



Gas Markets Energy Cork

November 2018



Gas Market Overview

□ *Overview of gas market*

- *Supply & Demand*

□ *Gas market developments*

- *Reducing domestic production & flexibility*
- *Increased reliance on imports*

□ *Impact of oil & coal*

□ *The growing Importance of LNG*



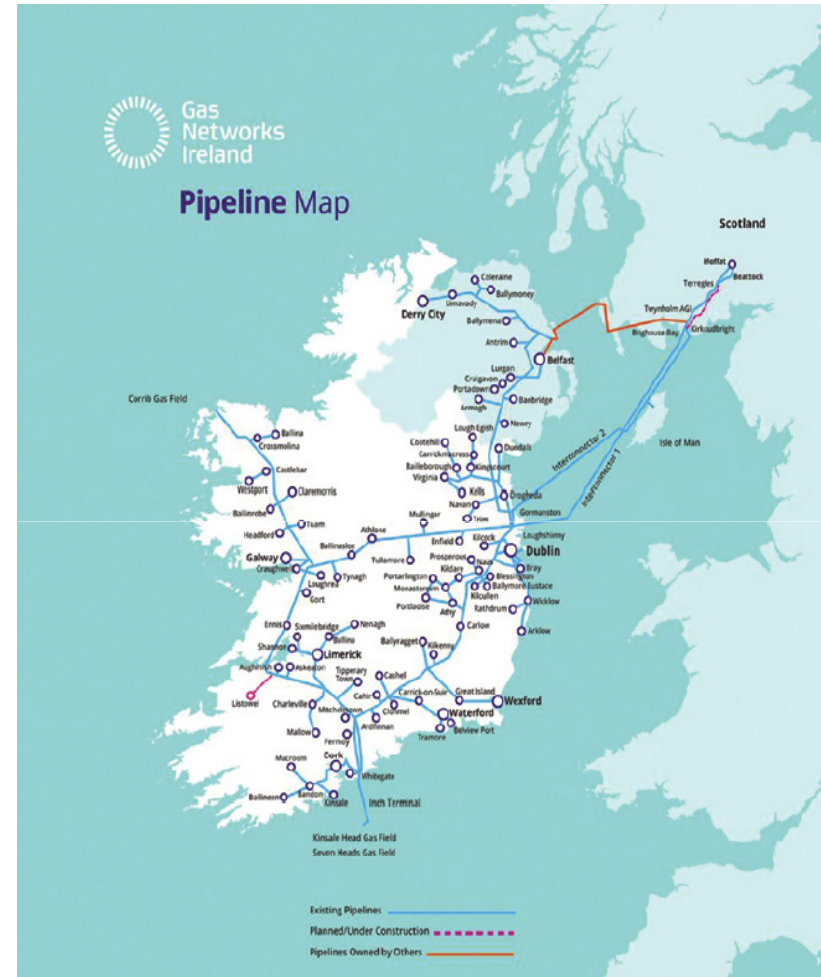
Irish Gas Market

- ❑ Three Entry Points
 - Inch
 - Corrib
 - Moffatt interconnector

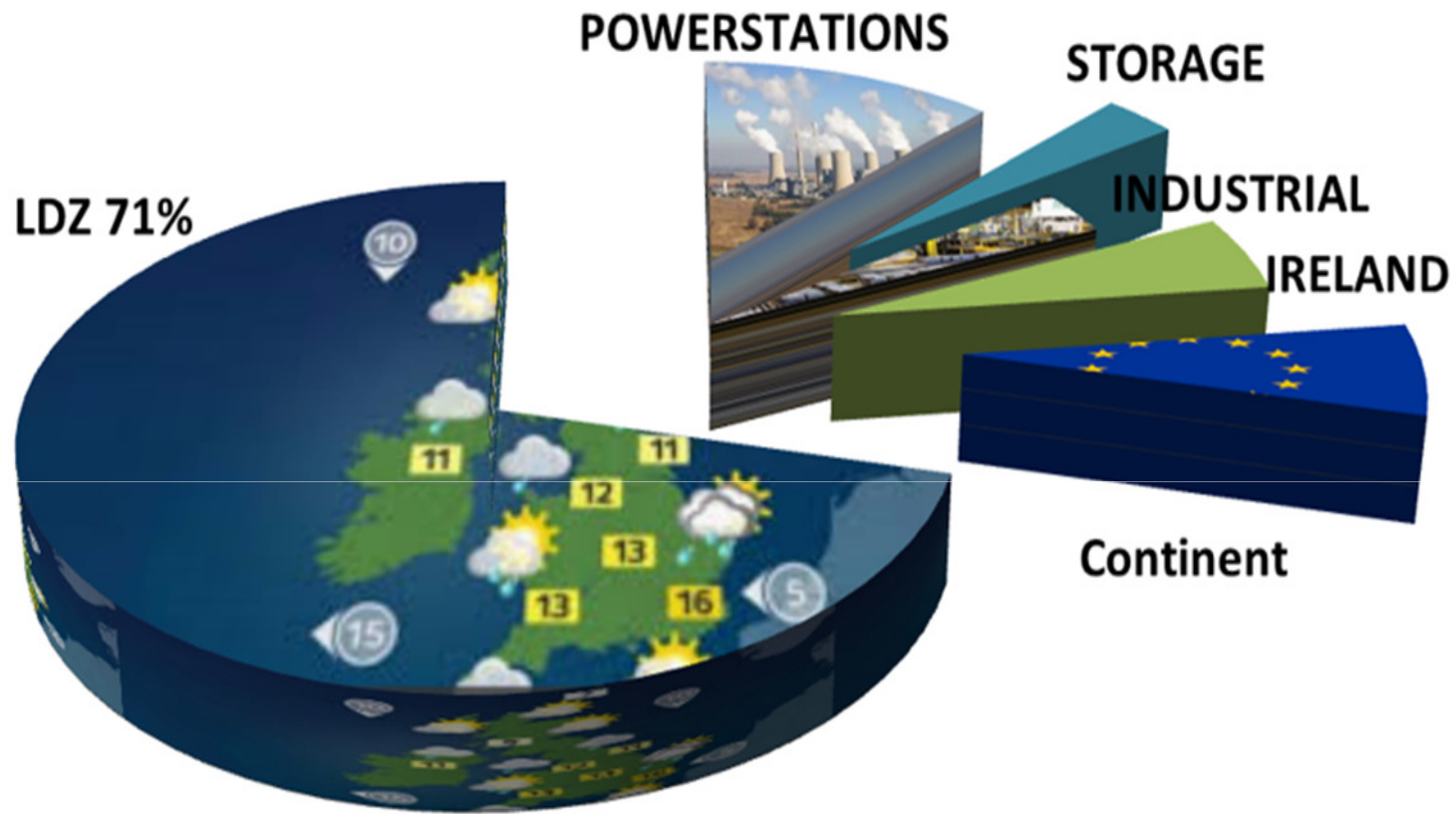
- ❑ Irish Gas Demand
 - Corrib 60%
 - Kinsale 5%
 - Britain 35%

- ❑ Kinsale will cease 2021

- ❑ Corrib volumes in decline and expected to cease by 2030



UK Demand

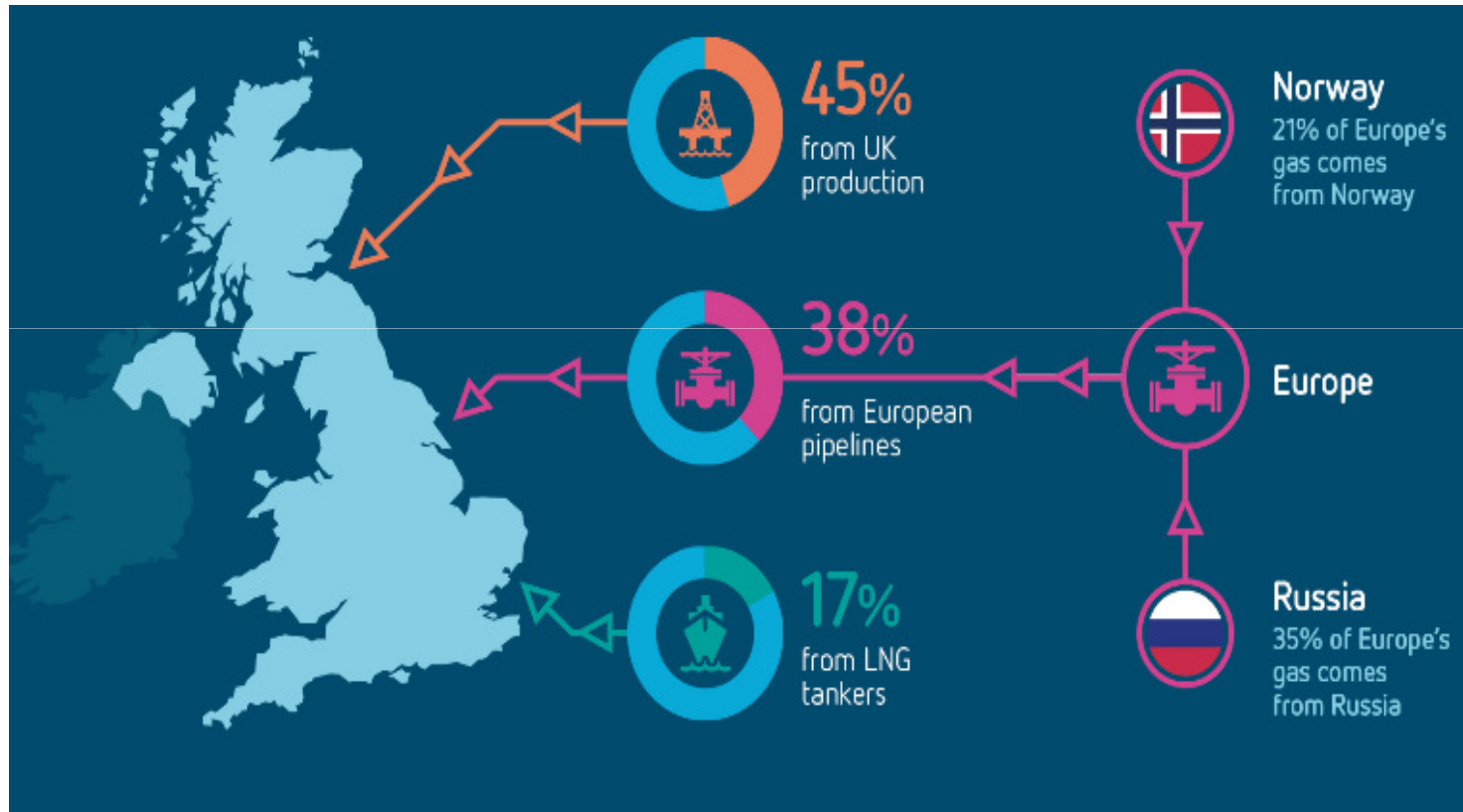


Weather is key to demand, rising and falling in line with temperatures



Where does UK Source its gas?

- ❑ The UK gets its gas from a variety of sources
- ❑ UK & Europe have significant Import dependency



Events far from our shores impact prices HERE!



French nuclear outages threaten higher UK power bills

Safety fears cut amount of electricity available for export



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DAX 29006.76 -0.05% ▼ S&P 500 2796.33 -0.05% ▼ Nasdaq 7899.86 -0.06% ▼ U.S. 10 Yr -11/32 Yield 2.87% ▼ Crude Oil 48.69 -1.27% ▼

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MARKETS | COMMODITIES
China Sucks Gas Out of Global Market as It Shifts From Coal
Move boosts LNG price and leaves swaths of industry in China struggling with limited gas supplies



REUTERS AFRICA

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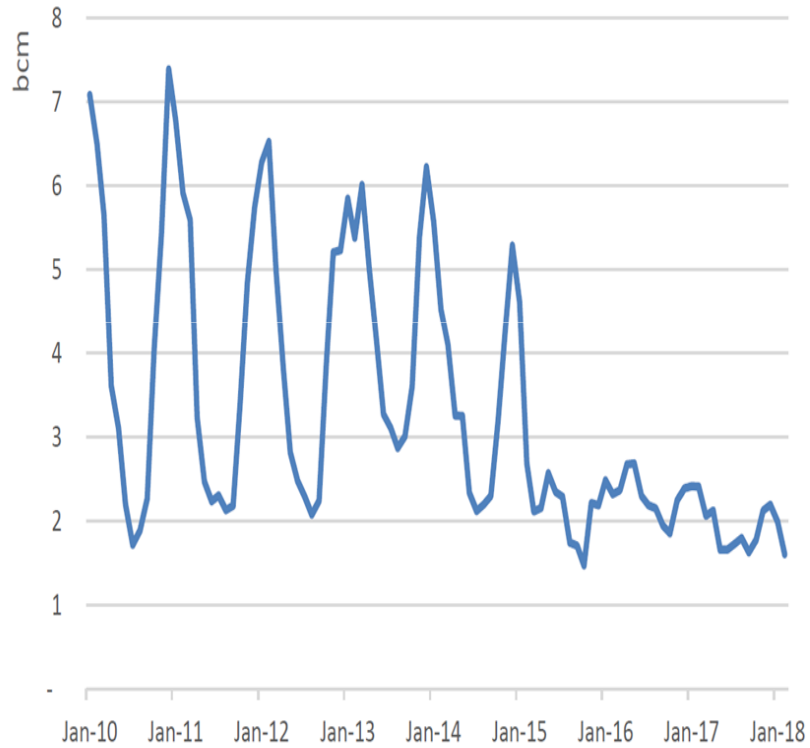
UK GAS-Prices rise as possible Groningen output cuts hit Dutch imports

Tue Jun 23, 2015 9:25am GMT

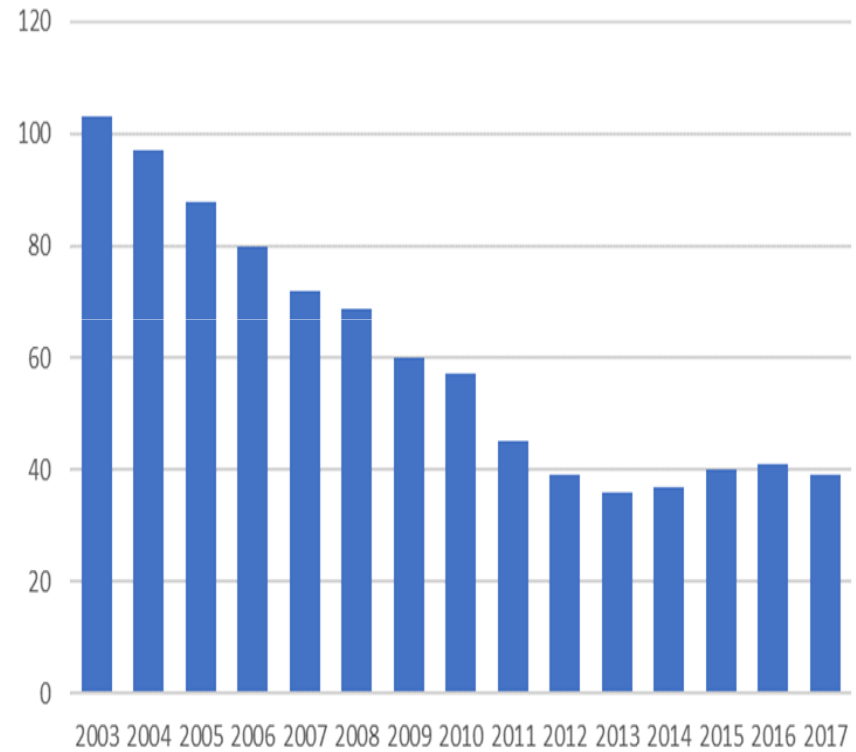


Declining Domestic Production

GRONINGEN GAS PRODUCTION (monthly bcm)



UK NATURAL GAS PRODUCTION (bcm)



Reduced Flexibility

- ❑ Storage: inject gas into storage facility in low demand (price) months for withdrawal in high demand (price) months
- ❑ Rough was the only long range storage facility in the UK with a storage capacity of 3.5bcm.
- ❑ Ability to supply over 45mcm on 76 days in the winter
- ❑ Facility closed in Summer 17 removing key source of flexibility.
- ❑ Spreads (winter/summer) have widened to reflect lower summer demand and lower winter supply



Ageing Gas Infrastructure

Markets

Crack and Explosion Show Risks of Europe's Aging Energy Networks

Oil [+ Add to myFT](#)

UK pipeline shutdown sends energy prices soaring

Bloomberg

Business

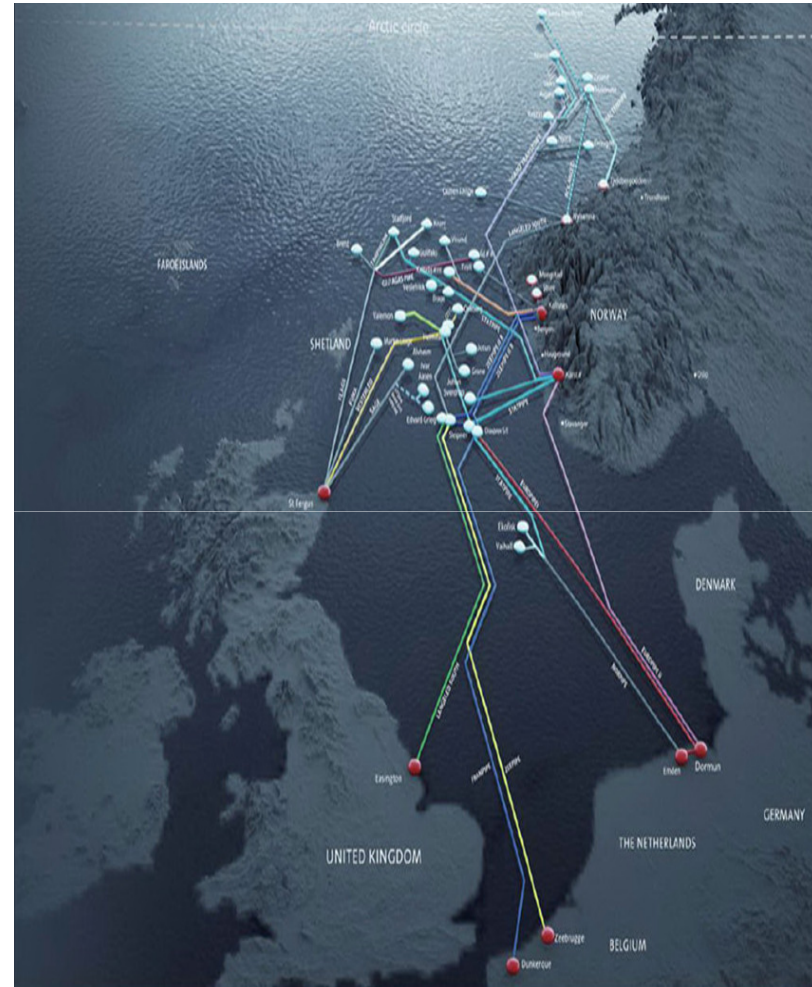
Austrian Explosion Rattles Europe's Gas Market

By [Rob Verdonck](#), [Mathew Carr](#), and [Matthias Wabl](#)

12 December 2017 10:24 Updated on 12 December 2017 20:24

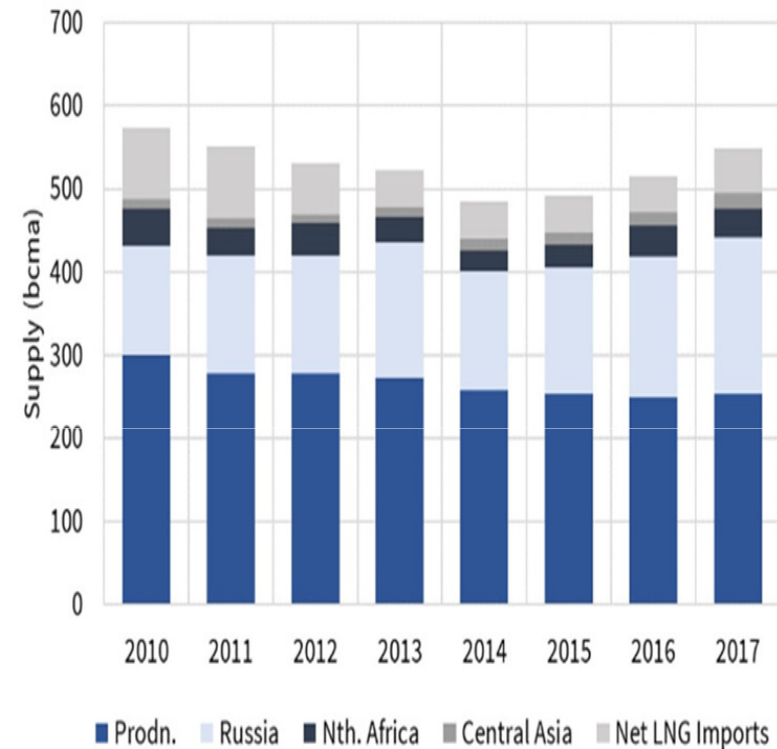
COMMODITIES NEWS AUGUST 31, 2018 / 9:13 AM / A MONTH AGO

UK GAS-Prices up on ongoing Norwegian field outages



Resurgent European Gas Demand

- ❑ European Gas Demand
 - 2010 at 586bcm
- ❑ 2010-2014: falling Gas Demand
 - Growth of renewables
 - Energy efficiency
 - Energy intensive industry shifting East
- ❑ 2016 & 2017: Growth in Demand
 - Higher power consumption
 - Recovering economic growth
- ❑ Growing reliance on Russian Gas



Source: Timera Energy



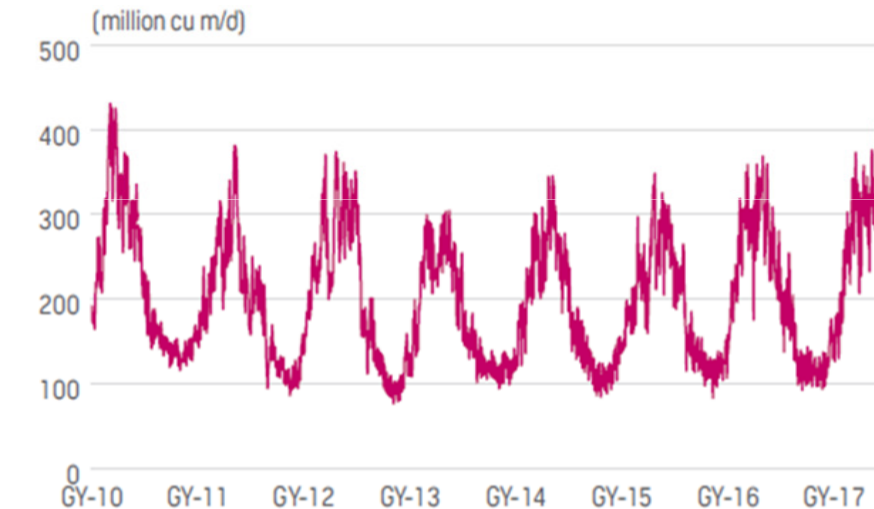
Recent Beast from the East illustrates Risk

National Grid Gas Deficit Warning

- ❑ UK Gas demand hit an eight year high
- ❑ Reduced Flexibility: UK & Europe
 - Rough Storage facility closed
 - Storage levels in Europe depleted
- ❑ Low LNG: heading East for winter!
- ❑ Numerous Supply disruptions in the UK and across Europe
- ❑ NBP traded up to £5 a therm



UK GAS DEMAND HITS EIGHT-YEAR HIGH

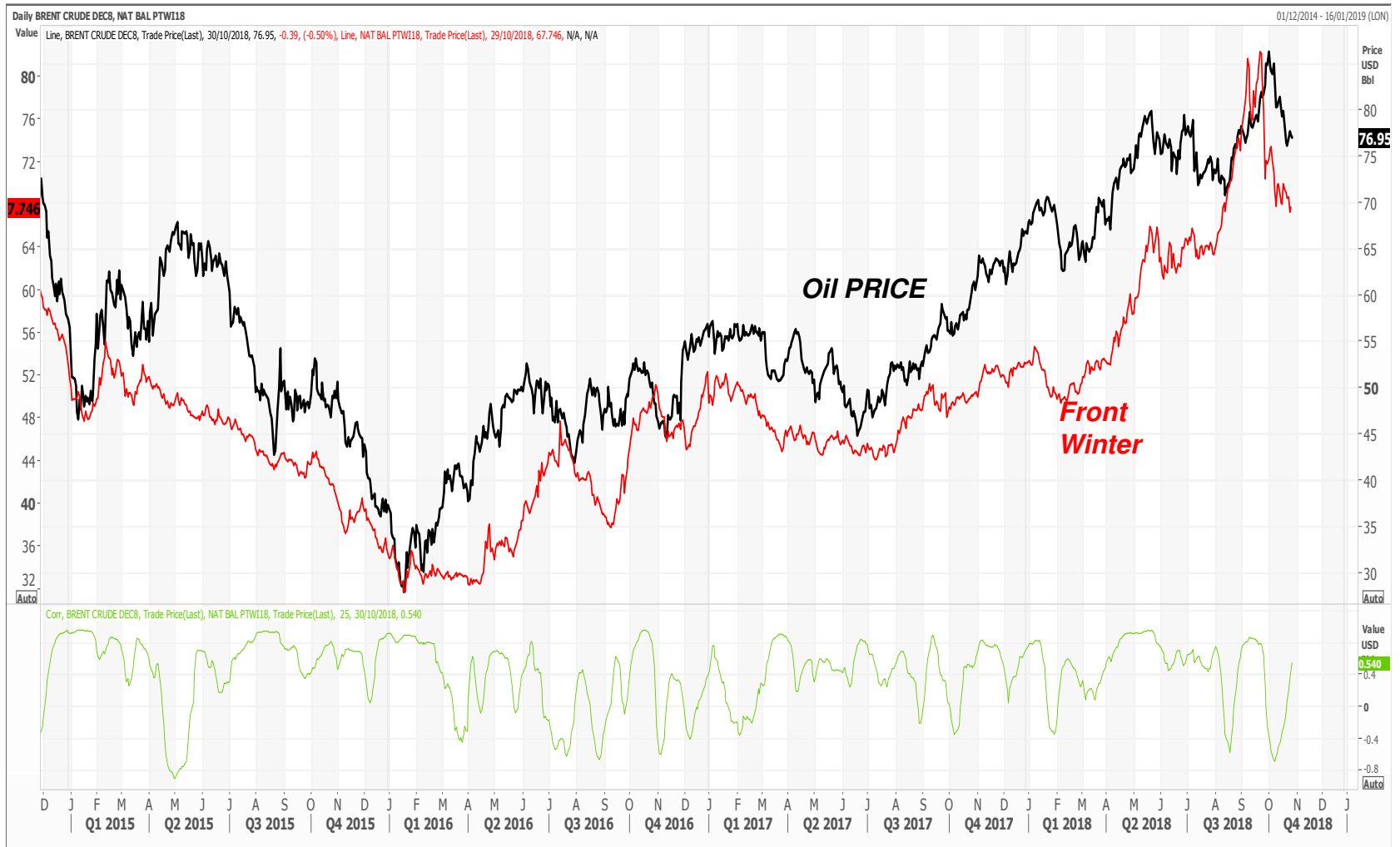


Source: S&P Global Platts Analytics

Given reduced flexibility and increasing import reliance we are likely to see increased gas price volatility.



Oil vs Front Winter 2015-2018



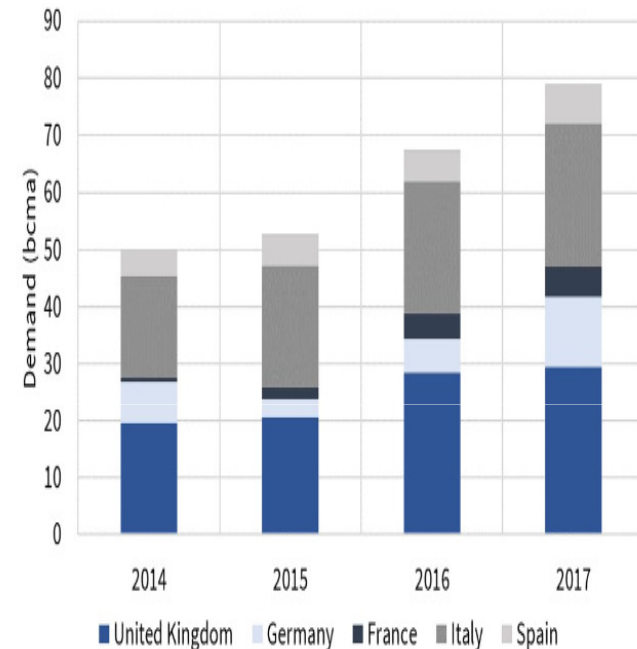
Brent 2013-2018



Coal & Carbon prices

- ❑ Coal prices play an important part in energy mix as they compete with gas to generate power
- ❑ The coal switching price is the level at which the cost of generating power using coal or gas is equal
 - Gas price above switching price ↓ **Gas Demand**
 - Gas price below switching price ↑ **Gas Demand**
- ❑ Increase in the cost of coal generation since 2016
 - Relatively strong coal price
 - Reform of European Emission Trading system and higher carbon prices

Power Gas Demand



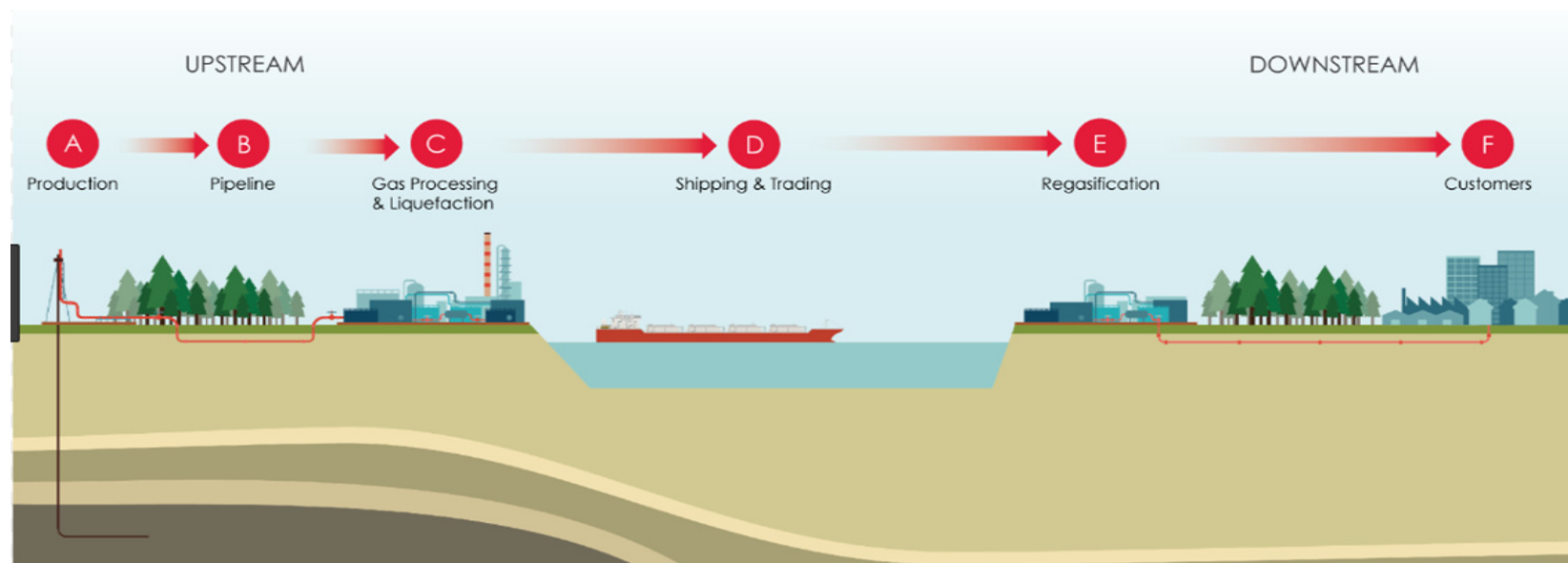
Source: Timera Energy

Increases in coal and carbon prices has driven European gas demand higher as gas for power demand increases.



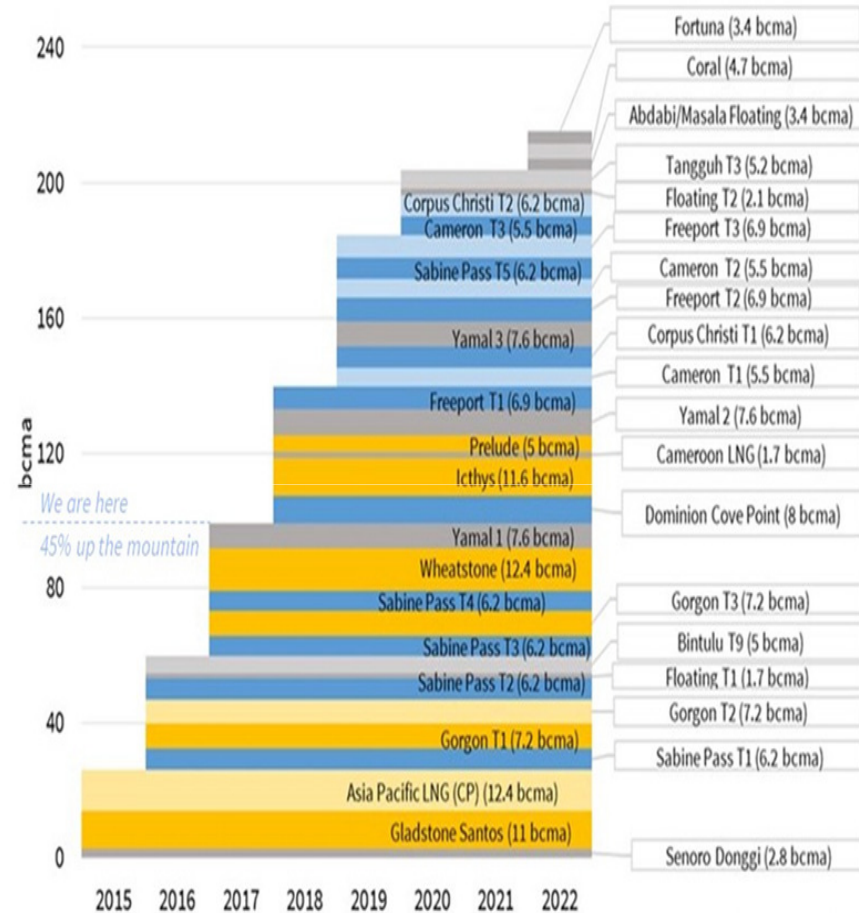
Growing Importance of LNG

- ❑ Traditionally Gas Markets Regionalised.
 - Asian, European & North American gas markets largely disconnected
- ❑ LNG a move toward a global gas market
- ❑ Gas can be produced in one region, transported by pipeline to liquefaction facility, liquified, put onto LNG tankers and delivered to markets across the globe.
- ❑ Regions compete to attract these cargoes



The LNG Glut

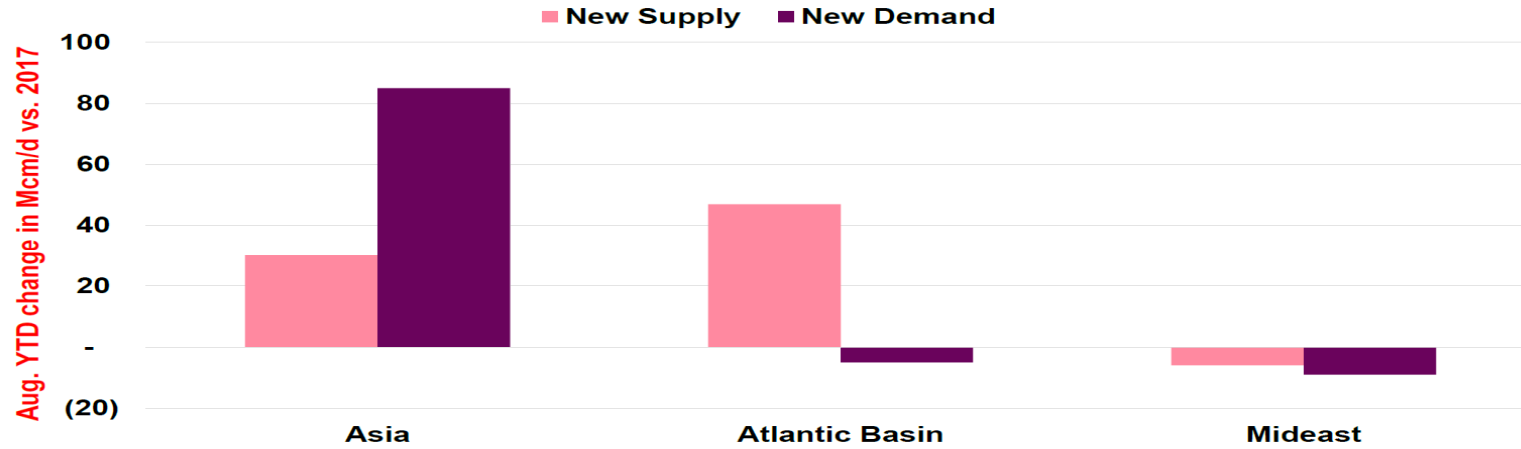
- ❑ High stable LNG prices (oil) in early part of this decade
- ❑ Low Interest rate environment
- ❑ Cascade of Investment into LNG facilities
- ❑ Many of these investments come to market 2015-2022.
- ❑ Expectation was for a period of oversupply in global gas markets
- ❑ Given European capacity, view was it would be market to absorb excess LNG



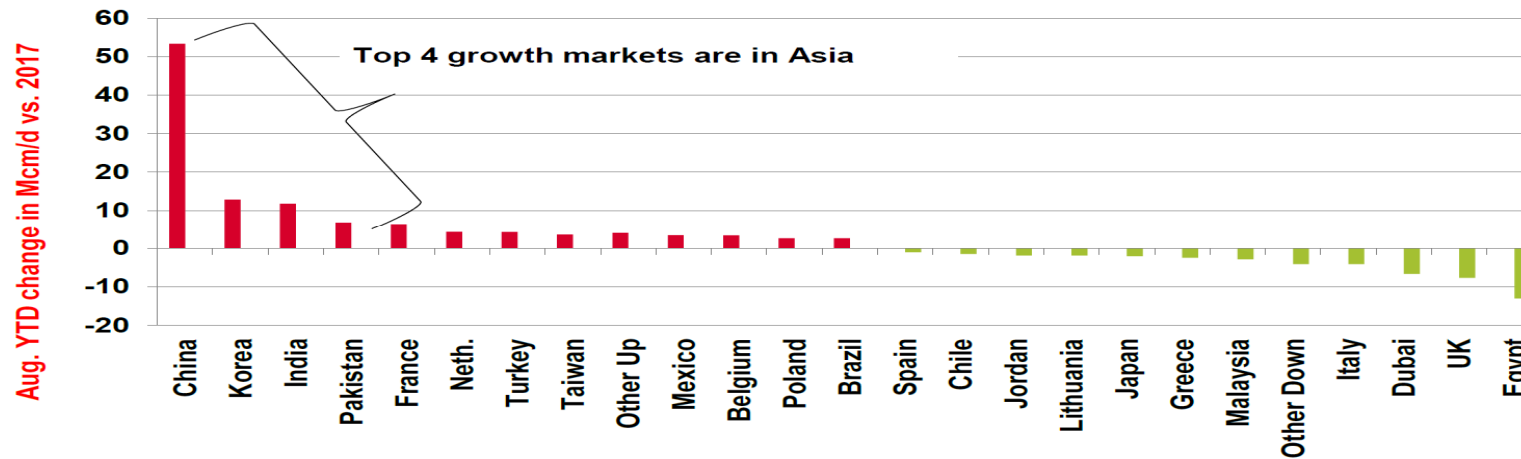
Source: Timera Energy



Asian Demand the Key!



S&P Global
Platts



The Potential Consequences of Brexit

The Two Major Concerns



1. Will we see tariffs placed on gas imports?

- Firstly, We don't know what the shape of final Brexit deal, there isn't a precedent for a country leaving the EU!
- *However*, EU currently trades gas with non-EU countries without tariffs
- Interdependency: EU & UK both net importers
- Hard Brexit default to WTO

2. Will Brexit impact gas flows to Ireland ?

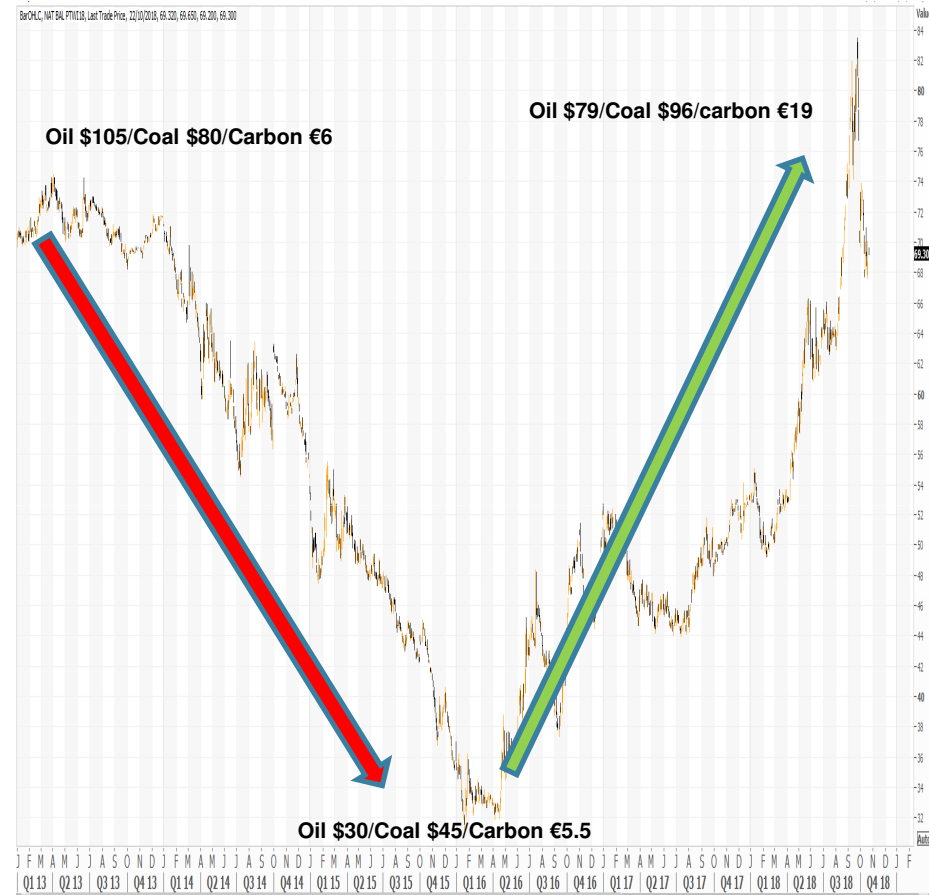
- Solidarity principle: EU Member States ready to help neighbouring countries in the event of a gas crisis.
- Republic and Northern Ireland heavily interdependent: single electricity market
- Inter-governmental gas treaty (1993) co-operation to deal with any disruptions to gas supplies to Ireland.



Factors pushing gas higher

- ❑ Broad Commodity recovery
- ❑ Reduced flexibility
- ❑ Recovering European Gas Demand
- ❑ Falling Domestic European Production
- ❑ Increased reliance on imports to balance
- ❑ Predicted LNG Glut: Not in Europe As tankers Head East!
- ❑ Ageing Gas Infrastructure in Europe
- ❑ Pullback in recent weeks

Front Winter 2013-current



broad commodity rally coupled with reduced flexibility & recovering demand has pushed prices back to levels not seen since 2014.

