

**Minutes from meeting of IRP Stakeholder Technical Advisory Group (STAG)
Meeting 3 – August 2, 2023**

Overall takeaways:

1. There are a range of opinions in the STAG about the priorities to reflect in STAG's scenarios. Many members are interested in clean energy goals, while others prioritize reliability and cost.
 - a. Some members seem to be interested in scenarios that test aggressive assumptions around clean energy adoption. Others seem to want more moderate assumptions.
2. STAG members seem interested to know more details about the modeling process, what results it yields, and what possibilities there will be for iteration as they develop their scenarios.

Presentation from Strategen Consulting about takeaways from previous STAG meeting and second community townhall:

1. See the accompanying PowerPoint PDF for the slides presented by Strategen Consulting.
2. Strategen presented the results and learnings from an informal STAG brainstorm conducted at the end of the prior meeting that asked members to list their preferred 100% clean energy target date, preferred energy resources, and resources they'd like to exclude from scenarios. They also provided a readout of the poll results of the second community townhall.
3. Questions and discussion points among the STAG related to this presentation included:
 - a. How to consider broader sustainability approaches that could indirectly influence GWP's energy supply or demand, like composting (which reduces the amount of methane produced from landfills) or shading (which can reduce AC demand).
 - i. The STAG agreed to put these types of ideas in a 'parking lot' for reflection in the IRP, but to not aim to integrate them into the IRP modeling directly given they are somewhat outside the scope of the document.
 - b. How will the model account for reductions in production from the Scholl Canyon landfill gas project?
 - i. The IRP team responded that Ascend is using the projected methane creation output from the site in the model, which is slated to taper off in line with the lifespan of the Scholl gas supply.
 - c. How might hydrogen potentially show up in GWP's system?
 - i. GWP responded that, if it were to use hydrogen, it would buy it as a fuel, not produce it. Someone else would have to produce it. GWP would use green hydrogen (produced from renewables).
 - ii. GWP noted that the infrastructure for hydrogen transport is not in place at this point. Similar to how Glendale is transmission constrained, it is also pipeline constrained.
 1. SoCalGas does have existing gas pipelines and rights of way. They could use this for hydrogen distribution (e.g., put a hydrogen pipe inside a natural gas pipe). Doing this wouldn't necessarily be easier than building new transmission, though. SoCalGas also has its Angeles Link project which is aiming to create a separate hydrogen pipe system to deliver hydrogen to the LA basin.

- iii. GWP could use its Wartsila engines with a hydrogen blend. The engines GWP will be using were recently tested on a 25% hydrogen, 75% natural gas mix.
- iv. One STAG member asked if hydrogen production from offshore wind is a future possibility. GWP responded that it could be, but more would need to be known about offshore wind projects first.
- v. GWP clarified that hydrogen wouldn't be piped to individual households. It would be piped to a natural gas power plant, like Grayson, or a Wartsila engine that then produces electricity.

STAG discussion on example scenario elements presented by Strategen:

- 4. Strategen presented four example scenarios to STAG as a starting point for discussion to determine the scenario elements of interest to the group. These were developed based on the results of both townhall and STAG polls and discussions.
- 5. See the accompanying PowerPoint PDF for the example scenarios presented by Strategen Consulting.
- 6. Questions and discussion points among the STAG related to these examples included:
 - a. Energy storage:
 - i. One member asked if there is a possibility for the use of 'emerging' energy storage technologies inside Glendale, or only outside Glendale?
 - 1. The Ascend team responded that there will be 'emerging' storage options commercially available, like long-duration storage, over the IRP study period. If STAG is interested in considering these technologies (like long-duration storage), it could direct the model to develop a certain amount of it in Glendale (i.e., assume a project is built in a certain year).
 - ii. How will inefficiencies in battery technology be considered?
 - 1. The IRP team responded that these technology constraints are accounted for in the model.
 - b. Customer solar:
 - i. One member asked how realistic it is to increase solar adoption significantly, like to 20% of customers compared to 3% today.
 - 1. Another STAG member responded that the reason behind City Council's goal to have 10% of customers adopt solar was because that percentage is closer to the California state average.
 - 2. STAG members discussed whether the 10% goal was more of a 'stretch' goal or a directive from City Council. Members seemed to have differing views on how achievable this goal was for Glendale.
 - 3. GWP clarified that it is viewing the 10% target as a goal rather than a hard directive. It also shared that getting to that goal will cost money and that the utility cannot itself pay to achieve that goal.
 - a. One member asked whether City Council provided GWP with funding to get to the 10% goal.
 - b. GWP responded that the first step is for GWP to provide information to Council on how it could reach that goal. They went through a request for proposals (RFP) process to select a

company to conduct a study to figure out how they could reach 10%. GWP will be going to City Council later this month to get their approval to award the contract to that company. When that study is finished, GWP will provide an update.

4. One STAG member raised concern about the length of time it took to get the RFP out for that study and the pace of progress on the goal since passed, noting urgency due to climate change.

c. Electrification and load growth:

- i. Multiple STAG members were interested in integrating higher electrification assumptions in STAG's scenarios.
- ii. Some STAG members raised questions about the best way to consider electrification rates in STAG's scenarios and whether it was appropriate to integrate an assumption about accelerated electrification in a single scenario, or all scenarios.
 1. Ascend shared that it will be running 'sensitivity' analyses related to load for all scenarios. These analyses will aim to see how sensitive the scenarios are to a potential increase in load (e.g., how large would Glendale's energy shortfall be if energy demand turns out to be higher than they anticipate?).
 2. These sensitivity analyses are different than scenarios, which are more like holistic changes to the future. STAG could choose to integrate different assumptions on electrification and load growth in its scenarios, relative to GWP's scenarios.
- iii. One member asked how Glendale's 'reach code' for new buildings (requiring all-electric buildings with solar installations and EV charging capability) is being integrated into the model.
 1. GWP responded that what is code will be integrated, but aspirational goals will not. STAG could assume in its scenarios that both codes and goals are achieved.

d. STAG scenario assumptions:

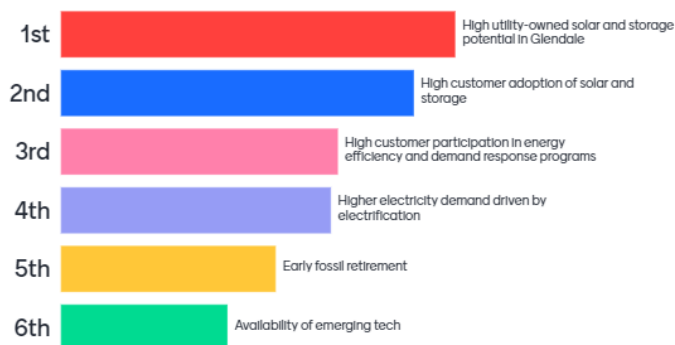
- i. After hearing the example scenarios (which suggested more ambitious assumptions related to emerging technology cost, customer resource adoption, and electrification), several members asked questions about if STAG could also assume *less* success in electrification, achieving City goals, technology commercialization, etc. in its scenarios.
 1. One member noted that it's possible that technologies materialize less quickly than we might anticipate.
 2. Another member noted that fluctuations in fuel prices (e.g., natural gas) could make it so that electric vehicles become less attractive, which would impact customer electrification.
- i. The IRP team responded that it is possible to model these things based on our best guess at the future. There is a limit to the number of permutations that can be run, so it might not be able to test every possible scenario when it comes to

resource prices, customer technology adoption, etc. STAG will have to choose which assumptions it is most interested in.

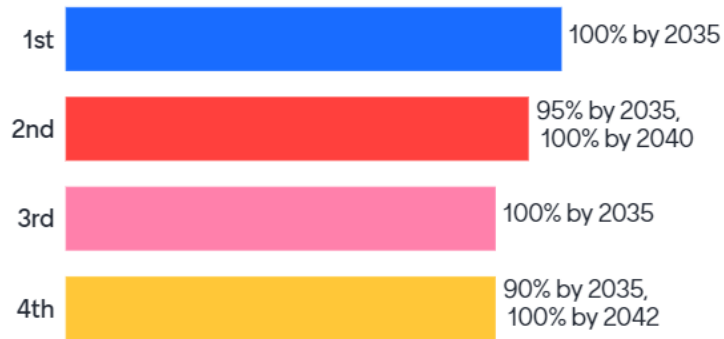
Polling exercise on scenario elements of interest to STAG:

1. Strategen conducted a poll of the STAG to gauge their interest in different scenario elements used in Strategen’s example scenarios. These were used as a starting point for discussion among the group.
2. The poll asked members to rank the scenario elements (from Strategen’s examples) they felt were most important. The options were:
 - a. High utility-owned solar and storage potential in Glendale
 - b. High customer adoption of solar and storage
 - c. High customer participation in energy efficiency and demand response programs
 - d. Higher electricity demand driven by electrification
 - e. Early fossil retirement
 - f. Availability of emerging technologies
3. The poll also asked members to rank the clean energy timelines presented in the four example scenarios. The options were:
 - a. 100% by 2035 (this option was offered twice as it was included in 2 example scenarios)
 - b. 95% by 2030, 100% by 2040
 - c. 90% by 2035, 100% by 2042
4. Lastly, the poll asked members if anything was missing from the examples that they would like to see tested in the IRP.
5. Results were as follows:

Which of these scenario assumptions do you feel is most important?



How do you feel about the clean energy timeline reflected in these scenarios?



Is anything missing from these examples that you'd like to see tested in this IRP?

7 Responses

Laws change. So do political policies.

100% clean internal by 2043, except that we could import from biomass or nuclear sources.

Assuming reach codes are fully met and we continue to be leaders in demand response programs/incentives

Testing for different intermittency scenarios since we are looking at introducing more intermittent resources to factor in reliability.

How realistic are the targets - ie :solar adoption, I would like to know more about the cost to residents of 100% by 2035.

Dramatically faster adoption of electrification and what that means for resource needs (more than what you have so far — more and faster demand)

Changes in staff with a clean energy mandate and a more aggressive approach to DERs

Discussion on polling results and scenario development:

6. Polling results:

- Some STAG members shared that 'emerging technology' as a category isn't specific enough, and they want to better understand what emerging technology options are.
- One STAG member expressed interest in developing scenarios solely based on results of the poll, while others wanted to debrief and discuss. It was ultimately decided that STAG would discuss results and aim to achieve as much consensus as possible.

7. Clean energy mandate and goals:

- a. Some members raised questions about the implications of setting a 100% clean energy by 2035 requirement in STAG's scenario. If STAG decided that, would GWP risk reliability (potential blackouts, etc.)?
 - i. The IRP team responded that, in the model, all scenarios will be built to meet minimum reliability requirements.
 - b. Some members raised discomfort with reaching 90+% clean energy by 2035 and said the goal might be unrealistic.
 - c. One member asked what would happen if GWP didn't hit California's 100% by 2045 mandate.
 - i. GWP responded that it would have to go to City Council and explain why they couldn't meet it. Council then has the authority to issue a statement to say GWP tried but is falling short.
 - d. One member raised questions about whether biomass generation is considered in the definition of "100% zero-carbon" per California law. They noted that California law doesn't require energy lost in transmission to be zero-carbon, which allows for a certain percentage of carbon emitting resources in 2045. They noted they'd like more clarity in how biomass is being considered.
 - i. Another member responded that California included biomass and biomethane in its renewable portfolio standard as a renewable resource.
 - ii. GWP shared that it is excluding biomass from its potential resources per City Council decision. Its understanding was the City Council decision prevents GWP from developing more biomass locally or entering into contracts for biomass resources from outside the city.
 - e. One member stated that the procurement timeline for some resources may make achieving the 2035 clean energy goal unrealistic or extremely expensive, given transmission constraints and the dates new lines could be available (which could be beyond the timeline of the IRP).
 - i. Another member pushed back on the characterization of how expensive or difficult the 2035 goal might be.
 - ii. GWP shared that it does have some transmission capacity coming online in 2027 that will be considered in the model.
8. Reliability:
- a. One member raised concern that GWP doesn't have enough energy generation capacity to meet existing demand and that there could be greater shortfalls in the future with increasing demand.
 - i. Another member pushed back on the assumption that GWP's system isn't able to maintain reliability, asking when the last blackout the city had was.
 - ii. GWP shared that the local generation it currently has in Glendale is less than it's ever had before (due to Grayson closures). There are solar, battery, Wartsila engine, and Scholl landfill gas projects coming online in the next few years, but the total sum is still short of Glendale's energy demand.
 - b. One member raised concern about having ambitious assumptions on customer solar adoption. If customer solar were to underperform, how could they make up for reliability?

- c. One member asked how Ascend's model measures reliability.
 - i. Ascend responded that it simulates forced outages, like on a very cold or very hot day, on each portfolio and examines how that situation would impact customer energy demand and resource production. They usually do 200-300 simulations of this type over many future scenarios. Ascend then uses that information to know what the probability is for every hour of the year that GWP can't meet load (meaning GWP might need to 'shed load' or institute blackouts). Ascend then sums that hourly data for the entire year to develop metrics that tell them if that portfolio meets federal reliability guidelines.
 - ii. Those reliability guidelines specify that utilities can have a maximum of one day of outage spread out over 10 years. This means utilities don't build their system for the most stressed hour, they should build it for all hours except for one day over 10 years, during which time you assume that you could rely on your neighbor (a nearby utility) for help.
 - 1. Ascend explained that some people argue that relying on a neighbor for even one day over 10 years might not be safe enough because there's a chance a neighbor can't cover your shortfalls. GWP is fortunate that LADWP has strong planning reserves, though, which have helped the city avoid blackouts.
 - iii. Ascend explained that if a portfolio comes back in its model as having to shed load for more than one day every 10 years (or 2.4 hours per year), they need to firm it up and determine how to address the shortfall. The shortfall could be because there's not enough generation, or there is enough generation but not at the right time. If it's the latter, the portfolio could be supplemented with storage to provide energy during peak demand. Ascend will be doing this analysis for all scenarios.
 - iv. Ultimately, reliability will be reported as the number of hours of blackouts per year for each scenario/portfolio.
- d. One member asked a question about what has saved GWP in the past from blackouts.
 - i. GWP explained there were two recent situations where it was close to instituting blackouts. One was in the winter, and one was in September.
 - 1. In September, GWP gives credit to the responsiveness of their customers, who reduced their energy usage systemwide. That response only lasted for a few days, though, before customers upped their energy demand because it was too hot. At that point, GWP brought some resources online to make up the shortfall.
 - 2. The winter situation was different because one of LADWP's transmission lines was out, and LADWP thought it might have to take down another line to fix the first. This was a freak event with ice on the transmission line, but it was an eye opener for GWP. GWP was prepared to shed load, but LADWP ultimately waited a bit longer than they wanted to, to bring down the line and do repairs. That, combined with bringing some reserve units up and running, avoided blackouts.

- e. One member noted that GWP could be headed toward higher risk, because future customer energy demand will be concentrated in electrification.
9. Social cost of carbon:
- a. One member shared that using California carbon prices (set through the cap-and-trade program) doesn't include all costs of carbon. They wanted to know more about how the social cost of carbon would be factored into the model.
 - i. Ascend responded that the social cost of carbon incorporates more externalities, which aren't necessarily what California is charging. The impact of putting a social cost of carbon on scenarios is that carbon-emitting resources run a lot less in the near term and would stop running by ~2040 because it'd be more expensive to use them.
 - ii. Strategen will circle back to the social cost of carbon conversation for the next STAG meeting once it's clearer how this analysis will be integrated in modeling.
10. Distributed energy resources:
- a. Some members expressed that Glendale's existing incentives for distributed energy resource/demand response participation might not be enough to encourage adoption.
 - b. One member raised that losing the Sunrun virtual power plant (VPP) project was a big loss for Glendale. The project was originally 50 MW, then brought down to 25, then eliminated. They noted GWP should find a way to replace that.
 - i. There was disagreement between members about why the VPP didn't happen, and whether it was due to cost. One member noted there are other variables to consider, like Glendale having had a different City Council at the time the project was being discussed. They noted GWP should look to the future and come up with a VPP system that can work.
11. Modeling results:
- a. One member asked what the output of the model looks like.
 - i. Ascend responded that it will show what each scenario's energy mix looks like based on the established constraints, inputs, and assumptions.
 - ii. Ascend clarified that the IRP is for 20 years, but the plan gets adjusted every five years. The overall goal is to express what the future could look like so GWP can take initial actions now. GWP will look at the IRP, tweak it and update it to meet its needs. Ascend cautioned against thinking that the results of the IRP will lock the group into a given path for the next 20 years.

Outcomes of the meeting:

- 12. STAG coalesced around one scenario that will reach 100% clean energy by 2035. This scenario will also emphasize local resources, with ambitious assumptions on customer adoption of solar + storage, energy efficiency, and demand response, and ambitious assumptions about GWP's ability to develop solar + storage resources locally. The scenario will also assume accelerated electrification compared to GWP's scenarios.
- 13. Strategen will send out a survey to STAG members to respond to before next week's meeting to add additional details to this scenario and brainstorm possible directions for STAG's second scenario.