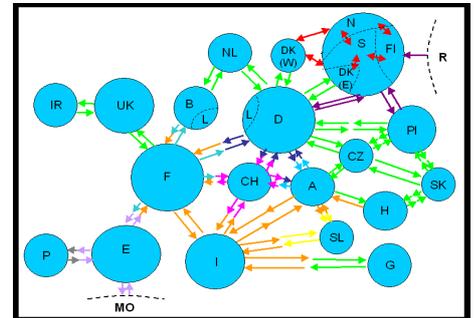


Engineering, Economics and Regulation of the Electric Power Sector



G (H level) 3-0-9
ESD.162, 15.032J, 6.695J
M-W: 10:30–12:00 (E51-376)
F(recitation): 10:30-12:00 (E51-149)

Instructors
Ignacio Perez-Arriaga
Carlos Batlle
Christopher Knittel



The course presents an in-depth interdisciplinary perspective of the electric power sector, with regulation providing the link among the engineering, economic, legal and environmental viewpoints. Electricity markets, incentive regulation of networks, reliability of service, renewable energy sources, contemporary network issues, retail competition, tariff design, distributed generation, rural electrification, multinational electricity markets, environmental impacts, future of utilities and strategic sustainability issues will be addressed under both traditional and competitive regulatory frameworks.

The course will make available the engineering, economic and legal basis to critically evaluate the regulatory instruments that are used worldwide for electricity supply activities that are performed as regulated monopolies or under competitive conditions. Most of these regulatory approaches are also of application in other industrial sectors.

The knowledge acquired in the course will provide the comprehensive understanding of electric power systems that will be needed for research in this field, as well as for future professional activities in the energy sector, whether in industry, government or consulting.

Prerequisites: Permission by instructor. Preferably with background in policy analysis, microeconomics and/or engineering/science.

Ignacio J. Pérez-Arriaga is “permanent” visiting professor at CEEPR, MIT. Ph.D. and M.S. in Electrical Engineering from MIT and Electrical Engineer from Comillas University, Madrid, Spain. Full Professor of Electrical Engineering, Director of BP Chair on Sustainable Development, founder and Director for 11 years of the Instituto de Investigación Tecnológica (IIT) at Comillas University. Director of training of European energy regulators at the Florence School of Regulation, European University, Florence, Italy. Commissioner at the Spanish Electricity Regulatory Commission (1995-2000) and Independent Member of the Single Electricity Market Committee of Ireland (2007-2012). Member of the Board of Appeal of the European Agency for Cooperation of Energy Regulators (ACER). Member of the Spanish National Academy of Engineering and IEEE Fellow. Author of the White Paper on regulatory reform of the Spanish power sector (2005). Review Editor of the IPCC 5th Assessment Report. Consultant and lecturer for governmental agencies or electric utilities in more than 30 countries. Author of 200 papers and supervisor of more than 30 doctoral theses and 100 master theses.

Christopher Knittel is the William Barton Rogers Professor of Energy Economics in the Sloan School of Management and the Co-Director of the Center for Energy and Environmental Policy Research at the Massachusetts Institute of Technology. He joined the faculty at MIT in 2011, having taught previously at UC Davis and Boston University. Professor Knittel received his B.A. in economics and political science from the California State University, Stanislaus in 1994 (*summa cum laude*), an M.A. in economics from UC Davis in 1996, and a Ph.D. in economics from UC Berkeley in 1999. His research focuses on environmental economics, industrial organization, and applied econometrics. He is a Research Associate at the National Bureau of Economic Research in the Productivity, Industrial Organization, and Energy and Environmental Economics groups. Professor Knittel is an associate editor of *The American Economic Journal -- Economic Policy*, *The Journal of Industrial Economics* and *Journal of Energy Markets*.

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Stellar site: <http://stellar.mit.edu/S/course/ESD/sp15/ESD.162/index.html>