Exhibit A

Background Calculations for RREMP and CREMP submittal pages.

This page is for reference only. Values to be updated per Governing body when required. Click on individual cells to see formulas used.

This page is for reference only. V								
This color cell is a calculated and This color cell is adjustable (by lo	nual energy consumption cal Governing Body) to fit	used in REMI local jurisdicti	P calculations. ion choices for ar	mount of offset ar	nd local cost of e	quipment installation.		
PV Energy Cost Calcs			\$/kW of array					Notes Approximate average cost of PV installation in Summit County (2022), per sampling of local installers by HCC.
	_	1,500	kWh/yr per kW					NREL PVWatts estimated output (at optimum conditions for solar access, w/o derate for effects of snow) Assumed system lifesnan
		30,000	kWh per kW for	ed life of system r the life of syste	ı) em			kWh output of system over lifespan
		\$0.117	S/kWh for life o	of system				Calculated installation cost per kWh output for life of the system
	Energy cost used	\$0.117	e a. wa					Table 1
	Time period used	20	yrs					Installed onsite energy cost to offset external site energy Assumed systemlifespan
Co	nversion of Btu/kWh GSHP COP minimum	3,412						Standard conversion factor between Btu's and kW Minimum allowed GSHP COP
	ASHP COP minimum	1.8						Minimum allowed ASHP COP
Residential Exterior Energy	Е	nergy Use	Units	Exterior Energ Fee	gy Offset % Offset	Adjusted	Units	Notes
	Snowmelt	82,863	Btu/sf/yr	\$56.67	100%	\$56.67	\$/fi2	See calculation description below.
	Pool Spa	331,451 428,937	Btu/sf/yr Btu/sf/yr	\$226.67 \$293.33		\$226.67 \$293.33		See calculation description below. See calculation description below.
	Heat tape	1.56	kWh/W/yr	\$3.65	0%	\$0.00		See calculation description below.
	Electric patio heaters Gas patio heaters	350	kWh/W/yr kBtu/kBtuh/yr	\$0.82 \$0.24	0%	\$0.00 \$0.00	S/W S/Btuh	See calculation description below. See calculation description below.
	Gas fireplaces		kBtu/kBtuh/yr	\$0.25 \$0.05			\$/Btuh \$/Btuh	See calculation description below.
	Cooking appliances	80	kBtu/kBtuh/yr	\$0.05	076	\$0.00	3/Dtun	See calculation description below.
				Exterior Energ	gy Offset			
Commercial Exterior Energy		nergy Use		Fee	% Offset	Adjusted	Units	Notes
	Snowmelt Pool	146,229 414,314	Btu/sf/yr Btu/sf/yr	\$100.00 \$283.33		\$100.00 \$283.33		See calculation description below. See calculation description below.
	Spa	428,937	Btu/sf/yr	\$293.33	100%	\$293.33	\$/ft2	See calculation description below.
	Heat tape Electric patio heaters		kWh/W/yr kWh/W/yr	\$3.65 \$2.36		\$0.00 \$0.24		See calculation description below. See calculation description below.
	Gas patio heaters	1,008	kBtu/kBtuh/yr kBtu/kBtuh/yr	\$0.69 \$1.38	0%		S/Btuh S/Btuh	See calculation description below. See calculation description below.
	Gas fireplaces Cooking appliances	390	kBtu/kBtuh/yr kBtu/kBtuh/yr	\$1.38 \$0.27	0%	\$0.00 \$0.00	\$/Btuh \$/Btuh	See calculation description below. See calculation description below.
Offset rates				Equipment Cr Cost	redit %Credit	Adjusted	Units	Notes
Gaset rates	GSHP			\$7,500	25%		Units \$/10,000 Btu installed capacity	Average installed system upgrade cost of \$9,000 per ton of system capacity.
	ASHP			\$2,500		\$625.00	\$/10,000 Btu installed capacity	Average installed system upgrade cost of \$3,000 per ton of system capacity.
	Residential SHW Commerical SHW			\$112.25 \$112.25	100%	\$112.25	S/ft2 of array S/ft2 of array	Average cost of SHW installation in Summit County (2021), per sampling of local installers. Average cost of SHW installation in Summit County (2021), per sampling of local installers.
	PV			\$3,500	100%	\$3,500.00	\$/kw of array	Average cost of PV installation in Summit County (2021), per sampling of local installers.
Exterior Energy Use Exemption	ons D	esidential	Units	Commercial	Units		Notes	
	Snowmelt	100	ft2	100	ft2 per egress	pathway		
	Pool	n/a 64	ft2	n/a 64	ft2 per 10 priv			
	Spa Heat tape	FULL	HZ	FULL	nz per 10 pm	vate units		
	Electric patio heaters Gas patio heaters	FULL n/a		n/a n/a			Exterior gas fired appliances (not including snowmelt, pool, and spa heat sources) are not exempt	1
	Gas fireplaces Outdoor cooking	n/a		n/a			from the REMP program and are regulated according to the connected natural gas capacity budget (below).	
	Ouldoor cooking	ii/a			_		budget (below).	
Connected Natural Gas Capac	situ Dudost D	esidential	Unito	Commercial	Unito		Notes	
Connected Natural Gas Capac	Budget		Btu/hr	350,000	Btu/hr		Notes	-
00%	Offset withinbudget et in exceess of budget	10% 100%	n/a n/a	10% 100%	n/a n/a			
	it in execess or budget							
Exterior Energy Use Annu	ual Calculations:							
Residential Snowmelt:		alue	units	Notes				
Residential Snowmelt: Parameter Operational Load		125	Btuh/sf	Based on ASHI		lass 1: Residential &		
Residential Snowmelt: Parameter Operational Load Cleanup Load Run Time		125 45 560	Btuh/sf Btuh/sf hrs	Based on ASHI Wirsbo design r Based on data c	manual load for collected by the	22-25°F and 5MPH w Colorado Climate Ce	ind speed. nter from 1980-1996.	
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Normalized annual energy consumption	80	390	kBtu/kBtuh/yr	Energy consum	ed per year per install	ed MBH. Similar to 'Outdoor Gas Appliance' Calculation w/ different run-time assumptions.
Electric Patio Heaters:						
Parameter	Electric Pa	atio Heaters			units	Notes
Type	Residential	Commercial				
Number of heaters (input)	1	1				For example puposes only.
W (rated input)	6000	6000			Watts	For example puposes only.
W (total installed)	6000	6000			Watts	For example puposes only.
Day Use	2	4			hrs	Assumed hours per day, per committee meeting.
weeks/yr	25	36			weeks	Assumed weeks per year, per committee meeting.

Heat tape:	
Self Regulating Heat Tape Annual Energy Model (Pitkin County)	Notes
Model Assumptions	
Weather Data Location: Gypsum - Eagle County Airport Basis Product: Chomalos SRF-RG Output Temperature Adjustment (linear): Watt-Hou-mart +9	These assumptions were used to run an hourly annual calculation in which, each Wast-Hour/Root of energy consumtion was calculated and summed. Per discussions with manufacturery regarding the operation of "self-regulating" heat tape, the tape is modeled as consuming full rated output when the offsted air temperature was below 32.7° fth ent of energy consumption decreased linearly to the reduced output of the object of the properties of the object of the properties of the properties of the object of the properties of the properties of the object of the properties of
Max Output (Wat/LF): 8.0 W	temperature listed by the manufacturer. Calculation accounts for seasonal and nightly shutdowns per required controls.
Adjustment varianke (n); - 3/8 Adjustment Variable (b): 20.0 Seasonal and Nighly Shut-Off	
Courted #1: Sald Engulating Counted #2: Manual System States off (April-1 thru November-1) Counted #3: Timer Switch Shut-off (1800-0600) Counted #4: More	

Available Gas Combustion Thermal Efficiencies:

92% 93% 94% 95% 96% 97% 98% 99%

ual Energy Consumption per Linear Ft of Cable (kWh):