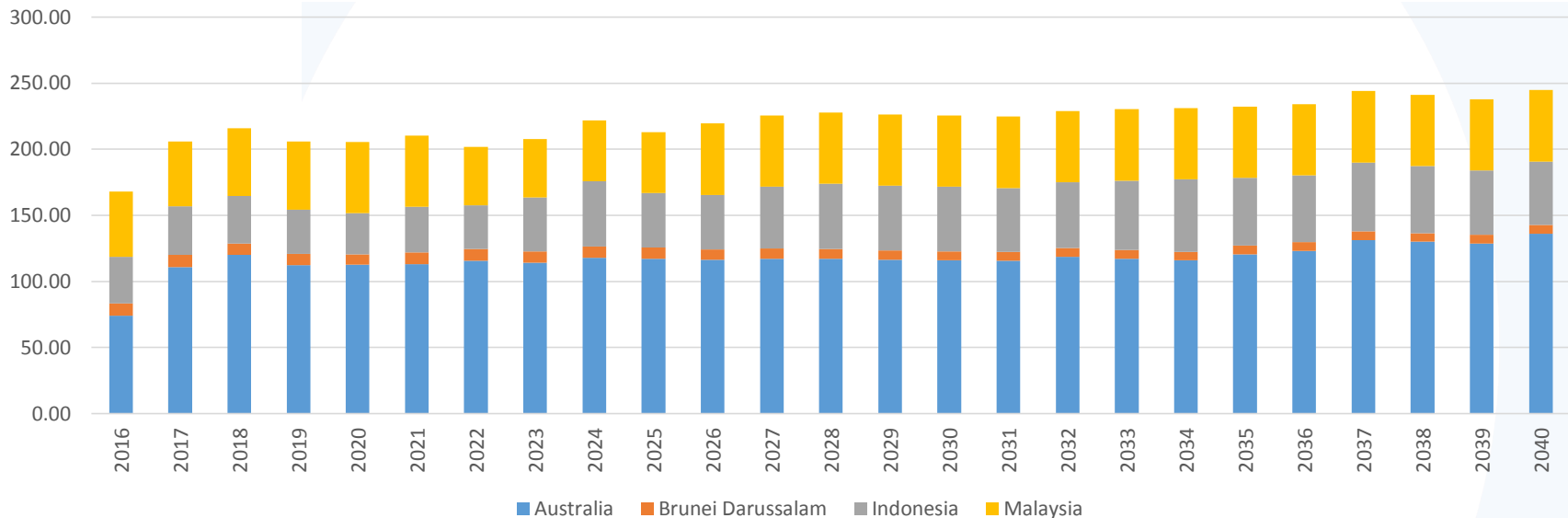


Source: GECF Secretariat based on the data from GECF GGM

- China's gas production is anticipated to increase to more than 300 bcm over the forecast period
- Australia, Indonesia and Malaysia are the other gas producers in the region by the end of forecast period

LNG trade outlook in East Asia

LNG Export flow from East Asia (Bcm)

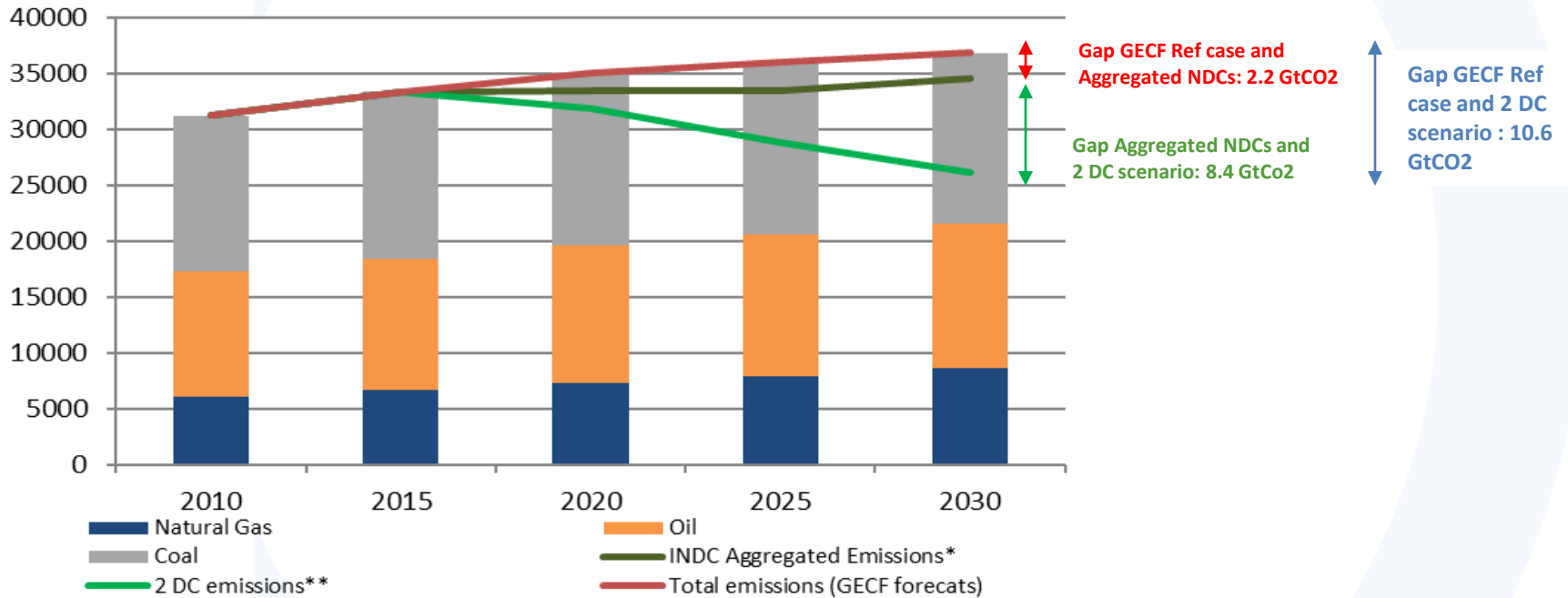


Source: GECF Secretariat based on the data from GECF GGM

- LNG export in the region will be dominated by Australia thanks to the huge capacities under construction that are anticipated to come on stream in medium-term
- After 2020 no more expansion in Australia's liquefaction capacity is anticipated
- Total capacity of the liquefaction in East Asia will fluctuate around 220bcm/y (162MTPA) over the period of forecast

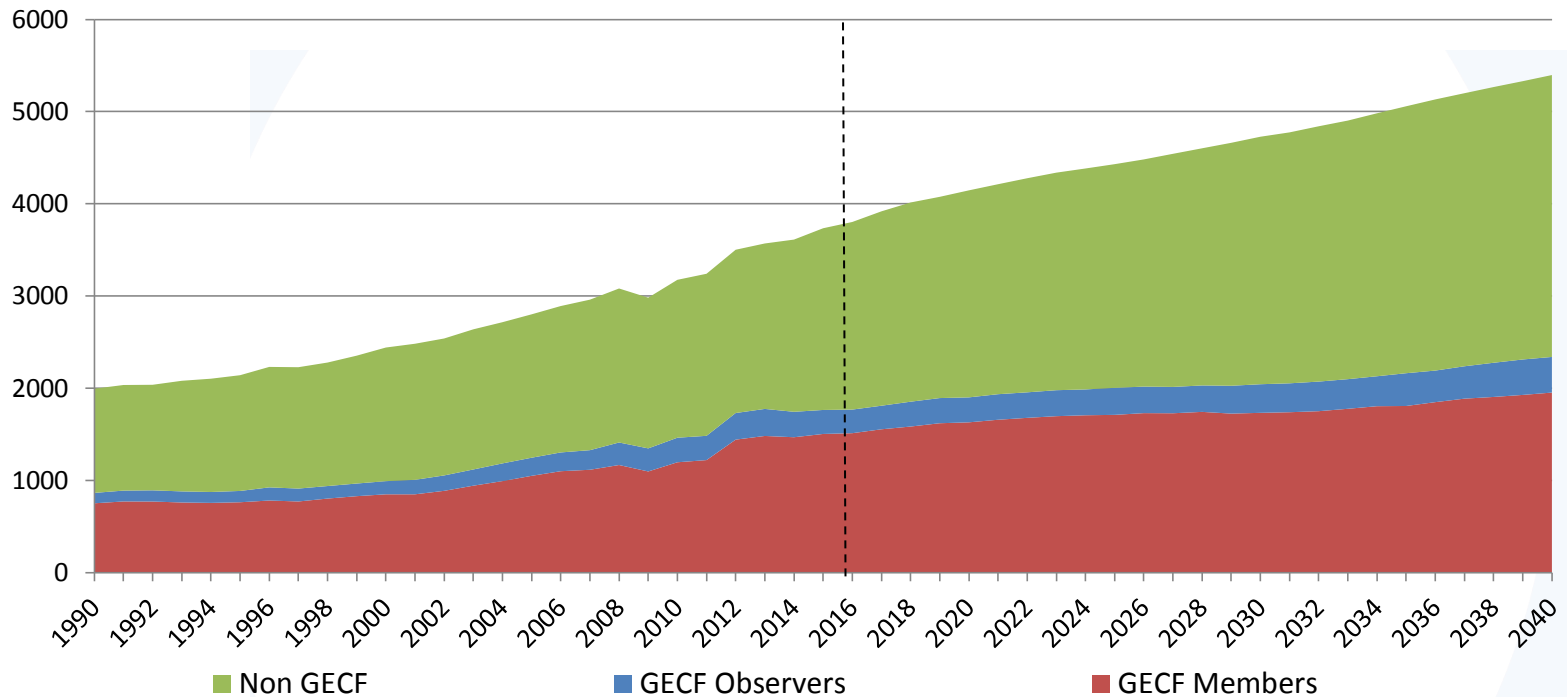
Post Paris Agreement policies will contribute in slowing down CO₂ emissions, but large efforts are needed, beyond the NDCs commitments

Energy related CO₂ emissions by fossil fuels for GECF Reference case (MtCO₂)



- Energy related CO₂ emissions expected to grow slowly to reach 36.8 GtCO₂ by 2030 (2.2 GtCO₂ more than emissions estimated from aggregated NDCs, and around 10.6 GtCo₂ more than emissions estimated to be consistent with Paris Agreement target).
- To achieve Paris Agreement target, efforts beyond NDCs is required.
- Around 35% of CO₂ emissions in GECF forecasts by 2030 are expected to come from coal.

Global gas production by GECF and non-GECF countries (Bcm)



Source: GECF Secretariat based on the data from GECF GGM

- GECF Members' gas output is expected to rise to around 1,630 bcm in 2020 (39% of the world total), to over 1,700 bcm (37%) in 2030, and to almost 2,000 bcm (39%) in 2040.
- The share of the GECF member countries in global marketed gas production is expected to remain relatively stable at an average of 38% during the outlook period, while the historical average starting from 1990 was about 37%.

Asian Gas Hub(s) – when?

Main questions:

- Will it be the growth in liquidity sustainable in long-term?
- Pricing benchmark suitable for all players (including producers) in the region?

Candidates for Asian Gas Hub/pricing benchmark so far:

China: Shanghai Petroleum and Natural Gas Exchange (SHPGX)
Chongqing Petroleum and Gas Exchange

Japan: Japan Over the Counter Exchange (JOE) (Subsidiary of Tokyo Commodity Exchange (TOCOM))

Singapore: Singapore Exchange (SGX) (SLING platform)

Korea: (liberalization of domestic natural gas?) Samcheok region, Incheon region

Conclusions

- Natural gas is the fuel of choice especially in East Asia because it is less capital-intensive than renewables and cleaner than coal.
- Cautious about the important role of natural gas for socio-economic benefits of the societies and for sustainable energy transition, GECF is determined to continue to be a key player in supplying reliably natural gas known as a triple "A" asset, to the market in East Asia over the next decades (with or without Asian Gas Hub(s)).
- The role of natural gas in the battle with greenhouse gas emissions gains momentum especially after the ratification of the COP21 agreement.



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Thank you very much for your kind attention

More information: www.gecf.org

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