



Turbine Flow and Design Tables

This document provides additional information relating to the construction of a Micro Hydro Scheme on the Nant Ffynnon-wen.



TGVHydro

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Turbine Start-Up Flow

The manufacturers of the turbine for this scheme state that the generator start-up flow for this system will be 10% of the value of the peak abstraction 22.0 ls^{-1} (51% of Q_{mean}). Consequently the scheme will have a minimum start-up flow, when synced to the generator, of 2.2 ls^{-1} , (10% of 22.0 or 51% of Q_{mean}). We have consequently provided the data table for the turbine.

Design Data: Supporting information for NRW Full Application

Calculates How Much Water The System Will Use									Turbine Flow m ³ /sec
% of year flow will be exceeded	Period Flow Rate (l/s)	Q95 Adjusted Flow (l/s)	Allowed Abstraction flow from Q95 Flow	TGV Design Abstraction flow (l/s)	% of Allowed flow used by TGV design	Residual Flow in Watercourse Above HOF (l/s)		Abstracted Volume M ³	
100%	2.25	0.00	0.00	0.00	0%	2.25	1.00	0	0.0000
95%	5.40	0.00	0.00	0.00	0%	5.40	1.00	0	0.0000
90%	6.74	1.34	0.94	0.94	100%	5.80	0.86	1,479	0.0009
85%	7.87	2.47	1.73	1.73	100%	6.14	0.78	2,721	0.0017
80%	8.99	3.59	2.51	2.51	100%	6.48	0.72	3,962	0.0025
75%	11.24	5.84	4.08	4.08	100%	7.15	0.64	6,440	0.0041
70%	13.48	8.08	5.66	5.66	100%	7.82	0.58	8,918	0.0057
65%	14.61	9.21	6.44	6.44	100%	8.16	0.56	10,160	0.0064
60%	15.73	10.33	7.23	7.23	100%	8.50	0.54	11,402	0.0072
55%	19.10	13.70	9.59	9.59	100%	9.51	0.50	15,122	0.0096
50%	22.47	17.07	11.95	11.95	100%	10.52	0.47	18,841	0.0119
45%	26.96	21.56	15.09	15.09	100%	11.87	0.44	23,797	0.0151
40%	31.45	26.05	18.24	18.24	100%	13.22	0.42	28,753	0.0182
35%	37.07	31.67	22.17	21.97	99%	15.10	0.41	34,637	0.0220
30%	42.68	37.28	26.10	21.97	84%	20.71	0.49	34,637	0.0220
25%	52.79	47.39	33.17	21.97	66%	30.82	0.58	34,637	0.0220
20%	62.90	57.50	40.25	21.97	55%	40.93	0.65	34,637	0.0220
15%	83.11	77.71	54.40	21.97	40%	61.14	0.74	34,637	0.0220
10%	103.32	97.92	68.54	21.97	32%	81.35	0.79	34,637	0.0220
5%	148.23	142.83	99.98	21.97	22%	126.26	0.85	34,637	0.0220