The Case for Prudent Governance Before Increased Grid Dependency

Sometimes BAAD is BAD.

With thanks to Huey Lewis and the News, it's time to call out the Bay Area Air District's (BAAD)* proposed zero-NOx mandate ("the gas ban") until fundamental issues of affordability, infrastructure readiness, utility governance, and regulatory accountability are addressed.

As a founder of the Energy & Environment Program for the MIT Club of Northern California in 2003, I fully recognize both the reality of Climate Change and the importance of reducing harmful emissions. However, I strongly oppose moving forward with bans on gas water heaters and furnaces until our well-intentioned climate warriors do their homework.

The discussion surrounding this proposal has too often framed the issue as a simple choice between environmental responsibility and inaction. It is not. The real question is whether the region should impose sweeping electrification mandates on millions of residents while critical economic, infrastructure, and governance risks remain unresolved.

Four major concerns remain inadequately addressed:

1. The cost analysis presented this May remains dangerously incomplete and insufficiently transparent.

The Bay Area Air District has highlighted potential public-health benefits and projected annual savings figures approaching $890 million. Yet the presentation materials fail to provide a meaningful range of probable outcomes, the assumptions driving those projections, or a sensitivity analysis showing how changing energy prices, consumer behavior, installation costs, or grid conditions could materially alter the results.

At the same time, the potential costs imposed on Bay Area residents are enormous. Applying even the District's own low estimates across roughly three million regional housing units results in costs exceeding $10 billion. Public testimony has already demonstrated that actual retrofit costs may be substantially higher once electrical panel upgrades, wiring changes, permitting, ventilation modifications, condensate routing, structural alterations, and installation constraints are included.

Those costs do not disappear through rebates or subsidies. They are merely transferred from one set of ratepayers or taxpayers to another. Meanwhile, future furnace replacement mandates could impose even larger financial burdens. As detailed in Appendix A, the full costs of electrifying water heaters, furnaces, and additional electric infrastructure upgrades is potentially above $100 Billion, accompanied with higher ongoing costs of operation.

Before regulations of this magnitude proceed, residents deserve a rigorous and independently validated cost-benefit analysis that fully accounts for affordability impacts, implementation variability, and long-term utility cost exposure.

2. There are inadequate safeguards to ensure accountability and measurable public benefit.

District staff have proposed reassessing the program after implementation, yet no clear framework has been presented for how costs, benefits, exemptions, compliance burdens, or unintended consequences will actually be measured and audited over time.

The economics of electrification are highly dependent on future electricity pricing, utility delivery charges, grid-upgrade costs, and infrastructure reliability — variables that remain uncertain and outside the control of the Air

District itself. The proposal also contains no meaningful protections against escalating electric utility costs that residents may face once dependence on electricity becomes mandatory.

Without enforceable accountability standards, transparent auditing mechanisms, and independent policy impact review, the public is effectively being asked to absorb large and potentially open-ended financial risks based on assumptions that may later prove inaccurate.

3. The current condition of California's electric utility system makes mandatory electrification premature and potentially harmful.

The Bay Area should not compel residents into deeper dependence on an electric utility structure that many Californians already view as financially unsustainable, operationally unreliable, and insufficiently accountable.

PG&E's electricity rates are among the highest in the nation and 230% of the national average. Residents continue to experience recurring rate increases, wildfire-related liabilities, both unplanned and public safety power shutoffs, and mounting infrastructure costs. At the same time, many homeowners face restrictions and CPUC policy obstacles that limit their ability to improve self-sufficiency through expanded rooftop solar or other resilience measures.

This proposal therefore raises a legitimate concern: whether residents are being pushed toward greater dependency on a monopoly utility system without corresponding reforms to affordability, reliability, competition, or consumer protection.

Electrification can play an important role in California's future energy transition. But forcing rapid appliance replacement before utility governance, grid resilience, and long-term affordability are adequately addressed risks undermining public trust and imposing disproportionate burdens on working families, seniors, renters, and property owners across the region.

It is also important to recognize that no identical statewide residential replacement mandate currently mirrors the Bay Area Air District's approach. Even other California air districts pursuing emissions reductions have generally moved more cautiously, with broader exemptions and greater consideration of implementation challenges.

There are additional Equity concerns for working class families. Wealthier homeowners can offset high rates with rooftop solar, while renters and middle-income families - who cannot install solar - will be "trapped" into the highest electricity tiers as a result of mandatory appliance switches. Also, as the District forces users off the gas grid, the fixed costs of maintaining that grid fall on a shrinking pool of remaining customers (often those least able to afford upgrades), creating a "utility death spiral" that BAAD has not accounted for in its economic impact analysis.

4. What else should we be spending $10 to 100 Billion on?

Are there other, higher priorities for some or all of the cost required to implement this Gas Ban? How about: Transit? Housing? Wildfire? Schools? Water Security? Sewers? The Bay Area does not have a bottomless well of money, and over the last 5 years population is declining. Affordability is the reason. BAAD should not be allowed to regulate and impose costs in a vacuum, devoid of consideration and prioritization of other major needs.

These concerns do not reflect opposition to clean energy. They reflect concern over whether this specific regulatory framework is sufficiently balanced, transparent, economically justified, and operationally realistic.

I respectfully urge the Board to defer further implementation of these regulations until a comprehensive and independent review is conducted addressing:

- Full lifecycle resident costs;
- Electrical infrastructure readiness;
- Long-term electric rate exposure;
- Affordability impacts on residents;
- Implementation feasibility;
- Grid reliability and outage resilience; and,
- Comparative alternatives capable of achieving similar emissions reductions with lower economic disruption.

Public confidence in environmental policy depends not only on good intentions, but also on disciplined governance, transparent analysis, and equitable treatment of the communities expected to bear the costs. The current BAAD approach prioritizes aspirational goals over operational reality. Without a stable, affordable, and resilient grid, this mandate is not a Climate Change solution - it is a significant and unmitigated economic risk to the region's residents - a form of “California Dreaming” that will do more harm than good.

Most sincerely,

Gregg A. Diéguez
Director of Sustainability - SHIFT Bay Area

---

*Officially BAAQMD, but they also call themselves the Bay Area Air District, which allows the alliteration we use herein.

Appendix A: Energy Cost of BAAD Natural Gas Regulations

This Appendix estimates cost factors not presented in the BAAD presentation of May 13, 2026.

1. Approximate Bay Area-Wide Implementation Cost

Scope	Rough Estimated Cost
Water heaters only	**$10–25+ billion**
Water heaters + furnaces combined	**$30–70+ billion**
Including difficult retrofits, service upgrades, commercial impacts, and future electric infrastructure expansion	potentially **well above $100 billion regionally over decades**

2. Energy Cost Equivalence

For the proposed Bay Area transition away from natural-gas water heaters and similar appliances, the long-term annual operating-cost impact on residents depends on four variables:

1. Retail electricity rates
2. Retail natural gas rates
3. Appliance efficiency
4. Future utility fixed charges and grid costs

In the SF Bay Area, the economics today generally still favor natural gas for direct heating applications unless the replacement technology is a high-efficiency heat pump.

Here is the approximate comparison using current PG&E-era pricing:

Natural gas

1 therm = about 100,000 BTU = 29.3 kWh thermal energy.

Typical Bay Area residential gas pricing today:

- roughly $2.00–$3.00 per therm delivered

That means delivered thermal energy from gas costs approximately:

- ~$0.07–$0.12 per kWh-equivalent thermal energy before appliance losses.

A standard gas water heater or furnace is typically:

- 60–90% efficient.

So effective delivered heat cost becomes approximately:

- ~$0.09–$0.15 per useful kWh of heat.

Electric resistance heating

Electric resistance appliances:

- nearly 100% efficient at point of use,
- but electricity itself is extremely expensive in California.

Bay Area residential electricity pricing commonly runs:

- ~$0.35–$0.60/kWh depending on TOU period and utility.

Thus:

- electric resistance heating usually costs roughly 2.5x–5x more than natural gas for the same delivered heat.

That is why simple electric resistance water heaters or baseboard heaters are economically problematic in California. And with PG&E's future rate increases (e.g. from Data Centers and large capital investments like Undergrounding - which trigger 10% ROE for 10 years), the cost exposure to an ineffectively regulated monopoly is problematic.

3. Heat Pumps Can Help, With Significant Investment

Heat pumps are different because they move heat instead of creating it.

Typical coefficient of performance (COP):

- 2.5–4.0

Meaning:

- 1 kWh electric input can deliver 2.5–4 kWh of heat.

That reduces effective heating cost substantially.

Example:

If electricity costs:

- $0.40/kWh

and a heat pump achieves COP 3.5:

Effective heat cost:

- ~$0.11/kWh thermal delivered.

That becomes roughly competitive with natural gas. However, heat pumps are only cost-effective in new construction multi-unit dwellings.

So, the real-world economics are approximately:

Technology	Relative Operating Cost vs Gas
Electric resistance water heater	2.5x–5x higher
Heat pump water heater	Near parity to slightly higher
Heat pump HVAC	Often near parity
Gas furnace/water heater	Usually still cheaper today

4. Approximate Annual Resident Impact

Typical single-family household

For a Bay Area home currently using natural gas for:

- water heating,
- space heating,
- cooking,
- clothes drying,

annual gas usage often runs:

- 400–800 therms/year.

At ~$2.50/therm:

- annual gas heating cost ≈ $1,000–$2,000/year.

If replaced with resistance electric appliances

Equivalent annual costs could rise to:

- ~$2,500–$5,000/year.

That is why resistance electrification is generally unpopular economically.

If replaced with heat pumps

More realistic outcome:

- ~$1,200–$3,000/year.

But those pumps typically require significant installation costs and infrastructure upgrades.

Meaning:

- many households may see modest increases,
- some could see savings if solar is present,
- others could see substantial increases if electricity rates continue rising faster than gas.

5. Distribution Losses Matter, But Retail Pricing Matters More

Both traditional heating systems lose energy in distribution.

Approximate losses:

System	Typical Loss
Electric grid transmission/distribution	~5–8%
Natural gas pipeline system	~1–3% operational loss

However, these losses are already embedded in retail rates.

The dominant economic issue is not thermodynamic efficiency — it is:

- California electricity pricing structure,
- wildfire hardening costs,
- grid expansion costs,
- fixed utility charges,
- and recovery of infrastructure investments through electric rates.

PG&E electricity prices are already the highest in the United States.

6. Likely Long-Term Resident Cost Outcome

The Bay Area electrification strategy implicitly assumes:

- future heat pumps become cheaper and more efficient,
- rooftop solar plus batteries offset grid purchases,
- natural gas infrastructure costs rise as fewer customers remain,
- carbon policy eventually penalizes gas use further.

But under current pricing:

- Electrification without heat pumps significantly increases operating costs …
- While heat-pump electrification is economically borderline and highly sensitive to future electric rates.
- Current CPUC / PG&E regulations de-motivate solar investment and prohibit significant home solar expansions (limit: +1kw).

For many middle-income Bay Area households today, a plausible net annual cost increase from full electrification is roughly:

- +$500 to +$2,000 per year,
  depending on home size, climate zone, insulation quality, solar ownership, and appliance choices.