February 2, 2022

Sustainability Commission
RE: Grayson Repowering Proposal

Dear Chairperson Bartrosouf, Vice-Chairperson Werner, Commissioners Kartounian, Khanjian, and Pinkerton, and Ex-Officio Members Gang and Prado,

We write to present our analysis and conclusions regarding the Grayson Repowering proposal. We have followed this project very closely since 2017, and have never stopped working to advocate for clean energy solutions to replace our aging power plant. We believe that local, clean energy must be a primary piece of Glendale's energy plan for long-term reliability and sustainability. We need local sources of energy because of transmission constraints, and we need clean energy for all the reasons you already know: it pollutes less, it doesn't exacerbate the climate crisis, and many renewable energy sources have low or no marginal cost and make good financial sense for the long term. We believe that Glendale must prioritize making the needed transition to clean energy as soon as possible, and we are confident that Glendale is up to the challenge if decision makers expect and direct it.

Our ultimate goal is to see Glendale transition to 100% renewable energy by 2035 in the most direct path possible, that **minimizes any new investments in fossil fuels**, and that **maintains system reliability**. Along with you, we have celebrated the progress that GWP has made thus far, including the research and planning happening now to assess and prepare our feeder lines for integrating substantial new amounts of solar. Now, we want GWP to do even more: rapidly fulfill the clean energy programs currently in planning (the virtual power plant and solar PV on city-owned properties); maximize those programs and the recently launched demand response and energy efficiency programs; and prioritize research, planning, and investing in new clean energy programs. In addition to this letter, we offer a summary of potential clean energy ideas that could be explored to provide carbon-free and less-polluting energy capacity for Glendale (see attached Clean Energy Alternatives for Meeting Glendale Energy Needs).

Our message on Grayson is simple. **When it comes to gas equipment, only buy what we need to buy, so that we can invest the rest in clean energy that will benefit us for the long term and address, in this decade, making the carbon reductions needed to mitigate the climate crisis.** This is also the best bottom line for ratepayers. An efficient use of energy resources, without overbuilding large capital projects, means lower costs for ratepayers. **In sum, 93 MW of new gas equipment is much more than we need.**[1]

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[1] Alternative 8, refurbishment of the Unit 8 turbines, would result in more than 93 MW of "new" gas-burning capacity. We focus on the Wartsila scenario, Alternative 7, but our points apply to Alternative 8 as well.

A. Summary

1. The gas-burning component of the Grayson Repowering will not come online until late 2025 at the earliest, so it will not help meet the need for energy capacity before then. Moving forward on local clean energy projects can be done more quickly and can help fill that short-term need and continue to provide clean energy for the longer term. (See p. 3.)

2. In 2019, GWP presented its Integrated Resource Plan, proposing the current repowering project, which included 93 MW of gas-burning equipment (five internal combustion engines, or ICE units). This was an energy portfolio designed to meet Glendale's future peak energy demand with the resources Glendale then knew about. New transmission was not part of that plan. (See p. 4.)

3. City Council's approval of the Integrated Resource Plan and assent to GWP's moving forward with planning for the energy portfolio was conditional, with Council directing GWP to pursue technologies that may reduce the need for gas generation and options to potentially reduce or eliminate the need for the 5 ICE units. (See p. 4.)

4. After the Integrated Resource Plan was approved, GWP learned of and pursued an opportunity to obtain 72 MW of new transmission rights that will become available in 2027, providing additional capacity to meet Glendale's needs. Despite this increase in available capacity and City Council's direction, GWP did not reduce the proposal for 93 MW of new gas capacity. (See p. 4.)

5. Recently, GWP has changed its assumptions about Glendale's peak demand forecast in the 2027-2030 time frame. The Integrated Resource Plan, and a March 2021 report on the feasibility of reaching 100% clean energy by 2030, used a forecast of 347 MW in 2030 to determine the capacity needed to meet peak demand and the N-1-1 reserve standard. More recently, in December 2021, GWP has increased its forecasted peak demand to 398 MW in 2027. This is inconsistent with past practice and with the California Energy Commission's peak forecasting. The peak demand forecast has become a moving target. (See p. 4.)

6. Using the 347 MW peak demand forecast, in 2027 we more than meet peak demand, we also meet the peak plus N-1, and we are only short 6.75 MW from fully meeting peak demand and the N-1-1 reserve standard. This is without any additional clean energy programs in Glendale. With additional local clean energy programs, we can more than close that gap. (See p. 6.)

7. Using the new, higher 398 MW peak demand forecast, in 2027 we more than meet peak demand, and we also meet the peak plus N-1. There is a gap of 57.75 MW between available capacity and the full peak demand plus N-1-1 standard, without any additional capacity from new clean energy programs. Thus, even with this higher peak demand value, Glendale does not need 93 MW of additional gas-burning equipment. We suggest that Glendale immediately pursue a commercial solar and storage project (or other projects) to add 25 MW of local

capacity. With only that amount of additional clean energy capacity, only 2 ICE units would be needed to meet the remaining need of 32.75 MW. (See p. 9.)

8. We do not believe that any new gas-burning capacity is needed. The justification for this project is based on extremely conservative assumptions layered on top of one another, an approach that risks substantial overspending for equipment that is not truly needed and that is better avoided. (See p. 12.)

9. If new gas-burning equipment is added at Grayson, City Council should place a condition of approval on their purchase requiring them to be retired in 2035 unless they can be converted to 100% hydrogen by that time. (See p. 12.)

10. We are open to other potentially smaller and less expensive options using Grayson's Unit 8 equipment to meet Glendale's energy needs, which may enable us to transition away from gas sooner, but we need more information to evaluate those options. (See p. 13.)

11. Glendale should move aggressively toward adopting more local clean energy under any scenario. There are many potential clean technologies and methods Glendale can use to mitigate the growth of peak demand, which are spelled out in the attachment to this letter. (See p. 13.)

12. Glendale should engage a clean energy expert consultant to oversee the process of developing a plan for additional clean energy, including issuing and reviewing requests for proposals. This should happen quickly so that new resources can be brought online in time to help meet our energy needs as soon as the existing Grayson units are retired. (See p. 14.)

In short: the current repowering proposal contains more gas capacity than Glendale needs, and Glendale should instead invest in clean energy projects that will benefit our city in the long term.

B. Important Considerations

We begin with some important facts that are central to your consideration of this project.

First, it's very important to highlight that the proposed internal combustion engine (ICE) units or refurbished units 8ABC would not come online until the end of 2025 at the soonest, and possibly not until 2026. The plan is to start with the Tesla installation. GWP plans 50 MW of the proposed Tesla battery energy storage system (BESS) to come online in March 2025, but the gas power would not be operational until at least late 2025. This means that all decisions regarding the gas equipment should be made with that timeline in mind: **New gas would not help meet our needs until late 2025 or 2026.**

To address our need before 2026, the likely best approach is both to work with Los Angeles to provide support, and, crucially, to get the existing **and new** clean energy programs up and running as soon as possible. We should maximize them—especially the city-sited solar—and

consider adding longer-term distributed storage to those installations to build resiliency and capacity. This can be done **before** the BESS comes online in 2025. Getting new clean energy resources online quickly can help us during this vulnerable time period and continue to serve us for years to come.

Second, in July 2019**,** City Council conditionally approved the 2019 IRP and an energy portfolio with 93 MW of gas-burning equipment, 75 MW of battery storage, and 50 MW of clean energy projects. It's very important to keep in mind that **City Council placed several conditions on this approval**. City Council directed GWP to pursue more clean technologies to reduce the need for gas, and they requested **options to potentially reduce or eliminate the need for the 5 ICE units**, at least 2 months prior to Council being asked to consider approving the project.

Third, Glendale now has more transmission resources planned to come online than it had when the current plan for the Grayson project was proposed in 2019. There is the Eland Solar & Storage resource, which comes with its own transmission by 2024. Also, GWP will get **72 MW more in transmission rights via the Southwest AC transmission line beginning in 2027.** New transmission like this was not factored into the 2019 Integrated Resource Plan (IRP), which identified the need for energy capacity for Glendale, and from which the current proposed project alternatives derive.

We highlight this, because despite City Council's direction to find options to reduce the new gas capacity and despite the new transmission, the amount of gas investment in the Grayson Repowering proposal has not decreased. With new transmission that wasn't included in that 2019 plan, we should expect that would translate to less gas in the repowering proposal, **but no adjustments have been made to the amount of gas capacity in the proposal**.

Fourth, it appears that the reason GWP has not decreased the amount of new gas at Grayson is because it has changed its approach to looking at forecasted peak load, essentially canceling out the increased transmission. This change in the peak load projection is crucial to understanding the justification for this project.

The forecasted peak demand that GWP must include in its planning is the highest demand on the electrical system over the course of a year, which typically falls on a summer evening during a heat event.[2] The selected value for the peak load forecast is critical to making decisions about Glendale's energy plan. If it is too low, the plan will be insufficient, but **if it is too high, then Glendale risks spending money unnecessarily on overbuilt energy capacity**.

In the past, GWP and consultants have used a forecasted 2030 peak demand of approximately 350 MW. In the **IRP**, GWP used a mean peak forecast of **347 MW in 2030**. The March 2021 Ascend Study also used 347 MW in 2030.

A different, significantly higher value was used for the first time in a response to questions by

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[2] Glendale's historical highest peak load was 346 MW on September 1, 2017 (see p. 15 of the 2019 IRP), and the 2020 peak load was 336 MW on August 18, 2020 (see p. 9 of the March 2021 Ascend Analytics Report: 100% Clean Energy by 2030 Feasibility Study [Ascend Study]).

Councilmember Brotman on December 15, 2021 (December 15 Response).[3] There, **the forecasted peak load for 2027 is 398 MW**, which was "interpolated from the values published in the IRP." This is a rather dramatic **increase of 51 MW**. This is crucial to highlight, as all of GWP's peak-plus-contingency comparisons, and therefore the explanation of resource need, depend on this number. Detailed information follows.

The IRP presents a table showing the capacity that would need to be procured in various years to meet full reserves (see below, Table 11, p. 30). Using the mean peak projection of 347 MW in 2030, GWP calculated the total peak capacity need to be 495 MW—that means 495 MW to cover both the peak demand and the reserve requirement. Increased EV numbers were accounted for, with GWP assuming EVs would be charged optimally to not increase the peak. (IRP, p. 28.)

Table 11: Peak Procurement Requirement Based on N-1-1

(MW)	2019	2020	2021	2022	2023	2025	2030	2035	2038
Mean Peak	336	342	344	343	343	345	347	362	376
N-1-1 Reserve Requirement	148	148	148	148	148	148	148	148	148
Total Capacity Requirement (at peak)	484	490	492	491	491	493	495	510	524

Total capacity requirements based on simulated mean peak and N-1-1 reserve requirements which necessitate having sufficient capacity to cover a N-1-1 contingency event during which the 100 MW Pacific DC intertie and the 48 MW Magnolia Power Plant fail concurrently, removing 148 MW of power from GWP's system.

The same 347 MW peak load number was used in the Ascend Study in 2021 (see below, Table 5, p. 28). The total capacity requirement changed slightly to reflect the new transmission opportunity in 2027, which slightly changes the N-1-1 reserve calculation.

Table 5: Peak Procurement Requirement Based on N-1-1

(MW)	2022	2025	2030
Expected Demand	342	345	347
N-1-1 Reserve Requirement	150	150	162
Total Capacity Requirement (at peak)	492	495	509

In a departure from the past practice of using 347 MW as the forecasted peak load, a new, higher peak forecast number (398 MW) is now being used in GWP's calculations of the needed capacity to meet demand and reserve requirements (see below, from FEIR p. 1405). **This number is 51 MW higher**, three years earlier, than the 347 MW in 2030 that's used in the IRP and Ascend Studies, which both included EV load growth. It appears this is a P95 peak forecast rather than a mean peak forecast. P95 refers to the 95th percentile of the range of which peak demand is expected to fall—an extremely conservative value. (See IRP, p. 27.)

[3] The December 15 response appears at pages 1403-1411 of the 2022 Final Environmental Impact Report (FEIR) for the Grayson Repowering Project. The new peak load value is shown on page 1405.

How Much Generating Capacity Must be Provided?			
5	Historical Peak Load and Forecasted Peak Load from IRP (the value of 346 MW is a historical peak; the value of 398 MW was interpolated from the values published in the IRP[1])	346	398

We recognize that the IRP also showed P95 peak demand values, but those values were not used to calculate the necessary capacity to meet peak and reserve requirements. GWP's new approach of using this higher peak number in assessing needed capacity results in a much higher amount of capacity needed.

This is of concern because if we overestimate the peak demand forecast, we will build more capacity than is needed. The city would pay for more equipment than needed. This could lead to higher costs for ratepayers.

The California Energy Commission (CEC) does comprehensive peak demand forecasting for California through its Integrated Energy Policy Report process. According to the Ascend Study, GWP has found that Glendale's "yearly peak demand typically matches the 1-in-10 peak demand forecast from the CEC" (see p. 25). The CEC's 2022 baseline mid-demand 1-in-10 peak demand forecast for Glendale in 2027 is 344 MW. The CEC's forecasting shows that the new higher number now being used by GWP is higher than necessary.

Moreover, there are many potential ways to mitigate the growth of peak demand. Unlike past utility practice, which focuses mostly on procuring supply to meet demand, technological innovations now allow demand to be modified in dynamic and powerful ways, so that demand and supply can match each other, and to avoid the need to overinvest in fossil fuel energy supply resources. We should focus efforts on adopting these measures in the years leading up to 2027, rather than assuming substantial new growth in peak demand.

C. Comparing Peak Demand and Reserve Needs with Capacity Scenarios

1. <u>347 MW Peak Demand Forecast</u>

We put together a spreadsheet to show how the resources add up and meet our peak demand and reserve standards. As the spreadsheet below shows, **using the IRP peak forecast of 347 MW, we more than meet peak demand, we also meet the peak plus N-1, and we are short only 6.75 MW to meet full N-1-1 reserves in 2027, when the 72 MW of added transmission are available.** This is without any additional clean energy resources or efforts to reduce demand.[4]

[4] We have not included any Scholl biogas capacity in these calculations. GWP estimates 11 MW of capacity from Scholl biogas in 2027. (See FEIR, p. 1405.)

GWP Resources - Current Projects - IRP PEAK FORECAST MODELING - no additional programs

All Values are in MW	2022	2023	2024	2025	2026	2027	2028	2029	2030
Existing/Planned Resources:									
Current Grayson Gas Units 1-8	173	0	0	0	0	0	0	0	0
PCDI Transmission	100	100	100	100	100	100	100	100	100
SWAC Transmission (after load loss)	100	100	100	100	100	168	168	168	168
Eland Solar & Storage			25	25	25	25	25	25	25
Tesla BESS			0	50	75	75	75	75	75
Magnolia Gas	35	35	35	35	35	35	35	35	35
Grayson Gas - Unit #9	48	48	48	48	48	48	48	48	48
Planned/Existing Clean Energy Programs:									
Franklin DR - 10 MW by year 4	2	5	9	10	10	10	10	10	10
Wildan (Lime) EE - 8.9 MW by year 7	1	3	5	6	7	8	8.9	8.9	8.9
City PV (estimate - could be more)		10	10	10	10	10	10	10	10
Sunrun VPP - 25.25 by year 4	0	5	16	20	25.25	25.25	25.25	25.25	25.25
TOTAL MW	**459**	**306**	**348**	**404**	**435.25**	**504.25**	**505.15**	**505.15**	**505.15**
MEAN PEAK	**343**	**343**	*343*	**345**	*345*	**347**	*347*	*347*	**347**
MEAN PEAK + N-1	443	443	443	445	445	447	447	447	447
MEAN PEAK + N-1-1	491	491	491	493	493	511	511	511	511
RELIABILITY CRITERIA MET?									
Meets Peak	116	-37	5	59	90.25	157.25	158.15	158.15	158.15
Meets Peak + N-1 ?	16	-137	-95	-41	-9.75	57.25	58.15	58.15	58.15
Meets Peak+ N-1-1 ?	-32	-185	-143	-89	-57.75	-6.75	-5.85	-5.85	-5.85

Notes:

- The clean energy resources are introduced during the time frames that GWP noted most recently in reports and meetings.
- Italicized years were not given in the IRP, so we used the higher values of future years. Thus, we used the IRP's 347 MW value from 2030 for 2027.

There are multiple ways to close the 6.75 MW gap in 2027 using clean energy. The spreadsheet below shows us more than getting there, with just two ideas added: a 25 MW commercial solar and storage program (such as a feed-in tariff program) and 10 MW of additional city-sited solar paired with storage for both resiliency and capacity. In fact, GWP General Manager Mark Young noted during the GWP Commission meeting on January 31 that they currently expect to install at least 20 MW of solar PV and storage on city-owned properties (10 MW beyond original projections). This is welcome news and shows the real potential for more local solar capacity. We suggest moving beyond even this with consideration of installations in open space areas like the Scholl Canyon landfill and as part of the Verdugo Wash project. More information about both of these ideas is provided in the attachment to this letter, Clean Energy Alternatives for Meeting Glendale Energy Needs.

All Values are in MW	2022	2023	2024	2025	2026	2027
Existing/Planned Resources:						
Current Grayson Gas Units 1-8	173	0	0	0	0	0
PCDI Transmission	100	100	100	100	100	100
SWAC Transmission (after load loss)	100	100	100	100	100	168
Eland Solar & Storage			25	25	25	25
Tesla BESS			0	50	75	75
Magnolia Gas	35	35	35	35	35	35
Grayson Gas - Unit #9	48	48	48	48	48	48
Planned/Existing Clean Energy Programs:						
Franklin DR - 10 MW by year 4	2	5	9	10	10	10
Wildan (Lime) EE - 8.9 MW by year 7	1	3	5	6	7	8
City PV (estimate - could be more)		10	10	10	10	10
Sunrun VPP - 25.25 by year 4	0	5	16	20	25.25	25.25
Potential Projects / Resources:						
Commercial Program, 25 MW PV + Storage		5	10	15	20	25
New City - 10 MW PV + Long-Duration Storage					10	10
TOTAL MW	**459**	**311**	**358**	**419**	**465.25**	**539.25**
MEAN PEAK	**343**	**343**	*343*	**345**	*345*	*347*
MEAN PEAK + N-1	443	443	443	445	445	447
MEAN PEAK + N-1-1	491	491	491	493	493	511
RELIABILITY CRITERIA MET?						
Meets Peak	116	-32	15	74	120.25	192.25
Meets Peak + N-1 ?	16	-132	-85	-26	20.25	92.25
Meets Peak+ N-1-1 ?	-32	-180	-133	-74	-27.75	28.25

There are many other clean energy alternatives that can close the small 6.75 MW gap and can reduce the need for gas capacity even more, including innovative demand response programs that can help us control load growth. GWP is already pursuing some ideas. The Clean Energy Alternatives attachment discusses several others. The clean tech sector is exploding with new possibilities, and prices for clean energy solutions continue to fall. For example, increased peak demand from increased EV adoption can be avoided by shifting charging away from peak demand periods through innovative approaches like those discussed in the attachment.

Moving forward quickly with projects like these will enable us to manage the growth of load as a result of building electrification in the late 2020s. **We urge you to recommend that GWP issue new clean energy requests for proposals (best handled through a clean energy consultant that can draft and vet the proposals, to not take staff time).**

2. 398 MW Peak Demand Forecast

Although we believe the 347 MW peak demand forecast is appropriate, we also looked at how the numbers add up with the higher peak forecast that GWP is using now. Keeping in mind that building more capacity than we need means unnecessary costs for ratepayers, what is the bottom line on what we would need, and what is the best way to fill it?

The spreadsheet below uses GWP's new peak demand forecast number for 2027. **Even with the higher 398 MW peak demand forecast, we don't need 93 MW of new gas.** With the higher demand number, **the gap to fill is 57.75 MW of capacity, with ZERO new clean energy projects in the next 6 years**.

All Values are in MW	2027
Existing/Planned Resources:	
Current Grayson Gas Units 1-8	0
PCDI X-mission	100
SWAC X-mission (incl. load loss of 12 MW pre-2027 and 16 MW post-2027)	168
Eland Solar & Storage (25 MW nameplate / 18.75 MW 4 hour storage)	25
Tesla BESS (50MW online 3/25 & 25MW online in '26)	75
Magnolia	35
Grayson - Unit #9	48
Currently Planned Clean Energy Programs:	
Franklin DR - 10 MW by year 4	10
Wildan (Lime) EE - 8.9 MW by year 7	8
City PV (Need Storage to Firm, pre TESLA BESS. Distributed?)	10
Sunrun VPP - 25.25 by year 4	25.25
Potential Projects / Resources:	
Commercial Program, e.g. LA's FiT+ with 25MW PV & Storage	0
New City PV & Storage - 10+ MW PV / 10 MW Zinc or Vanadium Flow Battery (long duration storage)	0
Additional New City PV & Storage - 5 MW PV / 5 MW Battery	0
Additional Demand Response Programs	0
EV Load Shifting Program - gamefied/rewards based	0
TOTAL MW	**504.25**
P95 PEAK	**398**
P95 PEAK + N-1 [loss of PDCI line - 100MW]	498
P95 PEAK + N-1-1 [loss of 64 MW of SWAC line after 2026]	562
RELIABILITY CRITERIA MET?	
Meets Peak	**106.25**
Meets Peak + N-1 ?	**6.25**
Meets Peak+ N-1-1 ?	**-57.75**

GEC's calculations shown here are consistent with the calculations in GWP's response to Councilmember Brotman (December 15 Response, FEIR pp. 1404-1407). We come to essentially the same bottom line regarding our ability to meet peak + N-1-1 requirements, when plugging in the higher, 398 peak load number: GEC calculates 2027 capacity as 504.25 MW with a 57.75 MW deficit; GWP calculates capacity as 512 MW with a deficit of 50 MW.[5]

[5] There are minor differences in how we calculate the capacity of the clean energy programs in 2027, and we do not include capacity from the Scholl biogas project.

The gap we show is 57.75 MW. We should fill that need with clean energy programs! The spreadsheet below shows the result from adding some further local solar and storage projects. **If we add in just one new program—a 25 MW commercial solar and long term storage feed-in tariff program—and add 10 MW more of city-sited PV and storage—which GWP currently is projecting—the gap goes to only 22.75 MW.**[6] The bottom line is that we do not need 5 ICE units.

2027 using extremely conservative 398 MW peak forecast:

All Values are in MW	2027
Existing/Planned Resources:	
Current Grayson Gas Units 1-8	0
PCDI X-mission	100
SWAC X-mission (incl. load loss of 12 MW pre-2027 and 16 MW post-2027)	168
Eland Solar & Storage (25 MW nameplate / 18.75 MW 4 hour storage)	25
Tesla BESS (50MW online 3/25 & 25MW online in '26)	75
Magnolia	35
Grayson - Unit #9	48
Currently Planned Clean Energy Programs:	
Franklin DR - 10 MW by year 4	10
Wildan (Lime) EE - 8.9 MW by year 7	8
City PV (Need Storage to Firm, pre TESLA BESS. Distributed?)	10
Sunrun VPP - 25.25 by year 4	25.25
Potential Projects / Resources:	
Commercial Program, e.g. LA's FiT+ with 25MW PV & Storage	25
Additional City PV & Storage - 10+ MW PV + Storage (Consider Zinc or Vanadium Flow Battery (long duration storage - no fire risk)	10
Additional New City PV & Storage - 5 MW PV / 5 MW Battery	0
Additional Demand Response Programs	0
EV Load Shifting Program - gamefied/rewards based	0
TOTAL MW	**539.25**
P95 PEAK	**398**
P95 PEAK + N-1 [loss of PDCI line - 100MW]	498
P95 PEAK + N-1-1 [loss of 64 MW of SWAC line after 2026]	562
RELIABILITY CRITERIA MET?	
Meets Peak	141.25
Meets Peak + N-1 ?	41.25
Meets Peak+ N-1-1 ?	-22.75

22.75 MW deficit with Just **2** NEW ADDITIONS:

25 MW **commercial** solar & storage
+
10 MW additional **city cited** solar & storage (keep going!)

2 ICE Units = 36 MW (18 MW each)

[6] We have ideas for many other programs that include dispatchable, long-term stored energy that could provide this capacity instead, or provide more on top of these solar + storage programs.

The conclusion from this review of the numbers is clear:

- Even using GWP's 398 MW and with no additional clean energy, there is no need for the full 93 MW project.
- At a maximum, we should do 2 ICE units, which would be 36 MW,[7] together with aggressively pursuing more new local clean energy.
- This is more than enough gas to add as a flexible resource to what by 2027 should be a portfolio full of new clean energy capacity and new transmission that will be able to serve load reliability and with the full contingency requirement met and using an extremely high peak load forecast.

D. Potential Scenarios and the Preferred Outcome for Glendale

GWP is conservative in its energy planning. We understand the need to plan for scenarios in which GWP can't meet energy demand. However, layering conservative assumptions on top of conservative assumptions can lead to an overestimation of the needed capacity. This creates its own risks: **There is substantial risk of overbuilding and making unnecessary financial investments in equipment that is not truly needed.** Particularly when gas-burning equipment carries many negatives—including that it must be retired or converted to burn hydrogen (at further expense) by 2045 or sooner, and that it pollutes the air and contributes to climate change—we strongly prefer for Glendale to not use conservative planning as a justification for a $260 million capital project.[8]

We believe Glendale should not make any new investments in natural gas thermal equipment. Our absolute preference would be to move forward with the BESS, add new demand response programs to keep load growth low (even with growth in EVs and building electrification), and quickly invest in more local clean energy resources to meet our needs—before 2027, in 2027, and beyond. **The wisest and most sustainable outcome for the long-term is to not make ANY investments in fossil fuel.**

GEC would consider supporting a project that included up to 2 ICE units, recognizing that GWP prefers to be very conservative in its planning. This comes at a price, and we do not support more than 2 engines. Glendale must transition to clean energy, and our portfolio should include more clean energy projects than the ones that are currently in the works—which have been in the planning phase for over two years already. A portfolio with any ICE units should also include aggressive new projects for local clean energy.[9]

City Council should place a condition of approval on purchase of any ICE units that they must be retired in 2035 if they can not be converted to run on 100% clean hydrogen by

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[7] Each ICE engine has about 18 MW of capacity.

[8] GWP estimates a $260 million cost for the thermal component of Alternative 7—i.e., the 5 Wartsila ICE project. The refurbished Unit 8 option is estimated at $201 million. (FEIR, p. 7.49.)

[9] Hiring a consultant with clean energy expertise to oversee the process of vetting and implementing projects would allow these projects to move forward quickly without overtaxing staff resources.

that time. Despite GWP's statements that the units can be converted to 100% hydrogen, there is no evidence that either the ICE or refurbished units can actually be converted. There is no doubt that we are taking some risk in assuming that these units can ever be transitioned to run on 100% hydrogen. Also, we will be assuming significant but currently unknown costs for the conversion of the combustion units, to ensure the entire system (pipes, flanges, fittings, etc.) are safe to operate with hydrogen, and for the hydrogen fuel (either for local production or for transport into the city by pipeline or other means). A decision to purchase ICE units should not count on the ability to make this conversion. But 2 units present a smaller risk than 5, at substantially less cost.[10]

One of our goals is to minimize Glendale's financial investments in fossil fuel equipment and avoid long-term commitments to that technology. We would be interested to know the relative cost of **refurbishing Unit 8A** compared with installing 2 ICE units. This option would offer approximately 26 MW of firm resources for short-term use. We recognize there are some downsides to using the Unit 8 equipment, but if this path allows a smaller investment and the refurbished Unit 8A could be retired earlier than 2035, this option may be worth considering.

The Unit 8 turbines are operational now and potentially could remain at Grayson longer than the boiler units, Units 1-5. We do not believe Alternative 8 as proposed is a good path forward, but GWP's December 15 Response to Councilmember Brotman mentions a **potential scenario for modifying the Unit 8 equipment** to comply with South Coast Air Quality Management District Rule 1135 (FEIR pp. 1409-1411).

GWP should provide more information about the potential for these two options, their cost, and the potential for them to be completed before late, 2025 to provide more capacity resources for shorter-term needs.

E. Conclusion

Our goal is to find the best outcome for Glendale's energy plan, balancing the need to transition to clean energy as quickly as possible, the need for reliability, and the desire to avoid unnecessary financial investments.

Our review of the capacity resources and the capacity need—peak demand plus N-1-1—shows that Glendale does not need 93 MW or more of new (or refurbished) gas-burning equipment. Planning conservatively but not overestimating the need, we believe Glendale could meet its energy needs without any new investments in fossil fuel infrastructure. At a minimum, the amount of new equipment should be decreased substantially, with a maximum of 2 ICE units conditioned to be retired by 2035 unless they can run on 100% hydrogen by that time.

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[10] We also believe that if Glendale wants to move toward hydrogen in the future, fuel cells would be a better investment for the long term than combustion equipment. GWP has considered fuel cells in the past and rejected them, but GEC urges the city to evaluate the current state of the technology and consider fuel cells as a part of the overall energy portfolio. See Clean Energy Alternatives attachment.

Under any circumstances, we should do the following to continue our progress toward a clean energy transition:

- Quickly pursue a 25 MW commercial solar and long term storage program.
- Accelerate investments in city-sited solar and storage.
- Pursue many other potential local clean energy options, including from the attachment to this letter, Clean Energy Alternatives for Meeting Glendale Energy Needs.
- Open a new round of clean energy requests for proposals.

To enable these projects to be developed as part of a cohesive clean energy plan, and to move as quickly as we should, Glendale should engage a clean energy expert consultant. The consultant can develop a preliminary plan for a new clean energy portfolio, draft requests for proposals to meet specific needs and to invite new and innovative solutions, evaluate those proposals and present a plan for the city to move forward, and oversee implementation of the projects so that they can move forward on an expedited timeline.

One particular advantage of this approach is that energy projects that are distributed throughout Glendale do not need to wait for demolition of the existing Grayson Units 1-8 (or Units 1-5), and can be started immediately. That means that when those units are decommissioned, Glendale will already have additional local energy to meet short-term needs.

Glendale should also pass a resolution to achieve 100% clean energy by 2035. It is our generation's responsibility to do what we can now to stop putting CO2 into the atmosphere. Glendale's energy plan is a small part of the path to a sustainable climate, but the same is true of almost all decisions about energy: each is too small to make the difference alone, and each contributes to either the problem or the solution. In the end, every piece matters.

The current repowering proposal is more gas than we need. Only buy what we need to buy, and invest in clean energy that will benefit our city in the long term. This approach is the best bottom line for Glendale residents and ratepayers.

On behalf of GEC's more than 1200 members, most of whom live in Glendale, we thank you for your service to Glendale and for your consideration of the thoughts expressed here and in the attached Clean Energy Alternatives for Meeting Glendale Energy Needs.

Sincerely,

Monica Campagna
Elise Kalfayan
Jane Potelle
Paul Rabinov
Kate Unger

Members of Glendale Environmental Coalition Steering Committee