



IGU
WGC 2021
28th WORLD GAS CONFERENCE
KOREA 21-25 JUNE

The IGU Wholesale Gas Price Survey

A Global Review of Price Formation Mechanisms

Mike Fulwood – Report Project Manager, IGU
Senior Research Fellow
Oxford Institute for Energy Studies

Global Gas Pricing Forum, Flame , May 13th 2019

2018 Survey

- Year 2018 was eleventh survey – began in 2005 followed by 2007, 2009 and 2010, then annually from 2012
- Survey responses covered 95% of total world consumption
- Analysis at world and regional level
- Data also used to analyse global gas price convergence since 2005
- Types of price formation mechanisms – OPE, GOG, BIM, NET, RCS, RSP, RBC, NP
- Presentation of charts amended this year to show 2005, 2010 and then 2015 on

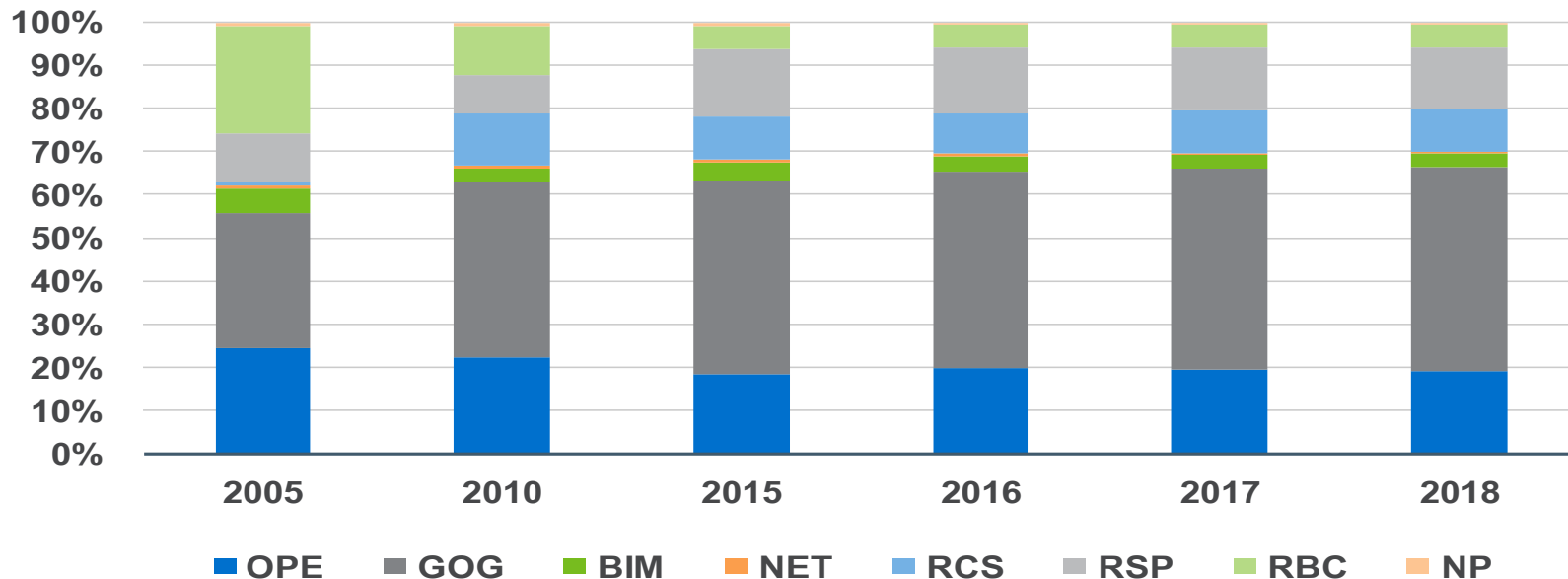
Types of Price Formation Mechanisms

Oil Price Escalation	OPE	The price is linked, usually through a base price and an escalation clause, to competing fuels, typically crude oil, gas oil and/or fuel oil. In some cases coal prices can be used as can electricity prices.
Gas-on-Gas Competition	GOG	The price is determined by the interplay of supply and demand – gas-on-gas competition – and is traded over a variety of different periods (daily, monthly, annually or other periods). Also includes spot LNG cargoes.
Bilateral Monopoly	BIM	The price is determined by bilateral discussions and agreements between a large seller and a large buyer, with the price being fixed for a period of time – typically this would be one year.
Netback from Final Product	NET	The price received by the gas supplier is a function of the price received by the buyer for the final product the buyer produces. This may occur where the gas is used as a feedstock in chemical plants.
Regulation Cost of Service	RCS	The price is determined, or approved, by a regulatory authority, or possibly a Ministry, but the level is set to cover the “cost of service”, including the recovery of investment and a reasonable rate of return.
Regulation Social and Political	RSP	The price is set, on an irregular basis, probably by a Ministry, on a political/social basis, in response to the need to cover increasing costs, or possibly as a revenue raising exercise.
Regulation Below Cost	RBC	The price is knowingly set below the average cost of producing and transporting the gas often as a form of state subsidy to its population.
No Price	NP	The gas produced is either flared, or provided free to the population and industry, possibly as a feedstock for chemical and fertilizer plants.
Not Known	NK	No data or evidence.

Analysed by Regions



World Price Formation 2005 to 2018

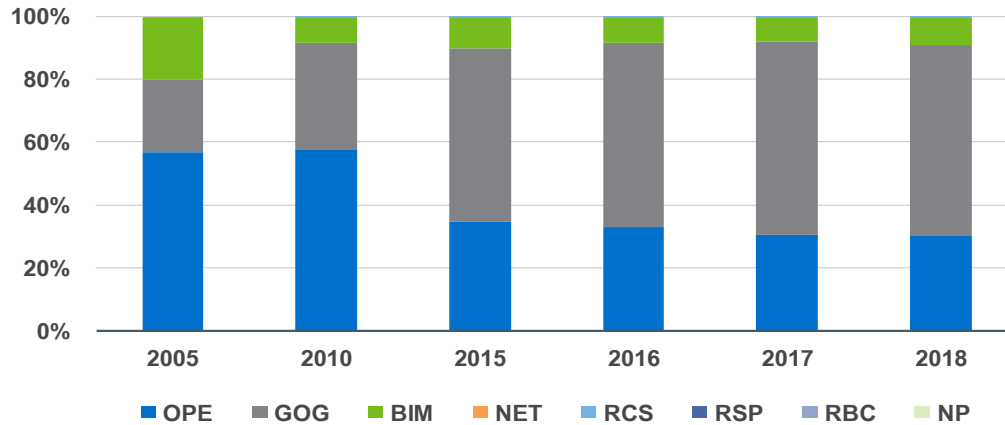


- GOG share rose by half a point to 47% in 2018 – largely reflecting increasing share of spot LNG imports and rapidly growing US consumption
- OPE down quarter of a point to 19% - loss in LNG imports partly offset by gains in pipeline imports and domestic production in China
- Regulated categories down marginally in 2018

Imports Price Formation 2005 to 2018

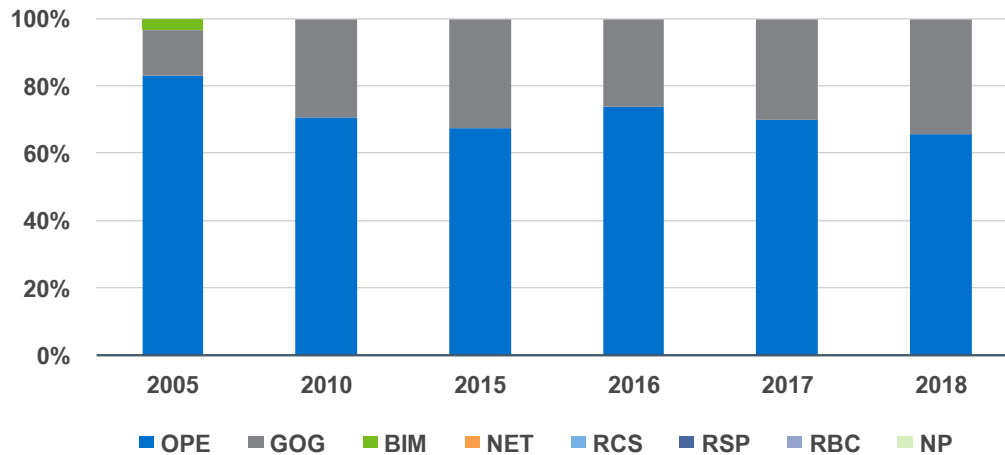
Pipeline Imports

GOG and OPE shares largely unchanged in 2018 – in part reflecting no overall growth in global pipeline trade

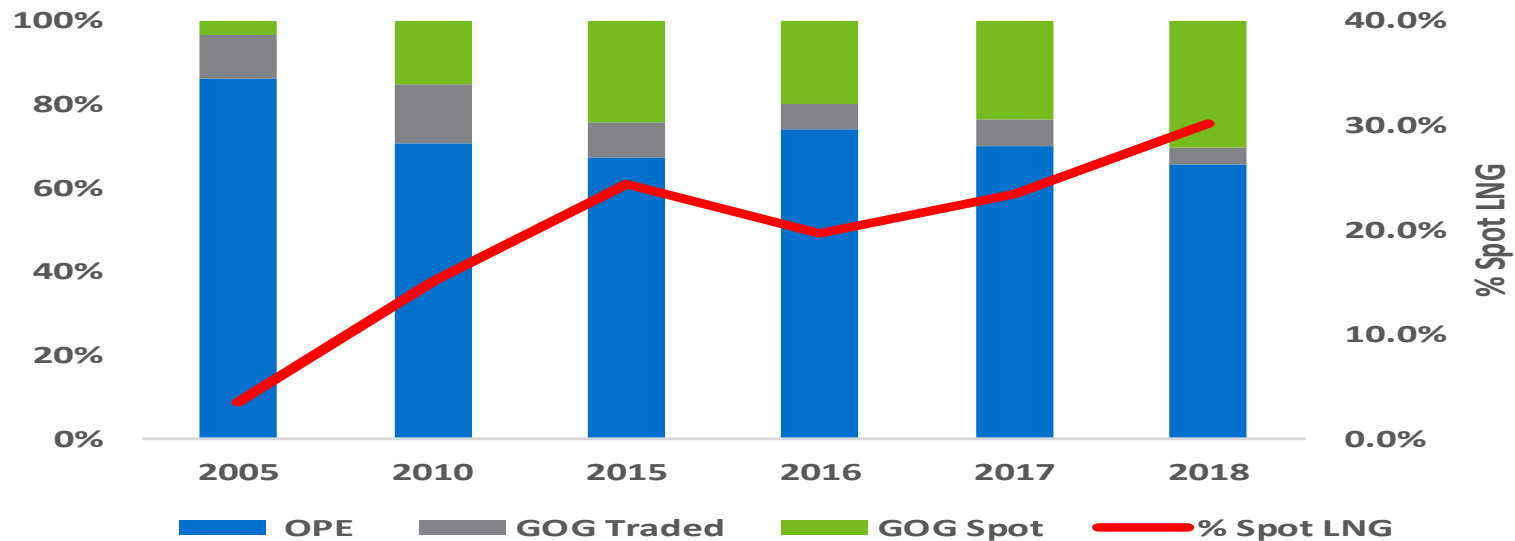


LNG Imports

GOG share up sharply in 2018 to 34.5%, driven by rise in spot LNG imports

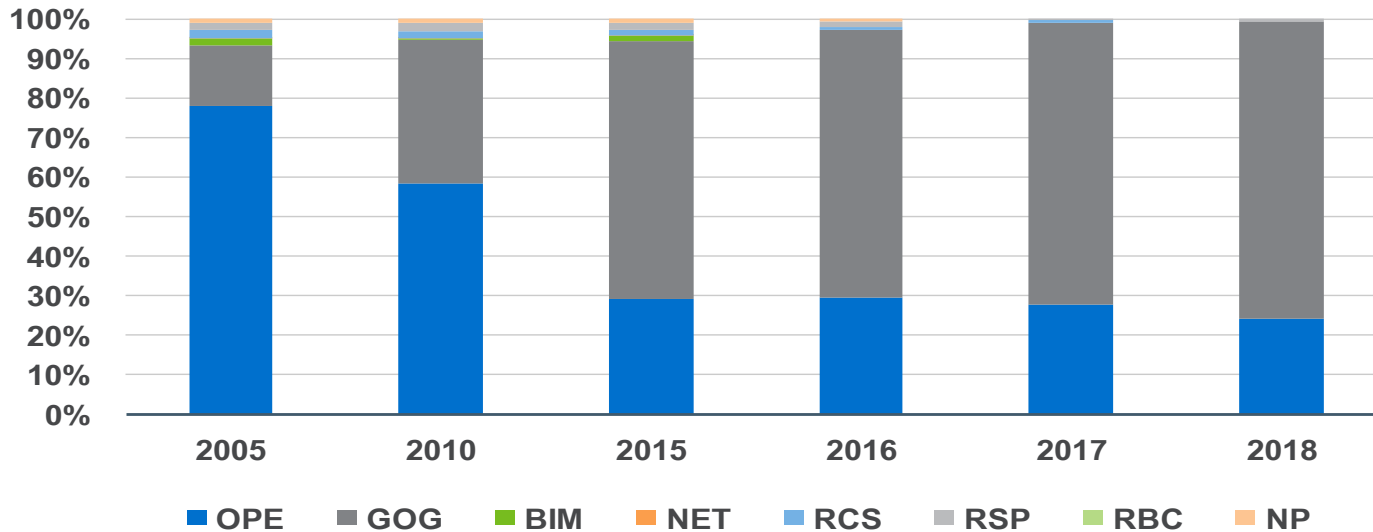


LNG Breakdown 2005 to 2018



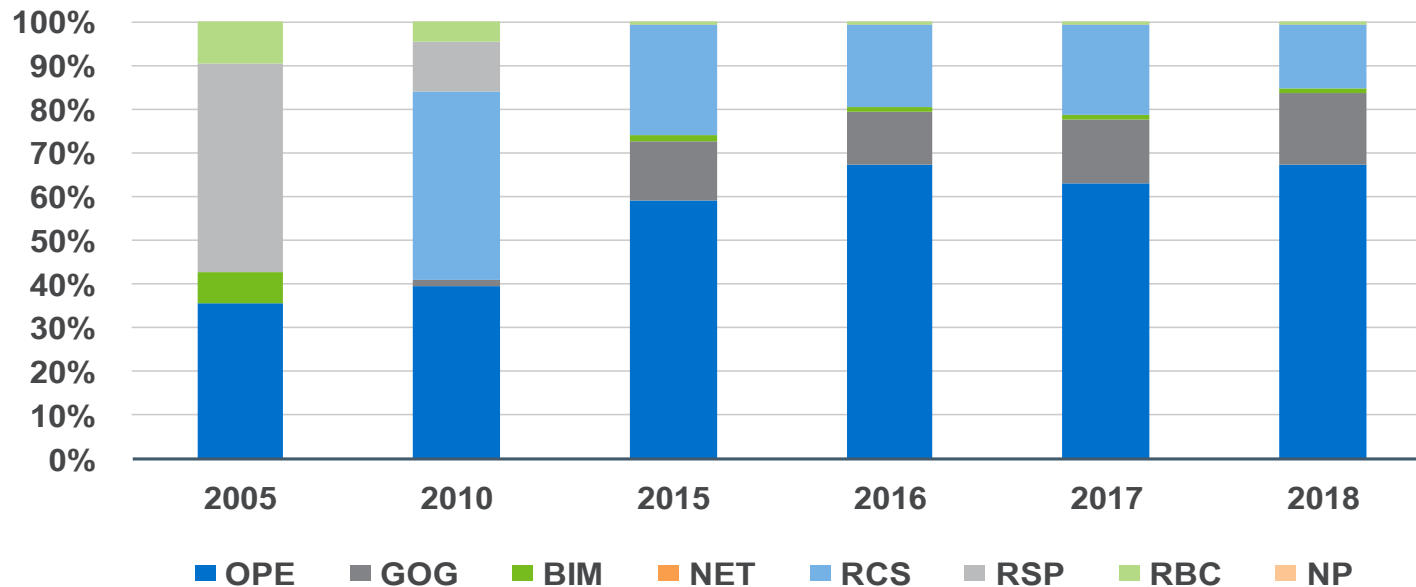
- Rise in spot LNG cargoes is main headline this year
- GOG divided into Traded volumes – countries with liquid traded markets e.g Northwest Europe – and spot LNG – generally contracts under a year
- Spot LNG rose almost 7 percentage points in 2018 – 33 BCM – to over 30% of LNG market. US LNG exports rose by only 7 BCM so not main driver as it was in 2017

Europe Price Formation 2005 to 2018



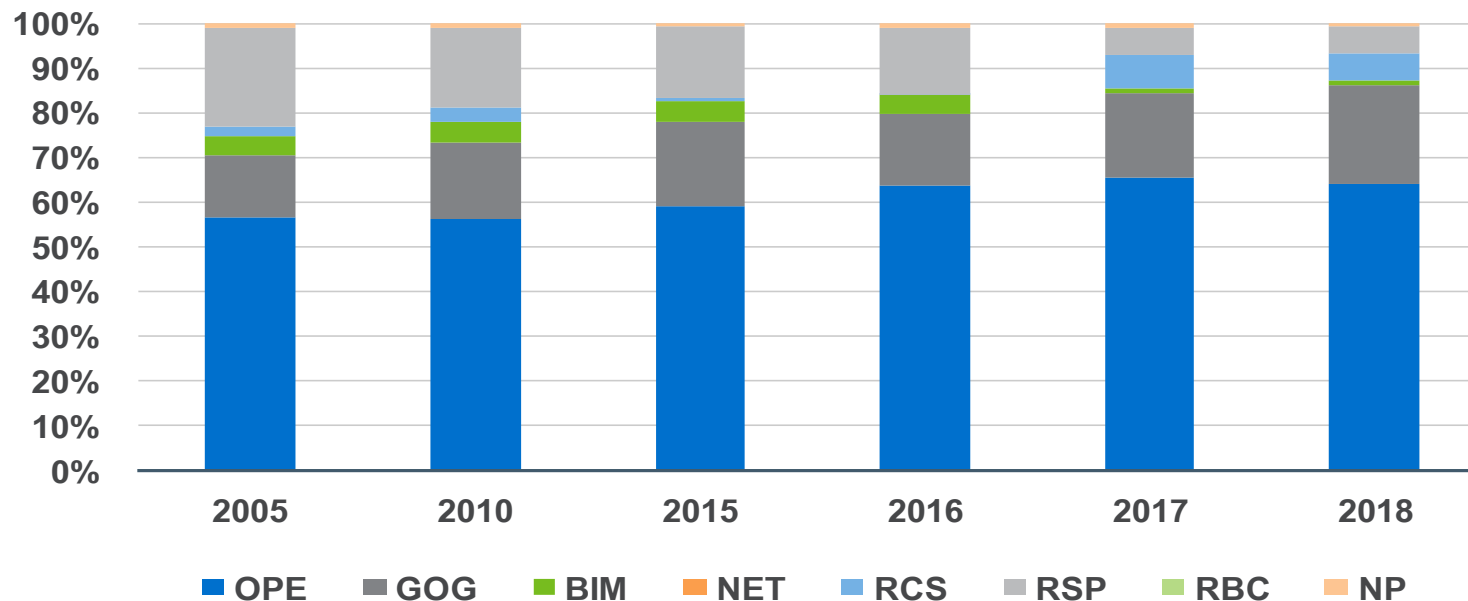
- GOG up to 76% in 2018 – largely driven by rising LNG imports in 2018
- Northwest Europe at 96%, Central Europe at 76%, Mediterranean now up to 44% - increase mainly due to changes in Italy

Asia Price Formation 2005 to 2018



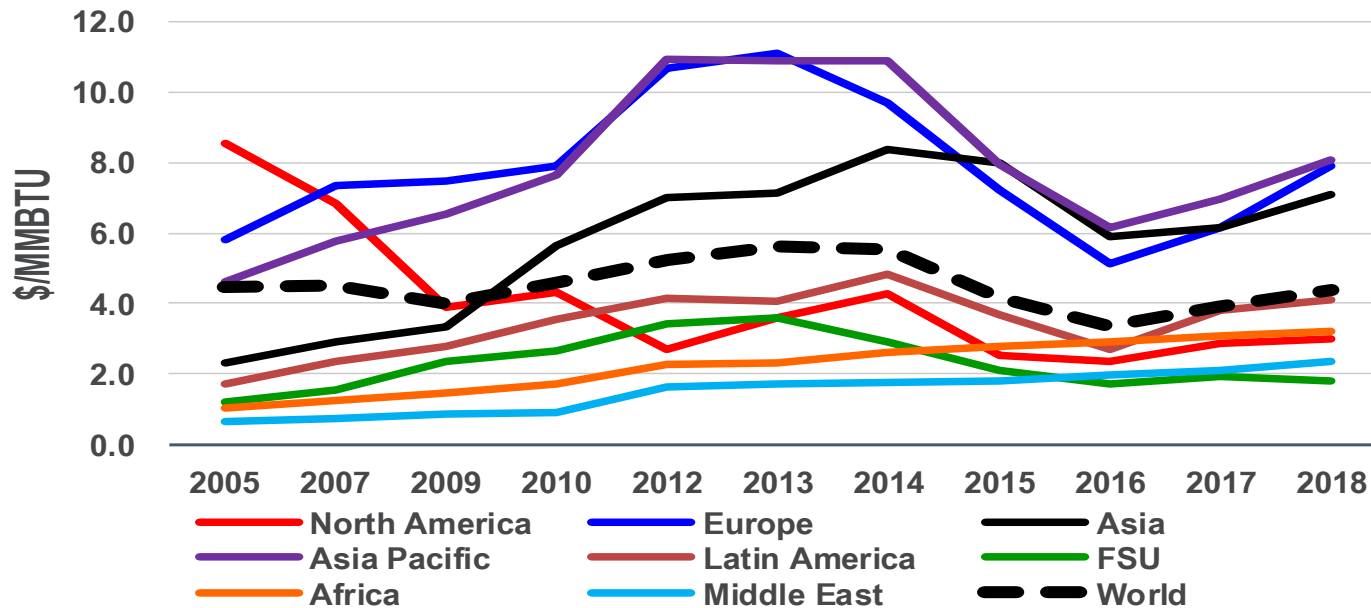
- OPE gained ground again in Asia reaching 67% in 2018 – largely China importing more together with domestic price reform

Asia Pacific Price Formation 2005 to 2018



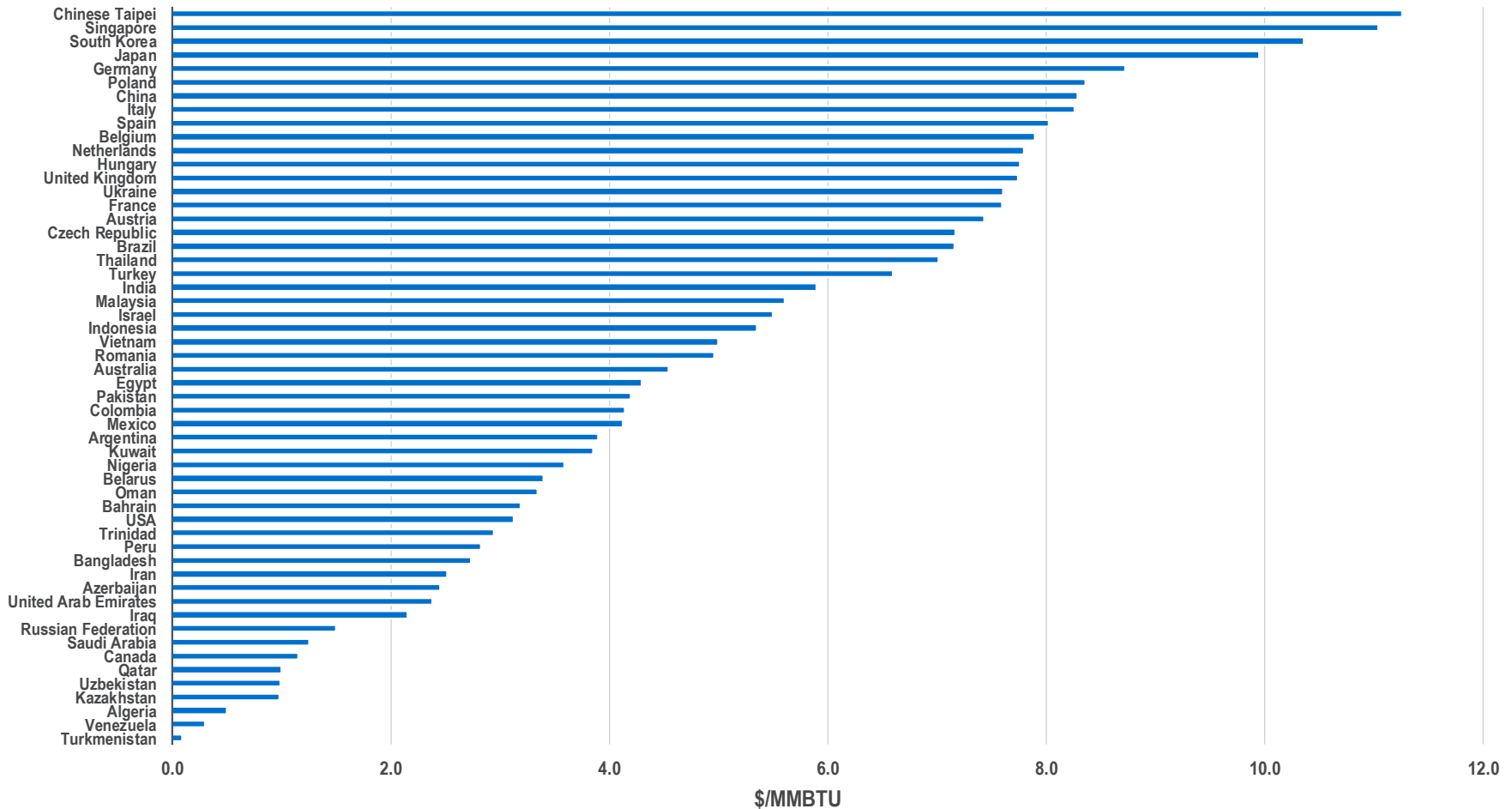
- GOG up to 22% in 2018 – rise of 3 percentage points – as spot LNG imports increased
- Further moves away from regulated pricing in Indonesia and Malaysia

Wholesale Price Levels by Region

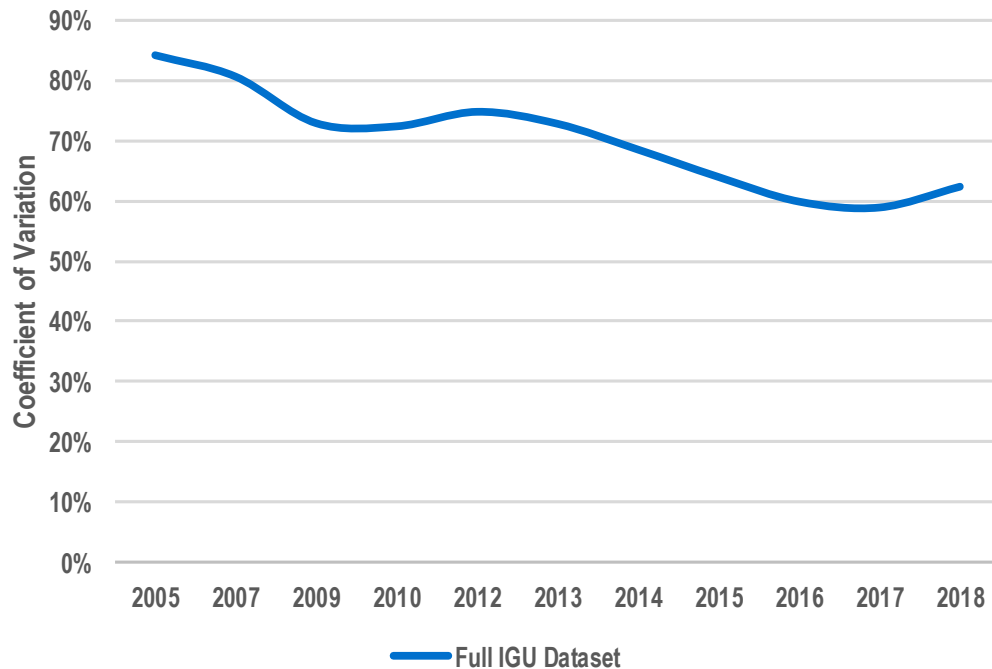


- Average world wholesale price in 2018 was \$4.34 per MMBtu – highest level since 2014
- Largely rising market related prices – GOG and OPE – especially in Europe
- Regulated prices also up in Africa and Middle East

Wholesale Price Levels by Country 2018

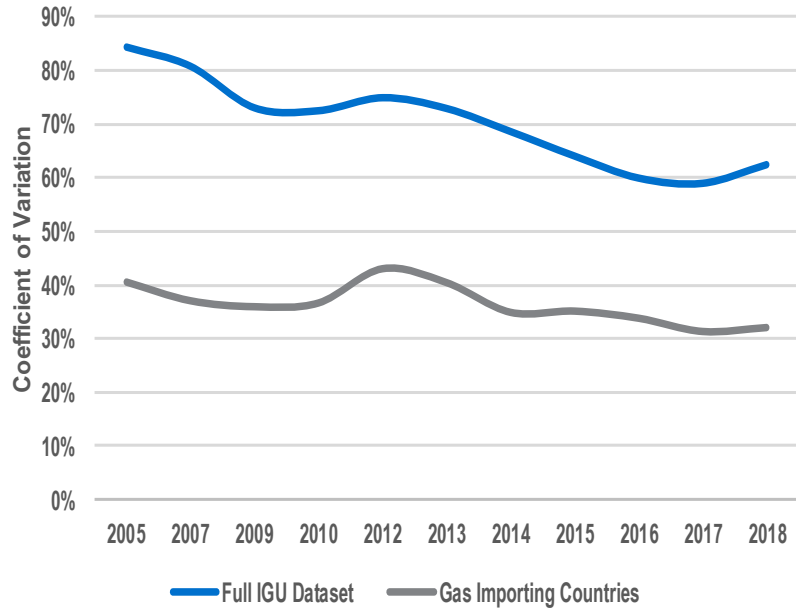


Gas Price Convergence 2005 to 2018

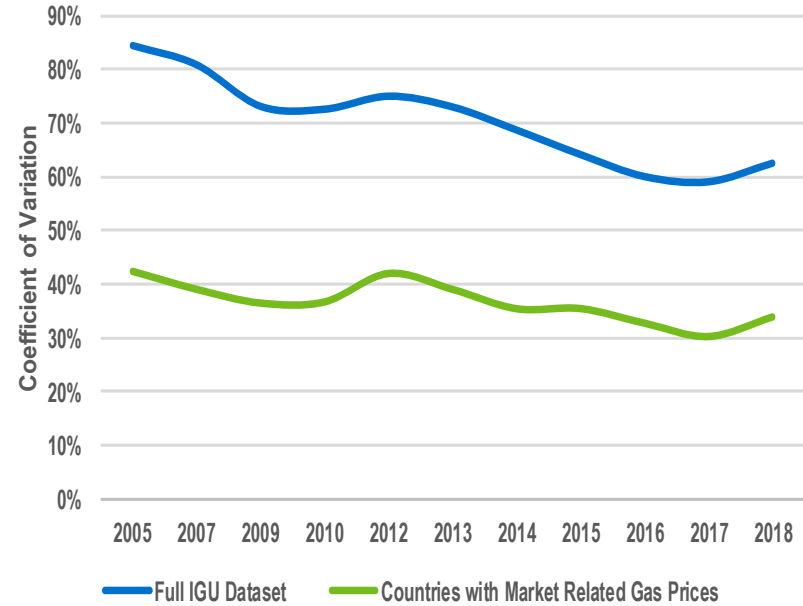


- Conventional wisdom up to 2014 was of a divergence in prices around the world
- However, more integration and more trade should lead to greater convergence
- Using the coefficient of variation on the price level data over the eleven surveys suggests largely continued convergence from 2005 – although 2018 exhibited more divergence

Gas Price Convergence 2005 to 2018

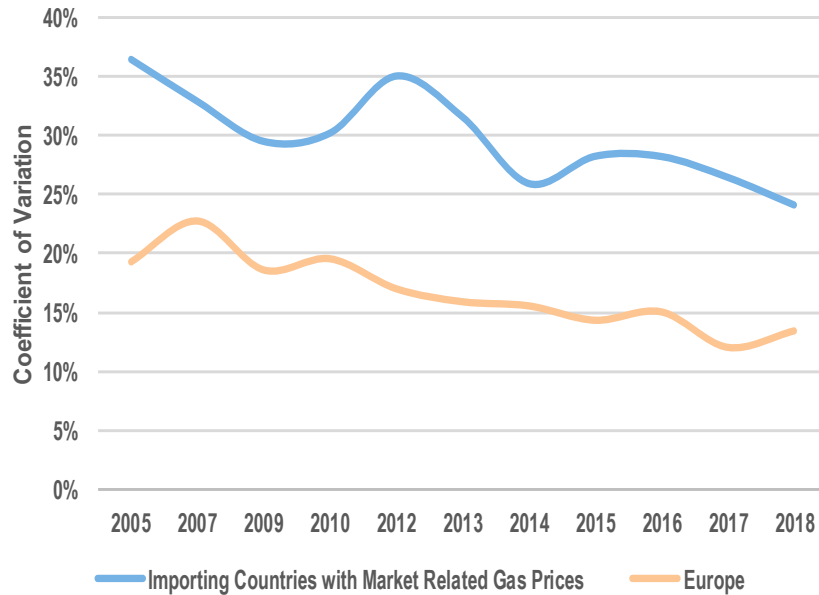


Gas Importing Countries

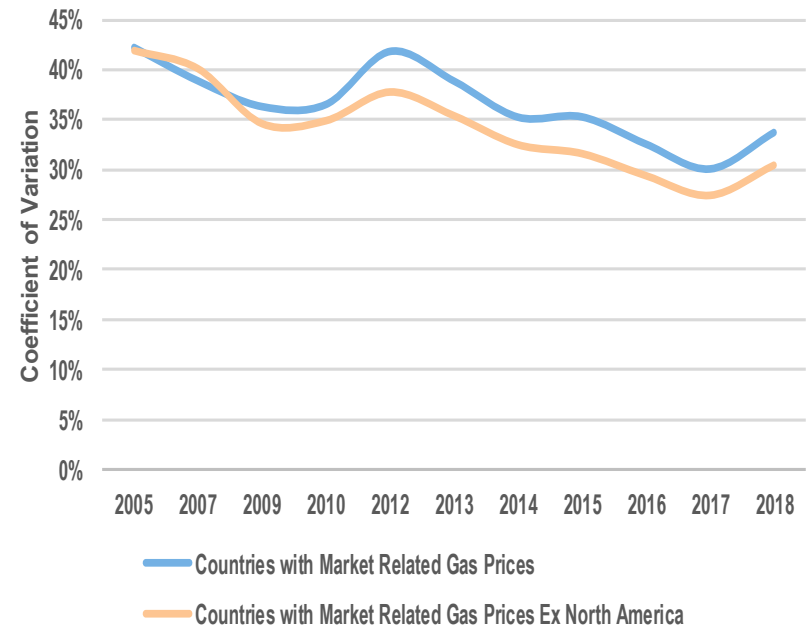


Market Related Gas Prices

Gas Price Convergence 2005 to 2018

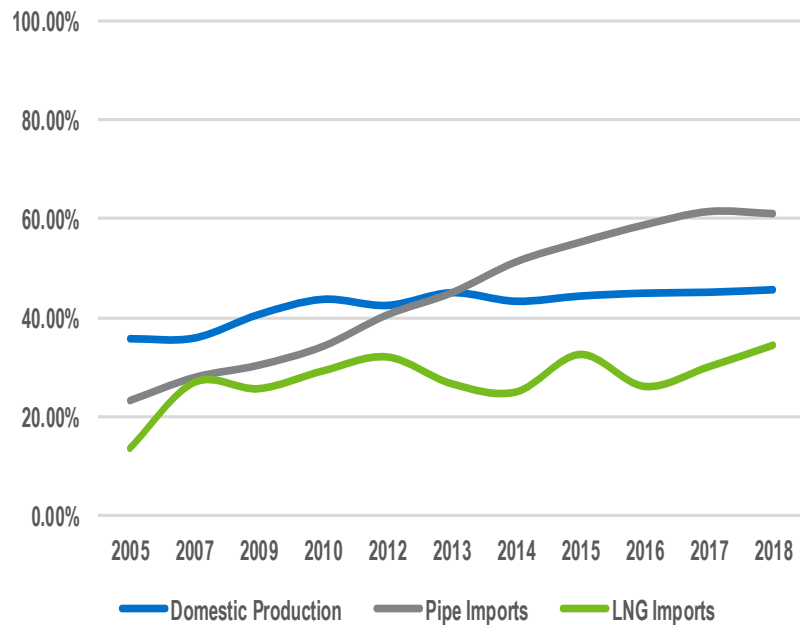


Europe

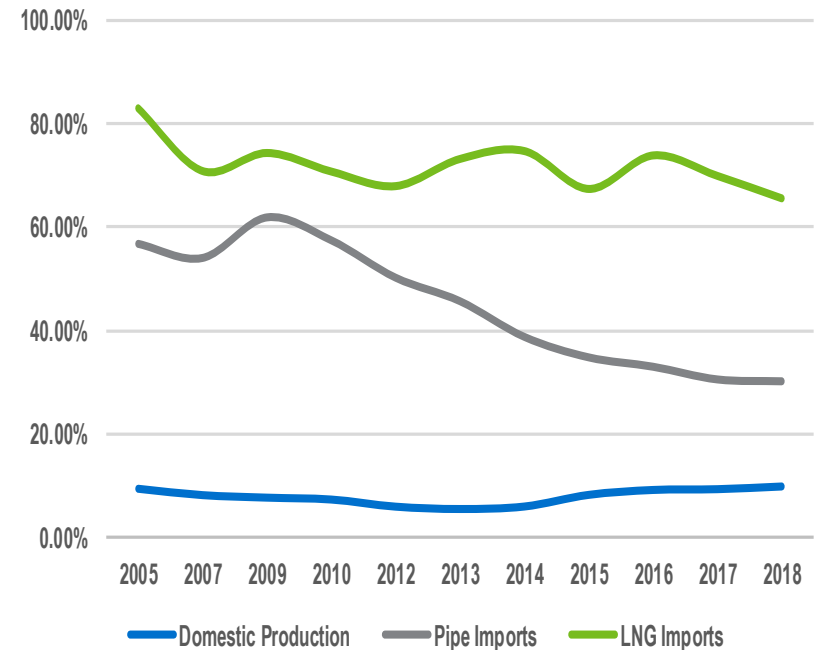


Excluding North America

Back to GOG and OPE



Changes in GOG



Changes in OPE

Key Points

- Large increase in spot LNG imports in 2018 saw a significant move to GOG in LNG trade
- Led to small rise in GOG globally with Europe now up to 76%
- OPE only down slightly as LNG loss partly offset by gains in China
- Average world wholesale price at highest level since 2014 – largely rising market related prices but also higher regulated prices in Africa and Middle East
- The continued price convergence in prices since 2005 was slightly reversed in 2018

Looking to the Future – What we said last year

What We Said	What Happened
2018 prices likely to be higher than 2017 – rising oil prices and no LNG glut yet!	2018 prices rose over 2017, especially in Europe – LNG glut only appeared at end of 2018
Can the rise in GOG continue in pipeline trade?	GOG share in pipeline trade little changed in 2018 – first time we have seen no increase
Will we see any significant changes in LNG trade with more US LNG and more flexible contracts	Major change in LNG as spot LNG cargoes increased significantly but not primarily US LNG driven
Will the convergence of prices around the world continue	Rising prices led to less convergence in 2018
The move away from subsidized pricing has been steady if slow but can more countries make the break	Regulated prices rose in Africa and Middle East but many prices still remain below cost

Looking to the Future – Again!

- Supply glut suggests much lower prices in 2019 – looking more like a repeat of 2017 or even 2016
- Continued growth in GOG in LNG trade as spot LNG increases
- Scope for more switching from OPE to GOG in Europe now limited unless major changes in Turkey and Iberian peninsula
- OPE may continue to gain ground in Asia and Asia Pacific domestic production
- Major moves away from subsidized pricing will require more reforms in Middle East, FSU and North Africa

Report Publication

Can be downloaded from

<https://www.igu.org/publication/302319>