**Cost vs Load Analysis:**

**DC Microgrid**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Type of loads** | **No. of loads** | **Wattage** | **Per day usage (Hrs.)** | **Total No. of units per month** | **Electricity**  **Bill / month in Rs. [ 5 Rs. /Unit** | **Price** | **Remarks** |
| Lamps | 6 | 15 W | 10 | 27 Units |  | 80 Rs/ item | Solar panel = 540 |
| Ceiling Fans | 3 | 24 W | 10 | 21.6 Units |  | 1950 / Model |
| TOTAL | | | | 48.6 units | 243 Rs/- |  |

**AC loads without Solar Power**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Type of loads** | **No. of loads** | **Wattage** | **Per day usage (Hrs.)** | **Total No. of units per month** | **Electricity**  **Bill / month in Rs. [ 5 Rs. /Unit** | **Price** |  |
| Lamps | 6 | 52 W | 10 | 93.6 Units |  | 250 Rs/ item |  |
| Ceiling Fans | 3 | 90 W | 10 | 81 Units |  | 1950 / Model |
| TOTAL | | | | 174.6 Units | 872.5 Rs/- |  |

**AC Microgrid with Solar Power**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Type of loads** | **No. of loads** | **Wattage** | **Per day usage (Hrs.)** | **Total No. of units per month** | **Electricity**  **Bill / month in Rs. [ 5 Rs. /Unit** | **Price** |  |
| Lamps | 6 | 52 W | 10 | 93.6 Units |  | 250 Rs/ item |  |
| Ceiling Fans | 3 | 90 W | 10 | 81 Units |  | 1950 / Model |
| TOTAL | | | | 174.6 Units x 0.4 = 104. 6 | 312 Rs/- |  |

**Hybrid AC/DC Microgrid**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Type of loads** | **No. of loads** | **Wattage** | **Per day usage (Hrs.)** | **Total No. of units per month** | **Electricity**  **Bill / month in Rs.** | **Price** |  |
| Lamps - AC | 6 | 15 W | 10 | 27 Units |  | 150 Rs/ item |  |
| AC BLDC Fans - | 3 | 32 W | 10 | 28.8 Units |  | 2500 Rs/ Model |
| Lamps -DC | 6 | 15 W | 10 | 27 Units |  | 80 Rs/ item |
| Ceiling Fans – DC | 3 | 24 W | 10 | 21.6 Units |  | 1950 / Model |
| TOTAL | | | | AC:  174.6 Units x 0.2  = 34.92 x 5  DC:  48.6 units x 0.8  = 38.8 Units | 34.92 units  = 174.6 Rs.  38.8 Units  = 194 Rs. |  |
| Total Electricity Bill | | | |  | 368 Rs. Per month |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **DC Microgrid** | **AC loads without Solar Power** | **AC Microgrid with Solar Power** | **Hybrid AC/DC Microgrid** |  |
| Solar Panel | 540 W – 21,427 Rs/- | NA | 540 W – 42,800 Rs/- | 540 W – 21,427 Rs/- |  |
| Charge Controller | 1000 W – 1000 Rs/ | NA | 1000 W – 6000 Rs/- | 1000 W – 1000 Rs/- |  |
| Dig. Change over relay | NA | NA | NA | 2000 Rs/- |  |
| Inverter | NA | NA | NA | 1500 Rs/- |  |
| Battery | 68 Ah - 5400 Rs/- | NA | 180 Ah - 16,000 Rs/- | 68 Ah - 5400 Rs/- |  |
| DC loads | 6330 Rs/- | NA | NA | 6330 Rs/- |  |
| Total Price | 34,157 Rs/- | -- | 64,800 Rs/- | 36,157 Rs/- |  |
| 40 % subsidy | 20,495 Rs/- |  | 38,880 Rs/- | 21,695 Rs/- |  |
| Electricity Bill /month | 243 Rs/- | 872.5 Rs/- | 312 Rs/- | 368 Rs/- |  |
| Savings with Normal loads per month | 629.5 Rs/- | NA | 560.5 Rs/- | 504.5 Rs/- |  |
| Payback period | 2.71 years | NA | 5.7 Years | 3.5 Years |  |