

June 26, 2020

MITHUN

Re: Information in support of Building Decarbonization Reach Codes and All Electric Multifamily Housing

To Whom it May Concern:

Mithun, a local Bay Area integrated architectural design firm, supports efforts by your jurisdiction to adopt 'reach codes' that will reduce carbon emissions from the building sector by requiring new buildings to be all-electric. In our professional experience, it's proven that all-electric buildings are affordable, reliable, and a good solution for our clients, developers and building owners.

Mithun currently has seven all-electric multifamily developments under design or construction in the Bay Area. Our team has been conducting an R&D initiative to analyze and compile the strategies and lessons learned – from the technical, financial, regulatory and operational considerations for eliminating natural gas from this construction type. We have found that there are numerous co-benefits to an all-electric construction relative to carbon reduction, health, safety, cost, and resilience.

The first-cost analysis across all of these projects has concluded that it is either cost-neutral or *cost-saving* (of up to about \$247,000, or \$2,352/dwelling unit) to build all-electric and eliminate natural gas. I'm happy to share with you one particular project's detailed cost breakdown, below for your use. All numbers are construction cost estimates or bids from our GC and subs between Q2 and Q3 this year, in the San Francisco market.

Additional benefits of significant consideration to us, our owner/developer clients, engineers and contractors include:

- *Elimination of new underground gas lines in new development areas.*
- *Reduced risk of compounded disasters; fire and explosions*
- *Reduction of minimum energy use standards in some codes and for some green building rating systems.*
- *Elimination of gas connection and associated time and cost of gas meter design, approval, scheduling and construction.*
- *One less bill to pay*
- *Projected operational cost savings on lower utility bills,*

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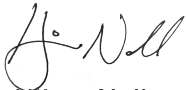
based upon energy models.

- *“Net Zero Ready” and “Fossil-Fuel-Free Ready” as California’s electric grid gets cleaner.*
- *Battery-Ready for time-of-use and future smart grid technologies.*
- *Buildings which are situated to benefit from future PV, battery and other innovative smart-grid technology developments.*
- *Reduced risk of having to eliminate the gas systems in the future, as gas becomes a stranded asset, and as codes and technologies move toward low carbon options.*

Mithun operates under the mission of ‘design for positive change’ and we are proud to support measures for increased energy efficiency, building decarbonization and collective community resilience.

We welcome any feedback or questions regarding our project findings.

Regards,



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Enclosure: Sample Project Cost Comparison Data

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Sample Project Cost Comparison Data				
Multifamily Type IIIA / Type IA Building: 105 units				
			Natural Gas	
DHW	Colmac HPHW	\$ 106,820	Boiler RayPack	\$ 30,580
	Tanks	\$ 29,131	Tanks	\$ 14,900
	Add Labor/HR	\$ 14,104		
				DHW Equipment Comparison:
				Electric DWH \$150,055
				Gas DHW \$ 45,480 \$ 104,575
Solar HW	None	\$ -	40% Fraction	\$ 219,000
ReCirc	same	\$ -	same	\$ -
Bldg	NA	\$ -	Gas Trench, backfill, pipe, stubout inside	\$ 25,000
	NA	\$ -	flexextend joints	\$ 10,000
	NA	\$ -	Gas Meter Room	\$ 28,550
	NA	\$ -	Gas piping to Boiler Room	\$ 11,904
	NA	\$ -	Insulated copper pipe to Solar Thermal to Tanks	\$ 25,000
	NA	\$ -	Gas to Laundry	\$ 9,933
	NA	\$ -	Gas Ventilation	\$ 8,000
				Assoc. Bldg Costs (beyond DHW Equip)
				Electric DWH \$ -
				Gas DHW \$ 133,387
Utility Connection	No Gas Connection	\$ -	Gas Connection	\$ 15,000
				Electric Building Savings:
TOTAL		\$ 150,055		\$ 397,867
				Includes SHW \$ 247,812
Solar PV	Array 123,000kW	\$ 443,566	assume half	\$ 221,830
Battery	Backup Wall Packs	\$ 100,000		
				Electric Building Savings
				Includes Solar
TOTAL w PV		\$ 593,621		\$ 619,697
				PV + Battery \$ 26,076

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