June 26, 2020

MITHŪN

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

Seattle
Pier 56
1201 Alaskan Way #200
Seattle, WA 98101

San Francisco
660 Market Street #300
San Francisco, CA 94104

Los Angeles
Mithun | Hodgetts + Fung
5837 Adams Boulevard
Culver City, CA 90232

mithun.com

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,*

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

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	$ -	flextend 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	**Assoc. Bldg Costs (beyond DHW Equip)**		
	NA	$ -	Gas Ventilation	$ 8,000	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		
TOTAL w PV		*$ 593,621*		*$ 619,697*	Includes Solar PV + Battery		$ 26,076