Case study on a village to develop it into a Sustainable Community

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The environmental safety has become the major need for the hour today. The usage of the renewable sources of energy is the main step towards environmental safety. This case study concentrates on the village Parangipettai, Cuddalore Dist. TamilNadu, to make it into a fully sustainable community. The sources of energy concentrated are Solar, wind and tidal. With a solar irradiance of 5.6kW/m2/day[1] and average wind speed of 8km/h[2] and tidal ranges of 2m[3], the place has a great scope for a self-sustained energy source. The goal is to achieve full maximum sustainability and less dependency on renewable sources. With population around 25,000 and 5,500 houses [4], the electricity consumption goes up to 2.6kWh/day[5].Fig1 and 2 explain the distribution of the energy production by the sources. The data acquired is in terms of the calculations done that are to be discussed in the paper further. The paper also discusses about sustainability based on water consumption, transportation and food.

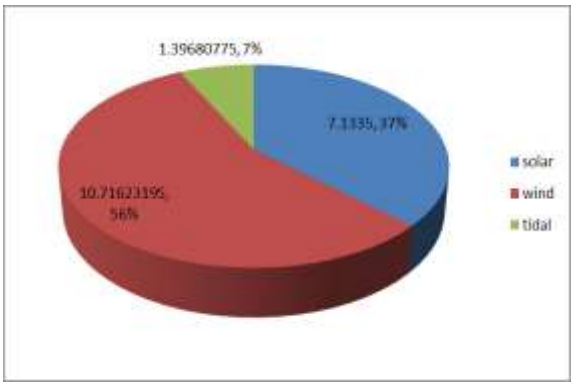

Fig1: The contribution of the sources, the values are in terms of MW.

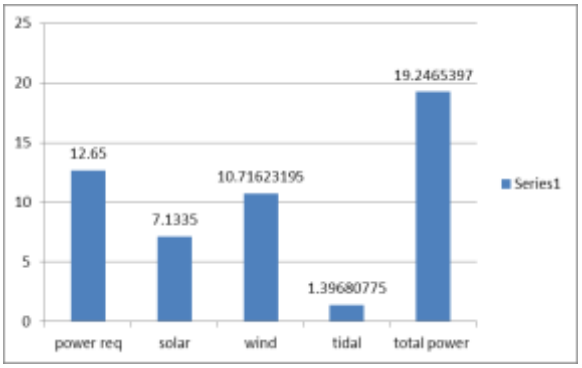

Fig2. The comparison between the required produced power by the sources, interms of MW

References

[1] http://www.synergyenviron.com/tools/solar-irradiance/india/tamil-nadu/cuddalore
[2] https://www.timeanddate.com/weather/@1259382
[3] http://www.tides4fishing.com/as/india/cuddalore
[4] http://www.census2011.co.in/data/town/803653-parangipettai
[5] http://shrinkthatfootprint.com/average-household-electricity-consumption