

United Nations Conference on Trade and Development

**8th GLOBAL COMMODITIES FORUM**

**23-24 April 2018, Geneva**

**NATURAL GAS IN EAST ASIA'S ENERGY TRANSITION**

By

Xunpeng (Roc) SHI

Principal research fellow, ACRI, UTS

Senior fellow, energy studies institute, National Univ of Singapore

Professor, Hubei University of Economics (China)

The views expressed are those of the author and do not necessarily reflect  
the views of UNCTAD.

8th Global Commodities Forum, 23-24 April 2018, **Palais des Nations**, Geneva

# NATURAL GAS IN EAST ASIA'S ENERGY TRANSITION

**Xunpeng (Roc) SHI**

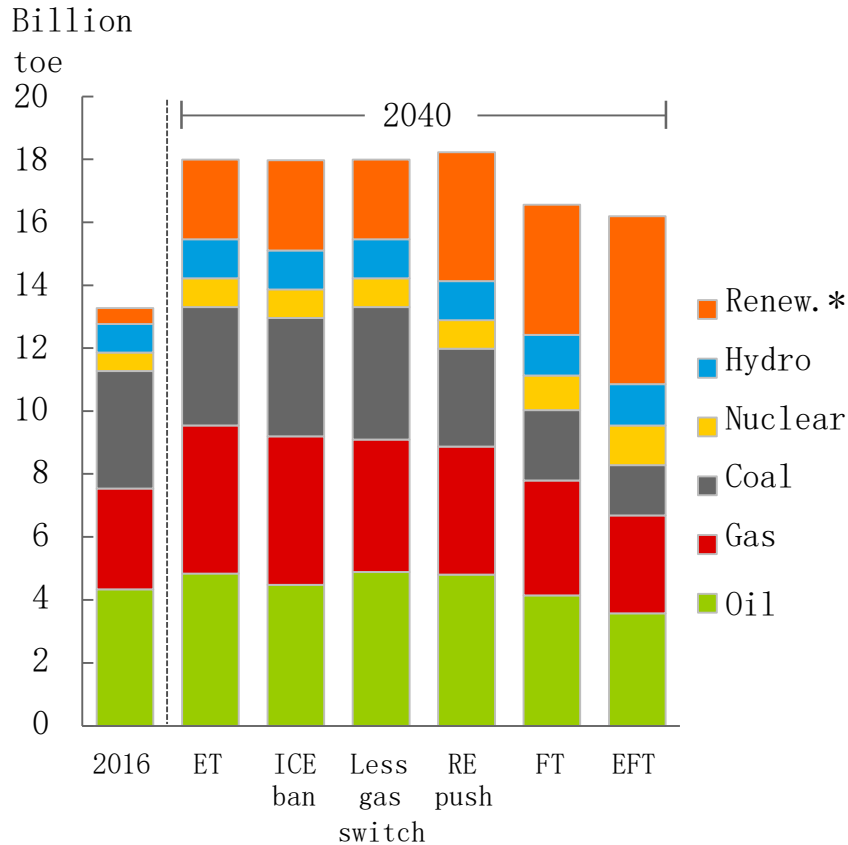
Principal research fellow, ACRI, UTS

Senior fellow, energy studies institute, National Univ of Singapore

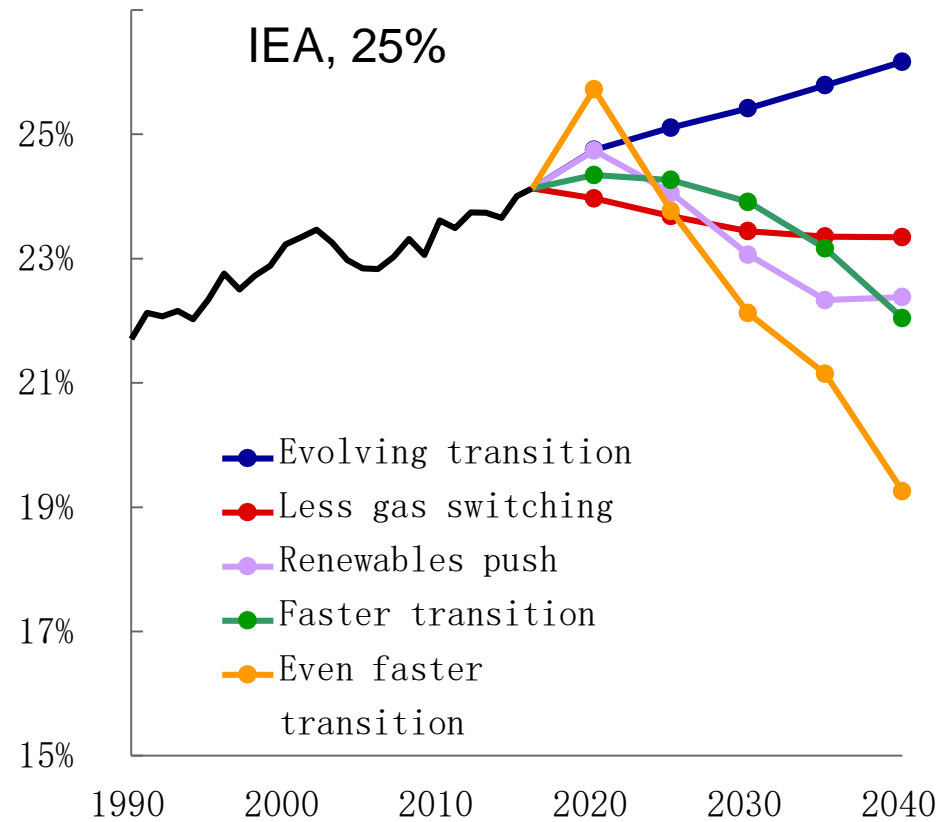
Professor, Hubei University of Economics (China)

# NATURAL GAS CONSUMPTION ON RISE

Primary energy consumption by fuel



Gas share of primary energy 1990-2040

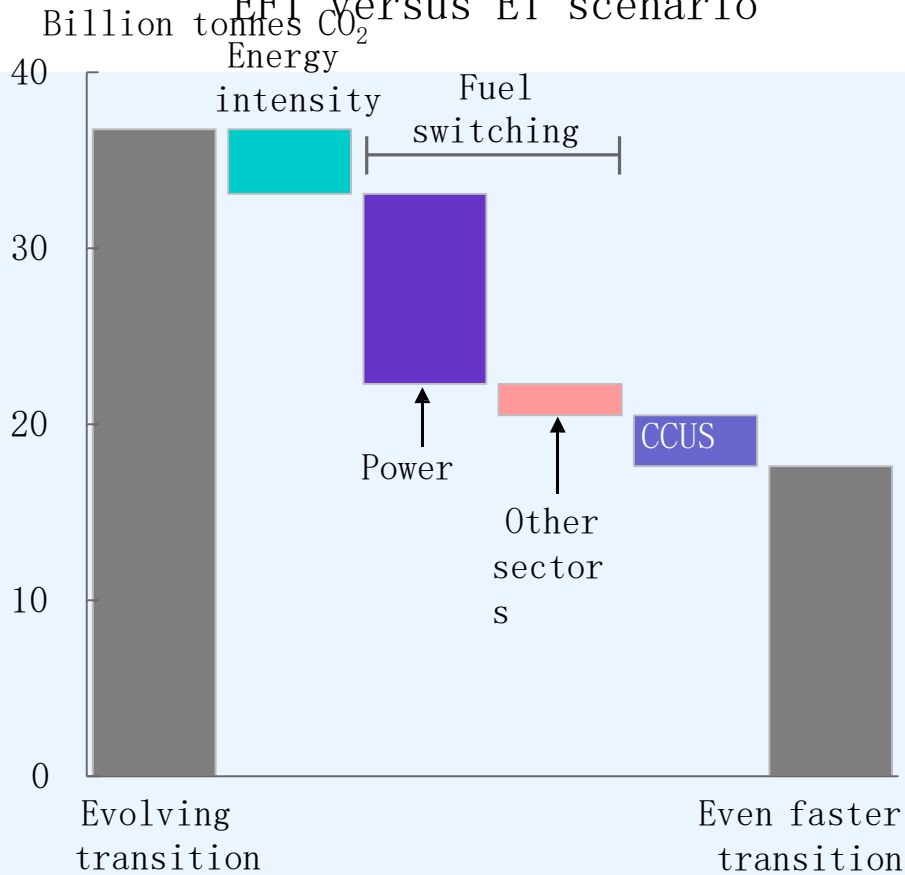


\*Renewables includes wind, solar, geothermal, biomass, and biofuels

# FOSSIL FUELS IN ENERGY TRANSITION

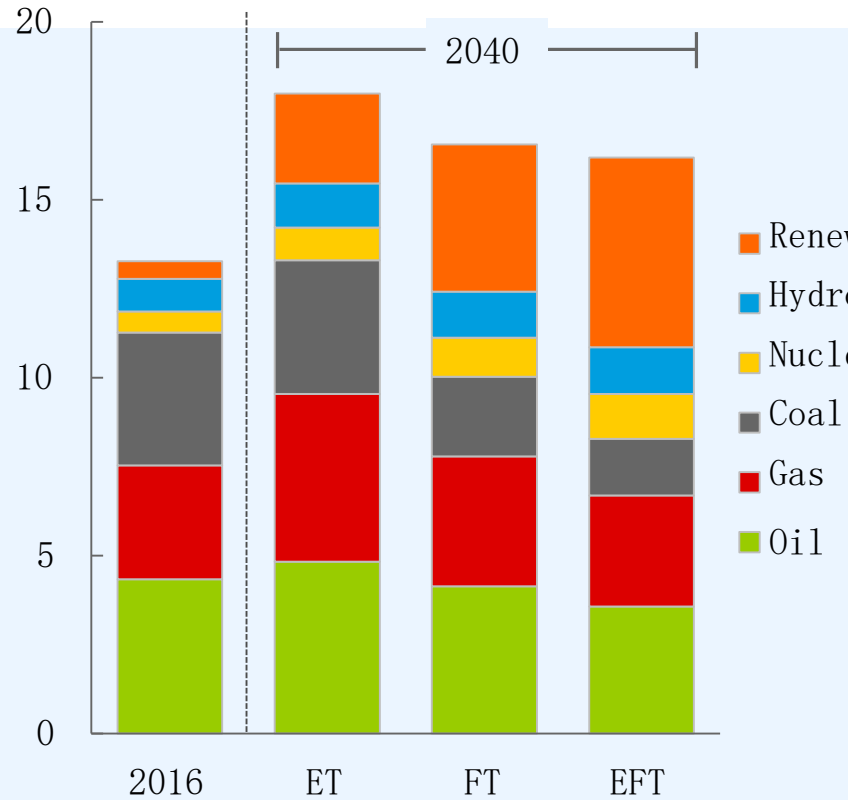
Carbon emissions in 2040:

EFT versus ET scenario



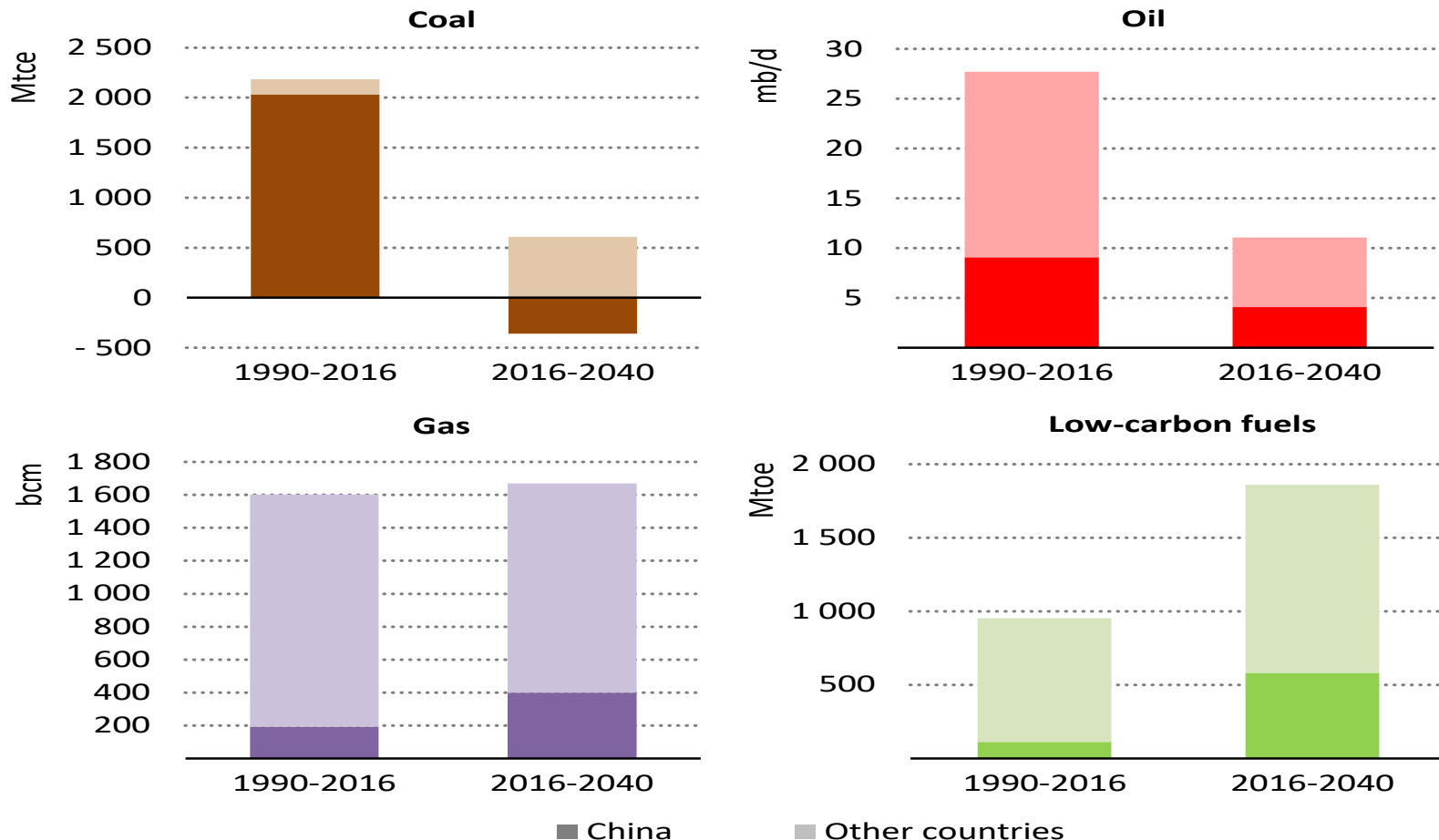
Primary energy consumption by fuel

Billion toe



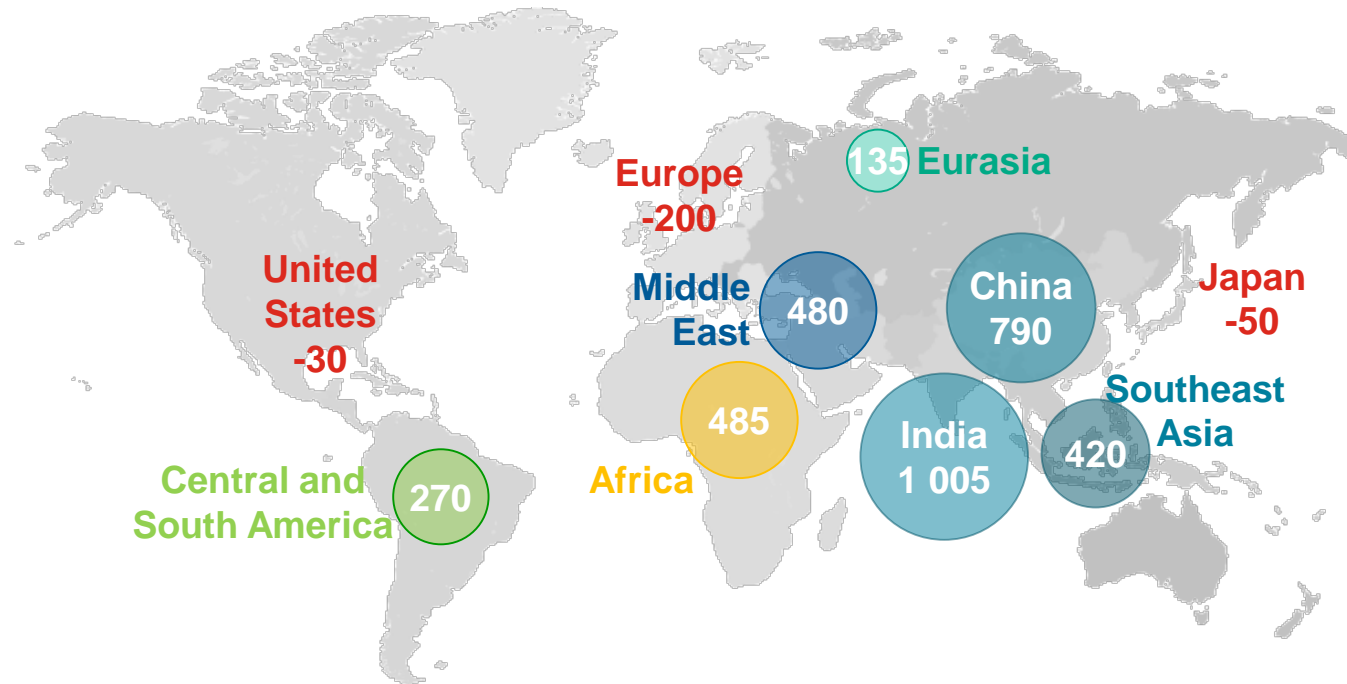
# NATURAL GAS AGAINST THE TREND OF COAL AND OIL

Change in world primary energy demand by fuel in the New Policies Scenario



# SHIFT OF GLOBAL ENERGY GRAVITY TO EAST ASIA

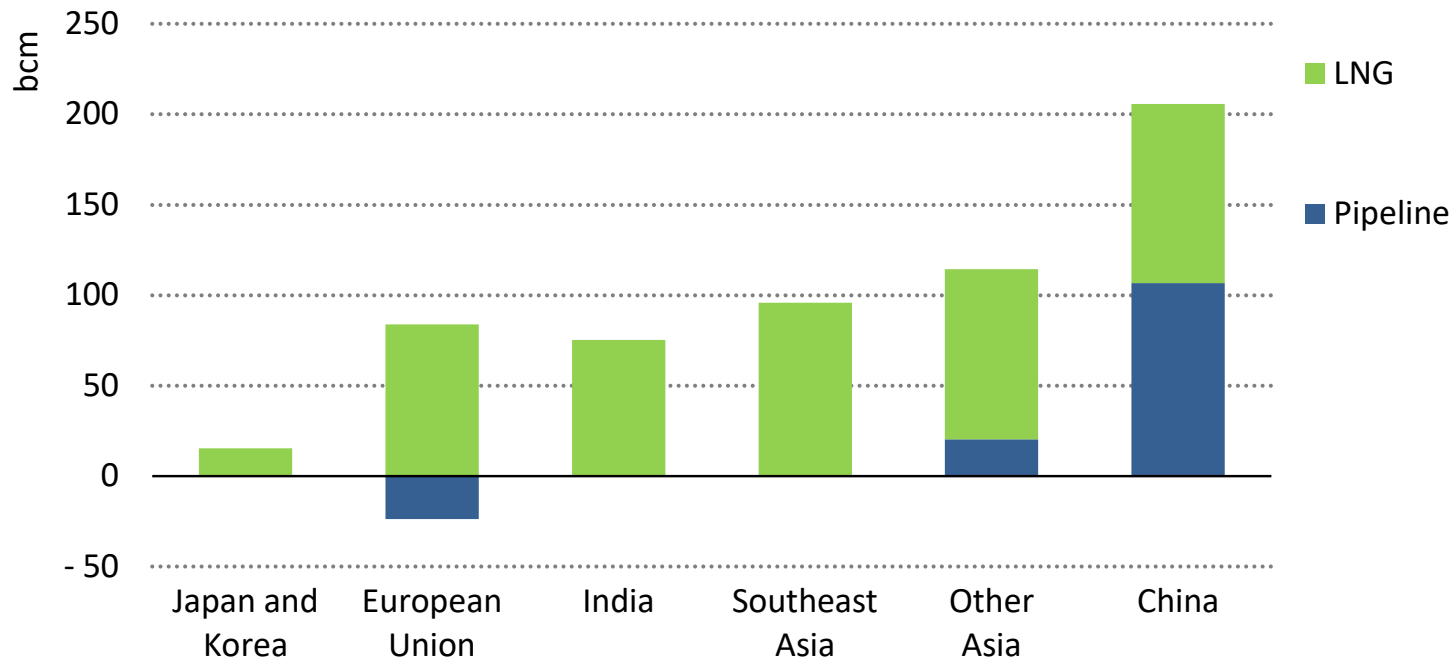
Change in energy demand, 2016-40 (Mtoe)



*the Middle East is fast becoming a major energy consumer & the United States a major exporter*

# EAST ASIA AND LNG DOMINATE FUTURE GAS TRADE

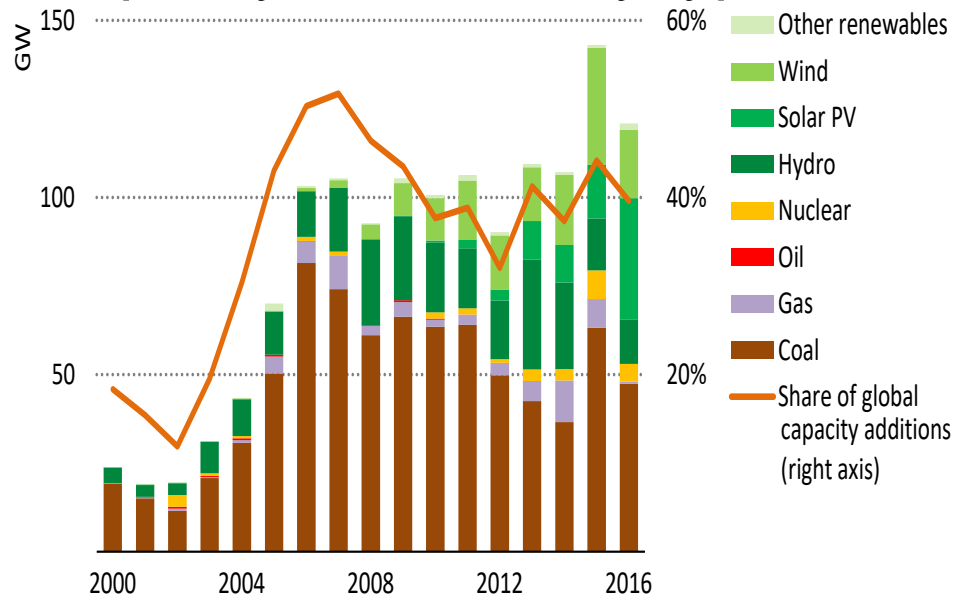
Change in gas imports by selected region and mode  
in the New Policies Scenario, 2016-2040



***Asia leads the growth in global gas trade; outside China, new pipeline trade routes find it hard to advance in a market with LNG readily and flexibly available***

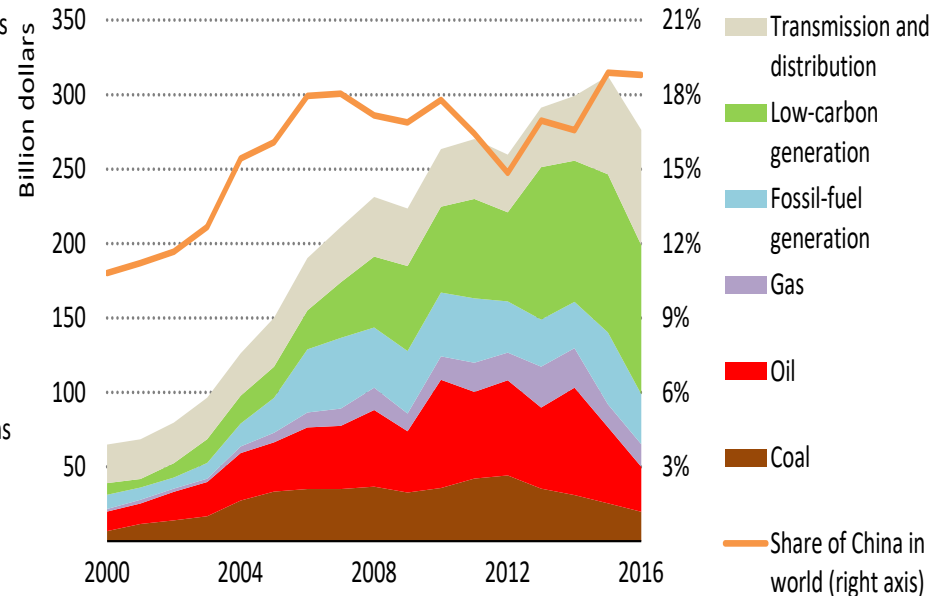
# RAPID ENERGY TRANSITION IN CHINA

## Annual power generation capacity additions by type



**Since 2013, the majority of capacity additions to China's power system have come from wind, solar PV, hydropower and nuclear**

## Energy supply investments

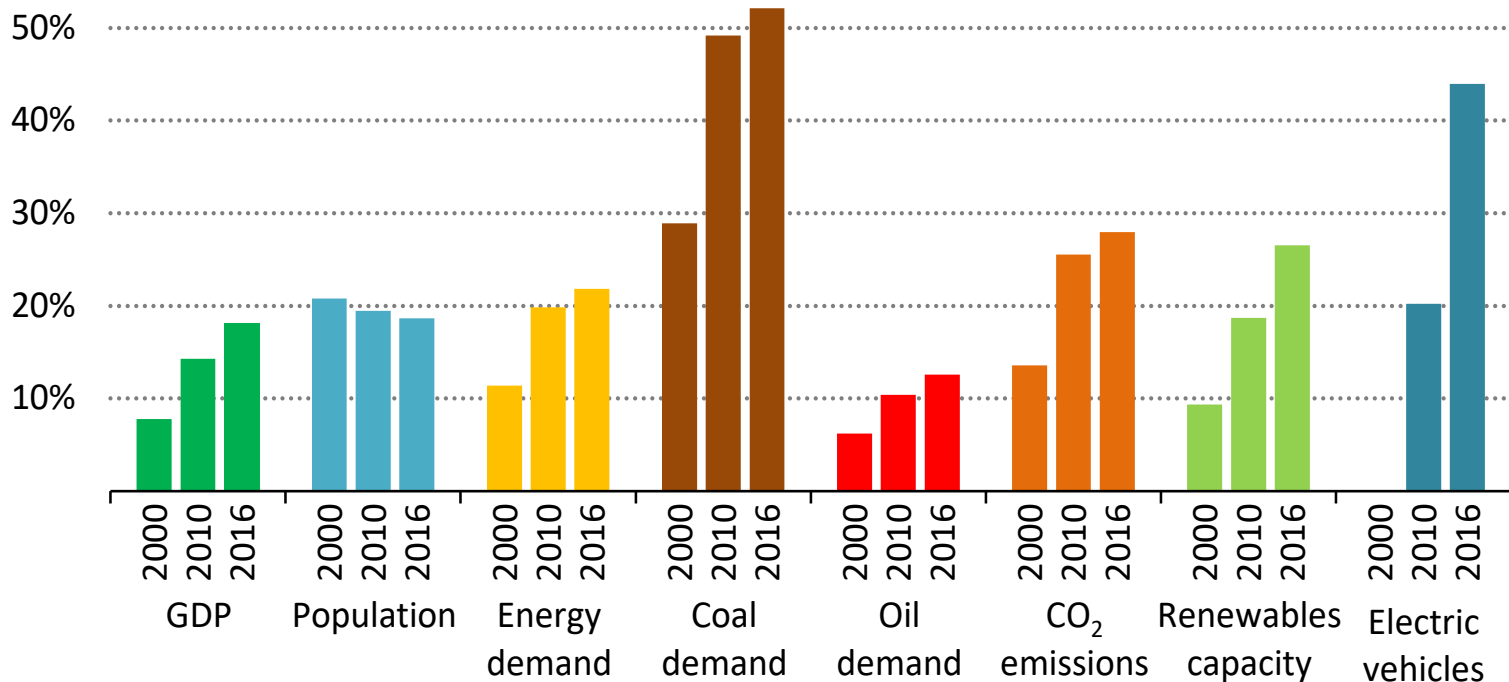


**Low-carbon electricity supply and networks are driving energy investment in China**



# ENERGY TRANSITION: CHINA CASE

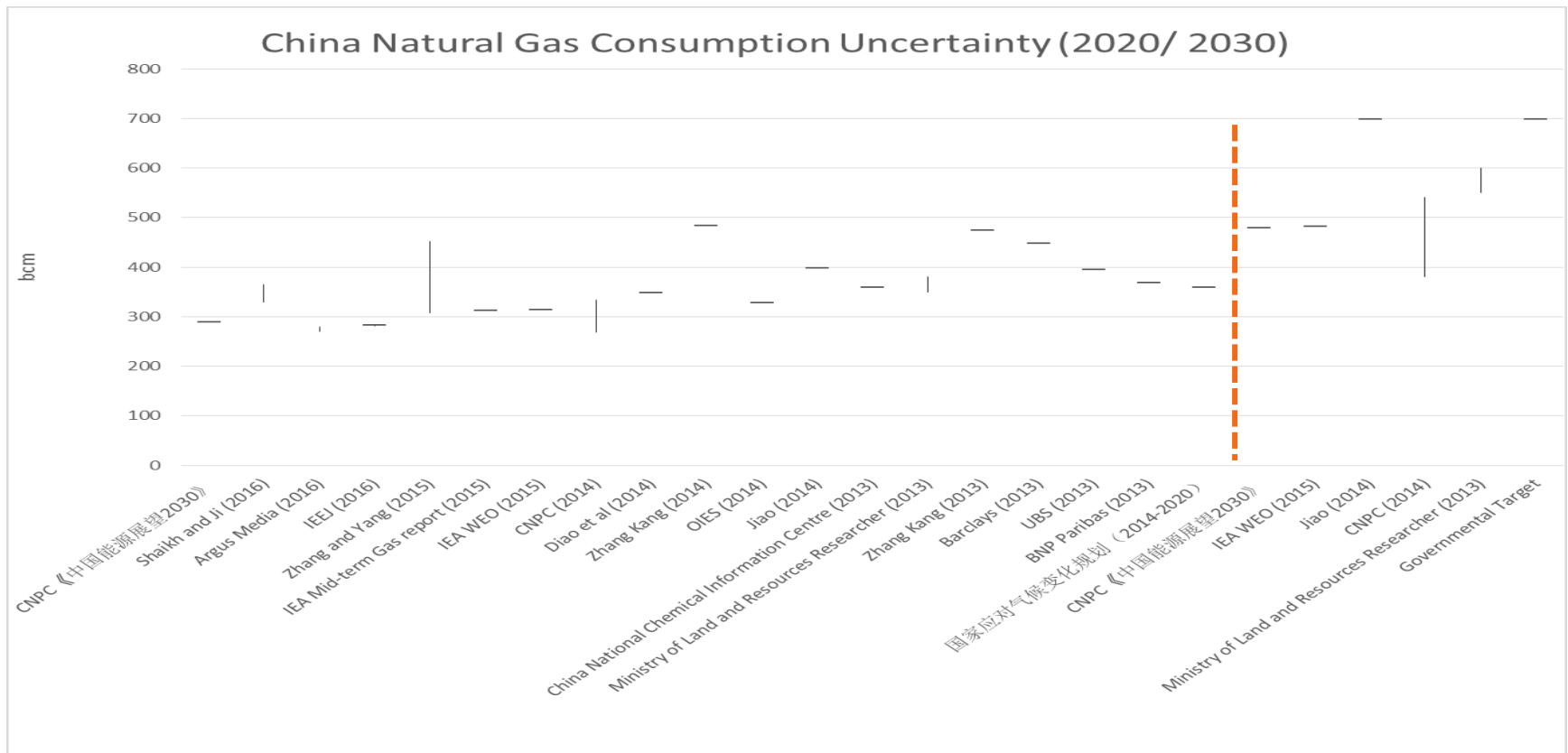
## China's share of selected global indicators



***China has an immense presence in global energy across a range of fuels and technologies***

# CHINA'S GAS DEMAND UNCERTAINTIES

The difference in 2030 is twice of China's gas consumption in 2015 and 30% more than the global traded LNG in 2015 (245 Mt, about 300 bcm).



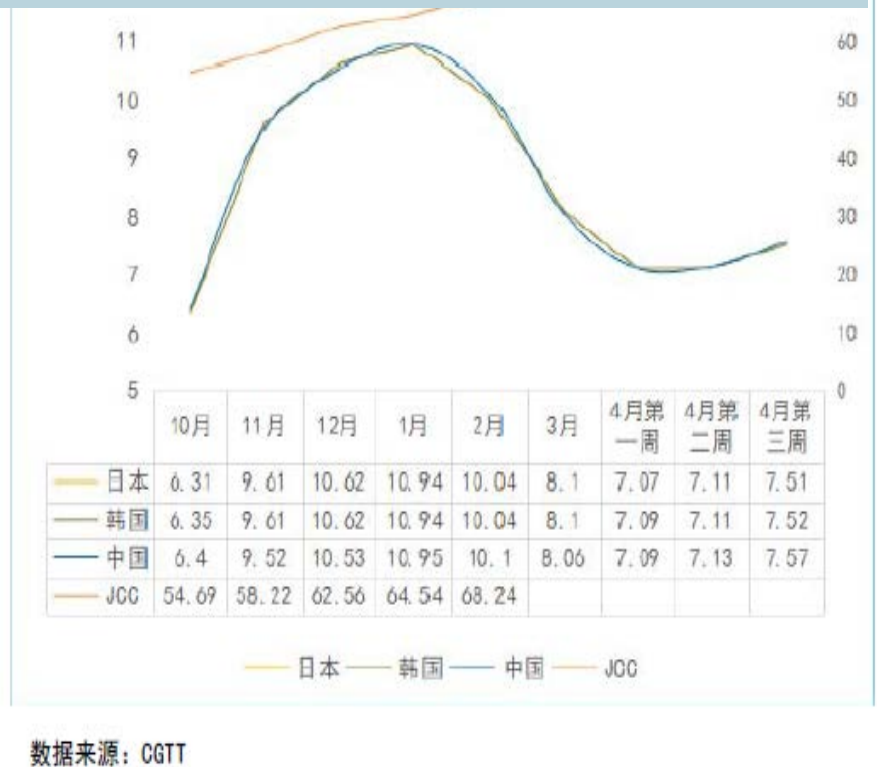
Source: Shi, X., Variam\*, H., & Tao, Y., 2017. Global impact of uncertainties in China's gas market. *Energy Policy*, 104:382-394

# ENERGY TRANSITION POLICY IS NOT SMOOTH: COAL-GAS SWITCH

Domestic LNG Price (Shanxi, NMG), Rmb/Tone



Asian LNG Spot Price (CJK), US\$/Mmbtu



# KEY MESSAGES

## □ Natural gas has an important and undoubted role in the energy mix and the energy transition

- Fuel switch is a feasible and realistic tool to reduce emissions
- The role of natural gas has even large role in East Asia, where coal dominates energy mix The fossil fuel side of energy transition needs more attention

## □ The fossil fuel side of energy transition needs more attention

- Energy transition has two sides: clean energy and fossil fuel
- Energy transition must look after the impact on economic and social development
- A systematic view is needed

# ABOUT THE SPEAKER

ENERGY ECONOMIST, WITH REGIONAL EXPERTISE IN CHINA, ASEAN & EAST ASIA

- Principal Research Fellow, *ACRI, UTS*, 2016-
- Senior Research Fellow, *Energy Study Institute, National University of Singapore*, 2014-
- President, *Chinese Economic Society Australia (CESA)*, 2016.7-
- Professor, *Hubei University of Economics*, 2018-

## □ Career Highlights

- Deputy head of Energy Economics, *ESI, NUS*. 2015-7-2016.12
- Chief Researcher, *Brunei National Energy Research Institute*, 2013-2014
- Energy Economics, *Economic Research Institute for ASEAN and East Asia*, 2009-13
- Various management and professional positions in China's leading energy institutes, 1997-2005
- Managed *East Asian Summit Energy Cooperation Taskforce Energy Market Integration (EMI) study*, 2009-2013
- Consultant /Member for *ADB, or UN EACAP Expert Group*, 2013-2017



**XUNPENG (ROC) SHI PhD 施训鹏 博士 /首席研究员**

Principal Research Fellow, Australia-China Relations Institute  
President, Chinese Economics Society Australia  
Senior Fellow, Energy Studies Institute, National University of Singapore  
PO Box 123 Broadway NSW 2007 Australia  
T: +61 (2) 9514 3142 M: +61 431 002 760 F: +61 2 9514 2189  
E: Xunpeng.shi@uts.edu.au

Linkedin: [https://www.linkedin.com/in/xunpeng-shi-bb209a1?trk=nav\\_responsive\\_tab\\_profile](https://www.linkedin.com/in/xunpeng-shi-bb209a1?trk=nav_responsive_tab_profile)