An Integrated and Optimized National Domestic Energy Saving System

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The major goal of this work is to propose an integrated and effective energy saving system for domestic use and application. The system under discussion is not to replace in any means the government power plans. The proposed system is to be used in different types of houses and must be cost affordable for all economic segments of the Lebanese community.

The results achieved will help implementing energy saving methods in a correct and effective manner.

Keywords: Energy saving, Photovoltaic solar cells, Domestic wind turbine, Power factor, Hybrid systems.

The main purpose is to supply the Lebanese average consumer with the necessary energy saving tools to overcome the power energy crisis in an adequate and affordable manner. The energy saving system consists of an integrated system of a cost reducing procedure concentrating on lower electric power consumption and improving power factor methods and procedures along with a domestic and affordable hybrid photovoltaic and wind electric power supply. By reducing the electricity bill and having an affordable backup electricity supply, the average Lebanese consumer will be able to overcome everyday power needs even when future government power procedures will be placed into action.

The Lebanese consumer in this case will take advantage of both the EDL power supply as well as the renewable energy stored as per availability and choice.

Energy concerns was not a very series problem in Lebanon until the steep rise in fossil fuel prices lasting for a long time, thus affecting the whole world economy. In the mean while, the governments of the industrial developed world adjusted first the power consumption through power factor enhancement and reducing the reactive power. This did not take place in our world since energy saving methods was not considered a first level priority. Instead of striking a balance between energy saving procedures and power production, increasing the power production was rather a first priority to our leadership.

Renewable energy methods and conversion came next into action. Achieving energy and power from renewable and regenerating sources like the sunlight, water and wind, etc.., has become then the first objective. Extensive research has been taking place in the whole world for two major purposes:

1- Producing energy and power from non consumable and regenerating sources.

2- Reducing global warming effects.

Power produced from atomic reactors was another option, but due to rejection from different levels of the society it was depressed until the last energy crisis after which the idea of having power from an atomic energy source was acceptable even in countries having an overflow in the fossil fuel reserves.

Producing energy and power from a renewable source was also considered by a lot of people as a luxury option because of its high cost and low efficiency as well. So only those who can afford such a luxury were able to install such equipment and enjoy energy saving and non-polluted surroundings.

In a later stage, when it was clearly understood that only an elite will be able to use renewable energy technologies, efforts were implemented to start with serious research for the sake of having technologies with higher efficiencies and lower cost.

The main intention in this project is to offer those who cannot afford to install and enjoy energy saving and even cannot enjoy 24 hrs of electric power, such services with a reasonable cost.