Site Details





Solar Generation Potential



Wind Generation Potential



# Honnametti

This location is selected as it has the maximum coverage of population with the total no. of households in the area being 130 and having a population of 424. The location also has high wind speeds and incident solar irradiation for larger no. of days throughout the year as compared to other locations selected for analysis.

## Estimation of Load Demand and Energy Demand

This section gives the estimation of load for the village and estimates the capacity of the power plant. It also estimates the energy required to be generated for five years from the date of commissioning. While computing the load, a minimum of 2 light points (2 x 11 W) and one socket (40W) has been considered for each household as required by the definition for fully electrified villages given in the Electricity Act 2003 issued by the Government of India. The load also factors in households that can afford a television set and satellite receiver. The details of the energy consumption pattern for the domestic / commercial uses within the village is also studied and details (type and quantity) of the available renewable energy resources in the village is enlisted and analyzed for the possibility of use for power generation in future. The data for load and energy demand has been based on the data collected by the state distribution utility handling the areas. The data is then projected to show anticipated yearly percentage increase in energy demand and five years energy demand for the village.

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| **Estimation of load** | |
| A. No. of households | No. : 130  Average Load : 0.069 kW (as per actual collected data)  Total load : 8.97 kW i.e. can be considered as9.0 kW |
| B. No. of streetlights | No. : 40  Average Load : 0.024 kW (as per actual collected data)  Total load : 0.96 kW i.e. can be considered as1.0 kW |
| C. Common facilities (Total load for Schools, Public health centers, Panchayat buildings, Community buildings, etc.) | Total load : 2 kW (as per actual collected data) |
| Schools load | No. : 2 buildings  Average Load : 0.22 kW (as per actual collected data)  Total load : 0.44 kW |
| Public health centers load | No. : 1  Average Load : 0.024 kW (as per actual collected data)  Total load : 0.024 kW |
| Temples | No. : 3  Average Load : 0.024 kW (as per actual collected data)  Total load : 0.072kW i.e. can be considered as0.1 kW |
| Community buildings load | No. : 1  Average Load : 0.024 kW (as per actual collected data)  Total load : 0.024 kW |
| D. Any other load – Drinking water pump | No. : 1  Average Load : 1.5 kW (as per actual collected data)  Total load : 1.5 kW |
| **E. Total load (A+B+C+D)** | **Total load : 11.99 kW i.e. 12 kW** |

**Load Curve**

Data has been collected from the state distribution utility that has jurisdiction over Honnametti and the average values for the hourly load demand are used to plot the following load curve.

From the curve, the anticipated peak load for the area can be seen to be 10.4 kW.

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| **Estimated Capacity Required** | |
| Anticipated Peak Load | 10.4 kW |
| Suggested DDG capacity  (1.5 x peak load as per load curve) | 15.6 kW |

Based on the above load curve, the energy demand for the next 5 years can be calculated assuming an annual increment in energy demand of 10% every year as per norms adopted by state distribution utilities in India.

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| **Estimated Annual Energy demand for 5 years** | |
| a. Annual Energy Demand for 1st Year (Covered area as per load curve x 365) | 49.06 (total average demand per day) \* 365 = 17906 kWh |
| b. Anticipated annual %age increase in energy demand | 10 % |
| c. Annual Energy Demand for 2nd Year (a + b%) # | 19,696 kWh |
| d. Annual Energy Demand for 3rd Year (c + b%) # | 21,666 kWh |
| e. Annual Energy Demand for 4th Year (d + b%) # | 23,833 kWh |
| f. Annual Energy Demand for 5th Year (e + b%) # | 26,216 kWh |
| Total Energy Demand for 5 years (a+c+d+e+f) | 1,09,317 kWh |
| Suggested DDG capacity = annual energy demand for 5th year / (365 days x nos. of operational hours per day) | 9.0 kW |
| Final DDG demand | 15.62 kW can be suggested as it higher than 9.0 kW and therefore accommodates both peak demand per day as well as increase in demand over 5 years |