

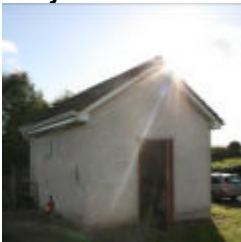
ENERinTOWN Case Study

Energy use in the Fanagowan water supply station

Client Tipperary Town Council/ South 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 borehole water source to the central reservoir. In addition to this, recommend options to ensure next years upgrade is completed with energy efficiency in mind.

Object data

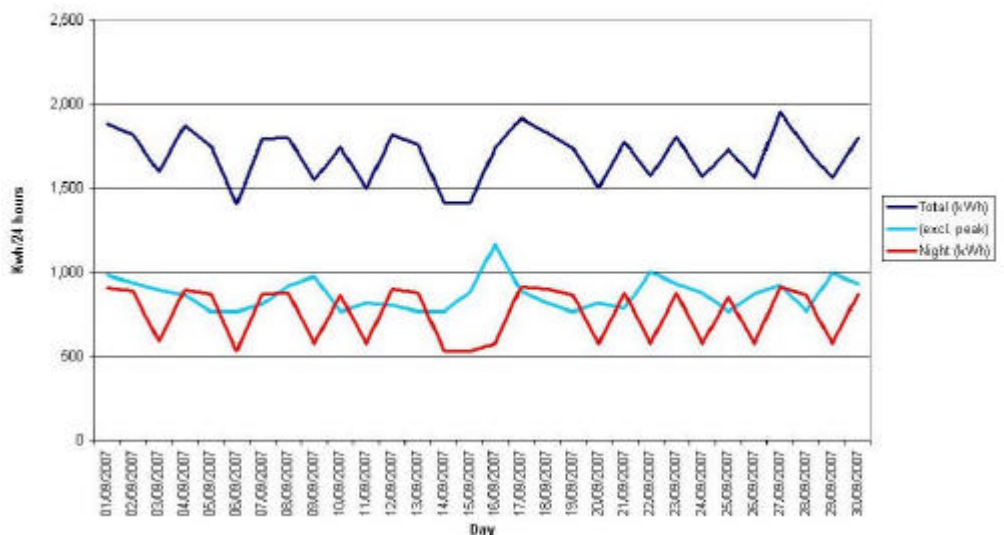


The station supplies water from 2 wells to a reservoir that is also fed from another mountain source. It pumps against a substantial head of 127 meters and pumps approximately 2500 M3 per day into the reservoir. The two pumps are identical, save for the control of one via a variable speed drive.

Initial Situation

- ? 1st pump running twenty four hours a day every day at 53Hz, pumping 88 M³ per hour.
- ? Second pump running one night in 3 from 8pm until 10am on an Ad hoc basis of control.
- ? Energy utilization was high, the first pump operating at a rate of .73kwh/m³ and the second operating at a rate of .62 kwh/ M³. Clearly the increase of 10 M³/ hour cost a substantial 1.4 kwh/M³.
- ? Winter peak reduction was accommodated by not switching on the second pump.

September 2007 Energy Use



Realisation model

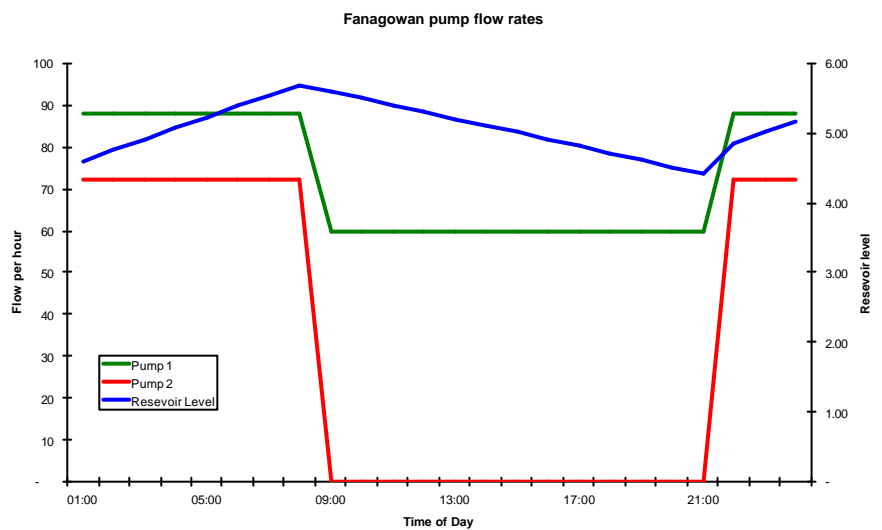
Energy training was delivered to the caretaker of the station and then a brainstorming session was organized between the caretaker, some water services engineers and some energy experts. Once the data was available this was invaluable.

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Measures implemented

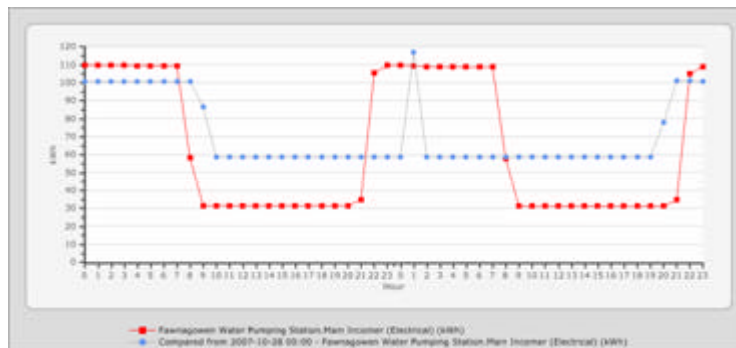


- ? Full understanding of flow versus power established.
- ? Simple time controls were installed.
- ? Optimisation of the pumping controls were implemented ensuring that both pumps were run for night rate every night, and reduced to a single pump on a lower speed during the day.
- ? Switch off is not possible for the winter peak, as it has an effect on the water quality in the well.
- ? Caretaker's work load reduced
- ? SMS error warnings are being considered in addition to active level control.



Results

The Energy bill for this pumobing station will be 40% less in 2008 in comparison to 2007. In addition to the 9% reduction in cost of energy from the ESB, Energy cost savings of roughly €28,000 Euro or 36% per year are reached by measures to increase the night use percentage from 52% to 71%. In addition there is a net drop of units used of 9% due to the running of the pumps at a lower speed.



Benefits for the clients

- ? Decrease in price per M³ pumped from 8c/M³ to 6c/M³
- ? €35,000/ annum saved
- ? Money available to spend on leak detection
- ? Staff trained on energy efficiency
- ? Staff available for other work
- ? Knowledge amongst other water sites of how important controls are.
- ? More balanced load to make wind electricity supply more

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Assistance provided

Cantwell Electrical Services Ltd. (time controls installation)
Bureascope Ltd (Energy Monitoring data)

Contact

Aidan Finn/ Bernie O'Brien
Tipperary Town Council
Dan Breen House
Tipperary town,
Co. Tipperary
+353 62 80700
Aidan.finn@southtippcoco.ie

Paul Kenny
Tipperary Energy Agency
Craft Granary
Church St,
Cahir,
Co. Tipperary.
+353 52 43090
pkenny@tea.ie