

Electricity Market Design

Graduate Center Masterclass

Speaker: Lion Hirth

Date and Time: 22 January 2024, 9h00-13h30
23 January 2024, 9h00-15h00

Place: Elenor Ostrom Hall, DIW, Mohrenstr. 58, 10117 Berlin

The course in a tweet. This is an advanced course on electricity markets: forward, spot, balancing and retail. It is a course at the intersection of energy, economics and finance that focuses on public policy and regulation: how should power markets be designed with security of supply and social welfare in mind?

The significance of electricity markets & trading. Electricity markets and the prices that emerge from trading on these markets drive the energy transition. It is traders, rather than power plant engineers, who decide which power station is dispatched. It is the prices that provide the incentives for investment and innovation and that they drive out (or not) polluting generators. It is the market that will ultimately determine if new energy technologies thrive or dive. But robust electricity market design is not only foundational for the energy transition, it is also foundational for energy poverty and for security of supply: in other industries, perverse incentives cause waste of resources, in electricity markets they can cause large-scale blackouts. Electricity market design is complicated, but too important to be left poorly understood.

Topics. After reviewing economic models of price setting in electricity markets (Merit Order Model and Screening Curve Model) and price drivers (fuel and carbon markets, weather), we will study short-term electricity markets that drive plant dispatch: spot markets, imbalance settlement and balancing reserve auctions. A long-time trader will share his first-time experience as a guest speaker. In the second half of the course, we will study the long-term investment incentives: financial markets and capacity mechanism. We will also discuss alternative ways to give electricity markets spatial granularity (zonal pricing, nodal pricing) and study retail markets. While this course is centered around European markets, in the last session we will contrast this to US market design.

Learning objectives. This course trains students in liberalized electricity markets, in particular in Europe. More specifically, it has a dual objective. First, it equips students with the knowledge to design robust and efficient electricity markets. Second, it trains students in trading on electricity systems (sometimes by exploiting weaknesses in market design).

About the Instructor. Lion Hirth is Professor of Energy Policy at Hertie School. He is an energy economist and expert in renewable energy, electricity market design, and energy policy. It is his mission to figure out how to design energy systems, markets, and policies in a world in which wind and solar provide the bulk of our energy needs energy. Lion works closely with practitioners, advising decision-makers from across the private and public sectors, including Germany's Ministry for Economic Affairs and Energy, the International Energy Agency, and the European Commission. During the energy crisis, he served as a key adviser to the German government.

If you would like to register for this masterclass, please email to the Graduate Center gradcenter@diw.de. Registrations will be accepted on a first-come, first-served basis.