

Solar Panel Efficiency

Efficiency in Solar Panels is defined as the energy output from a given surface area of the solar panel. The nett efficiency of Solar panel arrays is, however, dependent on the hours of sunshine, the hours of daylight, the age of the panel array, the cleanliness of the panels surface, the attitude of the array to the sun's position and the ambient temperature.

Various figures are available for solar panel array efficiencies ranging from as low as 11% to as high as 25%.

Different publications list Canadian Solar panels having maximum efficiency ranging between 19.8% and 22.5% under standard test conditions. If the stated output of Mallard pass is 350MW, at an efficiency of say 20%, then a nett efficiency of 11% would give an output of 192MW. Below a potential guaranteed figure.

The efficiency of solar arrays decreases year on year between 0.5 and 0.8%.

If the average efficiency of a solar array is 11%, that means that 11% of the sunlight that hits the panel is converted into electricity. The UK as a whole averages about 1400 hours of sunshine a year. Solar panels will work on cloudy days but at a much-reduced efficiency.

The majority of solar panel manufacturers are indicated to include a performance guarantee of 20-25 years which guarantees the panels will be working to approximately 85% of the original output capacity for that period.

That means that Mallard Pass or their suppliers have to guarantee 85% of the stated output, that is 297.5 MW every sunny or cloudy day over 25 years.

Over a year, there is an average of 12 hours/day daylight, more in summer and less in winter. That is, an average of 12 hours/day when the panels don't work. Zero efficient. At least with wind turbines, which have an average annual efficiency of between 30-45%, and up to 50% during peak wind times, they keep working in the 12 hours when panels are useless. Wind turbines are therefore a more efficient means of generating renewable energy. Additionally, they are much less impactful in aspects of biodiversity, agricultural land loss and the wellbeing of animal and human lives.

In the northern hemisphere the arrays are best located on South facing slopes. If one examines the topography of the land on which the planned arrays are to be sited, much of it is not south facing, indeed much of the slopes are north or northwest facing. This will not only affect the overall efficiency of the arrays but will necessitate installation of the panels in such a way as to maximise a sub optimal location. Thereby creating additional potential visual impact. It is already stated that the panels could be as high as 3.3m tall.

Assuming completely optimal prevailing conditions. Such conditions exist on a limited number of days in the UK and therefore it is likely that the nett efficiency of Mallard pass is likely to be closer to 11% than 20%. The likelihood that guarantee values will be not be met is increased.

As technology changes, solar panel efficiency is expected to rise. Unfortunately, the weather patterns of the northern hemisphere and the UK in are unlikely to change significantly and thus the efficiency and performance of the installed panels will always be less than optimal.

Fundamentally, people live in the countryside to enjoy the countryside. As a part of their enjoyment I, and I assume most people that live in the countryside like to see the colours of the fields change with the seasons. With this proposed carbuncle on the landscape of rural England, the change in colours will be lost and we will have to endure fields of blue instead of fields of green, brown and gold.

The numbers of proposed installations in Lincolnshire alone, 11 i understand, should be of concern in relation to the industrialisation of the "Gardens of England". Years ago, Lincolnshire was known locally as a "salesman's graveyard" because of the vast tracts of space between potential customers caused by the agricultural nature of the landscape.

If we keep proposing and building these low efficiency systems, we are likely to end up with a Dystopian landscape where the lights for the general populous go out at night and on cold and wet days. The only people with light are those that can afford generators because they prostituted themselves to reap the potential financial rewards of the Mallard Pass and other such lease agreements.

I advocate the use of solar panels, I have them on the roof of my house, and that's where they should be, on the roofs of houses and industrial buildings. Heaven knows, that may improve the look of much of the industrial buildings in Essendine.

The use of prime cereal growing land should not be used for solar arrays. Because of the low nett efficiency, solar panels should be installed on roofs and on land where arable or livestock farming is not possible. Such locations would not necessarily be compromised by the low nett efficiency of solar arrays, whereas the use of agricultural land although seemingly inefficient because of crop turnovers once a year, the crops grow all day and all night and thus apart from periods when free of crops are technically highly efficient.

The steam locomotive age ended because the machines were inefficient, polluting and generally slow. Modern machines with higher nett efficiencies took over.

We should avoid the steam age of electrical power generation and only use solar arrays where they have minimal impact on biodiversity, agricultural land use, human habitation, and human wellbeing. Mallard Pass is so inefficient it belongs in the steam age. It should NOT be given the go ahead.

