City of Piedmont
COUNCIL AGENDA REPORT

DATE: April 4, 2022

TO: Mayor and Council

FROM: Sara Lillevand, City Administrator

SUBJECT: Consideration of Providing Direction to Staff to Proceed with Full Electrification of the Piedmont Community Pool Through Design Development Phase

RECOMMENDATION

By motion, direct staff to proceed with full electrification of the Piedmont Community Pool through the Design Development phase of the Community Pool project including the preparation of plans for an all-electric facility as outlined in the March 31, 2022 Energy Use Report and pursuit of additional funding and partnership opportunities to offset electrification costs.

EXECUTIVE SUMMARY

As part of the Schematic Design (SD) package for the Piedmont Community Pool, potential electrification of the approved conceptual design was analyzed for feasibility and cost. The Energy Use Report from Guttman & Blaevoet Consulting Engineers presented to Council on March 21, 2022 revealed that it is feasible to electrify the entire facility with a combination of electric heat pumps, photovoltaic/thermal (PVT) panels, and integration with the clean electrical grid. Since March 21st, the all-electric design and engineering has advanced to Design Development per the revised architectural design presented at City Council on March 21st. Based upon this revised design, and the addition of Photovoltaic Panels (PV's) in combination with PVT's, the Energy Use Report was updated and submitted to the City on March 31. The updated report (Report) identifies upfront construction costs of $500,000 in excess of traditional natural gas heating of the pools. As with the original concept, it is important to note that the PV system in the revised concept is part of the base building project, and contributes to the electrification of the building. Despite the significant upfront cost associated with electrification of the entire project (building + pools), staff recommends proceeding with an all-electric design while seeking additional funding from outside sources to support this important decarbonization effort. Should the Council support moving forward with an all-electric facility, staff further recommends partnering with East Bay Community Energy (EBCE) to explore all possible ways EBCE can support the City in this decision to be an early adopter of heating large public swimming pools with electricity in California.

BACKGROUND

In November 2020, Piedmont voters approved Measure UU, which authorized $19.5 million in general obligation bonds to finance the cost of replacing the then 54-year-old Piedmont Community Pool. Measure UU authorizes bond proceeds for construction of improvements including new facilities and restrooms, energy and water conservation, and community access and safety. The measure authorizes the bond proceeds to be spent for the construction of improvements to the Piedmont Community Pool and adjacent areas, including pools, showers, restrooms, locker rooms and multi-use rooms, and all associated expenditures necessary to complete such work and issue the bonds. Leading up to and following the approval of the bond, community stakeholders emphasized the importance of addressing environmental concerns associated with the construction and maintenance of a new aquatic facility. Since November 2020, advances in clean energy technology and renewable energy supplies, as well as the growing prominence of incorporating sustainability and decarbonization efforts in public infrastructure projects led Piedmont to explore the feasibility of potential electrification of our new community pool. These decarbonization efforts are critical for helping Piedmont to meet its 2030 (and 2050) decarbonization goals.

ENERGY USE REPORT

The Energy Use Report provided as part of Schematic Design on March 4, 2022 and updated March 31, 2022 as part of Design Development, documents the energy and facility performance metrics for the community pool project. The report provides detailed life cycle cost analysis (LCCA) estimates for two major options for the facility: a gas fired system and an all-electric heat pump system. In both options the building is fully electric, but the fuel source changes for the pools which represent over 80% of the total site energy. Additionally, both options are presented with and without solar PVT and PV panels, which are designed to produce electrical/thermal energy and electrical-only energy, respectively. Unsurprisingly, the report estimates the inclusion of solar PVT and PV panels in either the gas fired system, or all electric system will yield lower energy consumption levels. With significant design modifications to the building required to meet project funding, the 4800 SF array of solar PVT panels was reduced to 2775 SF. However, through the addition of trellis structures atop the building at the pavilion and perimeter canopy, 2572 SF of glass PV panels were added. This combination of PVT and PV panels are now projected to offset 25% of the facility's energy demand.

The associated costs with either electricity or natural gas consumption are based on East Bay Community Energy and Pacific Gas and Electric Company rates. The estimated GHG emissions for the various options range from 260 MT CO_2e estimated for the gas fired system with no solar PVT panels to zero MT CO_2e for the all-electric solution. The GHG emissions estimated for the gas fired system (with or without solar PVT panels) in the new facility will be nearly 1.5 times greater than the old Community Pool.

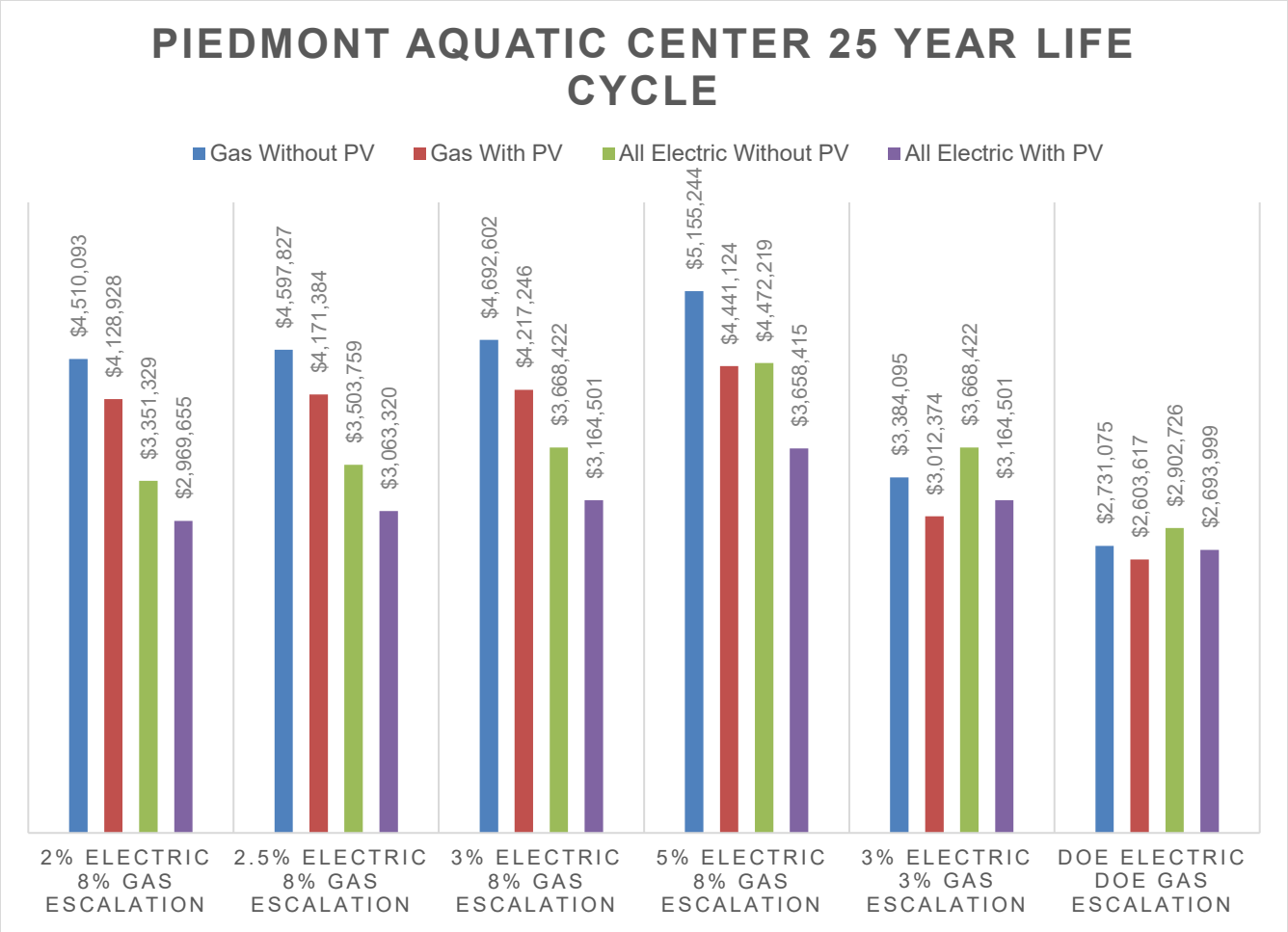
UPDATED COST ANALYSIS GAS vs. ELECTRIC

Updated, high level 25-year life cycle cost analysis of all-electric versus gas heated pools is illustrated below.

	HYBRID Gas Pools + Electric Building with Solar PVT and Glass PV Panels	**ALL-ELECTRIC** Electric Pools + Electric Building with Solar PVT and Glass PV Panels
Upfront Construction Cost (Labor + Materials)	$1,005,000	$ 1,498,000
25 Year Total Estimated Life Cycle Cost (includes upfront construction costs)	$4,124,000	$2,970,000
Total Lifecycle Cost Savings (as compared to gas pools and electric building without PVT)	$381,000	$1,540,000
Payback Period	14.8 years	20.6 years

Financial calculations in the Report are based on the current energy rates from East Bay Community Energy and Pacific Gas & Electric from the 2019 existing site bills. The life cycle cost analysis is completed for a 25-year period with 3% real discount rate, 2% escalation on electricity, and 8% escalation on natural gas rates. This comes at a time when utility rates have grown increasingly volatile and difficult to predict. It is expected that California's regulatory market for decarbonization may drive fossil fuel energy rates even higher than the 8% estimate. Electricity rates are traditionally less volatile than natural gas but there remains tremendous uncertainty.

The analysis based on these assumptions indicates the all-electric facility which will require an additional $500,000 in upfront cost, provides approximately $1,150,000 more cost savings over the 25-year period studied as compared to the hybrid option, while also reducing carbon equivalent emissions to zero. The payback period for the all-electric facility is anticipated at 20.6 years as compared to 14.8 years for the hybrid facility. Given the uncertainty in energy rates, staff analyzed several different inflation factors for energy rates, as shown on the table on the next page and, in each instance, going all electric with PV is projected to result in operational savings.



CONSISTENCY WITH PIEDMONT CLIMATE ACTION PLAN 2.0 AND GENERAL PLAN

On March 19, 2018, the City Council adopted the Piedmont Climate Action Plan 2.0 (CAP 2.0), which includes the goal of reducing greenhouse gas (GHG) emissions occurring within City limits (in-territory) 40% below 2005 levels by 2030 and 80% below 2005 levels by 2050. Since the City began conducting GHG inventories over a decade ago, municipal GHG emissions (city buildings and facilities, employee commute, vehicle fleet, streetlights and traffic signals, and solid waste) have consistently comprised between two and four percent of Piedmont's total in-territory emissions. Compared to overall community emissions, municipal emissions are a very small share of Piedmont's total GHG emissions.

While the vast majority (96-98%) of Piedmont's total GHG emissions are attributed to the broader community, the largest contributor of natural gas use in municipal buildings and facilities came from heating the old Community Pool. With nearly twice the water surface area to heat, the new Piedmont Community Pool facility would require an increase in overall natural gas use.

Since there are few municipal opportunities to reduce GHG emissions, eliminating natural gas use from the City's Community Pool presents an important opportunity to lessen rather than increase our emissions and to lead by example. These goals are in alignment with our CAP 2.0, which calls

for maximizing energy efficient building heating and cooling systems and switching from natural gas to electricity for heating fuel at the municipal level, as well as the General Plan Natural Resources and Sustainability Element, which sets forth the need for the City to set high standards for its own operations if it expects other in the community to follow suit. Ultimately though, in order for Piedmont to make meaningful progress toward meeting our CAP 2.0 goals, the broader community, including all residents of Piedmont, will need to make significant reductions in natural gas use in their homes, vehicles, and daily lives.

FISCAL IMAPCT

The upfront additional investment required to construct an all-electric community pool facility is relatively straightforward and estimated at $500,000. These costs include eighteen heat pump chillers, four heat exchangers, HVAC related items, including seismic work, hauling and other building related HVAC scope. The current economic environment and continuing inflationary pressures have already caused a significant increase in the estimated construction cost of the Community Pool project as initially conceptualized. This has resulted in major changes in the design of the buildings on the site. Based upon current construction cost estimates, the available project funds from Measure UU may not cover the additional cost of electrification.

The impact on operational costs is more difficult to calculate. If the assumptions in the Report hold, the City could see savings of more than $1,150,000 over 25 years as compared to natural gas. However, energy prices, including electricity, are more volatile than other commodities and thus very difficult to predict. In addition, the heating of large public pools with electricity is a relatively new application of heat pump technology. Therefore, we do not have any actual operating data related to the maintenance and repair, as well as the anticipated life span, of this equipment in a municipal aquatic setting.

CONCLUSION

In order to proceed most efficiently through the Design Development phase during this time of extreme inflationary pressure, it would be wise to make a determination now relative to pool heating. With optimism that additional upfront funding can be found as well as with assurance from EBCE that they will be a supportive partner in our effort to be an early adopter of technology that supports heating large public pools with electricity, staff recommends advancing the design of an all-electric facility.

Attachment

Energy Use Report - Design Development Progress Report, March 31, 2022

Supplemental and Referenced Documents

City of Piedmont Climate Action Plan 2.0 - https://piedmont.ca.gov/climate_action_plan
City of Piedmont General Plan - https://piedmont.ca.gov/general_plan

ENERGY USE REPORT

For the

Piedmont Aquatics Center

DESIGN DEVELOPMENT – PROGRESS REPORT

March 31, 2022

1.0 Executive Summary

This report has been prepared by Guttmann & Blaevoet Consulting Engineers under contract with ELS Architecture to document the energy and building performance metrics for the Piedmont Community Pool Center in Piedmont CA. This is the second preliminary report summarizing the building performance statistics from the revised design presented to City Council on March 21, which represented progress Design Development level documents and supporting design narratives from the ELS Design team, and supersedes the previously issued Energy Use Report dated March 4, 2022 that was based upon the schematic design of a larger project. The detailed life cycle cost analysis (LCCA) estimates for the design options for this revised project design are outlined in this report. The LCCA report investigates to major options for the pools, a gas fired system and an all-electric heat pump solution. In both options the building is fully electric and the fuel source changes only for the pools which represent over 80% of the total site energy. These two options are shown with and without the solar photovoltaic (PV) and solar photovoltaic/thermal panels (PVT) to lay out the case for solar separately. The summary of findings provides a reasonable payback for the photovoltaic systems on either the gas or electrified building. The combination of PV and PVT panels and electrified systems provides the best return on investment saving over $1.5 million over the 25-year period studied while reducing the carbon equivalent emissions to zero for the site when we consider the clean energy sources available to the City of Piedmont.

1.1 Climate Considerations:

The City of Piedmont's climate zone is considered for the faciltiy design including surrounding structures and potential for natural ventilation in the design. The site is relatively unobstructed from solar gains with only slight impact to the site from surrounding structures for wind potential.

The CA Climate zone 3 (closest to available data from the Oakland Airport) shows the potential spread of outdoor temperature conditions for natural ventilation, or economizing hours for the building. While this metric of "hours within a temperature range" is useful to determine outdoor conditions for natural ventilation or economizing potential it will not consider interior thermal gains that may impact comfort. The weather files utilized in the simulation for the energy use models are an average of temperatures over a 10 year period for simulation purposes and differ than the temperatures of a typical year or what is used for system sizing in load calculation. The peak design temps for load sizing are listed in the Basis of Design documents and noted below for reference.

MONTHLY DIURNAL AVERAGES
California Energy Code

LOCATION: **Oakland Metropolitan Arpt, CA, USA**
Latitude/Longitude: 37.72° North, 122.22° West, **Time Zone from Greenwich** -8
Data Source: TMY3 724930 WMO Station Number, **Elevation** 6 ft

LEGEND

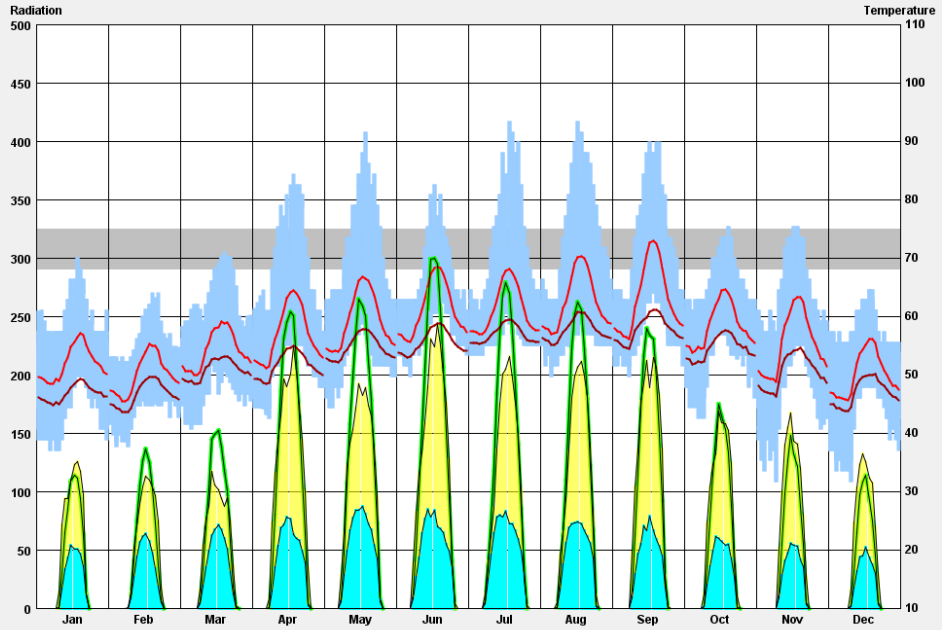
HOURLY AVERAGES

TEMPERATURE: (degrees F)
- DRY BULB MEAN
- WET BULB MEAN
- DRY BULB (all hours)
- COMFORT ZONE

RADIATION: (Btu/sq.ft)
- GLOBAL HORIZ
- DIRECT NORMAL
- DIFFUSE

☑ Display Dry Bulb Temp (all hours)

TEMPERATURE RANGE:
- ◉ 10 to 110 °F
- ○ Fit to Data



MECH BOD: HVAC Design Criteria

1. Outdoor Design Criteria:
    a) Summer Outdoor Design Conditions (0.4%) – 86°F DB, 66°F WB
    b) Design Wet Bulb (0.5%) - 66°F WB
    c) Winter Outdoor Design Conditions (Medium of Extremes) - 30°F DB
2. Indoor Design Criteria:
    a) Heating Indoor Design Temperature - 68°F DB
    b) Cooling Indoor Design Temperature - 74°F DB

1.4 Energy Projections for Progress Design Development Package:

The energy use projections for the pools were simulated with the progress Design Development (DD) documents with the reductions for the recreation pool and the single-story building considered. The progress DD mechanical, electrical, and plumbing basis of design documents produced by the design team informed the energy performance models for this report. The assumptions for the whole project simulation models are outlined in Appendix A for the DD package and will be updated as the design progresses through the ongoing Design Development and Construction Documents Phases. The project simulation schedules for the models are outlined in Appendix B and follow the occupant patterns outlined by the Isaac Sports Group who is estimating programing for the new Piedmont Pool. The pool heaters, pumps, and associated equipment are estimated based on typical operational schedules and follow the seasonal patterns for the pool heating.

The project simulation engine EnergyPro Version 8.3 was used for the project simulation and to estimate the pool energy use schedules and power consumption. The simulation engine for the conditioned spaces take into account the energy use from the architectural system impacts on mechanical, lighting, and electrical loads based on the operation schedules for the building. This simulation process is similar to energy code (Title-24 Part 6) compliance but is simulated in the "non-compliance" calculation engine so that the actual schedules of operation can be used in place of code required daytime only occupancy. The occupancy schedule assumptions are again shown in more detail in Appendix B.

The energy use estimates for the pool heating were sequenced to follow typical seasonal outdoor temperature profiles for heating use impacts on the heat pump array. There is no commercially available energy simulation tools for pools of this size and scale with heat pump sources of energy so the energy estimates are designed to mimic the energy use patterns and kW draw of the heat pump arrays to meet the heating needs of the pools. The energy use estimates take into account pool surface loss, makeup water due to splash & evaporation, and the heat loss to ambient conditions at night considering the pools are covered each night with minimal surface covers. The heat pump arrays for the pools are designed to elevate the entire pool temperature to the operational temperature when the pools are originally filled or refilled for maintenance. The typical operation of the array is expected to be at most 60-70% of the total array capacity in a regular operation even in extreme temperatures as low as 32F once the pool volume is brought to operating temperature originally. For this reason the simulation tools utilize a "percent of total" capacity factor for energy use simulation purposes. The schedules estimated are included in Appendix B and create a reasonable expectation of energy use. Energy use estimates may vary depending on occupancy use patterns, such as increased filter loading or excessive water loss from splashing, or neglecting to install pool covers at night.

Two general options are considered for this life cycle cost analysis (LCCA) and each are shown with and without the contributions of the solar systems. The base design parameters for the building remain the same, the only difference between the two options shown below are for the energy source for the pools. Both basis of designs for the gas fired pool and the heat pump arrays are outlined in Appendix A below. The solar options for

the site include a 2775 SF array considering the DualSun Photovoltaic/Thermal panels that are designed to produce both electrical and thermal energy. The thermal energy is converted in both of these pool design options, gas fired boilers and heat pumps, into the equivalent thermal energy source, in this case therms for gas, and kWh for the heat pumps. A separate thin film glass panel PV system is included in the current design covering a total of 2,572 of space on the second floor deck and perimeter canopy.

The financial calculations are based on the current City of Piedmont Electricity rates from East Bay Community Energy (Energy Commodity), Pacific Gas & Electric electricity (Transmission & Distribution), and Pacific Gas & Electric gas rates from the 2019 existing site bills. The life cycle cost analysis is completed for a 25-year period with 3% real discount rate, 2% escalation on electricity, and 8% escalation on natural gas rates. We provide an alternate calculation with the Department of Energy Fuel Escalation rates for the US energy sector as a conservative comparison but they have been historically low compared to California's energy sector. We expect that California's regulatory market for decarbonization will also drive fossil fuel energy rates much higher than the 8% estimation in this report due to emerging Cap & Trade pricing among other rate hikes for the fossil fuel sector. Historical prices in California are estimated below for the last few years as evidence that the 2% electricity and 8% escalation for natural gas are conservative for this project considering on site renewable energy will designed as part of the project further stabilizing electricity rates for the site.

Construction Costs:
Base Design Gas Fired Pools (MEP Costs Only): $463,170
Option 1: Gas Fired Pools + Photovoltaic and Photovoltaic/Thermal Panels: $1,004,674
Option 2: All Electric Pool: $956,722
Option 3: All Electric Pool + Photovoltaic and Photovoltaic/Thermal Panels: $1,498,226

LIFE CYCLE COSTING SUMMARY — LCC-1

Project Name: *Piedmont Pool LCCA* | Date: *3/31/2022*

ANNUAL ENERGY USE AND COST

Option	Description	Electricity			Natural Gas		Simple Payback (years)
		Consumption (kWh)	Demand (kW)	Cost ($)	Consumption (therms)	Cost ($)	
Base	*Base Gas Pool & Electric BLDG*	*342,383*	*0*	*$62,431*	*42,627*	*$54,406*	*N/A*
1	*Base Gas Pool & Electric BLDG + PVT+ PV*	*212,789*	*0*	*$30,211*	*39,251*	*$50,097*	*14.8*
2	*All Electric Pool + Electric BLDG*	*650,705*	*0*	*$108,468*	*0*	*$0*	*59.0*
3	*All Electric Pool + Electric BLDG + PVT + PV*	*485,132*	*0*	*$66,651*	*0*	*$0*	*20.6*

LIFE CYCLE COST PRESENT VALUE

Option	Initial Cost	Utility Incentive	Annual Recurring Costs	Electricity Costs	Natural Gas Costs	Non Annual Recurring OM&R Cost	Replacem. Costs	Residual Value	Total LCC	Savings
Base	*$463,170*	*$0*	*$0*	*$1,378,265*	*$2,668,657*	*$0*	*$0*	*$0*	*$4,510,093*	*$0*
1	*$1,004,674*	*$0*	*$0*	*$666,957*	*$2,457,297*	*$0*	*$0*	*$0*	*$4,128,928*	*$381,165*
2	*$956,722*	*$0*	*$0*	*$2,394,607*	*$0*	*$0*	*$0*	*$0*	*$3,351,329*	*$1,158,764*
3	*$1,498,226*	*$0*	*$0*	*$1,471,429*	*$0*	*$0*	*$0*	*$0*	*$2,969,655*	*$1,540,438*

Study Parameters

Study Period: *25* years

Real Discount Rate: *3.0%*

☐ DOE/FEMP Escalation Rates

Region: *N/A*

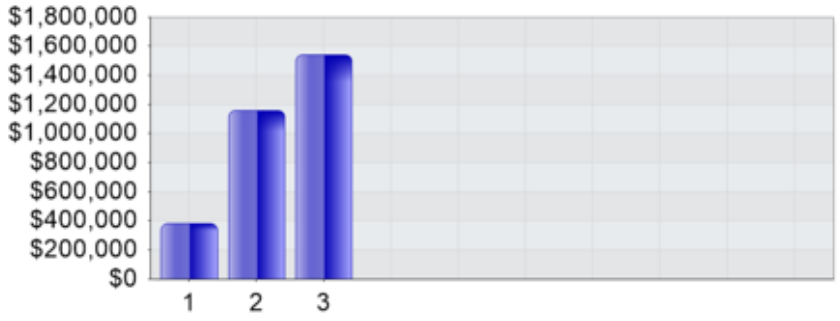
Fuel Sector: *N/A*

☑ Uniform Escalation Rates

Electricity: *2.0%*

Natural Gas: *8.0%*

LIFE CYCLE COST SAVINGS



Note: *The 2% escalation considered the onsite renewable system as part of the capital project and energy would not escalate once that portion of the project is paid for, thus reducing the average CA escalation from 2.5% down to 2%.*

LIFE CYCLE COSTING SUMMARY

LCC-1

Project Name: *Piedmont Pool LCCA*

Date: *3/31/2022*

ANNUAL ENERGY USE AND COST

Option	Description	Electricity			Natural Gas		Simple Payback (years)
		Consumption (kWh)	Demand (kW)	Cost ($)	Consumption (therms)	Cost ($)	
Base	*Base Gas Pool & Electric BLDG*	*342,383*	*0*	*$62,431*	*42,627*	*$54,406*	*N/A*
1	*Base Gas Pool & Electric BLDG + PVT+ PV*	*212,789*	*0*	*$30,211*	*39,251*	*$50,097*	*14.8*
2	*All Electric Pool + Electric BLDG*	*650,705*	*0*	*$108,468*	*0*	*$0*	*59.0*
3	*All Electric Pool + Electric BLDG + PVT + PV*	*485,132*	*0*	*$66,651*	*0*	*$0*	*20.6*

LIFE CYCLE COST PRESENT VALUE

Option	Initial Cost	Utility Incentive	Annual Recurring Costs	Electricity Costs	Natural Gas Costs	Non Annual Recurring OM&R Cost	Replacem. Costs	Residual Value	Total LCC	Savings
Base	*$463,170*	*$0*	*$0*	*$1,120,063*	*$1,147,843*	*$0*	*$0*	*$0*	*$2,731,075*	*$0*
1	*$1,004,674*	*$0*	*$0*	*$542,010*	*$1,056,933*	*$0*	*$0*	*$0*	*$2,603,617*	*$127,459*
2	*$956,722*	*$0*	*$0*	*$1,946,004*	*$0*	*$0*	*$0*	*$0*	*$2,902,726*	*($171,650)*
3	*$1,498,226*	*$0*	*$0*	*$1,195,773*	*$0*	*$0*	*$0*	*$0*	*$2,693,999*	*$37,077*

Study Parameters

Study Period: *25* years

Real Discount Rate: *3.0%*

☑ DOE/FEMP Escalation Rates

Region: *Western US*

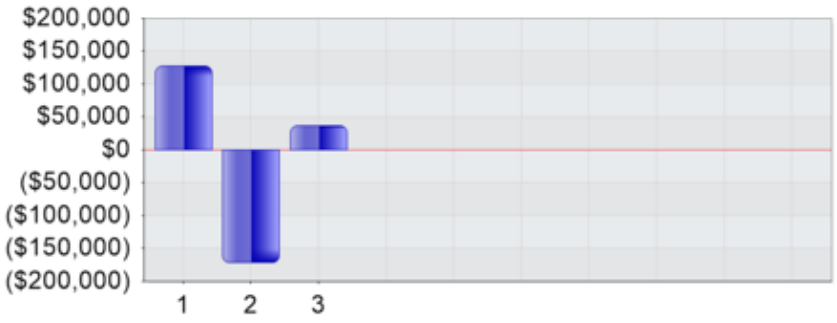
Fuel Sector: *Commercial*

☐ Uniform Escalation Rates

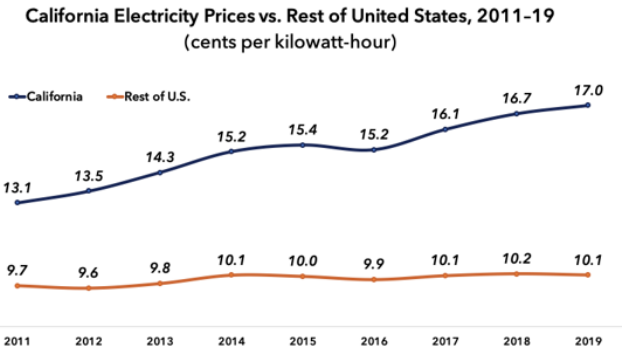
Electricity: *N/A*

Natural Gas: *N/A*

LIFE CYCLE COST SAVINGS

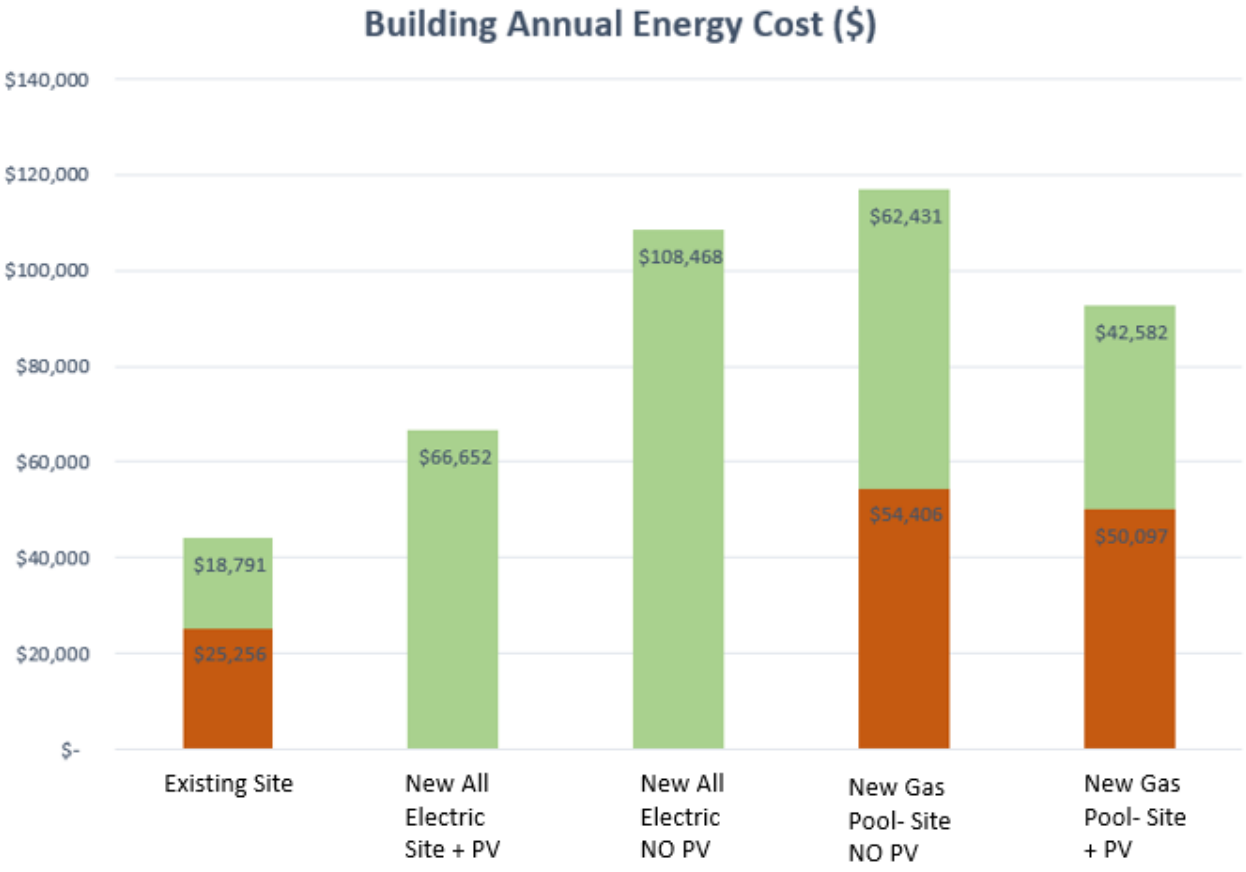


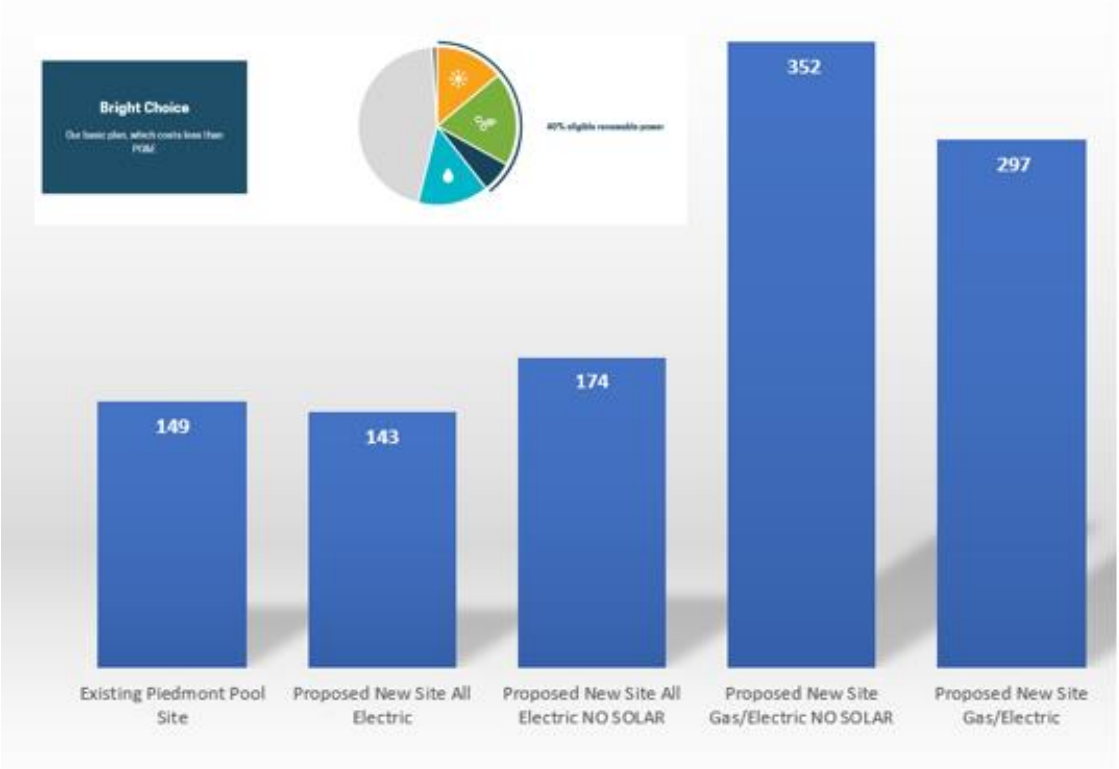
Fuel Escalation

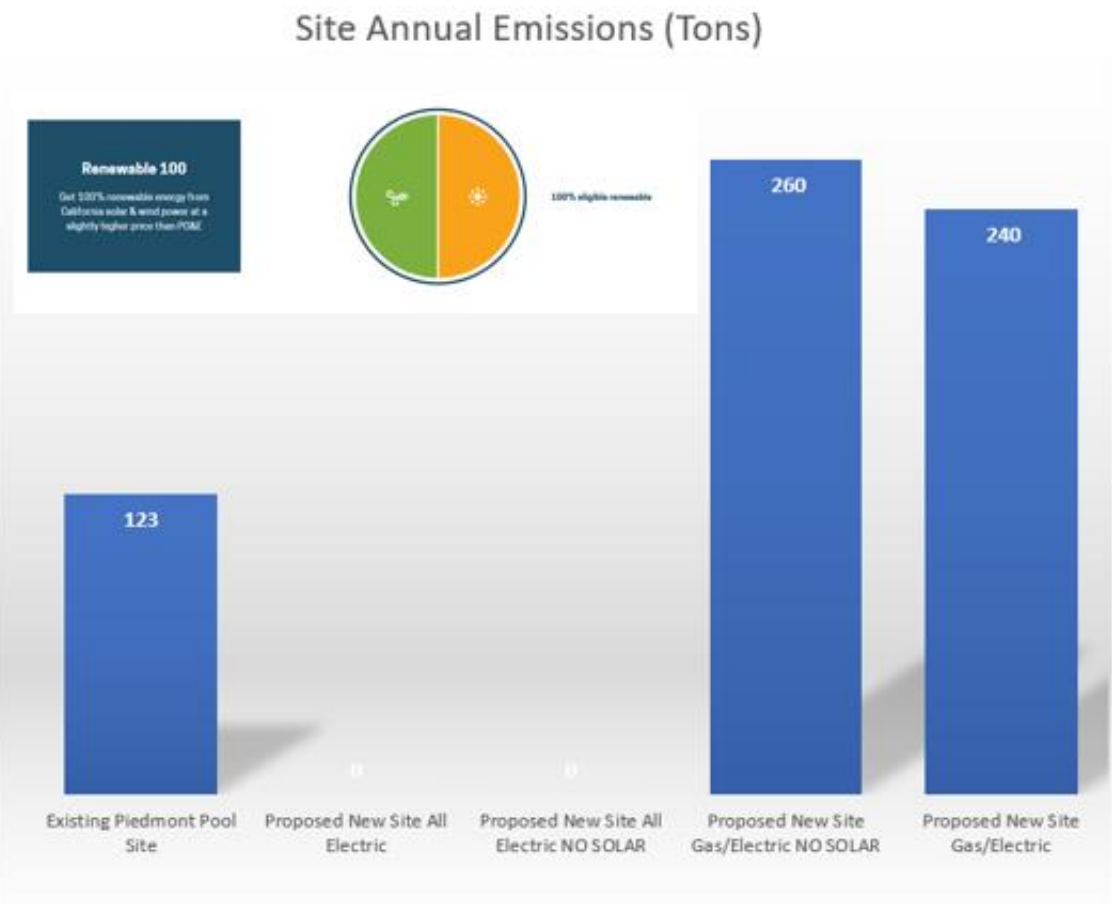


Gas Escalation 2018 high to 2022 high = 200% in 4 years (50% year over year volatility)

California Electricity Escalation 2001 high to 2019 high = 22.9% higher over 9 years (2.5% year over year escalation)




Site Annual Emissions (Tons)
Bright Choice
149
143
174
352
297
Existing Piedmont Pool Site
Proposed New Site All Electric
Proposed New Site All Electric NO SOLAR
Proposed New Site Gas/Electric NO SOLAR
Proposed New Site Gas/Electric


Site Annual Emissions (Tons)
Renewable 100
260
240
123
0
0
Existing Piedmont Pool Site
Proposed New Site All Electric
Proposed New Site All Electric NO SOLAR
Proposed New Site Gas/Electric NO SOLAR
Proposed New Site Gas/Electric

APPENDIX A: Building Assumptions

Architectural

- **Walls:**
    - R-21 Wood Framed Walls 16" On Center overall U-Factor of 0.071
    - Underground Walls, 6" Concrete overall U-Factor of 0.775
- **Roof:** R-38 Wood Framed Roof U-Factor of 0.025
- **Windows:** Solarban 70XL or equivalent insulated glass unit in thermally broken metal or non-metal framing (U-factor of 0.45 or better, SHGC of 0.27 or better).
- The base case envelope assumes no significant operable windows or ventilation openings in the façade or energy savings due to natural ventilation controls.

Base Case Lighting:

- The Allowed Lighting power density for Title-24-2019 Standards is uses in these model options.
- The proposed operational lighting power density is 0.65 W/sf for the building.

Base Case Ventilation:

- Ventilation is modeled using the Title-24-2019 default ventilation requirement for each of the individual occupancies. Areas like the restrooms require more ventilation than normal and these areas have been adjusted to meet the minimum air change requirements outlined in the Basis of Design (BOD).
- Total Air Change Rates (ACH) are higher in Locker rooms at 6 total ACH

Base Case Occupant Density:

- Occupant density is currently defaulted to the Title-24-2019 occupancies defined by the California Energy Commission.

Base Case DHW Loads:

- Domestic hot water loads are assumed to be the default CEC allowances per space type defined.
- Proposed DHW system is based on the air to water heat pump systems.

Base Case Mechanical Systems -

- Offices, Reception & Lockers: Air-to-Air Energy Recovery Variable Refrigerant Volume VRF Heat Pump System.
- VRF air source energy recovery heat pump system (Daikin, Mitsubishi City-Multi, LG or equal).
- The condenser units can be mounted at grade or on the roof on a concrete base. Alternatively, the condensers could be mounted in the mechanical room space permitted.
- Fan Coil Units (FCU's) shall be required as follows:
    - Pool office (Ceiling cassette type)
    - Life Guard (Ceiling cassette type)
    - Staff area (Ducted type)
    - Entrance Lobby (Ceiling cassette type)
    - Elec/Telecom room (Wall mounted type).
    - Locker rooms (100% OSA ducted type)

Base Case Pool Heating Systems:

- Base Design: Aquatic Design Group are analyzing traditional gas fired boiler plus heat exchanger per pool.
    - Two (2) of gas fired high efficiency condensing boilers for the base case comparison:
    - 2,000,000 Btu's for the Yard Pool
    - 1,000,000 Btu's for the Activity Pool
    - Titanium plate and frame heat exchanger per pool design.
        - HEX-1 Bell & Gossett GPX Model #P64 Titanium Plate HEX 250 GPM.
        - HEX-2 Bell & Gossett GPX Model #P64 Titanium Plate HEX 205 GPM.
        - Dedicated pumps per pool by ADG.
- Option-1: The G&B team are analyzing a solar thermal and photovoltaic system with hybrid heat pump including supplemental electric booster when needed.
    - The hybrid heat pump will be twenty (20) off hybrid heaters providing 100% of the steady state load during. Each heater will be equal to the Samsung model AG015KSVAJH/AA. 18kW for each of the units totaling 360kW for the heat pump array at full capacity.
    - A combination of solar photovoltaic/thermal panels and solar photovoltaic panels will provide 100% of the summer peak heating load for the pools. DualSun PVT panels or equal of 2,775sf of PVT's + 2,572sf of glass PV panels of available roof area. Thermal Energy Production shall be roughly 36,000 kWh/Year. PV Production (First Year) shall be 115,300 kWh/Year for both the PVT and glass PV Systems in electrical output.
    - Titanium plate and frame heat exchangers.
        - HEX-1 Bell & Gossett GPX Model #P64 Titanium Plate HEX 250 GPM.
        - HEX-2 Bell & Gossett GPX Model #P64 Titanium Plate HEX 110 GPM.
        - HEX-3 Bell & Gossett GPX Model #P64 Titanium Plate HEX 190 GPM.
        - HEX-4 Bell & Gossett GPX Model #P64 Titanium Plate HEX 205 GPM.

Base Case Energy Rates:

- Rate Schedule A1X Small General Time of Use/Brilliant 100
- PG&E GNR-1 Gas Rate

Base Case Emission Rates:

- East Bay Community Energy Emission Rate for Bright Choice: 0.5906 lbs of CO2e/kWh
- East Bay Community Energy Emission Rate for 100 Renewable Choice: 0.0 lbs of CO2e/kWh
- Pacific Gas & Electric Gas Emission Rate: 13.46 lbs of CO2e/Therm

Base Case Schedules of Operation:

- Schedules of operation follows the patterns noted by Stuart Isaac of the Isaac Sports Group noted below and modeled as such in the Appendix B simulation schedules.

SCHOOL YEAR-Weekdays

5:30 TO 6:00AM	15%
6-7	45%
7-8	45%
8-9	40%
9-10	35%
10-11	40%
11-12	50%
12-1PM	50%

1-2	50%
2-3	65%
3-4	85%
4-5	95%
5-6	95%
6-7	95%
7-8	80%
8-9	50%
9-9:30	25%

SUMMER-Weekdays

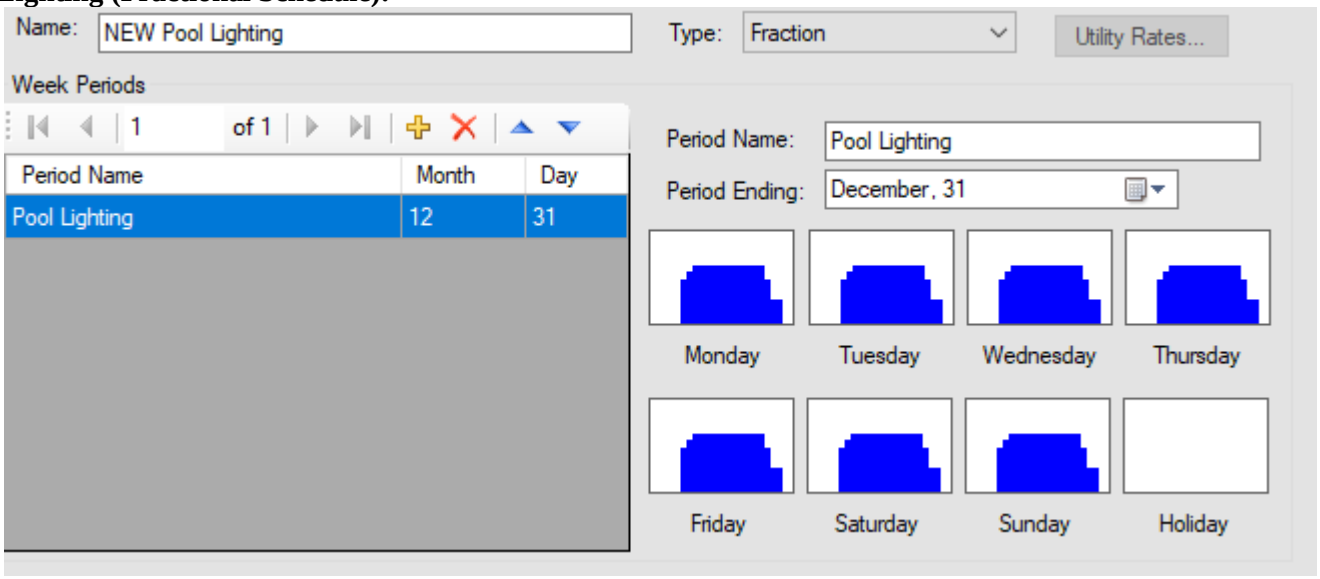
5:30 TO 6:00AM	10%
6-7	30%
7-8	35%
8-9	60%
9-10	90%
10-11	90%
11-12	90%
12-1PM	90%
1-2	80%
2-3	80%
3-4	80%
4-5	90%
5-6	90%
6-7	75%
7-8	60%
8-9	40%
9-9:30	5%

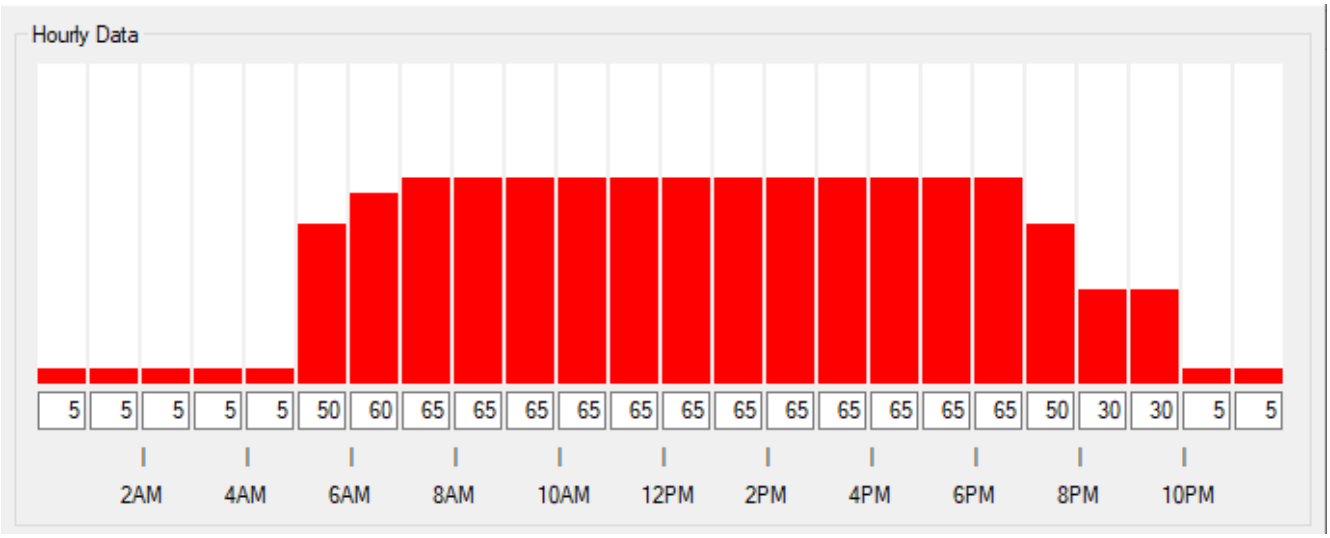
Process Energy Usage

- Pool Pumps: 43kw running on Pump schedule outlined in Appendix B
- Pool Heaters: 396 kW running on Pool Heater schedule outlined in Appendix B

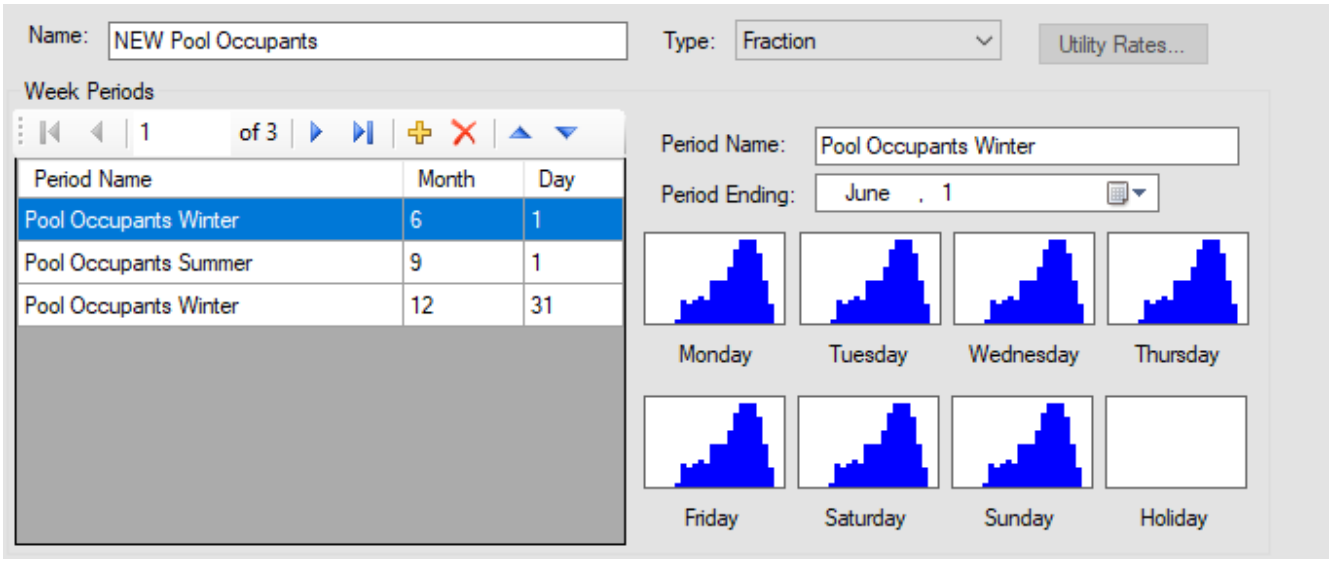
APPENDIX B: Simulation Schedules for occupancies:

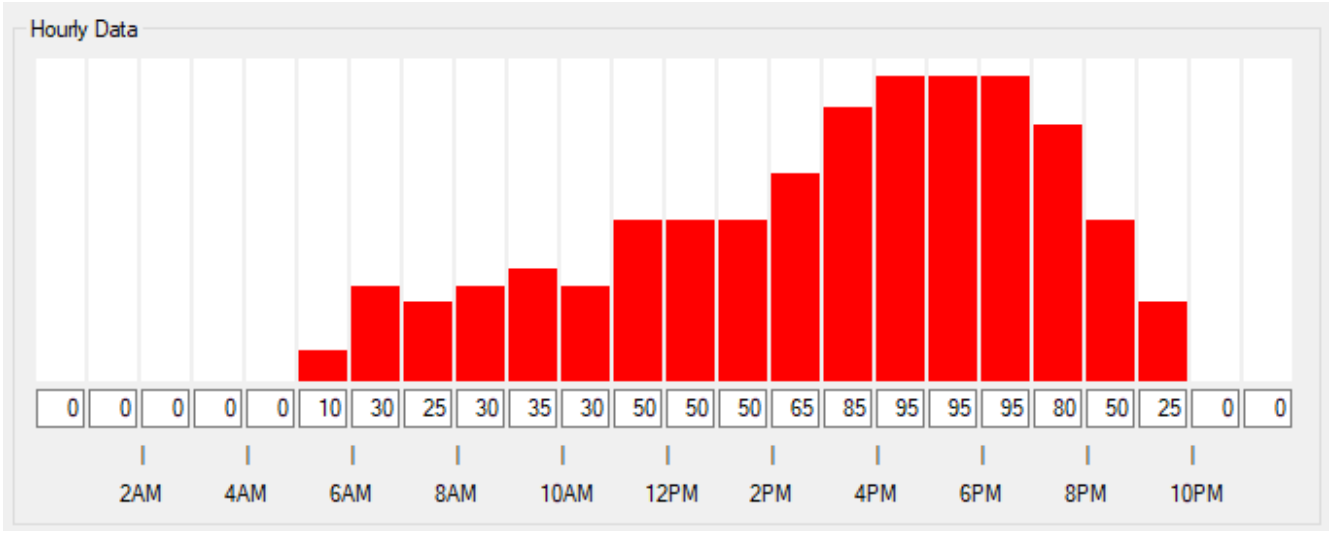
Lighting (Fractional Schedule):



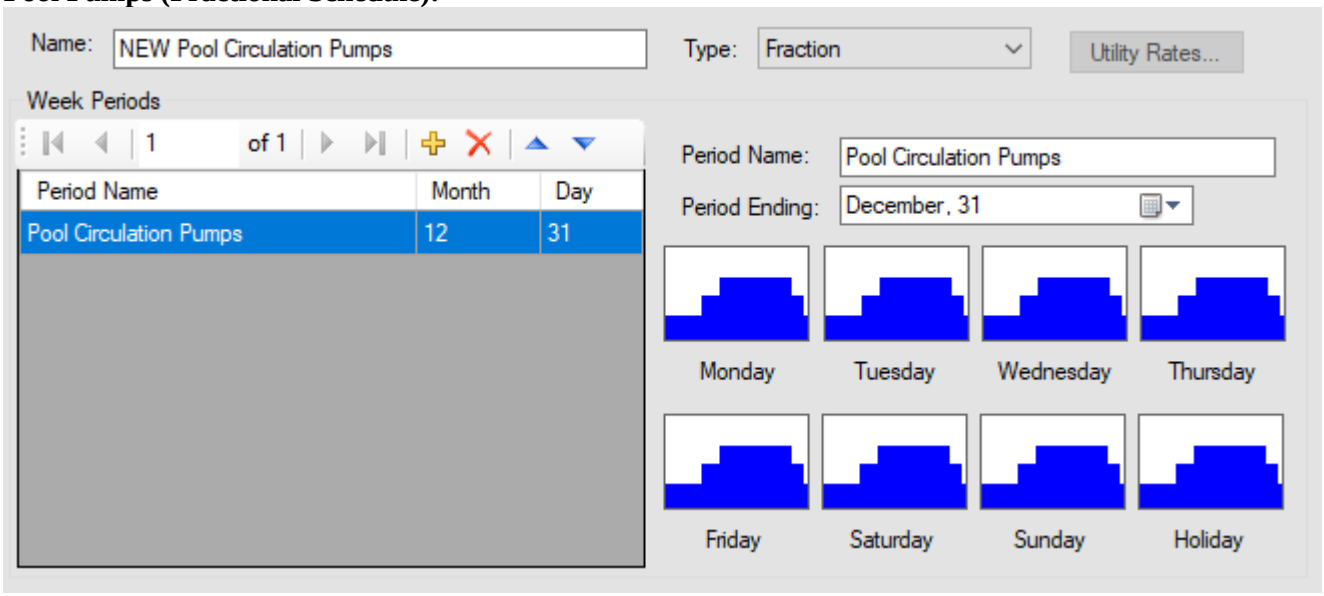


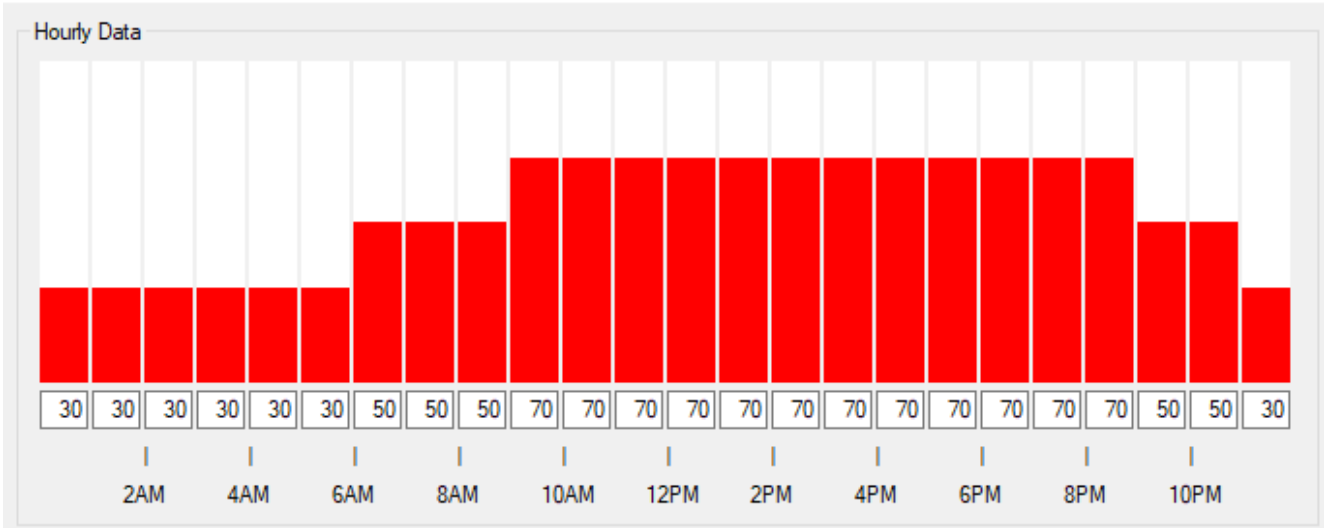
Occupants (Fractional Schedule):



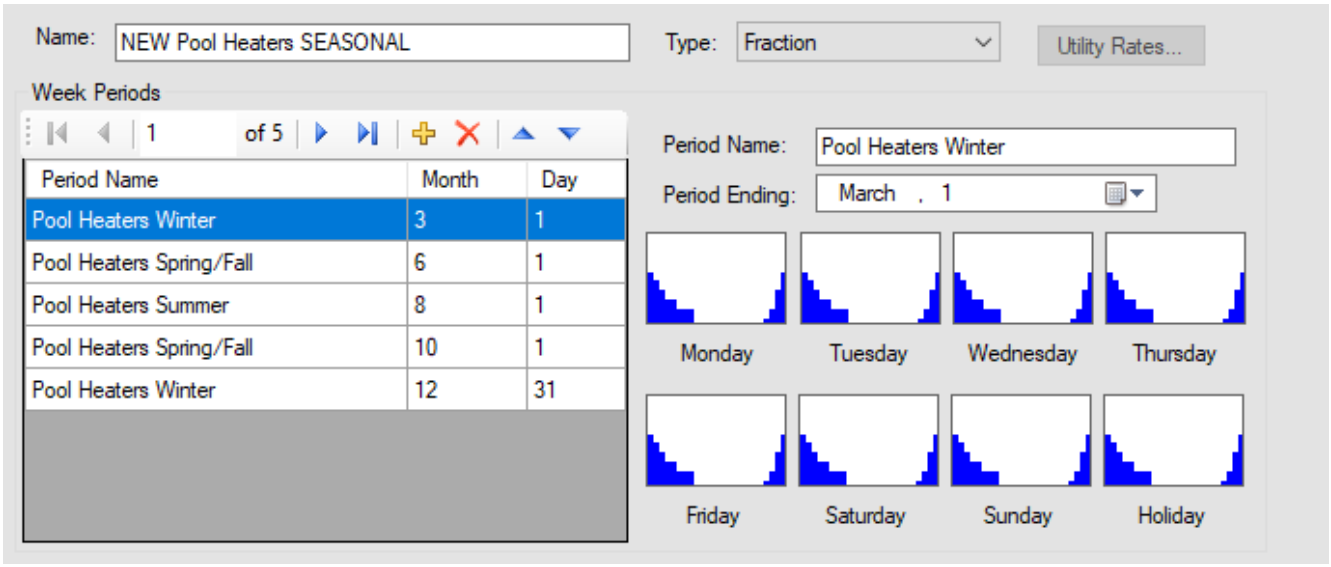


Pool Pumps (Fractional Schedule):

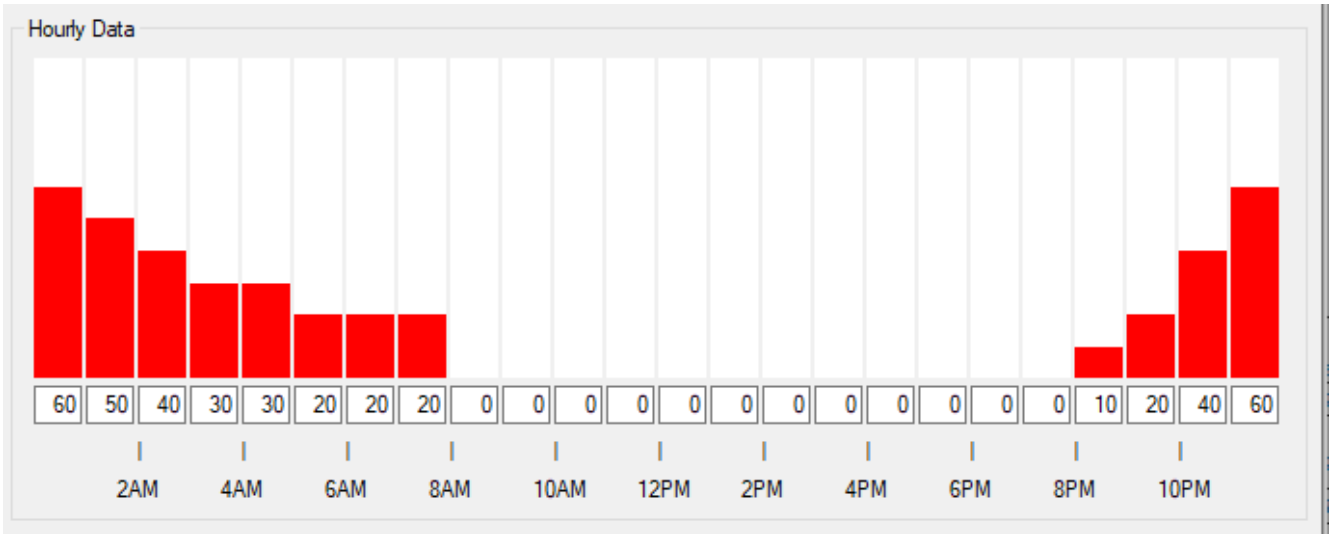




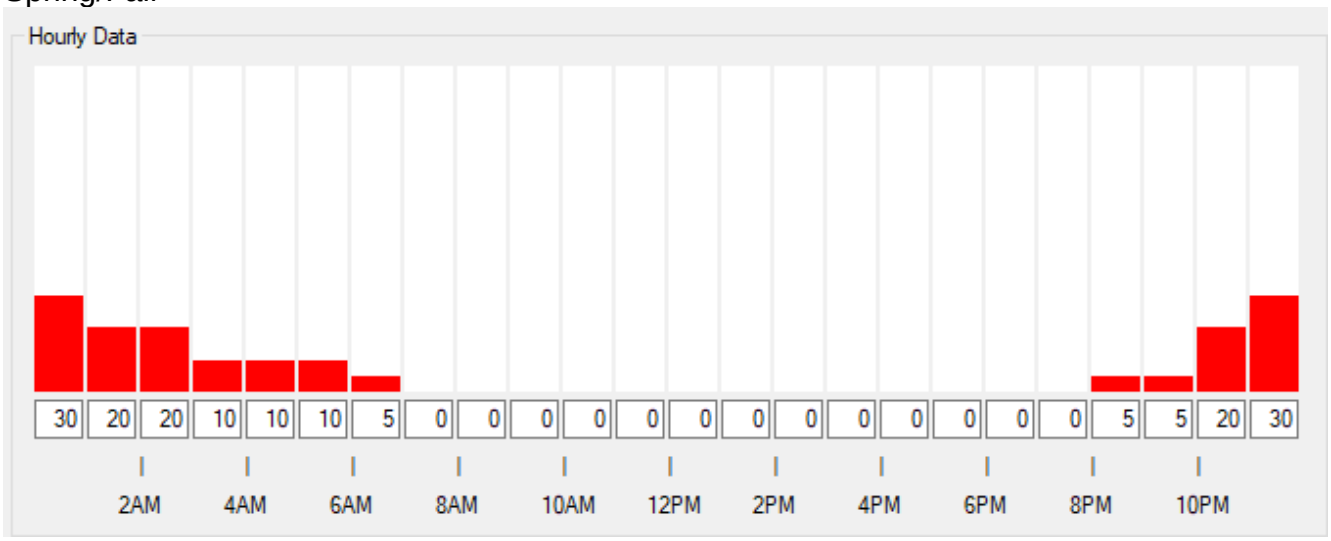
Pool Heater (Fractional Schedule):



Winter Schedule



Spring/Fall



APPENDIX C: Energy Use Estimates Per Month:

Existing Site Usage				
Month	Site Electric Use (kWh)	Existing Site Electric Cost	Site Energy Gas	Existing Site Energy Gas Cost
Jan-20	8313	$ 1,456.79	2926	$ 3,734.55
Feb-20	8485	$ 1,276.50	2028	$ 4,061.26
Mar-20	7153	$ 1,328.50	2215	$ 2,944.80
Apr-20	7391	$ 1,313.29	998	$ 1,254.58
(Missing) Est May	7391	$ 1,313.29	998	$ 1,254.58
(Missing) Est June	7391	$ 1,313.29	998	$ 1,254.58
Jul-19	9347	$ 1,964.04	1167	$ 1,179.76
Aug-19	8414	$ 1,843.40	795	$ 855.89
Sep-19	7892	$ 1,749.36	826	$ 859.15
Oct-19	8709	$ 1,866.77	1713	$ 1,669.81
Nov-19	8802	$ 1,827.17	2815	$ 2,964.31
Dec-19	8793	$ 1,538.51	2679	$ 3,222.64
Total	98081	$ 18,790.91	20158	$ 25,255.91

PIEDMONT HEAT PUMP POOL

Site Usage			PV SYSTEM OUTPUT				THIN FILM GLAS PV OUTPUT		Solar Thermal Output to Pools				Total PVT Energy Generated	Cost Savings	Total Energy Site (kWh)	Proposed Energy Cost With Solar PVT
Month	Site Energy Use (kWh)	Proposed Energy Cost No Solar	Month	PV AC System Output(kWh)	Virtual Monthly Rate	Cost at Sim Virtual Rate	PV AC System Output(kWh)	Cost at Sim Virtual Rate	Solar Thermal (kBtu/month)	Thermal Output (kWh)	Virtual Monthly Rate	Cost at Sim Virtual Rate	kWh	$	kWh	$
Jan	73,991	$ 9,996.00	1	3175	$0.17	$539.75	2,583	$439.11	3795	506	$0.17	$85.94	3681	$625.69	67,727	$ 8,931.20
Feb	66,125	$ 9,175.00	2	4022	$0.18	$723.99	2,749	$494.82	6337	844	$0.18	$151.94	4866	$875.93	58,510	$ 7,804.25
March	48,256	$ 7,380.00	3	6310	$0.17	$1,072.77	4,249	$722.33	15067	2007	$0.17	$341.21	8318	$1,413.98	35,689	$ 5,243.69
April	45,824	$ 6,286.00	4	7985	$0.17	$1,357.45	4,850	$824.50	21339	2843	$0.17	$483.25	10828	$1,840.69	30,146	$ 3,620.81
May	47,205	$ 9,158.00	5	9231	$0.30	$2,769.26	5,360	$1,608.00	33092	4408	$0.30	$1,322.50	13639	$4,091.76	28,206	$ 3,458.24
June	29,093	$ 6,882.00	6	9846	$0.29	$2,855.48	5,426	$1,573.54	41858	5576	$0.29	$1,617.08	15423	$4,472.56	8,244	$ 835.90
July	29,583	$ 6,339.00	7	10149	$0.29	$2,943.17	5,560	$1,612.40	45990	6127	$0.29	$1,776.70	16275	$4,719.87	7,748	$ 6.73
Aug	47,479	$ 9,223.00	8	8910	$0.28	$2,494.80	5,364	$1,501.92	44763	5963	$0.28	$1,669.66	14873	$4,164.45	27,242	$ 3,556.63
Sept	46,632	$ 9,184.00	9	7327	$0.29	$2,124.73	4,758	$1,379.82	35514	4731	$0.29	$1,371.97	12058	$3,496.69	29,816	$ 4,307.49
Oct	72,548	$ 13,784.00	10	5628	$0.28	$1,575.97	3,967	$1,110.76	16499	2198	$0.28	$615.43	7826	$2,191.40	60,755	$ 10,481.84
Nov	70,473	$ 10,462.00	11	3748	$0.21	$787.18	2,905	$610.05	4147	552	$0.21	$116.02	4301	$903.20	63,267	$ 8,948.75
Dec	73,496	$ 10,599.00	12	3021	$0.20	$604.25	2,469	$493.80	1686	225	$0.20	$44.92	3246	$649.17	67,781	$ 9,456.03
Total	650705	$ 108,468.00	Total	79354		$19,848.77	50,240	$12,371.05		35979		$9,596.61	115333	$29,445.38	485,132	$ 66,651.57

PIEDMONT GAS FIRED POOL

Site Usage			PV SYSTEM OUTPUT				THIN FILM GLASS PV OUTPUT		Solar Thermal Output to Pools			Gas Fired Pool Costs			Total Energy		
Month	Site Energy Use (kWh)	Proposed Energy Cost No Solar	Month	PV AC System Output(kWh)	Virtual Monthly Rate	Cost at Sim Virtual Rate	PV AC System Output(kWh)	Cost at Sim Virtual Rate	Solar Thermal (kBtu/month)	PVT Thermal Offset (Therms)	PVT Thermal Offset ($)	Gas to New Pools	New Gas Cost	Gas Cost with PVT offset	kWh	Therms	$
Jan	29,351	$ 4,070.00	1	3175	$0.17	$ 540	2,583	$ 439	3795	47	$ 61	6187	$ 7,897	$ 7,837	23593	6,140	$ 10,928
Feb	25,805	$ 3,676.00	2	4022	$0.18	$ 724	2,749	$ 495	6337	79	$ 101	4288	$ 5,474	$ 5,372	19034	4,209	$ 7,830
March	28,996	$ 4,082.00	3	6310	$0.17	$ 1,073	4,249	$ 722	15067	188	$ 240	4684	$ 5,978	$ 5,738	18437	4,496	$ 8,025
April	28,004	$ 3,996.00	4	7985	$0.17	$ 1,357	4,850	$ 825	21339	267	$ 340	2110	$ 2,694	$ 2,353	15169	1,844	$ 4,167
May	28,791	$ 6,183.00	5	9231	$0.30	$ 2,769	5,360	$ 1,608	33092	414	$ 528	2110	$ 2,694	$ 2,166	14200	1,697	$ 3,971
June	28,499	$ 6,180.00	6	9846	$0.29	$ 2,855	5,426	$ 1,574	41858	523	$ 668	2110	$ 2,694	$ 2,026	13227	1,587	$ 3,777
July	29,583	$ 6,339.00	7	10149	$0.29	$ 2,943	5,560	$ 1,612	45990	575	$ 734	2468	$ 3,150	$ 2,416	13874	1,893	$ 4,199
Aug	29,659	$ 6,325.00	8	8910	$0.28	$ 2,495	5,364	$ 1,502	44763	560	$ 714	1681	$ 2,146	$ 1,432	15385	1,122	$ 3,760
Sept	28,812	$ 6,277.00	9	7327	$0.29	$ 2,125	4,758	$ 1,380	35514	444	$ 567	1747	$ 2,229	$ 1,663	16727	1,303	$ 4,435
Oct	28,754	$ 6,154.00	10	5628	$0.28	$ 1,576	3,967	$ 1,111	16499	206	$ 263	3622	$ 4,623	$ 4,360	19159	3,416	$ 7,827
Nov	27,273	$ 4,496.00	11	3748	$0.21	$ 787	2,905	$ 610	4147	52	$ 66	5953	$ 7,598	$ 7,531	20620	5,901	$ 10,630
Dec	28,856	$ 4,653.00	12	3021	$0.20	$ 604	2,469	$ 494	1686	21	$ 27	5665	$ 7,231	$ 7,204	23366	5,644	$ 10,759
Total	342383	$ 62,431.00	Total	79354		$ 19,849	50,240	$ 12,371		3376	$ 4,309	42627	$ 54,406	$ 50,097	212789	39,251	$ 80,308

Item #3 – Electrification of the Piedmont Community Pool
Correspondence Received Before 1:00 p.m. on Monday, April 4, 2022

I support the all-electric pool design. I understand it will cost a little more upfront, but it's the right thing to do for our world, it's the right message to send to our kids and other observers, and it should save money in the longer-run.

Thanks for your consideration!
Taylor Harris

I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

Julia Burke

Y'know, I know the government doesn't exactly like shelling out money, especially when it comes to going green and saving the planet, but it should be done anyways. Think about it like a long term investment. Would you rather have a thousand dollars a year from now, or save 100 dollars by not buying that investment? I know the thousand dollars seems like a long ways off, and potentially an unsure payment, but even IF you do waste those 100 dollars, at LEAST it gave you some hope for the future. So that's why you should go green (and shell out for a green pool.)

- Best Regards,
Henry Salzer

Dear Piedmont Connect's Pool Committee,

Imagine being part of a group of people who was responsible for having everyone that lived in Piedmont have access to clean air, clean water, and happy family unity and in addition…this clean air spread to our neighboring communities…(as Air most certainly does…spread to neighboring communities)!
I support, and urge you to approve, an all-electric Piedmont Aquatic Center.
As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont.
I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health (and harmful to our neighbors health and harmful to any of our visiting families health) and

damaging to our environment (and harmful to our neighbors environment and harmful to our visiting families environment when they come to visit us). These are all people we love and care about…Let's take the stand that we will spend what is needed to protect not just our air quality, but also those we love and care deeply about as well.

We can do that. YOU can VOTE to DO THAT. Please consider the future of ALL LIFE on our planet. Not just the folks who will swim in the pool now…Please CONSIDER all people who live on the planet EARTH. Let's vote with ALL of THEM in MIND, Please.

Thank you for considering my point-of-view.
Respectfully,
Sharona Fischrup

---

hello council members.

first, apologies for not being able to stay at last night's meeting to offer a few comments on agenda item 5. I'd forgotten that you are a deliberative body and I made arrangements to meet someone at 8 pm. never try to double book anything the night of a council meeting.

my comments on the issue — whether the new pool will be heated with gas or electricity — are fairly straightforward: I'm concerned that a desire to do the right thing (build a new facility powered by renewable energy) will get in the way of doing the smart thing (heat the pool with natural gas boilers). clearly in a perfect world we would be using only renewable energy everywhere and for everything. but we don't live in a perfect world and there are risks in trying to do the right thing.

for one, large scale electric water heating is still a relatively new technology, so installing it has operational risks. it's great that a larger city like mountain view is playing early adopter. unlike piedmont, they have the resources — deeper pockets, additional city pools — to weather any hiccups that are likely to occur. and with newer technologies, hiccups always occur. we don't want to build this beautiful new facility and have to shut it down for stretches while working out the kinks of the electrical heating system. (as an aside, I have a home in scotland that uses hot water heating; the technology over there is well established and has been widely used for more than a decade … and we still regularly have problems with our boiler that require servicing. the technology demonstrably works; it just isn't perfected yet.)

a second concern is financial risk. the piedmont connect group — whose work and advocacy I strongly support — feels that there are significant ongoing cost savings to be had after the initial extra expense of installing an electric heating plant. I'm not an economist but I've learned to be wary of cost projections that rely on commodity markets. most commentators expect oil and gas and LNG prices to continue rising, and since these are fuel sources for much conventional electricity generation, it is only logical for electricity prices to go up. and electricity is a unitary market, so the price will rise whether the source is traditional fossil fuel or new renewable sources. again, I'm not an expert, but I hope the city can hire one who can ascertain whether the piedmont connect projections pencil out over the next five to ten years. as you all pointed out

last night, the city needs to be concerned with the overall cost of the new aquatics facility — not just building it, but operating it.

which brings me to the last point I was hoping to make last night: whether a fully electrified facility reflects the will of the voters. I served two years on the aquatics task force that analyzed the existing pool, developed the basic plan for the new facility, and gathered public input on the desire for/willingness to invest in a new pool to replace the old one. I also helped the measure UU team with their messaging and outreach. and I attended several of the planning sessions after UU passed. I would just point out that what the community has been supporting — and what the voters asked for — is a $19 million dollar aquatics facility to replace a well-loved, but well-worn, public pool. the desire for electrification is admirable and understandable. it aligns with my personal ethos. but I don't know that it is what the citizens of piedmont thought they were voting for in measure UU. a few members of the public last night said "build it and build it fast". I suspect this is the dominant sensibility in town. also maybe "build it so it is usable and reliable". if so, that would argue for a heating system that uses proven heating technology.

good luck with your decision making.

Terry London

Piedmont City Council Members:

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities. After all, it encourages residents to take similar steps in their homes, such as swapping out gas appliances for electric models. Additionally, the City plans on installing charging stations for electric vehicles in an effort to support the switch to electric vehicles by residents.

Piedmont – its government and residents – have worked for a long time to reduce our town's carbon footprint. Let's not give in to the expediency of lower upfront costs for a natural gas system for the pool facility. While the upfront cost of building a pool facility that uses natural gas is less (by approximately $600,000), an all-electric facility will create $1,000,000 more in cost savings over a 25-year period and reduce greenhouse gas emissions from pool heating to zero. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Piedmont must be a leader in reducing greenhouse gas emissions. Selecting the natural gas option for the pool facility sets us off in the wrong direction.

Best regards,

Lianne Campodonico

I was unable to attend last night's meeting or tonight's. I have a sophomore and a 6th grader who both play waterpolo. Currently we drive all over from Lafayette, Moraga, Berkeley and

Oakland to get time in a pool. One plays for PHS waterpolo and one cannot want to play at the high school level. The amount of time and energy we spend driving to a pool is crazy but my kids love it. We are so excited for this new pool here in Piedmont. **Please do not reduce the size of the new pool!** We would then be in the same boat we are in driving all over for waterpolo. This city needs a pool that kids can play waterpolo in!

Best,
Julie Stein

Dear City Council members,

In the current context, it is astounding that the city council and staff would even consider anything other than an all electric pool facility and as much local renewable power as possible and the ability to take advantage of an ever cleaner electrical grid.

We are told that the world needs to be off of CO2 producing power by 2050, a mere 26 years after the completion of the new pool, which should last 50+ years. Why would you lock us into CO2 and methane producing power for so long, when you should be working to eliminate such power now, well before 2050, as we need substantial reductions to have started already? Do you expect the world to avoid dangerous global warming if all would follow such a long term commitment to fossil fuels rather than by taking a path of full electric now, let alone building a very long lived piece of infrastructure based on decades more use of fossil fuels?

According to the analysis of the professional energy consultants hired by the architectural design firm, an all-electric pool will be just as reliable, easier to maintain, and less costly to operate (saving a projected $1MM over 25 years— not a fortune, but something). And, of course, it will save 100% of the carbon emissions vs a natural gas pool. The new facility will have approximately 3x the water volume and 2x the water surface area of the prior facility and would be expected to emit 50% more carbon emissions locally than the prior facility— at a time when we are supposed to be reducing emissions by at least 50%— especially from more climate-and-health-damaging methane (aka natural gas).

Sincerely,
Brett Byers

I support an electric pool. Thx

Carter Shoop

Honorable Piedmont City Council,

I'd like to share my opinion that I believe the best fuel source for the new Piedmont community pool is electricity, rather than relying on natural gas.

Natural gas as a fuel source would have much greater GHG emissions.

Electricity would be lower GHG emissions and would continue to go lower as the California grid gets cleaner.

I also believe that the fuel costs and maintenance will be lower with an electric solution, as we've seen recently with the dramatic increase in natural gas rates, and indicators that it may go higher.

I noted that the city of Mountain View recently released plans for an all-electric fuel source pool, and believe we can do the same.

Thanks for hearing my opinion and your leadership of our community.

Mike Deerkoski

I just finished listening to the recording of yesterday's Council Meeting on item 5 . The council encouraged more public comments. Here are three more:

1- Quote by one of the energy consultants: "I guess if you go down to Florida 80% of the pools are using heat pumps or other electric resistance boilers". Resistance heating consumes about three times more electricity than a heat pump (COP equal to three). The equipment proposed to heat our new pools is hybrid, meaning that it includes resistance heating as backup. As per the Energy Use Report, "thermal Energy Production shall be roughly 124,400 kWh/Year". The council may want to ask the consultant : "what percentage of the 124MWh energy will be consumed by heat pumps and what percentage, if any, by resistances?" A higher "resistance heating to heat pump" ratio in actual operation will result in a higher electric bill than predicted.

2- The council may want to ask the energy consultant if the big Florida hotels with pools that he refers to use electric boilers or heat pumps?

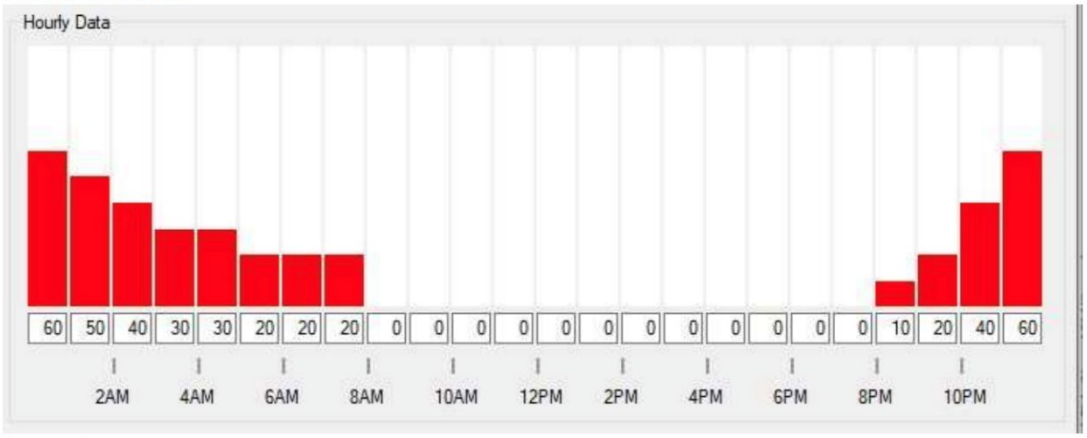
3- Pools use a fair amount of water through evaporation. What is the amount of water that the new facility is expected to consume per year? Will it be a significant operating cost?

Sincerely, thanking you for serving our community.

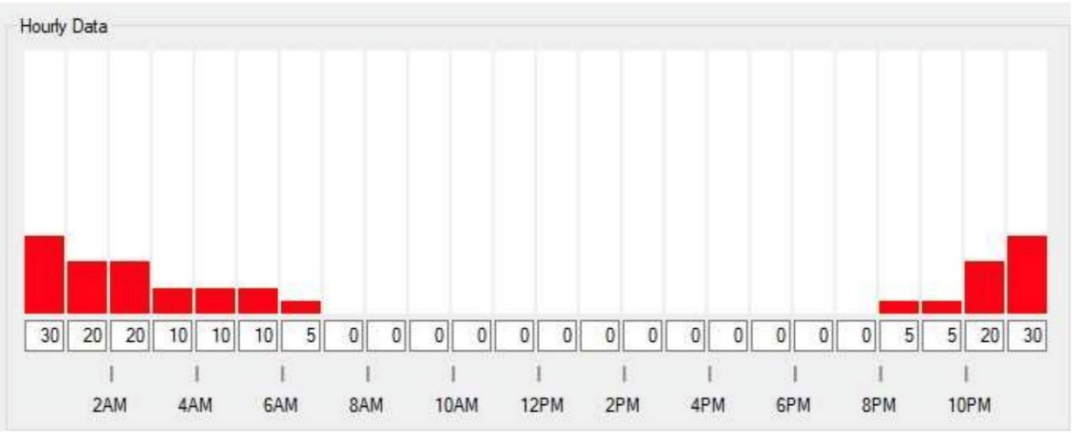
Bernard Pech

4- What would be the configuration of the heat pump array relative to the pool?
Looking at the two charts provided in the Energy Use Report, pool heating will always occur before 8 am and after 8 pm.

Winter Schedule



Spring/Fall



APPENDIX C: Energy Use Estimates Per Month:

a- Let us first assume a 73dB noise level as quoted by the consultant for the heat pump array with that white noise level considered low enough at night. There would be no noise during the day. The heat pump array could be located at the same level as the pool just like a resistance or natural gas boiler would be (but in a roofless enclosure to ensure good airflow). Should the pool temperature drop, the option would be either to wait for the evening and have the swimmers be a bit cold, or to turn on a subset of the array (lower noise level), or turn on resistance heating should mitigation of the white noise be desirable.

b- The noise level is considered too high and the pump array has to be located as far as possible from private homes with that location turning out to be on top of the building about 12 feet above the pool.The pool water would have to be brought up to the array with a pipe of a sufficient diameter. Operation would be a bit more complicated, possibly a bit less reliable, as equipment would have to be in place to prime up (by about one atmospheric pressure) the water circuit when needed. Once primed, friction in the longer pipe would create extra loss of energy, quite likely a very small irrelevant amount. Locating the array on top of the building may also be required to take advantage of a better airflow around the pumps.

Unless the heat pump array is very noisy (85 db or more?), it is most likely that heat pump noise will not be a factor affecting a decision to go all-electric.

Sincerely,

Bernard Pech

I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

Thank you for considering my point-of-view.

Respectfully,
Steve Berl

I'm a Piedmont resident and I worry about the future of our planet, it would be a big step in the right direction if we could have all electric water heaters especially because we're building a new pool and it doesn't seem intuitive to keep the form of energy the same when it's outdated, and harmful to our society.
Thank you for your hard work

Clio Salzer

Analysis | Rich countries must end oil and gas production by 2034, report says
The report mentions that the poorest countries should be given until 2050 to provide a fair transition away from fossil fuels.
By Maxine Joselow and Vanessa Montalbano

https://www.washingtonpost.com/politics/2022/03/22/rich-countries-must-end-oil-gas-production-by-2034-report-says/

Hope Salzer

Hello City Council Members,

I heard that the new pool is going to be heated using natural gas, and this is only because of lack of interest from the residents about using renewable energy for this. I'd like to throw in my voice in favor of using renewable sources for this. If there is any other way I can show my support, please let me know.

Thanks!
-Siva

Dear City Council Members -

We realize there may be many factors to consider when voting on the source of energy for the new pool. As residents of our little but mighty city, we'd like to voice support for using electric/solar for efficient water heating for our new pool and facilities. When we adopted solar for our house, it seemed like inconveniently expensive upfront costs, but in the long run it has so many advantages that we are glad we did. I imagine the Council has to consider up front costs, and community support for such costs amongst the many factors being weighed in the decision making process.

- **Cost efficient** in the long run - Efficient electric water heaters are estimated to cost $5-600K more upfront but reduce costs by $1MM in just the first 25 years (electricity is now cheaper than natural gas and is expected to be increasingly less expensive in the future—according to energy analysts' projections). Thus, it would be less expensive for Piedmont to operate an electric-powered facility.
- **Less pollution** in our gorgeously green jewel of a city. Using fossil fuel to heat the new, larger pool will generate pollution right in the heart of Piedmont, where our main schools are situated.
- **Opportunity for leadership** to demonstrate how an efficiently run city can adapt in the face of changing climate needs. As evidenced by the plethora of electric cars and many bicyclists counted amongst our residents, we know our community is leaning towards making better, positive, and more aware choices that matter to our community, and our environment.

We do hope you will consider adopting an electric/solar renewable energy for our new pool. Thank you for your work!

Best
Maulshree

Dear Council Members,

I am a Piedmont resident and a psychologist.

I write in support of using electric energy to heat the new pool. It will have virtually the same economic impact and reliability as natural gas and will have much lower carbon emissions. We need to do all we can to reach the goal of reducing carbon emissions by 50%.

Thank you for taking my opinion into account.

Best,
Erin Mullin, Ph.D.

To EBCE:

I would like to simplify my questions to EBCE. In a previous email, I was fishing to find answers to the more complex issues that CCAs will face as the percentage of wind and solar energy offered to the grid increases in the future. The reference to the pool below relates to Piedmont being in the process of designing and constructing a new aquatics facility.

My question is: please let me know if what I say below is correct. EBCE knows a lot more than I do about the grid. Thank you. (John Tulloch is the Clerk for the City of Piedmont).
Bernard Pech 60 Fairview Ave.Piedmont

What is the value of EBCE to California?

The value of EBCE, like other Community Choice Aggregators (CCAs) with regard to CO2 emission, is to provide the financing and the incentive for the construction of new renewable energy farms. These new farms, once in operation, shift the mix of the grid with regard to primary energy from fossil to non-fossil: wind and solar displace natural gas in the generation of electricity. The overall carbon footprint of our State diminishes. EBCE has currently contracted for 824 MWatt of wind and solar power with 12 developers to come online by June 2024.

What is the impact of EBCE's 100% renewable energy offering to the Piedmont customers using that service with regard to diminishing our State carbon footprint?

It makes no difference: the portion of the renewable energy delivered to Piedmont under that service is shifted away from its consumption by other communities; the fossil/non-fossil energy mix of the grid stays the same, whether Piedmont uses that service or not, and the carbon footprint of our State stays the same.

Should Piedmont's home owners buy their electricity from another Load Serving Entity (LSE), for example PG&E, it would diminish the financial power of EBCE to finance new renewable farms. But insofar that the selected LSE uses the extra Piedmont income to finance new renewable farms, it would not make any difference to the State CO2 footprint.

In either scenario, the intensity of the California grid with regard to primary energy stays the same: in 2021 the mix was as follows, as per the International Energy Agency data taking into account the energy mix of the North West and the South West region from which California imports 23% of its electricity:

2021 California GRID ENERGY INTENSITY				
Total	Fossil: natural gas & coal	Non-Fossil: hydro & nuclear	Renewable: wind & solar	Other
100%	53%	20%	24%	3%

What does it mean to Piedmont's new Aquatics Facility?

Whether the pool uses the 100% EBCE renewable service or any of the EBCE service that includes fossil energy, the pool will be contributing to GHG emissions as per the amount of CO2 emitted by the natural gas and oil burned to generate 53% of the pool consumption.

As it relates to (California) CO2 emission, building an all-electric pool makes sense insofar the wind and solar ratio in the grid keeps on increasing. Otherwise, Piedmont might as well install a gas furnace if the ratio stays as in 2021:

- Heat pumps for the pool have a coefficient of performance of 3.
- A natural gas-fired plant is about 42% efficient in producing electricity, and as much as 60% for a combined-cycle plant. Taking into account transmission loss, let us assume that it is 50% efficient.
- An all electric pool would generate 2*0.53 units of CO2 or 1.03.
- A natural gas furnace would generate 0.53/2 + 3*.24 units or .985, a smaller number.

This is about CO2 emission, not energy cost. Note that a 1% shift between the renewable and fossil mix would make the heat pump solution less CO2 emitting.

What if solar panels are installed at the pool?

Without any associated on-site storage, the effect on California CO2 emissions would be the same as adding that storage power to the upcoming EBCE 824 MWatt. With on-site storage setup to store during the day and heat directly the pool in the evening and early morning (as per the proposed schedule), in a first approximation the diminution of CO2 emission would correspond to avoiding the 10% loss due to transmission across the grid.

Conclusions

The rationale to contract with EBCE to provide the electricity for the pool is that EBCE is a small organization that can execute renewable energy projects much faster and with more focus than a big LSE, such as PG&E, that is tightly regulated by the Public Utility Commission, is the focus of activists, and has the added burden of maintaining and expanding the California distribution network.

It would be incorrect to say that our pool will not be contributing to our GHG State footprint. Frugality has to be part of the solution to climate change and building a smaller pool would help.

And yes, Piedmont should support the positive impact of EBCE by buying electricity from it.

About the more complex issue mentioned in my introduction

I assume that EBCE has contracted for the building of 350 MWatt of storage in order to address that issue. The simulation that I built to mimic the evolution of the grid and the CA ISO processes in regulating the electric market suggests that battery storage is not the best way to mitigate the disparity between the hourly distribution of demand with the hourly distribution of wind and solar energy. But my simulation is simple: it does not take into account grid congestion (lack of transmission capacity across areas), nor of course the detail of the day-ahead and real

time CA ISO processes. I suspect that hydrogen generation under "demand request" is a better way to solve the problem.

Bernard Pech

Four more comments.

5- Planning for the location of a hydrogen tank and possibly a hydrogen generating "station" with associated piping could make sense. As far as I know, there is not currently on the market hydrogen burning furnaces to heat water. (GE and other companies have prototypes of hydrogen turbines to generate electricity, should the State encourage storing excess energy at the existing electrical power plants in the form of hydrogen). Planning for just a tank might be enough, as hydrogen will be distributed by truck just like propane is, should the green hydrogen economy take off. Talking to the company in Emeryville that generates green hydrogen on-site for the AC fuel-cell bus fleet could help in understanding what is needed for a pool site hydrogen station.

6-Here is an on- site green hydrogen generation service station that could in the future be installed at the pool under a demand-request scheme. Such hydrogen produced from excess renewable energy from the grid should reduce the price per kilogram of hydrogen (currently at $19.9 in Emeryville, about 20% more expensive than gasoline for equivalent car mileage).

7-With regard to heat-pumps, I want to add the following input:

- In Florida, it is likely that many big hotels have in place a way to use the heat extracted from the inside by their HVAC units to heat the pool when needed, thereby saving cost. Refer to "This Old House" for a similar solution for home pools.
- But it does not help in the winter when both the hotel rooms and the pools have to be heated. (On average, Florida has the mildest winters in the Continental United States).
- Does the design plan to heat the showers' water "on-demand" (i.e. no tank)? In that case, will the noise generated during the day by one of the 22 units be an issue?
- Is the life of heat pumps longer than the life of a gas furnace? Most likely, in 15 years, both will have to be replaced.
- The consultant is correct saying that the technology is not new. Often the theory is always easier than practice. Experience counts.

8- In my opinion, there is no CO2 emission reason to install PV panels at the pool (see my email to EBCE). It is a financial tradeoff between capital expense and operation's cost.

- The council could ask EBCE to install at one of their developer sites these panels: same effect on global CO2 and good marketing to temper the climate anxiety of green activists.
- EBCE will encourage such an approach: it is in the interest of CAAs to discourage "roof-top solar", because roof-top solar cannot be curtailed by the CA ISO, whereas solar farms can and are (at least 1.5 TWh in 2021). CAAs will lose income from roof-tops to homeowners.

Thank you for your service.

Bernard Pech

To the Piedmont City Council,

We urge you to seriously consider electricity to provide the power that will be needed by the new pool facility.
We understand that this is “cutting edge” technology and we respectfully bow to your knowledge and judgement about the feasibility of this course of action. However, now, more than ever, it is time to reconsider our dependence on natural gas.
Thank you for all you do to keep Piedmont the special place that it is and our home for 33 years.

Sincerely,
Janice and Allen Pastron

Whichever decision you make with regard to how the pools will be heated, you can expect issues to come up during constructions, with a subset of problems having to be brought to your attention. Sleep loss is inherent to the fate of people who build real stuff!

If you select an all-electric solution, it is likely that the number of headaches will be higher, given that Piedmont will be innovating in deploying a proven technology for a new use (for sure in California). But our community will have the satisfaction of showing other municipalities the way to create aquatics facilities as green as possible: an important case study for our State.

I am confident that given the quality of the City staff, the contractor and consultants involved that you will make an informed decision weighing technical considerations, capital and operational expenses, environmental issues, the uncertainty of the relative future costs of different energy sources and inflation.

As Piedmonters, we elect you to make the tough decisions, and regardless of the way you choose, taking a prudent approach, a trailblazer one, or something in-between, I encourage our community to support your decision. I certainly will.

Bernard Pech

Hopefully the last comment!
9- An approach to reduce the number of heat pump units (currently at 22)? Using the consultant's model:

- Assuming that the heat pumps support the showers and the conditioning of the building, what is the number of pumps needed to heat only the recreation pool (and not the main pool)?
- Same as above, but the number of pumps as a function of the target temperature of the main pool (normal temperature is 22 pumps, what is it for a target of normal - 1 Celcius, - 2 Celsius, ...).
- Is there a state regulation that forces municipal pools to be heated to a minimum temperature?

Bernard Pech

Hello,
My name is Tamar and I have been a Piedmont resident for many years, and enjoyed the pool myself as a high schooler and as a mother bringing kids to enjoy it. Please vote for a clean energy plan for the new pool building. We want kids to feel happy and healthy while there, avoiding burning methane, and we want a facility that we can feel good about using for decades to come.

Thank you,
Tamar

This is what I sent to CAISO. Alex, you have answered some of these questions for me.
Thanks. Bernard
---------- Forwarded message ---------
From: **Bernard Pech** <bj.pech@gmail.com>
Date: Tue, Mar 29, 2022 at 9:13 PM
Subject: Re: CIDI 248614 CAISO EIA Data
To: Arechavaleta, Giovanni <GARECHAVALETA@caiso.com>

Well, the ISO Training center is very informative.

Can you help me understand the following:

- CCAs, such as my local one EBCE, sign long term contracts with renewable energy developers for power delivery. I do not know the content of these contracts.
- In the day ahead market, CA-ISO awards bids based on Localized Marginal Prices: the price of electricity for the time interval and location where it is delivered.
- Question 1: Does the power delivered under these CCA contracts follow the same LMP-based market rules? Are these contracts handled in a special way by CA ISO? Do you know what these contracts typically specify?

Follow up question:

- CCAs such as EBCE, offer their customers 100% renewable service.
- Question 2: Do CA ISO help CCAs meet these obligations? Is renewable energy treated in a special way in the day ahead and in the real time market?

And last:

- Does the after-market report sent to a CCA Schedule Coordinator (SC) allow her to figure out whether she met the CCA's commitment to deliver 100% renewable? What information does such a report contain?

Thank You,

Bernard Pech

Should the council decide to go all electric, there might be an opportunity to sign a special contract with EBCE advantageous to the City, especially as it relates to "demand request" to absorb the most likely ever increasing amount of potentially curtailed renewable energy as the ratio of renewable energy offered increases relative to fossil energy.

A pool is on its own a reservoir of energy, and swimmers may not notice a few degrees above or below the standard pool temperature. A smart controller with an instrumented pool and mechanical room could provide valuable information for the future. As mentioned by several of the Council members, the City could use that approach to pry funding from the appropriate State agency.

Sincerely,

Bernard Pech

Dear City Council,
I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– *and* will emit **no** greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

Thank you for considering my point-of-view.
Respectfully,

Sebastian Bernales & Paula Valenzuela

Srs City Council,
Hope you are all well.
I'm writing regarding the next April 4th vote to approve the new aquatic facility heating system, in support of using electricity from renewable sources.
These decisions are not just an economical matter any more. It's crucial that a privileged community like ours leads by example.
I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– *and* will emit **no** greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

Thank you for considering my point-of-view.
Respectfully,

Tomas McKay

Dear Mayor King and City Council,

Agenda Item 3: Having the pool heating be in a separate item *before* the lengthy discussion of the various options in item 4 indicates this is a done deal as it should be. Council and Staff have made the right call.

Agenda Item 4 is complex and information from ELS will be critical in terms of fortifying the foundation and ground floor so that eventually the Pool House can readily accommodate an enclosed second story. I am confident private funders will see the value in creating an easy option for the second story in the future. As a last resort, given the extremely robust transfer tax revenues exceeding the $3.3M budget by literally several million, should the cost of fortification be less than $1M, I suggest using the Gen Fund.

In all instances I would *not* eliminate the second "family restroom/changing area." Let's not cramp the personal facilities.

Given the small difference in cost, $100,000, of 20 vs 25 yard length competition pool, the overriding criteria should be the overall venue layout and does the 25 yard pool create a cramped lounging area for families?

Finally I remind the Council that some seniors such as myself have lived in town for many years and deserve a day fee in line with other City's public pools. The previous Piedmont pool fee structure was grossly exorbitant. A day fee of less than $5 for seniors is appropriate and should be given serious consideration.

Sincerely,

Rick Schiller

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Hayk Kibarian

Mayor King and Councilmembers:

I support Staff's recommendation (per Staff Report April 4, 2022) to proceed with full electrification of the community pool.

My support of electrification is only to make a bad situation "less bad". To implement a project that includes maintaining ~700,000 gallons of water at a chilly 80° F with natural gas at an annual "cost" of 352 tons of *emissions** (or 17,600,000 pounds over the life of the project) ignores the environment we're living in now, much less in the future. (*Staff Report, p. 14, doesn't specify but this is presumably CO_2.) An all-electric facility, while *operating* at zero carbon emissions is hardly carbon-free overall but it is a preferable choice to natural gas.

City Administrator Lillevand's comment, "Based upon current construction cost estimates, the available project funds from Measure UU may not cover the additional cost of electrification" (Staff Report, p. 5) implies that all other aspects of the project are fixed. The pool is already bumping against real financial realities evidenced by propping it up by waiving permit fees and a down-sizing based on new cost estimates. Another alternative would be to size the project to incorporate electric rather than to treat it as an incremental cost. I do *not* support the use of any additional public funds for this project beyond what has already been approved in Measure UU.

Sincerely,

Tom Walters

Dear Piedmont City Council,
We know this, but it is worth saying in the context of Piedmont's proposed pool: everyone needs to take action now to avert climate catastrophe. The need to take action immediately was made clear in the Climate Action Plan presentation by Piedmont's Sustainability Manager, Alyssa Dykman, at the Council's March 21 meeting, as well as comments from Hope Salzer, Margaret Ovenden, and others.
I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions.

Respectfully,
Winifred Walters

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Bruno Banuelos

Attn: Members of the Piedmont City Coucil

We are writing to request that you please support of an all-electric-powered pool.

According to the analysis of the professional energy consultants hired by the architectural design firm, an all-electric pool will be just as reliable, easier to maintain, and less costly to operate (saving a projected $1MM over 25 years— not a fortune, but something). And, of course, it will save 100% of the carbon emissions vs a natural gas pool. The new facility will have approximately 3x the water volume and 2x the water surface area of the prior facility and would be expected to emit 50% more carbon emissions locally (near all of our largest schools from pre-school up) than the prior facility— at a time when we are supposed to be reducing emissions by at least 50%— especially from more climate-and-health-damaging methane (aka natural gas).

Thank you.

Alan & Elena Kong

To the Piedmont City Council

I understand that you will be voting tomorrow on the energy resources to be used for the new pool complex. As a climate concerned citizen, I am hoping that you will choose the all electric option.

Please consider how every small step toward carbon neutrality will benefit us all for years to come.

With sincere concern
Judy Rosloff

Dear City Council Members:

I urge you to choose electric heating for the new pool. Despite the higher upfront costs, it would cost less in the long run in operating costs. In addition, natural gas is increasing in costs as well

as being phased out for environmental reasons. If Piedmont is to meet its climate change goals, using electricity rather than natural gas is critical.

Thank you

Laura Curtis

Dear Council Persons,

My wife Mary and I would prefer that the proposed community pool be heated by the most environmentally friendly means available. It appears to us that the best choice would be renewable electricity, even though the up front costs are initially higher than the natural gas option.

Thank you all for your service to our community.

Fritz and Mary Wooster

I support an all-electric Piedmont Aquatic Center. Prior to the pandemic, I swam at the old pool several times a week and I voted for measure UU. I'm excited about the new pool and I feel it is both a good financial investment and an important community responsibility to make it a an energy efficient facility. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Amy Maidenberg

Bravo, Amy! Your personal addition makes the letter even stronger. Btw, to give credit where it's due, Margaret Ovenden, one of Connect's founders, crafted the sample letter & FAQs.

Take care,
Moira Chapman

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Maya Huffaker

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Carson Hicks

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,

Georgia Gaylord

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything it can to reduce greenhouse gas emissions in both sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.
Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Gabriel Symkowick

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.
Sincerely,

Ava Hersch

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Rosie Feldman

Dear City Council Members,

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California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center. There is truly only one option here, for the future and for your pockets. Don't make a stupid choice.

Sincerely,
Nathan Sturdivant

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Audrey Frankel

Dear City Council Members,
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do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Maggie Sullivan

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. The city government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,

Frank Udovch

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period. Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Ben Heske

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Melina Mills

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period. Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Arjun Silverberg

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal

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Sincerely,
Monica Fumagalli

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period. Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Wesley Jeng

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period. Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk

of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Anna Jansson

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Maya Kumar

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, I believe our community and cities like Piedmont must do everything in their power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. As I understand the economics, the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility but the all-electric option will create $1,159,000 more in cost savings over a 25-year period. Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility’s emissions by 100%. Let’s step up as a community and City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,

Angel Fierro

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. The city government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,

Ashley Hennessey

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,

Elena Blanco

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. The city government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Sofia Prieto Black

Dear City Council Members,

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Sincerely,
Lainey McAuliffe

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront

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-Maisy Richardson

Dear City Council Members,

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Sincerely,

Elsebet Willats

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Madeleine Mullin

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely
Bauer Peterson

Hello Piedmont City Council Members,

I am writing this to support an all-electric Piedmont Aquatic Center.

As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont.

Moreover using an 100% renewable source of electricity means that carbon emitting natural gas power plants (which are typically located in front line, pollution impacted communities) will not be used on our behalf.

I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

As a community with means and high levels of education it is time we are seen as leading rather than lagging on decisions to reduce our carbon footprint. Making this decision means that for the entire future of this facility we are on the side of doing the right thing. We can use this facility as a tangible example (through on-site signage for example) so that everyone who uses the Aquatic Center will know they are part of a green and clean swimming option.

Thank you for considering my request to approve an all electric pool facility.

Respectfully,

Heather Shepard

Dear Members of the Piedmont City Council,

I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

Thank you for considering my point-of-view.

Respectfully,
Lawrence Salzer

Dear City Council Members,

We support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. We understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

We also encourage collaboration with the neighboring Piedmont schools so that solar arrays can be placed on the schools to generate power for the schools and the pool complex which is used by the schools. The school district is receiving large amounts of money from the state and federal governments this year, some of which could be devoted to solar power.

Sincerely,
Marianne Mitosinka & George Wick

Honorable City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes.

As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Piedmont must be a leader in reducing greenhouse gas emissions and not hide behind excuses about a natural gas-fired pool only being a small percentage of overall city-wide emissions.

Very truly yours,
Dave Keller

Dear Piedmont City Council,

I am writing to urge you to approve an all-electric Piedmont Aquatic Center. As the climate crisis worsens, it's crucial that Piedmont not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment. Please show courageous leadership and do the right thing for the next generation!

Thank you for considering our point-of-view.

Respectfully,
Samantha and Stephen Miller

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal

facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Stewart Florsheim

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Shirley Rexrode

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, it becomes the city of Piedmont's responsibility to reduce greenhouse gas emissions in both our municipal and residential sectors. By decarbonizing municipal facilities, the city government would set an example to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas, increasing both the percentage of emissions from the facility *and* the city's overall emissions. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. This would not only result in a massive financial cost to the City, but also result in more emissions and waste from the construction and waste processing tied to a new pool. Let's step up as a community and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Zoe Saldanha

Dear Piedmont City Council

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront cost of building a pool facility that uses natural gas is less (by approximately $600,000), an all-electric facility will create $1,000,000 more in cost savings over a 25-year period and reduce greenhouse gas emissions from pool heating to zero. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Piedmont must be a leader in reducing greenhouse gas emissions and not hide behind excuses about a natural gas-fired pool only being a small percentage of overall city-wide emissions.

Respectfully,
Kathy and Craig Moody

Dear City Council Members,
I am emailing regarding your upcoming choice on whether or not to choose an all-electric or gas heater for our new community pool.
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period. Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As

California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center. Thank you for taking the time to read this email! I hope you will grasp this opportunity to decrease Piedmont's impact on Climate Change. This is a wonderful opportunity for our community to help save our world.

Sincerely,
Eleanor Lavin

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. The city government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,

Murray Davis

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As

California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Elsa RIvera

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. Climate change is only worsening so Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Best,
Kaeli Huh

Piedmont City Council:

I support, and urge you to approve, an all-electric Piedmont Aquatic Center that also remains large enough to meet the usage needs of our community, including PUSD water polo and swim teams (e.g. a pool big enough for 25 meter goal to goal play). As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– and will emit no greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

We must also not be short-sighted by building a pool that fails to meet current usage and demand needs for our community, including the water polo and swim teams, who must travel significant distances to use pools in other towns and cities.

Thank you for considering my point of view.

Regards,

Josh Hurwitz

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,

Felix Broach

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. The city government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas-powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Riley Stratman

Dear City Council Members,
I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,
Ella Puckett

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

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Sincerely,

Chiara Lundin

Dear City Council Members,

I support an all-electric Piedmont Aquatic Center. As the climate crisis deepens, Piedmont must do everything in its power to reduce greenhouse gas emissions in both our municipal and residential sectors. City government needs to set an example by decarbonizing municipal facilities, to encourage residents to take similar steps in their homes. While the upfront construction cost of an all-electric facility will be $493,000 more than a natural gas powered facility, the all-electric option will create $1,159,000 more in cost savings over a 25-year period.

Most importantly, a natural gas-fired facility will generate 260 MT CO2e and would make greenhouse gas emissions from the new facility 1.5 times greater than those from the old Community Pool, which generated approximately 75% of municipal emissions from natural gas. The all-electric option, however, will reduce the pool facility's emissions by 100%. As California and the nation begin transitioning off natural gas, a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Let's step up as a City and take leadership in eliminating greenhouse gas emissions in the operations of our Aquatic Center.

Sincerely,
Lucy Filler

To the members of the Piedmont City Council:
We strongly support Margaret Ovenden's plea for an all-electric heated pool in her March 22, 2022 letter to the editor in the Piedmont Exedra. The all-electric option will reduce the pool facility's emissions by 100%, and help Piedmont meet its Climate Action Plan targets for reducing emissions in municipal facilities. Moreover, as she points out, natural gas prices have become very volatile and are trending upwards at a faster rate than electricity prices. As California moves towards phasing out natural gas, a natural gas-dependent facility could become obsolete before the end of its expected lifetime. Further, if Piedmont moves forward with an all-electric pool, it will become one of the first California municipalities to do so, and can serve as a model for other communities.
We must do everything we can as a community to reduce our carbon emissions and help avoid some of the worst effects of climate change. The time to act is now.
Sincerely,

Laura Zuckerman and Kirk McInnis

Dear Council,

It has come to my attention that there are questions being raised about why the costs of pool electrification were not factored into the bond measure when it came before our community for approval. There seems to be a perception among some residents that this issue is coming up late in the game, or that a commitment to electrification would represent some sort of bait and switch.

I think it's important for everyone in the community to know that Piedmont Connect and individual residents, myself included, have been raising this topic frequently and continuously

with staff, Council members, and the Pool Advisory Committee before and after UU was proposed and passed. (For example, see this discussion thread on the PCA site from Oct 2020).

In fact, I appeared in the UU campaign video to support the project for many reasons...swimming at a community pool was central to my experience as a kid, and our two boys thrived in the PHS water polo program. But mostly, I wanted to express the opportunity I saw to advance environmental goals, including reducing emissions and saving water, through this important municipal project.

We were told time and again that the funds being raised were for the concept in principle, that there would be plenty of time during the design phase to explore the sustainability aspects, and that in fact decision makers were committed to making the pool as green as possible. The concept video shows "LEED" certification at the virtual front desk, a nod to the intention. A cynic might have worried that when the rubber met the road, costs considerations would trump all else. But the earnest among us have had faith in Council doing the right thing in light of climate change and the City's commitments under its Climate Action Plan 2.0.

The real bait and switch would be for Council to be swayed by calls to reject electrification now by voices suggesting that the conversation is coming too late in the game.

I agree with former Mayor Abe Friedman's comments in the March 21 Council Agenda update — "If folks want other features like electric power, etc they should step up to help make that happen too. But let's not compromise having a facility that is really exceptional over money. We can do this!" Let's not compromise an exceptional, responsible all-electric facility over money.

I will step up to help make this happen, and hope others will too. We can do this!

Susan Miller-Davis

Dear Council Members,

I applaud and totally support the recommendation of City Administrator Sara Lillevand that you direct staff to proceed design development of the Piedmont Community Pool with full electrification.

This is a forward-looking, landmark recommendation, and I'm sure was not made lightly. If you vote for an all-electric pool, you will put Piedmont in the forefront of community climate action and will say loud and clear that our city does not just pay lip service to reducing carbon emissions. It will also demonstrate to Piedmont residents how serious the City is about meeting our 2030 Climate Action goal and provide incentives for homeowners to take their own actions. Building an all-electric pool facility is the single largest step the City can take to reduce its emissions.

The upfront cost is high, but the money saved in the long run more than offsets the initial cost, and future Piedmonters will thank the City Council that "bit the bullet" and made the right decision. Piedmont has met other significant fiscal challenges and has always succeeded. This is a big challenge, but I believe the City can – and must – do it. The future is counting on you.

Thank you for your consideration and for all you do for Piedmont.

Marj Blackwell

Dear City Council,
I support, and urge you to approve, an all-electric Piedmont Aquatic Center. As the climate crisis worsens, Piedmont must not miss important opportunities to significantly reduce greenhouse gas emissions, especially highly-damaging emissions from burning natural gas within Piedmont. I understand that the upfront cost of building an all-electric pool facility is currently greater than building one that uses natural gas (by approximately $600,000), but that an all-electric facility is expected to generate $1MM in cost savings over 25 years– *and* will emit **no** greenhouse gasses over the course of its lifetime, which are both harmful to our health and damaging to our environment.

Thank you for considering my point-of-view.

Respectfully,
Jonah Sachs

LEAGUE OF WOMEN VOTERS® OF PIEDMONT

March 29, 2022

Piedmont City Council
City of Piedmont
120 Vista Avenue
Piedmont, CA 94611

Re: All-Electric Piedmont Aquatic Center

Dear Councilmembers:

I am writing on behalf of the Board of Directors for the League of Women Voters of Piedmont to urge the City Council to approve an all-electric Piedmont Aquatic Center. The League promotes policies that mitigate the impacts of climate change including those that encourage or require the use of renewable energy.

While the cost of an all-electric pool heating system may seem prohibitive at present, this cost must be balanced with the goals of the city to minimize its production of greenhouse gas emissions as laid out in its Climate Action Plan 2.0. Installing a natural gas heater in a new, city-owned facility while prohibiting gas lines in new residential buildings unfairly shifts the burden of reaching the city's goals onto the residents of Piedmont. It also has the potential to create a perception among residents and the greater community that the city is acting unfairly during a time when accountability in local governments remains more important than ever.

Furthermore, when looking at the cost from a long-term perspective, the cost savings of the all-electric facility over a hybrid option is substantial. If the city is unable to accommodate the all-electric pool heating system in its current budget for the project, it should consider other modifications to reduce costs.

We urge you to take an aggressive stance to reach Piedmont's 2030 and 2050 climate goals by voting in favor of an all-electric Piedmont Aquatic Center.

Sincerely,

Lorrel A. Plimier
President, League of Women Voters of Piedmont

March 29, 22

Piedmont City Council, Via email

Dear Council Members.

We are writing to express our strong recommendation to the Council that the City support an all-electric Piedmont Aquatic Center.

We reluctantly voted for the bond measure that provides the funds to build the new pool complex, and only did so after a phone conversation with one of the proponents who emphasized that **all efforts** would be made to bring in a complex with the highest possible green elements. We feel especially strongly about this promise, as significant green components were not realized as PUSD spent millions of tax dollars to rebuild elementary schools and now the high school. Many more energy and water saving elements could, and should, have gone into those designs.

Now we have a community decision as to what energy source to use in the pool complex. This should not be a difficult decision. The climate crisis is real, and it is upon us. Piedmont has a fundamental responsibility to reduce greenhouse gas emissions in both our municipal and residential sectors. Piedmont must "walk the talk" in de-carbonizing city facilities and helping residents create energy savings in their own lives otherwise the money, time and resources the City spent on creating our Climate Action Plan(s) is just so many wasted words.

We understand that the initial cost of building an electrically powered pool facility will cost more than (approx $600,000) a facility using natural gas and will have a longer payback period (15.8 years, in comparison with 8.4 years for the natural gas option). However, we note that such an all-electric facility will create $1,000,000 in cost savings over a 25-year period and will emit no greenhouse gas. A natural gas pool will almost double GHG emissions compared to the old pool. Those of us living in the City in 15 years will be grateful that sound stewardship of our tax resources resulted in an overall savings of such magnitude.

As noted by others, California and the nation have begun to move away from natural gas; a natural gas-fired pool runs the risk of becoming obsolete, and we would face the cost-prohibitive prospect of having to entirely re-do the pool's heating system before the end of the pool's lifetime. Choosing the all-electric option will also help make it possible to meet Piedmont's Climate Action Plan's targets for reducing emissions in municipal facilities.

Again, we strongly urge the Council to choose the all-electric option. Thank you for your consideration.

Robert Marshak and Judy Kelly, 331 St James Drive