City Hall now has Solar Panels!

People want to know:

1. **How long before the solar array at City Hall pays for itself?**

a. The solar array cost a total of $275,999. A State Energy Conservation Office (SECO) grant paid for $254,563, leaving a required cash match of $21,436. In one year, the solar radiation is estimated to produce about 57,774 kWh. At a rate of 9.7¢ / kWh, the initial estimate was that the solar array at City Hall would save $5,604 each year. Within about four years, the solar array will pay for the cash outlay based on this estimate.

In reality, the array has been generating electricity since July 11, 2011 for a total of 26,757 kWh on December 5, 2011 (approximately 5,351 KWh per month). At that rate, we are on target to saving about $6,000 per year, so the solar panels should be paid off through these savings in less than four years.

2. **How much of City Hall electrical needs are supplied by solar?**

a. In one year, City Hall requires approximately 110,000 kWh of electricity (about 9,153 kWh per month). The solar system will provide for more than half of our energy needs, which will be credited to us on our electrical bill, saving taxpayer money every month.

3. **What happens if more energy is produced than needed at City Hall?**

a. If at any time more energy is produced at City Hall than is needed in the building, the extra energy cannot be stored. It will feed the energy back on to the grid like a power plant to provide for the electrical needs of the community.

4. **How can I see the energy that the solar array is producing?**

a. You can see it live on the internet at: http://live.deckmonitoring.com/?id=smithville. You will notice that energy production is generally highest when the sun is highest in the sky between noon and 2PM, and it is at zero when the sun goes down at night. Because it faces slightly southeast, it has a quick start to the day as the sun rises and it more slowly tapers off as the sun moves westward in the evening.

5. **What happens if the City needs a new roof?**

a. Our roof is not due to be replaced before the guaranteed life of the solar array (25 years) is about to expire. Should something catastrophic happen in the meantime (like a major hailstorm), our insurance will cover both the cost of replacing the roof and the solar array.

6. **I've heard that the environmental price of making solar panels isn't worth the energy savings. What is the truth?**

a. It is true that anything that needs to be manufactured and transported will produce some environmental damage. The question is how long it will take to offset those environmental costs. With solar, it will take between two and three years to offset the impact on the environment, but the energy produced in the 22 years that follow will be very clean energy.

7. **Which direction do solar panels need to face?**

a. For the best solar coverage, due south to a little southwest is the best direction to take full advantage of the sun including the longer evenings during summertime. City Hall solar panels face slightly southeast due to the orientation of the building. It is not the optimal direction, but it captures most of the sun during working hours most of the year when energy needs are highest.

8. **I'm thinking about solar for my home. About how much will it cost?**

a. Keep in mind that every home, every lot, every rooftop is different and therefore specific costs must be based on your specific home. However, in general, residential solar requires 16-24 panels for a 2.5-4 kW system. Any more than that and you would be regularly feeding the grid, which is not cost effective for the homeowner. Generally, residents will pay between $5.50 and $6.00 per Watt for an adequate system, which adds up to between $13,000 and $25,000 for the solar array. For homes that are already built, it may not be cost effective to install solar. People who are building homes, on the other hand, are effectively "paying for electricity up front" and the future savings can make much more sense.

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