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Requirement analysis for autonomous systems and intelligent agents in future Danish electric power systems

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Article Abstract

Title:	Requirement analysis for autonomous systems and intelligent agents in future Danish electric power systems
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Abstract:	Denmark has already achieved a record of 20% penetration of wind power and now moving towards even higher targets with an increasing part of the electricity produced by distributed generators (DGs). In this paper we report work from a sub activity "subgrid design" of the EcoGrid.dk ¹ project. First we review innovative control architectures in electric power systems such as Microgrids, Virtual power plants and Cell based systems. We evaluate application of autonomous systems and intelligent agents in each of these control architectures particularly in the context of Denmark's strategic energy plans. The second part formulates a flexible control architecture for electric power systems with very high penetration of distributed generation. This control architecture is based upon the requirements identified in the first part. We also present development of a software framework to test such flexible control architectures.
Keywords:	Electric power system, distributed control, autonomous systems, intelligent agents

¹ EcoGrid project: <http://www.ecogrid.dk/>

Abstract

Keywords:
