The Future of Electricity: Papers in Honor of David Newbery

August, 2008

Abstract

This paper discusses the lessons learned from electricity sector liberalization over the last 20 years. The attributes of reform models that have exhibited good performance attributes are identified, drawing on empirical analysis of market structure, behavior and performance in many countries. Wholesale and retail market competition and network

regulation performance evidence are discussed. Technical, economic, and political challenges to improving the efficiency of what continue to be partial liberalization programs in many countries are considered.

Pages 43-62

Some Applied Economics of Utility Regulation, A Paper in Honor of David Newbery

By Stephen Littlechild (Senior Research Associate, Judge Business School, University of Cambridge, and Emeritus Professor, University of Birmingham.)

Abstract

This paper seeks to bring to the attention of regulatory economists and policymakers the existence of some approaches to utility regulation that have hitherto received little or no attention in the economics literature. It begins by noting that regulatory actions have discouraged certain kinds of retail contracts in the UK that are offered in Nordic countries, almost extinguished retail competition in Ohio, and distorted the market for merchant interconnectors in Australia. In contrast, Argentina secured an efficient appraisal and implementation of transmission expansions by empowering users and severely limiting the role for regulation. Some US and Canadian jurisdictions have fostered the emergence of negotiated settlements that exhibit considerable innovation, and greater benefits for all parties than would have been possible with the conventional regulatory approach. These examples of the actual regulatory world can inform the work of theorists and policymakers.

Pages 63-94

The Future of Electricity (and Gas) Regulation in a Low-carbon Policy World

By Michael G. Pollitt (ESRC Electricity Policy Research Group and Judge Business School, University of Cambridge)

Abstract

This paper discusses whether a new paradigm is necessary for independent economic regulation of electricity (and closely associated natural gas) systems. We begin by summarizing the nature of the traditional model of electricity reform and the place of economic regulation within it. Next we outline the drivers for changing the current model of electricity regulation, namely, the maturity of the existing model, the reality of changing circumstances, and the coming of age of climate change concern. We go on

to discuss the premises on which a new model of regulation should be based. These are: remembering the successes of the current system of regulation; a new focus on processes not just outcomes; a recognition of the economics of climate change; and the appropriate management of uncertainty. We then highlight the key elements of a new model for regulation: new processes of regulation; new models of competition and the issues raised by a focus on climate change. The paper draws heavily on the experience of the UK, but has direct implications for the rest of the European Union countries and for other countries whose regulatory systems mirror them.

Pages 95-124

Electricity Wholesale Markets: Designs Now and in a Low-carbon Future

By Richard Green (Institute for Energy Research and Policy, University of Birmingham, Birmingham)

Abstract

This paper compares electricity wholesale markets in the United States and Europe. The Standard Market Design in the US involves an independent system operator, nodal pricing with financial transmission rights, and integrated markets for capacity and ancillary services. In Europe, there are national, or occasionally zonal, spot markets run by companies independent of the transmission operator, and of the latter's purchases of ancillary services. As the amount of low-carbon generation increases, prices and transmission constraints are likely to become more volatile, increasing the need to adopt an efficient market design. In most respects, the US standard market design is likely to give better results than the European models.

Pages 125-148

The Future of Retail Energy Markets

By Catherine Waddams Price (ESRC Centre for Competition Policy, University of East Anglia)

Abstract

Britain was one of the first countries to introduce competition to retail energy markets in 1998; after a decade of choice, around half of its residential consumers have switched supplier. This paper presents evidence on consumer and supplier behaviour over the

decade since the markets were opened to assess the success of the ‘experience’ to date. The early debate about the value of extending choice to householders, in which David Newbery was amongst those who expressed doubts, remains to be resolved in an era of rising costs and increasing politicisation.

“While Britain has coped very well with wholesale market power, ending the domestic franchise and removing regulation from the retail supply margin has exposed households to considerable increases in those margins, as switching costs appear significant, and vertically integrated companies have been effective in exploiting their power.”

David Newbery, Market Design, EPRG working paper 0515 p.9, 2005

Pages 149-164

Markets vs. Regulation: A Role for Indicative Energy Planning

By Ignacio J. Pérez-Arriaga (Instituto de Investigación Tecnológica and BP Chair on Sustainable Development, ICAI, Universidad Pontificia Comillas, Madrid, Spain) and Pedro Linares (Instituto de Investigación Tecnológica and BP Chair on Sustainable Development, ICAI, Universidad Pontificia Comillas, Madrid, Spain; CBG, JFK School of Government, Harvard U.; and FEDEA)

Abstract

The energy sector worldwide is facing the enormous challenge of finding a path of economic, environmental, and social sustainability. This paper argues that, although markets are adequate instruments to achieve an efficient allocation of resources and to promote private initiative, the resolution of the sustainability challenge cannot be left only to market forces, but requires other complementary instruments, among which we highlight indicative energy planning. We discuss the role of indicative energy planning in the future of liberalized energy markets, and propose a general methodology for its implementation, as well as the identification of the major issues to be addressed.

Pages 165-182

Learning by Doing with Constrained Growth Rates: An Application to Energy Technology Policy

By Karsten Neuhoff (University of Cambridge, Faculty of Economics, Sidgwick Avenue,

Cambridge, UK)

Abstract

Learning by doing methodology attributes cost reductions of a technology to cumulative investment and experience. This paper argues that in addition market growth rates must also be considered. Historically growth rates have been limited in most sectors, thus allowing for feedback in the learning process. When market growth is below the 'optimal' rate, the marginal value of additional investment could be a multiple of the direct learning benefit. Analytic and numeric models quantify this impact – emphasizing the need for tailored technology policy in addition to carbon pricing. Implications for the modeling of endogenous technological change are discussed.