

February 2021

## ONWARD INTO THE FUTURE

The refurbishing and upgrading process was completed by early December and Archie passed all the final checks with flying colours, allowing us to restart more or less on schedule. The new control system is a vast improvement on the old one, although we still need to sort out the website connection to allow the generation figures to be displayed in real time. The sluice gate hydraulics were moved outside the engine house to make space for the new cabinets, which is not ideal; we are looking at possible ways to deal with this.

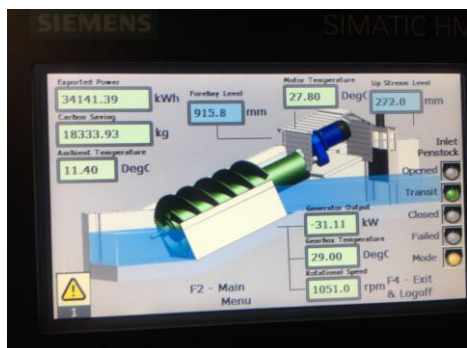
In spite of not commencing generation until December 9<sup>th</sup>, Archie was able to take advantage of the copious rainfall that month to generate 25.852 MWh of electricity in December, largely because the new variable speed system means that he can now operate at higher river levels than was previously possible. We have yet to test what happens at lower levels, but are optimistic that we will also see an improvement there. The overabundance of rain in January did curtail generation somewhat (for further details, see the item on the next page), but Archie still managed to generate 14.215 MWh before “rain stopped play”.



## JANUARY SHARE OFFER

We had a fantastic response to our January share offer, whose main objective was to raise additional funds to pay for the recent renovation of Archie’s sluice gate hydraulics, new control system and upgrade to variable speed. We set what we thought would be an ambitious target of 25,000 shares, which would take us to just under our permitted total of 150,000 shares. However, by the time the offer closed at midnight on January 31<sup>st</sup> we had received over 50 share applications! Although the share offer was oversubscribed, the Board of Directors opted to reduce the larger applications to enable us to accept all the applications and share offers will be sent out as soon as possible. We were especially pleased to find many of the applications were from new members who live in the local area, which will help support THNM’s long term sustainability. Thank you all, and a special welcome to our new members!

## CARBON SAVINGS



Our spiffy new control panel, pictured on the left showing the readings on January 10<sup>th</sup>, gives us a lot more information than previously available. The most interesting figure is probably at the top left, the “Exported Power”, which shows the total power generated since the new system was installed. However, in addition to the more obvious things such as the power being generated and the river levels (assisted by the two new head sensors installed as part of the upgrade), it also tells us how much carbon has been saved, which works out as just over 0.5 kg for every kWh generated (530 kg for every MWh).

How is this calculated? It appears to be based on how much CO<sub>2</sub> would be created by a coal-powered power station generating the same amount of electricity. Although the UK now generates less than 5% of its electricity from coal (down from 40% in 2012), it does use it as a top up source when needed so it seems fair to say Archie does indeed prevent something close to this amount of CO<sub>2</sub> entering the atmosphere. So, given that Archie has now generated over 1,448 MWh since September 2008, that’s over 767 metric tons of carbon!

## BEACH PARTIES, NEW MILLS STYLE!

Normally, clearing the intake means donning the waders and standing chest-deep in muddy water trying to extract dead tree branches, as shown in the picture on the right, but not this January. Unfortunately, this year two particularly heavy rainfall events coincided with efforts further upstream to shore up a collapsing river wall on the Sett with bags full of rocks and sand, much of which was subsequently washed down by the flood waters and deposited right at Archie's intake.



Routine clearing operations



Mid January: the beach appears

Archie's Angels made their first attempt to clear the accumulated stones and pebbles in mid-January once the river levels had fallen enough to make it safe to go into the river. Unfortunately, when the intake gets blocked the build-up goes beyond what you can see on the outside, extending all the way into the space under the decking, so the sluice gate was well and truly jammed. As there was another major rainfall forecast for the following couple of days, the Angels gave it up as a bad job and went home to recover from their labours.

The second rain storm at the end of January deposited even more stones and a huge amount of sand on top of the

existing beach. It was now possible to walk

on the beach dry shod (though a bit chilly for flip-flops) and volunteers wearing wellies took up the fight, digging a trench to allow the river water to reach the inlet and scraping as much of the interior sand out through the bars as possible. Once the channel was excavated, additional assistance from an expert with a chain block and tackle managed to get the sluice gate open a few inches and Archie began to help. The screw began turning (but not



Late January: the beach grows bigger!



generating at this point) and sucking the accumulated sand and rocks down and expelling them below the weir, much to the elation of the watching Angels, some of whom had to scramble quickly to the bank to avoid being swept off their feet as the ground beneath them was sucked away. In an amazingly short period of time, the channel was cleared sufficiently to get the gate open further and allow Archie to start generating electricity, albeit at fairly low levels initially.

We had occasional help from passers-by, including this young man who helped shift some of the sand. A future member of Archie's Angels?

## SAD DEMISE OF THE FISH SCULPTURE

Unfortunately, the dead tree next to the tail race that had been carved into a wonderful sculpture evoking fish jumping up the weir succumbed to the bad weather at the end of last year. It has given visitors to Archie, especially the children, a lot of pleasure over the years and will be missed by all.

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