

Regulatory Factors Affecting the Financial Impact of
Conservation Programs on Utilities

Edward Kahn, Chris Pignone, Joseph Eto,
James McMahon and Mark Levine
Lawrence Berkeley Laboratory

ABSTRACT

Conservation programs affect utility earnings through specific rate-making procedures. In this paper we simulate the effect of exogenous conservation programs on the earnings of Detroit Edison (DE) and Pacific Gas and Electric (P.G.&E.). Revenue losses associated with conservation programs are estimated on a rate schedule level using specific tariff structures and sales frequency distributions. The benefits of conservation are avoided fuel and capacity costs. These are estimated using simulations of utility reliability and production costs.

Since both DE and P.G.&E. have inverted residential rate schedules, we expect revenue losses to exceed avoided fuel costs. Revenue lost is disproportionately in the top (highest price) rate tier. This price is usually above marginal fuel cost, even for P.G.&E., where the marginal fuel is often oil and gas. Revenue loss net of avoided fuel is greater for DE than P.G.&E. because DE has low marginal costs and a steeply inverted rate schedule.

In addition to tariff design, P.G.&E differs from DE in that it benefits from a regulatory stabilization mechanism which prevents operating losses from unanticipated conservation. No state other than California has such a mechanism. In addition to this loss-preventing factor, P.G.&E. experiences reduced capacity costs from conservation. Because DE has substantial excess capacity, there is no such benefit in their case.