



## **BDC Presents: The First 120V Heat Pump Water Heater**

**October 13, 2022**

### Summary:

Rheem is the first manufacturer to release a 120 volt, 15 amp heat pump water heater. This is an important innovation for residential electrification as it does not require the installation of a dedicated 240 volt plug and 30 amp service.

### Overview:

- The [Rheem Proterra plug-in](#) heat pump water heater is now available in a 120V shared circuit model (suitable for 15A shared circuits with lower current draw) with 40, 50, 65, or 80-gallon capacity (recommended for no more than 5 people in a household) and a dedicated circuit model (3x quicker recovery time) with 40 or 50 gallon capacity (no more than 5 people in a household).
  - Both models are up to 5x more efficient than gas models and currently reduce your carbon emissions by 79%.
  - These models do not have back-up resistance heat so they are best suited for climates with ambient temperatures above 37°F.
- Smart app allows you to schedule heating to coincide with time-of-use rates to maximize savings.
- The Northwest Energy Efficiency Alliance (NEEA) conducted [an independent study](#) to evaluate the performance of the 50-gallon dedicated and shared circuit models
- Advanced Water Heating Initiative (AWHI) is currently conducting a field study of Rheem's 120V HPWH as well as other manufacturers (shared circuit models).
  - Results are expected in early 2023.
- Supply chain issues are easing—you should be able to order through a wholesaler or distributor and receive it in three weeks.

## Q & A

- *How loud is it?* Designed with a 49 dB rating for shared circuit and 54 dB for dedicated circuit. Model will also vibrate—important for contractors to add a vibration pad under unit and/or special earthquake straps to minimize vibration from traveling through the home.
- *What are the space requirements?* Shared circuit: 700 cubic ft. of space, a louvered door, or ducted. Dedicated circuit: 1,200 cubic ft. or ducted exhaust and full louvered door.
- *What climates is this model suitable for?* It's not a hybrid (i.e. it doesn't have back-up resistance heat) so it's only recommended for climates with ambient air temperature above 37°F degrees. If it's located in your basement (where ambient air temp is likely to be around 50°F), it could work in a colder climate but it should be considered on a case-by-case basis.
- *Refrigerants:* R134A is used—an efficient refrigerant; future regulations will affect what's used in the future
- *Testing and nameplate ratings:* The Uniform Energy Factor (UEF) ratings are based off of Department of Energy (DOE) tests; NEEA independent study may not account for stand by loss—looks at recovery efficiency of compressor.
- *Does the rating of the system count as a continuous load per the National Electrical Code (NEC)?* Yes; shared circuit can only have 50% of 15A service (continuous at 50%, approx 900W); for dedicated circuit, only allowed to up to 80% of 15A service.
- *How is Rheem working with plumbers to get these models into distribution so they can be utilized for emergency replacements?* Rheem is currently training plumbers; new technology adoption can be slow as it includes risk.
- *Plans to include a thermostatic mixing valve?* Shared circuit already has one; dedicated circuit can have one added by a plumber.
- *Is this a DIY product?* Half of HPWH are already DIY / sold through retail channels. The 120V model is even easier given the lack of a new 240 V / 30A service, which usually requires an electrician.
- *What factors would influence the consumer's decision to get a 240V or 120V?* A place like CA makes 120V an easy choice when you want to switch from a gas water heater (just be sure to upsize to get through peak demand periods). New construction will likely have 240V /

30A service so it makes sense to keep a 240V model.

- *How much does a HPWH “cool” the space it's in?* Not a huge cooling effect in a garage; some dehumidification during summer months. In a conditioned space, the effect is similar to a refrigerator (which uses heat pump technology).
- *CA specific questions:*
  - *Do these qualify for rebates under TECH in California?* Yes! Usually there is a separate 120V category to account for UEF differences with 240V.
  - *What barriers exist in CA plumbing code?* First hour ratings for new construction in Title-24 are geared toward the 240V model. This model is typically going to be used for existing construction and retrofits.
  - *If CARB confirms their phaseout date of 2030 for gas appliances, is Rheem ready to meet the demand?* Yes! Rheem is ready! Rheem has invested a ton in capacity and manufacturing sites and is ready to help CA and the nation with the transition to heat pump water heaters.