

Energy Efficiency Division

Water Pumping Station

Save energy,
get profit





MEASUREMENT

Flow – Pressure – Electrical power

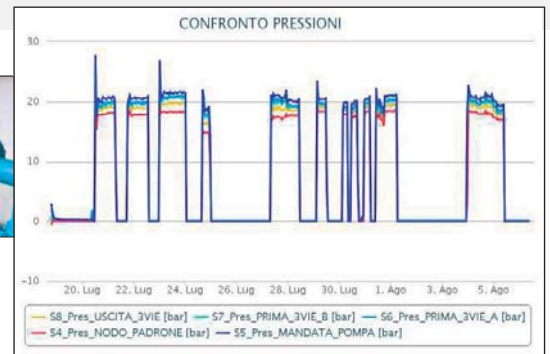
4 months of continuous collection of data (1 minute sample) in order to define the baseline of consumption, peaks and temporary change of load. Thanks to these information together with localized and distributed pressure loss in the pipe plant it was possible to determinate the correct working point.



DATA ANALYSIS

- 4 mono-stadium centrifugal pumps 75 kW
- Consumption: 877.820 kWh
- Non optimized efficiency 45-52%

One of the main problem has been identified as to a manual valve “half-closed” to reach the flow rate desired.



ACTION

- Fully open the out valve
- Installation of a pressure sensor to drive 2 inverters (not 4) and reduce the output pressure
- Electrical motors have been changed to IE3 and some pipes has been changed too



MONITORING

The system is now supported by a continuous monitoring to prevent problems (specific alarms settled as per customer requirements) and at the same time to verify that the efficiency level reached is maintained.

Data	Rendimento_Pompa_P2	Lavoro_Pompa_P2	Potenza_ele_Pompa_2
20/07/2015 12:00	45,68	21,82	47,76
20/07/2015 13:00	29,63	15,93	53,76
20/07/2015 14:00	32,39	17,13	52,88
20/07/2015 15:00	32,96	17,36	52,68
20/07/2015 16:00	32,36	17,11	52,88
20/07/2015 17:00	32,25	17,1	53
20/07/2015 18:00	32,6	17,2	52,76
20/07/2015 19:00	31,27	17,51	52,64
20/07/2015 20:00	32,54	17,17	52,76
20/07/2015 21:00	32,5	17,12	52,68
20/07/2015 22:00	32,28	17,07	52,88
20/07/2015 23:00	32,49	17,11	52,68
21/07/2015 00:00	32,86	17,31	52,68
21/07/2015 01:00	32,4	17,13	52,88
21/07/2015 02:00	33,43	17,61	52,68
21/07/2015 03:00	31,93	16,95	53,08
21/07/2015 04:00	32,84	17,36	52,84
21/07/2015 05:00	33,02	17,4	52,68
21/07/2015 06:00	32,41	17,07	52,68
21/07/2015 07:00	15,87	8,77	55,24



RESULTS

The single pumps efficiency reached is now 66% in media, and the total electrical consumption has been reduced of almost 15%.

RESULTS

BEFORE: **2.603.473 kWh/year**
 AFTER: **2.217.331,20 kWh/year**
 DIFFERENCE €: **81.089,57 Euro/year**
 ROI: **11 months**