

Candidate 3 evidence

Hydroelectric power

The aim of this experiment was to see how much power was generated from a hydroelectric generator when the water fell from different heights.

Hydroelectric power is power generated from water. Usually a dam is used to store the water and the water falls onto the generator, turning it and generating electricity. The amount of electricity made depends on the height the water falls. The greater the height the more electricity made. The kinetic energy from the water falling is converted to electrical energy.

Because of climate change and CO₂ acting as a greenhouse gas fuels which do not make CO₂ when generating electricity are better. Water is not a fossil fuel and does not make CO₂ when making electricity. Other renewable fuels are wind power and tidal power.

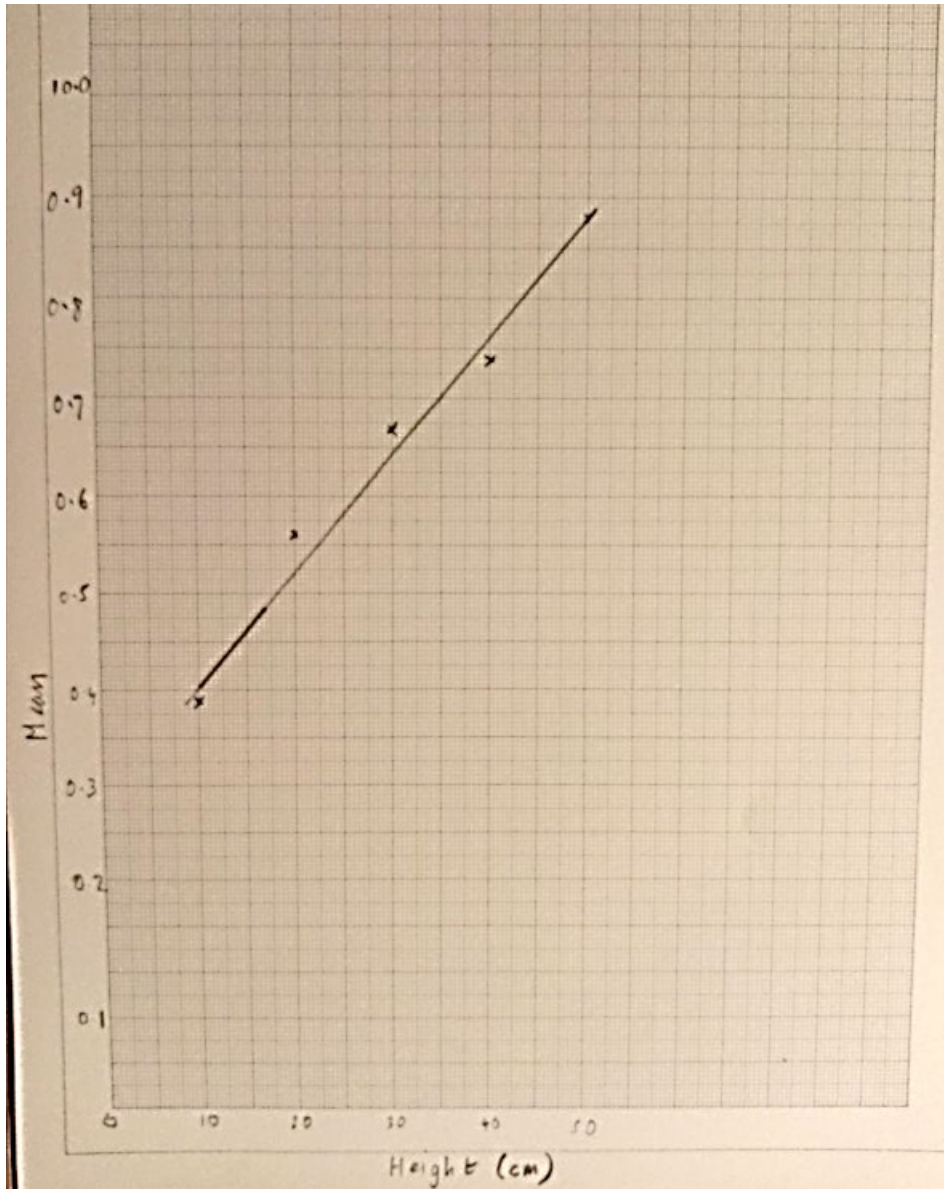
A hydroelectric dam needs to have a steep gradient and a high level of rainfall. Narrow steep valleys are ideal and there are lots of suitable areas for hydroelectric in Scotland.

This experiment is using a model hydroelectrical generator and water was dropped from different heights and the amount of electric power generated measured using a multimeter.

Results

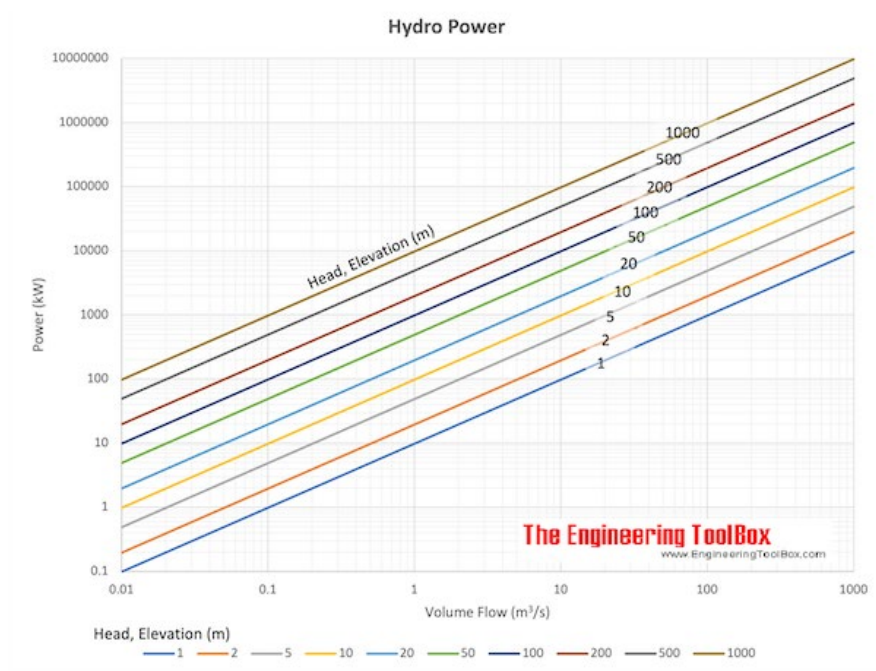
Height

Height (cm)	Attempt 1	Attempt 2	Attempt 3	Mean
10	0.45	0.48	0.26	0.38
20	0.56	0.54	0.59	0.56
30	0.68	0.65	0.66	0.66
40	0.75	0.72	0.76	0.74
50	0.86	0.88	0.91	0.88



My second source of data

https://www.engineeringtoolbox.com/hydropower-d_1359.html



Comparing

my results to the engineering toolbox results shows the same thing: the bigger the distance the water falls from the more power is generated.

My conclusion is that the more height water falls in a hydroelectric power station the more electricity made.

My evaluation of the experiment is that the experiment went well. I held the water pipe in a clamp so that the height didn't keep changing. I turned the tap the same distance each time so that the water flow wasn't different and both of these things would make my experiment a fair experiment.