

Globalization of Gas – the impact on Europe

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- European gas demand has been in decline since 2010 but it has been picking up in 2013.
- In recent years the biggest decline has been in gas to power sector.
- Total European production is in decline.
- Since 2010 European reliance on imported volume has been in sharp rise despite demand destruction.
- LNG remains the swing factor in the supply mix.
- Recent months have seen huge price hike and volatility in the European prices.

Demand & Supply

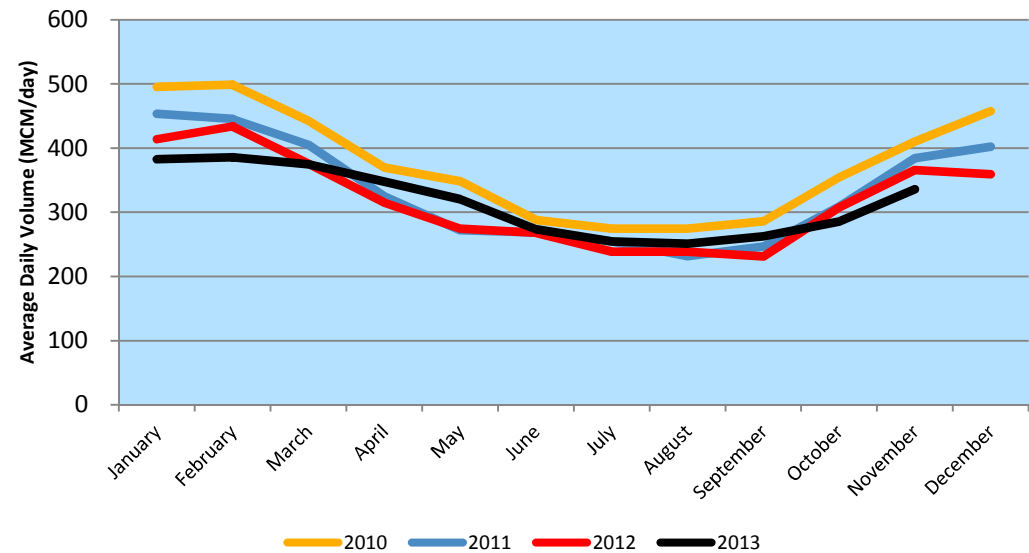
Total Demand vs Domestic Production



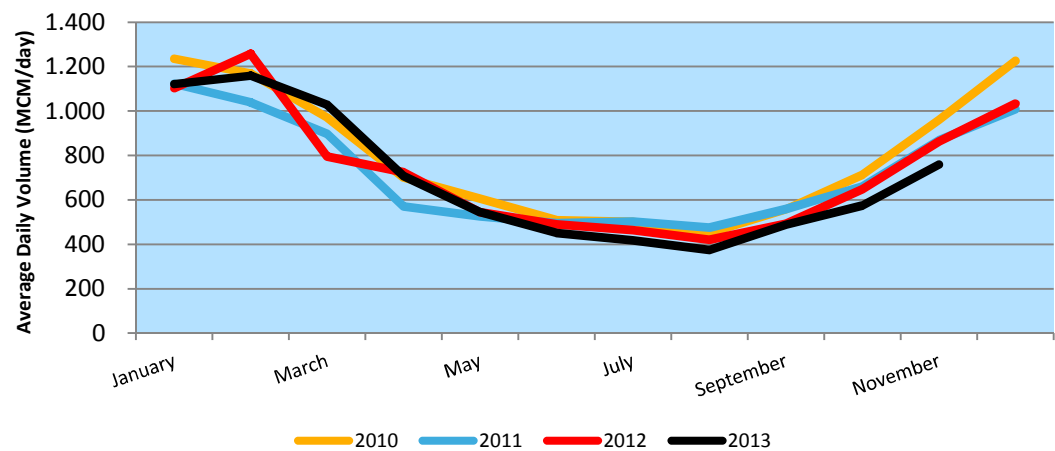
Supply – Demand : The Past

- Between 2010 & 2012 total European domestic demand has declined by approximately 12%.
- During the same period domestic production declined by 15%.
- The gap between supply and domestic production is met by foreign or imported gas.

Total European Domestic Production

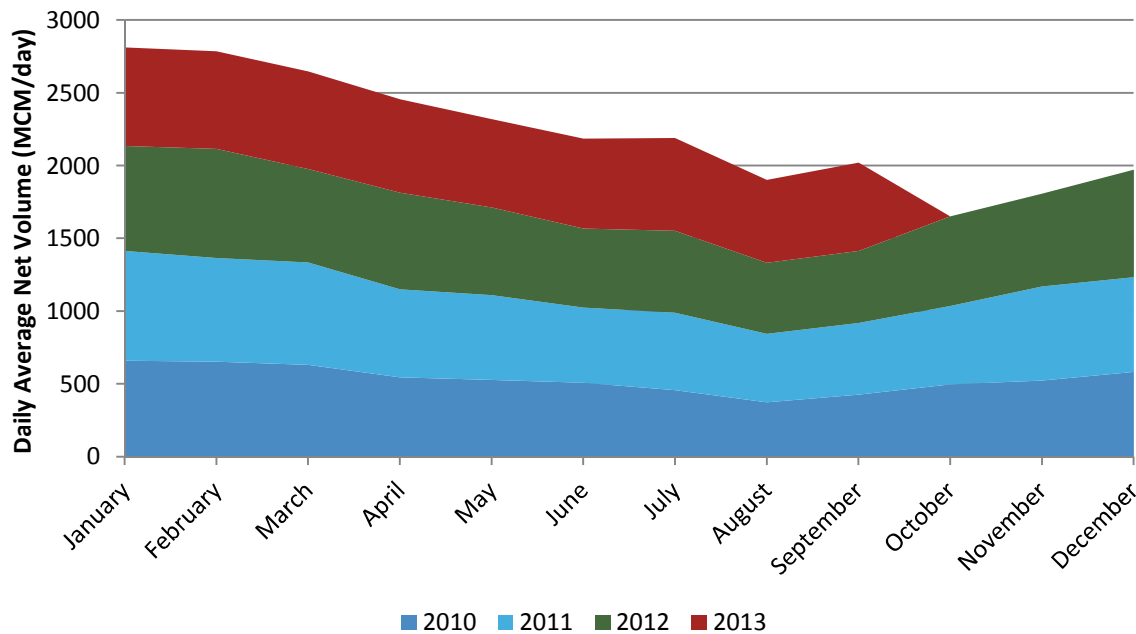


Total European Domestic Demand

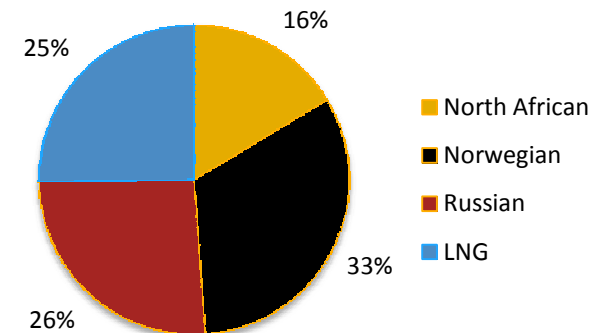


Supply Demand : The Present

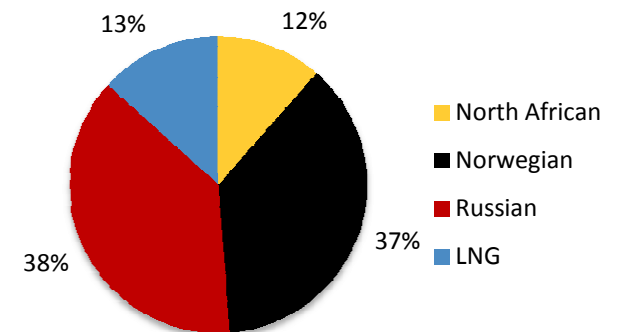
Total EU Piped 2010 - 2013



EU Piped Imports and LNG Sendout 2010



EU Piped Imports and LNG Sendout 2013



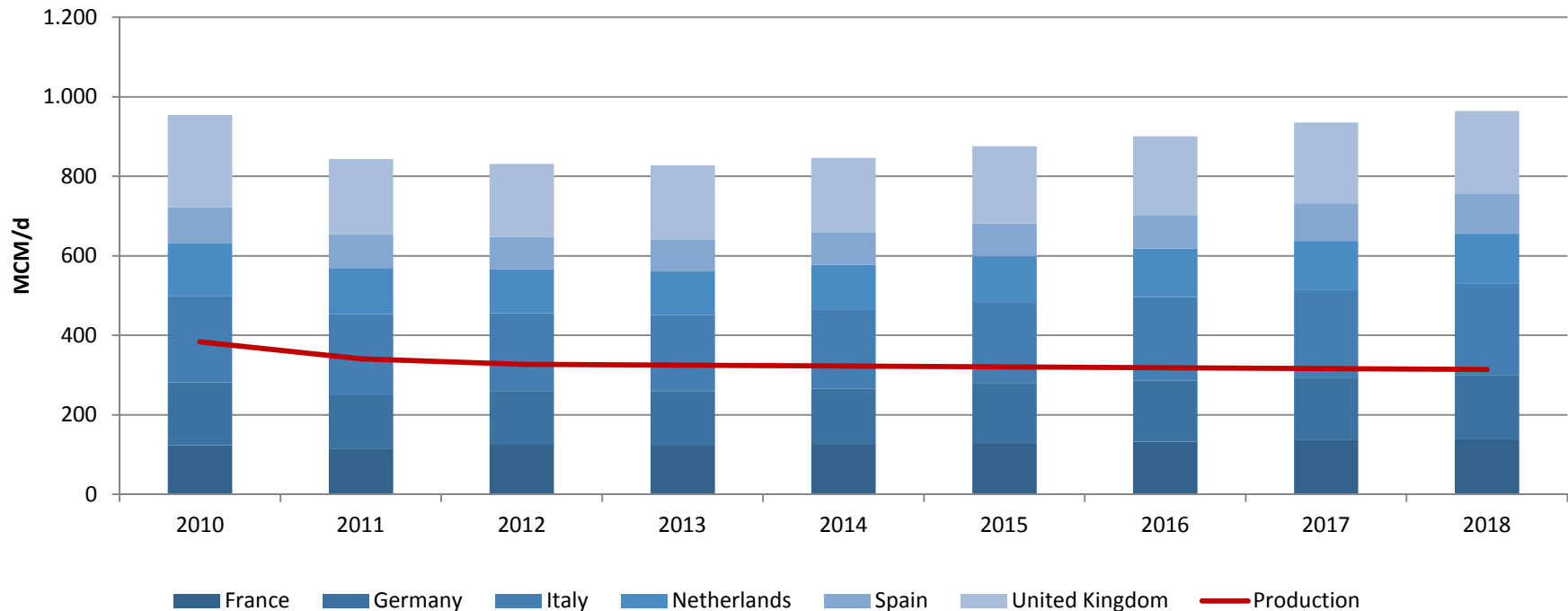
- Russian and Norwegian volumes to Europe has seen an increase (4% higher).
- So far this year Russia and Norway supplied almost 75% of all foreign gas.

Supply – Demand: The Future

Forecast



Total Gas Demand 2008-2020



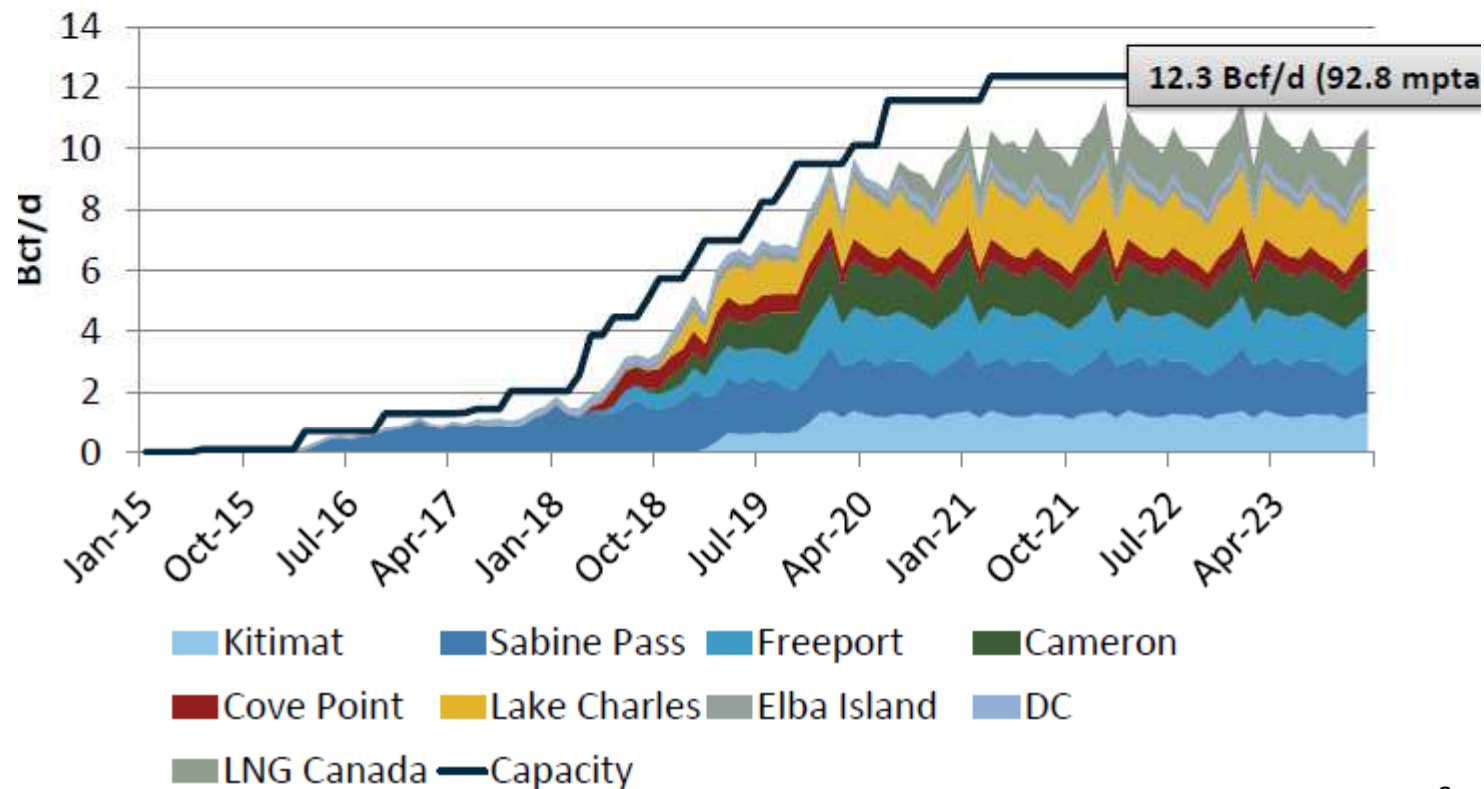
- Assuming average European GDP growth at 2% in 2018, the total demand should reach around 1 bcm/d– similar to 2010 level.
- Domestic production on the other hand will decline by 18% from 2010 level.
- This will mean even bigger (6% higher) reliance on foreign gas.

LNG – an ever shifting role

Recent trends

US Shale Gas – Increase in European LNG prospect?

North American LNG exports will average 10.32 Bcf/d (77 mtpa) in 2023



Source : Bentek

- Not all the proposed projects are going to materialise
- No supply glut till 2020 as Asia
- Strong Asian prices keep Europe unattractive .

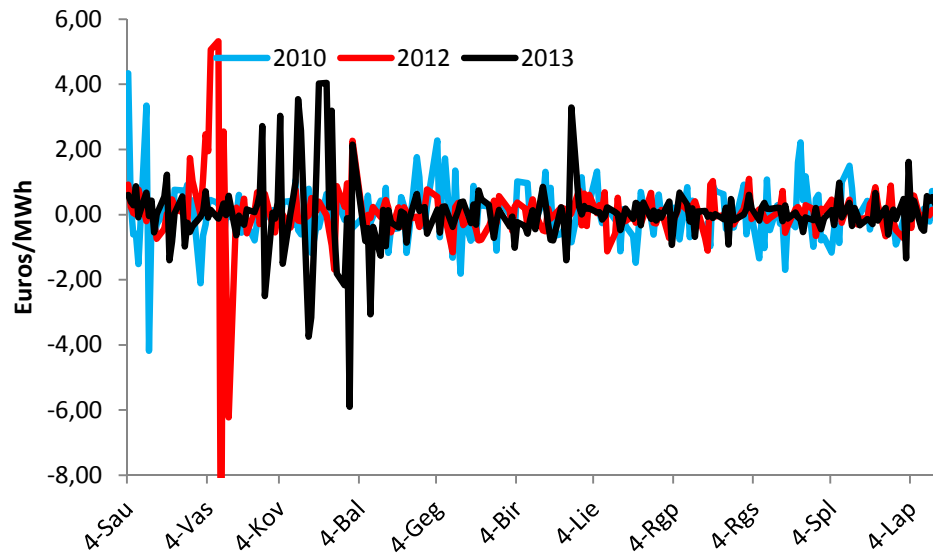
Price & Storages: A splitting headache

Recent trends

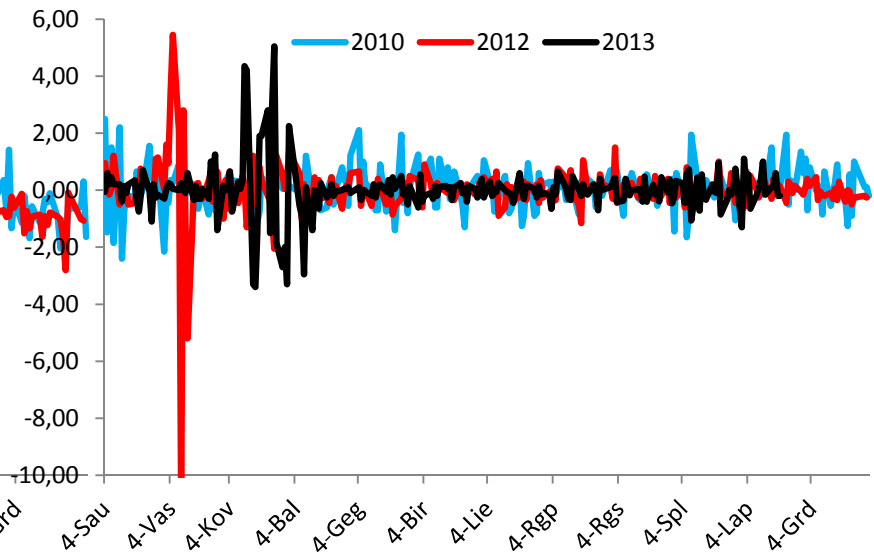


Price & Volatility

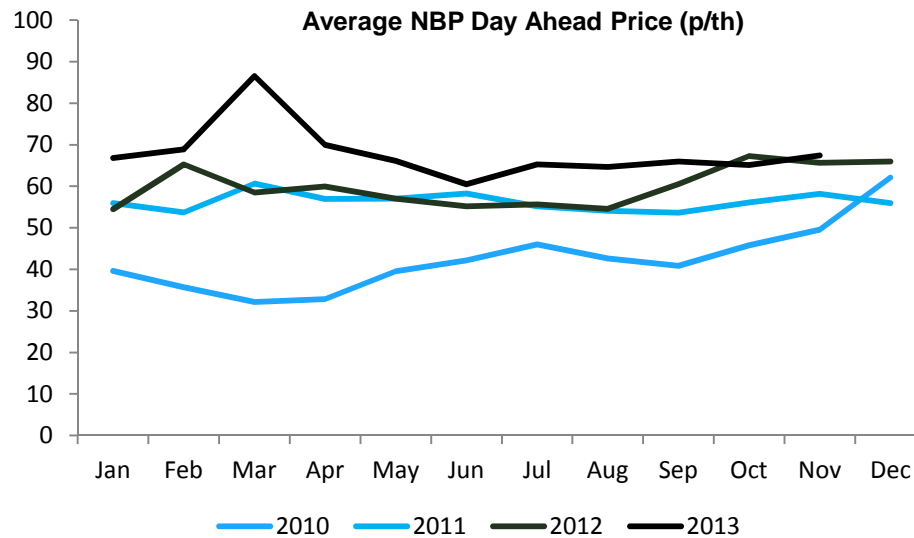
UK NBP Day-Ahead Price Change



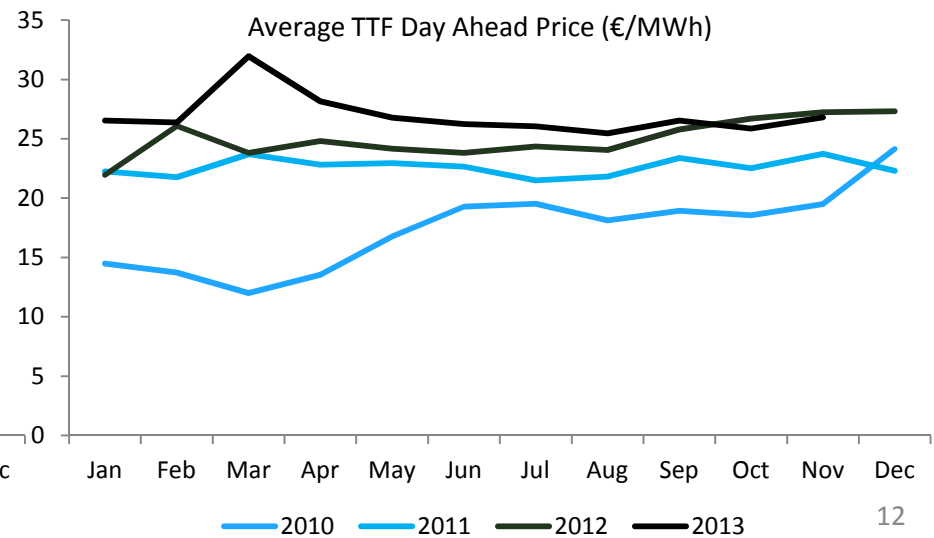
Dutch TTF Day-Ahead Price Change



Average NBP Day Ahead Price (p/th)



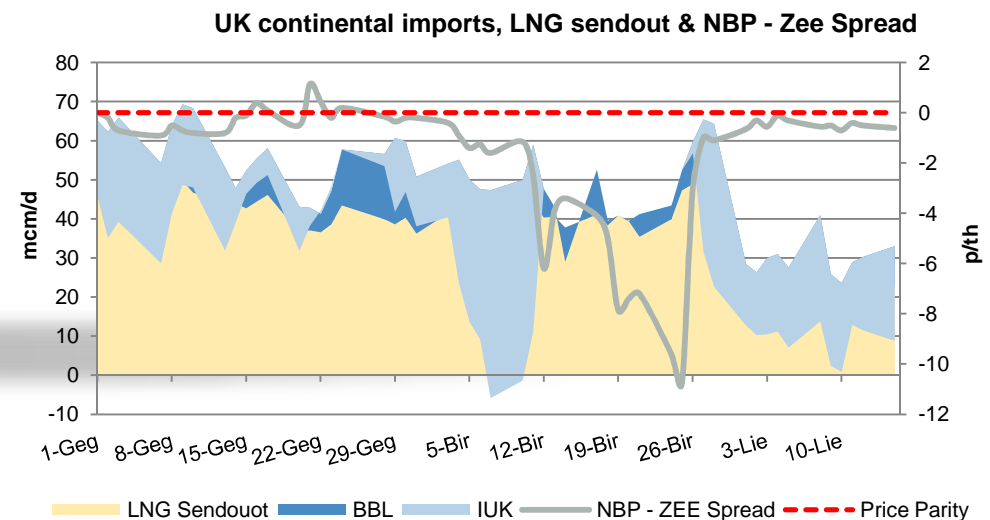
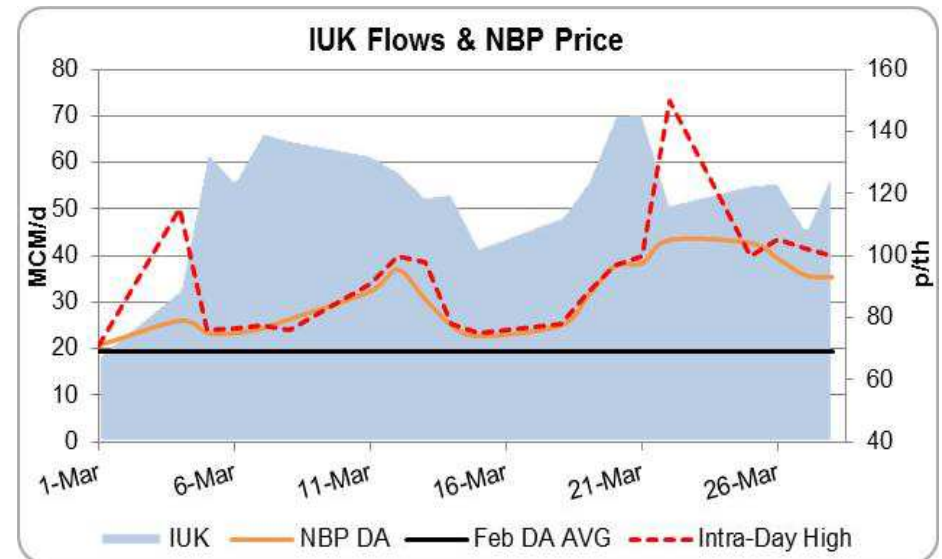
Average TTF Day Ahead Price (€/MWh)



Source: Bentek

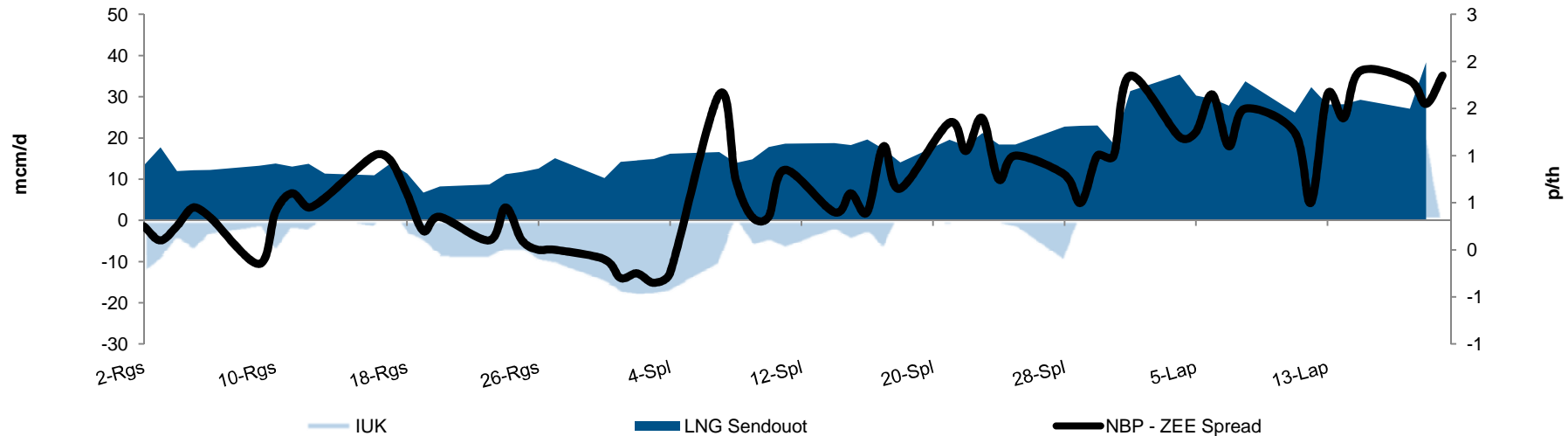
Volatility & Securing Supply- Infrastructure working harder

- Infrastructure providing huge security of supply by increased capacity utilisation during times of high demand.
- Interconnector reached 98% of capacity at 70 million cu m on March 20 and delivered a record 1.6 billion cu m to the UK over the month.
- Total reversal of market dynamics from the winter of 2011-12.

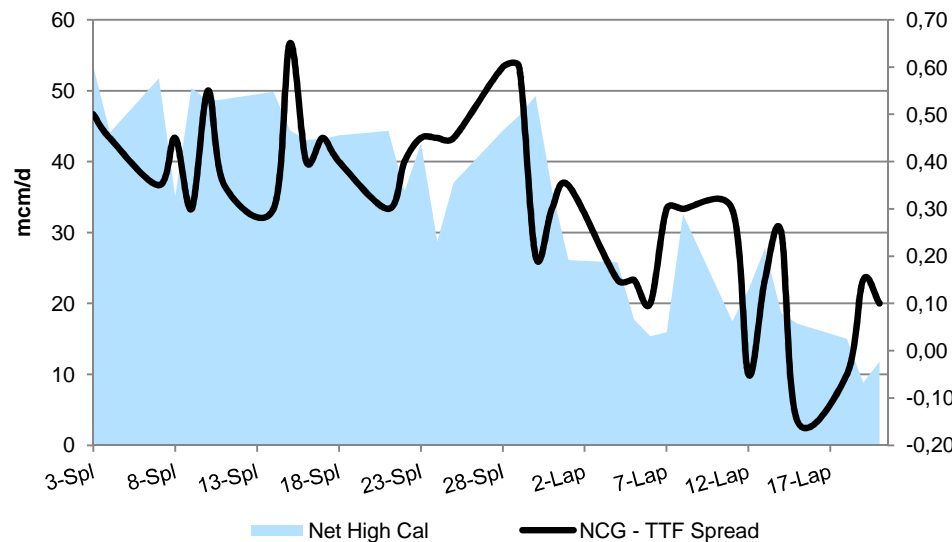


Volatility & Securing Supply- Infrastructure more price reactive

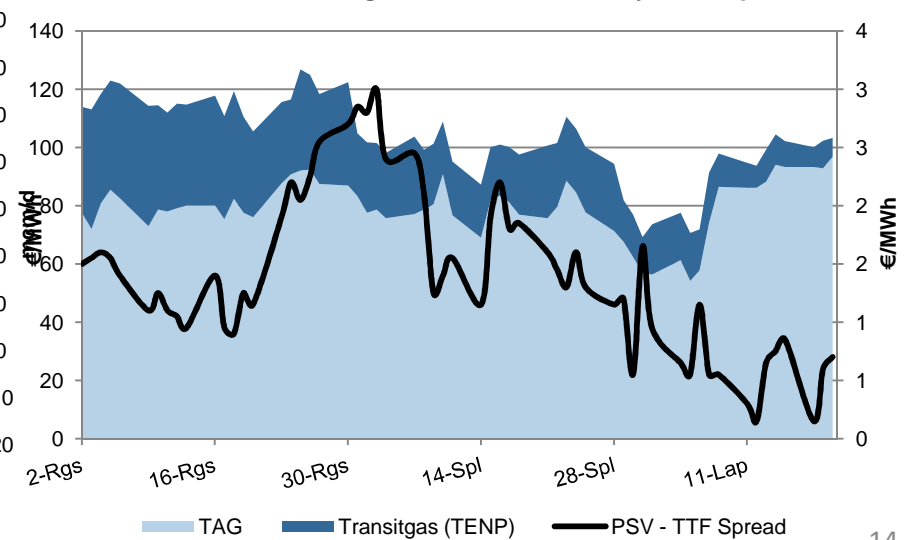
IUK flows, UK LNG sendout and NBP - Zee Spread



Net Dutch-German flows & NCG-TTF spread

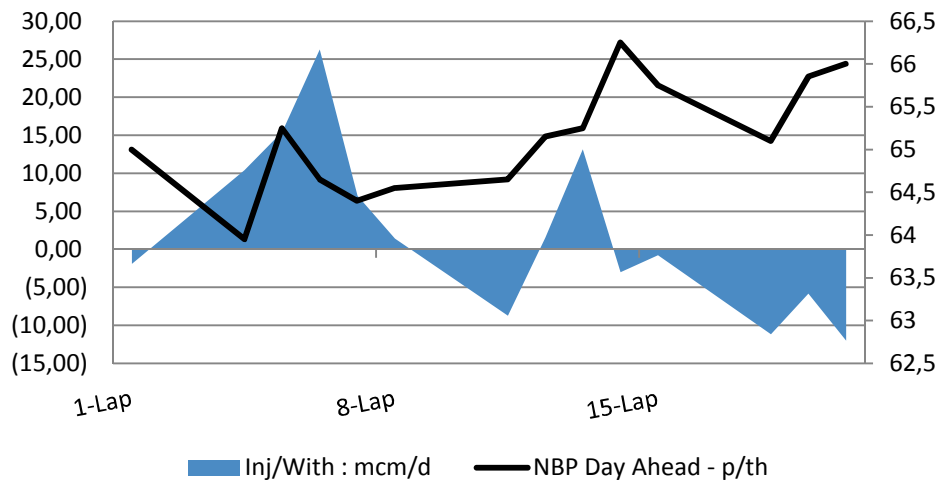


TAG and Transitgas flows with PSV Day-ahead price

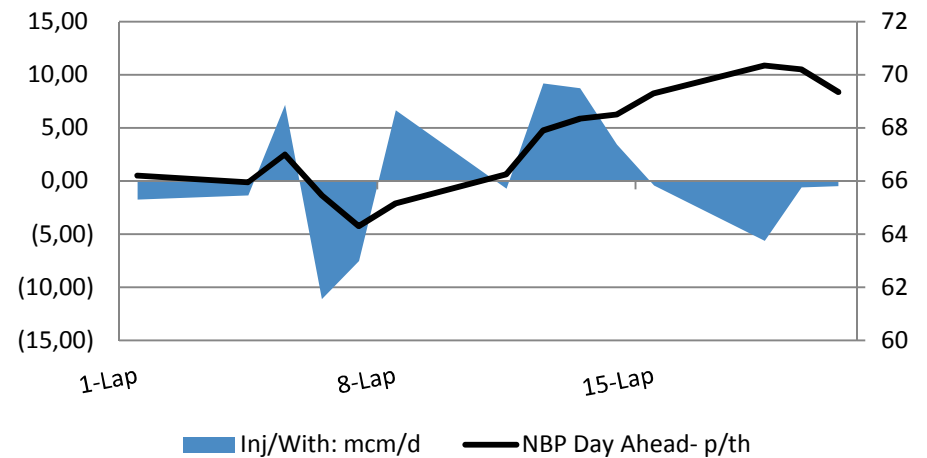


Volatility & Securing Supply- Infrastructure more price reactive

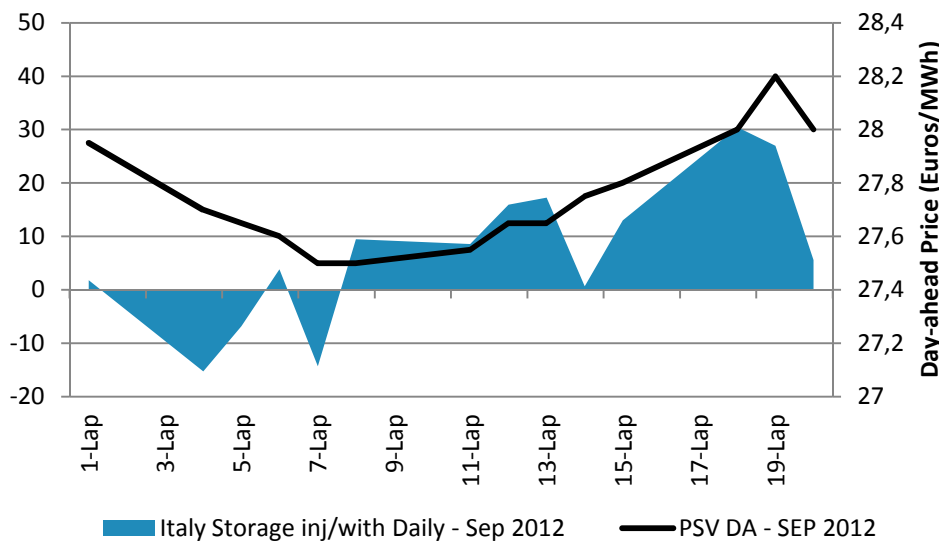
UK Daily Midrange INJ/WITH 2012



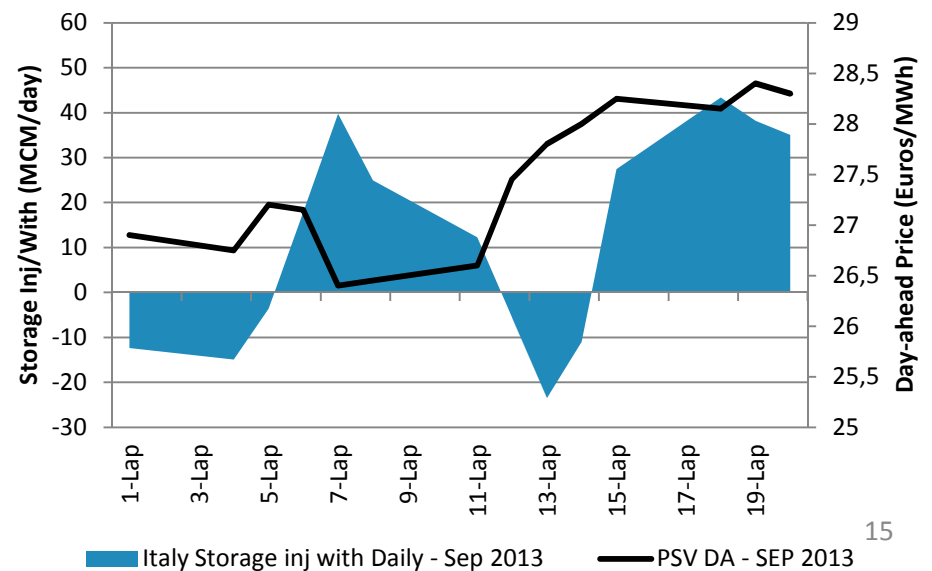
UK Daily Midrange INJ/WITH 2013



Italian Storage Inj/With 2012



Italian Storage Inj/With 2013



Storage – mixed signal for investment

EUROPEAN ENERGY MONITOR

November, 2013

October Analytical Highlights

- European gas demand rises as cooler temperature sets in
- More re-export from Europe en-route to Asia
- Even above average temperatures fail to dampen Russian gas supply
- Stable prices encourage gas to flow into France
- Rough storage hits 95% capacity utilization

November Outlook

- Higher domestic demand leads to increased production
- 10% higher Norwegian flow, with UK leading the rise in imports
- IUK to revert back to import mode
- Stronger NBP & Continent prices
- Spark spreads turn negative on wind surge
- German prompt power prices slide on strong renewables

Contents

Domestic demand	2
LNG Sendout	3
Domestic production	4
Main supply routes: Norway	5
Main supply routes: Russia	6
Major intra-continental flows	7
European storage activity & inventories	8
European hub prices	10
Global LNG	11
Power UK	13
Power – Continental Europe	15
Power – spark-spread analysis	17
Power – coal & carbon	18

Storages continued injection – complete reversal of last year

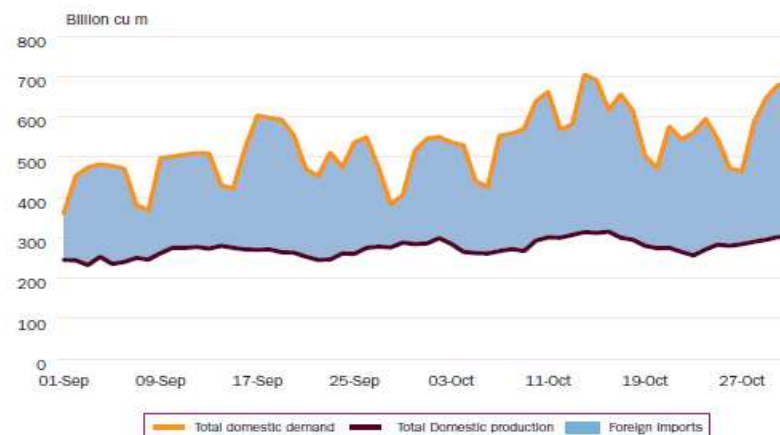
Hub Area Injection and Withdrawal October 2012-2013

Hub Area	Wth Oct 2013	Wth Oct 2012	Inj Oct 2013	Inj Oct 2012
NCG	60.17	620.00	1,455.94	524.00
PSV	0.00	0.00	808.50	621.00
TTF	4.40	10.00	12.81	19.00
NBP	221.81	274.38	595.02	475.70

Source: Bentek Data Warehouse

More foreign gas finds its way into Europe as winter begins

Domestic production and Western European demand



- Fundamental shifts in European gas market dynamics.
- Price levels are adjusted higher in order to secure supply. Price volatility is slowly but surely coming back
- Infrastructure (pipeline, storages) providing more crucial through greater capacity utilisation than ever before and has become more price sensitive.
- LNG remains elusive for Europe – marginal impact of US shale revolution in short term.
- Market remains tight in the near future.

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