

## Preface

The state organisation responsible for coordinating the hydropower electricity system in Norway (“Samkjøringen”) contacted me in 1990 about the advanced plan for deregulating the electricity system, separating generation, transmission, and distribution and introducing a wholesale market for electricity. It was felt that insights about the fundamental nature of running an electricity system based on hydropower was somewhat lacking within the team of academic economists engaged to write background reports by the Oil and Energy ministry responsible for driving the reform of the electricity system.

When talking to engineers I was fascinated by the world of electricity, with its physical laws and weird concepts such as reactive power and electric phase angles. Externalities of hydraulic interdependence between river-based power stations and highly fluctuating loss and congestion externalities involved in a meshed transmission network had to be recognised. Furthermore, capturing all these elements required advanced mathematical methods of dynamic programming in a stochastic environment. My conclusion was that a market design that neglected these aspects did it at its own peril. I predicted volatile prices coming out of a competition between producers facing zero short-run variable costs and problems with investments coming forth sufficiently from a social perspective. However, I can safely say that my report had no impact whatsoever on the Norwegian electricity reform of 1991, that must be regarded, not the least by me, as being highly successful.

The main result of my report was that I became fascinated with hydropower economics and started to lecture on the topic at my department of economics at University of Oslo. However, I had difficulties finding texts that were suitable for economists. The field is well developed within engineering, but aspects of economics of hydropower were not so easy to come by. My great inspiration has been two papers by Hveding (1967, 1968). He was an engineer and general director of the electricity regulation body in Norway (NVE), and followed up the great tradition of engineers at Electricité de France (EDF) of writing exciting stuff that economists could also appreciate.

The Nordic Council research project Energy and Society, headed by Torstein Bye, gave me opportunities several times over the years to present my ideas at Nordic workshops, and made it possible to develop these ideas on an extended visit to Iceland.

It is the generous support by Norway's biggest hydropower producer, Statkraft that finally made it possible for me to develop my material into a book. Statkraft bought me free from my teaching and administrative obligation at my department for half a year. I especially thank Geir Holler for his trust in me, he also took my course in natural resources when I developed the hydropower theme, and Kjell Berger for providing me with data and reading parts of the manuscript and offering sobering comments.

I will also like to thank Tor Arnt Johnsen at NVE for encouraging me to carry out the project and helping me initially seeking finance. My colleague Atle Seierstad generously used his time to advise me on the use of mathematics, and I owe Kjell Arne Brekke warm thanks for enlightening me on uncertainty. Torstein Bye, Stein-Erik Fleten, Richard Green, Petter Vegard Hansen and Lennart Hjalmarsson have read parts of the manuscript and offered valuable comments. They are in no way responsible for remaining deficiencies.

I was fortunate to become a visiting fellow at International Centre for Economic Research (ICER) in Torino, which provided me with the perfect environment to write a book during spring 2006. I will like to thank Alessandra Calosso at ICER for excellent assistance, not the least in times of crisis, such as breakdown of my PC hard disk.

When Springer provided me with a 25-page manual on how to construct the special layout for the book, I knew I was in serious trouble with managing the last hurdle. Fortunately Marius Østli came to my rescue and did an excellent job of converting my manuscript in Word into the Springer layout standard. In addition he has provided solid support making the finishing touches to the manuscript.

Last, but not least, I want to thank Marisa for her support, inspiration, and understanding.

Finn R. Førsund  
Torino, 20 June 2007



<http://www.springer.com/978-0-387-73026-4>

Hydropower Economics

Forsund, F.R.

2007, XII, 266 p. 65 illus., Hardcover

ISBN: 978-0-387-73026-4