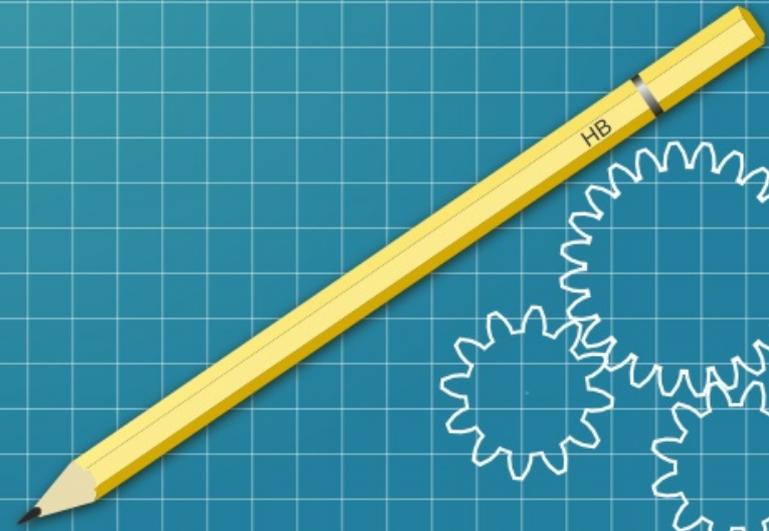


# Report on One Year of Solar Power



Craig Rhombs

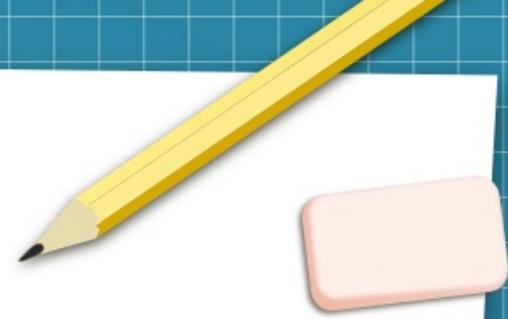


# Who Am I?



- Craig Rhombs
- Retired from years as a “software person”
- Early career involved energy conservation and solar projects in south Texas
- Contact [projectresults@rhombs.us](mailto:projectresults@rhombs.us)
- Why this presentation? - share a non-commercial experience with residential solar

# Outline



- Installation description
- Performance Summary
- Details
- Conclusions & References

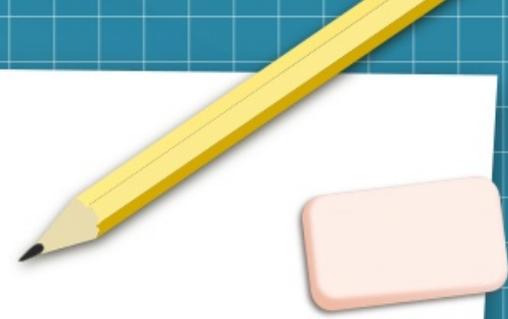
# Installation



- 12 panels (LG370N1K-A6)
- 370 watts/panel (4.4 kw)
- 25 year guarantee
- Pointed due south at 19 degrees from horizontal
- 21x11 feet approx.
- Location affected by nearby trees
- Sizing based on performance estimates from the PVWatts Calculator at NREL - <https://pvwatts.nrel.gov/>



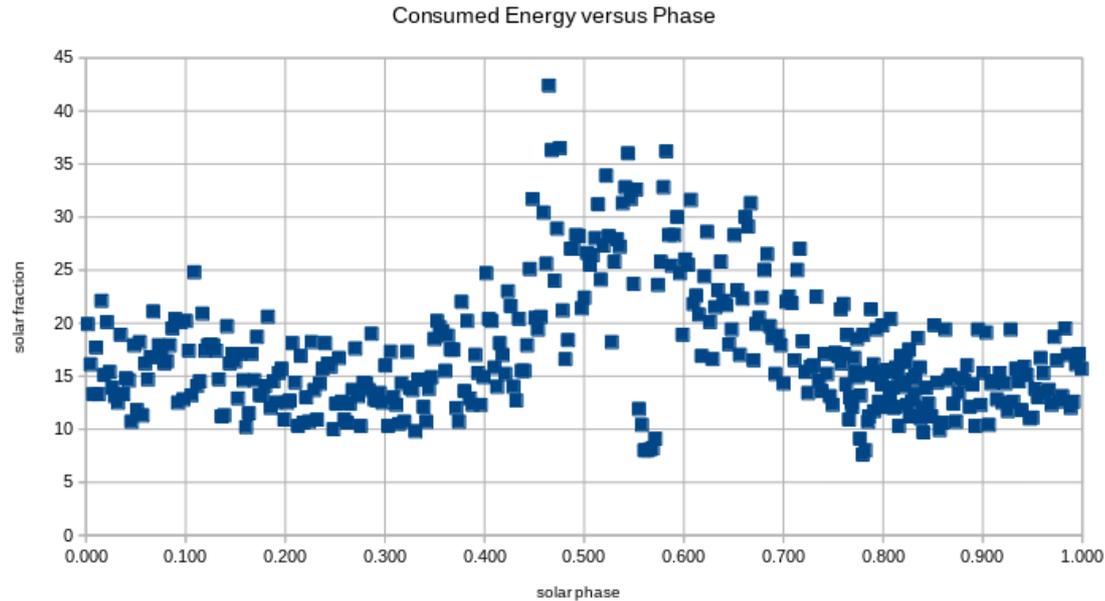
# Performance



- 3.5 kw peak power output (approx)
- About 28-29 kwh energy output on days near the summer solstice
- Total energy output = 4600 kwh (approx) in first year
- At a rate of 0.13\$/kwh this translates to a savings of ~\$600.
- Over the 25 year lifespan of the system, this translates into \$25,000 in current dollars. Much more than the cost of ~\$10,000.
- \$0.087/kwh for the energy produced over 25 years.
- Savings of 30-50 tons of carbon dioxide.

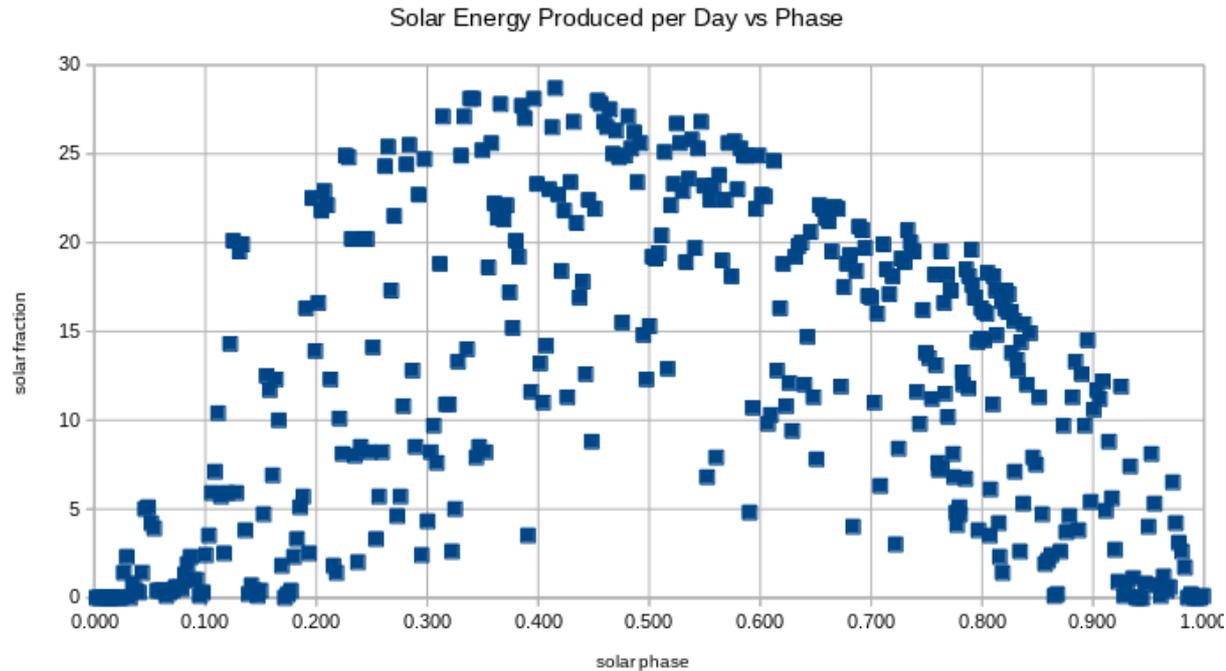
# Details – daily energy consumption

- Kwh per day versus phase of the year



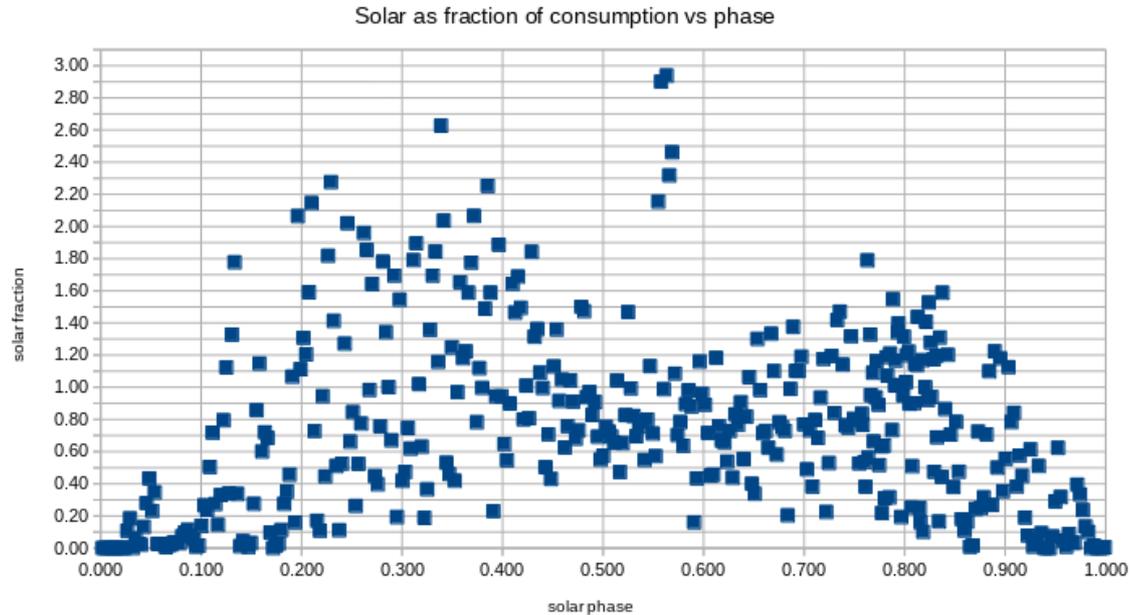
# Details – daily energy production

- Kwh per day versus phase



# Details – energy production/consumption

- Dimensionless ratio versus phase



# Conclusions



- Looks like a good investment based on current experience
- Need to carefully consider your situation
  - Roof orientation
  - Roof condition
  - Shading
- References
  - MNSEIA <https://www.mnseia.org/resources>
  - Midwest Renewable Energy Assoc. <https://www.midwestrenew.org/>
  - National Renewable Energy Lab. <https://www.nrel.gov/>



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