



APERC Workshop at EWG52  
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# 3-2. LNG in the Asia-Pacific

## Favoring trade and rational market development

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# Report Highlights

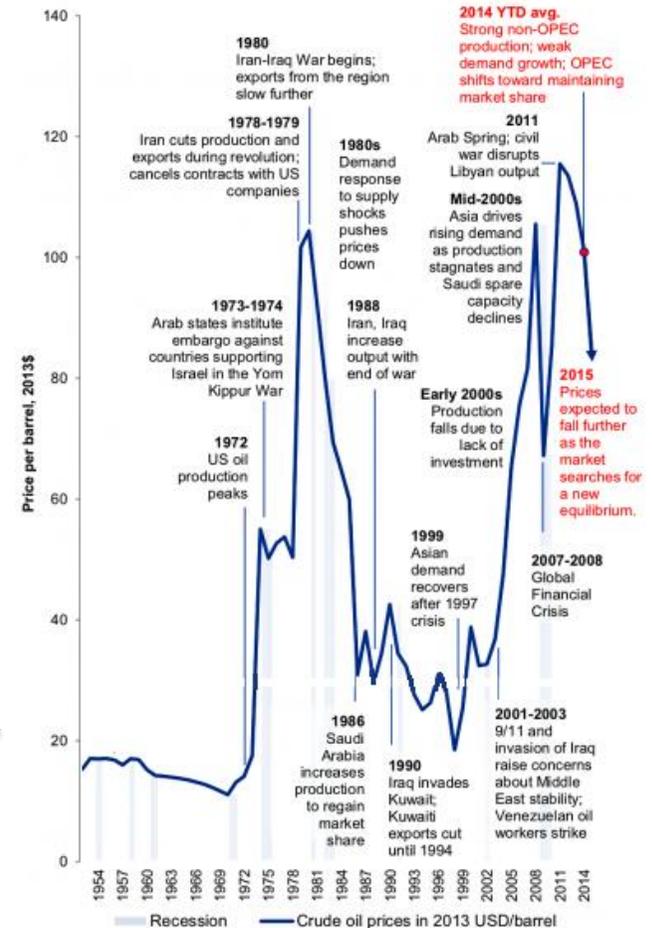
## LNG in Asia-Pacific: Favoring trade and rational market development

- Popular pricing mechanisms in the Asia-Pacific disadvantage natural gas and LNG
  - ❖ The region has been shocked by high natural gas prices that have fueled energy security concerns
  - ❖ Oil-linked pricing has created excessive volatility and has driven market imbalances that distort the normal investment cycle
  - ❖ Long-term contracts have been used to reduce investment uncertainty at the expense of market flexibility

Shocks in the oil market are unrelated to natural gas market balances



History of crude oil prices



## LNG in Asia-Pacific: Favoring trade and rational market development

- Major challenges exist in expanding the use of natural gas and LNG
  - ❖ An ambiguous role in the transition to a low-carbon economy
  - ❖ Declining domestic production in the Asia-Pacific increases energy security concerns for importers
  - ❖ Lack of convergence in opposing stakeholders' expectations without an appropriate pricing mechanism to align interests

### Environmentalists 'expected better' of Trudeau as Canada backs gas project

The Pacific NorthWest LNG project would ship 19m tons a year of frozen, liquefied natural gas to markets in Asia - and create jobs, says the government



The project is backed by Malaysia's energy giant Petronas. Photograph: Reuters

**Mike De Souza** @mikedesouza · May 4  
Is this #LNG project lining up 2 b b 1 of Canada's worst #CO2 polluters? @emcsheff reports tinyurl.com/jcwvxzd via @NatObserver #cdnpoli

**Pembina seeks to avert huge LNG polluter**  
If approved as it stands, the project will likely become one of the worse carbon polluters in Canada.  
nationalobserver.com

**NRDC** @NRDC · 14h  
#ICYMI: Yesterday, the European Parliament voted to **ratify** the landmark **Paris climate** agreement. on.nrdc.org/2dRR9AZ #ParisAgreement

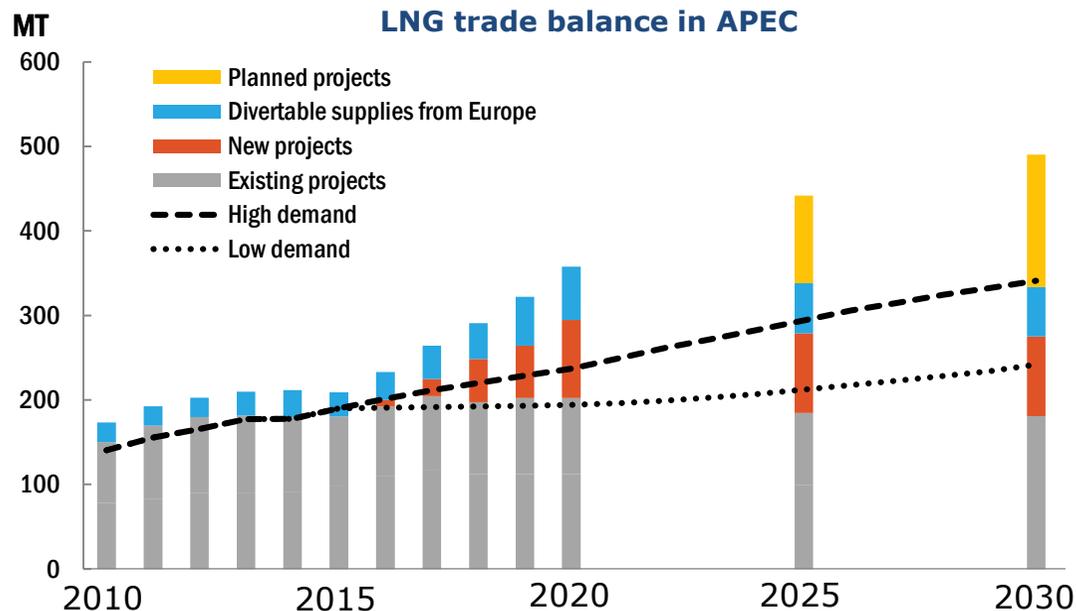
**With EU Vote, Paris Climate Agreement Is Poised To Become Binding**  
The European vote to ratify it effectively ends debate over the climate deal. Once the EU turns over paperwork to the U.N. later this week, the plan w...  
npr.org

been questioned after the ed conditional approval for a sh Columbia.  
major energy project - was ved the Pacific NorthWest minister, told reporters in a  
ect would ship 19m tonnes a a. The government promised ment projects, would create f jobs and 4,500 to the country's GDP.



## LNG in Asia-Pacific: Favoring trade and rational market development

- Current market conditions present an opportunity to direct structural change in order to encourage a more liquid and rational LNG market over future business cycles
  - ❖ Global demand will be driven by Asian economies, but domestic supply will fall short
  - ❖ Negotiating power has shifted away from one extreme with the emergence of a buyers market

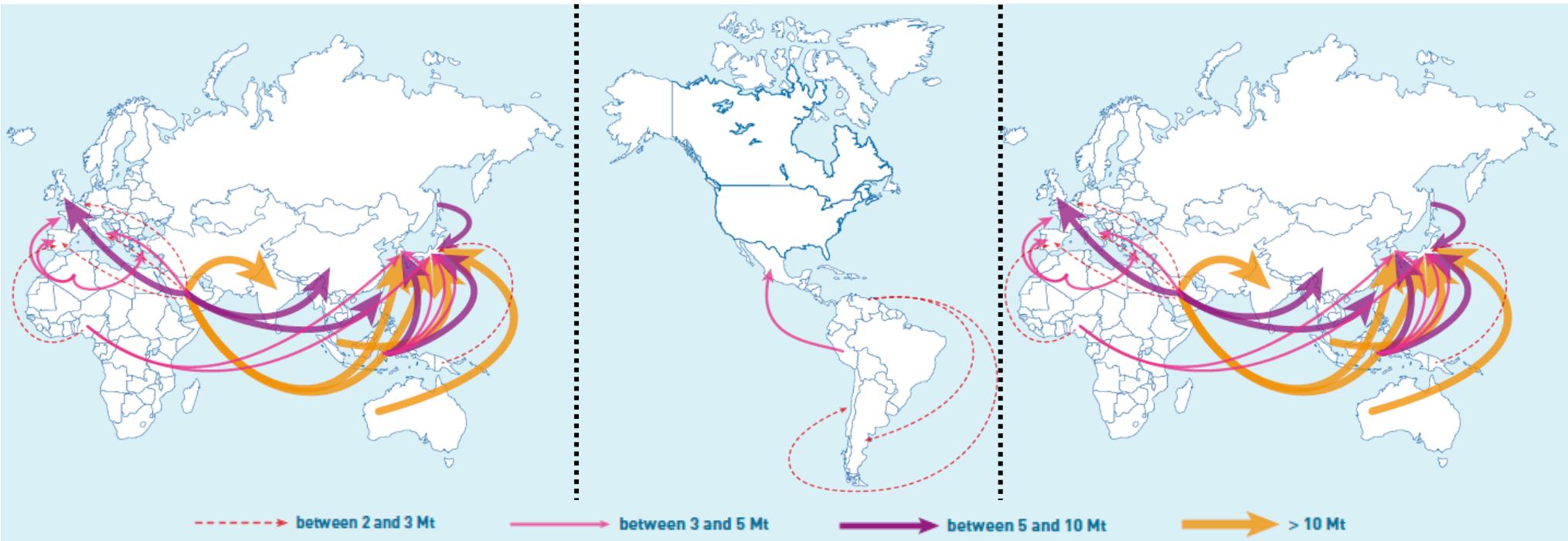




# LNG markets

# Natural gas has competed in separate isolated markets

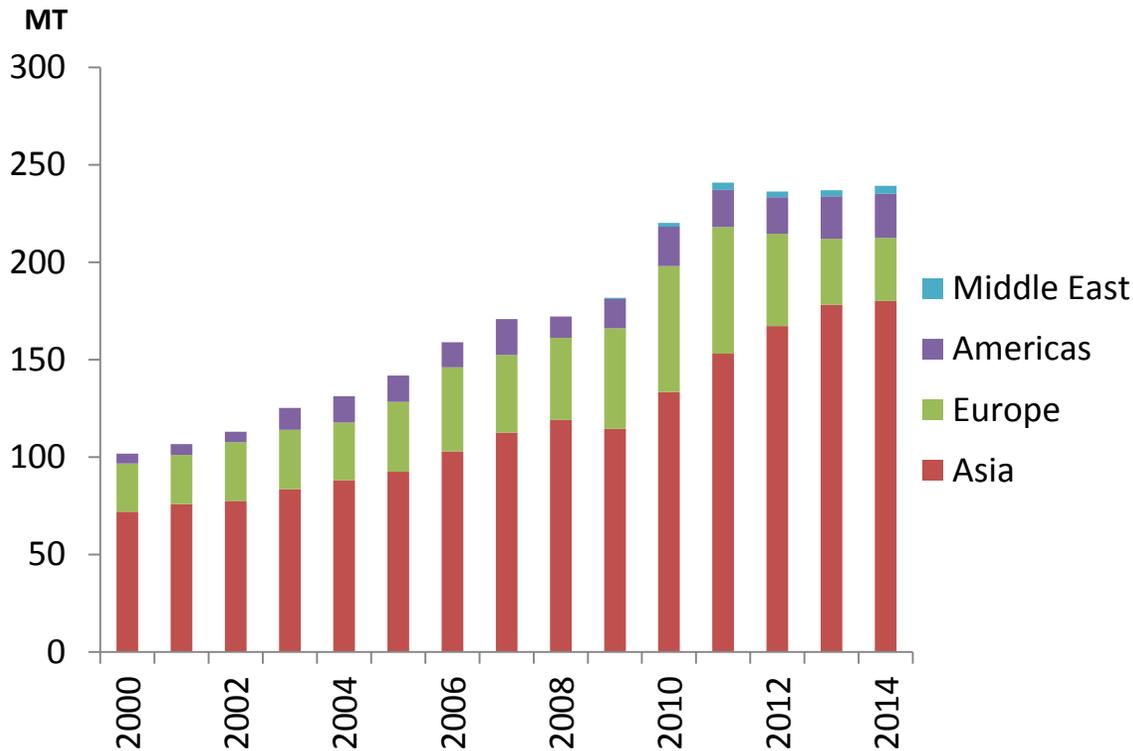
## Major worldwide LNG trade flows, 2014



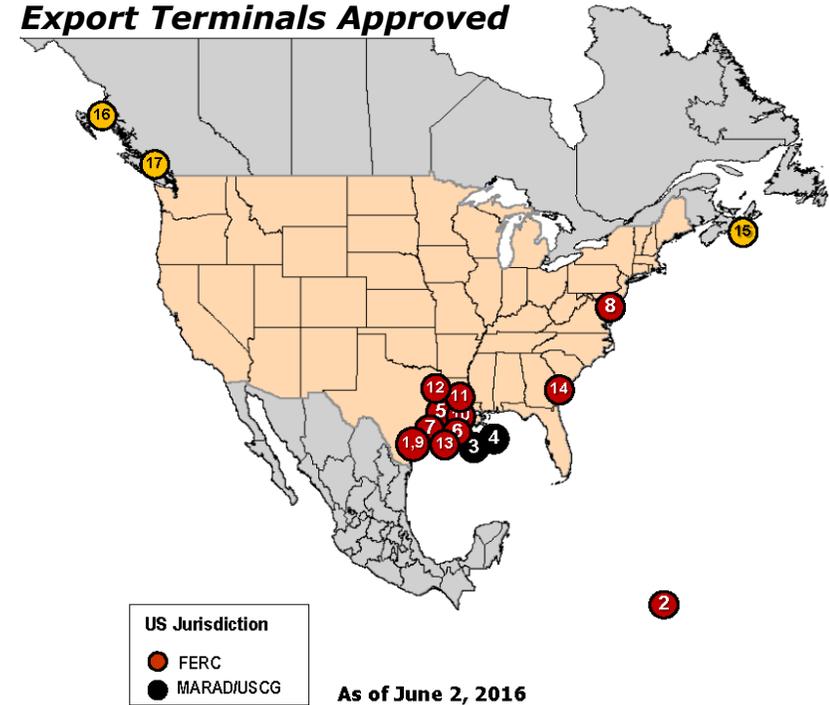
*Major LNG trade flows have historically kept the international market divided on a regional basis*

# Growth in LNG demand has come from Asia

## Worldwide LNG imports by region, 2000-2014



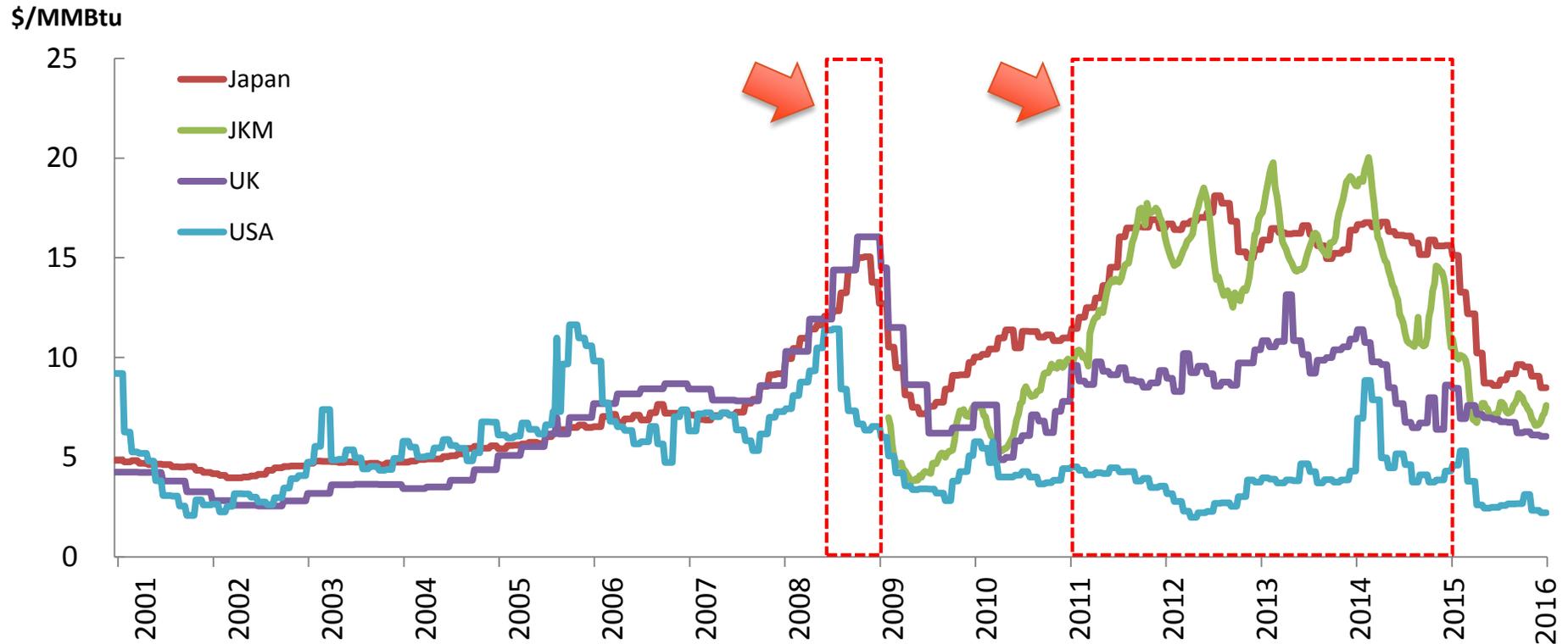
## North American LNG Export Terminals Approved



*APEC has **14** out of **20** import terminals and **27** out of **28** export terminals expected to begin construction before 2019*

# The Asian Premium has driven energy security concerns

## Natural gas import prices and spot LNG prices for northeast Asia, 2001-2015



*When global oil prices increased, regional natural gas prices diverged because of differences in pricing mechanisms*



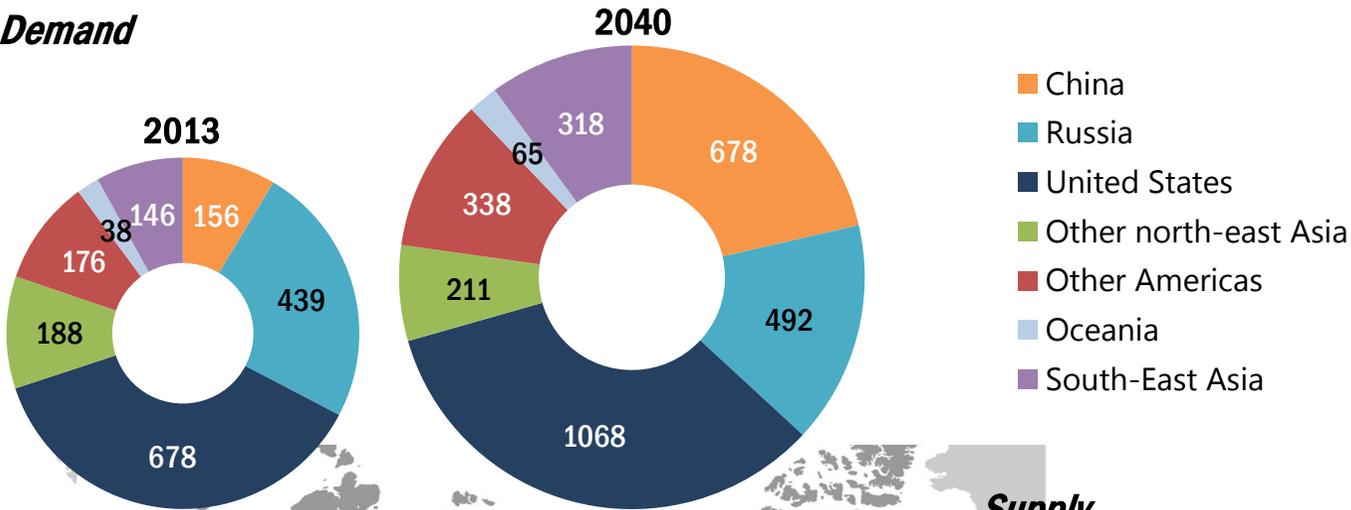
# Outlook



# Natural gas is expected to be the fastest growing fossil fuel

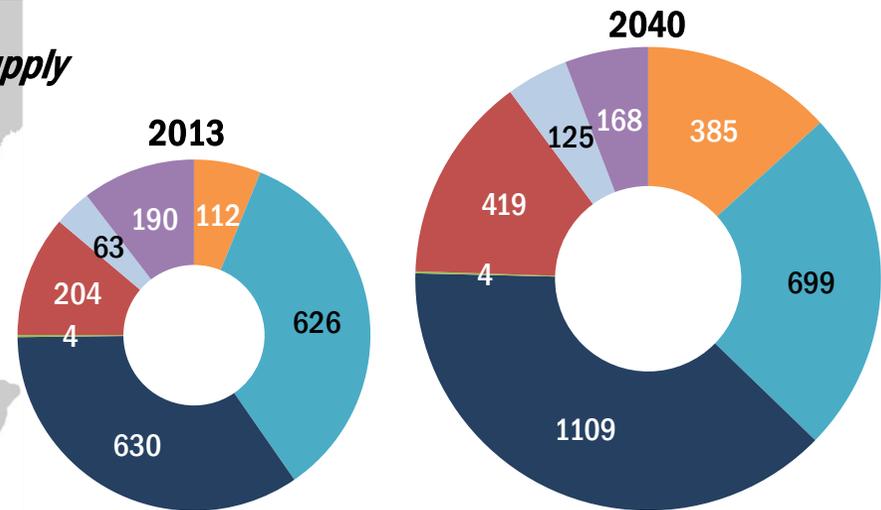
## Natural gas demand and supply outlook in APEC, 2013 and 2040 (Bcm)

### Demand



*Strong demand growth in the US, China and SE Asia*

### Supply



*Strong supply growth in the US, China and Other Americas*

# Asia will continue to rely on natural gas imports

## APEC natural gas net exports by region, 2013 and 2040



*Production in Asia is not expected to meet forecast demand growth, which will mean increasing import dependency*



# Pricing and contracts

# Most common market-based mechanisms for price setting

## Oil Price Escalation (OPE)

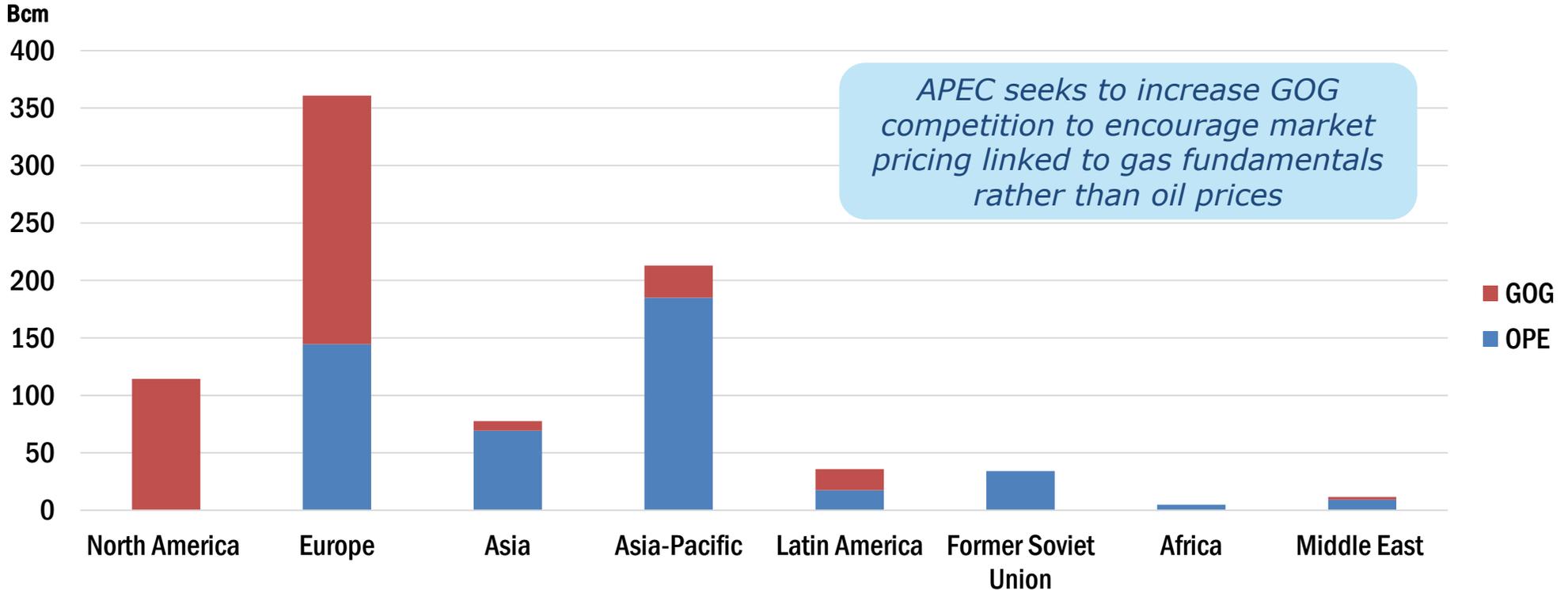
- Price is linked, usually through a base price and an indexation clause, to competing fuels, typically crude oil, gas oil and/or fuel oil.
- Originated in Europe in the 1960s when NAM (a joint venture between ExxonMobil and Shell) and the Dutch government introduced it with the intention of giving natural gas a price advantage to incentivize its use over other oil-based fuels.

## Gas-on-Gas Competition (GOG)

- The price is determined by the interplay of supply and demand and is traded over a variety of different periods.
- Trading takes place at physical or virtual hubs and it is likely to occur in developed futures markets.
- Increasingly seen as the competitive market ideal.

# Most common market-based mechanisms for price setting

## Worldwide natural gas imports by market price mechanism

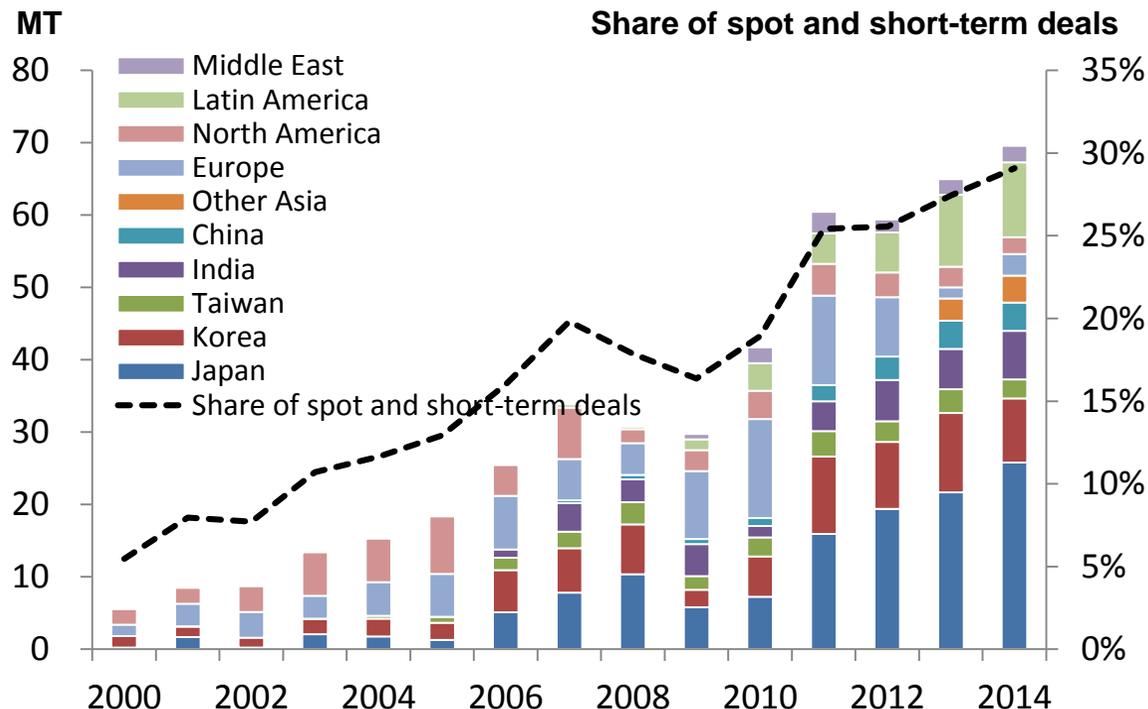


*Gas on gas competition dominates in North America and has increased in popularity as utilities have been unbundled in Europe*

GOG = Gas-on-gas competition, OPE = oil price escalation

# Contract structures are becoming more flexible

## LNG spot and short-term deals, 2000-2014



## Typical contract specifications

### Old Model

- Long-term (~20 years)
- Destination restrictions
- Take-or-pay
- FOB shipping responsibility

### New Model(s)

- Spot, short-term or long-term
- Tolling structures
- Resale flexibility

*The oversupplied market has led to increased bargaining power for buyers and more flexible contracting arrangements*



# Policy recommendations

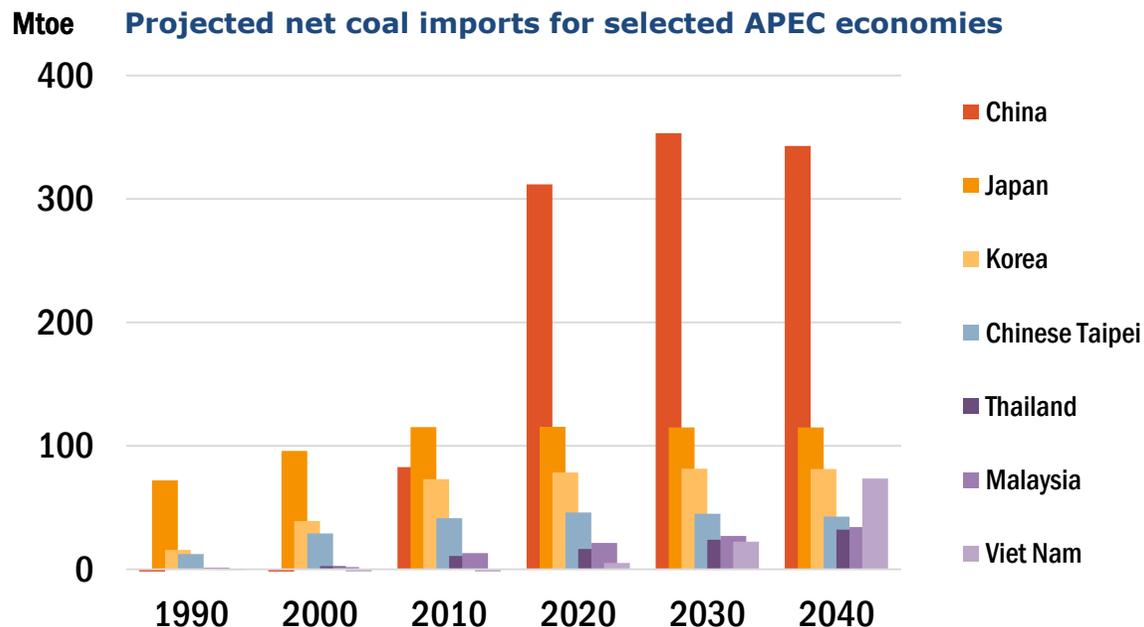
# Policy recommendations

## ➤ Define the role of natural gas in energy and climate policies

*Transitioning toward a low carbon economy*

### ➤ Promote financing alternatives for LNG projects

### ➤ Enforce fiscal and investment frameworks that facilitate gas upstream projects



*The extensive use of coal in Asia offers remarkable potential to expand the primary demand of natural gas in APEC in the form of LNG*



# Policy recommendations

- **Use collective power to encourage more balanced interactions and discussions**



APEC is an excellent forum to discuss mechanisms that facilitate an accelerated LNG trade that leverages the dialogue and collaboration of producers and buyers across member economies.



- **Engage stakeholders in LNG projects**
- **Foster regional cooperative activities**





**Thank you for your kind attention**

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