



Barr River hydro scheme

Monthly report – August 2024

1 Summary

Am exceptional August due to very high rainfall. Some operational issues with a lack of alert following a power cut leading to significant lost generation.

2 Monthly generation & revenue

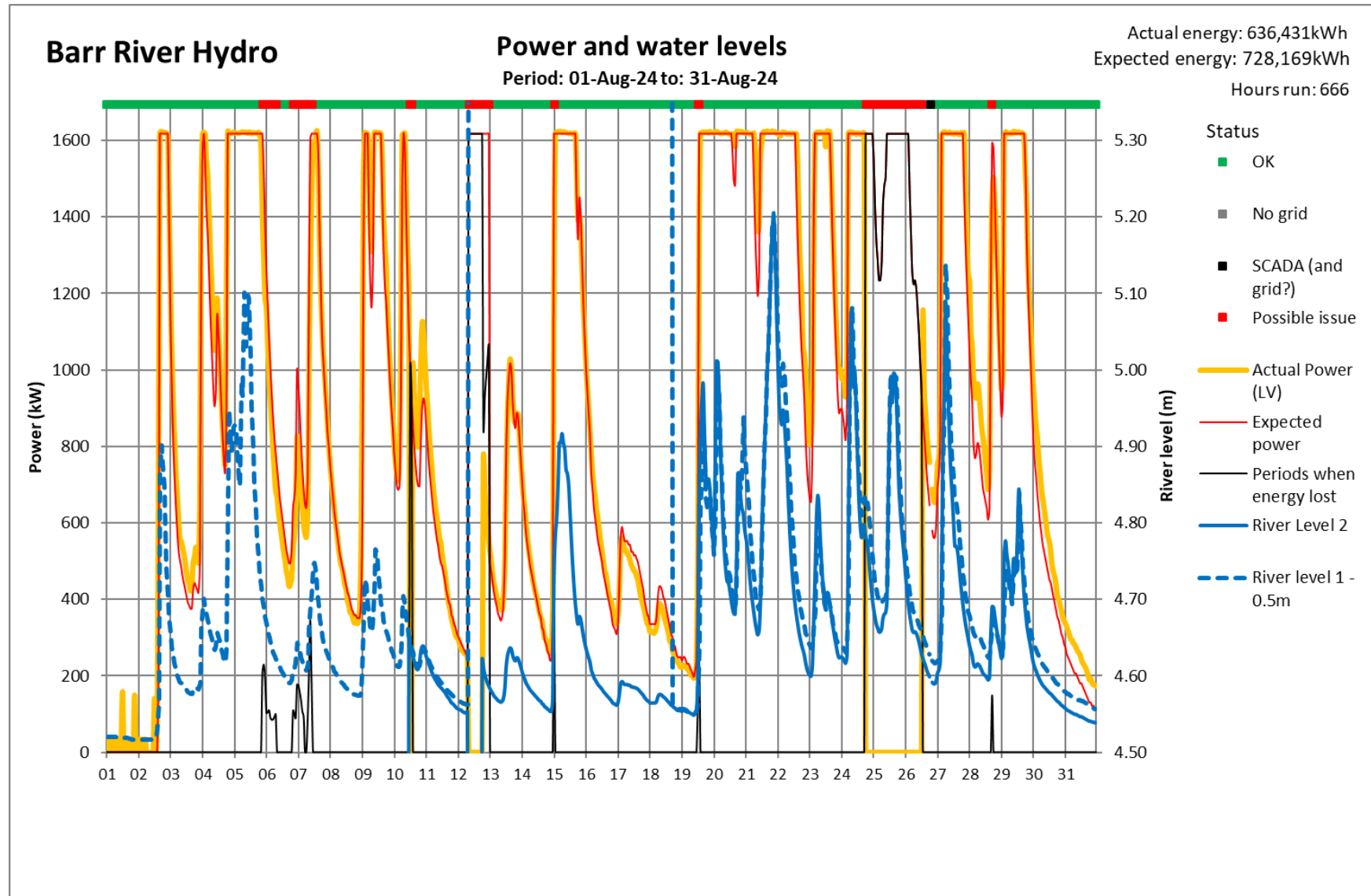
Parameter	Value
Actual generation (FIT meter), kWh	636,431
Average generation in month, kWh	308,927
Forecast generation in month (P50), kWh	280,601
Actual relative to forecast	226.8%
Rainfall relative to 1991-2020 average by month	201%
Calculated generation ¹ kWh	728,169
Actual relative to calculated generation, kWh	-91,738
Actual relative to calculated generation, %	-12.6%
Approximate revenue in month ²	£156,069

¹ Calculated generation is based on river level data and seeks to establish the expected generation with no performance issues.

² Export revenue based on reported export and estimated GDUoS charges.

Export meter	Value
Export, kWh	627,245
Variance to generation, kWh	-9,186
Variance to generation, %	-1.4%

3 System reporting



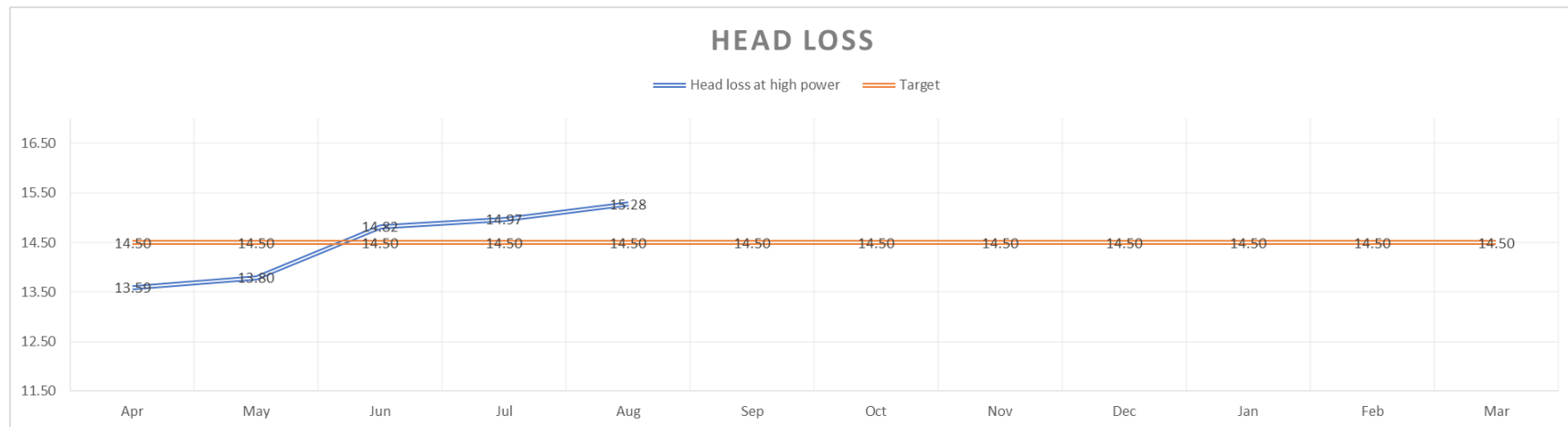
3.1 Scheme anomalies to calculated generation

Date/time	Details	Action required
12/8/2024	Tripped off due to blown fuse from lightening strike.	Used messenger to alert for need for presence on site. Fuse replaced by Douglas.
16-18/8/2024	Slight under performance due to blown surge protector affecting data.	Surge protection device swapped and sensible data received.
24-26/8/2024	Powercut on the 24th resulted in a breaker trip (F006). No email alert sent, only an alert for an F003 which typical requires no action. GHC spotted the turbine was not running in the morning of the 26th and requested a manual reset of the breaker.	Email sent to CINK regarding the lack of alert. Discussing with Cink.

3.2 Other system events

Date/time	Details	Action required
10/8/2024	Several blown fuses due to lightening strike (R1, C1, R2, and C2). Bluenergy also found a blown fuse for RL 2 sensor	Fuses replaced.
15/8/2024 8:00	TG1: F003 High reactive energy	No impact, turbine running.
20/8/2024 23:00	Alert email received. No issued noted with turbine operation	
26/8/2024	Windows 11 update	Scada appears to be functioning normally.

3.3 Head loss – head loss increasing. GHC to obtain quotes for the pigging of the scheme.



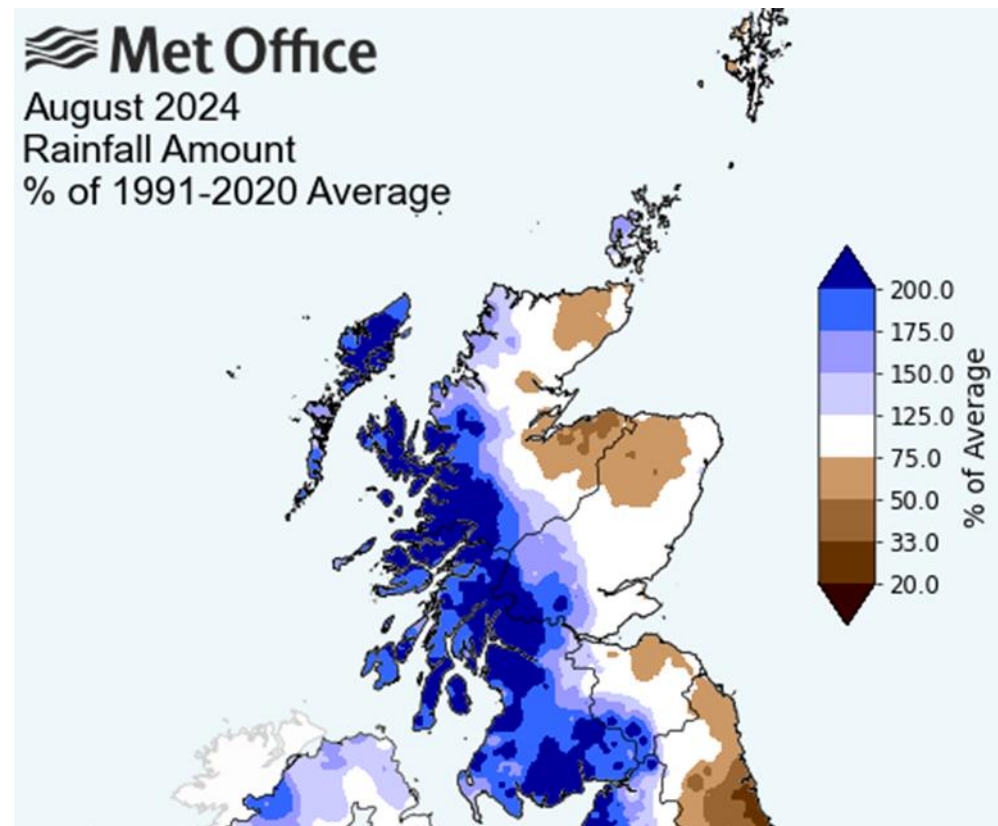
3.4 Temperatures – limited data points

Parameter	Temperature at or near full power, °C	Alert level, °C	Parameter	Temperature at or near full power, °C	Alert level, °C
Generator DE bearing	42	85	Generator winding 1	71	145
Generator NDE bearing 1	48	85	Generator winding 2	68	145
Generator NDE bearing 2	51	85	Generator winding 3	72	145
Turbine room	26	30	Power cabinet (RG1)	35	42

3.5 Vibration

Parameter	Vibration at or near full power, mm/s	Alert level, mm/s	Parameter	Vibration at or near full power, mm/s	Alert level, mm/s
Generator DE	0.48	3.0	Generator NDE	1.24	3.0

4 Rainfall



Rainfall this month (rain gauge), mm	308
Western Scotland rainfall in month with respect to 1991-2020 long term average	201%

5 Scheme annual performance summary

FY 2024/5	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Actual generation kWh	298,851	170,950	236,233	302,216	636,431								1,008,250
Average generation since commissioning	244,074	240,920	198,801	351,584	308,927	342,342	593,249	597,546	467,890	563,949	559,368	279,361	1,035,377
Forecast generation (P50)	369,360	226,766	188,561	195,146	280,601	387,431	582,631	618,214	620,057	695,941	554,678	611,047	979,833
Actual relative to forecast	80.9%	75.4%	125.3%	154.9%	226.8%								102.9%
Rainfall relative to 1991-2020 average by month	174%	102%	81%	70%	201%								107%
Calculated generation kWh	301,701	175,752	236,233	302,398	728,169								1,016,084
Variance to calculated generation kWh	-2,850	-4,802	Nil	-182	-91,738	-	-	-	-	-	-	-	-7,834
Variance to calculated generation %	-0.9%	-2.7%	Nil	-0.1%	-12.6%								-0.8%
Approximate revenue	£72,485	£40,444	£56,850	£73,285	£156,069								£243,063
Capacity factor (monthly)	25.6%	14.2%	20.3%	25.1%	52.8%								21.3%
Industry wide RoR capacity factor	43.5%	11.4%	20.8%	18.2%									23.5%
FY 2023/4	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Actual generation kWh	240,542	57,453	111,100	374,109	360,348	431,554	434,771	406,551	667,311	502,737	582,749	241,042	4,410,267
Average generation since commissioning	247,605	424,386	286,501	165,261	174,610	297,736	672,489	693,043	368,179	594,556	547,677	298,520	4,770,561
Forecast generation (P50)	369,360	226,766	188,561	195,146	280,601	387,431	582,631	618,214	620,057	695,941	554,678	611,047	5,330,433
Actual relative to forecast	65.1%	25.3%	58.9%	191.7%	128.4%	111.4%	74.6%	65.8%	107.6%	72.2%	105.1%	39.4%	82.7%
Rainfall relative to 1991-2020 average	83%	45%	81%	152%	73%	145%	83%	74%	137%	81%	106%	92%	96%
Calculated generation kWh	243,307	59,162	112,194	377,850	418,162	438,789	445,408	428,068	672,901	536,047	620,238	250,456	4,602,582
Variance to calculated generation kWh	-2,765	-1,709	-1,094	-3,741	-57,814	-7,235	-10,637	-21,517	-5,590	-33,310	-37,489	-9,414	-192,315
Variance to calculated generation %	-1.1%	-2.9%	-1.0%	-1.0%	-13.8%	-1.6%	-2.4%	-5.0%	-0.8%	-6.2%	-6.0%	-3.8%	-4.2%
Approximate revenue	£18,747	£7,087	£14,675	£52,099	£50,104	£60,181	£148,850	£137,974	£227,701	£170,888	£205,490	£81,339	£1,182,212
Capacity factor (monthly)	20.6%	4.8%	9.5%	31.0%	29.9%	37.0%	36.1%	34.9%	55.4%	41.7%	53.5%	20.0%	31.2%
Industry wide RoR capacity factor	20.7%	5.7%	6.0%	27.5%	25.0%	36.0%	40.0%	45.0%	46.0%	43.3%	59.8%	37.2%	32.7%

