Oregon Department of **ENERGY**

Oregon Energy Strategy Policy Working Group
Low-Carbon Fuels
Breakout Session #2

Michael Freels
February 19, 2025

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Leading Oregon to a safe, equitable, clean, and sustainable energy future.

Our Mission

The Oregon Department of Energy helps Oregonians make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and future generations.

What We Do

On behalf of Oregonians across the state, the Oregon Department of Energy achieves its mission by providing:

- A Central Repository of Energy Data, Information, and Analysis
- A Venue for Problem-Solving Oregon's Energy Challenges
- Energy Education and Technical Assistance
- Regulation and Oversight
- Energy Programs and Activities

USING WEBEX

Audio Options

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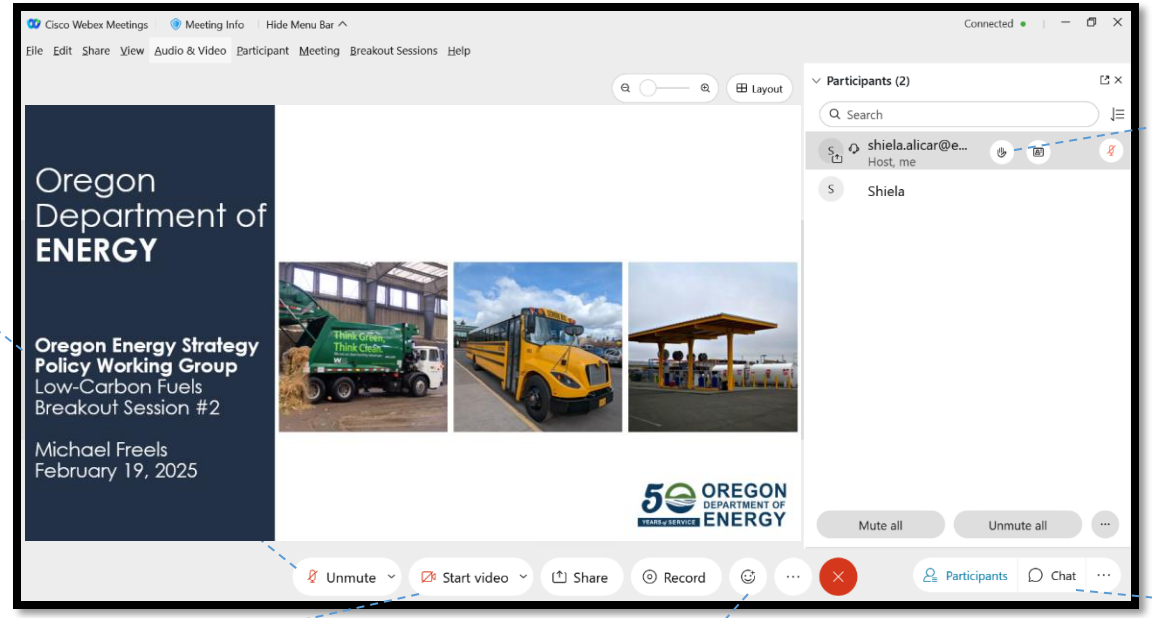
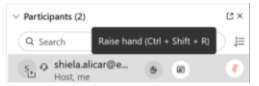
Unmute — *Microphone Off*



Second Raise Hand Option

You can also click on the hand next to your name in the Participant list to raise your hand.



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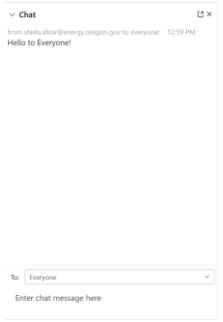
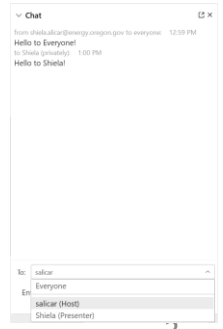
Chat



You can chat to Everyone in the meeting.

You can send a private message to the Host or Presenter (or all Panelists when there is a Panel).



Video Options

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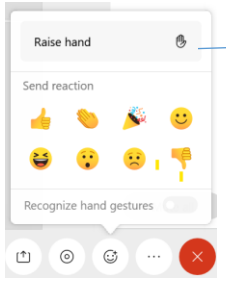
Reactions



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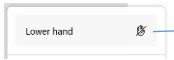

Click on Lower hand when you are done.

INTRODUCTIONS

Please share the following with the group in the chat:

- Name
- Affiliation
- Did you do anything fun in the snow last week?

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STEP BY STEP PROCESS

Meeting 2 | Meeting 3 | Meeting 4

Pathway	Issue Statement / Barriers	Strategy To Overcome Barriers	Policy Action
Declining Fuel Demand			
Low Carbon Fuel Development			
On Demand Resources for the Electricity System			
Strategic Adoption of Low Carbon Fuels			

MODELING OFFICE HOURS

February 28 **10 a.m. – 11 a.m.**	Transportation
March 3 **12 p.m. – 1 p.m.**	Fuels
March 7 **9 a.m. – 12 p.m.**	Electricity and Transmission
March 11 **10 a.m. – 11 a.m.**	Buildings
March 21 **10 a.m. – 11 a.m.**	Environmental Justice and Equity
March 13 **1:30 p.m. – 3:00 p.m.**	Complementary Analysis Info Session

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AGENDA

9:00 a.m.	Introduction	
9:10 a.m.	Declining Fuel Demand	
9:50 a.m.	Low-Carbon Fuels	
10:30 a.m.	Break	
10:40 a.m.	Dispatchable Capacity	
11:20 a.m.	Electrification	
11:55 a.m.	Upcoming Meetings and Next Steps	

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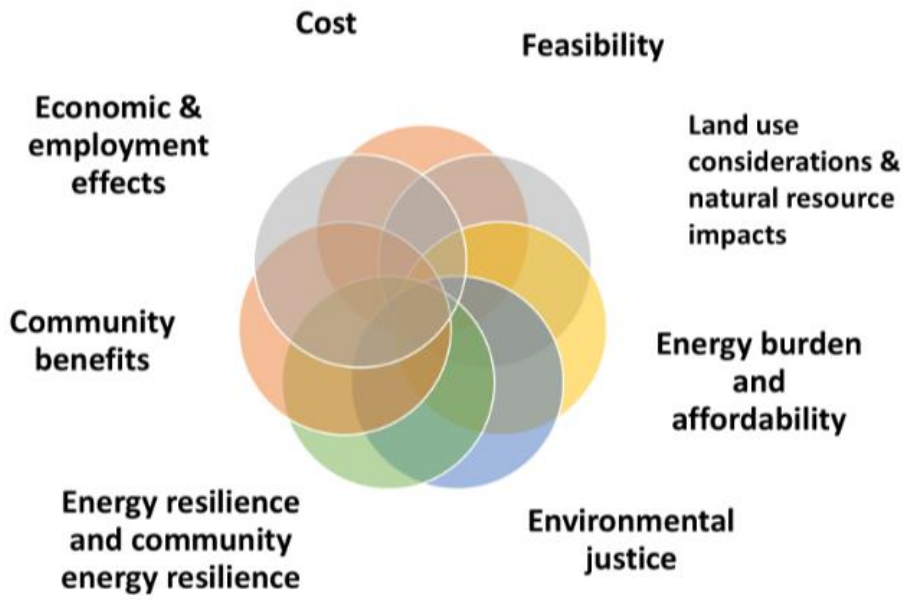
GROUP AGREEMENTS

- Honor the agenda or modify by agreement.
- Listen carefully; seek to learn and understand each other's perspective.
- Encourage respectful, candid, and constructive conversation.
- Keep an open mind.
- Ask questions to clarify and understand why.
- Be open, transparent, inclusive, and accountable.
- Respect differing opinions.
- Seek to resolve differences and find common ground.
- Be conscious of speaking time; step back to allow space for others to contribute.
- Limit chat conversations.

MEETING GUIDANCE

- Focus on providing insight on the barriers to achieving our energy and climate goals.
- Focus on the overarching themes that the model results indicate.
- Consider barriers from the perspective of the different key considerations.
- Offer different perspectives on barriers as appropriate.
- Hold off on identifying solutions since this is the focus of the next meeting.

Energy Strategy Key Considerations



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Key Fuel Findings

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SUMMARY: FUEL KEY FINDINGS

1. Low-Carbon Fuels: Low-carbon fuels are an increasing proportion of Oregon's energy supply across all scenarios.
2. Dispatchable Capacity: More capacity from low-carbon fuel gas plants is needed to support the growing electric grid.
3. Electrification: Electrification is more cost effective than adopting low-carbon fuels in many applications.
4. Declining Fuel Demand: Fuel demand declines but fuel remains a significant component of Oregon's Energy System across all scenarios.

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Low-carbon fuels are an increasing proportion of Oregon's energy supply across all scenarios.

KEY FINDING

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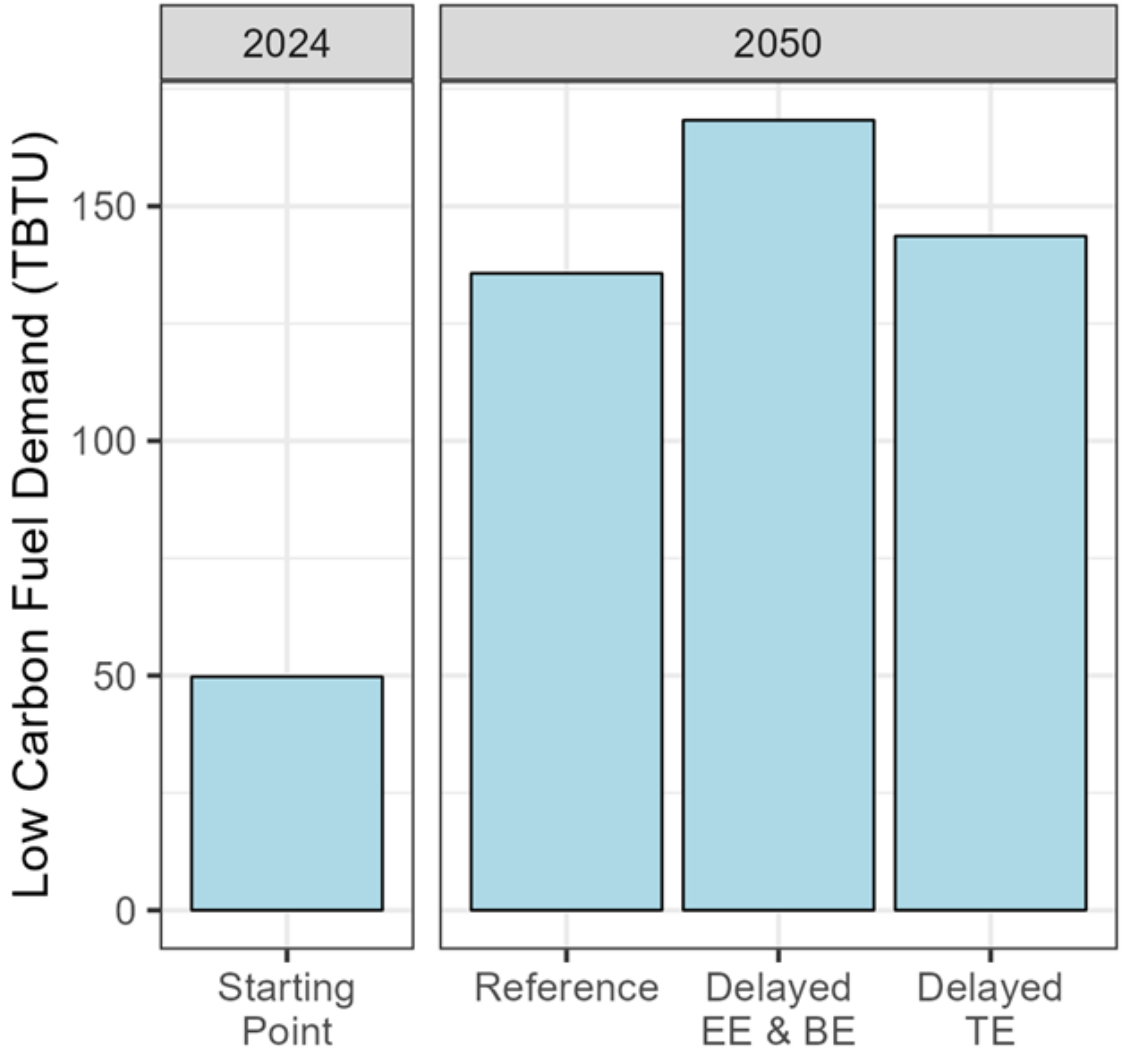
CHANGES IN LOW-CARBON FUEL CONSUMPTION ACROSS ALL SCENARIOS



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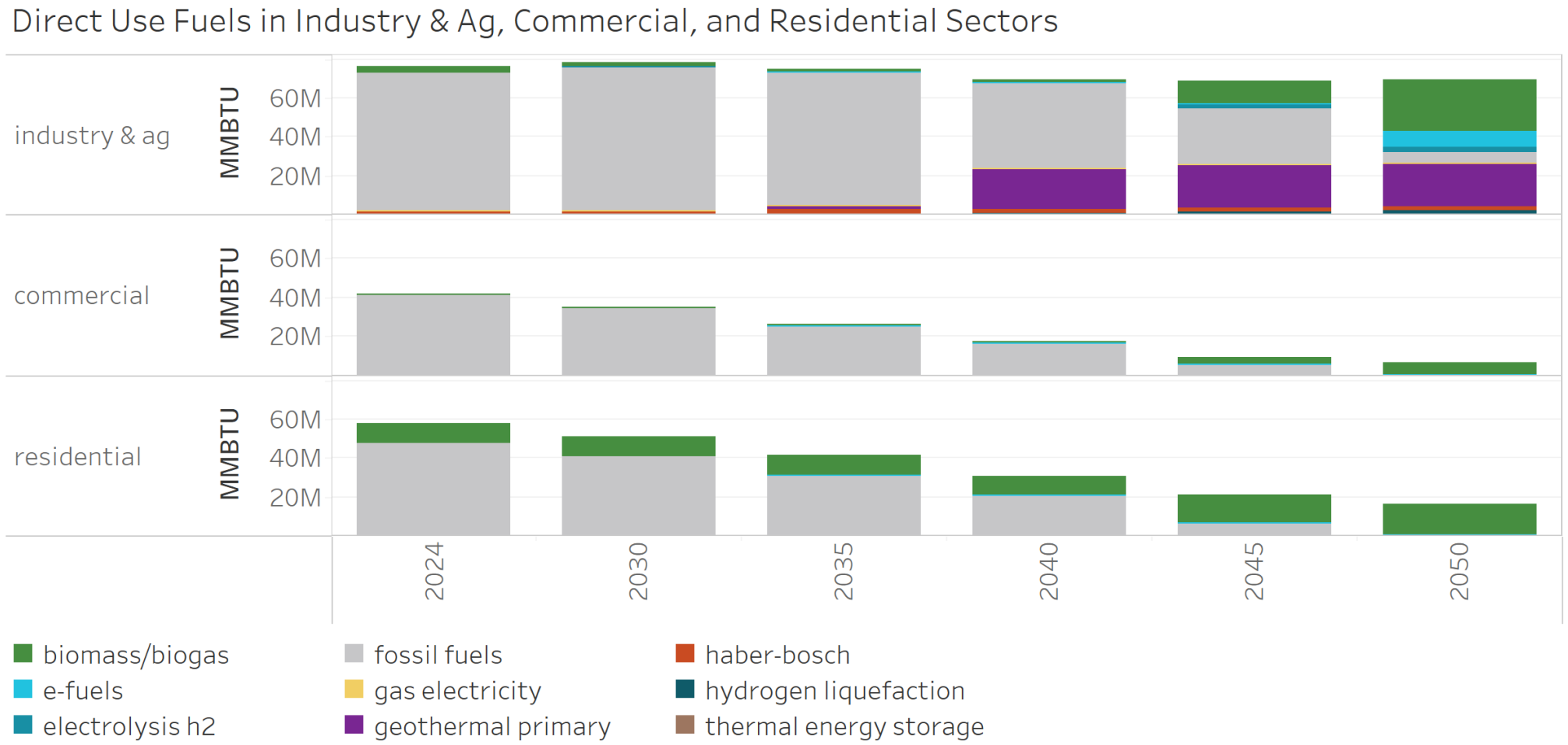
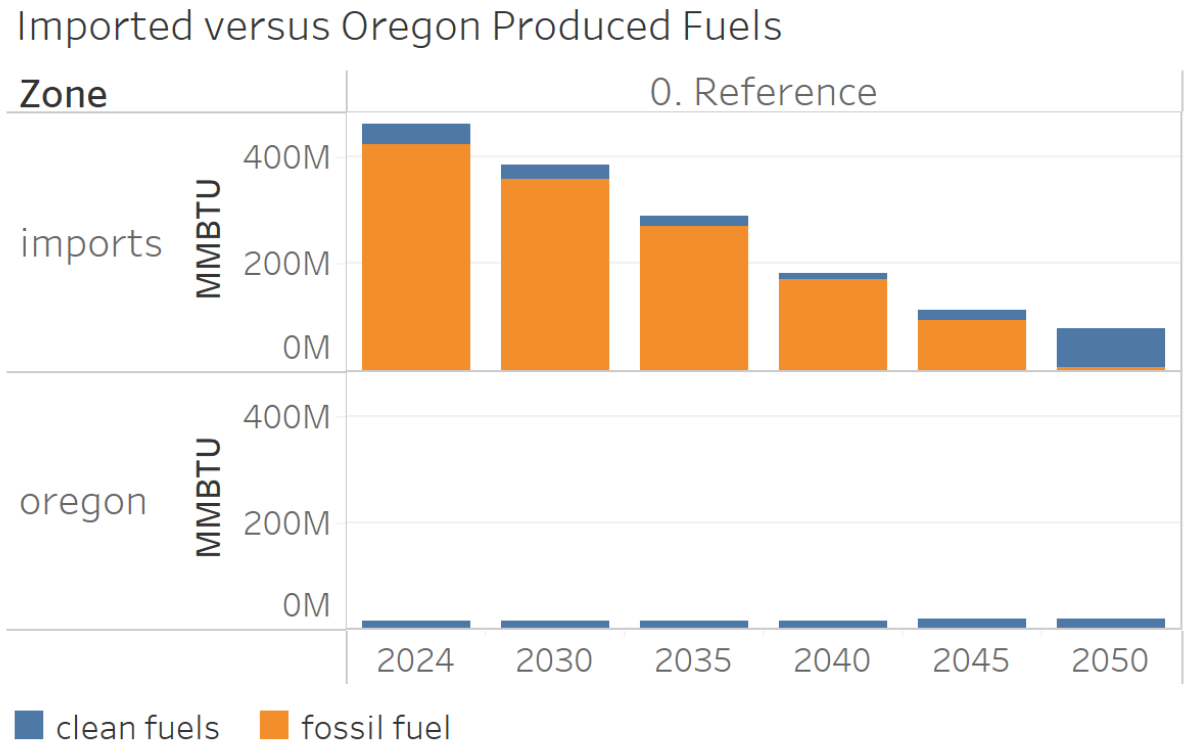
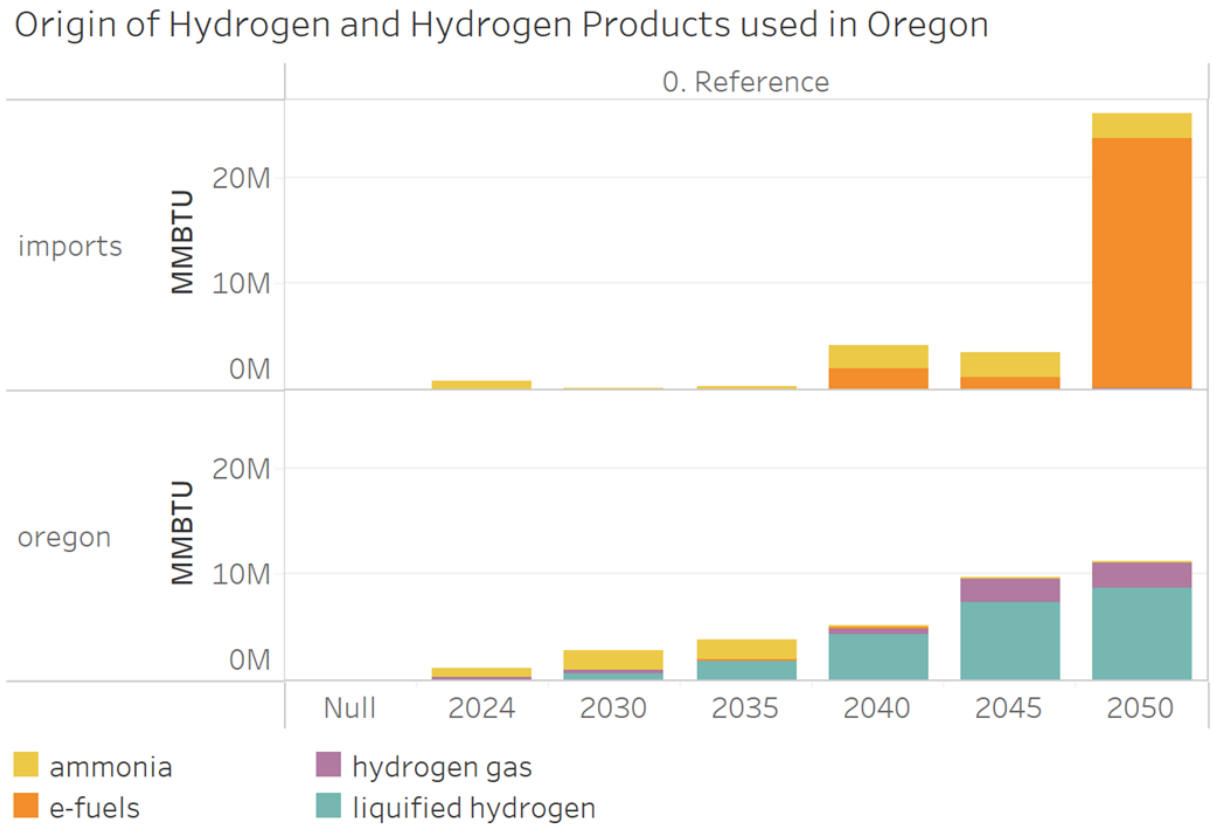
Direct Use Fuels Support Industrial Production and Mostly Phase Out in Buildings

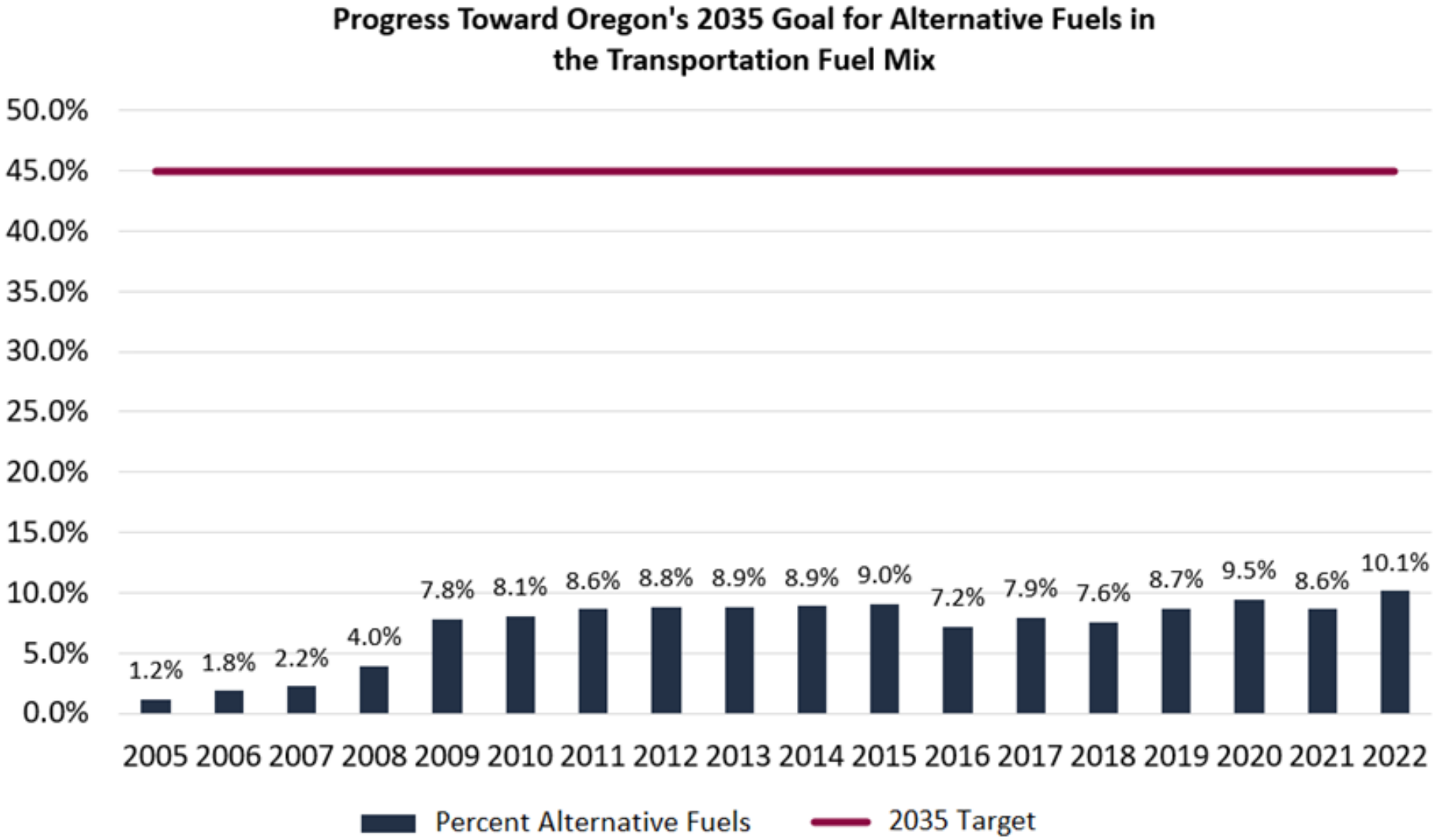


Fuels: Imported vs. Produced in OR in Reference and Alternative Scenarios

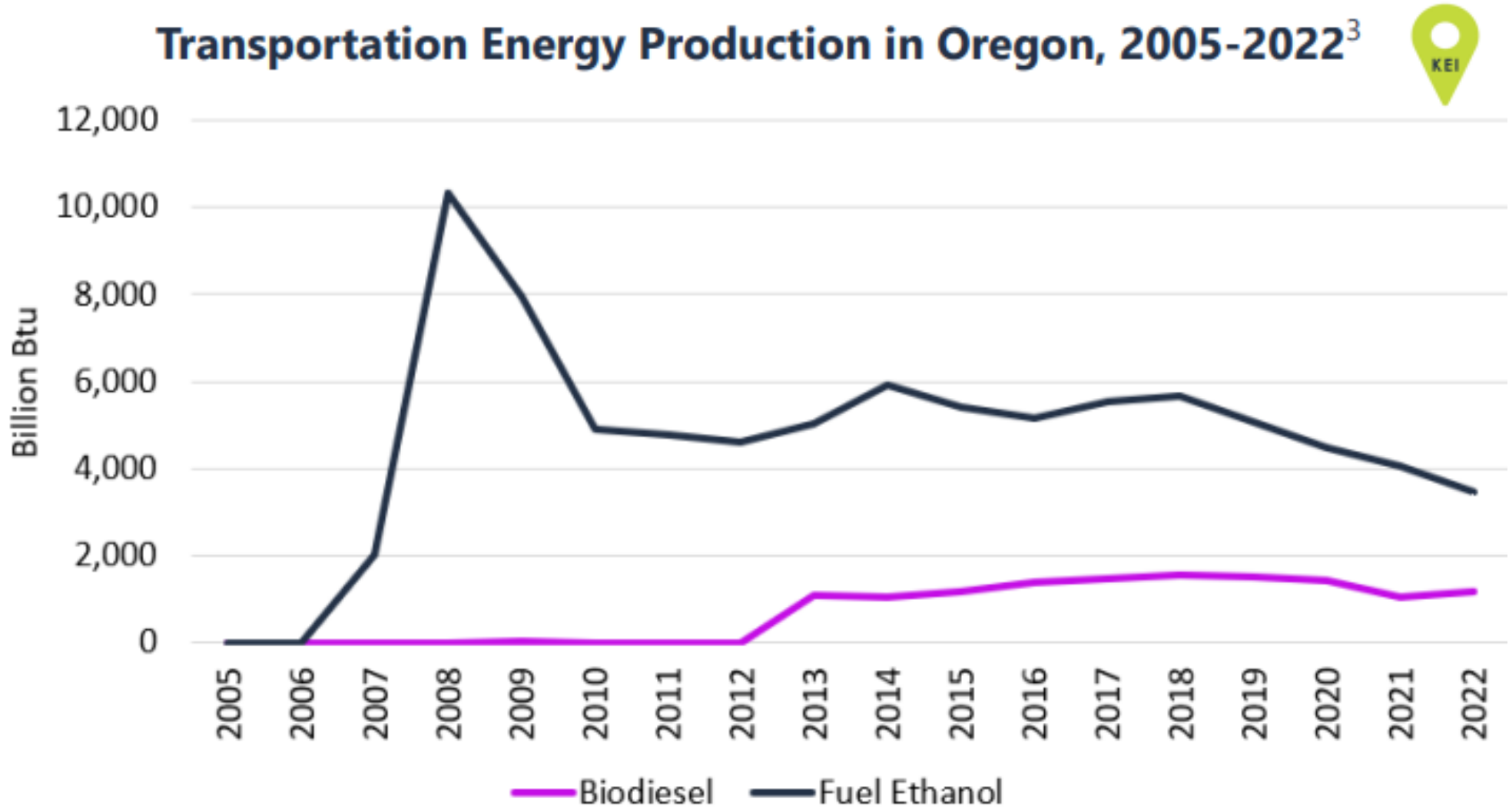




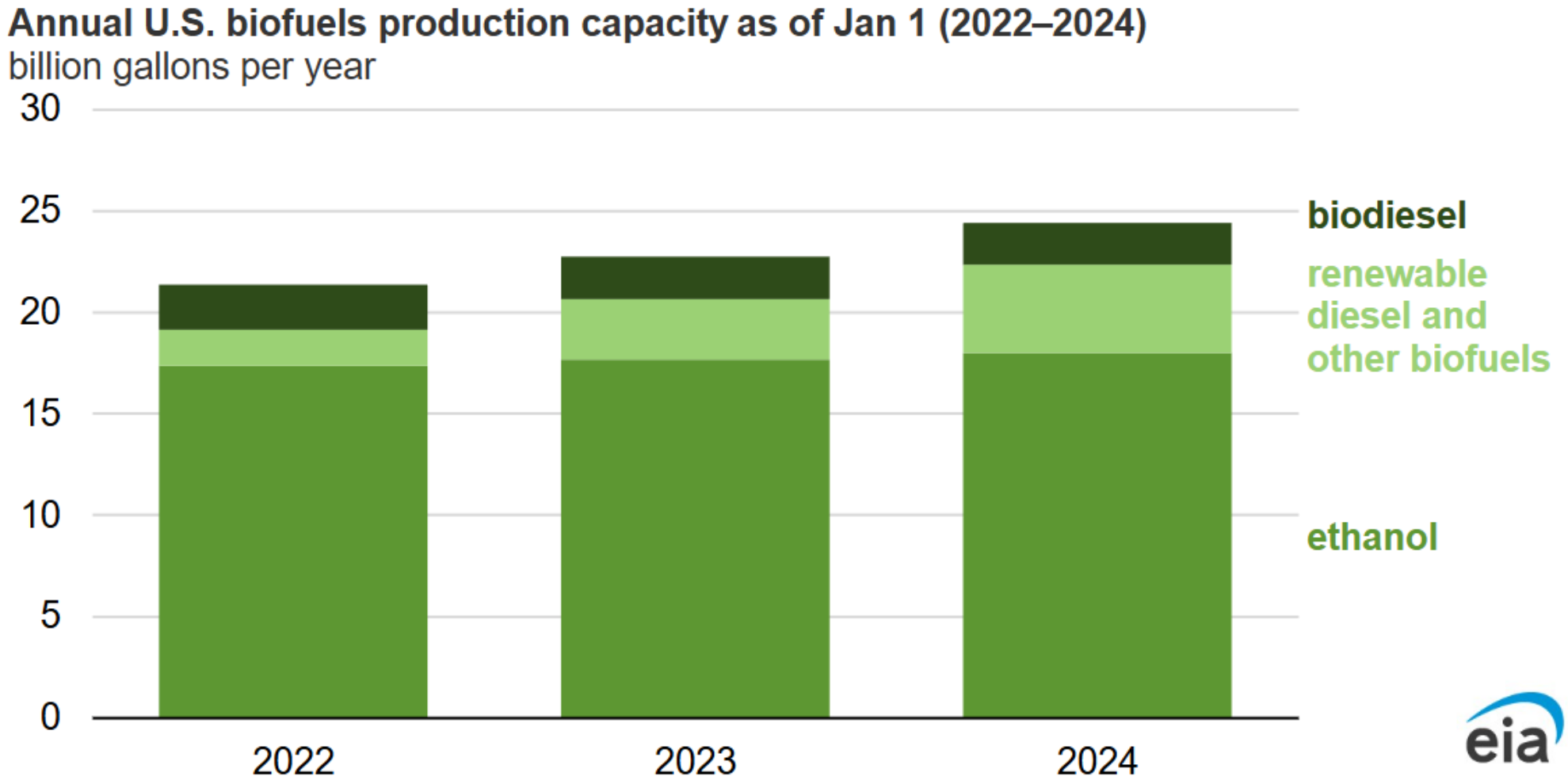
OREGON LOW-CARBON FUEL CONSUMPTION



OREGON LOW-CARBON FUEL PRODUCTION



NATIONAL BIOFUEL PRODUCTION

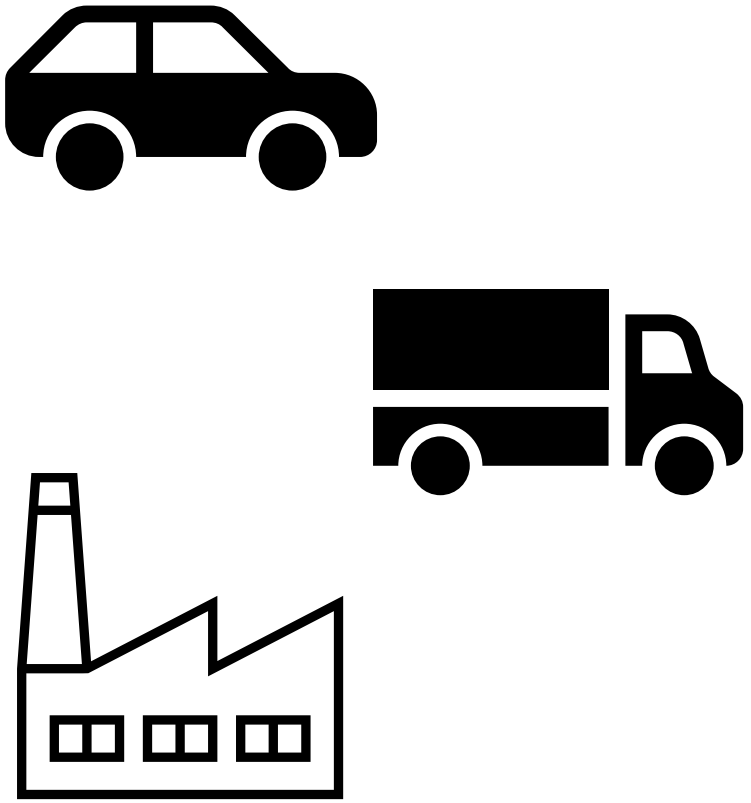


Data source: U.S. Energy Information Administration, *2024 Fuel Ethanol Plant Production Capacity Report*, *2024 Biodiesel Plant Production Capacity Report*, and *2024 Renewable Diesel Fuel and Other Biofuels Plant Production Capacity Report*

HYDROGEN PRODUCTION

KEY CHALLENGES

- *There are many options for low-carbon fuels, each with benefits and challenges.*
- *The timing for electrification of end uses like vehicles will have implications for what low-carbon fuels are needed and when.*
- *How do we determine the best low-carbon fuel options and what to invest in.*



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Brainstorming Activity

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KEY FINDING

Firm dispatchable resources are needed to support the growing electric grid.

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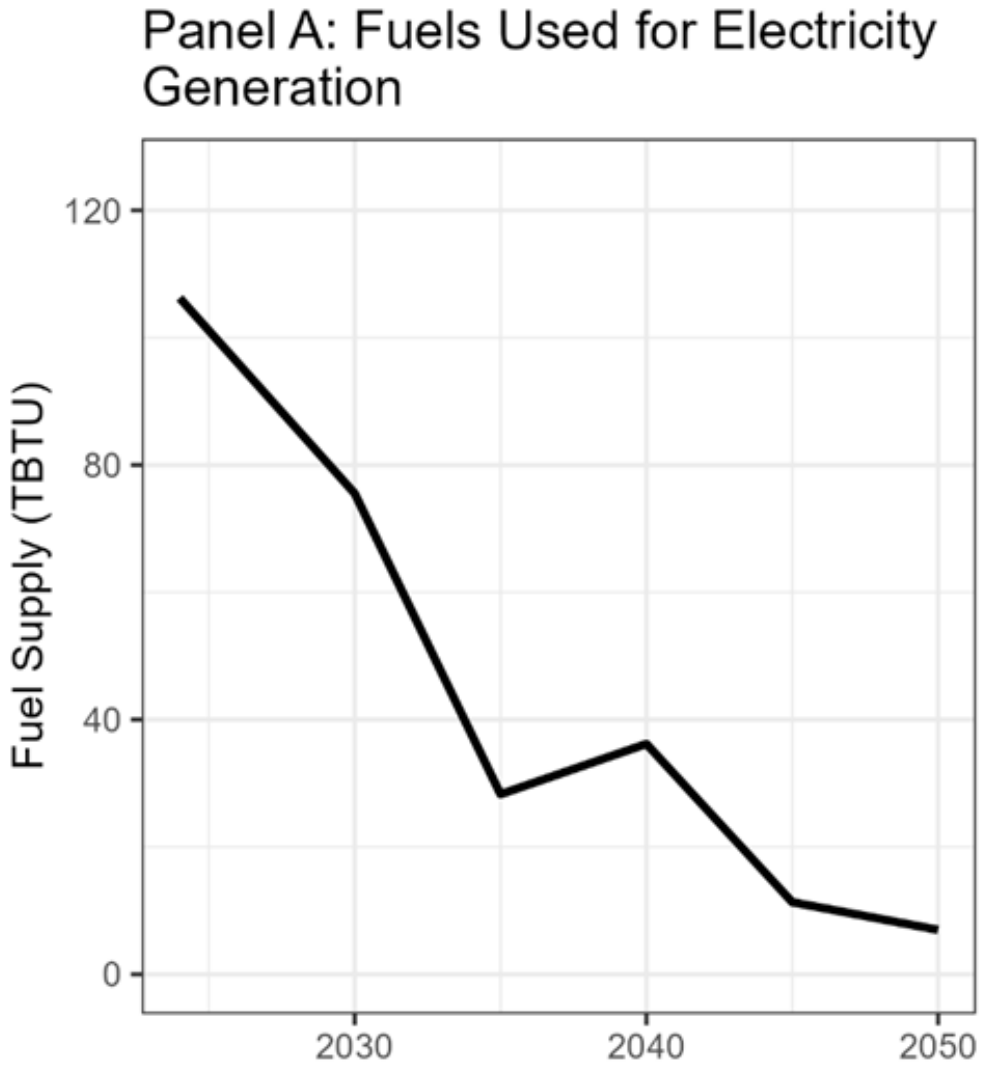
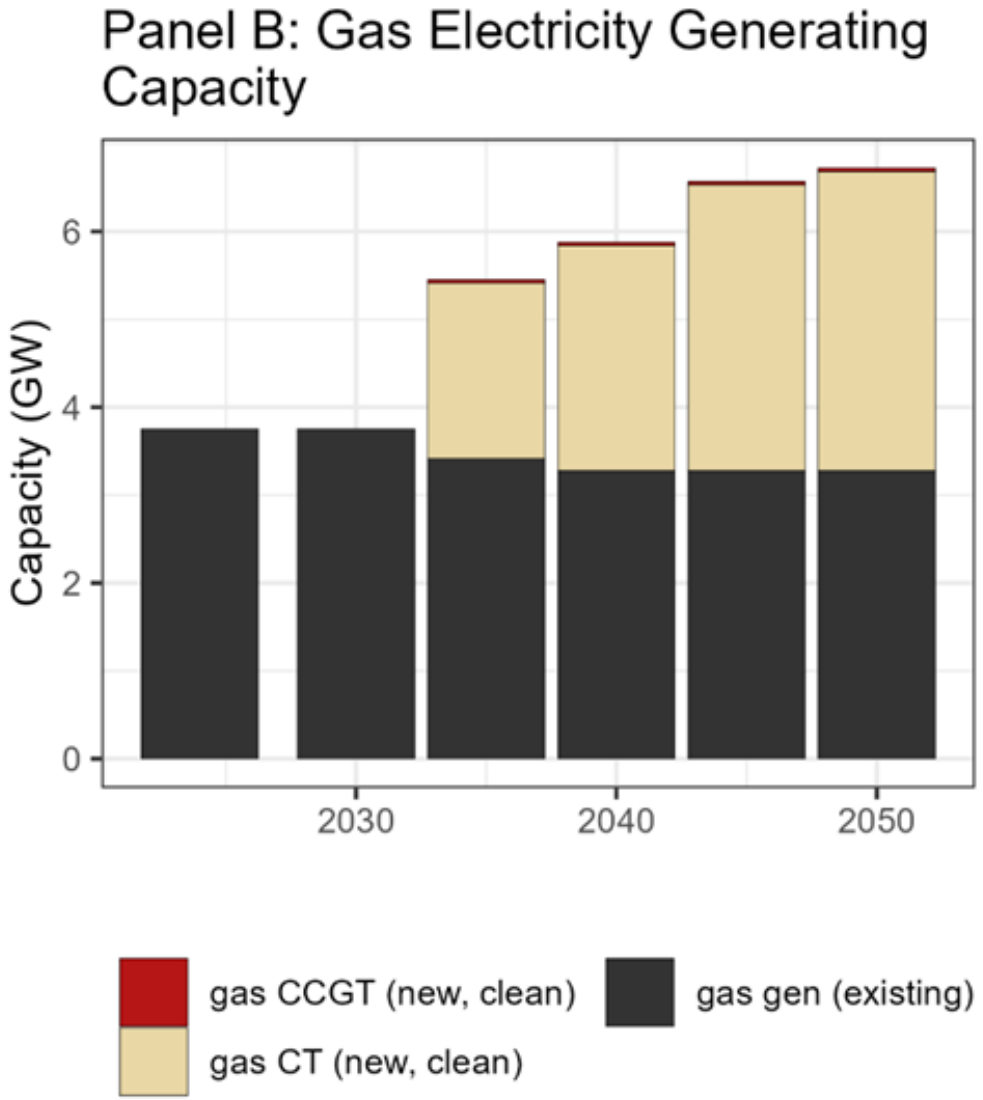
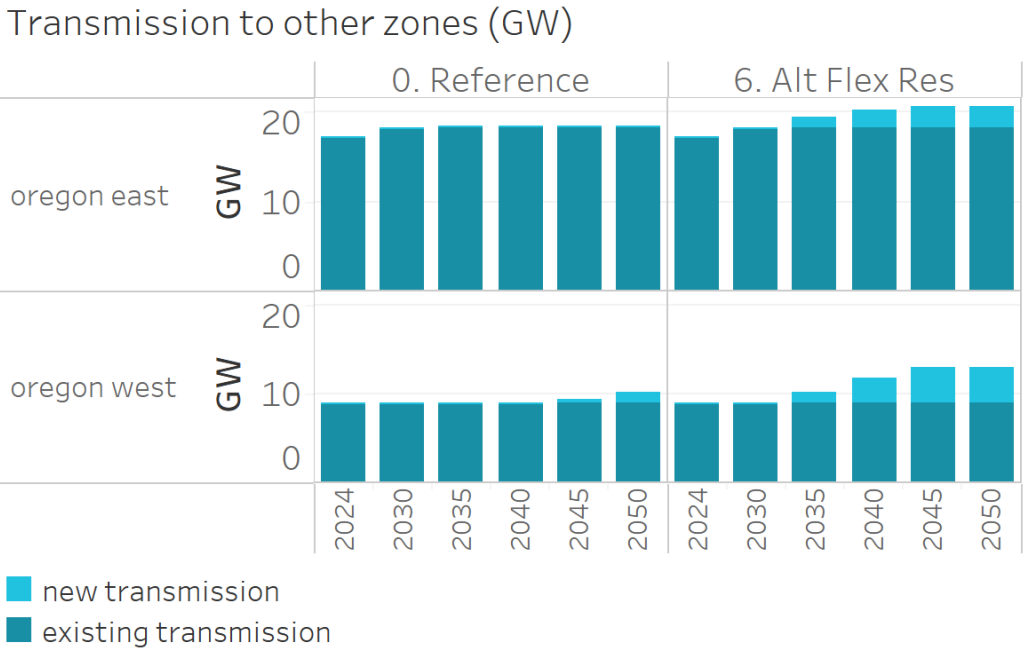
ELECTRICITY GENERATION FROM FOSSIL AND LOW-CARBON FUELS IN THE REFERENCE SCENARIO

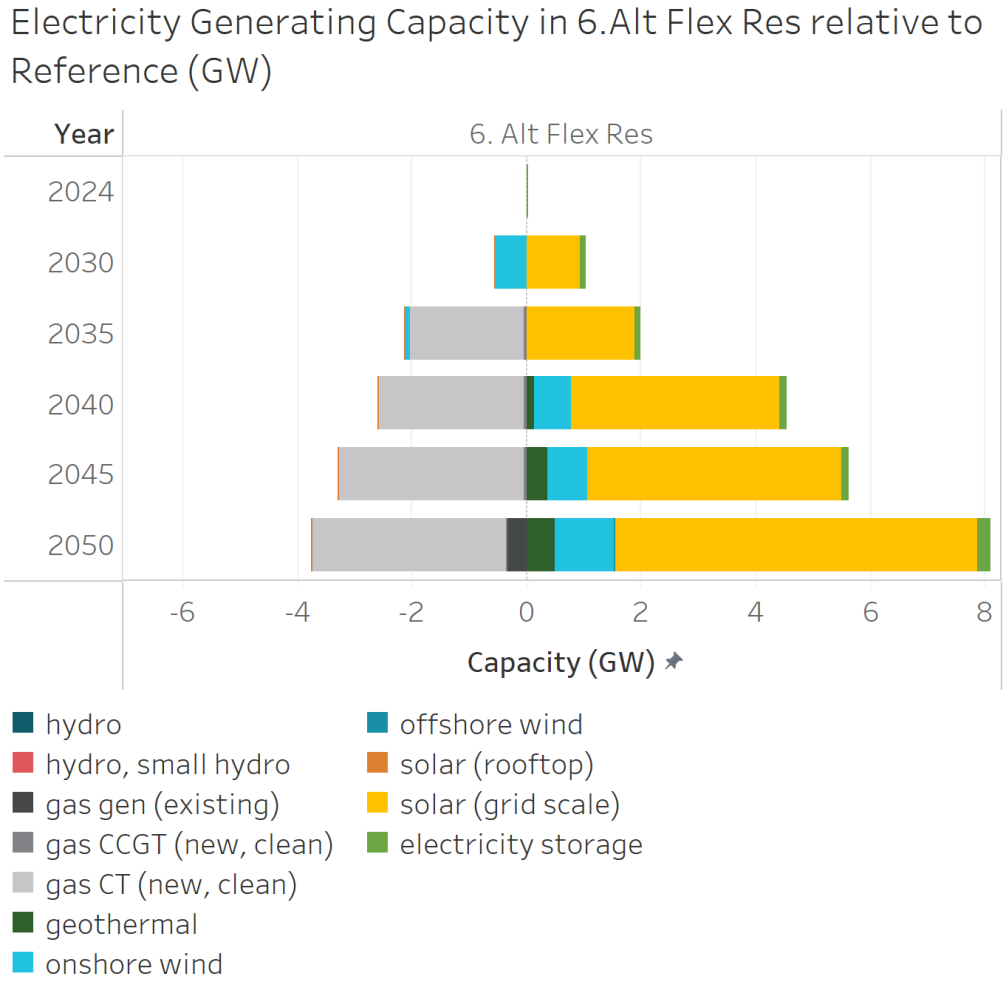




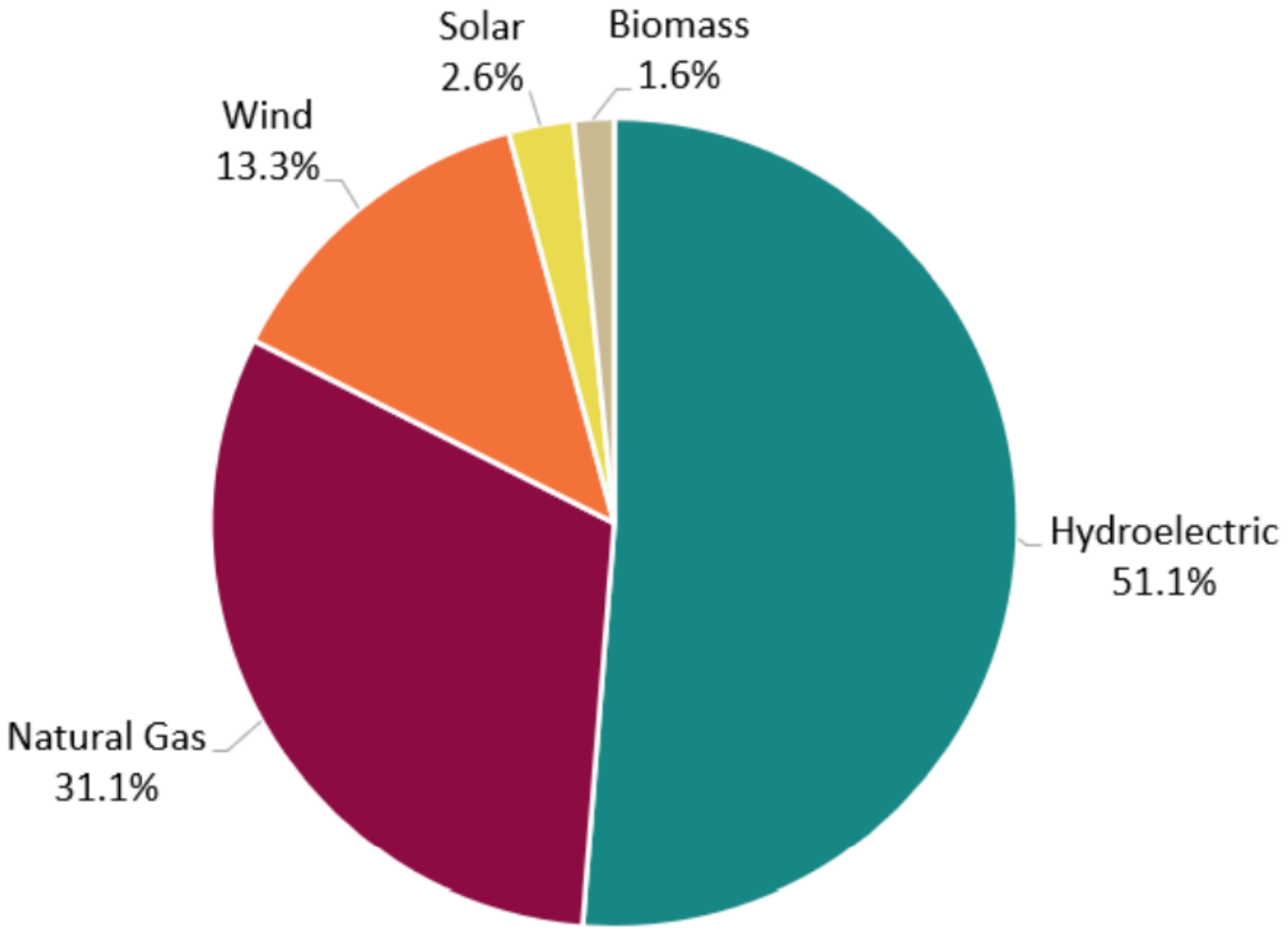
What if We Couldn't Rely on Clean Gas Plants for Reliability?

- Increased loads from electrolysis supported by increased renewables and transmission





OREGON ELECTRICITY GENERATION



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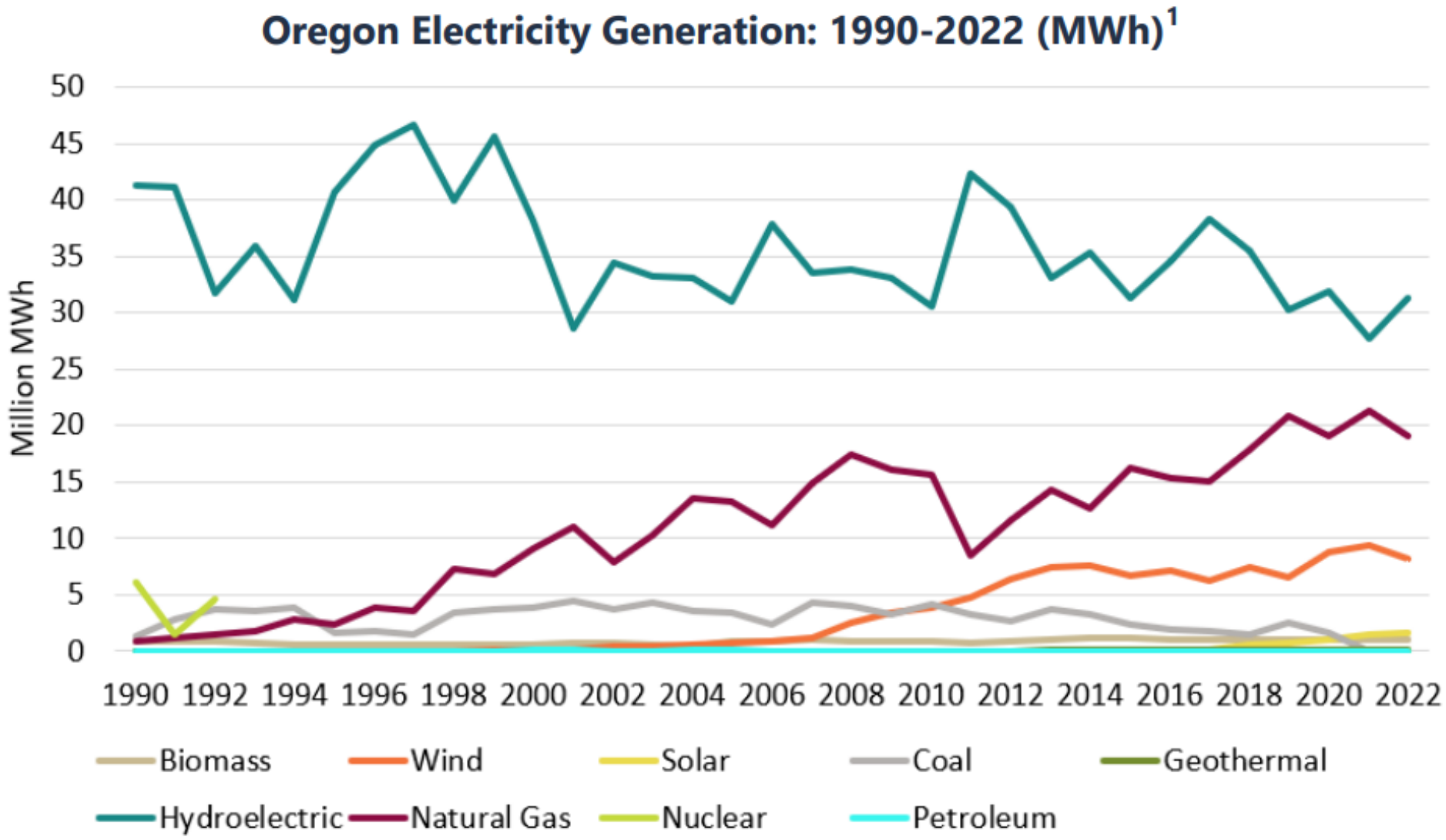
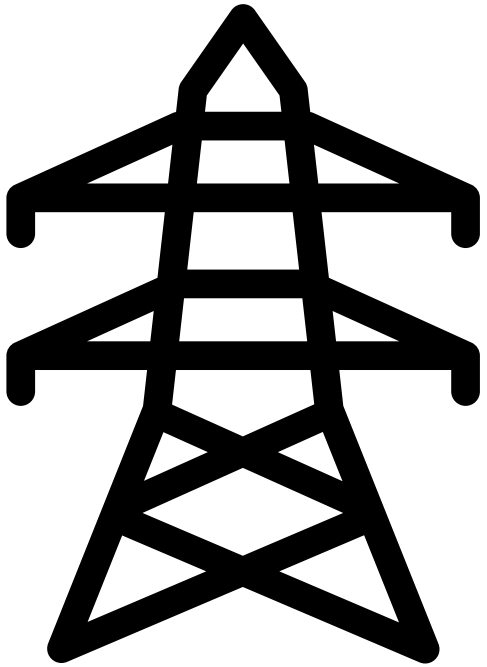
OREGON ELECTRICITY GENERATION



KEY CHALLENGES

- *There are limited resources producing biogas and hydrogen today.*
- *There is a great deal of economic and technological uncertainty around the development of clean hydrogen and biogas resources and infrastructure.*
- *Siting new electricity generation plants will be challenging.*



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10 MIN BREAK

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Electrification is more cost effective than adopting low-carbon fuels in many applications.

KEY FINDING

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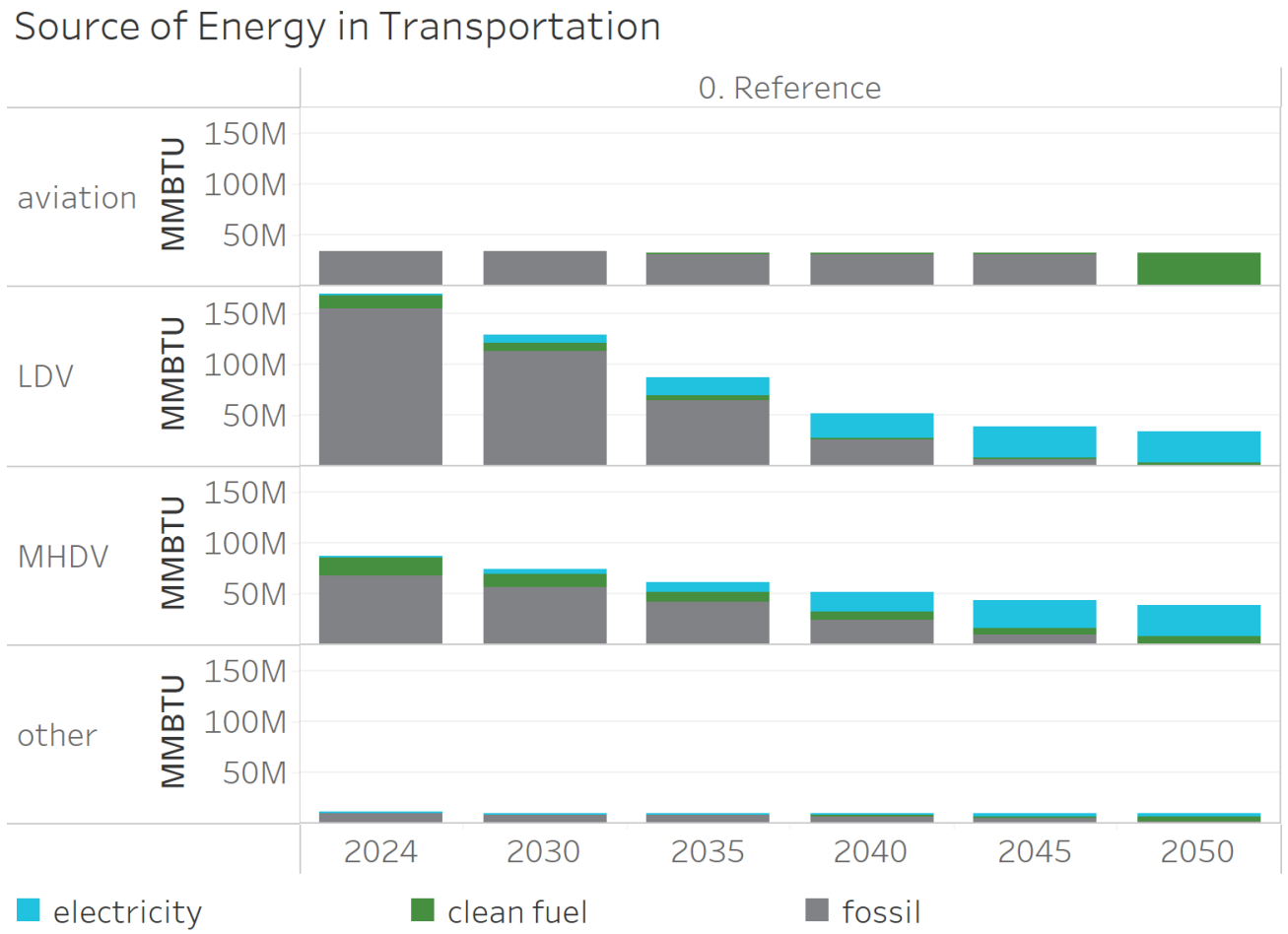
TRANSPORTATION FUEL USE DECREASES

- Electrification of light duty and medium duty vehicles
- Improving fuel efficiency
- Some medium- and heavy-duty vehicles, aviation, rail, and maritime vessels continue to rely on fuels



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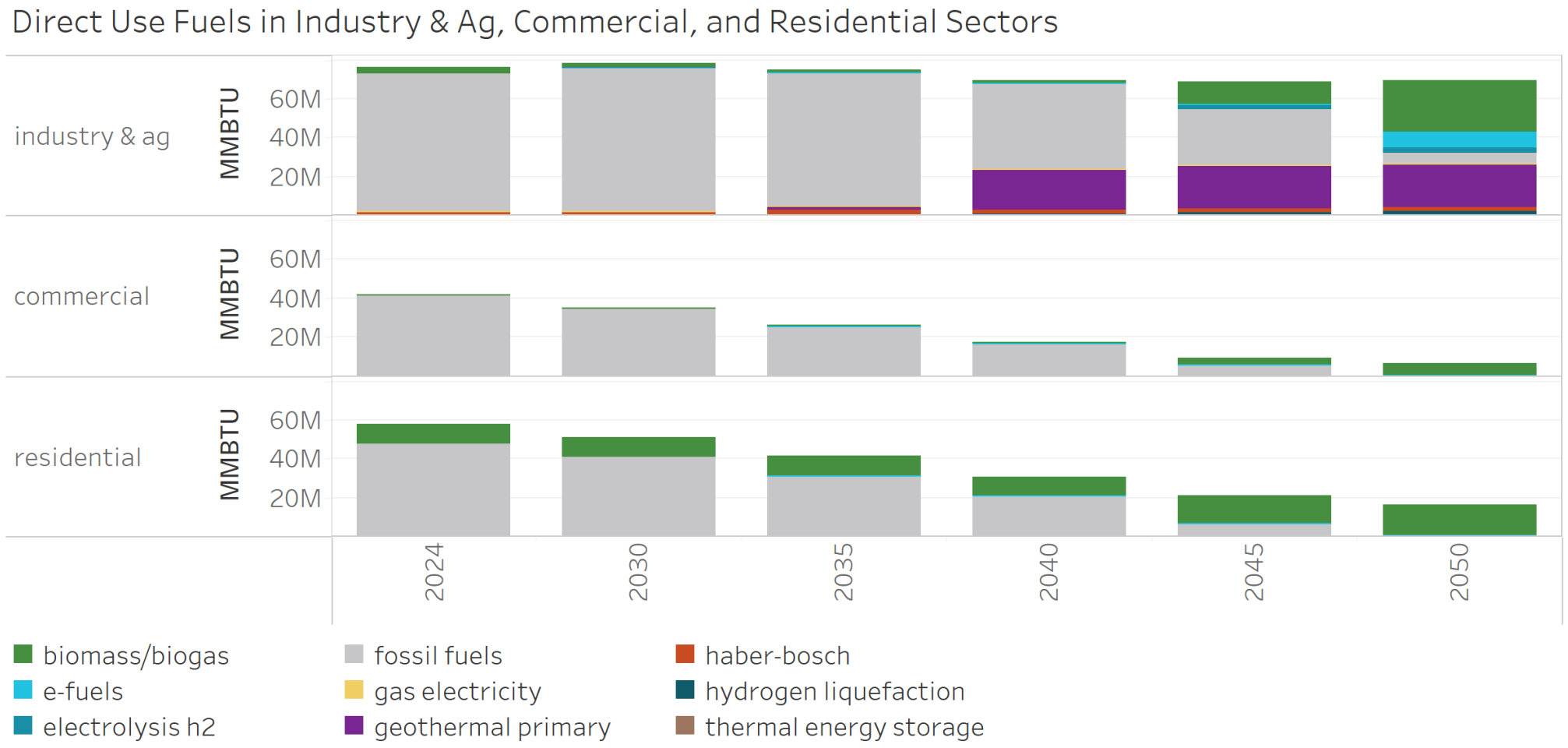
DIRECT USE FUELS NEEDED FOR INDUSTRY AND AGRICULTURE



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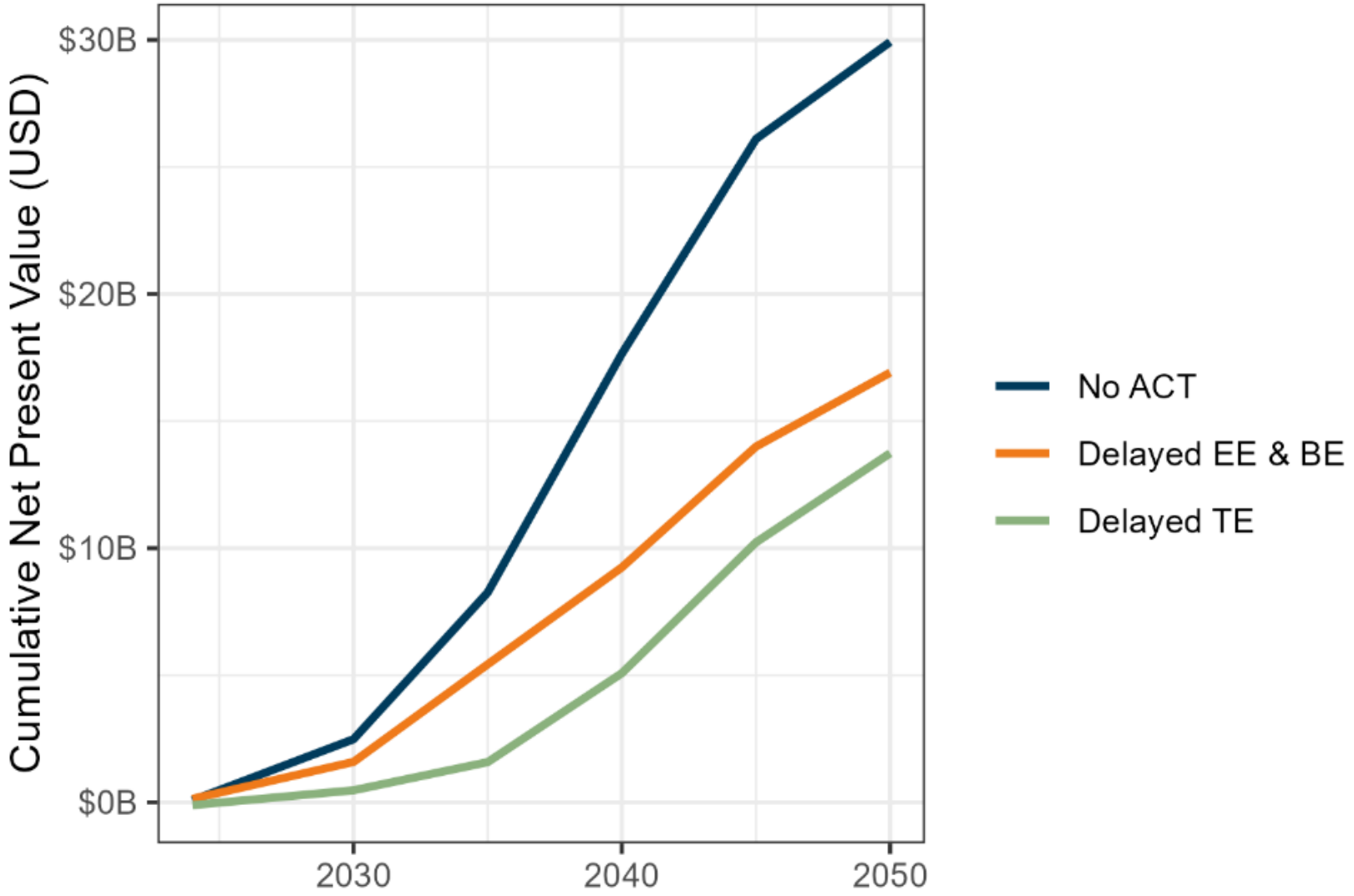
COSTS OF DELAYED ENERGY EFFICIENCY AND ELECTRIFICATION COMPARED TO REFERENCE SCENARIO



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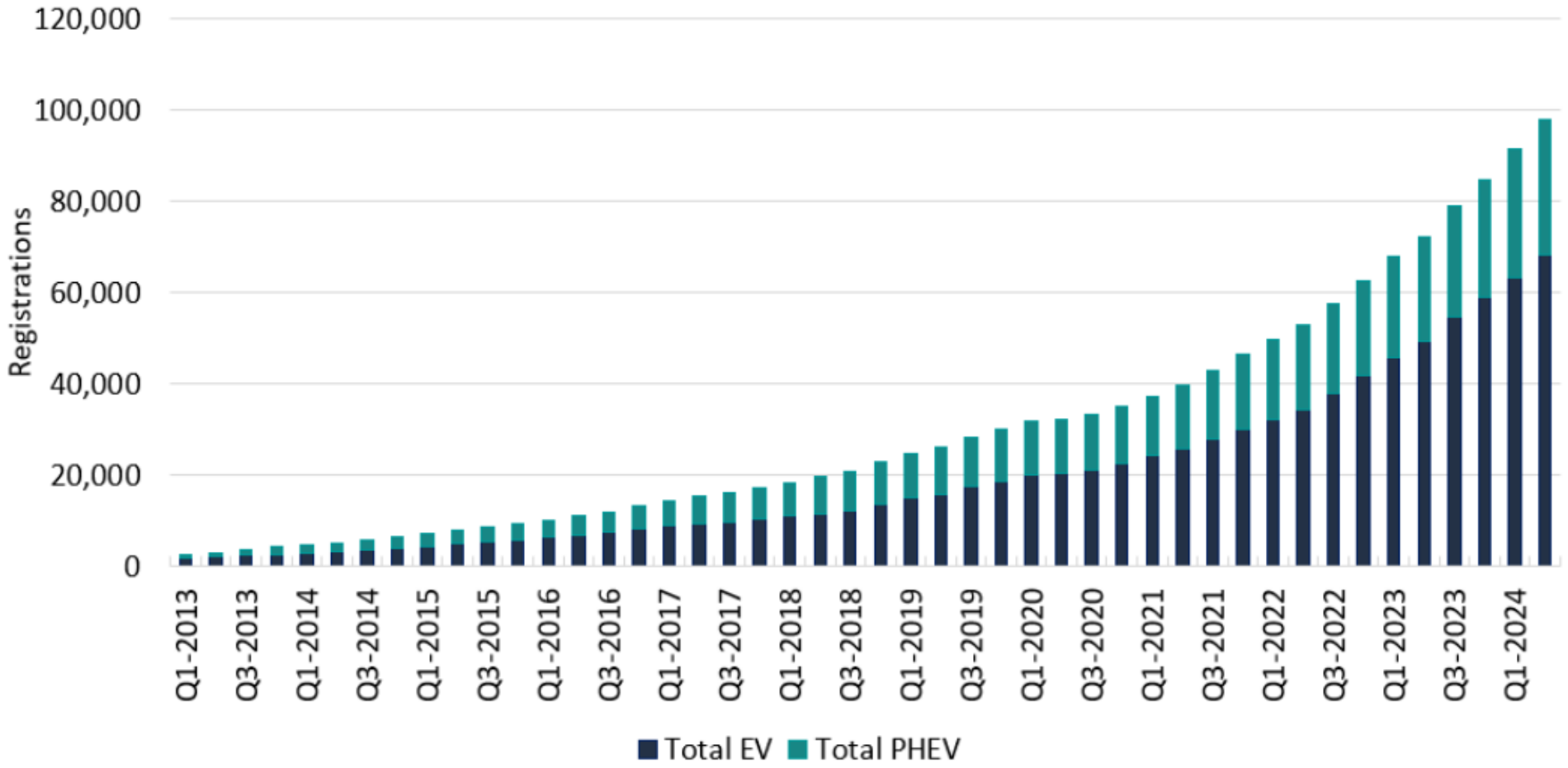
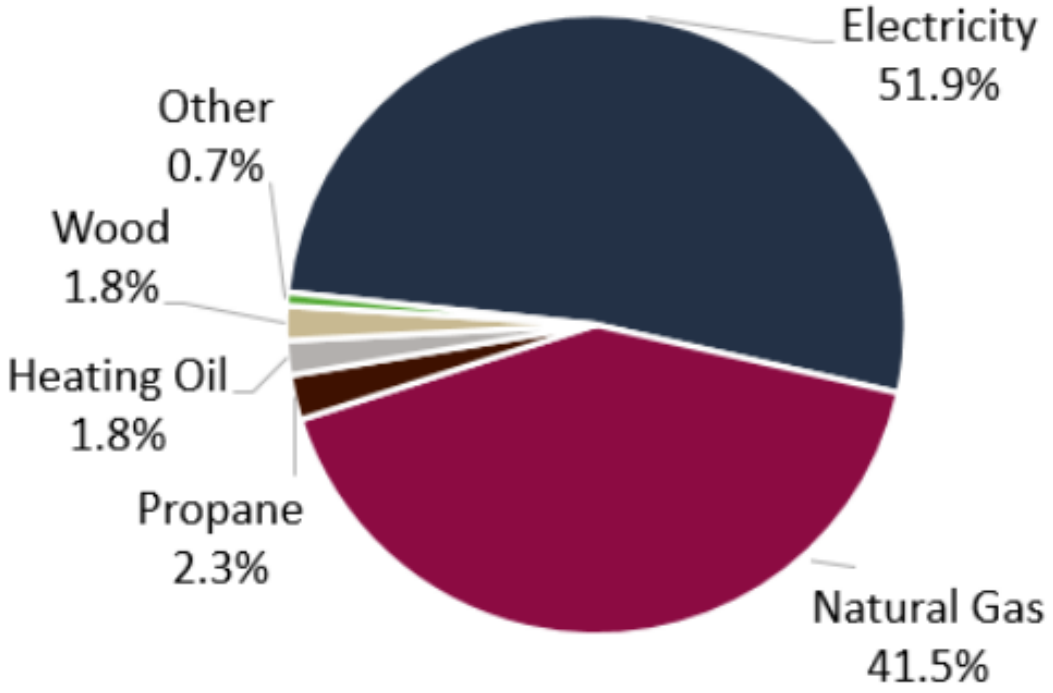
TRANSPORTATION ELECTRIFICATION

Cumulative Oregon Electric Vehicle (and Plug-in Hybrid EV) Registrations by Quarter Year (2013 Q1 — 2024 Q2)[26]

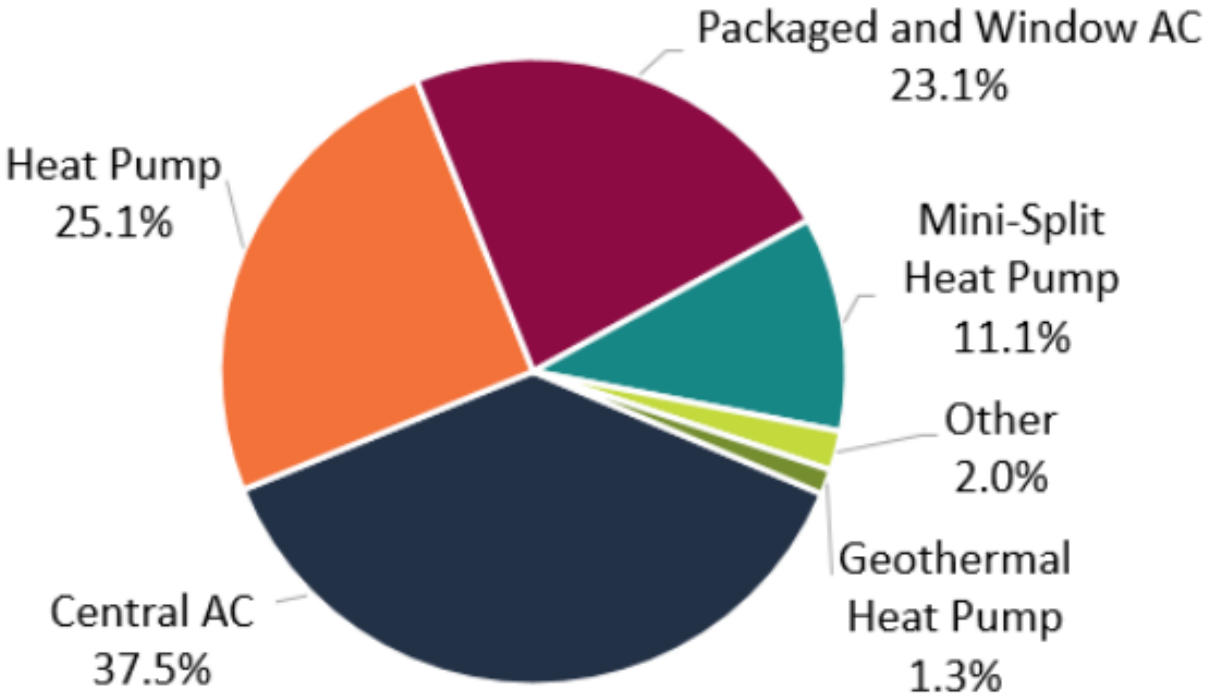


BUILDING ELECTRIFICATION

Average Heating Types Across Oregon Homes[12]



Average Cooling Types Across Oregon Homes[8]



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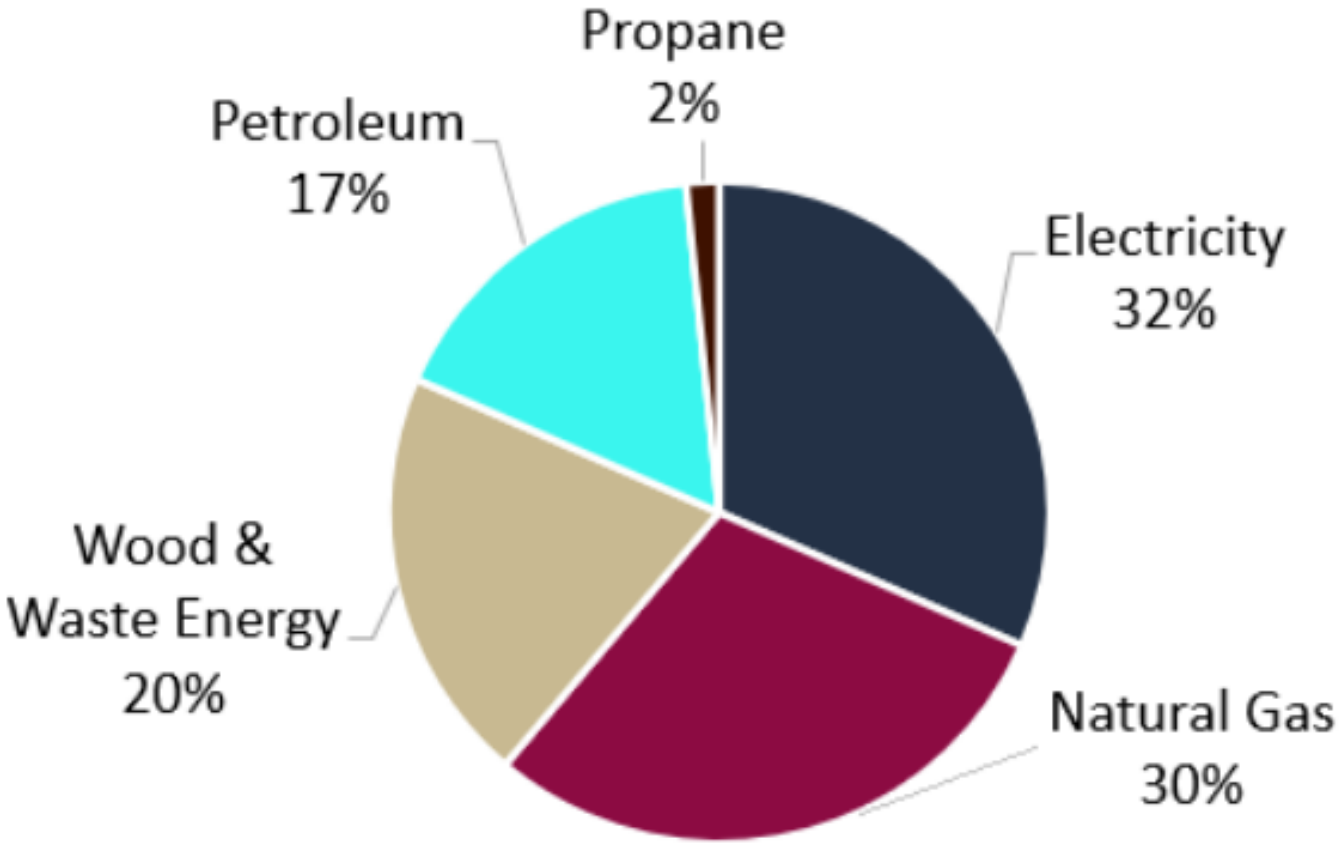
INDUSTRIAL ELECTRIFICATION

2022 Oregon Industrial Energy Consumption by Fuel[1]



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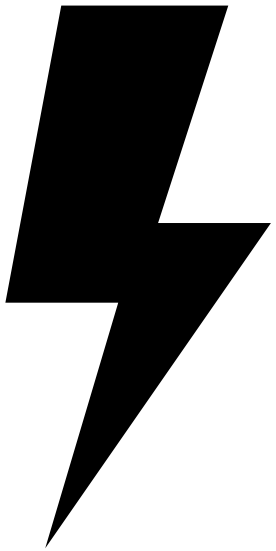
KEY CHALLENGES

- *Fuel providers would be operating in an environment with declining fossil fuel demand.*
- *Costs to maintain existing fuel systems would be supported by fewer customers/ratepayers, with potential implications for consumer costs.*
- *Existing fuel infrastructure, such as gas stations, underground storage tanks, fuel depots, and pipelines could be at risk of becoming stranded assets.*



Brainstorming Activity

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KEY FINDING

Demand declines but fuels remain a significant component of Oregon's Energy System across all scenarios.

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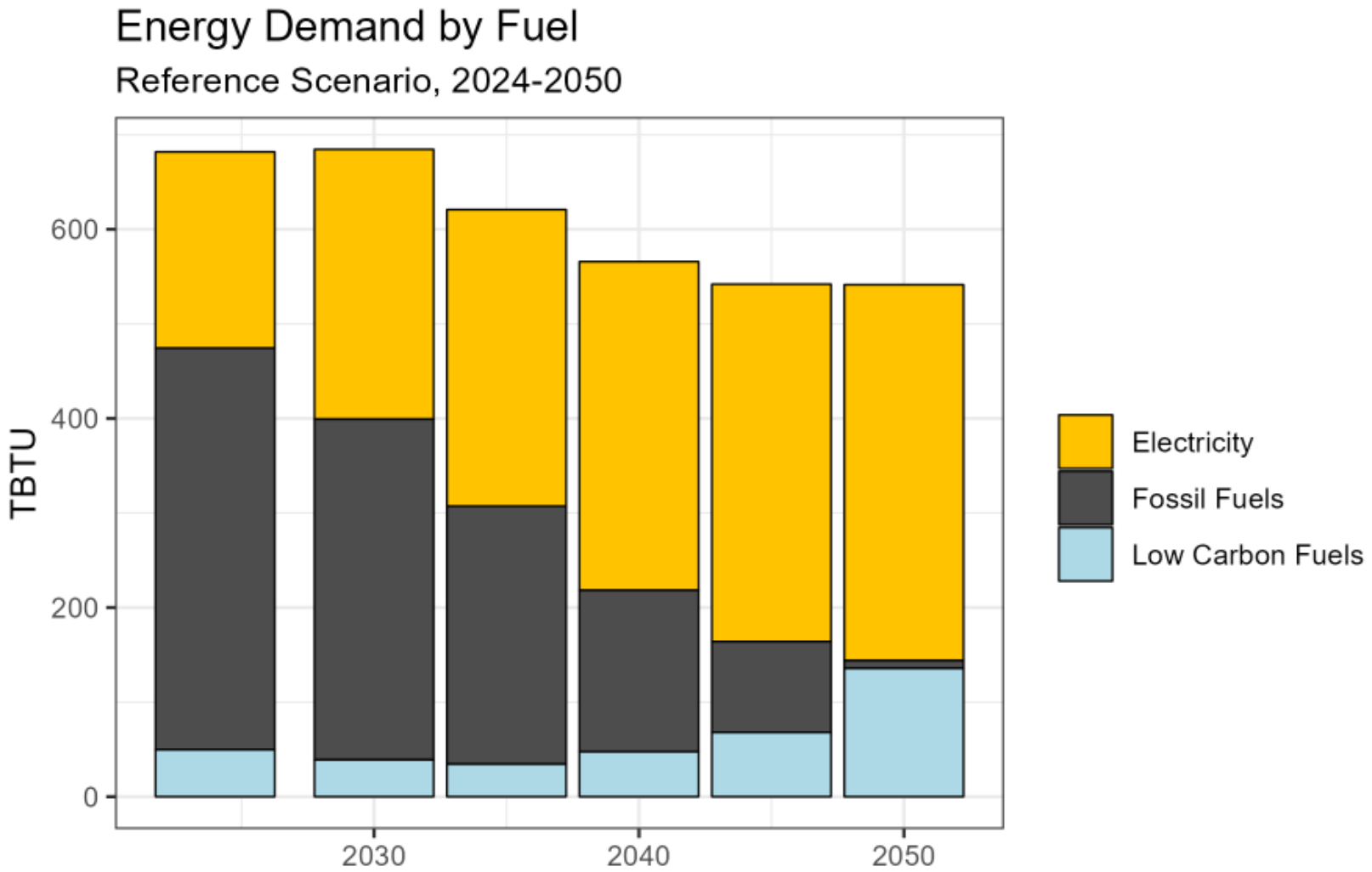
OREGON ENERGY DEMAND BY FUEL IN REFERENCE SCENARIO



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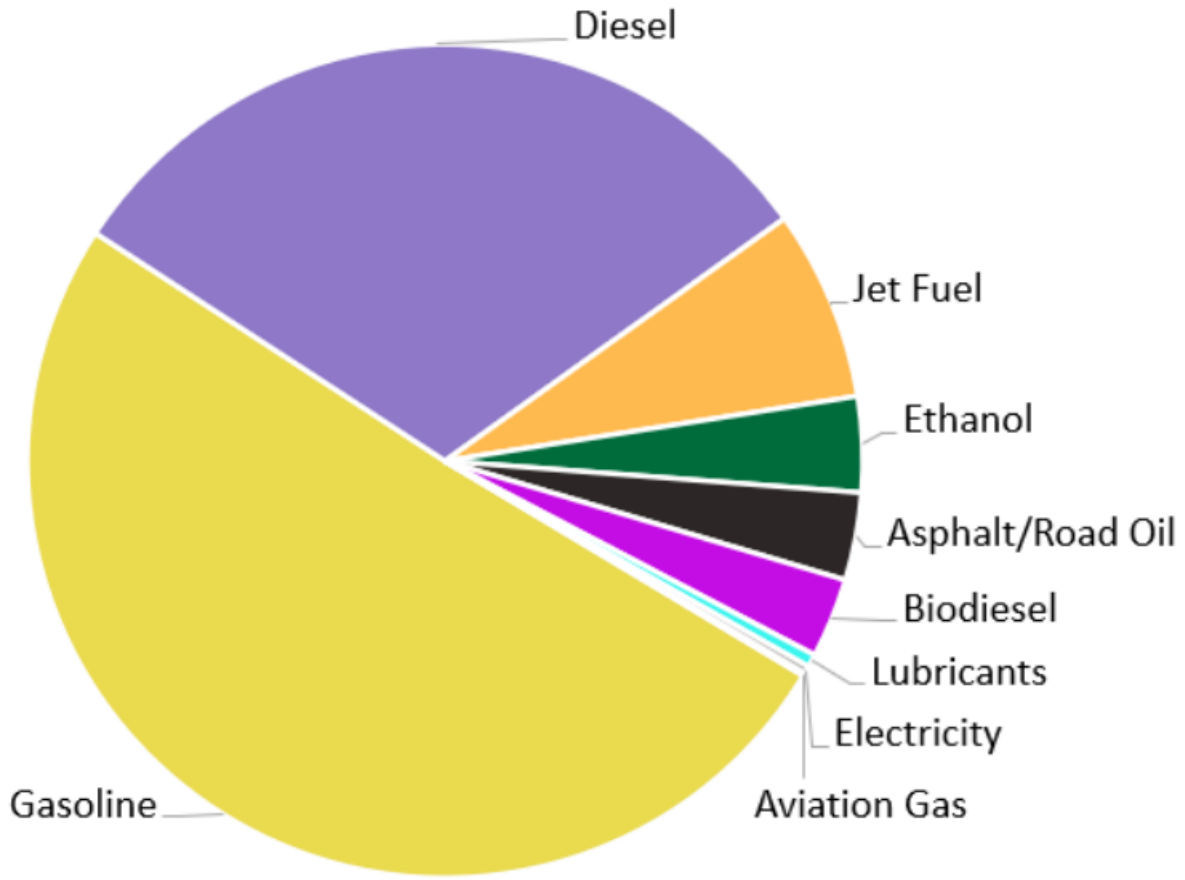
TRANSPORTATION FUELS

36.7%

of Oregon's 2022 energy consumption[3]

50.6%	Gasoline
30.9%	Diesel
7.4%	Jet Fuel
3.7%	Ethanol
3.4%	Asphalt/Road Oil
3.1%	Biodiesel
0.5%	Lubricants
0.3%	Electricity
0.1%	Aviation Gas



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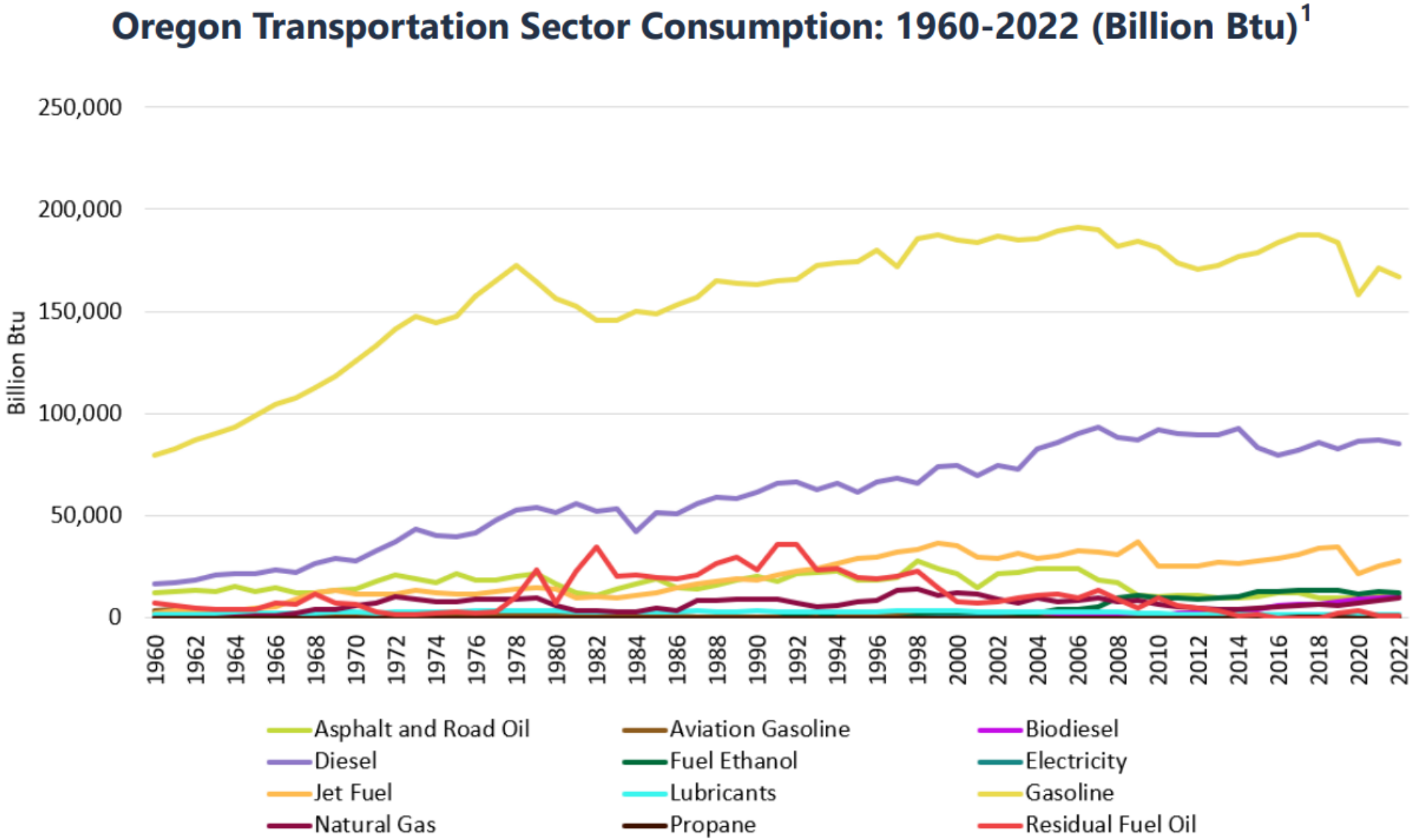
TRANSPORTATION FUEL USE OVER TIME

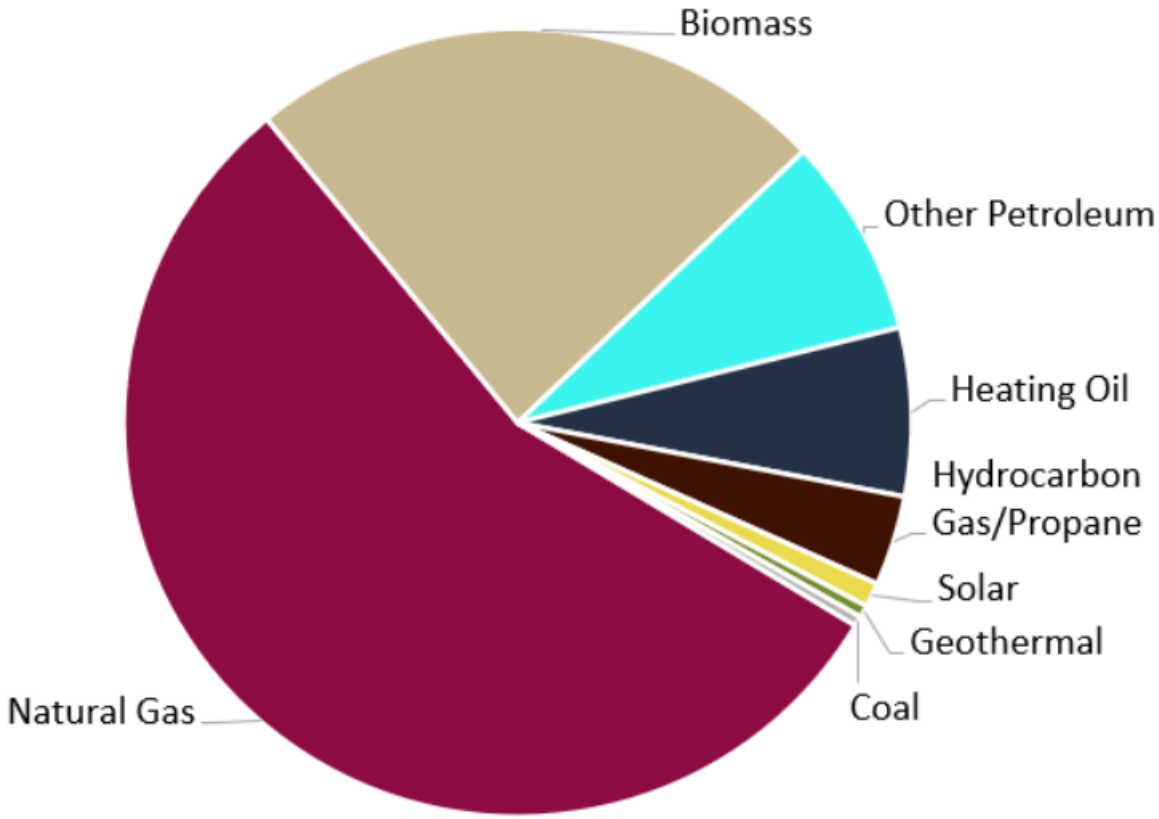


DIRECT USE FUELS

30.9%

of Oregon's 2022 energy consumption[2]

55.4%	Natural Gas
23.9%	Biomass
8.2%	Other Petroleum
6.9%	Heating Oil
3.7%	Hydrocarbon Gas Liquids Including Propane
1.0%	Solar
0.5%	Geothermal
0.4%	Coal



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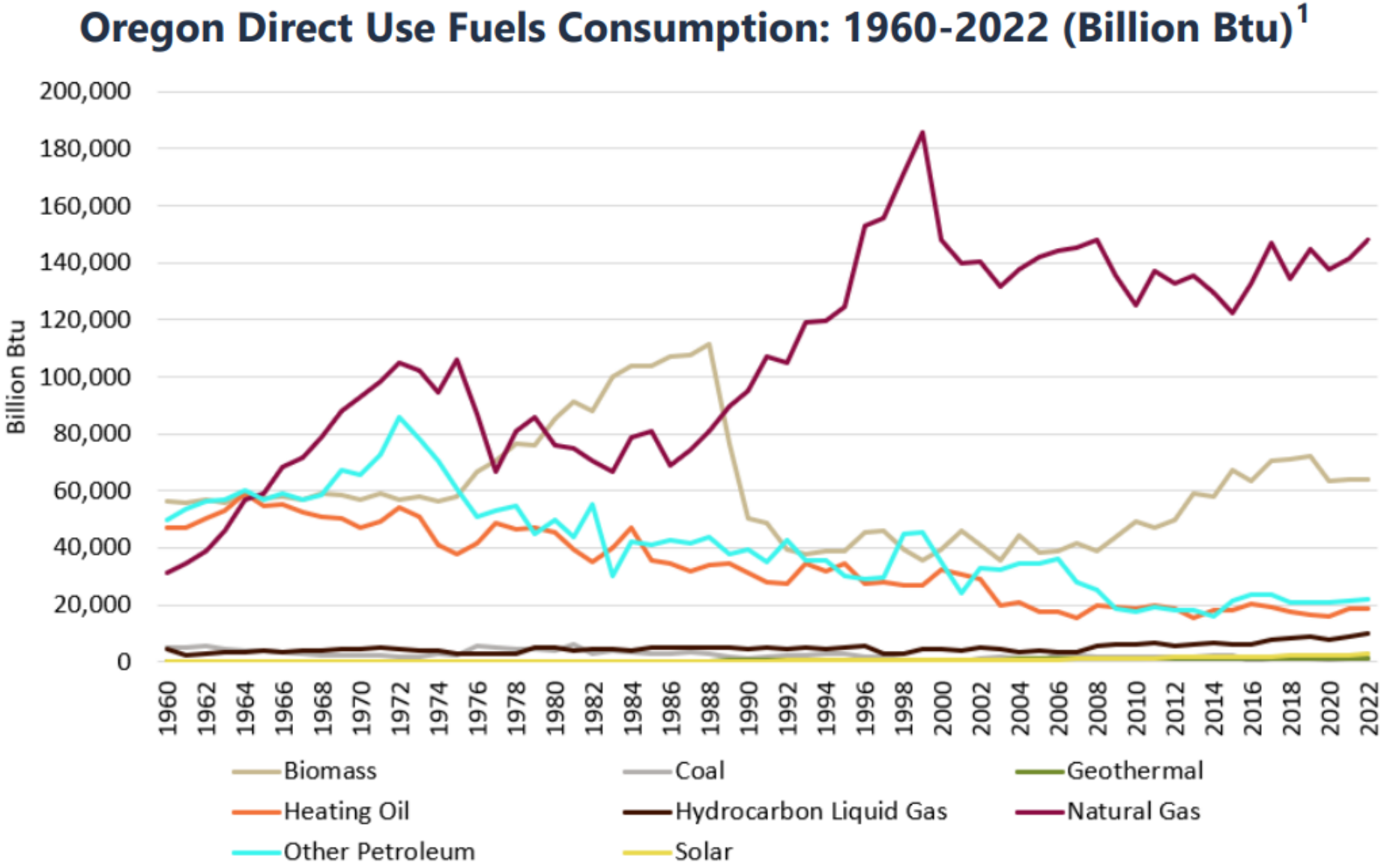
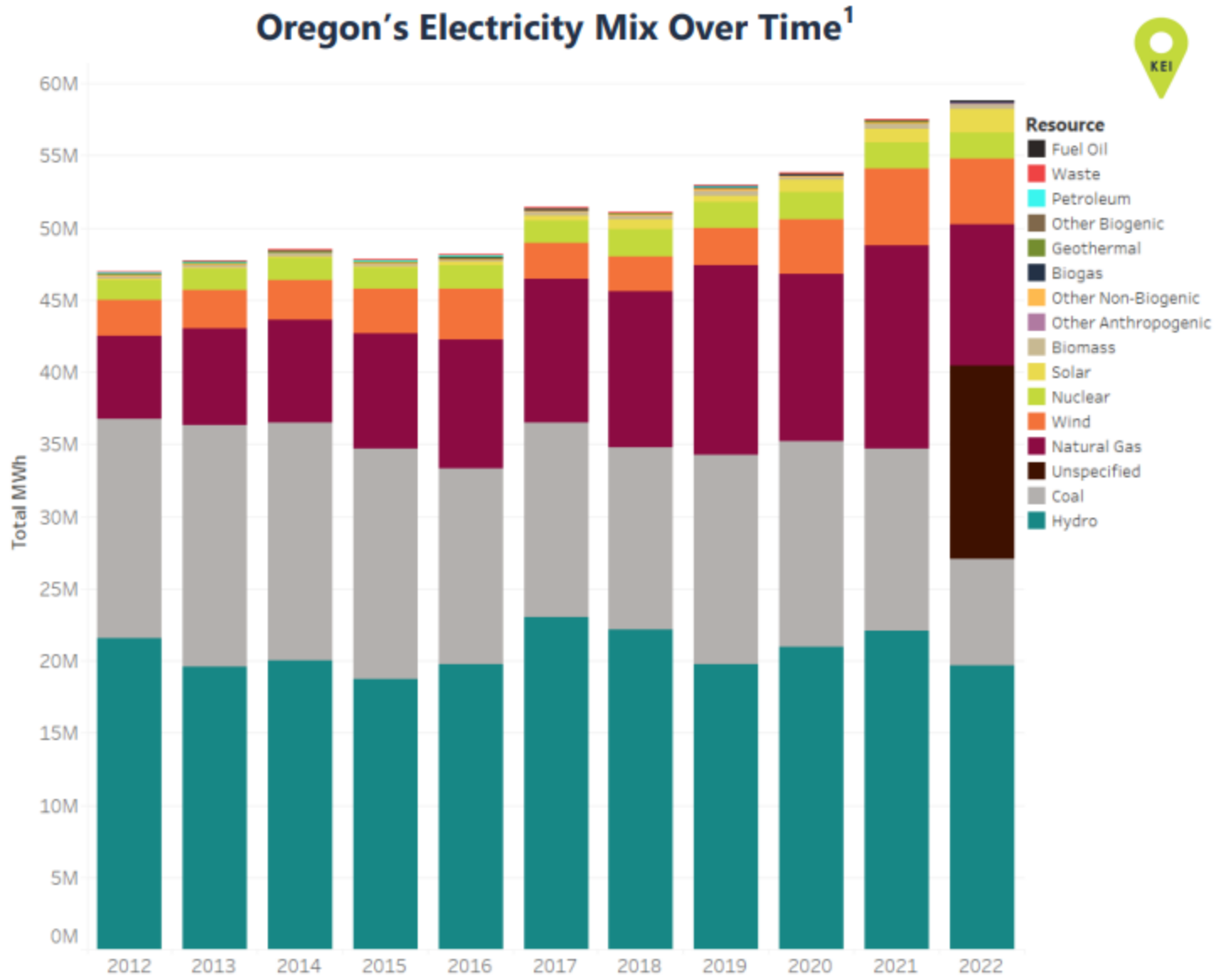
DIRECT USE FUEL USE OVER TIME



ELECTRICITY USE OVER TIME



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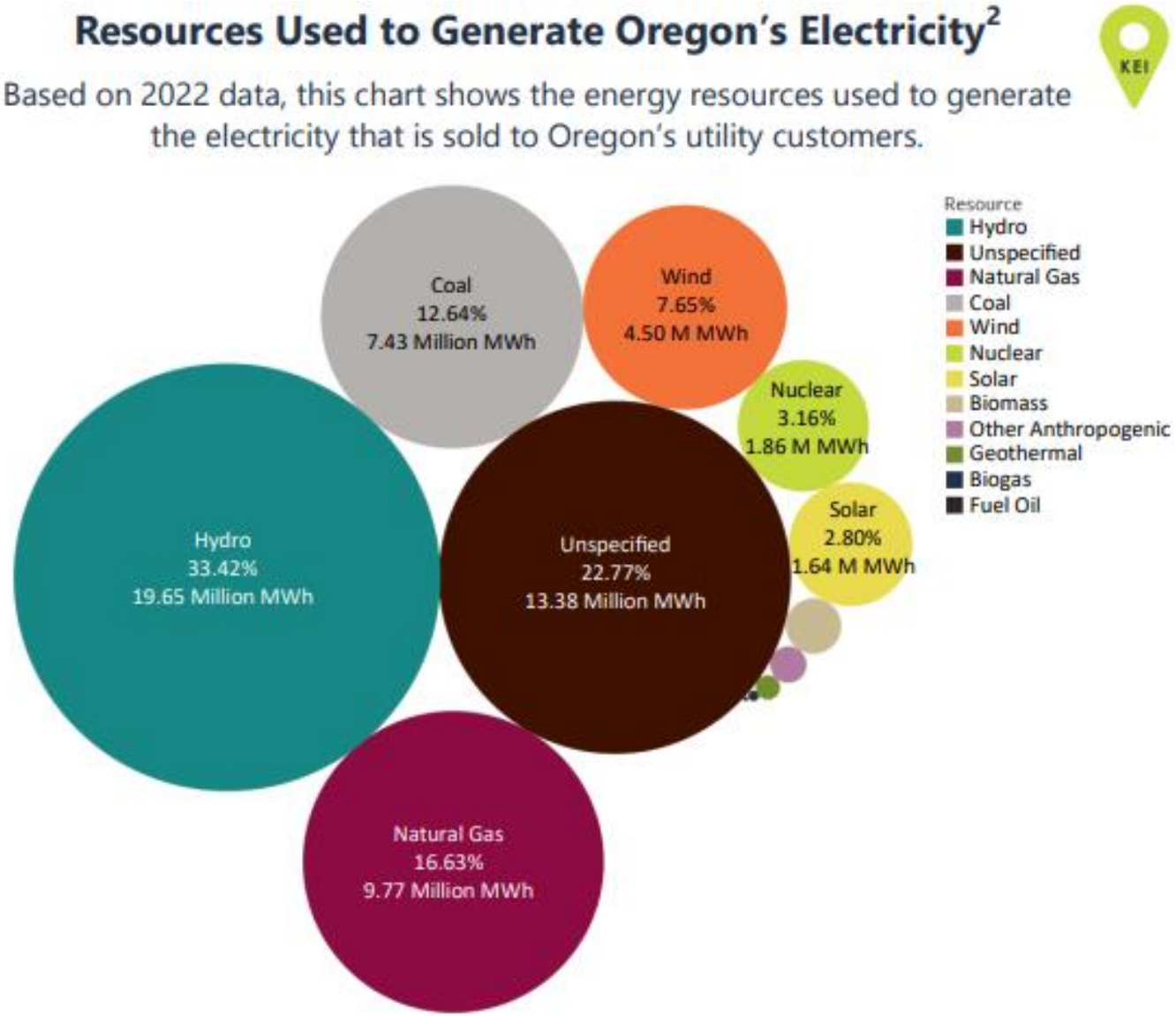
ELECTRICITY GENERATION CONSUMPTION



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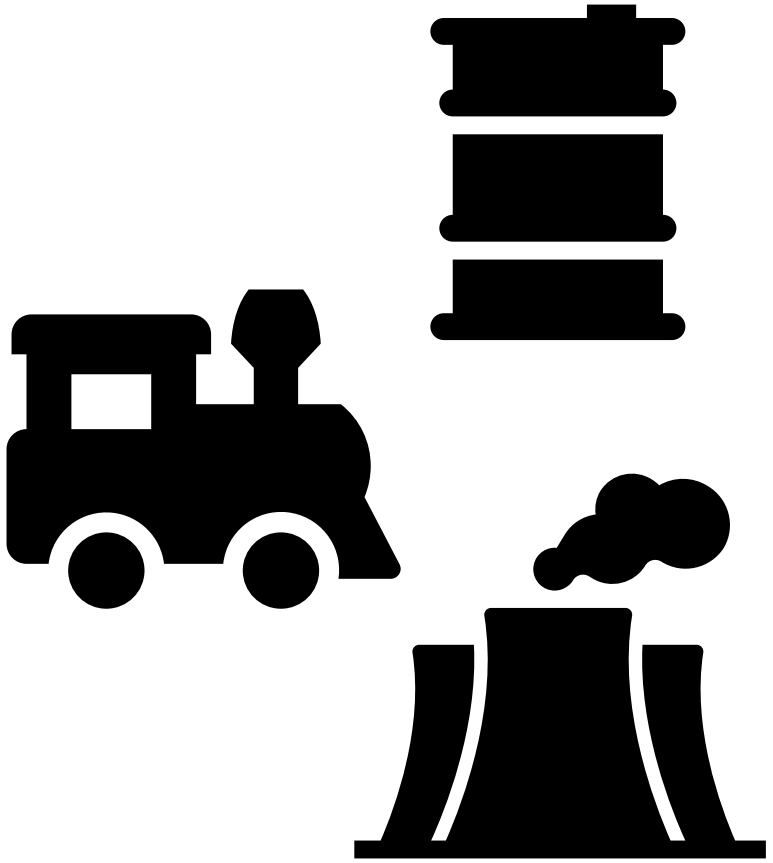
KEY CHALLENGES

- *Even as electrification is happening, there will continue to be consumers who rely on fossil or low-carbon fuels.*
- *Multiple low-carbon fueling options coupled with uncertainty about the commercial availability of some fuels creates greater uncertainty and risk for investment decisions, business strategies, and regulatory frameworks.*
- *In this context, there is a need to optimize existing infrastructure, minimize the cost of stranded assets, or identify opportunities to repurpose it.*



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Brainstorming Activity

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Next Steps

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MARCH 14 MEETING AGENDA

1. Share what we are hearing in other WG meetings
2. Complementary Analysis
3. Discuss Existing Oregon Policies
4. Review Issues and Barriers
5. Brainstorm potential policy solutions

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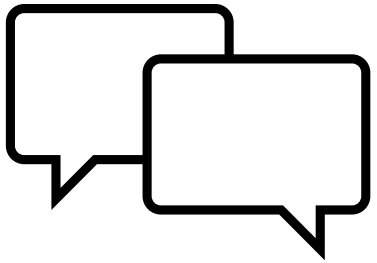
FOR CONSIDERATION

1. What are the primary issues or barriers in the identified policy pathways?
2. What existing policies are in place to address those barriers?
3. Where are additional policies or programs needed?
4. What do we need to better understand?

OPPORTUNITIES FOR PUBLIC COMMENT



Provide written public comment

https://odoe.powerappsportals.us/en-US/energy-strategy/

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Thank You!
www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy.aspx