

Hank's Corner

WE'RE GONNA ROCK DOWN TO... ELECTRIC AVENUE!!

The brewing blogosphere has been crackling lately about electric brewing which is something I was shifting to in early 2005 but stayed with propane when, post Katrina, I found a second burner and 18 partially filled obsolete style propane tanks. I have reached the end of my stash so I am coming back to some use of electricity.

Propane is anywhere from 4 to 8 times more expensive than electricity depending on how well you insulate the vessels used, even though I use shrouded and insulated liquor tanks and boil pot, I can still feel heat in the area which is calories lost. Propane also requires a "quick" (?) run to some of the few remaining places for a refill and in my case building a new collection of ugly propane bottles.

Some background info on electrical heat- Assuming perfect insulation and therefore no heat loss-

----4,184 watts will heat a liter up by 1C every second.

----2,092 watts will heat a liter up by 1C every 2 seconds.

----1,046 watts will heat a liter up by 1C every 4 seconds.

But that is heating; not boiling. The cruncher for any energy system is that beginning at any temperature point, it takes ONE calorie to raise one gram of water one degree, but it takes FIVE HUNDRED and FORTY calories to go from 99C to 100C (boil). Propane is quick and very powerful with the high output burners so common in our crawfish boiling area but one can get to boil with all electric with via multiple (1500W(120V) circuits or most efficiently 2000plus W(240V) circuits but boiling large volumes (>10Gs) is not practical with electricity.

In 2005 I made a fixed element HLT with a plastic 5 gal LME pail placed in a large plastic Jeff Parish recycle bin filled with lots of insulation. The thin wall of a LME pail allows one to use the standard thread/gasket

of the element and a brass nut from a plumbing supply house.

See the sketch on installing the element at: <http://hbd.org/cdp/boilold/boiler.htm>

C D Pritchard also has a nice discussion of a high capacity boiler on another part of his site as does Ron LaBorde, a former officer of CCH, at: <http://hbd.org/rlaborde/>

My liquor tank setup produces 4 3/4 Gallons quickly while remaining weirdly quiet and that volume will handle most mashing and batch sparging. The creative brewer who needs more than 4 3/4 gals can OVERHEAT the 4 3/4 and as it flows out, adds some cooler water to the mash tun to give the needed volume which can be calculated ahead of time but I feel a better way to hit the exact temp points is with a heatstick.

The simplest approach is the type of heatstick I brought to the August meeting. It is a 12 gauge/15 amp plug setup per:

<http://www.3d0g.net/brewing/heatstick>

I modified this plan and used a cut off J shaped pipe to make a more horizontal device but do like the grounding technique versus the one usually described on the Net. The total cost was about 40 bux and I have the Lowe's parts list if anyone wants it. A fixed element will be \$10 for the element, \$10 from Harbor Freight for a 12G extension cord and whatever an outer container pail, insulation, etc. costs.

My personal plans are to use the heatstick

- A) to augment the fixed element liquor pail,
- B) for fine tuning mashing by hitting a bit below the desired mash temperature and moving up to the precise point with the heatstick.
- C) Step mashing, and
- D) As an adjunct for propane/natural gas burner boiling. It also has the potential to make stovetop boiling practical. BTW, natural gas is also cheaper than propane. A 20 lb tank holds 366k of BTUs and costs 17-20 bux whereas the equivalent number of BTUs per my August, 2010 Atmos bill is \$8.57 - check your own gas bill. A CCF = a "therm" is 100K BTUs.

Thanks Hank