analogous conditions. ODN made cost assessments based on suppliers quotations and ODN field data. These have to be taken as a very realistic figure. Estimates were also made of plant parisitic losses and overall electric to electric efficiencies. Plant costs were divided into energy related and power related costs. For the H_2/Cl_2 system, these were \$456/kW and \$73/ kW h. For the H_2/Br_2 system the costs were \$431/kW and \$67/kW h. Overall efficiencies, including parasitic, inverter and rectifier losses were 67% for the H_2/Cl_2 system and 70% for the H_2/Br_2 system.

Recent publications

1 P. M. Spaziante, G. C. Scioli, R. Trota and A. Perego, Hydrogen/chlorine energy storage system: *Safety, Performance and Cost Assessment, Final Report, Contract No. 451857-5, February, 1979.*

OPTIMIZATION STUDY OF HYDROGEN/HALOGEN ENERGY STORAGE SYSTEMS

Clarkson College

This investigation includes a multidimensional optimization study of the H_2/Cl_2 and H_2/Br_2 systems. Data from BNL, General Electric Co. and Oronzio de Nora were used in these studies. An objective function was defined as the plant capital equipment cost divided by the product of the efficiency times the charge energy input. Plant operating conditions which minimized this function were determined. A significant finding was that increasing the chlorine pressure decreased overall plant cost. This minimized pump cost and parasitic pumping losses. Another significant finding was that the optimum current density of operation from a system point of view was between 100 mA/cm^2 and 200 mA/cm^2.