

ENERinTOWN Case Study

Energy use in the Raw Water system in Coolbawn Regional Water Supply

Client North Tipperary County Council Water Services

Overall objective Implementing low cost measures to optimize the use and cost of electricity to facilitate pumping water supplies from the lake water source to the plant balance tank.

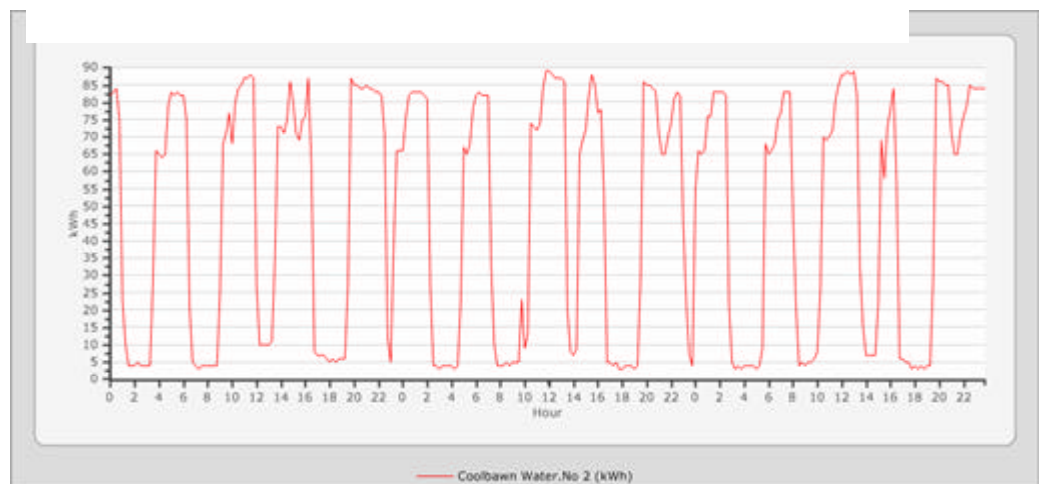
Object data



The station supplies water from 2 wells to a reservoir that is also fed from another mountain source. It pumps against a substantial head of 127 meters and pumps approximately 2500 M³ per day into the reservoir. The two pumps are identical, save for the control of one via a variable speed drive.

Initial Situation

- ? Two pumps controlled by a level in the balance tank. 1st low level started the first pump, the second started the assist.
- ? Levels were very near which resulted in both pumps operating together.
- ? Daily Energy use approximately 900kwh.
- ? One pump had a higher efficiency than the other, and started first, but this did not maximize the benefit of higher efficiency pump.



Quarter hour usage in Coolbawn: note plant is either on or off

Realisation model

Energy training was delivered to the caretaker of the station and then a brainstorming session was organized between the caretaker, some water services engineers and some energy experts. Once the data was available this was invaluable.

Measures implemented

- ? Full understanding of flow versus power established.
- ? Changes to the start level were made, ensuring that the controls significantly favored the higher efficiency pump.
- ? It resulted in one pump in operation longer and a shorter run with two pumps, resulting in a lower head loss.
- ? Before Cost/M³ was 1.78 cent
- ? Cost/ M³ after was 1.62 cent

Old Peak

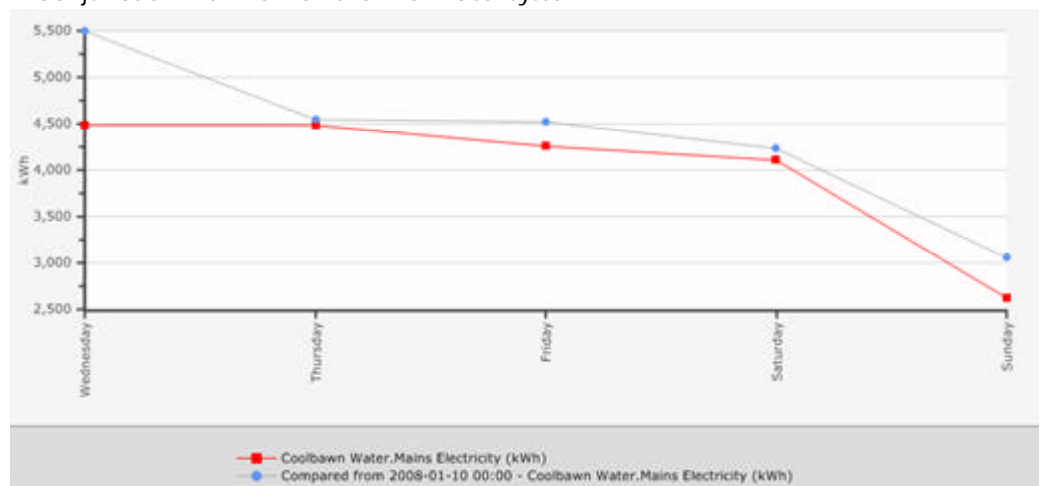
New Peak



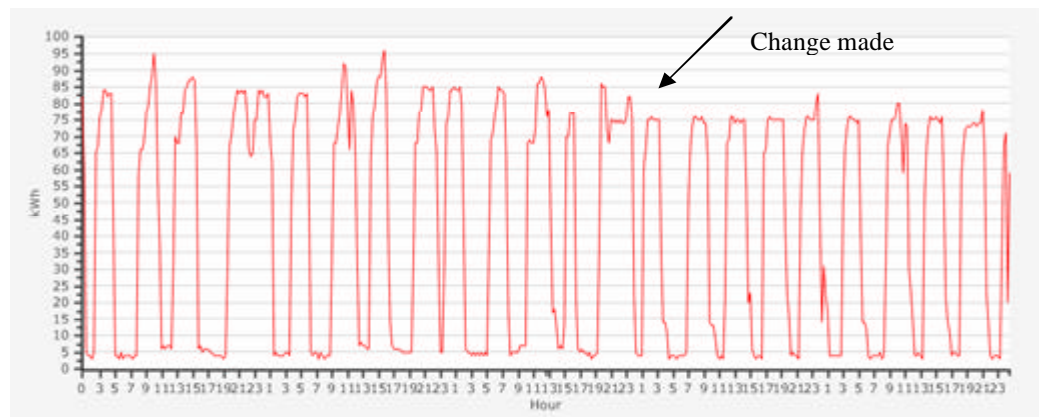
Coolbawn quarter hourly usage: grey is before, red is after.

Results

Energy cost savings of roughly €4,000 Euro or 10% of the RW costs were saved. This is approximately 2% of the annual spend from the total plant. It also will increase the plant load factor which will allow for a lower MIC and /or Maximum demand in conjunction with work on the final water system.



Coolbawn Full day usage: Blue before, red after. Average drop was calculated to be 77, but is proving to be higher at around 120 (potentially other factors at play).

**Benefits for the clients**

- ? Decrease in price per M³ pumped
- ? €4000/ annum saved
- ? Staff trained on energy efficiency
- ? More balanced load to make wind electricity supply more attractive.

Assistance provided

TEA (energy analysis)
Bureascope Ltd (Energy Monitoring data)

Contact

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