

## **The Electricity Research Centre (ERC) & Sustainable Electrical Energy Systems: Ireland**

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### **Abstract**

The Electricity Research Centre (ERC) (<http://erc.ucd.ie>) is a unique collaboration between academia and major Irish and international electricity industry partners; it comprises 13 ERC Industry Members and is run by an Industry Board chaired by Mr Michael Tutty, the energy regulator. The ERC was established by Professor Mark O'Malley in 1991 and currently includes 30 people, based on a core group of engineering excellence in University College Dublin (UCD) and energy economics in Trinity College Dublin (TCD). Ireland has a unique renewable energy resource & technical environment, and ambitious government targets. The ERC has developed a unique ecosystem of partners including government bodies, the system operators, equipment suppliers, generators, ICT and technology companies including Intel, energy suppliers and energy management companies in addition to strong collaborative links with other research groups in Ireland, UK, Europe and the USA. In collaboration with these key stakeholders we have developed a research & demonstration programme to underpin the emergence of future integrated, smart and sustainable electrical energy systems. The challenges addressed include the integration and optimisation of very high, variable renewable penetrations (40% energy and above), the development of an active, smarter electricity network enabled by the deployment of information and communication technologies, facilitation of customer and utility demand management, and electrification of segments of the heat and transport markets.