2027 Electric and Natural Gas Integrated Resource Plans

Technical Advisory Committee Meeting No. 4 Agenda

Wednesday, January 21, 2026

Virtual Meeting – 1:00 pm to 4:00 pm Pacific Time

Topic	State	Audience
• Introduction and Questions from TAC 3		
• Carbon Sequestration	All	E&G
• Natural Gas Market Overview	All	E&G
• Natural Gas Price Forecast	All	E&G
• Cost of Carbon (SCC, Allowances, CCI)	All	E&G
• Natural Gas and Electric Coordination	All	E&G
• DER Forecast Impact on Distribution Systems (Moved to TAC 5		
• Sub-Hourly DER Resource Value Analysis (Moved to TAC 5)		

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For organizers: Meeting options | Reset dial-in PIN

Introductions 2027 Electric & Gas Integrated Resource Planning

TAC 4 – January 21 , 2026

John Lyons, Ph.D. – Senior Resource Policy Analyst

TAC 4 Agenda

- Introduction and Questions from TAC 3, John Lyons
- (Moved from TAC 3, Jan. 2026) Carbon Sequestration (E&G), Robert Hughes
- Natural Gas Market Overview and Price Forecast (E&G), Jon Lee
- DER Forecast on Distribution System (Distribution), Erik Lee
- Cost of Carbon – SCC, Allowances, CCI (E&G), Michael Brutocao
- Natural Gas and Electric Coordination (E&G), Scott Kinney
- Electric Sub-Hourly Modeling will be covered in TAC 5

Meeting Guidelines

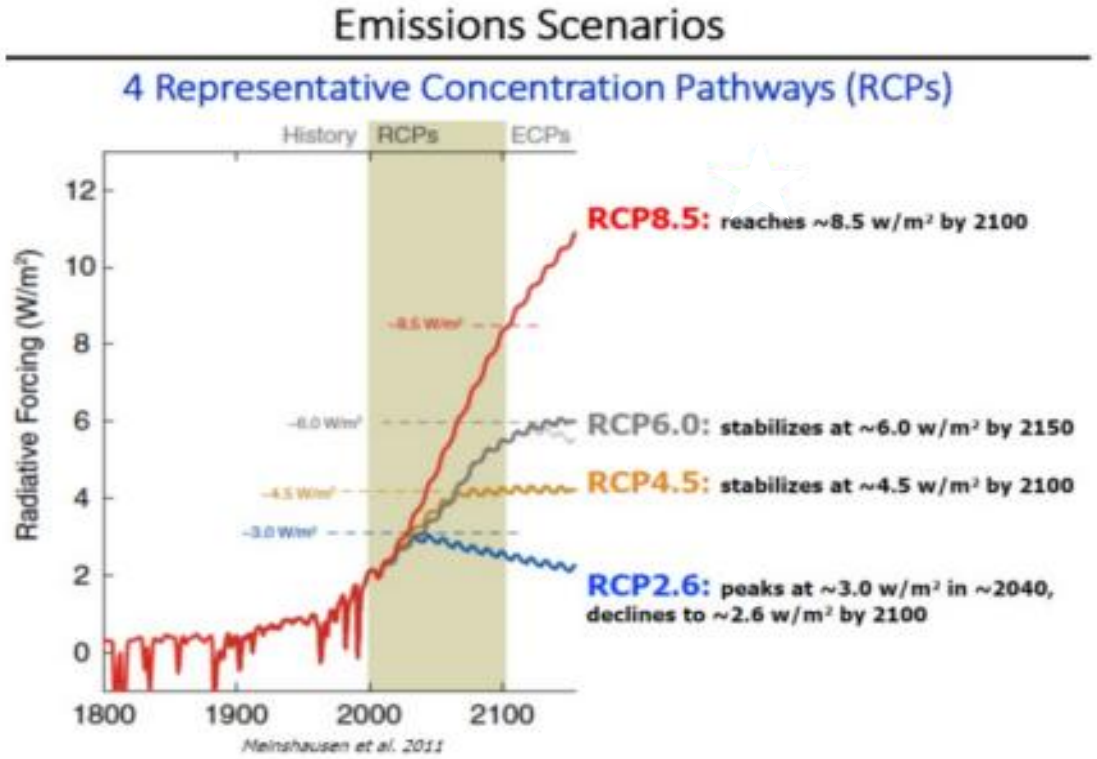
- IRP team is in office Monday – Wednesday; also available by email, phone and Teams for questions and comments
- Stakeholder feedback responses shared with TAC at meetings, in Teams and in Appendix
- Working IRP data posted to Teams
- All TAC meetings will be virtual on Teams
- Draft TAC presentations emailed three days before each meeting
- Final TAC presentations, meeting notes and recordings posted on IRP page

Virtual TAC Meeting Reminders

- Please mute mics unless speaking or asking a question
- Raise hand or use the chat box for questions or comments
- Respect the pause
- Please try not to speak over the presenter or a speaker
- Please state your name before commenting for the note taker
- This is a public advisory meeting – presentations and comments will be documented and recorded

Temperature Forecast Update

- At the November TAC meeting Avista proposed using RCP 4.5 trends for the hydro and load forecast.
- Avista received comments to use RCP 8.5 trends (warmer future).
- Avista is considering moving to RCP 8.5 and will provide a comparison of temperature and hydro forecasts at the February TAC 5 and options will be discussed at this time.



Oregon Study Aldyl-A Pipeline Replacement Program & Targeted Voluntary Electrification (TVE) Pilot

TAC 4 – January 21, 2026

- Shawn Bonfield – Senior Manager Regulatory Policy

Study Scope of Work

1. Assessment of Aldyl-A pipe where capping or pruning is possible to include in study
   - Capping or pruning is intended to mean identifying sections of the natural gas system that may be decommissioned or removed.
2. Determine low, average, and high Aldyl-A replacement costs for each pipe segment identified
3. Use following inputs to study electrification potential for identified pipe segments
   - Cost of pipe segment replacement
   - Electrification costs
   - 2025 Natural Gas IRP Preferred Resource Strategy, including incremental Climate Protection Program costs and incremental costs of known and quantified Non-Energy Impacts (NEIs)
   - Costs to cap or prune pipe segments
   - Cost of lost margin due to loss of pipe segment and customer meters
4. Study will produce:
   - # of meters with cost-effective electrification potential
   - CPP compliance cost savings
   - # of potential pipe segments to include in TVE pilot
   - Potential gas load reduction
   - Potential carbon reduction

Pipe & Customer Information for Study

City	# of Pipe Segments	# Customers	Avg. # of Customers per Segment	Total Pipe Footage	Avg. Footage per Segment
ASHLAND	19	74	4	4,596	242
CANYONVILLE	1	3	3	138	138
CENTRAL POINT	8	25	3	2,837	355
ELGIN	3	6	2	604	201
GOLD HILL	2	13	7	1,627	814
GRANTS PASS	34	165	5	10,351	304
ISLAND CITY	1	3	3	333	333
KLAMATH FALLS	46	159	3	16,047	349
LA GRANDE	11	38	3	2,653	241
MEDFORD	36	130	4	10,979	305
NORTH POWDER	2	5	3	429	215
OAKLAND	1	1	1	68	68
PHOENIX	2	6	3	437	219
ROGUE RIVER	1	7	7	385	385
ROSEBURG	32	128	4	11,713	366
SUTHERLIN	1	2	2	9	9
UNION	5	6	1	672	134
WHITE CITY	1	2	2	244	244
WINCHESTER	3	4	1	889	296
Total	**209**	**777**	**4**	**65,010**	**311**
Miles				**12.3**	

Residential Customers	611
Commercial Customers	166
Max Customer per Segment	21
Min Customer per Segment	1
Max Length of Segment	2,453
Min Length of Segment	3

Timeline

Study

- February – preliminary study results available
- March – feedback from interested parties on results
- April-May – finalize study to be filed on June 1st

TVE Pilot

- January – internal pilot development kick-off
- February-July – pilot development & engagement with interested parties
- September 1st - tariff filing for pilot
- January 1, 2027 – pilot launch

TAC 5 – Friday, February 20, 2026 (13:00 – 16:00 PST)		
Topic	**State**	**Audience**
★ RCP 8.5 vs 4.5 Trends	All	E&G
★ DER Forecast on Distribution System (Distribution)	WA	Electric
New Electric Resource Options	WA/ID	Electric
Wholesale Price Forecast – Deterministic	WA/ID	Electric
Electrification Assumptions and Scenarios	All	Gas
★ Sub-hourly DER Resource Value Analysis	WA/ID	Electric

TAC 6 – Monday, March 16, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
★ New Gas Resource Options	All	Gas
★ Liquified Natural Gas Analysis	All	Gas
Wholesale Market Price Scenarios	WA/ID	Electric
All-Source RFP Update	WA/ID	Electric
Economic Forecast and Five-Year Load Forecast	All	E&G

TAC 7 – Wednesday, April 15, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Energy Efficiency Savings Since 2025 IRP	OR	Gas
Hybrid Heat Pump Program Update	OR	Gas
Gas Avoided Cost	All	E & G
Long-Run Load Forecast	All	E & G
End-Use Load Forecast	All	E & G
★ Wholesale Price Forecast – Stochastic	WA/ID	Electric

TAC 8 – Monday, April 20, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Conservation Potential Assessment	All	E & G
Demand Response Potential Assessment	All	E & G

TAC 9 – Friday, May 15, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
IRP Generation Option Transmission Planning Studies	WA/ID	Transmission
Distribution System Planning within the IRP	WA/ID	Dist.
Transmission Project Example Evaluation	WA/ID	Transmission
QCC Forecast	WA/ID	Electric
Gas Distribution Update	All	Gas
Natural Gas Availability & Resiliency	All	Gas

TAC 10 – Wednesday, May 27, 2025 (9:00 – 12:00 PDT)		
Topic	**State**	**Audience**
CEIP Update	WA	Electric
CETA Interim/Energy Compliance Report	WA	Electric
Load Forecast Update	All	E & G

TAC 11 Technical Modeling Workshop – Monday, June 15, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
PRiSM Model Tour	All	E & G
Aurora Resource Adequacy Model Tour	WA/ID	Electric
New Resource Cost Model	All	E & G

TAC 12 Wednesday, July 15, 2026 (TDB)		
Topic	**State**	**Audience**
Load & Resource Balance and Methodology	WA/ID	Electric
Loss of Load Probability	WA/ID	Electric
WRAP Update	WA/ID	Electric
Draft Preferred Resource Strategy Results	All	E & G
ETO Energy Savings	OR	Gas

TAC 13 – Monday, August 17, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Preferred Resource Strategy Results	All	E & G
Oregon Non-Pipe Alternatives	OR	Gas
Aldyl-A Analysis and Targeted Voluntary Electrification	OR	Gas
IRP/Progress Report Outlines	All	E & G
Next Steps	All	E & G

TAC 14 – Thursday, September 17, 2026 (13:00 – 16:00 PDT)		
Topic	**State**	**Audience**
Portfolio Scenario Analysis	All	E & G
Avoided Cost	All	Electric
Resource Adequacy Results	WA/ID	Electric
CBI Forecast and Results/Energy Burden	WA/OR	E & G
Final Report Overview and Comment Plan	All	E & G
Action Items	All	E & G

Electric Transmission & Distribution 5-Year Plan – October 7, 2026 (10:00 – 12:00 PDT)		
Topic	**State**	**Audience**
Electric Trans Transmission & Distribution 5-Year Plan	WA/OR	Electric

Other Key Dates

- Oct 15, 2026 – Draft Electric IRP Released to TAC
- Nov TBD 2026 – Virtual Public Meeting
  - Noon-1pm
  - 6-7pm
- Jan 1, 2027 – Final Electric IRP Filed
- Feb 15, 2027 – Draft Gas IRP Released to TAC
- Apr 1, 2027 – Final Gas IRP Filed

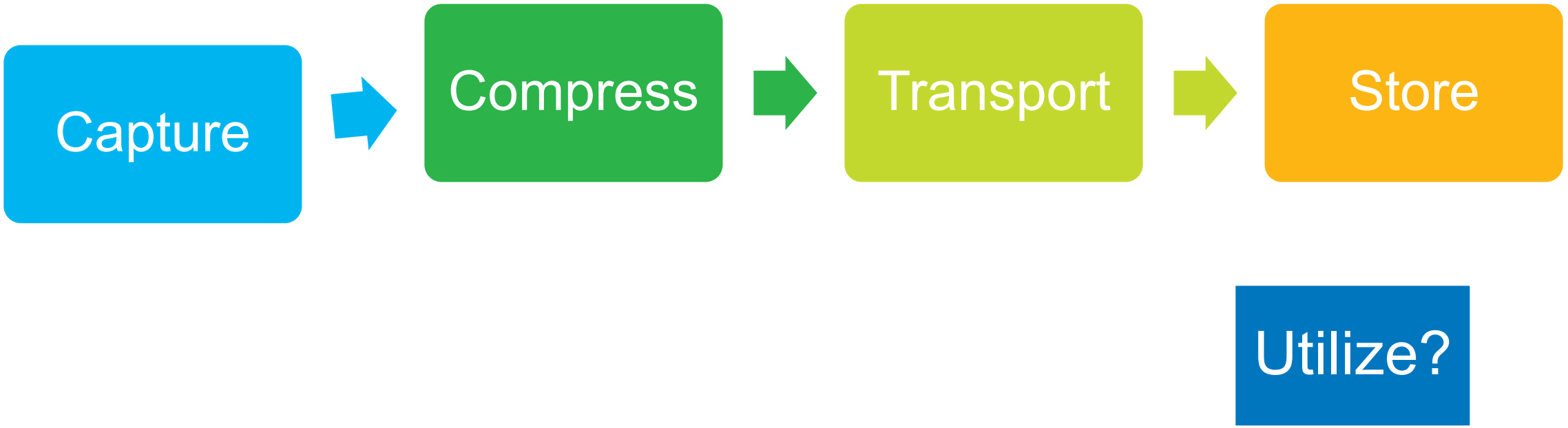
Carbon Capture Utilization and Sequestration

2027 IRP, Technical Advisory Committee Meeting No. 4

January 21, 2026

Robert Hughes – Resource Planning Analyst

What Is Carbon Capture Utilization and Sequestration?



Different Methods of Capture

Post Combustion – using chemical solvents (amine) to absorb CO_2 from flue gas after a fuel is burned

Pre Combustion – converting the fuel to synthetic gas (hydrogen + oxygen) then react CO with steam to produce CO_2 for separation

Oxy Fuel Combustion – burn fuel in pure O_2 creating flue gas of mostly CO_2 and water vapor

Direct Air Capture (DAC) – pulls CO_2 directly from air using liquid solvents or solid sorbents.

9.2. Carbon Dioxide Capture Approaches | netl.doe.gov

Post Combustion Capture Units

Boundary Dam Carbon Capture Project

Toshiba Starts Operation of Large-Scale Carbon Capture Facility |

Ravenna Italy CCS

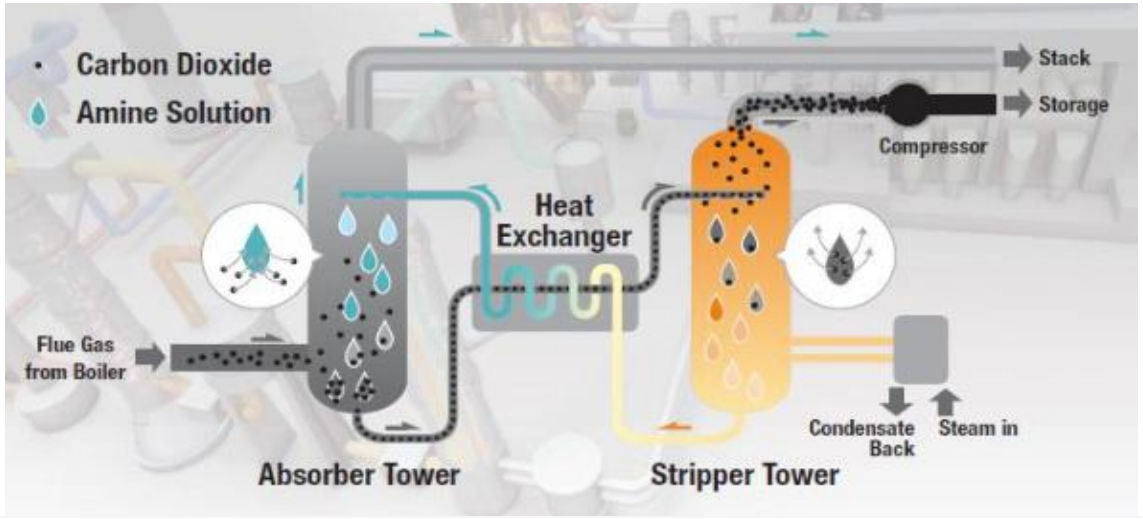
Post Combustion Capture and DAC

Flue gas from combustion process must be cooled and “scrubbed” of amine degrading particulates like SOx and NOx. The result is a flue gas of CO_2 concentration ranging from 3 to 10%

Flue gas flows up an absorber stack while the liquid amine solvent flows down, reacting with the CO_2 creating carbamate compounds at the bottom

This CO_2 rich solvent is then pumped to the stripper (desorber) stack where steam breaks the CO_2-amine bond releasing concentrated CO_2 to be piped out and compressed. Solvent is recycled back into absorber

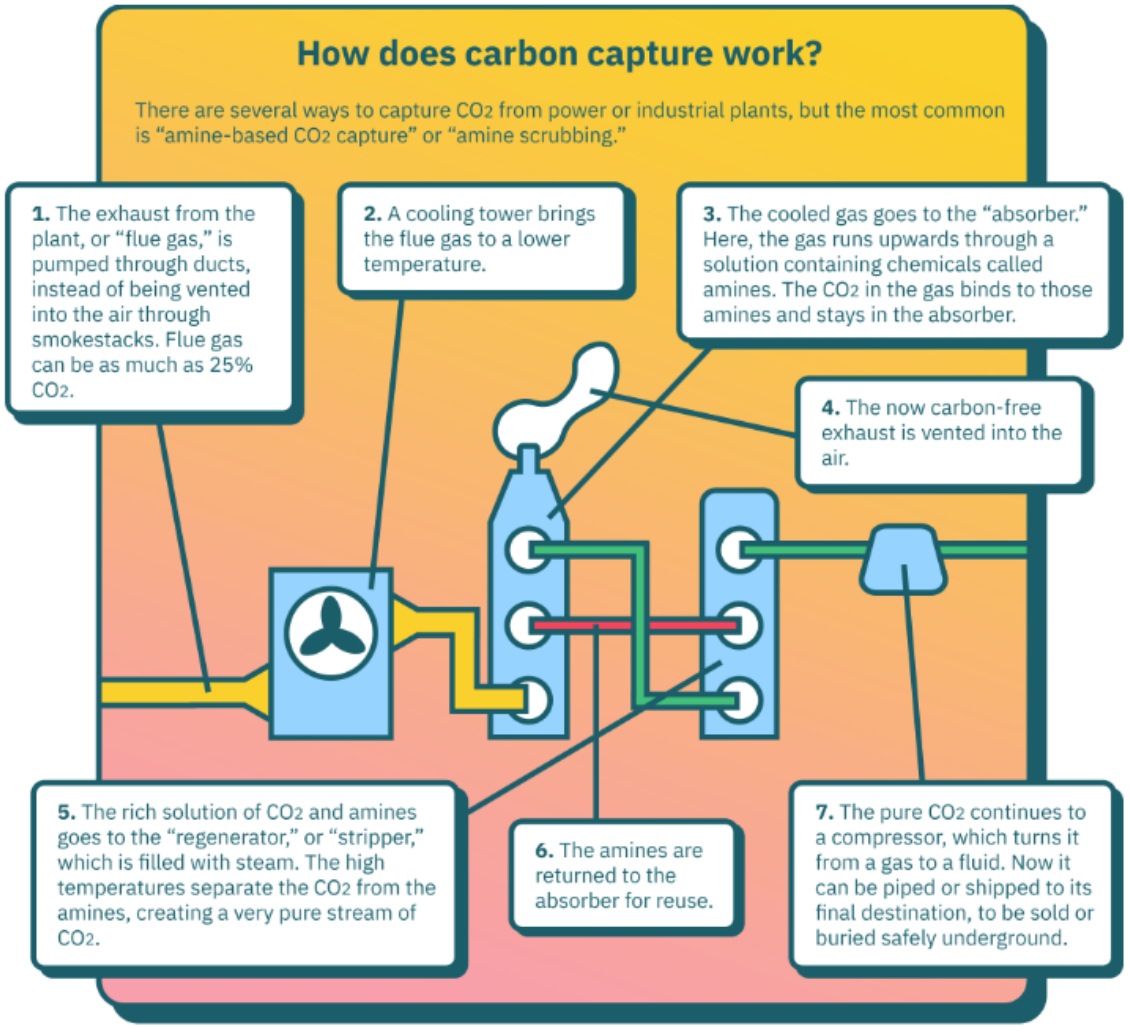
Direct Air Capture units operate in similar way but instead of flue gas large fans pull CO_2 (~0.04%) from the ambient air



Compression

- Captured pure CO_2 goes to a compressor to turn it from a gas to a liquid like state (supercritical fluid)

What Is Carbon Capture



[Carbon Capture | MIT Climate Portal]

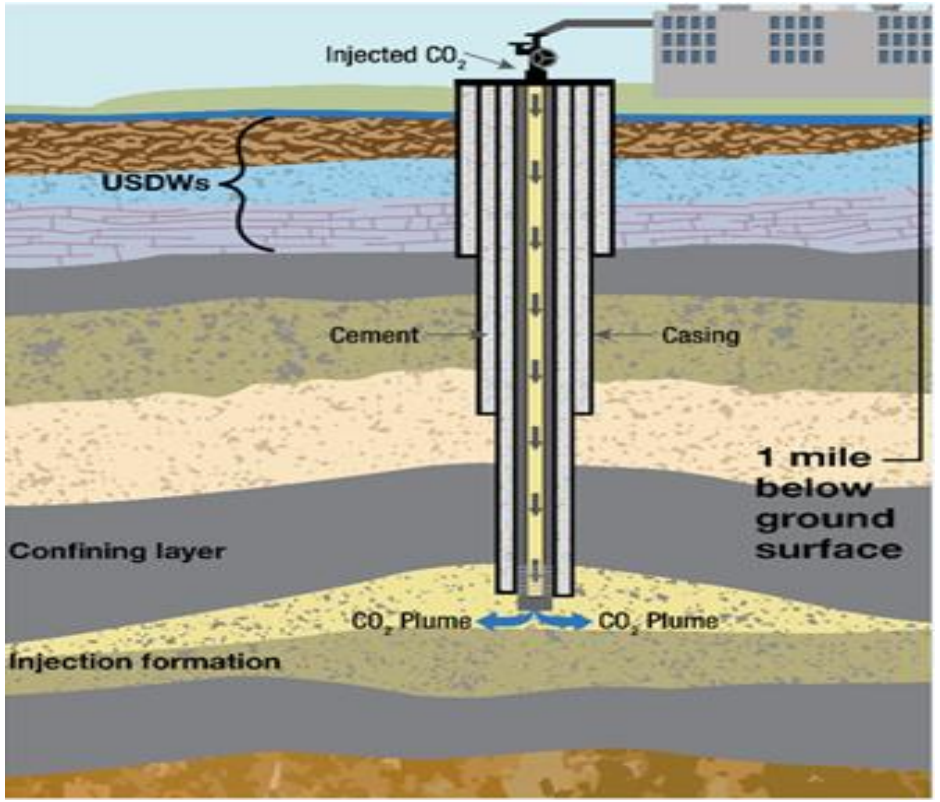
Transport

- CO_2 is moved to storage sites by truck or pipeline.

Pilot programs and testing underway for liquid CO_2 transport

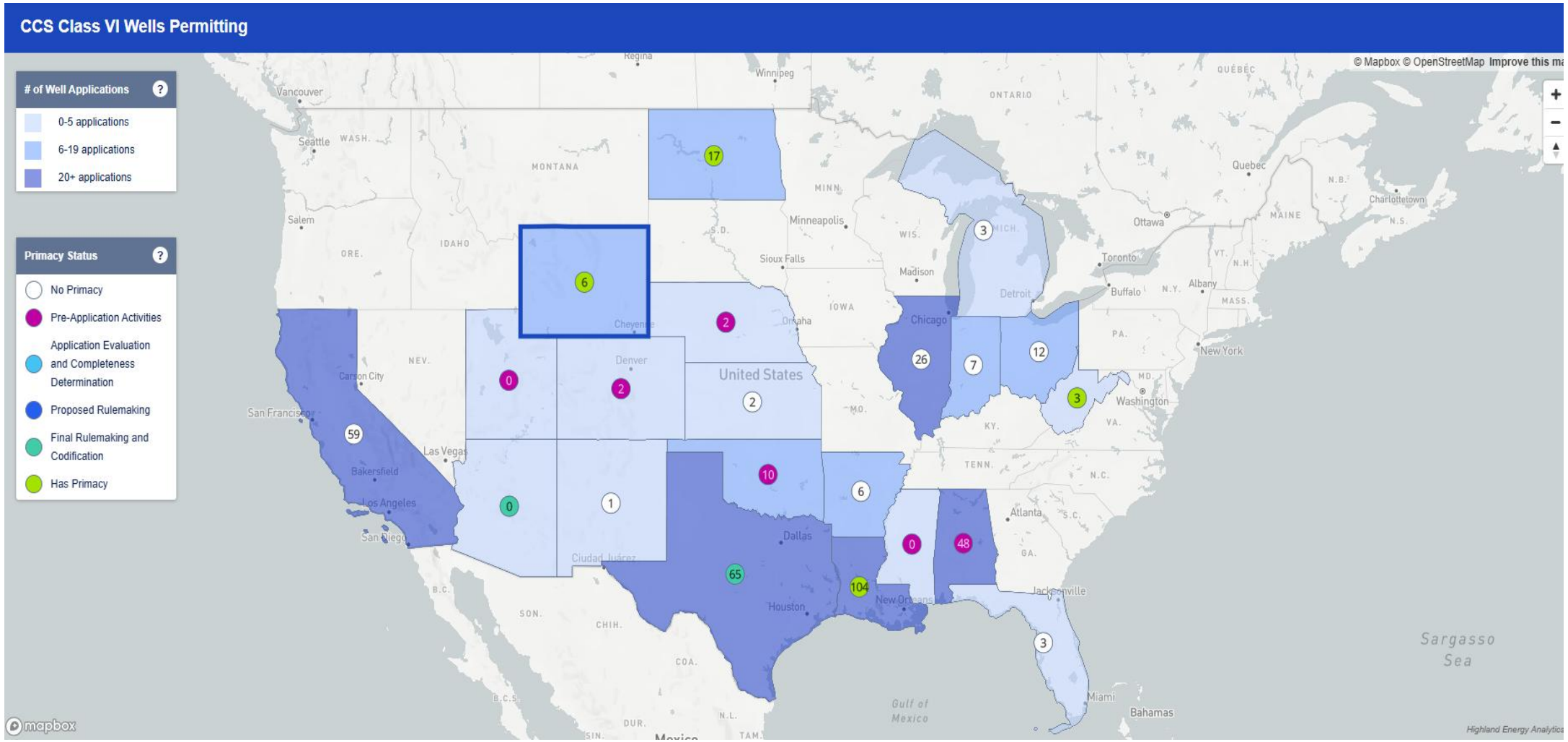
Storage

- CO_2 is injected deep underground into formations such as depleted oil and gas reservoirs, saline aquifers, coal seams.



Wyoming CARBSafe Project Class VI Well Permitting | Trihydro.

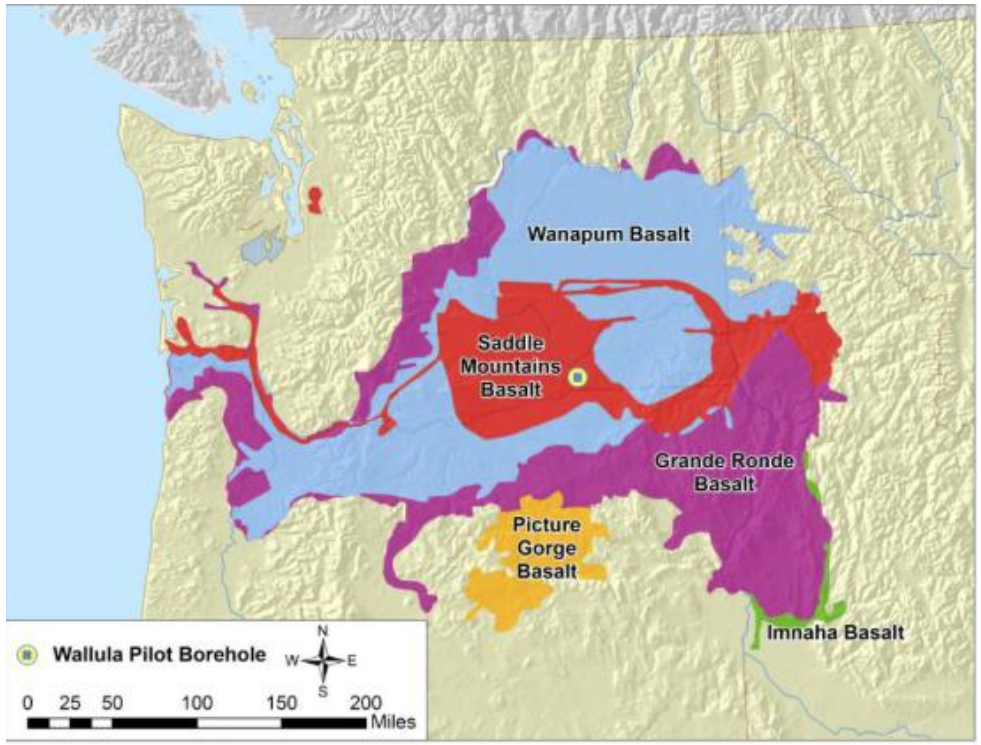
Sequestration

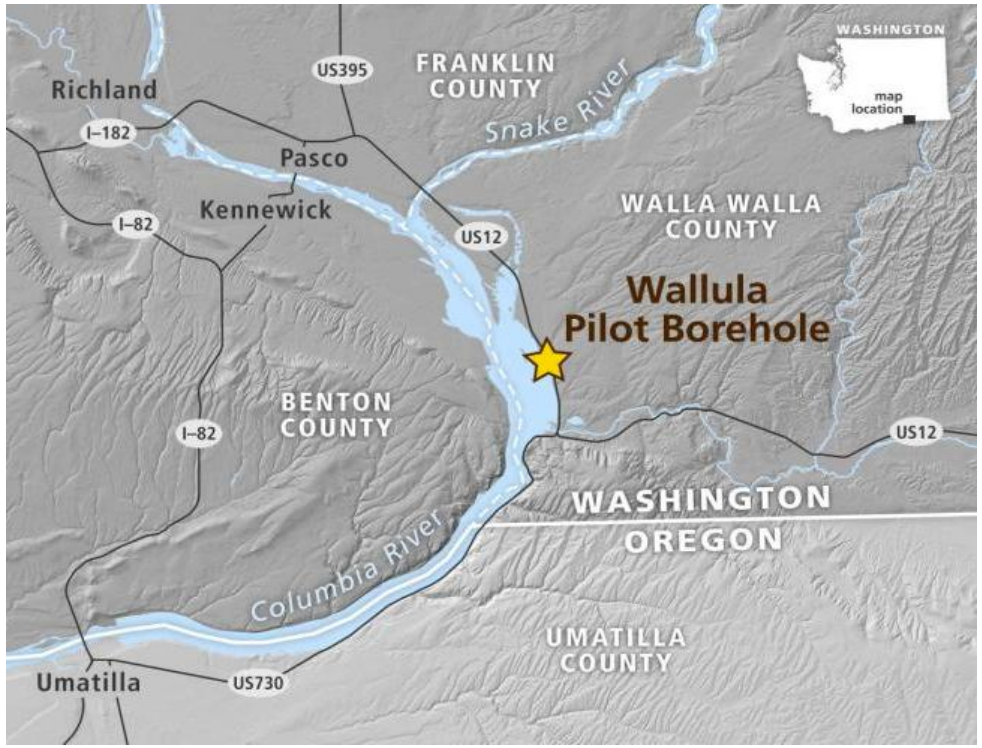


EPA gives a rough timeline of 24 months to approve permit upon receiving Class VI application

[CCS Class VI Wells Map – Clean Air Task Force](#) [Geologic Carbon Dioxide Sequestration Interactive Map | U.S. Geological Survey](#)

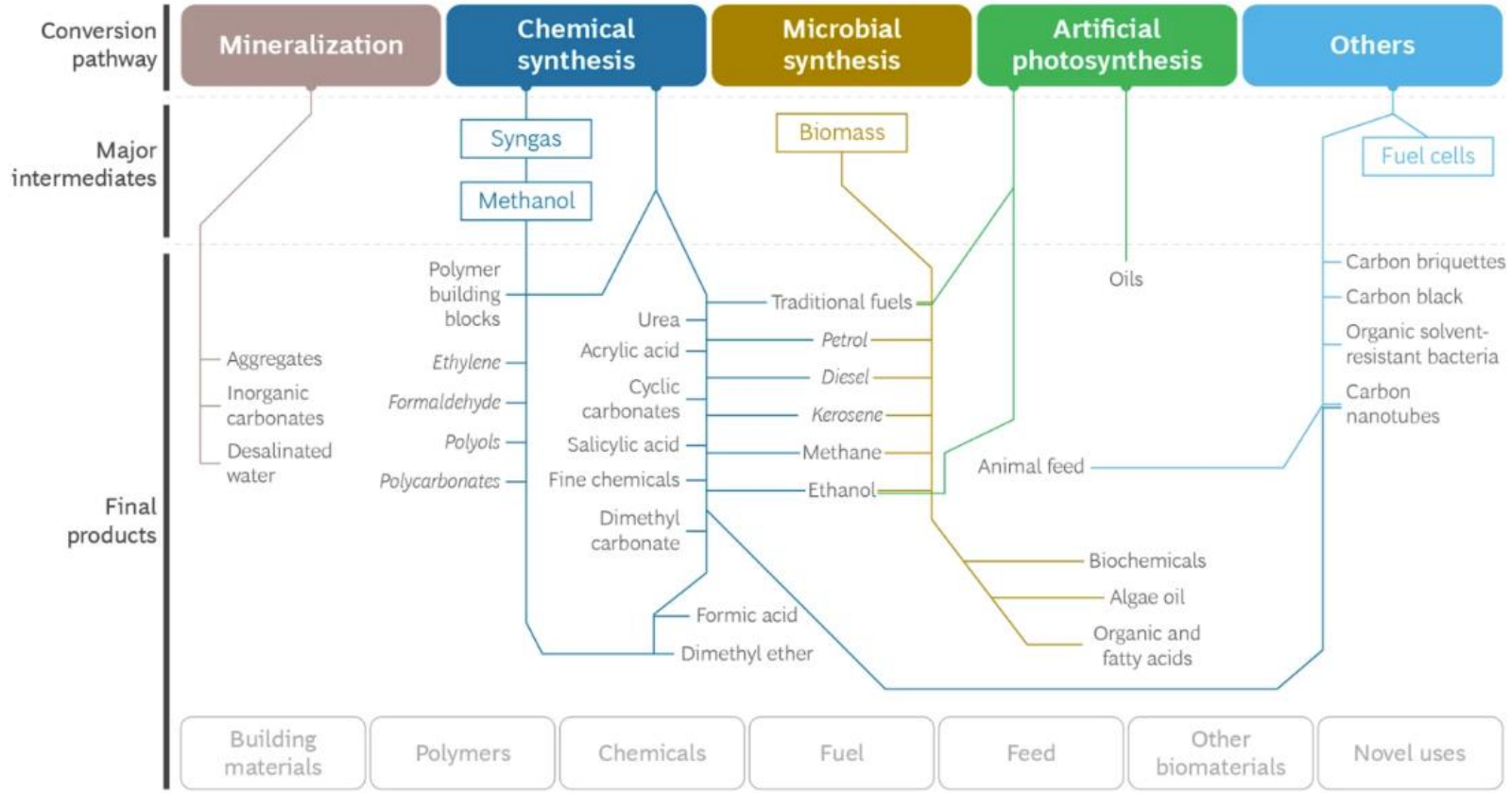
Potential Sequestration Site In Washington





[Wallula Basalt Project | PNNL](#) [Geologic Carbon Sequestration | Department of Natural Resources](#)

Using CO_2



Source: BCG analysis.

[Four Applications of Carbon Capture and Utilization | BCG]

Industry Examples of Post Combustion Carbon Capture

SaskPower CCS on Unit 3 at Boundary Dam*

Petra Nova at WA Parish Generating Station in Texas*

Several Front-End Engineering Design Studies of CCUS on Natural Gas Combined Cycle power plants: James M Barry Plant(AL), CalCapture Project(CA), Panda Sherman Plant(TX), DOE/EPRI studies of H and F frames and carbon capture using Shell CANSOLV

Unaware of any large scale commercial operating NGCC plants with post combustion carbon capture

Article. A New Day Begins for Shuttered Petra Nova CCUS *coal fire power plants

2027 IRP Modeling Assumption (New Build)

New Natural Gas CCCT w/ 95% CCS			
1x1 H Frame			
Input	***Value***		***Units***
Plant Size		500	MW
Heat Rate		7795*	Btu/kW
Parasitic Load		60	MW
Net Generation		440	MW
Run Hours		8320	Hours per Year
Plant Life		30	Years
Overnight Capital Costs	$	4,376	$/kW
Fixed O&M	$	78	$/kW-yr
Variable O&M	$	10.30	$/MWh
CO2 Storage & Transportation Cost		$25	$/MT
45Q Credit		($85)	$/MT

Cost considerations given our area:

- On or near site sequestration could limit turbine location
- Land requirements
- Water rights (8.1gpm/MW(net))
- Plant reconfiguration/piping
- Current sequestrations sites would require transport of CO_2
- Nearest Class VI Well in Wyoming

*NREL Lazard PNUCC *assuming no water cooling

2027 IRP Modeling Assumption (Retrofit)

Retrofit w/ 95% CCS			
Input	***Value***		***Units***
Plant Size	-		MW
Heat Rate Reduction	12%		Btu/kW
Parasitic Load	11%		MW
Net Generation	89% of Plant		MW
Run Hour Reduction	2%*		Hours per Year
Additional CAPEX	$	1,957	$/kW
Additonal Fixed O&M	$	38	$/kW-yr
Additonal Variable O&M	$	6	$/MWh
CO2 Transport & Storage Cost		$25	$/MT
45Q Credit		($85)	$/MT

Cost considerations given our area:

- On or near site sequestration could limit turbine location
- Land requirements (roughly double power plant size)
- Additional Water rights (3.6 gpm/MW(net)
- Plant reconfiguration/piping
- Current sequestrations sites would require transport of CO_2
- Nearest Class VI Well in Wyoming

Evaluating Retrofit Costs at

- Coyote Springs
- Boulder Park
- Lancaster

*assuming carbon capture unit would require an additional 2% forced outage rate of an existing plant White Paper | Carbon Capture System Design for Natural Gas Power Generation

Carbon Capture and CETA (Washington)

Washington Clean Energy Transformation Act- RCW 19.405.020(27)(a) states :

"Non-emitting electric generation" means electricity from a generating facility or a resource that provides electric energy, capacity, or ancillary services to an electric utility and that does not emit greenhouse gases as a by-product of energy generation."

Does an 80% to 95% Carbon Capture facility meet this obligation?

RCW 19.405.020: Definitions.

Natural Gas Market Overview

TAC 4 – January 21, 2026

Jon Lee, Resource Planning Analyst

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North America Natural Gas Outlook – Key Assumptions

Macro assumptions

Geopolitics

- The likelihood for a peace agreement between Russia and Ukraine has weakened since our previous outlook. We now assume the war is going to end by 2030 with the US lifting sanction from 2030 and the EU maintaining restrictions.
- Gaza-Israel tension lingers and the risk of Yemen Houthi attacks on Suez Canal shipping remains. We assume this risk persists through end-2026.
- Ceasefire in Iran-US-Israel war continues to hold. A nuclear agreement is reached in 2030 when we assume sanctions against Iran are lifted.

Macroeconomic outlook

- We assume the US average tariff peaked in August 2025 at around 25% before falling to 20% by the end of 2026 and to 15% by the end of 2027 as bilateral agreements are struck to reduce tariffs and trade flows are optimised to the new tariff regime.
- US dollar maintains its status as a key reserve currency over the forecast period.
- Federal Reserve interest rates held at 3.75-4% through 2025, cuts resume in 2026.
- We forecast global GDP growth at 2.2% (CAGR), 2030-60.

Energy transition

- Energy and environmental policy diverge with some countries focusing on CO_2 reduction and others, such as the US, deregulate carbon reduction ambitions.
- Global temperature remains projected to rise around 2.6°C compared to pre-industrial levels, based on this outlook.

Gas and LNG assumptions

US LNG

- Pro LNG policies and the removal of the Biden pause have already resulted in six US projects that have taken FID this year (63 mmtpa) - we anticipate more to take FID by end of 2027.

Russian gas and LNG supply

- The EU imposes a full ban on Russian LNG imports from 2027 and a partial ban on piped gas from 2028. Alongside the UK, it maintains this stance even after the war ends, while the US is assumed to lift sanctions on Russian LNG in 2030.
- China receives limited Arctic LNG-2 cargoes, with larger exports dependent on post-2030 sanction relief and expansion of Russia's shipping capability. New pipelines into China show some mid-term progress but we maintain start up of Power of Siberia 2 in 2035, given lack of agreement on pricing.
- Russia's LNG exports remain restricted by the combination of sanctions and logistical issues.

Energy policies and implications for gas

- **Europe**: decarbonisation faces setbacks; gas demand remains resilient; meeting the Fit-for-55 target is at risk, and RePowerEU is even more out of reach.
- **US**: reshoring of strategically important sectors (semiconductor, EV, solar) and data center/AI growth, combined with downside on renewable energy, boost domestic gas demand.
- **Asia**: gas demand growth resumes as prices reduce, but price sensitivity and macroeconomic risks limit upside. By 2035, gas will reach 13% of regional primary demand versus about 11% in 2025.

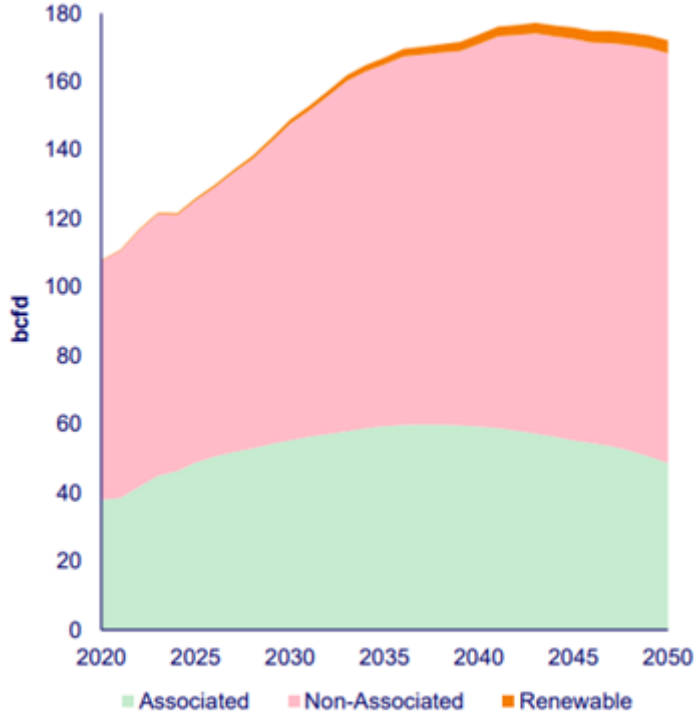
Wood Mackenzie

Source: Wood Mackenzie

North America Natural Gas At-a-Glance

U.S./Canadian markets forecast to expand by 35% between 2025 and 2040 to ~180 bcfd

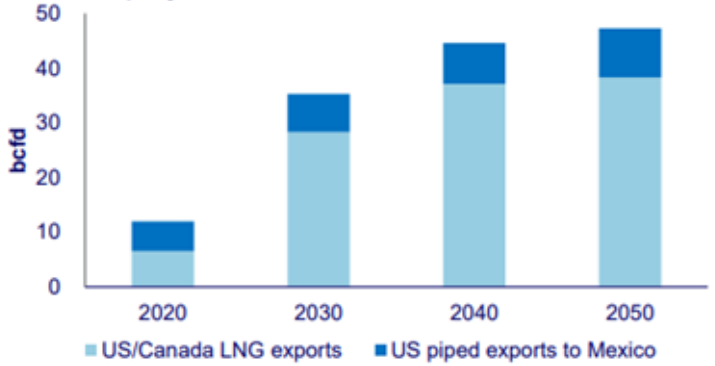
Associated supply growth accelerates but peaks by mid-2030s



Source: Wood Mackenzie

Wood Mackenzie

LNG exports triple by 2050 with renewed momentum behind US projects



Stronger power load growth supports resilient domestic gas demand

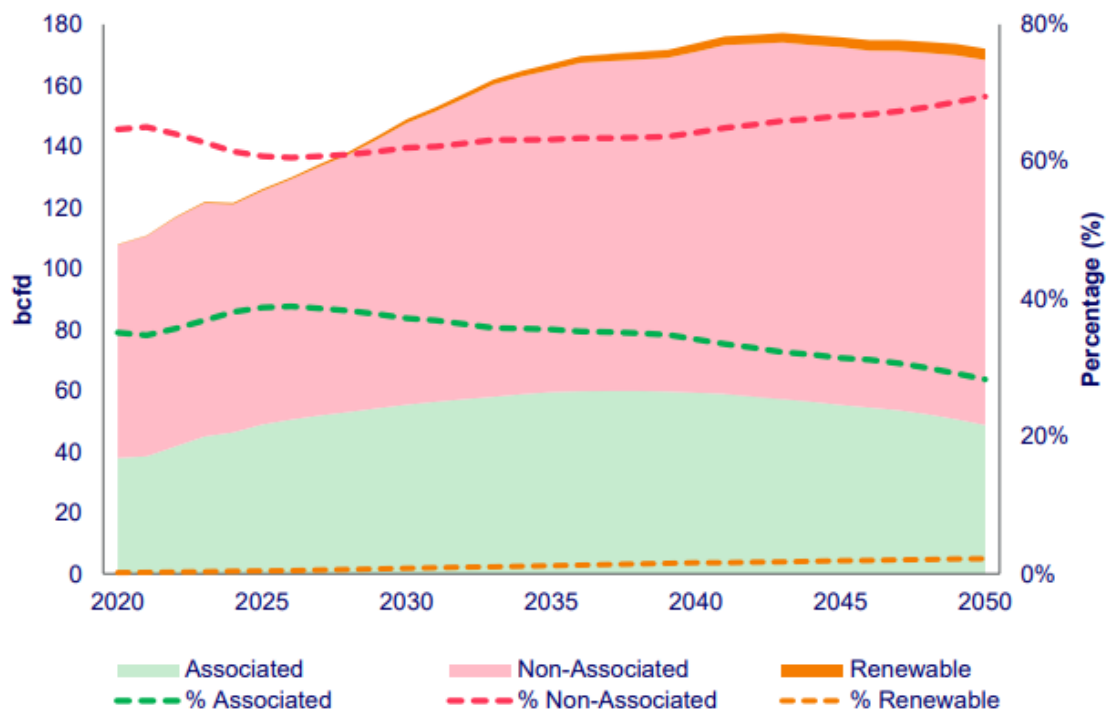
Source: Wood Mackenzie

AVISTA

North America Production Stabilizes ~175 bcfd by 2050

Associated supply increases until the mid-2030s, while non-associated increases significantly after 2040

North America gas by type



Source: Wood Mackenzie

Wood Mackenzie

Renewable

- RNG production capacity to grow from **0.5 bcfd in 2025 to around 3.8 bcfd by 2050** (~2.2% of supply)
- Growth supported by low carbon policies as well as ample biogas feedstock resources

Non-Associated

- Strong near-term prices driving supply growth to meet growing demand
- Gulf Coast, Western Canada, and Northeast production to **increase by a combined 36 bcfd by 2040**

Associated

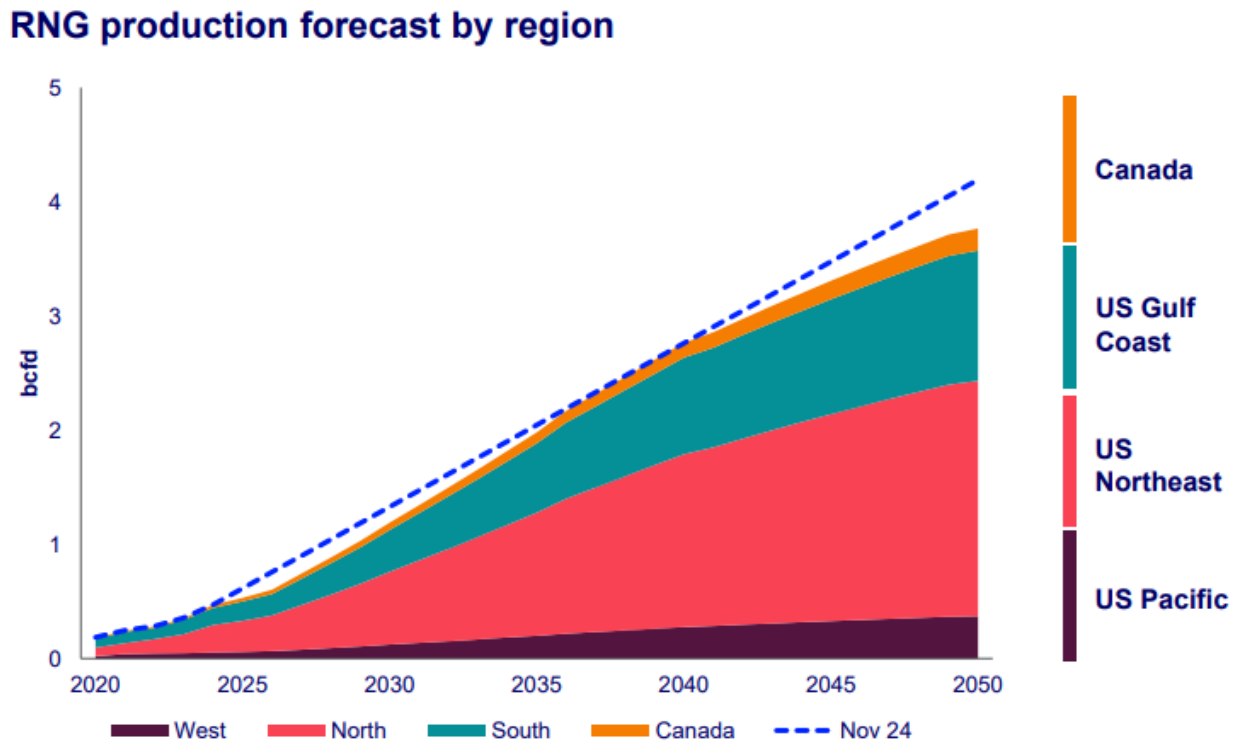
- Modestly slower growth rate in the near-term; lower oil prices a contributing factor
- The **Permian accounts for 83% of associated gas growth by 2035**, adding 9 bcfd from 2025 levels

Source: Wood Mackenzie

AVISTA

Renewable Natural Gas Production at 3.8 bcfd by 2050

The slower growth in RNG production reflects delays in transport sector adoption in both the near and long term, but state decarbonization targets still support RNG development in the 2030s



- FortisBC, one of Canada's largest utilities, has replaced 2% of its total demand with RNG since January 2025
- In Quebec, regulations mandate a minimum of 10% RNG in the gas system starting in 2030
- Texas leads RNG production at 73 mmcfd in 2025; however, Florida has seen significant growth in the last two years
- OH, PA, and WI rank among the top five states for RNG production in 2025, leveraging their large landfill projects and dairy RNG potential.
- Dairy project developments to capitalize on environmental credits from low Carbon Intensity scores

Source: Wood Mackenzie, Argonne National Laboratory RNG Database, IEA Outlook for biogas and biomethane

Wood Mackenzie

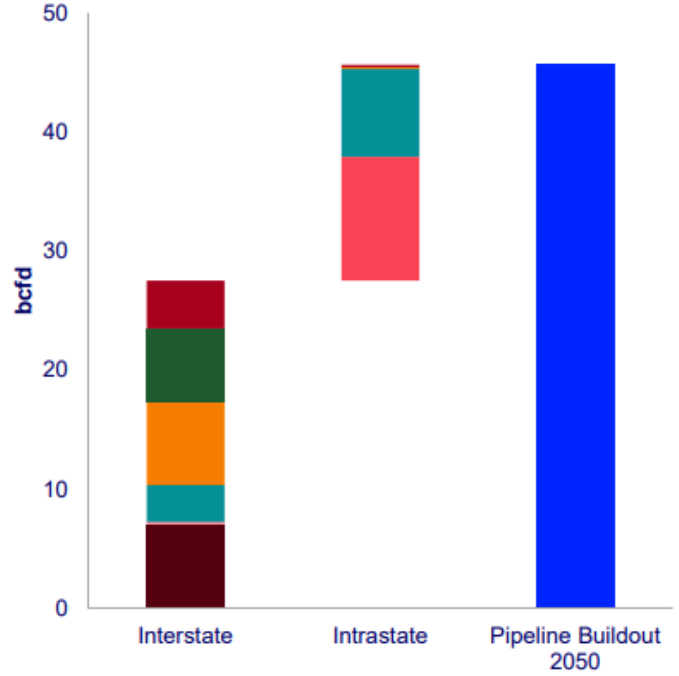
Source: Wood Mackenzie

AVISTA

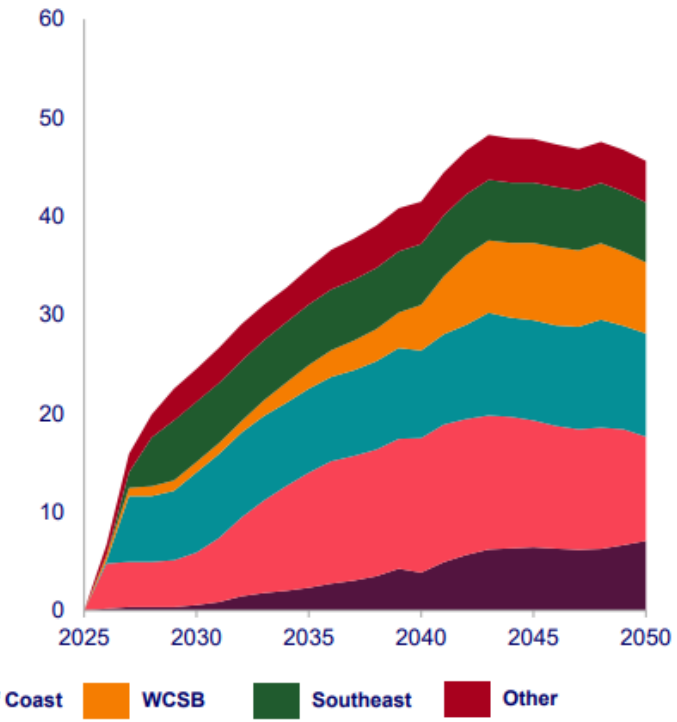
Pipeline Additions Critical for Market Expansion

45 bcfd of capacity additions projected by 2050 from both interstate and intrastate projects

Interstate and intrastate pipeline development change vs. 2025



Pipeline capacity addition (including generics) vs. 2025



Source: Wood Mackenzie

Wood Mackenzie

Key Dynamics

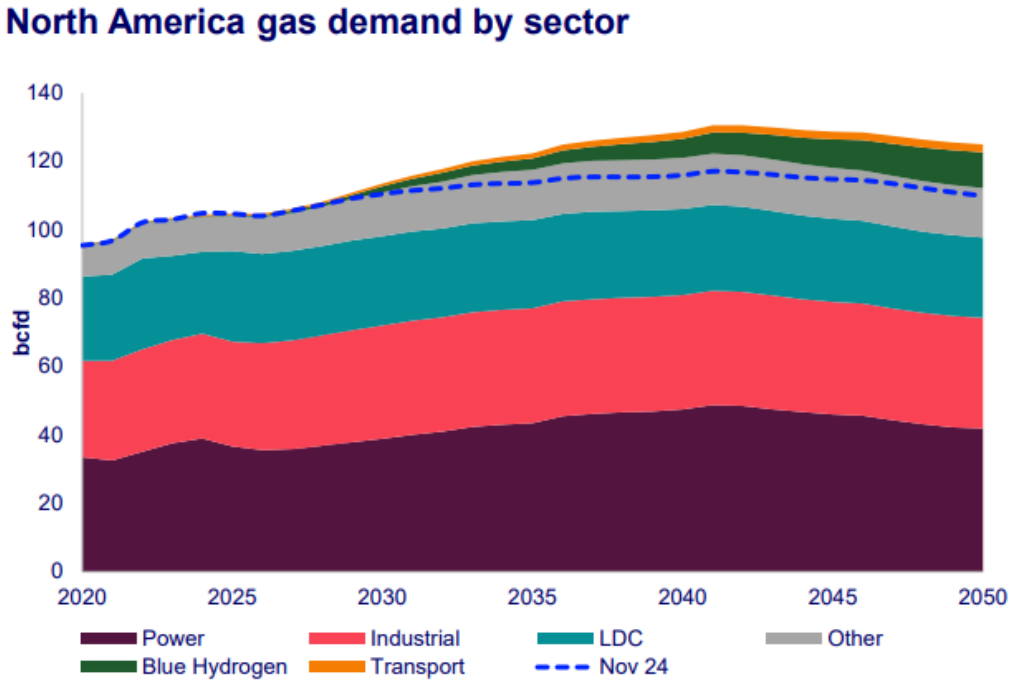
- North American gas market expansion necessitates significant pipeline additions across regions (~45 bcfd of capacity)
- Interstate development is **critical in regions like the Northeast and Southeast** to connect supply needed to support market demand
- Proposed **permitting reforms** by the Trump Administration including potential changes to the National Environmental Policy Act (NEPA) could speed up development
- However, state and community level opposition could still impact project timeline and cost considerations
- **Takeaway:** volatility and upward price pressure increase if pipelines become constrained

Source: Wood Mackenzie

AVISTA

Domestic Gas Demand Grows 24% vs. 2025 Before Peaking in early 2040

Gas demand in the power sector has been revised up to account for stronger power load growth from data centers and industrial reshoring while the renewable build-out is risked to the downside



Source: Wood Mackenzie

Wood Mackenzie's "Other Demand" matches the EIA definition, which is lease and plant fuel and pipeline losses. It is the gas used within the industry, where the two biggest components to its growth are supply (the more supply the more L&P fuel) and LNG exports.

Wood Mackenzie

Transport

- Transport demand **grows to 2.3 bcfd by 2050**; slower uptake in the second half of the 2020s due to current U.S. administration policies

Blue hydrogen

- Blue hydrogen demand reaches **10.4 bcfd by 2050**; IRA uncertainty

Other

- Other demand includes plant fuel and pipeline losses; to grow by 4.3 bcfd in the next 25 years to reach **14.5 bcfd by 2050**

LDC (residential and commercial)

- Residential and commercial demand stays resilient
- Growth is limited as **gas displacement from building electrification** offsets upside potential from population growth

Industrial

- Industrial demand increases by 3 bcfd from current levels to peaking at **33.5 bcfd by 2041**
- Over 50 new industrial projects commissioning between 2025 and 2031

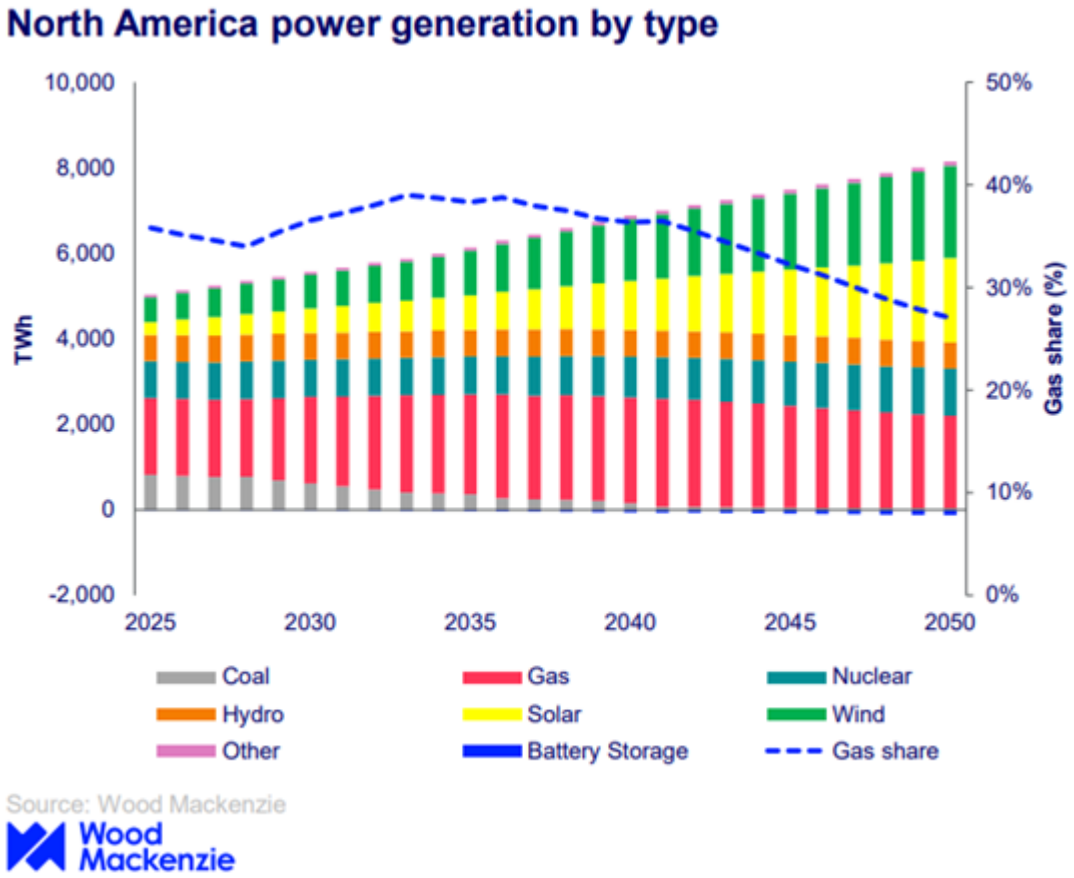
Power

- Power sector in the US enters a new phase of growth, supercharged by a **data center boom**, manufacturing renaissance and accelerating electrification

Source: Wood Mackenzie

Share of Gas-Fired Generation to Reach 39% in the Mid-2030s

Materially stronger power load forecast supports higher utilization of gas generation but availability of new gas turbines, delayed coal retirements and rising costs for new generation could risk gas burns to the downside

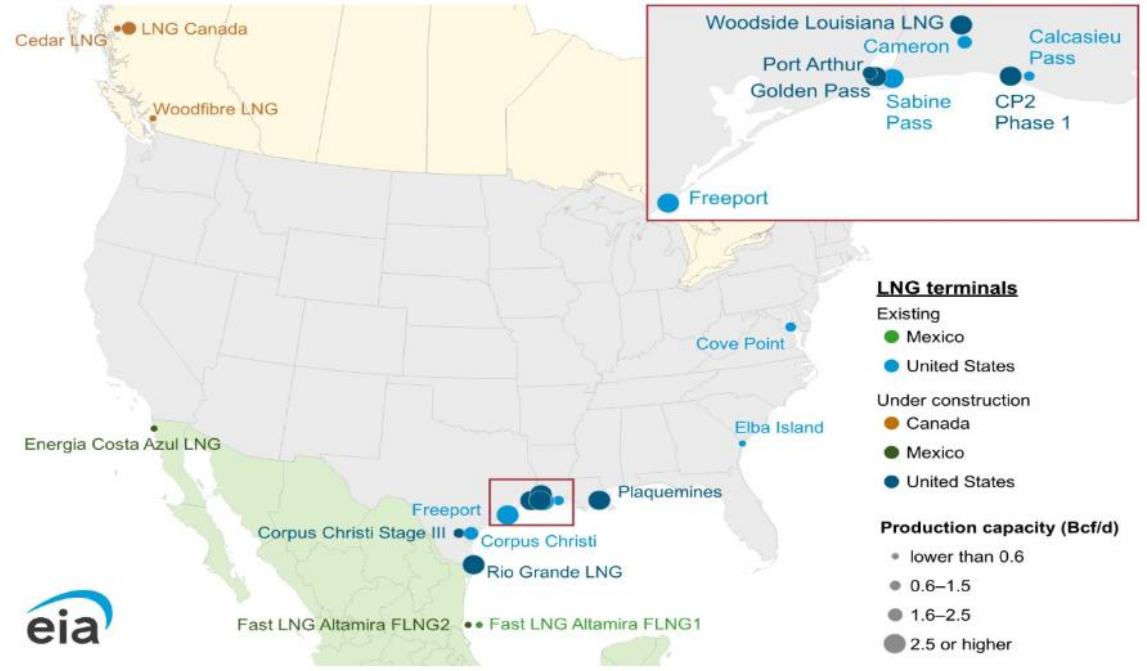


Source: Wood Mackenzie

North America's LNG Export Capacity Could More than Double by 2029

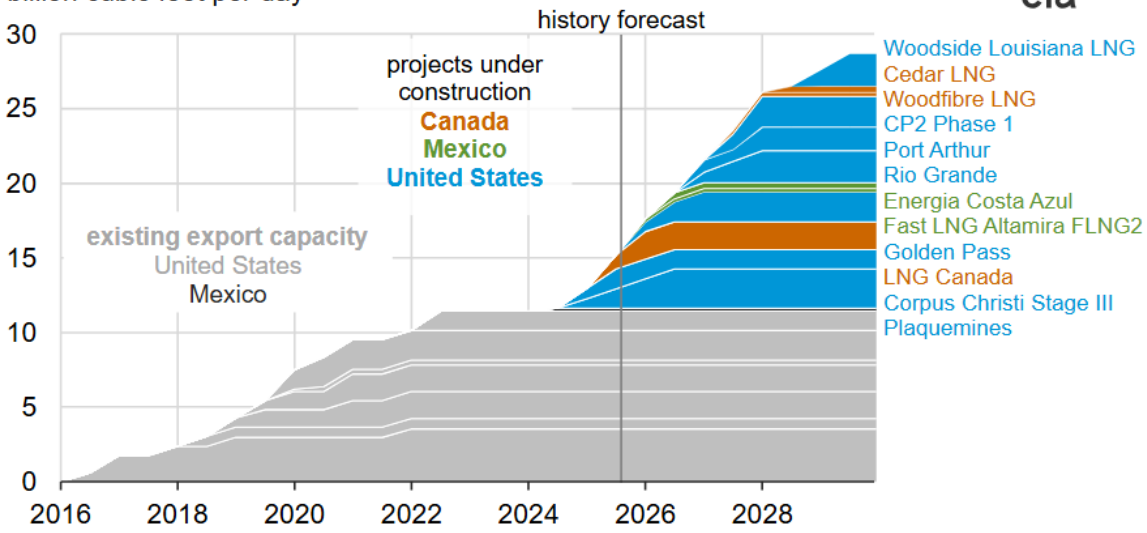
Five additional LNG export projects in the United States have reached final investment decision (FID) in 2025 and are currently under construction with a combined export capacity of ~10 bcfd

North America liquefied natural gas export facilities, existing and under construction (2016–2029)



Data source: U.S. Energy Information Administration, *Liquefaction Capacity File*, and trade press
Note: Bcf/d=billion cubic feet per day; LNG=liquefied natural gas; FLNG=floating liquefied natural gas

North America liquefied natural gas export capacity by project (2016–2029)
billion cubic feet per day

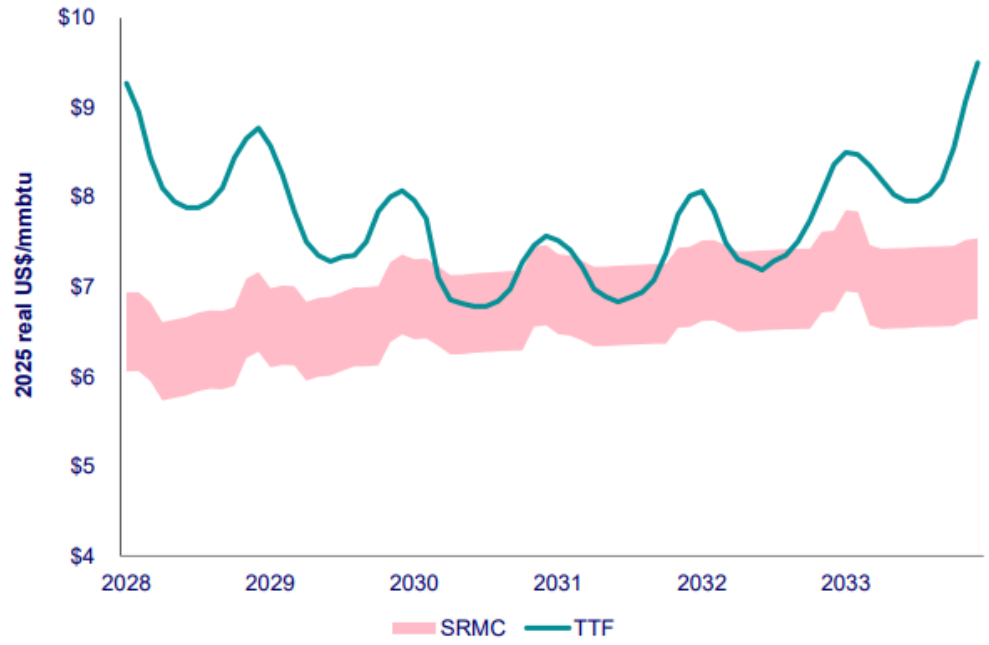


Source: EIA Today in Energy

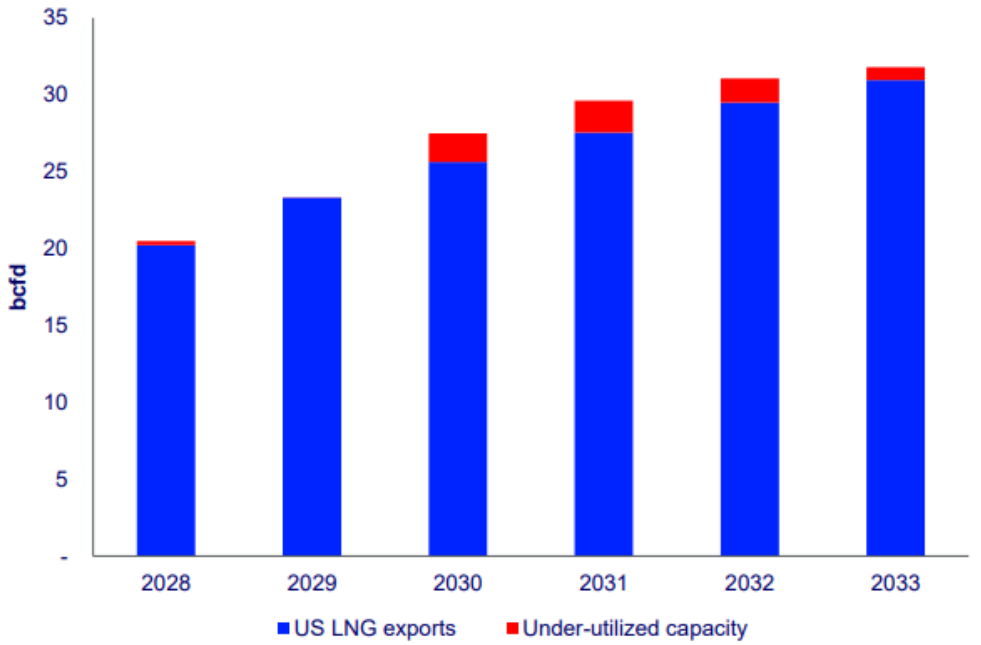
Higher Henry Hub Prices, More U.S. LNG, and Partial Return of Russian Gas Increase the Risk of U.S. Cargo Cancellations

U.S. LNG underutilization represents less than 10% of total capacity and could be absorbed by a more positive demand response from lower global gas prices

TTF vs. US LNG SRMC*



US LNG exports and under-utilization



Source: Wood Mackenzie

SRMC*: Short-run marginal cost. Range of SRMC is estimated from variable fee (112% HH to 115%HH), shipping cost ($1.10 to $1.30) and regas cost ($0.10 to $0.70).

Wood Mackenzie

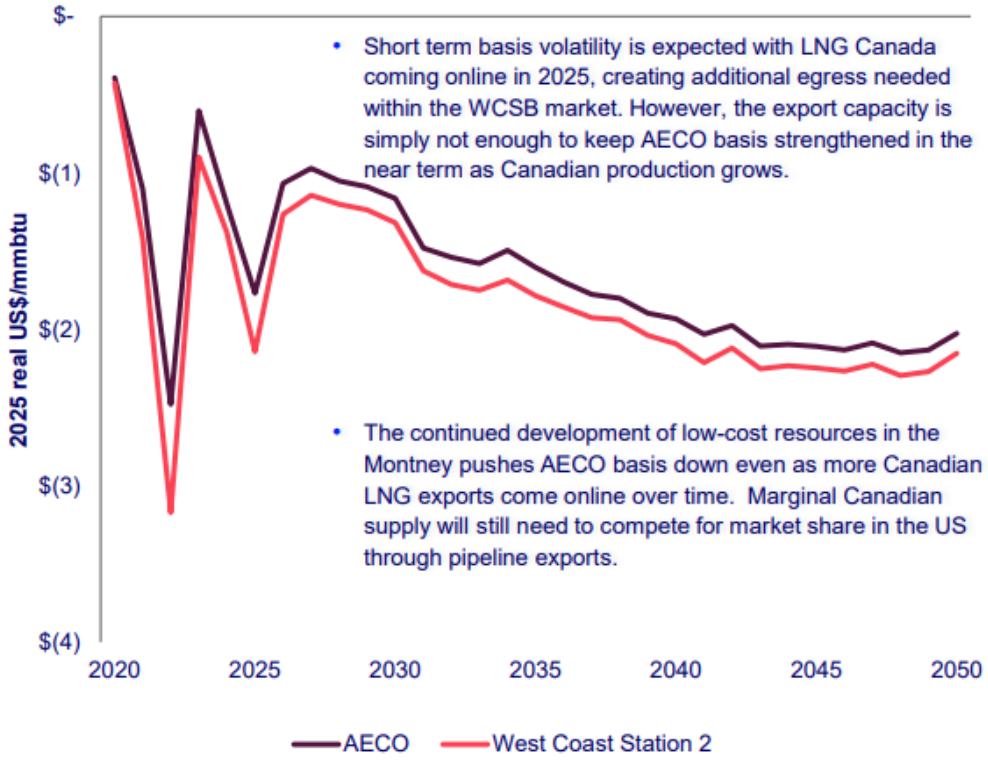
Source: Wood Mackenzie

AVISTA

AECO Basis Deteriorates Long-term Despite LNG Exports, Signaling Persistent Pressure on Pipelined Exports Out of WCSB

Lower-cost Canadian supply to maintain a stronghold on Pacific market, weighing on western basis prices

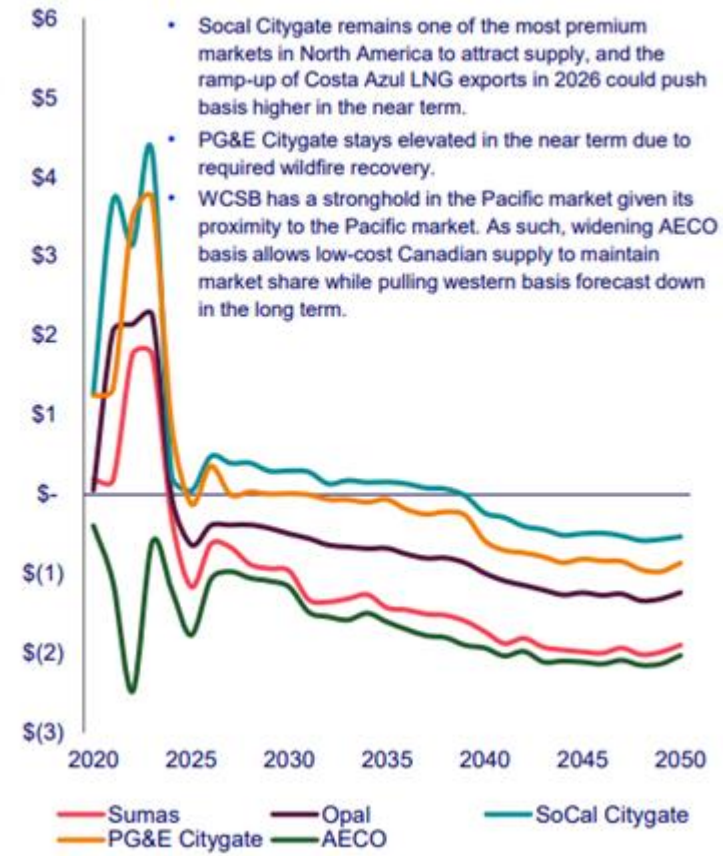
Western Canada



Source: Wood Mackenzie, the Argus Media group

Wood Mackenzie

Pacific



Source: Wood Mackenzie

AVISTA

Price Risks

Upside and downside risk factors for North American prices across the outlook

Wood Mackenzie

Source: Wood Mackenzie

Source: Wood Mackenzie

AVISTA

Natural Gas Price Forecast

TAC 4 – January 21, 2026

Jon Lee, Resource Planning Analyst

NYMEX Price Forecast Methodology Refinement

Previous Methodology

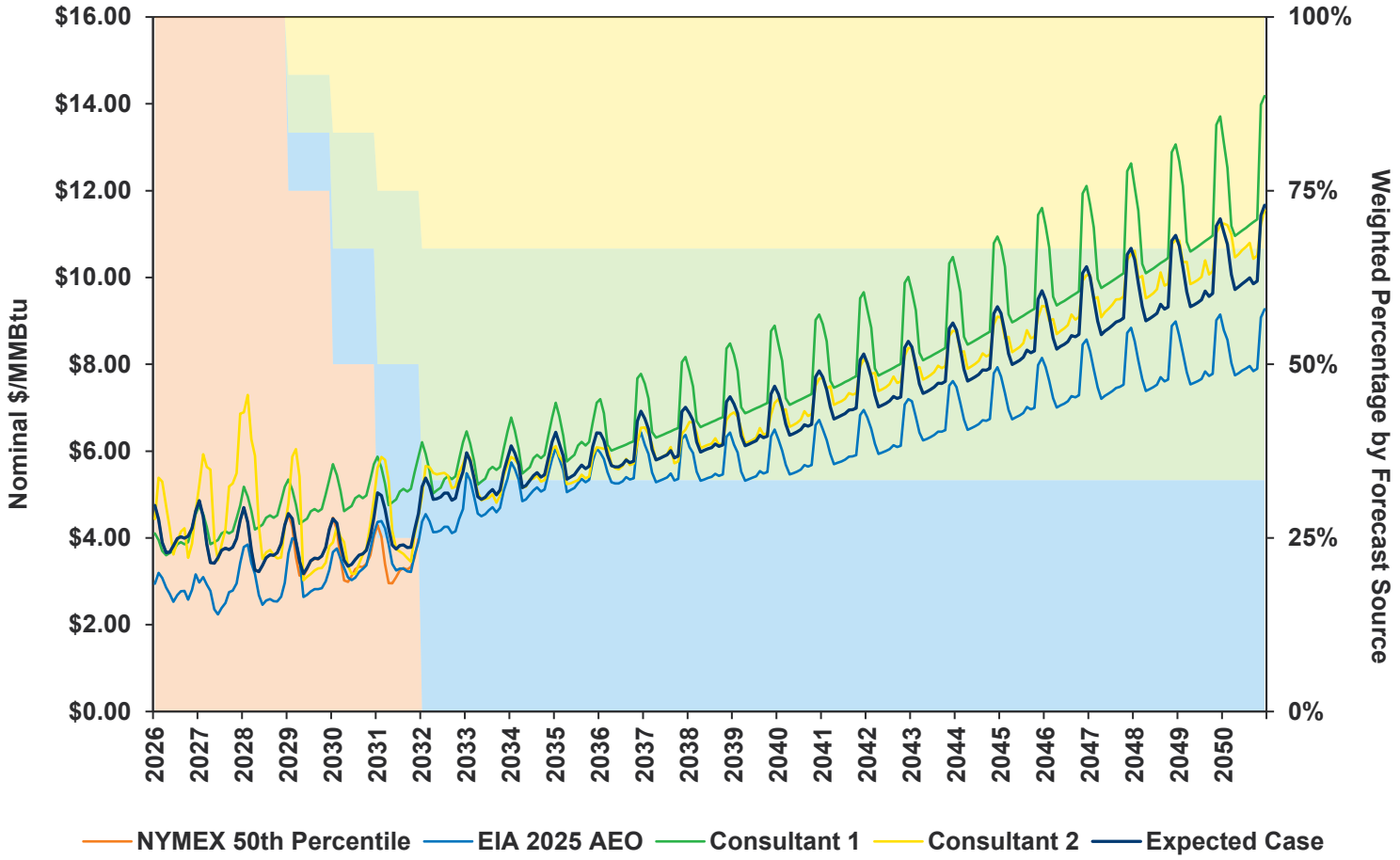
- Shifting percent blend:
  - NYMEX natural gas futures (single settlement day)
  - EIA Annual Energy Outlook
  - 2 Consultant Long-Term Price Forecasts

Outlook	NYMEX	Other
Year 1-3	100%	0%
Year 4	75%	25%
Year 5	50%	50%
Year 6	25%	50%
Year 7+	0%	100%

New Methodology

- Maintain:
  - Blended approach between various sources
  - 4 natural gas price inputs (NYMEX, EIA, 2 Consultants)
- Refinement:
  - Transitioning from a single settlement day NYMEX futures curve to the 50th percentile of a 12-month trading range
- Key Objectives:
  - Reduce dependence on an individual trading day
  - Introduce more seasonality into the forecast as it pertains to the first 3 years of 100% NYMEX
  - Representative of balanced supply and demand fundamentals

Henry Hub Expected Case Price Forecast

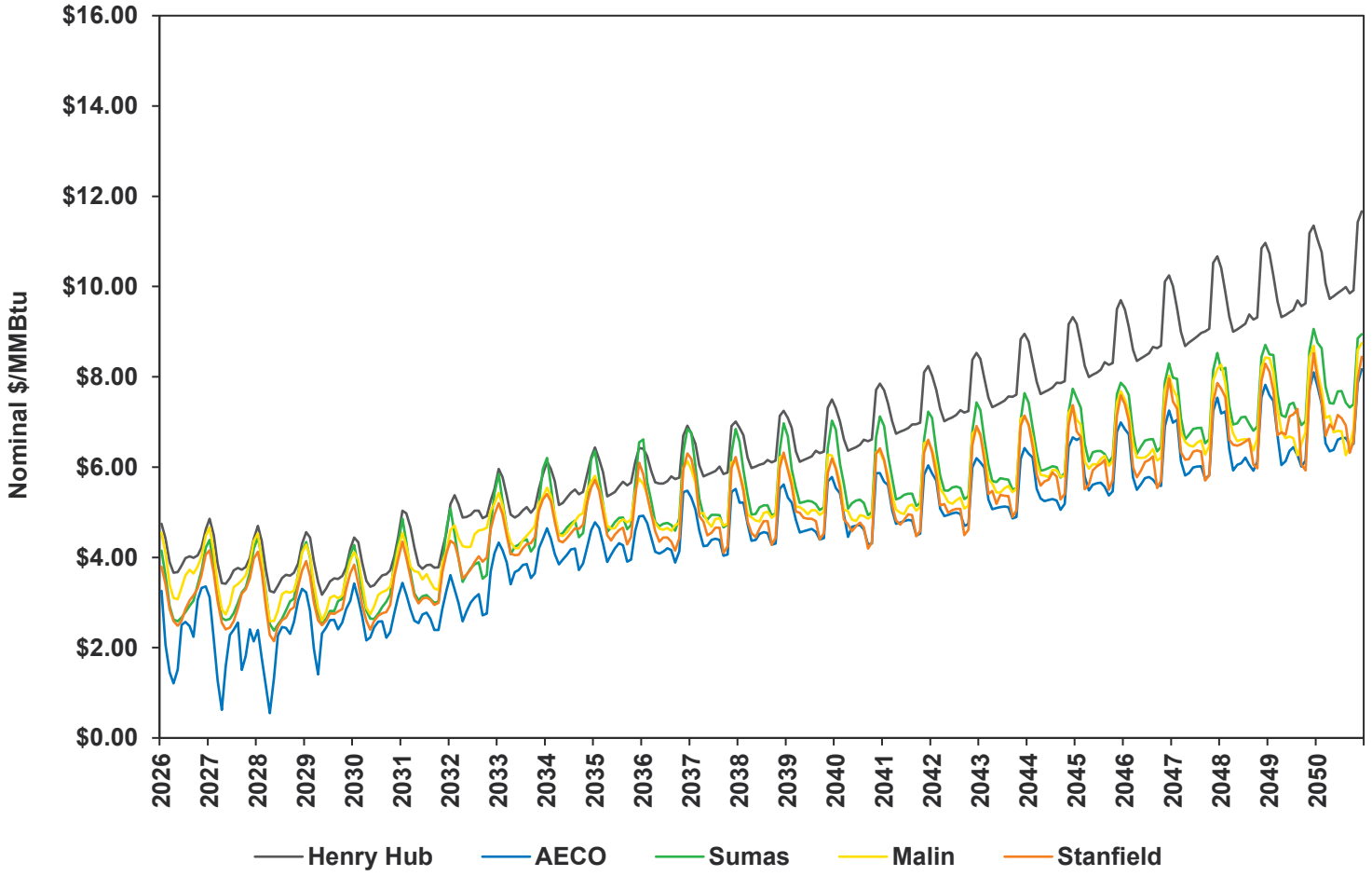


- Levelized Expected Case Price:
  - 2028-2047: $5.71/MMBtu
  - 2028-2050: $5.97/MMBtu
- Data Sources:
  - 12-month history of NYMEX forward market prices as of January 12, 2026
  - EIA Annual Energy Outlook 2025
  - Consultants 1 & 2 Long-Term monthly natural gas price forecast
- Methodology
  - Average price of forecasts
  - Decreasing blend of NYMEX (50th percentile of 12-month trading range)

Forecast Year	NYMEX	Other
2028	100%	0%
2029	75%	25%
2030	50%	50%
2031	25%	50%
2032-2050	0%	100%

EIA 2025 Annual Energy Outlook – Henry Hub Spot (Table 13)

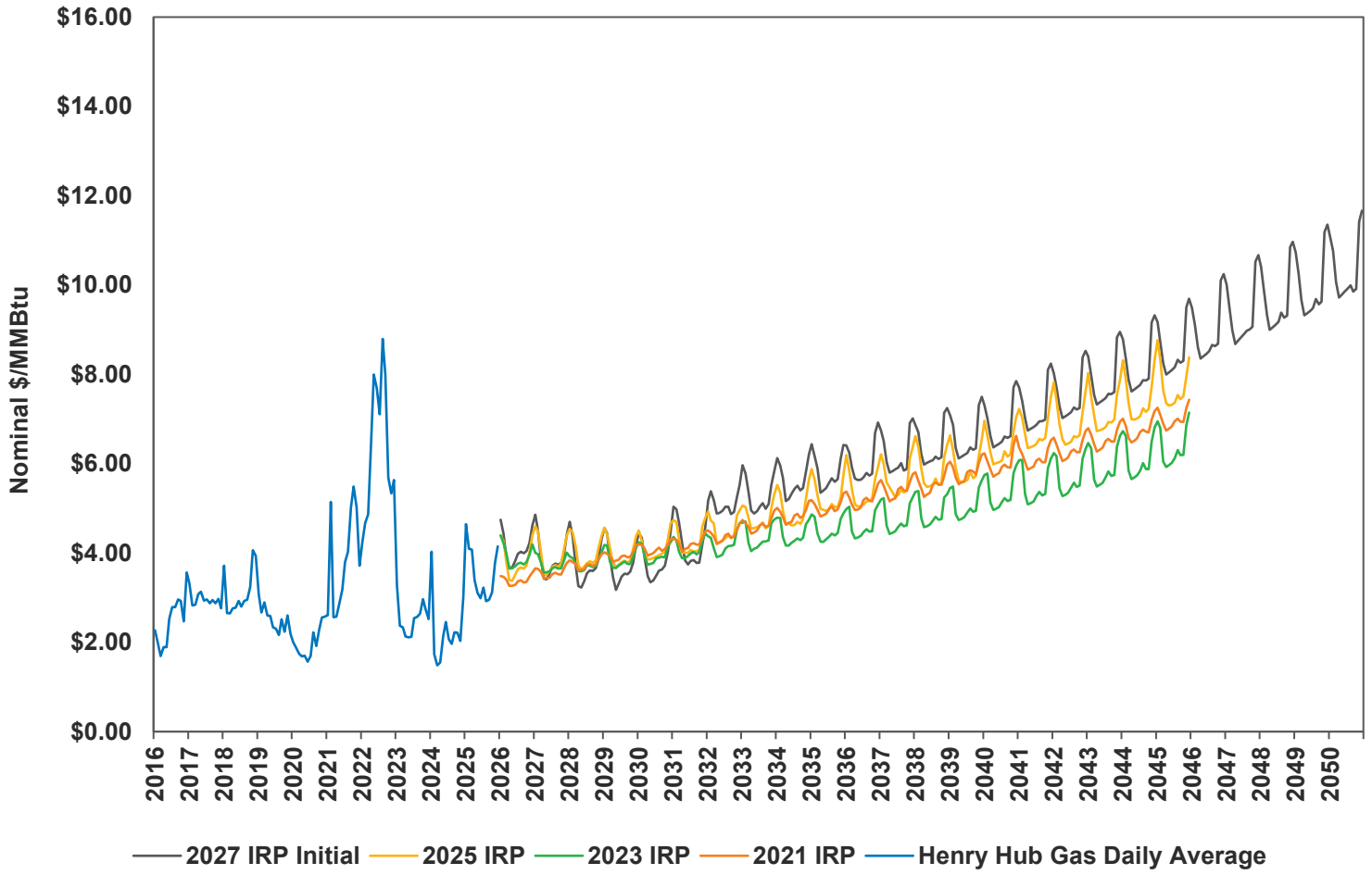
All Basins Expected Case Price Forecast



Levelized Price ($/MMBtu)	2028 – 2047	2028 - 2050
Henry Hub	$5.71	$5.97
AECO	$3.99	$4.16
Sumas	$4.81	$4.99
Malin	$4.76	$4.91
Stanfield	$4.49	$4.64

Data Source: Consultant 2, percent basis price differential to Henry Hub forecast

Henry Hub Expected Case vs. Prior IRP Forecasts



- Slight backwardation to 2030 before ramping up
  - Production growth (associated and dry)
  - Demand also increasing, so there is potential for those forwards to move back into contango
- Increased upward price pressure in the longer term compared to previous outlooks
  - Expectation of tighter supply and demand balance as production growth tapers mid-2030's
  - Potentially creating stronger competition from other energy sources

Cost of Carbon

TAC 4 – January 21, 2026

Michael Brutocao, Natural Gas Planning Manager

Social Cost of Carbon

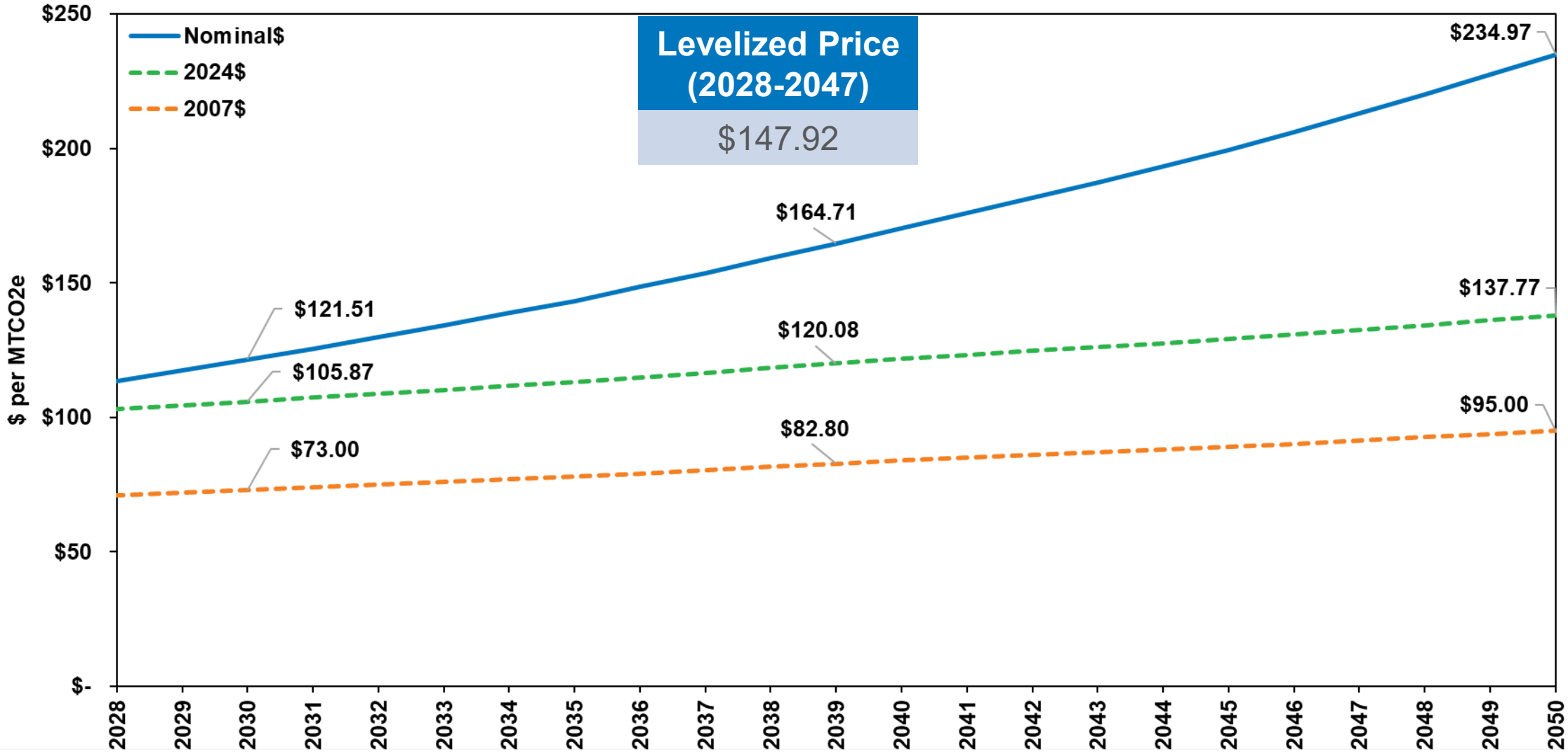
- WUTC DOCKET U-190730 ORDER 06 – “Greenhouse gas emissions impact costs throughout the economy, and the broad measure of the BEA’s GDP price index thus appropriately reflects inflation of the cost of greenhouse gas emissions.”

Table 1: Adjusted Cost of Greenhouse Gas Emissions

Year	*Social Cost of CO2 (using 2.5% discount rate in 2007 dollars)	**GDP Index (2007 dollars/metric ton)	**GDP Index (2024 dollars/metric ton)	Inflation Adjusted Social Cost of CO2 (using 2.5% discount rate in 2024 dollars)
2010	$50	86.352	125.231	**$73**
2015	$56	86.352	125.231	**$81**
2020	$62	86.352	125.231	**$90**
2025	$68	86.352	125.231	**$99**
2030	$73	86.352	125.231	**$106**
2035	$78	86.352	125.231	**$113**
2040	$84	86.352	125.231	**$122**
2045	$89	86.352	125.231	**$129**
2050	$95	86.352	125.231	**$138**

https://apiproxy.utc.wa.gov/cases/GetDocument?docID=30&year=2019&docketNumber=190730

Social Cost of Carbon - Forecast



Community Climate Investment Credit

- OAR 340-273-0820 (3) (b) – The CCI credit contribution amount is the applicable amount in Table 6 in OAR 340-273-9000… The formula for the adjustment is as follows:

$$CCI\ Credit\ Contribution\ Amount = CCI\ Credit\ Contribution\ Amount\ in\ Table\ 6\ in\ OAR\ 340-273-9000 * \frac{CPI-U\ West\ for\ January\ of\ the\ calendar\ year\ for\ the\ price\ in\ Table\ 6\ in\ OAR\ 340-273-9000\ that\ is\ currently\ in\ effect}{CPI-U\ West\ for\ January\ 2024}$$

Table 6 CCI credit contribution amount		Table 6 CCI credit contribution amount	
Effective date	**CCI credit contribution amount in 2024 dollars, to be adjusted according to OAR 340-273-0820(3)**	**Effective date**	**CCI credit contribution amount in 2024 dollars, to be adjusted according to OAR 340-273-0820(3)**
March 1, 2025	$129	March 1, 2038	$141
March 1, 2026	$129	March 1, 2039	$142
March 1, 2027	$130	March 1, 2040	$143
March 1, 2028	$131	March 1, 2041	$144
March 1, 2029	$132	March 1, 2042	$145
March 1, 2030	$133	March 1, 2043	$146
March 1, 2031	$134	March 1, 2044	$147
March 1, 2032	$135	March 1, 2045	$148
March 1, 2033	$136	March 1, 2046	$149
March 1, 2034	$137	March 1, 2047	$150
March 1, 2035	$138	March 1, 2048	$151
March 1, 2036	$139	March 1, 2049	$152
March 1, 2037	$140	March 1, 2050	$153

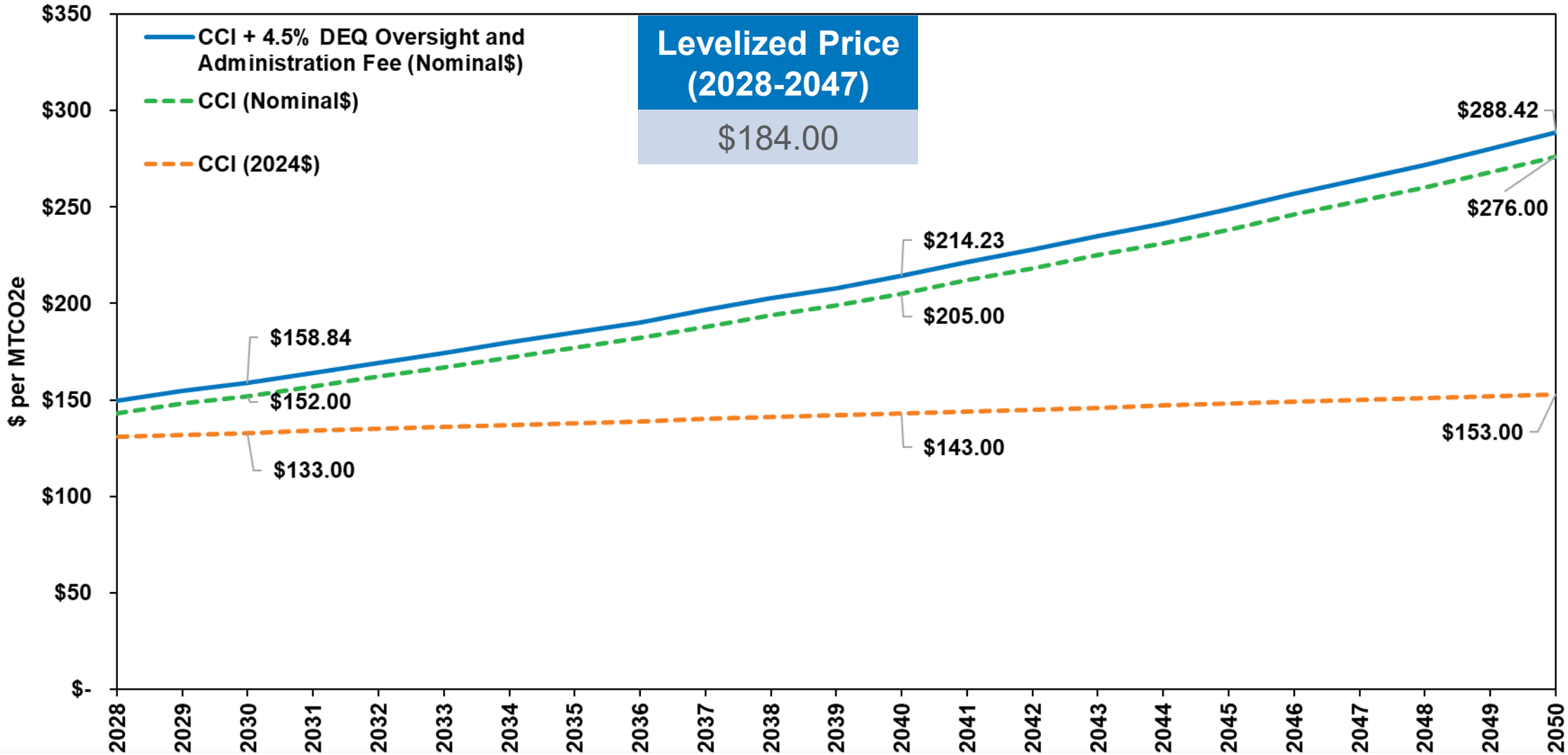
https://secure.sos.state.or.us/oard/viewReceiptTRIM.action?ptId=10539175

Community Climate Investment Credit

- OAR 340-273-0820 (1) – Each approved Community Climate Investment Entity must pay a fee to DEQ equal to 4.5% of all CCI contributions that the entity receives from covered fuel suppliers

https://secure.sos.state.or.us/oard/viewReceiptTRIM.action?ptId=10539175

Community Climate Investment Credit – Forecast



CCA Carbon Pricing

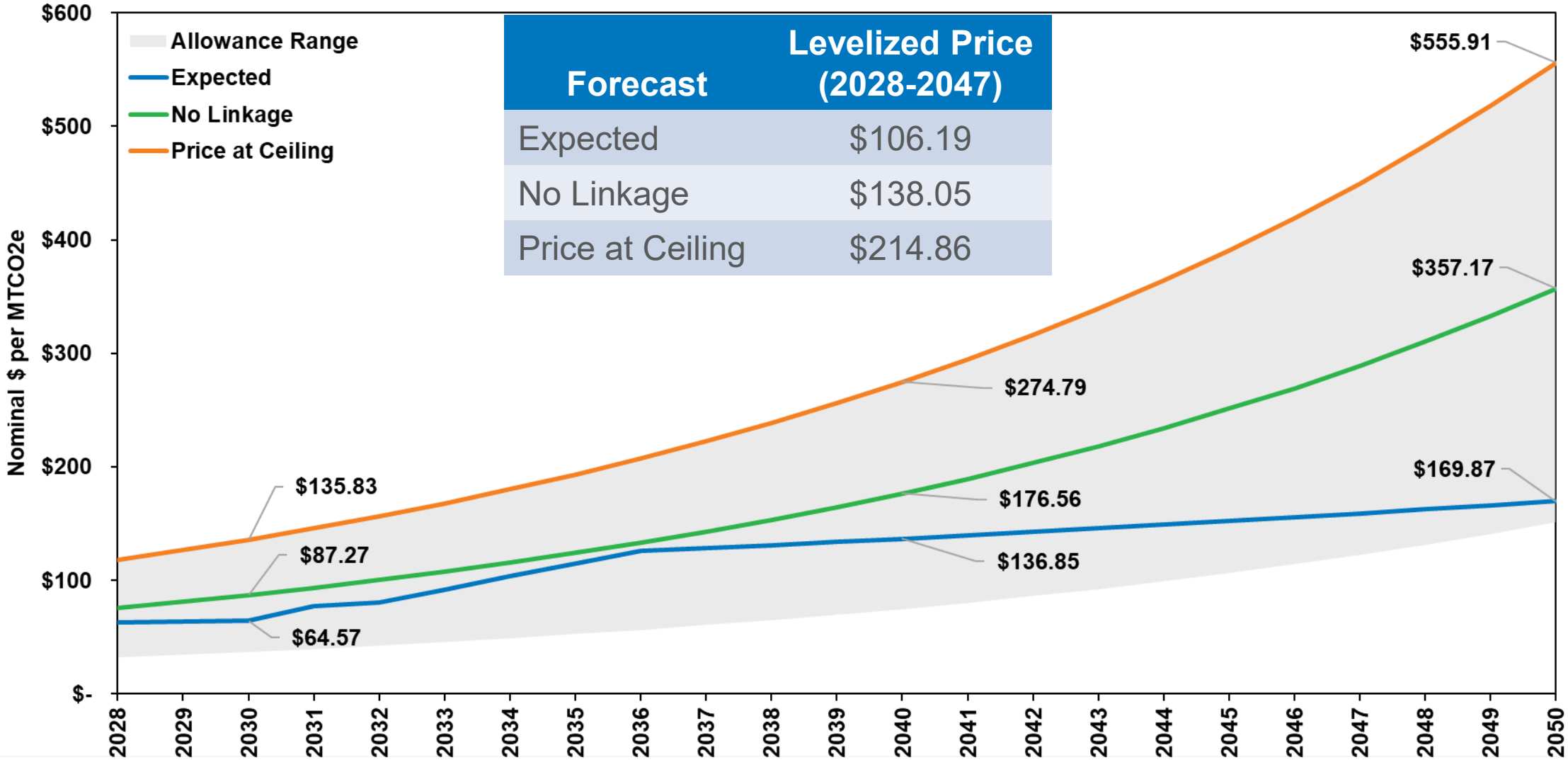
- Allowance Auction Floor & Ceiling – increases annually by 5% + CPI-U from 2023 prices of $19.70 (floor) and $72.29 (ceiling)

- Forecasts for IRP:
  - Expected (Linkage with California & Quebec carbon market in 2030)
  - No Linkage
  - Price at Ceiling

https://app.leg.wa.gov/WAC/default.aspx?cite=173-446-335

CCA Carbon Pricing – Forecast

Forecast	Levelized Price (2028-2047)
Expected	$106.19
No Linkage	$138.05
Price at Ceiling	$214.86



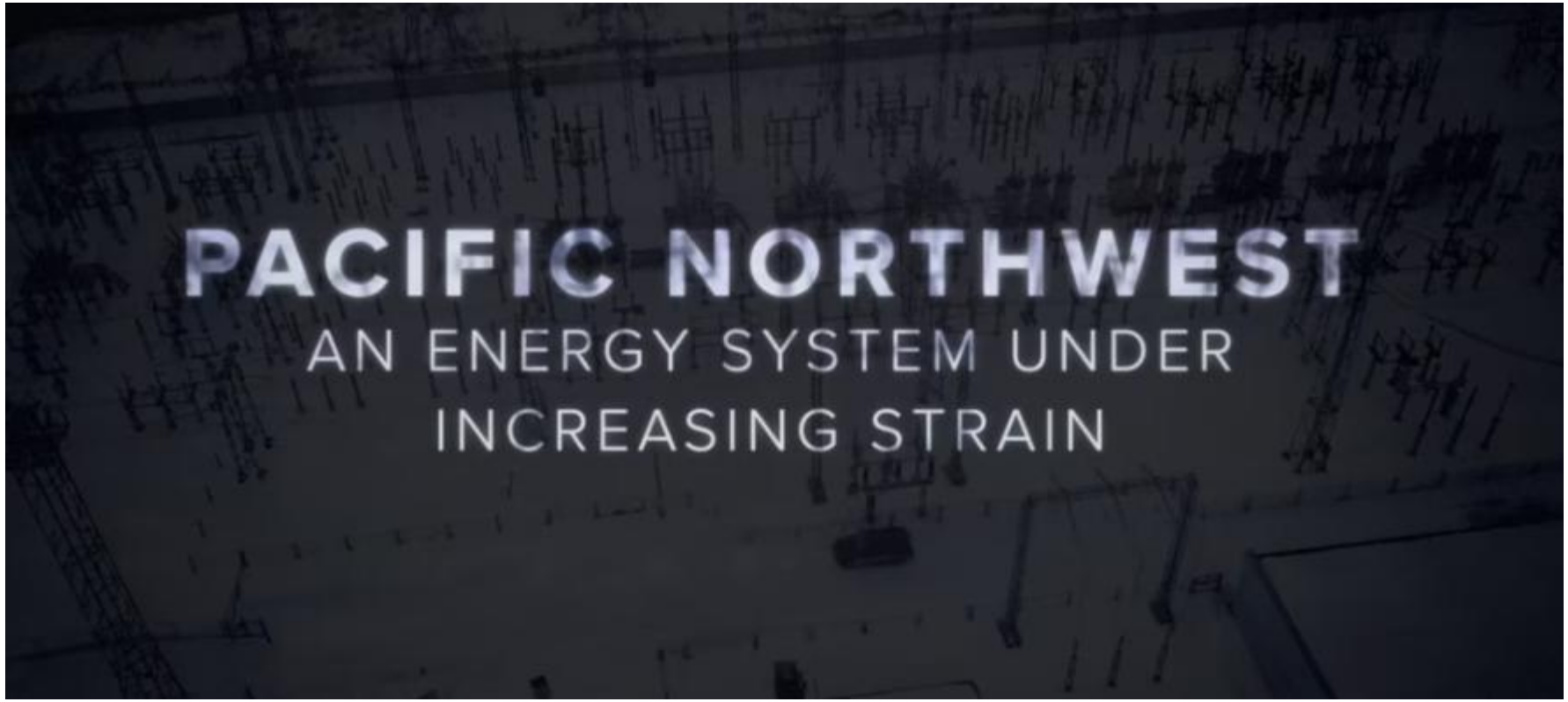
Gas/Electric Interdependency and the Need for Coordination

Avista IRP TAC 4 Meeting

January 21, 2026

Scott Kinney, VP Energy Resources and Integrated Planning

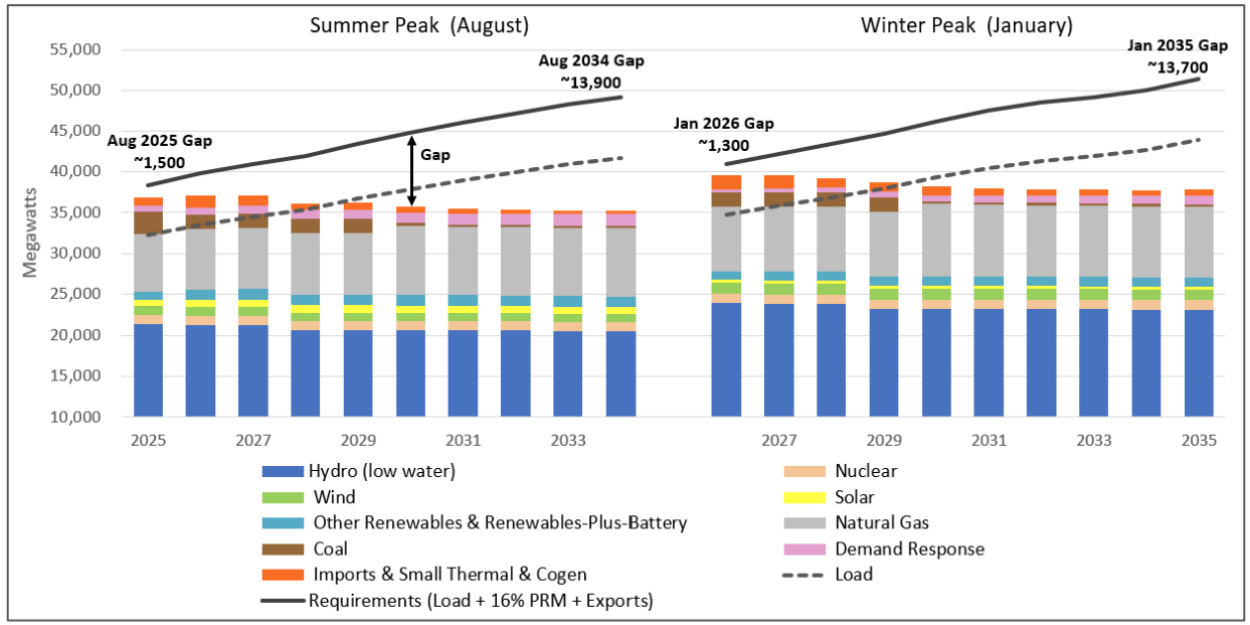
An Energy System Under Increasing Strain



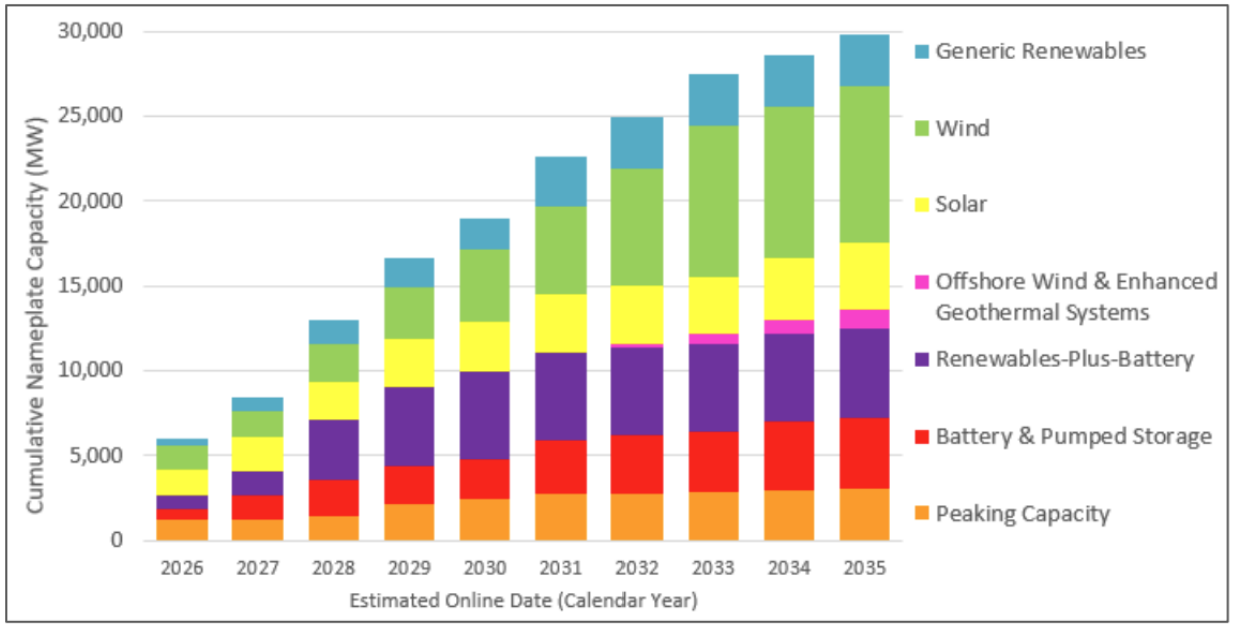
https://vimeo.com/1129668897/26e72509c9?share=copy&fl=sv&fe=ci

Regional Power Projection

Summer and Winter Peak Hour Projection

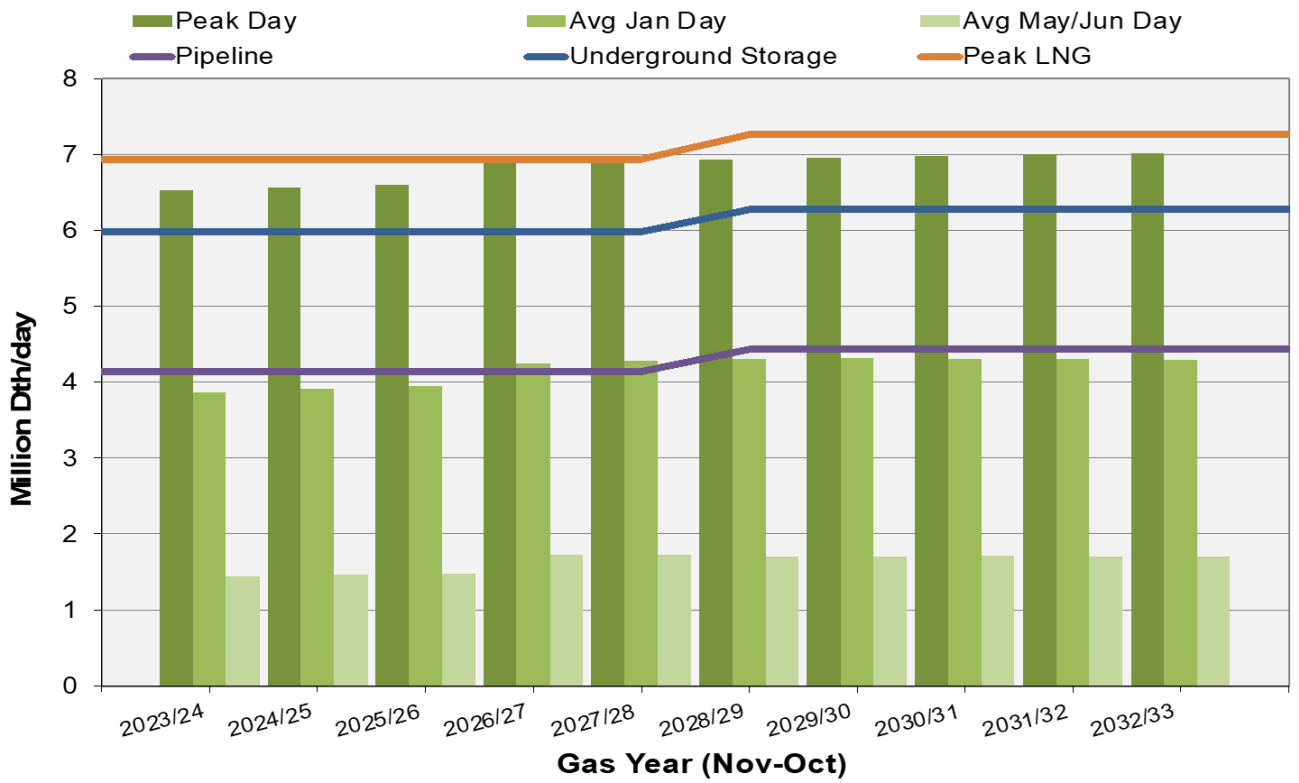


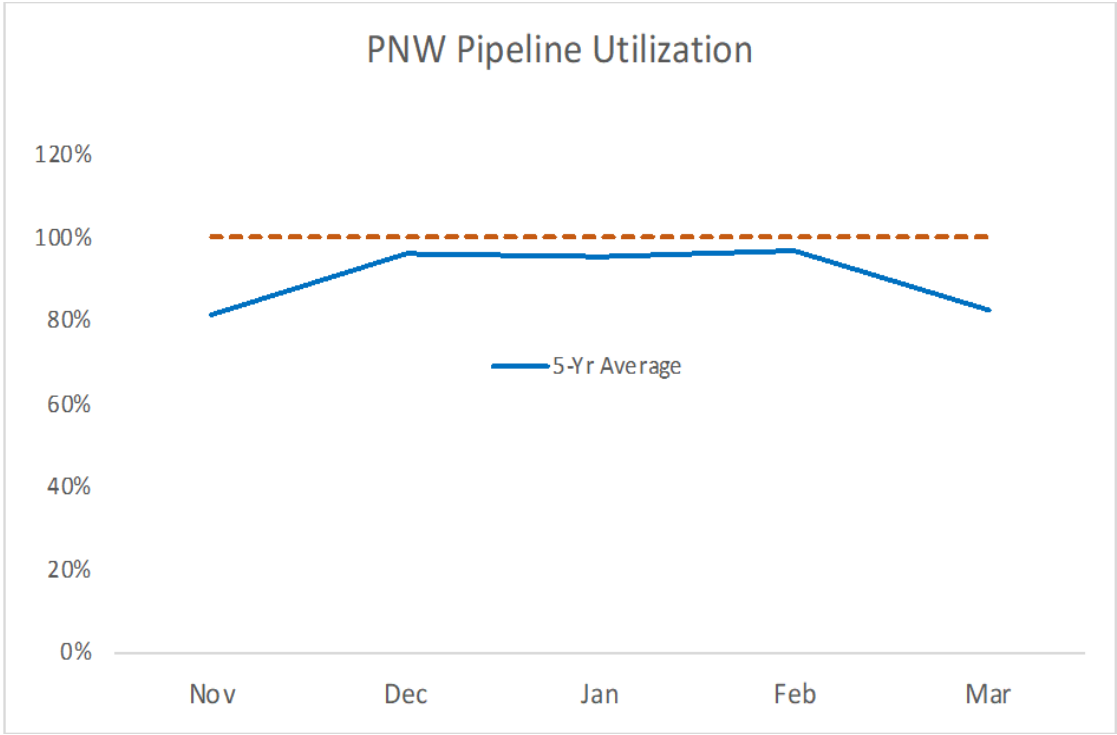
Cumulative Regional Resource Need



Source: PNUCC 2025 Northwest Regional Forecast

Regional Natural Gas Projection

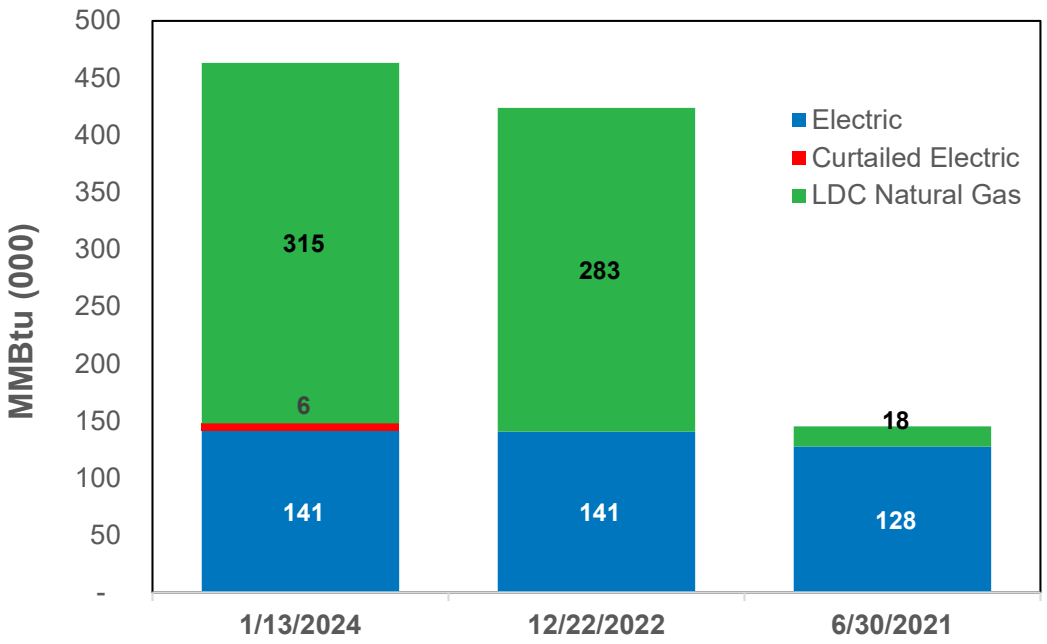




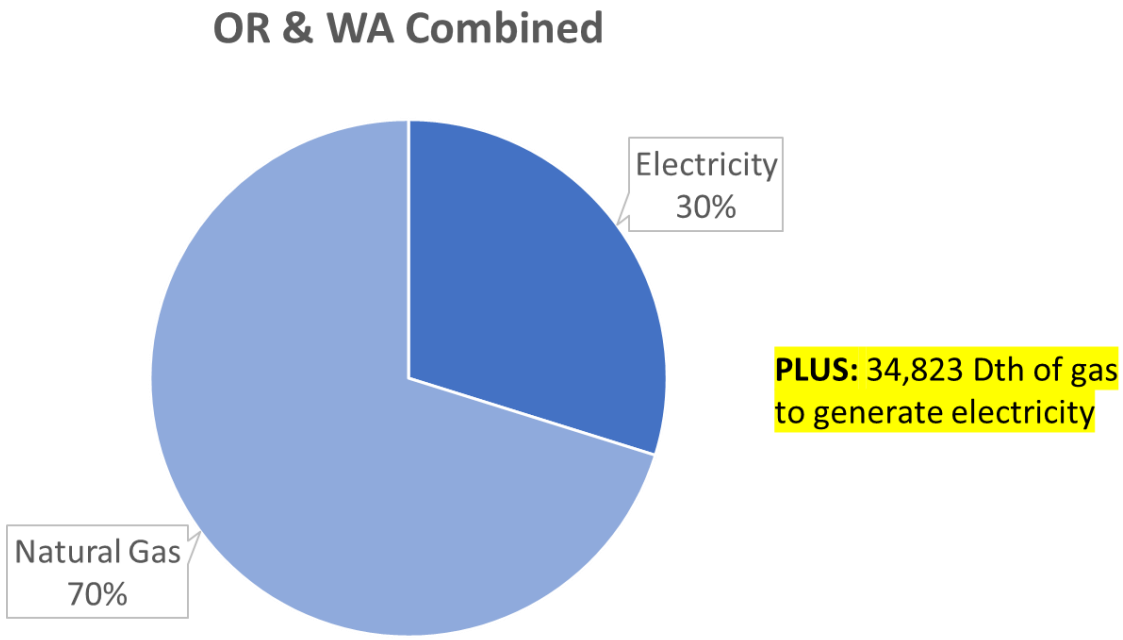
Source: Northwest Gas Association

Direct Use of Natural Gas is Critical to Meeting Regional Energy Demand

Avista's WA/ID Gas & Electric Demand



January 14, 2024, 9am-10am (OR/WA):



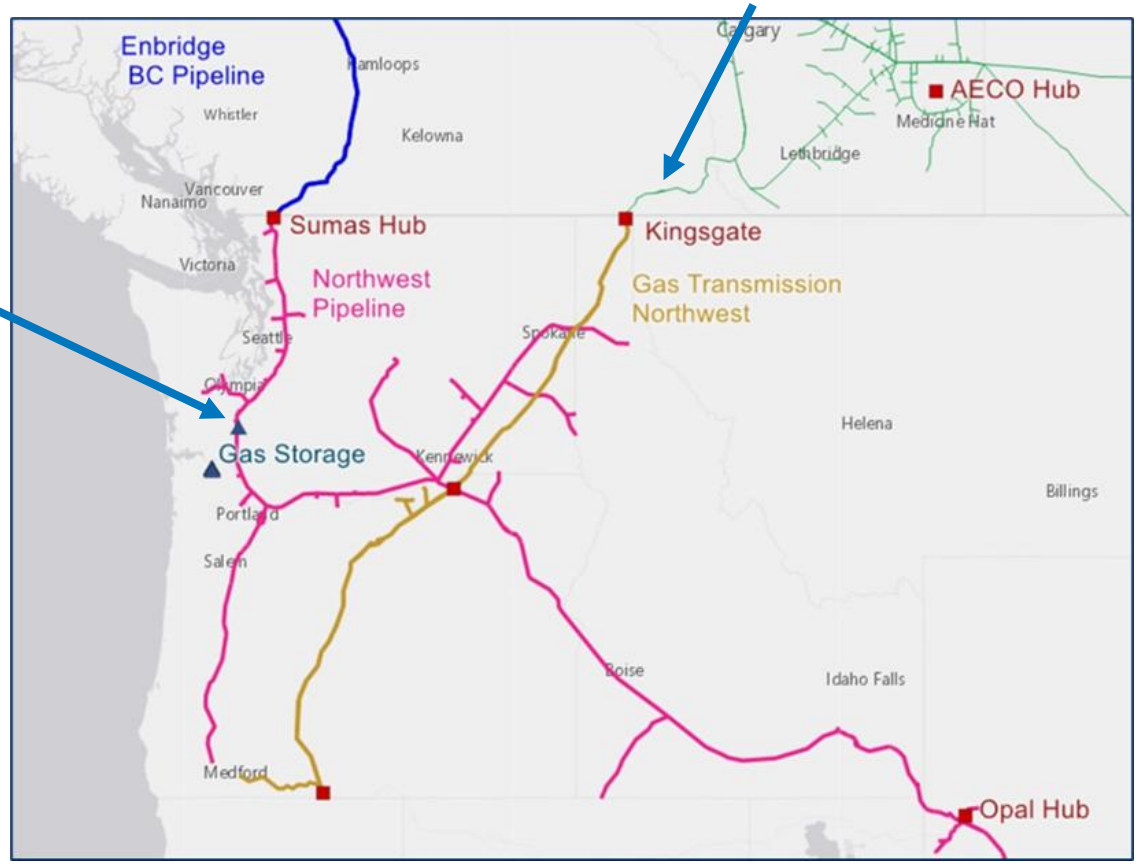
PLUS: 34,823 Dth of gas to generate electricity

Daily electric MWh multiplied by 3.412

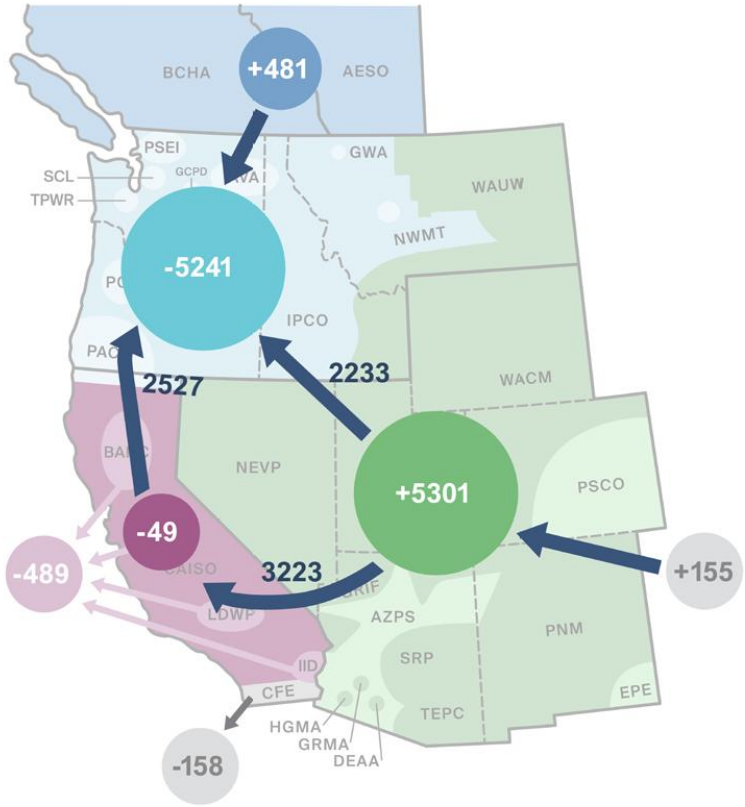
The Natural Gas and Power Systems are Interdependent

Compressor Station Outages

Jackson Prairie



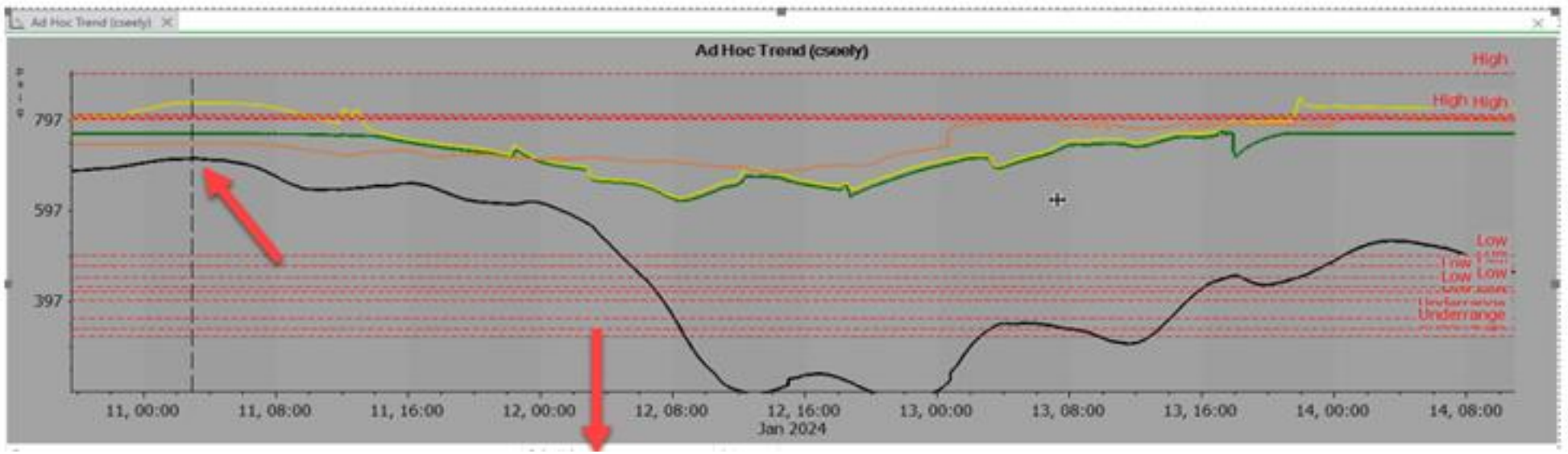
Average Regional Net Imports & Exports



Source: OASIS Transaction Schedules (scheduledetail), BPA Transmission Operations Data (AC Intertie Path data), Form EIA-930 Interchange data, CAISO OASIS.

Avista Gas Pressure Event – January 12-13, 2024

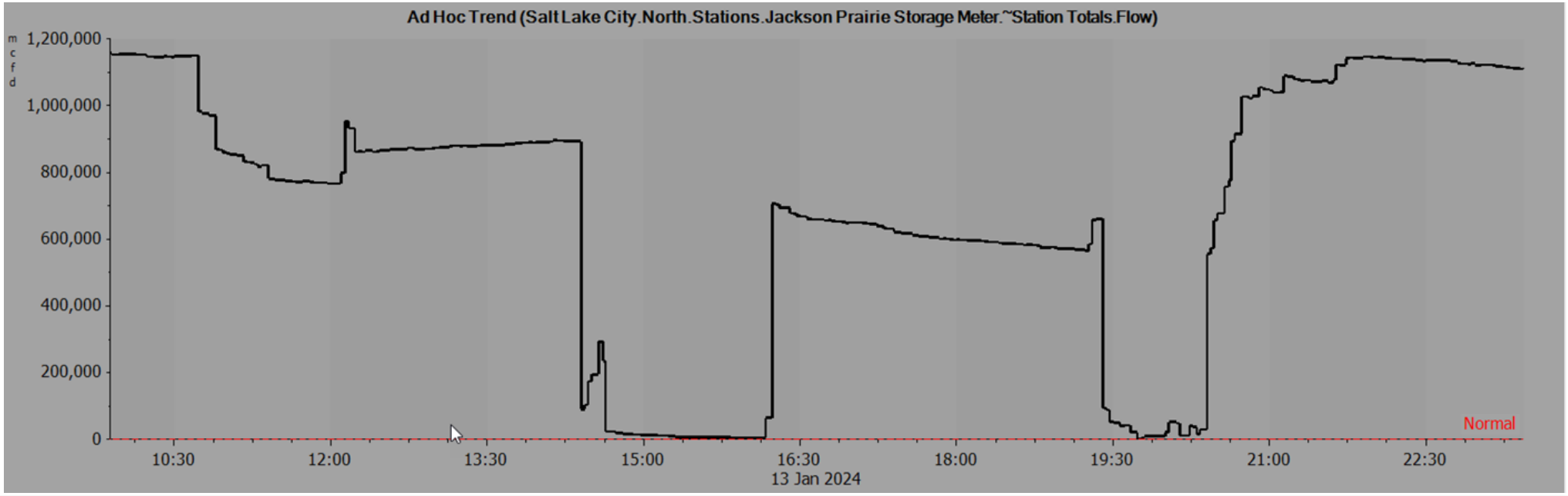
- Friday morning Jan 12th – GTN lost 800 MDth in supply due to compressor station issues
- Avista experienced low pressure on its Kellogg lateral that serves northern Idaho
- To stabilize pressure Avista initiated a customer conservation request and took gas generation in the area offline
- Pipeline pressures stabilized overnight allowing Avista to maintain service to customers



Jackson Prairie Outage – January 13, 2024

Saturday afternoon Jan 13th - NWP lost all flow from JP Storage

- Communications outage caused complete facility shut down
- Facility free flow was achieved after about 90 minutes
- Williams initiated mutual assistance with request for customers to reduce demand by 50%
- Fortunately, facility was returned to service in about 6 hours



Gas Outage Events Show Need for Better Coordination

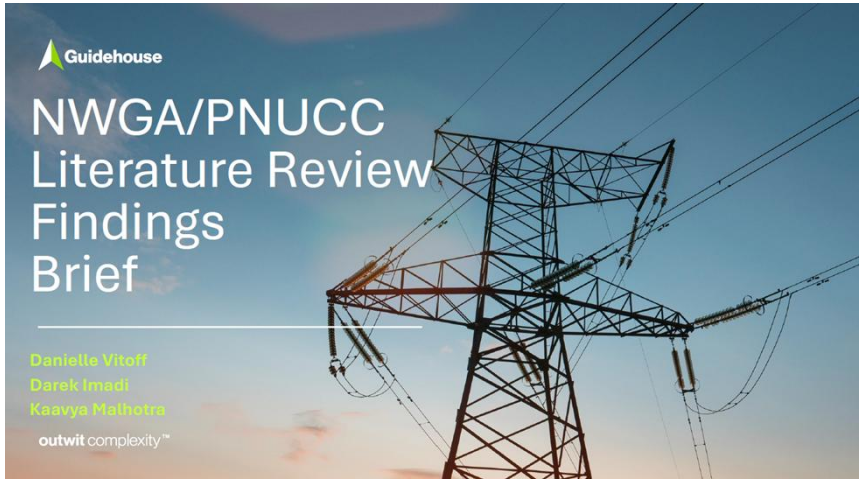
May 2024 - Group of utilities met to discuss outage events and develop action plan

4 Action Items were approved

Host winter preparation meeting prior to winter 2024/25	**Evaluate recent gas and electric adequacy evaluations and look for common themes**	**Create common messaging to support education and outreach**	**Host an Energy Symposium**

Gas/Electric Coordination is Critical to Serving Regional Energy Needs

- The region is dangerously close to experiencing significant energy supply disruption
- Demand for energy in the PNW is projected to surge
- The region is relying on capacity additions that are at risk of not being deployed
- Gas and electric interdependence is increasing and demands enhanced coordination
- A reliable, affordable and sustainable energy future will require collaboration on actionable solutions, **including support for energy infrastructure**



Coordination Efforts Continue….

Next areas of focus

- Coordinated Planning
- System visibility and data sharing
- Regional energy infrastructure investment
- Education and policy alignment

Q&A