



HYDRO OPPORTUNITIES WITHIN THE  
CAMBRIAN MOUNTAINS

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APPENDIX 6 -UPPER EAST  
(L) GROUP

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LLANIDLOES  
TGV12/002

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TGVHydro Ltd, CRIC, Beaufort Street, Crickhowell, Powys, NP8 1BN

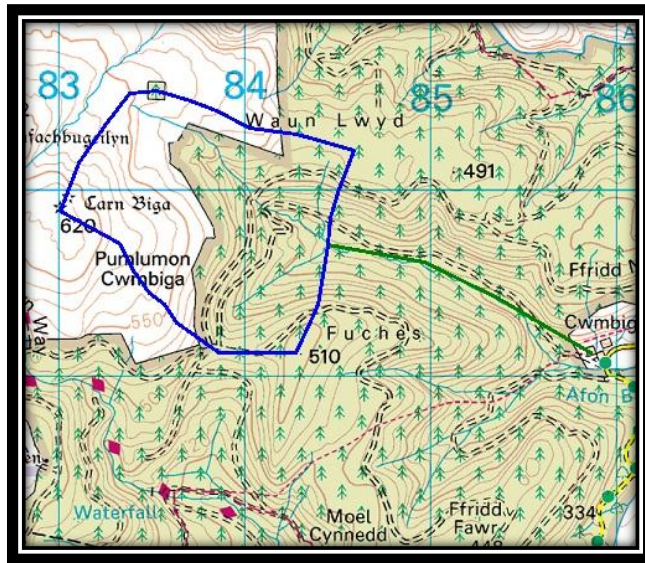
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## TGV12/002 L1 (Cwmbiga)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	41.8 kW
Est. Average Output Power	17.6 kW
Est. Annual Output	154,386 kWh
Annual carbon saved	77 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£198,789 & £219,715
Current export Tariff rate per kWh	£0.031 per kWh
Current generation FITs rate per kWh	£0.187 per kWh
Estimated annual revenue at current price between	£31,252 & £36,060
Estimated 20 year income between	£805,782 & £929,748
Estimated 20 year profit between	£586,067 & £730,959
Estimated payback between	4.3 and 5.5 years

Catchment analysis	
Catchment Area	1.43 km <sup>2</sup>
Maximum altitude	615 m
Intake Location	
OS grid reference	SN 8444 8971
Terrain	Coniferous woodland, steep slope
Access	Good, utilising existing access track
Turbine Location	
OS grid reference	SN 8586 8913
Terrain	Open fields
Access	Good, through open fields
Power Transmission	
Description	Assumed export direct to National Grid
Phase	Assumed three phase
Distance to turbine	Assumed 30 m
Pipeline	
Gross Head	70 m
Length	Approx. 1,550 m
Pipeline type and size	High pressure Polyethylene, 400 mm external diameter
Terrain	Steep slope through coniferous woodland
Access	Good, utilising existing access track running parallel to proposed pipe route.
Abstraction Regime	
Abstraction regime	90% of flow above Q85 hands-off compensation, up to peak equivalent to Qmean
Catchment mean flow	92.1 l/s
Scheme peak abstraction flow	92.1 l/s
Hands-off compensation flow	Q85, 16.5 l/s

### ADDITIONAL COMMENTS

It would be possible to build smaller schemes; these would be cheaper to build but with the generated revenue and carbon saved being correspondingly less.

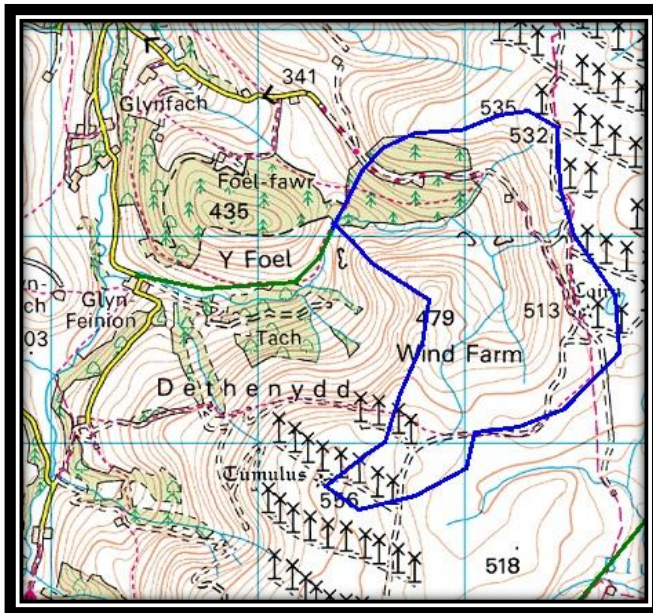
A split flow has been included within the abstraction regime in accordance with the Environment Agency's Hydro-power Good Practice Guidelines.

The construction cost is our estimate, based on similar schemes, and includes obtaining the necessary permissions and licences, all equipment and construction, the grid connection and the commissioning of the scheme.

If this scheme were to be developed on a domestic scale by the sole landowner then VAT would be at 5%

## TGV12/002 L2 (Glyn Feinion)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	22.0 kW
Est. Average Output Power	10.6 kW
Est. Annual Output	92,609 kWh
Annual carbon saved	46 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£115,952 & £128,158
Current export Tariff rate per kWh	£0.031 per kWh
Current generation FITs rate per kWh	£0.187 per kWh
Estimated annual revenue at current price between	£18,747 & £21,631
Estimated 20 year income between	£483,350 & £557,712
Estimated 20 year profit between	£355,193 & £441,760
Estimated payback between	4.2 and 5.3 years

Catchment analysis	
Catchment Area	1.56 km <sup>2</sup>
Maximum altitude	555 m
Intake Location	
OS grid reference	SO 0236 8405
Terrain	Open fields at edge of non-coniferous woodland
Access	Good, through open fields and via existing track
Turbine Location	
OS grid reference	SO 0142 8382
Terrain	Open fields
Access	Good, access from adjacent public highway
Power Transmission	
Description	Assumed export to Glyn Feinion property
Phase	Assumed split phase
Distance to turbine	40 m
Pipeline	
Gross Head	85 m
Length	Approx. 1,100 m
Pipeline type and size	High pressure Polyethylene, 280mm external diameter
Terrain	Moderate slope through open fields and woodland edge
Access	Good, through open fields and existing track
Abstraction Regime	
Abstraction regime	100% of flow above Q90 hands-off compensation, up to peak equivalent to Qmean
Catchment mean flow	39.1 l/s
Scheme peak abstraction flow	39.1 l/s
Hands-off compensation flow	Q90, 5 l/s

### ADDITIONAL COMMENTS

The construction cost is our estimate, based on similar schemes, and includes obtaining the necessary permissions and licences, all equipment and construction, the grid connection and the commissioning of the scheme. To realise the scheme presented here may involve multiple landowners. This would require easements, the financial consequences of setting up these easements has not been taken into account of in this report.

If this scheme was to be developed on a domestic scale by the sole landowner then VAT would be at 5%.

It may be possible to build a smaller scheme that would be cheaper to build but with the generated revenue and carbon saved being correspondingly less.