



# Tim's Electric House

Our zigzag evolution to saving money and our world

# 1996 – Purchased house

- Came with
  - Electric Clothes Dryer
  - Electric Range
  - Good insulation
- Added
  - Electric Mower
  - Electric Hedge Trimmer
  - Electric String Trimmer
  - Electric Chainsaw
  - Electric Blower
  - Outdoor outlets front & back

# 1997 & 2002 – Roof & Windows

- Stone-coated Metal Tile Roof (life span 40-70 years)
- Double Pane Windows – efficiency & quiet

# 2003 – Bathroom remodel

- Electric floor heat on timer
- Electric heat lamps
- Metlund D'Mand on demand electric recirculation pump (saves water & energy)
  - Brass – durable and serviceable
- Fluorescent and Halogen lighting

# 2004 – Kitchen and rest of house remodel

- Electric Smooth Top Electric Range
- Fluorescent and Halogen lighting
- 200 amp panel (replaced 100 amp)
- Hardwood floors instead of carpeting
  - easier to clean especially with pets
  - not as warm but good enough in our climate

# 2014 – Electric Car

- Nissan Leaf
- Clipper Creek EV Charger, 30Amp circuit, Water Heater Timer
  - Installer: Perry Electric
- PGE Smart Meter
- Kill a Watt handheld meter
- Whole house monitoring - what uses what
- LED lighting (replacing halogen & fluorescents – weird bulb connectors)

# 2015 – Solar

- 4KW Solar Array
  - Installer: Earth Electric
  - Enphase Micro Inverters
  - Suniva Panels
  - J brackets for metal roof
  - For my option matrix see <https://www.ZeroW.org/house/solar>

	A	B	C	D	E	G	H	I	J
1	Company / Proposal	Cinnamon 3.9	Cobalt 3.9	Cobalt 4.7	Cobalt 6.1	Highlight 13SW	Hightlight 13LG	Highlight 17SW	Highlight 17LG
2	Ranking	5	1	1	5	1	4	4	4
3	# panels	15	14	17	22	13	13	17	17
4	kW DC	3.9	3.85	4.675	6.05	3.705	3.9	4.845	5.1
5	kW/panel	0.2600	0.2750	0.2750	0.2750	0.2850	0.3000	0.2850	0.3000
6	kWh/year	5674	5959	7062	9179	6247	6576	7,741	8,150
7	Total cost	\$16,973.42	\$16,835.00	\$19,785.00	\$24,885.00	\$16,850.00	\$18,525.00	\$21,250.00	\$23,450.00
8	30.00%	\$5,092.03	\$5,050.50	\$5,935.50	\$7,465.50	\$5,055.00	\$5,557.50	\$6,375.00	\$7,035.00
9	Net Cost	\$11,881.39	\$11,784.50	\$13,849.50	\$17,419.50	\$11,795.00	\$12,967.50	\$14,875.00	\$16,415.00
10	net \$/watt	\$3.05	\$3.06	\$2.96	\$2.88	\$3.18	\$3.33	\$3.07	\$3.22
11	payback years (if \$105/month)	9.43	9.35	10.99	13.83	9.36	10.29	11.81	13.03
12	Metal over Shake method	Drill & Flashing	J hooks	J hooks	J hooks	J hooks	J hooks	J hooks	J hooks
13	Workmanship Warranty	15	10	10	10	15	15	15	15
14	Solar Panel	Auxin	Suniva	Suniva	Suniva	Solar World	LG	Solar World	LG
15	Manuf. State/Country	San Jose, California	Georgia, US	Georgia, US	Georgia, US	Oregon, US	Korea	Oregon, US	Korea
16	Model	Auxin AXN6P610T260 Spice 260w	Suniva OPT275-60-4-1 B0	Suniva OPT275-60-4-1 B0	Suniva OPT275-60-4-1 B0	SolarWorld, Model: SW 285 mono Clear Frame	LG Electronics, Model: LG300N1C-B3 Black Frame	SolarWorld, Model: SW 285 mono Clear Frame	LG Electronics, Model: LG300N1C-B3 Black Frame
17	Solar Panel Type	Poly	Mono	Mono	Mono	Mono	Mono	Mono	Mono
18	Solar Panel Warranty	>90% 10 year >80% 25 year	25	25	25	>90% 10 year >80% 25 year	>90% 10 year >80% 25 year	>90% 10 year >80% 25 year	>90% 10 year >80% 25 year
	Inverter	Enphase M215-60-211-US	Enhphase M215-60-211-US	Enphase M215-60-211-US	Enphase M215-60-211-US	Enphase M250	Enphase M250	Enphase M250	Enphase M250



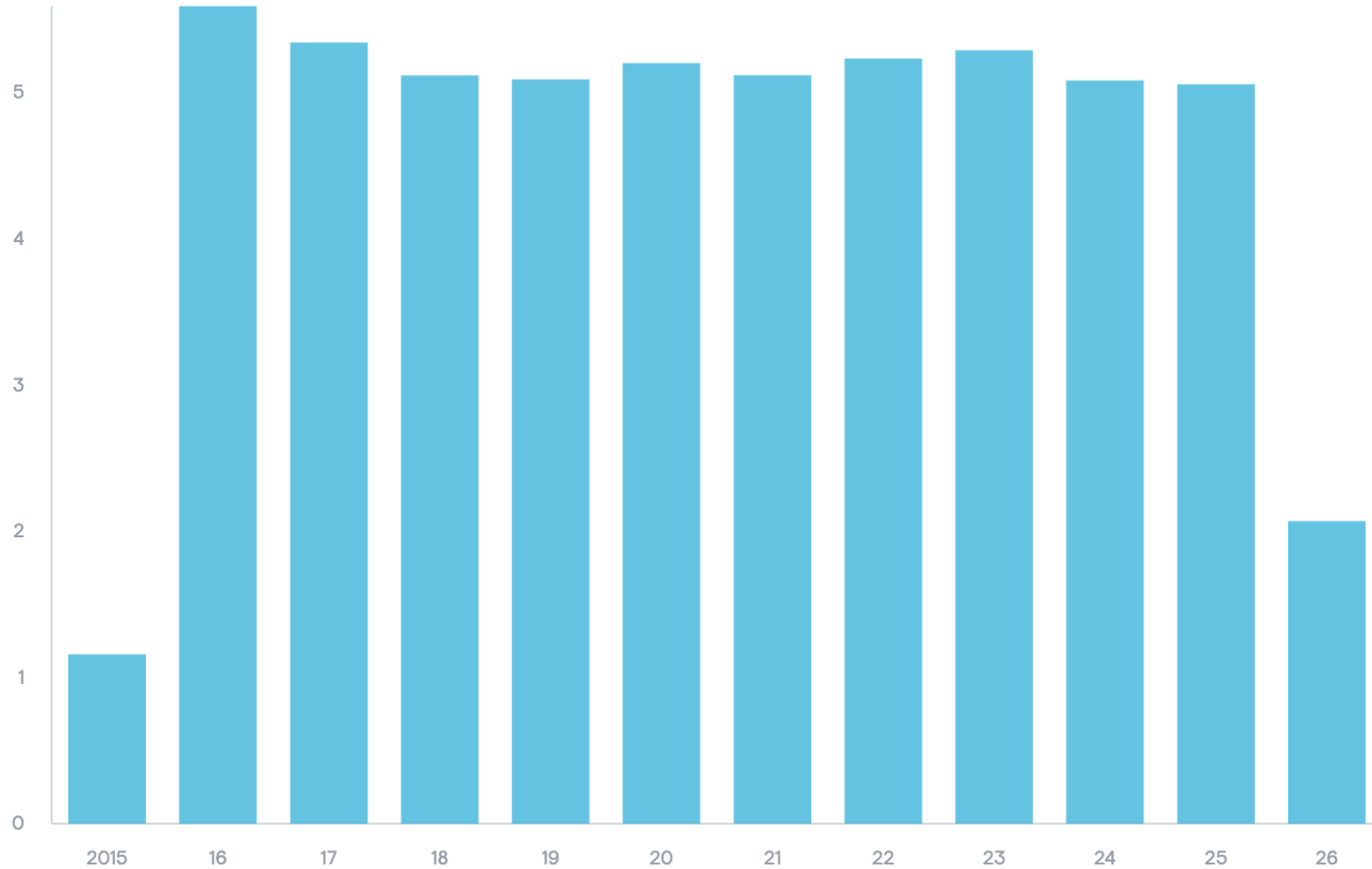
# Energy Produced

Updated 17 mins ago



**55.3 MWh**  
2015 - 2026

MWh



## PERFORMANCE

### Currency Equivalent ⓘ

**55.3 MWh**  
Produced

=

**\$ 13.8 K**  
Equivalent

### Environmental Impact Source: epa.gov



**55.3 MWh**  
Equivalent

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**CO2 REDUCTION**  
**39.5 tons**

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# 2019 – More Solar + Heat Pumps

- Additional 4KW Solar Array
  - Installer: Lundy Solar
  - Enphase Micro Inverters
  - Chinese Panels
  - Subpanels & wiring for water heater
- Heat Pump HVAC
  - Installer: DG Heating and Air Conditioning
  - Mitsubishi Heat Pump/Air Handler
- Heat Pump Water Heater
  - Installer: DG Heating and Air Conditioning
  - Rheem Performance Platinum 50 gal. 10-Year Hybrid High Efficiency Smart Tank Electric Water
- Natural Gas turned off

# 2023 – Gas meter and line removed

- Gas meter and gas line completely removed
  - PGE – Free!
  - No more fire/leak hazard

# Additional Benefits

- Large money savings
  - Solar NEM1, then NEM2, were excellent deals. We have been getting about \$300 net back per year from SVCE
    - \$65K worth of electricity over 25 years for about a \$20K investment – saving \$45K over 25 years
  - EV – greatly reduced maintenance and fuel costs
  - Electric yard tools all still working
- HVAC much quieter
- Airconditioning (2020 wildfire relief!)
- Reduced fire risk
- Cleaner air inside and out
- Car charges at home while we sleep (no smelly gas station visits)
- Car fast & quiet

# Learnings

- When opportunity knocks – open the door!
- Get multiple quotes!!! Yelp, Google Reviews, References/Referrals, SVCE contractors
- Batch/sequence your changes if you can (open patient once)
- Can be hard to determine long term solar panel reliability...
  - 2015 US Suniva panels not as efficient, but all are still working fine
  - 2019 Chinese panels produced more electricity at first, but... 3 have partly failed...
- Enphase microinverters have been great!
  - Great monitoring & reporting

# Future Possible Refinements

- Heat pump Washer/Dryer combo
- Induction range
- Battery
- Disconnect from grid?



**ZeroW.org**