

Thornton House – Installing the PV System



Thornton House - Cost Details

Total system cost		\$19,600
System installed	\$18,103	
Sales tax	\$1,137	
Electrical permit	\$361	
Xcel rebate		(\$11,610)
After rebate cost		\$7990
Federal tax credit		(\$2000)
Final cost to owner		\$5990



**System size
is 2.58 KW.**

Thornton House - Energy Use (kWh)

Mon & Year	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Tot For Year
2004	895	659	688	568	601	621	677	698	652	601	673	877	8210
2005	936	629	590	519	548	639	753	884	812	670	719	750	8449
2006	813	606	607	589	448	728	678	707	609	624	545	685	7639
2007	966	506	418	342	286	280	369	260	260	276	417	675	5075
2008	804	-	-	-	-	-	-	-	-	-	-	-	-

Period of PV operation

Thornton House - Performance

- **Estimated system performance from 11/06 through 2/3/08: 3732 kWh (from computer model)**
- **Recorded performance from 11/06 through 2/3/08: 3673 kWh (from inverter)**
- **Estimated contribution to load reduction from 11/06 through 2/3/08 : 3611 kWh (from monthly bills)**
- **Recorded PV performance from 11/06 through 2/3/08 was 97% of that predicted**
- **Difference easily within normal variation of sunlight, etc.**
- **7346 lbs of CO₂ displaced since 11/06**

Thornton House – Financial

- **Estimated energy produced in 2007:
3,673 kWh**
- **Cost of energy saved annually based on
3,673 kWh @ 9.5 cents/kWh: \$349**
- **Time to breakeven based on \$349: 17.2
years**
- **Contract with Xcel: 20 years**

Thornton House – Environmental Benefits

- **Avoids emissions equivalent to 27 lbs of nitrous oxides, 31 lbs sulfur dioxide and 6,449 lbs of carbon dioxide annually**
- **Reduces carbon dioxide emissions equivalent to driving 8008 miles per year in average passenger car**
- **Offsets the carbon dioxide absorbed by 1.3 acres of trees in one year**

Thank You!

**John P. Thornton, P.E.
NREL Emeritus**

**Thornton Solar Consulting, LLC
MisterPV@gmail.com**