

The MSF: Enough is enough

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Received 29 December 2009; Accepted 26 April 2010

ABSTRACT

The energy consumed by the predominantly used multi stage flash (MSF) desalting system in Kuwait and other Gulf Co-operation Countries (GCC) are discussed in detail. The MSF consumed energy in the range of 5–6 times that of the latest preferred seawater reverse osmosis (SWRO) desalting system. The gravity of the consumed high energy of MSF is felt by the \$2185 M estimated cost of energy used for the year 2008 to produce 550 Mm³ of water distillate in Kuwait. This cost was compared with that of the SWRO, if used, and estimated to be \$261 M. The suggestion of increasing MSF performance by nano-filtration (NF) pretreatment is also discussed. This can remove some of the scale-forming constituents from feed water, which allows raising the top brine temperature (TBT) and the flashing range and thus the capacity. While the capacity increase is badly needed in Kuwait, the high energy cost heavily outweighs the benefits of the MSF capacity increase by using NF. The MSF drains these countries energy resources. Building new MSF units should be stopped.

Keywords: MSF; SWRO; Energy cost; Nanofiltration; Energy consumption

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