The Mathematics of Energy Markets

Prof.Tiziano Vargiolu

Department of Mathematics "Tullio Levi-Civita", University of Padova
Email: vargiolu@math.unipd.it

Timetable: 12 hrs. First lecture on May 4th, 2023 09:00, (dates already fixed, see Calendar of Activities at https://dottorato.math.unipd.it/calendar), Torre Archimede, Room 2BC30.

Course requirements:

- Knowledge of the basic concepts of stochastic processes.
- Knowledge of basic mathematical finance could be helpful but not required.

Examination and grading: Seminar.

SSD: MAT/06 Probability and Mathematical Statistics, SECS-S/06 Mathematical Methods for Economics, Actuarial Science and Finance.

Course contents: The program (with emphasis on the mathematical sophistication) will be fixed with the audience according to the mathematical level of the students.
A tentative list of contents is the following:

- An overview of financial and energy markets. Basic contracts (forwards, call and put options) and their evaluation.
- Structured contracts: swing and virtual storage contracts.
- Stochastic control and evaluation of structured contracts.
- Optimal installation of power plants and impulsive/singular control.