New Hope U.S.A

ROI of cell phone tower hybrid power system :

Normal cell phone transmitter antinna power consumption is (54V X 30A =1620W). In order to keep the Transmitter Antenna working well we need 1.62KW X 24H= 38.88KWH energy per day. In most southern states the sunshine is very good.

To calculate the normal **solar energy KWh/m²/day is 4.5**, which means only **(4.5)** hours per day energy generation. We need to install 3KW solar panels for each cell phone tower then the solar panel can produce 13.5KWH per day.

To reach the energy needed   38.88KW per day we can install the wind turbine inside the tower to get 25.728KW per day.

Assuming the annual wind speed average is 6.5m/s (because of the turbine is installed in high elevation) the wind will be much batter than being installed on the ground.
We have to install 2KW wind turbine to produce the needed energy to get the 25.728KWH per day this is enough for the transmitter Antenna to keep it working without any interruptions .

The cost for the 3KW solar panel and installation is about $5,000USD and the cost for 2KW wind turbines and installation is about $12,800USD total investment in close to $17,800 USD   That is based on energy cost is 0.13USD per KWH.

To calculate ROI:

$ROI =$ *annual profit / initial investment   X 100%*
  $=$ *(25.728+13.5) X   365 X 0.13 / 17,800 X 100%*
  $=$ *1,862 / 17,800 X 100%*
  $=$ *10.45%   Return on your investment   or 9.56 years.*

Keep in Mind the life span of the system will be more than 20 years.

The normal cell phone tower has battery pack already for keep the system none stop operation, and the battery size is 2X24 pcs 12V/300AH batteries(cost about 17500USD), we no need consider the battery cost for calculate the ROI.

The Cell phone companies will be competing to put their logo on each turbine blade.
This is very good advertising as well as great image to any mobile company to be associated with (**Green Energy**) renewable energy.