

Computer Science Seminar Series

National Capital Region

Incentive Mechanisms to Enable Fair Renewable Energy Trade in Smart Grids

Speaker: Dr. Fei Li
George Mason University
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1:00PM-2:00PM, NVC T3

Abstract

In this talk, we talk about how to build up a renewable/green energy trading market for users in smart grids. Recently, more and more residential homes are equipped with solar panels to generate and consume renewable green solar energy. Unfortunately, there usually exists a mismatch between the supply and the demand of renewable energy for individual users. Thus, a market in which users can trade surplus green energy in order to serve their future demands is highly desired. In building up such a market, we need to guarantee fairness among non-cooperative users and provide an efficient incentive mechanism based on up-to-date battery and grid technologies. In this work, we propose a market model for trading green energy, design provable efficient incentive algorithms, and conduct experiments on real traces under various performance measures. We conclude that our scheme outperforms existing approaches in terms of fairness while it maintains the best-achievable green energy resource usage.

Biography



Fei Li is an associate professor of Computer Science at George Mason University. He got his PhD in computer science from Columbia University and joined George Mason University in 2007. Dr. Li's research include scheduling theory and algorithms, online and approximation algorithms. He also works in areas of power management in computing systems, economic studies of scheduling policies, and cloud computing and security. Dr. Li's research has been supported by NSF, DARPA, and Army.