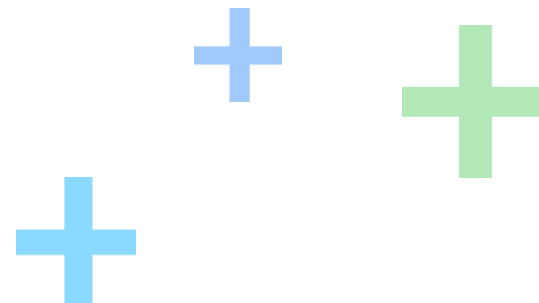


GWP 2024 Integrated Resource Plan

Townhall 2



July 24, 2023



Welcome!

Who here attended the last townhall?



Agenda

- + Presentation from Strategen Consulting (20 min)
 - + Context on IRPs, GWP's system, results of last townhall
- + Q&A (20 min)
- + Presentation from Strategen Consulting (15 min)
 - + Update on IRP modeling process and scenario development
- + Q&A (20 min)
- + Discussion on community priorities and preferences for this IRP (45 min)

Townhall objectives

- + Familiarize community with Glendale's energy system
- + Provide updates on the IRP process
- + Get insight on community priorities and better understand resource preferences to inform the Stakeholder Technical Advisory Group (STAG) and modeling

Townhall reminders!

- + We have translators available in Armenian and Spanish. Please ask if you know someone who may need translation help.
 - + Look out for the nametags!
- + Please hold any questions on presentations until the Q&A portions.
- + We'll try to create opportunities for as many folks to contribute as possible, so please allow space for other perspectives.
- + Please use a microphone when speaking so the recording equipment can hear you.



Overview of Integrated Resource Plans (IRPs)

- + IRPs are planning documents required to be developed by California law every 5 years.
- + They study how much energy GWP will need in the future and develop potential strategies to supply that energy over the next 20 years.
- + These strategies are called “scenarios” and can test:
 - + Different mixes of energy resources (rooftop solar, wind, energy efficiency, etc.)
 - + Different timelines for achieving clean energy goals
 - + Different cost preferences
- + The scenarios will be studied in a model, and results will inform how GWP plans its energy system into the future.
- + This IRP represents GWP’s best approach as of today, given today’s understanding of technology, costs, future demand, etc. GWP will repeat its IRP every 5 years and reevaluate its approach with updated inputs.

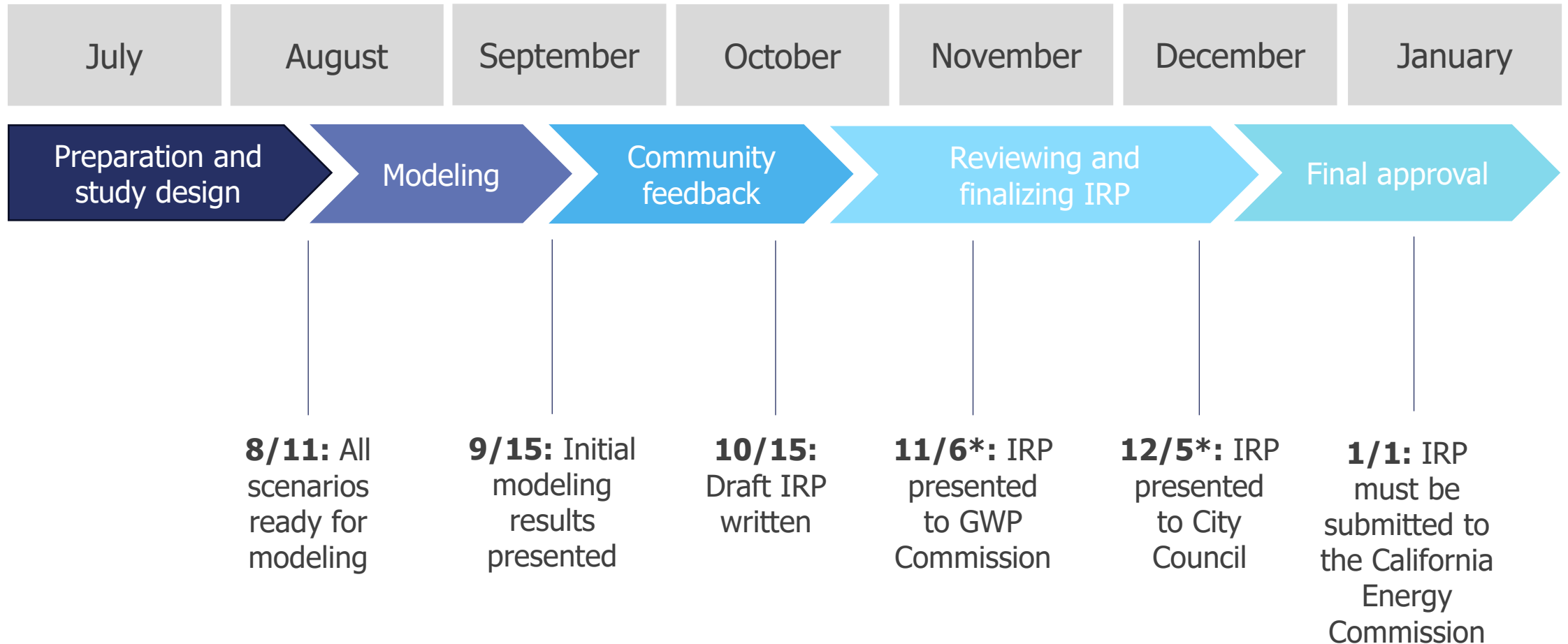
Central planning considerations in this IRP

- + **Reliability:** GWP must meet or exceed certain reliability standards in its planning and operations.
 - + Federal planning standards: cannot exceed one day of outage in ten years
 - + GWP must maintain a certain level of energy resources to meet this standard
- + **Sustainability:** GWP must meet or exceed California's clean energy requirements.
 - + SB100 & SB 1020:
 - + 60% renewable energy by 2030
 - + 100% zero-carbon by 2045
 - + Glendale City goal: 100% clean energy by 2035
- + **Affordability:** GWP must accomplish these first two while maintaining lowest possible costs, and accordingly, customer rates. Costs are a direct result of how reliable and sustainable GWP's portfolio is.

How will the IRP be developed?

1. GWP and STAG, informed by the Glendale community, will develop multiple future energy scenarios to test in the IRP modeling process.
 2. Ascend Analytics will test these strategies in their model to see how they compare on reliability, sustainability, and affordability.
 3. GWP will present and discuss results with the STAG and the community to provide an opportunity for feedback.
 4. Based on the results, GWP will choose a “preferred portfolio” of resources it will develop to meet Glendale’s energy needs over the next 20 years.

Key IRP deadlines

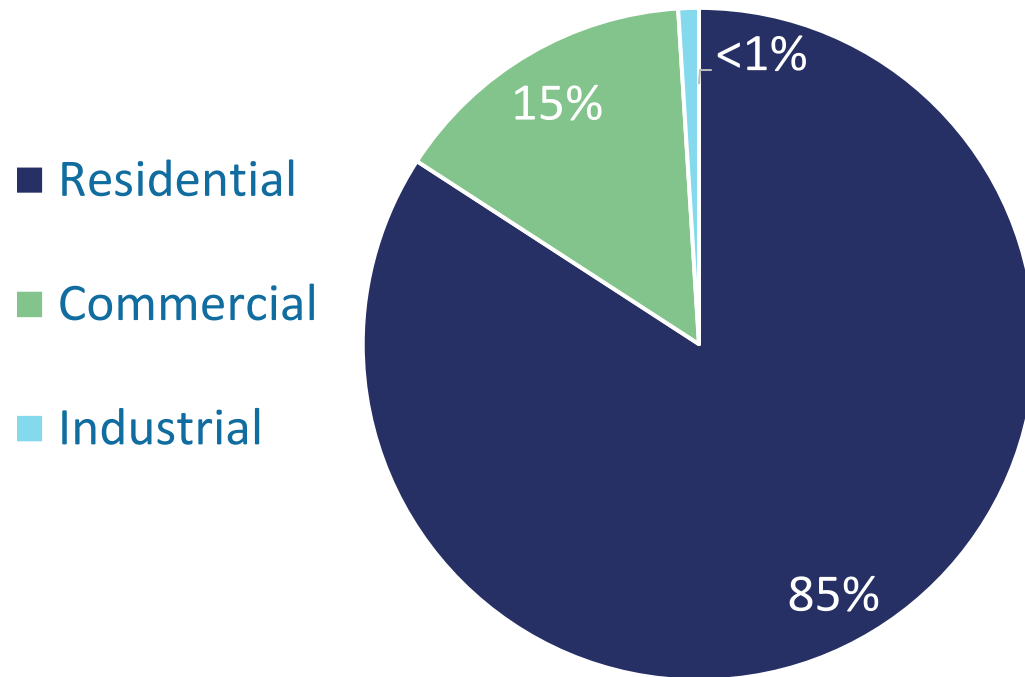


*Dates pending.

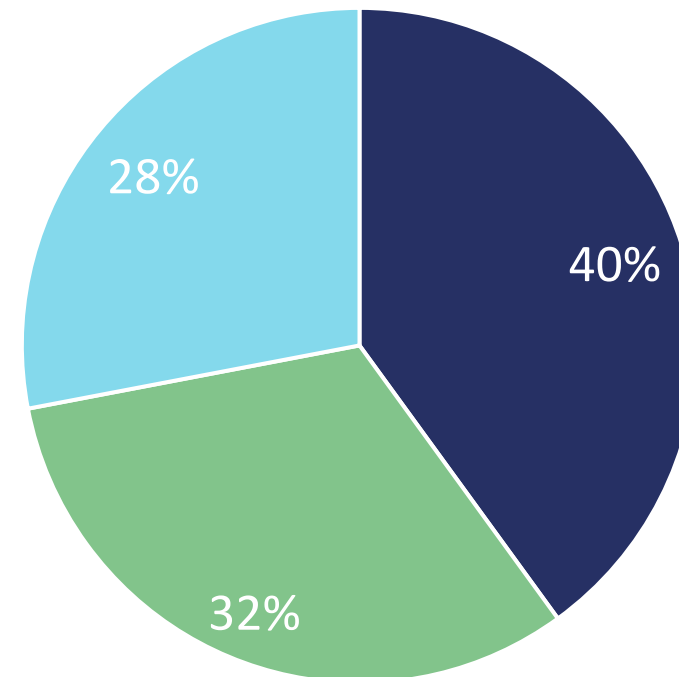
Background on Glendale Water & Power

+ GWP is a not-for-profit municipally owned utility serving approximately 90,000 customers.

GWP customers (by number of customers)

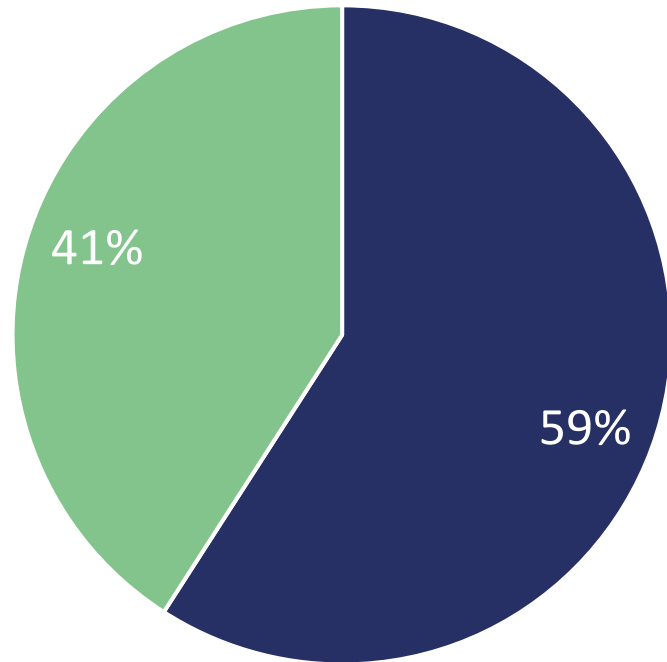


GWP customers (by energy usage)



By 2026, Glendale will get nearly 60% of its energy supply from resources inside the city but will count on remote generation for a large portion.

Glendale Power Supply as of 2026 (Projected)

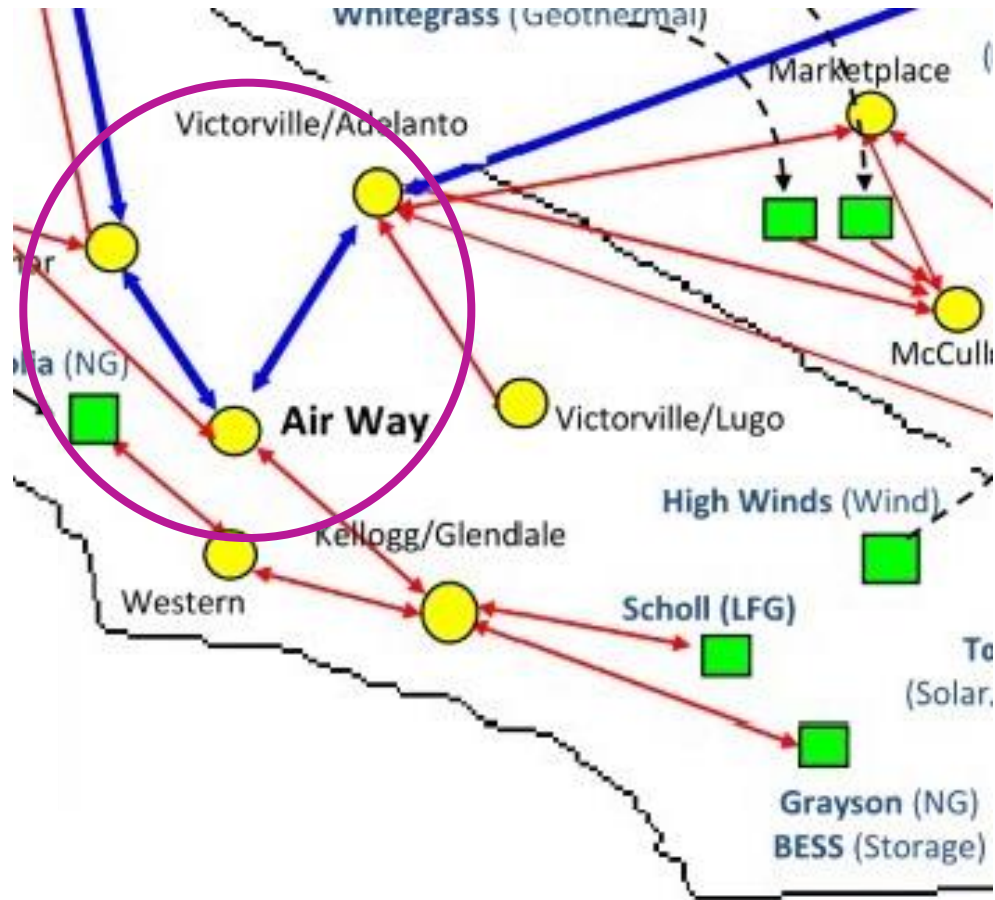


■ Local ■ Remote

+ By 2026, 59% of Glendale’s power supply will be local [236 MW]:

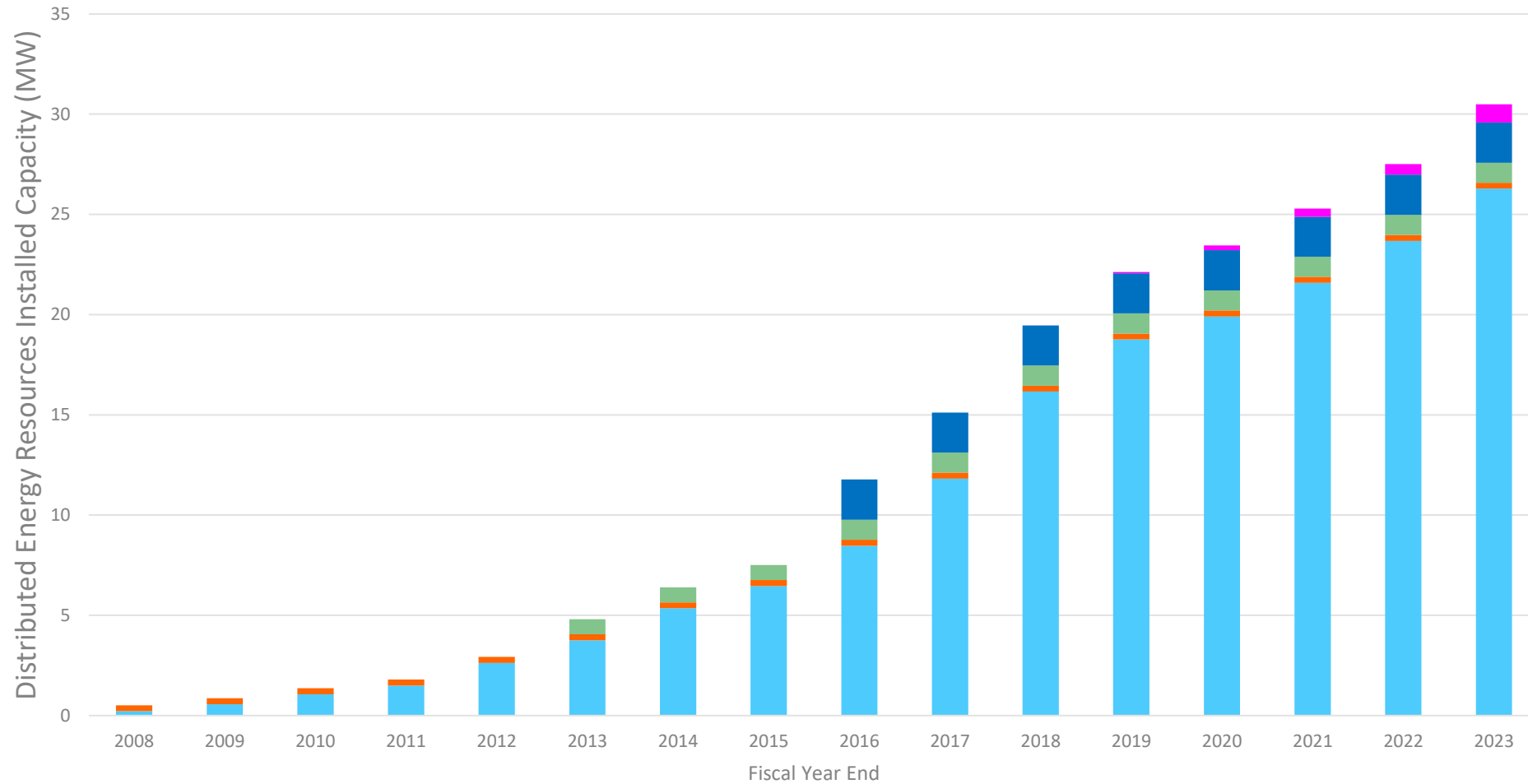
- + Grayson natural gas [48 MW]
- + Magnolia natural gas [47 MW]
- + Grid-scale battery storage [75 MW]
- + Scholl Canyon landfill gas [11 MW]
- + Natural gas internal combustion engines [55 MW]

Power entering Glendale from outside the city is constrained to just two transmission lines.



- + These transmission constraints mean:
 - + Glendale is particularly vulnerable to any transmission outages
 - + Glendale is dependent on other utilities (LADWP) for access to transmission resources
 - + Glendale cannot meet 100% of its energy needs through importing resources

As a result, GWP is using a variety of local resources to meet energy needs, such as distributed energy resources.

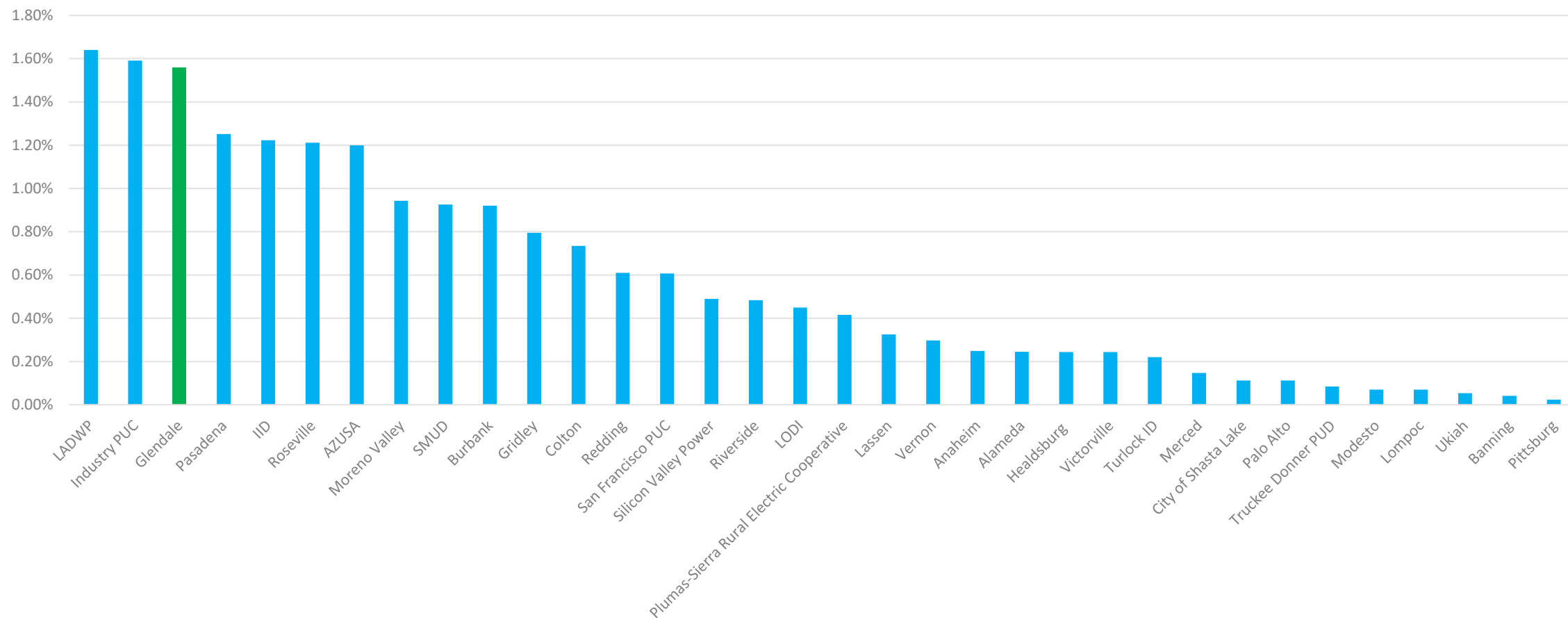


2023:
 Solar PV: 27 MW
 Grid scale storage: 2 MW
 Small scale storage: 1 MW

■ Solar PV
 ■ Pumped Hydro
 ■ Fuel Cells
 ■ Grid Scale Storage
 ■ Small Scale Storage

GWP also invests heavily in energy efficiency and is among the best performing publicly owned utilities in energy efficiency savings.

Net savings percentage (% of retail sales), as of 2022



What we heard from you at the first townhall

- + There was a strong desire for transparency and community input in the IRP process.
- + Clean energy seemed to be attendees' top priority.
- + Customer-side resources (customer solar, energy efficiency, demand response) are of high interest.
 - + But there is concern with customer-sited batteries due to fire risk.
- + Community concern is generally higher for resources being developed in Glendale vs. outside Glendale.

Community resource preferences from last townhall

Resource	Green stickers	Red stickers
Utility scale solar	9	
Utility scale wind	5	4
Green hydrogen	1	7
Natural gas	5	22
Grid-scale energy storage	10	
Small modular nuclear reactors		17
Geothermal	4	1
Customer-sited storage	5	8
Customer-sited solar	16	
Energy efficiency / demand response	14	

Q&A (20 minutes)



Update on the IRP process

- + GWP has formed a Stakeholder Technical Advisory Group (STAG), which has met twice.
 - + The STAG is meant to be a bridge between the Glendale community and the IRP modeling team.
 - + Have 8 invited organizations participating. Selected 7 “at-large” members from 22 applications, using set of evaluation criteria.
 - + For STAG member list and meeting minute updates, visit <https://glendaleca.gov/2024IRP>.
- + We have held two STAG meetings, which have educated members on GWP’s system and IRP modeling.
 - + Have begun conversations on scenarios, but nothing has been decided.
- + GWP has developed high-level sketches of three scenarios they’ll test through modeling.
- + The STAG, informed by community townhalls, will be responsible for developing two additional community-preferred scenarios.

Modeling scenarios – what’s being planned?

California clean energy mandate	Accelerated clean energy pathway (Glendale goal)	Affordability first
<ul style="list-style-type: none"> + Will follow requirements of California’s SB 100 and SB 1020: <ul style="list-style-type: none"> + 60% renewable portfolio by 2030 + 90% zero-carbon by 2035 + 95% zero-carbon by 2040 + 100% zero-carbon by 2045 + Will result in all energy brought to Glendale being 100% zero carbon by 2045. 	<ul style="list-style-type: none"> + Will meet Glendale’s 100% clean energy by 2035 goal. + Will result in all energy brought into Glendale being 100% clean by 2035. 	<ul style="list-style-type: none"> + Will meet mandates of SB 100 and SB 1020 at the lowest possible cost, without necessarily meaning all energy brought into Glendale is 100% zero carbon. <ul style="list-style-type: none"> + Could mean greater use of renewable energy credits (RECs). + Meant as reference to scenario 1 for lowest possible cost of compliance.

Community-preferred scenarios

- + STAG is currently discussing options for scenarios, including considering:
 - + The timeline at which GWP should achieve 100% clean energy
 - + Resources that should be prioritized
 - + Resources that should be excluded
- + Townhalls are meant to generate ideas that are then discussed, refined, and finalized by STAG.
 - + We've presented the takeaways from the last townhall to STAG for discussion and will do the same for this townhall.

What we've heard from STAG so far:

- + Interest in maximizing resources inside Glendale to compensate for transmission constraints.
- + Group has expressed 2 potential timelines for 100% clean energy: 2035 and 2040-2043.
- + Solar, storage, wind, energy efficiency, and green hydrogen are of interest to STAG members.
 - + The group is mixed on natural gas and nuclear, and some opinions depend on resource location.

How will these scenarios be modeled?

- + Ascend Analytics uses detailed forecasts to estimate multiple variables about the future:
 - + How much will Glendale's energy demand be in the future?
 - + What technologies will be available to GWP?
 - + What will the price of various energy resources be?
- + After inputting these in their model, they'll run the 5 scenarios to determine what portfolio of resources meets Glendale's goals at lowest cost.
 - + Unless specified, the model automatically prioritizes the lowest-cost portfolio that meet the parameters of the scenario.
 - + No restrictions on resources, except as defined by City Council (e.g., biogas).
- + The model analyzes multiple portfolios of resources to meet the goals of each scenario. Each portfolio is analyzed for *reliability*, *affordability*, and *sustainability*.
 - + How each portfolio performs on these 3 categories will help GWP choose its preferred portfolio.

Q&A (20 minutes)



Community preference activity

- + We have an online activity to gauge your preferences on a variety of topics related to this IRP:
 - + When Glendale should achieve 100% clean energy
 - + How to manage tradeoffs between clean energy and cost
 - + What resources are a priority to develop inside Glendale
 - + What resources are a priority to procure from outside Glendale
 - + How best to provide power flexibility and reliability
- + Go to www.menti.com and enter code **7288 5048**.

I want Glendale to achieve 100% clean energy by...

- + 2035 (Glendale goal)
- + 2036-2040
- + 2041-2044
- + 2045 (California mandate)
- + No preference

I would support an increase in electric rates if it meant Glendale would achieve 100% clean energy faster.

+ Strongly disagree → strongly agree

I believe the **Glendale community** would support an increase in electric rates if it meant Glendale would achieve 100% clean energy faster.

+ Strongly disagree → strongly agree

I would support developing the following resources inside Glendale, in addition to what's already present:

- + Customer-sited solar
- + Utility-owned solar
- + Customer-sited energy storage
- + Utility-owned energy storage
- + Energy efficiency (e.g., lighting)
- + Demand response (e.g., controlled thermostats)
- + Natural gas
- + Green hydrogen

I would support procuring the following resource types outside Glendale:

- + Renewables and energy storage only
- + Any resource, as long as it is zero carbon (e.g., nuclear)
- + Any resource, even if not zero carbon (e.g., natural gas), provided Glendale meets state clean energy mandates

How should Glendale provide energy flexibility with increasing amounts of renewable energy?

- + Green hydrogen
- + Biogas
- + Battery storage
- + Long-duration energy storage (more than 8 hours)
- + Natural gas

Discussion questions

- + What are community priorities coming out of this IRP? What would you like to see?
- + What potential “versions of the future” are community members interested in seeing tested in this IRP modeling process?
- + How would you balance tradeoffs between affordability and sustainability?
- + What are your thoughts on various resource options?

Upcoming steps

- + We have two more townhalls upcoming!
- + Check glendaleca.gov/2024IRP for dates and locations.

