

# Solar Fact Sheet

How much electricity does the college use?

Annual usage for 2015 was 28,939,043 kWh of electricity.

What does the college pay for electricity?

Last year the college paid \$3,483,904.00 to TEP which is an average rate of 12 cents/kWh.

Electricity rates have increased about 28% over the last ten years in Arizona. There are a lot of factors that contribute to rate calculations by the utility company including the fluctuating cost of fuel, demand charges, and infrastructure maintenance.

The TEP rate varies over the course of the year. TEP charges different amounts during the summer, fall, winter, and spring. The solar panels will produce different amounts of electricity during each season of the year which offsets the different TEP rates during the corresponding season. Solar panels will also produce 0.5% less electricity each year due to degradation of the panel.

The average retail price for electricity in Arizona has risen from 7.75 cents/kWh in 1990 to 10.18 cents/kWh in 2014

Source:

State Electricity Profiles provided by U.S. Energy Information Administration

<https://www.eia.gov/electricity/state/Arizona/>

How much electricity will the college generate with solar?

Phase 1 solar panels were installed at Community Campus, Downtown Campus, Maintenance & Security Complex, and West Campus.

- The solar panels will generate approx. 2.5 Megawatts.

Phase 2 solar panels will be installed at Desert Vista Campus, East Campus, and Northwest Campus.

- The solar panels will generate approx. 5 Megawatts.

## How did the college select the locations?

Solon engineers evaluated all the locations across the college district. There are several factors that are considered, shading analysis, square footage available for an array, site concerns, solar system size and the amount of electricity that is pulled through the TEP meters and how that electricity is distributed. The electricity generated by the solar panels needs to be distributed through the meter where the power would be used.

This also shows why some campus locations have multiple agreements (multiple meters) where other locations only have a single agreement for the entire campus.

## How a site is qualified for solar?

There are many factors that go into determining if a particular location can qualify for solar and the amount of savings that can be realized from a solar project. One of the main considerations is the amount of power measured in kilowatt hours (kWh) that the site uses and more importantly, how much power flows through a particular meter at that site. The individual meters are truly the limiting factor in the amount of grid power consumption that you can offset with solar. See the next section for further explanation on how a meter is qualified for solar.

## How a meter is qualified for solar?

First, a high level analysis is conducted to see how much energy the meter consumes, if there is enough space nearby to build a sufficient amount of solar to offset the energy consumed by the meter and if that space is available for the term of a Solar Services Agreement (SSA).

If space is available, potential solar layouts will be designed and analyzed. This analysis includes solar array placement and optimization of solar kWh production through directional facing, sizing and more.

The space available, system size, solar array orientation, type of solar mount, shading, system production, customer's credit rating, location and other factors all affect the cost of a system and the final SSA price.

The final SSA price is used to calculate the customer's total savings or loss after installing. If there are savings from adding a solar system, the meter is deemed a good solar candidate.

The campuses that are receiving solar installations have meters that were deemed good solar candidates. Other college meters were determined to be less than ideal solar candidates such as the main West campus meter and were not included in the project.

### Cost of equipment to PCC?

The college pays no money for the equipment, installation, operating cost, or maintenance. PCC will pay a fixed rate to Solar City for the power that is generated. You can see the rates for the different sites listed in the agreements posted online.

Solon's expenses for equipment and installation:

Phase 1 - \$8 million

Phase 2 - \$16 million

Do the savings calculations for solar provided by Solon keep the annual electricity usage flat for the next 25 years or is a growth factor applied?

Solon's calculations keep the annual kWh usage for the college flat. That provides the college with future electrical efficiency opportunities, such as LED lighting, etc.

TEP seeks 15% rate hike, cites several rising costs.

Article in the Arizona Daily Star from July 3, 2012. We are facing a similar situation now again as TEP has requested additional rate increases to be reviewed by the ACC by the end of 2016.

Link to article:

[http://tucson.com/news/local/tep-seeks-rate-hike-cites-several-rising-costs/article\\_d51c9d47-1704-5c25-9201-f6c05976206f.html](http://tucson.com/news/local/tep-seeks-rate-hike-cites-several-rising-costs/article_d51c9d47-1704-5c25-9201-f6c05976206f.html)