2027 Electric and Natural Gas Integrated Resource Plans

Technical Advisory Committee Meeting No. 2 Agenda

Tuesday, October 21, 2025

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

Topic	State	Audience
• 2026-2029 CEIP Update	WA	Electric
• Policy Considerations (OBBB, Other Building Codes, Elimination of Block Grants)	All	E & G
• Available Supply-Side Resource Options – Electric	All	Electric
• Available Supply-Side Resource Options – Natural Gas	All	Gas
• Portfolio and Market Scenarios and Sensitivities Considered in 2027 IRPs	All	E & G
• Modeling Methodology and Combined Model Overview – PRiSM, CROME, Aurora	All	E & G

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 216 439 492 621 5

Passcode: Cw3gR2Xk

Dial in by phone

+1 509-931-1514,,986413692# United States, Spokane

Find a local number

Phone conference ID: 986 413 692#

For organizers: Meeting options | Reset dial-in PIN

Introductions 2027 Electric & Gas Integrated Resource Planning

TAC 2 – October 21, 2025

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

Agenda

- Introduction, John Lyons
- 2026-2029 CEIP Update (WA Elec), Kelly Dengel
- Policy Considerations (All), John Lyons
- Electric Resource Options, Robert Hughes
- Natural Gas Resource Options, Michael Brutocao
- Portfolio and Market Scenarios & Sensitivities for 2027 IRP (All), James Gall & Michael Brutocao
- Modeling Methodology and Combined Model Overview – PRiSM, CROME, Aurora (All), James Gall and Michael Brutocao

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

Answers to Questions from TAC 1

- Timing of meetings – see following slides with the dates and times of future meetings
- Working with Avista's Energy Efficiency Advisory Group to prevent double bookings
- Final presentations, recordings and meeting notes will be posted on the IRP page
- Future TAC agendas and times are being posted to the web site
- **Please send comments on assumptions within two weeks of TAC meetings**
- Data files and spreadsheets will be posted to the Teams page – watch for an email invitation to join the IRP Teams page
- **Finalization of key inputs will be discussed in the scenario and sensitivities presentation – Needed as early as possible, or February 27, 2026, at the latest**

TAC 3 – Thursday, November 20, 2025 (13:00 – 16:30 PST)		
Topic	**State**	**Audience**
Future Climate Analysis	All	E&G, Dist.
CCA/CPP Overview and Joining New Markets	WA/OR	E&G
Carbon Sequestration	All	E&G
CPP Compliance	OR	Gas
Natural Gas-Fired Heat Pump Technology	All	Gas
Washington Non-Pipe Analysis	WA	Gas

TAC 4 – Wednesday, January 21, 2026 (13:00 – 16:00 PST)		
Topic	**State**	**Audience**
Market Overview ad Price Forecast	All	Gas
Wholesale Electric Price Forecast	WA/ID	Electric
Sub-Hourly Modeling	WA/ID	Electric
DER Forecast Impact on Distribution System	WA	Dist.
Cost of Carbon (SCC, Allowances, CCI)	WA	E & G

TAC 5 – Friday, February 20, 2026 (13:00 – 16:00 PST)		
Topic	**State**	**Audience**
New Electric Resource Options	WA/ID	Electric
Wholesale Price Forecast – Deterministic	WA/ID	Electric
New Gas Resource Options	All	Gas
Liquified Natural Gas Analysis	All	Gas
Electrification Assumptions and Scenarios	All	Gas

TAC 6 – Monday, March 16, 2026 (13:00 – 16:00 PDT)		
Topic	State	Audience
Wholesale Price Forecast – Stochastic	WA/ID	Electric
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

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

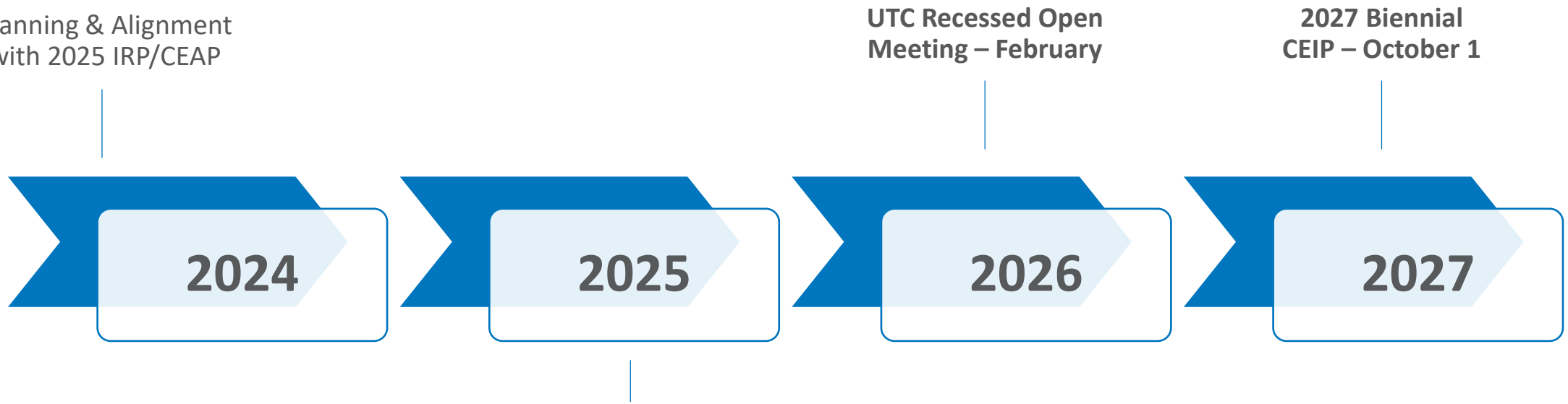
2025
Clean Energy Implementation Plan

TAC 2 – October 21, 2025

Kelly Dengel, Clean Energy Policy & Implementation Manager

2025 Clean Energy Implementation Plan Timing

2026-2029 Implementation Period



https://www.myavista.com/about-us/washingtons-clean-energy-future/clean-energy-implementation-plan

2025 Clean Energy Implementation Plan

Public Participation Plan

Named Communities & Customer Benefit Indicators

Proposed Targets | Specific Actions | Additional Actions & Goals

Renewable Energy

Energy Efficiency

Demand Response

Company Initiatives

Public Participation

Strategies

- Virtual public meetings
- Quarterly email newsletter
- Equity Advisory Group
- Community events
- Biennial CEIP survey
- CEIP webpage improvements
- Increase multi-language access
- Educational videos
- Targeted paid social media
- Community partnerships

Named Communities Identification

Highly Impacted Communities

- All DOH sensitivities combined score 9 or higher or Tribal census tracts

Named Community Designation 43% to 58%

&

Vulnerable Populations

- DOH Socioeconomic & Sensitive populations at 9 or higher
- Federal – Climate and Economic Justice 40 Map: Climate Change | Energy | Health | Housing | Legacy Pollution | Transportation | Water & Wastewater | Workforce Development (all sensitivities, all scores)
- Equity Advisory Group identified characteristics

Named Communities: Those disproportionately and negatively impacted by housing, food and income insecurities, environmental effects and other factors

Vulnerable Populations Characteristics

WA DOH – Socioeconomic & Sensitive Factors

- No high school diploma
- People of color
- Population living in poverty <=185% of the Federal Poverty Level
- Primary language other than English
- Unemployment
- Death from cardiovascular disease
- Low birth weight
- Unaffordable house >30% of income
- Transportation expense

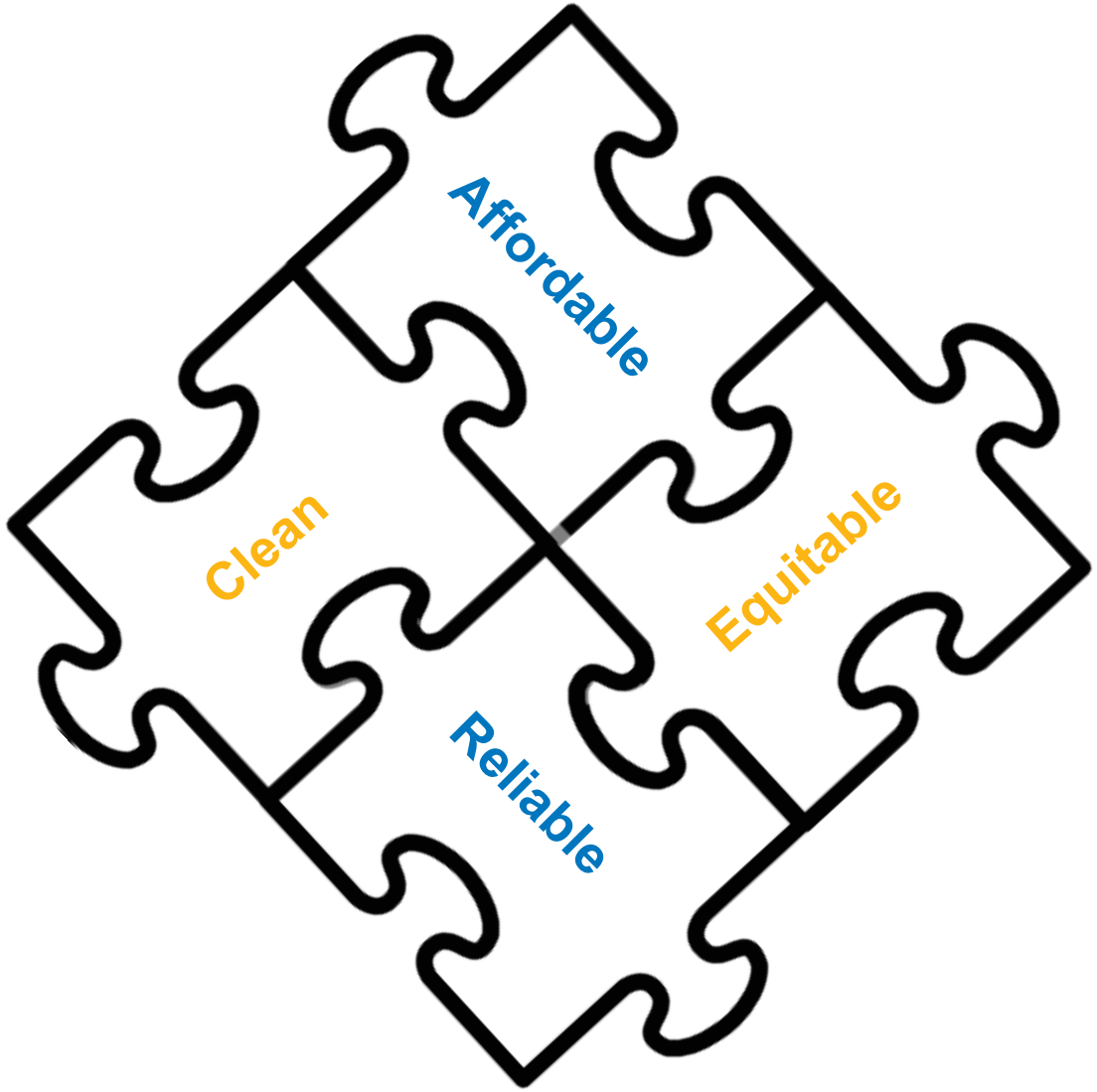
2021, 2023 & 2024 Equity Advisory Group Identified Characteristics

- American Indian and Alaska Native (on/off reservation)
- BIPOC
- Eastside of Spokane
- Fossil fuel industry workers
- Houseless populations
- Individuals who do not read
- LBGTQIA2S+
- Low-Income
- Migrant workers
- Monolingual (no written languages)
- Northeast Spokane households
- Neighboring communities and states
- Non-English speakers
- Older homes with older infrastructure
- People who fall between the cracks
- People with disabilities
- Populations outside of Avista's service territory who are affected by fossil fuel infrastructure and production
- North Central neighborhood, Spokane, WA
- Peaceful Valley, WA
- Religious and spiritual people
- Rural
- Specific indigenous languages
- Tenants (renters)
- Undocumented individuals
- Youngest generation (high school, college)
- Youth (some help families navigate resources)
- Aging populations
- Resiliency (community & personal)
- Takesa Village, Mead, WA
- High energy burden

Customer Benefit Indicators

- Evaluate customer benefit of the clean energy transition

- Track the equitable distribution of energy benefits and reductions of burdens to Named Communities



Customer Benefit Indicators

6 Equity Areas | 13 CBIs | 60 Metrics

Affordability

- Participation in Company Programs ↑
- Energy Burden ↓

Accessibility

- Outreach & Communication ↑
- Transportation Elec ↑
- NC Investments ↑

Energy Resilience

- Energy Availability ↕

Energy Security

- Generation Location ↑
- Residential Disconnects ↓

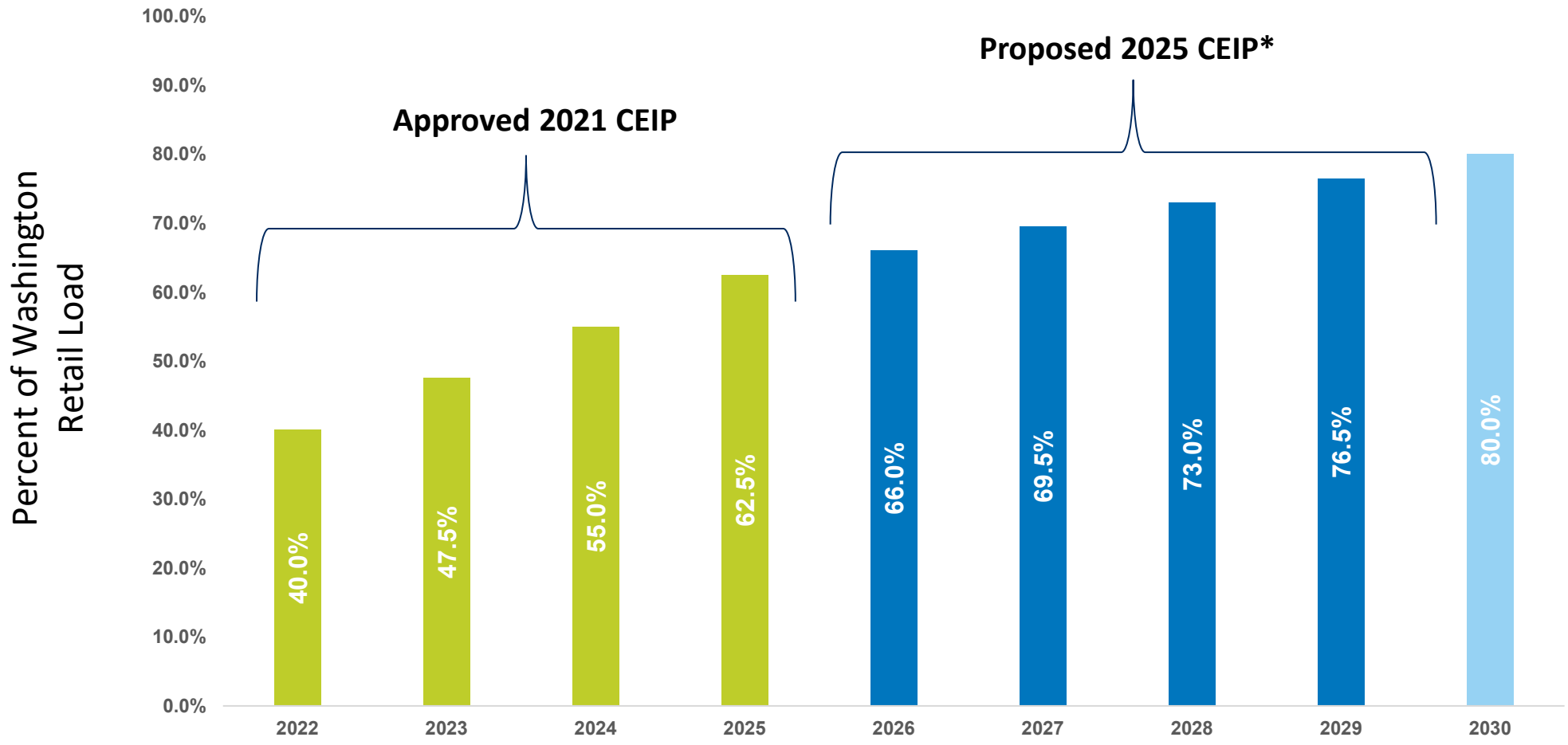
Environmental Affects

- Outdoor Air Quality ↓
- Greenhouse Gas Emissions ↓

Public Health

- Employee Diversity ↑
- Supplier Diversity ↑
- Indoor Air Quality ↑

Proposed Renewable Energy Targets



*Based on preliminary targets set in the 2025 Clean Energy Action Plan; subject to change

Renewable Energy

Interim Targets

2026 – 66.0%
2027 – 69.5%
2028 – 73.0%
2029 – 76.5%

Specific Actions

- Retire sufficient RECs to comply with annual targets

Additional Actions

- 2025 All Source RFP energy & capacity online by end of 2029
  - 75 – 375 MW of winter qualifying capacity
  - 50 – 350 MW of summer qualifying capacity
  - 0 – 200 aMW of annual clean energy
- Pursue SSHB1814 | Public Utility Tax Incentive
  - Project 1: 1.6 MW solar & 1.5 MW BESS
  - Project 2: TBD

Energy Efficiency

Interim Targets

2025 IRP Forecasted:
147,344 MWhs EE savings by 2029

73,672 MWhs for 2026-2027*
73,672 MWhs for 2028-2029**

*Based on 2025 Conservation Potential Assessment (CPA) & 2026-2027 Biennial Conservation Plan (BCP)
** Subject to 2027 CPA & 2028-2029 BCP

Specific Actions

- Continue existing cost-effective measures/program
- Pursue CPA identified cost-effective measures/programs

Additional Actions

- None

Demand Response

Interim Targets

Cumulative 55 MW of DR savings during a single peak hour by 2029

Specific Actions

- Continue 30 MW industrial DR contract
- Pursue cost-effective solutions from the 2025 All Source RFP

Additional Actions

- TOU Rates & PTR Pilots
- EV TOU Rate
- NEAA End-Use Load Flex Project Participation

Company Initiatives

Goals

Achieve five aspirational CBI metrics by 2029

Invest up to $5 million annually in Named Communities

Actions

- Actions per aspirational CBI metric
- Named Communities Investment Fund

Additional Actions

- Transmission Expansion Projects
- Connected Communities
- American Indian Relations
- Spokane Tribe Resilience Hub
- Transportation Electrification Plan
- Nondiscriminatory Hiring & Employment Practice Commitment
- Supplier Diversity Plan

Named Communities Investment Fund

2021 CEIP

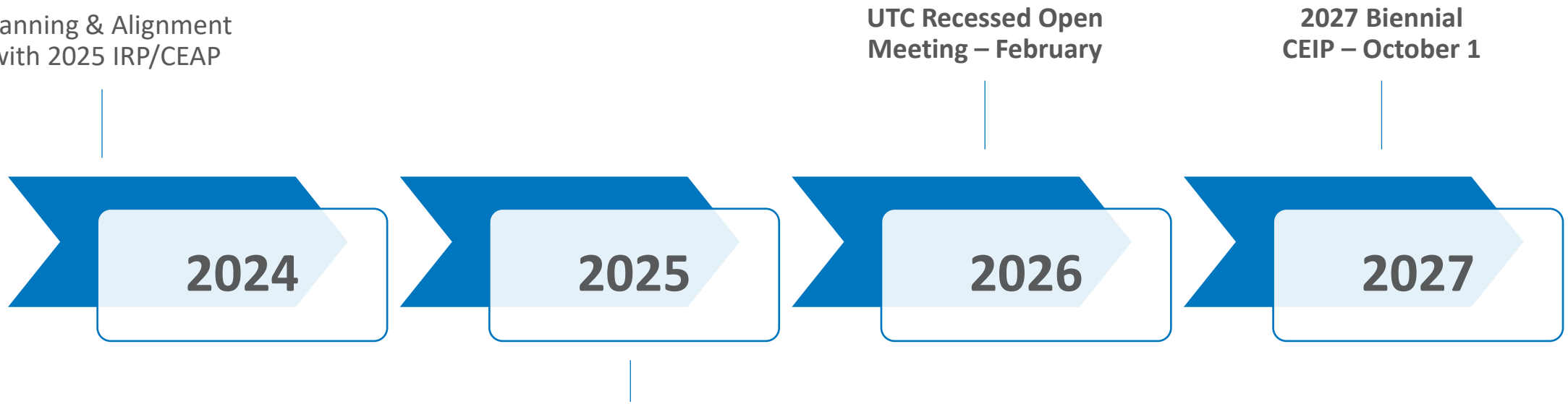
- **$5M annually**
  - $2M EE & $3M Community
- Funding limits by investment type
- Single year EE funds rollover

2025 CEIP

- **$5M annually**
  - $2M EE & $3M Community
- **No funding** limits by investment type
- Single year uncommitted funds **EE & Community rollover**

2025 Clean Energy Implementation Plan Timing

2026-2029 Implementation Period



https://www.myavista.com/about-us/washingtons-clean-energy-future/clean-energy-implementation-plan

Q&A

WUTC Comments
Online: https://www.utc.wa.gov/consumers/submit-comment
Email: comments@utc.wa.gov
Avista's CEIP: Docket UE-250746

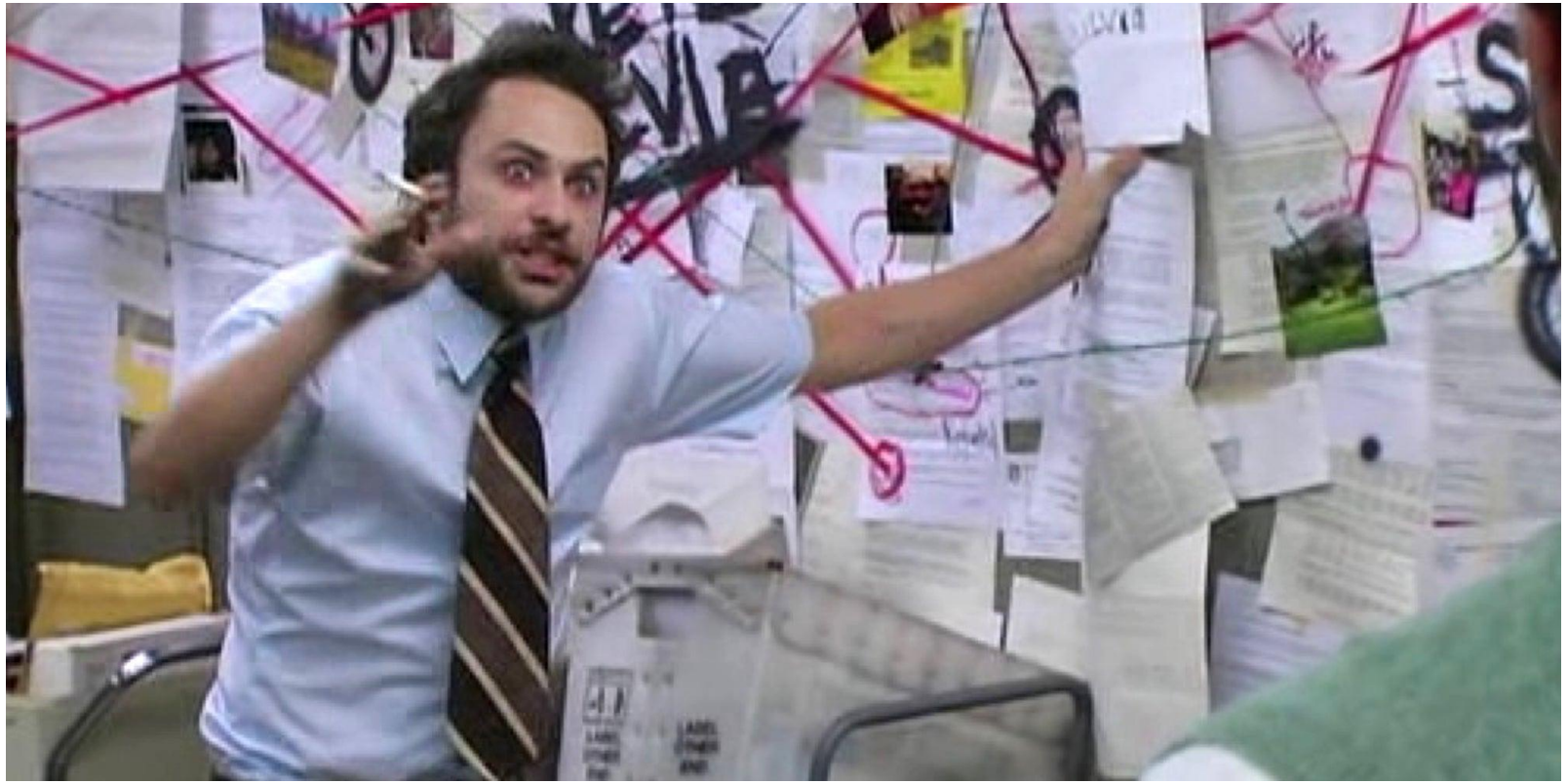
Energy Policies in the 2027 IRPs

TAC 2 – October 21, 2025

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

Ever Changing Energy Policies

- Tax Credits
- Support of Wind/Solar vs. Gas/Coal
- Electrification
- State vs. Federal
- Workforce Reductions & Grant Cancellations



Tax Credits – IRA vs. OBBBA

- Investment Tax Credit (48E of IRC)
  - IRA: extended 30% until 2033 and eligibility to stand-alone storage, clean H2 and other technologies. Stackable bonuses on societal and sourcing factors. Added labor and component sourcing requirements.
  - OBBBA: early termination of wind and solar ITC, PTC and ITC credits for hydro upgrades remain until 2033. Wind and solar must begin construction by July 4, 2026, to qualify. Domestic content bonuses limited to construction starting before June 16, 2025. New safe harboring guidance issued August 15, 2025. Leased projects ineligible for credits. Fuel cell qualification rules relaxed. Penalty for prohibited foreign entities for project ownership or control.

The OBBBA vs. the IRA: Crystalizing Energy Policy Changes | Competitive Energy Services

Tax Credits – IRA vs. OBBBA

- Production Tax Credit (45Y)
  - IRA extended existing PTC through 2033. Added clean H2 and other technologies for technology-neutral incentives. Stackable bonuses for societal and sourcing factors.
  - OBBBA cut wind and solar tax credits back to 2026-27. Wind and solar need to start construction by July 4, 2025, and be in service by end of 2027. No changes to other zero emissions resources. Immediate termination of tax credits for wind and solar on leased property.

The OBBBA vs. the IRA: Crystalizing Energy Policy Changes | Competitive Energy Services

Tax Credits – IRA vs. OBBBA

- Electric / Green Vehicles (25E, 30C & 30D)
  - IRA: Kept $7,500 tax credit per vehicle. Added credits for used and commercial EVs. Modified the qualification restrictions.
  - OBBBA: ends all EV tax credits after September 30, 2025, instead of the 2032 date in the IRA. Ends credits for EV charging infrastructure after June 2026.
- Residential Homes (25C, 25D, & 45L)
  - IRA: expanded nonbusiness credit limits and timelines for energy efficiency improvement. Added stricter qualification requirements.
  - OBBBA: ended Energy Efficient Home Credit for homes sold or leased after June 30, 2026. Eliminated residential clean energy systems 30% tax credit after 2025.

The OBBBA vs. the IRA: Crystalizing Energy Policy Changes | Competitive Energy Services

Tax Credits – IRA vs. OBBBA

- Commercial Buildings (179D)
  - IRA: expanded eligibility to qualify for the existing credit/deduction.
  - OBBBA: ended credits for construction starting after June 2026.

The OBBBA vs. the IRA: Crystalizing Energy Policy Changes | Competitive Energy Services

One Big Beautiful Bill Act (HB 1)

- Signed into law July 4, 2025
- Biggest impact on energy is the changes to the clean energy incentives in the Inflation Reduction Act of 2022 (IRA)
- Carbon capture and sequestration – changes 45Q tax credit for carbon dioxide used in enhanced oil recovery to bring it in line with geologic storage of CO2
- Critical minerals – increases funding but decreases demand and processing incentives

One Big Beautiful Bill Act (HB 1)

- Low-emissions hydrogen – reduces support of renewable hydrogen
- Electric vehicles – reduces EV and battery tax credits
- Nuclear – maintains project start date requirements for IRA tax credits, but restricts ties to specified foreign countries
- Solar/Wind – cuts to IRA climate risks, subsidies for solar and wind energy, more rapid phasing out of subsidies
- Could the recent DOE grant cancellations be considered a continuation of the OBBBA?

Washington I-2066

- Aims to preserve access to natural gas and roll back restrictions of gas
- Statewide Initiative passed in November 2024 with 52% of the vote
- March 2025- Ruled unconstitutional for violating the single subject rule in King County Superior Court
- September 2025- Washington Supreme Court agrees to take case up directly
- Supreme Court issued order indicating the case will be set for oral argument early 2026

Natural Gas and Washington Building Codes

Current Code Cycle

- **Commercial**: SBCC added a retroactive compliance path for gas *supplemental* heat on select systems. Gas not viable for *primary* heat.
- **Residential**: Gas allowed for backup heat but penalized in energy credits.

Future Code Timeline

- All 2024 codes delayed. SBCC staff aim to file CR-102 by **May 2026**.
- Next code cycle likely effective **Spring 2027**.
- Some SBCC members pushing for **Nov 2026** implementation— SBCC staff sees this as challenging. (Legislative barriers to this unless the statute changes.)

Natural Gas and Washington Building Codes

Potential Gas-Related Challenges Ahead in 2024 Codes

- **Retrofits**: No “like-for-like” gas system replacements in existing buildings.
- **Restaurants**: New builds must wire for all-electric. Requirement for Energy Star appliances. Gas appliances not ENERGY STAR compliant.
- **Commercial vs. Residential**: Draft Commercial code retains more gas pathways due to I-2066 rulemaking and timing.

Oregon Policies

- Electrification policies
- Local natural gas bans or restrictions – Ashland tax
- No specific state-wide building code prohibitions concerning natural gas
- Climate Protection Program

Assumptions for the 2027 IRPs

- ITC and PTC will not be renewed in the Base Case
  - Scenarios will consider extensions of the ITC and PTC
- Base Case will assume no new credits for resources
- Building Code assumptions for natural gas will be based on the current code –
  - Will not speculate on what could happen to codes over the next 20 years

Electric Resource Options

2027 IRP

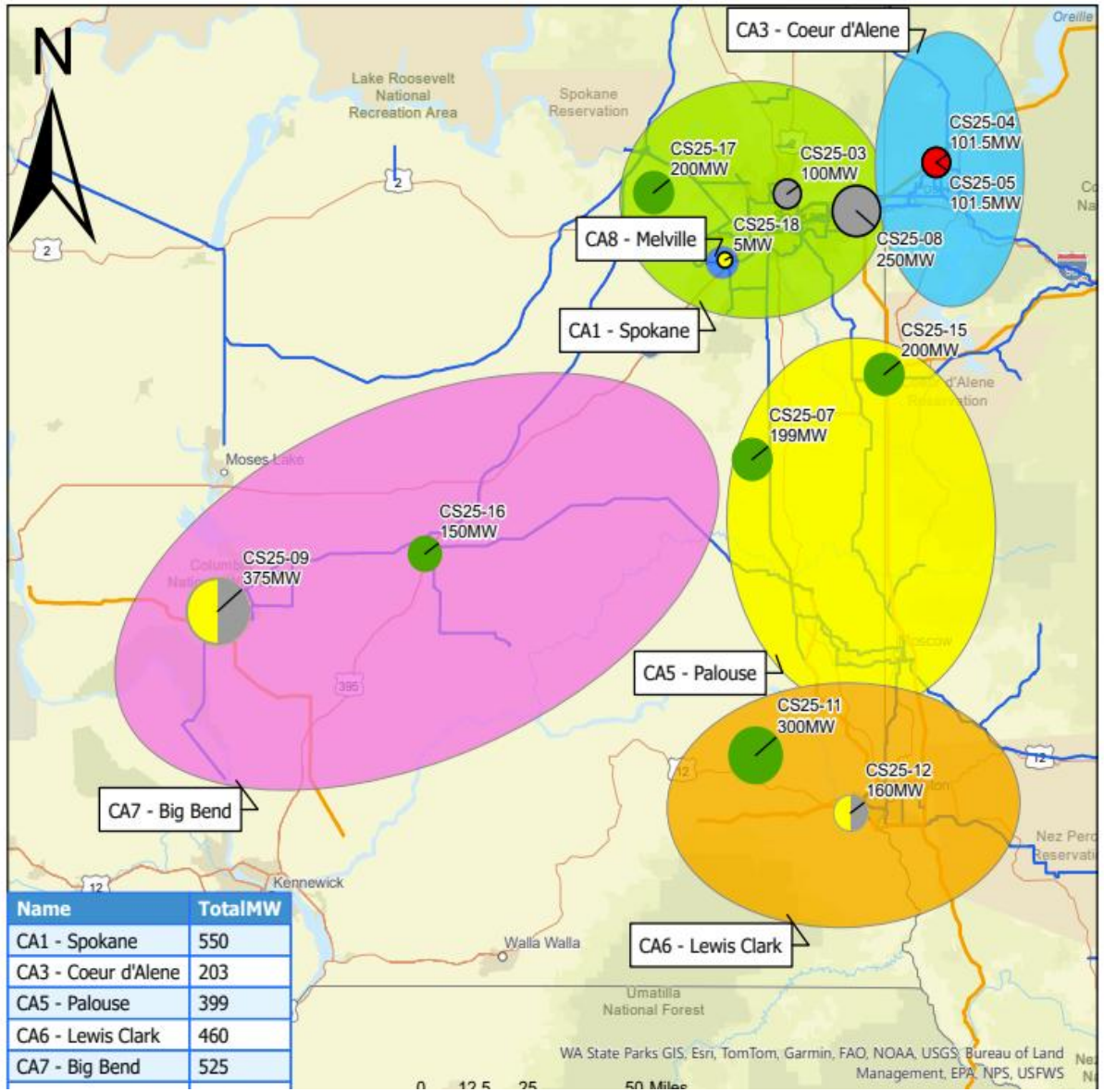
Technical Advisory Committee Meeting No. 2

October 21, 2025

Robert Hughes – Resource Planning Analyst

Power Plant Size Considerations

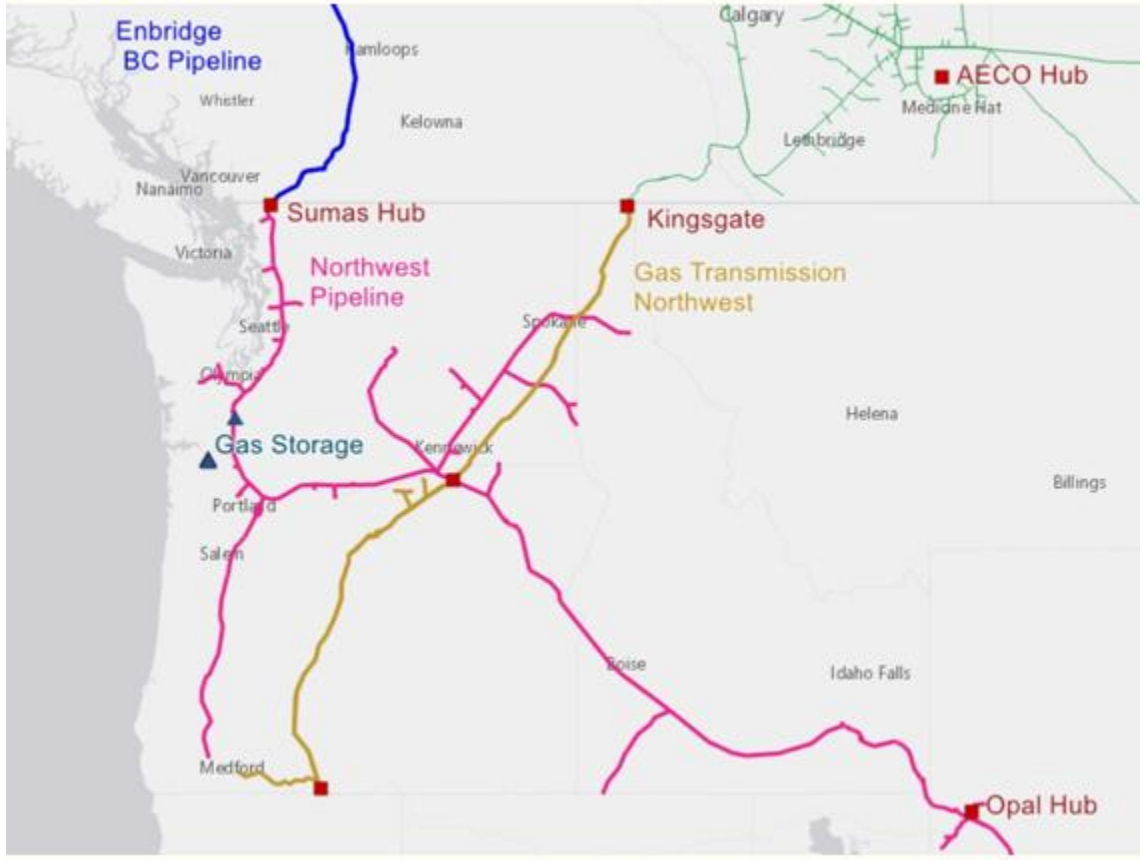
2025 Cluster Study Map



Name	TotalMW
CA1 - Spokane	550
CA3 - Coeur d'Alene	203
CA5 - Palouse	399
CA6 - Lewis Clark	460
CA7 - Big Bend	525

Turbine Resources

Turbine Buildout



WA House Bill 1589

(5) It is the intent of the legislature to require large combination utilities to decarbonize their systems by: (a) Prioritizing efficient and cost-effective measures to transition customers off of the direct use of fossil fuels at the lowest reasonable cost to customers; (b) investing in the energy supply, storage, delivery, and demand-side resources that will be needed to serve any increase in electrical demand affordably and reliably; (c) maintaining safety and reliability as the gas system undergoes transformational changes; (d) integrating zero-carbon and carbon-neutral fuels to serve high heat and industrial loads where electrification may not be technically feasible; (e) managing peak demand of the electric system; and (f) ensuring an equitable distribution of benefits to, and reduction of burdens for, vulnerable populations, highly impacted communities, and overburdened communities that have historically been underserved by utility energy efficiency programs, and may be disproportionately impacted by rising fuel and equipment costs or experience high energy burden.

(6) It is the intent of the legislature to support this transition by adopting requirements for large combination utilities to conduct integrated system planning to develop specific actions supporting gas system decarbonization and electrification, and reduction in the gas rate base.

OR House Bill 2021

NATURAL GAS PLANTS

SECTION 28. Notwithstanding ORS 469.320 and 469.405, the Energy Facility Siting Council may not:

(1) Issue a site certificate for a new generating facility that produces electric power from fossil fuels, including natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived from such material, unless the council determines that a new generating facility will generate only nonemitting electricity as defined in section 1 of this 2021 Act; or

(2) Approve the amendment of a site certificate for an energy facility described under subsection (1) of this section that was granted prior to the effective date of this 2021 Act in a manner that would significantly increase the gross carbon dioxide emissions that are reasonably likely to result from the operation of the energy facility.

Enrolled House Bill 2021 (HB 2021-C) Page 19

*Map from Northwest Power and Conservation Council

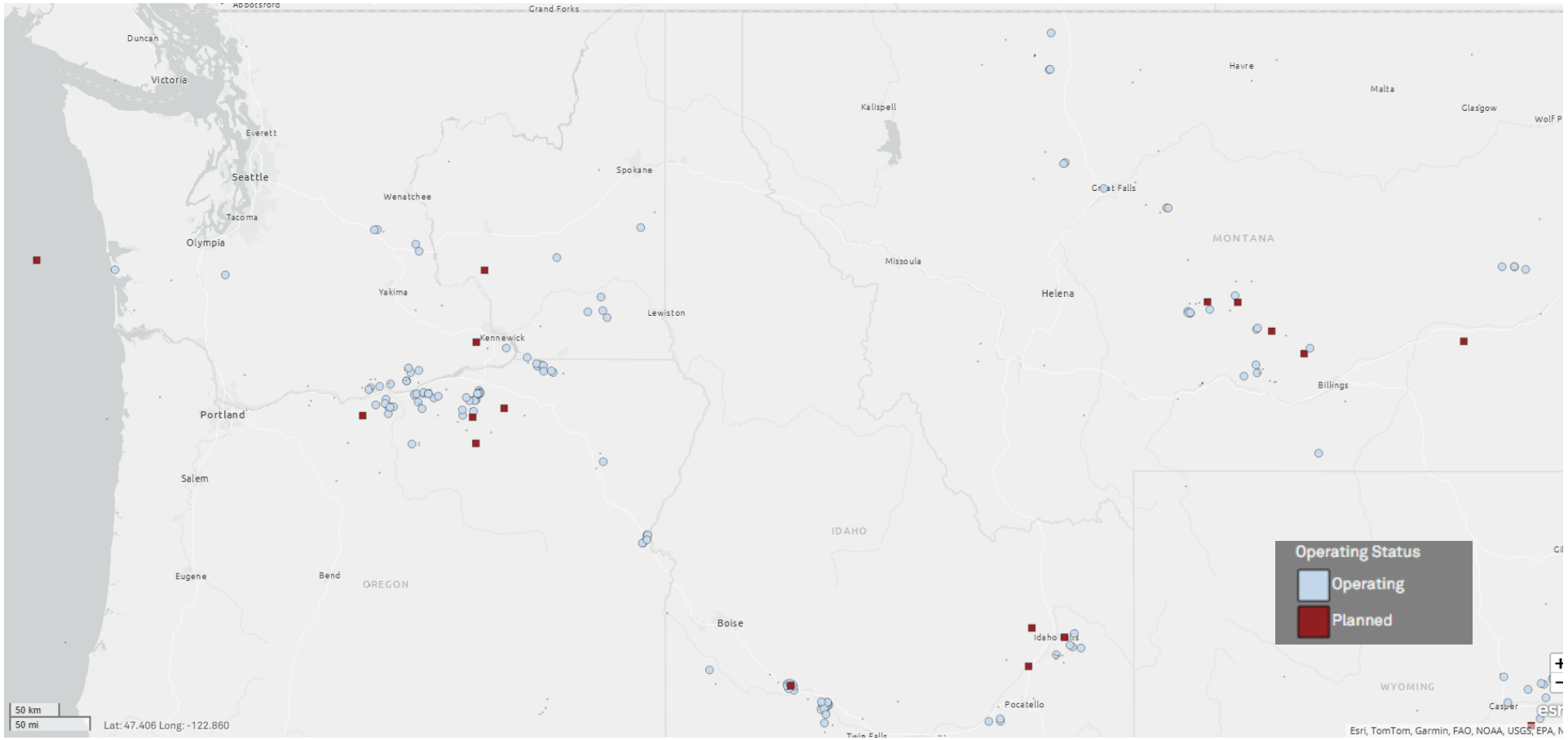
Turbine Resource Options

Resource	Type
Simple Cycle Combustion Engine(CT) - Peaker	7F.04/7F.05 CT Frame
Reciprocating Internal Combustion Engines (R.I.C.E) - Peaker	Internal Combustion Engines
Combined Cycle CT (CCCT) - Baseload	(1x1 w/DF)
Linear Generator	Free-Piston
Heat Recovery Steam Generator - Rathdrum	Steam Turbine

Fuels
Natural Gas
Biodiesel (B100)
Renewable Diesel (RD100)
Ammonia
Blue H2
Green H2
Hydrogen

Wind Resources

Wind Buildout in the Region



State	Total Operating Capacity(MW)
ID	1,145
MT	2,155
OR	3,801
WA	3,375
WY	4,083
Total	14,559

State	Total Planned Capacity (MW)
ID	1,564
MT	1,880
OR	931
WA	2,976
WY	7,520
Total	14,871

Power plant and resource data from S&P Global

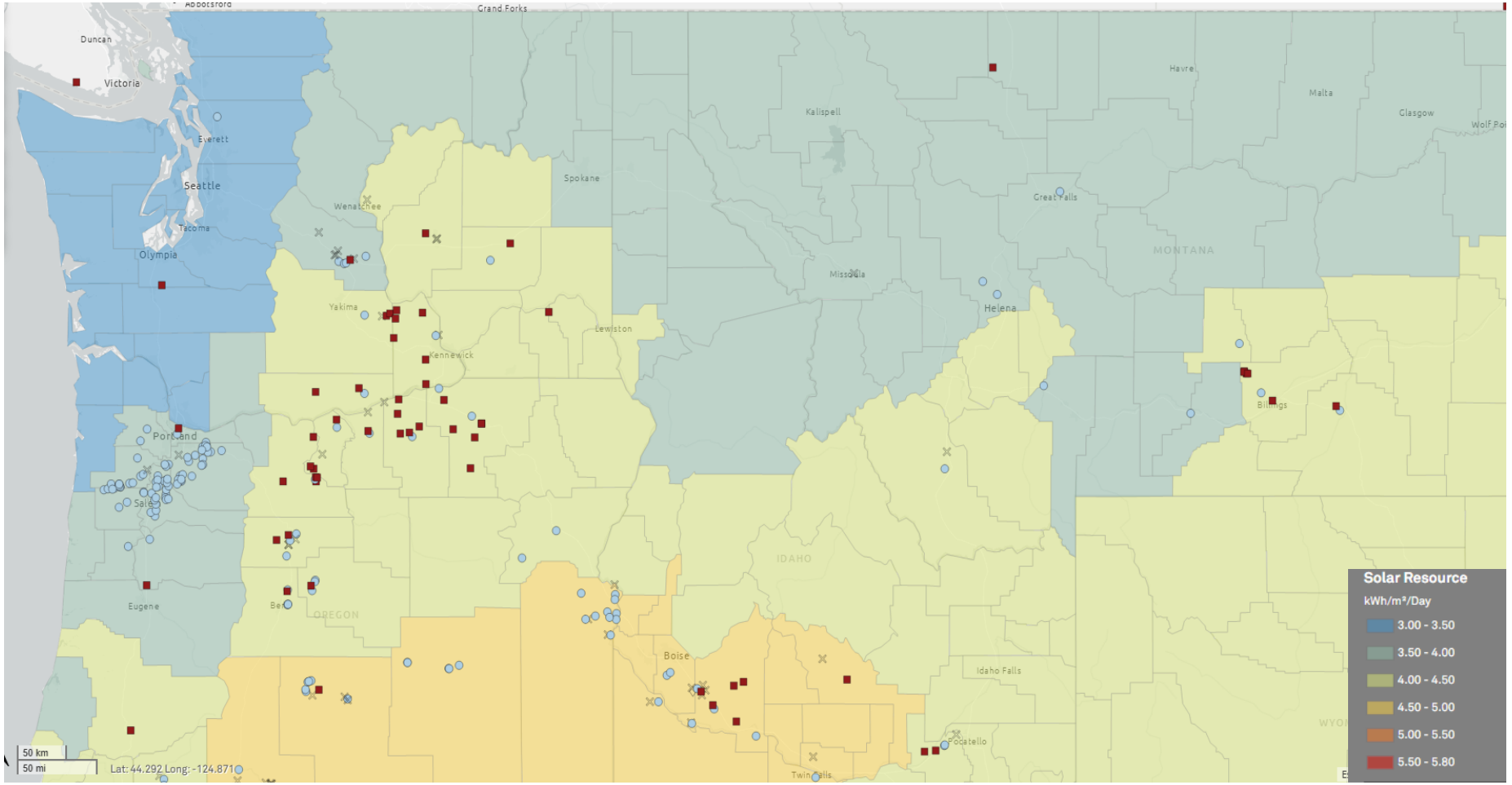
Resource Options – Wind

Resource	Location
Northwest Wind	On System
Northwest Wind	Off System
Montana Wind*	Off System
Offshore Wind	Off System
Palouse Wind Repower	On System
Rattlesnake Flat Wind Repower	On System

*200 MW limit for MT resources without system upgrades. Capacity Factors being discussed

Solar Resources

Solar Buildout in the Region



State	Total Operating Capacity (MW)
ID	502
MT	181
OR	1,249
WA	268
WY	242
Total	2,443

State	Total Planned Capacity (MW)
ID	2,434
MT	1,405
OR	9,274
WA	4,357
WY	2,626
Total	20,096

Power plant and resource data from S&P Global

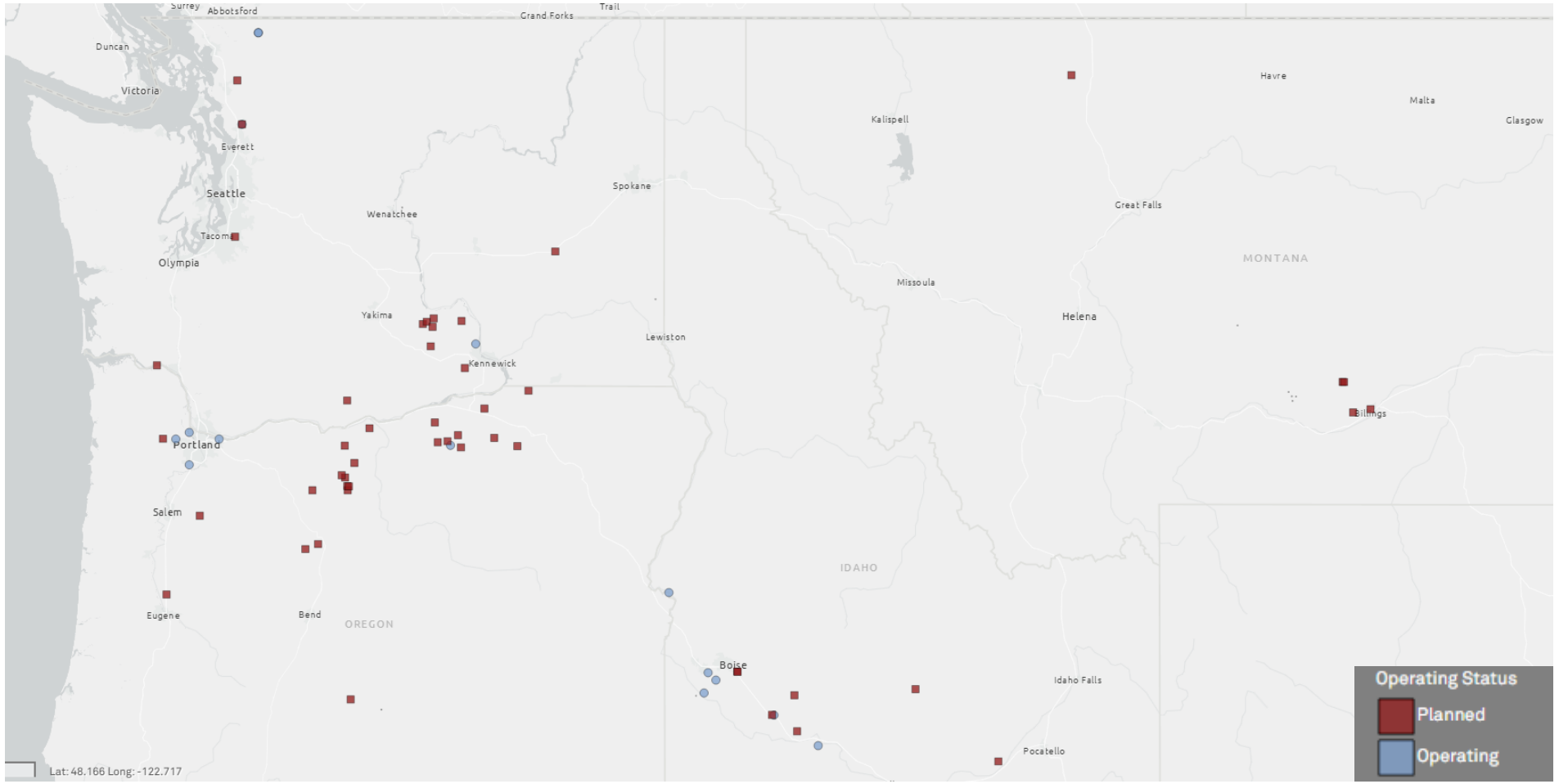
Resource Options – Solar

Resource	Size
Residential	6 kW AC
Commercial	1 MW AC
Low Income Community Solar	500 kW AC
Distribution Scale Array	3 MW AC
Utility Scale Single Axis Tracking Array	100 MW
Southern NW Single Axis Tracking Array	100 MW

.Capacity Factors being discussed

Energy Storage Technologies

Energy Storage Buildout in the Region



State	Total Operating Capacity (MW)
ID	398
MT	0
OR	522
WA	6
WY	0
Total	926

State	Total Planned Capacity (MW)
ID	1,550
MT	488
OR	10,651
WA	4,253
WY	775
Total	17,717

Power plant and resource data from S&P Global

Energy Storage Technologies

Resource	Type	Size	Duration
Distribution Level	BESS	3 MW	4 hours
Distribution Level	BESS	3 MW	8 hours
Transmission Level	BESS	25+ MW	4 hours
Transmission Level	BESS	25+ MW	8 hours
Long Duration Storage (Iron Oxide)	BESS	100 MW	100 hours
Hydro	Pumped	100 MW	8 hours
Hydro	Pumped	100 MW	24 hours
Flow	Other	25 MW	4 hours
Thermal Energy	Other	20 MW	10 – 200 hours

*Capacity Factors being discussed

Additional Clean Energy Resources

Additional Sources Buildout

Power plant and resource data from S&P Global

Additional Clean Energy Resource Options

Resource	Type	Location	Size
Conventional	Geothermal	Off System	20 MW
Enhanced	Geothermal	Off System	20 MW
Post Falls Upgrades	Hydro	On System	26 MW
~~Long Lake 2~~	Hydro	On System	20 MW
~~Monroe Street 2~~	Hydro	On System	15 MW
~~Cabinet Gorge 5~~	Hydro	On System	67.5 MW
Small Modular Reactor	Nuclear	Off System	100 MW
AP1000	Nuclear	Off System	1000 MW
Kettle Falls Upgrade	Biomass	On System	14 MW
Kettle Falls 2	Biomass	On System	45 MW
New Biomass Plant	Biomass	On System	45 MW

Capacity Factors being discussed

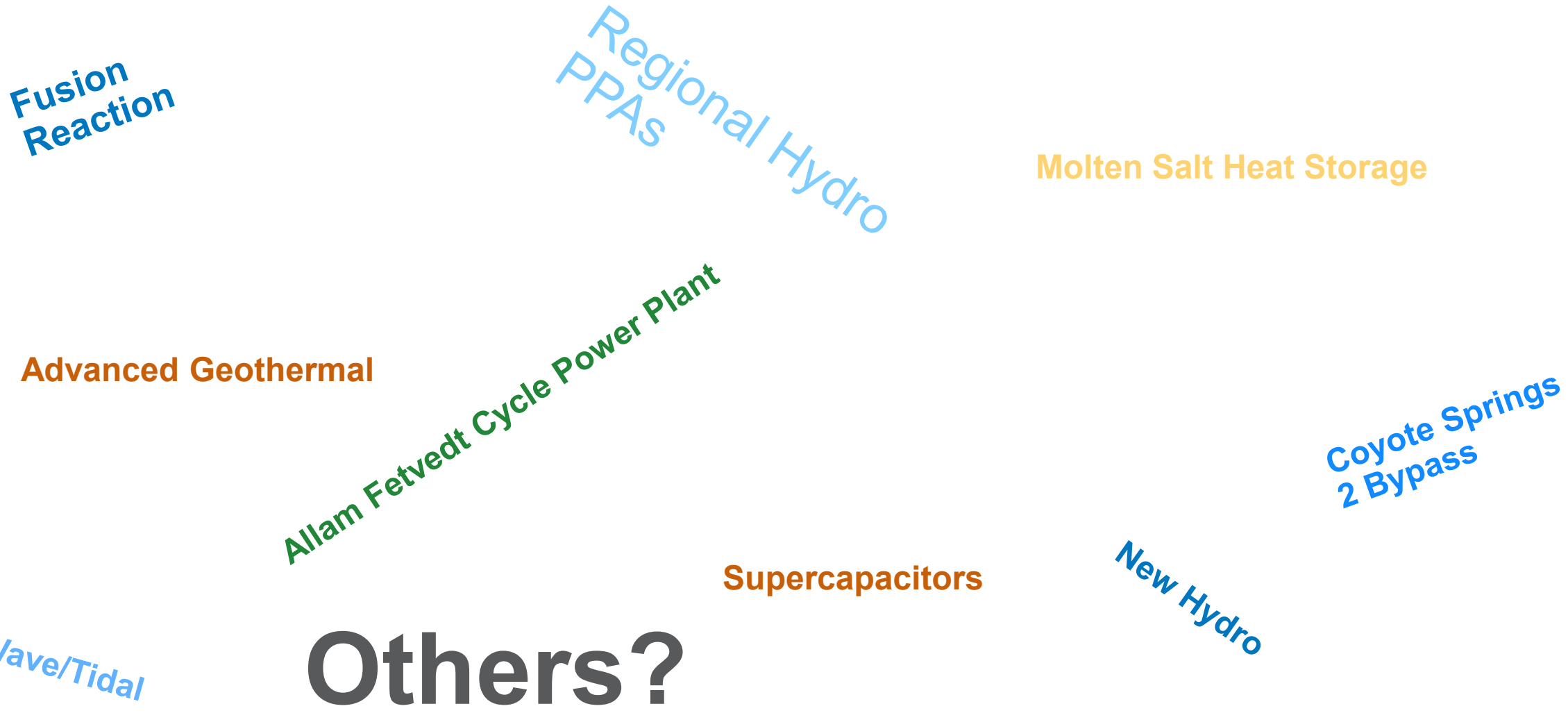
Carbon Capture Utilization and Sequestration

Carbon Capture Utilization and Sequestration (On System)

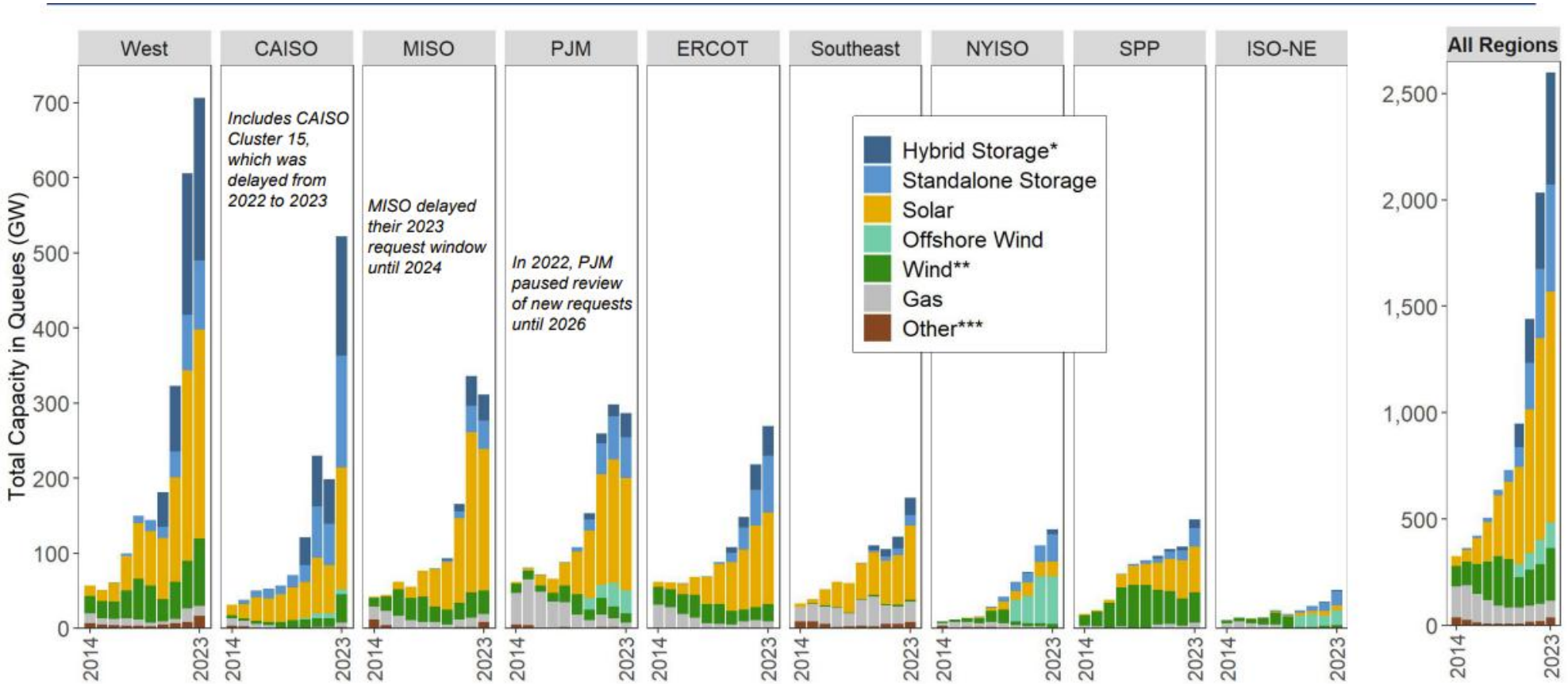
- Commercial Carbon Capture
- Industrial Carbon Capture
- C.C.U.S. on current and potential future facilities
  - Coyote Springs 2
  - Boulder Park
  - Rathdrum Units 1&2
  - Lancaster
  - New CT and CCCT

Technologies being Researched

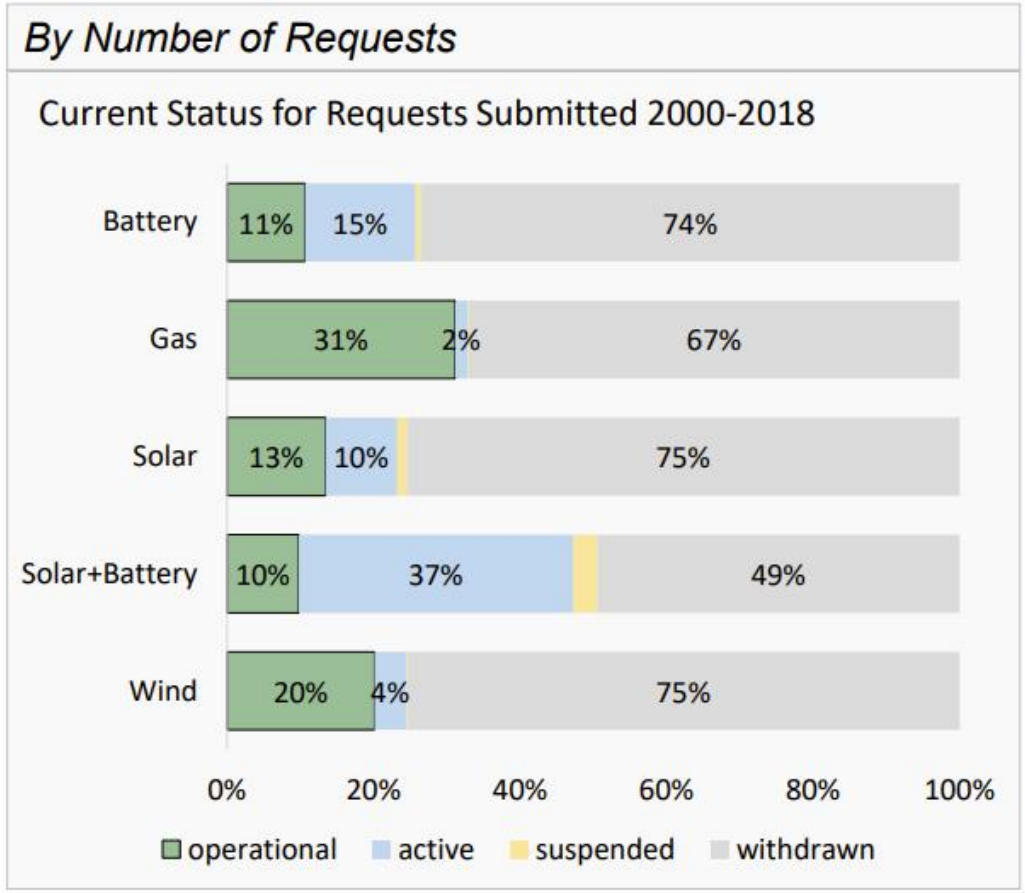
Resource Options Currently Being Researched

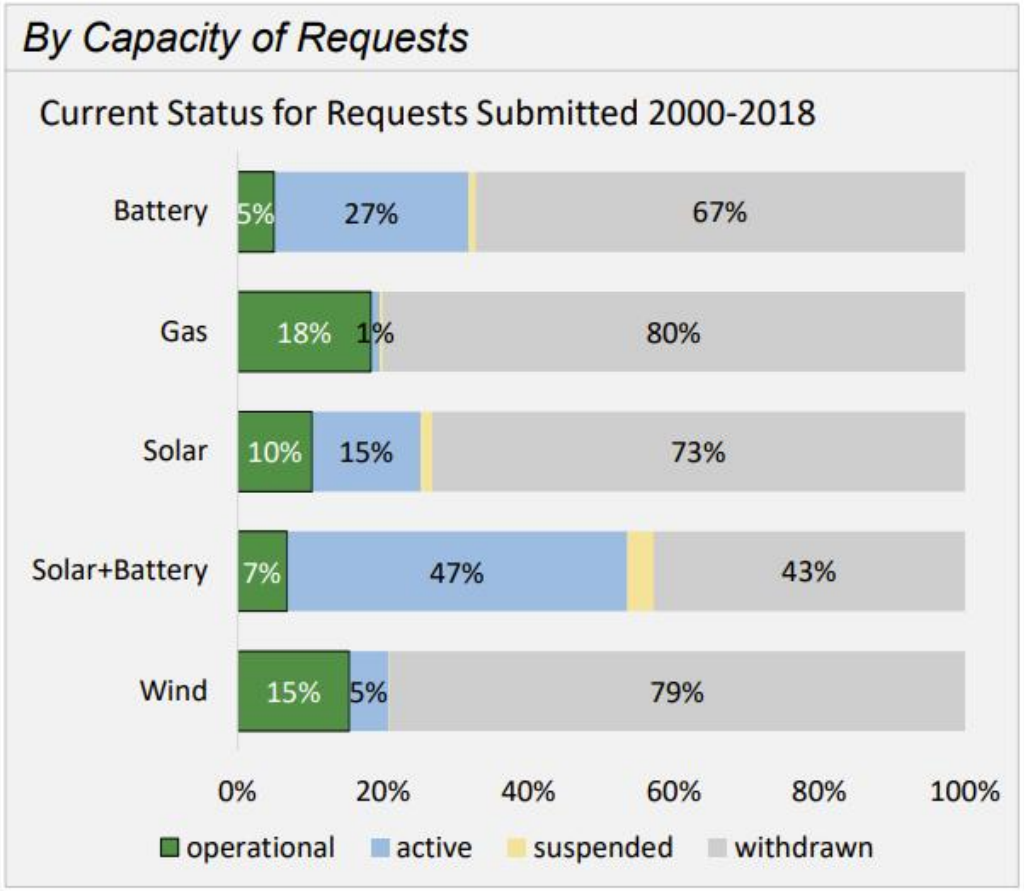


State of Interconnection Queue

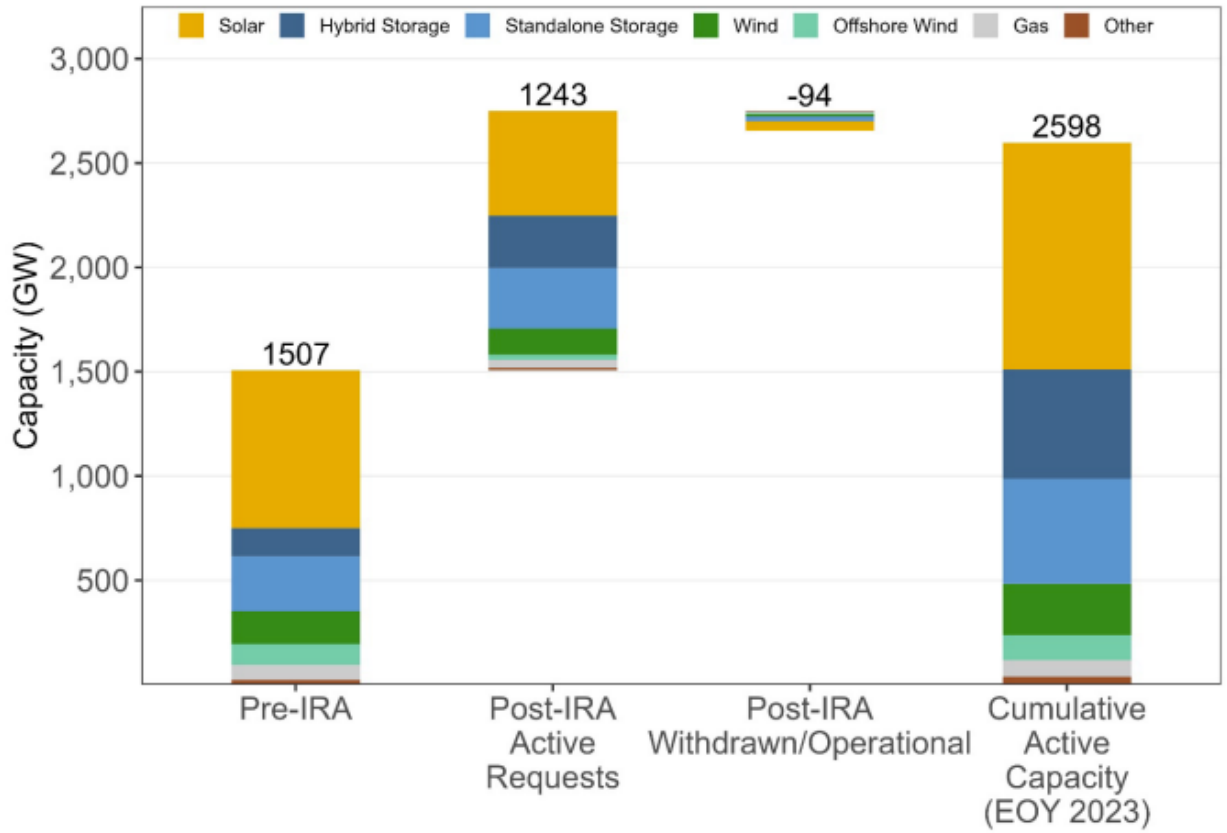


State of Interconnection Queue





I.R.A. Tax Credits Impact



Since passage over 1,200 GWs has been requested for interconnection.

By Resource

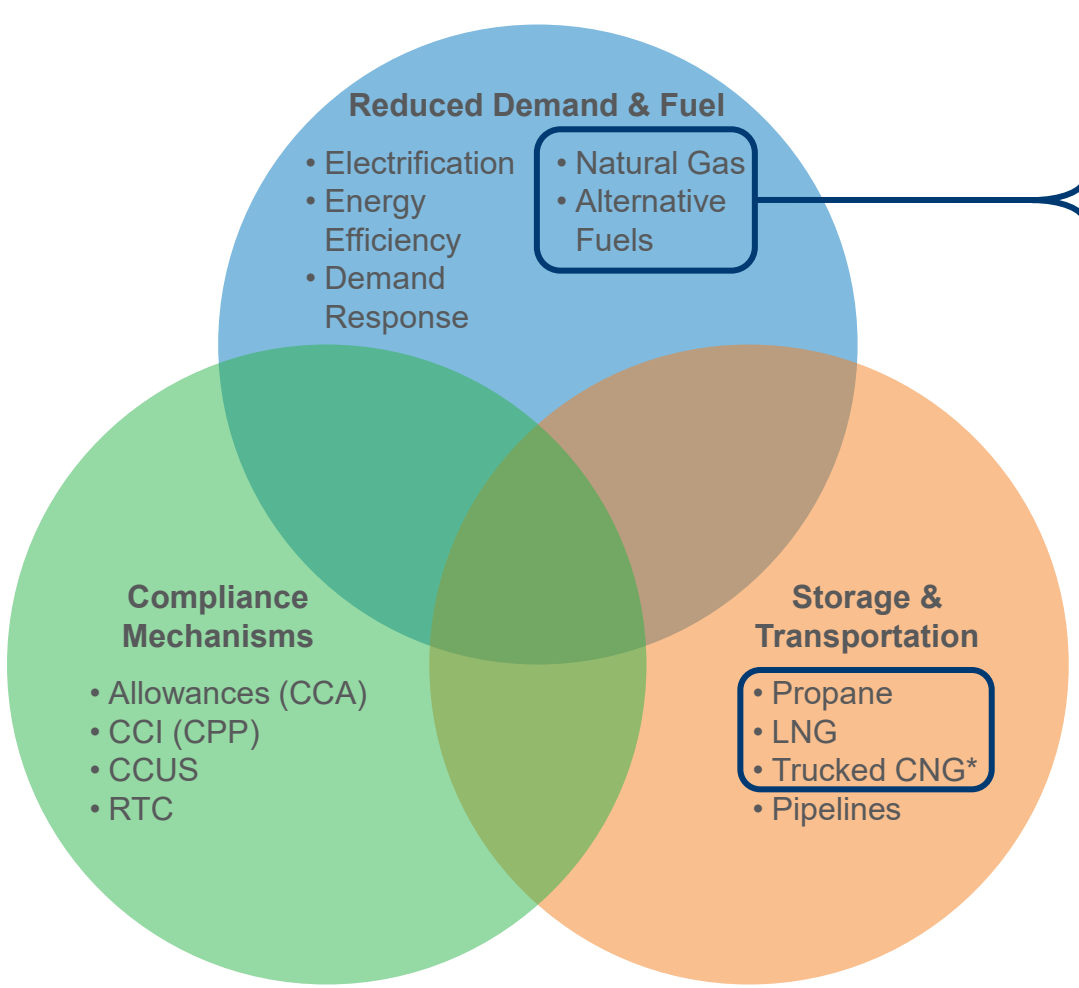
- 500+ GW Solar
- 540+ GW Storage
- 125 GW Wind

Available Supply-Side Resource Options – Natural Gas

TAC 2 – October 21, 2025

Michael Brutocao, Natural Gas Planning Manager

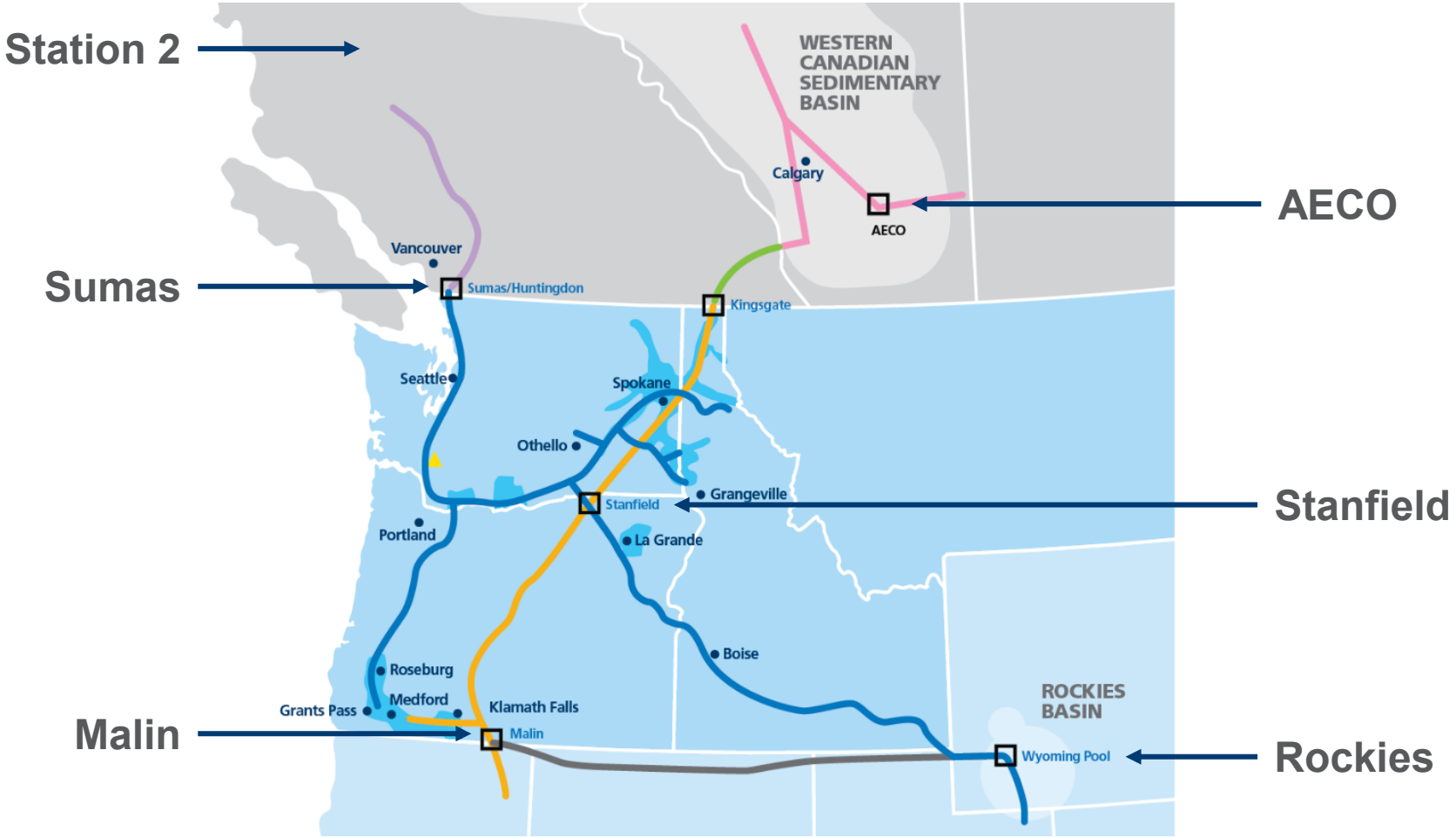
Natural Gas Demand and Resource Options



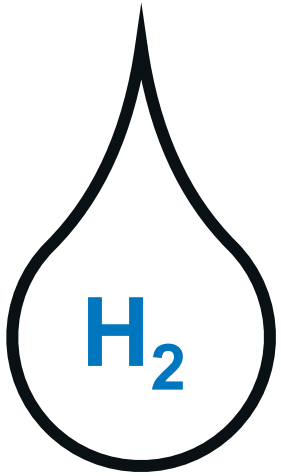
- Natural Gas Basin
  - AECO
  - Malin
  - Rockies
  - Stanfield
  - Station 2
  - Sumas
- Hydrogen
  - Blue
  - Green
  - Turquoise
- RNG
  - Animal Manure
  - Food Waste
  - Landfill Gas
  - Wastewater
- Synthetic Methane
  - Biomass
  - Industrial CO_2 Capture

*Considered as NPA

Natural Gas Basins

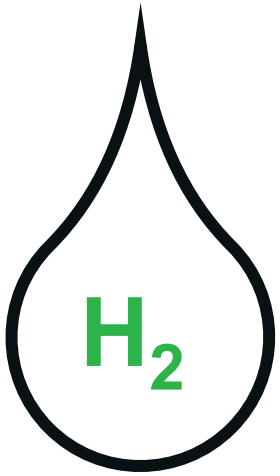


Alternative Fuels – Hydrogen



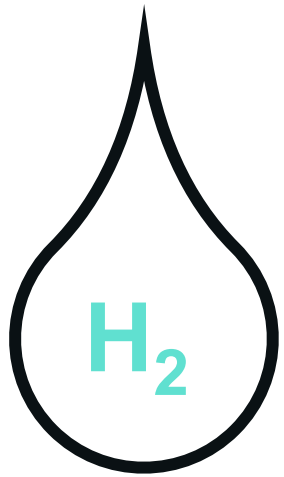
Blue

Blue hydrogen is produced from natural gas via Steam Methane Reforming (SMR) or Autothermal Reforming (ATR) and blended into natural gas pipelines. 97%+ of the CO_2 emissions can be removed in the creation of blue hydrogen through a process called Carbon Capture and Sequestration (CCS).



Green

Green hydrogen is produced via the electrolysis of water using renewable energy[1]. There are zero direct CO_2 emissions in this process.

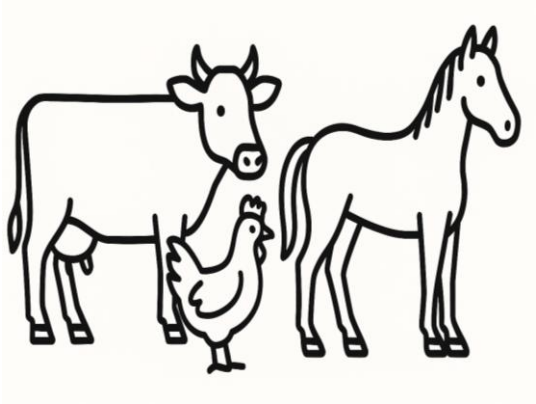


Turquoise

Turquoise hydrogen is produced via methane pyrolysis (Microwave Pyrolysis), which splits natural gas into hydrogen and solid form carbon using heat. If powered cleanly, there are zero direct CO_2 emissions in this process.

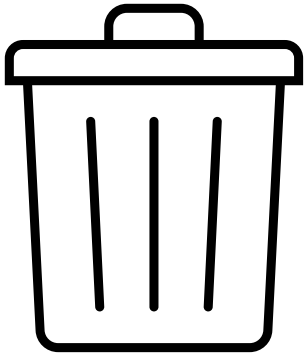
1. The Green Hydrogen Coalition also considers hydrogen produced from steam biomethane reforming and biomass gasification as green hydrogen. (https://www.ghcoalition.org/greenhydrogen)

Alternative Fuels – RNG



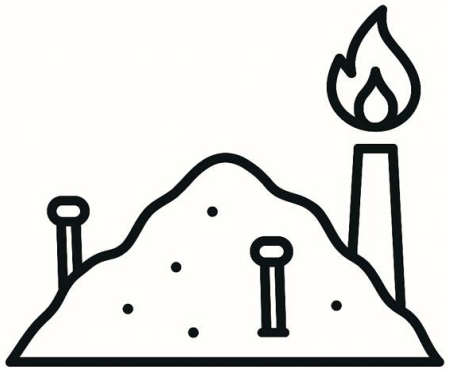
Animal Manure

Manure produced by livestock, including dairy cows, beef cattle, swine, sheep, goats, poultry, and horses.



Food Waste

Commercial, industrial and institutional food waste, including from food processors, grocery stores, cafeterias, and restaurants.



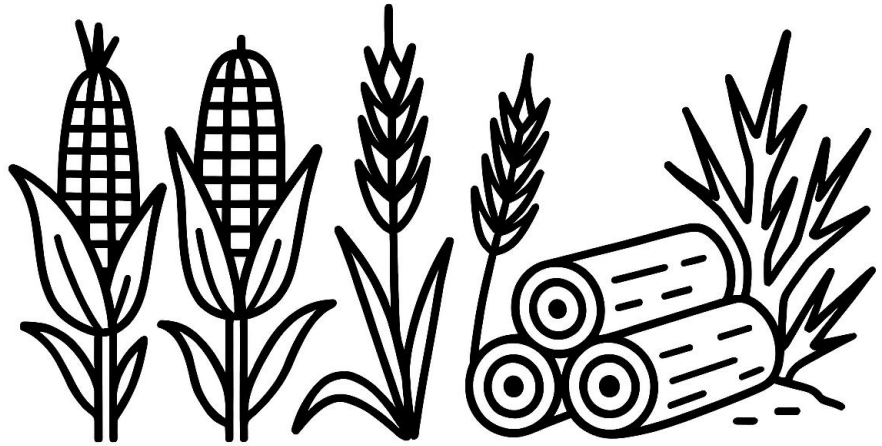
Landfill Gas

The anaerobic digestion of organic waste in landfills produces a mix of gases, including methane.

Wastewater

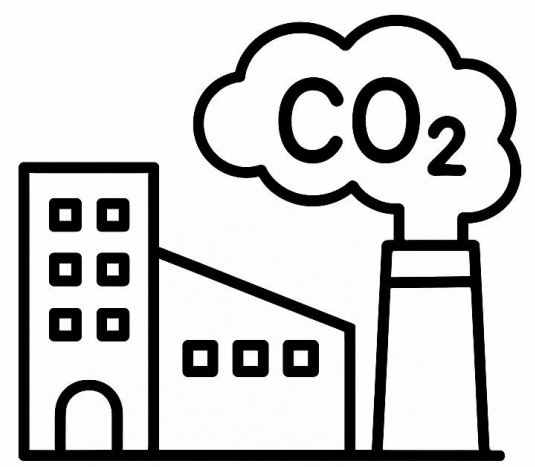
Wastewater consists of waste liquids and solids from household, commercial, and industrial water use; in the processing of wastewater, a sludge is produced, which serves as the feedstock for RNG.

Alternative Fuels – Synthetic Methane



Biomass

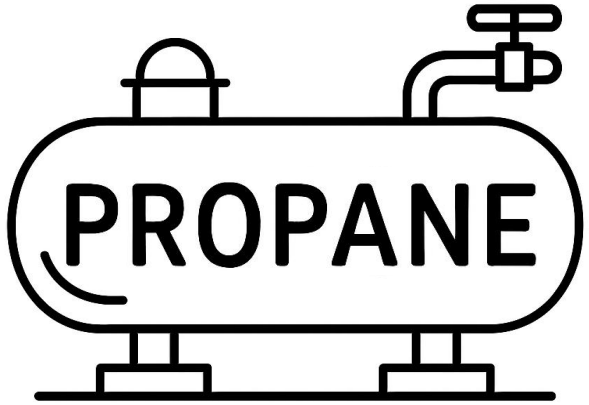
Biomass gasification includes energy crops with high energy content, like agricultural residues or forestry residues. The material goes through a thermal gasification process generating synthesis gas (syngas), which contains hydrogen and carbon monoxide used to produce pipeline quality RNG.



Industrial CO_2 Capture

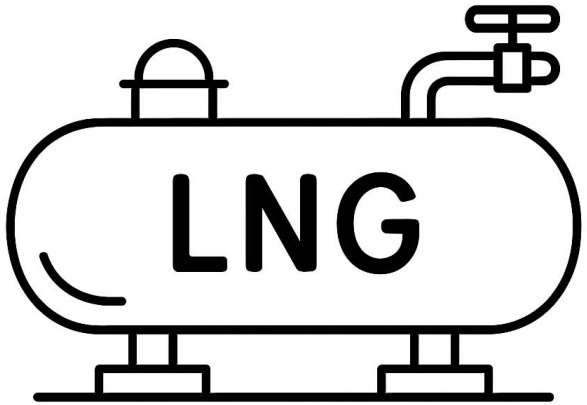
CO_2 is captured from industrial sources and combined with hydrogen to produce water and pipeline quality synthetic methane.

Storage



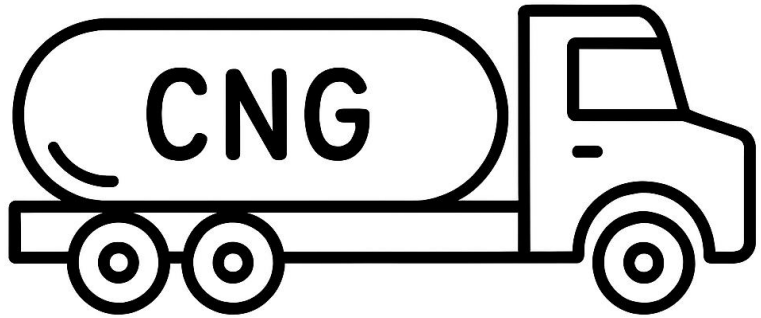
Propane

Propane is cooled into a liquid state and stored for later use. When needed, the liquid is heated, returning it to a gaseous state, and blended with air to match the heating value of natural gas.



LNG

Natural gas is cooled into a liquid state known as liquified natural gas (LNG) and stored for later use. When needed, LNG is heated, returning it to a gaseous state.



Trucked CNG

Natural gas is compressed under high pressure and stored. The compressed natural gas (CNG) may be trucked to different locations and when needed, pressure-reducing regulators lower it to pipeline operating pressures.

Scenarios & Sensitivities

TAC 2 – October 21, 2025

James Gall, Manager of Resource Analysis
Michael Brutocao, Natural Gas Planning Manager

Scenarios & Sensitivities – Electric & Natural Gas

Scenarios

- No Climate Programs
- Preferred Resource Strategy
- Zero CO_2 by 2050

Demand

- High Electrification
- Hybrid Heating
- Washington Building Codes

Resources

- No CO_2 Sequestration

Prices

- High Alternative Fuel & Renewable Costs
- High Natural Gas Prices
- Inflation Reduction Act Returns in 2030
- Low Alternative Fuel & Renewable Costs
- High CCA Pricing

Scenarios & Sensitivities in green are new to the 2027 IRP.

Scenarios & Sensitivities – Electric

Scenarios

Demand

- Data Center
- High Economic Growth
- Low Economic Growth

Resources

- No Nuclear Power
- No Power to Gas

Prices

- Alternative Lowest Cost
- No Linkage (CCA)

Scenarios & Sensitivities in green are new to the 2027 IRP.

Scenarios & Sensitivities – Natural Gas

Scenarios

- Resiliency
- Social Cost of Greenhouse Gas

Demand

- High Growth
- Low Natural Gas Use
- Average Case Weather
- No New Gas Customers After 2030 (WA, OR)

Resources

Prices

Scenarios & Sensitivities

- **(E & G) Preferred Resource Strategy:** All expected case assumptions and costs; includes all known policies and orders from Idaho, Oregon, and Washington
- **(E & G) No Climate Programs:** No climate policies (CETA, CCA, CPP)
- **(E & G) Zero CO_2 by 2050:** Customer needs met with non-CO_2 emitting resources by 2050
- **(E & G) High Electrification:** Gas customers convert to electric via building electrification (80% by 2050)
- **(E & G) Hybrid Heating:** Increasing number of gas customers add electric heat pump to existing natural gas furnace over forecast horizon (80% by 2050)
- **(E & G) Washington Building Codes:** Future building codes align with statute RCW 19.27A.160 (70% reduction in energy consumption by 2031 compared to 2006 code baseline)

Scenarios & Sensitivities (Continued…)

- **(E & G) No CO_2 Sequestration:** Carbon Capture and Sequestration technology is not available
- **(E & G) High Alternative Fuel & Renewable Costs:** 95th percentile of Monte Carlo price draws
- **(E & G) High Natural Gas Prices:** 95th percentile of Monte Carlo price draws
- **(E & G) Inflation Reduction Act Returns in 2030:** Tax credits from IRA reinstated
- **(E & G) Low Alternative Fuel & Renewable Costs:** 5th percentile of Monte Carlo price draws
- **(E & G) High CCA Pricing:** Allowance prices at cap

Scenarios & Sensitivities (Continued…)

- **(Electric) Data Center:** 250 MW load by 2032
- **(Electric) High Economic Growth:** Loads grow at higher annual average growth rate
- **(Electric) Low Economic Growth:** Loads grow at lower annual average growth rate
- **(Electric) No Nuclear Power:** No nuclear power projects available
- **(Electric) No Power to Gas:** No power to gas fueled projects available
- **(Electric) Alternative Lowest Cost:** No CETA target; includes SCGHG (WA)
- **(Electric) No Linkage (CCA):** No linkage with California & Quebec carbon markets

Scenarios & Sensitivities (Continued…)

- **(Gas) Resiliency:** Storage (Jackson Prairie) and pipeline transport capacities experience partial or zero availability for up to one week
- **(Gas) Social Cost of Greenhouse Gas:** Cost of Social Cost of Greenhouse Gas added to CO_2 emitting resources
- **(Gas) High Growth:** Highest growth scenario for loads
- **(Gas) Low Natural Gas Use:** High electrification; 95th percentile of Monte Carlo price draws for natural gas, alternative fuels, and Allowances
- **(Gas) Average Case Weather:** 20-year average daily weather; no peak days
- **(Gas) No New Gas Customers After 2030 (WA, OR):** No new gas customers added to system in Washington or Oregon

Questions and Comments

- The earlier we receive inputs or requests for scenarios and sensitivities, the better the modeling will be
- Deadline for inputs and requests is February 27, 2026
- Depending on what is required, we may be able to take some inputs and requests as late as July 2026

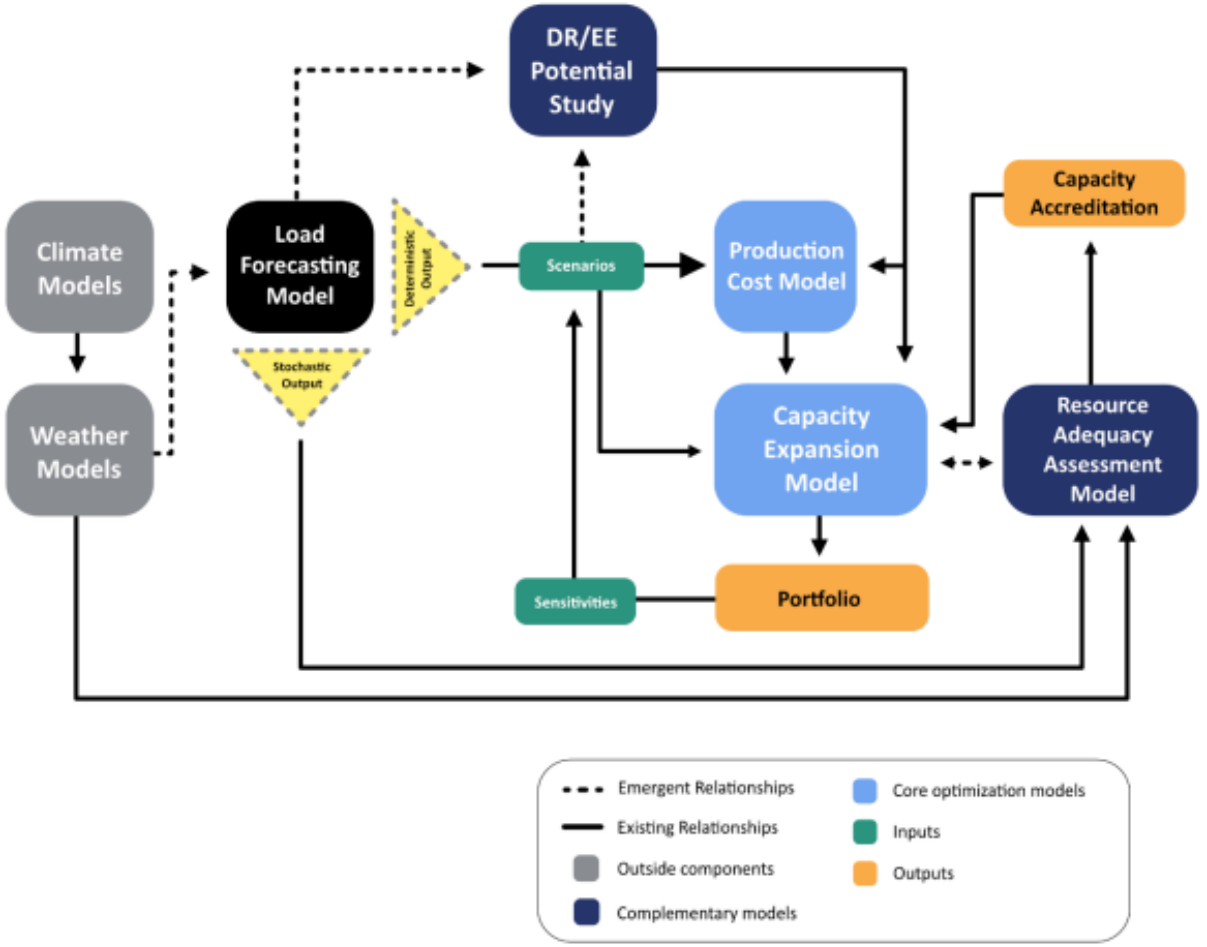
Modeling Methodology

TAC 2 – October 21, 2025

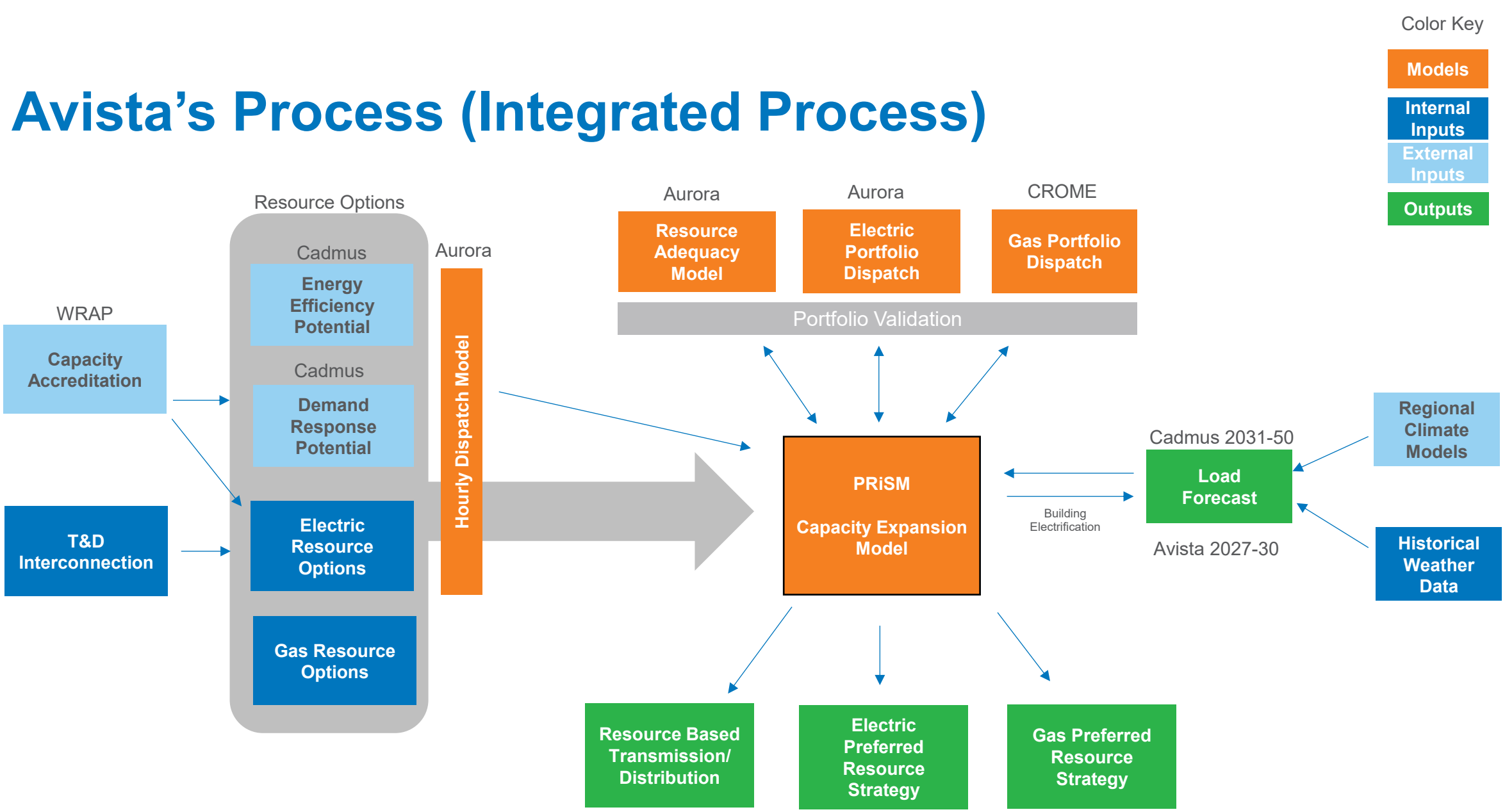
James Gall, Manager of Resource Analysis
Michael Brutocao, Natural Gas Planning Manager

Best Practices in Integrated Resource Planning

- Lawrence Berkeley National Lab and Synapse Energy Economics
- Typical IRP process diagram across industry
- Avista's process for the most part follows this process



Avista's Process (Integrated Process)



Aurora

- Production Cost Model
  - Dispatch decision of resources to load subject to marginal cost to operate
  - Hourly time step (sub hourly capable)

Western Interconnect Model

- Electric Market Price Forecast
- Resource Option Dispatch
- Economic Valuation

Portfolio Model

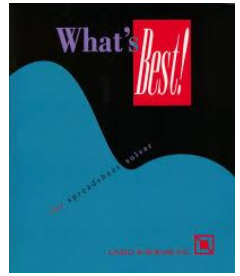
- Resource Adequacy
- CETA Analysis
- Portfolio Validation

Aurora Energy Forecasting and Analysis Software | Energy Exemplar.

What is CROME?

- Comprehensive Resource Optimization Model in Excel
- Mixed Integer Program (MIP)
- Optimizes nodal and zonal systems, selecting least-cost portfolio of resources to simultaneously solve for daily customer needs and periodic regulatory compliance

The user interface



The solver interface

CROME Overview

- **Objective**
  - Find least-cost mix of resources to serve load between 2028 and 2050
- **Constraints**
  - Resources
    - Supply, capacity, min/max storage targets, hydrogen blending
  - Daily resource requirements
    - Load
  - Environmental policy
    - CCA, CPP
- **Considerations**
  - Existing gas portfolio (pipeline transport costs, Jackson Prairie)
  - Capital and operating costs of demand- and supply-side resources
  - Cost of compliance mechanisms
  - Non energy impact (NEI) adders

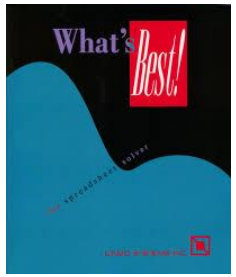
CROME Outputs

- **Resource Selection**
  - **Load-Reducing:** energy efficiency (demand side management), demand response, electrification
  - **Load-Serving:** supply-side resources, storage optimization
  - **Transportation & Storage:** pipeline contract renewal, storage resources
  - **Environmental Policy:** compliance mechanisms
- **Portfolio Cost**
  - Annual, levelized, net present value revenue requirement
  - Deterministic and stochastic
  - Energy Burden
- **State-Specific Portfolio Emissions**

What is PRiSM?

- Preferred Resource Strategy Model
- Mixed Integer Program (MIP) used to select new resources to meet resource needs of our customers
- Final model is available on Avista's IRP website

Excel — The user interface

LINDO SYSTEMS INC. — 

The solver interface

GUROBI OPTIMIZATION — The solver

PRiSM Overview

- **Objective**
  - Find lowest cost mix of electric and gas resources to meet load between 2028 and 2050
- **Constraints**
  - Resource limits
    - size, timing
  - Monthly resource requirements
    - Peak and energy
  - Environmental policy
    - CETA, CPP, CCA
- **Considerations**
  - Existing generating resource and gas transport portfolio
  - Capital and operating costs of resources
  - Interconnection costs
  - Can resources substitute for delivery system needs
    - excludes gas NPA analysis

PRiSM Outputs

- **Resource selection by year**
  - **Electric:** energy efficiency, demand response, supply side generation/storage
  - **Gas:** energy efficiency, demand response, supply side fuel/storage
  - **Transmission:** Requirements for new generation
  - **Pipeline Expansion:** Generation or LDC requirements
- **Portfolio cost:**
  - Annual cost, both stochastic and deterministic
  - Environmental Policy
  - Rate analysis
- **Portfolio Emissions**