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

technology

Transform Model®

www.eatechnology.com.au

Product Brochure

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.

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.

How is it being used today?

The Model has been used extensively around the world to support strategic decision making for network businesses and to inform regulatory submissions. Further, the model is utilised on license by all Great Britain distribution network operators.

The Transform Model is also being used by the UK Government to evaluate the impact of potential policy decisions (e.g. to investigate the network costs associated with greater incentivisation of heat pumps).

Why was the Transform Model created?

Initiated by the Department of Energy and Climate Change (DECC)/ the Office of Gas and Electricity Markets (Ofgem) Smartgrid Forum in 2012 in the UK, the model was designed to determine the level of electrical network investment required to support the potential forecast of Distributed Energy Resources (DERs) such as solar panel, electric vehicles, and other forms of distributed generation.

These technologies are altering 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.

The project was devised to allow DECC,Ofgem, and the Great Britain network operators to understand the level of investment required in order to meet Great Britain's targets on decarbonisation.

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.

Why do we need it?

Distribution network companies who are facing high and increasing penetrations of Distributed Energy Resources (DER) must determine how to allocate investment in a way that continues to meet the evolving needs of their customers, in the most effective and cost efficient way possible.

The decisions taken by a distribution network operator over the next few years can have a material impact on the network's ability to take advantage of the opportunities, and respond to the challenges and the associated costs of doing so.

The Transform Model supports distribution network companies to navigate those challenges and produce the right outcomes, to enable the energy industry to transition to a decentralised, democratised, digitalised, decarbonised world, efficiently and cost-effectively whilst maintaining the security and reliability of the network.

How does it work?

To support network transformation the Transform Model uses real world data and brings together an understanding of the interconnections between:

- Network Parameters
- Uptake scenarios of Distributed Energy Resources
- And the costs and benefits of different solutions

The tool delivers tailored investment profiles using an industry recognised, robust and transparent methodology.

Customers around the world use its outputs to:

- Provide evidence for network investment plans in regulatory submissions;
- Assess the cost-benefit of new smart grid and non-network solutions;
- And to test and plan for the impacts of new policies and incentives.

Find out more on the Transform Model®, its use, and its outputs, in the 'DER and LV management: Finding the least-cost strategy' Case Study, here.

Testimonials

"The modelling is extremely rigorous and takes into account a broad range of factors, including the mitigating impact of battery storage in absorbing some solar during the middle of the day, as well as the impact of local inverter Volt-VAr response, and the potential impact of tariff changes in shifting loads."

Bryn Williams – SA Power Networks

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

Ofgem and DECC Forum

"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

Global Footprint

At EA Technology we specialise in asset management solutions for owners and operators of power network assets.

Founded in 1966 we have over 50 years' experience in the industry and 6 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimise cost.

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Safer, Stronger, Smarter Networks

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