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November 26, 2015

VIA RESS, and EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
27th floor
Toronto, Ontario
M4P 1E4

Dear Ms. Walli:

Re: EB-2015-0238
Distributor Gas Supply Planning Consultation

Pursuant to the Ontario Energy Board's letter dated November 9, 2015, attached please find Enbridge Gas Distribution's presentation..

Please contact the undersigned if you have any questions.

Yours truly,

[original signed]

Lorraine Chiasson
Coordinator, Regulatory Affairs

December 3, 2015

Distributor Gas Supply Planning Consultation

EB-2015-0238

Jamie LeBlanc
Andrew Welburn
Energy Supply and Policy

Scope of this Consultation

- *"This consultation will focus specifically on the gas supply and transportation planning process undertaken by the gas distributors in order to gain a deeper understanding of the risk/cost tradeoffs being made as they develop their plans."*

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Gas Supply Planning Principles

- To develop and manage a portfolio of natural gas supply, transportation, and storage assets that provide for the safe, reliable, and cost effective delivery of natural gas to customers
- The portfolio is structured to meet peak day and seasonal demand for natural gas throughout the winter and summer months
- A balance of 4 principals are used to develop the portfolio and manage the associated risks and gas costs
  - Reliability
  - Diversity
  - Flexibility
  - Landed cost
- The trade-off between risks and gas costs are also defined by Design Criteria approved by the Board

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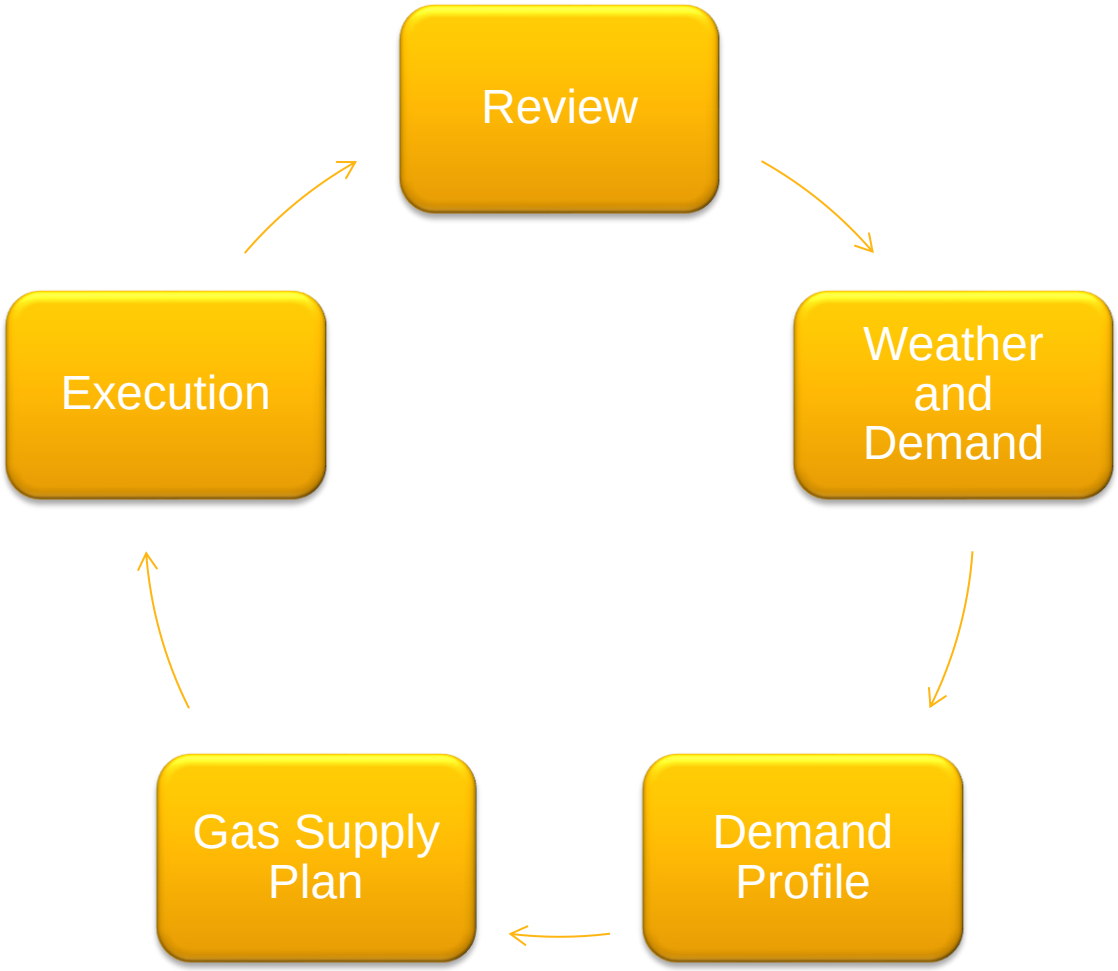
Gas Supply Planning Cycle

Gas supply planning is an involved process that is completed in an annual cycle



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Review of changes in the natural gas marketplace

First step involves examining trends and considerations that will inform the gas supply planning process

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Keeping Up With Change

North America's natural gas industry is evolving at a rapid pace

- The industry is changing quickly and requires heightened market awareness
  - Changes to sources of natural gas supply across North America
  - Monitoring industry publications and regulatory proceedings
  - Maintaining positive working relationships with market participants
- Regulatory decisions significantly influence how change will be managed
  - The availability and attributes of new and existing storage and transportation services
  - Inputs into the gas supply planning process
  - Gas supply plans must consider regulatory decisions and views
- Gas supply planning should not speculate on pending regulatory decisions
  - Inputs into the gas supply planning process assume status quo
- Review process ensures efficient and robust gas supply plans

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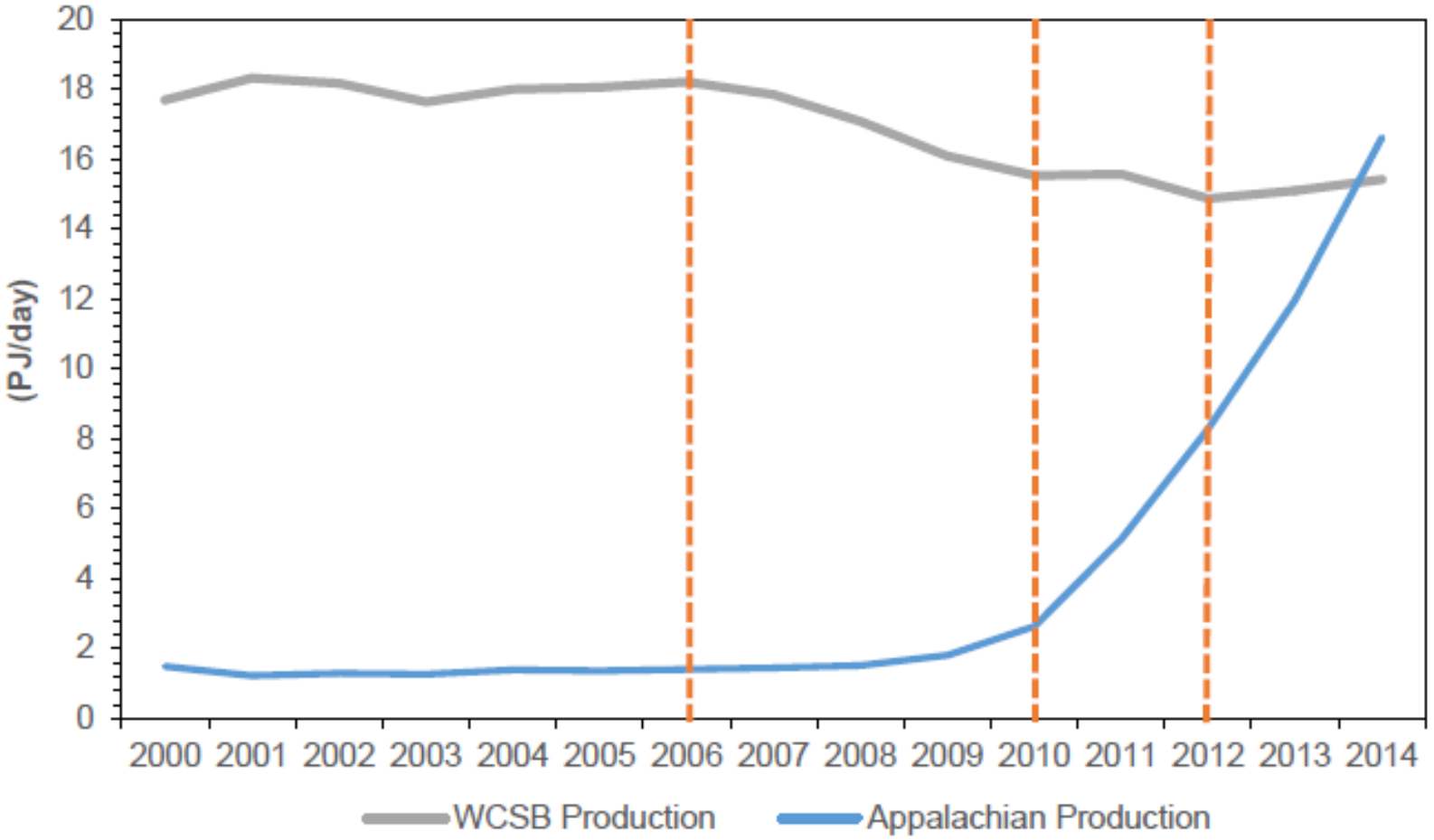
Change in Supply Dynamics

Recent development of Appalachian production provides a new supply of natural gas for Ontario

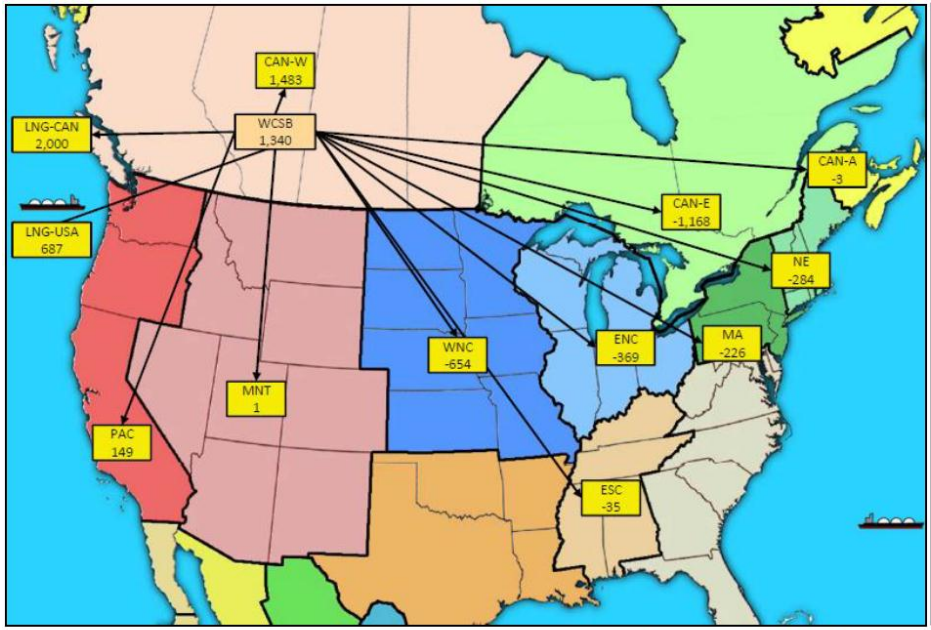


Source: EB-2015-0175 Exhibit A, Tab 3, Schedule 2, Page 22

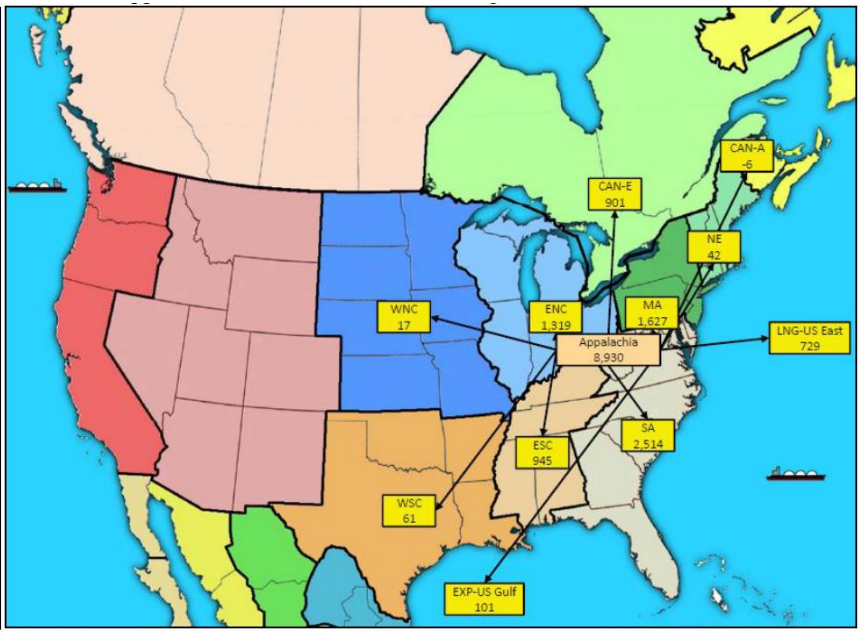
Change in Transportation Dynamics

North America demand for natural gas is being met by more proximate supply

– Shale production has revolutionized North America's natural gas industry



Source: GPCM/Navigant



Source: GPCM/Navigant

– Provincial, National, and Federal regulatory decisions are defining the availability and attributes of critical transportation and storage services

Source: EB-2014-0289 Natural Gas Market Review Final Report prepared by Navigant

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Provincial Regulatory Completed Applications

Ontario Energy Board

Ontario Energy Board proceedings impacting current and future gas supply plan development

- EB-2012-0433, EB-2013-0074 and EB-2012-0451 (*GTA and Parkway Projects*)
  - Market access to Dawn for the Greater Toronto Area
  - Reduced reliance on TransCanada long-haul transportation to supply the Greater Toronto Area
- EB-2014-0323 (*Dawn Access Settlement*)
  - Direct Purchase customers in Greater Toronto Area gain access to Dawn effective November 2015
  - Remainder of Direct Purchase customers gain access to Dawn effective November 2017
- EB-2014-0039 and EB-2014-0191 (*April and October 2014 QRAMs*)
  - High winter demand results in Incremental gas supply costs
  - Concerns raised with level of risk incorporated into the gas supply plan
- EB-2014-0276 (*2015 Rate Adjustment*)
  - New storage deliverability targets proposed to reduce reliance on late season gas procurement
  - Unabsorbed Demand Charge (UDC) management plan requested and settled

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Provincial Regulatory Pending Decisions

Ontario Energy Board

Ontario Energy Board proceedings impacting current and future gas supply plan development

- EB-2015-0175 (*NEXUS Pre-Approval Application*)
  - 15 year contract for 110,000 Dth per day of transportation capacity from Kensington processing plant in Ohio to Dawn
- EB-2015-0116 *(2016 Rate Adjustment)*
  - No significant changes to the gas supply plan

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National Regulatory Completed Applications

National Energy Board | Office national de l'énergie

National Energy Board proceedings impacting current and future gas supply planning

- RH-03-2011 (TransCanada's *Restructuring Proposal*)
  - Transportation toll stability
  - Incremental market access to Dawn restricted due to concerns of revenue recovery
  - Short Term Firm Transportation (STFT) no longer an economical transportation option
  - Increased reliance on Non-Renewable Firm Transportation (FT-NR)
- RH-01-2013 (TransCanada's *Tariff Proposals*)
  - Renewal notice increased from 6 months to 2 years
- MH-01-2013 (*Abandonment Set Aside and Collection Mechanisms*)
  - Abandonment surcharge added to transportation tolls
- RH-01-2014 (TransCanada's *2015-2030 Tolls Application*)
  - Mainline Settlement Agreement
  - Transportation toll stability and market access to Dawn provides alternative to FT-NR
- *TransCanada's Greater Golden Horseshoe Facilities Project*
  - Increased transportation capacity from Niagara and Chippawa to Enbridge CDA and Kirkwall

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National Regulatory Completed Applications

National Energy Board | Office national de l'énergie

National Energy Board proceedings impacting current and future gas supply planning

- *Parkway West Connection Project*
  - Connect Union Gas' Parkway West compression and meter station with TransCanada's Mainline
- GHW-001-2014 (*King's North Connection Pipeline Project*)
  - Transportation pipeline to connect Segment A of the GTA Project with the TransCanada Mainline

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National Regulatory Pending Decisions

National Energy Board | Office national de l'énergie

National Energy Board proceedings impacting current and future gas supply planning

– *TransCanada's Energy East Project and Eastern Mainline Project*
  - Reduction of existing firm transportation capacity
  - Construction of new firm transportation capacity between Toronto and Ottawa
  - Portion of STFT replaced with Non-Renewable Firm Transportation
  - Settlement Agreement executed on October 30, 2015 to address:
    - Capacity requirements for 2016 and 2017 New Capacity Open Season and 50 TJ/d of additional capacity
    - Transfer of Mainline facilities to the project
    - Non-opposition of the project

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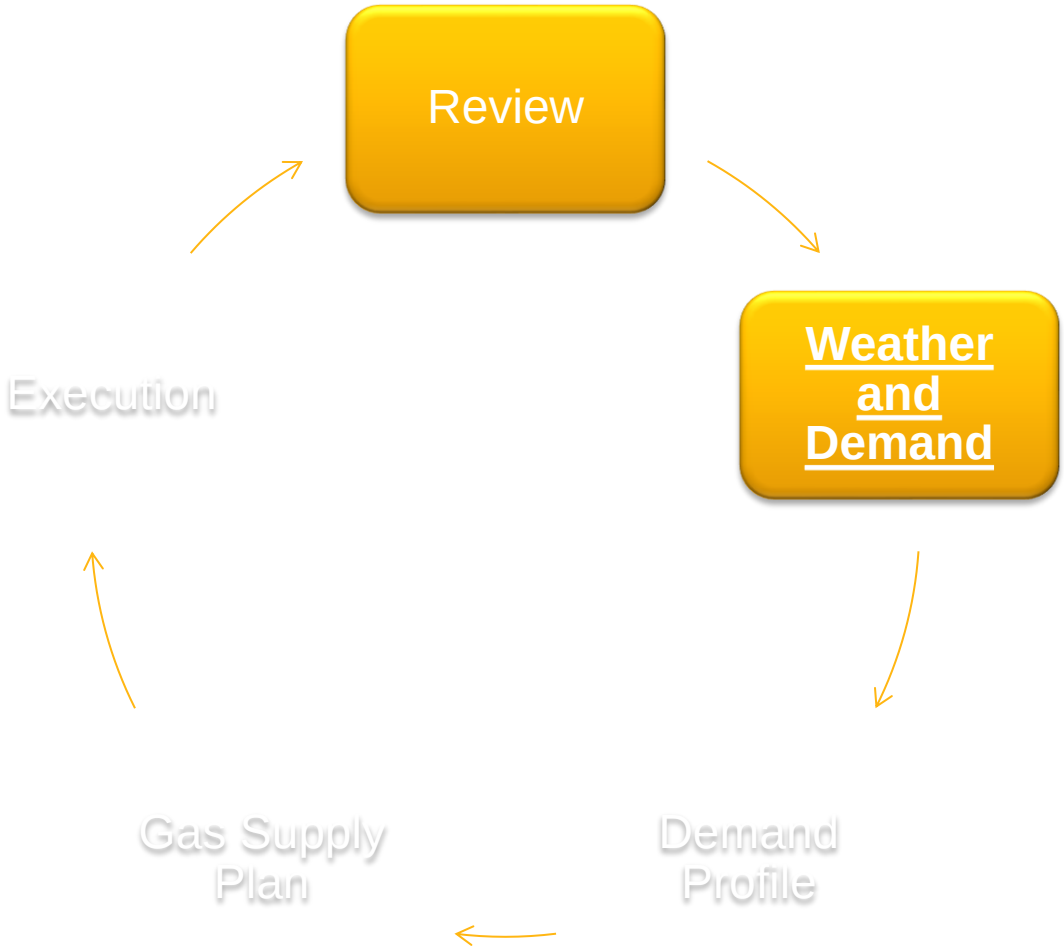
Development of annual weather and demand forecast

Second step in the cycle is determining annual budget degree days and demand



Consideration of Principles and Risks

- Weather conditions vary across geographic areas
- Budget weather conditions based on regression analysis and average historical weather conditions
- Franchise demand is very temperature sensitive
  - 2016 peak demand is 3.2 times greater than annual budget average demand

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Budget Heating Degree Days

Annual budget heating degree days determined by EGD's Economic & Market Analysis department

- Prepared on an annual basis
- Determined for three distinct weather zones
  - Enbridge CDA delivery area includes the Central and Niagara weather zones
  - Enbridge EDA delivery area includes the Eastern weather zone
- Separate methodologies for each weather zone are approved by the Board
  - Central – 50% based on a 10-year moving average and 50% based on a 20-year trend forecast
  - Eastern – de Bever with trend regression considers 5 year weighted averages within a weather cycle
  - Niagara – 10 year moving average

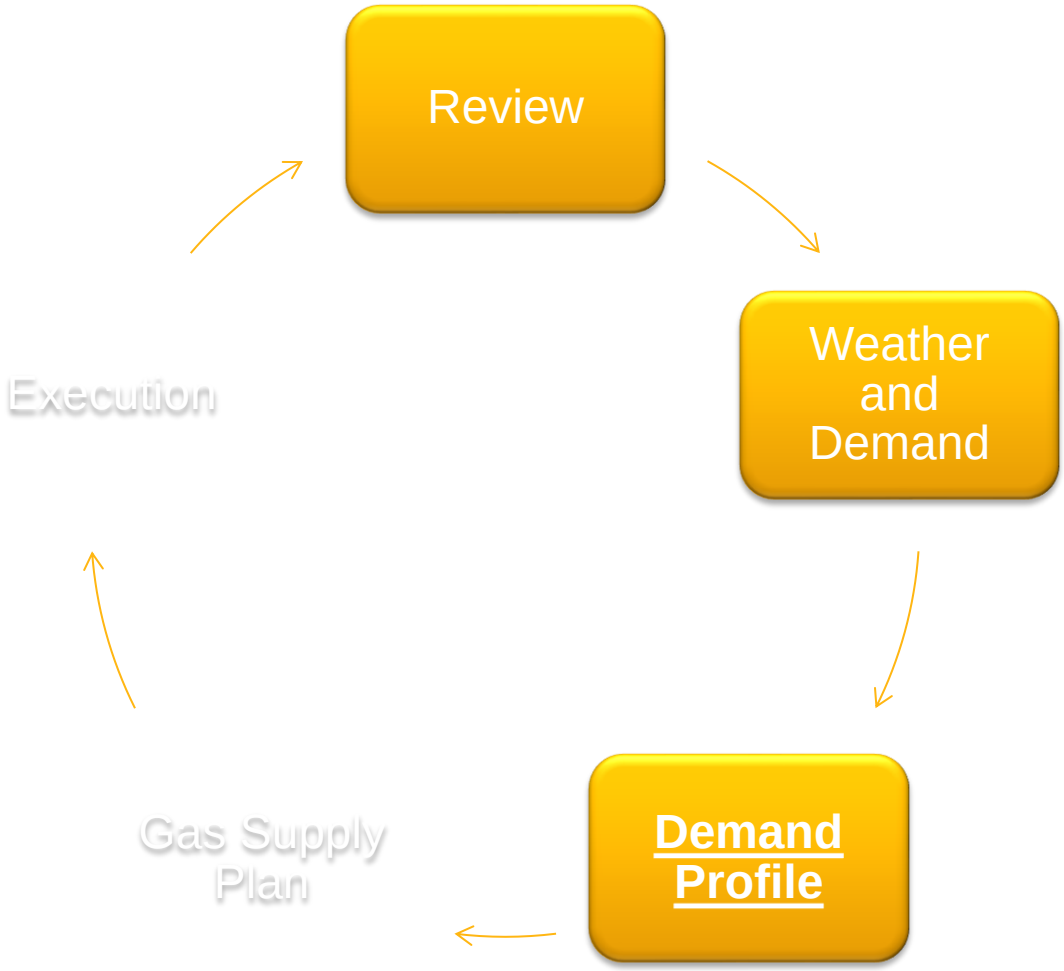
Budget Demand

Annual budget demand determined by EGD's Economic & Market Analysis department

- Prepared on an annual basis using methodologies approved by the Board
- Separate approaches used for general service and contract market
- General service budget demand forecast based on regression analysis and projected number of customers
  - General service average use models incorporate heating degree days, vintage variable, economic indicators, and gas prices
- Contract market budget demand forecast based on grass roots approach for existing customers and probability-weighted approach for expected customers

Development of daily demand profiles

Third step in the cycle is converting heating degree days and demand from annual to daily profiles



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Establishment of Demand Profiles

Demand profiles are determined using Board approved Design Criteria

- The annual budget is distributed into a daily profile by weather zone
- The peak and daily profile developed through regression analysis of driver variables and Board approved Design Criteria
- The driver variables for peak day include:
  - Heating degree days
  - One day lagged heating degree days
  - Wind speed
  - Customer unlocks
- The Board approved Design Criteria includes the following elements:
  - 1 in 5 recurrence interval (based on a log-normal distribution) for Peak and Multi-Peak degree days
  - Peak Day Heating Degree Days are:
    - 41.4 in the Central weather zone
    - 48.2 in the Eastern weather zone
    - 38.8 in the Niagara weather zone
  - 18 Multi-Peaks over the months of January, February, and March for each of the Central, Niagara, and Eastern weather zones

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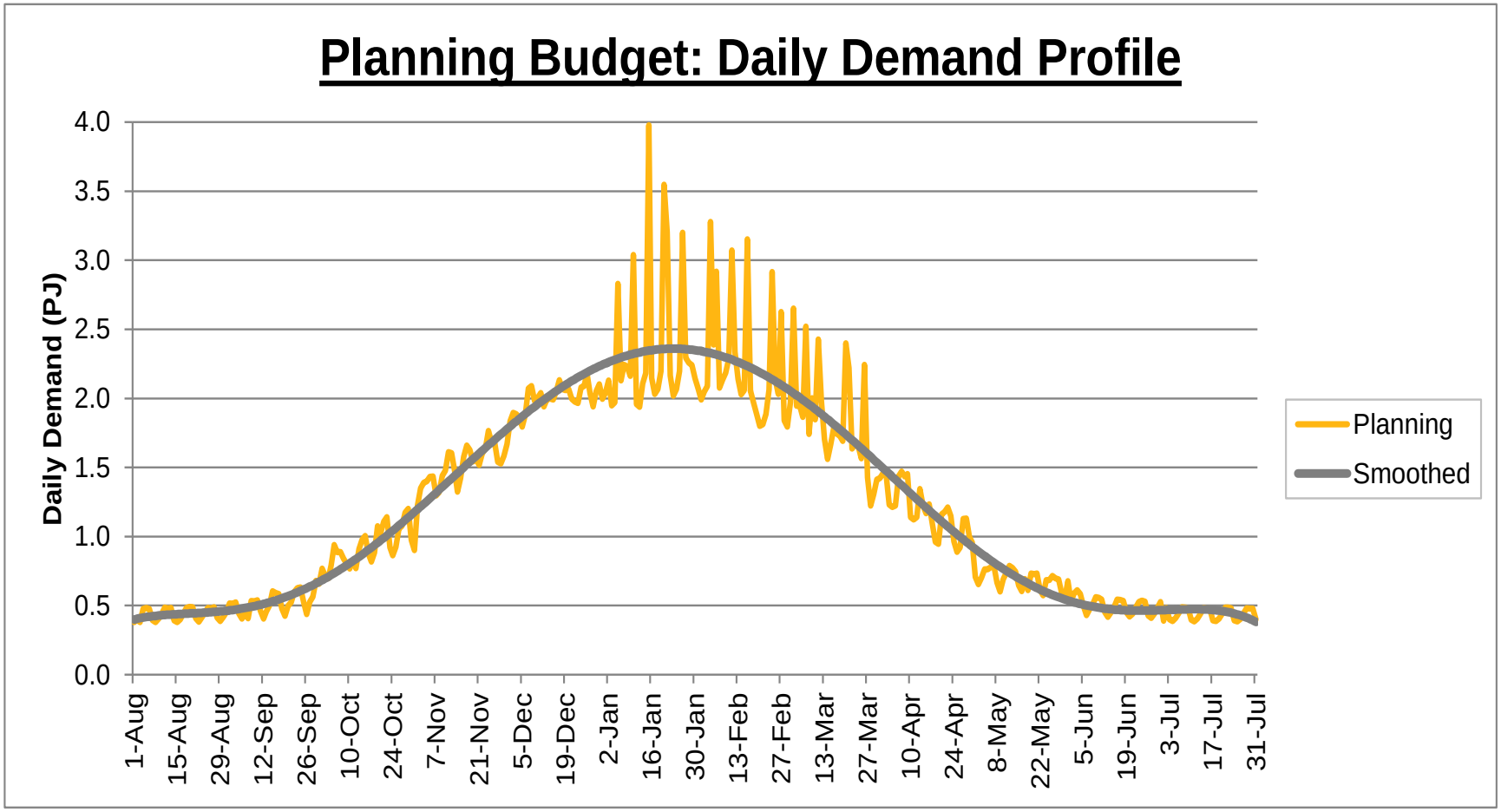
Resulting Demand Profile



Importance of Design Criteria

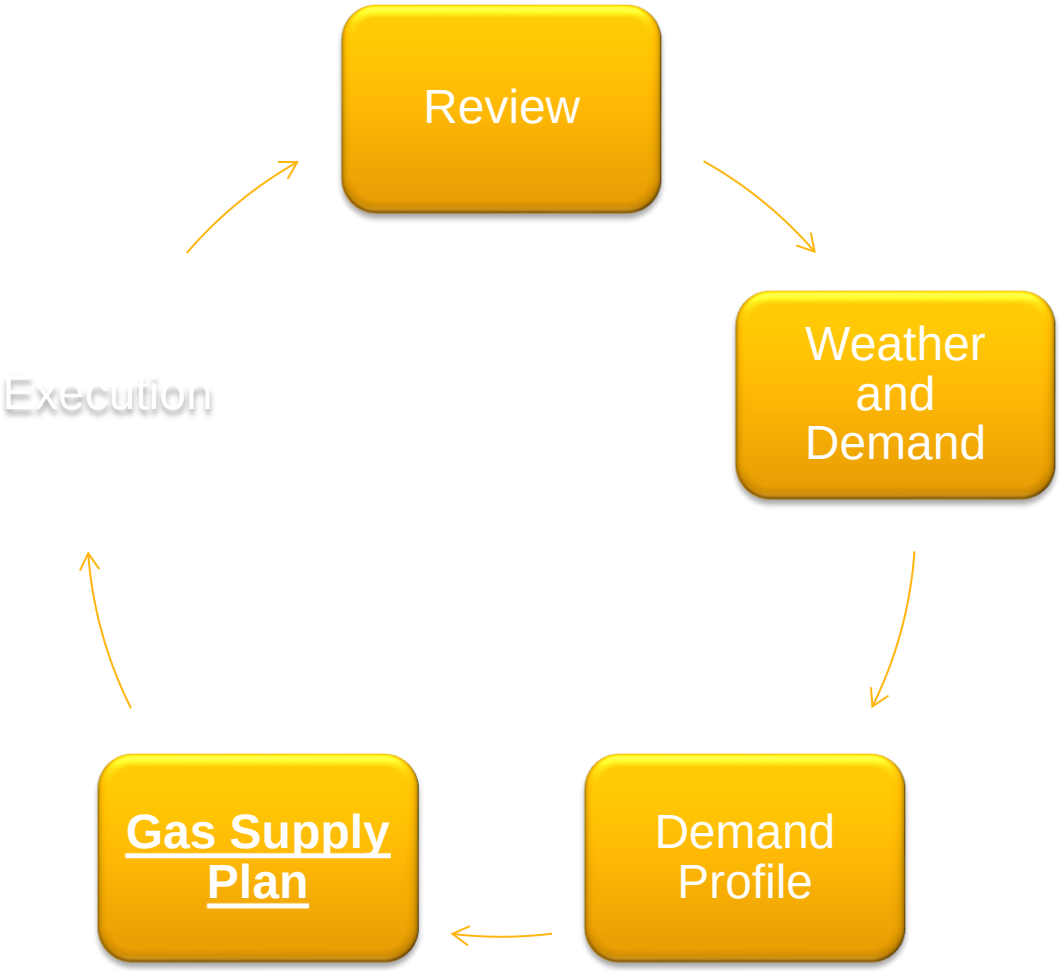
There is a trade-off between budgeted gas costs and the stability of QRAM adjustments

Design Criteria	Demand Variance Above Budget	
	Minimal	High
Risky	Low Budget Cost Neutral Execution Cost	Low Budget Cost High Execution Cost
Conservative	High Budget Cost Neutral Execution Cost	High Budget Cost Low Execution Cost

– The level of risk assumed in the Design Criteria will, in part, determine the range of actual demand that can be managed by the gas supply plan

Development of optimal gas supply plan

Fourth step in the cycle is determining the assets required for the gas supply plan



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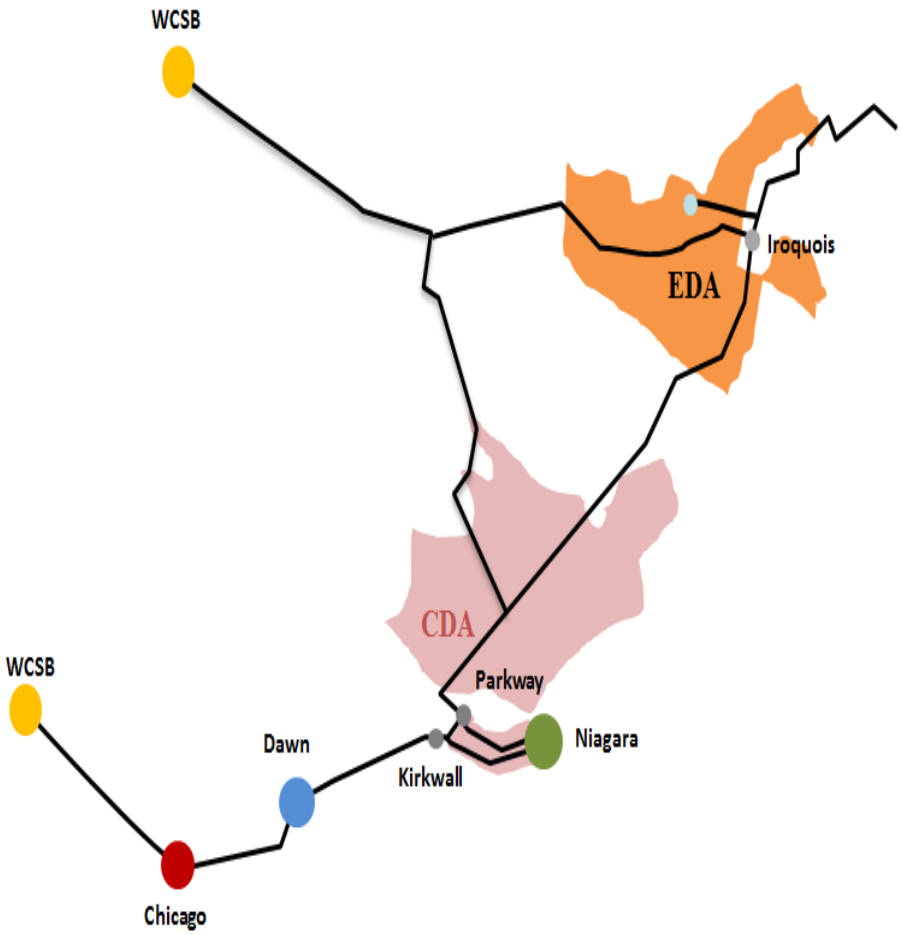
The Gas Supply Plan Principles

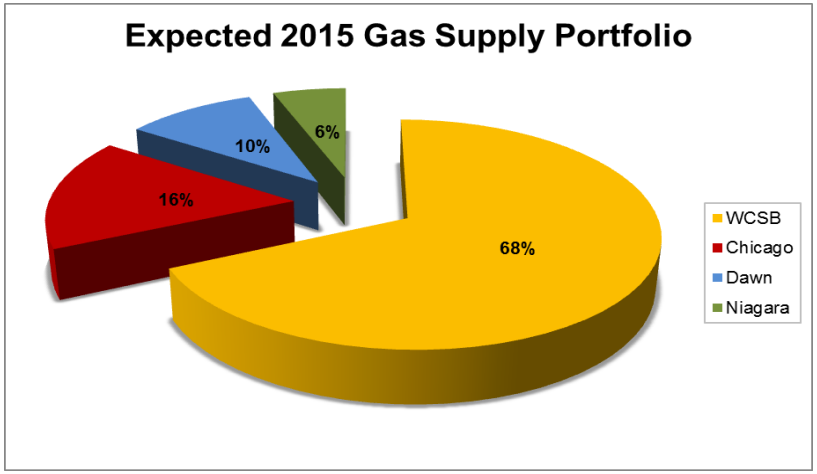
Establishment of the assets and how to use them to in an optimal way to meet budget demand

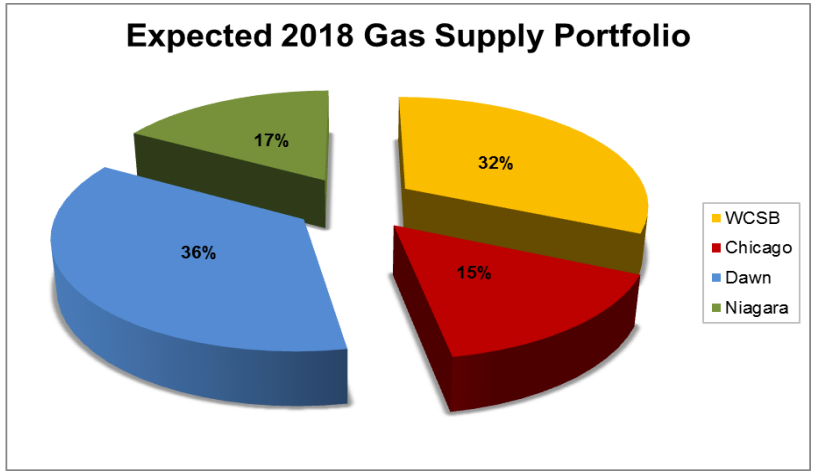
- The gas supply plan is developed to ensure that the supply, storage and transportation assets required to meet projected peak day seasonal demand are available
- Asset requirements are assessed with 4 gas supply planning principles:
  - Reliability – Supplies are sourced from established liquid hubs and delivered via firm transportation contracts
  - Diversity – Supplies are procured from multiple procurement points and transported to market through several different paths
  - Flexibility – Differentiated supply procurement patterns and operational flexibility through service attributes and contract parameters
  - Landed Cost – Gas supply costs must be balanced with the other principles and the gas supply plan must ensure competitive pricing for customers

Diversity of Supply

Market access to Dawn and Niagara has diversified our supply basin portfolio







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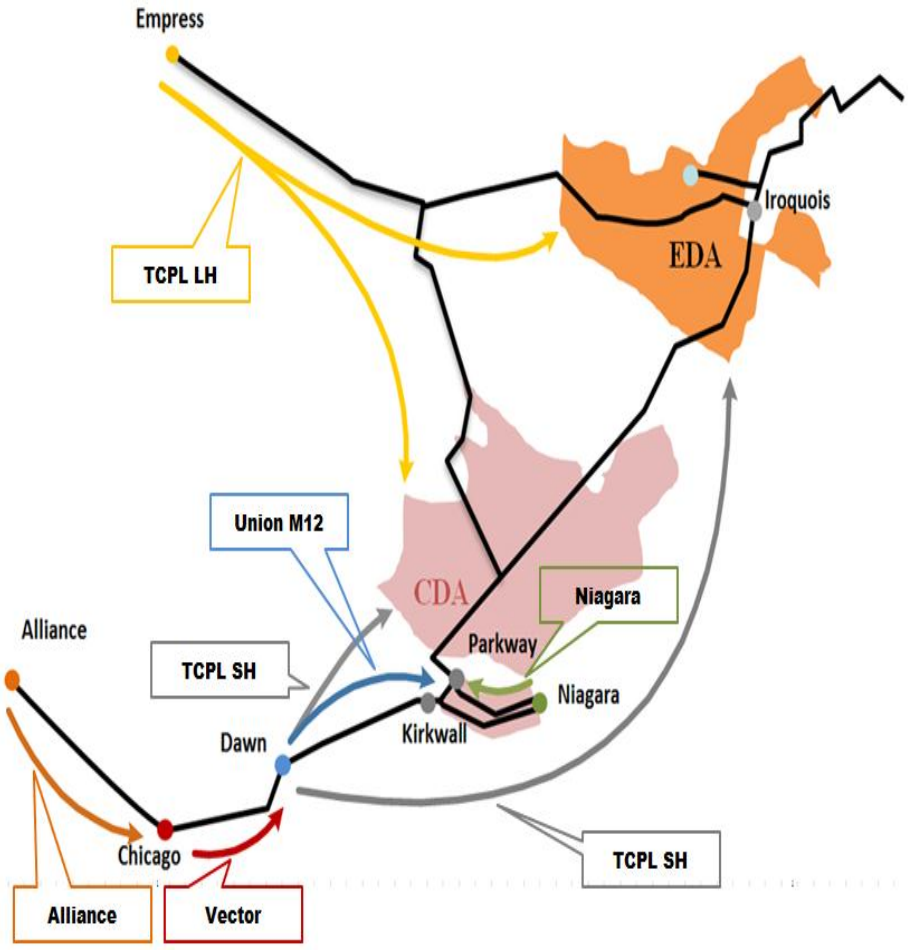
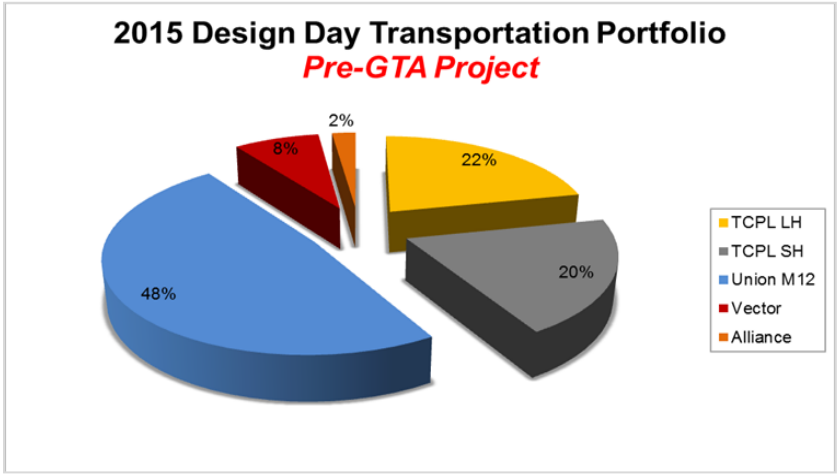
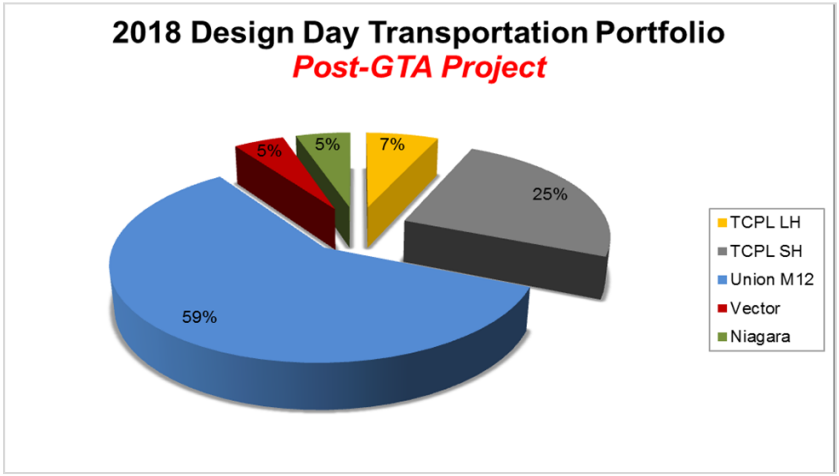
Diversity of Transportation Path

Market access to Dawn and Niagara has diversified our transportation portfolio







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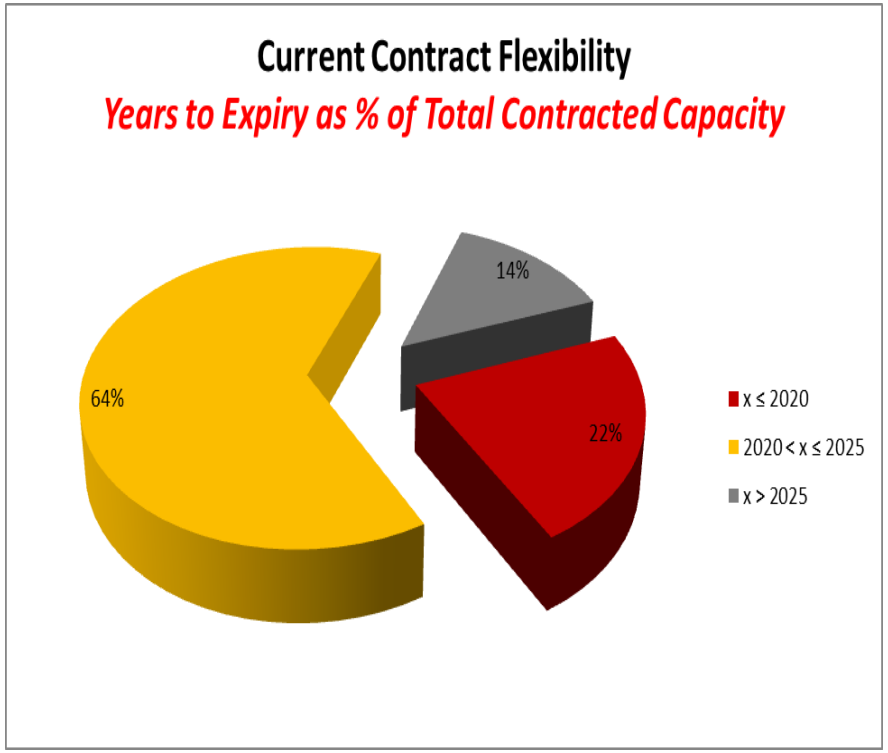
Flexibility of Transportation Contract Terms

Transportation contract flexibility for peak day maintains significant flexibility

- 22% of current contracted capacity expires before 2021
- 64% of current contracted capacity expires between 2021 and 2025
  - Includes Union Gas M12 contract = 1.8 PJ/d
- 14% of current contracted capacity expires after 2025



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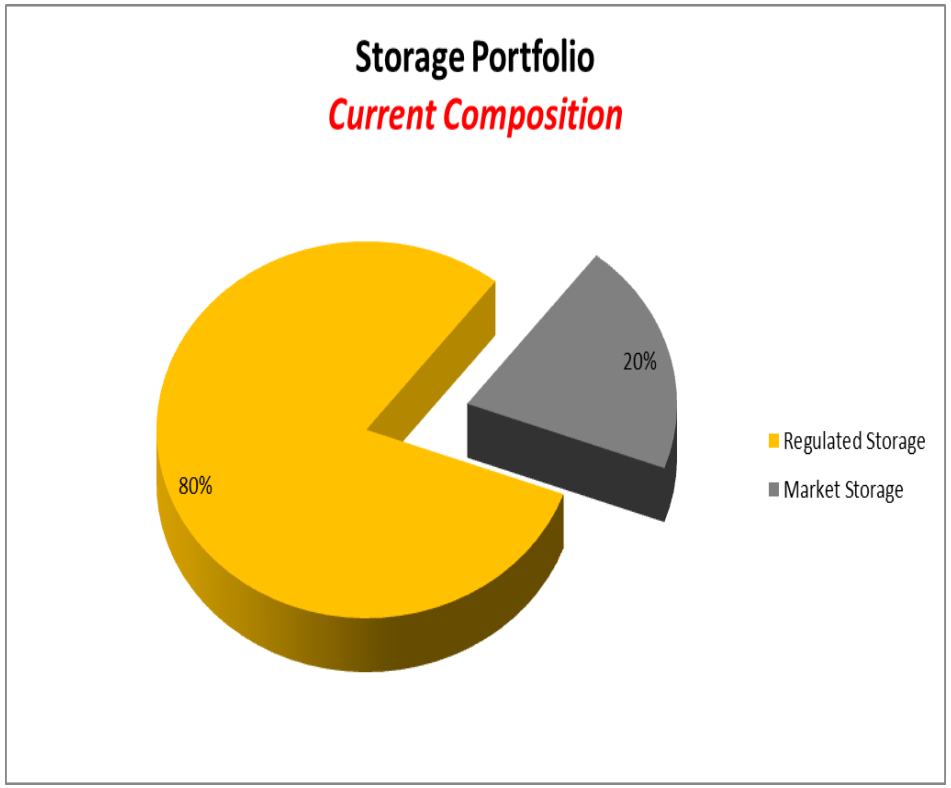
Diversity of Storage

- Market Storage contracts include:
  - 8 contracts with 4 contracting parties
  - 75% physical and 25% synthetic
  - Maximum daily withdrawal capability from 0.7% - 4.0% of contracted capacity
  - Maximum daily injection capability from 0.5% - 2.0% of contracted capacity
  - Remaining contract terms range from 1 – 5 years



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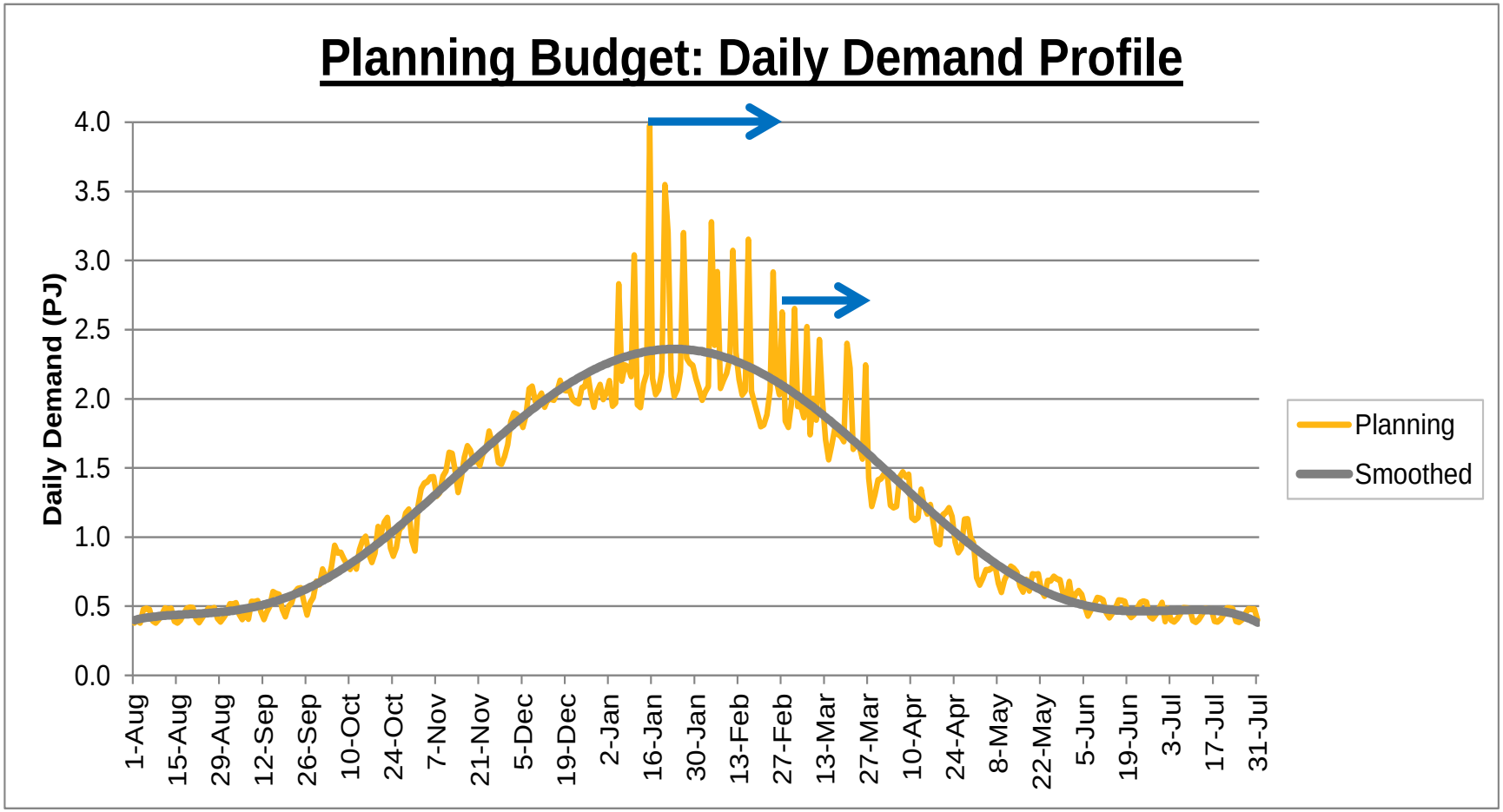
Gas Supply Plan Inputs

- Budget demand
  - Disaggregated by weather zone on a daily basis
- Commodity costs
  - Natural gas forward curves from independent third parties such as NGX and Kiodex
  - 21 day average settlement price for each forward contract month
- Transportation capacity, tolls, and fuel ratios
  - Executed precedent agreements and transportation agreements
  - Transportation toll and fuel schedules
- Storage capacity, costs, and ratchets
  - Executed precedent agreements and storage agreements
- Storage deliverability targets
  - Maximum storage deliverability maintained to end of February
  - March peak demand storage deliverability maintained to end of March

Storage Deliverability Targets

New storage deliverability targets approved as part of the 2015 rate application



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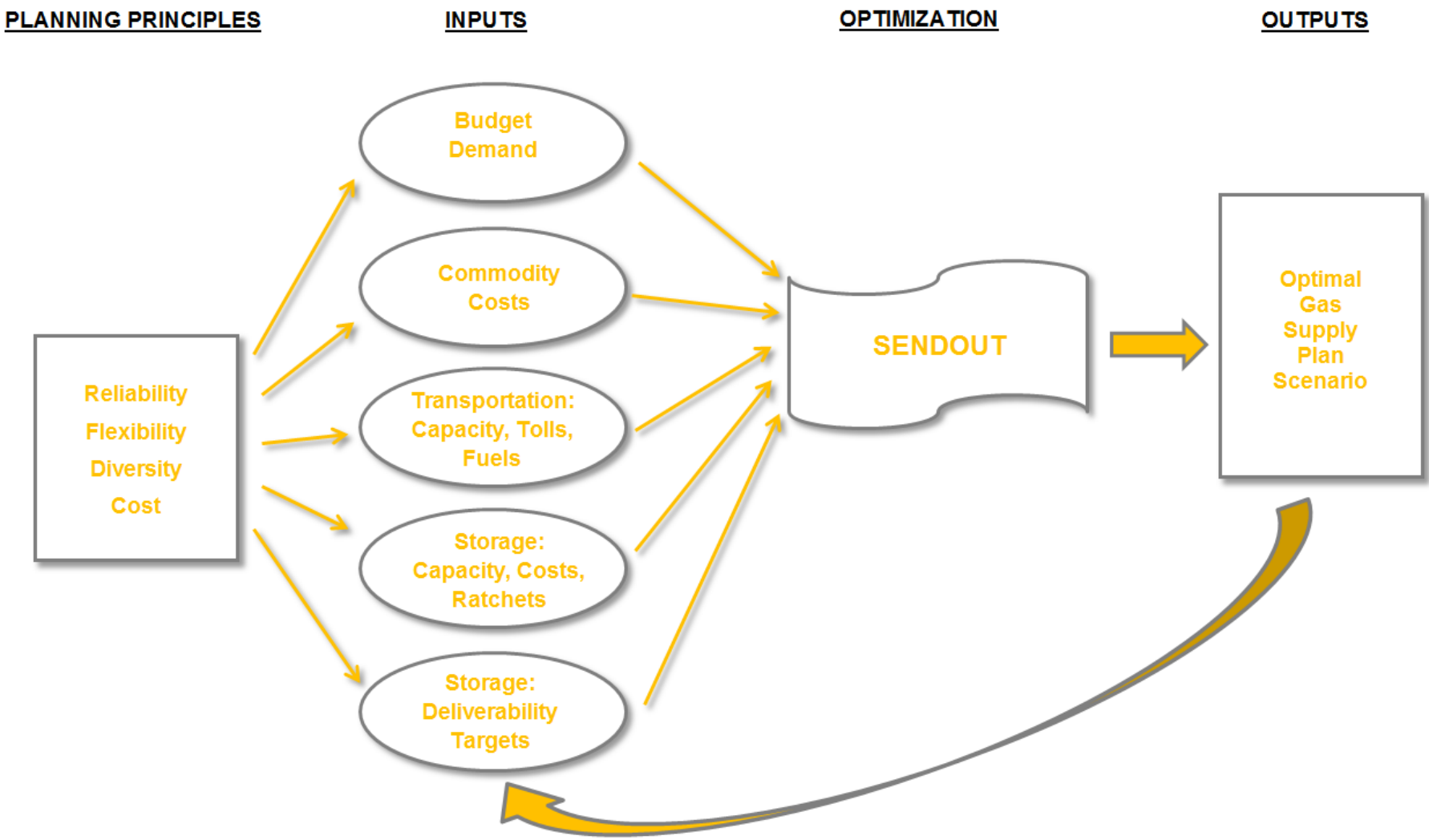
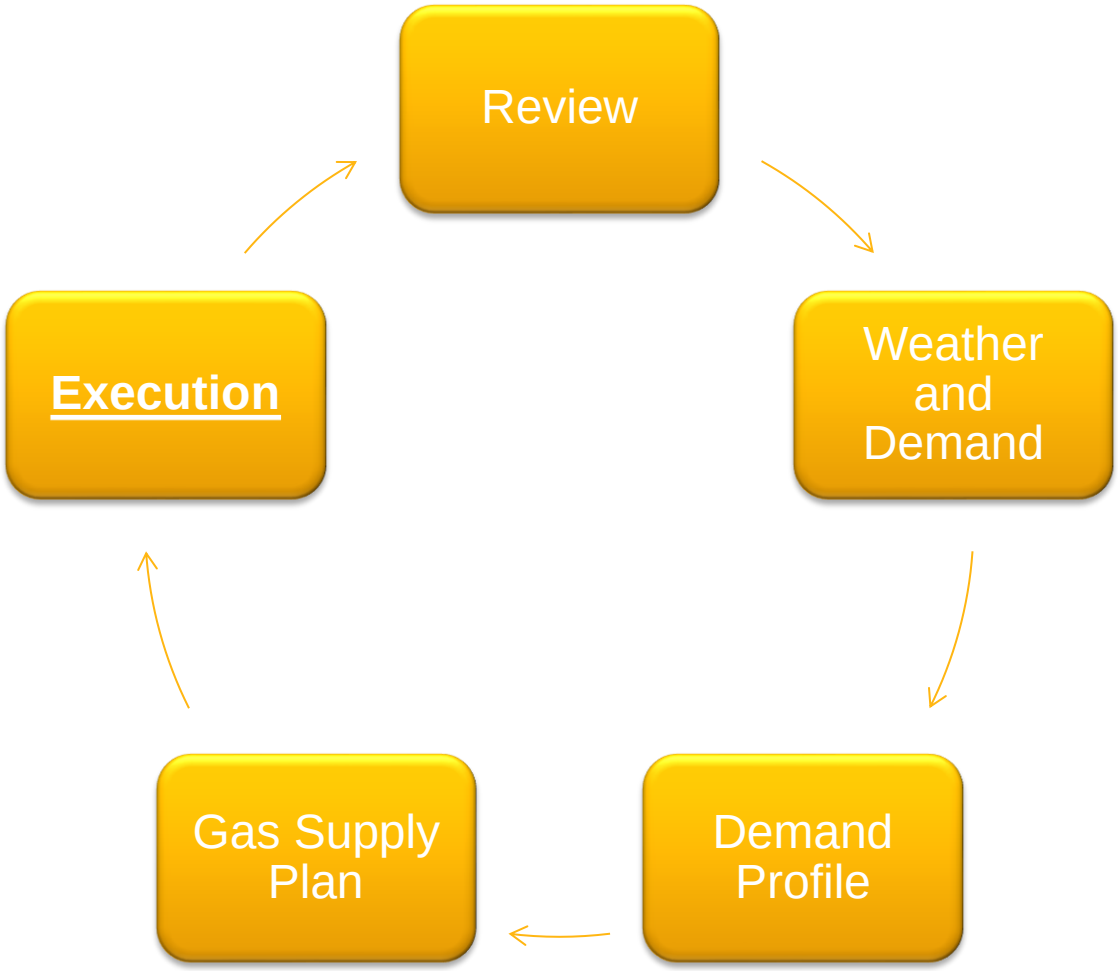
Gas Supply Plan Optimization and Evaluation

SENDOUT used to optimize and evaluate gas supply plan scenarios



Execution of the gas supply plan

Fifth step in the cycle is dealing with variances between budget and actual weather and demand



Execution of Gas Supply Plan

The Gas Supply Plan is closely monitored and managed throughout the year by a diverse team

- Operational planning meetings are conducted on a frequent basis to determine how weather and demand variances from budget are to be managed
- Frequency of operational planning meetings varies throughout the year
- Operational planning meetings overseen by Director Energy Supply and Policy and supported by a diverse cross-functional team

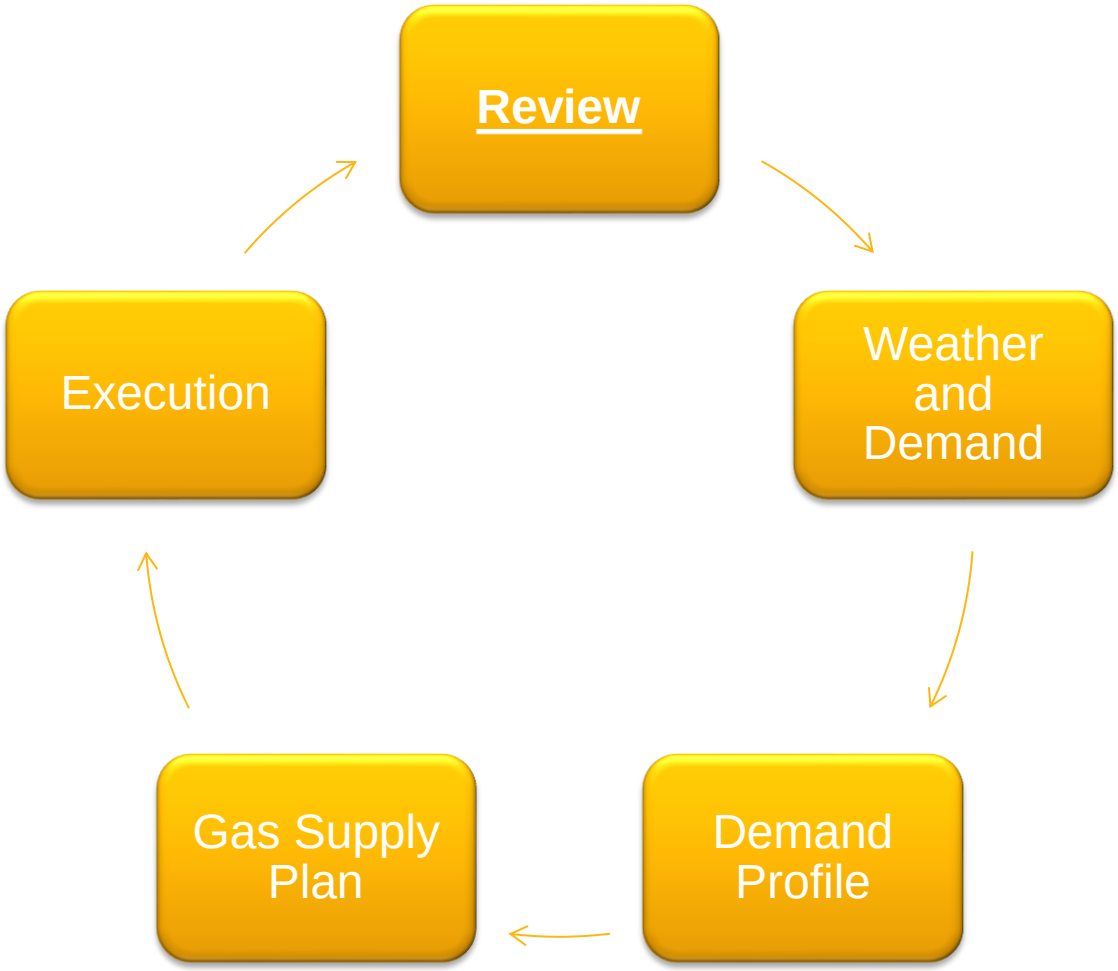
Scope of Operational Planning Meetings

The Gas Supply Plan is closely monitored and managed throughout the year

- Operational planning meetings closely review and monitor factors impacting the gas supply plan
  - Actual and budget year-to-date variances in weather and demand
  - Short term (7 day) and medium term (1 month) weather forecasts
  - Revised gas supply plan outlook that takes into account actual and short term demand forecast
  - Operational updates from Gas Control
  - Operational updates from Gas Storage
  - Procurement strategies
  - Balancing requirements for direct purchase customers
- Outcomes from the operational planning meetings include
  - Direction on any natural gas procurement including Request for Proposal (RFP) requirements to meet current and forecasted demand
  - Direction on customer curtailment requirements
  - Direction on make-up and suspension balancing availability for direct purchase customers

Review of changes in the natural gas marketplace

Sixth step in the cycle is examining considerations leading into the 2016 gas supply planning cycle



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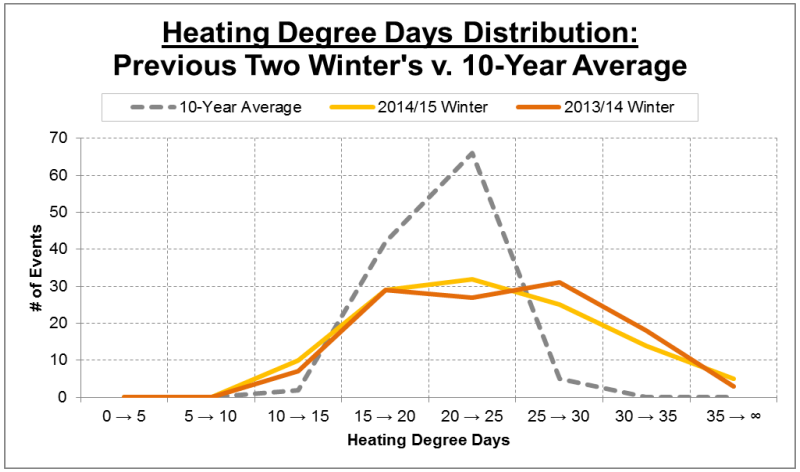
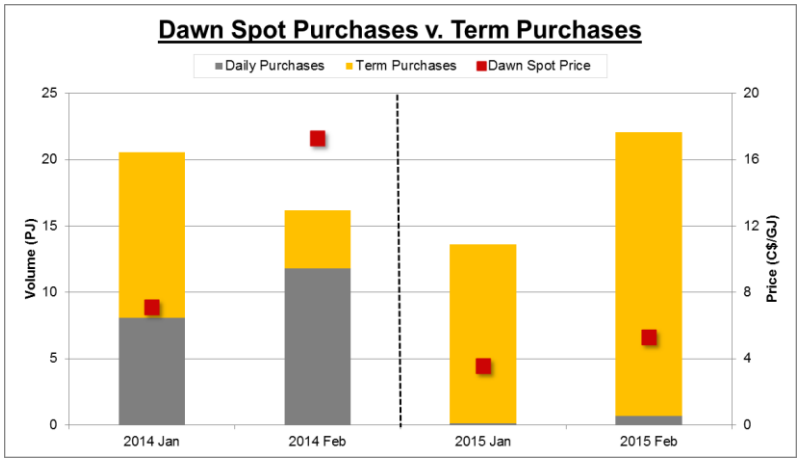
Review of Winter of 2014/2015

- Winter 2014/2015 weather exceptionally colder than normal and similar to Winter 2013/2014
- Winter 2014/2015 QRAM adjustment not similar to Winter 2013/2014





- Change in storage deliverability targets and longer term weather forecasts enabled shift in gas procurement strategy
- Change in procurement strategy reduced exposure to Dawn daily pricing

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Future Storage Management

- Incremental storage assets being evaluated for post-2016 Gas Supply Plan
- Preliminary analysis indicates 16 Bcf of incremental storage required

Incremental Storage Requirements*: Various Design Criteria (Normal Distribution)			
Design Criteria Recurrence Interval	Associated Probability of Being ≥	Central Weather Zone Winter HDD	Incremental Storage Requirement (Bcf)
Current 1 in 2	50%	2,945	-
1 in 5	20%	3,207	9
1 in 10	10%	3,303	14
1 in 15	≈6%	3,364	16
Peak Day Equivalent	5.7%	3,369	16
1 in 20	5%	3,384	21
* Analysis based on 2015 budget			

Bundled and Unbundled Transportation Services

Direct purchase customers are starting looking to other supply hubs

- The Dawn Access Consultative Settlement contemplated additional bundled and unbundled transportation services in the future
- Consultation on additional bundled services would be conducted when:
  - Demand for additional bundled transportation service(s) are from a liquid hub
  - Demand for additional bundled transportation service(s) are at least 50,000 GJ/d
- Additional consultation expected in 2016 to define the required criteria such as liquidity
- Consultation initiated with unbundled customer representatives

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Questions and Open Discussion