

Jenkins Ranch



25 KW Solar System

Custer County, Nebraska

Energized December 23, 2015



Net Metering

- Nebraska law requires utility companies to allow up to 25 kW
- Utility companies can legally allow more
- It is not profitable to generate more than you use because the utility buys in back at a much lower “avoided cost” of electricity



Incentives

- NEO Loan
 - 10 year loan at 2.5%
- Energy Tax Credit
 - 30% investment credit
 - Drops to 10% end of next year
- Grant from USDA Rural Energy for America Program (REAP)
 - 25% grant for solar installation
 - Grant is taxable



Costs & Tax Benefits



Cost of 25 kW PV Solar	\$ 75,000
30% Credit	\$ -22,500
5 Yr. MACR Depreciation	\$ -24,337*
25% USDA REAP Grant	\$ -18,750
<u>Income Tax on Grant</u>	<u>\$ 7,500</u>
NET COST	\$ 16,913

*Assumes 40% combined federal & state tax rate discounted for time but assumes no bonus depreciation



Analysis

Cost to Amortize	\$16,913
Loan Rate	2.5%
Useful Life of System	25 yrs.
Annual Amortized Cost	\$ 918
Annual Insurance	\$ 225
<u>Amortized Property Tax Cost</u>	<u>\$ 194</u>
Annual Cost	\$ 1,366
kWh Produced Annually	36,500 kWh
After tax cost per kWh	3.66¢ per kWh



Jenkins Ranch Custer Public Power Retail Rate Structure

1st 1000 kwh	13.30 cents
Winter Rate	9.91 cents
Summer Rate	11.68 cents
Average Rate	11.63 cents

Summary of Power Usage and Generation (Dec 23 to Oct 31)

Total Solar System Generation: 30,547 kwh

Retail Value: 30,547 kwh x .1163 = \$ 3553 *

Custer Public Power Delivered: 29,049 kwh

Custer Public Power Received: 16,819 kwh

Net overage: 2858 kwh (paid at 4 cents/5 cents)

Solar Power for which ranch consumed or was credited:
16,819 delivered to CPP and 13,728 ranch used directly.
Total 30,547 kwh. 2858 kwh was net overage.



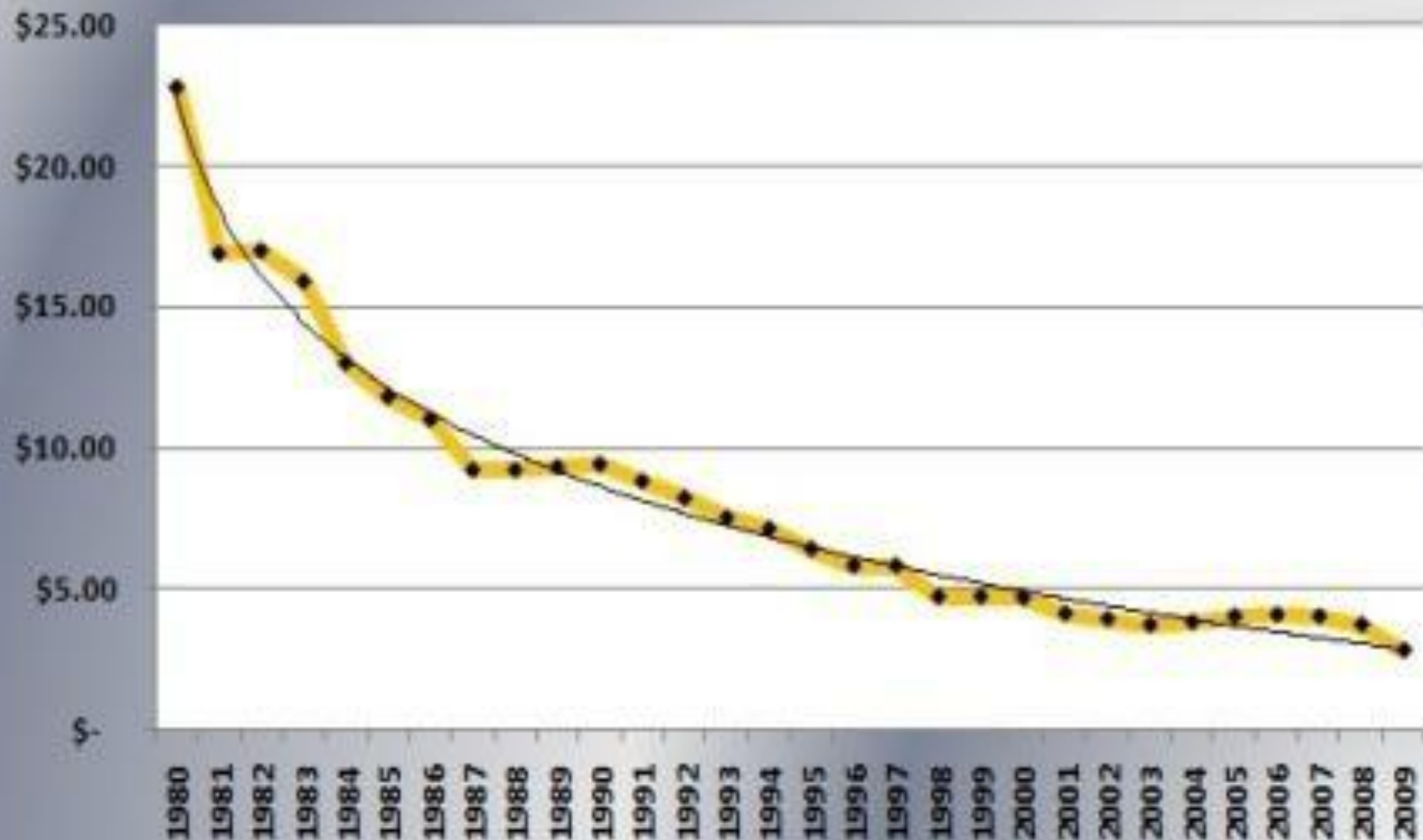
Before Buying a System

- Accountant
- Bank
- Lawyer
- Contractor
- Local Utility
- Insurance
- Electrician
- USDA

Talk with people who have gone through the process

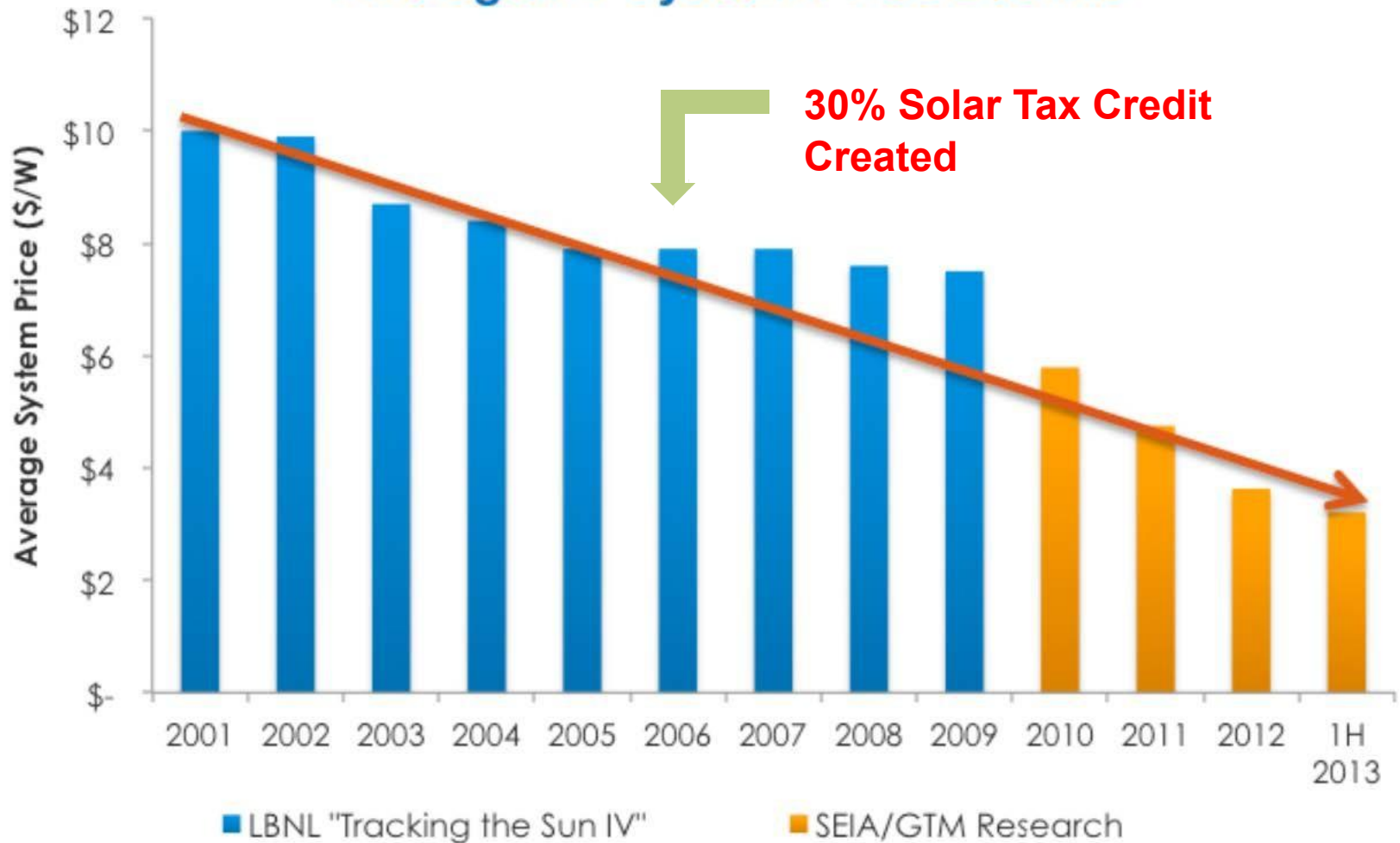
Plummeting Cost of Solar PV

(Cost Per Watt in 2009 Dollars)

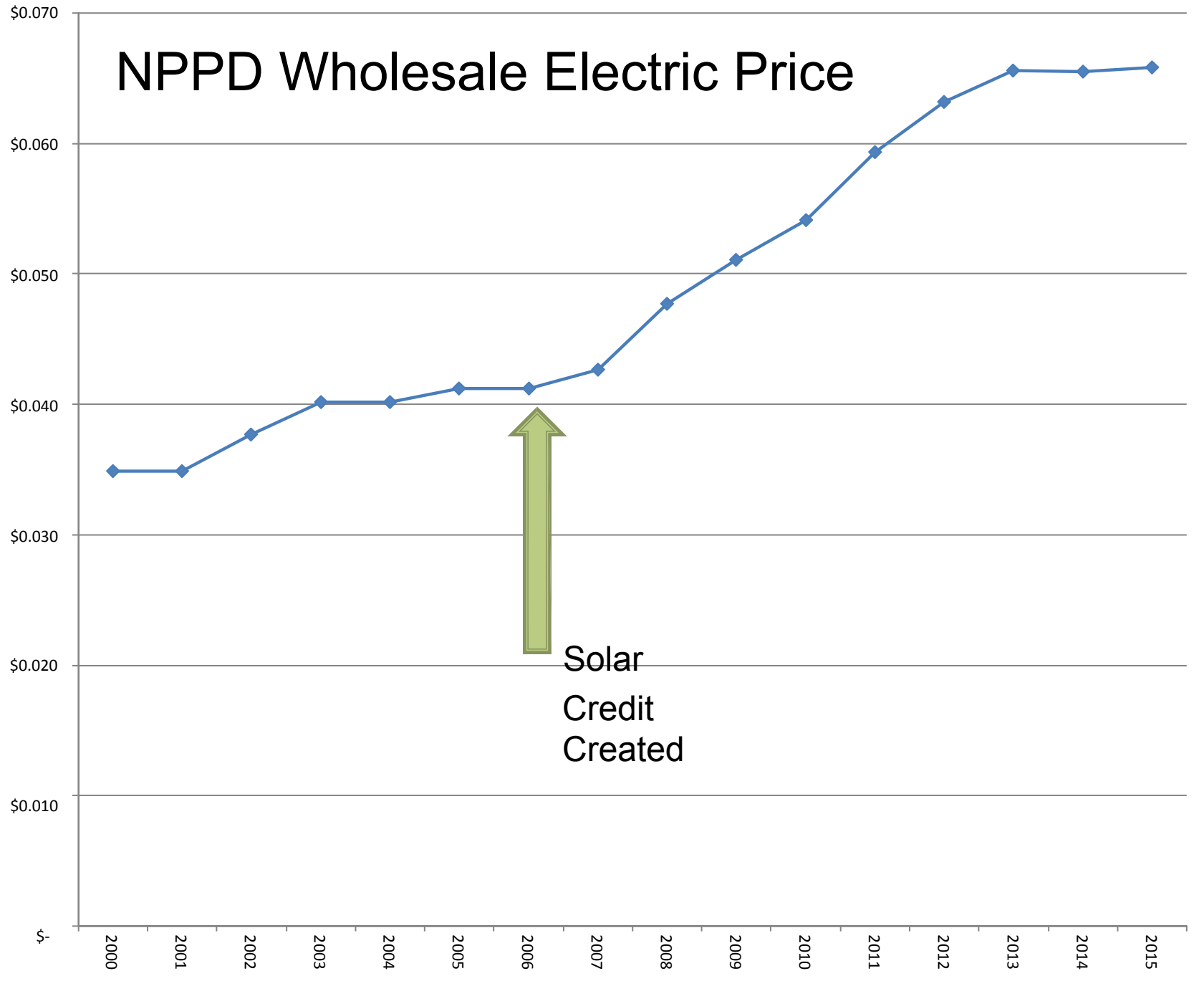


Source Data: DOE NREL Solar Technologies Market Report, Jan 2010

Average PV System Price Decline



NPPD Wholesale Electric Price





Inflation

- **Inflation of the wholesale price** is a real wild card in this whole process
- NPPD wholesale rates have gone up
 - 2.5% a year over the last 25 years
 - 5.0% a year over the last fifteen years
 - 5.6% a year over the last ten years
- Carbon regulation won't help this at least in the short run

Value of PV Electricity Replaced at Initial Cost of 10¢ per kWh

Annual Inflation	<u>Average</u> Annual Value over 25 years
<input type="checkbox"/> 0% Inflation	\$ 3,650
<input type="checkbox"/> 2% Inflation	\$ 4,676
<input type="checkbox"/> 4% Inflation	\$ 6,080
<input type="checkbox"/> 6% Inflation	\$ 8,010

Making Daylight Count

