



# Barr River hydro scheme

## Monthly report – April 2024

### 1 Summary

A reasonable month ahead of the long term average on the back of decent rainfall.

### 2 Monthly generation & revenue

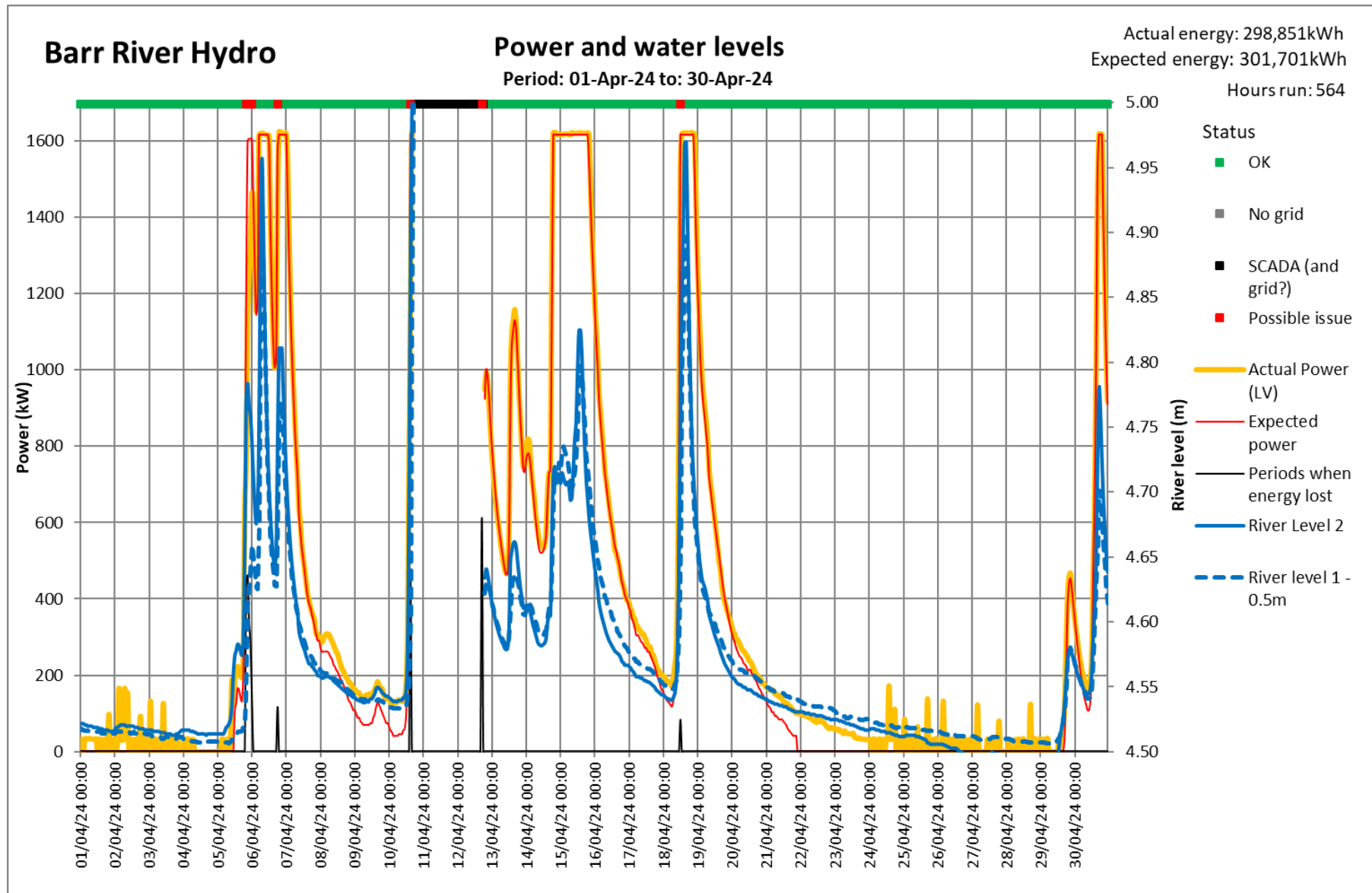
| Parameter                                       | Value   |
|-------------------------------------------------|---------|
| Actual generation (FIT meter), kWh              | 298,851 |
| Average generation in month, kWh                | 244,074 |
| Forecast generation in month (P50), kWh         | 369,360 |
| Actual relative to forecast                     | 80.9%   |
| Rainfall relative to 1991-2020 average by month | 174%    |
| Calculated generation <sup>1</sup> kWh          | 301,701 |
| Actual relative to calculated generation, kWh   | -2,850  |
| Actual relative to calculated generation, %     | -0.9%   |
| Approximate revenue in month <sup>2</sup>       | £72,485 |

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

<sup>2</sup> Export revenue based on reported export and estimated GDUoS charges.

| Export meter                | Value   |
|-----------------------------|---------|
| Export, kWh                 | 294,624 |
| Variance to generation, kWh | -4,227  |
| Variance to generation, %   | -1.4%   |

### 3 System reporting



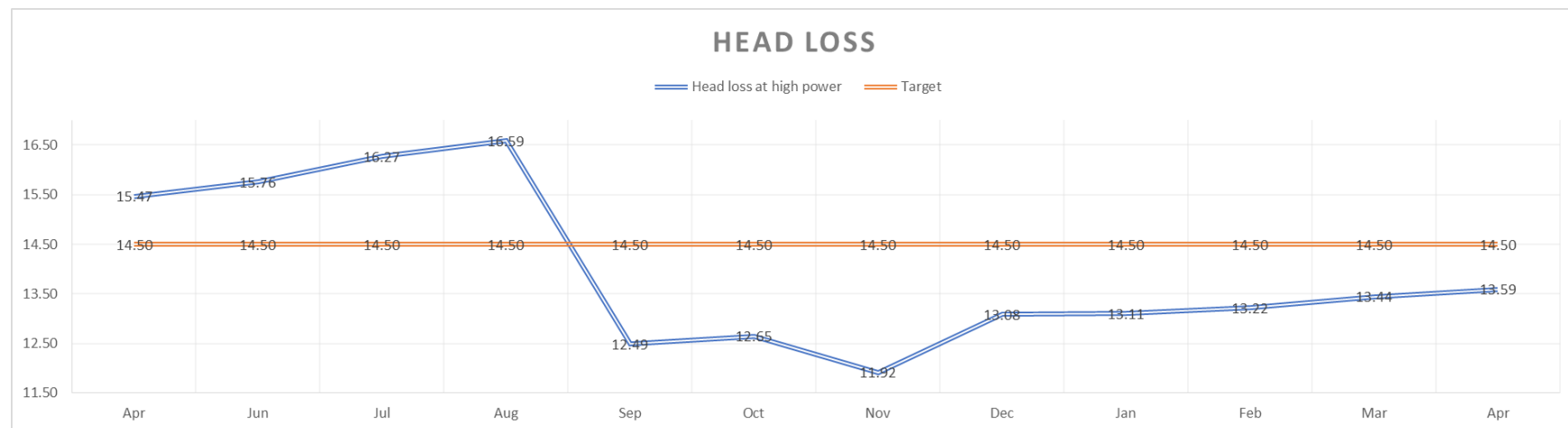
### 3.1 Scheme anomalies to calculated generation

| Date/time | Details                                                                                                                                                                                                                    | Action required                                                                                                                                                          |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/4/2024 | 4pm-6pm Email alerts followed by message from Nick. Faults not fully on display when connected via TeamViewer. Could not access SCARDA via VPN. Logged on via TeamViewer and confirmed fault F006. Nick reset approx. 6pm. | Issue with fault display has been resolved with Cink. It was caused by two simultaneous Teamviewer windows being open. Cink have now made modifications to prevent this. |

### 3.2 Other system events

| Date/time    | Details      | Action required                                                                                                                |
|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------|
| 10-12/4/2024 | Missing data | This was caused by the HMI freezing which was resolved during the reset above. We suspect that this did not affect generation. |

### 3.3 Head loss



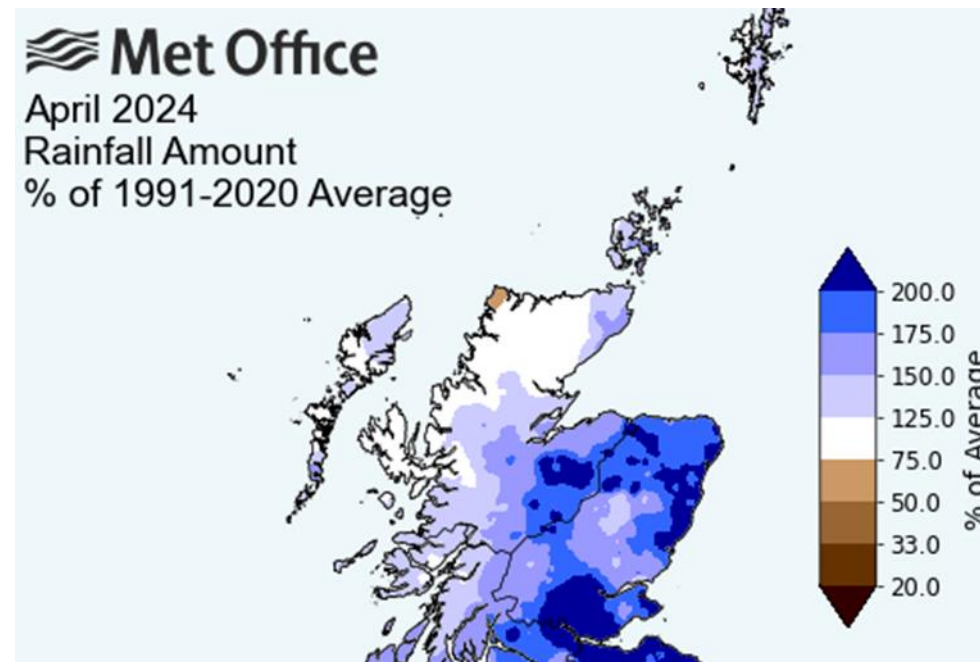
### 3.4 Temperatures

| 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    | 35                                    | 85              |  | Generator winding 1 | 64                                    | 145             |
| Generator NDE bearing 1 | 42                                    | 85              |  | Generator winding 2 | 61                                    | 145             |
| Generator NDE bearing 2 | 44                                    | 85              |  | Generator winding 3 | 65                                    | 145             |
| Turbine room            | 20                                    | 30              |  | Power cabinet (RG1) | 29                                    | 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 | 0.43                                  | 3.0               |  | Generator NDE | 1.21                                  | 3.0               |

## 4 Rainfall



|                                                                                |      |
|--------------------------------------------------------------------------------|------|
| Rainfall this month (rain gauge), mm                                           | 156  |
| Western Scotland rainfall in month with respect to 1991-2020 long term average | 174% |

## 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 |         |         |         |         |         |          |          |          |          |          |         | 298,851    |
| 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 | 244,074    |
| 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 | 369,360    |
| Actual relative to forecast                     | 80.9%   |         |         |         |         |         |          |          |          |          |          |         | 80.9%      |
| Rainfall relative to 1991-2020 average by month | 174%    |         |         |         |         |         |          |          |          |          |          |         | 174%       |
| Calculated generation kWh                       | 301,701 |         |         |         |         |         |          |          |          |          |          |         | 301,701    |
| Variance to calculated generation kWh           | -2,850  | -       | -       | -       | -       | -       | -        | -        | -        | -        | -        | -       | -2,850     |
| Variance to calculated generation %             | -0.9%   |         |         |         |         |         |          |          |          |          |          |         | -0.9%      |
| Approximate revenue                             | £72,485 |         |         |         |         |         |          |          |          |          |          |         | £72,485    |
| Capacity factor (monthly)                       | 25.6%   |         |         |         |         |         |          |          |          |          |          |         | 25.6%      |
| Industry wide RoR capacity factor               | 36.8%   |         |         |         |         |         |          |          |          |          |          |         | 36.8%      |
| 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%      |

