

# ZOOM Housekeeping



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## Trench Talk

A series of live webinars to serve the geothermal community

# NetZero Update

Tuesday March 8, 2022, 4 PM EST

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# Agenda

- NetZero Update (20 min)
- "Pearls of Wisdom" (15-20 min)
- Q&A (15-20 min)

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# Review

- Basic "Low Boy"
- Compact "Tall Boy"
- Sizes – Nominal (AHRI GL Rating)
  - 9 KW (36,024 Btu/Hr)
  - 12 KW (48,688 Btu/Hr)
  - 22 KW (70,898 Btu/Hr)
- Heat Variations
  - Heat Only
  - Heat + HTR
  - Heat + Emergency
  - **Heat + HTR + Emergency**
- Cool Variations
  - None
  - **Reversible**
  - Passive
  - Reversible + Passive
- Stock Units – **N22KW2CWRB**
  - 6 SKUs out of 72 Variations




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# Review

- Multi-Source
  - Geothermal
  - Air Source
  - Hybrid









- Our Own Shop
  - Artesian Well
  - Solar Heated Tank
  - Air Source

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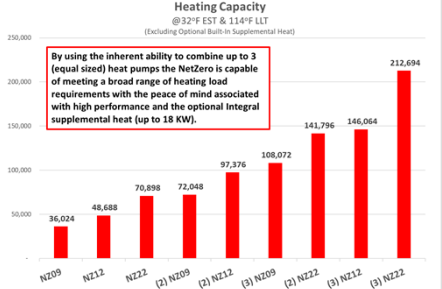
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# Application Range

Heating Capacity  
@ 32°F EST & 114°F LLT  
(Excluding Optional Built-In Supplemental Heat)

By using the inherent ability to combine up to 3 (equal sized) heat pumps the NetZero is capable of meeting a broad range of heating load requirements with the peace of mind associated with high performance and the optional Integral supplemental heat (up to 18 KW).

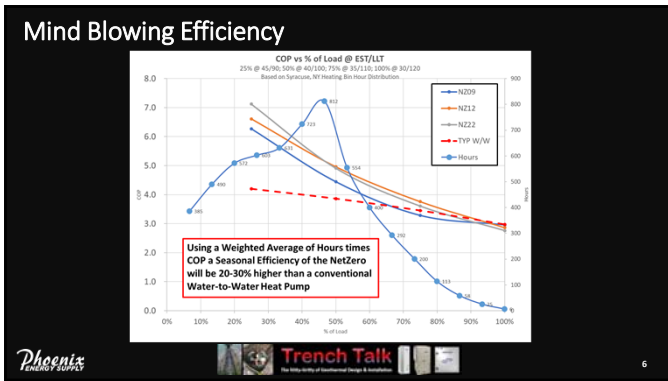


Model	Heating Capacity (Btu/Hr)
NZ09	36,024
NZ12	48,688
NZ22	70,898
(2) NZ09	72,048
(3) NZ12	97,576
(3) NZ09	108,072
(2) NZ22	141,796
(3) NZ12	146,064
(3) NZ22	212,694

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### AHRI Certification

Download Certificates  
<https://www.phoenixenergysupply.com/wp-content/uploads/2022/01/NetZero-AHRI-Certificates.pdf>

NetZero Model	Capacity Modulation	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling		Heating		Cooling		Heating		Cooling		Heating	
		EST 86°F ELT 53.6°F	EST 68°F ELT 104°F	EST 59°F ELT 53.6°F	EST 50°F ELT 104°F	Full EST 77°F Part EST 68°F ELT 53.6°F	Full EST 32°F Part ELT 41°F ELT 104°F						
009	Full	22,274	13,09	53,473	4.32	23,901	18.60	46,261	3.35	21,781	13.65	36,024	2.83
	Part	14,919	14.83	22,184	5.46	15,879	22.43	19,431	4.14	15,221	18.81	16,947	3.87
012	Full	30,787	13.60	68,212	4.64	32,057	18.57	62,244	3.47	29,297	13.72	48,688	2.87
	Part	20,836	15.19	30,597	6.01	21,536	22.03	23,617	4.54	20,681	18.64	23,532	3.98
022	Full	44,782	13.28	96,053	3.99	48,967	18.75	86,016	3.22	44,726	13.95	70,898	2.81
	Part	30,182	14.68	73,713	5.53	32,706	22.05	34,387	4.36	31,403	18.72	30,384	3.87

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### NETZERO PERFORMANCE CALCULATOR

Select Model/Size:  NZ09  NZ12  NZ22

Select Quantity: 1  
 Select Compressor Speed: 100 %  
 Select EST for Heating: 32 °F 25. LST  
 Enter ELT for Heating: 100 °F 110. LLT  
 Enter LLT for Cooling: 45 °F 55.1 ELT  
 Heating Source Delta T: 7.0 deg F  
 Heating Load Delta T: 10.0 deg F

Performance:

	Heating	Cooling
Capacity (BTU/Hr)	76,714	77,419
Power (KW)	7.51	6.47
Efficiency (COP/EER)	3.68	11.0
HE/Hr (BTU/H)	51,775	99,506
Source Flow (gpm)	15.3	
Available Source Head	23.9	
Load Flow (gpm)	15.8	
Available Load Head	15.8	

Model # **NETZERO22KW2CW RB**  
 AHRI Reference # **207659203**  
[AHRI Website Link to Obtain Certificate](#)

	Full Load Heat Capacity <sup>1</sup>	Full/Part Load Average COP	EER
GWHP <sup>2</sup>	86,016	3.79	20.4
GLHP <sup>3</sup>	70,898	3.34	16.3

1 - For Calculating NYS Clean Heat Rebates  
 2 - COP=3.5 & EER=10.1 Complies with Energy Star Tier 3  
 3 - COP=3.1 & EER=16.1 Complies with Energy Star Tier 3

IMPORTANT: The AHRI Ratings are merely reflecting performance under a testing standard that does not reflect actual seasonal performance in a specific application. Use the performance tool above to evaluate what you may expect at various conditions in your application. Call with any Questions.

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### Remote Monitoring

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### Remote Monitoring Improvements

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### Outdoor Sensor Failures

- If outdoor sensor has failed to operate or a communication problem, set the stop temp to -99 to get it to operate.
- There are logical reasons why they had to go with a communicating sensor, and the factory is working on returning to an analog sensor as soon as possible.
- Cause of failures is still being investigated, but field wiring practices may be a contributing factor.
- ALL FAILED SENSORS NEED TO BE SENT BACK TO US.

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### Available in LoopLinkRLC

CSHP Selection

Select the type and capacity for the heat pumps that you would like to have service this zone. Manufacturer and model will be automatically filtered to match your desired equipment type and capacity.

Water To Air | **Water To Water**

Single Capacity | Dual Capacity | **Variable Capacity**

Manufacturer: GeoSmart Energy

Model: NetZero NZ22 (LLT-11040) | NetZero NZ29 (LLT-09040) | NetZero NZ09 (LLT-11040) | NetZero NZ09 (LLT-13040) | NetZero NZ12 (LLT-09040) | NetZero NZ12 (LLT-11040) | NetZero NZ12 (LLT-13040) | NetZero NZ22 (LLT-09040) | **NetZero NZ22 (LLT-11040)** | NetZero NZ22 (LLT-13040)

# Heat Pumps: 1


**Circulating Pump Details**

Please specify if a variable speed circulator is being used in this system. By default the flow rate of pump. For dual capacity models, you may select to control the circulator by GPM or the change in temperature across the heat pump. Variable Speed Circulator

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### Indirect Tank




- New Tanks are NPT Connections (No more BSPP conversion to NPT)
- Manufactured in stainless steel AISI 316
- Exterior finish in semi-rigid PVC

	gal	HX Area sq ft	Height in.	Diameter in
200 L	52.8	24.8	59.3	20.5
300 L	79.3	33.5	73.2	22.0
400 L	105.7	44.1	66.9	26.4

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### NetZero+



- Heat Pump Software is "eManager Ready"
- Will manage the excess PV generated electricity to capture full retail value of the solar generated KWH minimizing the wholesale value when sending back to the grid.
- During excess PV generation all thermal load setpoints are adjusted effectively using the loads as a form of thermal storage.
- Will also divert KWH to batteries if available

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### New Pricing



USA Heat Pump Pricelist 2022

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### NetZero+ Basic

**Features and Options**

Inverter technology and Eco-Compressor

Power range: 1.9 kW / 3.12 kW / 5.22 kW

NPT Factory installed Exports

NPTX now includes eManager functionality for photovoltaic systems

Domestic hot water production with external DHW tank

Production of heating and cooling pool

Integrated production of ultra-cold

Integrated production of positive cooling (free cooling) required for use with heat recovery

Control through internet with the NetZero Exports

NPTX technology for the production of domestic hot water up to 70°C

Integrated cascade control up to 3 units

Single-phase 230V power supply

Model Type	NetZero 2.0	NetZero 3.0	NetZero 5.0
NetZero Capacity	2.0 kW	3.12 kW	5.22 kW
NetZero Capacity	2.0 kW	3.12 kW	5.22 kW
NetZero Capacity	2.0 kW	3.12 kW	5.22 kW
NetZero Capacity	2.0 kW	3.12 kW	5.22 kW

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### NetZero

Range

NetZero 8.0-9

NetZero 9.0-12

NetZero 13-22

Sources

Heat, Sun, Air, Water

Services

Heating, Cooling, DHW, Pool, Hot Water, Ventilation, Air

Distribution zones management

Cascade

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**NetZero+ Compact**

**Features and Options**

- Inverter technology and Scroll compressor
- Power ranges: 1.9 kW to 5.2 kW (1.9 to 5.2 kW)
- NEMA 3P being standard feature
- NEMA 4X is available
- NEMA 4X includes 5 Manager functionality for photovoltaic applications
- Operates hot production with an optional DMX tank
- Production of heating and cooling
- Integrated production of active cooling
- Integrated production of passive cooling (free cooling, required for use with heat exchanger)
- Control through Inverter with the IntelliSense Expert
- WiFi technology for the production of domestic hot water up to 80°C
- Integrated cascade control up to 3 units
- Single-phase (230V) power supply

**Model Type:** NETZ01+ Compact HeatPump

**Power:** 1.9 kW, 2.5 kW, 5.2 kW

**Production:** 10000 BTU/h

**Model Type:** NETZ02+ Compact HeatPump

**Power:** 1.9 kW, 2.5 kW, 5.2 kW

**Production:** 10000 BTU/h

**Model Type:** NETZ03+ Compact HeatPump

**Power:** 1.9 kW, 2.5 kW, 5.2 kW

**Production:** 10000 BTU/h

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**NetZero**

**Range:** NetZero C 1.9, NetZero C 3-12, NetZero C 5-22

**Sources:** Ground, Air, Water

**Services:** Heating, Cooling, DHW

**Distribution zones management:** (Diagram showing three zones)

**Cascade:** (Diagram showing three units)

**Model Type:** NETZ01 Compact HeatPump

**Power:** 1.9 kW, 2.5 kW, 5.2 kW

**Production:** 10000 BTU/h

**Model Type:** NETZ02 Compact HeatPump

**Power:** 1.9 kW, 2.5 kW, 5.2 kW

**Production:** 10000 BTU/h

**Model Type:** NETZ03 Compact HeatPump

**Power:** 1.9 kW, 2.5 kW, 5.2 kW

**Production:** 10000 BTU/h

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**Pearls of Wisdom**

- Kevin Moravec - VanHee Geothermal
- John Perry, Jr - Advanced Comfort Systems, Inc.
- Tony Silverio - Silverio Mechanical
- Ryan Dailey - Dailey Geothermal
- Jim Snyder - Snyder Manufacturing, Inc.

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**Q&A**

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