



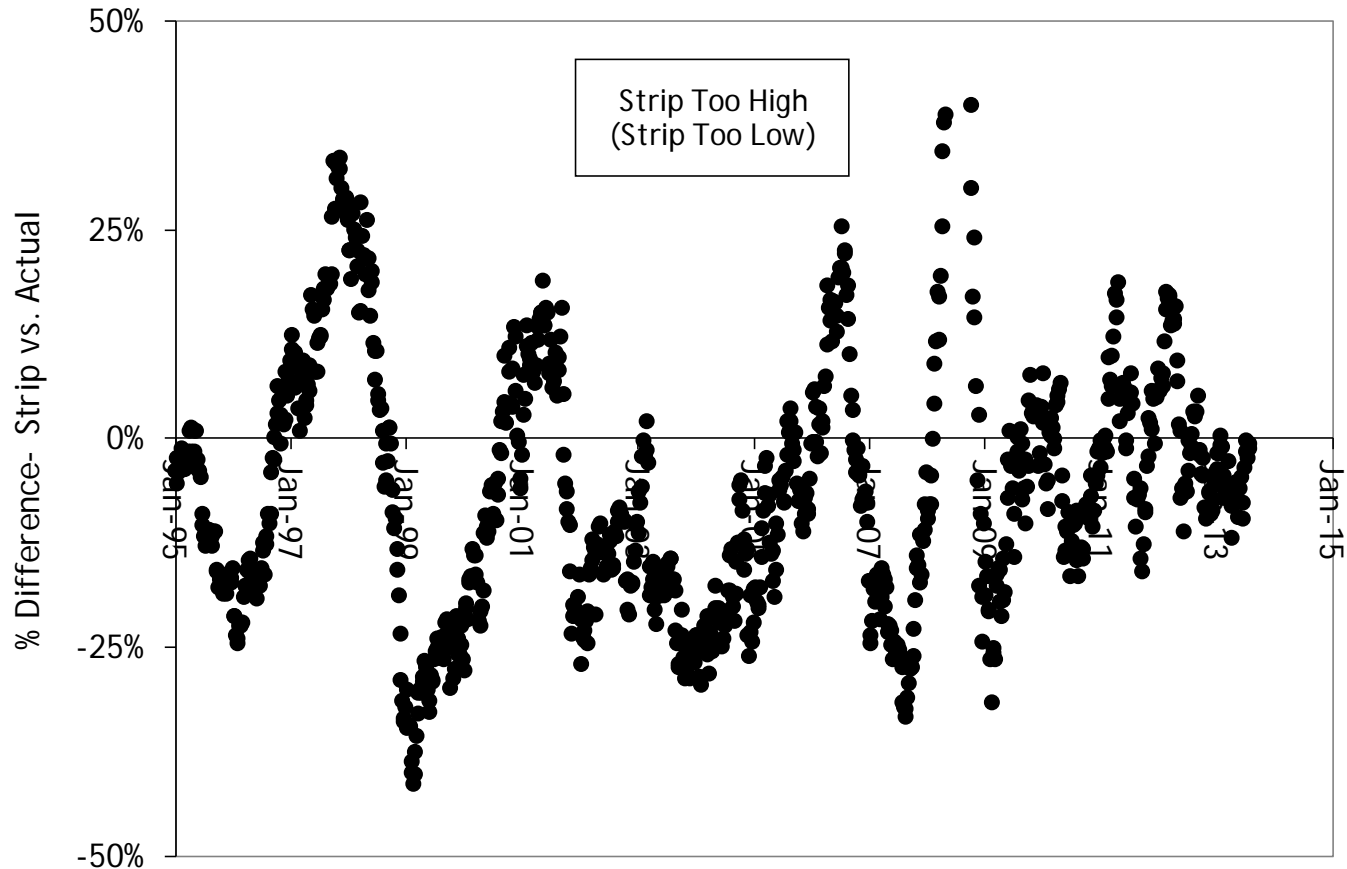
## Montana Oil & Gas

# Montana Legislative Services

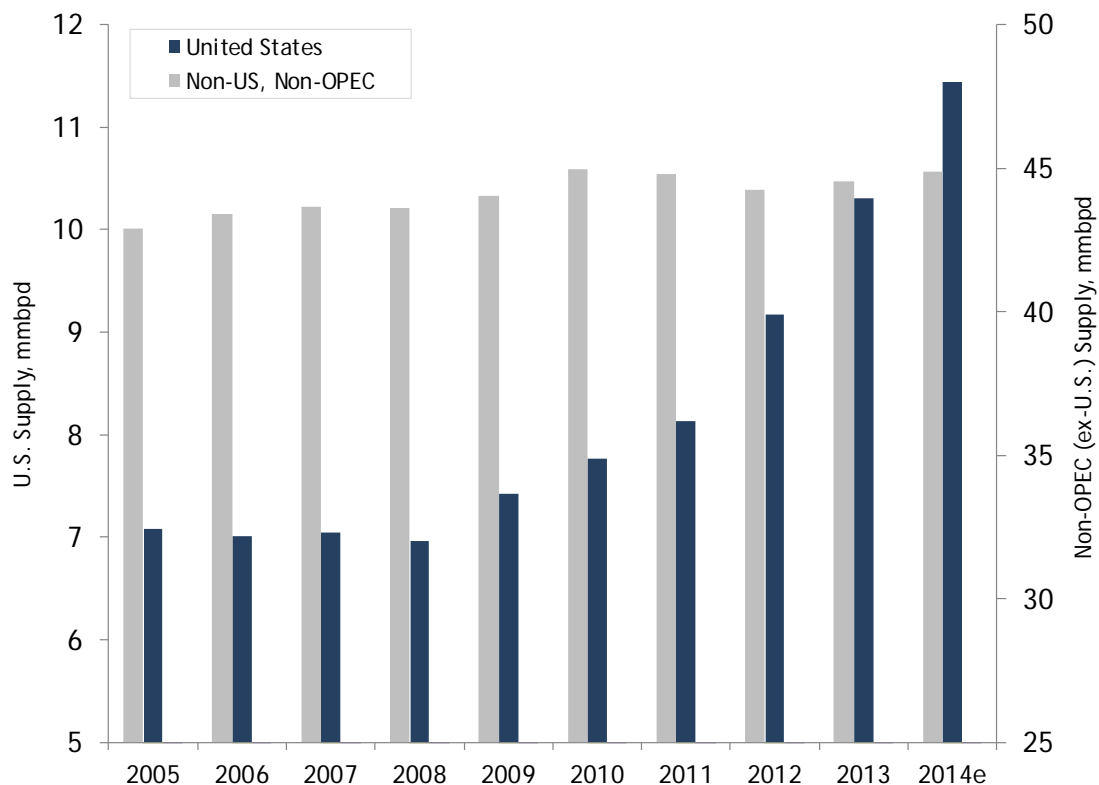
David Pursell  
September 2014

**\*\*IMPORTANT DISCLOSURES BEGIN ON PAGE 18 OF THIS DOCUMENT\*\***

# Oil Futures, Are They Accurate?



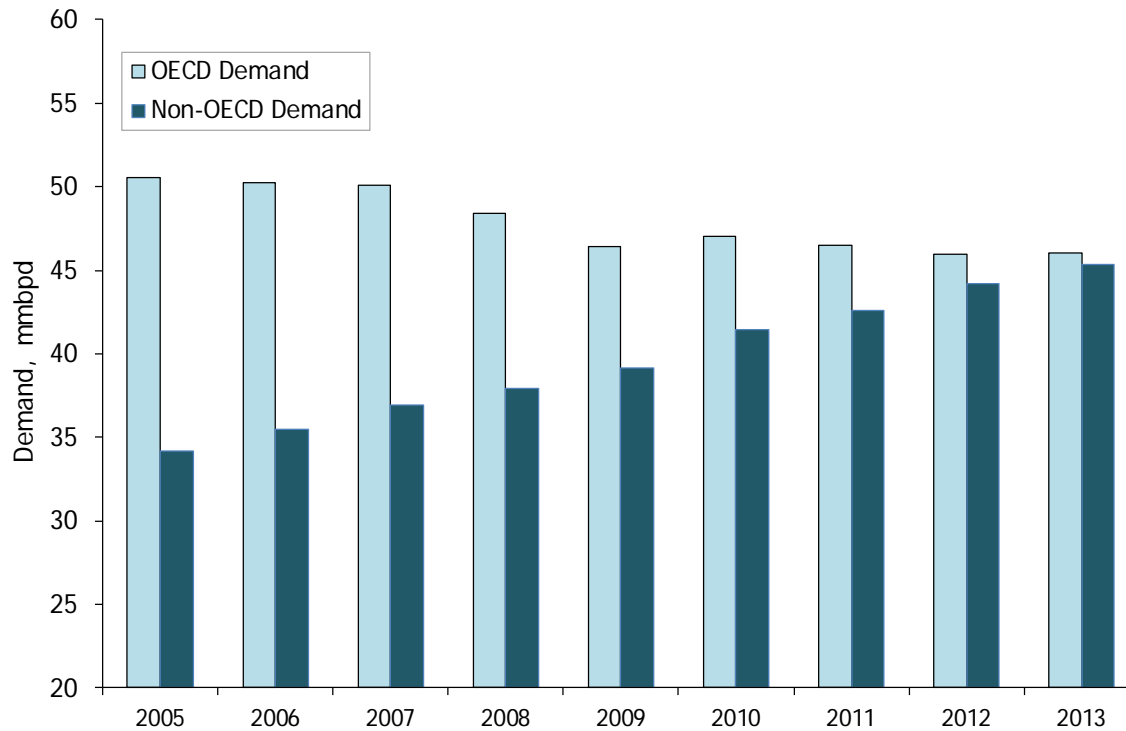
# Non-OPEC Oil Production



- Outside US onshore, non-OPEC growth is elusive
- Lack of exploration success + IOCs finding capital discipline = no change to trend

*"I can hardly remember how I built my bankroll, but I can't stop thinking of how I lost it"* Mike McDermott, Rounders

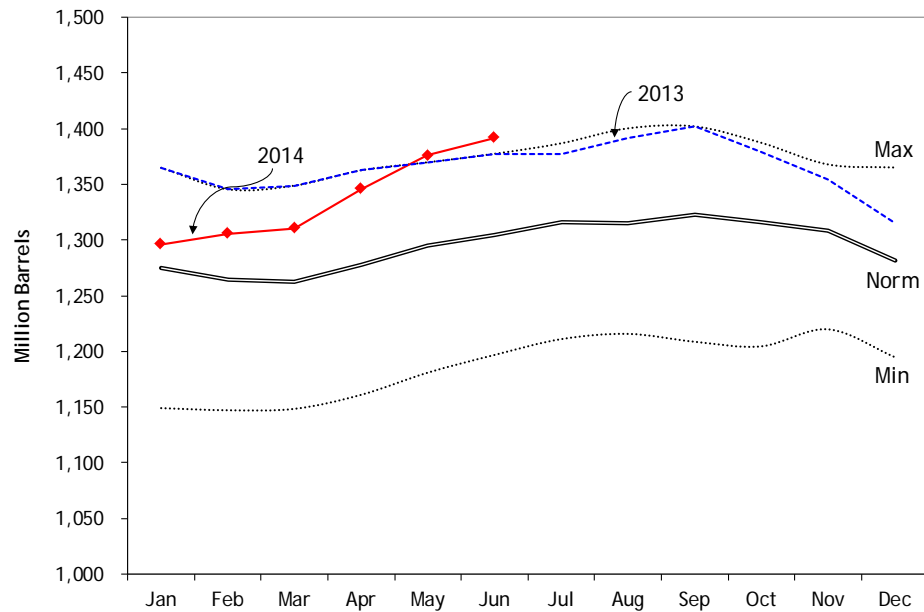
# Global Demand - The Rise of China/India



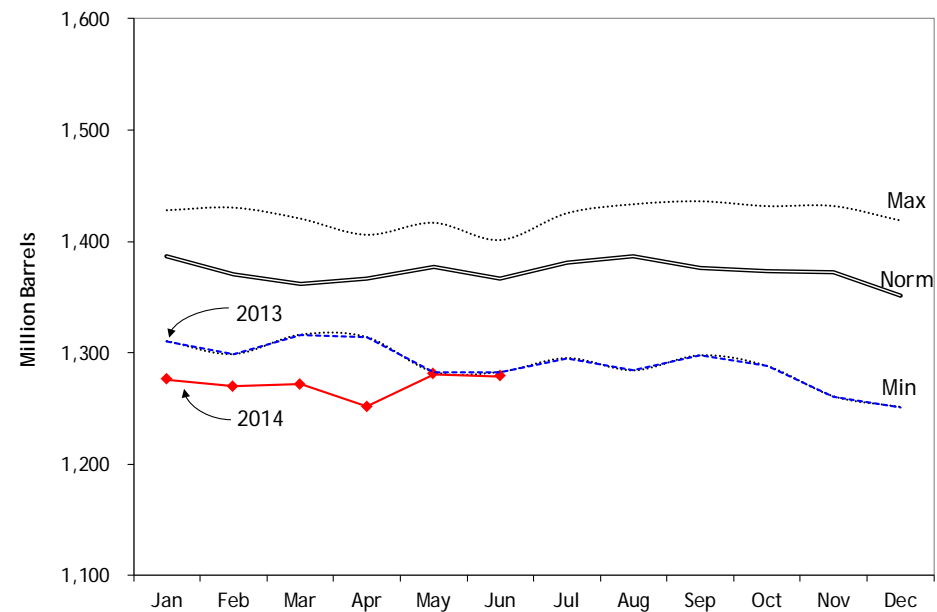
- Non-OECD demand steadily marches higher
- OECD demand is flat with Brent \$100/bbl

# OECD Inventories

## North America Inventories

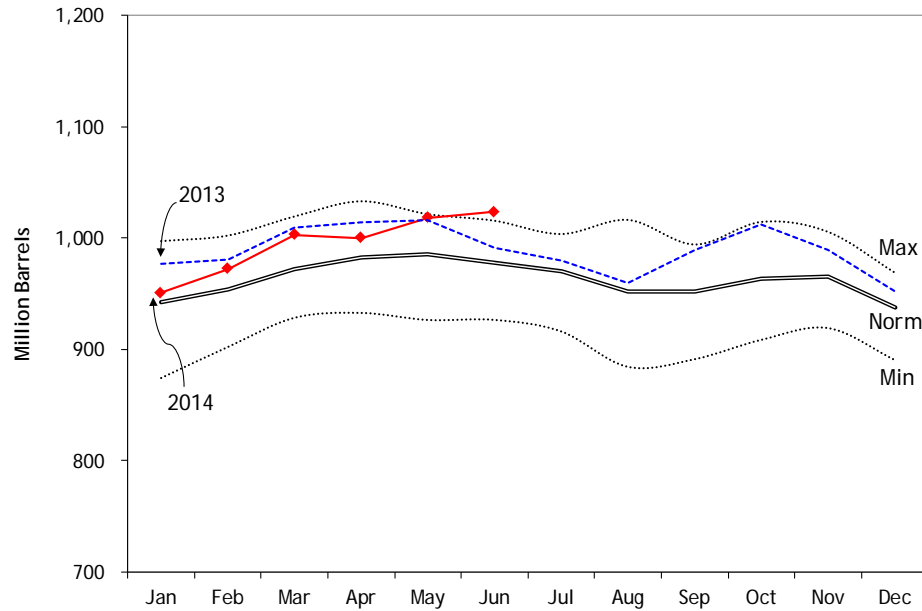


## Non-North America Inventories

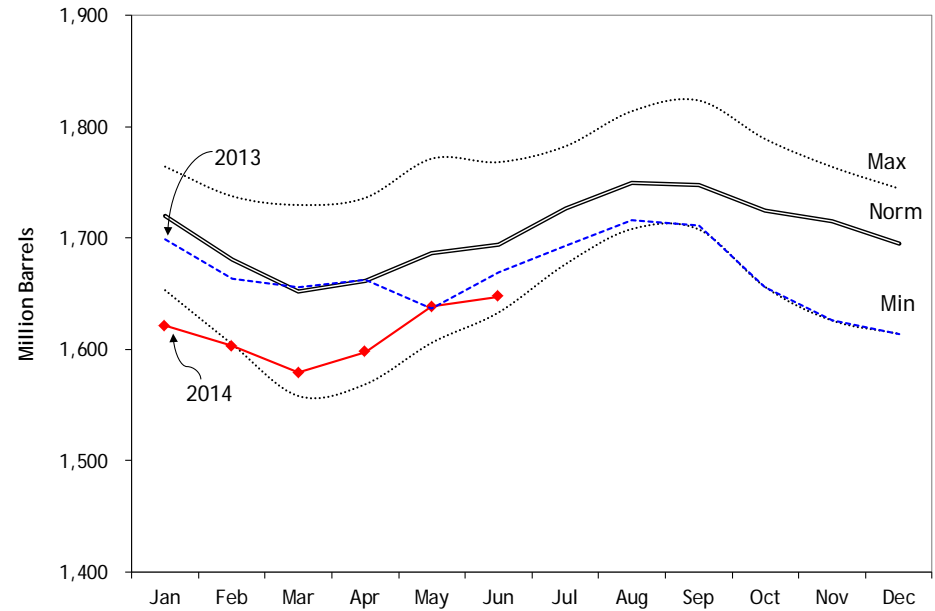


# OECD Inventories

## Crude Oil Inventories

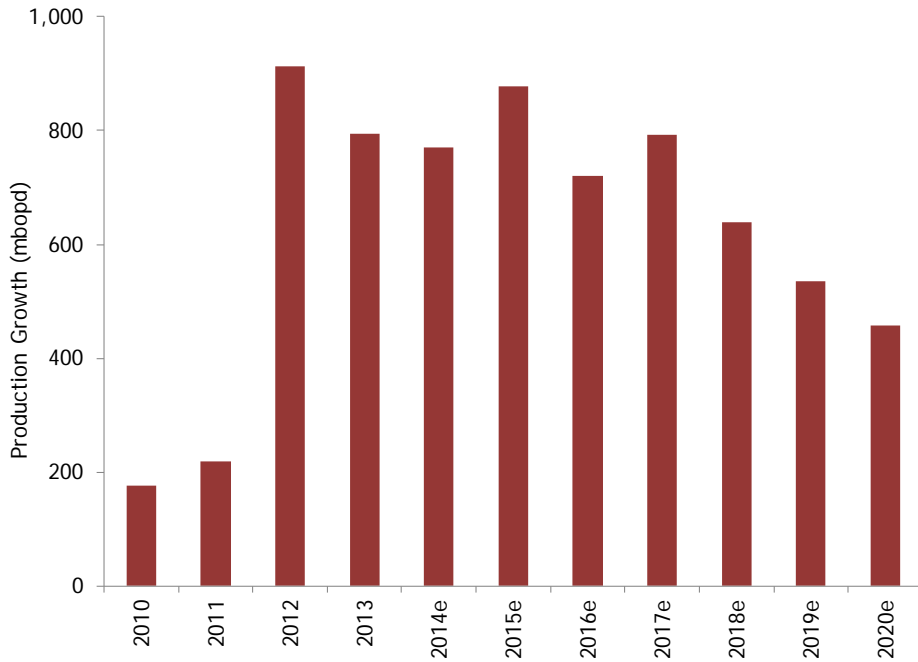


## Non-Crude Inventories

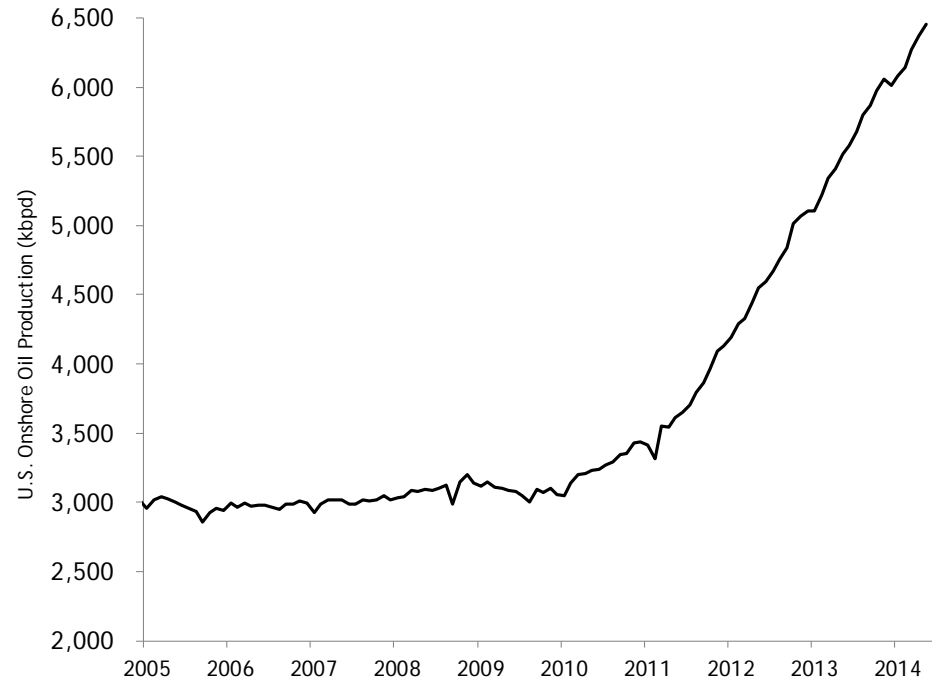


# US Oil Production

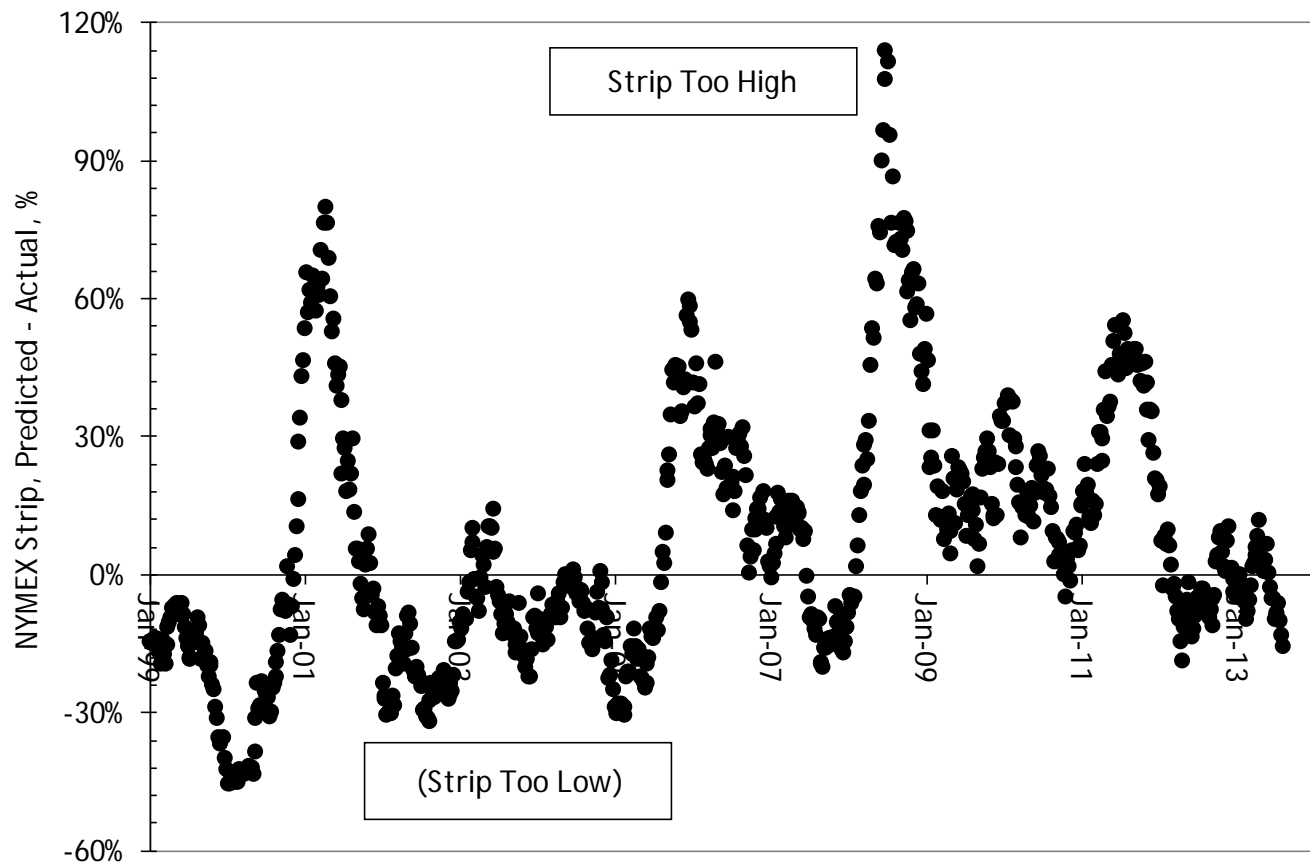
US Oil Production (forecasted)



US Oil Production (historical data)



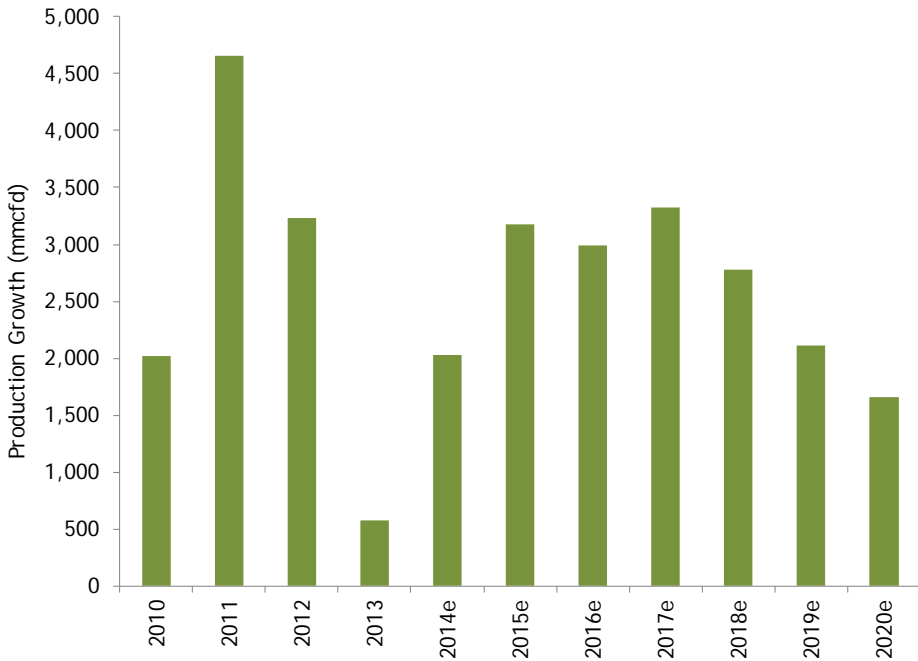
# Gas Futures, Are They Accurate?



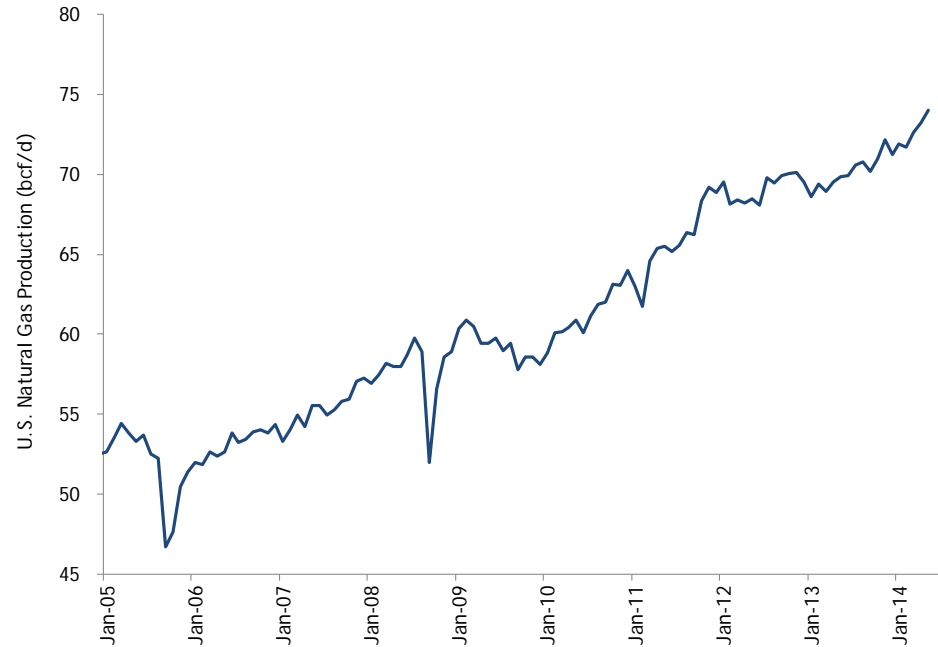


# US Natural Gas Production

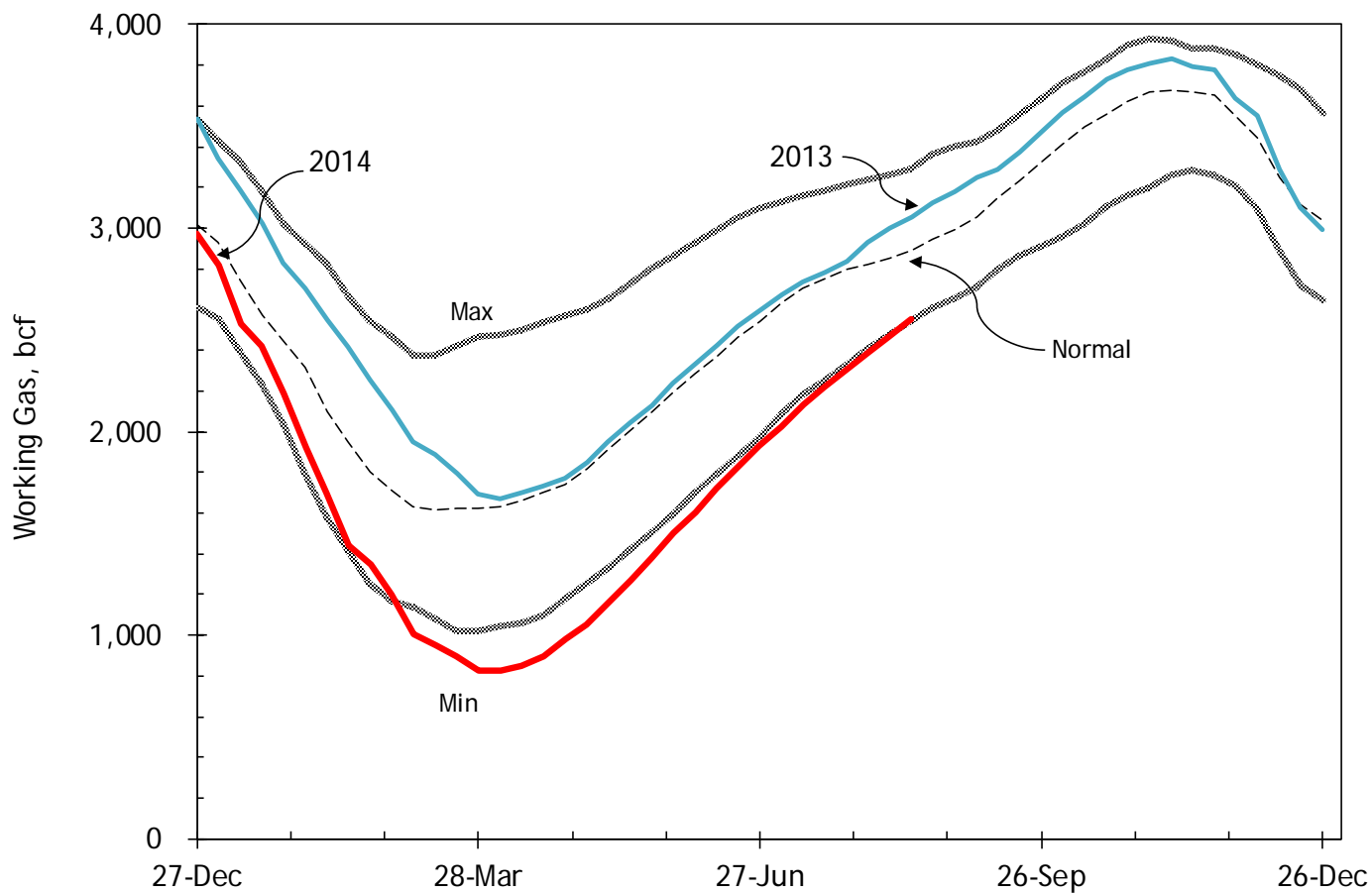
US Gas Production (forecasted)



US Gas Production (historical data)



# Natural Gas Storage



# Conclusion

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## ■ Crude Oil

- Global seaborne (Brent) price should average ~\$100/bbl in 2014+
  - This assumes global demand remains solid
- US light sweet crudes will trade at a discount to Brent due to US production growth and the inability to export crude oil
  - Differentials to Brent will be volatile but we anticipate crude oil prices in 2013 will average:
    - Brent \$100/bbl
    - WTI \$90/bbl
    - Bakken \$85/bbl

## ■ US Natural Gas

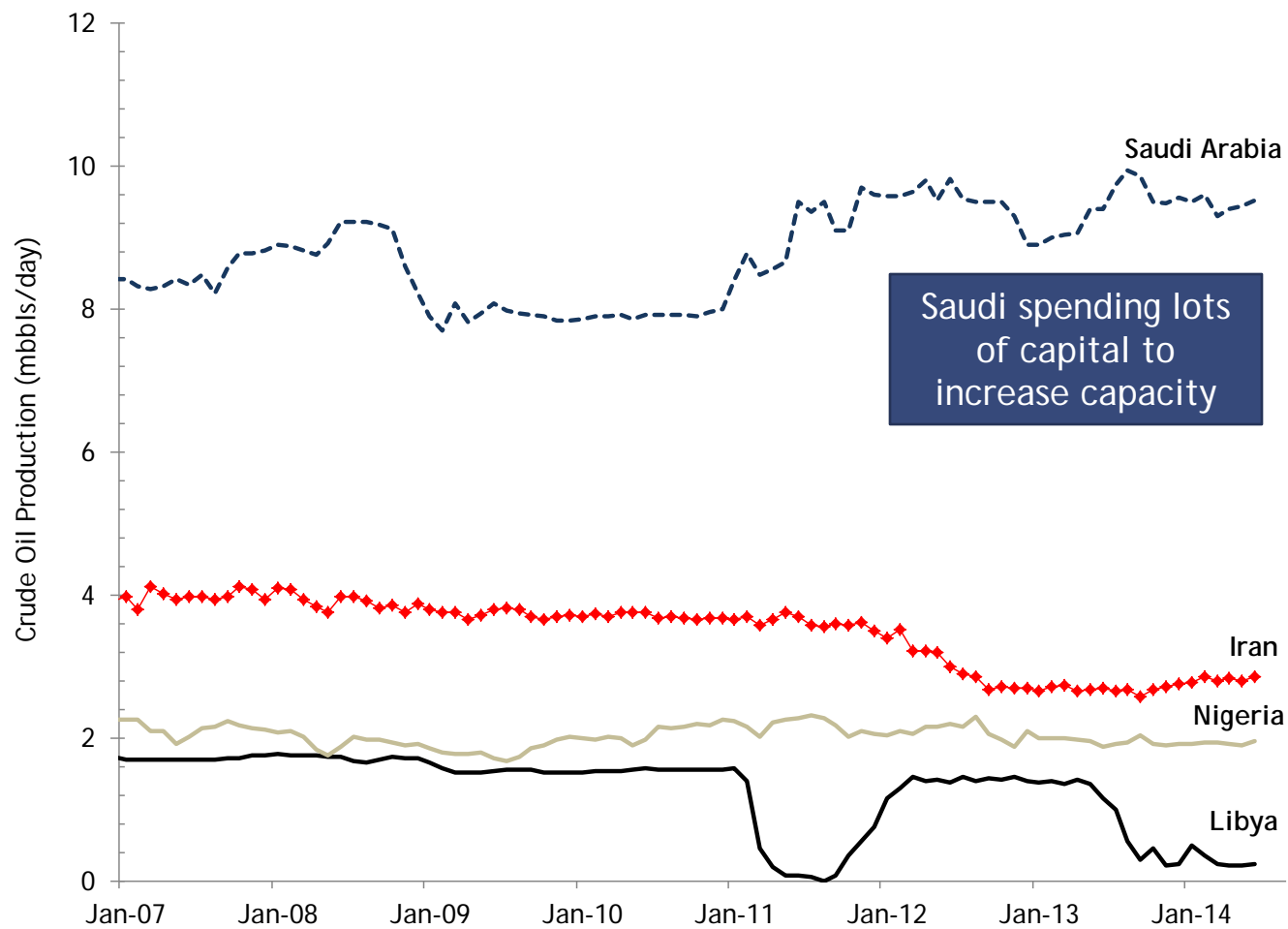
- 2015 Henry Hub \$3.75/mcf... bias lower
  - Production growth is the key
  - Demand coming later this decade

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# Appendix

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# OPEC Oil Production



# US Oil Production Forecast: Buckle Your Seatbelts!

	Oil (mbopd)	Actuals					Forecast						2020E vs. 2013A	
		2009A	2010A	2011A	2012A	2013A	2014E	2015E	2016E	2017E	2018E	2019E		2020E
Detailed Basin Analysis	Permian	863	907	1,009	1,188	1,346	1,575	1,836	2,100	2,385	2,645	2,908	3,187	1,841
	Eagle Ford	19	68	230	564	962	1,251	1,477	1,695	1,873	2,015	2,137	2,246	1,284
	Bakken	253	359	513	801	1,025	1,126	1,299	1,436	1,571	1,700	1,769	1,770	745
	Niobrara	53	60	75	100	152	230	311	398	482	547	601	647	495
	SCOOP	1	1	2	4	11	33	70	110	141	157	156	147	136
	MS Lime	45	48	55	73	93	111	131	145	162	181	194	205	112
	GW, Tonk, Cle	54	71	105	121	122	125	129	133	137	140	142	145	23
	<b>Sub-Total</b>	<b>1,288</b>	<b>1,514</b>	<b>1,990</b>	<b>2,851</b>	<b>3,712</b>	<b>4,451</b>	<b>5,253</b>	<b>6,017</b>	<b>6,751</b>	<b>7,385</b>	<b>7,908</b>	<b>8,347</b>	<b>4,635</b>
Growth		226	476	860	861	739	802	764	734	634	523	439	NA	
Top Line Estimates	Other Texas	534	532	523	523	557	594	633	675	719	767	817	871	314
	FO Gulf	1,684	1,700	1,469	1,453	1,393	1,441	1,528	1,491	1,550	1,550	1,550	1,550	157
	California	589	569	554	561	570	580	589	599	609	619	629	640	69
	Alaska	646	600	562	526	515	489	465	442	419	399	379	360	(155)
	Other US	707	709	744	842	802	765	730	696	664	633	603	575	(227)
	<b>Sub-Total</b>	<b>4,160</b>	<b>4,109</b>	<b>3,852</b>	<b>3,905</b>	<b>3,838</b>	<b>3,870</b>	<b>3,945</b>	<b>3,902</b>	<b>3,961</b>	<b>3,967</b>	<b>3,978</b>	<b>3,995</b>	<b>158</b>
	Growth		(50)	(257)	53	(67)	32	75	(43)	59	6	11	17	NA
<b>TPH Forecast</b>	<b>5,448</b>	<b>5,624</b>	<b>5,842</b>	<b>6,755</b>	<b>7,550</b>	<b>8,320</b>	<b>9,198</b>	<b>9,919</b>	<b>10,712</b>	<b>11,351</b>	<b>11,886</b>	<b>12,343</b>	<b>4,793</b>	
Total Growth		176	218	913	795	771	877	721	793	639	535	457	NA	

- Oil growth rate maintains ~0.8mmbopd through 2017 before diminishing to <0.5mmbopd growth by 2020
- Permian, Eagle Ford, Bakken account for 81% of net growth through 2020

Annual growth slows to +450mbopd by 2020

~4.8mmbopd of growth by 2020 driven by a handful of known basins

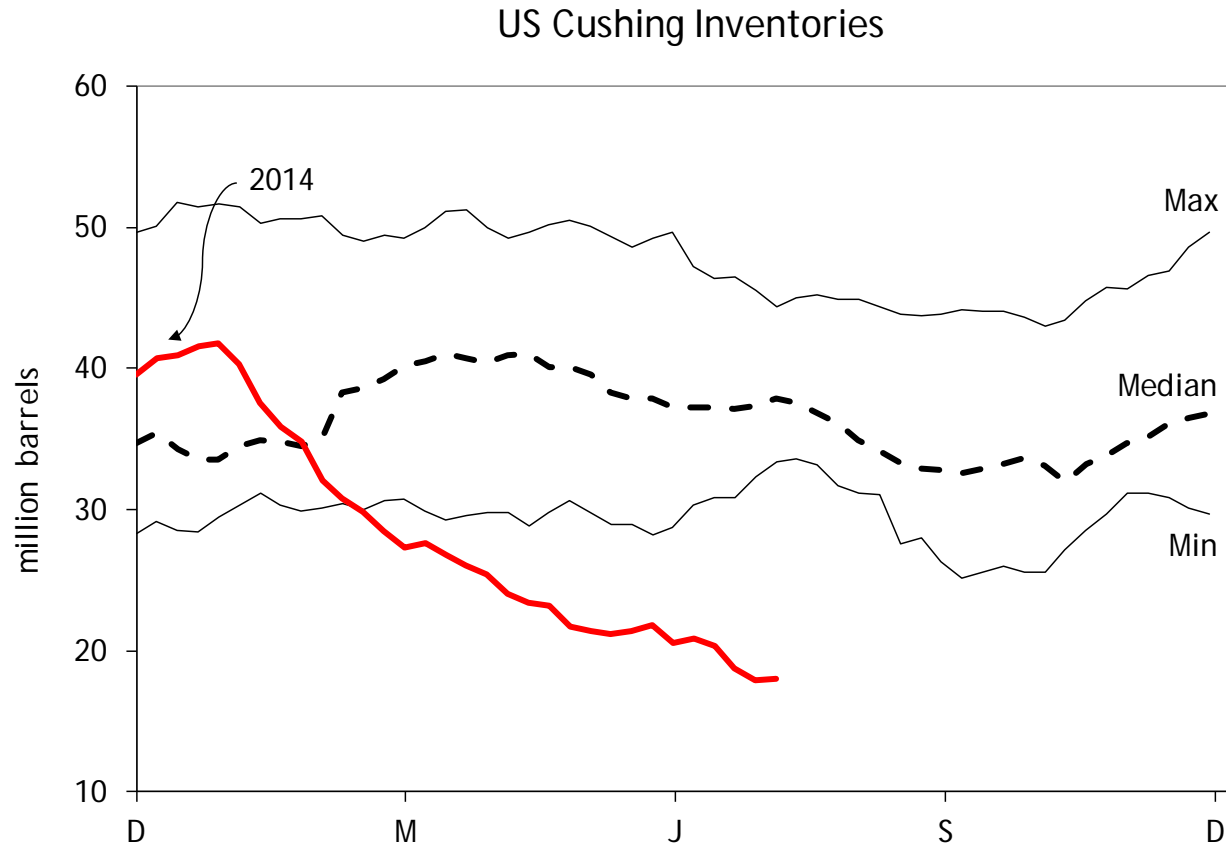
# Rig Count Assumptions

Future rig count growth will be centered in the Permian basin, but SCOOP and Niobrara are also important

Rig Count	Actuals					Forecast							2020E vs. 2013A
	2009A	2010A	2011A	2012A	2013A	2014E	2015E	2016E	2017E	2018E	2019E	2020E	
Permian	115	266	395	449	420	524	565	605	654	692	742	789	369
Eagle Ford	19	83	176	229	208	202	202	202	202	202	202	202	(6)
Bakken	55	129	180	207	185	187	189	187	185	185	185	185	(0)
Niobrara	12	23	35	39	54	52	64	74	78	81	81	81	27
SCOOP	2	8	13	19	28	44	59	64	69	69	69	69	41
MS Lime	13	25	39	78	93	101	101	101	101	101	101	101	8
GW, Tonk, Cle	20	71	106	101	93	101	101	101	101	101	101	101	8
<b>TPH Forecast</b>	<b>238</b>	<b>603</b>	<b>945</b>	<b>1,122</b>	<b>1,082</b>	<b>1,211</b>	<b>1,280</b>	<b>1,334</b>	<b>1,390</b>	<b>1,431</b>	<b>1,481</b>	<b>1,528</b>	<b>445</b>
Growth		365	342	177	(40)	129	70	53	57	41	50	47	NA
<b>Horizontal</b>													
Permian	22	50	95	149	193	307	348	388	437	475	525	572	379
Eagle Ford	19	83	176	229	208	202	202	202	202	202	202	202	(6)
Bakken	55	129	180	207	185	187	189	187	185	185	185	185	(0)
Niobrara	1	5	14	25	50	51	63	73	77	80	80	80	30
SCOOP	2	8	13	19	28	44	59	64	69	69	69	69	41
MS Lime	1	7	21	57	78	84	84	84	84	84	84	84	6
GW, Tonk, Cle	20	71	106	101	93	101	101	101	101	101	101	101	-
<b>Sub-Total</b>	<b>121</b>	<b>352</b>	<b>605</b>	<b>786</b>	<b>836</b>	<b>976</b>	<b>1,045</b>	<b>1,099</b>	<b>1,155</b>	<b>1,196</b>	<b>1,246</b>	<b>1,293</b>	<b>449</b>
Growth		231	253	181	50	140	70	53	57	41	50	47	NA
<b>Vertical</b>													
Permian	93	216	301	300	227	217	217	217	217	217	217	217	(10)
Eagle Ford	-	-	-	-	-	-	-	-	-	-	-	-	-
Bakken	-	-	-	-	-	-	-	-	-	-	-	-	-
Niobrara	12	18	21	14	4	1	1	1	1	1	1	1	(3)
SCOOP	-	-	-	-	-	-	-	-	-	-	-	-	-
MS Lime	12	18	18	22	15	17	17	17	17	17	17	17	2
GW, Tonk, Cle	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Sub-Total</b>	<b>117</b>	<b>251</b>	<b>340</b>	<b>336</b>	<b>247</b>	<b>235</b>	<b>235</b>	<b>235</b>	<b>235</b>	<b>235</b>	<b>235</b>	<b>235</b>	<b>(12)</b>
Growth		134	89	(4)	(89)	(12)	-	-	-	-	-	-	NA

We assume no growth in vertical drilling activity

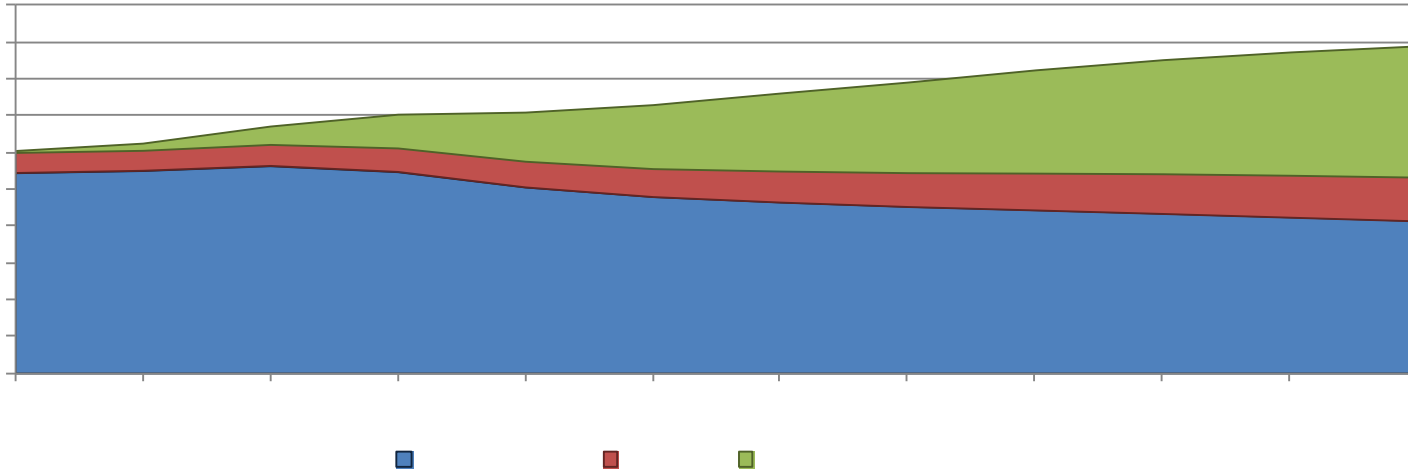
# Cushing Inventories



5-yr low Cushing Oil Inventories



# Estimated US Gas Production\*



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020 vs. 2013
All Other Basins	27,687	25,915	24,626	23,755	22,579	21,461	20,399	19,389	18,429	17,517	16,650	15,826	(6,753)
Marcellus	226	1,356	3,568	6,304	8,644	10,550	12,337	14,101	16,091	17,882	19,407	20,703	12,059
Haynesville	4,421	6,767	9,370	9,125	7,281	6,357	5,917	5,668	5,519	5,417	5,344	5,292	(1,989)
Eagle Ford	297	609	1,433	2,845	4,338	5,348	6,186	7,013	7,697	8,246	8,721	9,146	4,808
Barnett	5,212	5,354	5,697	5,706	5,337	4,855	4,531	4,355	4,239	4,157	4,098	4,054	(1,283)
Permian	4,300	4,189	4,199	4,307	4,419	4,548	4,765	5,036	5,346	5,662	5,969	6,262	1,843
FO Gulf	6,657	6,159	4,974	4,124	3,586	3,453	3,481	3,343	3,305	3,173	3,046	2,924	(662)
Fayetteville	1,646	2,347	2,787	2,983	2,965	2,958	2,955	2,967	2,999	3,038	3,079	3,121	156
Pinedale	3,223	3,055	3,002	2,921	2,800	2,736	2,725	2,721	2,724	2,731	2,741	2,751	(49)
Granite Wash	1,972	2,011	2,308	2,468	2,430	2,370	2,326	2,321	2,322	2,327	2,328	2,317	(112)
Piceance	2,749	2,521	2,569	2,497	2,281	2,139	2,068	2,024	1,995	1,975	1,960	1,948	(334)
Utica	0	2	9	56	421	1,550	2,765	3,604	4,373	4,991	5,506	5,958	5,537
Bakken	316	423	610	861	1,065	1,228	1,437	1,580	1,686	1,783	1,792	1,759	694
Niobrara	544	584	658	787	867	1,070	1,376	1,644	1,918	2,148	2,339	2,488	1,622
Cana Woodford	901	933	1,024	1,109	1,074	1,027	990	973	962	953	946	939	(134)
MS Lime	601	546	584	749	888	971	1,053	1,121	1,229	1,358	1,447	1,513	625
SCOOP	13	15	25	76	273	658	1,141	1,584	1,928	2,186	2,284	2,310	2,037
TPH Forecast	60,765	62,785	67,441	70,672	71,247	73,279	76,452	79,444	82,765	85,545	87,656	89,313	18,065
<i>Growth</i>		2,020	4,655	3,232	575	2,032	3,173	2,992	3,321	2,781	2,111	1,656	

\*Two Stream Production

*Bias is higher*

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