Can LNG allow gas demand to grow in Europe?

ESCP – 22 September 2016

thierrybros.com

Consequences of high gas prices in 2011-2013

Short
- Increase producer's rent
  - Very good

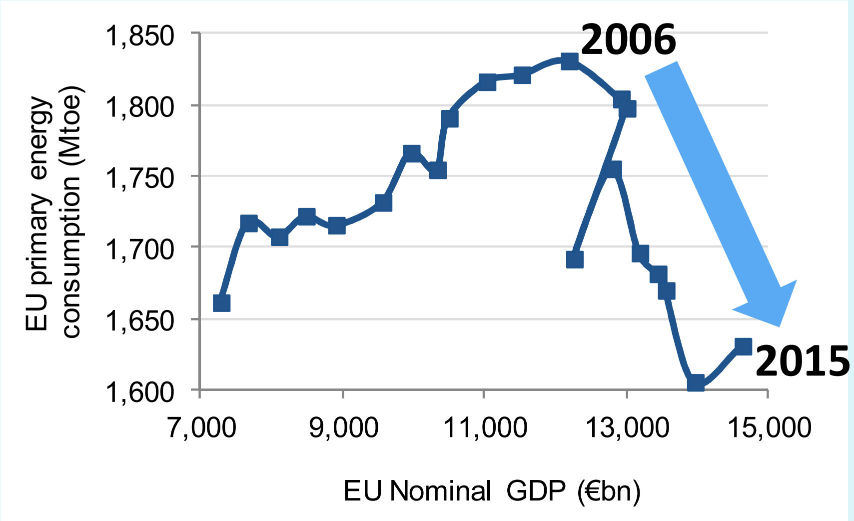
Med.
- Demand destruction
  - Impact on export volumes?

Long
- New suppliers entering the market
  - New competitors from 2016

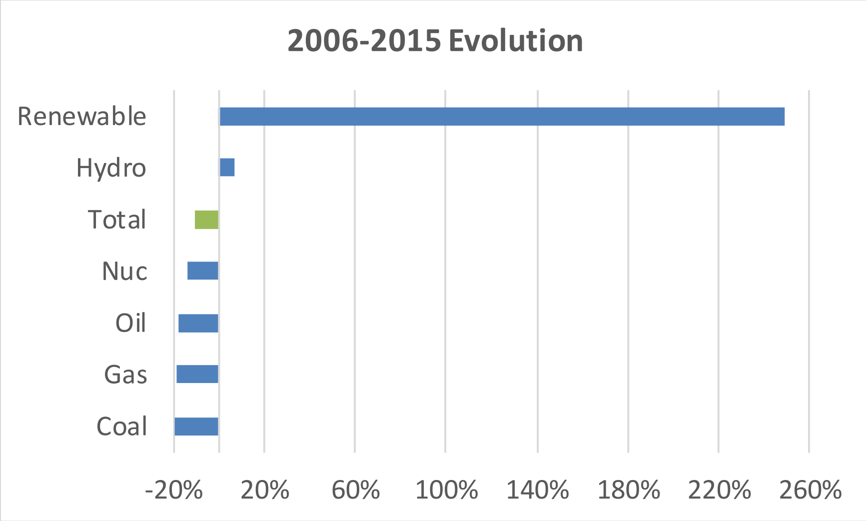
After
- *Lower prices & higher demand?*

Long term sustainability of gas?

EU Primary energy consumption
Down by 10,9% since 2006

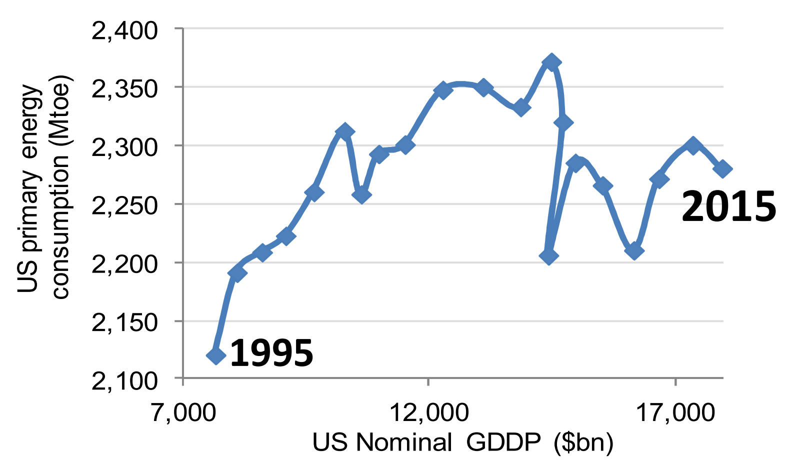


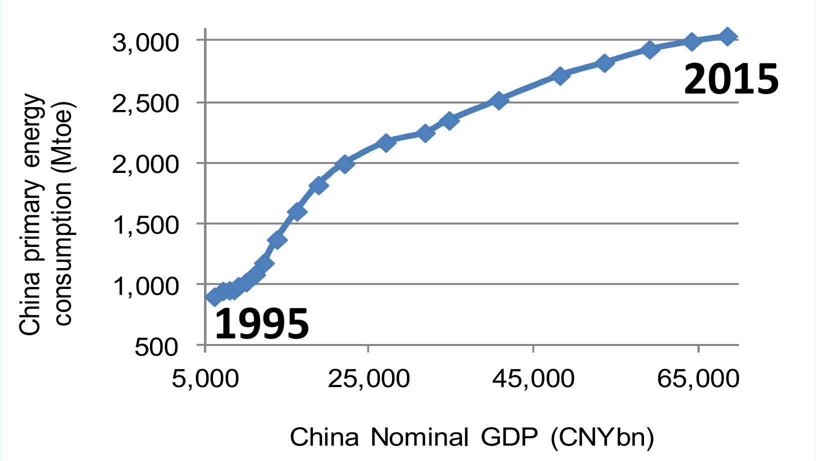
Most fuels down
Renewable x3.5

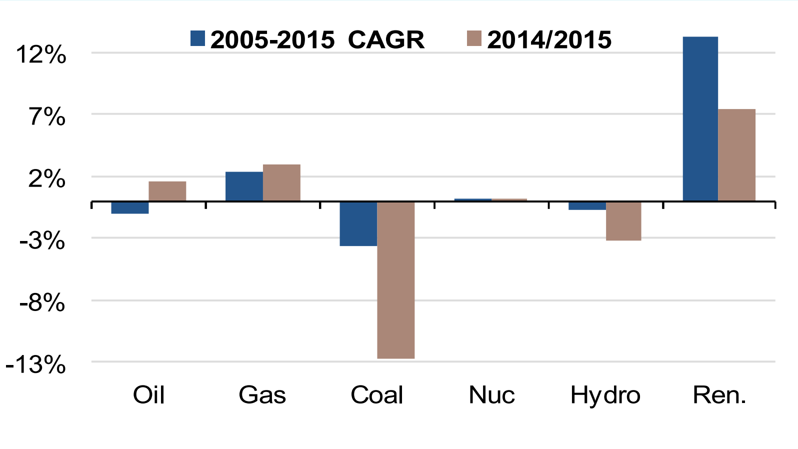


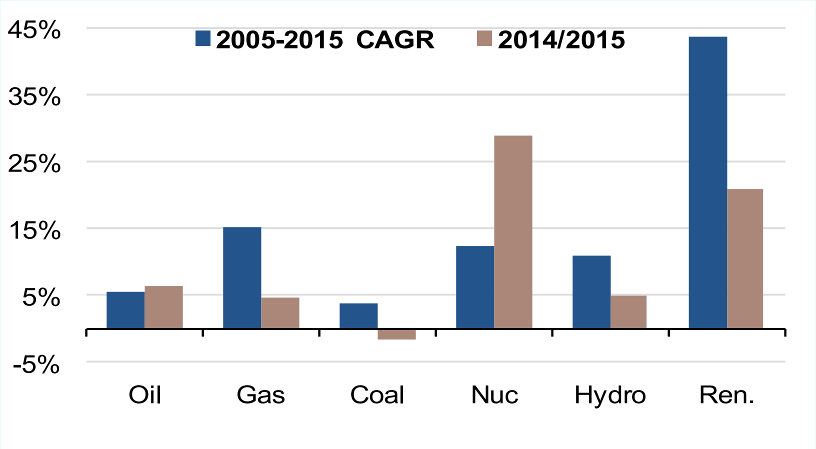
Source: BP Statistical Review June 2016, Eurostat

Primary energy consumption



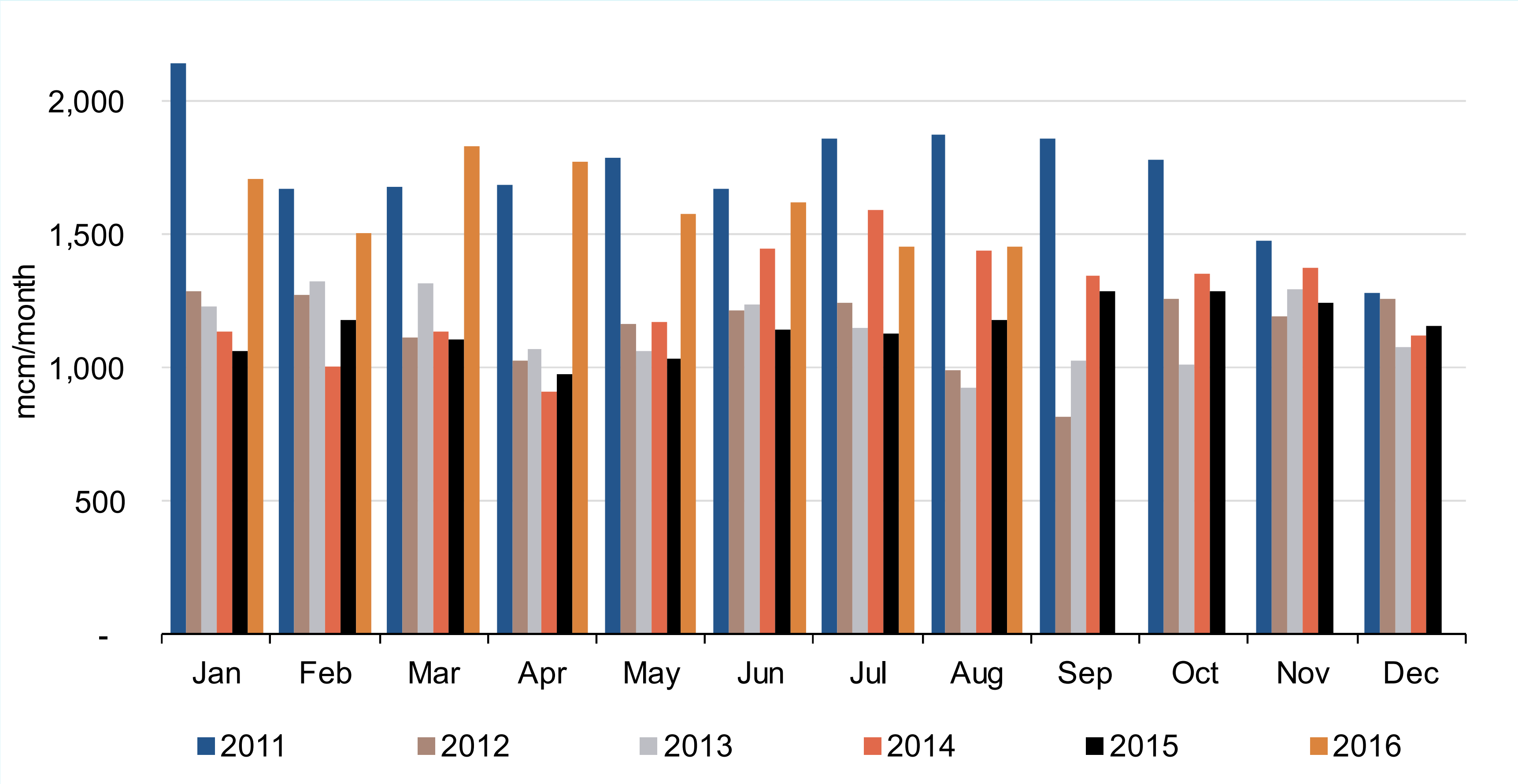






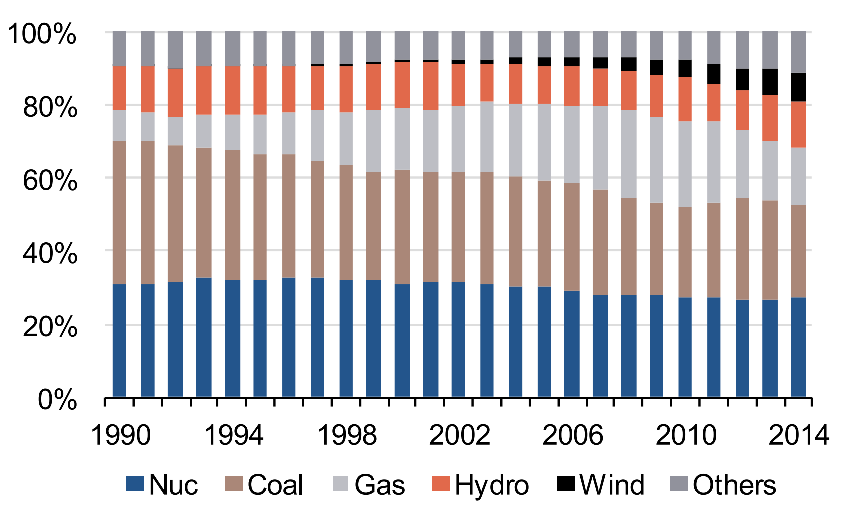
Source: thierrybros.com, BP Statistical Review, Eurostat, IMF

Gas for power generation in the UK

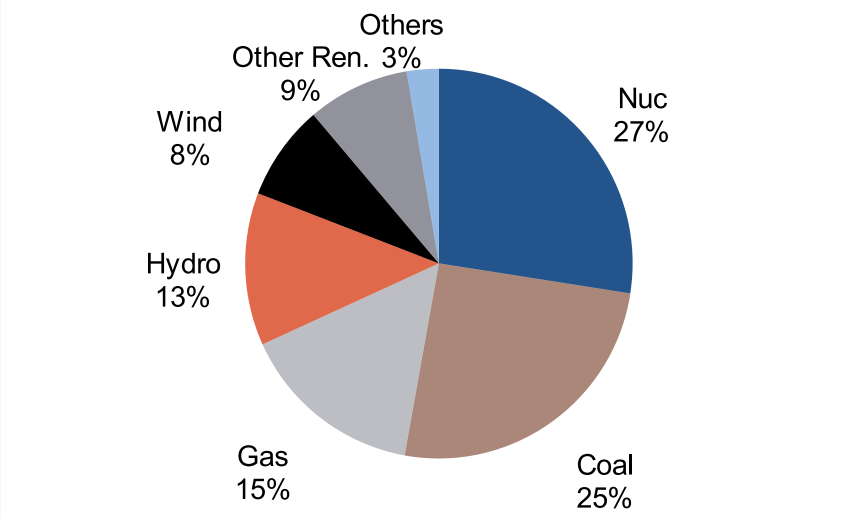


Source: SG Cross Asset Research

Gas for European power generation?

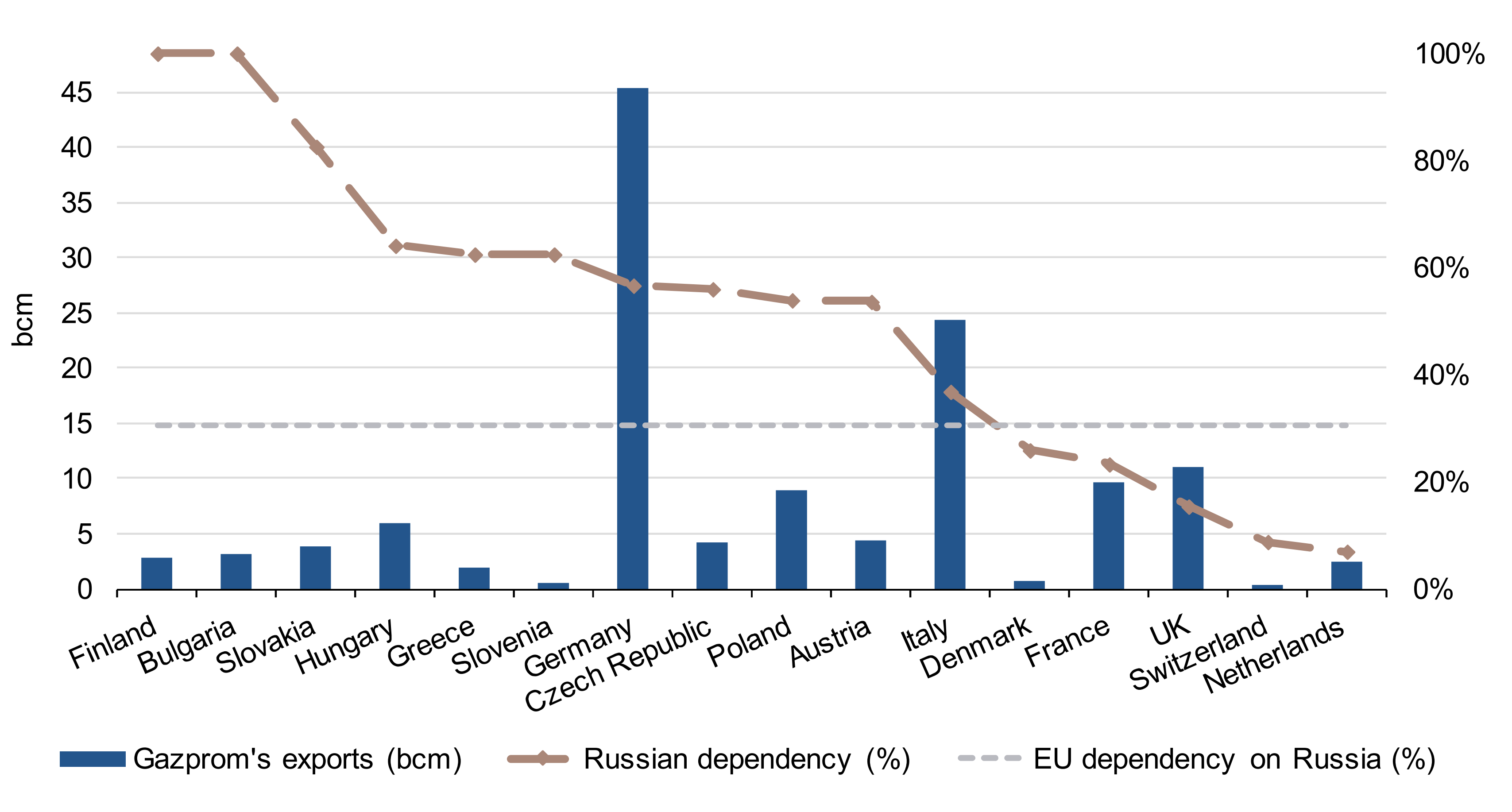


Source: thierrybros.com, Eurostat



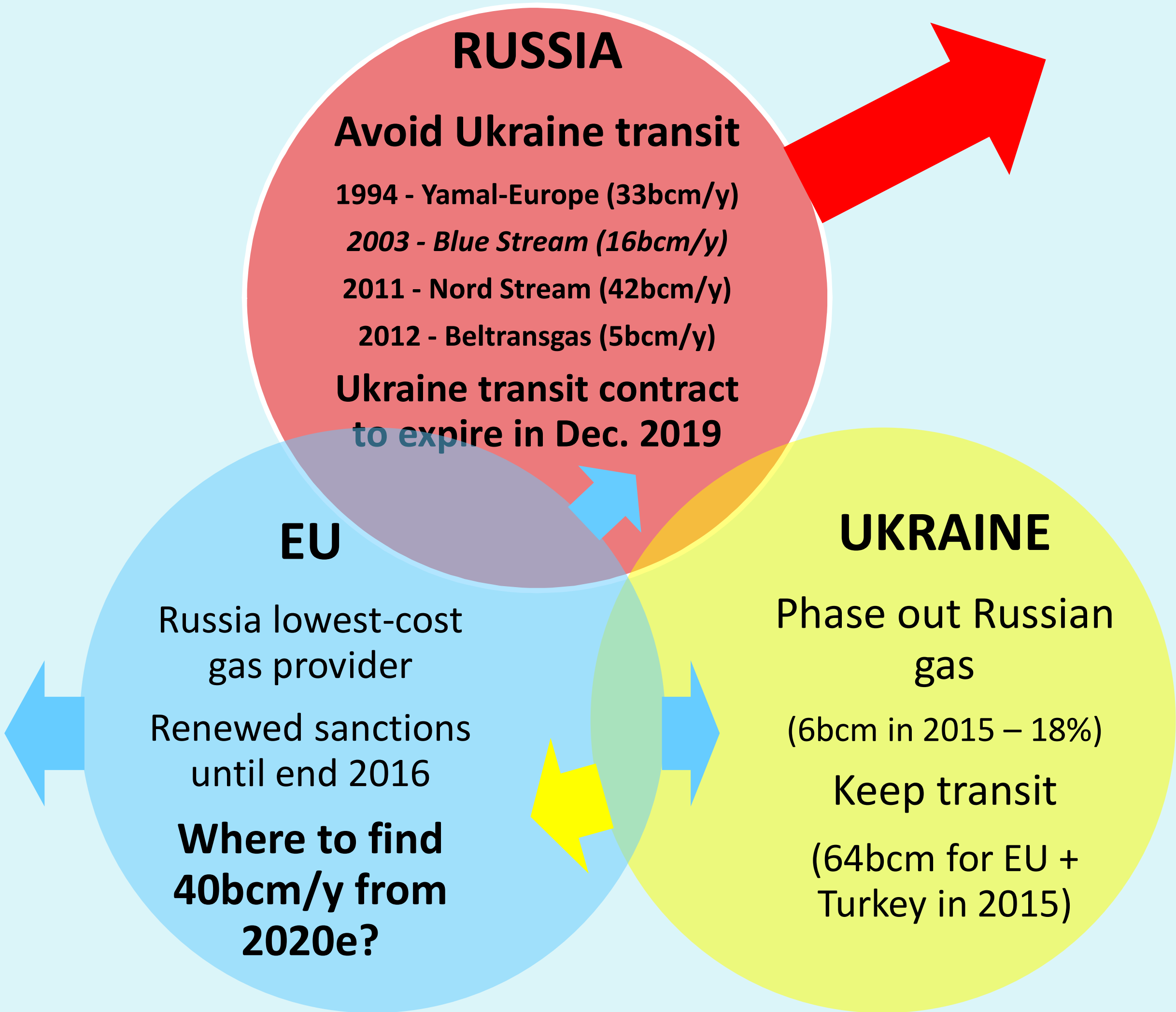
A 1% switch from coal to gas in EU power generation increases gas demand by c. 6bcm

Solidarity cracks…

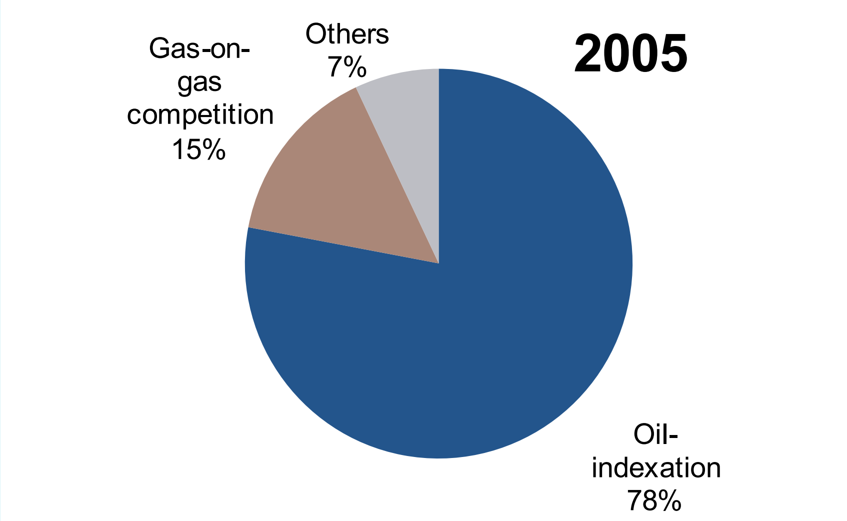


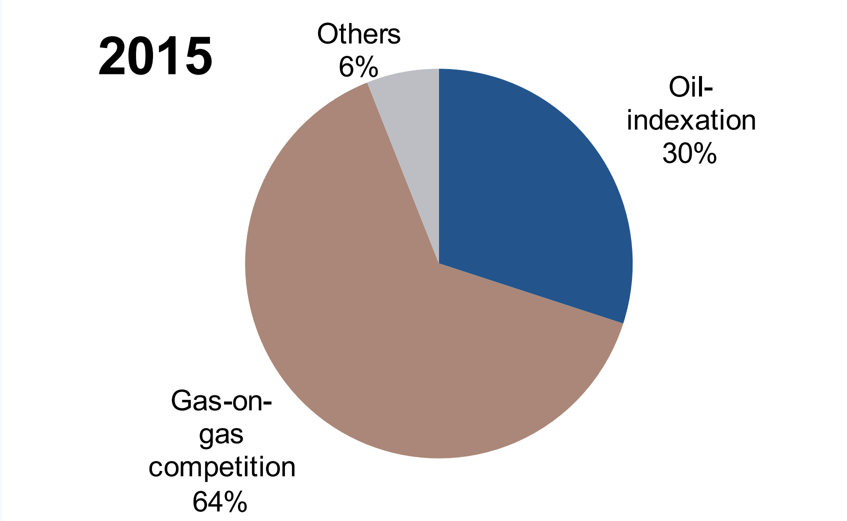
Source: BP Statistical Review June 2016, Gazprom, thierrybros.com

… make it difficult to find a win-win solution



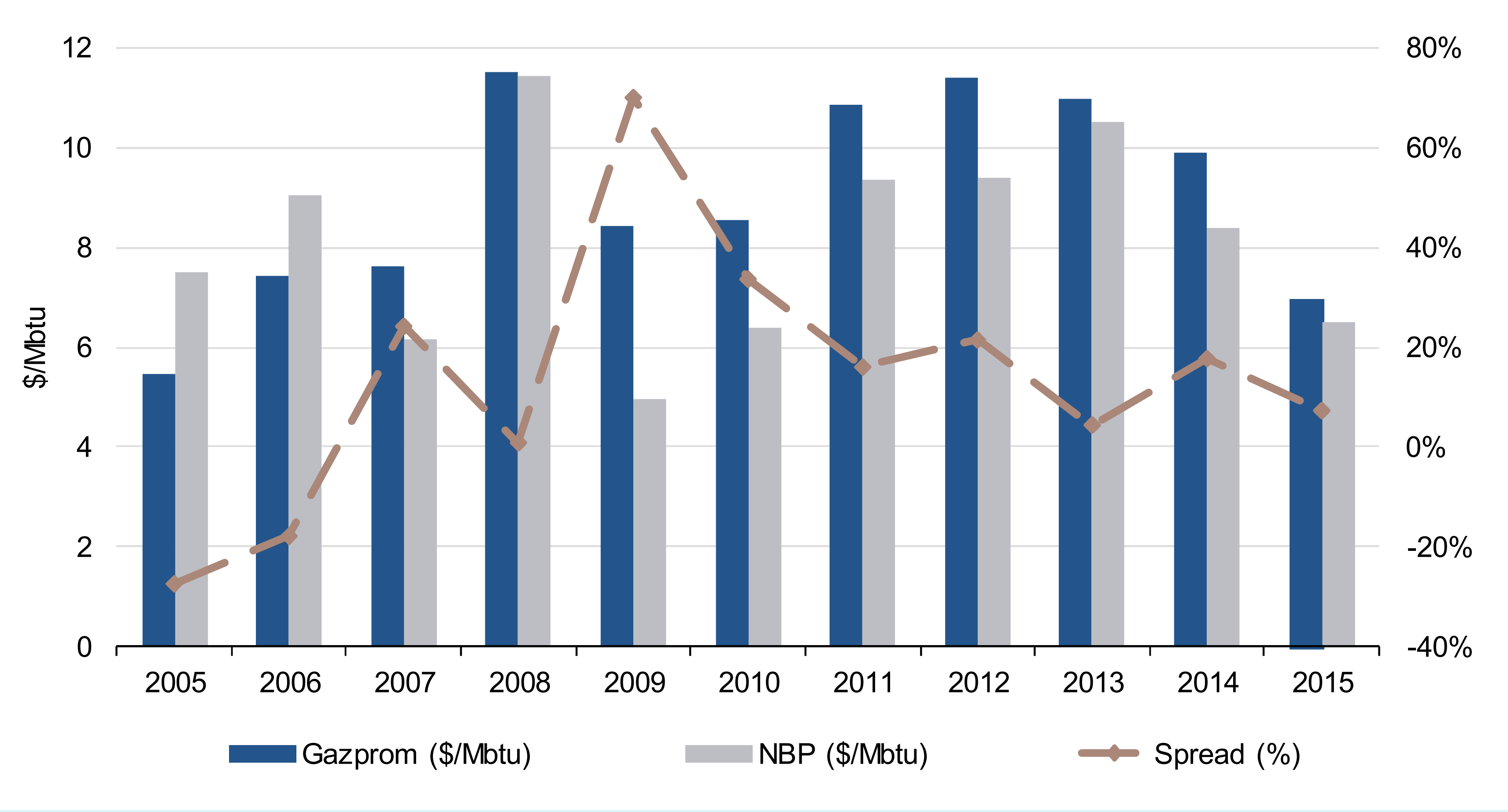
European wholesale gas pricing…





Source: thierrybros.com, IGU

… is influenced by Gazprom



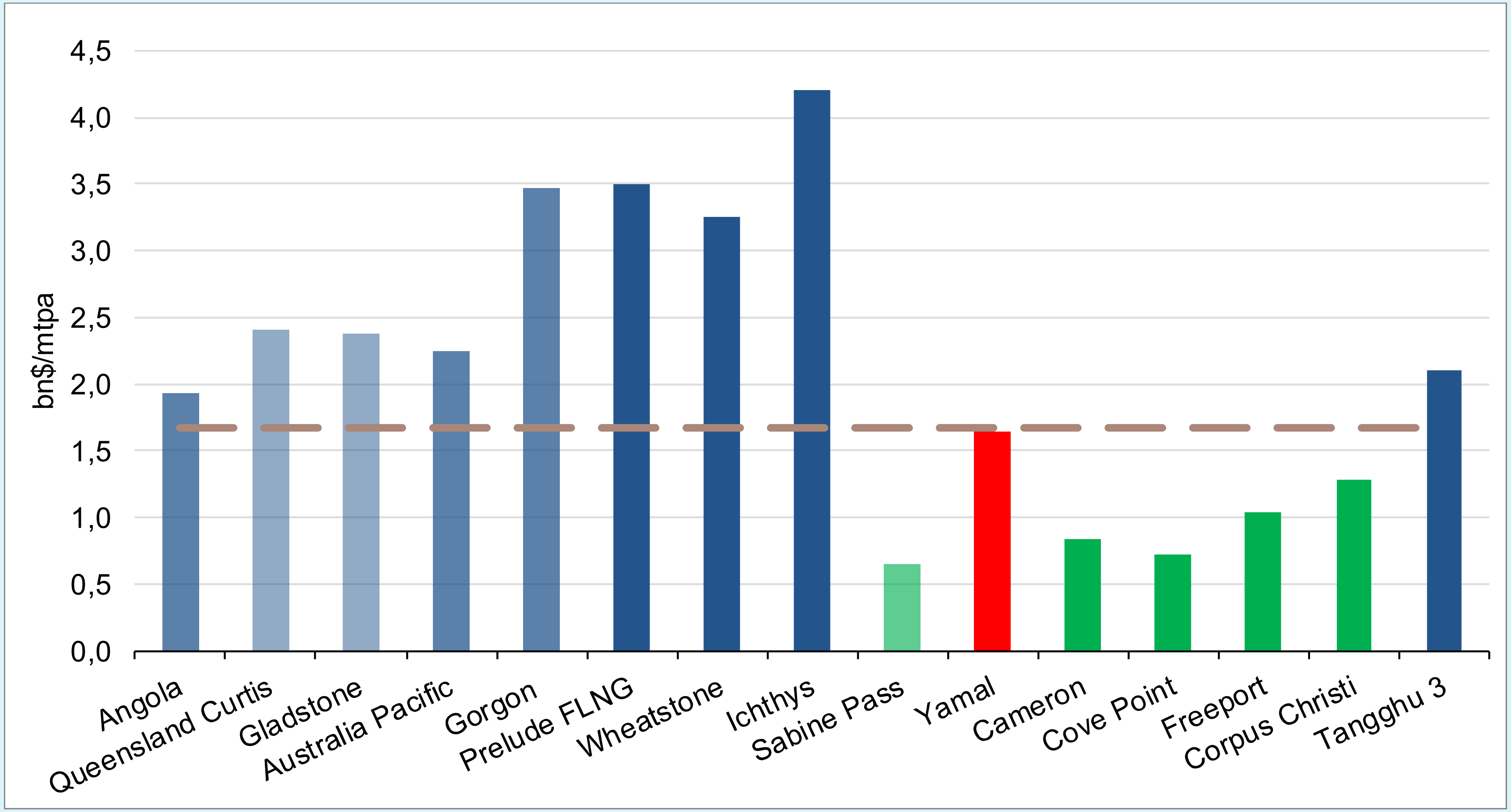
Source: thierrybros.com, Gazprom, Datastream

US #3 LNG producer in 2020e

US LNG export projects (with DoE and FERC status or construction update)	Capacity (mtpa)
Cheniere Sabine Pass – *Construction started in Q2 12 – Train 1 & 2 in operation*	22
Sempra Cameron – *Construction started in Q3 14*	12
Dominion Cove Point – *Construction started in Q3 14*	5
Freeport – *Construction started in Q3 14*	14
Cheniere Corpus Christi – *Construction started in Q2 15*	9
Lake Charles (BG) *(FTA, non-FTA & FERC approved)*	15
Jordan Cove *(FTA & non-FTA approved – FERC filed)*	9
Gulf Coast LNG Export *(FTA approved – non-FTA filed)*	21
Gulf LNG Liquefaction *(FTA approved – non-FTA & FERC filed)*	11
LNG Development, Oregon *(FTA & non-FTA approved – FERC filed)*	10
Southern LNG Elba Island *(FTA & FERC approved – non-FTA filed)*	4
Golden Pass *(FTA approved – non-FTA & FERC filed)*	16
CE FLNG *(FTA approved – non-FTA filed)*	8
Total US	**More than 400**
Total Canada (11 projects approved)	**More than 200**

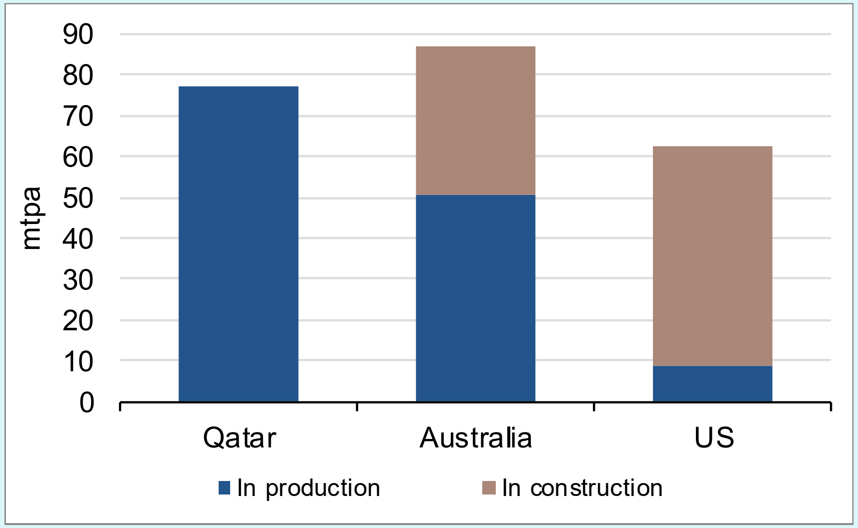
Source: thierrybros.com, US DoE, Canada National Energy Board

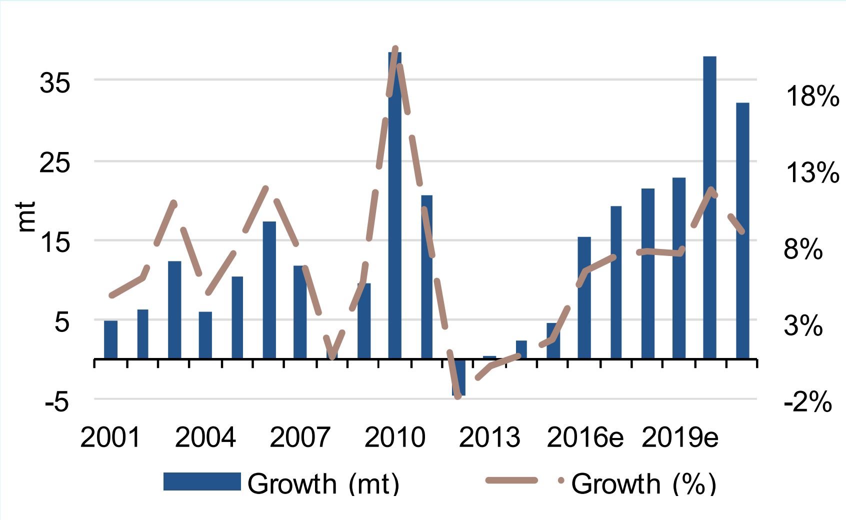
New liquefaction FID is unlikely



Source: thierrybros.com, company data

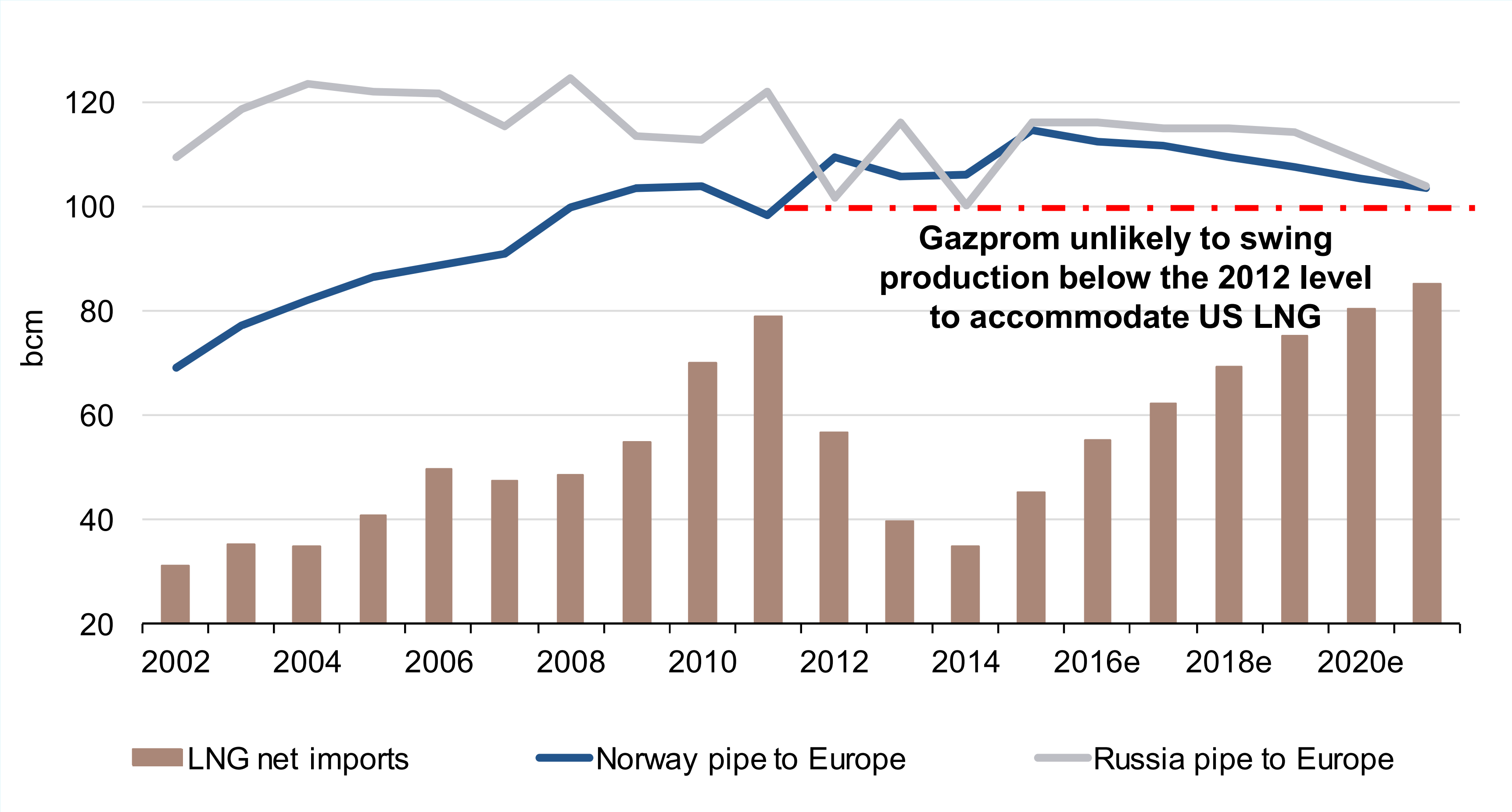
The speed of LNG supply growth…





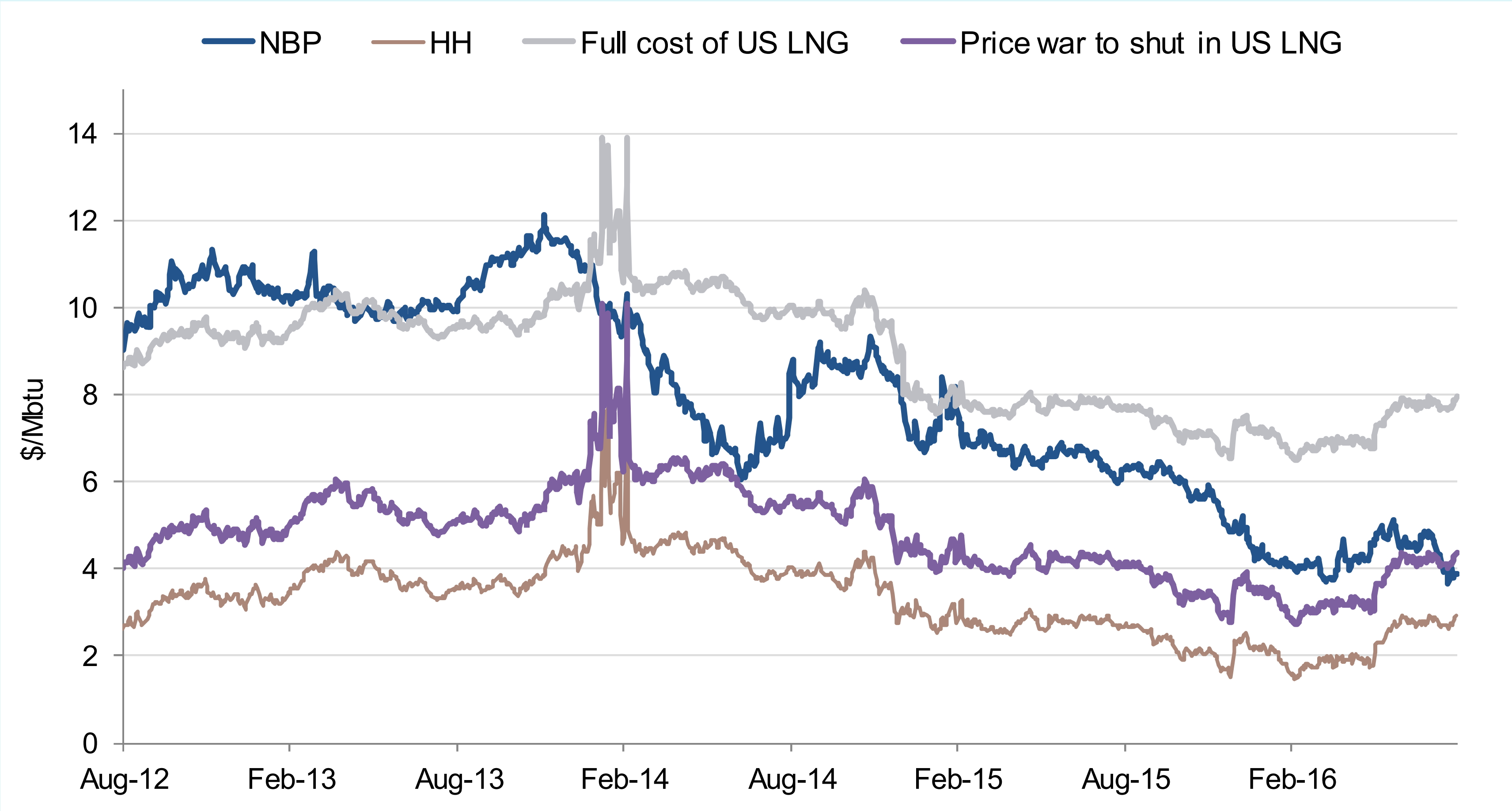
Source: thierrybros.com, GIIGNL for historical data

… and the rate at which it reaches Europe…



Source: SG Cross Asset Research, IEA for historical data

…will dictate how Russia reacts



Source: SG Cross Asset Research/Commodities, Datastream

3 options for the duopoly to manage prices

High 7$/Mbtu min	• Tightening supply • Increase producers' rent • 2012-2013 • **Prompted new FIDs**
Med. c.4$/Mbtu	• Swinging supply • Demand destruction • Since 2014 • **Most profitable in the long term**
Low 4$/Mbtu max	• Use of spare capacity • Price war to shut in US LNG • Lower revenues • **Can be done sporadically**

Thank you