



BUILDING
DECARBONIZATION
COALITION

BDC PRESENTS

**A. O. Smith's Voltex® 120V
Heat Pump Water Heater**

Thursday
April 25 | **10AM** PT
1PM ET



**BDC Presents: A. O. Smith's Voltex® 120V
Heat Pump Water Heater**

April 25, 2024

About the BDC

The Building Decarbonization Coalition (BDC) aligns critical stakeholders on a path to transform the nation's buildings through clean energy, using policy, research, market development and public engagement.

The BDC and its members are charting the course to eliminate fossil fuels in buildings to improve people's health, cut climate and air pollution, prioritize high-road jobs, and ensure that our communities are more resilient to the impacts of climate change.

- **Sign up for our newsletter!**
<https://buildingdecarb.org/newsletter>
- **Membership is free!** Join us! buildingdecarb.org/join



Thank you to our Trailblazer Members!



Upcoming Events



Policy Calls

California

[May 21 at 10 am PT](#)

Minnesota

[May 14 at 10 am PT/ 12 pm CT](#)



BDC Presents

Node Collective

Democratizing Access to Incentive

Data Nationwide

[May 30, 2024](#)

Webinar Logistics

- Everyone is muted
- Ask **questions** for our panelists in the **Q&A**.
- Drop **comments** for the whole group in the **chat**.
- This webinar is being recorded and will be placed in our website's Resource Library.
- All registrants will be emailed with a link and additional resources early next week.



Today's Hosts



Arthur Smith
A.O. Smith Water Products
Product Manager



Panama Bartholomy
BDC
Executive Director



BUILDING
DECARBONIZATION
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BDC Presents:
A. O. Smith's Voltex® 120V Heat Pump Water Heater



Voltex[®] Residential Heat Pump Water Heaters

Arthur Smith
Product Manager

4/23/2023

A. O. Smith is one of the world's leading
providers of water heating and water
treatment solutions





- What is a Heat Pump Water Heater / How Does it Work?
- Why choose a Heat Pump Water Heater / Why Now?
- Voltex Family Overview
- 240V vs 120V Applications
- Installation Considerations



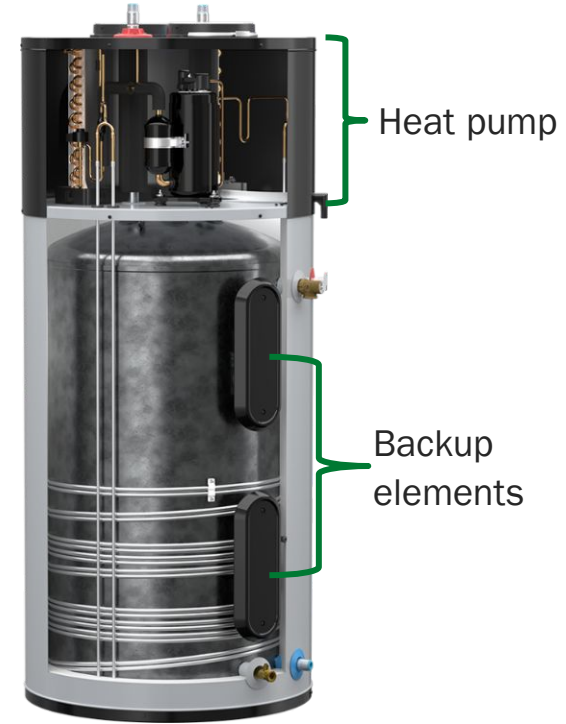
What is a Hybrid Electric Heat Pump Water Heater

Hybrid Electric = Multiple Heat Sources

- Heat Pump
- Standard electric heating elements as backup

Up to 4x More Efficient

- Transfers heat from the ambient air to heat water
- Uses up to 78% less electricity than a standard electric



How Does A Heat Pump Water Heater Work

A heat pump water heater works like an air conditioner or refrigerator by transferring heat from one place to another using refrigerant cycling between gas and liquid states.

- 1 Fan circulates air
- 2 Heat is absorbed in an evaporator coil
- 3 Compressor raises the temperature and pressure
- 4 Hot gaseous refrigerant transfers heat to the water
- 5 Backup electric elements can supplement for faster recovery
(240V models)



Why choose a Heat Pump Water Heater

Save on utility bills

- vs Standard Electric: Save up to \$600 per year
- vs Standard Gas: Save \$100 or more per year
- Avoid on-site GHG emissions from 200-300 therms of NG per year

Cools and dehumidifies installation space



Incentives for Heat Pump Water Heaters

More incentives available than ever before!

- **Federal Tax Credit**
 - 30% of total installed cost including labor up to \$2,000
- **State and Local Utility Incentives**
 - \$300 - \$3,000+ depending on the program
- **A. O. Smith Rebate Center** on www.hotwater.com for more information


Rebate Center

Find available residential rebates on select products in your area.

EcoRebates Terms © 2023

41 products found

Check with your utility to verify eligibility & requirements for residential rebate programs.



Voltex® Hybrid Electric Heat Pump Water Heater

Model #: FPTU-50 | ENERGY STAR certified

[View Product](#)

\$2,300 IN REBATES

Amount	Program - residential	Buy on or After:	January 1, 2023
30% of project cost (up to \$2,000)	Federal Tax Credit - Heat Pump Water Heater	Buy on or Before:	December 31, 2032
		Claim By:	December 31, 2032

[MORE INFO](#)

[More Details](#)

Amount	Program - residential	Buy on or After:	January 1, 2022
Starting at \$300	Focus on Energy - WI		

[MORE INFO](#)

[More Details](#)

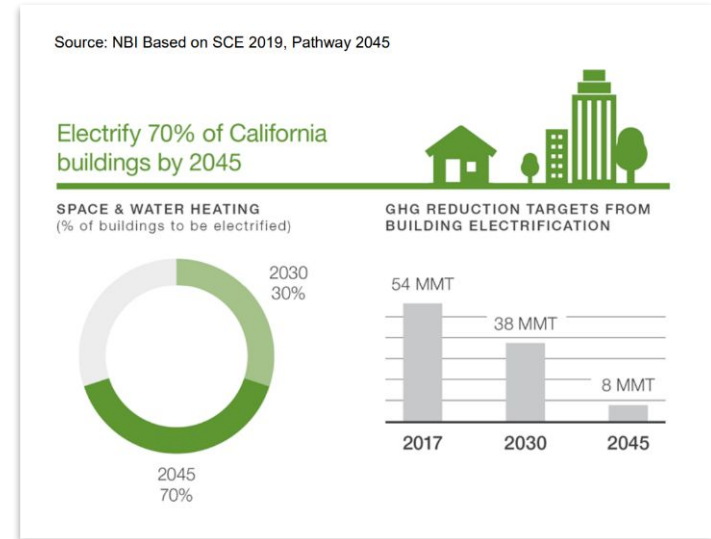
Evolving Regulatory Landscape

State and Regional

- Building Codes
- Demand Response capabilities
- NO_x and other limits on gas-fired equipment

Federal

- NAECA 4 expected in 2029 require HP efficiency on more water heater sizes



The Next Generation of Voltex[®] Heat Pump Water Heaters

Three Exciting New Additions to the Voltex Family



Voltex AL (240V)

- Versatile design with Top & Front water connections
- Anti-Leak capabilities



Voltex MAX (240V)

- Coming soon!
- New Hot Water+ and Guest modes to provide more hot water
- New 40-gallon size



Voltex 120V

- Plugs into a standard wall outlet
- Great for quick and easy replacement of gas water heaters

Common Features – High Efficiency Operation

High efficiency to save on utility bills

- Up to 3.88 UEF
- ENERGY STAR® Certified

Wide operating temperature range (37-120°F)
for more days of high efficiency HP operation

Advanced control capabilities for incentives
and utility demand response programs

- CTA-2045
- California Title 24 JA13



Common Features – Easy to Install

Top Water Connections standard

- Zero clearance required on sides and back

450 ft³ Space Requirement

- Significantly smaller than 700 ft³ required by other manufacturers

Integrated Duct Adapters

- No accessory kit necessary



Common Features – Homeowner Friendly

Whisper-quiet Operation – 45 dBA

Digital temperature control

Integrated iCOMM WiFi Connectivity

- Free A. O. Smith app

Leak Detection Standard for Peace of Mind



240V vs 120V Target Applications

240V (AL, MAX)



- New construction
- Replacing standard electric water heaters
- Requires 240V/30A dedicated circuit

120V



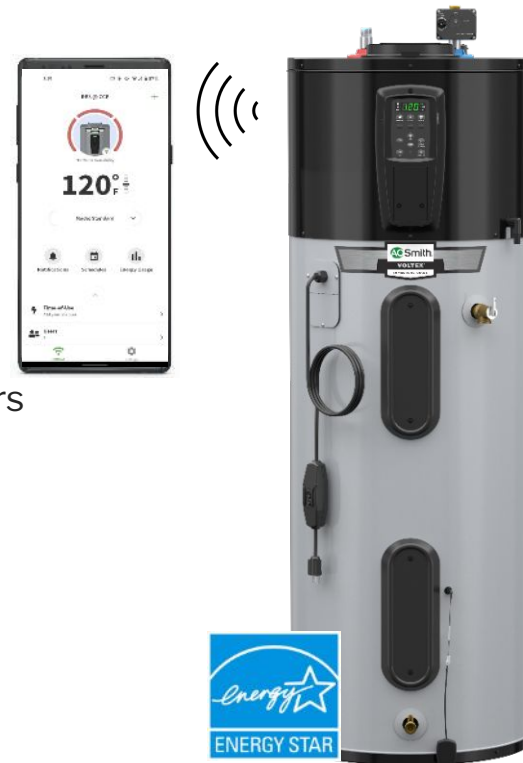
- Replacing gas water heaters
- Plugs into standard 120V outlet on a 15A or larger shared circuit

Voltex 120V

Introducing the Voltex[®] 120V Plug-In Heat Pump

Electrification Made Easy

- **Easy Installation**
 - Plugs into standard 120 volt wall outlet (certified for installation on a shared circuit)
 - Zero clearance design (sides/back)
 - 450 ft³ space requirement is smaller than other manufacturers
- **Top Water Connections**
- **Whisper-Quiet Operation (45 dBA)**
- **Digital Temperature Control**
- **iCOMM™ Smart Connectivity & Other Advanced Features**

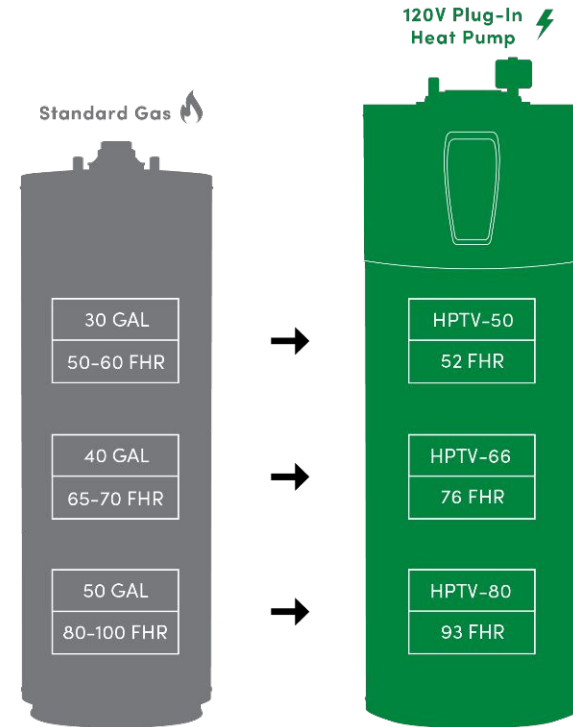


Education Before Electrification

Proper sizing is critical when replacing a gas water heater with a heat pump. Heat pump water heaters are significantly more efficient but are slower to heat water than a gas water heater. A customer should upsize to ensure they receive equivalent hot water delivery.

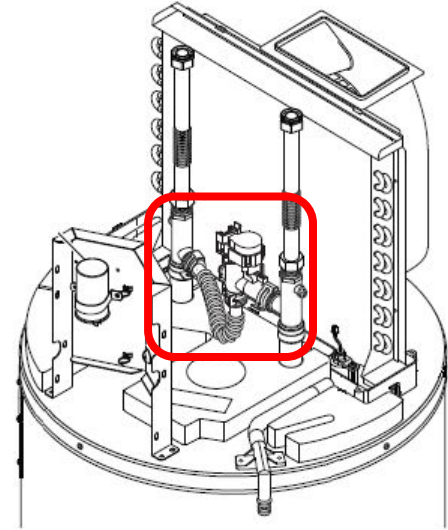
Voltex 120V models are sized to provide comparable first hour ratings to 30, 40 and 50 gallon gas water heaters.

240V models are recommended if replacing a standard electric water heater or for use in new construction.



Voltex 120V Hot Water Performance

- **Comparable First Hour Rating to Gas**
- **Integrated Digitally Controlled Smart Valve**
 - Easily set the desired outlet temperature on the display or in the free app. No manual valve to adjust.
 - 120V models automatically maintain an elevated storage temperature. Smart valve automatically mixes down to customer's setpoint temperature.
- **Backup Elements**
 - Dual backup elements can provide hot water if the heat pump can not run such as in cold ambient temperatures.



Advanced Features

- **Peace of Mind**

- Leak detection and automatic water shut-off valve as standard features.

- **Reduced Carbon Footprint**

- 120V uses R-513A refrigerant that has a 56% lower global warming potential (GWP) than the standard refrigerant used in other heat pump water heaters.

- **Advanced Utility Capabilities**

- Easily load a utility time of use rate plan to prioritize heating when electricity is inexpensive.
- Capable of Advanced Load Up demand response command.
- 120V certified to ASSE 1082 to meet TECH Clean California, California Title 24 JA13 and other incentive program requirements.

Installation Considerations

Installation Considerations

- **Designed for Easy Installation**

- Contractor preferred top water connections
- Zero clearance required on sides and back
- 120V models can plug into a standard wall outlet
- Generally install like a standard water heater

Items to Consider

- **HPWH have a larger footprint**

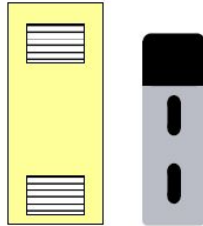
- Integrated design is taller than other products
- Recommend upsizing capacity



Installation Considerations – Room Size

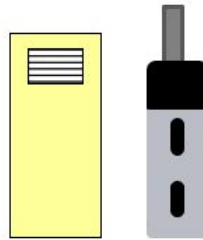
- **Minimum room size of 450 ft³ for proper HP operation**
- **Several options to provide ventilation for smaller installation spaces**
 - Integrated duct collars make connecting ducting easily without needing an accessory kit

84-449 ft³ Spaces

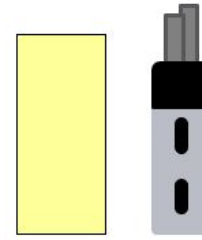


- a) Louvered door
- b) Double louver
- c) Single louver and undercut door

Smaller Spaces (no minimum size)



- Inlet or Outlet ducting
and
- a) Single louver
 - b) Undercut door



- Inlet and Outlet
ducting

Installation Considerations - Condensate

Heat pumps produce condensate

- Non-acidic and does not need to be treated or neutralized before disposal
- Condensate drain fitting and flexible tubing come pre-installed from the factory
- Condensate pump can be used if a floor drain is not available



Voltex 120V Summary

- **Designed for Gas Water Heater Replacement**
 - Optimized design to match First Hour Rating for 30-50 gallon gas water heaters to ensure customers have enough hot water
- **Easy to Install**
 - Plugs into shared circuit wall outlet - No need for electrical work
 - Contractor preferred top water connections for easy retrofit
 - 450 ft³ space requirement is smaller than other manufacturers
 - Zero clearance design and easy ducting make even the tightest spaces possible
- **Whisper-Quiet Operation (45 dBA)**
- **Qualifies for ENERGY STAR, TECH Clean CA and other incentives**
- **Available Nationwide**



Questions

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