



# TAC 9 – 2025 Avista Gas IRP

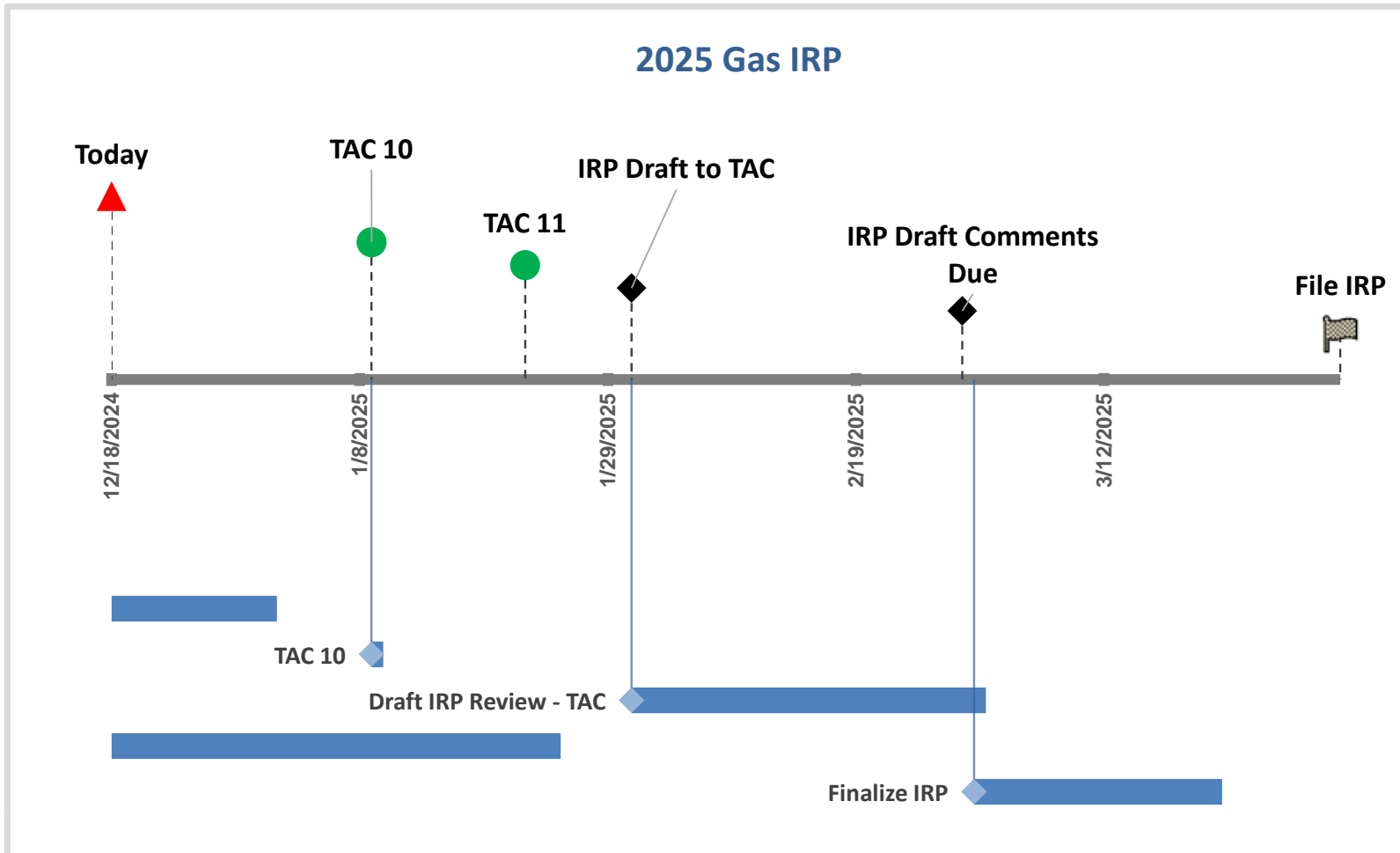
December 18, 2024

# Agenda

- Peak Day
- NEI
- Alternative Fuel Prices
- Alternative Fuels Technical Potential Volumes (ICF)
- Daily Modeled Volumes
- All Resource Options

# 2025 Avista IRP Timeline

| Date       | Milestone              |
|------------|------------------------|
| 12/18/2024 | Today                  |
| 11/19/2024 | TAC 9                  |
| 1/9/2025   | TAC 10                 |
| 1/22/2025  | TAC 11                 |
| 1/31/2025  | IRP Draft to TAC       |
| 2/28/2025  | IRP Draft Comments Due |
| 4/1/2025   | File IRP               |



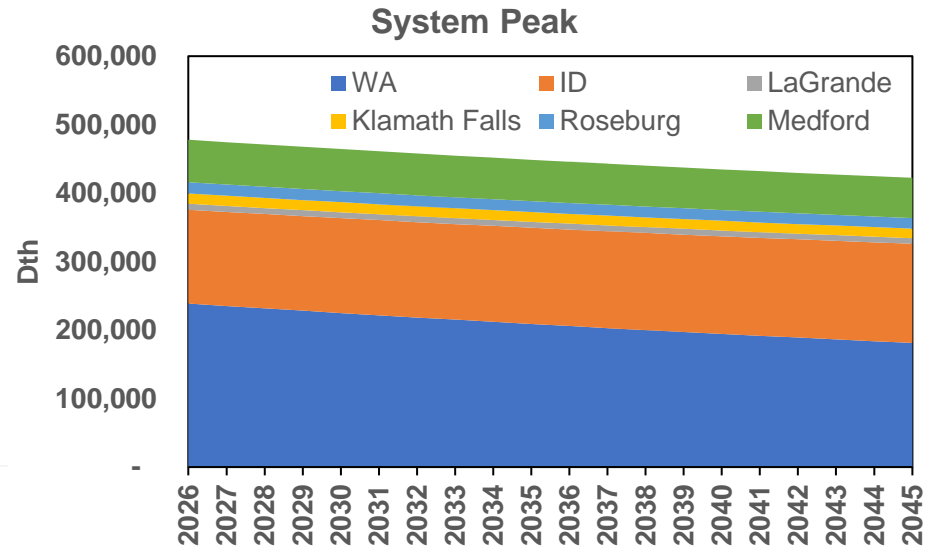
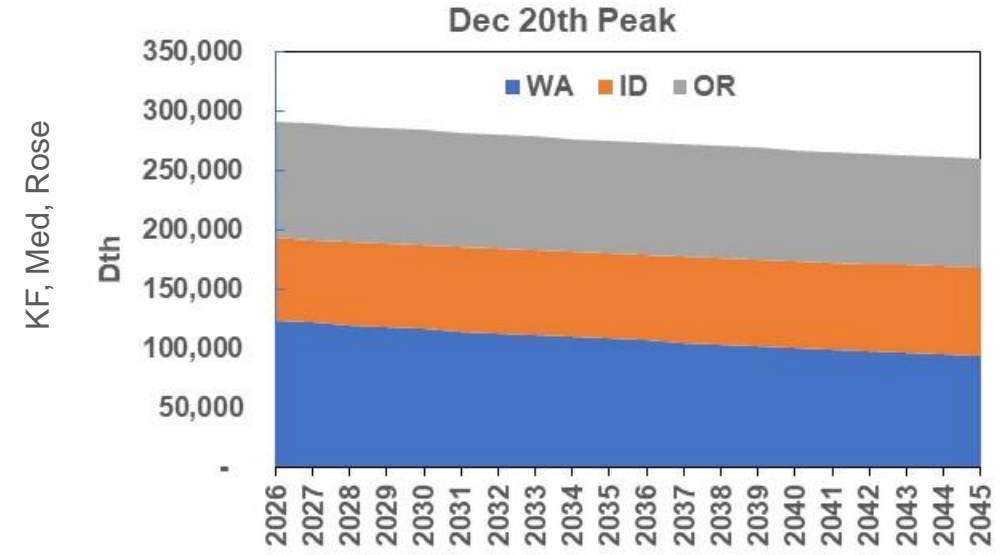
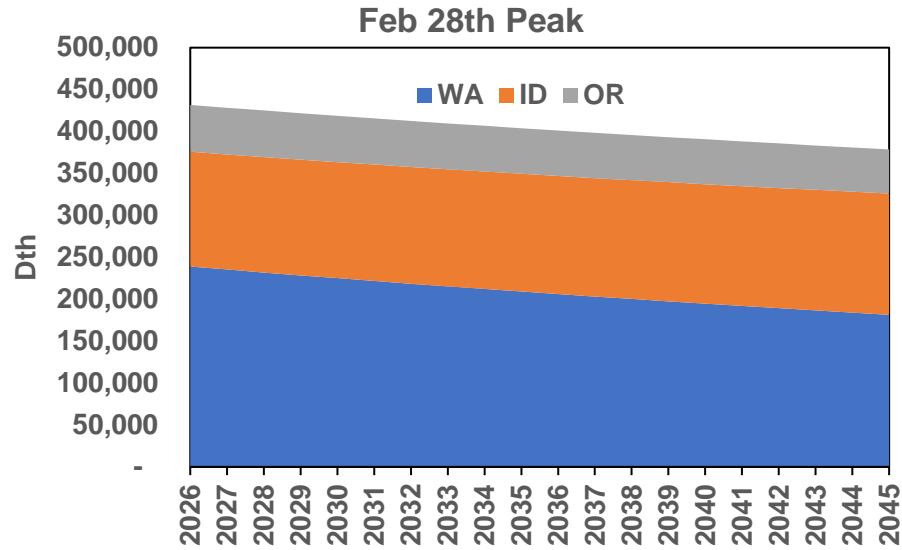
# Peak Day

# Peak Day Calculation

- Used the 2026-2045 average growth rate from Load Forecast (AEG) to adjust peak day with carbon intensity (efficiency of use per customer)
- Expected customer counts from Load Forecast (AEG)
- Use 75<sup>th</sup> percentile of historical winters HDD (2004-2023) for area nonpeak days on Dec 20<sup>th</sup> and Feb 28<sup>th</sup> by area
- HDD peak days by area:
  - La Grande                      73 HDD
  - Klamath Fall                    71 HDD
  - Medford                         60 HDD
  - Roseburg                        53 HDD
  - Spokane                         79 HDD

# Peak Day Calculation

WA, ID, La Grande



**NEI**

# NEI\* - example

Inputs into IMPLAN  
for capital requirement:

1. State facility would reside: Oregon
2. LFG CapEX - \$16.4M
3. Pipeline Cost - \$2.0M

| Impact       | Employment | Labor Income   | Value Added     | Output          |
|--------------|------------|----------------|-----------------|-----------------|
| 1 - Direct   | 107.00     | \$4,186,318.69 | \$5,885,714.97  | \$18,488,622.00 |
| 2 - Indirect | 26.91      | \$2,125,567.06 | \$3,456,331.04  | \$6,831,637.92  |
| 3 - Induced  | 29.02      | \$1,776,491.76 | \$3,170,463.10  | \$5,297,434.49  |
| Totals       | 162.93     | \$8,088,377.52 | \$12,512,509.12 | \$30,617,694.40 |

## Taxes

| Impact       | Sub County General | Sub County Special Districts | County     | State      | Federal      | Total        |
|--------------|--------------------|------------------------------|------------|------------|--------------|--------------|
| 1 - Direct   | \$ 78,676          | \$ 124,057                   | \$ 48,363  | \$ 336,474 | \$ 900,835   | \$ 1,488,405 |
| 2 - Indirect | \$ 52,120          | \$ 82,183                    | \$ 32,266  | \$ 187,818 | \$ 504,647   | \$ 859,034   |
| 3 - Induced  | \$ 42,267          | \$ 66,647                    | \$ 26,681  | \$ 160,234 | \$ 436,411   | \$ 732,240   |
| Total Impact | \$ 173,062         | \$ 272,886                   | \$ 107,310 | \$ 684,526 | \$ 1,841,894 | \$ 3,079,679 |

|                 |  |
|-----------------|--|
| <b>Direct</b>   | Initial effects to a local industry or industries due to the activity or policy being analyzed                   |
| <b>Indirect</b> | Effects stemming from business to business purchases in the supply chain taking place in the region              |
| <b>Induced</b>  | Effects in the region stemming from household spending of income, after removal of taxes, savings, and commuters |



# Alternative Fuel Prices

# Alternative Fuel Prices Inputs

## Model Restriction

- Selection for any physical products will not be available in the model until 2030
- Average prices above \$75 per Dth will not be modeled

## Capital Costs

- Equipment
- Pipeline Costs
- Installation and Owners Costs

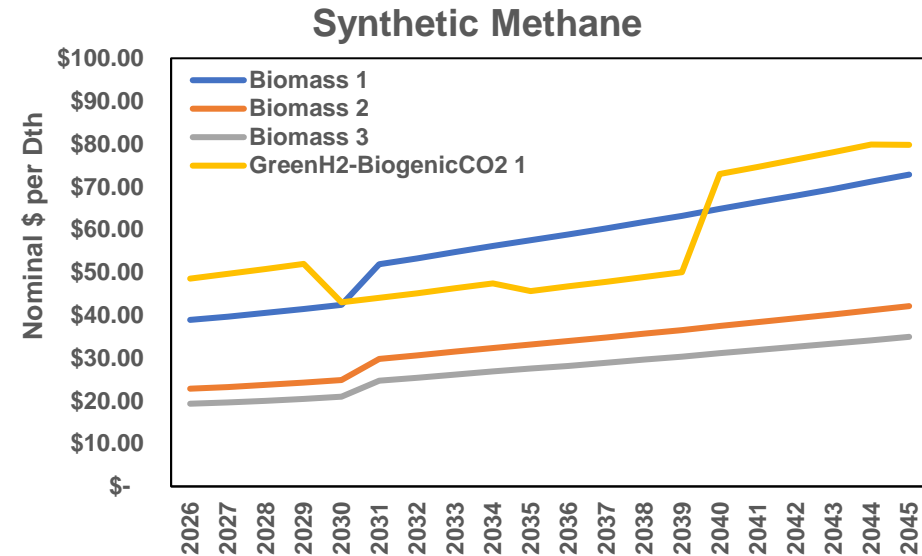
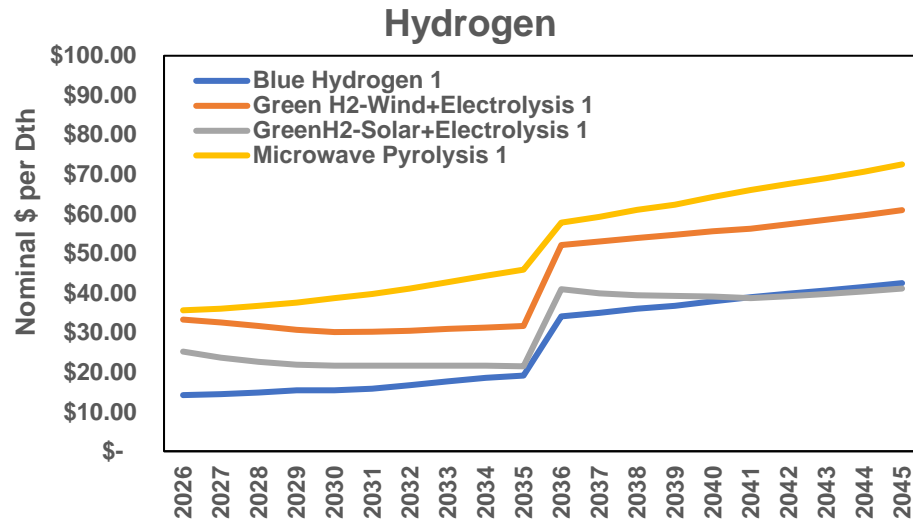
## O&M – Fixed and Variable

- Electricity rates
- Gas rates

# Prices

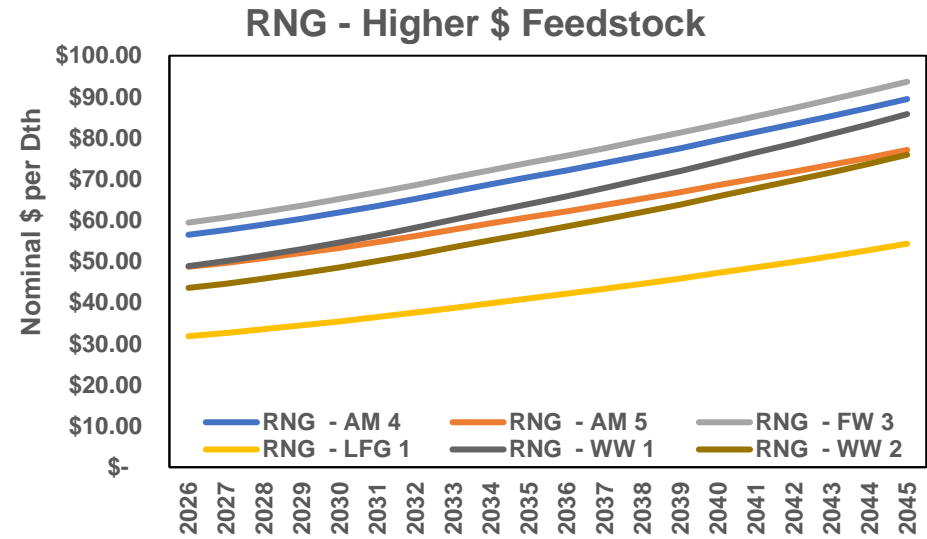
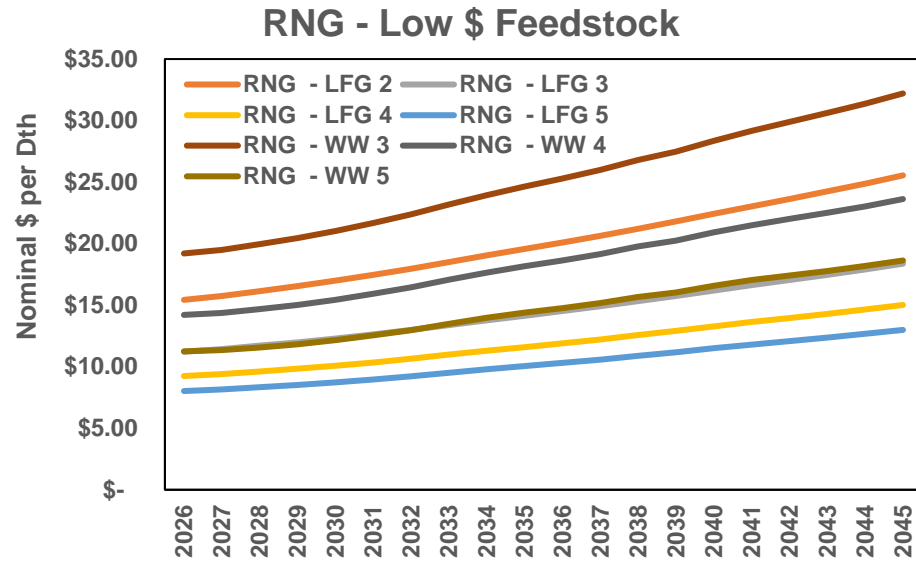
- Expected prices are broken down between northwest and national technical potential (ICF)
  - All prices consider Inflation Reduction Act (IRA) incentives where applicable
  - These prices assume a first mover access to alternative fuels
  - Prices are averaged between two distinct groupings Northwest and National to reduce model inputs
  - Hydrogen (H<sub>2</sub>) & Synthetic Methane (SM) prices will be treated as a purchase gas agreement where Avista would sign a term contract, each year, with the producer for these prices through the forecast.
  - Renewable Natural Gas assumes a proxy ownership with costs levelized over 20 years
  - Renewable Thermal Credit (RTC) is a production cost plus, where prices cover all costs
    - These exclude Investment Tax Credit (ITC) or Production Tax Credit (PTC) and consider a higher capital rate
  - Prices are nominal and levelized for each reference year

# Hydrogen (H2) and Synthetic Methane (SM)



ICF leveled the Section 45V tax credit over 20 years. Since hydrogen projects must be under construction by the end of 2032 to qualify for 45V credits, the 45V tax credits were modeled until 2035 as a conservative estimate assuming every new hydrogen facility beginning construction after 2032 may not qualify for the tax credit. ICF assumed EAC requirements and other requirements for 45V credits are met to minimize the CI which doesn't include embodied emissions and receive the maximum credit amount of \$3/kg.

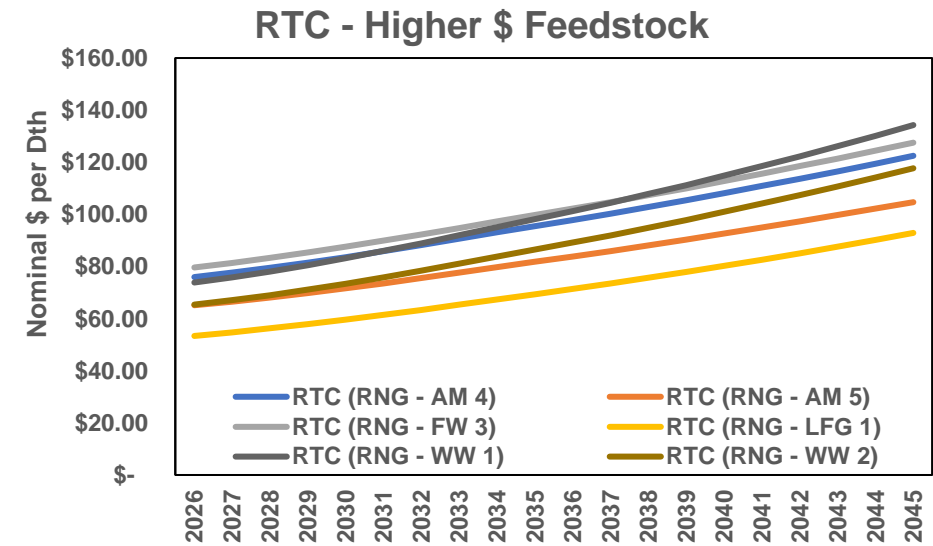
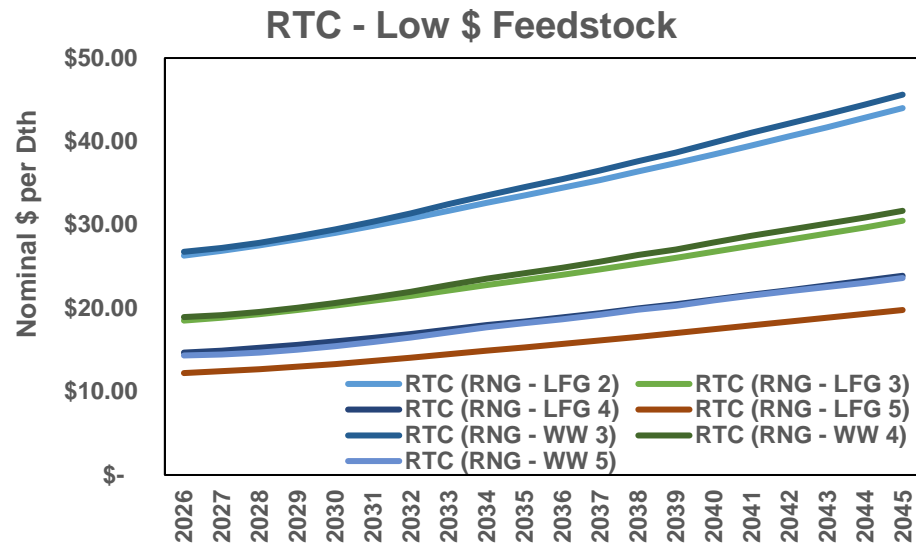
# Renewable Natural Gas (RNG)



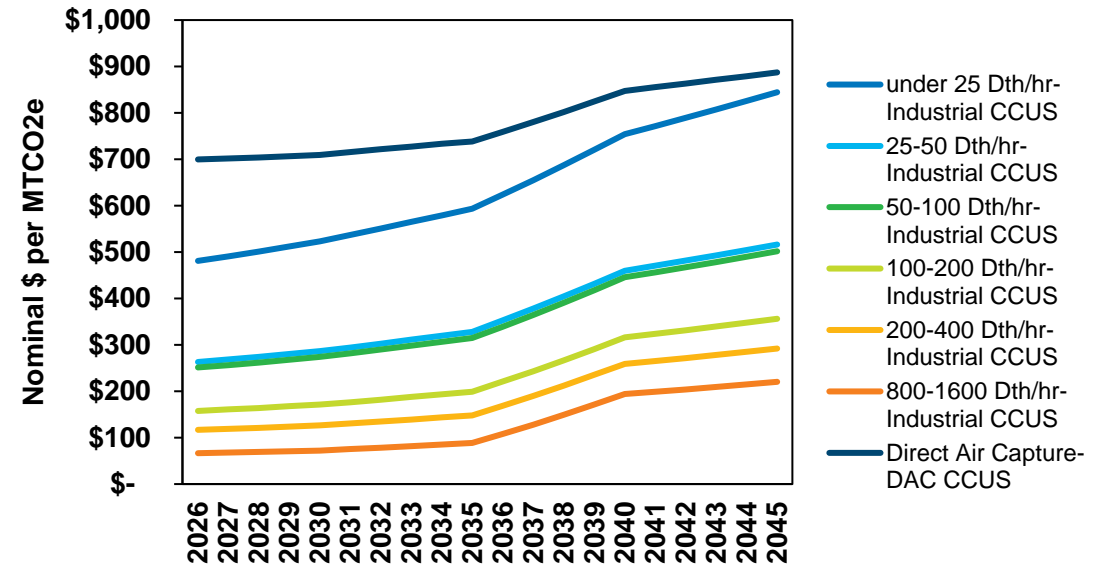
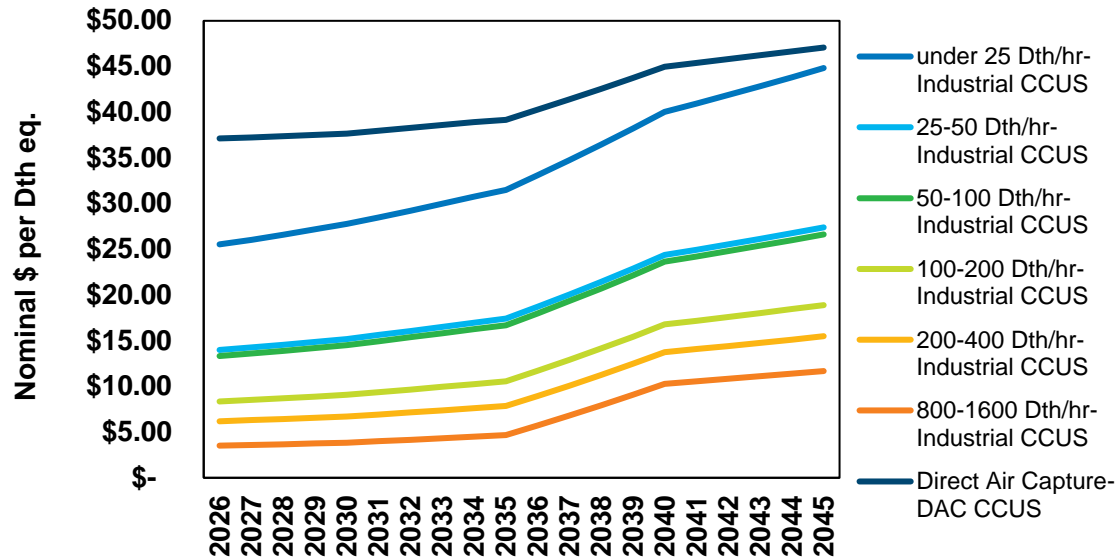
\*Blend of national and NW estimated costs for RNG facilities

\*\*Includes ITC/PTC until 2030

# Renewable Thermal Certificate (RTC)



# Carbon Capture, Utilization and Storage (CCUS)



\*Avista specific high-volume customers

\*\*Includes ITC/PTC to 2030

# Alternative Fuels Technical Potential Volumes (ICF)

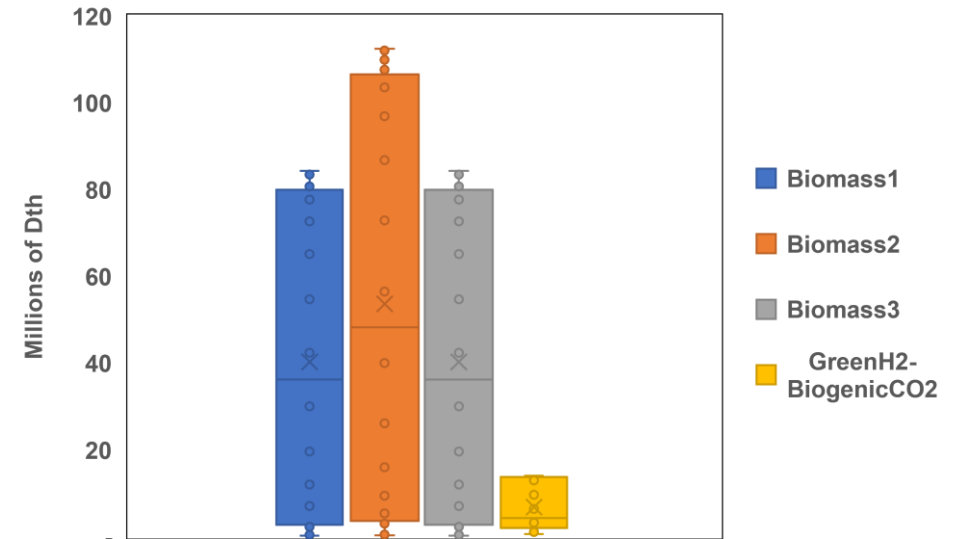
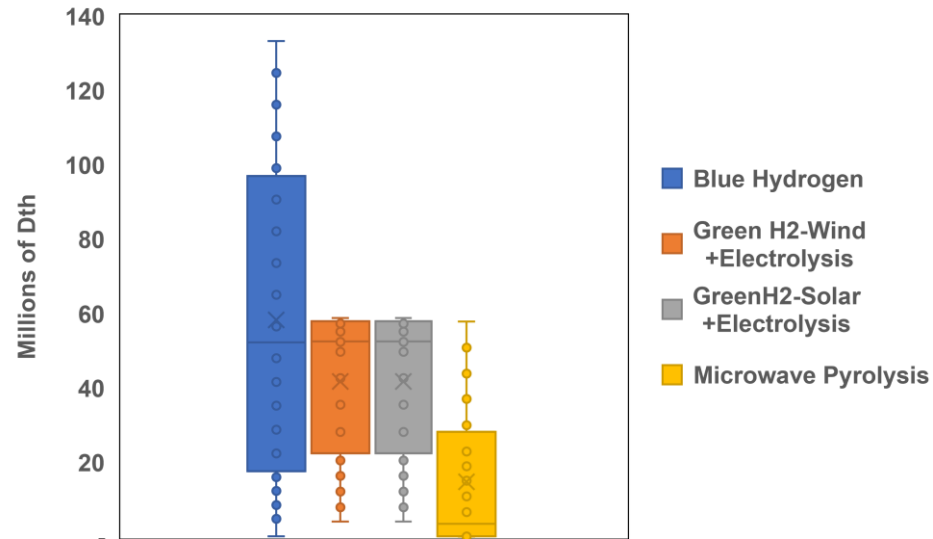


# Volumes

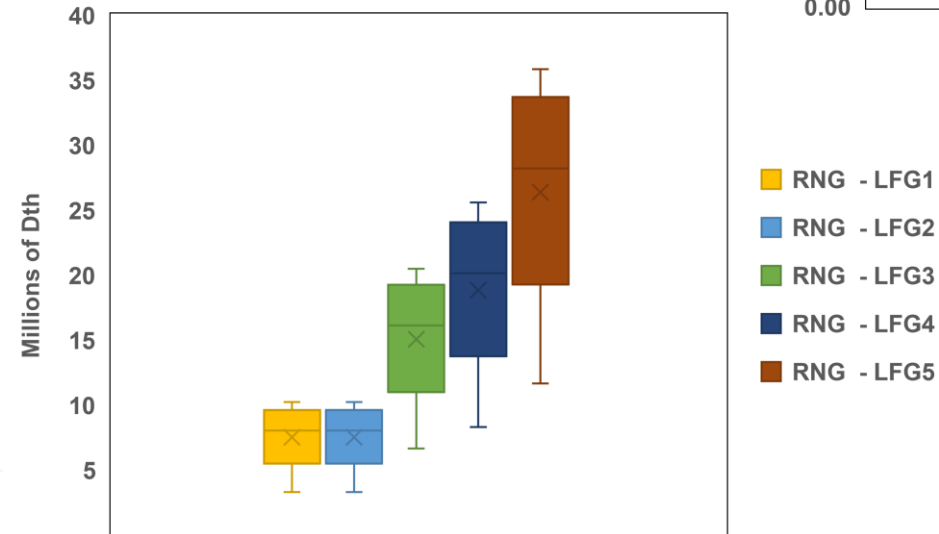
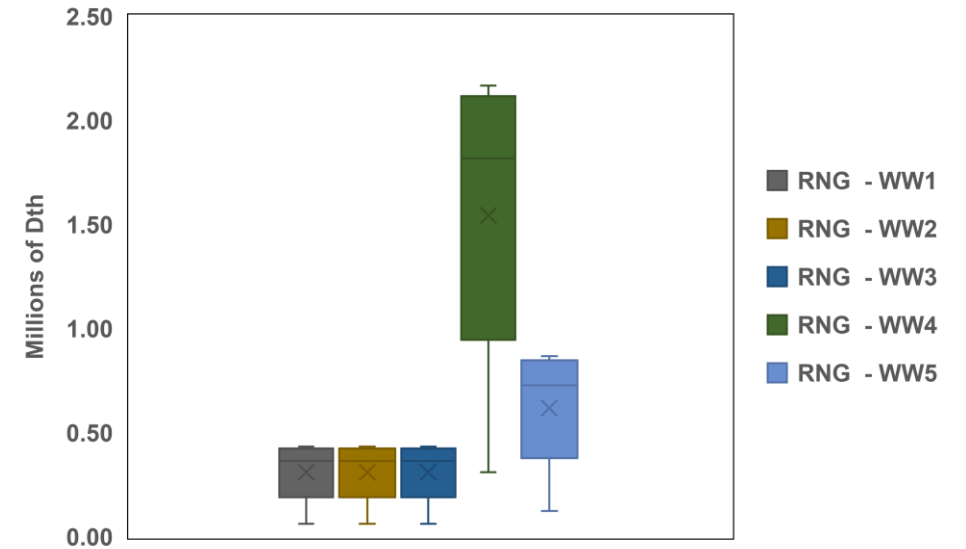
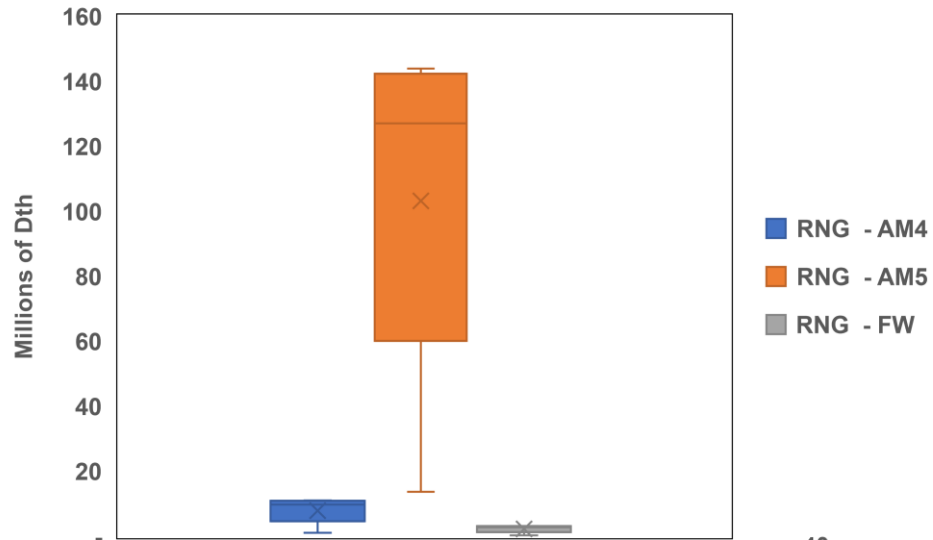
- Expected volumes are broken down between Northwest and national technical potential
  - These volumes assume a first mover access to alternative fuels
  - Weighted by US population for states where some form of climate policy is in place or demand is expected
  - Modeled potential volumes are from Avista's weighted share in only the Northwest for RNG, H2, SM
  - Broken out by 2023 number of meters between LDCs in Oregon and Washington

| Company         | 2023 # of Meters | Share           |
|-----------------|------------------|-----------------|
| AVA             | 379,223          | 15.831%         |
| CNG             | 316,929          | 13.231%         |
| NWN             | 799,250          | 33.366%         |
| PSE             | 900,000          | 37.572%         |
| <b>Total NW</b> | <b>2,395,402</b> | <b>100.000%</b> |

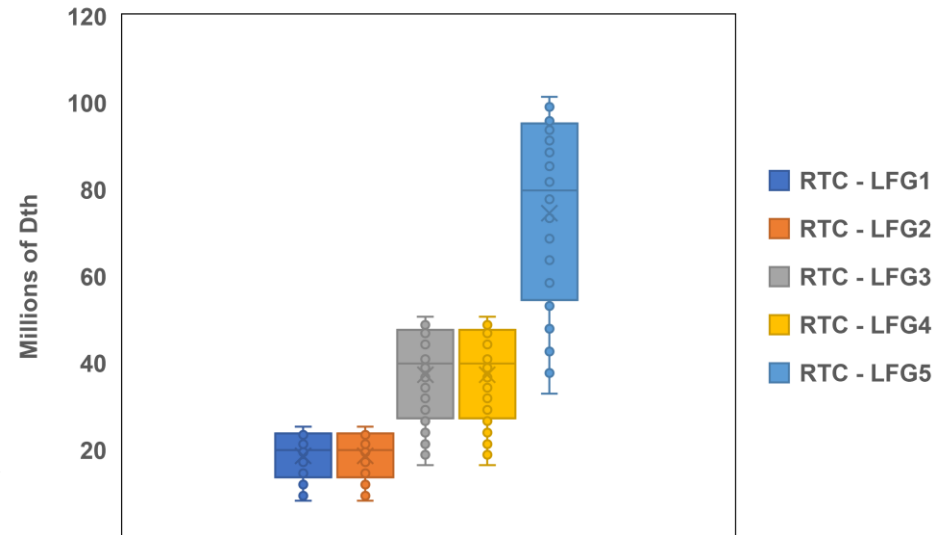
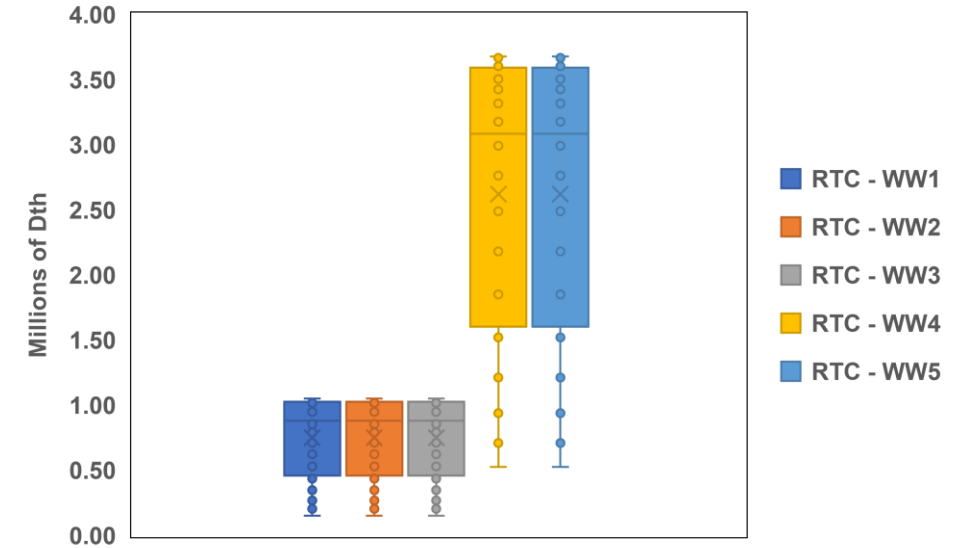
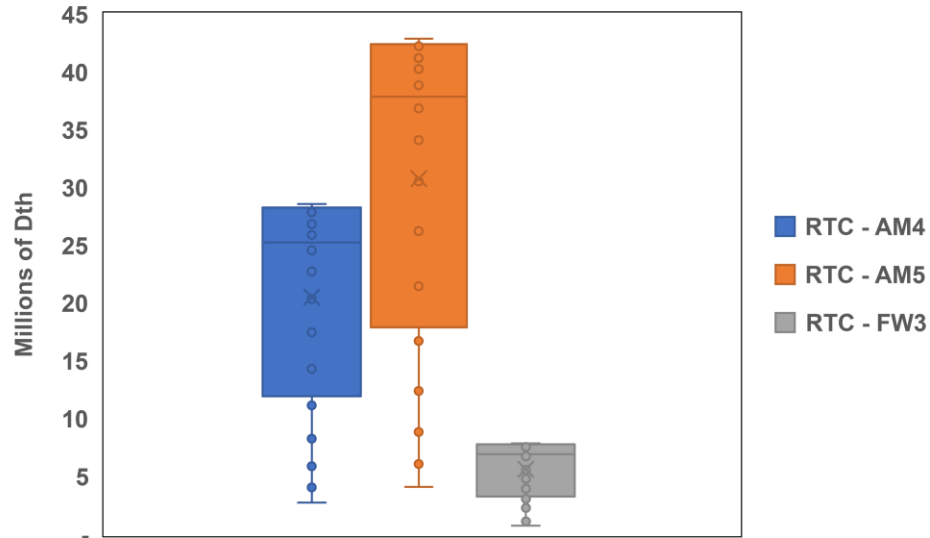
# H2 and SM – Avista’s share Technical Potential Volumes (2026-2045)



# RNG – Avista’s Share Technical Potential Volumes (2026-2045)

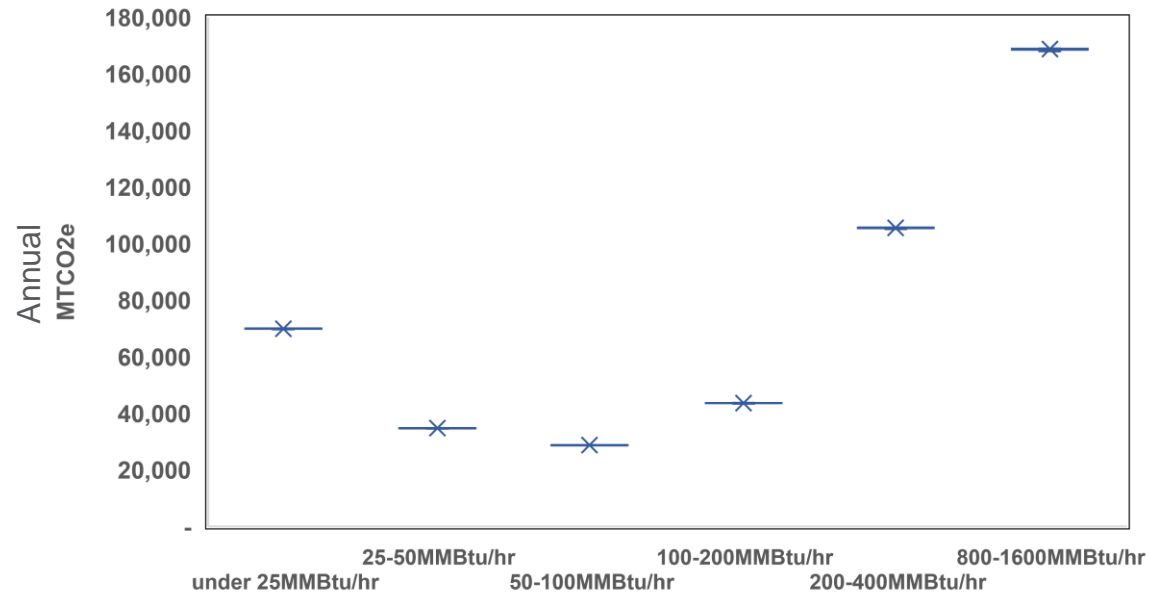


# RTC\* – Avista's Share Technical Potential Volumes (2026-2045)

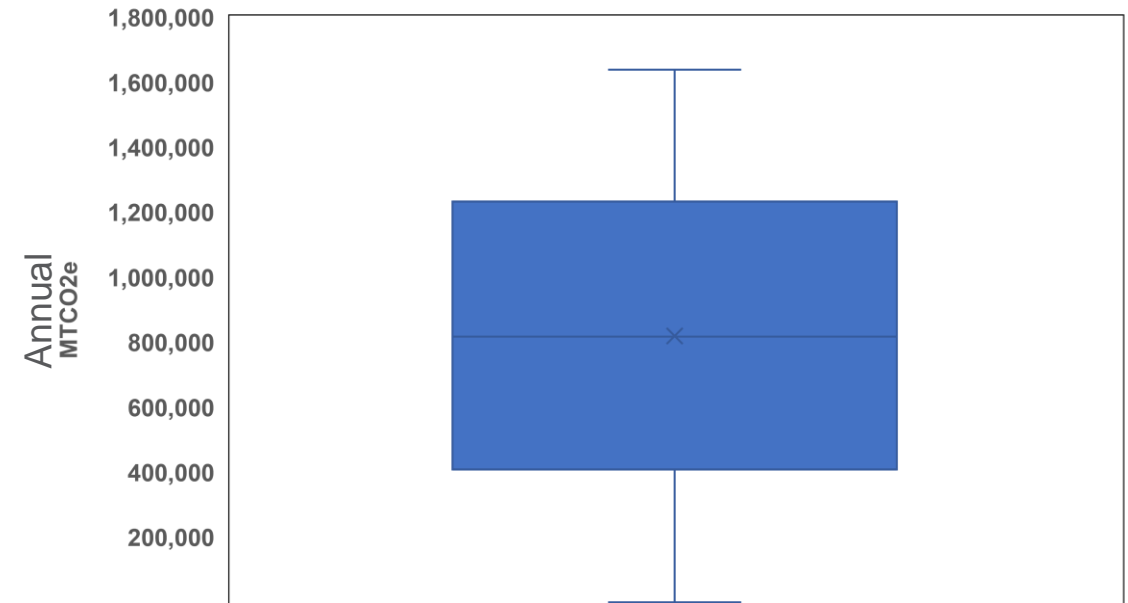


# CCUS

## Industrial CCUS

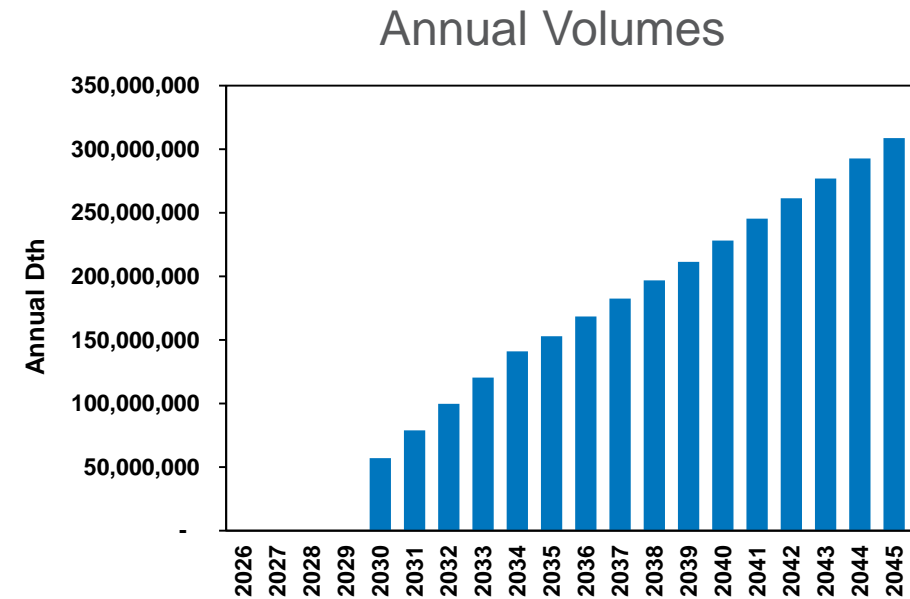
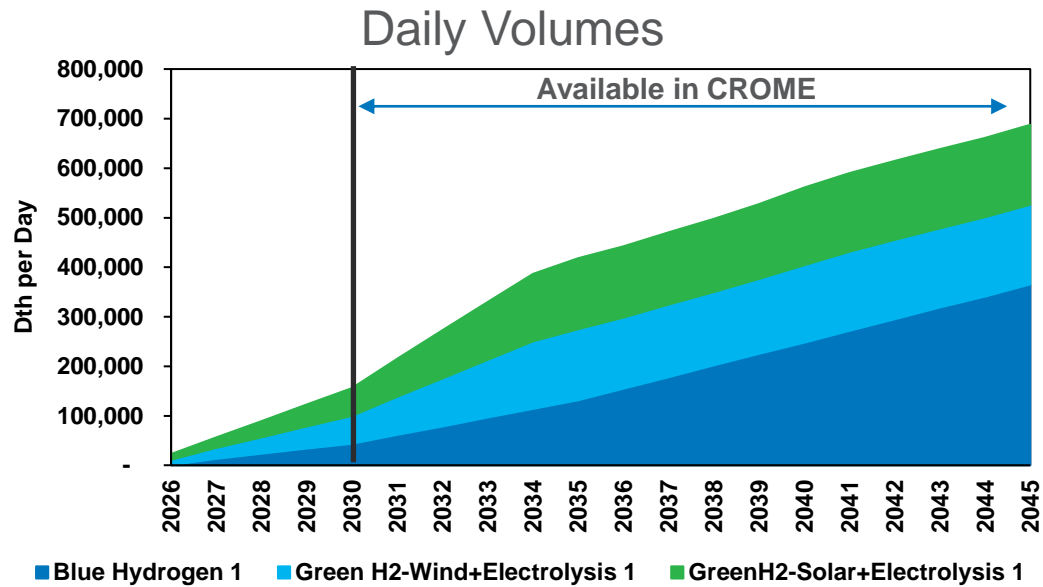


## Direct Air Capture CCUS



# Daily Modeled Volumes

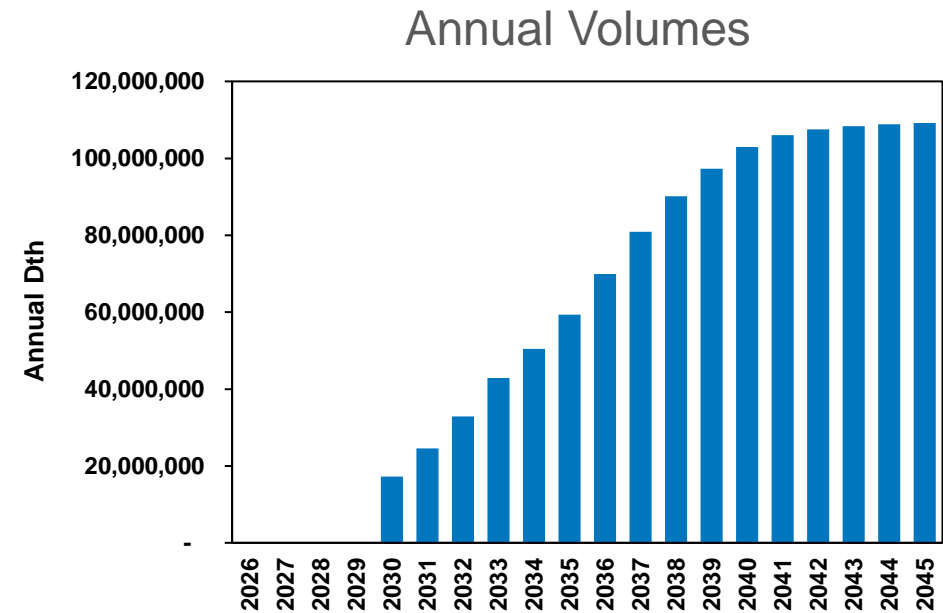
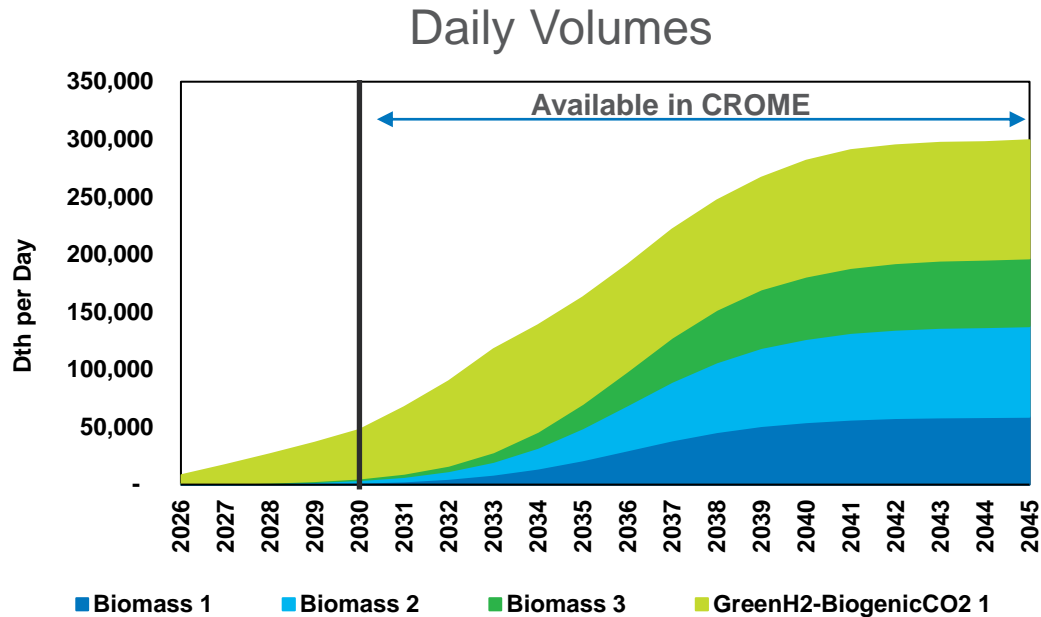
# H2 – Modeled Volumes



\*H2 will be limited by volume to 20% regardless of availability

\*\*No volumes will be available until 2030

# SM – Modeled Volumes



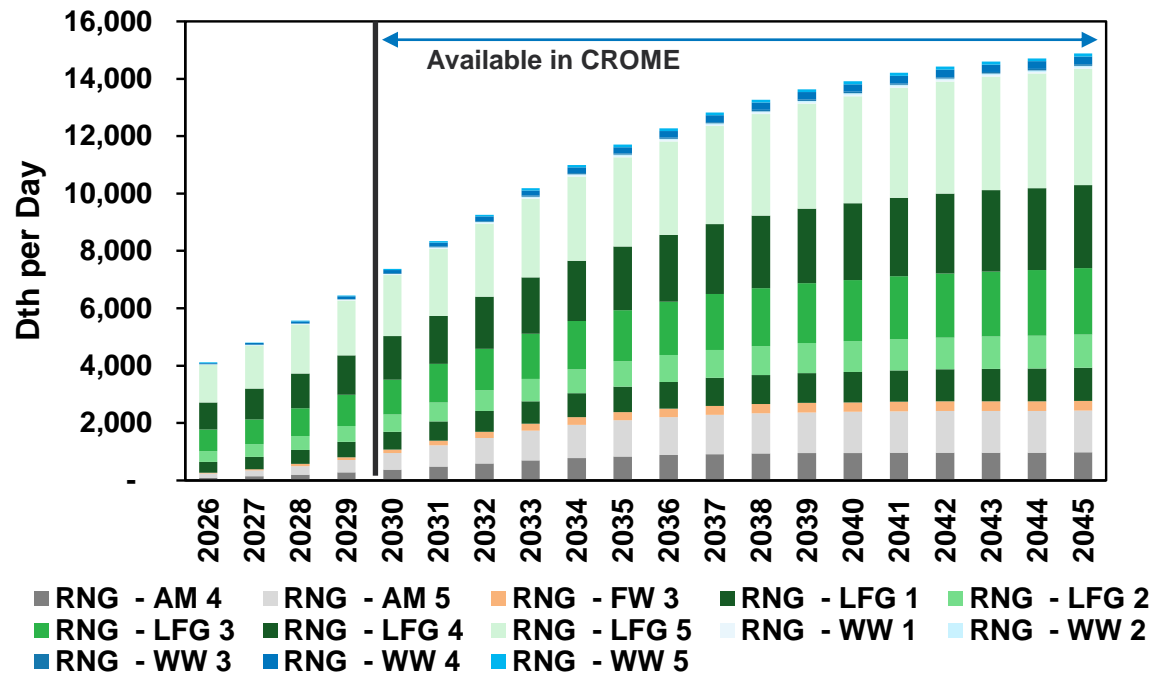
\*SM is limited to NW Technical Potential availability & Avista share based on # of LDC meters

\*\*No volumes will be available until 2030

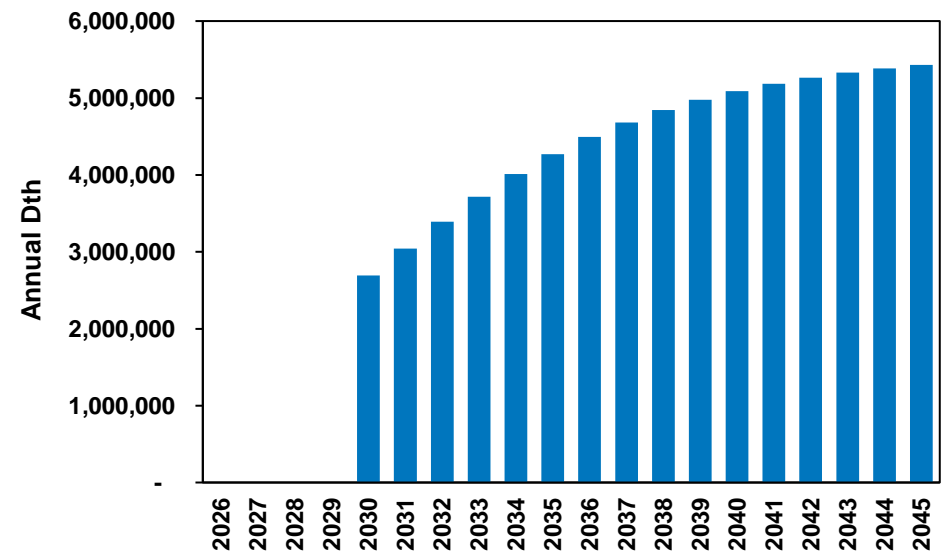


# RNG – Modeled Volumes

## Daily Volumes



## Annual Volumes



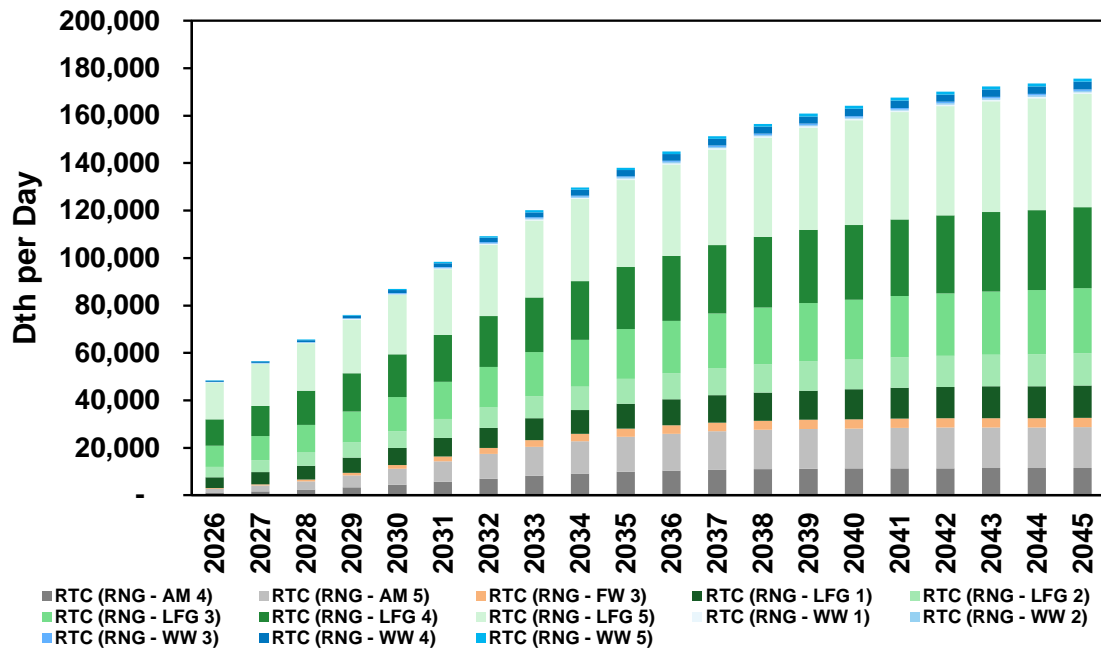
\*Quantities not available until 2030

\*\*RNG volumes are limited to NW technical potential availability to allocate 1.5MM Dth between RNG type

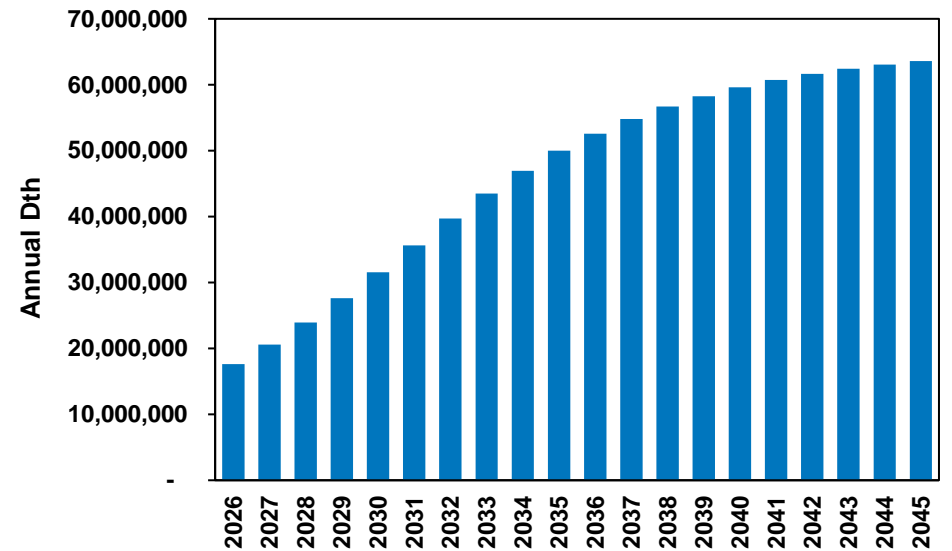
\*\*\*Removal of high priced RNG prior to modeling (AM1-3, FW1-2)

# RTC – Modeled Volumes

## Daily Volumes



## Annual Volumes



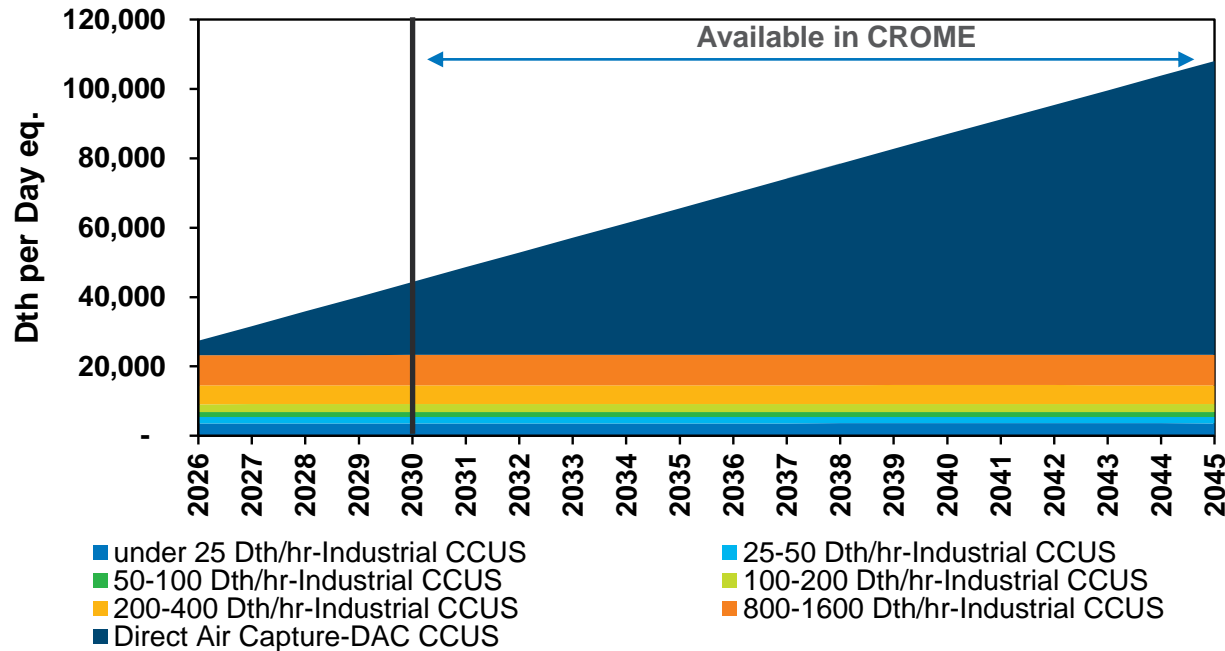
\*Quantities are available to the model in 2026

\*\*RTCs are limited to National availability & Avista share and allocated by RTC type with 2024 Avista RFP volumes

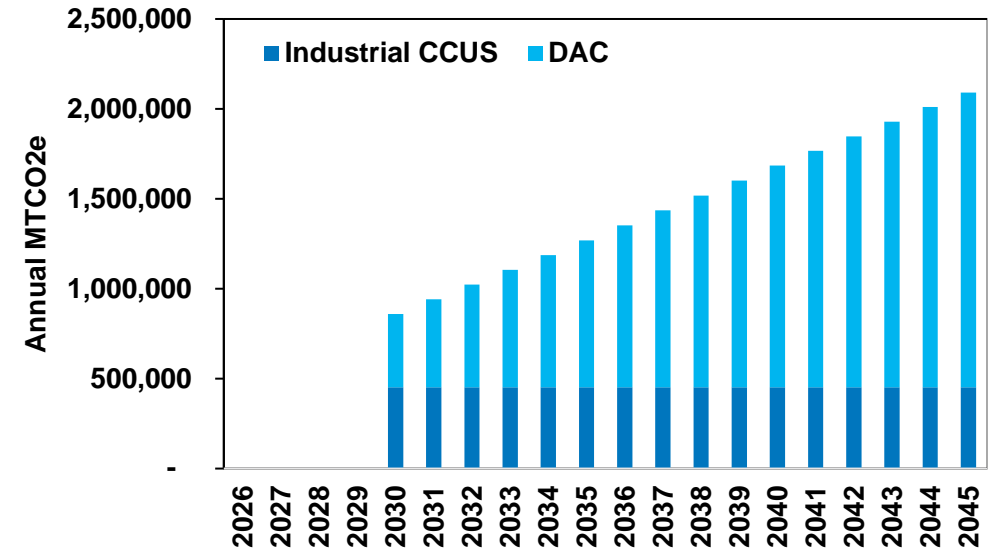
\*\*\*Removal of high priced RTCs prior to modeling (AM1-3, FW1-2)

# CCUS

## Daily Volumes



## Annual Volumes

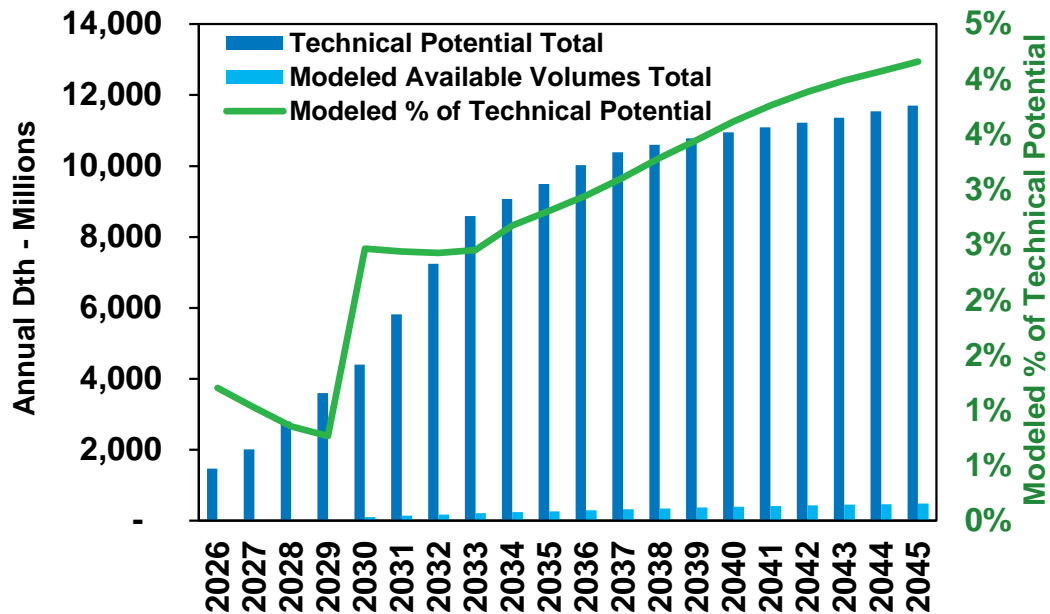


\*No Volumes will be available until 2030

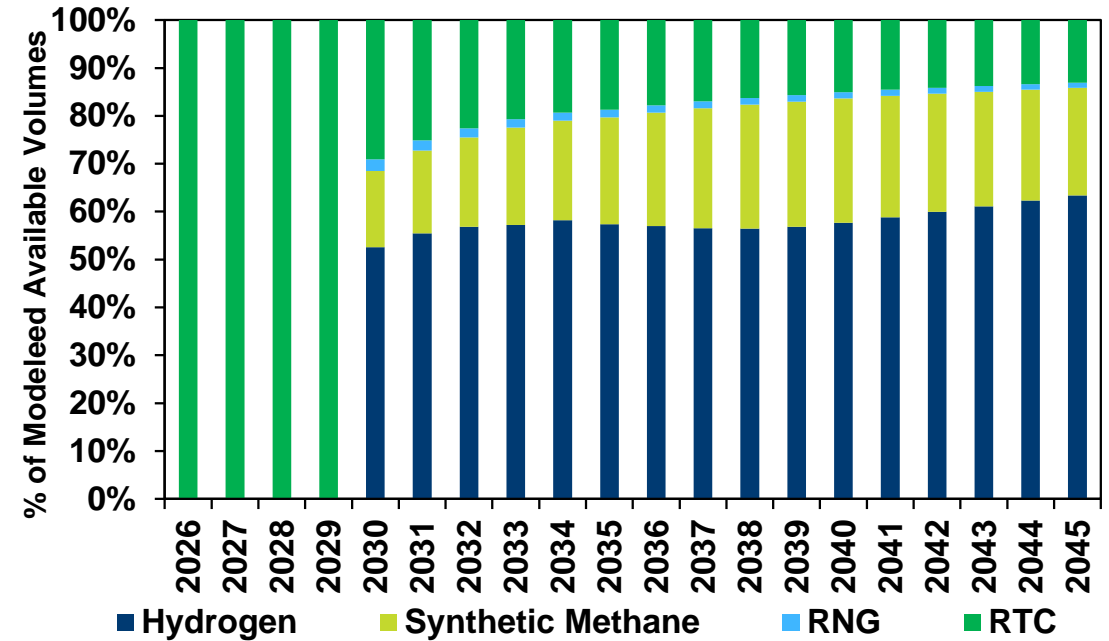
\*\*CCUS "Industrial" is based on Avista specific high-volume customers

# Annual - Modeled Volumes vs. Technical Potential Volumes

% of Modeled Volumes vs. Technical Potential\*\*



% of Modeled Total Volumes in CROME by Type\*



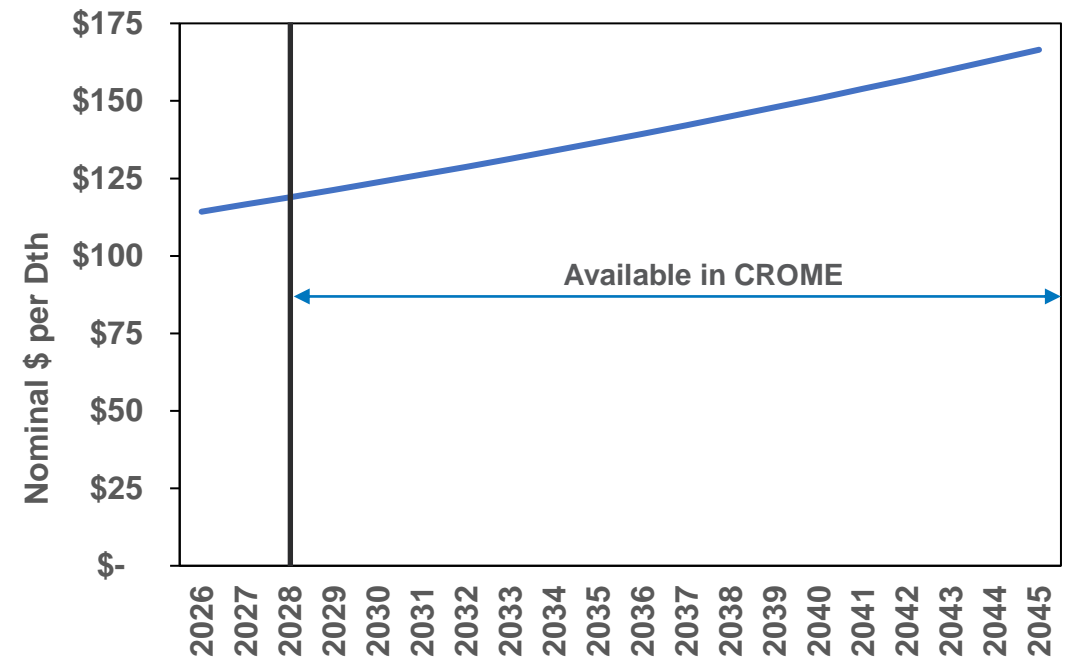
\*Excludes CCUS

\*\*Technical Potential Volumes are from ICF and weighted to % share of LDC # of customers for National and NW volumes, meaning this would be Avista's share of those volumes

# All Resource Options

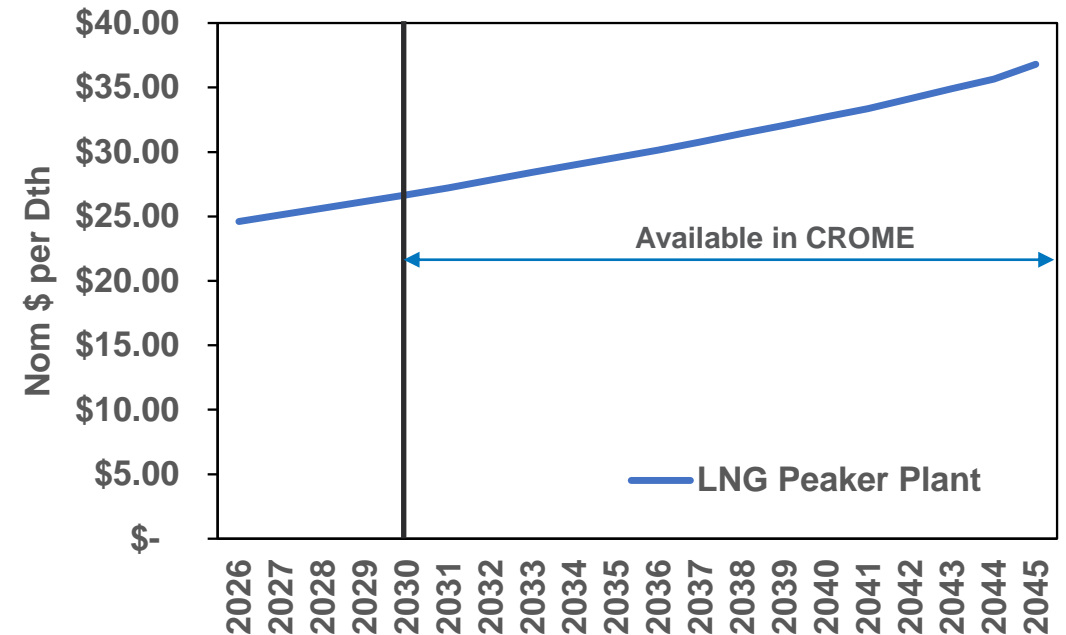
# Propane Storage

- CapEX - \$14.7MM (20 Year Asset Life)
- Plant Size – 30M Dth (1 cycle)
- Pipeline - \$2MM
- Installation + Owners costs – 5% of capital cost
- Delivery Cost - \$0.33 per gallon of Propane
- Plant electricity and air injection
- Siting, permitting and build - 2 years
- Propane costs per gallon are included in estimated nominal \$ per Dth



# Liquified Natural Gas (LNG) Peak Storage

- CapEX - \$200MM (50 Year Asset Life – Avista Rev. Req)
- Plant Size – 1.037MM Dth
- Max volume per day – 103,700Dth
- Pipeline - \$2MM
- Utility Interconnect - \$3.12MM
- Installation + Owners costs – 30% of capital
- Liquefaction Costs
- Days of peak supply – 10
- Liquefier capacity per day – 7,000 Dth
- Siting, permitting and build - 4 years
- Gas commodity costs included in CROME and combined with estimated nominal \$ per Dth



# Constraints of Resource options in CROME

| Resource Type                           | Volumetric Restriction  | First Year of Availability |
|---|---|----------------------------|
| Allowances                              | 10% of Market per program rules (CCA)                                       | 2026                       |
| Community Climate Investments           | 15% (2025-2027), 20% 2028+ (CPP)  | 2026                       |
| Demand Response                         | CPA from AEG for potential  | 2026                       |
| Electrification                         | No constraints, up to total energy demanded on LDC by area/class/year       | 2026                       |
| Energy Efficiency                       | CPA from AEG and ETO  | 2026                       |
| Renewable Thermal Credit                | NW Technical Potential (ICF)  | 2026                       |
| Propane Storage                         | 30,000 Dth  | 2028                       |
| Hydrogen                                | NW Technical Potential to Avista (ICF) & 20% by volume                      | 2030                       |
| Synthetic Methane                       | NW Technical Potential to Avista (ICF)                                      | 2030                       |
| Renewable Natural Gas                   | NW Technical Potential (ICF) for allocation of 1.5MM Dth Total Availability | 2030                       |
| Liquified Natural Gas                   | 1 Bcf Total & 0.1 Bcf Daily W/D   | 2030                       |
| Carbon Capture, Utilization and Storage | Constraints to Avista high volume customers (ICF)                           | 2030                       |



# Remaining TAC Meetings

## TAC 10 – (January 9<sup>th</sup>)

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- Conservation Potential Assessment (AEG)
- Demand Response Potential Assessment (AEG)
- Conservation Potential Assessment (ETO)
- Dual Fuel Pilot Program – Oregon (ETO)
- Deterministic Results
- Alternative Fuel Final Results - Questions

## TAC 11 – (January 22<sup>nd</sup>)

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- Risks and costs by scenario
- Preferred Resource Selection
- Non-Energy Impacts
- Emissions by Scenario
- Energy Burden
- Average Rates
- Net present value revenue requirement (NPVRR)
- Action Items