# The Development of Power and Desalination Plant

Presented by Mr Bill Holland of PB Power
on Tuesday the 14th January 2003
Joint with the Institute of Plant Engineers
at the University of Salford

'Fresh Water From the Sea' was the subject of a presentation to the Manchester Branch by Bill Holland BEng(Hons),CEng,MIMechE and George Atkinson BSc(Hons),CEng,FIMechE of PB Power Ltd, Manchester.

Increased consumption of fresh water world wide has had a severe impact particularly in areas of rapid population growth and more so in developing areas of low rainfall.

Extracting fresh water from the sea is not new but the distillation process, multi effect distillation, has been more suited to small installations and is thermally wasteful. Reverse osmosis is a more recent process but has had a bad press in the past on large installations but does currently provide about 50% of world wide capacity where it is more economic in small units especially using brackish or low salinity feed water.

Multi Stage Flash Distillation is the process used for large installations having a well established record for reliability and low maintenance costs.

PB Power Ltd has developed the MSF process to increase efficiency without significantly increasing the heat transfer area. The process uses a power generating gas turbine and utilises the exhaust gas to generate the steam for a brine heater. A power balance is achieved by having a back pressure steam turbine in the brine heating circuit and when necessary heating the gas turbine exhaust with supplementary burners. Modification of the condensate cooler using product recycle significantly increases the efficiency of the installation.

The interesting background to the installations in the Middle East and the maintenance and operational experience provided common ground with many of the Members own experience in allied industries.

The Chairman of the meeting Bill Holland proposed a vote of thanks to Bill and George for a fascinating presentation.