

**EXHIBIT NO. \_\_\_(DEM-11C)  
DOCKET NO. UE-14\_\_\_  
PCA 12 COMPLIANCE  
WITNESS: DAVID E. MILLS**

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**In the Matter of the Petition of  
PUGET SOUND ENERGY, INC.  
For Approval of its March 2014 Power Cost  
Adjustment Mechanism Report**

**Docket No. UE-14\_\_\_**

**TENTH EXHIBIT (CONFIDENTIAL) TO THE  
PREFILED DIRECT TESTIMONY OF  
DAVID E. MILLS  
ON BEHALF OF PUGET SOUND ENERGY, INC.**

**REDACTED  
VERSION**

**MARCH 31, 2014**

PUGET SOUND ENERGY, INC.

TENTH EXHIBIT (CONFIDENTIAL) TO THE  
PREFILED DIRECT TESTIMONY OF DAVID E. MILLS

FUNDAMENTALS AND MARKET PRICES AFFECTING JUNE 2013

1  
2  
3  
4  
5 In [REDACTED], natural gas markets were up in reaction to the BP oil spill in the Gulf  
6 of Mexico (“GOM”) that occurred in [REDACTED]. Market observers were also taking into  
7 consideration the initial summer weather forecasts calling for a hot summer, as above  
8 normal temperatures nationally and regionally normally cause increased demand which  
9 leads to price spikes. Additionally, the [REDACTED] hurricane season was quickly approaching and  
10 forecasters were calling for an above normal hurricane season. The regional hydro outlook  
11 continued at well below normal. Coal prices were up from the previous year, creating a  
12 floor for natural gas prices. On the bearish side, industrial demand remained down due to  
13 economic factors. Natural gas production continued to grow despite the stall in the  
14 economy, adding to the current over supply situation. The number of natural gas drilling  
15 rigs also continued to climb.

16 By [REDACTED], cooling of the Pacific waters continued and there were forecasts for a  
17 warmer than normal summer and cooler/wetter fall for the Pacific Northwest. The GOM  
18 production continued to decline due to the federal government’s drilling moratorium.  
19 Although the six-month moratorium should not affect the current oil and gas production,  
20 the ban could affect future supplies in the offshore areas. Gas production from onshore  
21 shale plays, however, will help offset the GOM declines. While the gas storage surplus  
22 started to shrink relative to the five-year average, inventory levels remained at a decent

1 level. With production and rig counts stable, there were few supply concerns for the  
2 forward period.

3 [REDACTED] brought the first Atlantic hurricane of the season causing temporary  
4 production shut-ins. While we did see both bullish and bearish factors in the market, there  
5 appeared to be a growing consensus that the more likely path for pricing was bearish.  
6 Stocks plunged as U.S. consumer data showed concerns about slowing economic growth in  
7 the U.S. This lack of confidence in the U.S. economy, combined with growing concerns  
8 that growth was also slowing in China, increased fears of a global economic reduction.  
9 High U.S. unemployment rates and the turmoil in financial markets precipitated by the  
10 European debt crisis raised the risk that household spending will continue to falter.

11 [REDACTED] brings no major changes in market fundamentals, yet the gas forward  
12 price curve for years [REDACTED] and [REDACTED] declined \$0.40 to \$0.50 per MMBtu from the last  
13 month. On the bullish side, liquefied natural gas (“LNG”) imports are down, heat in the  
14 East is propping up gas demand and coal prices are up year over year. Bearish factors  
15 include gas production growth and drilling, specifically shale and heavy liquid rich plays,  
16 an on-going weak U.S. economy and consumer confidence, not to mention the halt of oil  
17 flow into the GOM as a result of the BP oil spill.

18 As PSE entered [REDACTED], conditions were present for a moderate La Nina,  
19 which typically reflects warmer than normal temperatures in the East and cooler, wetter  
20 weather in the PNW for [REDACTED] through [REDACTED]. Such temperatures could result in  
21 lower gas demand nationally and a healthy start to the hydro year for the PNW, which  
22 would put downward pressure on both gas and power prices. Despite the heat that covered

1 the East during the past summer, prices have not rebounded, nor are they expected to, given  
2 the healthy gas storage inventory and increased horizontal gas rig drilling activity.

3 By [REDACTED], the scales definitely tipped to the bearish side for gas prices.  
4 Demand remained soft - yet production continued to rise. Natural gas storage was well  
5 supplied and amid forecasts for a mild winter in the East and Midwest and a possible  
6 oversupply of natural gas, natural gas prices remain low. One of the few bullish factors at  
7 this time is the strength in equity and commodity markets which could potentially lend  
8 support to natural gas prices.

9 In [REDACTED], the bearish fundamentals continue. The cold weather in the  
10 East lends some short-term support to the natural gas market, but the overall winter forecast  
11 remained above normal for that region. Above normal precipitation in the PNW for the  
12 water year only adds to bearish sentiment for power and gas prices for the coming spring  
13 season, although it is early in the water year.

14 By [REDACTED], the scales have tipped to a more neutral territory for gas prices.  
15 The short-term cold weather in the East and the 11-15 day forecasts for continued cold in  
16 that region are propping up the natural gas prices. This cold weather will temporarily  
17 increase demand, which will likely result in decent gas storage withdrawals for the next  
18 few weeks. PNW hydro is running normal to slightly above normal. However, Canadian  
19 precipitation and snow water equivalent is below normal, adding a bullish sentiment. On  
20 the bearish side, production growth continues and horizontal rig counts are climbing.

21 For [REDACTED], cold weather nationally was the theme. Having once again  
22 started the heating season at record inventory storage levels, the extreme cold has caused  
23 heavy withdrawals in the eastern half of the country. Forecasts continued to reflect cold in

1 the East with more seasonal to warmer bias out West. Adding to the bullish sentiment was  
2 a sizable amount of well freeze offs combined with residential and commercial demand  
3 exceeding records set in the prior [REDACTED] by nearly 2.5 Bcf d. The hydro year remains  
4 within normal range. Some bearish factors affecting the market included record on-shore  
5 U.S. gas production posting a new all time high of 60.8 Bcf/d, continued investment in  
6 shale drilling from sources domestic and abroad, and a lack of significant forecast demand  
7 to balance the pending supply.

8 [REDACTED] started as it has for most of the winter: cold. Signs of a forecast  
9 change are surfacing, with a view towards a warming East and a cool and wetter West by  
10 month's end. Storage deficits are expected to grow compared to prior periods, due to the  
11 extended cold temperatures, high demand, and temporary supply interruptions. Snowpack  
12 regionally was marginally improving after a slow start. Mid-C power prices showed signs  
13 of softening in the spring and summer. Forecast increases in natural gas production and  
14 decreases in demand provide bearish sentiments. While rig counts have declined of late,  
15 they still support future supply growth at current levels.

16 By [REDACTED], despite an extremely cold winter that resulted in significant natural  
17 gas storage deficits when compared to relevant periods in the past, bullish support for  
18 sustained high forward prices had softened. The key contributors to this price softening  
19 were a return to pre-winter gas production levels, a decrease in seasonal demand, and a  
20 shift in cold temperatures away from key consuming regions in the East towards the less  
21 populated West. Other factors putting bearish pressure on the market are both the steadily  
22 improving conditions in the hydro-dependent PNW and overall rig counts, that even at  
23 current low levels, are not expected to create any meaningful slowdown in production.

1           ██████████ weather patterns - as is often the case in the shoulder seasons - struggle  
2 for consistency as PSE transitioned into the spring. Despite the initial warm bias in the  
3 West, it is expected that a more typical La Nina pattern will develop in the coming months,  
4 favoring a warm risk to Texas and the Southeast and a wet and cooler signal for the  
5 Northern and Western tiers of the country. Despite global bullish factors such as the  
6 nuclear disaster in Japan, unrest in the Middle East, and increased LNG demand from  
7 Europe, the U.S. conditions are bearish. Continued strength in gas production, recent and  
8 continuing forecasts for increased hydro conditions out the West, and the elimination of  
9 inventory shortfalls in gas storage create strong bearish factors.

10           By ██████████, while not expected to exceed the record breaking heat and resulting  
11 cooling degree days observed in ██████, forecasts were once again predicting that summer  
12 ██████████ would be warmer than both the 10 year and 30 year normal temperatures. When  
13 warmer than normal temperatures are realized, incremental demand for cooling develops  
14 and can lend support for higher prices. Market prices are bullish with early prediction for  
15 only a slightly less active hurricane season as compared to last year, and also being more  
16 active than the 30 year average. Other bullish drivers include strong coal prices offering  
17 demand switching opportunities to natural gas, increased levels and duration of nuclear  
18 maintenance in response to the tsunami in Japan, and tighter expected nuclear regulation in  
19 the future. Bearish factors continue to be a consistently above normal regional hydro  
20 situation and strong growth in shale gas production.

21           As of ██████████ observers still expected La Nina influences to have a cooler bias in  
22 the West combined with warmer risk in the Southeast. Outside of the drought building  
23 areas in the Southeast, forecasts for a warmer summer had begun to ease when compared to

1 last year's standard. Further bearish effects are being realized as the dramatic improvement  
2 seen in PNW hydro situation continue to develop in the West. Bullish factors in the market  
3 include a continuation of surging gas production despite the accompanied fracking  
4 concerns, the year on year storage deficit that still persists, and the amount of nuclear  
5 capacity remaining offline that sought replacement in the form of natural gas generation,  
6 supporting natural gas prices. Rig counts continue to vary, however significant enough  
7 decreases have not yet materialized to suggest any longer term threat to production.

8         Despite the first Atlantic hurricane of the season in [REDACTED], other than the normal  
9 heavy rains and some flooding in Central America, no threat to the GOM materialized.  
10 Weather looked marginally bearish as well. With the exception of the heat that persisted in  
11 the Southeast, normal conditions in the East, slight cooling in the Midwest and a slow to  
12 warm West have kept demand muted. As the extended and sizable nuclear maintenance  
13 season came to a close, capacities finally rebounded to near 100% of normal, taking  
14 pressure off the recent demand for gas. Of note though, and while only a regional effect,  
15 the Columbia Generating Station remains off-line until the end of the month and is contrary  
16 to the effect observed nationally. Current bullish impacts in the market are the existing gas  
17 storage deficits to last year and comments from the Exploration and Production ("E&P")  
18 community of a shift away from the high volume dry gas production (which has been key  
19 in supporting recent supply excesses) towards more liquid rich oil plays that are projected  
20 to have less associated gas. Note, however, that even if this shift ensues on a large scale, it  
21 will take time, and is more of a longer term supply demand equalizer than a near term  
22 solution.

1           As we enter [REDACTED], despite recent increases in demand, gas injections remain  
2 healthy and we continue to narrow the year over year storage deficit. The hurricane season  
3 has so far not been much of a threat to the Gulf and as such production remains at solid  
4 levels, despite the E&P community comments noted above. On a potentially bullish note,  
5 the Environmental Protection Agency (“EPA”) last month announced details on the Cross  
6 State Air Pollution Act, which could bolster future gas demand. While this ruling would  
7 force power plants in over half the states to make significant reduction to sulfur dioxide  
8 (“SO<sub>2</sub>”) and nitrogen dioxide (“NO<sub>2</sub>”) emissions by January 1, 2012 with natural gas  
9 being the likely replacement fuel, many are skeptical of its ultimate impact since the level  
10 of displacement currently is in large part to the low pricing environment and the fact that  
11 many old and inefficient coal plants are already dormant. We do look to be slightly cooler  
12 regionally in the PNW, however the national weather forecasts look to be above normal for  
13 much of the country, and while that may add some support for the gas markets, the  
14 continuing strength in gas production expected to be approaching ~ 63 Bcf/d by February,  
15 keeps us bearish in the near and medium term.

16           As we approached [REDACTED], a month where we traditionally observe the  
17 peak of hurricane season, the number of named tropical storms has begun to add up, though  
18 they have not taken the path of the production critical Gulf coast up to this point. Weather  
19 regionally looks to start the month warmer in the West as the Eastern half of the country  
20 looks to remain closer to normal. One mildly bullish factor is that the levels of coal  
21 switching remain very high and additive to gas demand, setting a soft temporary floor for  
22 pricing, but since production levels have once again set another high (~ 62.1 Bcf/d), this  
23 level appears to be more than adequate to cover any elevated switching demand. An



1 additional bearish factor for sustained production even at these price levels is the strong  
2 continental and foreign demand for Natural Gas Liquids (“NGL”). This demand has put  
3 support under liquids prices which in turn aids the economics for several gas producers and  
4 this effect adds downward pressure on the market.

5 By [REDACTED], on the heels of Tropical Storm Lee, which curtailed about 20 Bcf,  
6 or roughly .6 Bcf/d of offshore GOM production last month and the commensurate bullish  
7 run up that often occurs in these situations, as the dust settles and since no meaningful  
8 permanent damage was sustained, the market has sold off its high as the concern has  
9 subsided. Current weather forecasts appear to be near normal for both coastal portions of  
10 the country in the near term, with above normal temperatures anticipated for the Central  
11 U.S. Encana’s CEO, Randy Eresman has been quoted at a recent investors conference to  
12 say that they felt it inappropriate to be growing supply at high rates in this market as it will  
13 only exaggerate the oversupply situation, yet [REDACTED] production has exceeded [REDACTED]  
14 levels even after the temporary reductions in the Gulf, further supporting growing supply  
15 over demand concerns and keeping downward pressure on pricing. Additional bearish  
16 pressures come from news that producer’s current hedge levels of [REDACTED] volumes by end of  
17 the second quarter of [REDACTED] in the U.S. and Canada are about 10% and 15% below levels  
18 seen in previous years, respectively, at this same period of time.

19 With [REDACTED] upon us, significant market focus is now on the expectations  
20 for winter temperatures and the impact it has on demand and pricing. In what is shaping up  
21 to be another La Nina winter, many are predicting bullish deviations from normal with  
22 MDA Weather Services (also known as MDA EarthSat), a weather forecasting service to  
23 which PSE subscribes, forecasting this winter to be 4% colder than the 30 year and 4.1%

1 colder than the 10 year normal. While drought conditions in Texas still persist, which could  
2 have an adverse impact on hydraulic fracturing in that region, additional independent  
3 forecasts suggest that the PNW in particular may be in store for above normal precipitation  
4 for [REDACTED] which would be a bearish contributor to regional market  
5 conditions.

6 As we begin [REDACTED], weather forecasts for the first half of the month  
7 appear to be mostly near normal, with only small pockets of below normal showing up in  
8 the desert Southwest and the Southeast, while national gas storage levels are comfortably  
9 keeping pace with [REDACTED] injection rates and of late are nearly twice the previous 5 year  
10 average levels. Barring a winter of extreme cold and with inventories currently sitting at a  
11 record for this time of year of 3.85 Tcf, we appear to have more than adequate supplies to  
12 meet this pending season's requirements. While not all news is bearish, PIRA recently  
13 points to the potential upside price risks associated with recent U.S. production growth  
14 potentially slowing, particularly in the Haynesville region, Cross-State Air Pollution Rules  
15 (CSAPR) impact boosting gas fired Electric Generation demand moving forward, and the  
16 U.S. economy expected to be stronger. Also of note is the continued growth in associated  
17 gas production in North Dakota, as oil shale drilling continues its recent expansion - this  
18 incremental gas will continue to be flared if additional infrastructure is not put in place to  
19 capture it.

20 Looking into [REDACTED], after what can only be described as an extremely warm  
21 [REDACTED], weather forecasters still suggest this current season to be another La Nina  
22 winter pattern leading to cooler risks expected versus 30 year normal temperatures, with  
23 Deutsche Bank suggesting the coolest risk month of the winter to be [REDACTED]. Other longer

1 term bullish factors include continued attention to LNG export capacity, with one facility  
2 already being granted a license to export U.S. domestic gas production, while an additional  
3 three projects have applications pending approval, with the combined capacity if all four  
4 were to go ahead of more than 6 Bcf/d or roughly 10% of the average U.S. production.  
5 Even with a lot of winter left and the expectation of a cold [REDACTED] as bullish factors,  
6 previous month's temperatures and the resulting lack of snow pack nationally, combined  
7 with our robust gas storage inventories that still sit at record levels, represent bearish  
8 factors that should also be considered.

9 As we enter [REDACTED], the cooler [REDACTED] temperatures that were expected to  
10 develop nationally never materialized and we are currently bearish in the short-term given  
11 mild winter weather in the East. Weather forecasts continue to show above normal  
12 temperatures in the heavily weighted gas consuming regions. PNW hydro for the January-  
13 July period is forecast to be right around normal at 90 percent. Natural gas storage is  
14 healthy and expected to expand even more in the coming weeks. In the medium term there  
15 is potential for more support to natural gas prices. Three main factors providing a floor for  
16 natural gas are massive coal switching, signs of forced producer constraint for independent  
17 oil and gas companies and positive news flow. However, there are clearly divergent views  
18 occurring between independents and major producers in the U.S. natural gas market  
19 regarding the management of these extremely low price levels. Majors such as Exxon tend  
20 to have a long investment horizon (20-30 years) in an asset and have the balance sheet  
21 power to manage through extremely low pricing periods. Additionally and unexpectedly,  
22 the jobless rate was reported to have fallen to 8.3 percent in January.

23 In [REDACTED], we continue to be bearish in the short-term due to unseasonably

1 warm temperatures in the eastern half of the country resulting in less gas demand. The 6-  
2 10 and 11-15 day forecasts have consistently shown above normal temperatures in the East.  
3 The PNW hydro forecast for the January-July period at Grand Coulee is up slightly to 96  
4 percent of normal. There are not any major changes to underlying gas supply/demand  
5 fundamentals, as supply continues to exceed demand. Gas storage levels nationally remain  
6 robust, approaching 700 Bcf/d in excess of 5 year averages or nearly 3 months ahead of  
7 normal levels for this time of year.

8 In [REDACTED], abundant production and storage and muted demand due to warmer  
9 weather has kept downward pressure on market price expectations. By early [REDACTED], the  
10 PNW hydro forecast for the January-July period at Grand Coulee is at 110 percent of  
11 normal. Summer forecasts are calling for temperatures slightly warmer than the 10 and 30  
12 years average (~2% and ~6% respectively), but 11% cooler than last summer, which is  
13 relatively bearish. Bentek, SNL, PIRA, and other industry analysts are suggesting the  
14 possibility of softer prices and even potential storage constraints if supply demand balance  
15 remains unchanged.

16 By [REDACTED], we continue to observe a massive natural gas storage overhang. The  
17 power sector has attempted to pick-up the slack by displacing vast volumes of coal.  
18 Continued coal-to-gas switching will likely be required in order to bring any balance to the  
19 market this summer. Columbia River stream flows continue to move up with the Grand  
20 Coulee runoff for the January-July period now estimated to be 116% of normal (122% of  
21 normal for the April-September period).

1           As of early [REDACTED], the Grand Coulee runoff for the January-July period was  
2 now estimated to be 119% of normal (127% of normal for the April-September period),  
3 and despite some price volatility in May, the bearish indicators were once again taking  
4 charge. Conventional rationale had shifted the focus back towards forecasts indicating a  
5 mild start to summer weather versus last year and thus potentially less year over year  
6 demand for gas. PIRA forecasts coal inventory levels have now surpassed record  
7 levels observed in 2009, despite very strong net exports which will only amplify the  
8 potential of late injection season storage constraints if current market balances and  
9 forecasts play out.

10  
11           As [REDACTED] arrived, weather forecasts have verified warmer in [REDACTED] and look to  
12 persist, with the middle of the country seeing the most significant heat for the first half of  
13 the month, while both coasts remain near normal. While Bentek is projecting demand  
14 increases from power burns, gas production remains steady at 64+ Bcf/d and storage levels  
15 also remain at record levels in the U.S.. Additionally, Canadian gas storage inventories  
16 also remain healthy and are expected to stay very strong throughout the summer causing  
17 some to be concerned about capacity constraints by the end of injection season. Grand  
18 Coulee runoff for the January-July period was estimated to be 129% of normal and 136%  
19 of normal for the April-September period.

20  
21           As we approached [REDACTED], we take note on how [REDACTED] came to an end. The  
22 nation had experienced near record heat for the month, and the power generation sector,  
23 which is among the biggest consumers of gas annually, reported burns in excess of 37  
24 Bcf/d. In [REDACTED], indications are for a El Nino pattern set up, which typically provides a  
25 cooling effect. However, MDA EarthSat notes that when comparing current conditions to  
26  
27  
28  
29

1 historical analog years, when combined with the developing drought conditions, the typical  
2 cooling effect in this year's pattern may not fully develop. All in all, the conditions present  
3 a reasonable warm signal, particularly in the Central to Eastern U.S.. It should be noted  
4 that domestic gas production continues to be strong at about 64 Bcf/d and Canadian exports  
5 in the U.S. remain elevated and supportive of recent high demand.

6 Initial weather forecasts for [REDACTED] show near normal for the West, with  
7 heat building mid month, while the Central and Eastern U.S. start warm but are expected to  
8 cool towards normal. [REDACTED] typically marks the peak of the Tropical storm season,  
9 and while this year to date has been very active, with 12 named storm and 5 hurricanes,  
10 until Issac arrived, their accumulated effect and intensity had been rather insignificant.

11 Production continues to be strong at 64.5 Bcf/d prior to the temporary losses resulting from  
12 Hurricane Issac well shut ins. Even with coal to gas switching likely having peaked  
13 seasonally, and with recent heat and a year over year decrease of 8.3% from nuclear  
14 generation supporting increased gas demand for electric generation, Macquarie has recently  
15 estimated end of year storage inventory levels to be roughly 3.9 Tcf, with a bias toward  
16 higher if weather does indeed moderate, which keeps us near record levels and well  
17 supplied as we look to the winter.

18 As the [REDACTED] natural gas futures contract expired, a more bullish sentiment is  
19 playing out with prompt month NYMEX gas increasing nearly \$0.25 per MMBtu on cooler  
20 short-term weather forecasts, This suggests a potential for a slow down to the remaining  
21 portion of the injection period and an early start to the traditional heating season. Even  
22 though production levels are close to a new high (64.8 Bcf/d after an estimated 42 Bcf total  
23 shut in due to Hurricane Issac) and crude oil and liquids economics are supportive of

1 continued drilling, even at current low prices, the market is focused on winter demand.  
2 Edison Electric Institute (“EEI”) reports 0.4% lower week on week electric generation  
3 (which translates to 3.6% lower year on year) due mostly to colder temperatures, nuclear  
4 generation again off, about a 6% week on week at 83% capacity, the near term market has  
5 now shifted is concern to the ongoing tightening of the once large storage surplus and the  
6 reminder of the impacts a cold heating season and increased demand can bring.

7 As the [REDACTED] natural gas futures contract expired, similar to last month  
8 and not uncommon for shoulder months as you transition into winter, the market again  
9 increased about \$0.25 per MMBtu on cooler than normal short-term weather expectations  
10 in the Eastern half of the U.S., despite the injection season ending at a all time record high  
11 of 3.929 Tcf. MDA Earthsat 15 day forecast shows a reversal mid-month in weather  
12 patterns with the West cooling and the East warming. Coincidentally, ICAP weather service  
13 forecasts mid-[REDACTED]–through mid-[REDACTED] to be a similar pattern with a cooler PNW  
14 region and marginally warmer than normal Southern and Eastern portion of the country.  
15 Despite extreme drought conditions persisting in the central Midwest, Hurricane Sandy has  
16 had a significant landfall effect in the East. Heavy storms knocked out power to 3.8  
17 million customers, forcing markets to close. As of the week ending [REDACTED], EEI  
18 reports nuclear generation running at 73% capacity, an 8% decrease from last year, and  
19 power generation off 0.6% week on week. Even in light of these disruptive recent events,  
20 and the contraction of demand, gas production remains strong at 64+Bcf/d. Wood  
21 MacKenzie has recently suggested the trend of supply well over demand should persist  
22 well into [REDACTED] and make sustaining the current calendar strip price level difficult. Credit  
23 Suisse also notes recently that pricing is due for a pause, sighting Ethane rejection, market

1 share lost to coal-to-gas switching no longer favorable in all regions, production strength,  
2 and new drilling efficiencies as the key factors.

3 As we begin [REDACTED], the second official month of winter, the national  
4 weather maps might suggest otherwise with MDA EarthSat's 15 day forecast showing well  
5 above normal temperatures for the entire country and nothing cooler than normal with the  
6 exception of Northwestern Canada until mid month. While commercial and residential  
7 demand is expected to jump this month, the supply side is also impressive with end of  
8 [REDACTED] actual production staying very steady at 64.5 Bcf/d with expectation to hit 65  
9 Bcf/d during the month. Also of note is the robust storage inventory of 3.8 Tcf, which still  
10 boasts nearly a 250 Bcf overhang to the 5 year average at this point in time. While it  
11 should be mentioned that San Onofre Nuclear Generating Station, with its 2,150 MW of  
12 capacity, has been off-line all year, nuclear generation is still off 12% from last year's level  
13 at 78%. Power generation is up 6.5% week on week to start the month, but is marginally  
14 below levels seen this time last year. By mid month the warmer temperatures, increased  
15 hydro, and strong wind generation regionally have reduced western gas demand by 25%  
16 which continues to keep pressure on prices.

17 For [REDACTED], weather forecasts from MDA EarthSat start the month with  
18 below normal temperatures across most of the country. However, significant changes to  
19 this forecast occur into the middle of the month when the West looks to be normal and the  
20 Eastern half of the U.S. looks to be above normal which could reduce heating demand.  
21 With the market seemingly focused on warmer weather, early month storage withdrawals  
22 expected to be well below normal levels for this time of year, and a current storage  
23 overhang of ~350 Bcf when compared to the 5 year average, the market appears well



1 supplied. Despite expectation for a decrease in gas imports from Canada, strong domestic  
2 production, nuclear generation above last year's levels at 91% and power generation at the  
3 same level as last year, there is less concern that demand will exceed supply in the near  
4 term. Of note, by the middle of [REDACTED], with 50% of the winter behind us, gas weighted  
5 heating degree days ("GWHDD") currently sit at 1,698, which equates to 5.3% below the  
6 10 year normal and 8.4% below the 30 year normal. So even if we do experience an  
7 extremely cold second half of winter, which is not forecasted at this time, storage levels  
8 would be sufficient to start the injection season.

9       Week one [REDACTED] weather forecasts from MDA EarthSat suggest a warm  
10 Western half of the U.S. combined with a cooler eastern half, particularly in the Northeast  
11 corner of the country. However, this pattern is expected to change towards the middle of  
12 the month when temperatures in the West trend back towards normal and the Northeastern  
13 portion of the country reflect above normal temperatures. Despite light [REDACTED]  
14 accumulation, the Grand Coulee runoff for the January-July period is currently estimated to  
15 be 92% of normal. PIRA projects that both GWHDD and industrial demand are expected  
16 to rise for 2013. While a large portion of gas production in the lower 48 has declined,  
17 primarily in the Haynesville and Barnett plays, this drop has been offset by continued  
18 growth in the Marcellus region. Additionally, while some declines have been observed  
19 recently, due primarily to well freeze offs in [REDACTED], Bentek forecasts total U.S.  
20 production to rebound and remain strong at 64.2 Bcf/d for [REDACTED], surging towards 66  
21 Bcf/d by May of this year. Nuclear generation remains at 90% capacity, very near levels  
22 seen last year and power generation is up 1.5% week on week, representing a 6% increase  
23 from last year at this time. Also of note, after spending most of 2012 focused on coal to

1 gas switching as gas prices fell to levels that could not support burning coal, thus creating  
2 incremental demand for gas, it is being considered now that if prices can maintain levels of  
3 \$3.50 - \$4.00 per MMTBtu, the market may have to evaluate switching back to coal from  
4 gas which would present a decrease in gas demand.

5 As we enter [REDACTED], near term fundamentals are keeping a lid on this market  
6 for now. MDA EarthSat forecast shows near normal temperatures for most of the country  
7 early on, with the exclusion of a below normal area in the Southeast. However, as has been  
8 the case of late, we again expect changes mid month, but only with the location of the  
9 below normal temperature deviation as it moves out of the Southeast into a pocket in the  
10 upper central U.S., while the rest of country looks near normal. Although some producers  
11 are announcing cuts, dry gas production is still robust at 64.4 Bcf/d and on track for  
12 continued increases into the spring. Bentek has stated a potential for an all time  
13 high end of season storage inventory level of 2.3 Tcf. PIRA expects an increase in heating  
14 demand for [REDACTED] mostly from the residential and commercial sectors year over year, and  
15 also suggest that despite prices, storage injections will decrease as compared to 2011 due to  
16 weak demand on volumes this winter and healthy inventory levels. In spite of a dry start to  
17 the winter in the West, early [REDACTED] forecasts for January-July Grand Coulee runoff is  
18 estimated to be 92% of normal.

19 By [REDACTED], forward natural gas prices continue to rise due to the colder than  
20 normal temperatures observed for most of the nation in [REDACTED] which drew down natural  
21 gas storage supplies. In addition, there has been no growth in natural gas production (it  
22 remains steady) from U.S. shale players, which has some analysts estimating that natural  
23 gas futures will get to \$4.50/MMBtu in the second half of 2013. However, forecasts for

1 ■■■ is showing closer to normal temperatures in the East with below normal temperatures  
2 for the West. According to the Colorado State University research team, the  
3 2013 Atlantic Hurricane Season looks to be active with 18 named storms, nine hurricanes  
4 and four major storms. However, we keep in mind that the share of U.S. natural gas supply  
5 coming from the GOM is down to 6% from 23% in 2001, significantly less supply risk than  
6 in the past. At the start of ■■■ PNW hydro at Grand Coulee for the January-July period  
7 is forecast to be just below normal at 94%.

8         In early ■■■, all eyes are on PNW weather forecasts for hydro runoff  
9 timing. MDA Earthsat's 15 day forecast for the PNW shows above normal temperatures  
10 which would impact hydro runoff and suppress power and gas prices. However, weather  
11 remains below normal for the Central U.S. during the same time period which could lend  
12 support to NYMEX prompt natural gas prices. Weather forecasts for ■■■ are  
13 showing below normal temperatures for the PNW with slightly warmer temperatures in the  
14 interior West. The Midwest and Northeast are cooler than previous forecasts. The first  
15 natural gas storage report of the month showed a build well above market expectations  
16 causing prompt natural gas prices to drop 10%. However, out the curve, the market is  
17 bullish given increased demand. Industrial, residential and commercial demand, coal  
18 retirements and exports to Mexico are all contributing to higher future year over year  
19 demand increases. U.S. production will need to increase to balance supply and demand.