

EXAM - 2

Ans :

1. Technology : It is one the technology which was earlier discussed in the class. The technology is to exchange energy between vehicles in the parking lot and the multiplex. This technology can be used to reduce the load demand in the peak times.

Installation Cost : Nearly ₹15,00,000.

Savings per month : Assuming the initial bill is ₹100000 after installation we can save 30% of the bill which is ₹300000. So, savings are Rs.300000/month.

2. Technology : In the future the electricity demand is expected to increase. So, we need to manage the load in a smarter way. One effective way is to implement different techniques that smart grid technology brings load balancing, load shifting and reducing peak through Intelligent load management. We can use shopping malls as a study case of Intelligent Load Management. By comparing the different results achieved using a predictive rate control algorithm to control the power consumption of the loads and implement the best result.

Installation Cost : Nearly ₹10,00,000.

Savings per month : Assuming the initial bill is ₹100000 after installation we can save 25% of the bill which is ₹250000. So, savings are Rs.250000/month.

3. Technology : Using of Sub-Meters for Calculating Energy consumption. This technology can be used to check which part of the system is consuming the most energy. It can also promote the conscientious use of energy and save energy. Once the sub-meters are installed we can easily identify those areas and can plan accordingly.

Installation Cost : Nearly ₹3,00,000.

Savings per month : Assuming the initial bill is ₹100000 after installation we can save 15% of the bill which is ₹150000. So, savings are Rs.150000/month.

4. Technology : Solar panels can be installed on the roof of the building. This technology can be used to save a lot of energy. We can charge the electric vehicles in the parking lot too. We need to store the energy in energy storage centres as there is lack of sunlight during the night times.

Installation Cost : Nearly ₹25,00,000.

Savings per month : Assuming the initial bill is ₹100000 after installation we can save 75% of the bill which is ₹750000. So, savings are Rs.750000/month.

5. Technology : The Smart shopping mall.

In this technology smart buildings are connected with smart grids. This technology uses Digital platforms such as Analytics & Data visualization, Cloud , IoT/Smart devices and Digital services such as Remote operations, Software as a service, Cyber security services. The advantages of using these technologies are Efficient usage of electricity, Optimization of peak loads.

Installation Cost : Nearly ₹20,00,000.

Savings per month : Assuming the initial bill is ₹100000 after installation we can save 50% of the bill which is ₹500000. So, savings are Rs.500000/month.

Resources:

1. [https://ieeexplore.ieee.org/search/searchresult.jsp?action=search&newsearch=true&matchBoolean=true&queryText=\(\(%22All%20Metadata%22:Smart%20Grid\)%20AND%20%22All%20Metadata%22:Shopping%20Malls\)&ranges=2015_2021_Year](https://ieeexplore.ieee.org/search/searchresult.jsp?action=search&newsearch=true&matchBoolean=true&queryText=((%22All%20Metadata%22:Smart%20Grid)%20AND%20%22All%20Metadata%22:Shopping%20Malls)&ranges=2015_2021_Year)
2. https://www.researchgate.net/publication/261398874_Intelligent_load_management_for_a_shopping_mall_model_in_a_smartgrid_environment
3. <https://ieeexplore.ieee.org/document/6652287>
4. <https://www.electroind.com/3-simple-ways-shopping-malls-can-reduce-energy-consumption/>
5. <http://www.nilar.com/wp-content/uploads/2019/05/Customer-case-Grosetto-EN.pdf>
6. <https://www.sciencedirect.com/science/article/pii/S1876610217347276>
7. <https://www.etip-snet.eu/wp-content/uploads/2018/10/3.%20Sello%20Smart%20Energy%20System%20-%20Anssi%20Laaksonen.pdf>