

Structure of this book

- PART I: HOW TO TRADE AND TRANSPORT ELECTRICITY ACROSS NATIONAL BORDERS?
 - Chapter 1: Why did we start with electricity markets in Europe?
 - Chapter 2: Who gets the rights to trade across borders?
 - Chapter 3: How do you calculate border trade constraints?
 - Chapter 4: Who pays for the network when trade is international?

Electricity is not transported in trucks or by rail as it cannot easily be stored. It is delivered instantly when we need it through the cables that connect our homes to a system that includes many power plants that jointly produce the electricity we need when we use it. It is one of the engineering wonders of our time. To allow electricity markets to function, we need many rules and regulations that clarify the roles and responsibilities of all involved. European countries have only been willing to harmonize these rules when it has been necessary to capture the benefits from integrating markets across national borders. We have often only done the right thing after trying everything else. In this first part of the book, we highlight the issues that we have faced since the start of the integration of electricity markets in Europe.

- PART II: HOW TO COMBINE ELECTRICITY TRADING WITH SYSTEM SECURITY TO KEEP THE LIGHTS ON?
 - Chapter 5: Who is responsible for balancing the system?
 - Chapter 6: How to organize system operation and connection requirements?
 - Chapter 7: How to ensure adequate investment in power plants?

For other products and services, markets produce price signals that limit shortages. If a shortage seems to be on the horizon, prices go up and investment follows. If shortages do occur, the users of the product or service who are last in line have to wait. In the case of electricity, if there are shortages there is rationing, so we share the pain. Candles at home can be cosy for a few hours but they provide little consolation when you are trapped in a lift or a metro. Without electricity, nothing in our society works. All kinds of safeguards have therefore been put in place to intervene in electricity markets when needed. These interventions tend to be more national than European, but some progress has been made in cross-border collaboration in Europe to reduce costs and to limit market distortions. In the second part of the book, we discuss how this works.

- PART III: HOW TO PUT THE CITIZEN AT THE CENTRE OF THE ENERGY TRANSITION?
 - Chapter 8: How to put the citizen at the centre of the energy transition?

We used to think of citizens as electricity consumers. When electricity markets were introduced to replace the national monopolies that dominated the sector, the promise was that it would result in cheaper prices and better service. Soon after markets were introduced, Europe also started to decarbonize its electricity sector by subsidizing renewable energy and energy efficiency. The energy transition made the system more sustainable but drove up prices, as about a third of an electricity bill is made up with taxes and levies to recuperate costs from subsidies that have been granted. To keep them on board, citizens have now been offered a new deal. Instead of remaining passive consumers, they can become active by producing their own electricity with smart buildings, by engaging in peer-to-peer trade or by joining energy communities. In the third part of the book, we discuss these recent developments and their impact on electricity markets.