

The House that Bruce Built Versions 1.0 – 6.0

2011 07 12

All electric home plus water well pump

1.0

The original home [built 1996] as described in “The House that Bruce Built” article which is comfortable, safe, durable, healthy, and efficient. It has a properly closed crawl space which includes foundation water proofing with exterior perimeter drain to daylight.

1.2

Wood stove added with air tight construction and with outside air intake ducted into stove. Installed [2001] as heat source for use during power outages and special occasions

Enhanced efficiency by expanding the use of compact florescent lights and buying a new Energy Star refrigerator [2003] to replace a 1986 model

Emergency supplies of drinking, cooking and washing water, lighting, and food

LP fired outdoor cooking grill [2004]

2.0

Total Green Power Home: September 2006, we began the monthly purchase of green power to be put into the grid to equal or exceed our total electricity consumption. We purchased NC Green Power even though it cost more because of our commitment to building NC capacity. \$44.00 additional cost per month added to power bill. The alternative wind source from out of state would have cost only \$11.00 additional per month

2.1 & 2.2

Additional Equipment Upgrades: Replaced original 13 SEER heat pump with 17.4 SEER, 9.75 HSPF 2-stage [1.5 & 2.0 ton] heat pump with heat strip locked out to 15 F [2007]. This reduced space conditioning costs by 25%. Replaced 28 year old top load washer with a front load Energy Star washer that is energy, water, and hot water efficient [2008].

3.0 & 4.0

Originally conceived as two steps [battery storage for power outages and small onsite power generation], these were combined into one step and completed **June 2011**. Pole mount, 15 panel, 3.5 KW solar electric array with battery storage and controls. This system provides one third of the home’s total annual kWh. During power outages, with prudent use, it provides unlimited days of operation for refrigeration, water pump, lights, fan, computer, and all other general power circuits. Excluded during emergencies are – heat pump, water heater, range, and dryer, which are covered by backup systems listed above. During peak production, excess kWh is sent to the power grid through the available net metering option. Excess NC Green Power purchase continued to address other toes of our carbon footprint.

5.0 - pending

Provide solar thermal capacity for heating water

6.0 - pending

Increase capacity of on site green power generation