EXHIBIT NO. ___(DEM-10C)
DOCKET NO. UE-15____
PCA 13 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 2015 Power Cost Adjustment Mechanism Report**	**Docket No. UE-15____**

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

REDACTED VERSION

MARCH 31, 2015

REDACTED

PUGET SOUND ENERGY, INC.

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

FUNDAMENTALS AND MARKET PRICES AFFECTING MARCH 2014

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

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

[redacted] weather patterns - as is often the case in the shoulder seasons - struggle for consistency as PSE transitioned into the spring. Despite the initial warm bias in the West, it is expected that a more typical La Nina pattern will develop in the coming months,

favoring a warm risk to Texas and the Southeast and a wet and cooler signal for the Northern and Western tiers of the country. Despite global bullish factors such as the nuclear disaster in Japan, unrest in the Middle East, and increased LNG demand from Europe, the U.S. conditions are bearish. Continued strength in gas production, recent and continuing forecasts for increased hydro conditions out the West, and the elimination of inventory shortfalls in gas storage create strong bearish factors.

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

As of [redacted] observers still expected La Nina influences to have a cooler bias in the West combined with warmer risk in the Southeast. Outside of the drought building areas in the Southeast, forecasts for a warmer summer had begun to ease when compared to last year's standard. Further bearish effects are being realized as the dramatic improvement seen in PNW hydro situation continue to develop in the West. Bullish factors in the market include a continuation of surging gas production despite the accompanied fracking

concerns, the year on year storage deficit that still persists, and the amount of nuclear capacity remaining offline that sought replacement in the form of natural gas generation, supporting natural gas prices. Rig counts continue to vary, however significant enough decreases have not yet materialized to suggest any longer term threat to production.

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

As we enter [redacted], despite recent increases in demand, gas injections remain healthy and we continue to narrow the year over year storage deficit. The hurricane season has so far not been much of a threat to the Gulf and as such production remains at solid levels, despite the E&P community comments noted above. On a potentially bullish note,

the Environmental Protection Agency ("EPA") last month announced details on the Cross State Air Pollution Act, which could bolster future gas demand. While this ruling would force power plants in over half the states to make significant reduction to sulfur dioxide ("SO2") and nitrogen dioxide ("NO2") emissions by January 1, 2012 with natural gas being the likely replacement fuel, many are skeptical of its ultimate impact since the level of displacement currently is in large part to the low pricing environment and the fact that many old and inefficient coal plants are already dormant. We do look to be slightly cooler regionally in the PNW, however the national weather forecasts look to be above normal for much of the country, and while that may add some support for the gas markets, the continuing strength in gas production expected to be approaching ~ 63 Bcf/d by February, keeps us bearish in the near and medium term.

As we approached [redacted] a month where we traditionally observe the peak of hurricane season, the number of named tropical storms has begun to add up, though they have not taken the path of the production critical Gulf coast up to this point. Weather regionally looks to start the month warmer in the West as the Eastern half of the country looks to remain closer to normal. One mildly bullish factor is that the levels of coal switching remain very high and additive to gas demand, setting a soft temporary floor for pricing, but since production levels have once again set another high (~ 62.1 Bcf/d), this level appears to be more than adequate to cover any elevated switching demand. An additional bearish factor for sustained production even at these price levels is the strong continental and foreign demand for Natural Gas Liquids ("NGL"). This demand has put support under liquids prices which in turn aids the economics for several gas producers and this effect adds downward pressure on the market.

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

With [redacted] upon us, significant market focus is now on the expectations for winter temperatures and the impact it has on demand and pricing. In what is shaping up to be another La Nina winter, many are predicting bullish deviations from normal with MDA Weather Services (also known as MDA EarthSat), a weather forecasting service to which PSE subscribes, forecasting this winter to be 4% colder than the 30 year and 4.1% colder than the 10 year normal. While drought conditions in Texas still persist, which could have an adverse impact on hydraulic fracturing in that region, additional independent forecasts suggest that the PNW in particular may be in store for above normal precipitation

for [redacted] which would be a bearish contributor to regional market conditions.

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

Looking into[redacted], after what can only be described as an extremely warm [redacted], weather forecasters still suggest this current season to be another La Nina winter pattern leading to cooler risks expected versus 30 year normal temperatures, with Deutsche Bank suggesting the coolest risk month of the winter to be [redacted]. Other longer term bullish factors include continued attention to LNG export capacity, with one facility already being granted a license to export U.S. domestic gas production, while an additional three projects have applications pending approval, with the combined capacity if all four

were to go ahead of more than 6 Bcf/d or roughly 10% of the average U.S. production. Even with a lot of winter left and the expectation of a cold [redacted] as bullish factors, previous month's temperatures and the resulting lack of snow pack nationally, combined with our robust gas storage inventories that still sit at record levels, represent bearish factors that should also be considered.

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

In [redacted], we continue to be bearish in the short-term due to unseasonably warm temperatures in the eastern half of the country resulting in less gas demand. The 6-10 and 11-15 day forecasts have consistently shown above normal temperatures in the East.

The PNW hydro forecast for the January-July period at Grand Coulee is up slightly to 96 percent of normal. There are not any major changes to underlying gas supply/demand fundamentals, as supply continues to exceed demand. Gas storage levels nationally remain robust, approaching 700 Bcf/d in excess of 5 year averages or nearly 3 months ahead of normal levels for this time of year.

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

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

As of early [redacted], the Grand Coulee runoff for the January-July period was now estimated to be 119% of normal (127% of normal for the April-September period), and despite some price volatility in May, the bearish indicators were once again taking

charge. Conventional rationale had shifted the focus back towards forecasts indicating a mild start to summer weather versus last year and thus potentially less year- over-year demand for gas. PIRA forecasts coal inventory levels have now surpassed record levels observed in 2009, despite very strong net exports which will only amplify the potential of late injection season storage constraints if current market balances and forecasts play out.

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

As we approached [redacted], we take note on how [redacted] came to an end. The nation had experienced near record heat for the month, and the power generation sector, which is among the biggest consumers of gas annually, reported burns in excess of 37 Bcf/d. In [redacted], indications are for a El Nino pattern set up, which typically provides a cooling effect. However, MDA EarthSat notes that when comparing current conditions to historical analog years, when combined with the developing drought conditions, the typical cooling effect in this year's pattern may not fully develop. All in all, the conditions present a reasonable warm signal, particularly in the Central to Eastern U.S.. It should be noted

that domestic gas production continues to be strong at about 64 Bcf/d and Canadian exports in the U.S. remain elevated and supportive of recent high demand.

Initial weather forecasts for [redacted] show near normal for the West, with heat building mid-month, while the Central and Eastern U.S. start warm but are expected to cool towards normal. [redacted] typically marks the peak of the Tropical storm season, and while this year to date has been very active, with 12 named storm and 5 hurricanes, until Issac arrived, their accumulated effect and intensity had been rather insignificant. Production continues to be strong at 64.5 Bcf/d prior to the temporary losses resulting from Hurricane Issac well shut-ins. Even with coal to gas switching likely having peaked seasonally, and with recent heat and a year over year decrease of 8.3% from nuclear generation supporting increased gas demand for electric generation, Macquarie has recently estimated end of year storage inventory levels to be roughly 3.9 Tcf, with a bias toward higher if weather does indeed moderate, which keeps us near record levels and well supplied as we look to the winter.

As the [redacted] natural gas futures contract expired, a more bullish sentiment is playing out with prompt month NYMEX gas increasing nearly $0.25 per MMBtu on cooler short-term weather forecasts. This suggests a potential for a slow down to the remaining portion of the injection period and an early start to the traditional heating season. Even though production levels are close to a new high (64.8 Bcf/d after an estimated 42 Bcf total shut in due to Hurricane Issac) and crude oil and liquids economics are supportive of continued drilling, even at current low prices, the market is focused on winter demand. Edison Electric Institute ("EEI") reports 0.4% lower week on week electric generation (which translates to 3.6% lower year on year) due mostly to colder temperatures, nuclear

generation again off, about a 6% week on week at 83% capacity, the near term market has now shifted is concern to the ongoing tightening of the once large storage surplus and the reminder of the impacts a cold heating season and increased demand can bring.

As the [redacted] natural gas futures contract expired, similar to last month and not uncommon for shoulder months as you transition into winter, the market again increased about $0.25 per MMBtu on cooler than normal short-term weather expectations in the Eastern half of the U.S., despite the injection season ending at an all-time record high of 3.929 Tcf. MDA Earthsat 15 day forecast shows a reversal mid-month in weather patterns with the West cooling and the East warming. Coincidently, ICAP weather service forecasts mid-[redacted]–through mid-[redacted] to be a similar pattern with a cooler PNW region and marginally warmer than normal Southern and Eastern portion of the country. Despite extreme drought conditions persisting in the central Midwest, Hurricane Sandy has had a significant landfall effect in the East. Heavy storms knocked out power to 3.8 million customers, forcing markets to close. As of the week ending [redacted], EEI reports nuclear generation running at 73% capacity, an 8% decrease from last year, and power generation off 0.6% week on week. Even in light of these disruptive recent events, and the contraction of demand, gas production remains strong at 64+Bcf/d. Wood MacKenzie has recently suggested the trend of supply well over demand should persist well into [redacted] and make sustaining the current calendar strip price level difficult. Credit Suisse also notes recently that pricing is due for a pause, sighting Ethane rejection, market share lost to coal-to-gas switching no longer favorable in all regions, production strength, and new drilling efficiencies as the key factors.

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

For [redacted], weather forecasts from MDA EarthSat start the month with below normal temperatures across most of the country. However, significant changes to this forecast occur into the middle of the month when the West looks to be normal and the Eastern half of the U.S. looks to be above normal which could reduce heating demand. With the market seemingly focused on warmer weather, early month storage withdrawals expected to be well below normal levels for this time of year, and a current storage overhang of ~350 Bcf when compared to the 5 year average, the market appears well supplied. Despite expectation for a decrease in gas imports from Canada, strong domestic production, nuclear generation above last year's levels at 91% and power generation at the

same level as last year, there is less concern that demand will exceed supply in the near term. Of note, by the middle of [redacted], with 50% of the winter behind us, gas weighted heating degree days ("GWHDD") currently sit at 1,698, which equates to 5.3% below the 10 year normal and 8.4% below the 30 year normal. So even if we do experience an extremely cold second half of winter, which is not forecasted at this time, storage levels would be sufficient to start the injection season.

Week one [redacted] weather forecasts from MDA EarthSat suggest a warm Western half of the U.S. combined with a cooler eastern half, particularly in the Northeast corner of the country. However, this pattern is expected to change towards the middle of the month when temperatures in the West trend back towards normal and the Northeastern portion of the country reflect above normal temperatures. Despite light [redacted] accumulation, the Grand Coulee runoff for the January-July period is currently estimated to be 92% of normal. PIRA projects that both GWHDD and industrial demand are expected to rise for 2013. While a large portion of gas production in the lower 48 has declined, primarily in the Haynesville and Barnett plays, this drop has been offset by continued growth in the Marcellus region. Additionally, while some declines have been observed recently, due primarily to well freeze offs in [redacted], Bentek forecasts total U.S. production to rebound and remain strong at 64.2 Bcf/d for [redacted], surging towards 66 Bcf/d by May of this year. Nuclear generation remains at 90% capacity, very near levels seen last year and power generation is up 1.5% week on week, representing a 6% increase from last year at this time. Also of note, after spending most of 2012 focused on coal to gas switching as gas prices fell to levels that could not support burning coal, thus creating incremental demand for gas, it is being considered now that if prices can maintain levels of

$3.50 - $4.00 per MMTBtu, the market may have to evaluate switching back to coal from gas which would present a decrease in gas demand.

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

By [redacted], forward natural gas prices continue to rise due to the colder than normal temperatures observed for most of the nation in [redacted] which drew down natural gas storage supplies. In addition, there has been no growth in natural gas production (it remains steady) from U.S. shale players, which has some analysts estimating that natural gas futures will get to $4.50/MMBtu in the second half of 2013. However, forecasts for [redacted] is showing closer to normal temperatures in the East with below normal temperatures for the West. According to the Colorado State University research team, the

2013 Atlantic Hurricane Season looks to be active with 18 named storms, nine hurricanes and four major storms. However, we keep in mind that the share of U.S. natural gas supply coming from the GOM is down to 6% from 23% in 2001, significantly less supply risk than in the past. At the start of [redacted], PNW hydro at Grand Coulee for the January-July period is forecast to be just below normal at 94%.

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

As we roll into [redacted], weather forecasts from MDA have been adjusted warmer for the West and Northeast while cooling slightly and towards normal for the Midwest and South. PIRA flow models have indicated that unanticipated US gas production strength has continued to show up through May, and it looks as if Q2 levels will average north of 66.5 Bcf/d, representing nearly a 1 Bcf/d increase from levels observed in Q1. On the demand side of things, while increases in residential and commercial usage during mid-

May were noted by Bentek to be up 3.0 Bcf/d, power demand has also shown to have decreased close to 6.0 Bcf/d year on year, for a net decrease in overall demand. Despite current gas storage inventory levels being well below last year and marginally below the 5 year average, forecasts are indicating several weeks of seasonally strong injections and that this trend of deficit reducing additions should continue.

Entering into [redacted], the already warm recent forecasts had been revised warmer over most of North America, with the only exception being in the SE quadrant of the country where MDA was reflecting near normal temperature for the month. Some potential bullish factors worth highlighting are the expectations of increased gas fired generation as a result of the looming heat nationally, lower Henry Hub pricing, and the official decommissioning and permanent retirement of the San Onofre Nuclear Generating Stations (SONGS). Factors on the bearish side come in the form of forecast production growth , low coal prices that may minimize gas fired demand, and finally the expectation that year on year gas storage deficit will continue to decline in the coming weeks, barring any interruptions from hurricanes, extreme heat, or any unforeseen infrastructure related disruptions.

Moving into [redacted], where the country as a whole has over the last 3 years experienced a nice dose of heat, that trend looks to have lessened this year, with the exception being here in the west, where MDA is forecasting a much warmer result than in recent years. Once again we have a good blend of competing factors that are creating an interesting balance in the market. While heat in the west and plains, driven primarily by increasing drought conditions are supportive of more gas fired generation potential, and with residential demand expected to pick up moving into August, along with EEI

reflecting a week on week pick up of 5.3% in PNW power generation output, increased domestic production has limited price impacts. Additionally and despite the current and forecasted low energy prices in the forward months, that should incent more coal to gas switching and in light of Canadian prices being under pressure primarily due to TransCanada's (TCPL) new toll rates increasing dramatically for interruptible shippers stranding volumes in the west and lowering prices, cooler temperatures when compared to the record breaking heat from last year nationally and the continued shrinking of our national gas storage deficit, that is only just shy of the 5 year average, have muted the effect on energy markets.

As [redacted] enters our purview, we expect to persist with many of the same themes we've seen during the summer so far. Warmth remains, and in fact is forecasted to increase specifically in the West and Midwest for the month, while the Eastern 1/3 of the country remains near normal. Natural gas production continues to grow toward record levels, actually exceeding 10 Bcf/d from the Marcellus Shale play alone for the 1st time in August and overall domestic production coming within .2 Bcf/d of breaking the previous production high set in mid-July. In fact, Bentek estimates total daily production domestically will surpass 66 Bcf/d in September. It should be noted that the supply/demand balance has indeed tightened however, in conjunction with the heat and low prices, along with coal to gas switching likely to continue moving forward which should see power demand absorb some of this incremental supply. Operational Nuclear capacity is also above last year at this time and in line with the 5 year trend, and power generation output while .9% less than last week, is 0.7% over last year as we begin September. Finally, with PIRA forecasts suggesting it will be hard pressed to sustain $4.00 monthly

Henry hub pricing until December, Canadian storage closing in on reaching its capacity, and the once large year on year storage deficit in the U.S. that we began the traditional injection season with having consistently been reduced during the summer, that has in fact recently gone above the 5 year average, it looks like downward pressure on prices and a market unable to rebound significantly before big winter hits is the reality for now.

With [redacted] right in front of us now and on the heels of a warm and at times evolving September, things appear to be settling down with the northern half of the U.S. and most of Canada forecasted to be slightly above normal, the lower half of the country is expected to be near normal, and the beginning of the month Grand Coulee January – July hydro forecast for October reflects a 101% of normal. After hitting a new all-time NE production high of 11.9 Bcf/d in mid-September, primarily driven by Marcellus shale, domestic production did feel the effects of maintenance in the NE, SE, and Gulf regions. However, Bentek still expects longer term production outlooks to continue increasing. Switching to the demand side, as we entered the week prior to October, power burns had dropped 5.7 Bcf/d when compared to the week prior and were also off 3.53% year on year and this trend is expected to continue as we begin transitioning into the shoulder month of the season. On a regional note, Canadian imported gas into the PNW has increased on average 3 Bcf/d since July 1st. In light of the comfortable end of season storage inventory level currently being projected to land above 3.85 Tcf/d and the with a loosening of the supply demand balance again, excluding anything unusual, it's expected that pricing should remain range bound.

With [redacted] beginning, recent and forward weather trends appear to be setting up for a more consistent change as the West cools and the South and East shift to

being much warmer and the Grand Coulee January – July hydro forecast for the beginning of the month is expected at 97% of normal. While EEI data for the week ending 10/25/13 showing week on week generation output unchanged, it did however highlight a 6.6% decrease when compared to last year as demand has fallen off with recent load requirements being reduced as a result of mild weather and lower heat rates. On the supply side of the equation, Marcellus gas production in particular remains the real story as it continues its record breaking growth and has now outpaced the 4 Bcf/d of take away capacity put in place since 2010. Conventional wisdom has been that even if NE production increased beyond new infrastructure builds, simply shutting off supply sources from other regions, namely the Gulf coast, was all that was needed to balance the market; however, it has become abundantly clear that displacement is not enough and reversal of other pipelines (REX) will be required. In fact, PIRA now projects that the NE (New England and Mid Atlantic) will become a net supply source by 2014. Finally per Wood Mackenzie, gas storage injections as previously mentioned are still expected to occur for a few weeks into November given recent warmer weather across the eastern half of the country.

The [redacted] weather forecasts, as of November 27, 2013, indicate a colder trending scenario playing out for the North-central portion of the country and this is consistent with the most recent patterns observed in November. Grand Coulee January – July hydro forecast for the beginning of the month is expected at 93% of normal. Earthsat Editor's Notes from 12/2/13 highlight that the month of November ended 6.1% colder than the 30 year normal and 12.1% cooler than the 10 year normal. Despite demand jumping significantly due to the increase in cold weather nationally in November, PIRA notes this to

have been measured at 20% above the 10 year normal, with residential, commercial, and industrial demand up ~ 7.5 Bcf/d along with gas fired generation increasing ~ 2.2 Bcf/d, they also don't appear to have any concerns at this time given our robust supply situation. In support of this, they highlight that lower 48 production has been significant this year, pipeline take away capacity is at an all-time high this winter, and that there is ample flowing gas to fill that capacity. Even in light of recent $.30 move upward in prices nationally since 11/19/13, between now and 1Q14, PIRA also expects to see another 2.6 Bcf/d of operational capacity available for the market.

Moving towards [redacted], market conditions and balances are showing signs of some meaningful change. While the Grand Coulee January – July hydro forecast for the beginning of the month is marginally outside the normal range now, expected at 89% of normal, it's the colder weather and its ancillary effects that are attracting the industries attention. With the first 2 weeks of strong cold taking shape in December already, resulting in 2 of the first 3 weeks being considered the 2nd and 3rd coldest December's since 1950. It should also be noted that historically, cold December's tend to favor cold January's, and with 7/10 of the top cold December's remaining cold through January, it's not a trend many should ignore. The magnitude of this recent cold weather has brought well freeze offs and curtailed pipelines in the Rockies and Midwest for several days with production decreases estimated by Bentek to be on average ~ 1.8 Bcf/d for the second week of December compared to the prior 30 day average. While regionally we were right in the thick of it with PNW demand increasing more than 2 Bcf/d above normal, other regions also saw significant increases in demand. Gas receipts into the western U.S. from Western Canadian Sedimentary Basin (WCSB) border points rising above 3.2 Bcf/d, levels not seen

since December 2004, other factors were elevated too, namely prices which were up another ~ $.50 from November's increase, and storage withdrawals. After widespread cold for the bulk of December, the nation's storage cushion has been materially impaired and balances are below normal. In fact, the total monthly storage withdrawal record of 23.3 Bcf/day (set in 2000), was within ~ 0.5 Bcf/d shy of being broken.

The late January weather forecasts for [redacted] persists with much colder outlooks over all, with only limited areas of above normal temperatures confined to California and Florida. Grand Coulee January – July hydro forecast for the beginning of the month has now slipped to an expected 82% of normal. Even with power generation down 3.0% as of 1/31/13 week on week and up 2.5% year over year, and with operational nuclear capacity is also in line with the 5 year average and slightly above last year's levels, this "Polar Vortex" is the real story of this winter. The current U.S. gas heating season is shaping up to become one of the coldest on record and it should be mentioned that colder than normal February-March weather prevailed in three of the prior four analogous cold weather episodes according to PIRA. Despite correcting spells of well freeze offs earlier in the season and with gas production as of now at the highest levels of the winter, and with the supply demand balance loosening, the market is certainly going to require some significant additional help and in a couple of different forms, in order to replace the estimated ~ 90 Bcf of production losses and to fill the large storage deficit being created to date, estimated to be approximately 800 Bcf year on year by end of January according to PIRA.