

Stefanie Pruegel's Green Home Features

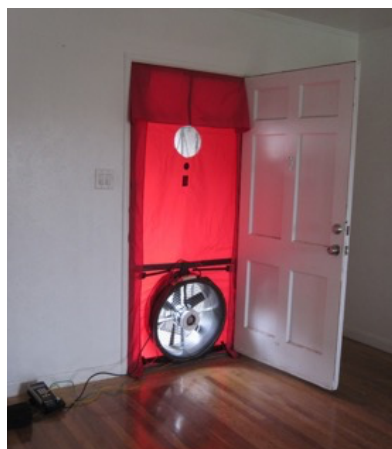
NOTE: Any costs listed have significantly gone up since I made the upgrades, but there are also new (and large!) financial incentives, including the federal Inflation Reduction Act.

About the house (before electrification)

- Built in 1946
- 933 sf, one floor, crawlspace, attic
- Gas wall heater (no ducts)
- Gas hot water heater
- Gas stove
- Double paned windows
- No insulation, very drafty



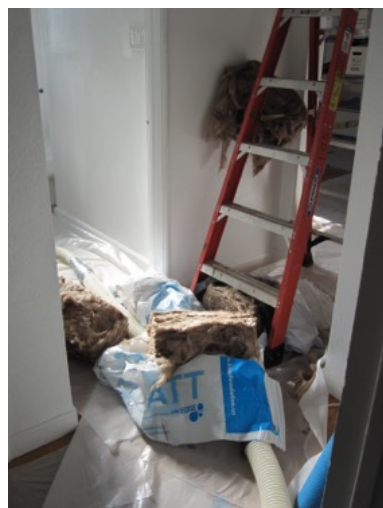
Energy Assessment



- Year completed: **2016**
- Contractor: [ELEM3NTS](#) (from [BayREN](#)'s energy auditor list.)
- Cost before rebate: \$500
- Rebate: \$300 rebate from [BayREN](#)
- **Final cost to me: \$200**
- Good first step before any energy efficiency measures to get a sense of problems, opportunities and priorities.
- The report is a useful roadmap throughout the electrification process.

Photo: Energy assessments usually involve a test whereby a suction device is placed into your door to measure how much heated or cooled air escapes from your home loses because of cracks and lack of sealing.

Insulation, weather stripping and air sealing



- Year completed: **2016**
- Contractor: [SDI Insulation](#)
- **Critical step before ANY other energy efficiency efforts**
- Air sealing and weather-stripping includes door sweeps, and sealing around doors and windows, etc.
- Insulation: Fiberglass insulation in the attic (R-38 batting), subfloor (R-19 batting) and in the walls (R-38 loose fill)
- Cost before rebate: \$4,113
- Rebate: \$2,519 rebate from [BayREN](#)
- **Final cost to me: \$1,594**

Photo: R-38 fiberglass batting is waiting to be taken into the attic to provide insulation. For the walls, holes were drilled and loose fiberglass insulation blown into the wall before the holes were sealed, now virtually invisible.

Rooftop Solar, Solar Storage Battery & Smart Panel

- Year completed: **2021**
- Contractor: [Sun's Free, Alameda](#)

Solar panels:

- Total size 4.6 kW
- 13 Solaria PowerXT panels @ 355W each
- Enphase IQ7 micro inverters
- Cost before tax credit: \$15,880
- 26% Federal tax credit: \$4,129
- **Final cost to me: \$11,751**

Photo: The back roof has a good slant, southern exposure and no trees shading it.



Storage battery:

- [Enphase](#) IQ Battery System (Battery unit, system controller, combiner)
- AC-coupled
- Total capacity: 10.5 kWh
- Total usable capacity: 10.08 kWh
- Max output power: 5.7kW
- Cost before tax credit: \$11,550
- 26% Federal tax credit: \$3,003
- **Final cost to me: \$8,547**
- My main reason for getting a battery was not to be safe during blackouts but to be able to use my own electricity when there's no sun, instead of adding to peak grid demand e.g. in the evenings ("load shift").



"Smart" Electrical Panel:

- [Span.io](#)
- 100A - 200A main breaker with 225A bus and 32 circuits replaces previous 125A panel.
- Instead of a panel upgrade (usually necessary with electrification because more circuits are needed).
- "Smarter" use of existing circuits instead of adding more capacity. More flexible during blackouts.
- Cost before tax credit: \$4,000
- 26% Federal tax credit: \$1,040
- **Final cost to me: \$2,960**



Heating and cooling: Ductless mini-split heat pump

- Year completed: **2021**
- Contractor: [Eco Performance Builders](#)
- [Fujitsu](#) ductless mini-split heat pump
- One outdoor unit, two indoor “air handlers”
- 24,000 BTU
- Can heat and cool
- Each indoor unit as its own remote control and can be set independently.
- This is probably about the smallest system you can get. Additional indoor units would require another outdoor unit. I don't have heating in all rooms, e.g. none in the bedroom, and my very small bathroom has a low-wattage convection heater for cold days.

- Cost before rebate: \$9,358
- Rebate: \$1,000 rebate from [BayREN](#)
- **Final cost to me: \$8,358**



My heat pump model's outdoor unit can support up to two indoor units.



My indoor “air handlers” are ceiling mounted, but there are also floor-mounted ones.

Heat pump hot water heater



- Year completed: 2021
- Contractor: [Eco Performance Builders](#)
- 45-gallon [Ruud Ultra](#) heat pump electric water heater
- Contractor: [Eco Performance Builders](#)
- Cost before rebates: \$6,350
- Rebates (BayREN, EBCE*): \$1,250
- *East Bay Community Energy
- **Final cost to me: \$5,100**

Photo: The heat pump hot water heater is about the same size as and looks very similar to my old gas-powered hot water heater and lives in the garage. It makes some more noise than the gas-powered hot water heater, but since it's in the garage it doesn't bother me.



Induction Stove

- Year completed: **2023**
- Frigidaire Gallery Series Induction Range
- Model #FGIH3047VF
- Only burners can be induction; oven is convection.
- Cost before rebate: \$1,300 (special offer)
- Rebate: \$750 from BayREN
- **Final cost to me: \$550**
- **Important:** Cost does not include up to \$1,000 for the new 240V electrical outlet & wiring.

“Solar clothes dryer”

Clothes dryers use a lot of energy. I don't have one and instead line-dry my clothes. It is amazing how quickly they dry on a sunny day or just indoors in a moderately warm room. Bonus: textiles will last longer!



Rainwater catchment system

- Year completed: **2018**
- Three (3) 1,000-gal tanks by Norwesko
- **Cost of tanks: \$750 each**, incl delivery*
** Company no longer in business, but try Rudy at R&R Tanks 559-827-1357*
- Installation by [Gray Water Landscape Design](#).
- **Installation cost: approx. \$2,200.**

- Total capacity 3,000 gal
- Roof area connected to tanks: 433 sf
- Tanks fill up each winter even during “dry” years.
- Water captured is usually just enough to get my drought-tolerant, native backyard through the summer with frugal supplemental watering.
- Rule of thumb: during a storm that delivers 1” of rain, a 100 square foot area of roof collects 60 gallons of water.



QUESTIONS? Feel free to contact me at stefanie.pruegel@gmail.com.