

September 2016



~~Lower For Longer~~
A Case For Higher...and Sooner

Crude Oil Outlook – The Bulls

I could say....

- Demand is growing
- OPEC is flat...at best
- US supply is falling
- Non-OPEC can't grow
- All true and leads to the inevitable "yeah...but"

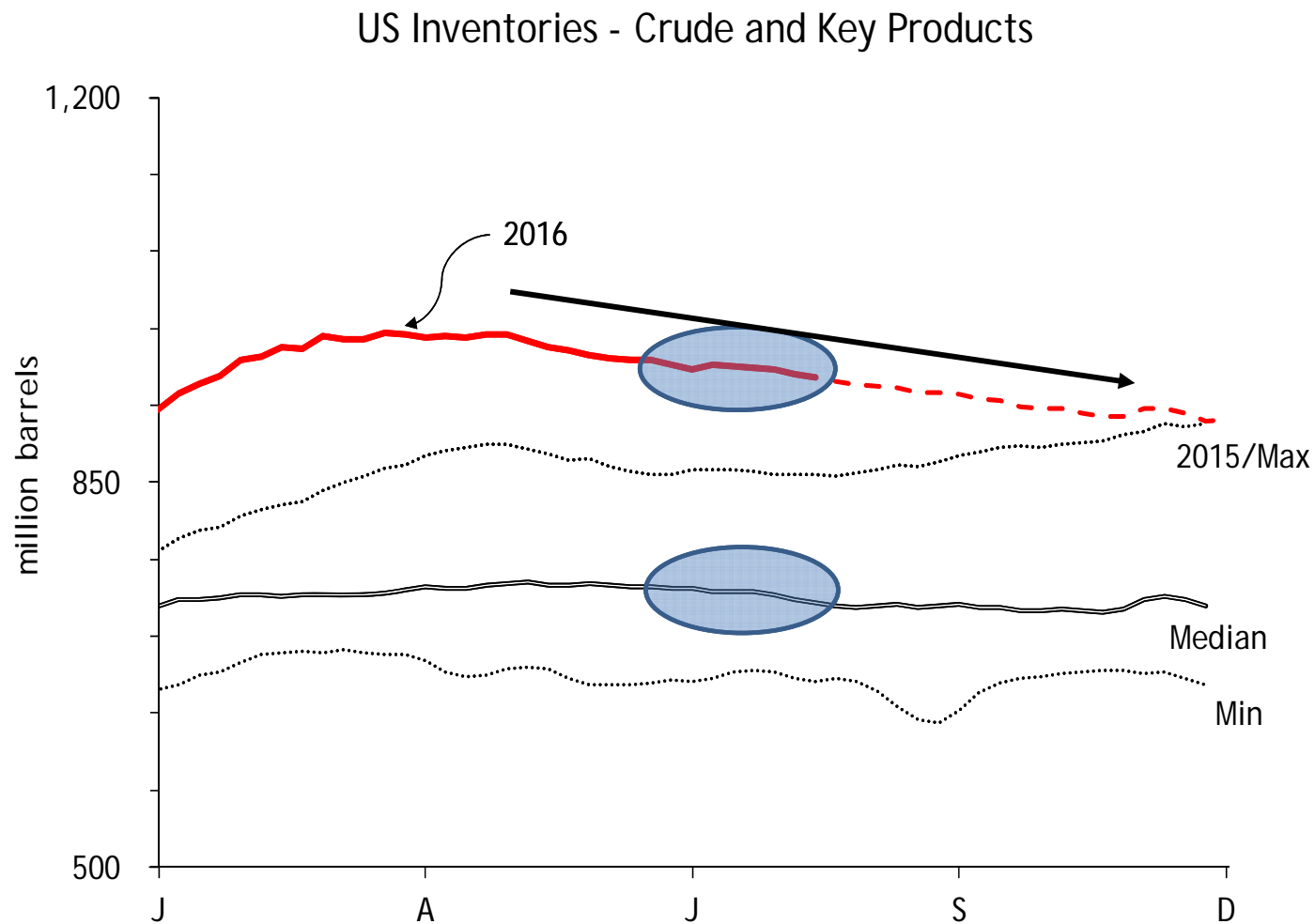
Crude Oil Outlook – The Bears

So lets take the bear argument....

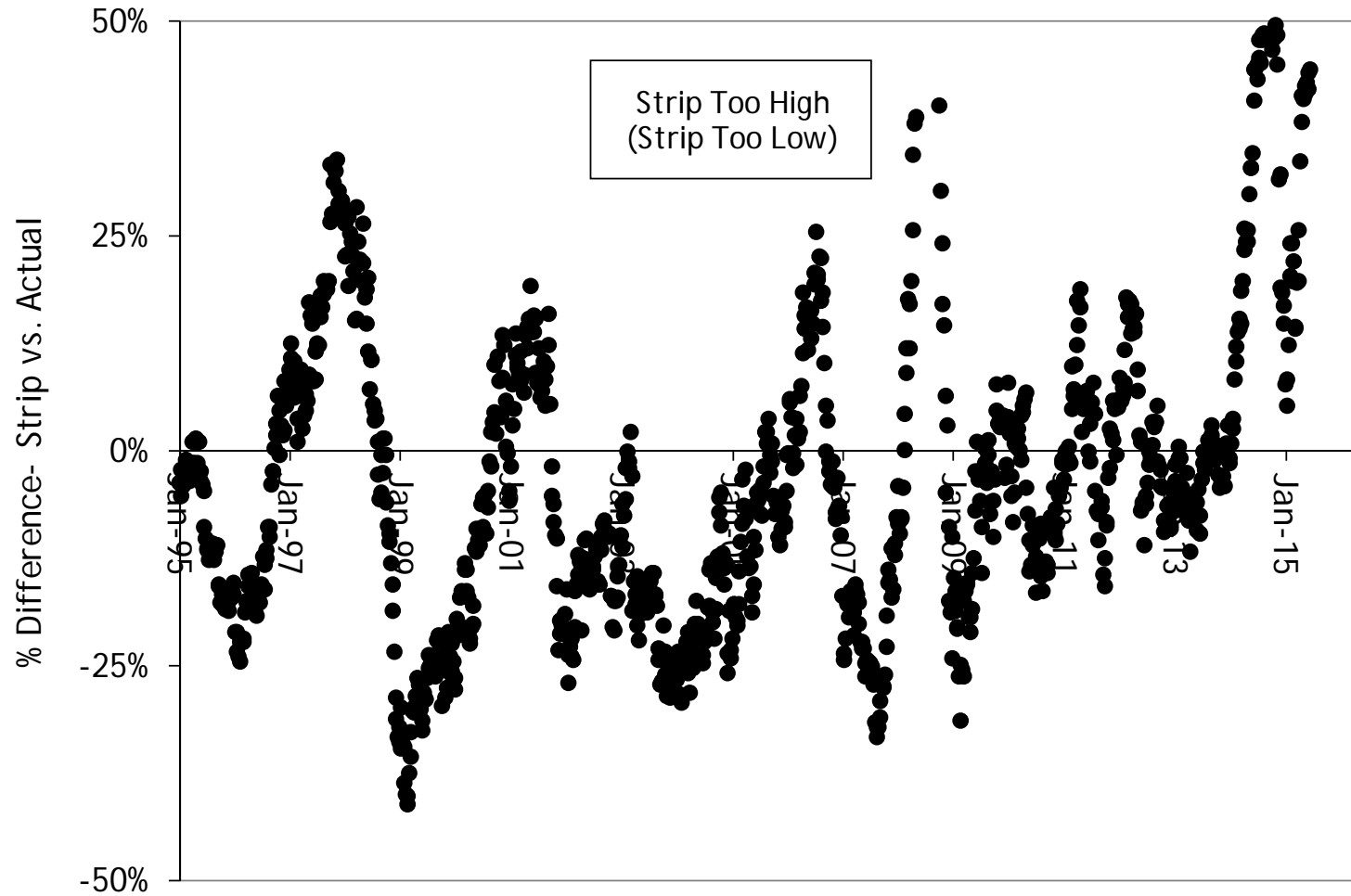
- Since 4Q14, Saudi, Iran, and Iraq +2.7mmbpd
- Non-OPEC grew in 2015 +1.3mmbpd
- *US supply is resilient*
- Demand fears abound (Greece, China, Brexit, negative rates, etc.)

Crude Oil - Outlook

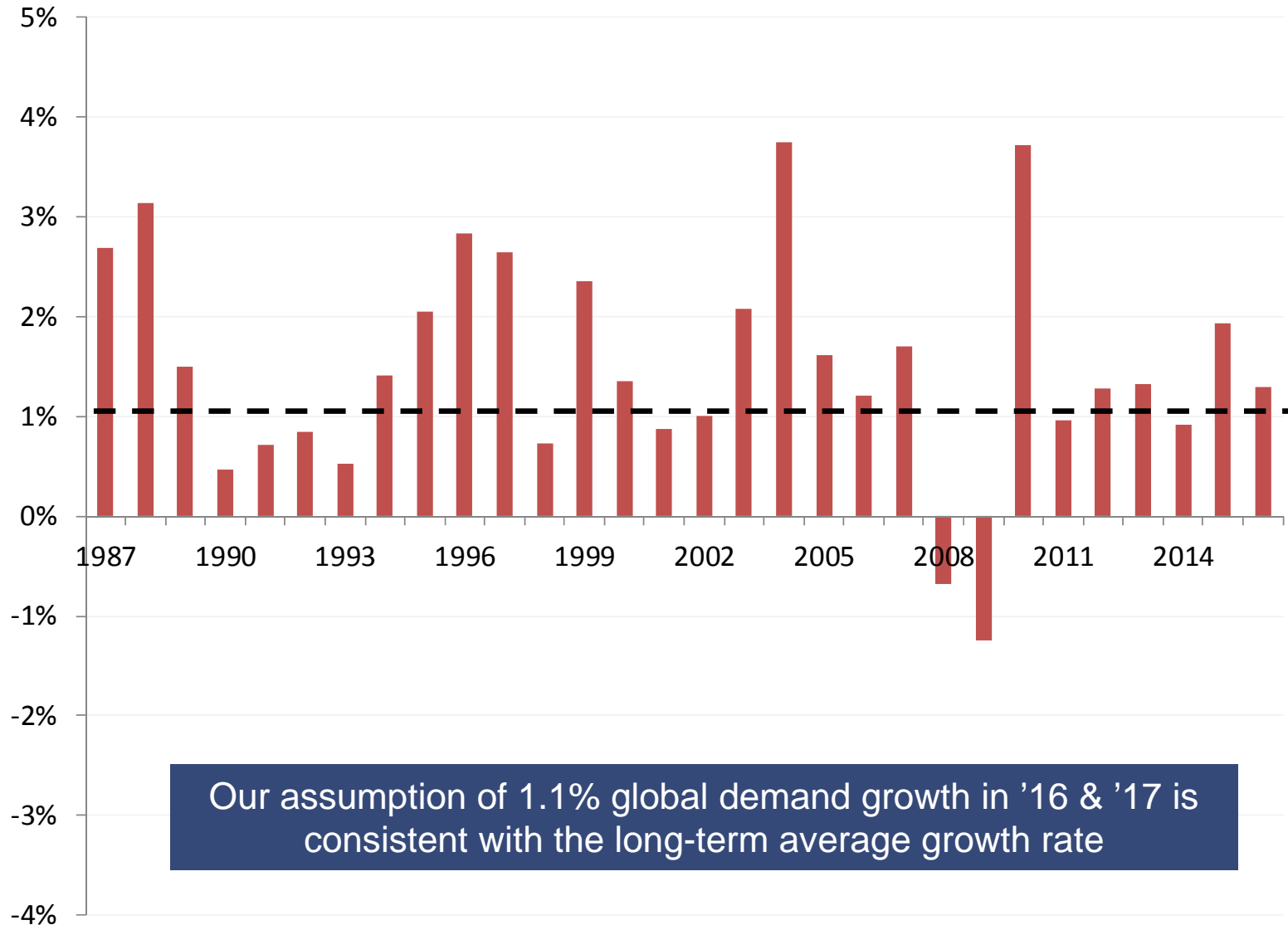
...so how are US inventories trending at/or better than normal?



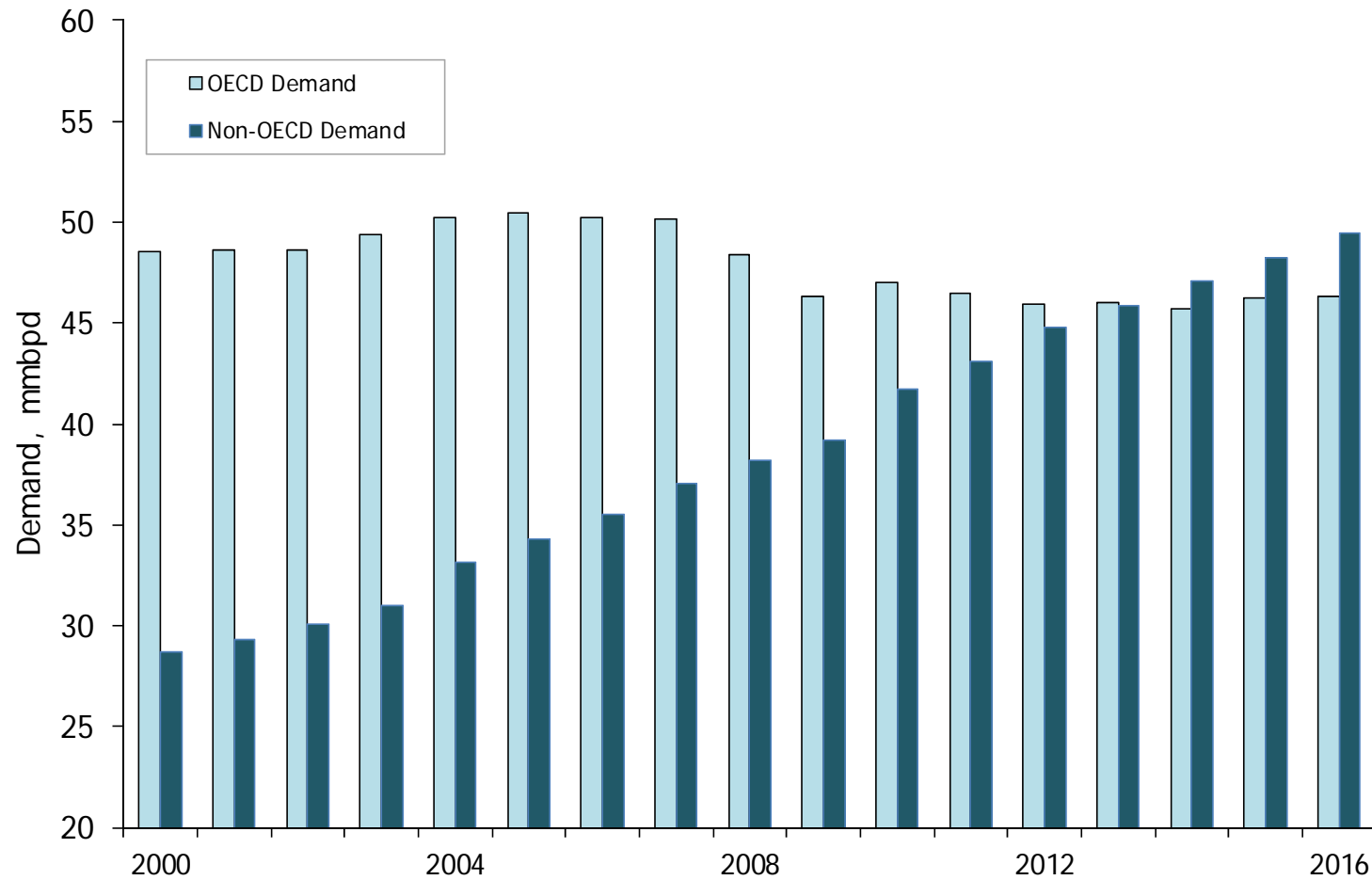
But the NYMEX Futures Say.....!!!!



Global Demand – The Big Uncertainty?

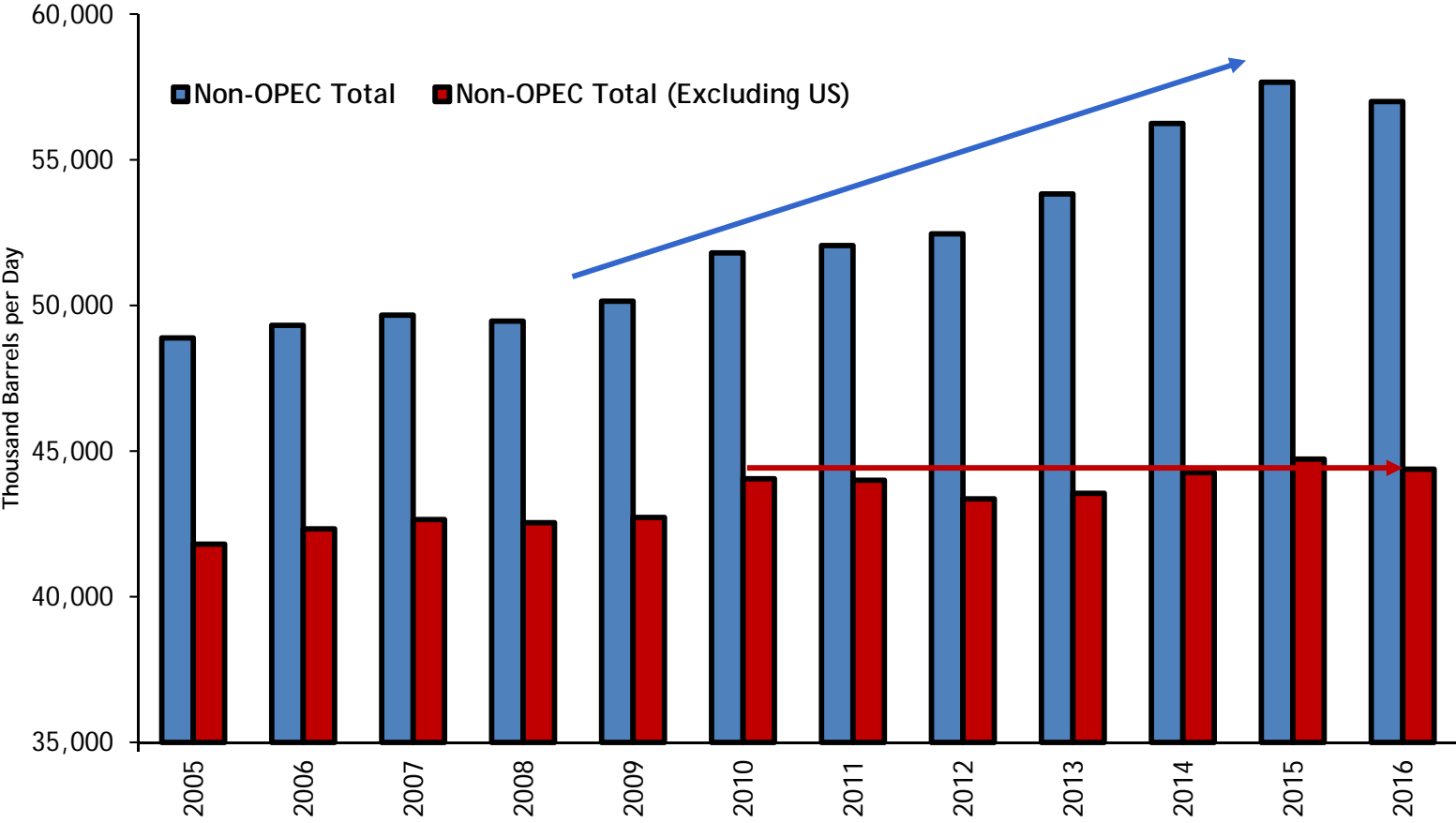


Global Demand – Non-OECD Driven



Non-OECD demand growth is THE driver

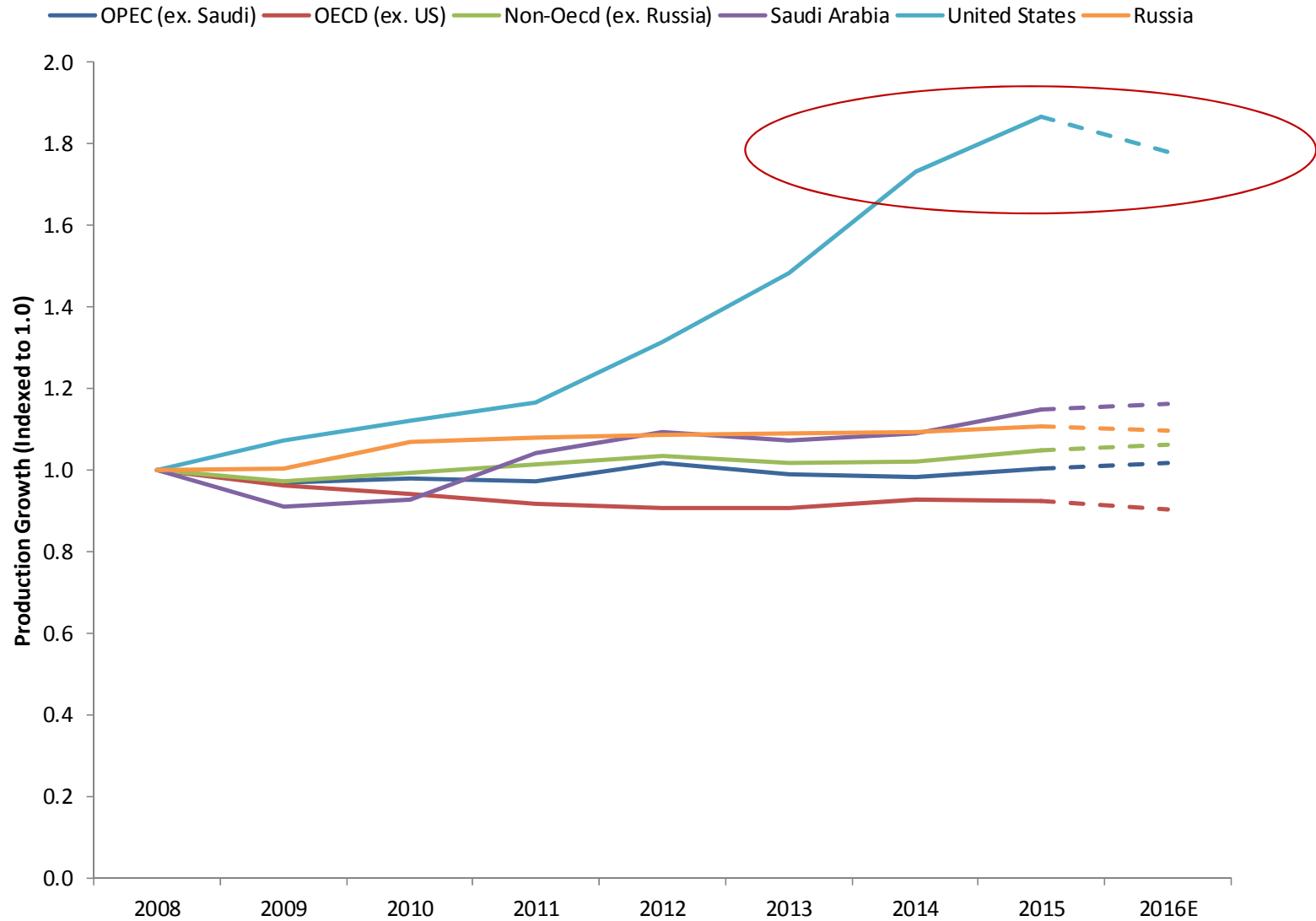
Non-OPEC Supply Breakout



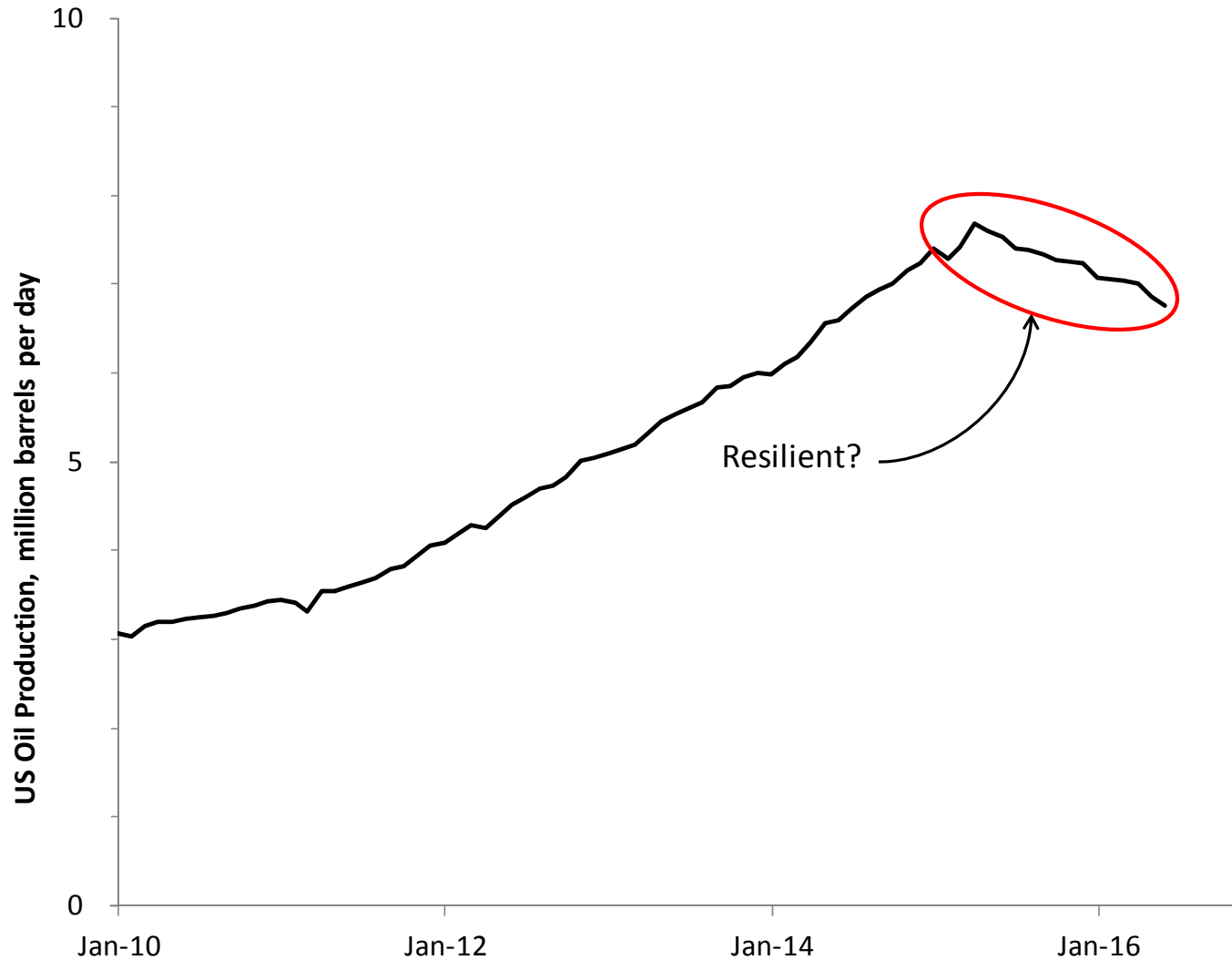
Source: IEA, TPH Research

The US Has Been The 800 Pound Gorilla Of Supply

Oil Production Growth By Country/Region



US Oil Production is Resilient?...Nope!



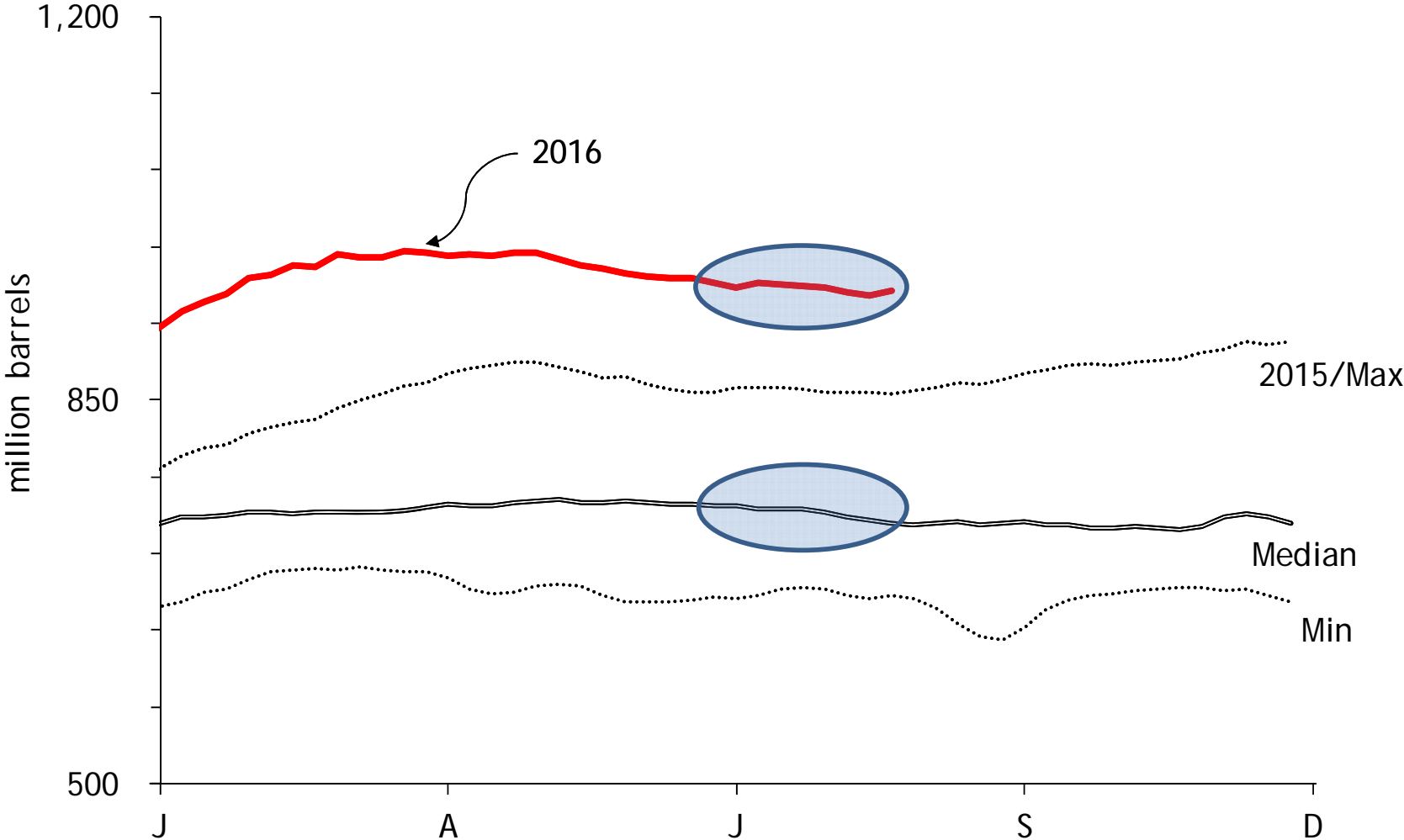
US onshore production has been declining since April '15 and should decline 1.5mmbpd by Dec'16 (from peak).

US Oil Forecast

Oil (mbopd)		Actual						Forecast					
		2009A	2010A	2011A	2012A	2013A	2014A	2015E	2016E	2017E	2018E	2019E	2020E
Detailed Basin Analysis	Permian	863	907	1,009	1,188	1,356	1,634	1,920	2,001	2,172	2,471	2,731	2,997
	Eagle Ford	20	68	229	566	963	1,336	1,527	1,288	1,125	1,348	1,598	1,803
	Bakken	242	341	545	807	1,012	1,206	1,288	1,151	1,117	1,255	1,433	1,591
	Niobrara	53	60	75	99	151	243	326	310	340	403	438	465
	MS Lime	45	48	57	77	120	154	168	148	117	111	105	99
	GW, Tonk, Cle	53	68	102	124	131	128	107	77	69	70	68	67
	SCOOP, STACK	4	12	22	41	71	106	127	145	185	233	290	345
	Sub-Total	1,280	1,503	2,038	2,902	3,803	4,808	5,463	5,121	5,125	5,890	6,664	7,368
Growth		223	535	865	901	1,005	655	(342)	4	765	773	704	
Top Line Estimates	FO Gulf	1,684	1,700	1,470	1,452	1,409	1,503	1,637	1,665	1,604	1,474	1,392	1,356
	California	589	569	554	563	571	588	577	548	521	521	526	531
	Other Texas	535	531	524	518	546	591	573	458	435	435	448	462
	Alaska	646	600	562	526	515	497	483	459	441	427	415	402
	Other US	733	742	725	840	720	844	708	566	549	549	566	583
	Sub-Total	4,186	4,142	3,834	3,899	3,762	4,023	3,977	3,696	3,550	3,406	3,346	3,334
Growth		(44)	(308)	65	(138)	261	(45)	(281)	(147)	(144)	(60)	(12)	
TPH Forecast	5,466	5,645	5,871	6,802	7,565	8,831	9,440	8,817	8,675	9,296	10,010	10,702	
Total Growth		179	226	930	763	1,266	609	(623)	(142)	622	713	692	

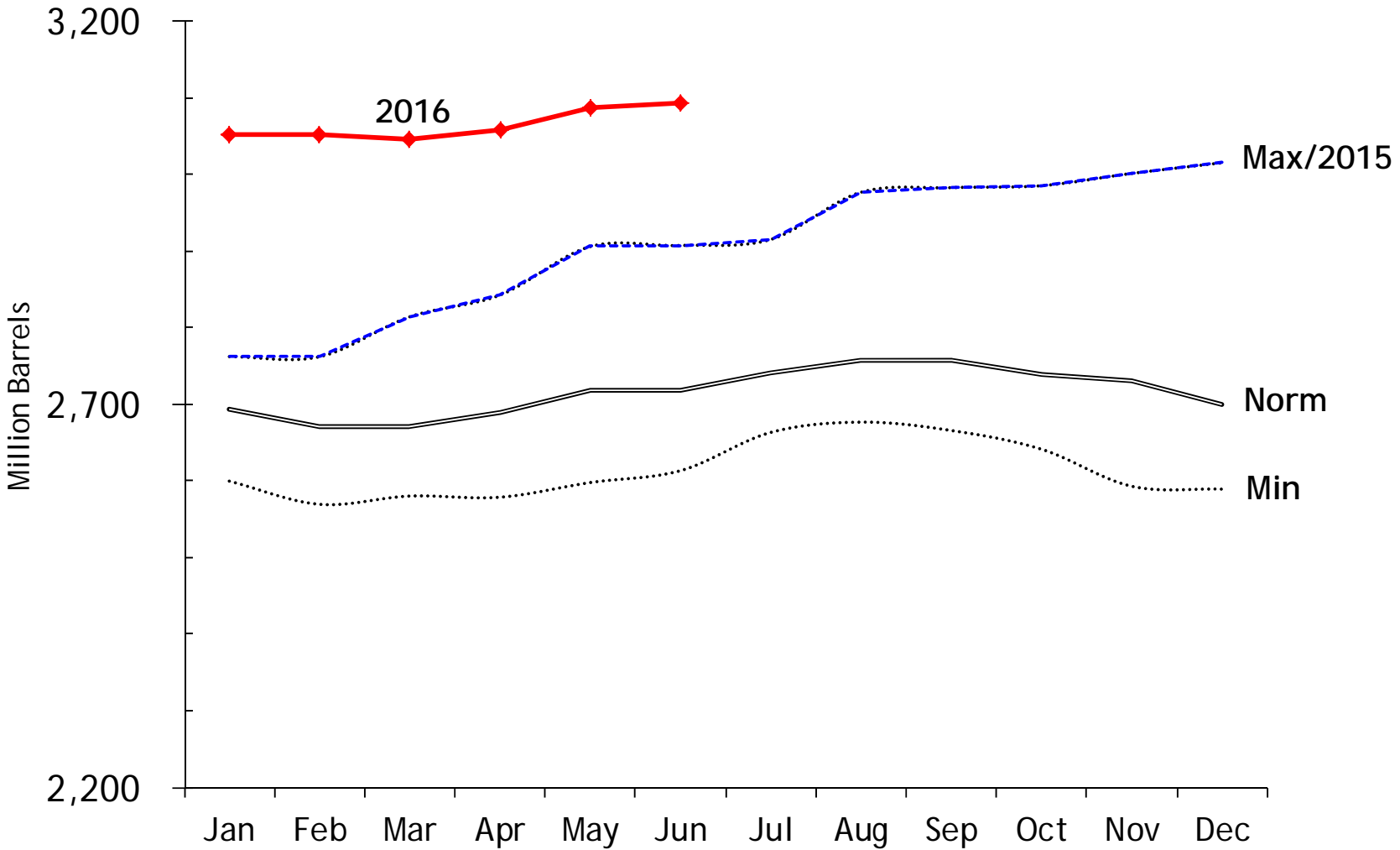
Recent US Data Suggest the Market is Tightening... Now!

US Inventories - Crude and Key Products



Source: IEA, TPH Research

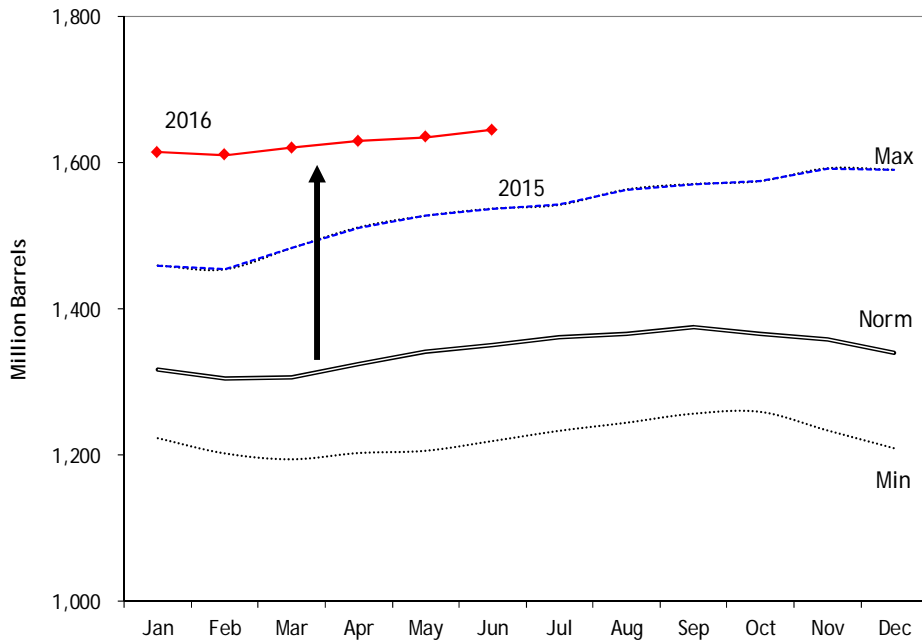
OECD trend is also positive



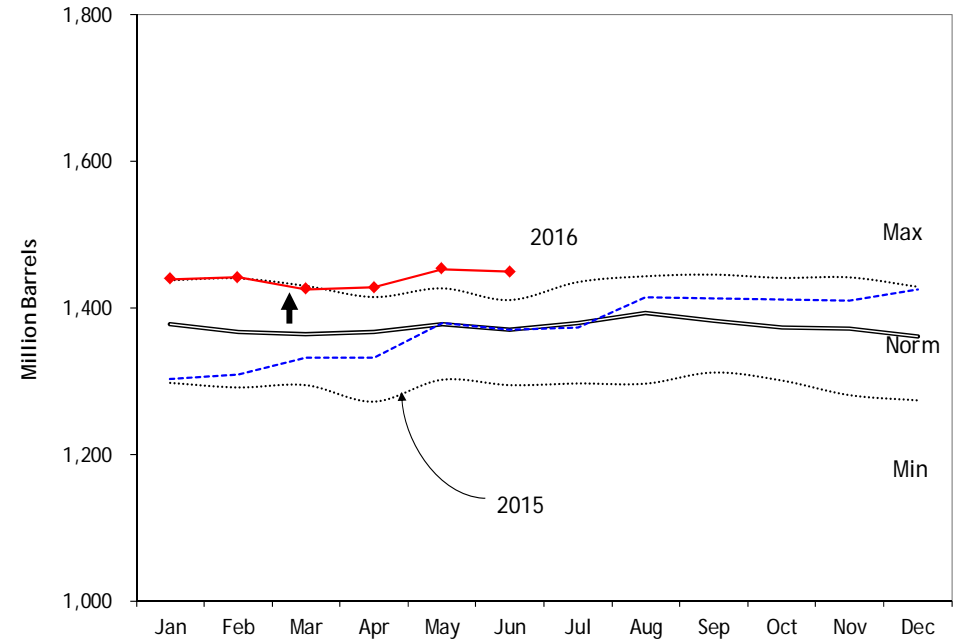
Source: EIA, TPH Research

US/NAM Inventories Should be the Focus

NAM OECD Stocks

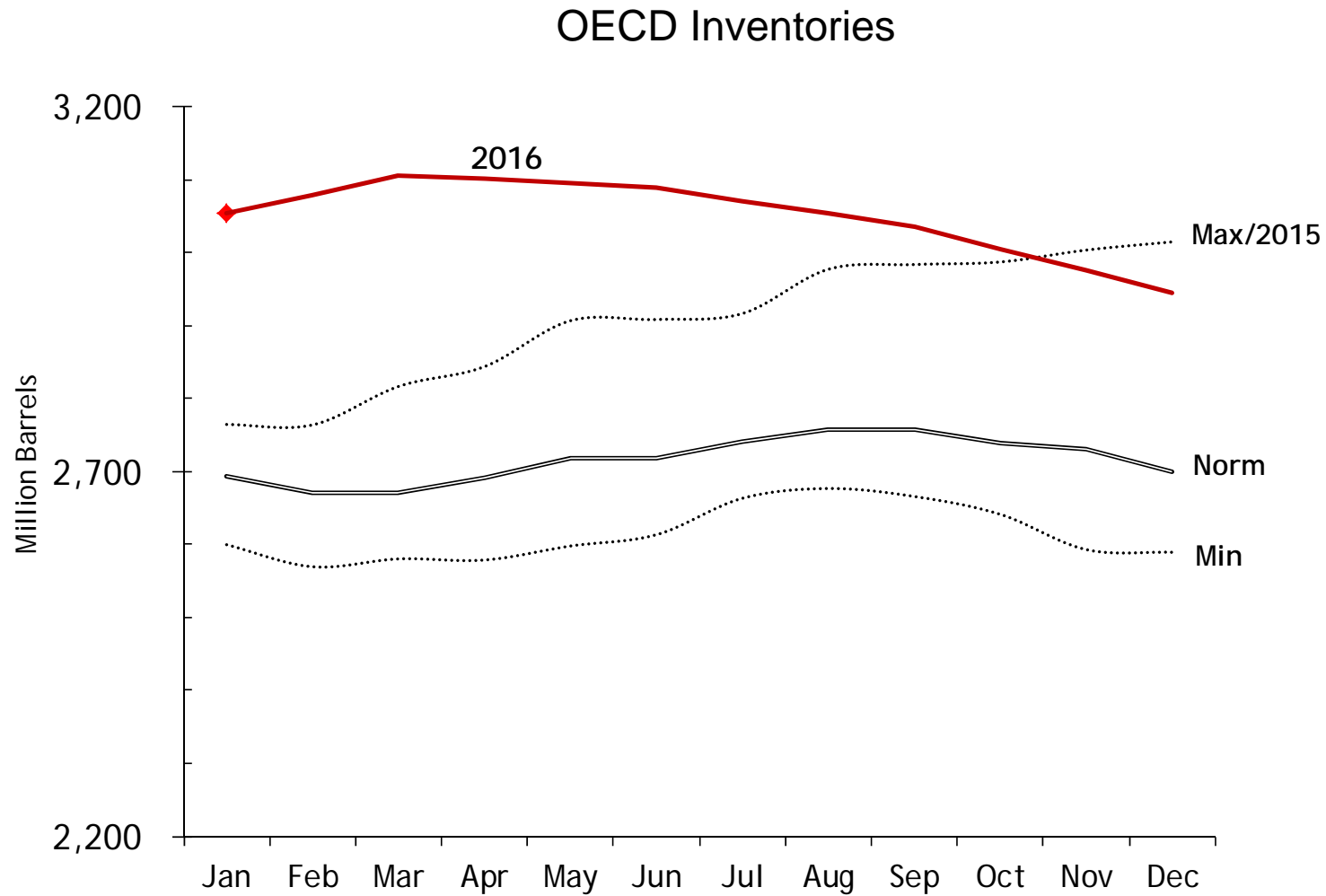


Non-NAM OECD Stocks



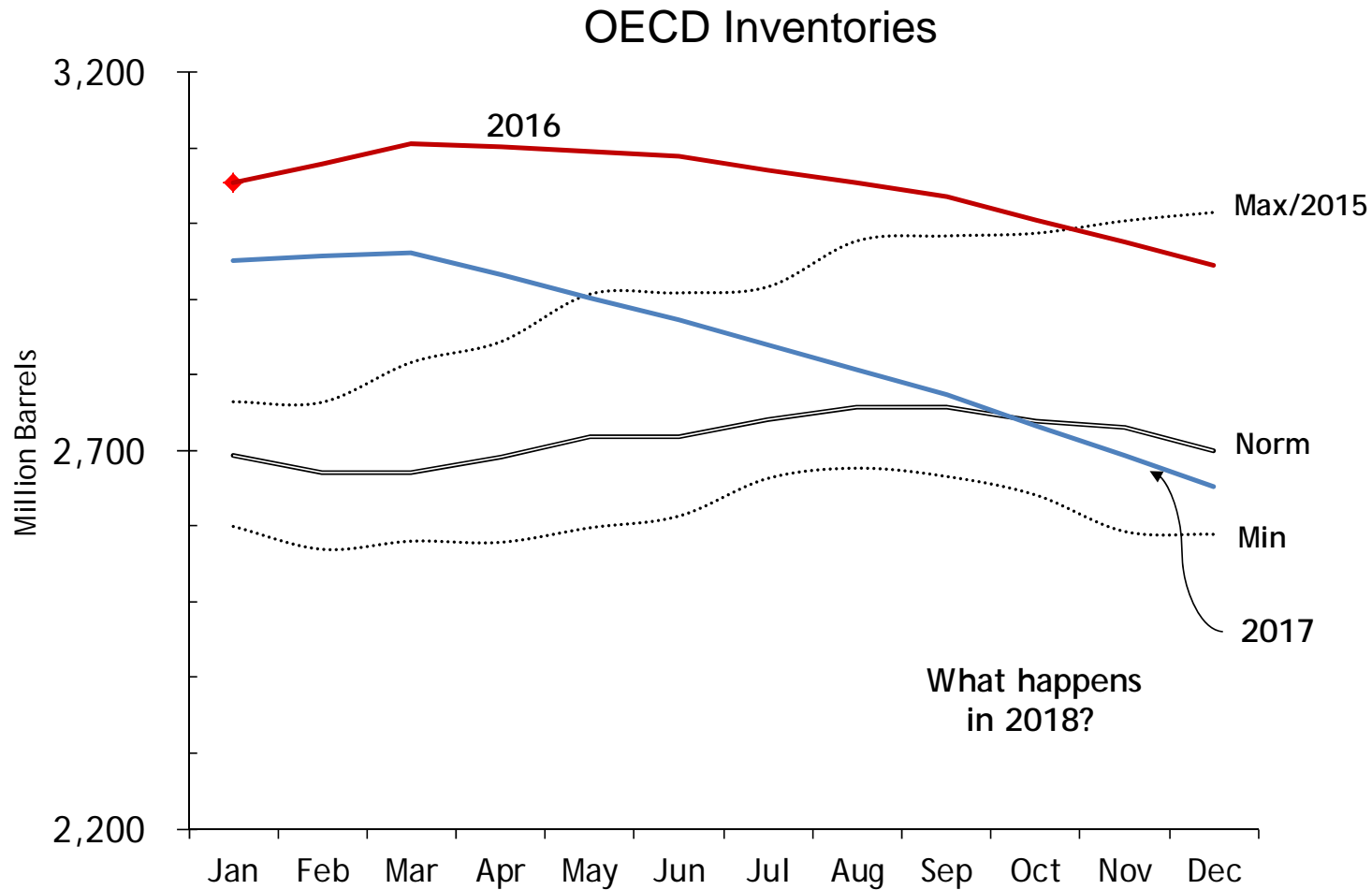
US/NAM inventories have accounted for nearly 70% of the build...yet they represented only 45% of the OECD total.

Tightening Market in 2016



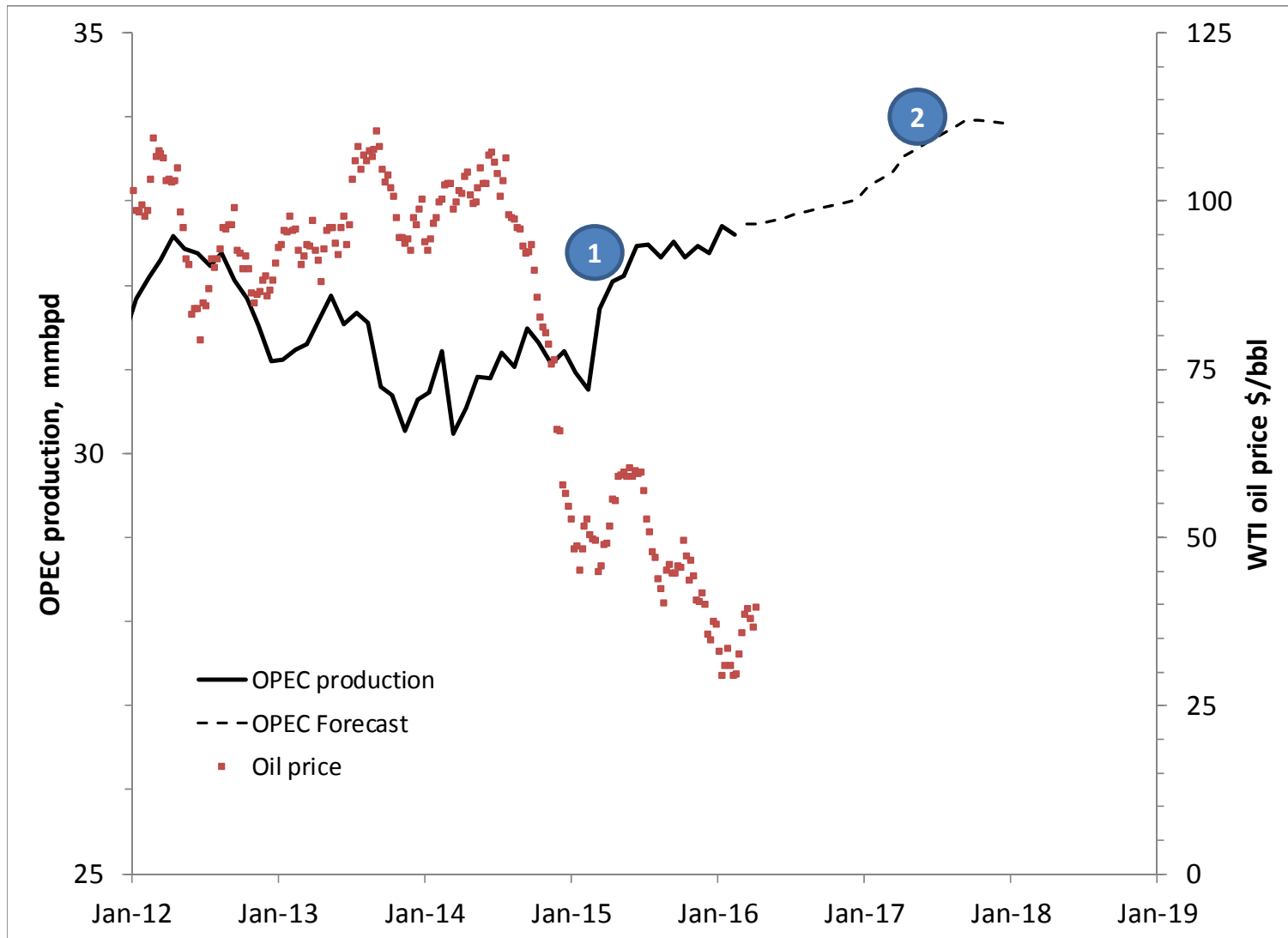
Our base case supply and demand outlook shows inventory draws are at our doorstep.

Extremely Tight Market in 2017



To prevent OECD inventories falling from below 10-yr minimums, we increase OPEC in 2017, on top of the 500kbpd of neutral zone production added in mid-2016.

Current Cycle – Base Case



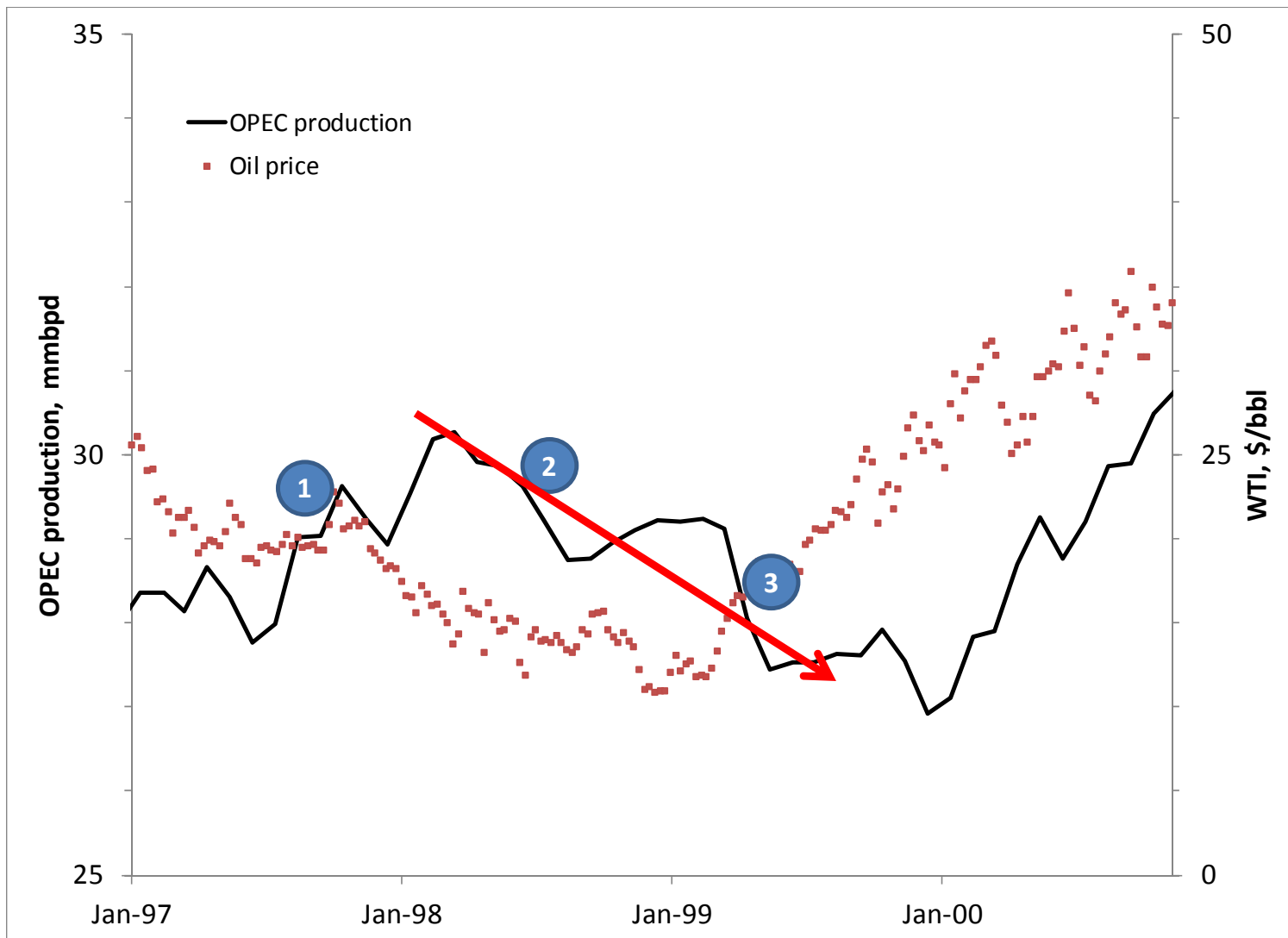
OPEC will need to produce at record levels as the market tightens in 2H16 and 2017 with less visible excess capacity.

Past Cycles – A Window Into 2017 Price Recovery?

- Prior cycle OPEC cuts:
 - shortened the duration of low prices
 - created visible excess capacity
 - alleviated any scarcity premium/concerns
- This cycle:
 - No OPEC cuts
 - non-OPEC declines and demand growth are *fixing* the market

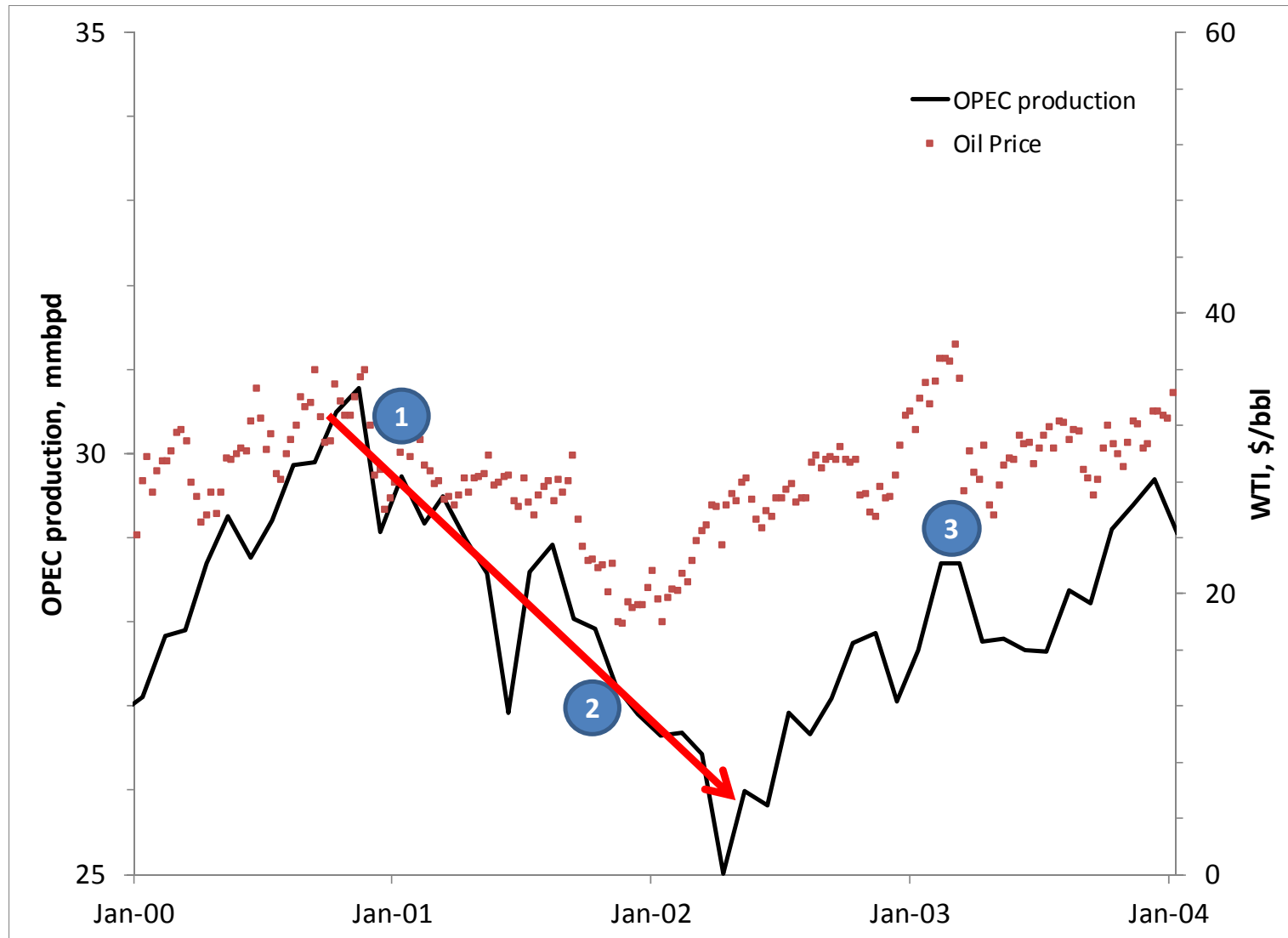
Prices could eclipse \$100/bbl as a scarcity premium could override the oil-price-capping “US can grow quickly” theme.

1998-99 Cycle



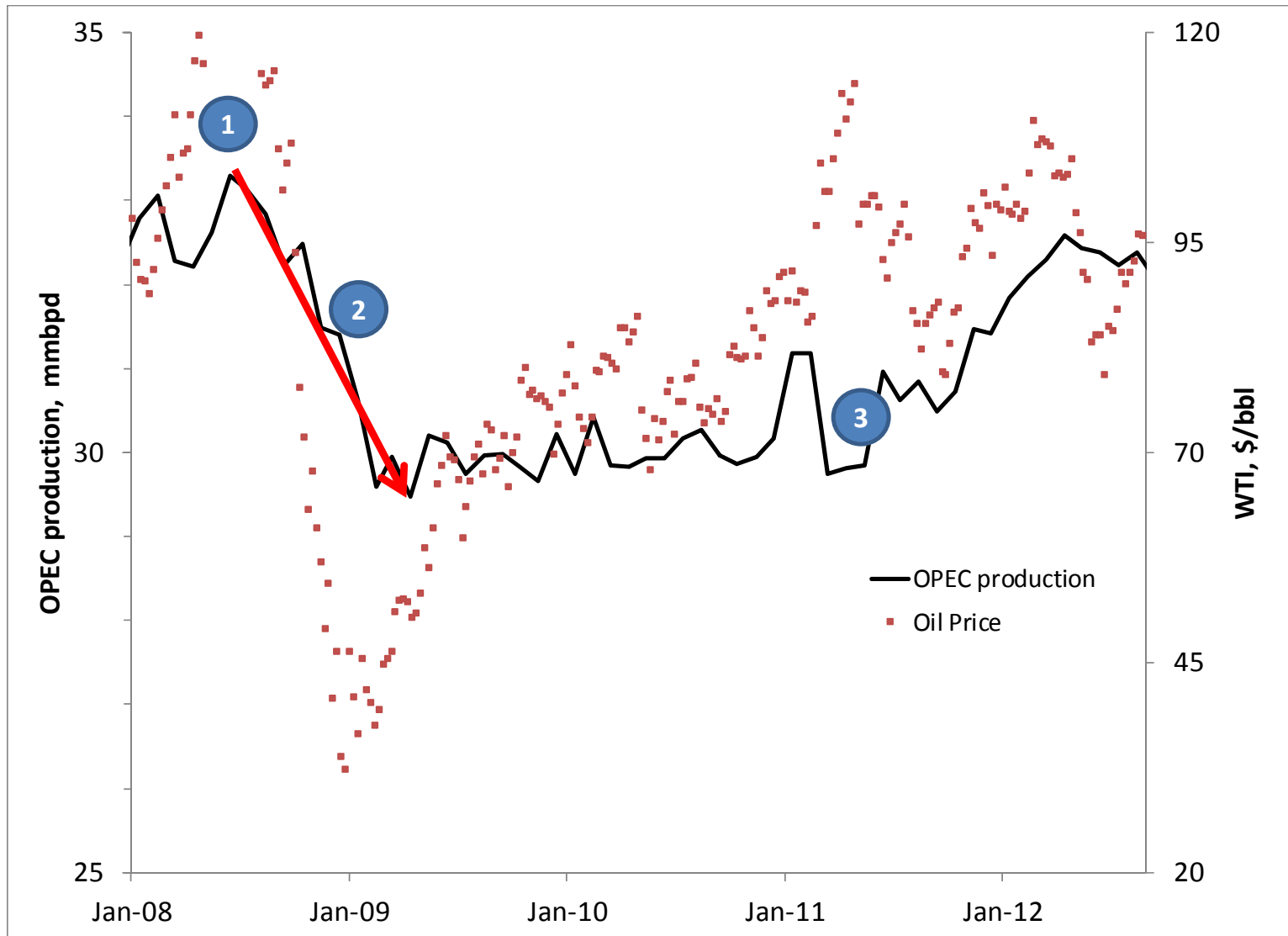
By Dec '99 OPEC had cut ~2.5mmbpd providing visible excess capacity as the market tightened and prices rebounded.

2001-02 Cycle



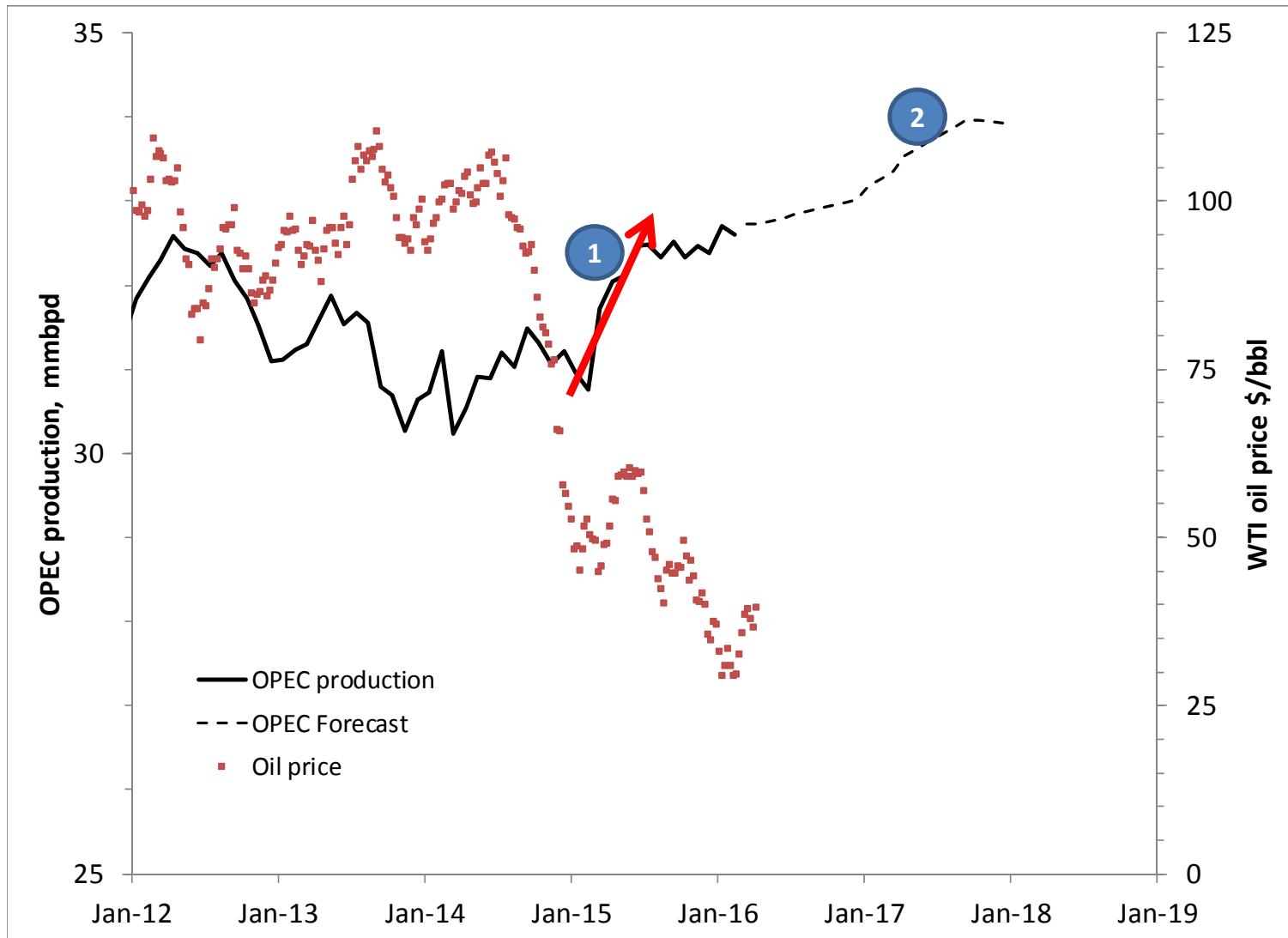
By early '02 OPEC-10 had cut over 3.5mmbpd providing visible excess capacity as the market tightened and prices rebounded.

2008-09 Cycle



By mid '09 OPEC had cut nearly 2.5mmbpd providing visible excess capacity as the market tightened and OPEC could quickly react to Arab Spring events in 2011+.

Current Cycle – Base Case



OPEC will need to produce at record levels as the market tightens in 2H16 and 2017 with less visible excess capacity.

Global Supply and Demand – Quarterly Outlook

Global Supply and Demand Model

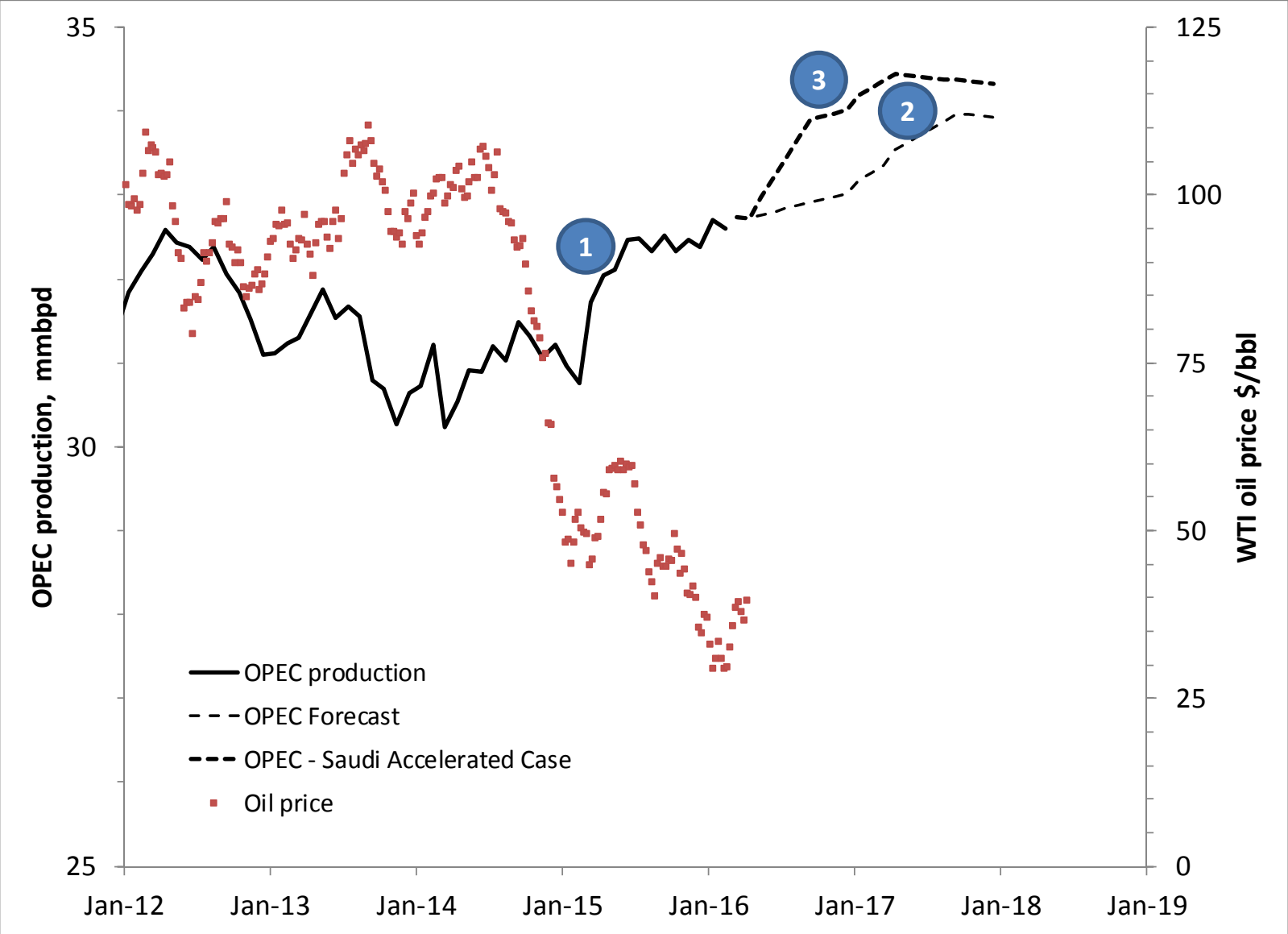
Units: million barrels per day

	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17
Demand: Total	93.6	94.1	95.7	95.5	95.2	95.6	96.5	96.4	96.3	96.7	97.7	97.5
North America	24.3	24.2	24.8	24.5	24.5	24.4	24.7	24.4	24.5	24.4	24.8	24.4
Asia / Pacific	32.2	31.5	31.5	32.5	33.1	32.5	32.3	33.4	33.9	33.3	33.2	34.3
Europe / Africa / Lt. Am	24.9	25.1	25.8	25.4	25.1	25.3	25.6	25.3	25.2	25.4	25.7	25.4
FSU / Middle East	12.2	13.2	13.7	13.1	12.6	13.4	13.9	13.3	12.7	13.6	14.0	13.4
Supply: Total	95.1	96.3	97.0	97.2	96.5	95.8	96.6	96.9	96.6	96.3	97.1	97.3
United States	12.8	13.0	13.0	13.0	12.7	12.6	12.0	12.0	12.1	12.3	12.0	12.2
Non-OPEC Ex-US	40.3	39.6	39.8	40.3	40.1	38.7	39.7	40.2	40.0	38.6	39.6	40.1
OPEC	31.4	32.4	32.7	32.6	32.8	33.0	33.1	33.2	33.4	33.6	33.6	33.4
NGLs	6.6	6.7	6.7	6.7	6.8	6.8	6.9	6.9	6.9	6.9	7.0	6.9
Processing Gains + Other Ethanol	4.0	4.6	4.8	4.6	4.2	4.8	4.8	4.6	4.2	4.8	4.9	4.7
Supply Exceeds Demand	1.5	2.1	1.3	1.7	1.3	0.2	0.0	0.5	0.3	(0.5)	(0.6)	(0.2)
Balancing Item	(0.4)	(0.9)	(0.2)	(1.2)	(0.8)	(0.9)	(0.2)	(1.2)	(0.8)	(0.9)	(0.2)	(1.2)
Implied Inventory Change	1.0	1.3	1.0	0.4	0.5	(0.7)	(0.2)	(0.7)	(0.5)	(1.3)	(0.8)	(1.4)

Consistent Inventory
Draws

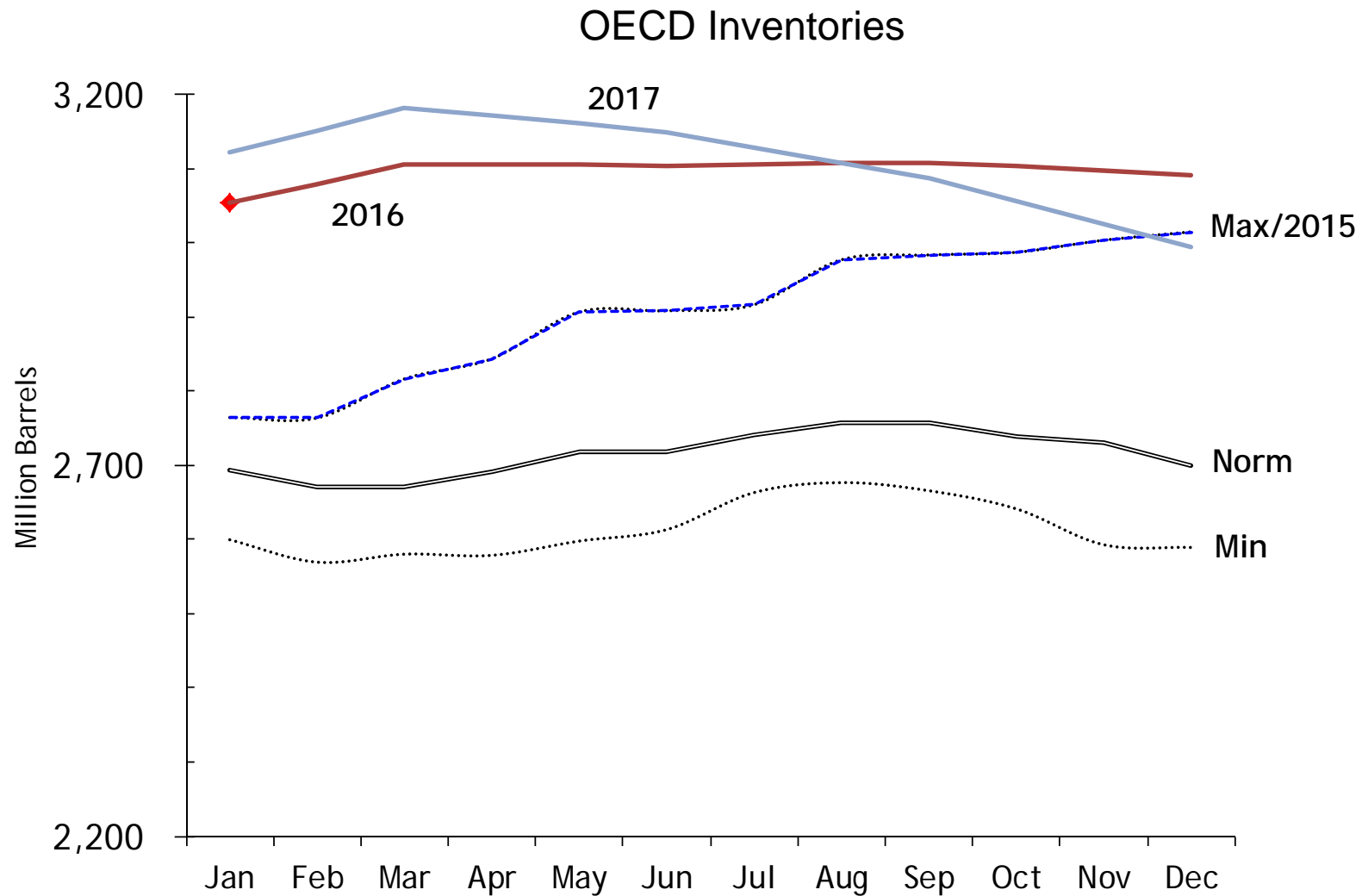
We project significant inventory drawdown during 2H16 and 2017

Monster in the Closet: What if Saudi Ramps in 2016?



Source: IEA, TPH Research

Saudi Ramp in 2016 – Recovery delayed 2H17



Fundamental / price improvement delayed until mid-17 if Saudi ramps +1mmbpd in 2016 with neutral zone +500kbpd and Libya improves in '17.

Crude Oil - What can go right?

- *Demand* – we are comfortable with our '16 global +850kbpd growth **but if consensus is right at +1.3mmbpd...buckle up.**
- *Non-OPEC (ex/US)* – we model <1% declines in '16 and '17. The potential for these **declines to be steeper is very high.**
- *OPEC* – What is **Saudi's sustainable capacity?**

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