



# The Transform Model™

The world's leading techno-economic modelling tool for electricity networks



Safer, Stronger,  
Smarter Networks

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## About the project

EA Technology has worked on the world's leading techno-economic modelling tool for electricity networks. The model determines the best investments for network operators to ensure that the grid can sufficiently meet the demands of the network in the future (looking at every year from now until 2050), in the most cost effective way possible.

### tech·no- ec·o·nom·ic



Techno-economic modelling draws in the operating characteristics of devices and their relationship to other technologies in one system, these are then analysed to determine costs and benefit of implementations.

“Enables smart and conventional distribution network solutions to be modelled side by side, and the best value options selected”

*The Second Annual Report of the Ofgem and DECC Forum*

## How is it being used today?

The model is utilised on license by all GB Distribution Network Operators (DNOs).

EA Technology continually feeds the model with updated data sets and enhancements through a governance process to ensure only the very latest information is used and to allow industry stakeholders to suggest refinements to the inputs or the structure of the model.

“World-leading’ in its approach to this challenging area”

*The Second Annual Report of the Ofgem and DECC Forum*

## Why do we need it?

Ultimately the project was devised to allow DECC, Ofgem and the GB Network Operators to understand the level of investment required in order to meet GB's targets on decarbonisation.

Initiated by the DECC/Ofgem Smartgrid Forum in 2012, the model was designed to determine the level of electrical network investment required to support the potential forecast of low carbon technologies (LCT's) such as electric vehicles, heat pumps and solar panels and other forms of distributed generation. These technologies will alter the way in which we consume (and produce) energy and it is vital to the future of our electricity grid to understand these changes and be able to respond to them accordingly.

“Ground-breaking smart grid evaluation model, Transform, completed to support the RIIO ED1 process”

*Ofgem and DECC*

## The role of EA Technology

EA Technology led the project to construct the model and assemble the original dataset, and was supported in this by several project partners, namely GL Noble Denton, Element Energy, Frontier Economics and Chiltern Power.

The project was funded through Energy Networks Association with support from the six GB DNO's and National Grid with financial contributions from EA Technology.

Subsequently there have been additional reviews and suggested improvements made to The Transform Model™, coordinated through EA Technology with additional input from Smarter Grid Solutions and Grid Scientific.

The dataset held within Transform is managed through a co-ordinated governance activity supported by the GB network operators. In addition, EA Technology continues to invest in the on-going development and enhancement of the Transform Model™.

## How does it work?

The Transform Model™ is a parametric representation of the electricity distribution network in Great Britain. To build a model of such scale is incredibly complex and requires high levels of technical expertise, industry knowledge and innovation, as well as excellent project management skills.

The model builds on data derived from a number of sources including distribution networks, local authorities, central government and a range of other sources allowing us to understand the demands currently placed on the electricity grid. It then overlays onto this the anticipated future demands that will come from various low carbon technologies. It does this by considering 'conventional' solutions (such as new cables and transformers) and 'smart' solutions (such as energy storage, real-time thermal ratings, demand side response, etc.).

Find out more on the Transform Model™, its use, and its outputs via the GB Smart Grid Forum homepage, available on Ofgem's website.



For more about this project please contact our Future Networks team on 0151 347 2221

## Global Footprint

We provide products, services and support for customers in 90 countries, through our offices in Australia, China, Europe, Singapore, UAE and USA, together with more than 40 distribution partners.



## Our Expertise

We provide world-leading asset management solutions for power plant and networks.

Our customers include electricity generation, transmission and distribution companies, together with major power plant operators in the private and public sectors.

Our products, services, management systems and knowledge enable customers to:

- Prevent outages
- Assess the condition of assets
- Understand why assets fail
- Optimise network operations
- Make smarter investment decisions
- Build smarter grids
- Achieve the latest standards
- Develop their power skills

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