

Innovation in Liberalized Electricity Markets: A Comparison of Regulatory Incentives in California and Germany

Michael Holtermann

Program Director, ESMT Customized Solutions

Dr. Jens Weinmann

Lecturer, Berlin School of Economics and Law

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California within the US and Germany in the EU share structural similarities in their respective energy systems (as diversified generation portfolio, integration with neighbouring states, state and supra-state governing). Both countries face the challenge of transforming their aged 1960 and 70's asset base with central generation into 21st century energy systems with smart grids, decentralisation, integration of renewable energies and plug-in hybrids. In both countries, incentive schemes for innovation and system overhaul are intended to be implemented – or have already been implemented – in a setting of a partially liberalised, partially regulated electricity system.

Our research aims at understanding the coordination approaches for integrating regulation and incentive schemes for innovation towards a sustainable electricity system. The paper is based on semi-structured interviews with politicians from different levels, regulators, policy advisors, senior management of established energy companies, start-up entrepreneurs, and investors in the energy sector that have been conducted during Summer and Autumn 2008 in California and Germany. Among others, views of representatives of the California Air Resources Board (CARB), the California Public Utilities Commission (CPUC), the German Environmental Ministry and managers of several leading German and Californian electricity companies on the obstacles and complexities in effective regulation of incentive schemes in both countries are analysed. The paper examines the findings from the interviews under the hypothesis that in both California and Germany a form of regulatory entrepreneurship can develop in a dynamic regulatory setting with uncertainty about the optimal way ahead.

Depending on the embeddedness within a multi-level institutional context and the inherent path-dependence of property rights and ownership allocation in both settings, different strategies are chosen by the political and private decision-makers in order to foster innovation and regulatory change. The comparison reveals that in California, R&D endeavours to find ways how to mitigate climate change and transform to new energy systems are fuelled by private investment and a cluster of universities, start-ups and laboratories, whereas innovation in the German electricity sector is still predominantly induced by a top-down approach. While in Germany there are only a few regulatory institutions operating without an aligning framework, California historically has a lot of competing agencies, and attempts for coordination under a common guidance are made. Both institutional setups have specific advantages and traps. Innovation towards a sustainable electricity system could benefit from a regulatory design with the best of both worlds.