CASCADE NATURAL GAS CORPORATION
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February 5, 2015

Mr. Steven King, Executive Director & Secretary
Washington Utilities & Transportation Commission
P.O. Box 47250
Olympia, WA 98504-7250

RE: 2nd Cascade Natural Gas Corporation Supplemental Update to the 2012 Integrated Resource (Docket **UG-140008)**

Dear Mr. King:

Pursuant to a request by Washington Utilities & Transportation Commission staff during a capacity workshop held on May 5, 2014, Cascade Natural Gas (CNGC) is providing an update to subject Integrated Resource Plan (IRP).

If there are any questions regarding this matter, please me at (509) 734-4589 or via email at mark.sellers-vaughn@cngc.com.

Sincerely,
CASCADE NATURAL GAS CORPORATION

Mark Sellers-Vaughn
Manager, Supply Resource Planning

Enclosures

Cascade Natural Gas Corporation's 2nd Supplemental Update to the 2011 IRP (OPUC LC-54) and to the 2012 IRP (WUTC UG-140008)

As required subsequent to OPUC Order 14-054 dated February 18, 2014, and as requested by WUTC Staff during a capacity workshop held on May 5, 2014, Cascade Natural Gas (Cascade or the "Company") is providing a second update to subject Integrated Resource Plans (IRP).

Background

In early 2014 Cascade requested filing extensions for our next IRPs from both the Oregon Public Utility Commission and the Washington Utilities & Transportation Commission. Cascade requested the extensions in order to implement significant improvements to our load forecast modeling/methodology and to provide a more detailed analysis of our forecast by switching from a zonal to a more citygate level view. This change will allow Cascade to perform a more detailed load analysis that will provide the Company and stakeholders with better information to assess the system capacity, storage and supply needs to meet long term demand. In addition to developing a new Microsoft Excel based forecast model, the change requires a time consuming wholesale reconfiguration of the Ventyx SENDOUT optimization planning model. The major stakeholders agreed that a concurrent filing for Oregon and Washington made the most sense with a targeted IRP filing date of February 11, 2014 (dockets Oregon LC-59 and Washington UG-140181), which was ultimately updated to May, 2015. However, OPUC agreed to the extension subject to Cascade holding two workshops addressing Cascade's unique upstream pipeline capacity situation and discussing the potential for Cascade to acquire additional Ruby capacity prior to October, 2014. Lastly, the OPUC order required Cascade to file an update to the 2011 IRP by June 20, 2014. WUTC Staff requested a copy of any IRP update as well.

The update requirement was ordered because Cascade had a potential option to acquire additional capacity on the Ruby Pipeline at reduced rates. That option expired on October, 2014. The potential incremental capacity on Ruby and GTN would mainly be used to serve Cascade's Central Oregon service territory, but also would provide operational flexibility that could benefit the entire distribution system. Analysis evaluating the Ruby Pipeline capacity was expected to be included in the required IRP update. If Cascade's analysis ultimately showed the need for additional Ruby capacity (and corresponding GTN south-to-north transport), Cascade planned to seek acknowledgement for the capacity package in the update filing.

At the time of the capacity workshops, Cascade was considering the Ruby-GTN incremental capacity options to deliver Rockies gas to Central Oregon and/or to Stanfield where it could be moved on NWP to serve Washington. There was also the possibility of obtaining Ryckman Creek storage near Opal WY, which would provide Oregon with a principle storage resource for the first time while also adding to Cascade's operational flexibility. Cascade's Gas Supply Oversight Committee (GSOC) was scheduled to meet on June 13, 2014 to decide which, if any, of the options should be executed in the best interest of ratepayers.

However, as the date of the GSOC meeting approached Cascade went from having one viable option for storage (Ryckman Creek) as of the May 5 capacity workshop, to four viable storage options, most of which would need to be combined with incremental Ruby capacity. Additionally, all four storage alternatives would require incremental GTN capacity to deliver storage inventory to Central Oregon. These storage resource alternatives are incremental Plymouth LNG proposed by NWP, Gill Ranch storage that can be utilized at Malin/Turquoise Flats (proposed by Tenaska Marketing/Gill Ranch) and most recently Wild Goose Gas Storage that can be utilized at Malin/Turquoise Flats (proposed by Niska). Each of these options required considerable effort to analyze and model so that a recommendation could be made to GSOC for any action prior to August 2014.

Unfortunately, the GSOC meeting date of June 13 did not leave reasonable time for the Gas Supply department to properly analyze the various storage/transport alternatives and develop a recommendation for GSOC to consider. GSOC was alerted to these issues and decided to postpone the next meeting until late July in order to give the Gas Supply department more time to perform the needed analysis and modeling. However, as a result of the GSOC meeting postponement, Cascade would not be able to provide a specific resource determination in time for the required June 20th IRP update filing. Cascade consulted with OPUC Staff regarding these new developments and it was determined that the IRP update would focus on the elements of the various alternatives, with the explanation that after further analysis a determination will be made by GSOC on which option, if any, is in the best interest of ratepayers.

In general, the storage/transport alternatives requiring GSOC consideration by August 2014 are:

- Incremental Ruby (discount option expires October 2014), stand alone and/or in conjunction with Ryckman Creek, Wild Goose or Gill Ranch storage
- Incremental GTN south-to-north and north-to-south to accompany any incremental storage to serve Central Oregon
- Ryckman Creek storage to serve Central Oregon
- Gill Ranch storage from Malin/Turquoise Flats to serve Central Oregon to serve Central Oregon
- Wild Goose storage to serve Central Oregon
- Incremental Plymouth LNG storage to serve Central Oregon

Additional observations and comments regarding the alternatives:

- Each storage alternative was sized between 350,000 to 500,000 dths of working inventory.
- All storage alternatives allow for Rockies and/or AECO gas to be used for injections as we would use Ruby-GTN-south-to-north (Rockies) and Nova-Foothills-GTN-north-to-south (AECO) as the principle injection transport pipelines. Plymouth is a less flexible option for injections from Rockies supplies due to potential operational constraints on NWP (e.g. Kemmerer and Plymouth compressors); however, the Ruby-GTN south-to-north path could be used at a lower level to inject Rockies gas into Plymouth.
- GTN is the common pipeline in all four storage alternatives for making deliveries to Central Oregon
- All four storage options were modeled as long term resource solutions
- Gill Ranch and Wild Goose required Cascade to also determine if Cascade should acquire the corresponding transport from facilities along PG&E to the Malin/Turquoise Flats interconnect with GTN. Alternatively, Cascade could also contract with a third party to handle the PG&E segment of the transport.
- Regarding incremental Plymouth: Cascade worked with NWP to allow non-conforming agreement language to allow primary firm capacity instead of the typical secondary firm transport from the LNG facility to the Stanfield Interconnect with GTN. We also inquired if NWP would allow primary firm transport from Plymouth LNG to Washington points for added operational flexibility.
- Cascade is seeking confirmation from Ryckman that the nitrogen plant will be up and running by the projected start date of any Cascade acquisition of a storage position with Ryckman. Ryckman has the most flexibility with Ruby, but Cascade will also have to determine if some level of NWP deliverability/injection capability may be available.

It is highly unusual to have so many storage alternatives available at any one time, particularly in the Pacific Northwest. Cascade felt strongly that it would be imprudent as an LDC for us not to take the appropriate time to consider these alternatives. At a high level, we sought insight from the SENDOUT model to help in the

decision making process for Ruby. All options were given to SENDOUT to see which provided the least reasonable cost solution. The model was used as a tool to help identify the following:

If none of the storage options are selected, model how much incremental capacity would be needed to meet Central Oregon peak day:

- Ruby-GTN (northbound)
- Nova-Foothills-GTN (southbound)

Determine if any of the storage options are selected by the model

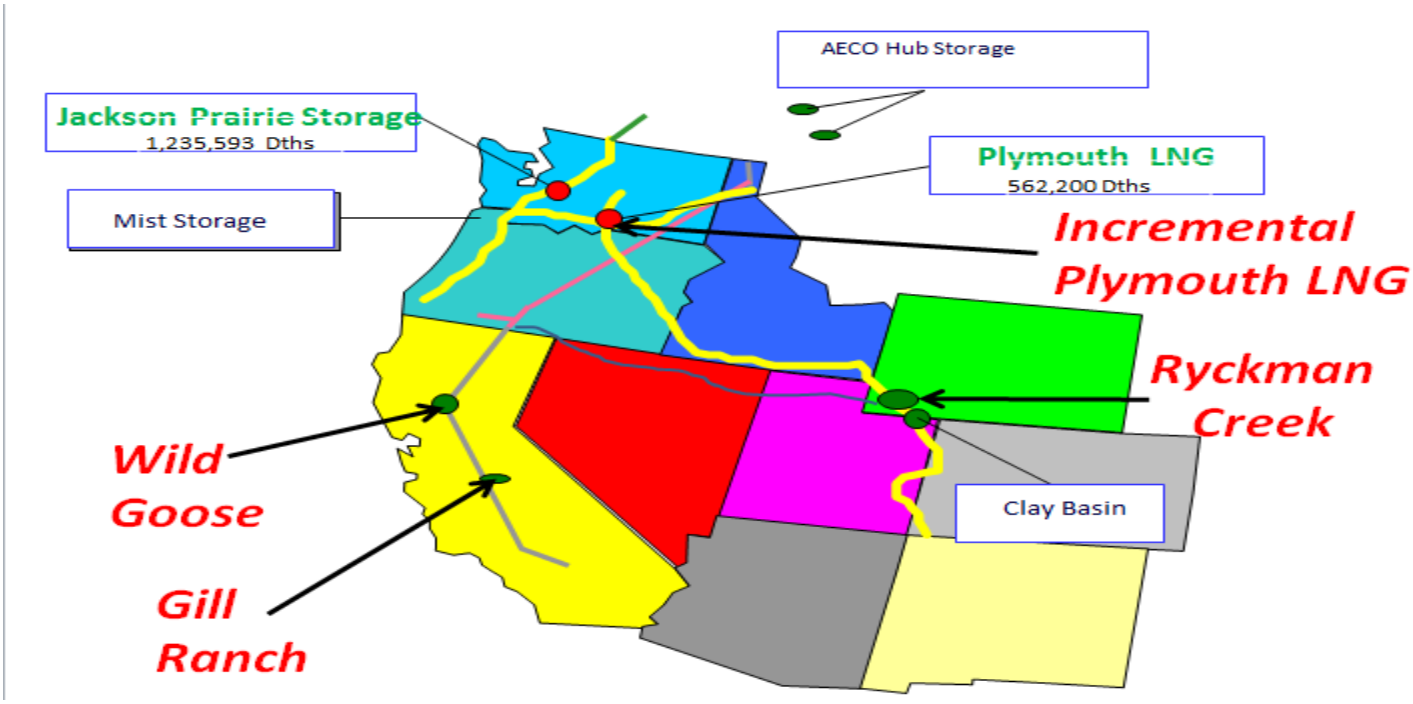
Determine the amount of incremental capacity, if any, would be needed if a storage option is selected:

- Ruby-GTN (northbound)
- Nova-Foothills-GTN (southbound)
- California Gas Transmission-GTN (northbound)

If Ruby was selected:

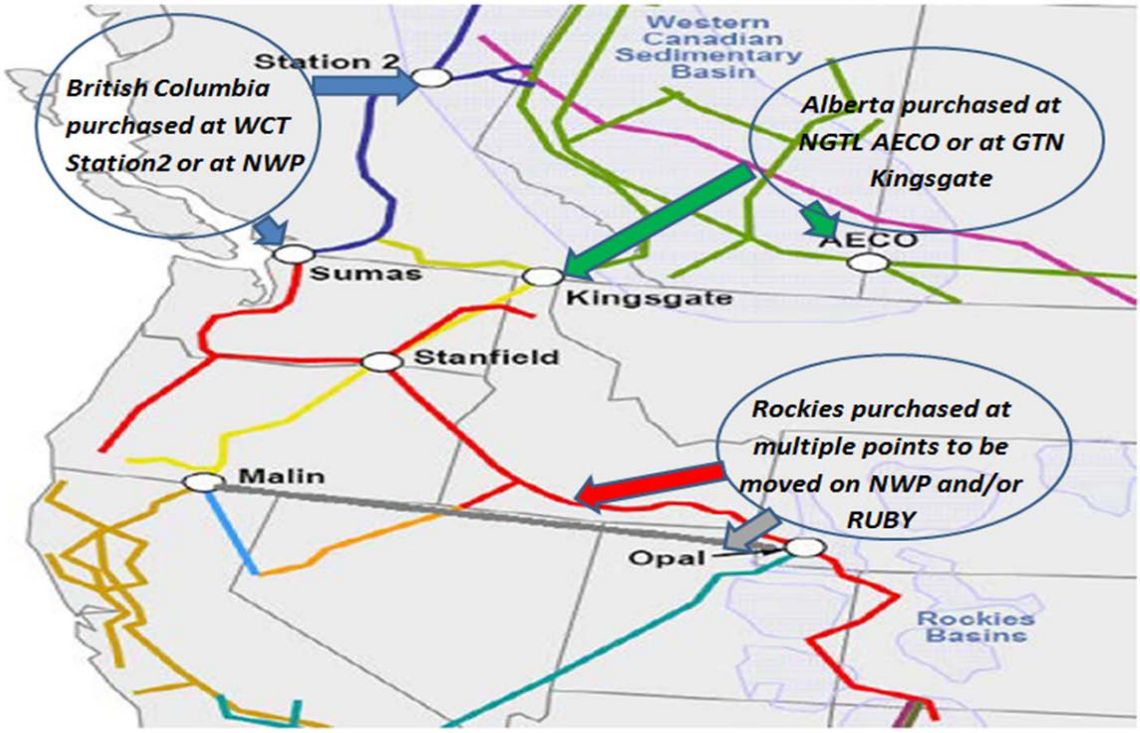
- Consider the volume of Nova-Foothills-GTN southbound capacity can be used to reasonably offset Ruby-GTN northbound
- Volume of Ruby that can reasonably meet peak day demand without any incremental storage
- Volume of Ruby that can reasonably meet peak day demand if Ryckman, Gill Ranch, or Wild Goose storage is also chosen
-

The following charts describe some of the major components of each option that must be modeled using the Ventyx SENDOUT optimization model application as part of the analysis of determining if any option or combination of options should be considered by GSOC for implementation. The charts also shows timing for acquiring a resource as well as the results of the modeling including a description of GSOC's reasoning regarding whether to approve/disapprove of the acquisition of each resource.

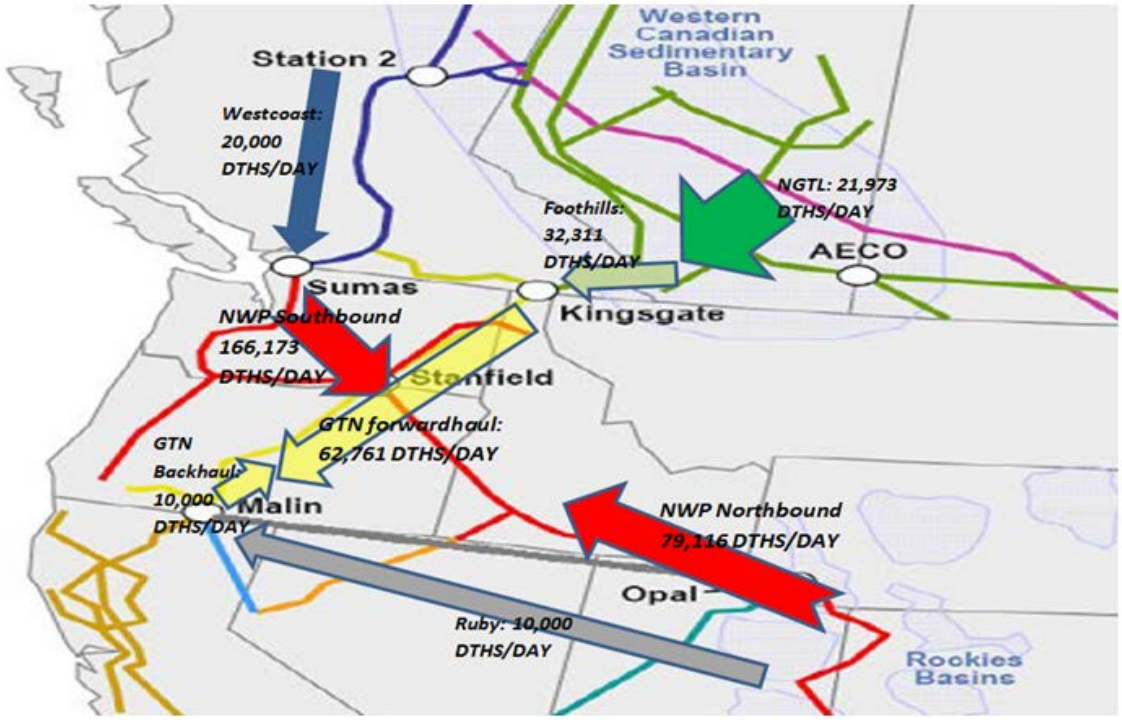


STORAGE OPTIONS	PER UNIT COST	START DATE	END DATE	WORKING INVENTORY	WD RIGHTS	MODEL RESULT RECOMMENDED	GSOC APPROVAL	GSOC DECISION
INCREMENTAL PLY LNG	$ 3.18000	Apr-16	Mar-36	350,000	7,450	-	NO	SENDOUT did not choose this resource as part of the resource portfolio, given its preference for Ryckman. Please note that NWP continues to present Cascade with proposals for incremetnal LNG so conversations are on-going.
WILD GOOSE	$ 1.84940	Apr-16	Mar-36	350,000	5,000	-	NO	SENDOUT did not choose this resource as part of the resource portfolio, given its preference for Ryckman. Conversation are on-going as GSOC has not approved Ryckman at this time.
INCREMENTAL JACKSON PRAIRIE ACCOUNT	$ 1.51232	Apr-16	Mar-36	350,000	10,000	-	NO	SENDOUT did not choose this resource as part of the resource portfolio, given its preference for Ryckman. Conversation are on-going as GSOC has not approved Ryckman at this time.
GILL RANCH	$ 1.05562	Apr-16	Mar-36	350,000	5,000	-	NO	SENDOUT did not choose this resource as part of the resource portfolio, given its preference for Ryckman. Conversation are on-going as GSOC has not approved Ryckman at this time.
RYCKMAN CREEK	$ 1.04059	Apr-16	Mar-36	350,000	14,100	350,000	CONDITIONAL NO	SENDOUT still prefers this resource to other storage options. GSOC decided to not to secure at this time pending further analyis that Ryckman will be fully functional.

PURCHASE BASINS/PATHS



SUMMARY OF CNGC WINTER TRANSPORT CAPACITY FLOW, winter 2013-2014



TRANSPORTATION CONTRACT	PER UNIT (DTH) COST	START DATE	END DATE	MIN LEVEL	MAX LEVEL	MODEL RESULT RECOMMENDED	GSOC APPROVAL GRANTED	ADDITIONAL COMMENTS
INCREMENTAL CALIFORNIA GAS TRANSMISSION CAPACITY (BI-DIRECTIONAL) AT/FROM MALIN	$ 1.68000	Nov-16	Mar-36	-	INF	-	NO	SENDOUT did not choose this resource as part of the resource portfolio (price);
INCREMENTAL ANNUAL RUBY OPAL TO MALIN	$ 0.75000	Nov-14	Mar-36	-	20,000	-		SENDOUT did not choose this resource as part of the resource portfolio. It should also be noted that this resource would require an annual contract which does not work well with Cascade's load profile.
INCREMENTAL NWP I-5 CORRIDOR	$ 0.75000	Nov-16	Mar-36	-	INF	-	NO	SENDOUT did not choose this resource as part of the resource portfolio. In addition, it should be noted that there is still concerns regarding the resource's availability/timing.
INCREMENTAL RUBY TO NWP OPAL (RYCKMAN)	$ 0.41000	Nov-16	Mar-36	-	5,000	5,000	NO	No action at this time. Will review again once more information regarding Ryckman's reliabiltiy becomes available (likely 2016-17)
INCREMNTAL SEASONAL RUBY OPAL TO MALIN VAR QTY UP TO 20,000 DTHS/DAY DISCOUNTED	$ 0.41000	Nov-14	Mar-36	-	INF	5,080	YES, 5000	GSOC ordered this resource to be secured at this time. Regardless of thewhether Ryckman or any of the other storage alternatives are viable, SENDOUT, clearly viewed some level of the discounted Ruby was a good fit for the portfolio. GSOC also felt this did not unduly burden the ratepayers with the 20,000 of annual Ruby while there are still many questions regarding various storge options.
INCREMENTAL NWP TIED TO LNG EXPANSION	$ 0.41000	Nov-16	Mar-36	-	INF	-	NO	SENDOUT did not choose this resource as part of the resource portfolio (tied to incremental Plymouth storage whish the model did not choose as part of the portfolio due to LS inventory costs. It should be noted that NWP has been continously modifying this proposal so we anticipate there will be further discussion at IRP TAG meetings in 2015.
INCRMENTAL RUBY OPAL TO MALIN (SHORT TERM RELEASE)	$ 0.35000	Nov-14	Jul-21	-	INF	-	NO	SENDOUT did not choose this resource as part of the resource portfolio (short-term)
INCREMNTAL NOVA-FT HILLS	$ 0.26000	Nov-17	Mar-36	-	25,000	1,000	NO	Rate/capacity is set with previously open season agreement; this resource does not require execution at this time. As of the timing of this analysis, it would appear that GSOC would likely approve some level during the next three years. It should also be noted that in the absence of any storage option, the model selects a higher volume (5000+)
INCREMENTAL GTN KINGSGATE TO MALIN	$ 0.21000	Nov-16	Mar-36	-	20,000	9,300	NO	Due to rates that would be at current levels and more than sufficient capacity availablity of this resource it does not require execution at this time. As of the timing of this analysis, it would appear that GSOC would likely approve some level during the next three years.
INCREMENTAL GTN MALIN - STANFIELD	$ 0.21000	Nov-16	Mar-36	-	15,000	15,000	YES, 5000	GSOC *ordered only a portion* this resource to be secured at this time. This is a corresponding amount of capacity to match the incremental discounted Ruby (approximtely 5000 dths). The remaining 10,000 dths can be considered when a decision about Ryckman is finalized in 2015/16.

Results and Conclusions

The first consideration was to determine if any of the storage options were selected by the model, and if so, what level of incremental Ruby capacity may, or may not be needed given we also had the option to move supplies from AECO via incremental Nova-Foothills-GTN southbound capacity. Ruby is also an option for the California storage, but due to rate stacking Ruby would be at a lower volume contract level, primarily for the purposes of injecting Rockies gas and to provide supply diversity in the storage facility. Otherwise a level of southbound GTN capacity from Kingsgate would be needed to move AECO gas to the storage facilities. The incremental Plymouth LNG option was the most expensive of the storage proposals, but is also the most centrally located facility to Cascade's distribution system. Ryckman Creek appeared to be the least expensive and most flexible storage option and was consistently selected by the model when it was available as a resource. ***However,*** Ryckman's on-going operational difficulties are a concern. Since the option to acquire

incremental Ruby at a discount expired in October 2014, some decision about Ruby had to be made regardless of the storage alternatives. In GSOC's opinion, it seemed most prudent that Cascade only acquire a small amount of Ruby and hold off on a Ryckman decision until a better picture of the storage facility's operational viability becomes apparent. Additionally, Cascade will continue to analyze further Plymouth proposals as well as the California storage options.

Even a small block of 5000 dths/day of incremental Ruby gives Cascade additional operational flexibility to deal with constraints/OFOs on NWP, plus provide supply diversity to Oregon. Because Cascade already has 10,000 dths/day of seasonal Ruby capacity, we will still have a reasonable block of discounted capacity to move gas from Ryckman should Cascade decide to lease a position at Ryckman in the future. GSOC also affirmed that Cascade should also continue to investigate the California storage alternatives and consider acquiring north to south GTN capacity to address Central Oregon shortfalls, targeting late 2016 and early 2017 as the next decision milestone for incremental storage and/or incremental Nova-Foothills-GTN north-to-south capacity.

Cascade is committed to continuing to investigate and analyze storage and transport alternatives during 2015 and beyond. We will continue to "fine tune" possible proposals which can be modeled and presented at IRP TAG meetings, discussions with Staff and updated to GSOC. GSOC will provide guidance based on this continued analysis of the alternatives and feedback from IRP stakeholders.

Cascade now seeks acknowledgement of the actions described above.