

## **Vlasios Voudouris**

**Abstract:** We propose a novel framework for experimental designs of liberalised energy markets. Here, we describe a detailed market simulation whereby the strategies of power generators emerge as a result of a stochastic profit maximisation learning algorithm based upon the GAMLSS (Generalized Additive Models for Location Scale and Shape) statistical framework. The ACEWEM framework, which integrates the agent-based modelling paradigm with formal statistical methods to represent better real-world decision rules, is designed to be the foundation for large custom-purpose experimental studies inspired by computational learning. The model therefore makes a methodological contribution in the development of an energy-economy model of repeated auctions with capacity and geospatial constraints. It also makes an applied contribution by providing a more realistic basis for identifying whether high energy prices can be ascribed to problems of market structure or exercise of market power by energy generators.