

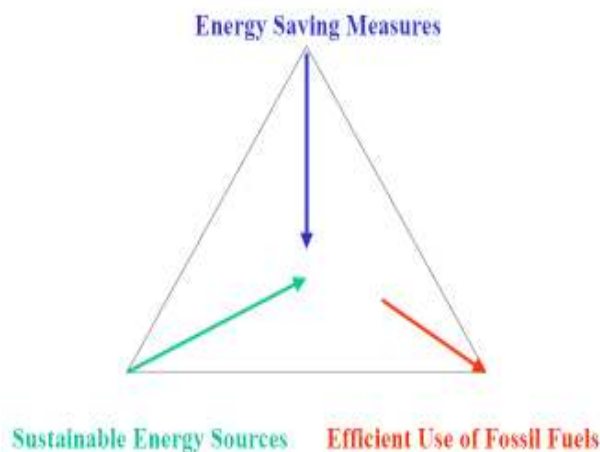
Energy Triad

The world's energy resources are limited. It is generally believed that we have passed 'peak oil'. Fracking where allowed will give us access to previously inaccessible hydrocarbons. But like oil and gas wells there will be a limit to what can be economically produced. As with conventional wells there will be an environmental cost.

Our focus should be on using less energy. How do we do this on a daily basis? Let us just look at the energy use in our houses particularly that used for heating. Many years ago we only thought about this at the onset of winter. We filled our oil tanks, sourced coal, timber etc. In more difficult economic times, climate change, more CO2 emissions more people are inclined to take a longer term view when building or renovating their houses.

Among the first thoughts are that the building has to be sustainable, comfortable and cost effective. For this to be delivered the basic idea should be **to use less energy and where it is required generate it by** different, more sustainable, means! In the last decade there was too much focus on supplying energy to energy hungry dwellings.

Dutch researchers (Lysen and Duijvestein) as far back as 1997 developed an Energy Triad (Trias Energetica). Put simply from a house point of view the first step should be to reduce the ongoing energy requirement, secondly generate whatever energy is required as sustainably as possible, and finally if the building still needs energy it should be generated as cleanly and efficiently as possible. It is represented diagrammatically below.



Building low energy demand buildings such as passive houses help to reduce the energy requirement. The design and construction stages deliberately incorporate a well insulated fabric, mechanical heat recovery ventilation, air tightness and solar gains with due consideration to the orientation of the building. The philosophy is build tight, ventilate right applies.

In Ireland sometimes an emphasis has been put on alternative heating systems trying to achieve 'low energy' status without getting the actual building 'right'. For the future it has to be a case of 'fabric before technology. Read more about Passive houses on the our website at:

http://www.proair.ie/index.php?option=com_content&task=view&id=70&Itemid=220