



## **2008 Integrated Resource Plan**

**Oregon Addendum**

**June 2009**

Cascade provides this addendum to its 2008 Integrated Resource Plan which was filed with both the Oregon Public Utility Commission and the Washington Utilities and Transportation Commission on December 15, 2008. The addendum provides further details regarding how the Company intends to address the capacity shortfalls identified in the plan and includes additional documentation of the Company's portfolio analyses.

### **Identified Capacity Shortfalls and Solutions**

The 2008 Plan indicates that additional capacity resources will be required to meet core peak loads. The Company's 2008 Plan includes references to relying on short-term citygate resources during the near term and during the longer term the Company plans to participate in a Rockies Expansion project, likely the Sunstone/Blue Bridge expansions, providing they move forward. The following provides further explanation regarding both the near term and longer term capacity solutions.

In the near term, years one through four (through 2012), Cascade has supply contracts that provide delivery to citygates on Cascade's system. The capacity graphs and tables originally included in Appendix F (pages 239 through 258) have been updated to reflect both the Pipeline Delivery capability at the various zones as well as the citygate supplies that are currently under contract that are available to meet peak requirements. The revised tables, which are included at the end of this document, are identified as Appendix F pages 239-1 through 239-16. The revised graphs demonstrate that through 2012 Cascade has adequate resources to meet core requirements through the combination of pipeline capacity and citygate delivered supply.

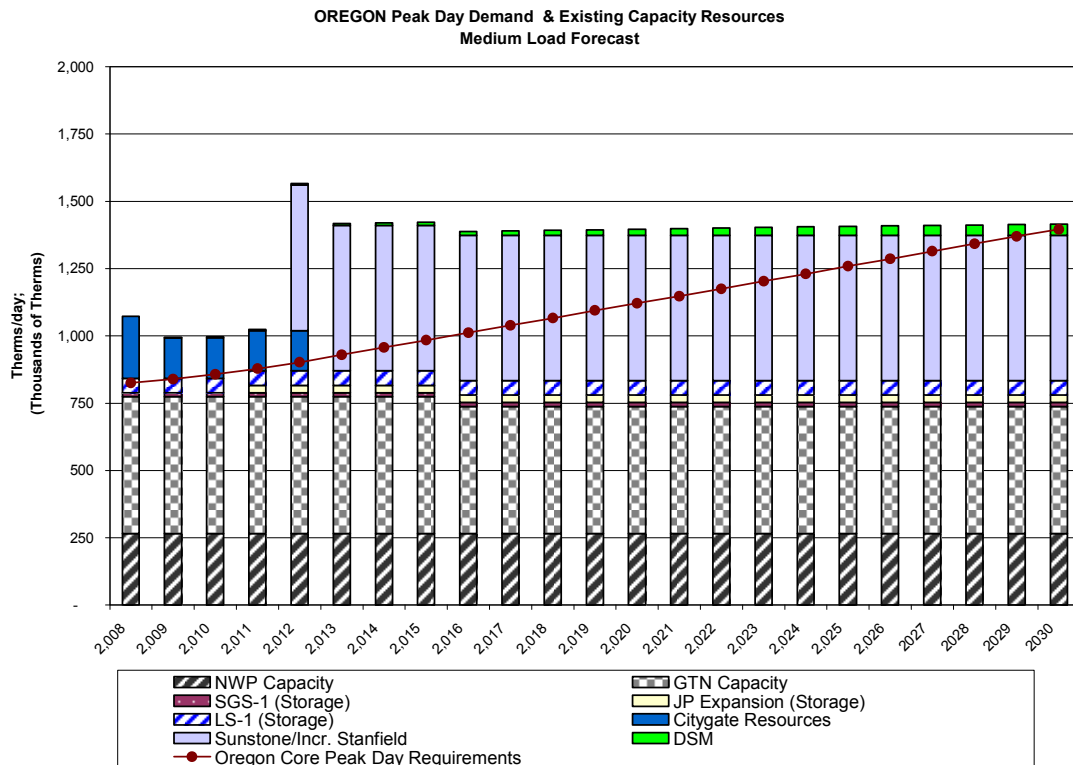
The company did not consider citygate resources to provide relief on the Wenatchee Lateral (located in Eastern Washington) as that lateral is fully subscribed; however, the Plan assumes the recall of the outstanding long-term releases (Washington Rate Schedule 685) that will be recalled at the end of their primary terms which occur in 2010 and 2011. Between 2009 and 2011 period, the existing capacity on the Wenatchee Lateral is adequate to meet core requirements for a 64 degree day peak. Based on the frequency analysis, 99% of the time winter weather on the Wenatchee lateral will be warmer than 65DD; 97% of the time, weather will be warmer than 56 degree days. Although it is unlikely to be necessary, the Company does have the right to recall the previously released capacity under certain conditions, including an extreme weather event where residential and small commercial load requirements would make it necessary to do so.

In the longer term, the solutions identified in the IRP to meet load requirements on the Wenatchee lateral, (Zones 10 and 11), located in Cascade's Washington Service territory included some local Bio-Gas and possible Satellite LNG solutions in the outer years (2013 and beyond). Currently it is estimated, that over the planning horizon, Bio-gas would provide approximately 200 dekatherms/day and

Satellite LNG solutions would provide an additional 5,000 dekatherms/day of peak day resources to the Zone 10 and Zone 11 region. Cascade is currently working with PSE to investigate solutions to meet the growing load on the Wenatchee lateral, including the possibility of a pipeline looping solution. Any pipeline solution will be dependent upon the participation of PSE and other parties and Cascade would be a small participant in those solutions. At this time, it is estimated that Cascade’s core load requirements would represent less than 10% of a joint pipeline solution.

To meet the load requirements for 2012 and beyond, the model chose the combination of Sunstone and Blue Bridge pipeline expansion projects. Sunstone in combination with incremental vintage GTN capacity from Stanfield to points in Central Oregon will be used to meet the capacity requirements identified in Zone GTN. No other capacity shortfalls are anticipated over the planning horizon at the Oregon zones (Zones 24, ME-Or, Zone GTN). Figure 7-C-1 below, shows how Cascade will meet Oregon’s load requirements over the planning horizon under the preferred portfolio. Specific timing and amount of resource selections contained in the preferred portfolio (Basecase #2889) are shown in Table 7-4-A on the following page.

**FIGURE 7-C-1**





OPUC Staff has indicated they have concerns regarding the Company's preferred portfolio which assumes that the Sunstone/Blue Bridge project will move forward. In preparing the 2008 Plan, the company did analyze scenarios without the Sunstone/Blue Bridge project and the modeling results indicate that additional GTN and NWP capacity were preferred over the other pipeline expansion alternatives included in the analysis (See Appendix F-2 pages 258-1 through 258-14). Table 7-5 found on page 12 of this addendum provides a complete listing of the incremental resources selected under the various portfolio scenarios.

Although there are other Rockies expansion projects, all are targeted to move supplies from the Rockies region to Malin, and GTN has indicated that firm backhaul services will not be available to move supplies on the GTN system. Without backhaul capability on GTN, there is no way to reach Cascade's Oregon citygates on a firm basis. Therefore, when modeling alternate Rockies expansion projects, the company estimated that costs for firm backhaul rights would be 3 times the current GTN rates and the model did not select these projects. The company also ran a sensitivity analysis to determine whether the estimated firm backhaul costs were driving the models results to choose the Sunstone/Blue Bridge project over the other rockies pipeline expansion projects. For sensitivity analysis purposes, the company did prepare an additional scenario that assumed backhaul would be available on GTN at the existing tariffed rates. The availability of this service would be subject to displacement using forward haul volumes to Malin. Even under this more favorable scenario, the model continued to select Sunstone over the other rockies project, likely because of Sunstone's ability to move supplies to areas beyond the Central Oregon area.

Since the IRP is considered a point in time document, should the Sunstone/Blue Bridge projects not move forward, the Company will update our analyzes based on the most current information available before relying solely on the alternate choices identified in this IRP.

### **Supply Side Alternatives Supplement**

Section 6 of the filed plan discusses the supply side alternatives analyzed during the 2008 planning cycle. The text references Appendix E that provided a summary of the supply side alternatives considered during the planning process, including the resource's costs, lead time (if any), in-service date, duration and its location. In this addendum, Cascade has prepared a revised Appendix E that supplements the information contained on pages 230 and 231 of the text and prepares the supply side alternative list for each of the scenarios/portfolios identified in the plan. The new appendix lists the alternatives and highlights differences to the basecase scenario assumptions so that the amounts, costs and timing of the resource alternatives for each portfolio are more clearly identified. Additionally, the Company has included an additional write-up (identified as pages 231-31 and 231-32) regarding the development of the price forecast assumptions utilized in the IRP. The summary supplements the price forecast discussion included on pages

68 and 69 of the original Plan and the detailed price forecast information included in Appendix E on pages 232 through 238.

### **Preferred Portfolio Results & Analysis**

During the review process, Staff indicated concerns regarding the adequacy and transparency of the portfolio analyses included in the 2008 Integrated Resource Plan. In the filed plan, the company provided an overview of the various portfolios considered during the planning process and the results of the analyses. The Plan's focus was on the resources selected during the modeling process and how changes to underlying assumptions (such as limited supply availability in Canada or loss of the Rockies price advantage) impacted the resource selections and overall portfolio costs. Table 7-1-A, which begins on the following page, is a companion document to the original information described in Tables 7-1 and 7-2 of the original text. Table 7-1-A provides a more detailed explanation of the various portfolios analyzed and a brief discussion of the specific results of the analysis, as well as cross references the pages in Appendix E where detailed documentation for each supply side alternative included in the portfolio is contained. Additional documentation regarding the modeling results of the portfolio analyses, including annual costs and resource selections are contained in Appendix F-2. Table 7-5 found on page 12 of this addendum provides a complete listing of the incremental resources selected under the various portfolio scenarios.

As discussed throughout the plan, the preferred portfolio identified in Cascade's 2008 IRP is the Basecase Scenario (#2889). Table 7-4 in the original text provided a summary of the 20-year portfolio costs and Table 7-4-A shown on page 3 of this document details the resource selections and costs by year for this preferred portfolio. The tables contained in Appendix F-2 are companion documents to Table 7-4 and display information regarding the various portfolios ability to meet core requirements, both on an annual and peak day basis and clearly identify the timing and amount of the incremental resources selected to meet the anticipated core load. Additionally, the tables provide the supply, storage, and transportation costs for each year of the 20 year planning horizon along with the overall NPVRR associated with the portfolio.

Table 7-4 and Figure 7-J in the original text provided the total modeling results and rank ordered the portfolios in terms of 20 year NPVRR. As indicated in the original text and further demonstrated in Table 7-1-A, the Company prepared several portfolio and sensitivity analyses to reach the conclusions that the Basecase scenario (#2889) is the Company's preferred portfolio. The company believes that it has demonstrated throughout the filed plan and with the additional information included in this addendum that the portfolio results from the Basecase scenario meet the Company's stated reliability, cost and risk objectives as required in OPUC Guideline #11 and #4h. The Basecase portfolio's proposed resource solutions represent the least cost alternatives for meeting the core peak day requirements and also provide additional diversity to the core portfolio.

**TABLE 7-1-A**  
**SUMMARY OF PORTFOLIO ANALYSES AND RESOURCE ALTERNATIVES**  
 SUPPLEMENT TO TABLES 7-1 and 7-2

<b>SENDOUT RUN</b>	<b>Key elements in SENDOUT modeling</b>	<b>Discussion</b>
<p>All Resources (#2901)</p> <p>See details on Appendix E – All Resources Run Pages 231-1 and 231-2</p>	<p>Existing supply contracts, incremental supplies (peaking, annual, seasonal and citygate) from various receipt points (AECO, Rockies, Sumas, Station 2, as well as behind the citygate (satellite LNG). Incremental supplies also include Biomass, satellite LNG (behind citygate), imported LNG (Kitimat, Jordan Cove, Bradwood Landing), current upstream pipeline transport capacity, as well as proposed pipelines and extensions (Blue Bridge, Ruby, Pacific Connector, Palomar, and Sunstone). We also included Cascade’s current Jackson Prairie storage accounts, our Plymouth LNG account, as well as the potential to obtain AECO and Mist storage.</p> <p>The key data inputs are spelled out in detail in individual Append E resource alternatives tables. There is a separate section for each SENDOUT run listed in this table which provides key data elements used in the model.</p> <p>This information includes the type of resource, effective dates, receipt points, potential delivery points/pipelines, price index used along with the demand component and basis premium that affected the cost of the resource. Additionally, the tables show the volume (in dths) for contracts with the specific amounts for existing contracts and the maximum volume the model was allowed to size for incremental resources.</p>	<p>In this run, Sunstone was selected to meet Cascade’s pipeline capacity shortfall, starting in 2011. Sunstone allows Cascade to move Rockies supplies to the Pacific Northwest, and combined with incremental transportation on GTN, will address capacity shortfalls. Additionally, Sunstone will provide supply diversity to Cascade’s customers in Oregon, who have been traditionally served for the most part with natural gas supply from Alberta. Additionally, Sunstone combined with Blue Bridge pipeline provides the means to bring Rockies supplies to the I-5 corridor.</p> <p>A small volume of bio-gas appears to be a potential resource to address shortfalls in zones 10 and/or 11 (the Wenatchee lateral). Assuming any gas quality issues are satisfactorily addressed, bio-gas could also eliminate or reduce distribution system constraints.</p> <p>Satellite LNG facilities located within Cascade’s distribution system may also be an attractive alternative to incremental pipeline capacity in areas where physical limitations at the gate stations would result in even higher costs associated with a pipeline solution. There may be additional advantages to such a strategy to the extent a facility could be strategically located on a portion of the distribution system that will eliminate or reduce distribution system constraints.</p>

**TABLE 7-1-A**  
**SUMMARY OF PORTFOLIO ANALYSES AND RESOURCE ALTERNATIVES**  
 SUPPLEMENT TO TABLES 7-1 and & 7-2

<b>SENDOUT RUN</b>	<b>Key elements in SENDOUT modeling</b>	<b>Discussion</b>
Basecase (#2889)  See details on Appendix E – Base Pages 231-3 and 231-4  <b>PREFERRED PORTFOLIO</b>	Existing supply contracts, incremental supplies (peaking, annual, seasonal and citygate) from various receipt points (AECO, Rockies, Sumas, Station 2, as well as behind the citygate. Incremental supplies also include Biomass, satellite LNG (behind citygate), imported LNG (Kitimat), current upstream pipeline transport capacity, as well as proposed pipelines and extensions (Blue Bridge, Sunstone). We also included Cascade’s current Jackson Prairie storage accounts and our Plymouth LNG account.	The All Resources Run did not select Bradford Landing, Jordan Cove as resources as these each required expensive capacity or backhaul capability. This therefore prevented Palomar and Pacific Connector from being selected for their transportation. The model preferred the Sunstone/Blue Bridge combination over an Ruby Pipeline. The affect of rate stacking for AECO storage plus the storage rates and probable need for incremental upstream capacity prevented the model from selecting the AECO and Mist storage resources. As a result, we removed these items from the basecase to run subsequent scenarios and sensitivities.
Basecase Limited Canadian Imports (#2890)  See details on Appendix E – Limited Canadian Pages 231-5 and 231-6	Model contains all the elements of the Basecase, but incremental Annual AECO and seasonal Sumas resources are unavailable to the model (specifically Incrm-Firm3 and Incr Wtr5). Additionally, annual Sumas max is lowered from 100,000 to 50,000 dths. The intent to is to restrict the amount of Canadian imports by at least 20% (the amount is actually greater).	In this run, the model chose to increase the amount of imported LNG at Kitimat as Canadian resources were restricted. It should be noted that we ran numerous sensitivities with varying levels of restrictions in order to see the impact to the portfolio. The results were consistent with the findings above.
Basecase Sunstone No Blue Bridge (#2892)  See details on Appendix E – SUN NO BB Pages 231-7 and 231-8	Model contains all the elements of the Basecase, but Blue Bridge is not available as a potential resource to the model; however, Sunstone remains an option to move Rockies gas to Stanfield for delivery to Oregon. This also meant removing the tie that Blue Bridge had to deliver Rockies supply to the I-5 corridor.	The model continued to select Sunstone.
Basecase Blue Bridge No Sunstone (#2891)  See details on Appendix E – BB NO SUN Pages 231-9 and 231-10	Model contains all the elements of the Basecase, however, Sunstone was not available as a potential resource; Rockies gas had no choice but to flow on NWP.	Blue Bridge was never selected under this run. Without Sunstone (and its associated Rockies supply), Blue Bridge in this run has no supply source that is cost effective. Even when considering moving AECO gas at Stanfield to another NWP or Blue Bridge, NWP continues to be the most cost effective means.



**TABLE 7-1-A**  
**SUMMARY OF PORTFOLIO ANALYSES AND RESOURCE ALTERNATIVES**  
 SUPPLEMENT TO TABLES 7-1 and & 7-2

<b>SENDOUT RUN</b>	<b>Key elements in SENDOUT modeling</b>	<b>Discussion</b>
<p>Basecase No Rockies price advantage (#2893)</p> <p>See details on Appendix E – No Rockies Advantage Pages 231-11 and 231-12</p>	<p>Model contains all the elements of the Basecase; however, all potential incremental resources were priced at NYMEX with no basis adder. In other words, incremental AECO, Sumas and Rockies all have the same price. Incremental resources at Station 2 were not available to the model. Transportation rates were not modified from their basecase levels.</p>	<p>In this run, more Rockies gas was moved as was imported LNG (since it was priced less than NYMEX)</p>
<p>Basecase Ruby Pipeline (#2894)</p> <p>See details on Appendix E – Ruby Pages 231-13 and 231-14</p>	<p>Model contains all the elements of the Basecase; however, Ruby Pipeline is added as an additional resource. For modeling purposes we started with Ruby transport priced at 3 times the current NWP rate. The model is set up so that Ruby becomes an option to move Rockies gas to GTN, where it would require incremental GTN capacity (backhaul) to move to Cascade's citygates.</p>	<p>This run considered moving Rockies supplies to Malin via Ruby Pipeline and then backhauling supplies on GTN to serve Central OR. The model, when given the option of utilizing Sunstone and capacity on GTN, chose Sunstone over Ruby. The assumed costs of the backhaul from Malin to the citygates off of GTN make Sunstone the more cost effective option. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time.</p>
<p>Basecase Pacific Connector (#2896)</p> <p>See details on Appendix E – PAC CONN Pages 231-15 and 231-16</p>	<p>Model contains all the elements of the Basecase; however, Pacific Connector is added as an additional resource. In addition, we added incremental LNG (Jordan Cove) as a potential resource. For modeling purposes we started with Pacific Connector transport priced at approximately 3 times the current NWP rate. The model is set up so that Pacific Connector becomes an option to move imported LNG to GTN, where it would require incremental GTN capacity (backhaul) to move to Cascade's citygates.</p>	<p>This run considered transporting LNG from Jordan Cove via Pacific Connector Pipeline and then backhauling supplies on GTN to serve Central OR. This scenario is complicated because it is unclear whether GTN will provide backhaul capability. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time. It appears the infrastructure required to provide that firm backhaul service on GTN coupled with the transport from the facility makes this scenario appear to be undesirable, given other potential options, such as Sunstone and Blue Bridge.</p>

**TABLE 7-1-A**  
**SUMMARY OF PORTFOLIO ANALYSES AND RESOURCE ALTERNATIVES**  
 SUPPLEMENT TO TABLES 7-1 and & 7-2

<b>SENDOUT RUN</b>	<b>Key elements in SENDOUT modeling</b>	<b>Discussion</b>
Basecase Palomar (#2895)  See details on Appendix E – Palomar Pages 231-17 and 231-18	Model contains all the elements of the Basecase; however, Palomar Pipeline is added as an additional resource. In addition, we added incremental LNG (Bradwood Landing) as a resource. For modeling purposes we started with Palomar Pipeline transport priced at approximately 3 times the current NWP rate. The model is set up so that Palomar becomes an option to move imported LNG to GTN, where it would take incremental GTN capacity (backhaul) to move to Cascade’s citygates.	This scenario was developed to move LNG from Warrenton Oregon, connecting to Palomar Pipeline and ultimately delivered to Madras OR where it would flow on incremental GTN capacity to serve Central OR. When SENDOUT was given the option to flow Sunstone or this Palomar scenario, the model continued to select Sunstone. At this time, it is uncertain whether or not the facility at Warrenton will be put into service. Further complicating this issue is the likelihood that it is unclear whether GTN will provide backhaul capability. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time. It appears the infrastructure required to provide that firm backhaul service on GTN coupled with the transport from the facility makes this scenario appear to be undesirable, given other potential options.
Basecase AECO Storage (#2900)  See details on Appendix E – AECO Storage Pages 231-19 and 231-20	Model contains all the elements of the Basecase; however, AECO storage is added as a resource. The inventory is set at 300,000 dths, with daily withdrawal rights of 10,000 dths a day. This storage was setup like the existing Jackson Prairie to be 100% full at the start of each heating season. The model is set up so that Canadian withdrawals can use incremental GTN capacity.	The affect of the storage rates, plus the limitations on supply sources to refill (AECO), as well as the effect of rate stacking on three pipelines (NOVA, Foothills and GTN) in order to reach the distribution system prevented this resource from being selected.
Basecase Mist Storage (#2899)  See details on Appendix E – Mist Storage Pages 231-21 and 231-22	Model contains all the elements of the Basecase; however, Mist storage is added as a potential resource. The inventory is set at 300,000 dths, with daily withdrawal rights of 10,000 dths a day. This storage is set up like the existing Jackson Prairie to be 100% full at the start of each heating season. The model is set up so that Mist withdrawals can use incremental NWP capacity. We used in effect rates.	The affect of the storage rates plus the need for incremental capacity on NWP prevented this resource from being selected. It should also be noted that this scenario has a reliance on displacement with Washougal compressor station on NWP, further complicating the ability to move this gas to the Cascade system.

**TABLE 7-1-A**  
**SUMMARY OF PORTFOLIO ANALYSES AND RESOURCE ALTERNATIVES**  
 SUPPLEMENT TO TABLES 7-1 and & 7-2

<b>SENDOUT RUN</b>	<b>Key elements in SENDOUT modeling</b>	<b>Discussion</b>
<p>Basecase Palomar Discount (#2902)</p> <p>See details on Appendix E – Palomar Discount Pages 231-23 and 231-24</p>	<p>Model contains all the elements of the Basecase; however, Palomar Pipeline is added as an additional resource. In addition, we added incremental LNG (Bradwood Landing) as a resource. For modeling purposes we started with Palomar Pipeline transport priced at approximately 3 times the current NWP rate, but ran sensitivities at increasing lower rates to find a price where the model would finally select Palomar (this happened around the ten cent range). The model is set up so that Palomar becomes an option to move imported LNG to GTN, where it would take incremental GTN capacity (backhaul) to move to Cascade’s citygates.</p>	<p>This scenario was developed to move LNG from Warrenton Oregon, connecting to Palomar Pipeline and ultimately delivered to Madras OR where it would flow on incremental GTN capacity to serve Central OR. When SENDOUT was given the option to flow Sunstone or this Palomar scenario, the model continued to select Sunstone. At this time, it is uncertain whether or not the facility at Warrenton will be put into service. Further complicating this issue is the likelihood that it is unclear whether GTN will provide backhaul capability. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time. It appears the infrastructure required to provide that firm backhaul service on GTN coupled with the transport from the facility makes this scenario appear to be undesirable, given other potential options. The model did not select Palomar until the transport rate was around \$0.10 per dth. This run was designed to confirm that Sunstone/Blue Bridge was the more cost effective method to get incremental, non-Canadian supplies to Oregon.</p>
<p>Basecase Ruby with updated Ruby and GTN Backhaul rates (#2908)</p> <p>See details on Appendix E – Ruby Backhaul Update Pages 231-29 and 231-30</p>	<p>Model contains all the elements of the Basecase; however, Ruby Pipeline is added as an additional resource. For modeling purposes we started with Ruby transport priced at \$30.998 (the current monthly rate converted to a daily rate at \$1.019 p/dth per Ruby’s current tariff). After discussions with GTN, we decided not to utilize the Medford backhaul rate (approx \$0.65 p/dth) as a backhaul to CNG at this point in time would not have a lateral rate. However, we did, as GTN suggested, use a forward haul rate for the backhaul rate. GTN made it clear that backhaul service is NOT FIRM, as it is subject to displacement.</p>	<p>This run considered moving Rockies supplies to Malin via Ruby Pipeline and then backhauling supplies on GTN to serve Central OR. The model, when given the option of utilizing Sunstone and capacity on GTN, chose Sunstone over Ruby and “backhaul” capacity on GTN. This run was designed to confirm that Sunstone/Blue Bridge was the more cost effective method to get Rockies supplies to Oregon. Additionally, Sunstone is the more flexible option as it can move supplies to both WA and OR versus Ruby which would be limited to service Central Oregon. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time.</p>

**TABLE 7-1-A**  
**SUMMARY OF PORTFOLIO ANALYSES AND RESOURCE ALTERNATIVES**  
 SUPPLEMENT TO TABLES 7-1 and & 7-2

<b>SENDOUT RUN</b>	<b>Key elements in SENDOUT modeling</b>	<b>Discussion</b>
<p>Basecase Ruby Pipeline Discount (#2897)</p> <p>See details on Appendix E – Ruby Discount Pages 231-25 and 231-26</p>	<p>Model contains all the elements of the Basecase; however, Ruby Pipeline is added as an additional resource. For modeling purposes we started with Ruby transport priced at approximately 3 times the current NWP rate, but ran sensitivities at increasing lower rates to find a price where the model would finally select Ruby (this happened around the ten cent range). The model is set up so that Ruby becomes an option to move Rockies gas to GTN, where it would take incremental GTN capacity (backhaul) to move to Cascade’s citygates.</p>	<p>This run considered moving Rockies supplies to Malin via Ruby Pipeline and then backhauling supplies on GTN to serve Central OR. The model, when given the option of utilizing Sunstone and capacity on GTN, chose Sunstone over Ruby. The assumed costs of the backhaul from Malin to the citygates off of GTN make Sunstone the more cost effective option. The model did not select Ruby until the transport rate was around \$0.10 per dth. This run was designed to confirm that Sunstone/Blue Bridge was the more cost effective method to get Rockies supplies to Oregon. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time.</p>
<p>Basecase Pacific Connector Discount (#2903)</p> <p>See details on Appendix E – PAC CONN Discount Pages 231-27 and 231-28</p>	<p>Model contains all the elements of the Basecase; however, Pacific Connector is added as an additional resource. In addition, we added incremental LNG (Jordan Cove) as a resource. For modeling purposes we started with Pacific Connector transport priced at approximately 3 times the current NWP rate, but ran sensitivities at increasing lower rates to find a price where the model would finally select Pacific Connector (this happened around the ten cent range). The model is set up so that Pacific Connector becomes an option to move imported LNG to GTN, where it would take incremental GTN capacity (backhaul) to move to Cascade’s citygates.</p>	<p>This run considered transporting LNG from Jordan Cove via Pacific Connector Pipeline and then backhauling supplies on GTN to serve Central OR. This scenario is complicated because it is unclear whether GTN will provide backhaul capability. If Sunstone is not built it is reasonable to assume that GTN might consider backhaul capability at that time. It appears the infrastructure required to provide that firm backhaul service on GTN coupled with the transport from the facility makes this scenario appear to be undesirable, given other potential options, such as Sunstone and Blue Bridge. The model did not select Pacific Connector until the transport rate was around \$0.10 per dth. This run was designed to confirm that Sunstone/Blue Bridge was the more cost effective method to get incremental, non-Canadian supplies to Oregon.</p>

**INCREMENTAL CAPACITY RESOURCE SELECTION SUMMARY**

Scenario Name	Run #	Sunstone	Blue Bridge w/ Sunstone	Incremental NWP	Incremental GTN	Ruby	Palomar	Pacific Connector	Biomass (citygate delivery)	Mist	AECO Storage	Satellite LNG	Import LNG		
													Kitimat	Jordan Cove	Bradwood Landing
All Resources	#2901	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Basecase	#2889	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
No Rockies Price Advantage	#2893	XX	-	XX	-	-	-	-	XX	-	-	XX	XX	-	-
Limited Canadian Supply	#2890	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Low Load Growth	#2887	XX	-	-	-	-	-	-	XX	-	-	XX	XX	-	-
High Load Growth	#2888	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Bluebridge NO Sunstone	#2891	-	-	XX	XX	-	-	-	XX	-	-	XX	XX	-	-
Sunstone NO Blue Bridge	#2892	XX	-	XX	-	-	-	-	XX	-	-	XX	XX	-	-
Ruby	#2894	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Pacific Connector	#2896	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Palomar	#2895	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Ruby Backhaul Updated	#2908	XX	XX	-	-	-	-	-	XX	-	-	XX	XX	-	-
Ruby Negotiated Rate at 10 cents	#2897	XX	XX	-	-	XX	-	-	-	-	-	-	XX	-	-
Pacific Connector Neg. Rate of 10 cents	#2903	-	-	-	-	-	XX	XX	XX	-	-	XX	XX	XX	-
Palomar Negotiated Rate at 10 cents	#2902	-	XX	-	-	-	XX	-	XX	-	-	XX	XX	-	XX
<b>Range of Selection (000's DKTH/Day)</b>		<b>11 to 78</b>	<b>0 to 69</b>	<b>0 to 10</b>	<b>10 to 30</b>	<b>0 **</b>	<b>0 **</b>	<b>0 **</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0 to 12</b>	<b>3 to 141</b>	<b>0 **</b>	<b>0 **</b>
<b>Basecase Selected Level</b>	<b>#2889</b>	<b>54</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>11</b>		

\*\* Excludes results of Negotiated Rate sensitivity analyses since it is not reasonable to assume that a negotiated rate of 10 cents can be achieved

**2008 Action Plan**

During the review period, Staff indicated that the company did not provide the specificity needed in its Action Plan as required in the OPUC guidelines. Particularly, Staff indicated that the conservation targets, although detailed in Section 5 of the text, must also be included in the 2-year action plan. Therefore, the Company provides the following revised 2-year Action Plan.

As indicated in Section 8 of the original plan, Cascade's 2008 Action Plan is focused on the following five areas:

- Demand Forecasting
- Distribution System Constraint Analysis
- Demand Side Resources
- Supply Side Resources
- Integration

The 2 year Action Plan embodies Cascade's commitment to maximizing the efficiency from its Integrated Resource Plan and to achieving the lowest cost resource portfolio of reliable natural gas services and conservation. Figure 8-A shown on the following page details the timeline associated with the 2 year Action plan commitments

1. In continuing efforts to create a more accurate load forecast, Cascade will research the viability of expanding the detail of the data by determining therm usage per customer per degree day by customer class (residential, commercial, etc.) along with the non-heat sensitive baseload usage. This is largely dependent upon the capabilities of the Company's new Customer Information System which is currently anticipated to "Go-Live" during mid-2009.
2. Cascade will continue to monitor outside determinants of natural gas usage, such as legislative building code changes and electrical "Direct Use" campaigns as they are determined to significantly affect the Company's forecast.
  - a. Cascade will analyze the potential impact of Puget Sound Energy's Direct Use campaign on customer usage in Washington by June 2010.
3. The company continues to explore the incorporation of price elasticity in future forecasts of demand. The integration of this variable in future models will be dependent upon the practicality of its application and significance of its effect.

**CASCADE NATURAL GAS CORPORATION**  
**Two Year Action Plan**  
**Project Management Analysis**

**FIGURE 8-A**

ACTION PLAN ITEMS	2009												2010											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>1 - DEMAND FORECAST</b>																								
1.1 - Expand Use/Degree Day by Customer Class Modeling																								
1.2 - Analyze Impact of Direct Use Campaigns																								
1.3 - Reexamine Price Elasticity Impacts on Core Loads																								
<b>2 - DISTRIBUTION SYSTEM CONSTRAINT ANALYSIS</b>																								
2.1 - Estimate Avoidable Costs of Eliminating Constraint Areas																								
<b>3 - DEMAND SIDE RESOURCE ASSESSMENT &amp; ACQUISITION</b>																								
3.1 - Monitor Adequacy of Public Purpose Funding																								
3.2 - Conservation/Therm Saving Acquisition																								
3.3 - Monitor Western Climate Initiative & Potential Carbon Legislation																								
3.4 - Evaluation of New Measures																								
<b>4 - SUPPLY SIDE RESOURCE ANALYSIS</b>																								
4.1 - Rockies Pipeline Expansion participation (Sunstone/BlueBridge)																								
4.1a - Alternative Solutions IF Sunstone/Blue Bridge cancelled																								
4.2 - Wenatchee Lateral Analysis																								
4.3 - BioGas Alternatives (as available)																								

**LEGEND**  
Major action plan items  
Components of major items

4. Cascade will continue to monitor the effectiveness of the Oregon Public Purpose Fund to ensure the funds are adequate to capture significant portions of achievable therm savings in Oregon. If it is determined that an increase in this Fund will create a subsequent increase in therm savings, the company will move to act appropriately.
    - a. Oregon's incremental annual therm savings targets for the 2009 and 2010 period are 282,657 and 329,937 therms respectively. Estimated spending to achieve the therm savings targets outlined above are \$1,494,000 and \$1,746,000 respectively.
  5. The company will continue to follow and analyze the impacts of the Western Climate Initiative and proposed carbon legislation at both the state and federal level as they pertain to natural gas conservation, as well as other such acts that may arise from these efforts. The company will continue to monitor the timing and the costs associated with carbon legislation and analyze the impacts on the company's overall portfolio costs. As specific carbon legislation is passed, the company will update its avoided cost calculations, conservation potential and make modifications to its DSM incentive programs as necessary.
    - a. The company is evaluating the potential costs associated with the Waxman/Markey legislation and estimating the impacts on its resource portfolio.
  6. The company will continue to monitor the cost effectiveness of existing conservation measures and emerging technologies to ensure that the current mix of measures included in the Washington Conservation program is appropriate. Areas for further analysis include the impacts associated with modifications to building codes along with the cost effectiveness of newer technologies such the next generation of high efficiency water heaters (.70 EF) and high-efficiency hybrid heat pumps. The applicability of these measures within Cascade's service territory will be analyzed and the company's Conservation Incentive Program will be modified as necessary.
  7. The company will continue to work with its Conservation Advisory Group, its third party vendors and its Low income weatherization network to ensure that the therm savings targets identified in the plan are met.
    - a. As outlined above, the Company's targeted therm savings for Oregon for the 2009 and 2010 period are 282,657 and 329,937 therms respectively.
  8. The Company will continue to update its distribution system analysis to reflect the impacts of conservation. The company will continue to target its conservation
-



acquisition efforts in those areas where potential distribution constraints have been identified in the hope that some of those investments maybe delayed.

- a. The company will work with the Energy Trust to ensure that conservation acquisition efforts are targeted to central Oregon and Hermiston area.
  - b. The Company will update its Oregon distribution analysis during Summer 2009 to re-assess the reinforcement requirements during the 2010 to 2013 period in light of the current recession and actual conservation achievements in 2008 and 2009 by the Energy Trust.
9. Cascade will continue to evaluate gas supply resources on an ongoing basis including supplies of varying lengths (base, swing, peaking) and pricing alternatives. We will continue to analyze the uncertainties associated with volatile supply and demand relationships and will closely monitor and participate in industry discussions regarding diminishing Canadian gas exports. Of particular concern to us are changing conditions on Northwest Pipeline. As our principle upstream pipeline, Northwest Pipeline, is a displacement pipeline dependent upon receiving large amounts of Canadian natural gas exports. The risk associated with reduced Canadian exports is a significant concern and therefore it is critical for Cascade to continuously look for opportunities to improve our supply/capacity diversification.
10. The Company will continue to monitor the proposed pipeline expansion projects to access more supplies out of the Rockies. As cost estimates change, the company will analyze those resources under consideration to determine if modifications to the preferred portfolio are necessary.
- a. The Company participated in the initial Open Season associated with the Sunstone/Blue Bridge pipeline in 2008
  - b. Update analysis completed and response from CNG Board due late Summer 2009
11. Continue to refine our specific peak day resource acquisition action plans to address anticipated capacity shortfalls on the Wenatchee and Shelton laterals. Possible solutions include Satellite LNG or pipeline looping to meet the growing requirements of the firm core load. Specifically, the Company will further analyze issues such as determination of project siting issues and risks, project cost estimates, and construction/acquisition lead times.
12. The company will continue to explore options to incorporate BioGas into its portfolio, as specific projects are identified in our service territory. Price, location and gas quality considerations of the Bio-Gas supply will be evaluated.

13. The company will continue to monitor proposed LNG import facilities as information becomes available and will evaluate the various options that, if built, could be used to meet core requirements. Issues to monitor include specific cost, the availability of pipeline capacity and project timing.
  
14. The Company will continue to monitor the futures market for price trends and will evaluate the effectiveness of its risk management policy.

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 1	Imported LNG		Palomar	PALOMAR IN 2015, BACKHAUL W/GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	0
IMP-LNG 2	Imported LNG		Pacific Connector	PACIFIC CONNECTOR IN 2015, BACKHAUL W/NWP, BACKHAUL W/GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES														
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15	
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES	
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES	
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES	
STORAGE 4	AECO STORAGE	Underground	AECO	Yes	NA	2013	2030	NA	300,000	10,000	YES	AECO C STRG	YES	
STORAGE 5	MIST STORAGE	Underground	Mist	Yes	NA	2013	2030	NA	300,000	10,000	YES	MIST	YES	

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES														
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%			
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES			
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES			
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO			
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES			
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
Ruby with backhaul	Nov-12	Dec-30	300	Opal Hub to Mailin	NWP Rate X 3	> 2 years	RUBY			YES	YES			
PALOMAR XPORT	Nov-15	Dec-30	300	Madras OR to Molalla OR (bi-directional)	NWP Rate X 3	> 6 years	PALOMAR			YES	YES			
PAC CONNECT	Nov-15	Dec-30	300	Jordona Cove OR to Malin	NWP Rate X 3	> 5 years	PAC CONNECT			YES	YES			

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SUPPLY SIDE RESOURCE ALTERNATIVES

Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES														
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15	
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STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES	
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES	

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES														
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX	RMIX MIN	VARIABLE <	FUEL <			
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES			
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO	0	YES	YES			
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO			
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES			
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			

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SUPPLY SIDE RESOURCE ALTERNATIVES

Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost	INCLUDE?
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FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1	
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03	NO
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03	
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 50,000	0	0.05	
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0	
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0	
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15	
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05	
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0	
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1	
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02	
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025	
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015	
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025	
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0	
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01	
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIIES BETWEEN 4,000 AND 7,000	0	0.2	
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025	
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025	
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05	
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08	
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04	
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0	
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025	
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05	
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618	
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1	
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08	
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03	
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07	
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01	
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15	NO
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0	
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01	
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03	

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES														
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15	
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES	
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES	
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES	

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES														
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%			
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES			
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES			
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO			
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES			
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 10,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES														
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15	INCLUDE?
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES	
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES	
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES	

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES														
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$0.10	FUEL < 3%			INCLUDE?
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES			
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES			
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO			
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES			
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			NO
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			NO

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES														
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15	INCLUDE?
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES	
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES	
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES	

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES														
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$.10	FUEL < 3%			INCLUDE?
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills	UP TO 50,000	0	YES	YES			
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES			
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			NO
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			NO
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO			NO
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			NO
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			NO
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES			
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost	INCLUDE?
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20	0.2862	0.035	
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2.5	0	0	
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 1 AND 10	0	0.1	
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	NYMEX FLAT	Yes	No		Swing	Incremental			100	0	0	
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	NYMEX FLAT	Yes	No		Swing	Incremental			100	0	0	
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	NYMEX FLAT	Yes	No		Swing	Incremental			100	0	0	
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0	
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0	
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15	
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05	
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0	
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1	
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02	
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025	
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015	
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025	
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0	
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01	
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 4,000 AND 7,000	0	0.2	
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 1,000 AND 3,500	0	0.025	
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025	
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05	
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 3,800 AND 12,500	0	-0.08	
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04	
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0	
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025	
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05	
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618	
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 2,500 AND 7,000	0	0.1	
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	NYMEX FLAT	Yes	No		Swing	Incremental			UP TO 10,000	0	0	
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03	
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	NYMEX FLAT	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0	
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01	
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	NYMEX FLAT	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0	
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0	NO
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01	
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03	

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Ruby with Backhaul	Nov-12	Dec-30	300	Opal Hub to Mailin	NWP Rate X 3	> 2 years	RUBY			YES	YES		

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 2	Imported LNG		Pacific Connector	PACIFIC CONNECTOR IN 2015, BACKHAUL W/NWP, BACKHAUL W/GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$0.10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
<b>PAC CONNECT</b>	<b>Nov-15</b>	<b>Dec-30</b>	<b>300</b>	<b>Jordona Cove OR to Malin</b>	<b>NWP Rate X 3</b>	<b>&gt; 5 years</b>	<b>PAC CONNECT</b>			<b>YES</b>	<b>YES</b>		

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
<b>IMP-LNG 1</b>	<b>Imported LNG</b>		<b>Palomar</b>	<b>PALOMAR IN 2015, BACKHAUL W/GTN</b>	<b>NYMEX</b>	<b>Yes</b>	<b>No</b>		<b>Swing</b>	<b>Incremental</b>			<b>UP TO 10,000</b>	<b>0</b>	<b>0</b>
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$0.10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
<b>PALOMAR XPORT</b>	<b>Nov-15</b>	<b>Dec-30</b>	<b>300</b>	<b>Madras OR to Molalla OR (bi-directional)</b>	<b>NWP Rate X 3</b>	<b>&gt; 6 years</b>	<b>PALOMAR</b>			<b>YES</b>	<b>YES</b>		

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SUPPLY SIDE RESOURCE ALTERNATIVES

Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES
STORAGE 4	AECO STORAGE	Underground	AECO	Yes	NA	2013	2030	NA	300,000	10,000	YES	AECO C STRG	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		

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SUPPLY SIDE RESOURCE ALTERNATIVES

Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES
STORAGE 5	MIST STORAGE	Underground	Mist	Yes	NA	2013	2030	NA	300,000	10,000	YES	MIST	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$0.10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).



SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
<b>IMP-LNG 1</b>	<b>Imported LNG</b>		<b>Palomar</b>	<b>PALOMAR IN 2015, BACKHAUL W/GTN</b>	<b>NYMEX</b>	<b>Yes</b>	<b>No</b>		<b>Swing</b>	<b>Incremental</b>			<b>UP TO 10,000</b>	<b>0</b>	<b>0</b>
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES														
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15	
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES	
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES	
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES	

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES														
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%			
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES			
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES			
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO			
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES			
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES			
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES			
<b>PALOMAR XPORT</b>	<b>Nov-15</b>	<b>Dec-30</b>	<b>300</b>	<b>Madras OR to Molalla OR (bi-directional)</b>	<b>\$ .010 (AND OTHER LOW RATES)</b>	<b>&gt; 6 years</b>	<b>PALOMAR</b>			<b>YES</b>	<b>YES</b>			

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,800 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIABLES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIABLES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$0.10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
<b>RUBY XPORT</b>	<b>Nov-12</b>	<b>Dec-30</b>	<b>300</b>	<b>Opal Hub to Mailin</b>	<b>\$0.010 (AND OTHER LOW RATES)</b>	<b>&gt; 2 years</b>	<b>RUBY</b>			<b>YES</b>	<b>YES</b>		

NOTE: All yellow-highlighted lines denotes a change from the Base scenario (#2889).

SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
<b>IMP-LNG 2</b>	<b>Imported LNG</b>		<b>Pacific Connector</b>	<b>PACIFIC CONNECTOR IN 2015, BACKHAUL W/NWP, BACKHAUL W/GTN</b>	<b>NYMEX</b>	<b>Yes</b>	<b>No</b>		<b>Swing</b>	<b>Incremental</b>			<b>UP TO 10,000</b>	<b>0</b>	<b>0</b>
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 ApR10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	NOVA, Foothills, GTN		NOVA, Foothills, GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
<b>PAC CONNECT</b>	<b>Nov-15</b>	<b>Dec-30</b>	<b>300</b>	<b>Jordona Cove OR to Malin</b>	<b>\$.010 (AND OTHER LOW RATES)</b>	<b>&gt; 5 years</b>	<b>PAC CONNECT</b>			<b>YES</b>	<b>YES</b>		

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

Model Name	Category	Other Category Info	Receipt Pt	Delivery Pt(s)	Index	Comm Adder	Demand Chg	Daily Min	Base/Swing	Contract Expiration	Total Cost	NPV	MDQ in dkths	Demand Chg	Cost
FIRM 1	Annual	Annual	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Base	2010			20,000	0.2862	0.035
FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	No	No	100%	Swing	2011			2,500	0	0
FIRM 3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			VARIES BETWEEN 1,000 AND 10,000	0	0.1
INCR-FIRM 1	Annual	Annual	AECO	NWP, GTN	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM 2	Annual	Annual	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 100,000	0	0.03
INCR-FIRM3	Annual	Annual	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 100,000	0	0.05
BIOMASS	Biomass		Zone 10	Zone 10	IFERC Rockies	No	No		Base	Incremental			UP TO 500	0	0
FIRM 4	Citygate	Nov-Mar	Citygate	Zone GTN	CGPR (AECO)	Yes	No		Base	2010			5,000	0	0
IMP-LNG 3	Imported LNG		Kitimat	NWP, GTN	NYMEX	Yes	No		Swing	Incremental			UP TO 10,000	0	1.15
INCR PEAK 1	Peaking		AECO	GTN	CGPR (AECO)	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.05
INCR PEAK 2	Peaking		Rockies	NWP	IFERC Rockies	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0
INCR PEAK 3	Peaking		Sumas	NWP	IFERC Sumas	Yes	Yes		Swing	Incremental			UP TO 10,000	0.05	0.1
PEAK 1	Peaking		Rockies	NWP	GD Rockies	Yes	Yes		Swing	2009			10,000	0.06	0.02
PEAK 2	Peaking		Sumas	NWP	GD Sumas	Yes	Yes		Swing	2012			10,000	0.08	0.025
PEAK 3	Peaking		Rockies	NWP	IFERC Rockies	Yes	No		Swing	2009			5,000	0	-0.015
PEAK 4	Peaking		Citygate	NWP	IFERC Rockies	Yes	No		Swing	2013			5,000	0	-0.025
SAT LNG	Satellite LNG		Zone 11	Zone 11	NYMEX	No	No		Base	Incremental			UP TO 500	0	0
FIRM 5	Seasonal/Winter	Dec-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2011			20,000; 8,600 Mar10; 9,940 Apr10; 3,096 May10	0	0.01
FIRM 6	Seasonal/Winter	Nov-Feb	Station 2	NWP, GTN	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 4,000 AND 7,000	0	0.2
FIRM 7	Seasonal/Winter	Nov-Jan	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			VARIES BETWEEN 1,000 AND 3,500	0	0.025
FIRM 8	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No	100%	Swing	2012			8,000	0	0.025
FIRM 9	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	CGPR (AECO)	Yes	No		Base	2011			10,000	0	0.05
FIRM 10	Seasonal/Winter	Nov	Rockies	NWP, GTN	IFERC Rockies	Yes	No	100%	Swing	2009			VARIES BETWEEN 3,800 AND 12,500	0	-0.08
FIRM 11	Seasonal/Winter	Nov-Feb	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2011			5,000	0	-0.04
FIRM 12	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	Yes		Base	2012			8,000	0.048	0
FIRM 13	Seasonal/Winter	Nov-Oct	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No	100%	Swing	2012			7,000	0	-0.025
FIRM 14	Seasonal/Winter	Apr-Oct	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2009			10,000	0	0.05
FIRM 15	Seasonal/Winter	Dec-Jan	Citygate	Zone 30W	IFERC Sumas	Yes	No	100%	Swing	2009			8,000	0	0.2618
FIRM 16	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No	100%	Swing	2012			VARIES BETWEEN 2,500 AND 7,000	0	0.1
INCR WTR 1	Seasonal/Winter	Nov-Mar	AECO	GTN, NWP, BLUE BRIDGE IN 2011	CGPR (AECO)	Yes	No		Swing	Incremental			UP TO 10,000	0	0.08
INCR WTR 2	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	GD STA2	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03
INCR WTR 3	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.07
INCR WTR 4	Seasonal/Winter	Nov-Mar	Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	Incremental			UP TO 10,000	0	-0.01
INCR WTR 5	Seasonal/Winter	Nov-Mar	Sumas	NWP, GTN	IFERC Sumas	Yes	No		Swing	Incremental			UP TO 1,000,000	0	0.15
SPOT CDN	Spot		Station 2	NWP, GTN	CGPR (AECO)	No	No		Swing	Incremental			UP TO 5,000	0	0
SPOT RM	Spot		Rockies	NWP, GTN, SUNSTONE IN 2011, BLUE BRIDGE IN 2011, RUBY W/BACKHAUL IN 2011	IFERC Rockies	Yes	No		Base	2012			10,000	0	-0.01
SPOT SUMAS	Spot		Sumas	NWP, GTN	IFERC Sumas	Yes	Yes		Base	Incremental			UP TO 5,000	0	0.03

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SUPPLY SIDE RESOURCE ALTERNATIVES  
Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES													
STORAGE	Model Name	Type	Location	Pipeline Transport Required	Evergreen	Start	Contract Expiration	Lead Time	Max Cap	WD MDQ	Fuel Inj < 3%	SVDD	D2 RATE > \$0.05 < \$0.15
STORAGE 1	JP-1	Underground	Jackson Prairie	Yes	Yes	1994	2014	NA	604,351	16,789	YES	SGS	YES
STORAGE 2	JP-EXP	Underground	Jackson Prairie	Yes	Yes	2009 (full access 2010)	2050	NA	500,000	30,000	YES	SGS	YES
STORAGE 3	LNG	LNG	Plymouth	Yes	Yes	1994	2014	NA	562,207	60,000	YES	SGS	YES

POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES													
Model Name	Start Date	End Date	Daily MDQ	Description	Cost Dths	Lead Time	Pipeline	RMIX MAX	RMIX MIN	VARIABLE < \$ .10	FUEL < 3%		
INCR-PGT	Nov-10	Oct-24	20	AECO NIT, Foothills to Kingsgate	0.36		GTN	UP TO 50,000	0	YES	YES		
INCR-WGPW	Nov-10	Oct-24	20	Sumas to WA and OR citygates	NWP Rate X 3		NWP	UP TO 200,000	0	YES	YES		
Sunstone	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 25	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 20	Nov-11	Dec-30	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	NO		
Sunstone 15	Nov-11	Sep-27	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
Sunstone 10	Nov-11	Sep-22	300	Rockies to Stanfield Interconnect	Precedent Agmt	> 2 years	Sunstone			YES	YES		
INCR-STAINF	Oct-11	Dec-30	300	Stanfield Interconnect to Central OR	GTN Rate	> 2 years	GTN			YES	YES		
Bluebridge25	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Bluebridge15	Nov-11	Dec-30	300	Stanfield Interconnect to I-5 Corridor	Precedent Agmt	> 2 years	NWP			YES	YES		
Ruby with Backhaul	Nov-12	Dec-30	300	Opal Hub to Mailin	1.019	> 2 years	RUBY			YES	YES		

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## SUPPLEMENTAL INFORMATION REGARDING THE DEVELOP OF THE NATURAL GAS PRICE FORECAST

### Natural Gas Price Forecast

Price volatility has become an on-going factor in the natural gas industry since 2005. Prices in the natural gas market have continued to be volatile. Prices started climbing in January 2008 and kept rising through the spring and early summer, even though historically prices tend to decline after the end of the heating season. However, as of the time of this writing, the market prices have dropped by more than 50% from a high of \$13.00 in early July 2008. Demand, oil price volatility, the global economy, electric generation, opportunities to take advantage of new extraction technologies, hurricanes and other weather activity will continue to impact natural gas prices for the foreseeable future. It is impossible to accurately predict what future natural gas prices will be. However, Cascade has considered price forecasts from several sources, such as Wood Mackenzie, Energy Information Agency, the Texas Comptroller's forecast, as well as our observations of the market to develop our low, base and high price forecast. Details of our price forecast can be found in Appendix E-3.

### Development of a Henry Hub price forecast

**Current Market:** Since pricing on the market is heavily influenced by Henry Hub prices, we closely monitor the market trend. As we developed the price forecast for the IRP, the market was in the process of falling after reaching the highs of July. While not a guarantee of where the market will ultimately finish, it is the most current information available that provides some direction as to future market prices. On a daily basis, we can see where Henry Hub is trading and how the future basis differential in our physical supply receiving areas (Sumas, AECO, Rockies) is trading.

**Wood MacKenzie:** Wood MacKenzie publishes a long-term price forecast each quarter to subscribing customers. This forecast is broken down by month through the planning horizon and includes Henry Hub as well as basis differentials for our receiving areas.

**Energy Information Administration (EIA):** We utilized the EIA price forecast. It should be noted that EIA's forecast is not always as current as the most recent market activity. Further, EIA forecast provides monthly breakdowns in the short term, but longer term forecast are by year. Given Cascade's load profile and the need for more winter gas than summer, we develop a pattern based on the market monthly forward prices to create a long-term, monthly Henry Hub price.

**The Texas Comptroller forecast:** Similar to EIA, this price forecast is available by year through the planning horizon, but monthly breakdowns are not available. We use a similar method as with the EIA to develop a monthly price forecast.

With a monthly Henry Hub price determined for the above sources, we assigned a weight to each source to develop the monthly Henry Hub price forecast for the planning horizon. At the time the price forecast was developed the Texas Comptroller forecast was significantly lower than the Wood MacKenzie forecast and the forward market. Given the significantly higher future prices at the time versus the Comptroller forecast, we decided to exclude the Texas Comptroller from our weighted average. Consequently, they were given a weight of zero. In recently years, EIA forecast has often been lower than the final monthly price, but it is still a respected industry barometer of prices so they were given a weight of 30%. As we pointed out before, while current market is not necessarily going to accurately predict the final market price, it is often a

## SUPPLEMENTAL INFORMATION REGARDING THE DEVELOP OF THE NATURAL GAS PRICE FORECAST

reliable indicator; therefore we gave our market assessment (the previous 60 days Henry Hub) 10% weight. As the most recent forecast of information with the most level of detail (including monthly basis forecast), Wood MacKenzie was assigned the remaining 60%.

### Development of the Basis Differential for Sumas, AECO and Rockies

Since our physical supply receiving areas (Sumas, AECO, and Rockies) are at a discount to Henry Hub, we utilize the basis differential from Wood Mackenzie's prior two quarterly updates and compare that to the future markets basis trading as reported in public market. Although it is impossible to accurately predict the future, for trading purposes, the most recent period has been the best indicator or the direction of the market. Correspondingly, we applied a weighted average to determine the individual basis differential in the price forecast. Typically, the most current Wood MacKenzie differentials are weighted at 60%. The differentials from the second most recent Wood MacKenzie forecast are weighted at 40%. However, at the time of the forecast was developed, the basis differential between the two forecast reports were radically different for the Rockies. Consequently, we decided to give even greater weight to the more recent update (75%) and 25% to the second most recent Rockies differential forecast. The differential for AECO and Sumas in the two most recent Wood MacKenzie reports were more in-line. Therefore, these were weighted at 60% for the most recent report of AECO and Sumas, while the second most recent report for the two basins was weighted at 40%.

### Looking ahead

Cascade continuously seeks to find additional market intelligence to assist in developing the price forecast. For example, the sources of the price forecast now include Financial Forecast Center. Prior to 2005, The Financial Forecast Center was a service of Market Research International and Applied Reasoning, Inc. Financial Forecast Center, LLC was split off from Applied Reasoning, Inc. in 2005 to focus on the creation and publishing of market forecasts while Applied Reasoning, Inc. focuses on the development of artificial intelligence software. We will be looking other resources, both public and private.

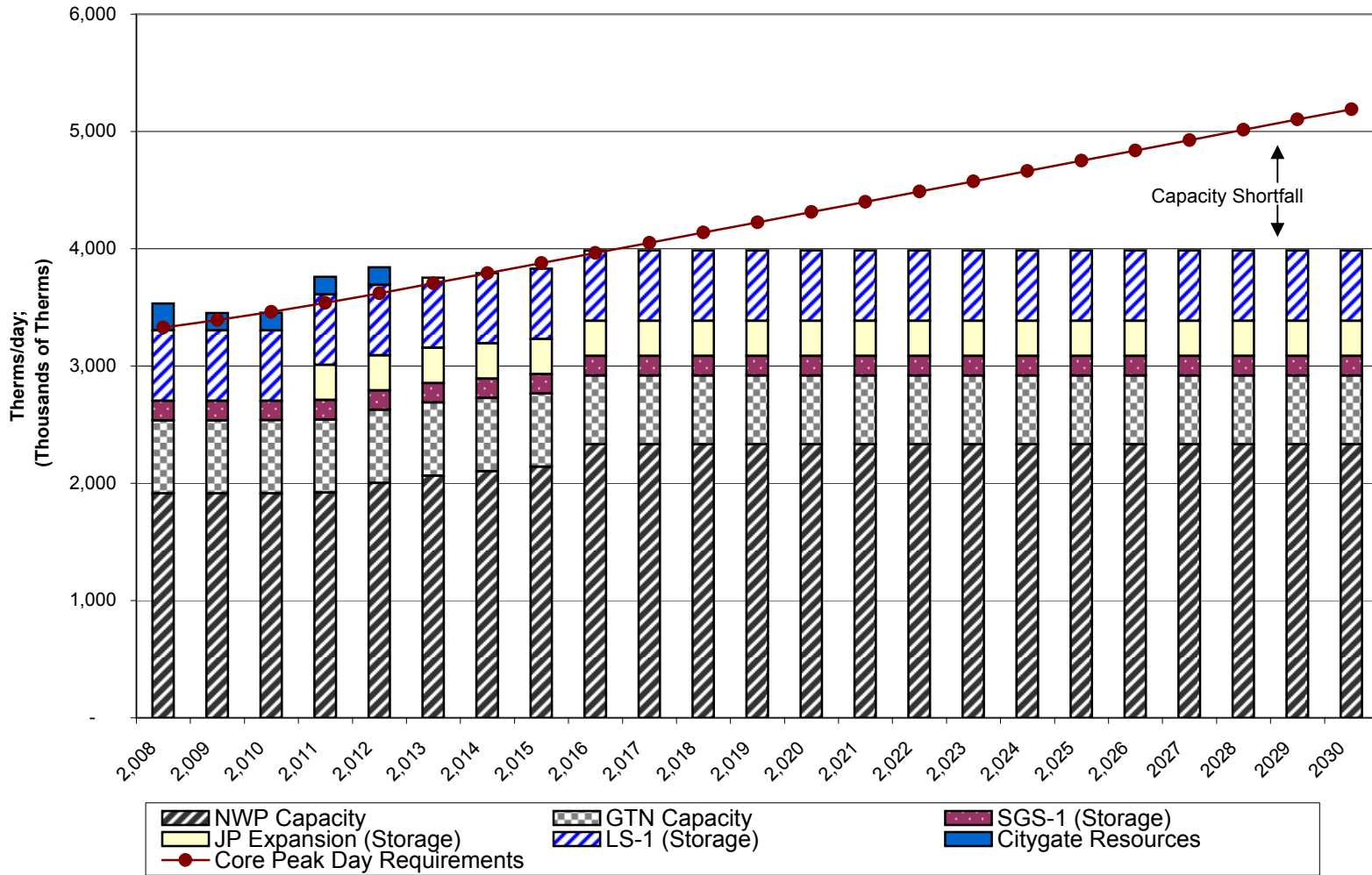
**Cascade Natural Gas Corporation**  
**Transportation Capacity vs Peak Requirements**  
**Existing Upstream Pipeline Capacity vs Zonal Peak Demand**  
**(000s of therms)**

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Zone 10	Zone Capacity	148	148	152	155	157	158	167	167	167	167	167	167	167	167	167	167	167	167	167	167
	Zone Core Requirements	98	98	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117
	Excess/(Shortfall)	51	50	53	54	55	55	63	62	61	60	59	58	57	56	55	54	53	52	51	50
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	51	50	53	54	55	55	63	62	61	60	59	58	57	56	55	54	53	52	51	50
Zone 11	Zone Capacity	349	350	358	365	369	373	393	393	393	393	393	393	393	393	393	393	393	393	393	393
	Zone Core Requirement	355	358	361	365	368	372	375	379	382	386	389	393	396	399	403	406	410	413	416	420
	Excess/(Shortfall)	(6)	(8)	(3)	0	1	1	18	15	11	8	4	1	(3)	(6)	(10)	(13)	(16)	(20)	(23)	(26)
	Citygate Available (if necessary)	150	150	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	144	142	147	0	1	1	18	15	11	8	4	1	(3)	(6)	(10)	(13)	(16)	(20)	(23)	(26)
Zone 20	Zone Capacity	577	578	592	603	610	616	649	649	649	649	649	649	649	649	649	649	649	649	649	649
	Zone Core Requirement	410	425	441	457	473	489	505	521	537	553	569	585	601	617	631	646	661	675	690	705
	Excess/(Shortfall)	168	154	151	146	137	127	144	128	112	96	80	64	48	33	18	3	(12)	(26)	(41)	(56)
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	168	154	151	146	137	127	144	128	112	96	80	64	48	33	18	3	(12)	(26)	(41)	(56)
Zone 24	Zone Capacity	135	135	138	141	142	144	152	152	152	152	152	152	152	152	152	152	152	152	152	152
	Zone Core Requirement	64	65	66	66	67	68	68	69	70	70	71	72	72	73	74	74	75	76	76	77
	Excess/(Shortfall)	71	70	73	75	75	76	83	83	82	81	81	80	79	79	78	78	77	76	76	75
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	71	70	73	75	75	76	83	83	82	81	81	80	79	79	78	78	77	76	76	75
Zone 26	Zone Capacity	465	466	476	484	489	494	518	518	518	518	518	518	518	518	518	518	518	518	518	518
	Zone Core Requirement	82	83	84	86	87	88	90	91	93	94	96	97	99	100	101	103	104	105	107	108
	Excess/(Shortfall)	383	383	392	398	402	405	428	427	425	424	422	421	419	418	417	415	414	413	411	410
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	383	383	392	398	402	405	428	427	425	424	422	421	419	418	417	415	414	413	411	410
Zone 30-S	Zone Capacity	545	546	554	561	564	568	588	588	588	588	588	588	588	588	588	588	588	588	588	588
	Zone Core Requirement	434	439	445	451	459	466	474	482	490	498	506	514	522	530	538	547	555	564	572	581
	Excess/(Shortfall)	111	106	109	109	106	102	114	106	98	90	82	74	66	58	49	41	33	24	16	7
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	111	106	109	109	106	102	114	106	98	90	82	74	66	58	49	41	33	24	16	7
Zone 30-W	Zone Capacity	979	981	1,005	1,024	1,035	1,047	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104	1,104
	Zone Core Requirement	1,015	1,040	1,066	1,093	1,120	1,147	1,175	1,202	1,229	1,257	1,285	1,314	1,342	1,371	1,399	1,428	1,456	1,485	1,514	1,543
	Excess/(Shortfall)	(36)	(59)	(61)	(69)	(85)	(101)	(71)	(98)	(126)	(154)	(182)	(210)	(239)	(267)	(296)	(324)	(353)	(382)	(410)	(439)
	Citygate Available (if necessary)	150	150	150	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	114	91	89	81	(85)	(101)	(71)	(98)	(126)	(154)	(182)	(210)	(239)	(267)	(296)	(324)	(353)	(382)	(410)	(439)

**Cascade Natural Gas Corporation**  
**Transportation Capacity vs Peak Requirements**  
**Existing Upstream Pipeline Capacity vs Zonal Peak Demand**  
**(000s of therms)**

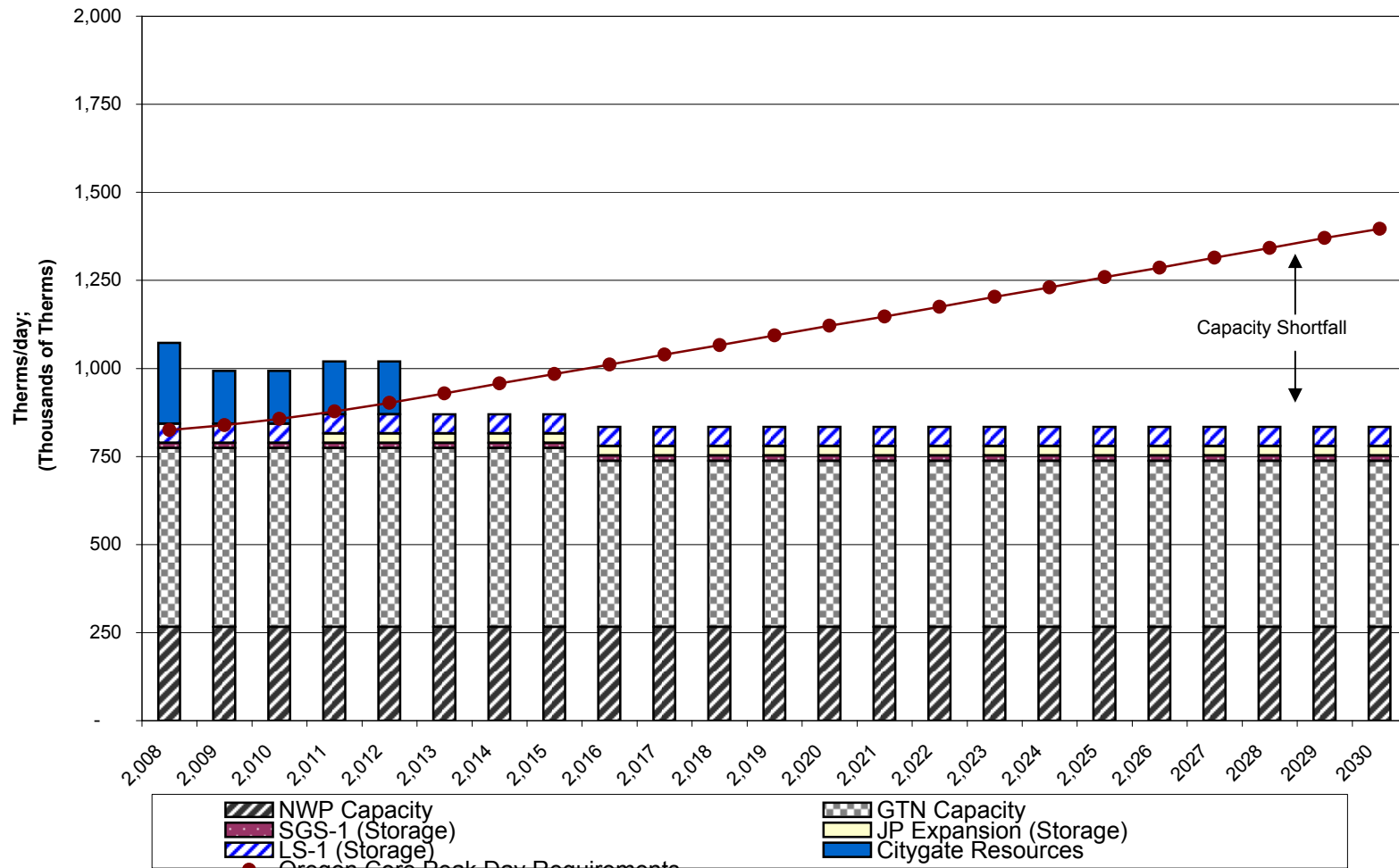
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Zone GTN	Zone Capacity	512	512	512	512	512	512	512	512	512	512	512	512	512	512	512	512	512	512	512	512
	Zone Core Requirement	575	592	612	634	658	684	709	734	760	785	811	836	861	887	912	938	964	989	1,015	1,041
	Excess/(Shortfall)	(63)	(80)	(100)	(122)	(146)	(172)	(197)	(222)	(248)	(273)	(298)	(324)	(349)	(375)	(400)	(426)	(452)	(477)	(503)	(529)
	Citygate Available (if necessary)	150	150	150	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	87	70	50	28	(146)	(172)	(197)	(222)	(248)	(273)	(298)	(324)	(349)	(375)	(400)	(426)	(452)	(477)	(503)	(529)
Zone ME-OR	Zone Capacity	237	238	244	248	251	254	268	268	268	268	268	268	268	268	268	268	268	268	268	268
	Zone Core Requirement	200	200	200	202	204	205	207	208	209	211	212	213	214	215	217	218	220	221	223	224
	Excess/(Shortfall)	37	38	44	47	48	49	60	59	58	57	56	54	54	52	51	49	48	46	45	43
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	37	38	44	47	48	49	60	59	58	57	56	54	54	52	51	49	48	46	45	43
Zone ME-WA	Zone Capacity	124	125	128	130	131	133	140	140	140	140	140	140	140	140	140	140	140	140	140	140
	Zone Core Requirement	160	161	163	165	167	169	171	173	175	177	179	181	183	185	187	190	192	194	196	198
	Excess/(Shortfall)	(35)	(37)	(35)	(35)	(35)	(36)	(31)	(33)	(35)	(37)	(39)	(41)	(43)	(45)	(47)	(49)	(51)	(54)	(56)	(58)
	Citygate Available (if necessary)	150	150	150	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	115	113	115	115	(35)	(36)	(31)	(33)	(35)	(37)	(39)	(41)	(43)	(45)	(47)	(49)	(51)	(54)	(56)	(58)
Zone ME Total	Zone Capacity	362	362	371	378	383	387	408	408	408	408	408	408	408	408	408	408	408	408	408	408
	Zone Core Requirement	360	361	363	366	370	374	378	381	385	388	391	395	397	401	404	408	411	415	419	422
	Excess/(Shortfall)	2	2	9	12	12	13	30	26	23	20	16	13	10	7	3	(0)	(4)	(7)	(11)	(14)
	Citygate Available (if necessary)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Excess/(Shortfall) w/Citygate	2	2	9	12	12	13	30	26	23	20	16	13	10	7	3	(0)	(4)	(7)	(11)	(14)

### SYSTEM Peak Day Demand & Existing Capacity Resources Medium Load Forecast



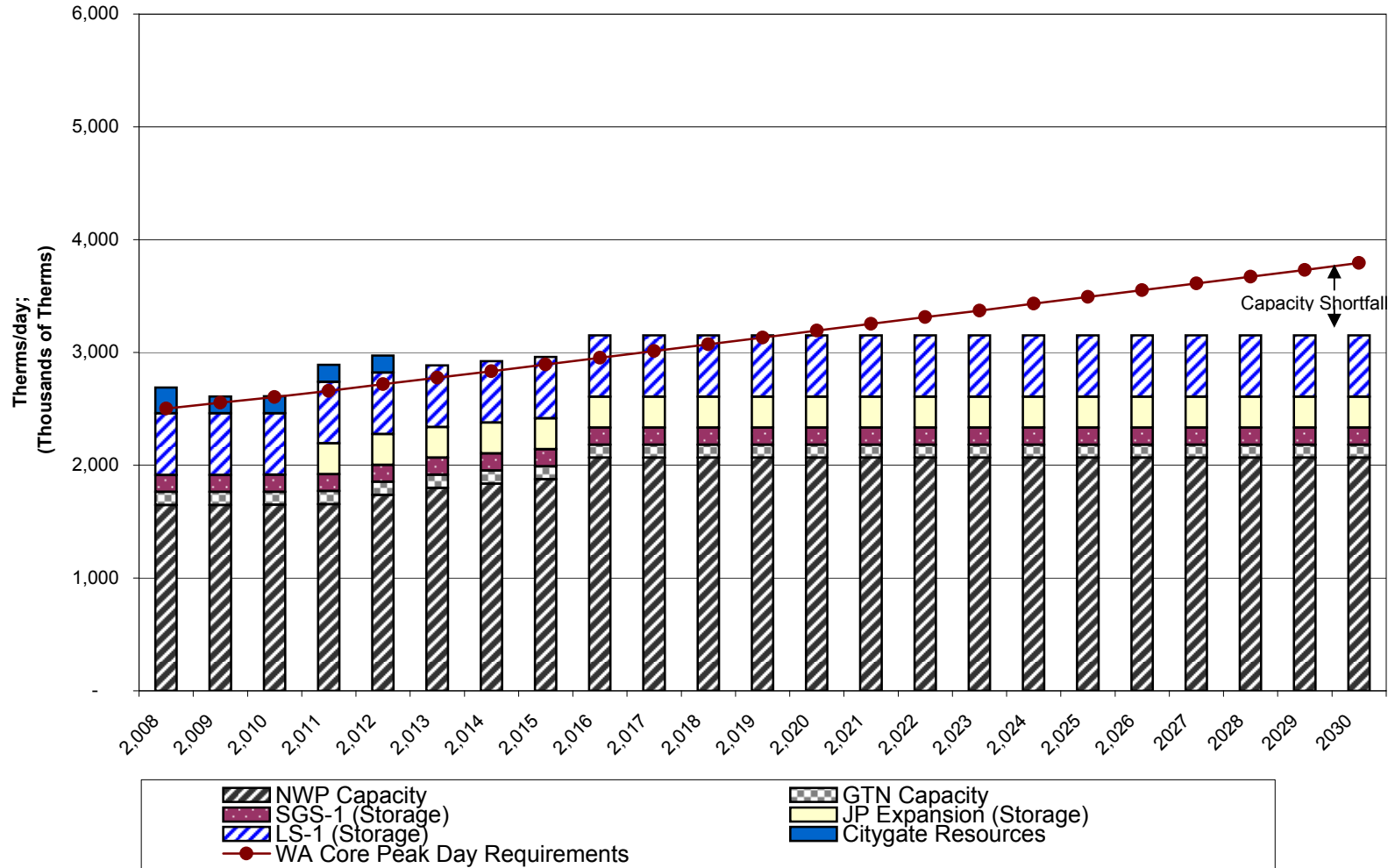
Note: WGPW Capacity is net of Non-Core primary term capacity requirements

### OREGON Peak Day Demand & Existing Capacity Resources Medium Load Forecast



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

### WASHINGTON Peak Day Demand & Existing Capacity Resources Medium Load Forecast



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

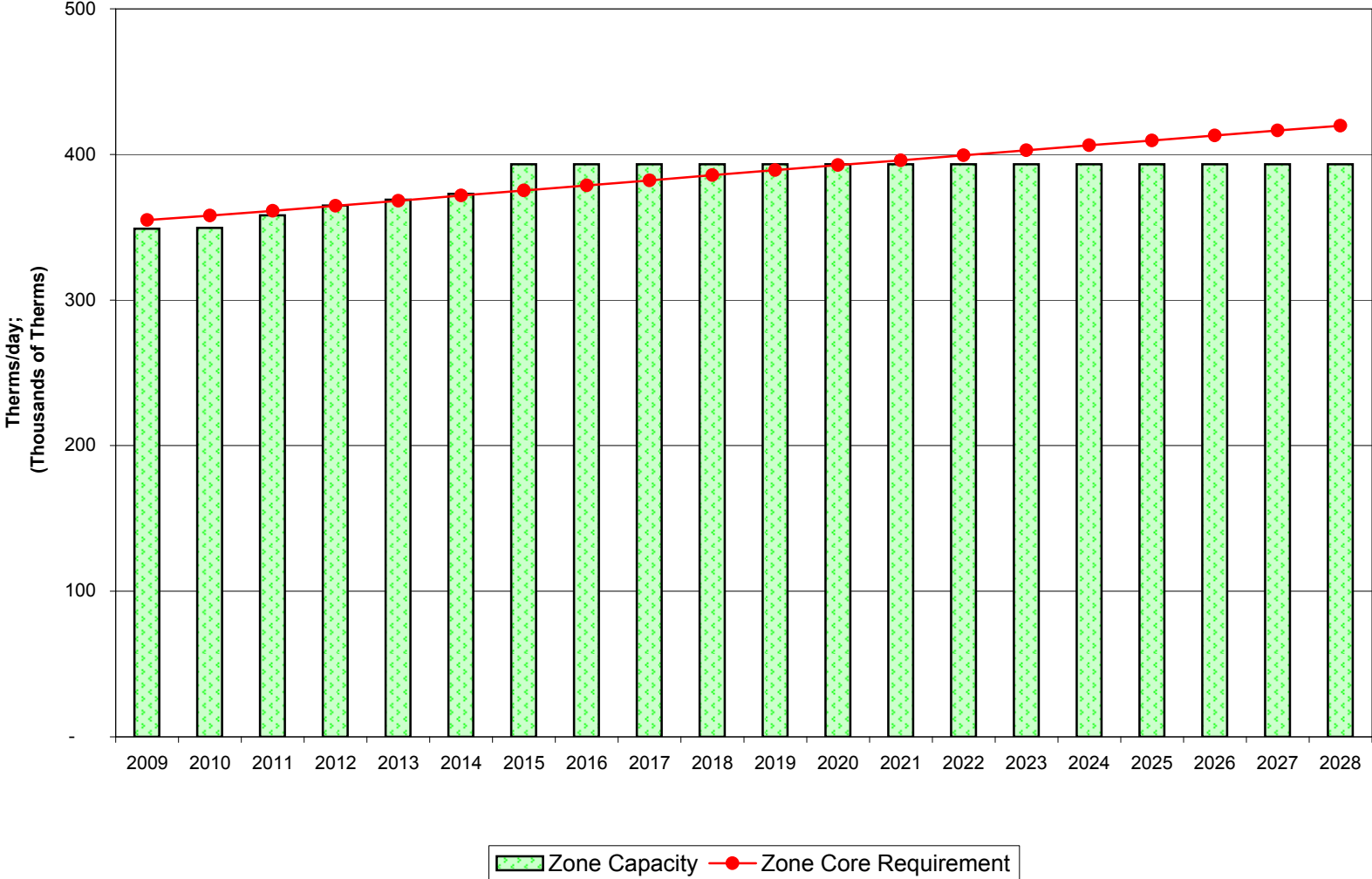
**ZONE 10 Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

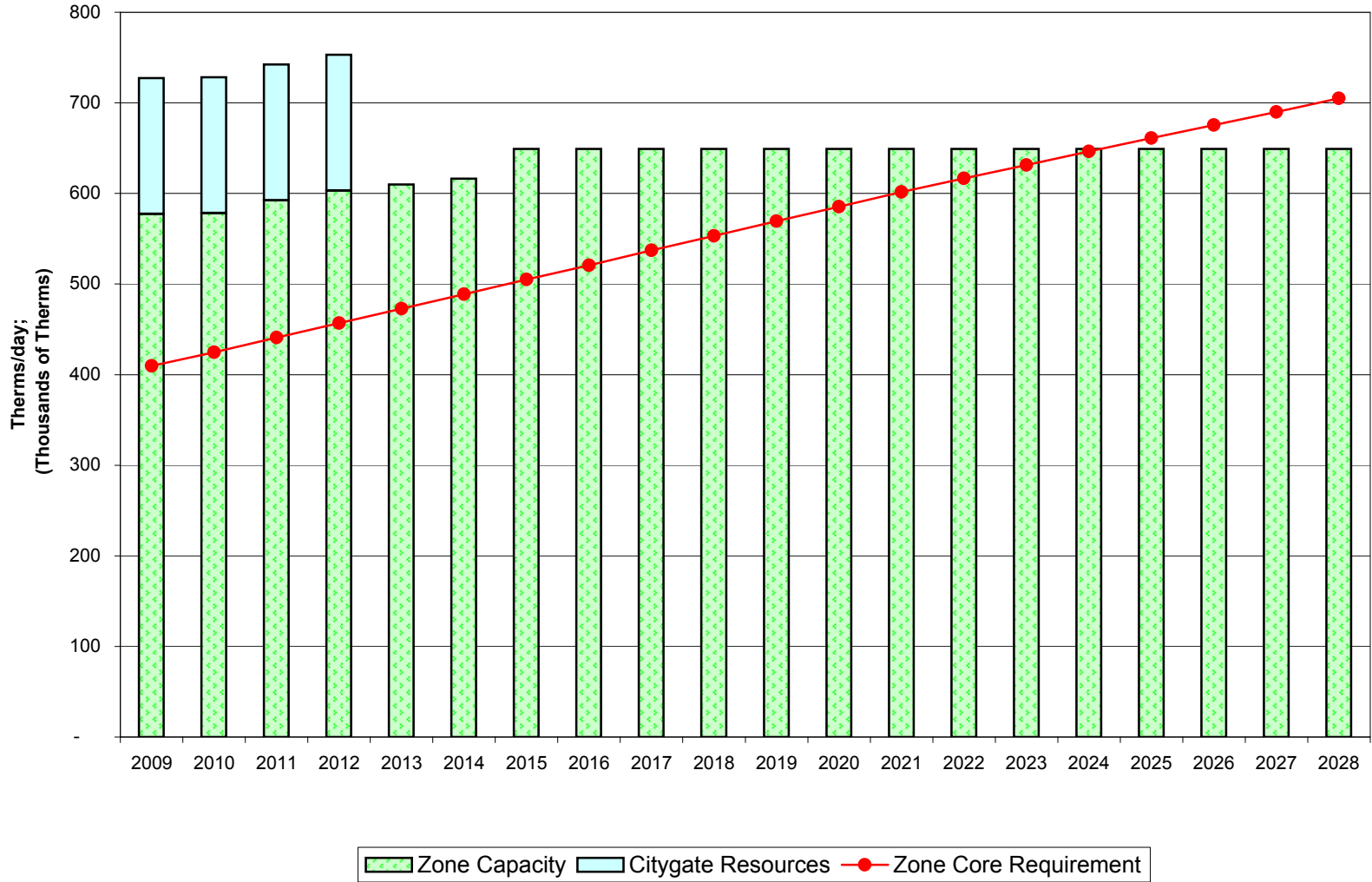


**ZONE 11 Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



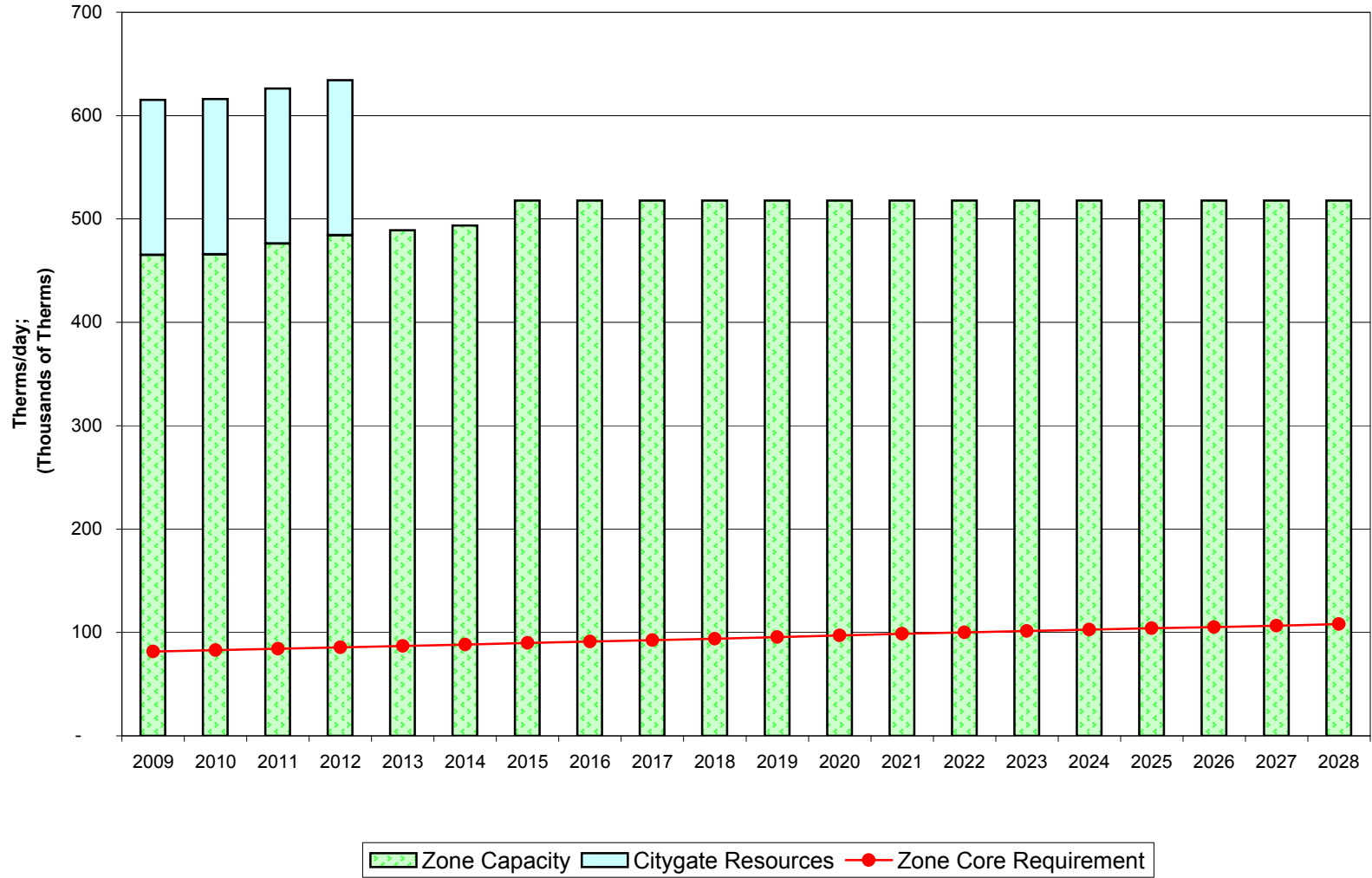
Note: WGPW Capacity is net of Non-Core primary term capacity requirements

**ZONE 20 Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



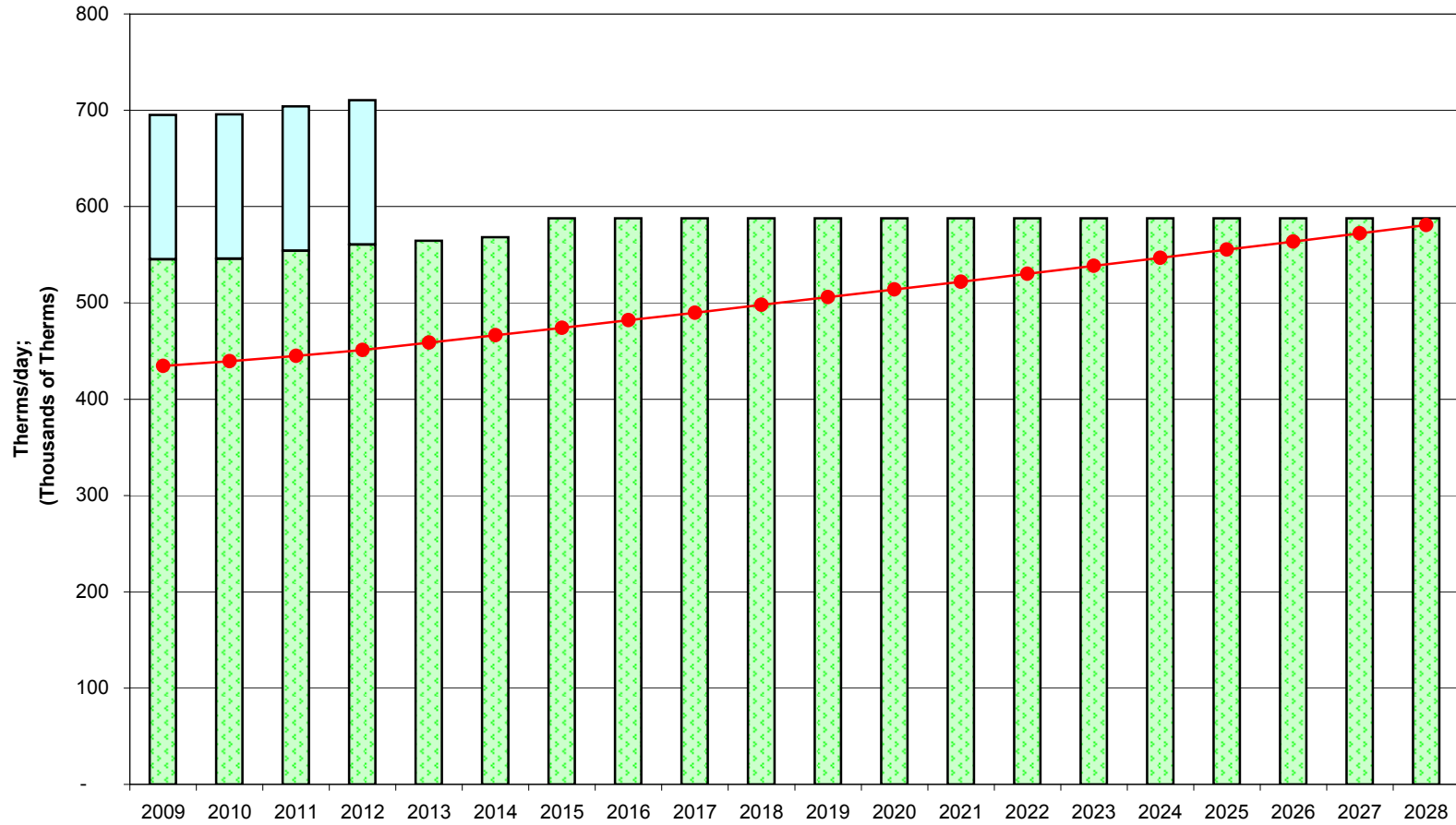
Note: WGPW Capacity is net of Non-Core primary term capacity requirements

**ZONE 26 Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

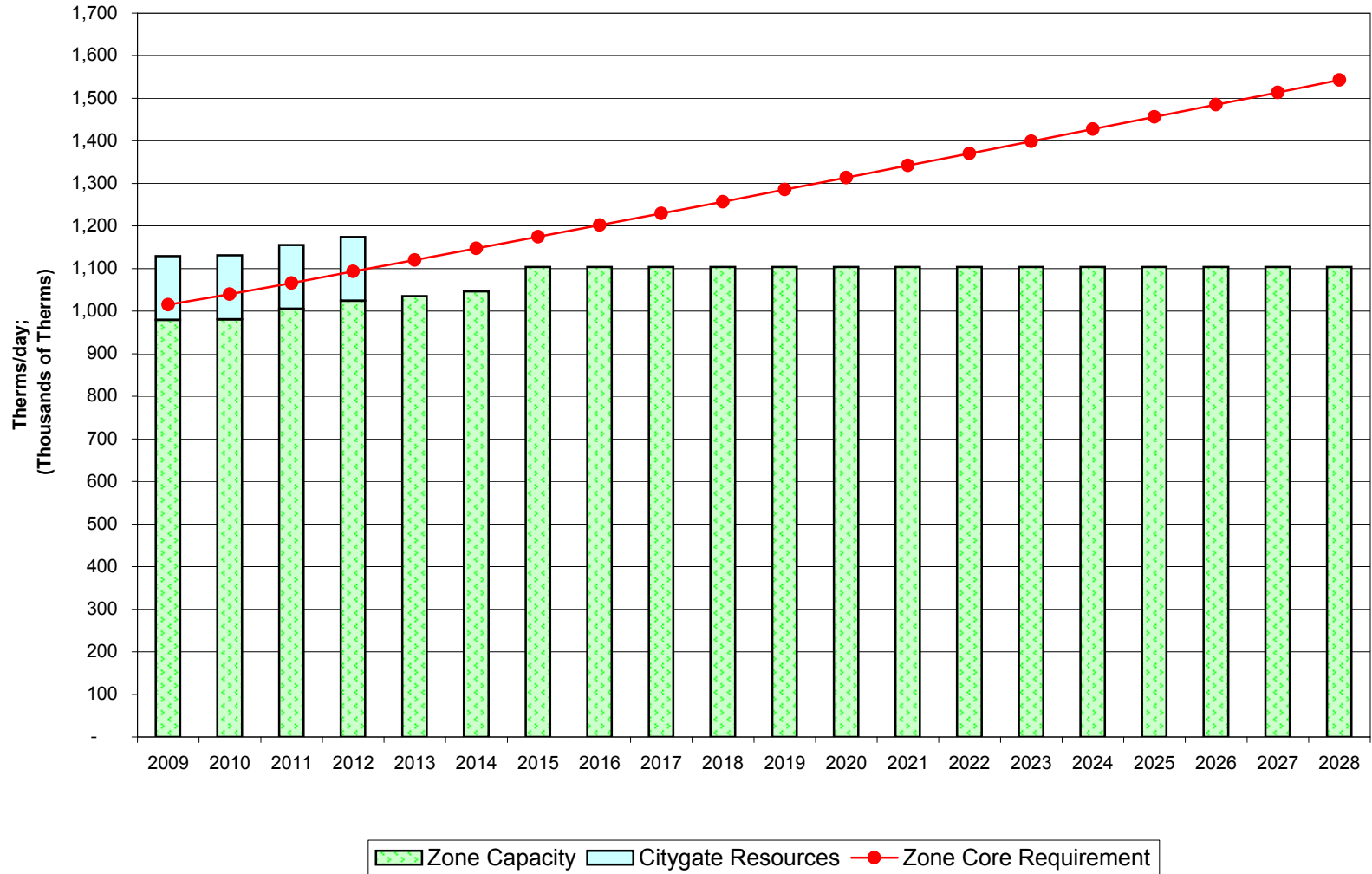
**ZONE 30-S Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Zone Capacity
  Citygate Resources
  Zone Core Requirement

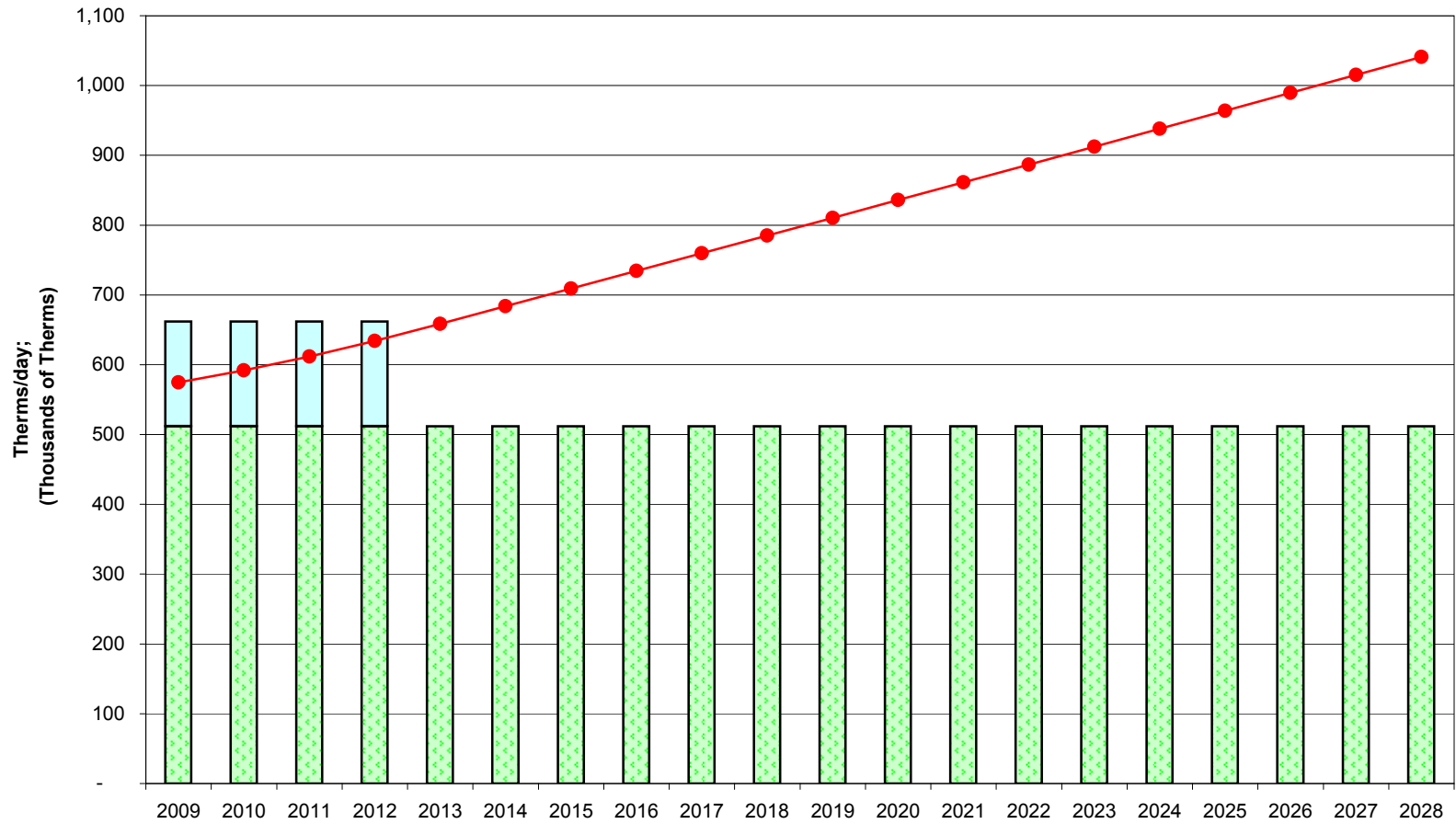
Note: WGPW Capacity is net of Non-Core primary term capacity requirements

**ZONE 30-W Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

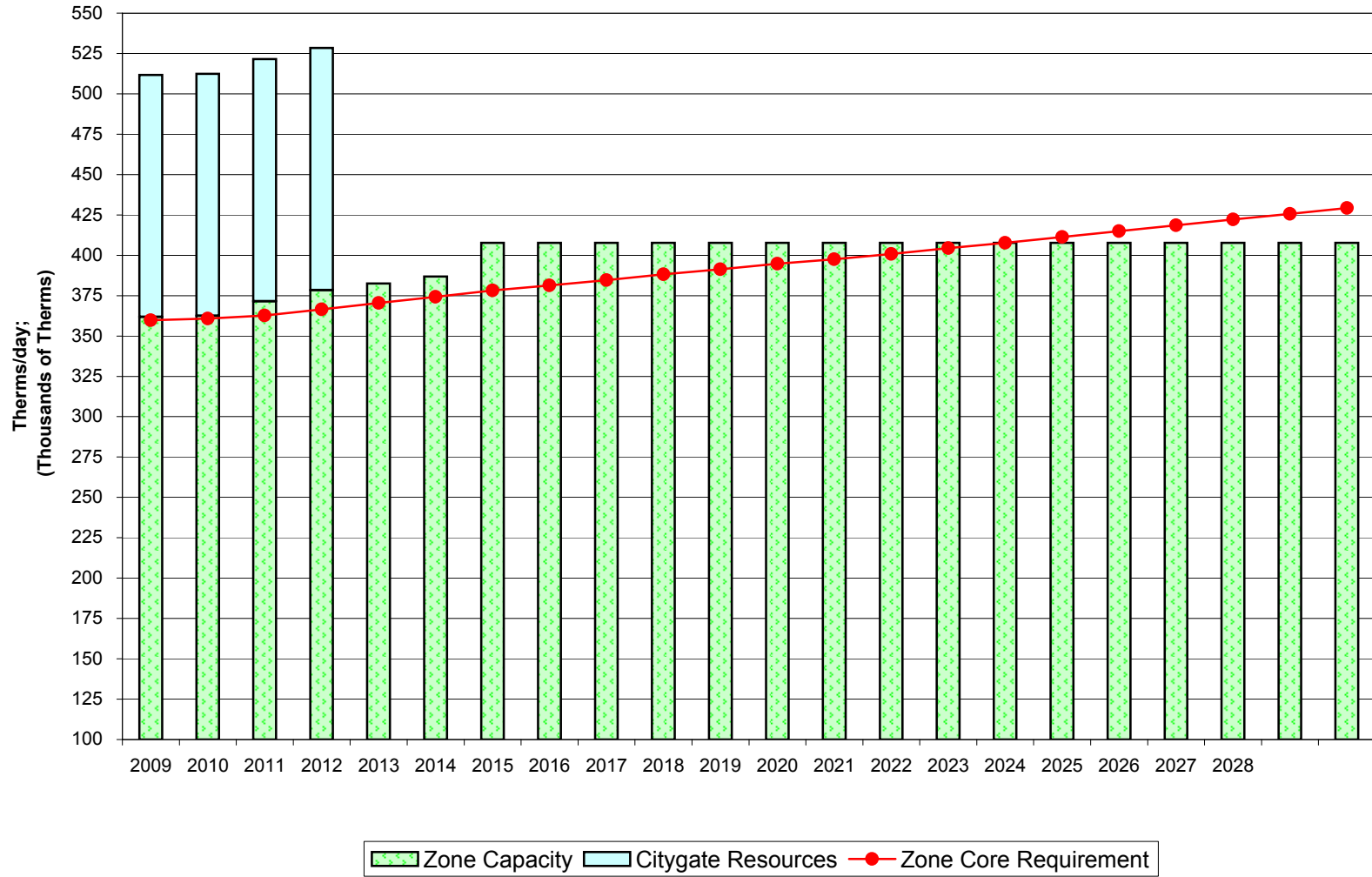
**ZONE GTN Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Zone Capacity
  Citygate Resources
 
 Zone Core Requirement

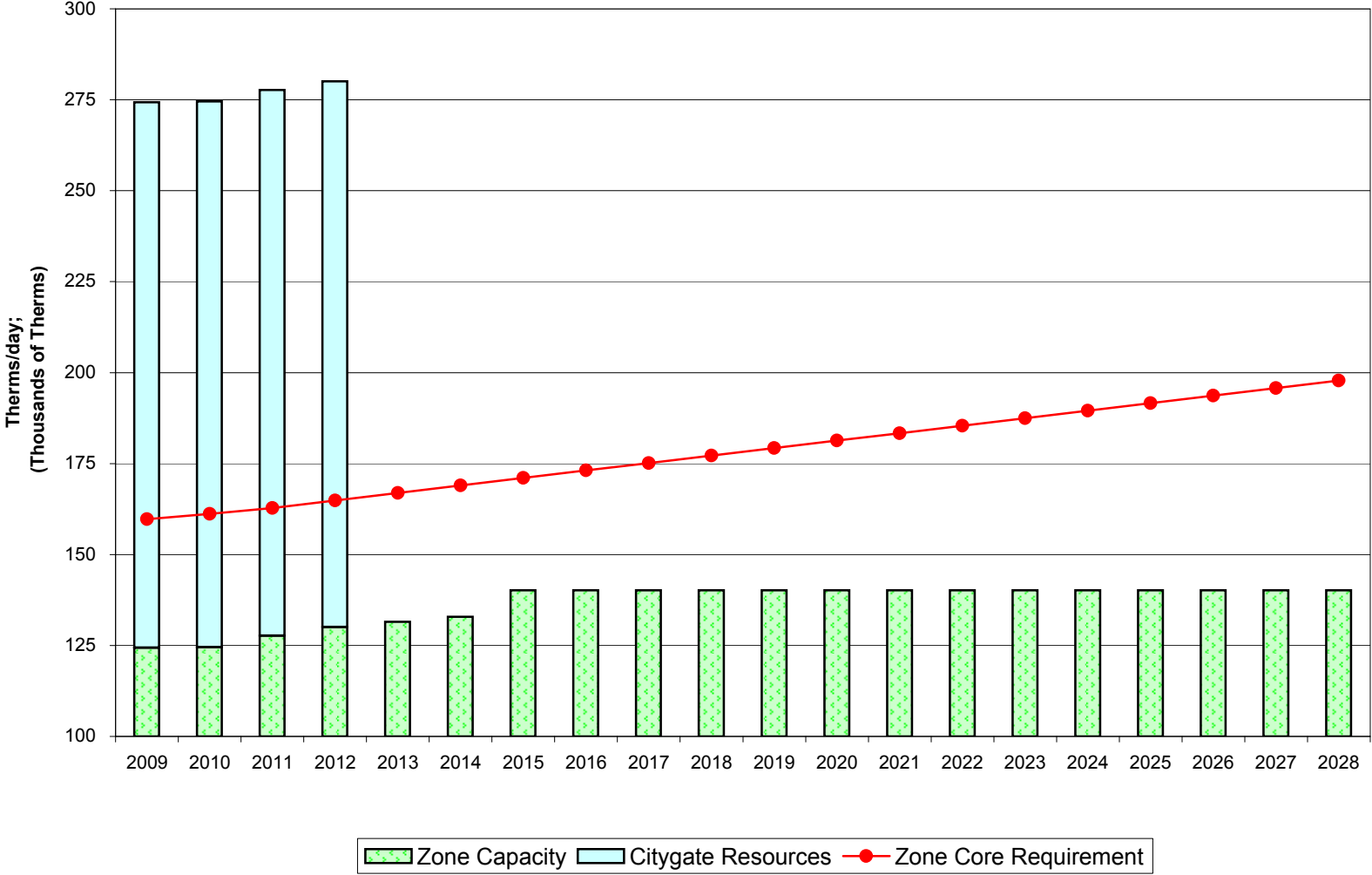
Note: WGPW Capacity is net of Non-Core primary term capacity requirements

**ZONE ME Total Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

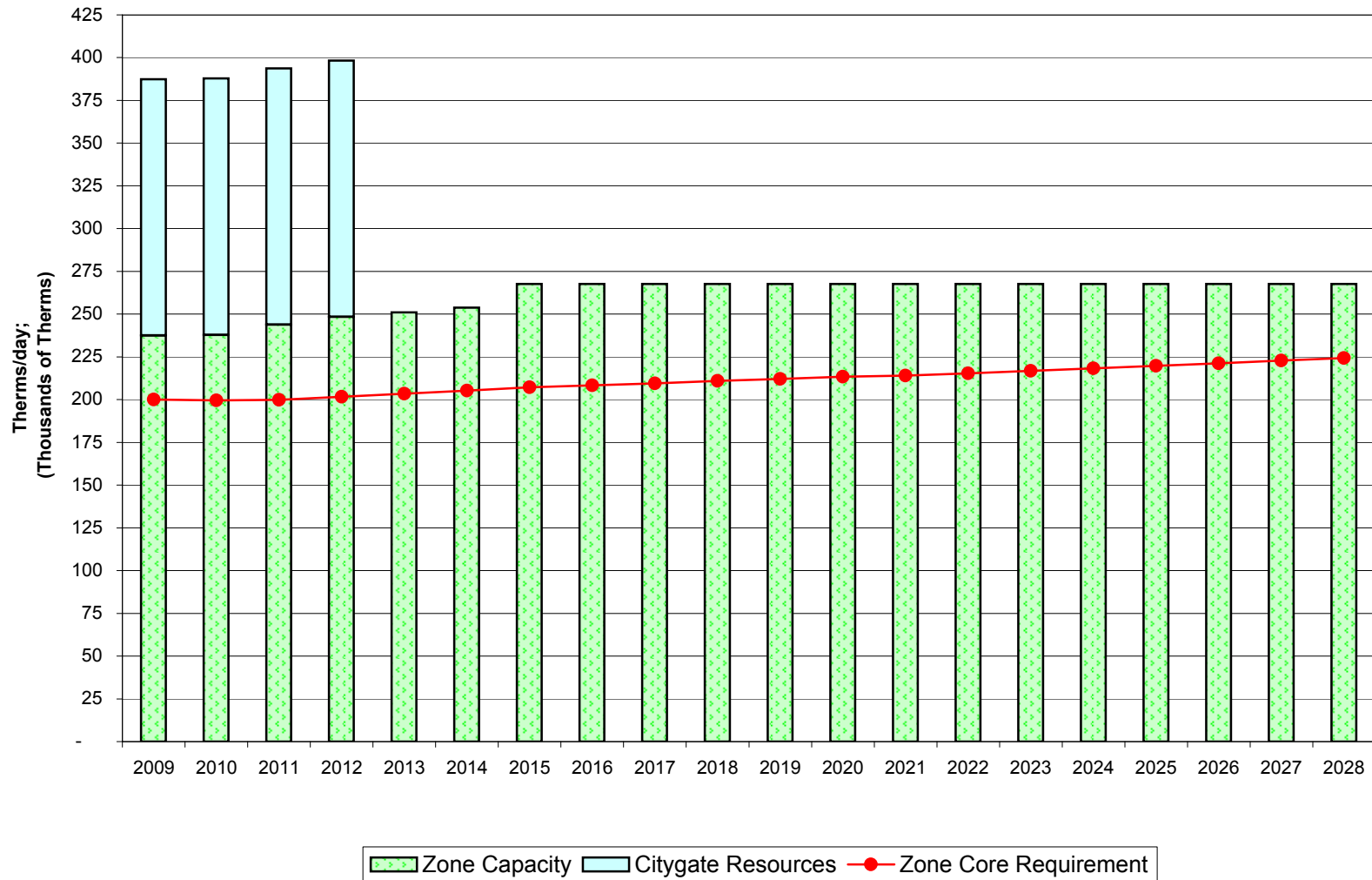
**ZONE ME-Washington Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

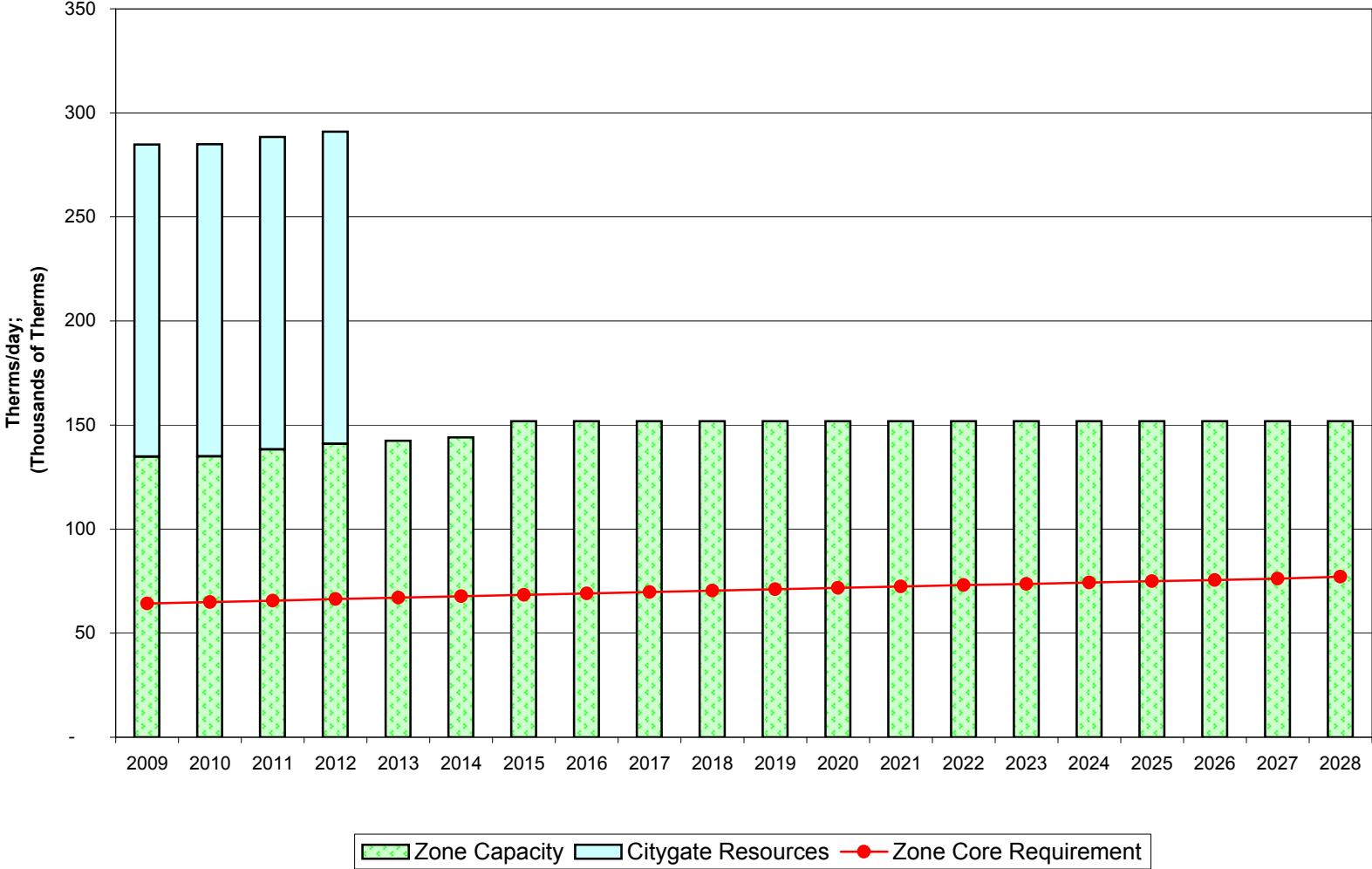


**ZONE ME-Oregon Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Note: WGPW Capacity is net of Non-Core primary term capacity requirements

**ZONE 24 Peak Day Demand & Existing Capacity Resources  
Medium Load Forecast**



Zone Capacity
  Citygate Resources
  Zone Core Requirement

Note: WGPW Capacity is net of Non-Core primary term capacity requirements

## **Appendix F-2**

### **Modeling Results**

BASE CASE (Scenario # 2889)

IRP Rmix 1 -Basecase: Average Weather with Peak Event Baseline Incremental Resources

(dkth / Thousand \$2008 dollars)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 Year
Annual Demand Served	298,225	304,460	311,318	318,852	326,115	333,640	341,236	349,045	356,380	364,044	371,689	379,634	386,998	394,628	402,275	410,263	417,550	424,781	432,747	441,049	7,364,929
Annual Demand Unserved	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
<b>Total Annual Demand (net DSM)</b>	<b>298,233</b>	<b>304,460</b>	<b>311,318</b>	<b>318,852</b>	<b>326,115</b>	<b>333,640</b>	<b>341,236</b>	<b>349,045</b>	<b>356,380</b>	<b>364,044</b>	<b>371,689</b>	<b>379,634</b>	<b>386,998</b>	<b>394,628</b>	<b>402,275</b>	<b>410,263</b>	<b>417,550</b>	<b>424,781</b>	<b>432,747</b>	<b>441,049</b>	<b>7,364,937</b>
Peak Day Demand Served	3,103	3,461	3,538	3,620	3,705	3,791	3,878	3,964	4,051	4,138	4,226	4,314	4,400	4,488	4,575	4,663	4,751	4,838	4,925	5,014	
Peak Day Demand Unserved	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Peak Day Demand (net DSM)</b>	<b>3,111</b>	<b>3,461</b>	<b>3,538</b>	<b>3,620</b>	<b>3,705</b>	<b>3,791</b>	<b>3,878</b>	<b>3,964</b>	<b>4,051</b>	<b>4,138</b>	<b>4,226</b>	<b>4,314</b>	<b>4,400</b>	<b>4,488</b>	<b>4,575</b>	<b>4,663</b>	<b>4,751</b>	<b>4,838</b>	<b>4,925</b>	<b>5,014</b>	

Supply Fixed Costs	\$ 231	\$ 136	\$ 102	\$ 106	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 575
Supply Variable Costs	\$ 233,767	\$ 208,175	\$ 216,131	\$ 218,098	\$ 218,924	\$ 219,571	\$ 209,019	\$ 209,637	\$ 208,002	\$ 206,369	\$ 205,354	\$ 202,663	\$ 193,157	\$ 191,022	\$ 193,509	\$ 196,123	\$ 201,897	\$ 197,720	\$ 198,569	\$ 200,825	\$ 4,128,534	
<b>Total Supply Costs</b>	<b>\$ 233,997</b>	<b>\$ 208,311</b>	<b>\$ 216,233</b>	<b>\$ 218,204</b>	<b>\$ 218,924</b>	<b>\$ 219,571</b>	<b>\$ 209,019</b>	<b>\$ 209,637</b>	<b>\$ 208,002</b>	<b>\$ 206,369</b>	<b>\$ 205,354</b>	<b>\$ 202,663</b>	<b>\$ 193,157</b>	<b>\$ 191,022</b>	<b>\$ 193,509</b>	<b>\$ 196,123</b>	<b>\$ 201,897</b>	<b>\$ 197,720</b>	<b>\$ 198,569</b>	<b>\$ 200,825</b>	<b>\$ 4,129,108</b>	
Transportation Fixed Costs	\$ 32,332	\$ 33,715	\$ 35,324	\$ 39,617	\$ 39,587	\$ 40,130	\$ 41,702	\$ 41,092	\$ 40,495	\$ 39,912	\$ 39,342	\$ 38,785	\$ 38,240	\$ 37,707	\$ 37,186	\$ 36,676	\$ 36,177	\$ 35,688	\$ 35,205	\$ 34,729	\$ 800,457	
Transportation Variable Costs	\$ 1,081	\$ 1,113	\$ 1,108	\$ 969	\$ 929	\$ 933	\$ 916	\$ 932	\$ 916	\$ 909	\$ 903	\$ 905	\$ 886	\$ 880	\$ 873	\$ 878	\$ 865	\$ 844	\$ 828	\$ 811	\$ 18,478	
<b>Total Transportation Costs</b>	<b>\$ 33,413</b>	<b>\$ 34,827</b>	<b>\$ 36,432</b>	<b>\$ 40,586</b>	<b>\$ 40,516</b>	<b>\$ 41,063</b>	<b>\$ 42,618</b>	<b>\$ 42,023</b>	<b>\$ 41,411</b>	<b>\$ 40,821</b>	<b>\$ 40,246</b>	<b>\$ 39,690</b>	<b>\$ 39,127</b>	<b>\$ 38,587</b>	<b>\$ 38,059</b>	<b>\$ 37,554</b>	<b>\$ 37,042</b>	<b>\$ 36,532</b>	<b>\$ 36,019</b>	<b>\$ 35,508</b>	<b>\$ 818,935</b>	

Storage Fixed Costs	\$ 2,696	\$ 2,913	\$ 2,854	\$ 2,797	\$ 2,742	\$ 2,688	\$ 2,636	\$ 2,585	\$ 2,536	\$ 2,488	\$ 2,442	\$ 2,397	\$ 2,353	\$ 2,310	\$ 2,269	\$ 2,228	\$ 2,189	\$ 2,151	\$ 2,114	\$ 2,078	\$ 49,468
Storage Variable Costs	\$ 935	\$ 676	\$ 666	\$ 628	\$ 619	\$ 610	\$ 572	\$ 554	\$ 529	\$ 510	\$ 499	\$ 485	\$ 459	\$ 451	\$ 444	\$ 436	\$ 421	\$ 401	\$ 394	\$ 394	\$ 10,756
<b>Total Storage Costs</b>	<b>\$ 3,630</b>	<b>\$ 3,589</b>	<b>\$ 3,521</b>	<b>\$ 3,425</b>	<b>\$ 3,361</b>	<b>\$ 3,298</b>	<b>\$ 3,208</b>	<b>\$ 3,139</b>	<b>\$ 3,065</b>	<b>\$ 2,998</b>	<b>\$ 2,941</b>	<b>\$ 2,881</b>	<b>\$ 2,812</b>	<b>\$ 2,761</b>	<b>\$ 2,713</b>	<b>\$ 2,665</b>	<b>\$ 2,618</b>	<b>\$ 2,572</b>	<b>\$ 2,526</b>	<b>\$ 2,479</b>	<b>\$ 60,224</b>

<b>Total DSM Costs</b>	<b>\$ 448</b>	<b>\$ 887</b>	<b>\$ 1,243</b>	<b>\$ 1,489</b>	<b>\$ 1,939</b>	<b>\$ 2,609</b>	<b>\$ 3,370</b>	<b>\$ 4,208</b>	<b>\$ 5,102</b>	<b>\$ 6,040</b>	<b>\$ 6,988</b>	<b>\$ 7,906</b>	<b>\$ 8,788</b>	<b>\$ 9,629</b>	<b>\$ 10,431</b>	<b>\$ 11,178</b>	<b>\$ 11,835</b>	<b>\$ 12,384</b>	<b>\$ 12,833</b>	<b>\$ 13,199</b>	<b>\$ 132,506</b>
Levelized DSM Costs																					
<b>GRAND TOTAL SYSTEM COSTS</b>	<b>\$ 271,488</b>	<b>\$ 247,615</b>	<b>\$ 257,429</b>	<b>\$ 263,704</b>	<b>\$ 264,741</b>	<b>\$ 266,542</b>	<b>\$ 258,216</b>	<b>\$ 259,007</b>	<b>\$ 257,581</b>	<b>\$ 256,228</b>	<b>\$ 255,528</b>	<b>\$ 253,141</b>	<b>\$ 243,883</b>	<b>\$ 241,999</b>	<b>\$ 244,712</b>	<b>\$ 247,519</b>	<b>\$ 253,431</b>	<b>\$ 249,209</b>	<b>\$ 257,201</b>	<b>\$ 291,599</b>	<b>\$ 5,140,774</b>

Net Incremental Daily Citygate	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sunstone w/Incremental GTN from Stanfield	-	-	-	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Blue Bridge w/ Sunstone	-	-	-	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Incremental NWP (Sumas to I-5 Corridor)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Incremental GTN (Kingsgate to Central Oregon)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biomass (citygate delivery)	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>Total Incremental Daily Citygate</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>
<b>Incremental Storage Capacity</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>
Satellite LNG	-	-	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
<b>Total Incremental Storage Capacity</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>
Import LNG (Kitimat)	-	-	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

PORTFOLIO NPV @ 4.17%  
\$ 3,446,870

BASE CASE  
IRP Rmix 1 - 85% Probability Weather - Baseline Incremental Resources

Served Demand Net DSM by Zone	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 year
Zone 10	9,879	9,971	10,092	10,213	10,320	10,431	10,541	10,658	10,758	10,865	10,968	11,078	11,170	11,271	11,373	11,480	11,505	11,533	11,644	11,868	217,617
Zone 11	33,918	34,236	34,569	34,937	35,260	35,603	35,946	36,312	36,629	36,970	37,308	37,671	37,983	38,320	38,657	38,977	39,329	39,641	39,998	40,360	742,623
Zone 20	31,179	32,347	33,569	34,791	35,964	37,168	38,374	39,601	40,805	42,021	43,240	44,461	45,646	46,768	47,867	49,030	50,087	51,144	52,268	53,370	849,700
Zone 24	9,457	9,554	9,651	9,756	9,847	9,944	10,042	10,147	10,236	10,333	10,430	10,534	10,623	10,721	10,821	10,929	11,020	11,100	11,225	11,372	207,742
Zone 28	7,504	7,608	7,726	7,855	7,965	8,080	8,201	8,329	8,447	8,569	8,691	8,826	8,947	9,065	9,180	9,308	9,414	9,505	9,618	9,773	172,612
Zone 30-S	41,493	42,002	42,586	43,284	43,981	44,710	45,450	46,237	46,959	47,723	48,487	49,295	50,031	50,813	51,066	52,443	53,201	53,985	54,819	55,676	964,733
Zone 30-W	88,161	90,446	92,863	95,384	97,763	100,223	102,696	105,261	107,672	110,209	112,764	115,418	117,903	120,490	123,089	125,792	128,308	130,887	133,566	136,313	2,235,208
Zone GTN	51,100	52,700	54,527	56,601	58,727	60,932	63,144	65,416	67,579	69,801	72,023	74,305	76,471	78,711	80,958	83,272	85,456	87,492	89,877	92,306	1,421,399
Zone ME-OR	14,001	13,958	13,967	14,096	14,222	14,335	14,479	14,563	14,634	14,744	14,820	14,930	14,968	15,062	15,166	15,274	15,371	15,461	15,577	15,699	295,329
Zone ME-WA	11,525	11,637	11,768	11,924	12,065	12,214	12,363	12,521	12,660	12,809	12,959	13,116	13,256	13,406	13,557	13,717	13,858	14,031	14,155	14,313	257,853
<b>TOTAL</b>	<b>298,217</b>	<b>304,460</b>	<b>311,318</b>	<b>318,852</b>	<b>326,115</b>	<b>333,640</b>	<b>341,236</b>	<b>349,045</b>	<b>356,380</b>	<b>364,044</b>	<b>371,689</b>	<b>379,634</b>	<b>386,998</b>	<b>394,628</b>	<b>402,275</b>	<b>410,221</b>	<b>417,550</b>	<b>424,781</b>	<b>432,747</b>	<b>441,049</b>	<b>7,364,877</b>

Unserved Demand Net DSM by Zone	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 year
Zone 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 11	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Zone 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 30-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 30-W	-	-	-	-																	

BASE CASE w/LIMITED CANADIAN EXPORTS (Scenario #2890)  
IRP Rmix 1 -Basecase: Average Weather with Peak Event Baseline Incremental Resources

(dkth / Thousand \$2008 dollars)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 Year
Annual Demand Served	298,225	304,460	311,318	318,852	326,115	333,640	341,236	349,045	356,380	364,044	371,689	379,634	386,998	394,628	402,275	410,263	417,550	424,781	432,747	441,049	7,364,929
Annual Demand Unserved	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
<b>Total Annual Demand (net DSM)</b>	<b>301,761</b>	<b>313,261</b>	<b>325,524</b>	<b>338,748</b>	<b>351,885</b>	<b>365,557</b>	<b>379,568</b>	<b>394,202</b>	<b>408,470</b>	<b>423,419</b>	<b>438,635</b>	<b>454,559</b>	<b>470,014</b>	<b>486,203</b>	<b>502,722</b>	<b>519,984</b>	<b>536,664</b>	<b>554,135</b>	<b>571,991</b>	<b>590,661</b>	<b>7,364,937</b>
Peak Day Demand Served	3,103	3,461	3,538	3,620	3,705	3,791	3,878	3,964	4,051	4,138	4,226	4,314	4,400	4,488	4,575	4,663	4,751	4,838	4,925	5,014	
Peak Day Demand Unserved	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Peak Day Demand (net DSM)</b>	<b>3,111</b>	<b>3,461</b>	<b>3,538</b>	<b>3,620</b>	<b>3,705</b>	<b>3,791</b>	<b>3,878</b>	<b>3,964</b>	<b>4,051</b>	<b>4,138</b>	<b>4,226</b>	<b>4,314</b>	<b>4,400</b>	<b>4,488</b>	<b>4,575</b>	<b>4,663</b>	<b>4,751</b>	<b>4,838</b>	<b>4,925</b>	<b>5,014</b>	
Supply Fixed Costs	\$ 230	\$ 136	\$ 102	\$ 106	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2	\$ 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 577
Supply Variable Costs	\$ 197,775	\$ 175,611	\$ 153,755	\$ 165,259	\$ 162,770	\$ 156,762	\$ 146,175	\$ 138,653	\$ 132,332	\$ 125,364	\$ 120,376	\$ 108,795	\$ 91,095	\$ 81,688	\$ 77,522	\$ 73,989	\$ 70,978	\$ 63,095	\$ 33,742	\$ (66,703)	\$ 2,209,033
<b>Total Supply Costs</b>	<b>\$ 198,005</b>	<b>\$ 175,747</b>	<b>\$ 153,857</b>	<b>\$ 165,364</b>	<b>\$ 162,770</b>	<b>\$ 156,762</b>	<b>\$ 146,175</b>	<b>\$ 138,653</b>	<b>\$ 132,332</b>	<b>\$ 125,364</b>	<b>\$ 120,376</b>	<b>\$ 108,796</b>	<b>\$ 91,097</b>	<b>\$ 81,688</b>	<b>\$ 77,522</b>	<b>\$ 73,989</b>	<b>\$ 70,978</b>	<b>\$ 63,095</b>	<b>\$ 33,742</b>	<b>\$ (66,703)</b>	<b>\$ 2,209,610</b>
Transportation Fixed Costs	\$ 32,332	\$ 34,965	\$ 46,180	\$ 88,331	\$ 93,945	\$ 100,793	\$ 109,726	\$ 115,914	\$ 122,477	\$ 129,438	\$ 136,823	\$ 144,661	\$ 152,981	\$ 161,812	\$ 171,190	\$ 181,149	\$ 191,727	\$ 202,966	\$ 239,354	\$ 375,673	\$ 2,832,434
Transportation Variable Costs	\$ 1,073	\$ 1,135	\$ 1,070	\$ 721	\$ 772	\$ 852	\$ 989	\$ 1,093	\$ 1,163	\$ 1,289	\$ 1,412	\$ 1,613	\$ 1,735	\$ 1,963	\$ 2,117	\$ 2,486	\$ 2,616	\$ 2,896	\$ 3,173	\$ 3,301	\$ 33,468
<b>Total Transportation Costs</b>	<b>\$ 33,405</b>	<b>\$ 36,100</b>	<b>\$ 47,250</b>	<b>\$ 89,052</b>	<b>\$ 94,717</b>	<b>\$ 101,645</b>	<b>\$ 110,715</b>	<b>\$ 117,007</b>	<b>\$ 123,640</b>	<b>\$ 130,727</b>	<b>\$ 138,235</b>	<b>\$ 146,274</b>	<b>\$ 154,715</b>	<b>\$ 163,775</b>	<b>\$ 173,306</b>	<b>\$ 183,634</b>	<b>\$ 194,342</b>	<b>\$ 205,861</b>	<b>\$ 242,527</b>	<b>\$ 378,973</b>	<b>\$ 2,865,902</b>
Storage Fixed Costs	\$ 2,696	\$ 3,020	\$ 3,204	\$ 3,398	\$ 3,606	\$ 3,828	\$ 4,064	\$ 4,315	\$ 4,583	\$ 4,867	\$ 5,172	\$ 5,496	\$ 5,841	\$ 6,208	\$ 6,602	\$ 7,019	\$ 7,466	\$ 7,942	\$ 8,450	\$ 8,990	\$ 106,767
Storage Variable Costs	\$ 924	\$ 743	\$ 859	\$ 1,014	\$ 1,051	\$ 1,142	\$ 973	\$ 1,112	\$ 969	\$ 1,190	\$ 1,113	\$ 1,368	\$ 1,464	\$ 1,448	\$ 1,654	\$ 1,859	\$ 1,642	\$ 1,700	\$ 1,982	\$ 1,852	\$ 26,060
<b>Total Storage Costs</b>	<b>\$ 3,620</b>	<b>\$ 3,763</b>	<b>\$ 4,063</b>	<b>\$ 4,412</b>	<b>\$ 4,658</b>	<b>\$ 4,971</b>	<b>\$ 5,037</b>	<b>\$ 5,427</b>	<b>\$ 5,552</b>	<b>\$ 6,058</b>	<b>\$ 6,285</b>	<b>\$ 6,864</b>	<b>\$ 7,305</b>	<b>\$ 7,656</b>	<b>\$ 8,256</b>	<b>\$ 8,878</b>	<b>\$ 9,108</b>	<b>\$ 9,643</b>	<b>\$ 10,432</b>	<b>\$ 10,842</b>	<b>\$ 132,828</b>
<b>Total DSM Costs</b>	<b>\$ 448</b>	<b>\$ 887</b>	<b>\$ 1,243</b>	<b>\$ 1,489</b>	<b>\$ 1,939</b>	<b>\$ 2,609</b>	<b>\$ 3,370</b>	<b>\$ 4,208</b>	<b>\$ 5,102</b>	<b>\$ 6,040</b>	<b>\$ 6,988</b>	<b>\$ 7,906</b>	<b>\$ 8,788</b>	<b>\$ 9,629</b>	<b>\$ 10,431</b>	<b>\$ 11,178</b>	<b>\$ 11,835</b>	<b>\$ 12,384</b>	<b>\$ 12,833</b>	<b>\$ 13,199</b>	<b>\$ 132,506</b>
Levelized DSM Costs																					
<b>GRAND TOTAL SYSTEM COSTS</b>	<b>\$ 235,478</b>	<b>\$ 216,497</b>	<b>\$ 206,413</b>	<b>\$ 260,317</b>	<b>\$ 264,083</b>	<b>\$ 265,986</b>	<b>\$ 265,297</b>	<b>\$ 265,295</b>	<b>\$ 266,626</b>	<b>\$ 268,189</b>	<b>\$ 271,884</b>	<b>\$ 269,841</b>	<b>\$ 261,905</b>	<b>\$ 262,748</b>	<b>\$ 269,515</b>	<b>\$ 277,680</b>	<b>\$ 286,264</b>	<b>\$ 290,983</b>	<b>\$ 299,533</b>	<b>\$ 336,311</b>	<b>\$ 5,340,846</b>

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Net Incremental Daily Citygate</b>																				
Sunstone w/Incremental GTN from Stanfield	-	-	-	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Blue Bridge w/ Sunstone	-	-	-	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Incremental NWP (Sumas to I-5 Corridor)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Incremental GTN (Kingsgate to Central Oregon)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biomass (citygate delivery)	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>Total Incremental Daily Citygate</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>
<b>Incremental Storage Capacity</b>																				
Satellite LNG	-	-	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
<b>Total Incremental Storage Capacity</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>
<b>Import LNG (Kitimat)</b>																				
			80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80

**PORTFOLIO NPV @ 4.17%**  
**\$ 3,506,456**

BASE CASE w/LIMITED CANADIAN EXPORTS (Scenario #2890)  
IRP Rmix 1 -Basecase: Average Weather with Peak Event Baseline Incremental Resources

Served Demand Net DSM by Zone	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 Year
Zone 10	9,879	9,971	10,092	10,213	10,320	10,431	10,541	10,658	10,758	10,865	10,968	11,078	11,170	11,271	11,373	11,480	11,505	11,533	11,644	11,868	217,617
Zone 11	33,918	34,236	34,569	34,937	35,260	35,603	35,946	36,312	36,629	36,970	37,308	37,671	37,983	38,320	38,657	38,977	39,329	39,641	39,998	40,360	742,623
Zone 20	31,179	32,347	33,569	34,791	35,964	37,168	38,374	39,601	40,805	42,021	43,240	44,461	45,646	46,768	47,867	49,030	50,087	51,144	52,268	53,370	849,700
Zone 24	9,457	9,554	9,651	9,756	9,847	9,944	10,042	10,147	10,236	10,333	10,430	10,534	10,623	10,721	10,821	11,020	11,100	11,225	11,372	107,742	
Zone 28	7,504	7,608	7,726	7,855	7,965	8,080	8,201	8,329	8,447	8,569	8,691	8,826	8,947	9,065	9,180	9,308	9,414	9,505	9,618	9,773	172,612
Zone 30-S	41,493	42,002	42,586	43,284	43,981	44,710	45,450	46,237	46,959	47,723	48,487	49,295	50,031	50,813	51,606	52,443	53,201	53,985	54,819	55,676	964,733
Zone 30-W	88,161	90,446	92,863	95,384	97,763	100,223	102,696	105,261	107,672	110,209	112,764	115,418	117,903	120,490	123,089	125,792	128,308	130,887	133,566	136,313	2,235,208
Zone GTN	51,100	52,700	54,527	56,601	58,727	60,932	63,144	65,416	67,579	69,801	72,023	74,305	76,471	78,711	80,958	83,272	85,456	87,492	89,877	92,306	1,421,399
Zone ME-OR	14,001	13,958	13,967	14,096	14,222	14,335	14,479	14,563	14,634	14,744	14,820	14,930	14,968	15,062	15,166	15,274	15,371	15,461	15,577	15,699	295,329
Zone ME-WA	11,525	11,637	11,768	11,924	12,065	12,214	12,363	12,521	12,660	12,809	12,959	13,116	13,256	13,406	13,557	13,717	13,858	14,031	14,155	14,313	257,853
<b>TOTAL</b>	<b>298,217</b>	<b>304,460</b>	<b>311,318</b>	<b>318,852</b>	<b>326,115</b>	<b>333,640</b>	<b>341,236</b>	<b>349,045</b>	<b>356,380</b>	<b>364,044</b>	<b>371,689</b>	<b>379,634</b>	<b>386,998</b>	<b>394,628</b>	<b>402,275</b>	<b>410,263</b>	<b>417,550</b>	<b>424,781</b>	<b>432,747</b>	<b>441,049</b>	<b>7,364,877</b>

Unserved Demand Net DSM by Zone	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 Year
Zone 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 11	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Zone 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 30-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 30-W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone GTN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone ME-OR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone ME-WA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8</b>









**Basecase Resources--LOW GROWTH CASE (Scenario #2887)**  
**IRP Rmix 1 -Basecase: Average Weather with Peak Event Baseline Incremental Resources**

(dkth / Thousand \$2008 dollars)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 Year	
Annual Demand Served	294,103	298,757	303,745	309,175	314,117	319,160	324,123	329,224	333,685	338,337	342,846	347,540	351,568	355,784	359,908	364,198	367,792	371,580	375,356	379,278	6,780,275	
Annual Demand Unserved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Annual Demand (net DSM)</b>	<b>294,103</b>	<b>298,757</b>	<b>303,745</b>	<b>309,175</b>	<b>314,117</b>	<b>319,160</b>	<b>324,123</b>	<b>329,224</b>	<b>333,685</b>	<b>338,337</b>	<b>342,846</b>	<b>347,540</b>	<b>351,568</b>	<b>355,784</b>	<b>359,908</b>	<b>364,198</b>	<b>367,792</b>	<b>371,580</b>	<b>375,356</b>	<b>379,278</b>	<b>6,780,275</b>	
Peak Day Demand Served	2,548	2,771	2,796	2,822	2,848	2,869	2,893	2,914	2,934	2,953	2,973	2,994	3,011	3,027	3,046	3,063	3,079	3,094	3,107	3,124		
Peak Day Demand Unserved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Total Peak Day Demand (net DSM)</b>	<b>2,548</b>	<b>2,771</b>	<b>2,796</b>	<b>2,822</b>	<b>2,848</b>	<b>2,869</b>	<b>2,893</b>	<b>2,914</b>	<b>2,934</b>	<b>2,953</b>	<b>2,973</b>	<b>2,994</b>	<b>3,011</b>	<b>3,027</b>	<b>3,046</b>	<b>3,063</b>	<b>3,079</b>	<b>3,094</b>	<b>3,107</b>	<b>3,124</b>		
Supply Fixed Costs	\$ 231	\$ 136	\$ 102	\$ 106	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 575	
Supply Variable Costs	\$ 230,034	\$ 201,511	\$ 208,914	\$ 206,468	\$ 208,958	\$ 207,341	\$ 197,160	\$ 195,975	\$ 192,784	\$ 189,905	\$ 187,156	\$ 183,470	\$ 173,302	\$ 169,908	\$ 170,611	\$ 171,728	\$ 177,064	\$ 169,980	\$ 171,021	\$ 171,422	\$ 3,787,712	
<b>Total Supply Costs</b>	<b>\$ 230,264</b>	<b>\$ 201,648</b>	<b>\$ 209,015</b>	<b>\$ 206,574</b>	<b>\$ 208,958</b>	<b>\$ 207,341</b>	<b>\$ 197,160</b>	<b>\$ 195,975</b>	<b>\$ 192,784</b>	<b>\$ 189,905</b>	<b>\$ 187,156</b>	<b>\$ 183,470</b>	<b>\$ 173,302</b>	<b>\$ 169,908</b>	<b>\$ 170,611</b>	<b>\$ 171,728</b>	<b>\$ 177,064</b>	<b>\$ 169,980</b>	<b>\$ 171,021</b>	<b>\$ 171,422</b>	<b>\$ 3,788,287</b>	
Transportation Fixed Costs	\$ 32,332	\$ 33,715	\$ 34,753	\$ 36,452	\$ 36,542	\$ 37,200	\$ 38,883	\$ 38,379	\$ 37,885	\$ 37,400	\$ 36,925	\$ 36,459	\$ 36,003	\$ 35,554	\$ 35,114	\$ 34,682	\$ 34,259	\$ 33,842	\$ 40,680	\$ 72,583	\$ 759,642	
Transportation Variable Costs	\$ 1,061	\$ 1,077	\$ 1,071	\$ 947	\$ 899	\$ 893	\$ 864	\$ 869	\$ 846	\$ 831	\$ 817	\$ 811	\$ 786	\$ 772	\$ 759	\$ 758	\$ 743	\$ 717	\$ 712	\$ 712	\$ 692	\$ 16,925
<b>Total Transportation Costs</b>	<b>\$ 33,393</b>	<b>\$ 34,792</b>	<b>\$ 35,824</b>	<b>\$ 37,399</b>	<b>\$ 37,441</b>	<b>\$ 38,093</b>	<b>\$ 39,747</b>	<b>\$ 39,248</b>	<b>\$ 38,731</b>	<b>\$ 38,232</b>	<b>\$ 37,742</b>	<b>\$ 37,270</b>	<b>\$ 36,789</b>	<b>\$ 36,326</b>	<b>\$ 35,873</b>	<b>\$ 35,440</b>	<b>\$ 35,001</b>	<b>\$ 34,559</b>	<b>\$ 41,392</b>	<b>\$ 73,274</b>	<b>\$ 776,567</b>	
Storage Fixed Costs	\$ 2,696	\$ 2,913	\$ 2,854	\$ 2,797	\$ 2,742	\$ 2,688	\$ 2,636	\$ 2,585	\$ 2,536	\$ 2,488	\$ 2,442	\$ 2,397	\$ 2,353	\$ 2,310	\$ 2,269	\$ 2,228	\$ 2,189	\$ 2,151	\$ 2,114	\$ 2,078	\$ 49,468	
Storage Variable Costs	\$ 934	\$ 676	\$ 666	\$ 627	\$ 619	\$ 610	\$ 573	\$ 554	\$ 527	\$ 504	\$ 501	\$ 477	\$ 452	\$ 451	\$ 442	\$ 420	\$ 462	\$ 419	\$ 401	\$ 393	\$ 10,708	
<b>Total Storage Costs</b>	<b>\$ 3,629</b>	<b>\$ 3,589</b>	<b>\$ 3,521</b>	<b>\$ 3,425</b>	<b>\$ 3,361</b>	<b>\$ 3,299</b>	<b>\$ 3,209</b>	<b>\$ 3,139</b>	<b>\$ 3,063</b>	<b>\$ 2,992</b>	<b>\$ 2,943</b>	<b>\$ 2,874</b>	<b>\$ 2,805</b>	<b>\$ 2,761</b>	<b>\$ 2,710</b>	<b>\$ 2,648</b>	<b>\$ 2,651</b>	<b>\$ 2,570</b>	<b>\$ 2,515</b>	<b>\$ 2,470</b>	<b>\$ 60,176</b>	
<b>Total DSM Costs</b>	<b>\$ 448</b>	<b>\$ 887</b>	<b>\$ 1,243</b>	<b>\$ 1,489</b>	<b>\$ 1,939</b>	<b>\$ 2,609</b>	<b>\$ 3,370</b>	<b>\$ 4,208</b>	<b>\$ 5,102</b>	<b>\$ 6,040</b>	<b>\$ 6,988</b>	<b>\$ 7,906</b>	<b>\$ 8,788</b>	<b>\$ 9,629</b>	<b>\$ 10,431</b>	<b>\$ 11,178</b>	<b>\$ 11,835</b>	<b>\$ 12,384</b>	<b>\$ 12,833</b>	<b>\$ 13,199</b>	<b>\$ 132,506</b>	
Levelized DSM Costs																						
<b>GRAND TOTAL SYSTEM COSTS</b>	<b>\$ 267,734</b>	<b>\$ 240,916</b>	<b>\$ 249,603</b>	<b>\$ 251,887</b>	<b>\$ 251,699</b>	<b>\$ 251,341</b>	<b>\$ 243,487</b>	<b>\$ 242,570</b>	<b>\$ 239,680</b>	<b>\$ 237,169</b>	<b>\$ 234,829</b>	<b>\$ 231,520</b>	<b>\$ 221,684</b>	<b>\$ 218,625</b>	<b>\$ 219,625</b>	<b>\$ 220,995</b>	<b>\$ 226,552</b>	<b>\$ 219,493</b>	<b>\$ 227,761</b>	<b>\$ 260,366</b>	<b>\$ 4,757,536</b>	
<b>Net Incremental Daily Citygate</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>		
Sunstone w/incremental GTN from Stanfield	-	-	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Blue Bridge w/ Sunstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Incremental NWP (Sumas to I-5 Corridor)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Incremental GTN (Kingsgate to Central Oregon)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biomass (citygate delivery)	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
<b>Total Incremental Daily Citygate</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	
<b>Incremental Storage Capacity</b>																						
AECO Storage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Satellite LNG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Incremental Storage Capacity</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
Import LNG (Kitimat)				3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
<b>PORTFOLIO NPV @ 4.17%</b>																					<b>3,214,534</b>	

**Basecase Resources--LOW GROWTH CASE (Scenario #2887)**  
**IRP Rmix 1 -Basecase: Average Weather with Peak Event Baseline Incremental Resource**

Served Demand Net DSM by Zone	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	20 year
Zone 10	9,492	9,439	9,490	9,550	9,594	9,626	9,658	9,698	9,718	9,752	9,777	9,809	9,826	9,845	9,862	9,878	9,878	9,878	9,878	9,881	194,525
Zone 11	33,827	34,212	34,470	34,597	34,672	34,759	34,837	34,937	34,981	35,030	35,064	35,116	35,115	35,117	35,111	35,116	35,055	35,012	34,965	34,940	696,930
Zone 20	30,886	31,828	32,766	33,744	34,646	35,559	36,447	37,361	38,181	39,013	39,826	40,642	41,375	42,139	42,889	43,649	44,325	45,024	45,713	46,413	782,426
Zone 24	9,286	9,268	9,299	9,344	9,370	9,403	9,436	9,479	9,505	9,536	9,568	9,606	9,633	9,666	9,699	9,743	9,773	9,816	9,807	9,972	191,310
Zone 26	7,364	7,401	7,483	7,567	7,635	7,709	7,800	7,859	7,920	7,984	8,046	8,114	8,165	8,220	8,279	8,332	8,370	8,415	8,459	8,510	159,670
Zone 30-S	40,913	41,139	41,517	42,010	42,436	42,891	43,343	43,837	44,255	44,692	45,121	45,581	45,970	46,385	46,795	47,230	47,580	47,963	48,347	48,767	896,776
Zone 30-W	88,158	90,324	91,931	93,648	95,193	96,801	98,381	100,056	101,530	103,085	104,615	106,204	107,801	109,056	110,486	111,975	113,239	114,577	115,902	117,306	2,070,069
Zone GTN	49,804	51,041	52,631	54,406	56,123	57,849	59,529	61,241	62,816	64,390	65,932	67,493	68,919	70,353	71,752	73,175	74,438	75,732	77,001	78,215	1,292,940
Zone ME-OR	13,262	13,015	12,998	13,074	13,153	13,193	13,268	13,240	13,196	13,223	13,206	13,222	13,153	13,143	13,140	13,133	13,113	13,104	13,095	13,079	263,000
Zone ME-WA	11,113	11,090	11,158	11,233	11,295	11,369	11,444	11,518	11,582	11,632	11,691	11,753	11,812	11,860	11,901	11,969	12,024	12,058	12,088	12,093	232,682
<b>TOTAL</b>	<b>294,103</b>	<b>298,757</b>	<b>303,745</b>	<b>309,175</b>	<b>314,117</b>	<b>319,160</b>	<b>324,123</b>	<b>329,224</b>	<b>333,685</b>	<b>338,337</b>	<b>342,846</b>	<b>347,540</b>	<b>351,568</b>	<b>355,784</b>	<b>359,908</b>	<b>364,198</b>	<b>367,792</b>	<b>371,580</b>	<b>375,356</b>	<b>379,278</b>	<b>6,780,275</b>
<b>Unserved Demand Net DSM by Zone</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>20 year</b>
Zone 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 30-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone 30-W	-	-	-	-	-																

















