Finding the price of electricity

The first step is to look at your electric bill.

Here is an example of a commercial statement:

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YOUR PAYMENT FOR THIS STATEMENT WILL BE ELECTRONICALLY PROCESSED
  FOR  $16,547.13 ON 05/07/18
PAYMENTS RECEIVED AS OF APR 04 2018          16,066.80  THANK YOU

GSDT-1   053 GENERAL SERVICE DEM TOU SEC
BILLING PERIOD..03-14-18 TO 04-13-18    30  DAYS
  CUSTOMER CHARGE                                          19.13
  ENERGY CHARGE (ON-PEAK)     43930 KWH @   5.30000¢     2,328.29
  ENERGY CHARGE(OFF-PEAK)     90620 KWH @   1.01500¢       919.79
  FUEL CHARGE    (ON-PEAK)    43930 KWH @   5.10700¢     2,243.51
  FUEL CHARGE   (OFF-PEAK)    90620 KWH @   3.67700¢     3,332.10
  DEMAND CHARGE     (BASE)      414 KW  @ $6.37000       2,637.18
  DEMAND CHARGE (ON-PEAK)       405 KW  @ $3.94000       1,595.70
  ASSET SECURITIZATION CHARGE
                             134550 KWH @   0.17900¢       240.84

  *TOTAL ELECTRIC COST                                 13,316.54
  GROSS RECEIPTS TAX                                      341.45
  MUNICIPAL FRANCHISE FEE                                 844.47
  MUNICIPAL UTILITY TAX                                   986.74
  STATE AND OTHER TAXES ON ELECTRIC                     1,057.93

  TOTAL CURRENT BILL                                   16,547.13

  TOTAL DUE THIS STATEMENT                            $16,547.13
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As you can see, it is not so simple. Each category has multiple charges.

On peak means the height of the day. Off peak is usually at night. Charges can go up during times of high demand (demand charge), etc. The important conclusion from this is the amount your utility officially says it is charging you is very different from the amount actually charged. The simplest way to handle this is to take a typical billing cycle, and take the conclusions:

The number of kilowatt hours is shown as 134,550.

The total cost is $16,547.13.

The cost per kilowatt hour is $16,547.13/134,550 = $0.13 per kilowatt hour. This is the real cost in a part of the US where people may tell you that they pay only 5 cents per kilowatt hour. That may be before all the surcharges.

Here is a residential example:

DELIVERY & SYSTEM CHARGES

Basic Service : 29 day(s) @ $ .3600	$ 10.44
63 KWH @ $ .0922	5.81
Subtotal	**16.25**

POWER SUPPLY CHARGES

63 KWH @ $ .084737	5.34

Efficiency & Renewables Charge

63 KWH @ $ .002233	0.14

OTHER CHARGES

NY State Assessment	0.11
Revenue-Based PILOTS	0.64
Subtotal	**0.75**

Total Charges	**$ 22.48**

Again, take the total price paid, $22.48, and divide it by the total kilowatt hours (kwh) and you get $22.48/63 = $0.36. This is in one of the highest cost areas of the US. Note that relative costs for small users have a higher cost per kilowatt hour because of the cost of the basic service fee. Without that fee, the cost is ($22.48-$10.44)/63 = $0.19, still very high.

In calculating the value to you of a renewable energy system, you need to consider the case where the grid offers a feed-in tariff—that is, the utility pays you a fixed price for the electricity your system produces over a long period of time, such as 20 years. Sometimes these are high.

Some utilities have net metering—what you send them cancels out what they send you.

One scheme that is currently in use in Florida, for example, is not to the advantage of the producer. The utility pays you the cost of the energy as they buy it. The utility may be able to buy coal or nuclear power for 3 cents a kilowatt hour, even if they sell it to you at double or triple the cost to them, so they offer you the cost to them.

In general, the conclusion is that you will often be best off producing your own electricity. The choice of wind or solar then comes to the resource in your home or building. An advantage of

using wind and solar together is that they enable you to produce electricity at more times of the day and avoid storage and peak use costs.