



HYDRO OPPORTUNITIES WITHIN THE
CAMBRIAN MOUNTAINS

APPENDIX 7 – PENTIR
PUMLUMON (P) GROUP

NORTH EAST CEREDIGION
TGV12/002

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

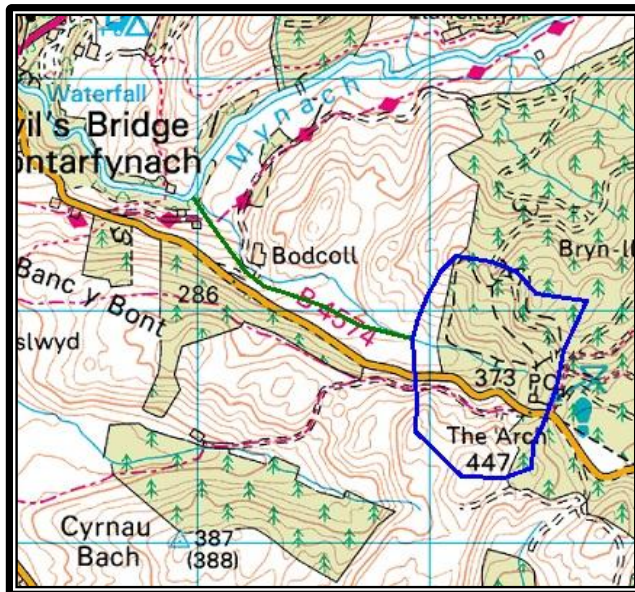
Registered Company Number: 7418338

Telephone: 07969 137719, Email: info@thegreenvalleys.org,

Web: www.tgvhydro.co.uk

TGV12 / 002 P1 (Devils Bridge 1)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	12.9kW
Est. Average Output Power	5.2kW
Est. Annual Output	45,804kWh
Annual carbon saved	23 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£82,527 & £91,214
Current export Tariff rate per kWh	£0.031 per kWh
Current generation FITs rate per kWh	£0.209 per kWh
Estimated annual revenue at current price between	£10,208 & £11,778
Estimated 20 year income between	£263,188 & £303,679
Estimated 20 year profit between	£171,975 & £221,152
Estimated payback between	5.4 and 6.9 years

ADDITIONAL COMMENTS

This report represents the scheme that will generate the most renewable hydro energy possible with the intake, pipeline and turbine located on your identified land.

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.

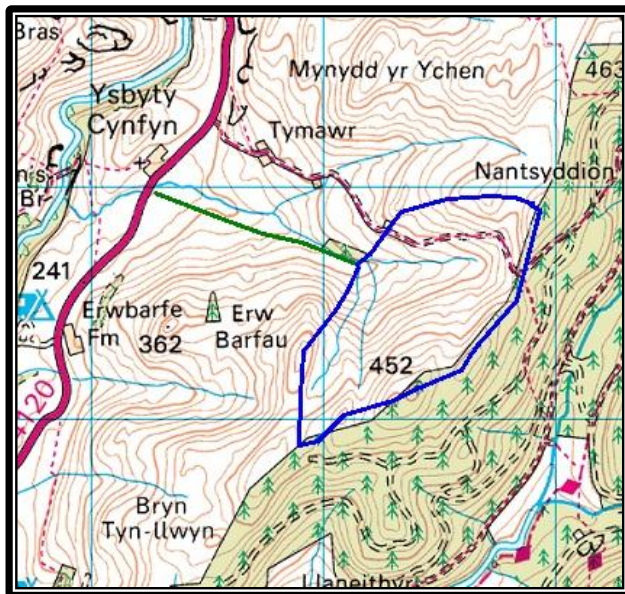
The construction cost is our estimate, based on similar schemes, and includes obtaining the necessary permissions and licences, all equipment and construction, the grid connection and the commissioning of the scheme.

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

Catchment analysis	
Catchment Area	0.500 km ²
Maximum altitude	445m
Intake Location	
OS grid reference	SN 7593 7588
Terrain	Agricultural land
Access	Good from adjacent road
Turbine Location	
OS grid reference	SN 7498 7649
Terrain	Agricultural land
Access	Good from adjacent track
Power Transmission	
Description	Domestic connection through adjacent property.
Phase	Single
Distance to turbine	50 m
Pipeline	
Gross Head	96 m
Length	Approx. 1,200 m
Pipeline type and size	High pressure Polyethylene, 225mm external diameter
Terrain	Farmland
Access	Good throughout
Abstraction Regime	
Abstraction regime	90% of all flow above H Q85 up to the value of Qmean
Catchment mean flow	20.2l/s
Scheme peak abstraction flow	20.2l/s
Hands-off compensation flow	Q85, 3.5l/s

TGV12 / 002 P2 (Devils Bridge 2)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	11kW
Est. Average Output Power	4.6kW
Est. Annual Output	39,929kWh
Annual carbon saved	20 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£72,088 & £79,676
Current export Tariff rate per kWh	£0.031 per kWh
Current generation FITs rate per kWh	£0.209 per kWh
Estimated annual revenue at current price between	£8,899 & £10,268
Estimated 20 year income between	£229,433 & £264,731
Estimated 20 year profit between	£149,757 & £192,643
Estimated payback between	5.4 and 6.9 years

Catchment analysis	
Catchment Area	0.614km ²
Maximum altitude	451m
Intake Location	
OS grid reference	SN 7615 7867
Terrain	Agricultural land
Access	Moderate
Turbine Location	
OS grid reference	SN 7527 7898
Terrain	Agricultural land
Access	Good from road
Power Transmission	
Description	Export through adjacent domestic connection (across road)
Phase	Single
Distance to turbine	75 m
Pipeline	
Gross Head	71 m
Length	Approx. 950 m
Pipeline type and size	High pressure Polyethylene, 225mm external diameter
Terrain	Agricultural land
Access	Good across fields
Abstraction Regime	
Abstraction regime	90% of flow above Q85 up to the value of Qmean
Catchment mean flow	23.8l/s
Scheme peak abstraction flow	23.8l/s
Hands-off compensation flow	Q85, 4l/s

ADDITIONAL COMMENTS

This report represents the scheme that will generate the most renewable hydro energy possible with the intake, pipeline and turbine located on your identified land.

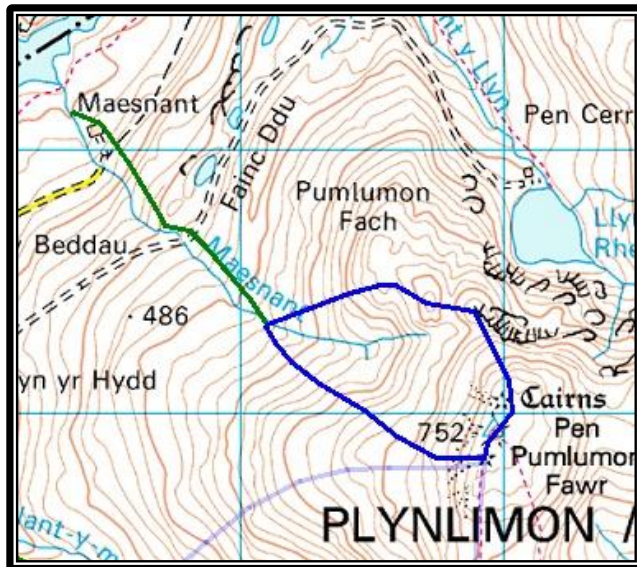
It may be possible to build a smaller scheme that would be cheaper to build but with the generated revenue and carbon saved being correspondingly less.

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 P3 (Maesnant)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	20.7kW
Est. Average Output Power	10.6kW
Est. Annual Output	92,799kWh
Annual carbon saved	46 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£82,136 & 90,782
Current export Tariff rate per kWh	n/a
Current generation FITs rate per kWh	£0.187 per kWh
Estimated annual revenue at current price between	£16,114 & £21,230
Estimated 20 year income between	£415,468 & £479,386
Estimated 20 year profit between	£324,686 & £397,250
Estimated payback between	3.4 and 4.4 years

ADDITIONAL COMMENTS

This report represents the scheme that will generate the most renewable hydro energy possible with the intake, pipeline and turbine located on your identified land.

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.

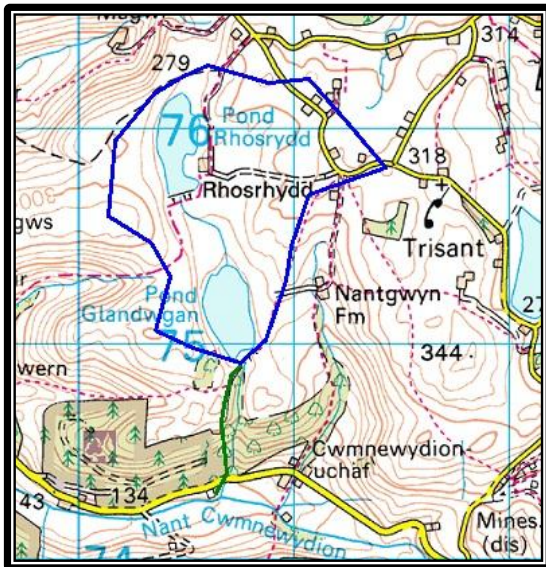
The construction cost is our estimate, based on similar schemes, and includes obtaining the necessary permissions and licences, all equipment, construction and the commissioning of the scheme. For this scheme onsite analysis is required to accurately cost the requirements for connecting to the existing off-grid supply.

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

Catchment analysis	
Catchment Area	0.379km ²
Maximum altitude	520m
Intake Location	
OS grid reference	SN 7810 8734
Terrain	Agricultural land
Access	Moderate via fields
Turbine Location	
OS grid reference	SN 7736 8815
Terrain	Agricultural land
Access	Good via track
Power Transmission	
Description	Assumed off-grid. Exclusive supply to centre
Phase	n/a
Distance to turbine	50 m
Pipeline	
Gross Head	160 m
Length	Approx. 1550m
Pipeline type and size	High pressure Polyethylene, 180mm external diameter
Terrain	Agricultural land
Access	Moderate via tracks
Abstraction Regime	
Abstraction regime	90% of flow above Q _{mean} up to the value of 20l/s.
Catchment mean flow	28l/s
Scheme peak abstraction flow	20l/s
Hands-off compensation flow	Q ₉₀ , 4l/s

TGV12 / 002 P4 (Pont Cuenant)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	22.2kW
Est. Average Output Power	10.2kW
Est. Annual Output	89,628kWh
Annual carbon saved	45 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£75,702 & £83,670
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	£18,143 & £20,935
Estimated 20 year income between	£467,795 & £539,764
Estimated 20 year profit between	£384,125 & £464,062
Estimated payback between	2.8 and 3.6 years

ADDITIONAL COMMENTS

This report represents the scheme that will generate the most renewable hydro energy possible with the intake, pipeline and turbine located on your identified land.

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.

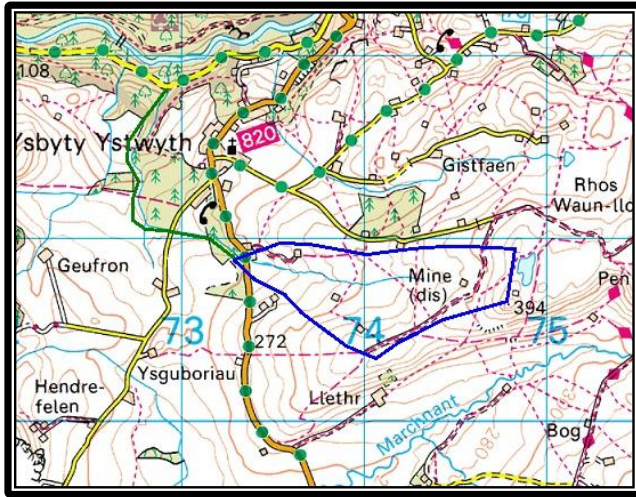
The construction cost is our estimate, based on similar schemes, and includes obtaining the necessary permissions and licences, all equipment and construction, the grid connection and the commissioning of the scheme.

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

Catchment analysis	
Catchment Area	1.017km ²
Maximum altitude	319m
Intake Location	
OS grid reference	SN 7075 7490
Terrain	Grass outfall of old reservoir
Access	Good across fields
Turbine Location	
OS grid reference	SN 7064 7431
Terrain	Grass floodplain
Access	Good from road
Power Transmission	
Description	Exclusive split phase connection (export only)
Phase	Split
Distance to turbine	50m
Pipeline	
Gross Head	123m
Length	Approx. 700 m
Pipeline type and size	High pressure Polyethylene, 180mm external diameter
Terrain	Mixed woodland
Access	Moderate
Abstraction Regime	
Abstraction regime	90% of flow above Q90 up to the value of Qmean
Catchment mean flow	27.7l/s
Scheme peak abstraction flow	27.7l/s
Hands-off compensation flow	Q90, 4l/s

TGV12 / 002 P5 (Pont-rhyd-y-groes)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	11.0kW
Est. Average Output Power	4.9kW
Est. Annual Output	43,346kWh
Annual carbon saved	22 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£81,828 & £90,442
Current export Tariff rate per kWh	£0.031 per kWh
Current generation FITs rate per kWh	£0.209 per kWh
Estimated annual revenue at current price between	£9,660 & £11,146
Estimated 20 year income between	£249,063 & £287,381
Estimated 20 year profit between	£158,622 & £205,553
Estimated payback between	5.7 and 7.3 years

ADDITIONAL COMMENTS

This report represents the scheme that will generate the most renewable hydro energy possible with the intake, pipeline and turbine located on your identified land.

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.

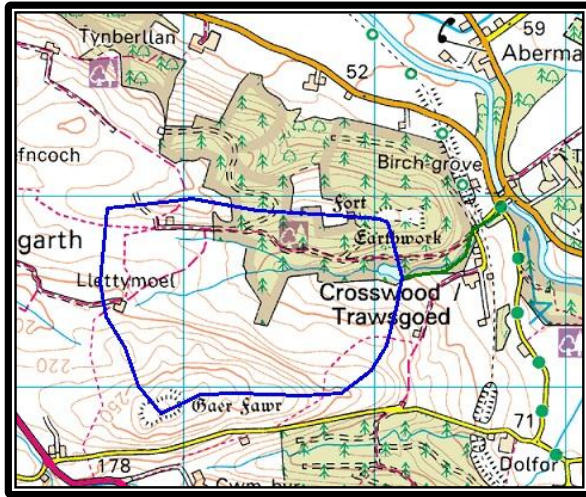
The construction cost is our estimate, based on similar schemes, and includes obtaining the necessary permissions and licences, all equipment and construction, the grid connection and the commissioning of the scheme.

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

Catchment analysis	
Catchment Area	0.579km ²
Maximum altitude	388m
Intake Location	
OS grid reference	SN 73290 70882
Terrain	Mixed woodland
Access	Good from road
Turbine Location	
OS grid reference	SN 7287 7181
Terrain	Woodland
Access	Moderate
Power Transmission	
Description	Exclusive single phase connection (export only)
Phase	Single
Distance to turbine	50 m
Pipeline	
Gross Head	96 m
Length	Approx. 1,450 m
Pipeline type and size	High pressure Polyethylene, 180mm external diameter
Terrain	Farmland and woodland
Access	Moderate throughout
Abstraction Regime	
Abstraction regime	90% of flow above Q90 up to the value of Qmean
Catchment mean flow	18l/s
Scheme peak abstraction flow	18l/s
Hands-off compensation flow	Q90, 3l/s

TGV12 / 002 P6 (Trawscoed)

Catchment area marked in blue, pipeline in green



Provisional system specification	
Efficiency	70%
Est. Peak Output Power	10.4kW
Est. Average Output Power	4.6kW
Est. Annual Output	40,250kWh
Annual carbon saved	20 tonnes
PROVISIONAL FINANCES	
Financial Calculations with VAT at	0%
Estimated construction cost	£75,692 & £83,660
Current export Tariff rate per kWh	£0.031per kWh
Current generation FITs rate per kWh	£0.209 per kWh
Estimated annual revenue at current price between	£8,970 & £10,350
Estimated 20 year income between	£231,277 & £266,858
Estimated 20 year profit between	£147,617 & £191,166
Estimated payback between	5.7 and 7.2 years

ADDITIONAL COMMENTS	
<p>This report represents the scheme that will generate the most renewable hydro energy possible with the intake, pipeline and turbine located on your identified land.</p> <p>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.</p> <p>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.</p> <p>If this scheme were to be developed on a domestic scale by the sole landowner then VAT would be at 5%.</p>	

Catchment analysis	
Catchment Area	1.405km ²
Maximum altitude	230m
Intake Location	
OS grid reference	SN 6615 7257
Terrain	Mixed woodland
Access	Good via track
Turbine Location	
OS grid reference	SN 6665 7290
Terrain	Mixed woodland and track crossing
Access	Moderate
Power Transmission	
Description	Exclusive single phase connection (export only)
Phase	single
Distance to turbine	30 m
Pipeline	
Gross Head	49 m
Length	Approx. 700 m
Pipeline type and size	High pressure Polyethylene, 250mm external diameter
Terrain	Woodland
Access	Moderate
Abstraction Regime	
Abstraction regime	90% of flow above Q85 up to the value of Qmean
Catchment mean flow	32.7l/s
Scheme peak abstraction flow	32.7l/s
Hands-off compensation flow	Q85, 4l/s

