Natural Gas Storage, Will It Be Enough?

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Data Sources Used in This Publication
EIA

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What Is Enough?

Natural gas markets have their sights on season-end. With luck, winter will wait until at least the end of November and give the market and utilities a few more strong injection weeks to fill storage sites before the winter. Regardless of when the season turns, we are entering unknown territory with the lowest starting winter inventories in recent history. The 3,010 Bcf withdraw from the 2013-14 polar vortex is a good benchmark for needed storage in case of a massive winter withdrawal. Currently, it looks like we should be able to at least break above that level before winter, but by how much and whether it's enough remains in question.

Regional Breakdown

The northern regions are of primary concern regarding winter readiness as they will experience winter first. Both east and midwestern regions typically switch to withdrawal in November, and both regions appear to be tracking just shy of their five-year minimums, about a week or so lagged from last year's number. An extra week to build a little more cushion this year should put them in reasonably comfortable territory to meet even a challenging winter. The eastern region had a withdrawal of 750 Bcf in the winter of 2013-14 and is currently sitting at 763 Bcf or 77% of full utilization. The east has not entered winter under 895 Bcf since 2010, and while it is too early to tell if it will break over 900 Bcf as it usually does, it seems on track to be close to that mark by season-end.

The Midwestern region had a draw of 924 Bcf in 2013-14 and currently sits at 836 Bcf or 70% of regional capacity. That leaves it further adrift of comfortable storage levels than the East since it typically enters winter over 1,000 Bcf. The Midwest has seen the strongest weekly injections over the course of the summer, but weather models have turned colder, especially in the Midwest this week, leaving it one of the most vulnerable regions at this point.

With stronger weekly injections expected in the next two weeks and a couple smaller injections likely after that, both northern regions are likely to miss their typical marks unless they get a bonus week or two this fall.

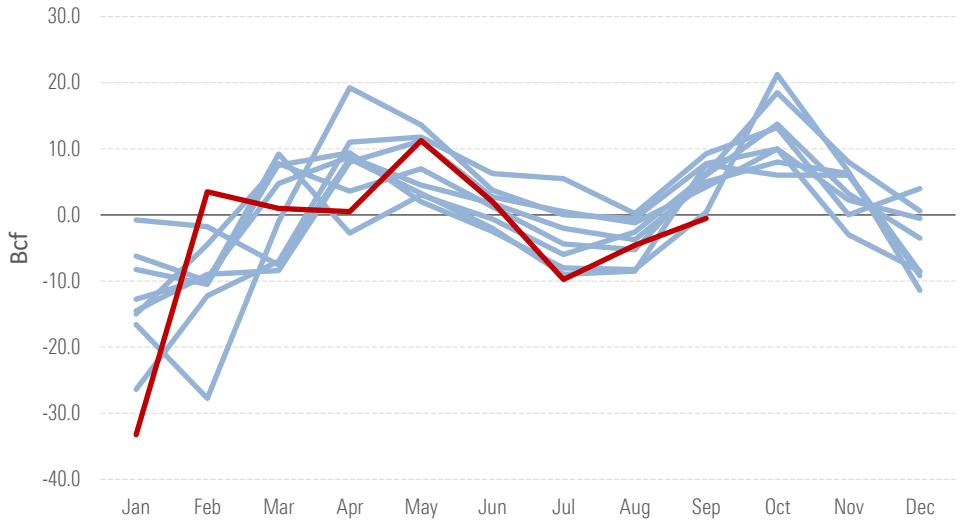
The Pacific and South-Central regions typically get at least an extra week or two to build up winter reserves above and beyond the north. In the Pacific Aliso Canyon is currently topped off after a couple of years of issues, but the region, as a whole, is still well below its five-year minimum. Pacific withdrew 284 Bcf in 2013-14 and is currently sitting at 262 Bcf or 64% capacity. This gives the region some space to replenish further stores to prepare for a harsh winter if time permits.

South-Central non-salt is currently sitting at 648 Bcf or 63% of capacity but is typically closer to 900 Bcf by the start of winter. The 2013-14 winter saw a withdraw of 658 Bcf, and with over a month to build, storage should be in good shape for winter by season start. On the other hand, South-Central salt storage has been in near constant withdrawal since June, helping to support sizable southern power burns this summer. As a result, salt storage has had only two weeks of injections recently and is just starting to build up reserves. It is currently sitting at 181 Bcf or 42% of capacity. Its strongest draw in 2013-14 was 278 Bcf, indicating challenges for the region in returning to historic norms.

Salt vs Non-Salt

Following the 2013-14 winter, salt storage experienced summer replenishment levels more typical of non-salt builds. However, that scenario is now less likely, as these storage assets are seeing greater use during the higher-demand summer power season. This year, salt storage is still below normal levels as it double-dipped when a heavier-than-usual winter draw was followed by a summer draw (Exhibit 1). Nevertheless, of any sub-region, despites the largest deficit to make up before winter, it still has the most legroom to recover. That's because it generally does not cycle back to withdrawing until December and can see injections all the way up to January (as in the winter of 2014-15). Not only does South Central salt storage generally have a longer time to inject, the faster injection and withdraw ability of salt storage also gives it greater capacity to get ready for winter demand.

Exhibit 1 South-Central Salt Storage Monthly Injections and Withdrawals (2010-18)



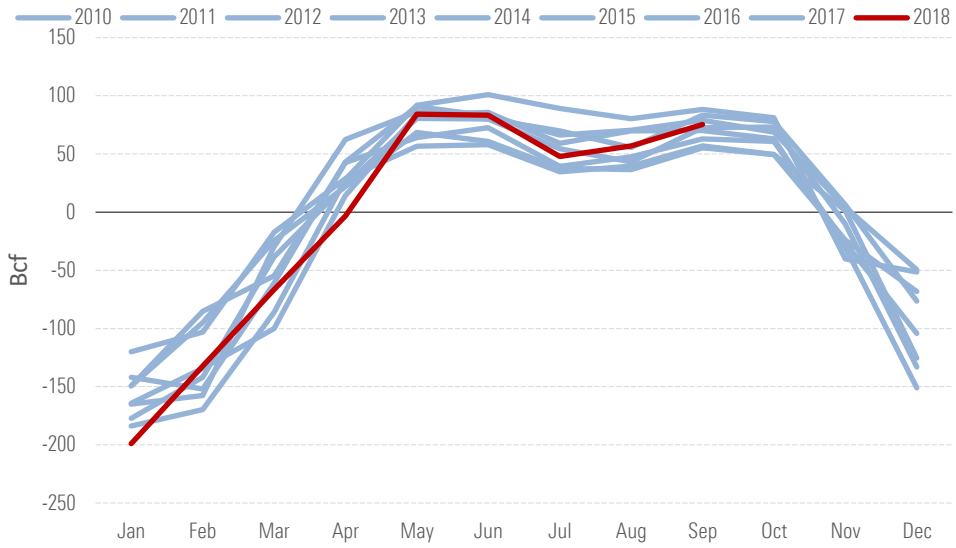
Source: EIA

The south, where almost all salt storage facilities in the U.S. are located, is well situated to meet increasingly stronger summer cooling demand. The region is then able to utilize the fall to replenish storage levels before the winter, which typically is more moderate and starts later than the northern half

of the country. This ability to cycle multiple times helps sustain multiple demand cycles throughout the year.

Non-salt seasonal injections for the rest of the country have been relatively typical so far this year as seen in Exhibit 2, but after record pulls this January and a later spring, the inventory starting point coming out of the winter season was low. So far, record production levels seen have not led to larger-than-usual injections due in large part to power demand growth outstripping production so far this year.

Exhibit 2 Lower 48 Without Salt Monthly Injections and Withdrawals (2010-18)



Source: EIA

The Winter Wall

Up until October, the market appeared willing to punt storage injections over the summer. Even though the only outright pulls were from salt caverns, the record production this summer was not used to bolster storage numbers after a heavy winter, but instead went to meet power demand. The strength of power demand and the lack of excitement around winter left storage an unenticing play with production expectations keeping the forward curve suppressed. Instead the market rewarded selling power strength now and paying back later. Yet, as the winter season hits home next month, the strategy to keep punting and hoping demand finally fall flat this summer now hits the November winter wall. Thus, we are seeing stronger pricing in both cash and prompt markets as storage demand finally takes its toll and the summer sale and winter need converge.

With storage demand now displacing summer power needs, prices have nowhere to go but up. In the market, we expect cash to keep some strength for a bit longer, but prices will still likely dissipate some into the fall until true winter shows up. A continued rally in natural gas prices will depend on what level of injections we see over the coming weeks and whether storage levels recover to more comfortable levels in time to dampen the rally.

The Consequences

Traditional seasonal storage still has ground to make up in some regions to ensure the market can meet strong winter demand. Case in point is the south-central salt storage region, which was heavily leveraged this summer after a higher-demand winter left storage levels low. Given its faster injection rates, south-central should be able to replenish over the next few weeks before the official start of winter. Other traditional seasonal storage plays are lagging historic levels and may be tested as weather models turn colder this week, and the lower fall demand that could have given the extra time needed, may not be there to help raise inventory to levels more capable of meeting a worst-case-scenario winter.

Even as the cyclical seasonal demands of winter heating and summer cooling have shown big draws causing concerns about inventories, the steady week-to-week growth of production keeps humming along. If winter turns out to be crushing, we should be able to meet demand, but inventory depletions would be so great that the low-price regime seen this year will not hold, and a breakout into higher territory is likely next year. Inventory replenishment will be the name of the game at that point, forcing prices up. If it turns out to be a more average winter with a 2,100 Bcf draw or less, then end-of-winter storage levels will not only be in a lot better shape next spring, but prices will see a further decline that makes $3.00/mmBtu look good.

Appendix

Item 1 Winter Withdrawal Season Inventories (2010-18)

Lower 48

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	11/12/2010	4/1/2011	21	3,840	2,262	1,578
Winter 11/12	11/25/2011	3/9/2012	16	3,853	1,484	2,369
Winter 12/13	11/9/2012	4/5/2013	22	3,928	2,254	1,687
Winter 13/14	11/15/2013	3/28/2014	20	3,834	3,010	824
Winter 14/15	11/14/2014	3/27/2015	20	3,611	2,150	1,461
Winter 15/16	11/27/2015	4/8/2016	20	4,009	1,532	2,477
Winter 16/17	11/18/2016	4/7/2017	18	4,047	1,998	2,049
Winter 17/18	11/10/2017	4/20/2018	24	3,790	2,509	1,281

East

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	11/5/2010	4/1/2011	22	955	690	265
Winter 11/12	11/25/2011	3/16/2012	17	953	468	489
Winter 12/13	11/9/2012	4/5/2013	22	960	665	295
Winter 13/14	11/15/2013	4/4/2014	21	917	750	167
Winter 14/15	11/14/2014	4/3/2015	21	895	653	242
Winter 15/16	11/27/2015	4/15/2016	21	935	527	408
Winter 16/17	11/16/2016	4/7/2017	22	946	680	266
Winter 17/18	11/3/2017	4/20/2018	25	926	721	205

Midwest

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	11/19/2010	4/1/2011	20	955	780	346
Winter 11/12	11/18/2011	3/16/2012	18	1,123	573	550
Winter 12/13	11/9/2012	4/5/2013	22	1,124	777	347
Winter 13/14	11/15/2013	4/4/2014	21	1,057	924	133
Winter 14/15	11/14/2014	4/3/2015	21	1,057	801	256
Winter 15/16	11/27/2015	4/15/2016	21	1,127	589	538
Winter 16/17	11/18/2016	4/7/2017	21	1,155	679	476
Winter 17/18	11/10/2017	4/20/2018	24	1,112	901	211

Mountain

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	10/29/2010	4/22/2011	27	236	131	105
Winter 11/12	12/2/2011	3/9/2012	15	204	71	133
Winter 12/13	11/16/2012	4/19/2013	23	231	114	117
Winter 13/14	11/22/2013	4/18/2014	22	215	135	80
Winter 14/15	11/14/2014	3/13/2015	18	191	80	111
Winter 15/16	11/13/2015	3/25/2016	20	217	70	149
Winter 16/17	11/25/2016	4/7/2017	20	259	118	141
Winter 17/18	11/3/2017	4/13/2018	24	226	143	83

Pacific

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	11/26/2010	3/4/2011	15	329	193	136
Winter 11/12	12/9/2011	3/23/2012	16	359	106	253
Winter 12/13	11/16/2012	3/15/2013	17	377	132	245
Winter 13/14	11/8/2013	3/28/2014	21	386	284	102
Winter 14/15	11/21/2014	3/6/2015	16	349	89	260
Winter 15/16	11/13/2015	3/4/2016	16	382	127	255
Winter 16/17	11/18/2016	3/3/2017	16	328	127	201
Winter 17/18	10/20/2017	3/30/2018	21	316	151	166

South Central

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	12/3/2010	2/18/2011	12	1,224	562	662
Winter 11/12	12/2/2011	3/9/2012	15	1,229	296	933
Winter 12/13	11/16/2012	4/5/2013	21	1,242	588	666
Winter 13/14	11/15/2013	3/28/2014	20	1,262	930	332
Winter 14/15	11/21/2014	3/13/2015	17	1,119	597	522
Winter 15/16	11/27/2015	2/26/2016	14	1,352	332	1,020
Winter 16/17	11/25/2016	3/24/2017	18	1,370	438	932
Winter 17/18	11/17/2017	3/16/2018	18	1,214	612	602

South Central Salt

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	12/3/2010	2/11/2011	11	218	128	90
Winter 11/12	12/9/2011	2/24/2012	12	281	67	214
Winter 12/13	11/3/2012	3/29/2013	18	317	151	166
Winter 13/14	11/15/2013	3/7/2014	17	332	278	54
Winter 14/15	1/2/2015	3/13/2015	11	330	222	108
Winter 15/16	11/27/2015	2/19/2016	13	382	101	281
Winter 16/17	12/9/2016	3/31/2017	16	403	114	289
Winter 17/18	12/15/2017	2/16/2018	15	360	179	175

South Central Nonsalt

Period	Start	End	Week Count	Starting Inventory	Withdraw	Ending Inventory
Winter 10/11	12/3/2010	3/11/2011	18	1,006	443	563
Winter 11/12	11/11/2011	3/9/2012	18	951	241	710
Winter 12/13	11/9/2012	4/5/2013	22	933	447	486
Winter 13/14	11/15/2013	3/28/2014	20	930	658	272
Winter 14/15	11/14/2014	3/13/2015	18	792	378	414
Winter 15/16	11/27/2015	3/4/2016	15	970	237	733
Winter 16/17	11/25/2016	3/17/2017	17	967	337	637
Winter 17/18	11/10/2017	4/20/2018	24	876	455	421

Source: EIA

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