LTCs: Reality of Margins' Distribution on EU Gas Market

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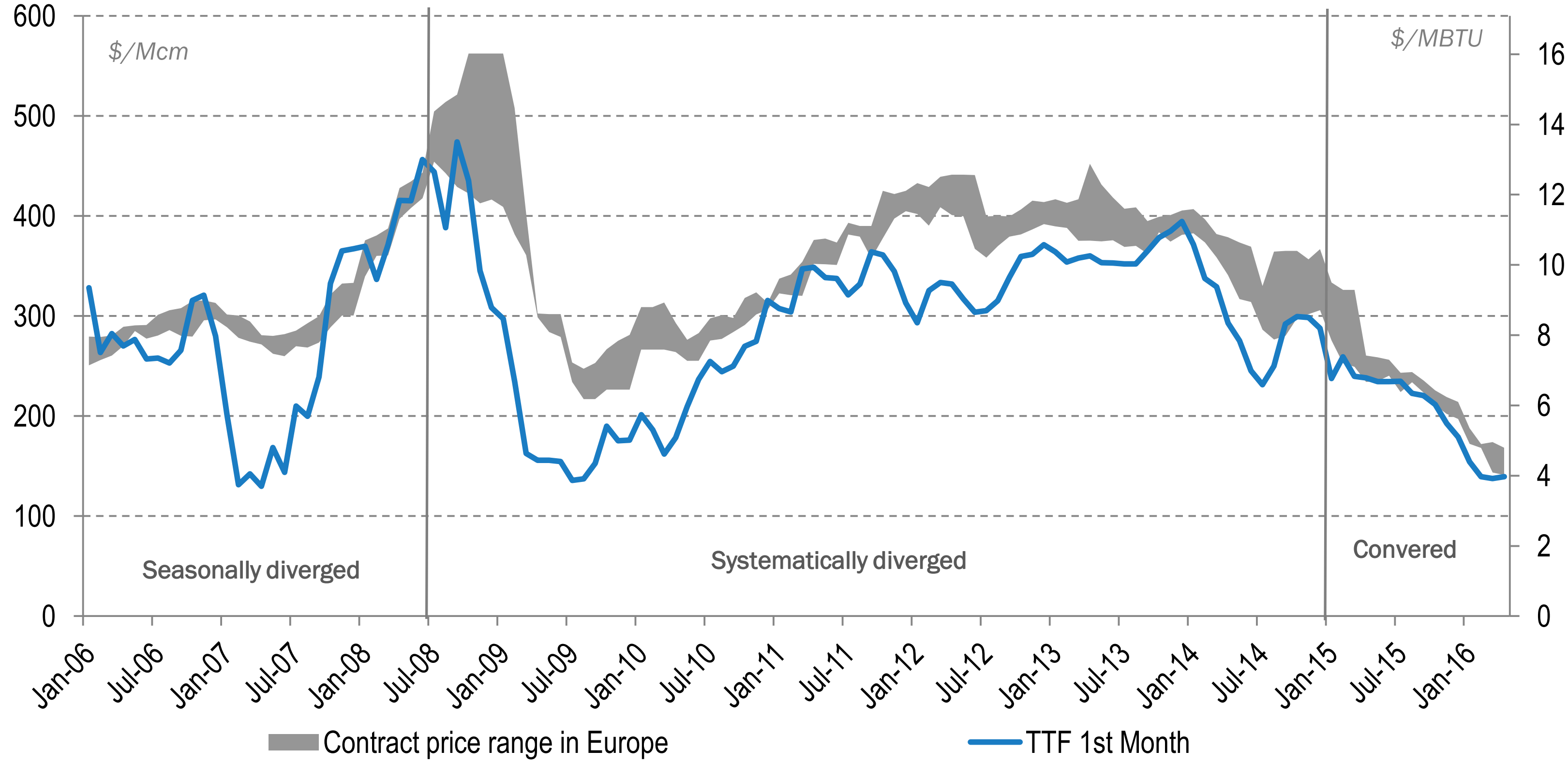
20th Meeting of the EU-Russia
GAC's Work Stream on Internal Market Issues
Vienna, July 01, 2016

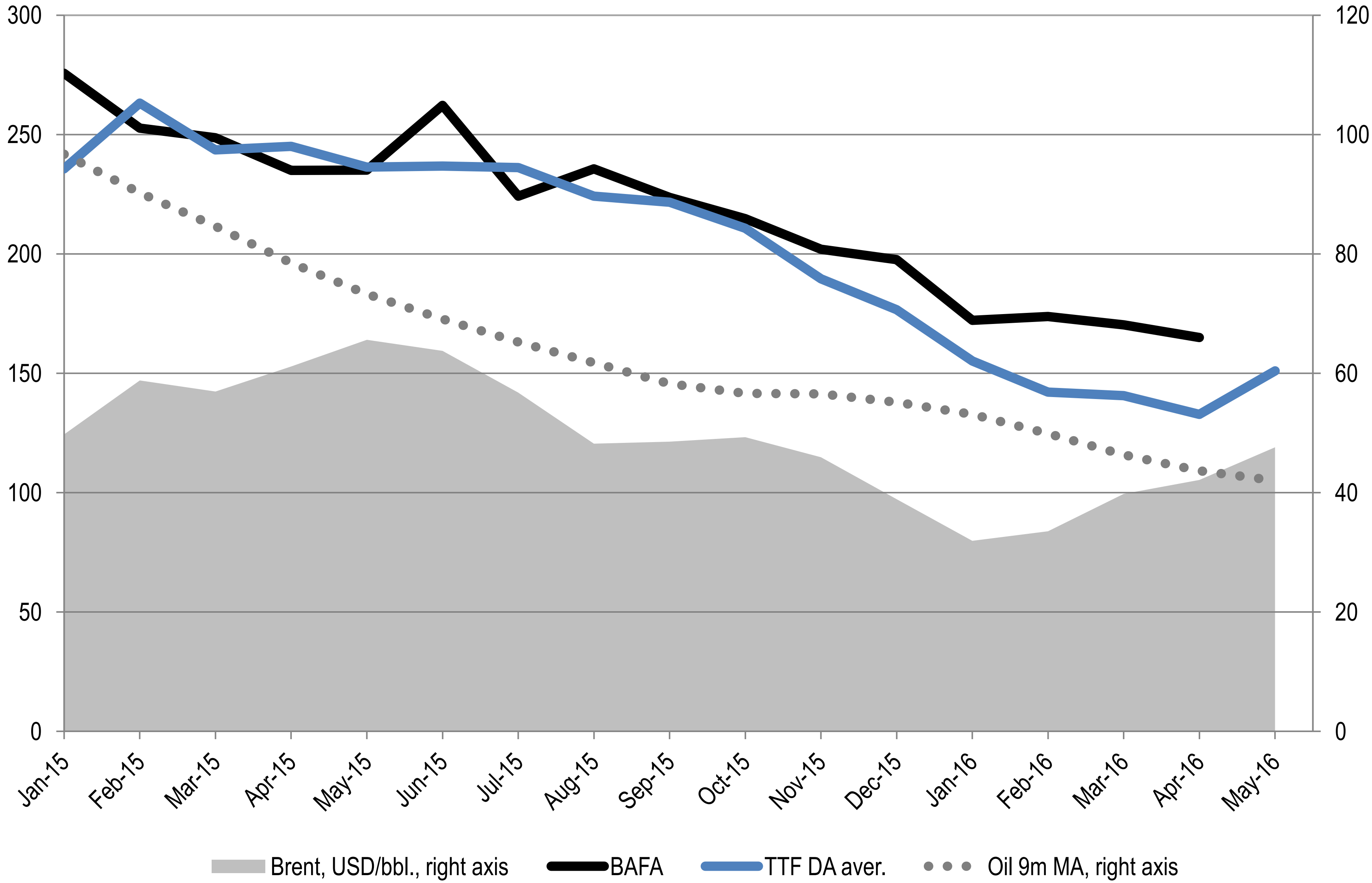
LTCs Set Ceiling for Prompt Prices which Creates Tension in Relations of Suppliers with Midstreamers Leading to Contract Price Downward Revisions

Hub prompt prices are derivatives of the LTC prices although with a negative premium embedded in them



Making contract and hub prices comparable simply by lowering contract prices leads to a new cycle of downward adjustments in the hub prices. Current hybrid pricing system is a kind of magic circle: adjusted LTCs prices shape hub prices, which in turn settle below contract and initiate a new round of renegotiations.

Convergence of LTCs and Prompt Prices Gives Relief in Relations with Clients but It Could Be Short-Lived as Negative Premium Reemerges

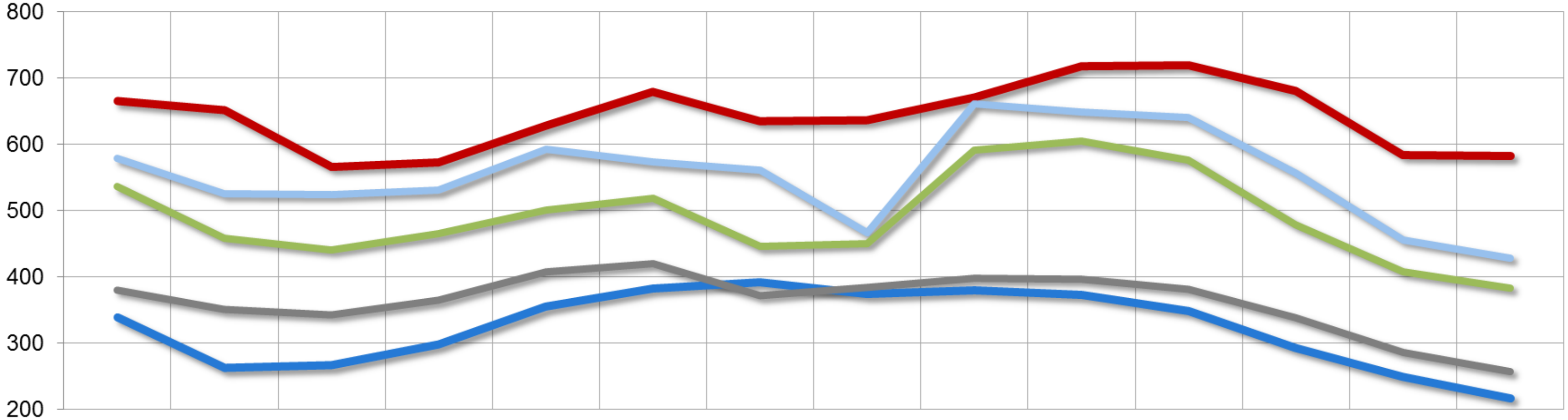


There are Several Reasons Why Calls to Lower Contract Prices to Prompt and Below Prompt Levels are not Justified

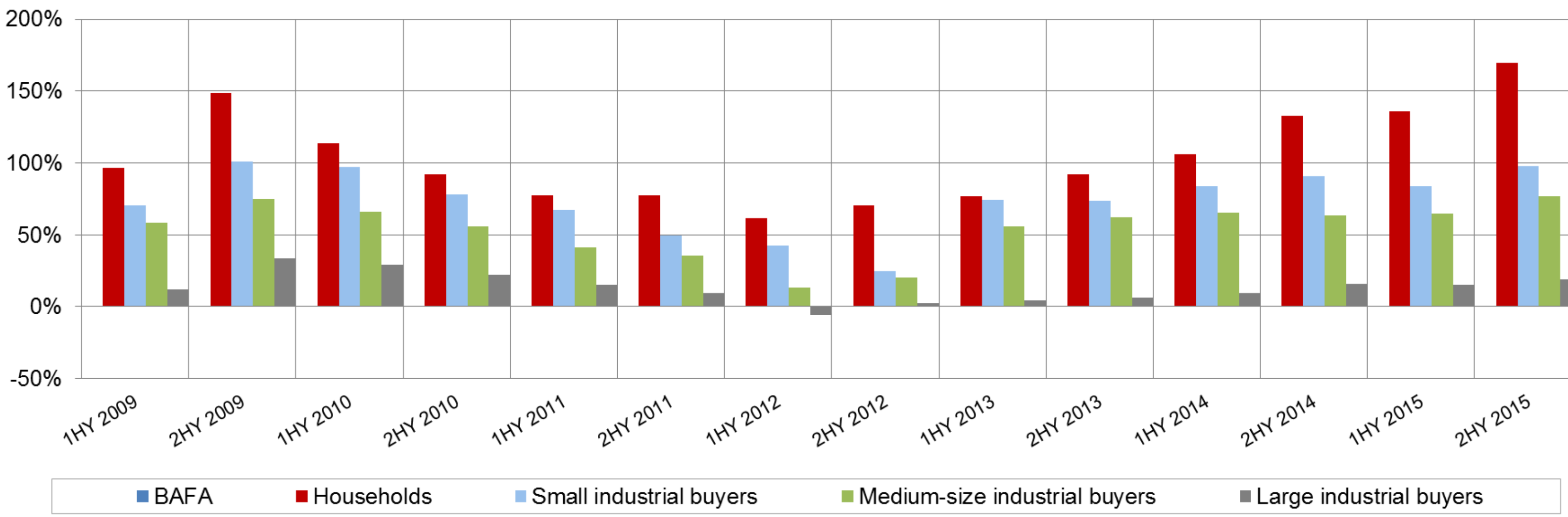
- Hub prices represent product of inferior quality compared to contract prices as LTCs provide security of supply and flexibility
- Classic activities of selling gas to end-users offer utilities/ midstreamers positive margins compared not only to hub but to import prices as well
- Despite growing margins in selling gas to end-users that activity is loosing in prominence to trading for utilities/midstreamers
- Comparison of prompt and contract pricing does not reflect realities of the EU gas market: contract prices should be compared to historic futures/forward prices which fundamentally determine profitability of utilities/midstreamers
- Historic futures/forward prices tend to be higher than contract prices offering positive spreads to the buyers

Price of Imported Pipeline Gas Versus End-user Prices, Germany

BAFA compared to end-user prices by category, in USD/mcm without taxes



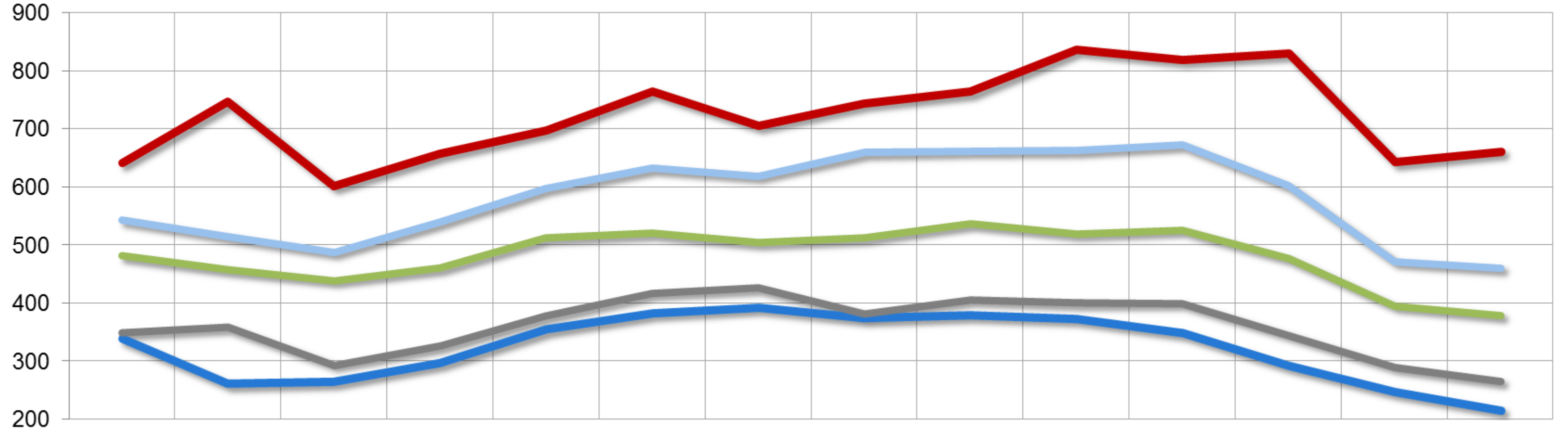
Price difference to BAFA, in %



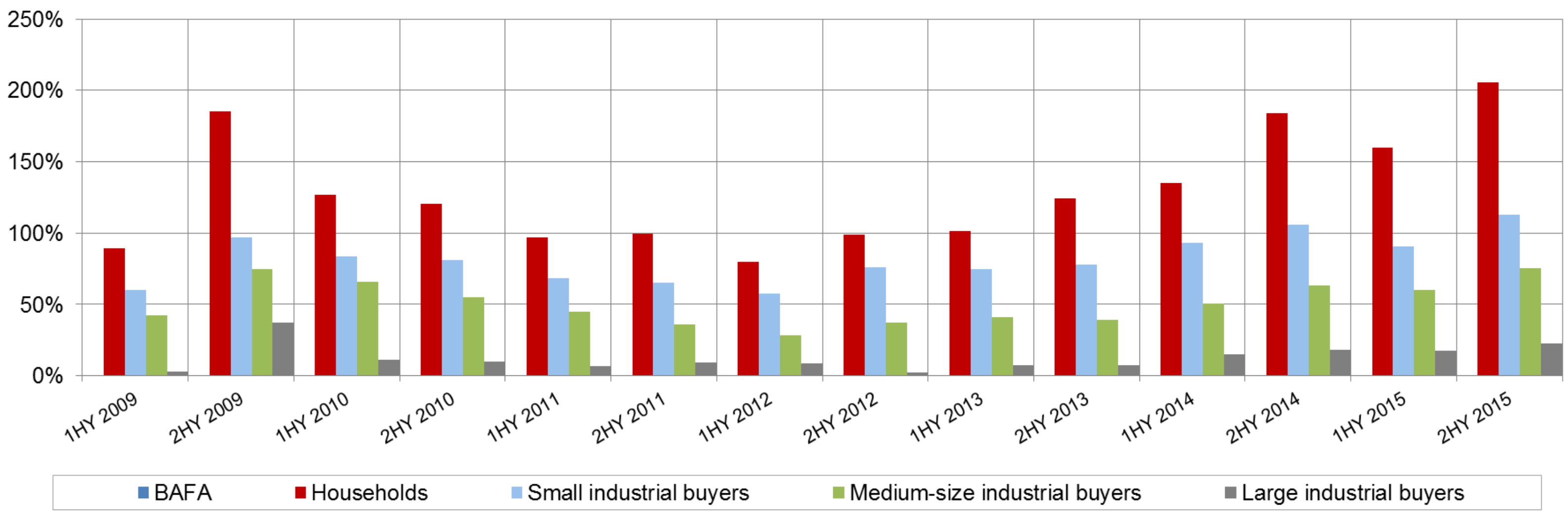
Source: BAFA, Eurostat

Price of Imported Pipeline Gas Versus End-user Prices, France

BAFA compared to end-user prices by category, in USD/mcm without taxes



Price difference to BAFA, in %



Source: BAFA, Eurostat

Price of Imported Pipeline Gas Versus End-user Prices, Italy

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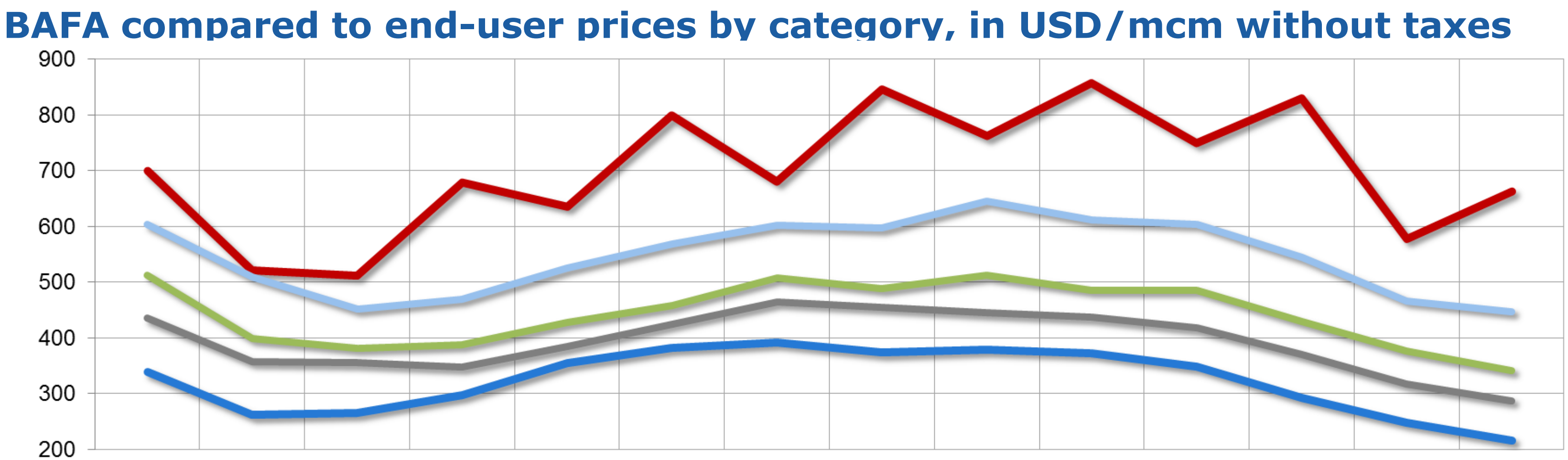
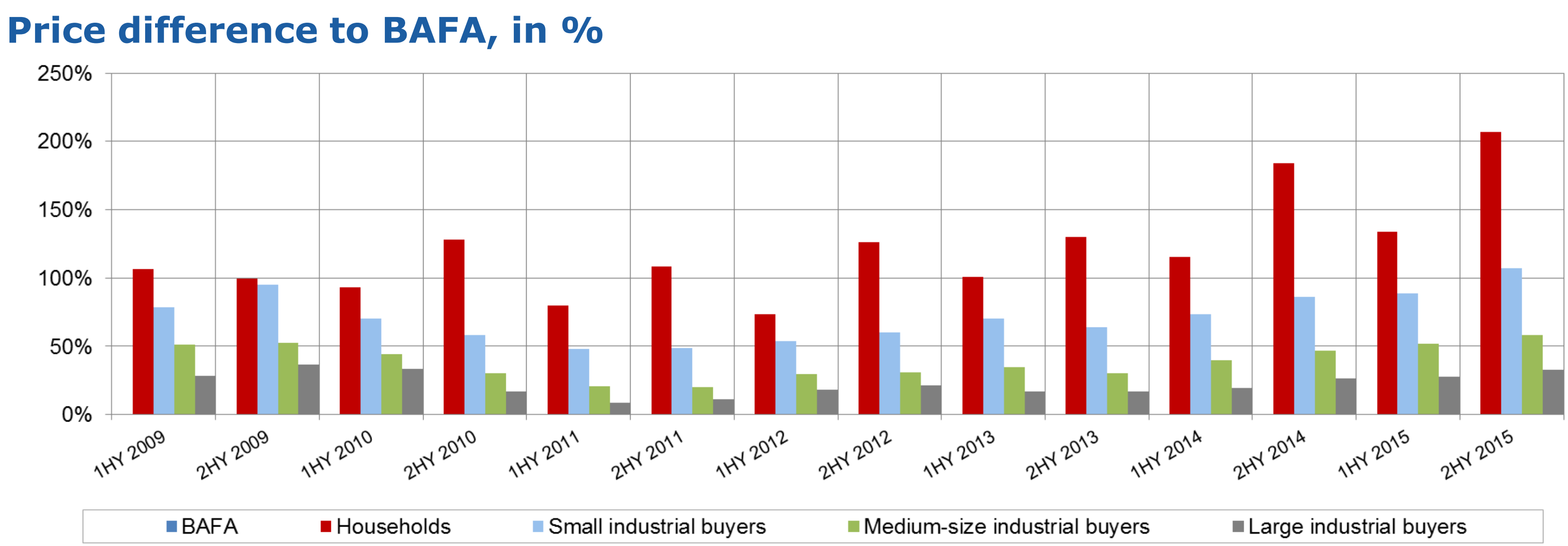
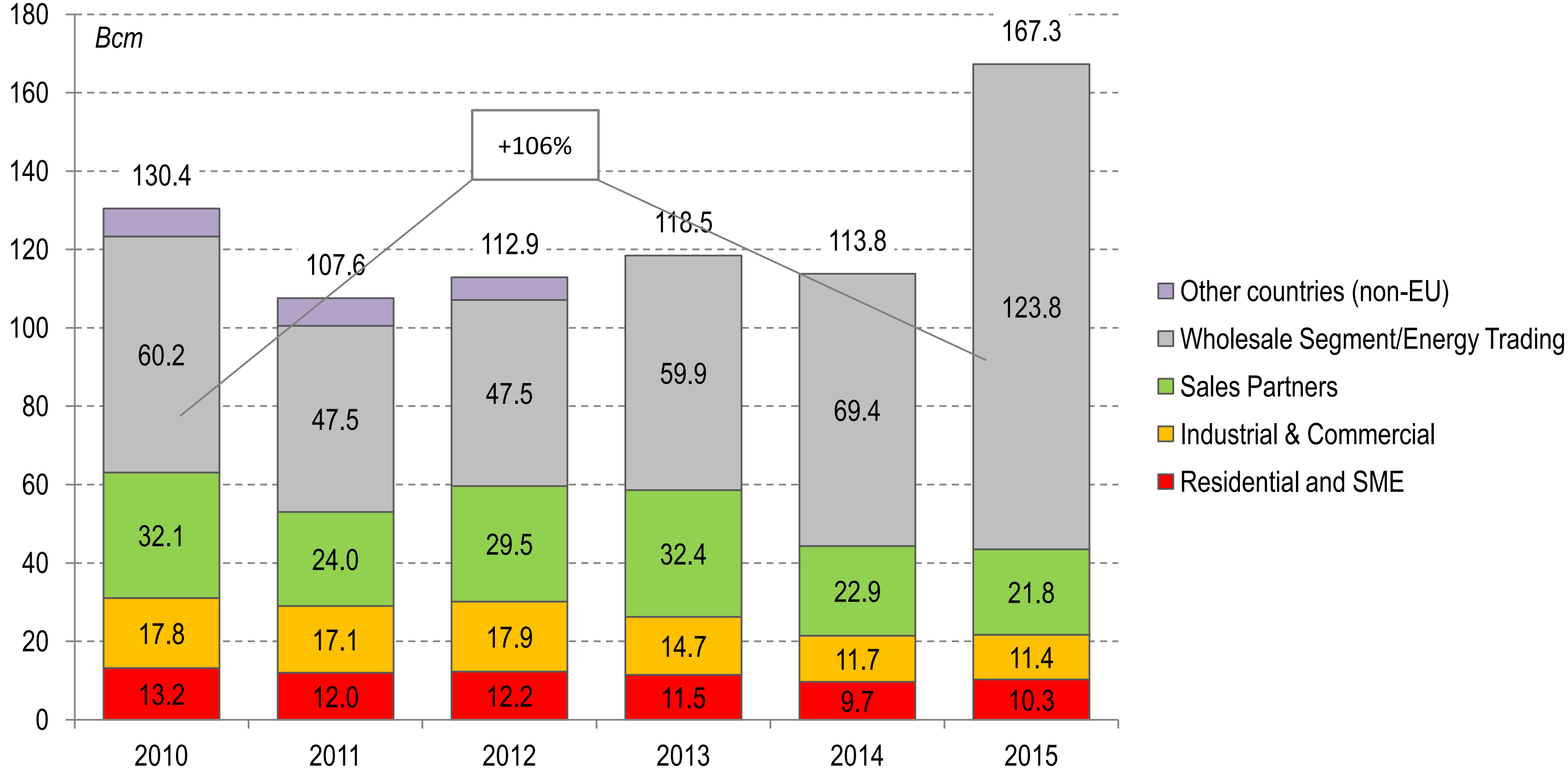




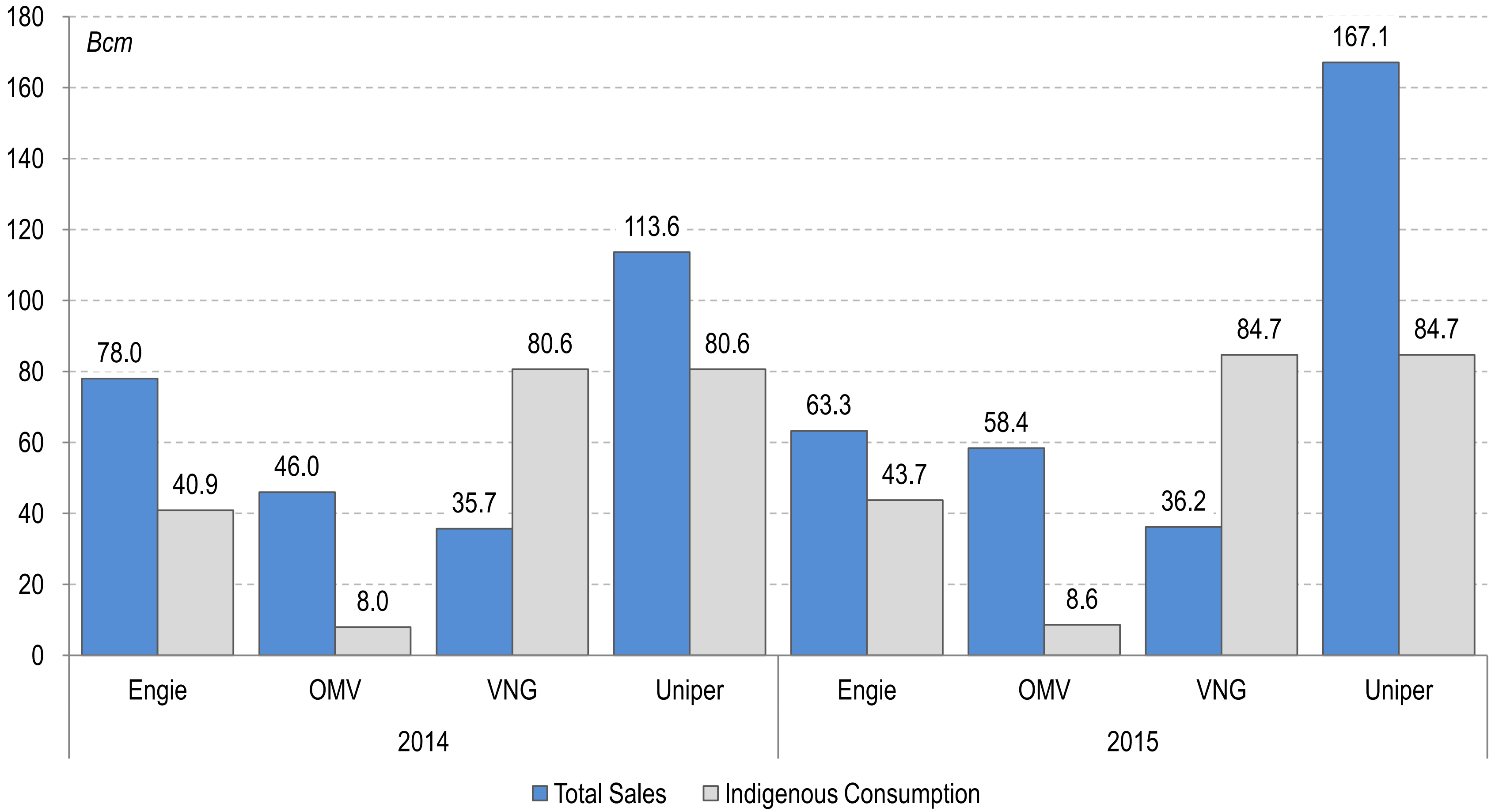
Source: BAFA, Eurostat

Trading Overshadows Classical Activities in the E.On Group



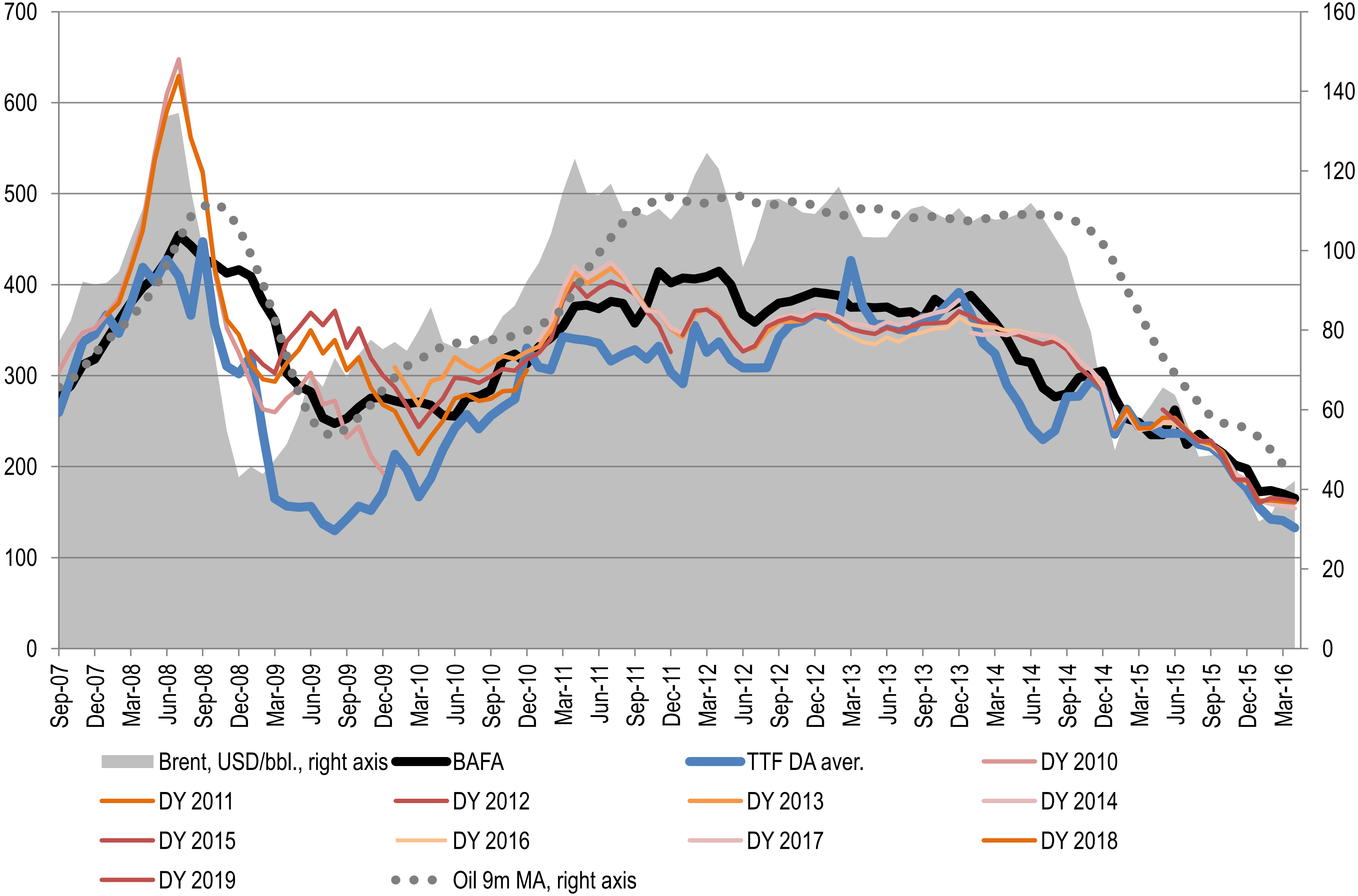
Source: E.On's Annual Reports

Trading Volumes by Utilities/Midstreamers are Higher than Gas Consumption in the EU Countries



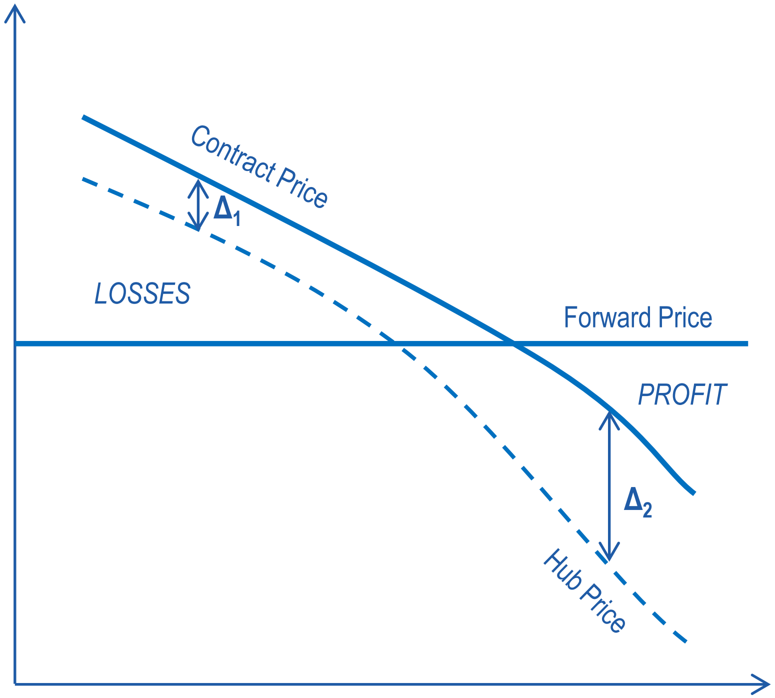
Source: IEA, Companies' Annual Reports

Forward Year-Ahead Prices Traded for Three Years Prior to Physical Delivery Tend to be Higher than Prompt and Contract Prices

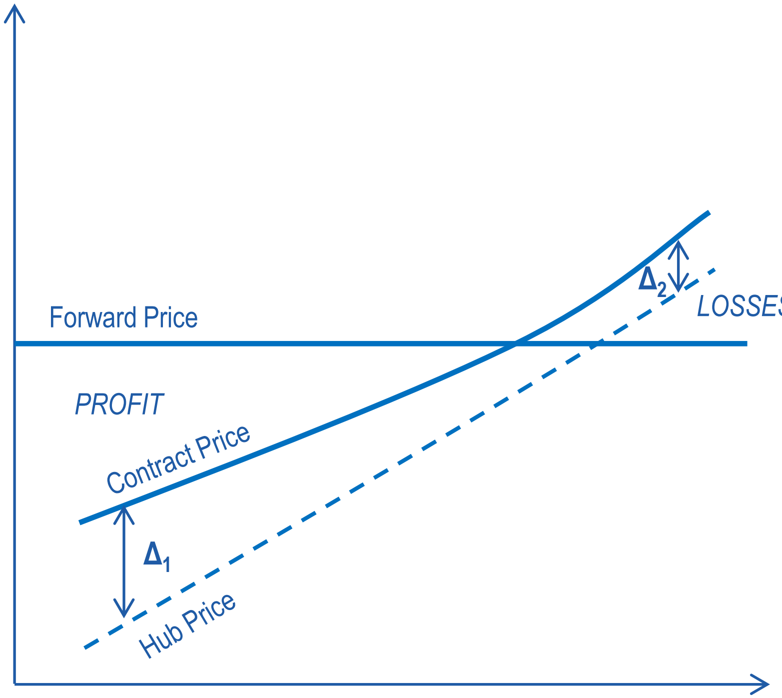


Due to Monetization of Firm Delivery Obligation under LTCs, Historic Forward Prices Determine Profitability of Utilities/Midstreamers rather than Prompt

Although spread between contract and prompt prices widens utility turns a profit

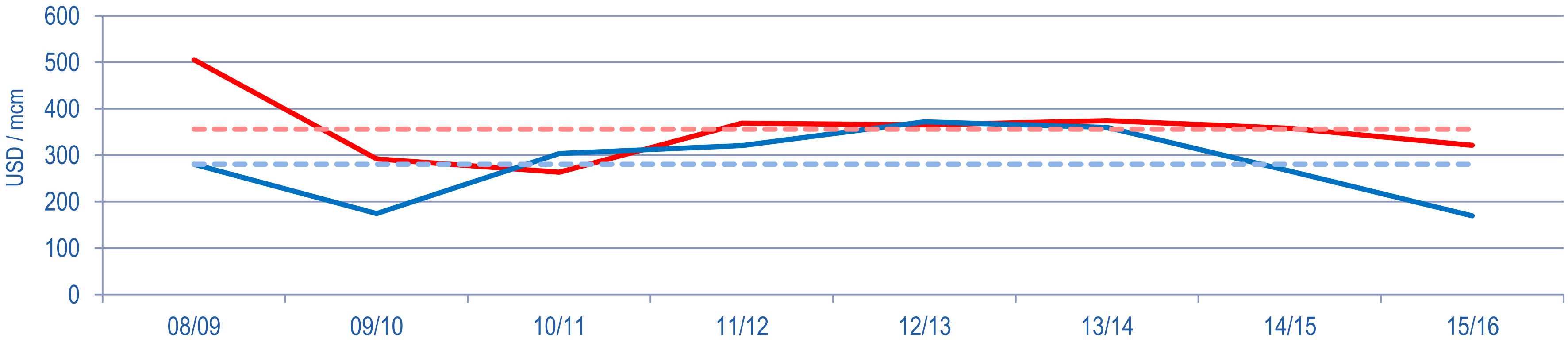


Although spread between contract and prompt prices contracts utility makes losses



"Disappearing Mirage": Prompt was Lower than Forward Prices for Winter Gas in 80% of Cases (1)

Average forward and prompt (actual) TTF prices for winter gas



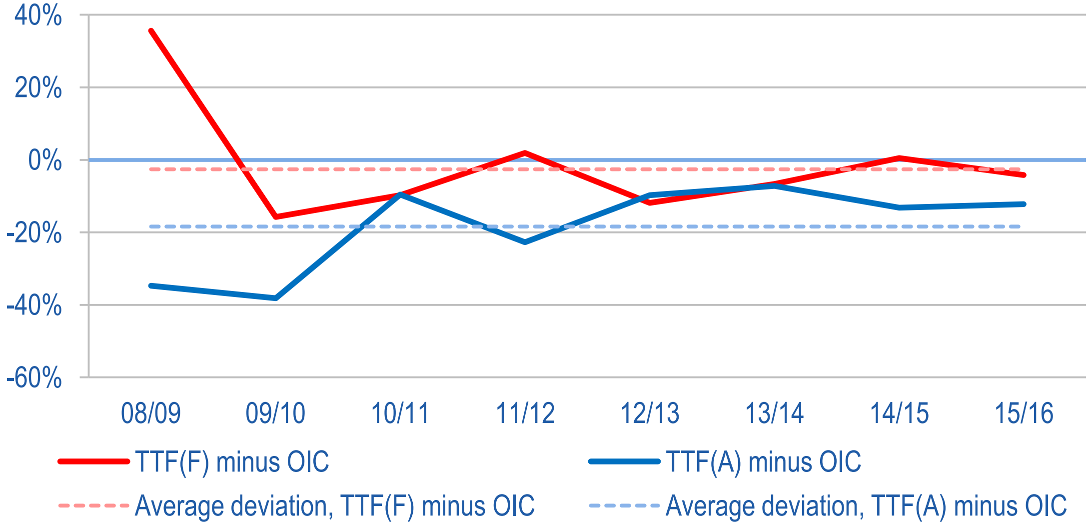
	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Discount	**-44,4%**	**-40,4%**	**15,3%**	**-13,0%**	**1,9%**	**-4,0%**	**-25,7%**	**-47,3%**

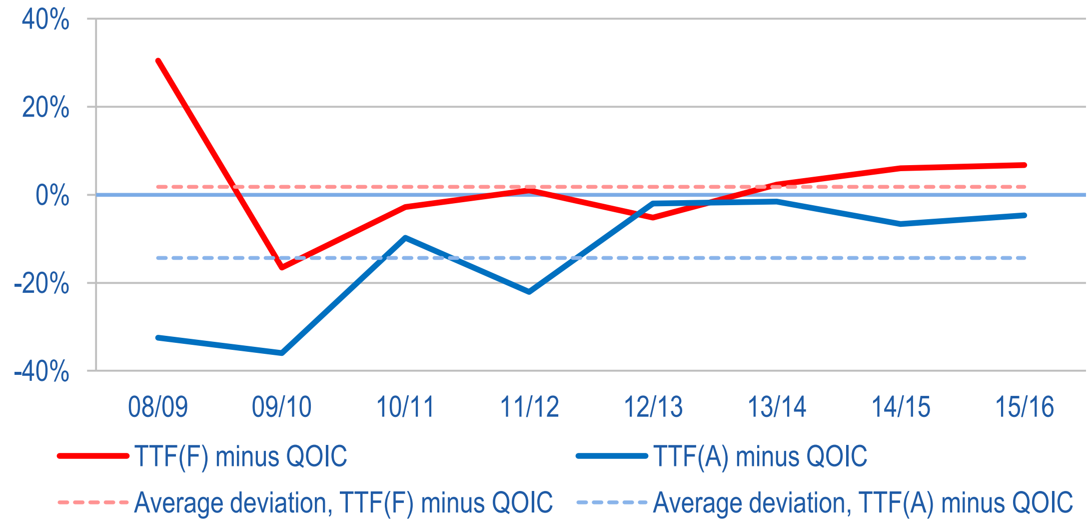
	Number of observations		
Winter months	Number of cases, when prompt was lower than forward	% of cases, when actual price was lower than expected	Number of observations
08/09	127	100	127
09/10	127	100	127
10/11	17	13	127
11/12	122	96	127
12/13	68	54	126
13/14	92	72	127
14/15	127	100	127
15/16	126	100	126
8-years total	806	79	1014

In 2008-2016 actual prices in winter seasons were lower than expected in 806 of 1014 cases (79%). As winter comes hub prices settle below historic forwards

"Disappearing Mirage": Forward Prices for Winter Gas were Higher than Contract Prices on Many Occasions (2)

Relative differential TTF- historic forward and TTF-LTC prices for winter gas, 2008-2016





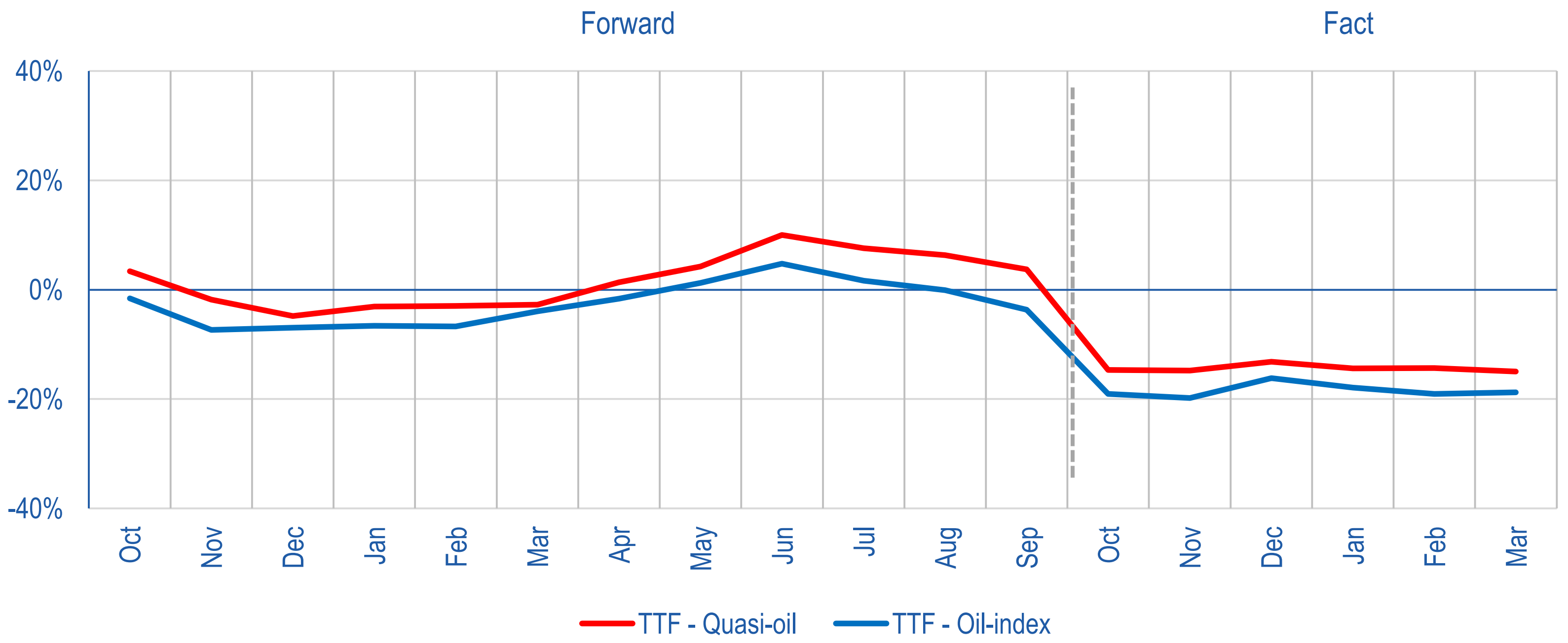
Monthly expected and actual prices for winter gas

	Typical long-term contracts	
	Oil indexed	Quasi-oil indexed
TTF(forward)> LTC (actual)	27	52
Number of observations	93	93
Share (%)	29%	56%
TTF(actual)> LTC(actual)	2	8
Number of observations	48	48
Share (%)	4%	17%

In third to half of months observed (depending on a contract) forward prices for winter gas were higher than actual contract prices. Monthly average actual TTF prices in winter were typically below contract prices due to arbitrage opportunities.

“Disappearing Mirage”: Forward Market Compensates Negative Spread between Prompt and Contract Prices for Winter Gas (3)

Average relative TTF forward and actual prices compared to LTC prices, 2008-2016

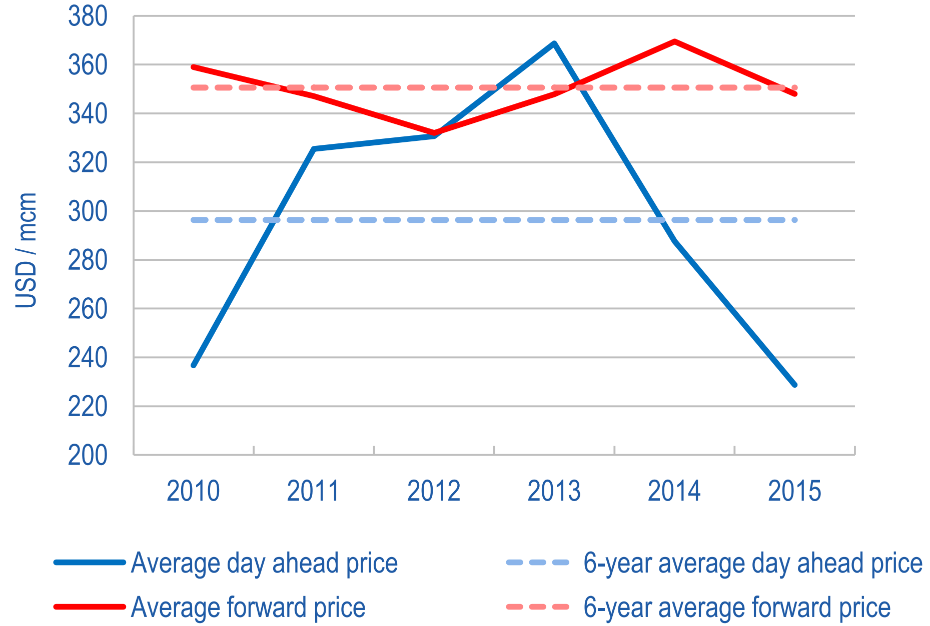


Over the last eight years, forward prices for winter gas for consequent year were as a rule in line with contract prices and resolutely higher that prompt prices when physical deliveries start off. Expectations for high winter prompt prices were disappearing as “mirage in the desert” as winter comes. Trajectory of average relative prices for the last 8 years (2008-2016) points to the highest relative TTF prices for the last six month prior to forward contract expiration and physical deliveries kick off. Relative price contraction starts a month before forward contract expiration and resumes in the winter months.

"Disappearing Mirage": Comparison of Expected and Actual Prices for Calendar Year Delivery Period (1)

*Deviation of expected and actual prices for delivery period (TTF Calendar Year, Day Ahead) **

Year of delivery	% of cases, when actual price was lower than expected	Number of cases, when actual price was lower than expected	Total number of observations
2010	100%	253	253
2011	87%	218	251
2012	54%	136	252
2013	10%	25	253
2014	94%	239	253
2015	100%	253	253
Total	74%	1124	1515



- Estimated average of forward TTF prices which are traded daily for 36 month (3 year) before the period of delivery (1 year) is compared to actual Day Ahead prices during the period of delivery

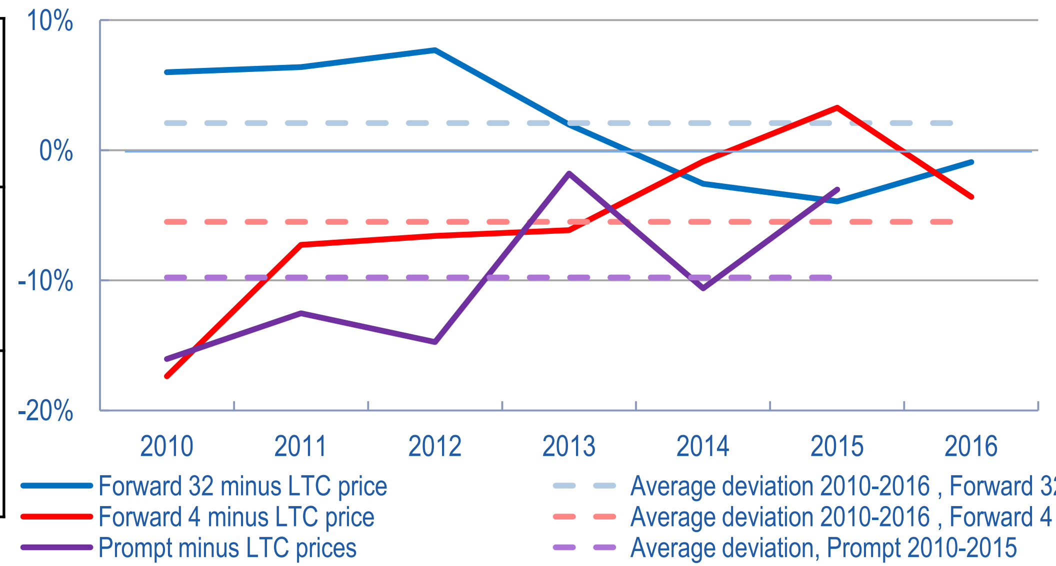
Factual evidence shows that in 2010-2015 forward TTF prices were higher than actual prices in 74% of observations, or 1124 out of 1515

Источник: BAFA, Bloomberg

“Disappearing Mirage”: Comparison of Expected and Actual TTF Prices for Calendar Year Delivery Period to Contract Prices (2)

*Deviation of expected and actual prices in the delivery period (TTF Calendar Year, Day Ahead, BAFA average import price) **

Forward (first 32 month)	Number of observations	184
	TTF>LTC	90
	%	**49%**
Forward (4 months prior to delivery)	Number of observations	24
	TTF>LTC	5
	%	**21%**
Fact	Number of observations	72
	TTF>LTC	10
	%	**14%**



Daily observations for 36 months of trading (before delivery period) and 12 month of delivery period.

Trading period was split into two intervals:

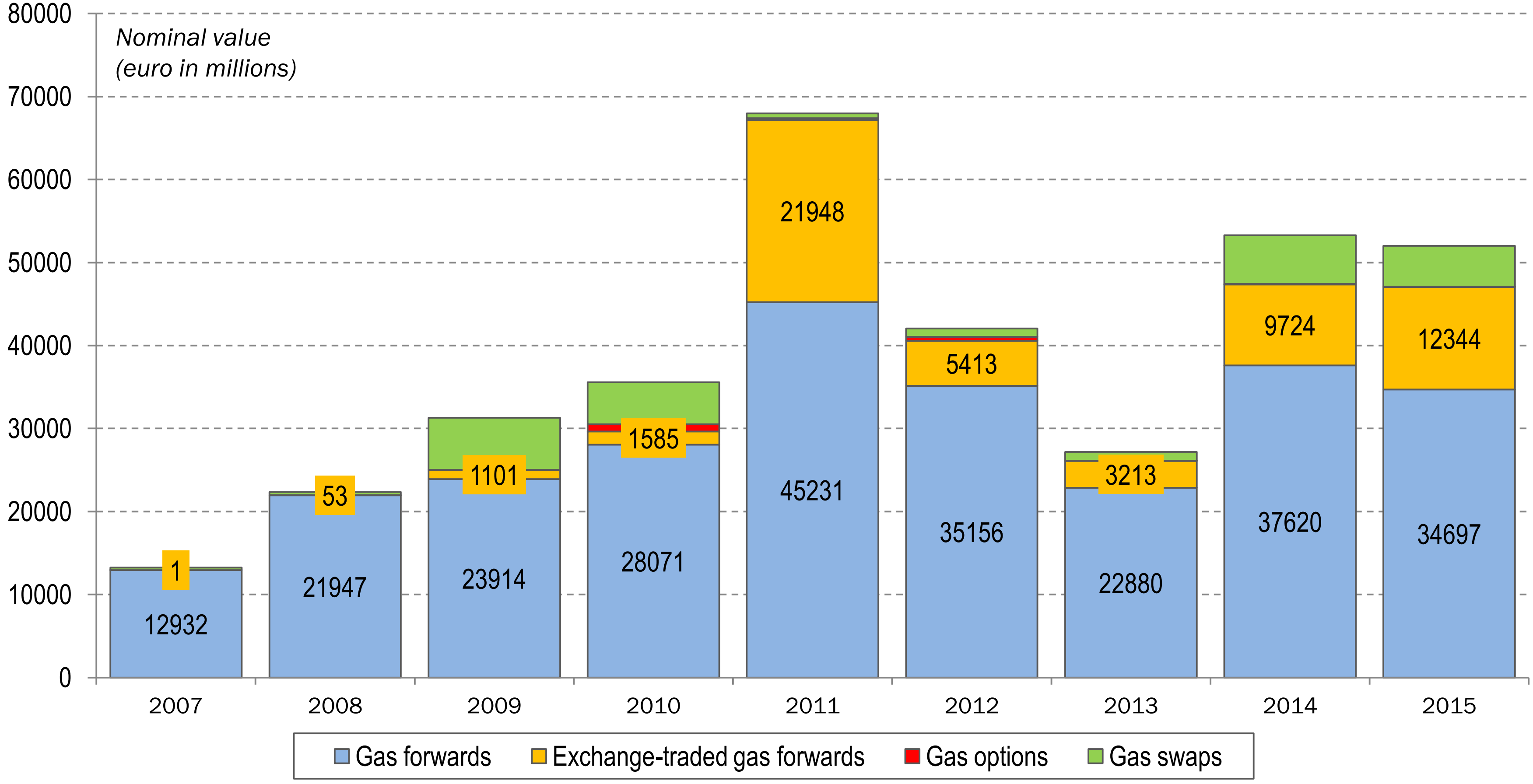
- Last 4 month of trading (close to delivery)
- Previous 32 month (distant to delivery)

Источник: BAFA, Bloomberg

Distant to the deliveries monthly average forward prices exceeded contract prices in half of the observations. BAFA prices stayed higher in only 21% of cases within four months prior to delivery start off. In 10 cases out of 72 prompt prices were higher than BAFA .

THANK YOU FOR YOUR ATTENTION!

E.On Group Volumes of Gas-Related Derivatives



Source: E.On's Annual Reports