

**Project Name:** Glandwr Mill

% Exceedance Probability	Flow upstream of abstraction [l/s]	Abstraction [l/s]	Abstraction as percentage of upstream flow	Residual flow downstream of weir [l/s]	Residual flow as percentage of upstream flow	Penstock Headloss [m]	Combined Turbine & Generator Efficiency [%]	Power output [kW]	Yield [kWh]
5%	1359	90.0	6.6%	1269	93.4%	0.71	77%	8.76	3,835
10%	973	90.0	9.2%	883	90.8%	0.71	77%	8.76	3,835
15%	807	90.0	11.2%	717	88.8%	0.71	77%	8.76	3,835
20%	640	90.0	14.1%	550	85.9%	0.71	77%	8.76	3,835
25%	550	90.0	16.4%	460	83.6%	0.71	77%	8.76	3,835
30%	459	90.0	19.6%	369	80.4%	0.71	77%	8.76	3,835
35%	398	90.0	22.6%	308	77.4%	0.71	77%	8.76	3,835
40%	336	90.0	26.8%	246	73.2%	0.71	77%	8.76	3,835
45%	295	90.0	30.5%	205	69.5%	0.71	77%	8.76	3,835
50%	254	90.0	35.4%	164	64.6%	0.71	77%	8.76	3,835
55%	224	90.0	40.3%	134	59.7%	0.71	77%	8.76	3,835
60%	193	90.0	46.6%	103	53.4%	0.71	77%	8.76	3,835
65%	167	87.5	52.4%	80	47.6%	0.67	77%	8.54	3,739
70%	141	69.3	49.1%	72	50.9%	0.44	76%	6.80	2,976
75%	119	53.9	45.3%	65	54.7%	0.27	77%	5.42	2,375
80%	97	38.5	39.7%	59	60.3%	0.15	73%	3.71	1,623
85%	78	24.9	32.1%	53	67.9%	0.07	67%	2.21	968
90%	58	11.2	19.3%	47	80.7%	0.01	41%	0.61	268
95%	42	0.0	0.0%	42	100.0%	0.00	0%	0.00	0
100%	22	0.0	0.0%	22	100.0%	0.00	0%	0.00	0

Annual Totals 57,972

Turbine down time for maintenance in days per year 5

Estimated annual generation in kWh 57,178

Capacity Factor 75%

Catchment area:	10.753 km2
Run-off:	0 mm
Gross Head (Static Head):	13.59 m
Net Head (Dynamic Head) at Design Flow:	12.9 m
Mean Flow (Annual Daily Flow ADF)	426 l/s
Abstraction regime (Percentage take above HOF)	70%
Hands Off Flow (HOF) Exceedance	95%
Hands Off Flow (HOF)	42 l/s
Max Turbine Flow or Design Flow	90.0 l/s
Min Turbine Flow as %age of max flow	5%
Min Turbine Flow	5 l/s
Q95/Qmean Ratio	0.1
Q10/Qmean Ratio	2.28
Max hourly abstraction (Design flow x 3600 sec)	324.0 m3
Max daily abstraction (Max hourly abstract x 24h)	7,776.0 m3
Max Annual abstraction (Max Daily Abstraction x 365 days)	2,838,240 m3

## Flow Duration Curve for Glandwr Mill (Afon Dwyntant)

### Annual Flow Duration Curve:

Low-Flow Estimates from LowFlows  
www.hydrosolutions.co.uk

Glandwr Mill Existing Weir

Natural FD series at annual resolution

Basin-name: Glandwr Mill Existing Weir

Outlet at: SH 633 175

(Based on catchment characteristics derived at grid-resolution of 20 m)

Annual mean flow 0.43 m<sup>3</sup>/s

Q95 0.042 m<sup>3</sup>/s

P (%)	Q (m <sup>3</sup> /s)	(Scaled) Q [lps]
1	5	1.359
2	10	0.973
3	20	0.64
4	30	0.459
5	40	0.336
6	50	0.254
7	60	0.193
8	70	0.141
9	80	0.097
10	90	0.058
11	95	0.042
12	99	0.022

LowFlows Runoff 1249 mm

LowFlows Rainfall 1703 mm

Catchment Area 10.753 km<sup>2</sup>

BFI 0.46

LowFlows Map 64

Average Flow

426

lps



