

Seminario

Optimización y Equilibrio

Expositor

Léonard von Niederhäusern

CMM- U. de Chile & U. de O'Higgins

Titulo

Modeling energy markets with bilevel games

Abstract:

Once upon a time, electricity was merely a fairy tale. Since it has been mastered and distributed though, ensuring the supply-demand balance has always been a challenge. Instead of constantly adapting the production to the demand, a new approach consisting in adapting the demand to the production arose about thirty years ago. This approach is called demand-side management, and can be applied through various techniques, notably pricing: offering time-dependent electricity prices can influence the demand.

After a small introduction on bilevel programming, we consider a bilevel energy market model where suppliers offer time-dependent prices to a set of clients who optimize their energy consumption with relation to the offered prices. With this general framework in mind, two approaches are presented: in the first one, the prices of all suppliers but one are assumed to be known, and the problem consists in finding the best response of the remaining supplier, whereas in the second one, there is a dynamic competition among the suppliers. These problems being intrinsically complex, we develop theoretical results leading to interesting solving methods, and prove their utility with some numerical results.

Miércoles 03 de julio a las 16:00 hrs. Sala de Seminarios John Von Neumann CMM, Beauchef 851, Torre Norte, piso 7.