Get Seen to be Green: Control, Reduce and Eliminate Energy Dependence

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On a political level the generation, distribution and availability of energy is likely to have a greater impact on the shape of the world economy than any other single factor. On a commercial level business owners everywhere need to reduce energy consumption and costs - not only to increase profit - but in many cases just to survive.

There are a number of barriers to success. These problems often prevent people from perusing and enjoying the considerable benefits derivable from an energy management programme. In a nutshell these problems are caused by a combination of:

1. The way energy is distributed on the National Grid and is subsequently ‘piped’ into your facility affords you little opportunity to manage the resource. Variable voltage for example can add significantly to the cost of operating equipment.

2. Although energy is consumed in ‘units’ of power (kWh), tariff charges can be very complicated and there are many other parameters that will likely affect how much you finally pay. In some cases 50% of the utility provider’s bill is for avoidable punitive charges like reactive power and maximum demand.

3. Because energy is consumed in real time but charged for historically you have no way of...
2. Knowing how much you are using at any point in time, both when the facility is staffed and open for business and when it is closed. Massive amounts of energy are often consumed needlessly when a building should in reality be closed down. High out of hours base loads often make up large portions of the bill. Also inefficient energy hungry pieces of equipment that demand disproportional high amounts of energy in relation to the job of work they do remain unchecked.

4. Usually, facility owners have absolutely no idea how much energy a given device has saved or is likely to save. There is normally no way of clients verifying the efficacy of the energy saving equipment being recommended. In some cases the wrong product on the wrong application can actually increase the energy consumption on the specific load.

5. Even following a successful energy savings programme, be that energy efficiency, cost reduction or renewable power generation, there is little to celebrate and applaud as there is no way of staff and customers being able to visualise the positive benefits. Normally the only person seeing the difference is the clerk paying the bill.

Understandably, businesses that have invested in energy saving initiatives need to be ‘seen to be green’ by both staff and customers alike. Information changes behaviour and staff and customers can’t lend their support if they can’t visualise and see the positive results displayed.
STEP I: Real Time Energy Monitoring

One of the solutions is to use Energy Maps - a new holistic approach to energy efficiency - an ethical approach that is already helping companies around the world to progressively control then reduce and finally eliminate their energy costs.

The solution should comprise of a flexible range of web-enabled class-1 digital meters in one, four and eight way configurations, coupled to a bespoke computer interface that disaggregates and processes data on your energy consumption second-by-second. This information should be exported to the world wide web enabling you to visualise and analyse your energy profile on a PC, laptop or mobile device from anywhere in the world.

A cloud based platform usually works out more economical and can be studied from anywhere by the facility manager. If it provides both instantaneous real-time and analytic information and some user friendly graphical displays with energy costs and your carbon footprint then it makes the invisible energy leaks now visible. Companies like to know and be able to see exactly where the energy is going, second by second, and this empowers them to prevent waste and make substantial savings.

For organizations that have made the decision to invest in load-side energy saving products in the hope of reducing their power demand, and consequently their bill, monitoring and analytics actually become indispensable allies for proving savings.

This is also an invaluable solution for all ethical companies IN the Energy Saving Business who wish to demonstrate the efficacy of their products and solutions in a totally open and honest way for their clients. Quite simply you can measure, side-by-side, the positive effects (or not as the case may be) of any specified product and ‘test’ with laser-like precision its efficacy on any specific application… and then see, unequivocally, the exact ROI or ‘payback’ you can expect.
The benefits from a monitoring system should be:

- Ease of Identifying Energy Saving Opportunities
- Expose of Energy Abusing Equipment
- Eliminate Out of Hours Waste
- Prove the Efficacy and ROI of Energy Saving Products and Solutions
- Engage Users and Improve Efficiencies with Real-time Energy Displays
- Help to Target Continual Reductions With Historical Analysis Tools
- If the customer can get Daily reports that will be enhance the control
- The reports must be easy to read and comprehend
- The monitoring system must be quick to install and flexible to configure

STEP II: Energy Saving – Short Term with Retrofits

Energy Consuming equipment like Air Conditioning systems, Refrigeration systems, Heaters, Lights and Motors have all got to be maintained and optimized from time to time. There are many energy saving retrofits available in the market today with intelligent algorithms built in to reduce energy consumption. Energy efficiency means getting more in columns A and B below for less in column C.

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<th>Column A</th>
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<td>Comfort</td>
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Energy efficiency is a valuable resource that creates a win-win solution on multiple fronts. One action = five major consumer and societal benefits. It saves consumers money, increases comfort, protects the environment, enhances the economy, and promotes national security. Once the Energy Management program has monitored and controlled the energy consumption, followed by reduction in the short term using load side equipments, the third step is to eliminate the dependence completely in the long term.
STEP III: Renewable Energy - Solar

Solar is the Latin word for sun a powerful source of energy that can be used to heat, cool, and light our homes and businesses. That’s because more energy from the sun falls on the earth in one hour than is used by everyone in the world in one year.

A variety of technologies convert sunlight to usable energy for buildings. The most commonly used solar technologies for homes and businesses are solar water heating, passive solar design for space heating and cooling, and solar photovoltaics for electricity.

For us in the Middle East Solar Photovoltaics, Solar Process heat and Solar Water Heating can be very useful. Solar photovoltaic and concentrating solar power technologies are also being used by developers and utilities to produce electricity on a massive scale to power cities and small towns.

Businesses and industry also use these technologies to diversify their energy sources, improve efficiency, and save money.

The five ways to eliminate electricity bills is as follows:

1. Concentrating Solar Power These technologies harness heat from the sun to provide electricity for large power stations.
2. Passive Solar Technology These technologies harness heat from the sun to warm our homes and businesses in winter.
3. Solar Photovoltaic Technology These technologies convert sunlight directly into electricity to power homes and businesses.
4. Solar Water Heating These technologies harness heat from the sun to provide hot water for homes and businesses.
5. Solar Process Heat These technologies use solar energy to heat or cool commercial and industrial buildings.

Mobile Applications for Energy Consumption

**Leafully** is about helping people understand energy usage. A huge problem is that the units of energy are hard to comprehend. Leafully brings these terms down to something simple - a tree. Leafully also recognizes that energy usage is more than just electricity usage and thus tries to give the user a total tree footprint - the amount of trees needed to offset the pollution created by one’s energy consumption.

Leafully is organized into a few main areas: diving deep into the hourly data with historic trends, understand the effect of the abstract units of energy, and taking action with tree values in mind along with friends.

**KILL-Ur-Watts**: Using your energy consumption data, the smartphone app Kill-Ur-Watts will keep track of your energy use over time and develop strategies for energy reduction.
Free on iTunes, CodeGreen Energy is the new Energy Star app that allows you to compare the energy efficiency of buildings in your area. It's a great resource that can inform real estate investments, and other professionals interested in comparing building efficiencies. Just enter an address, and the Energy Star score will appear for the building at the location, along with details about the building's energy use. Melon's application offers the over 1 million commercial buildings that are gaining access to Green Button a simple and affordable benchmarking analysis using the EPA's ENERGY STAR web services.

In conclusion, to make sure we have plenty of energy in the future, it's up to all of us to use energy wisely.

We must all conserve energy and use it efficiently. It's also up to those who will create the new energy technologies of the future.

All energy sources have an impact on the environment. Concerns about the greenhouse effect and global warming, air pollution, and energy security have led to increasing interest and more development in renewable energy sources such as solar, wind, geothermal, wave power and hydrogen. But we'll need to continue to use fossil fuels and nuclear energy until new, cleaner technologies can replace them.

The future is ours, but we need energy to get there.