

SES System Efficiency Service optimises load distribution in the pumping system



Waterworks

An energy efficiency analysis performed for a public water authority is intended to make the system conditions of a waterworks transparent and provide solutions for increasing profitability.

Energy savings of over 15 % possible

Two multistage, vertically installed pumps of the same size are operated in alternating mode to pump drinking water between the waterworks and two elevated water tanks at different geodetic heights. Operation is characterised by frequent pump starts and standstill periods for more than 70 % of the time. The comprehensive system analysis shows that the installed pumps' output is much higher than the actual water consumption. The measured operating points and the increased effective vibration velocities indicate a high level of wear.

Recommendation:

KSB recommends distributing the system load: the flow losses in the transport line would be considerably lower if the flow rate were reduced and the number of operating hours at the same time increased. In addition, a retrofitted variable speed system would protect both pumps by reducing the number of starts. By operating the pumps close to the best efficiency point, 14.8% of energy can be saved.

More information

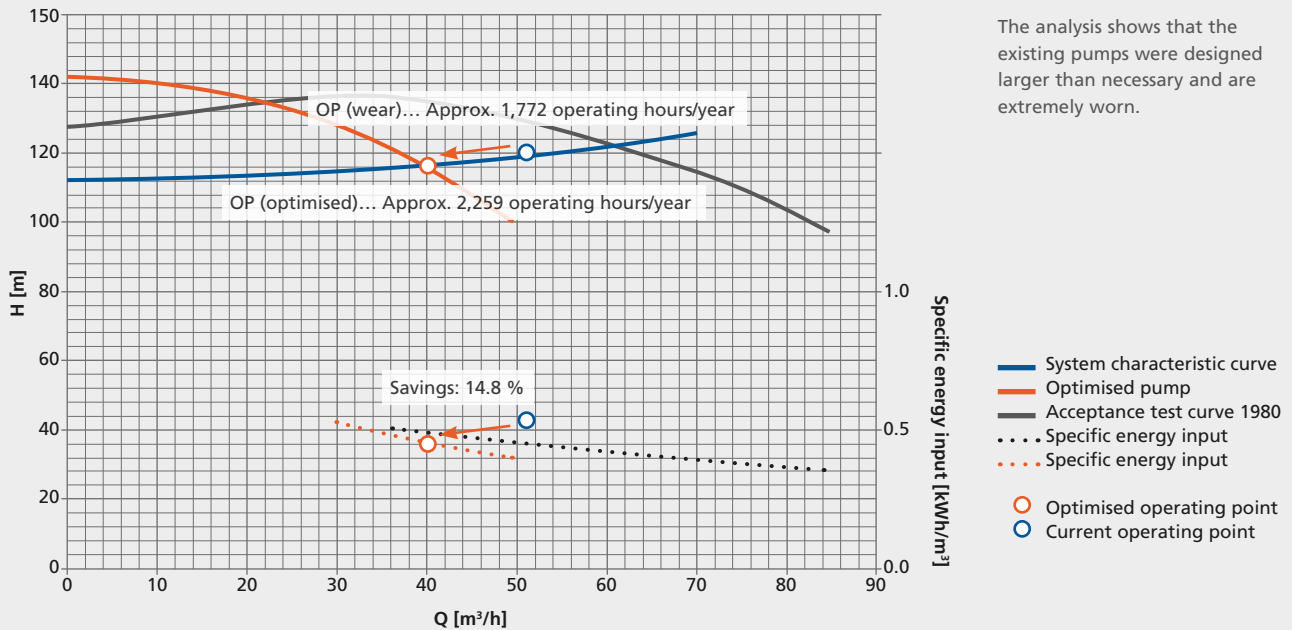
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Operating data of the installed pumps



Costs saved thanks to SES

Energy costs per year before optimisation	€ 48,348
Energy costs per year using a variable speed system	€ 41,148
Savings p.a.	€ 7,200
Costs for a variable speed system	€ 11,500
Payback period	1.6 years
Energy savings	45,425 kWh
CO ₂ savings	28 t



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