



BDC Presents: Charlie! The 120V Induction Range

January 19, 2023

Summary:

Channing Street Copper Company builds energy storage equipped (ESE) appliances. Starting with an ESE induction range, named Charlie, coming to market in 2023. ESE appliances offer a range of benefits, including resiliency in case of power outage, ability to loadshift and use clean renewable energy, and effortless installation by plugging into a standard wall outlet. When replacing a gas range with an ESE induction range, there is no need for expensive electrical work as it can run off the 120v outlet that's already behind the stove. This makes ESE induction the simple and straightforward choice for home electrification.

Resources

- <https://buildingdecarb.org/resource-library>
- <https://www.channingcopper.com/>
- <https://incentives.switchison.org/>
- weldon@channingcopper.com, [Linkedin](#)

Overview:

- Poll question? Have you cooked on induction? Do you have energy storage in your home?
 - 2/3rds have cooked on induction. Most do not have energy storage.
- Question: How do you install an induction stove?
 - Can be complex. Many variables to consider. Experts are often needed. Panel upgrade, 240V circuit.
 - Energy storage equipped appliances allow you to plug in.
- [Specs on Charlie](#)
 - Plus process, get from Weldon
- Benefits
 - Load shift by default. Use solar during the afternoon when plentiful.
 - Works when the power goes out.
- Batteries
 - Lithium iron phosphate - not light weight. Most common application is in server racks for backup power.
 - Stable for long cycle times. 8-10,000 cycles

- No cobalt in lithium iron phosphate

Q & A

- Timeline for purchase?
 - Pre-orders
 - The first install April of 2023. Scaling production from there.
- Battery length
 - Cooking experience - when you're heating up the oven, or bringing something big to boil, you're drawing from the battery. Once you get up to temperature, the power requirement comes down. Expect 8 hours of cook time if you're going nonstop. If the power is out - 4 hours of moderate cook time.
 - Battery life - Just shy of 20 years.
- How heat and batteries work together?
- What's the draw on the 120V circuit?
 - 1500 watts
- Can you set specific hours for battery charging?
- Can it do time based load shifting based on load conditions?
 - Default setting - community resilience - load shifting by default. Charge when the sun is shining, not charging 4-9pm. Can be adjusted based on the carbon intensity of the grid of where you are.
 - First cases are specific to the Bay Area.
- Do the elements in the oven use AC or DC? Onboard inverter?
 - Appliance is driven off of DC. Inverter for auxiliary power.
- Battery safety and proximity to heat.
 - It is very safe. Insulated the whole thing. Have tested to see how hot they could get the battery compartment. The oven is well insulated to isolate heat from the battery. Dust balls are more likely to catch fire than anything else. Lithium iron phosphate does not get as hot. Battery compartment is vented to keep the battery at moderate temperature.
- Are there considerations for a cheaper low end unit? 40" model?
 - 36" is the next step. 30" is the most common on the market.
 - For a large number of people, energy storage equipped induction will be the most affordable option because of the install.
- Price?
 - Pre-orders for Charlie's initial debut were for a total purchase price of \$5,999.
- Scaling timeline?
 - As fast as they can. Show people there is a market. Last week proved that. Anticipate additional volume rolling out later this year. Significantly scaled deployment next year?
- Which incentives is this eligible for? Energy storage incentives too?

- IRA - 30% investment tax credit
- Easiest incentives to get are local. Eg. BAYRen.
- Income qualified in IRA
- How they stack, no guidance from the treasury yet. Expect in coming months.
- Battery warranty - within 10 years
- Accessibility, financing, lower cost models - are you hearing demand for a 24" model?
 - A lot of multifamily has 30".
 - NYC has a higher concentration of 24", but even there 30" is common.
 - Local governments are putting in efforts to get gas stoves out of affordable housing.
 - Financing? - Will have a financing partner
- Marketing and expansion plans?
 - Not a direct consumer company. They need to get into showrooms so people can interact with the product. Work with partners that have a physical presence.
- Certification and safety
 - Not UL certified now, but will pursue one.
- What is efficiency of Charlie compared to standard induction?
 - 80-85% round trip efficiency on battery usage. Still significant carbon savings.
- Communication protocols
 - Wifi enabled.
- Market future
 - Energy storage equipped appliances are broader than just batteries.
 - There are 40 million gas stoves in America. Huge market potential.
- Partnership with LG?
 - No.
- Cooktop configuration
 - 12", 10", 8", 8"
- Are you exploring the ability to retrofit non-energy storage appliances?
 - The bespoke nature of doing different models would be cost prohibitive. Like rebuilding a classic car. Not scalable for business.
- Is there an app?
 - Not launching with an app on the initial product.
- How to check battery status?
 - Standard battery status lights on the unit.
- National electrical and fire code triggers
 - Where does the battery fit into the code? It does not trigger anything because it's not a bidirectional battery.