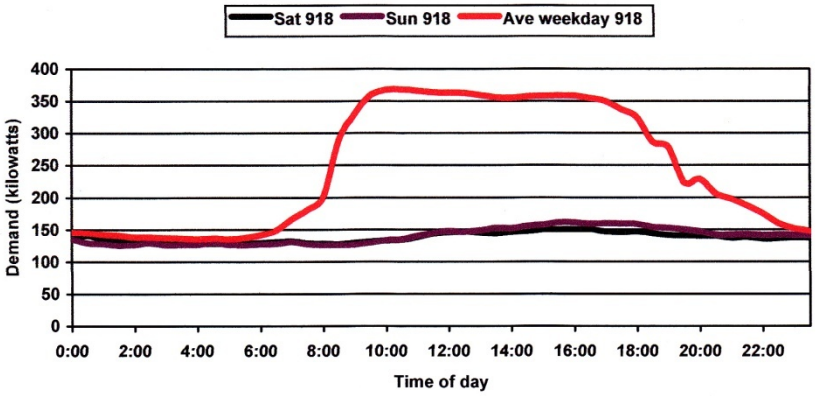
OFF-PEAK WASTE ELECTRICITY

Our current electricity system is based primarily on coal-fired power stations and natural gas fired power stations which cannot be turned on and off at short notice.

By generating power during times of peak demand (daytime) entails generating power during off-peak times (night-time), even if there is no demand for that power at a price that covers average costs.

Here we have a base load supply, which easily exceeds the demand for off-peak power at average cost, and sometimes even at fossil fuel cost. The result is that off-peak power must be heavily discounted, and even so, demand is barely enough to keep the turbines turning. Therefore, there is a loss of energy during the off-peak period which is reflected in the graph below:

Figure 5. Electricity consumption profiles for electricity used for tenant light and general power in a Canberra office tenancy (previously unpublished data)



Major consideration must be adopted to utilise the off-peak power period for the production of Solanol.

The utilisation of all waste electricity in industry can now be converted at any time of the day or night for the production of carbon neutral Solanol. Thereby, making use of electrical power generated and normally lost via the burning of coal or natural gas and

where these power stations cannot easily be varied in electricity power output for the necessary base load power at different times of the day. (See link below).

John Quiggin » The myth of baseload power demand
http://johnquiggin.com/2009/07/22/the-myth-of-baseload-power-demand/

Coal is primarily used as a solid fuel to produce electricity and heat through combustion. World coal consumption was about 6.75 billion short tons in 2006 and is expected to increase 48% to 9.98 billion short tons by 2030. China produced 2.38 billion tons in 2006. India produced about 447.3 million tons in 2006. 68.7% of China's electricity comes from coal. The USA consumes about 14% of the world total, using 90% of it for generation of electricity.

The energy density of coal can also be expressed in kilowatt-hours, the units that electricity is most commonly sold in, per units of mass to estimate how much coal is required to power electrical appliances. One kilowatt-hour is 3.6 MJ, so the energy density of coal is 6.67 kW·h/kg. The typical thermodynamic efficiency of coal power plants is about 30%, so of the 6.67 kW·h of energy per kilogram of coal, 30% of that—2.0 kW·h/kg—can successfully be turned into electricity; the rest is waste heat. So coal power plants obtain approximately 2.0 kW·h per kilogram of burned coal.

Over and above the off-peak generating losses in coal-fired power stations operating at 30% and natural gas fired power stations of 20% efficiency. This efficiency can be improved dramatically by utilising the by-product of the hydroxy electrolysis process enviro-oxygen.

It is estimated that oxygen enriched coal-fired power stations and natural gas power stations can be improved up to 60% thermal efficiency with only 40% losses. This increase in thermal efficiency can be utilised for the production of additional Solanol increasing the ROI.

Currently national (international) coal and gas fired power stations have an inherent environmental impediment, that being the 300 million tonnes of carbon dioxide is emitted into the atmosphere annually. The cost of removing this carbon dioxide component vented from the flue gases is a major technical-cost-deficit problem. This will be overcome by introducing enviro-oxygen, which is a surplus by-product of the Solanol fuel process, to combust with coal or gas fired power stations instead of with air. (See links below).

Coal - Wikipedia, the free encyclopedia
http://en.wikipedia.org/wiki/Coal

Natural gas - Wikipedia, the free encyclopedia
http://en.wikipedia.org/wiki/Natural_gas

Initial calculations and a study on utilising off-peak waste electrical power have concluded a healthy ROI.