

GWP 2024 Integrated Resource Plan

Stakeholder Technical Advisory Group meeting 5

September 6, 2023



Agenda

- + Initial results of GWP scenario modeling (55 min)
 - + Presentation from Ascend Analytics (20 min)
 - + Q&A (35 min)
- + Readout from community townhall and poll on STAG scenario 3 (10 min)
- + Break (10 min)
- + Full-group discussion on STAG scenario 3 (60 min)
- + Finalization of STAG 1 and 2 scenario details (30 min)
- + High-level overview and discussion of Ascend's key assumptions spreadsheet (10 min)

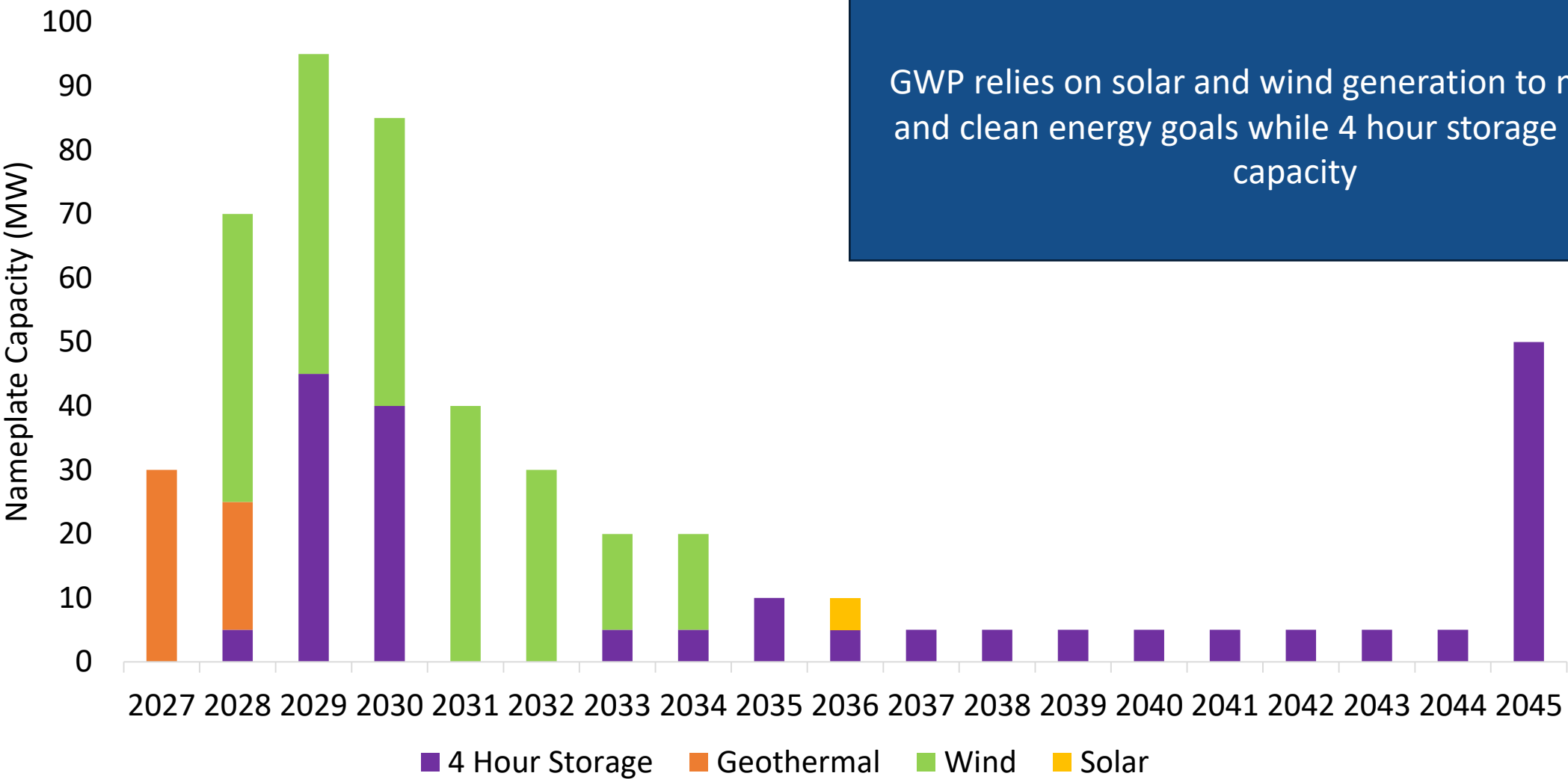
Objectives for this meeting

- + Present initial results of the modeling of GWP's scenarios for discussion and feedback
- + Finalize details of all STAG scenarios, including the new STAG scenario 3

Initial modeling results

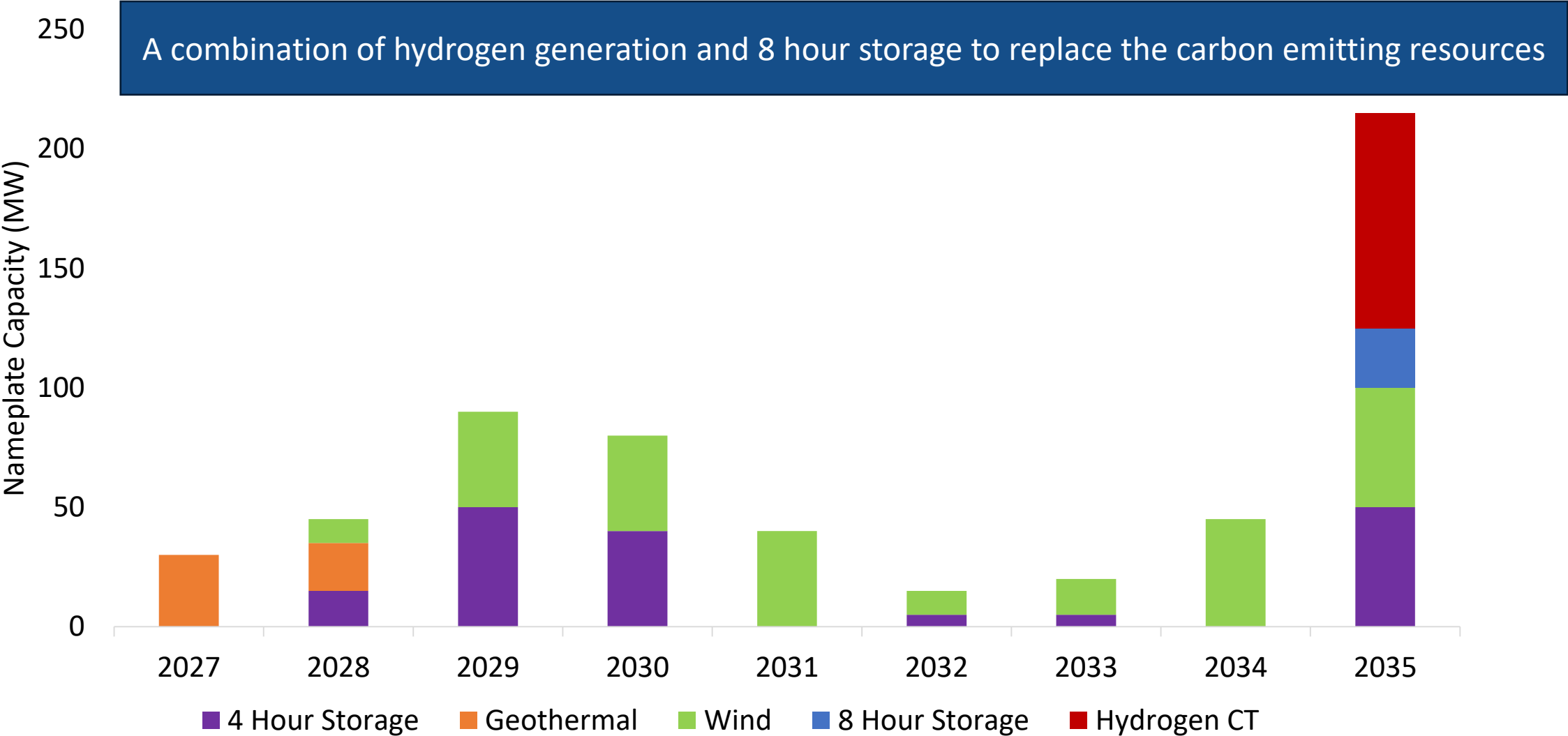
- + **DISCLAIMER:** All results presented in the following slides are preliminary. The data included here will change before results are finalized for inclusion in the IRP.
- + The slides present initial results from two of GWP's scenarios:
 - + **California policy:** 100% zero carbon energy by 2045
 - + **Glendale goal:** 100% clean energy by 2035

CA Policy Resource Buildout



GWP relies on solar and wind generation to meet RPS and clean energy goals while 4 hour storage provides capacity

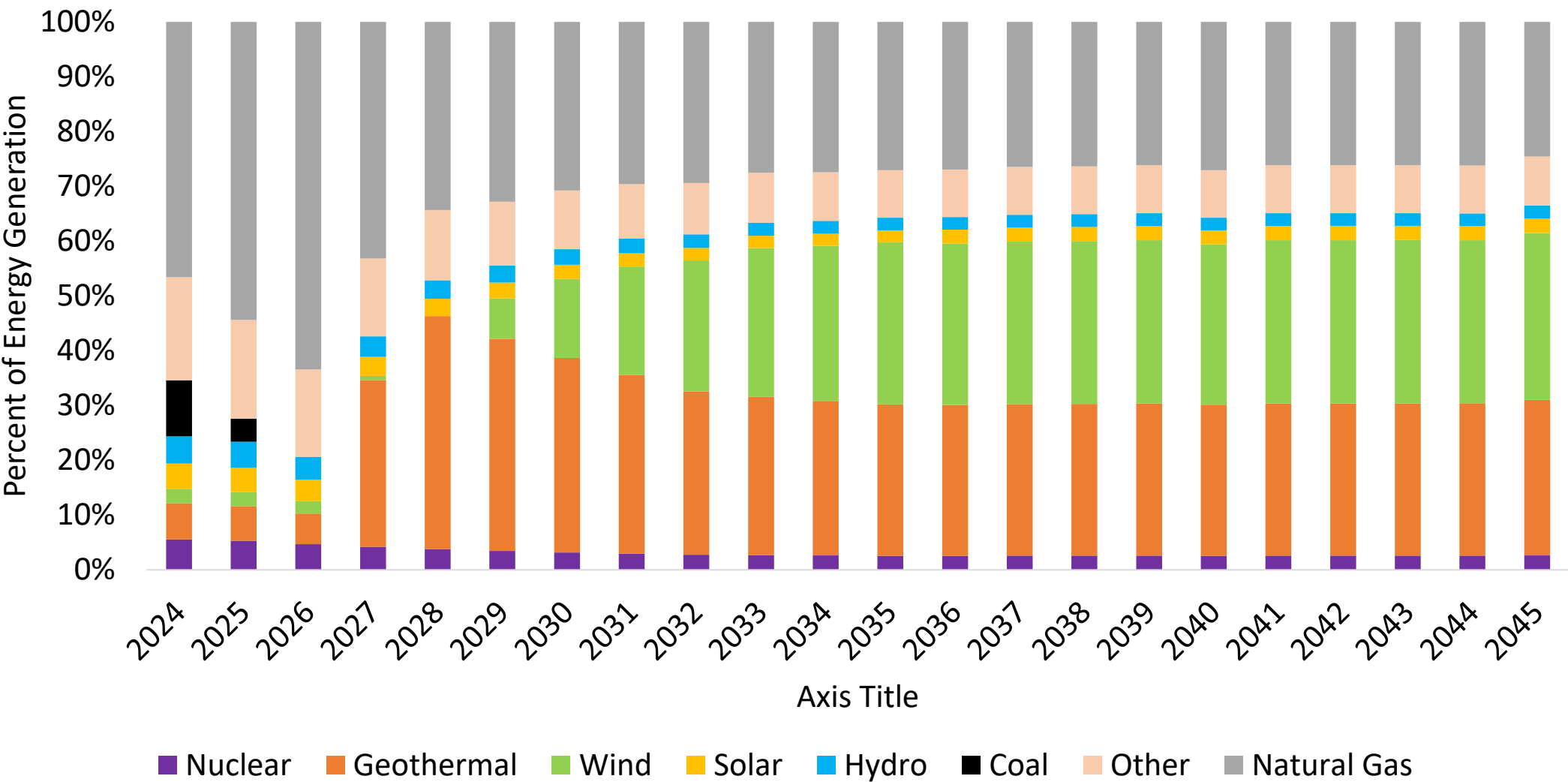
Glendale Goal Resource Buildout



Total New Resource Additions

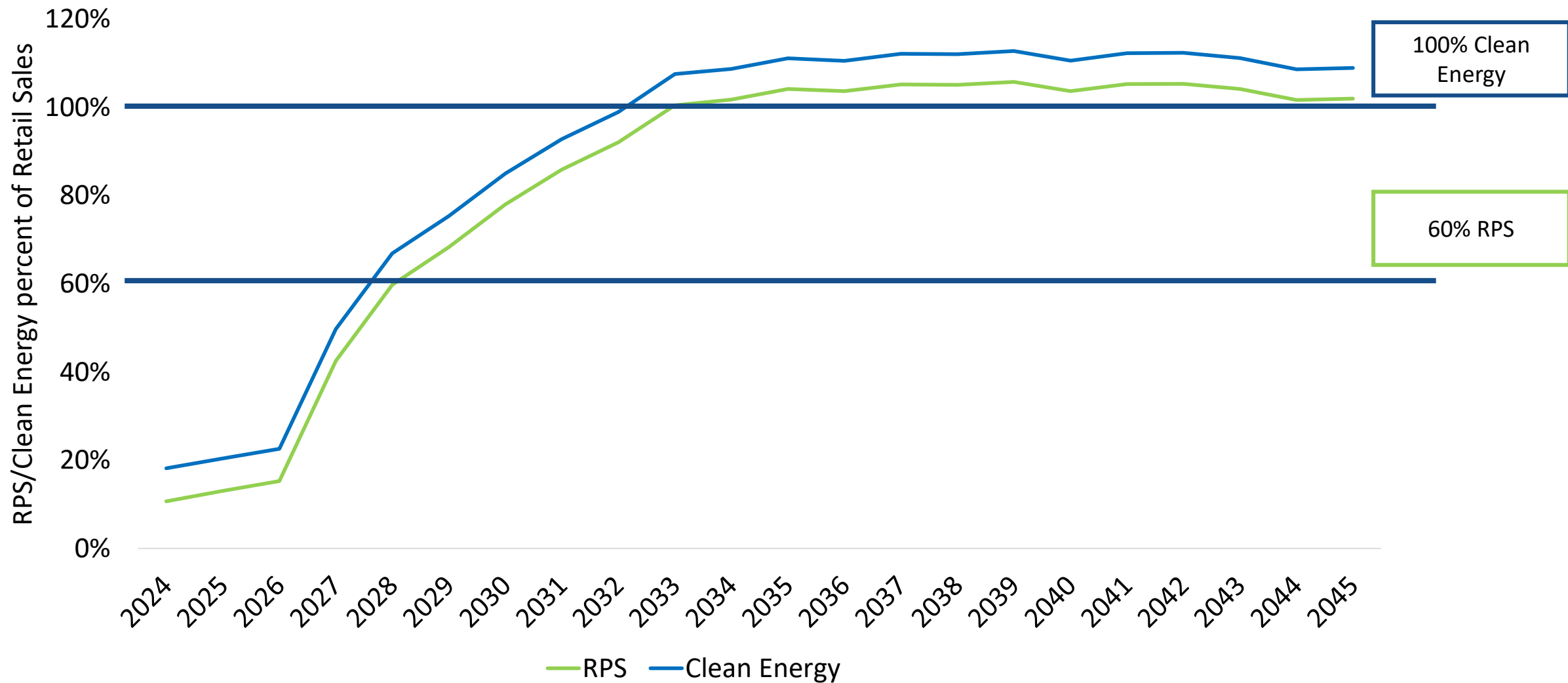
	CA Policy	Glendale Goal
Wind	240 MW	250 MW
Solar	5 MW	
Geothermal	50 MW	50 MW
4 hour storage	205 MW	165 MW
8 hour storage		25 MW
Hydrogen CT		90 MW
Total	500 MW	580 MW

CA Policy Energy Mix

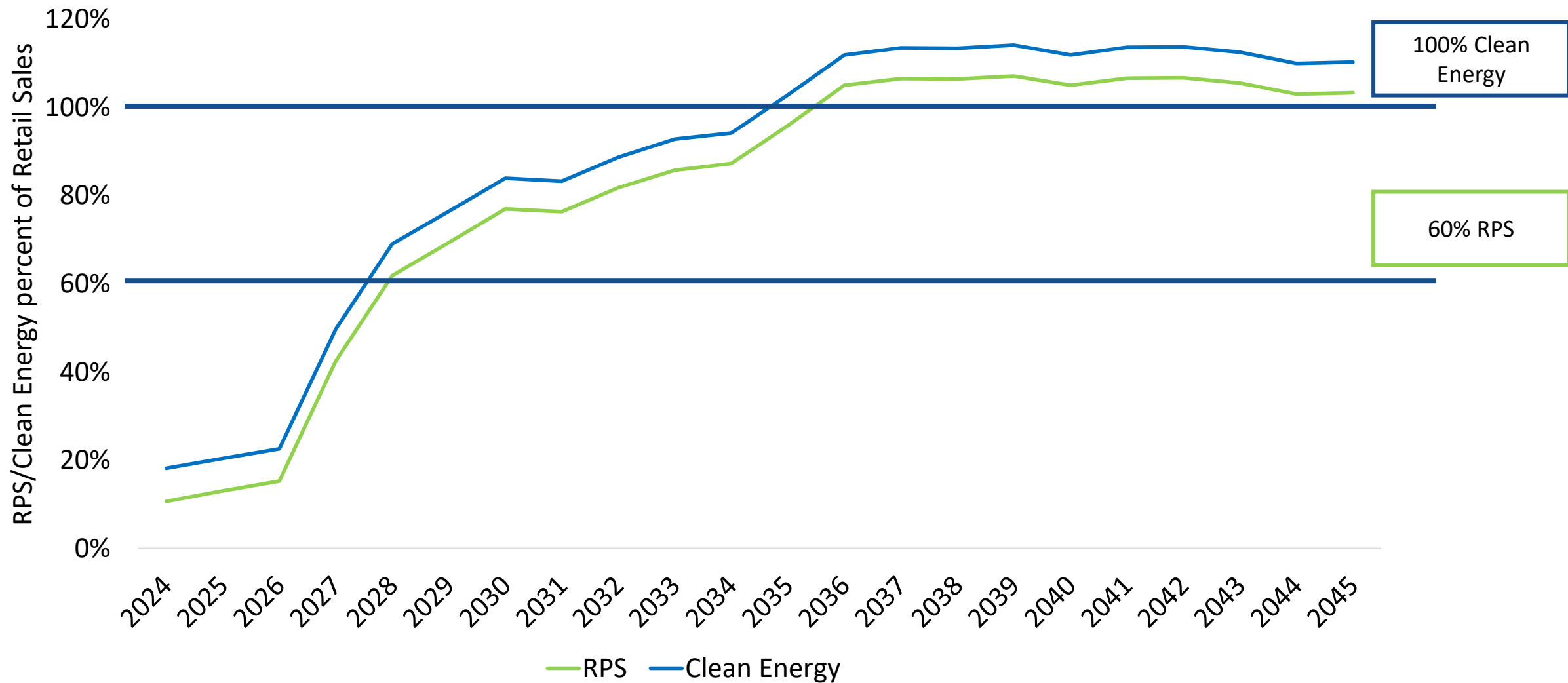


Starting in 2027, renewable generation becomes a substantial portion of GWP energy generation

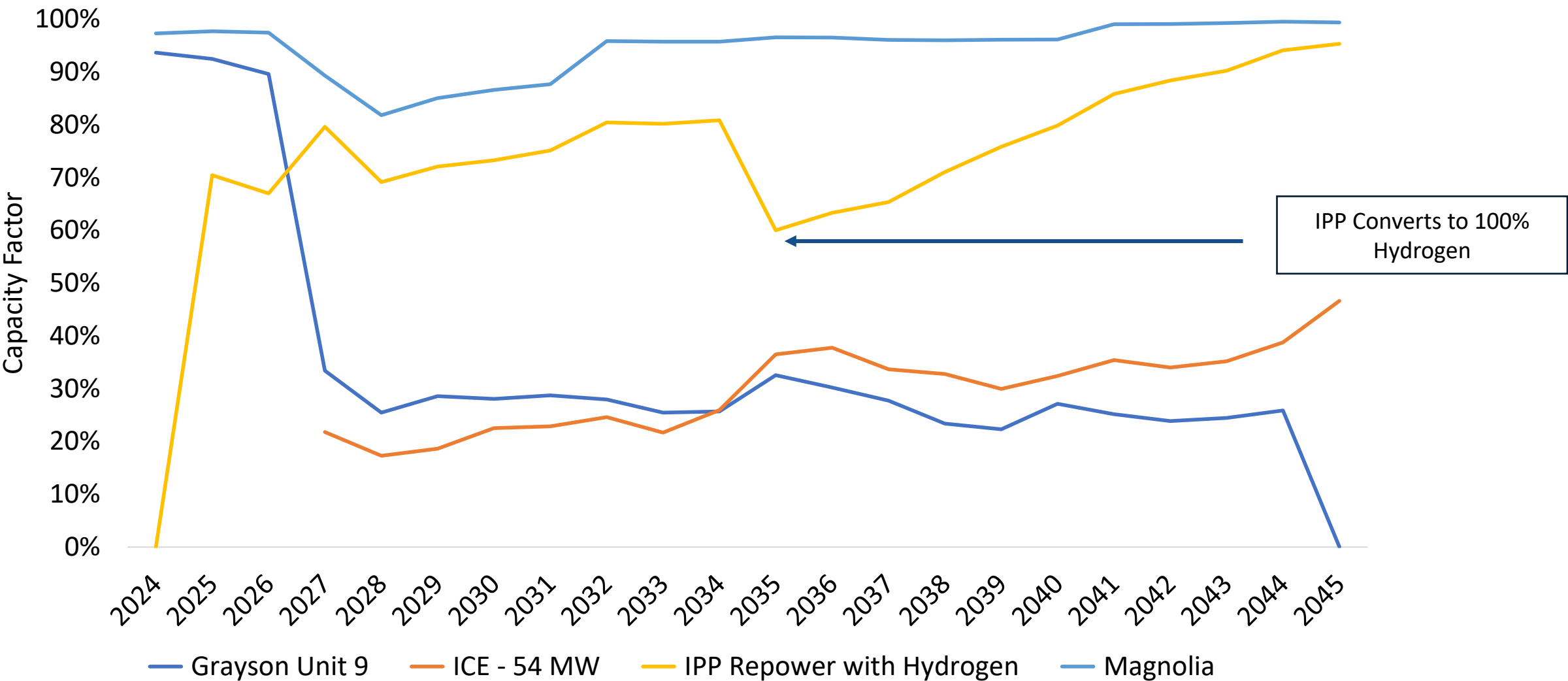
CA Policy Clean Energy



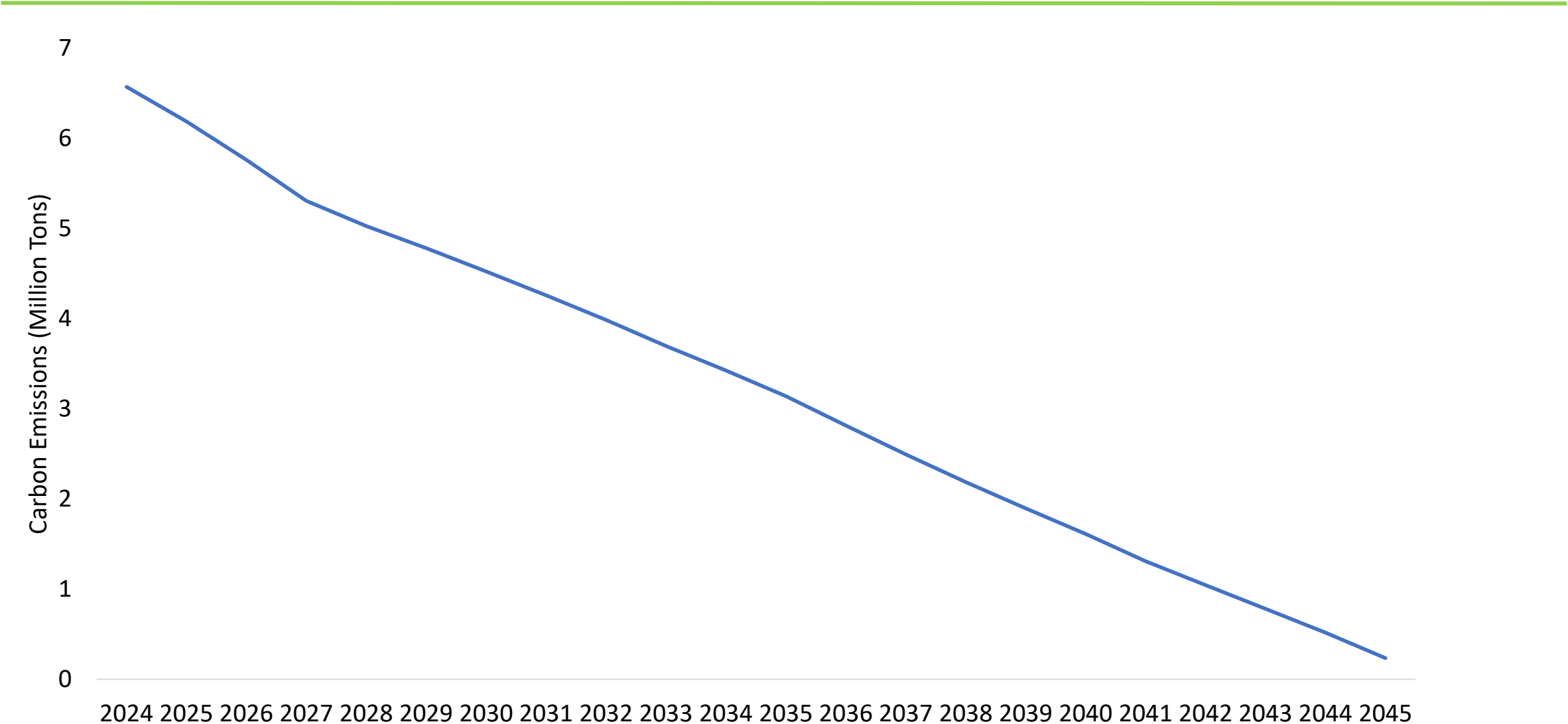
Glendale Goal Clean Energy



Dispatchable Resource Capacity Factors



Reliance on natural gas generation declines through the 2020s



Carbon emissions from GWP supply resources decline rapidly over the IRP period

Q&A (35 min)



Readout from third community townhall

- + Several community members called for more transparency in the inputs and assumptions driving Ascend's model.
 - + One person asked for a public document to be released.
 - + This is why Ascend has created its key assumptions spreadsheet to share publicly.
- + Multiple community members raised concern with GWP's scenario 3 (CA mandate – least cost) and called for replacing it with a third community scenario.
 - + After discussion, GWP has decided not to eliminate its scenario 3 because some STAG members were interested in seeing an affordability-centered scenario.
 - + Instead, GWP and Ascend are **making a third scenario available to STAG, for a total of 6 scenarios.**

Things to consider in developing STAG scenario 3

- + What gaps are left in current scenarios that STAG scenario 3 could fill in?
- + Is there any community input from townhalls that hasn't been adequately integrated into current scenarios?
- + Can any of the current scenarios act as a basis for STAG scenario 3, with modifications?
 - + E.g., Take the same assumptions on high local resource potential as STAG 1, but push the clean energy timeline back.

Reminder summary of scenarios

Scenario	100% clean energy date	Meets CA mandate	Meets Glendale goal	Baseline assumption changes
<i>CA mandate</i>	2045	X		--
<i>Glendale 2035 goal</i>	2035	X	X	--
<i>CA mandate – least cost</i>	2045	X		Requires use of lowest-cost resources, which could include RECs up to maximum limit.
<i>Local resources + accelerated electrification</i>	2035	X	X	- Integrates all City Council clean energy goals. - Assumes maximum customer DER participation. - Assumes maximum utility-owned solar + storage in Glendale. - Assumes accelerated electrification.
<i>Middle path + long duration energy storage</i>	2042	X		- Assumes higher customer DER participation than baseline (lower than above). - Assumes higher utility-owned solar + storage in Glendale than baseline (lower than above). - Assumes LDES project developed in Glendale.

Poll on STAG scenario 3



Poll results – 1/6

Is there anything you think is missing from existing scenarios (beyond clean energy date)?
10 Responses

Rate impact for each scenario.

N/A

Biomass. I know that it's contrary to Council, but I think it should be considered and compared to other scenarios.

Since there are 3 different scenarios for 2045, we should also have 3 scenarios for 2035.

Increased local efficiency & long duration energy storage

Discussion of reliability..

Yes

The capability to select specific resources, like solar, to meet the public interests.

More local based sokutions

Poll results – 2/6

Are there any elements from existing scenarios you'd like to see included in STAG 3 (beyond clean energy date)?

22 Responses

Clean energy by 2040

adding natural gas

Very interested in long duration storage

Renewable energy efficiency improving over time

Long duration storage

Updates on future transmission

Long duration storage

Any other new technologies we should note?

Long duration storage

Poll results – 2/6 (continued)

Are there any elements from existing scenarios you'd like to see included in STAG 3 (beyond clean energy date)?

22 Responses

Increased building electrification and additional EV's.

More efficient PV for rooftop solar

Middle ground between STAG Scenario 1 and Scenario 2.

A focus on resources that can be realistically reached on a reasonable timeline.

More local storage

If like to see a scenario that models high demand and low DER, low LDES, etc. To see what happens if the public doesnt cooperate with incentives.

Aggregate local storage

I'd like to get solar on multiplex building (needs city council forcing landlords), across LA river/other concrete channels, along freewaysn otop of Scholl canyon landfill, as they have not been included

More energy efficiency

Look at modifying local debris basins for pumped storage

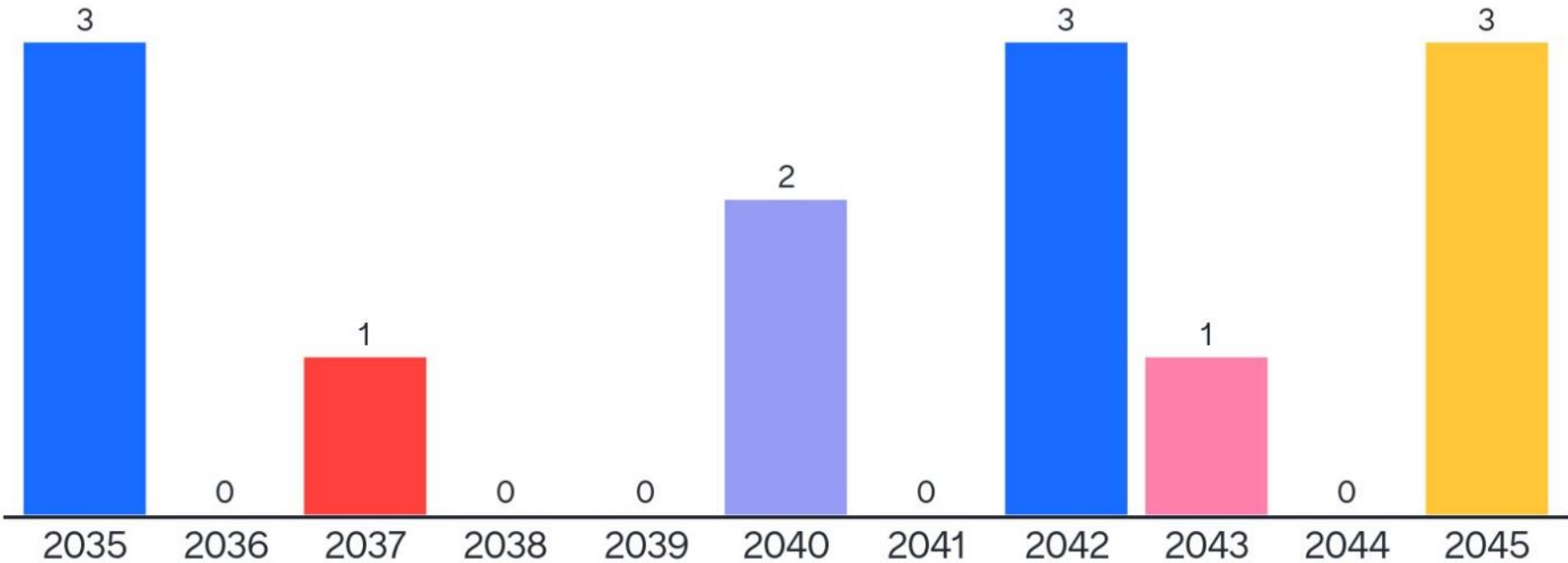
Long duration storage and accelerated electrification are complimentary

2043

2045

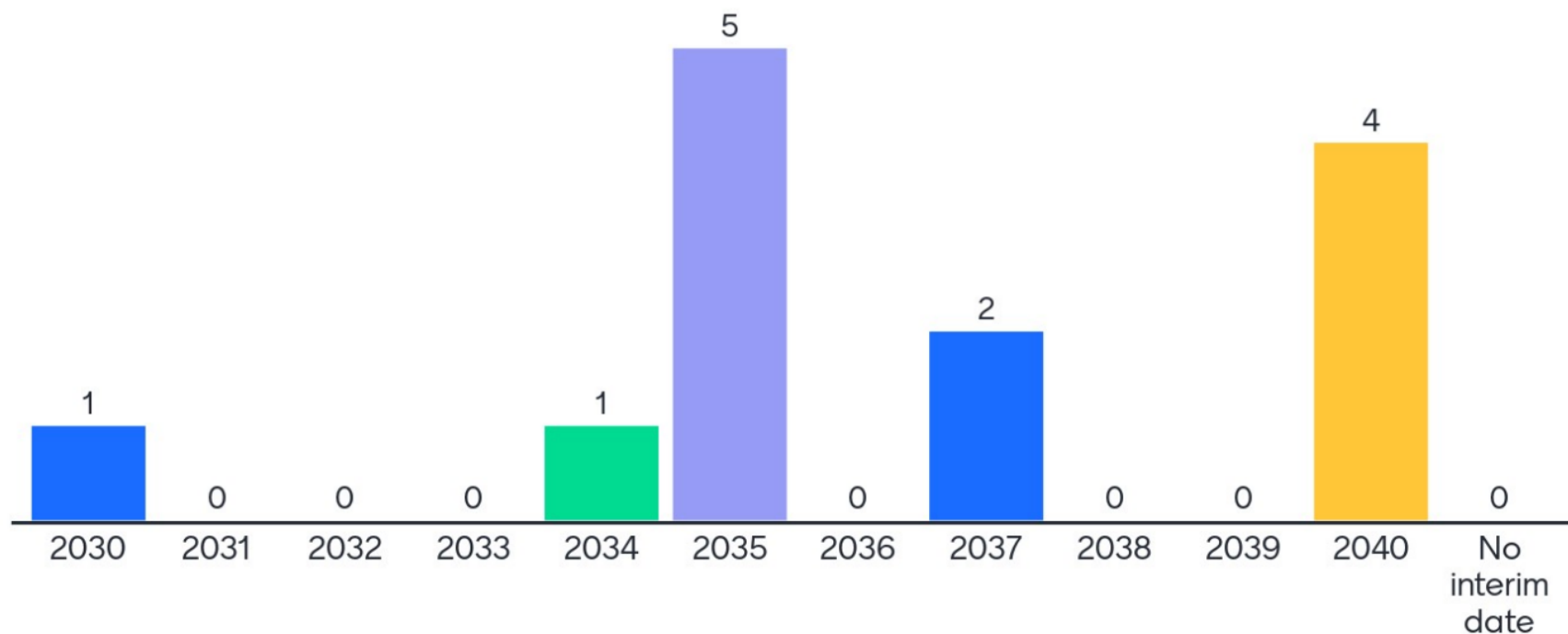
Poll results – 3/6

What year should STAG 3 achieve 100% clean energy?



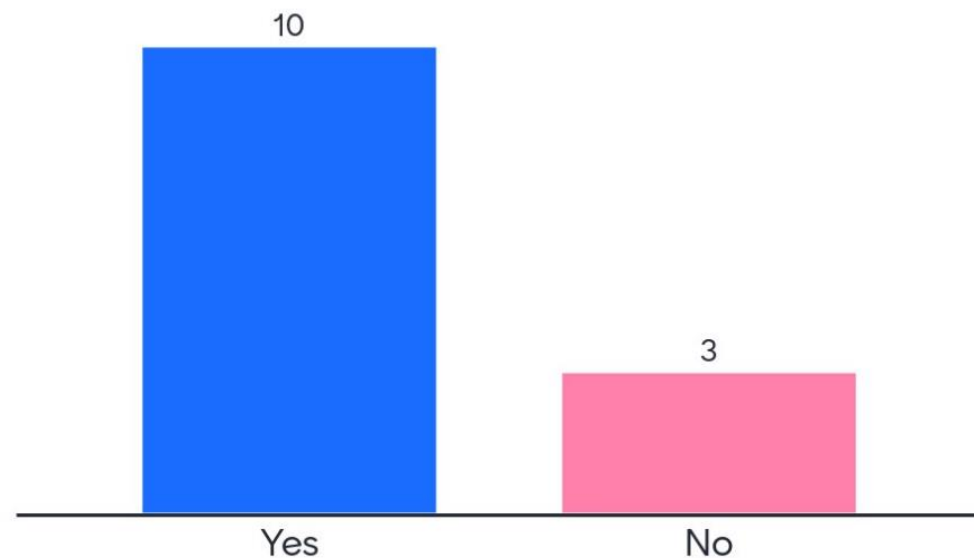
Poll results – 4/6

Should there be an interim clean energy date (e.g., 90%) in the scenario?



Poll results – 5/6

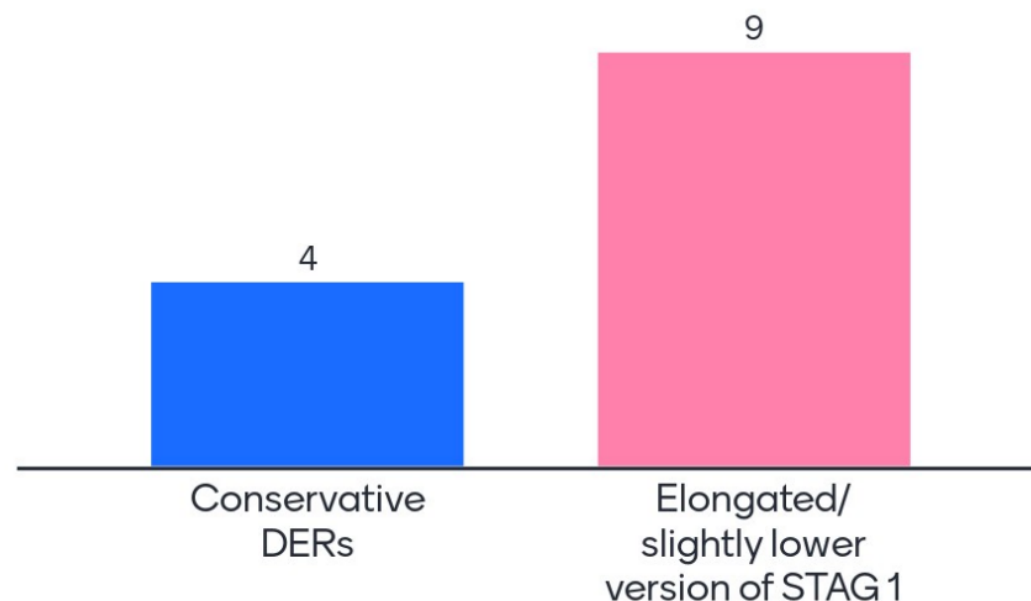
Do you support STAG 3 achieving 90% clean energy by 2035 and 100% by 2040?



Note: This question was asked after analyzing the results of question 3, in which most STAG responses favored a 100% clean energy date of 2040 or later. One member proposed a 2040 date as a compromise, which this poll was meant to gauge group opinion on.

Poll results – 6/6

STAG 3 should have the following assumptions:



Note: In this question “conservative DERs” meant conservative assumptions about customer adoption of distributed energy resources, below the assumptions GWP is making in its scenarios.

“Elongated/slightly lower version of STAG 1” was shorthand for taking ambitious assumptions on customer DER adoption by 2035 and either elongating them (a similar MW target over more years) or lowering the customer adoption slightly.

Finalizing STAG scenarios 1 and 2 – detailed assumptions

- + Strategen will share the STAG scenario summary document, talk through suggestions, and take STAG questions and comments.
- + STAG needs to decide on two assumptions:
 - + Accelerated electrification assumption for STAG scenario 1
 - + Clean energy definition for STAG scenario 2

Discussion on Ascend key assumptions spreadsheet

- + Strategen will share the spreadsheet and walk through it at a high level.
- + The spreadsheet will also be discussed at STAG office hours next week before being released publicly.

Next steps in IRP process: STAGs, townhalls, etc.

+ **9/27: STAG meeting 6**

- + Discuss draft IRP and the representation of the stakeholder engagement process in the report
- + Wrap-up STAG by soliciting feedback on IRP process and suggested improvements for next IRP

+ **10/4: Townhall 4 (tentative)**

- + Present modeling results to community for questions, discussion, feedback
- + Present GWP's thinking on its preferred scenario

- + Discuss the representation of community input in the IRP draft

- + This townhall date may be pushed to the following week depending on modeling progress.

+ **GWP Commission meeting**

- + GWP will provide IRP updates at Commission meetings in October and November.

+ **Glendale City Council updates**

- + GWP is scheduled for an update to Council in late September.