



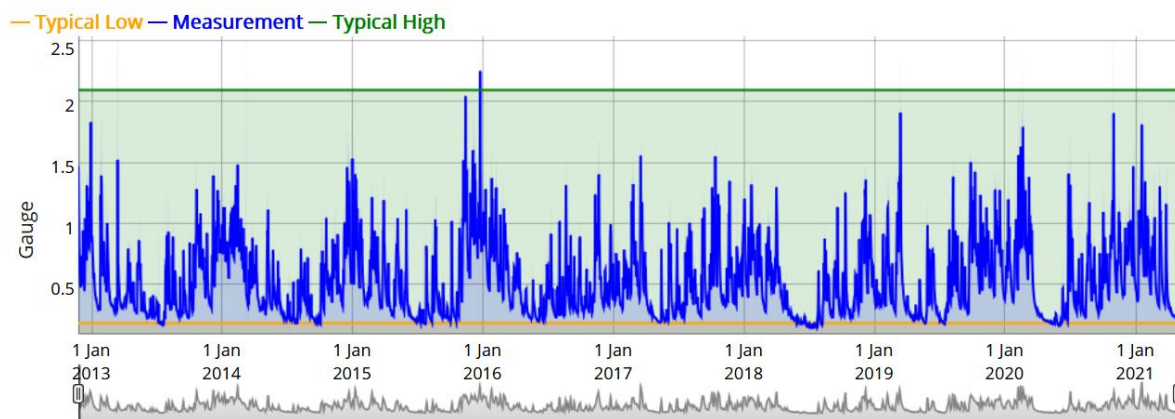
The Pros & Cons of Hydroelectricity.

At first glance, the Low Mill weir before you appears to be an ideal site for hydroelectricity generation.

There is no doubt hydroelectrical generation can make a significant contribution to achieving a zero- carbon world.

However this site illustrates perfectly, the difficulties encountered in generating electricity in this way. The weir is in fact a measuring weir for the Environment Agency (EA). This helps with flood risk planning, river water quality management & long- term water supply security & it means that we have accurate, detailed information on flow levels over time. Information for the last 10 years is shown below.

Long Term



You can see from this graph that the range of flows varies greatly & over short periods of time. This is because the River Wharfe is not well attenuated due to its steep valley sides & lack of floodplains. The underlying limestone geology can also contribute to rapid water movement too; when it rains in Kettlewell, the water arrives here just a few hours later. Rural & urban surface run off also contributes & this is one of the reasons why Sustainable Urban Drainage Systems or SUDS is important.



Wharfe and Lower Ouse Catchment Area



The result of this and the fact that the height of the weir step is not great means that a low level of generation would be achieved. The possibility of economical generation would be debatable to say the least.

Other considerations when considering sites for hydroelectricity generation include accessibility for construction & ongoing maintenance, potential noise nuisance, & a suitable point nearby to connect to the electricity grid. The optimum circumstances are if there is a large commercial or industrial electricity user close by with a 24 hour demand.

Hydroelectrical generation has other important conflicts; in order to maintain the ecology of a water course, the EA sensibly restrict the amount of water that can be impounded for hydroelectricity generation purposes. This additional constraint can provide further restriction on the amount of power that can be produced but most would agree with the necessity of maintaining a healthy river.