

**Smart grids in the European Union:
Assessing energy security, regulation & social and ethical considerations.
Possible synergies with Africa**

**By
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Abstract

The purpose of this article is to provide an analysis of smart grids in the European Union (EU) as a way forward to reach de-centralized sustainable energy. It does so by assessing the energy security, regulatory, as well as social and ethical aspects of smart grids in the EU. The article represents a significant milestone in the up-scaling of the various aspects of smart-grid technology across the EU. This article deals with smart-grids deployment and their impact on energy security with a view to a stronger role of prosumers in the energy market. It also analyzes smart grids regulation; specifically, it examines the existing legal frameworks that impact smart grids in the EU. It outlines existing EU Directives and assesses the level of implementation of these Directives in various EU Member States. The article also assesses the extent to which the existing legal frameworks facilitate the development of smart grids and proposes areas of further regulatory consideration. The article then explores the social and ethical dimension of smart grids in the context of the collaborative economy, the circular economy, and digital technology, including cyber-security and data-management issues.

Keywords: Smart grids; Prosumers; Sustainability; Energy security; Demand response; Electricity storage; Collaborative economy; Circular economy; Cyber security; Data protection

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