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Promoting choice and value for all gas and electricity customers

Regulatory Challenges for Renewable & Distributed Generation in the UK

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Presentation Structure

- Distributed Generation – current & future positions
- Ofgem's role
  - Distributed Generation Coordinating Group
  - Distribution price control
  - Grid Code review process
- Summary

Distributed Generation

Current & future positions

Energy White Paper - I

- Published February 2003 – four key objectives*
  - a path to a 60% reduction in carbon dioxide emissions by 2050 – real progress by 2020
  - maintain the reliability of energy supplies
  - promote competitive markets in the UK and beyond
  - every home to be adequately and affordably heated

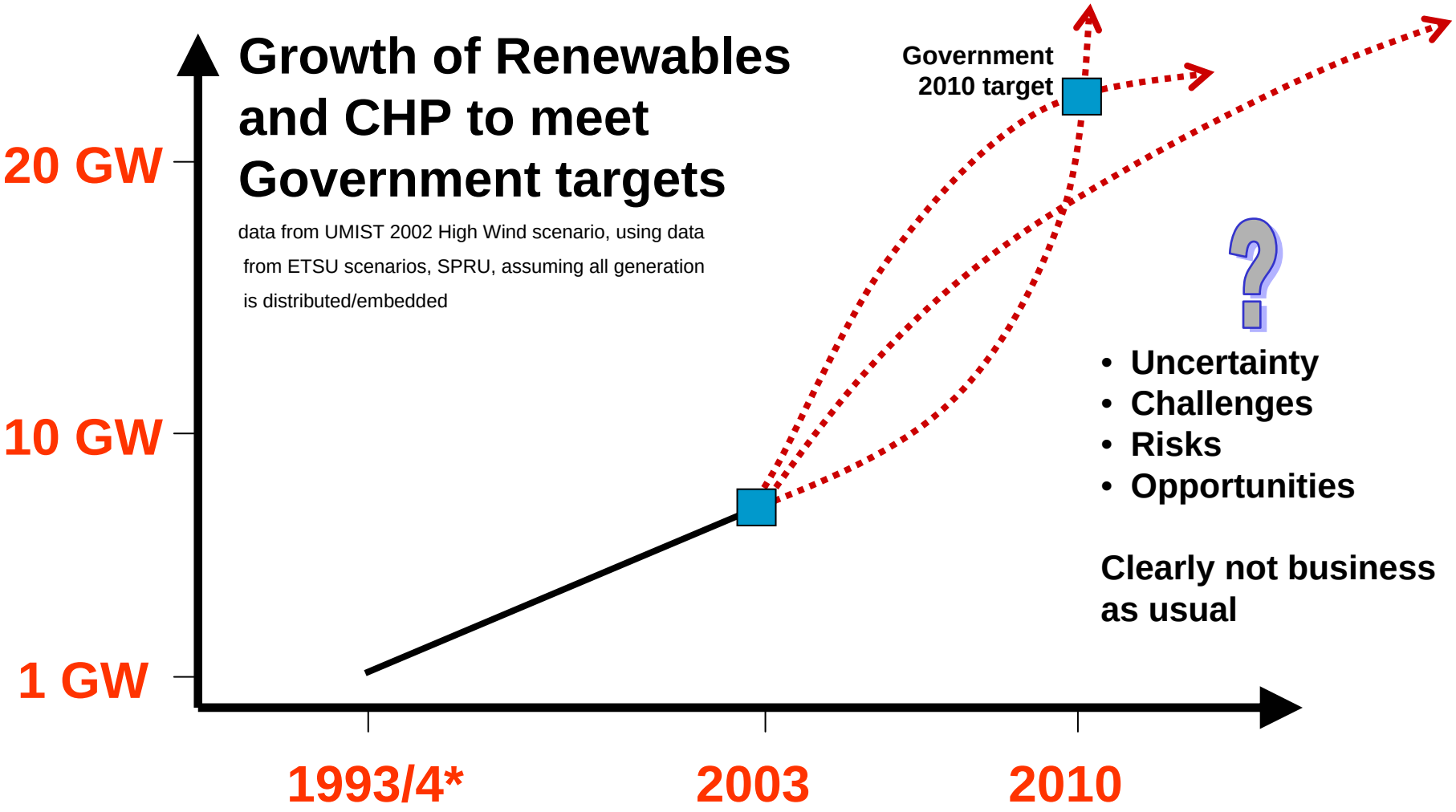
* Note that that the objectives are paraphrased here

Energy White Paper - II

- Targets for CHP & Renewable generation
  - 10GWe of Good Quality CHP by 2010
  - 10% of UK electricity to be supplied by renewables in 2010
  - Aspiration to double the renewables' share of electricity by 2020
  - 2015 target being consulted on

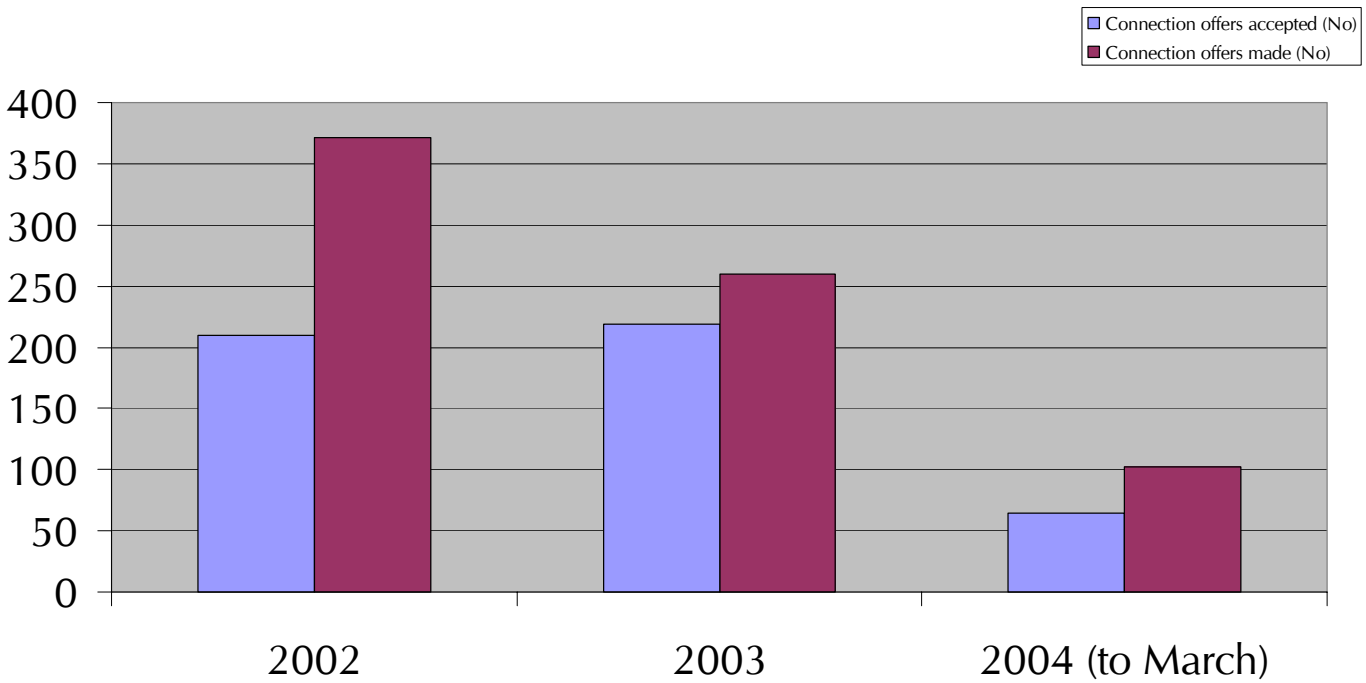
Growth of Renewables and CHP to meet Government targets

data from UMIST 2002 High Wind scenario, using data from ETSU scenarios, SPRU, assuming all generation is distributed/embedded

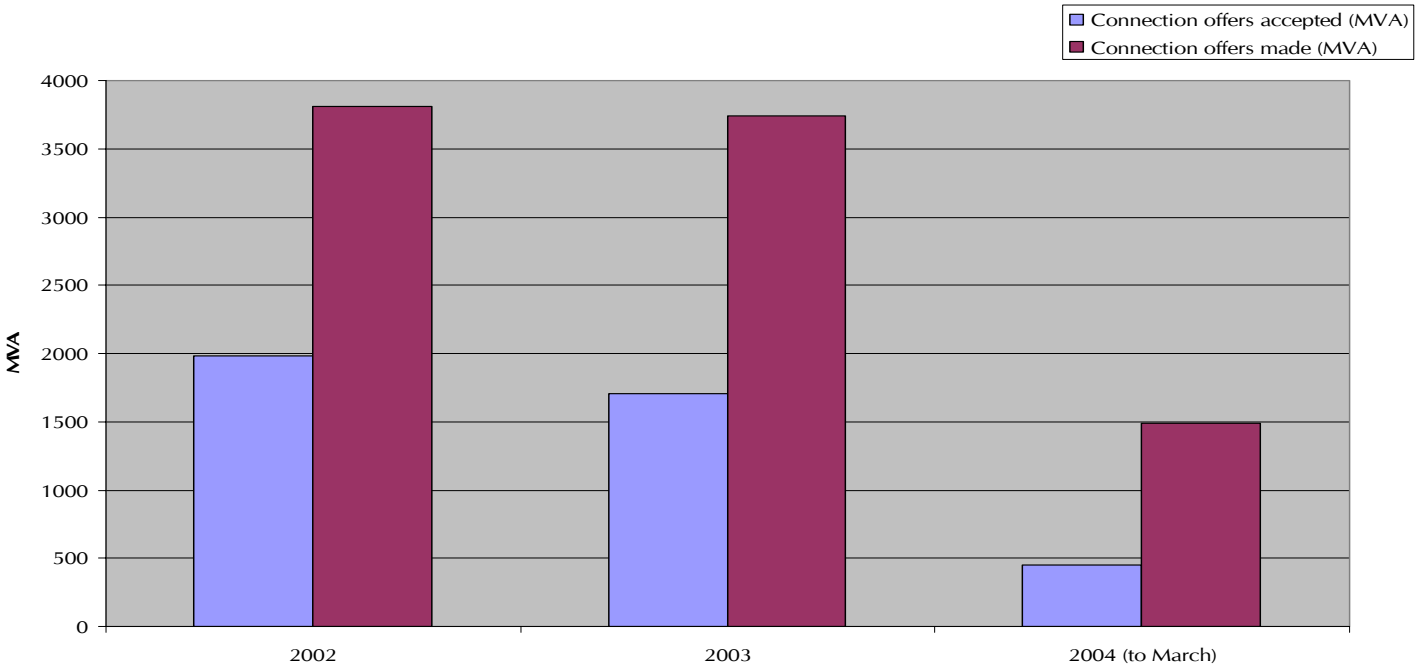


* 1.2 GW embedded independent generation – NGC SYS, March 1994

DG connection activity (number of offers made and offers accepted)



DG connection activity (offers and acceptances in MVA)



Ofgem's role

Distributed Generation Coordinating Group

Embedded Generation Working Group

The EGWG report's main recommendations (paraphrased) were:

- Ofgem to review…incentives on DNOs in the context of their duty facilitate competition
- A group to be established under Government leadership to co-ordinate and take forward the…EGWG's recommendations

DGCG formed, November 2001

Final EGWG Report – June 2001

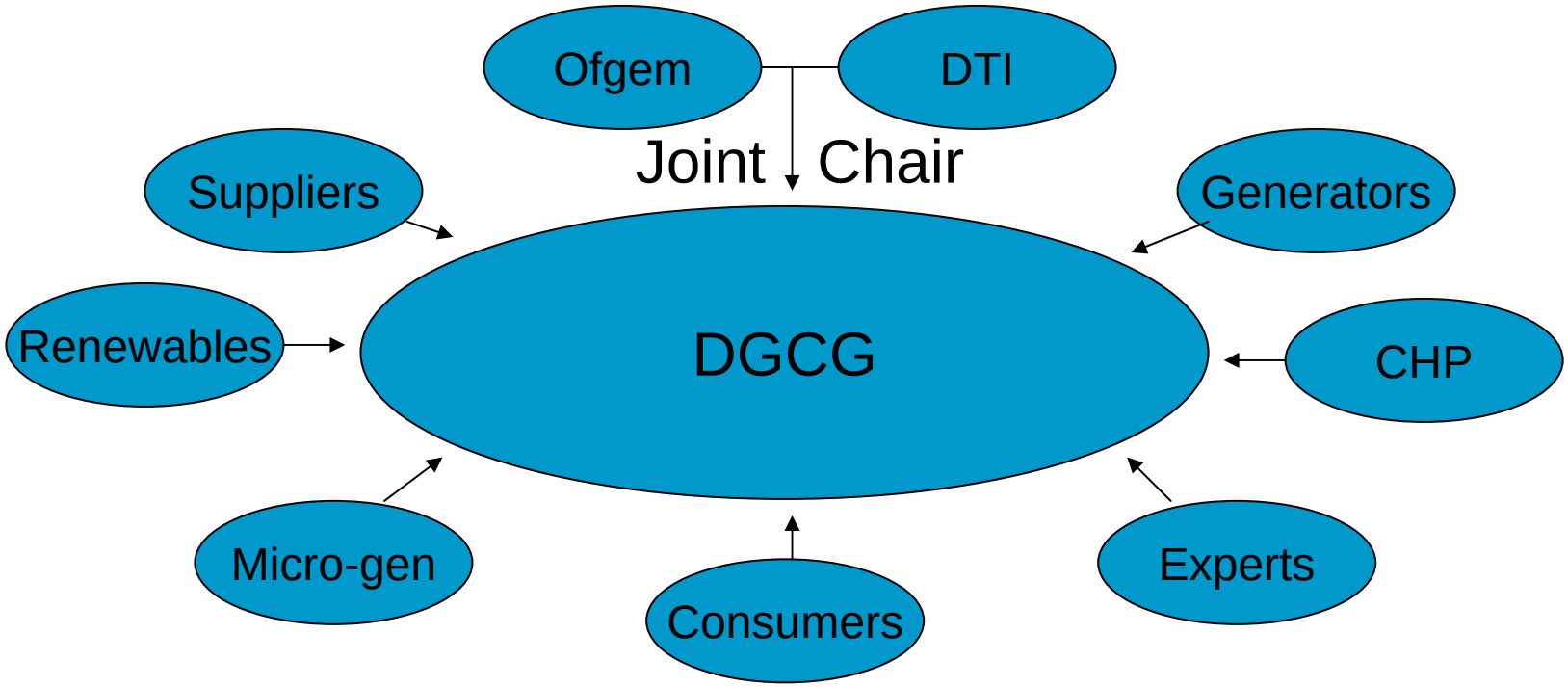
DGCG's Mission Statement

"…to facilitate the achievement of the Government's targets for renewable generation and CHP…

…identify and consider any network issues that are constraining the further development of distributed generation.

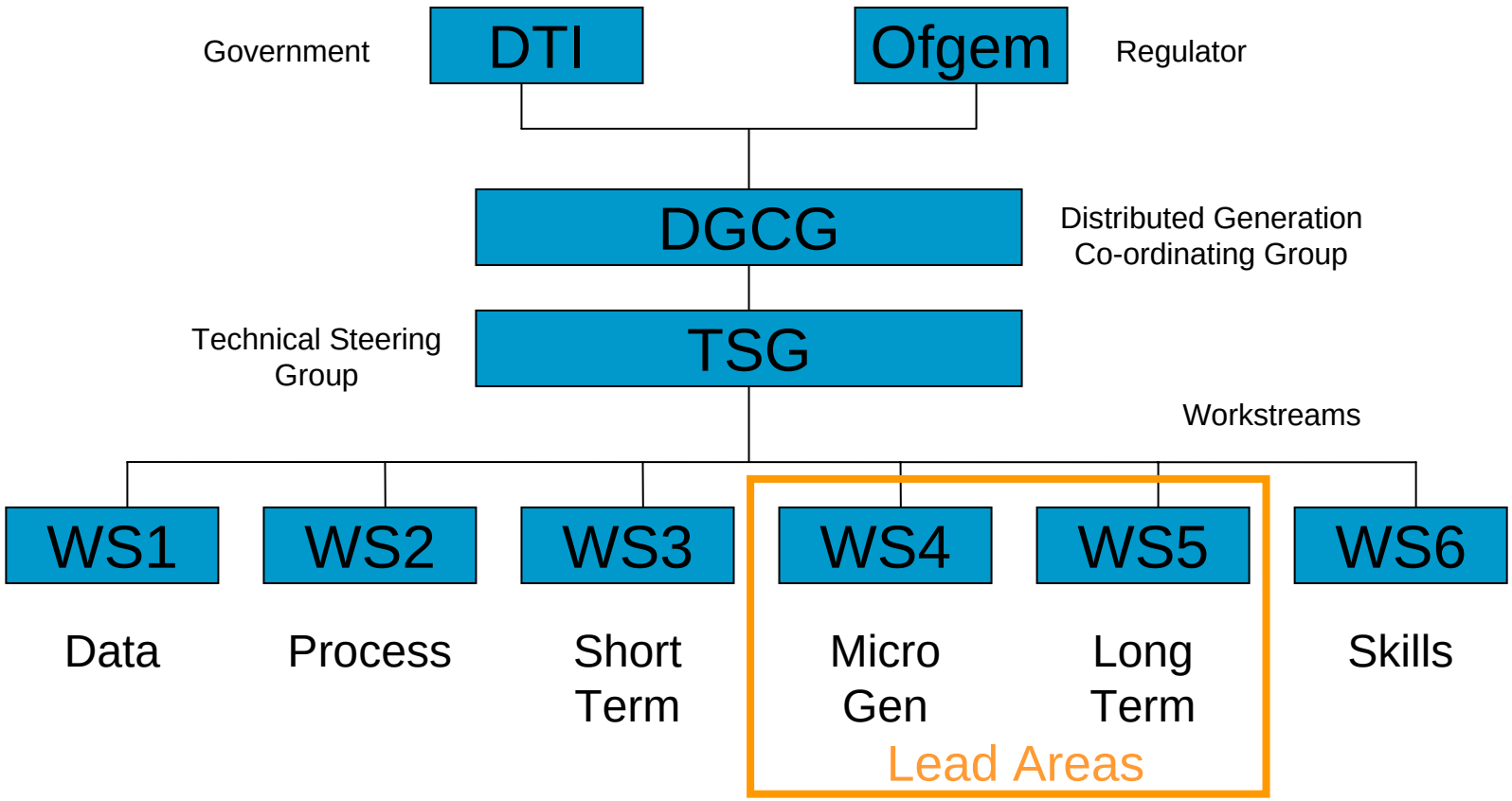
…recommend to the DTI/Ofgem the actions necessary to remove these constraints and if appropriate advise on priorities and incentives."

DGCG



Members are listed on the DGCG website

DGCG, TSG & Workstreams



DGCG Annual Report

- The Energy White Paper
- DG connection incentives
- Project fir[illegible]
- Wind power
- Dome[illegible]
- Future direction for DNOs
- International R&D

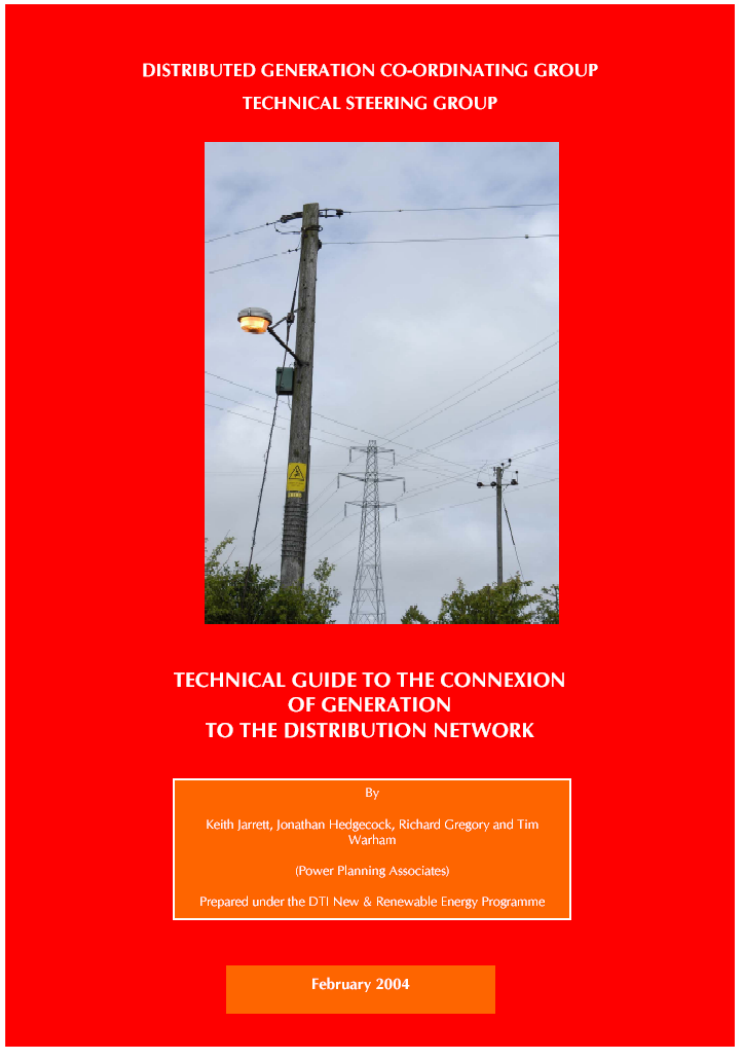
Review of all TSG Workstream projects

Report & summary on DGCG website

www.distributed-generation.org.uk

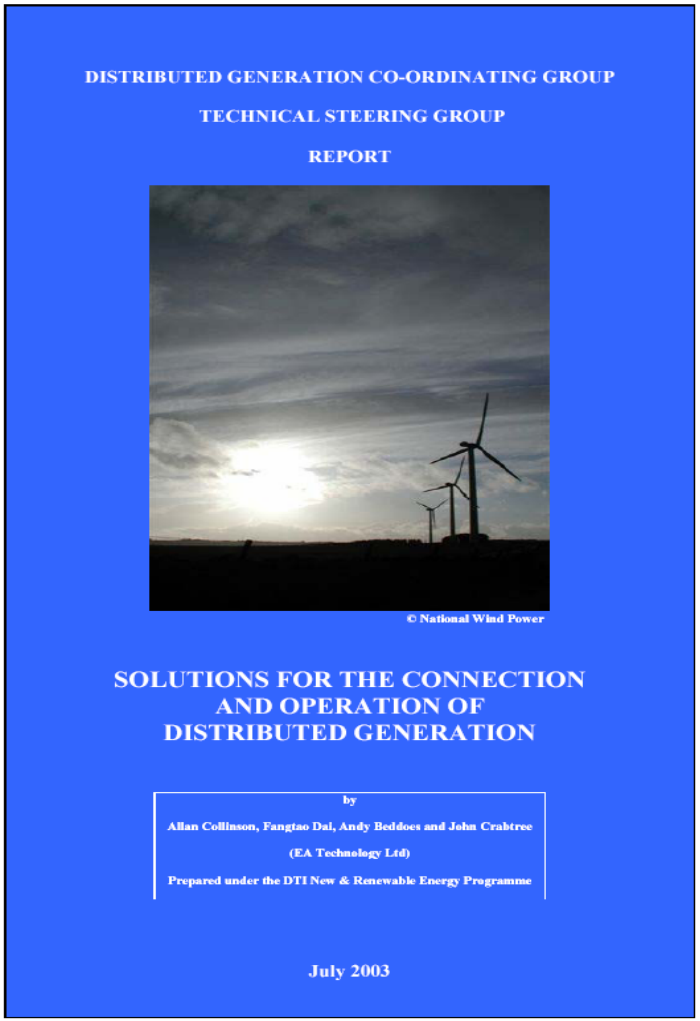
Register for automatic updates

Recent TSG Achievements



Technical Guide to the Connection of Generation to the Distribution Network

Published Feb' 2004



Solutions for the Connection and Operation of Distributed Generation

Published July 2003

Developing the P2/6 Methodology

Report Number: DG/CG/00023/REP
URN 04/1055

This work was commissioned and managed by the DTI's Distributed Generation Programme in support of the Technical Steering Group (TSG) of the Distributed Generation Co-ordinating Group (DGCG). The DGCG is jointly chaired by DTI and Ofgem, and further information can be found at www.distributed-generation.gov.uk

Contractor
UMIST

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Review of ER P2/5

UMIST report on the application of the agreed methodology now published

Seminar June 04

Report available on the DGCG website

Consultation imminent

Microgeneration

- Engineering Recommendation G83/1 now in D Code Annex 1
- Workstream 3 model for LV connection of generation completed
- SIAM study

Ofgem's role

Distribution price control

Ofgem's work in progress

- **Important activities underway:**
  - Distribution Price Control Review (DPCR)
  - Incentives for DG and for Network Innovation
  - New structure of distribution charges
  - Trial relaxation of the 28 Day Rule
  - ROCs for small generators (DTI led)

Incentives for DG

The main DG incentive mechanism

- Hybrid incentive for DG-related distribution investment
  - pass-through 80%
  - supplementary incentive £1.5/kW/yr for DG capacity connected (£2.0/kW/yr for Scottish Hydro)
  - cap (2 times cost of capital) and floor (cost of debt) for overall returns
  - incremental unit cost above £200/kW paid in DG's connection charges
- £1/kW/yr for O&M
- Further incentive for the provision of ongoing network access
  - £0.002/kWh default rate (subject to further development)

Innovation Funding Incentive (IFI) Registered Power Zones (RPZ)

IFI & RPZ

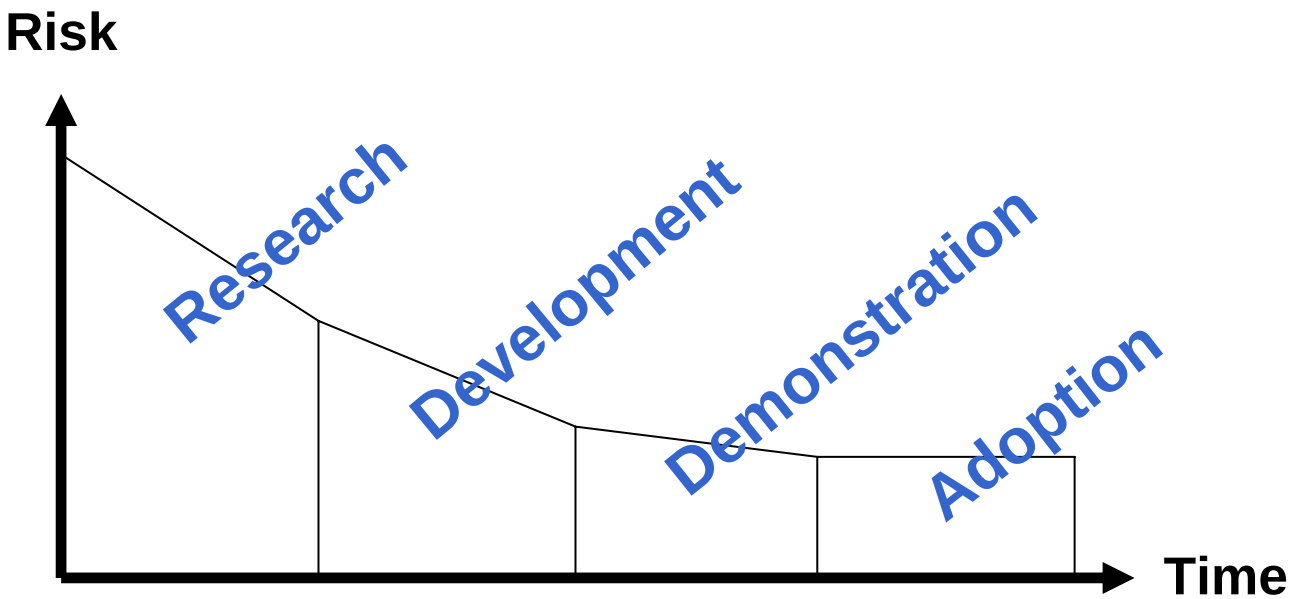
- Initially proposed early in 2003
- Multi-stage consultation showed wide industry support
- Ofgem committed to IFI & RPZ in March 2004
- Supported by Regulatory Impact Assessment
- Latest proposals published June 2004
- Details now being developed

Innovation and regulation

- DNO regulation is focussed on a core low risk business
- "RPI–X" has worked well to regulate this core business
  - but has not provided incentives to innovate
- Innovation is acknowledged to carry a different risk profile: the regulatory framework should adapt to recognise this

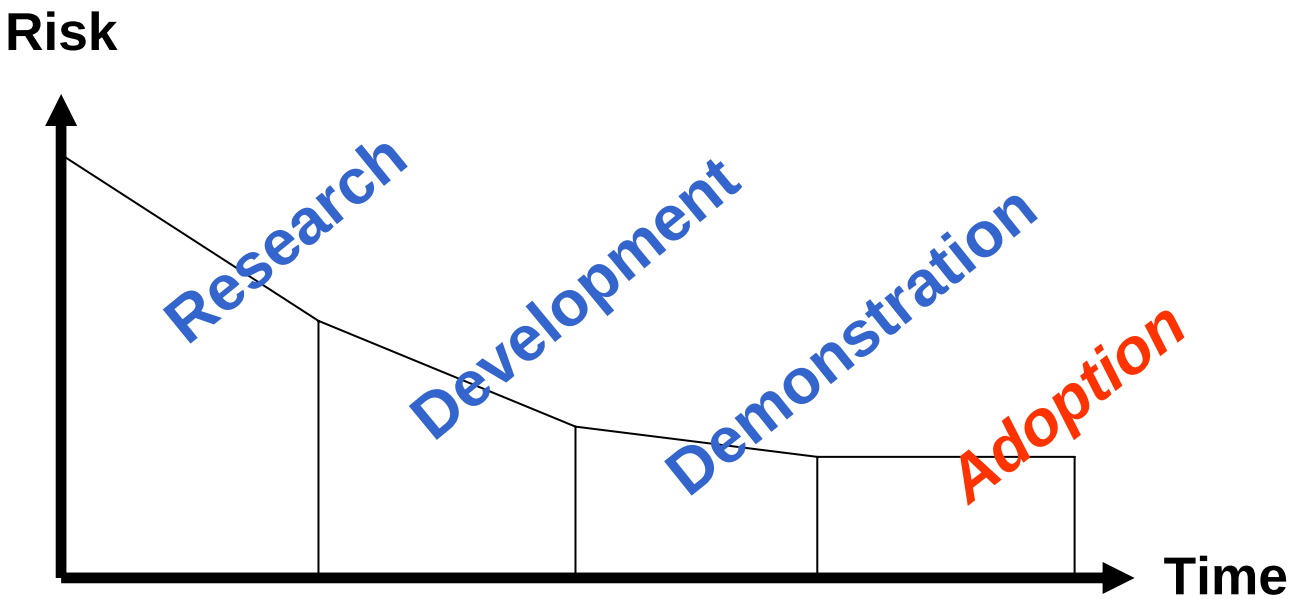
Need now to develop the regulatory framework to allow DNOs to operate in different risk/reward business environments

The innovation process



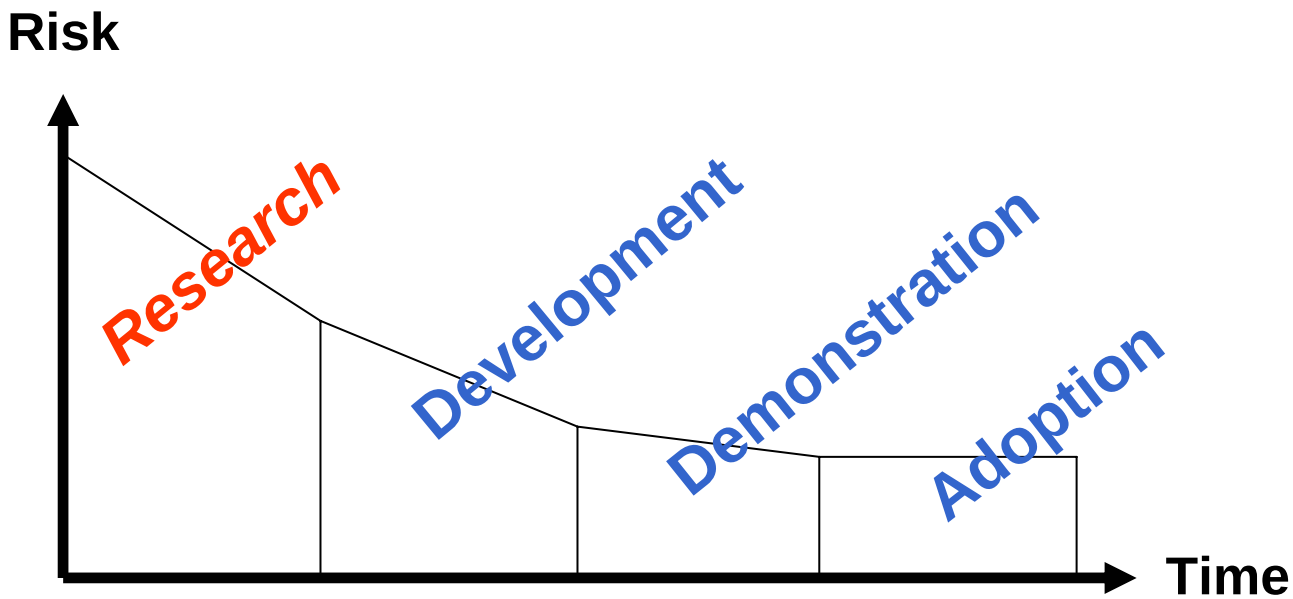
Multi-stage process to convert ideas to products/solutions

The innovation process



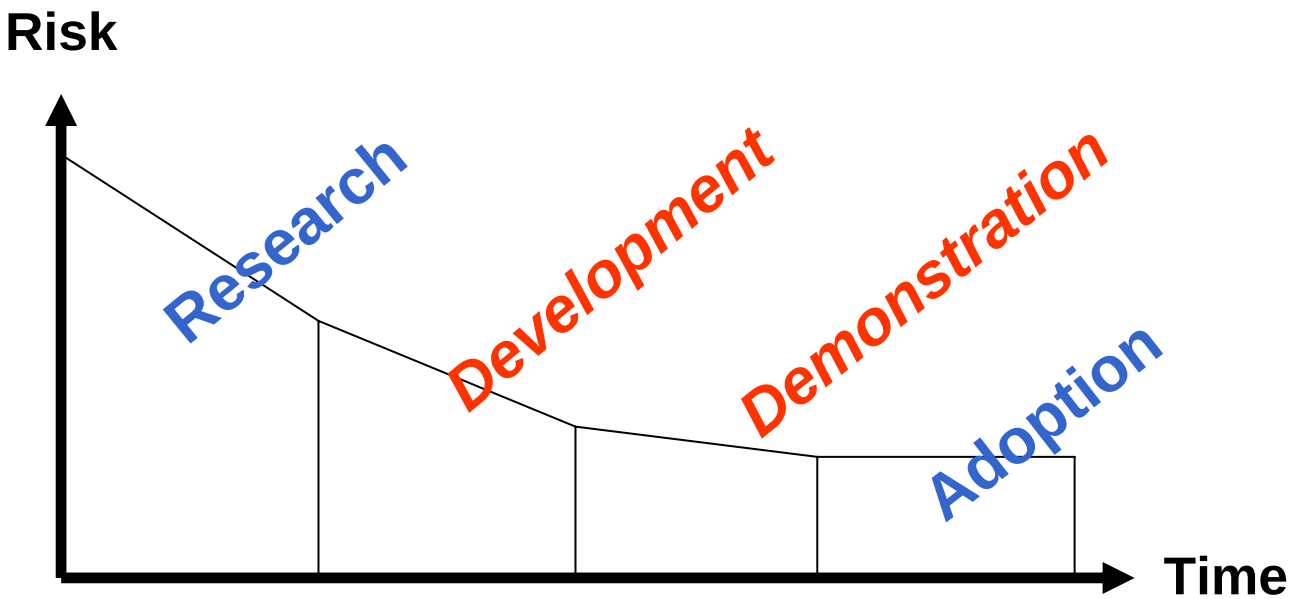
RPI – X & Capex
Treatment effective

The innovation process



Manufacturers and research community lead

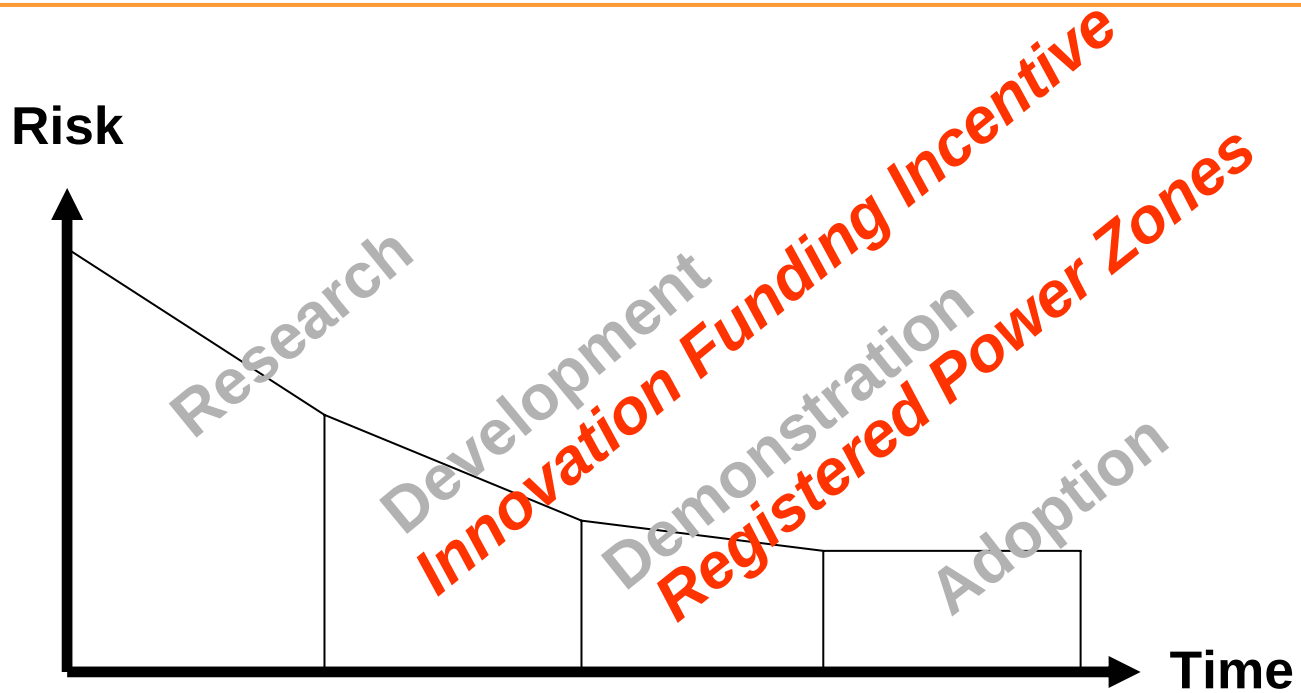
The innovation process



DNO involvement necessary here:

a distinguishing feature is the requirement for field testing and the inadequacy of laboratory simulations alone

The innovation process



IFI & RPZ – Targeted incentives for DNOs

Innovation Funding Incentive

A mechanism to encourage DNOs to invest in appropriate R&D activities that focus on the technical aspects of network design, operation and maintenance. The principal objective of the IFI is to deliver benefits to consumers by enhancing network efficiency in operating costs and capital expenditure.

IFI – Eligible Projects

- To enhance the technical development of distribution networks
- Deliver benefit (e.g. – financial, supply security and quality, environmental, safety) to end consumers
- All aspects of distribution system asset management
- Project justification - costs will be exceeded by the benefits to customers
- This justification will be published in the IFI Annual Report of each participating DNO.

IFI - In Outline

- A '% of turnover' allowance for innovation – 0.5%
- 90% pass-through in Year 1 and 80% average pass-through over the 5 years
- Expenditure allowed on a 'use it or lose it' basis
- Good Practice Guide will be a requirement
- Annual, open, reporting of activities to promote best practices

Registered Power Zones

A mechanism to encourage DNOs to develop and demonstrate new, more cost effective ways of connecting and operating generation that will deliver specific benefits to new distributed generators and broader benefits to consumers generally.

RPZ – Defining Innovation

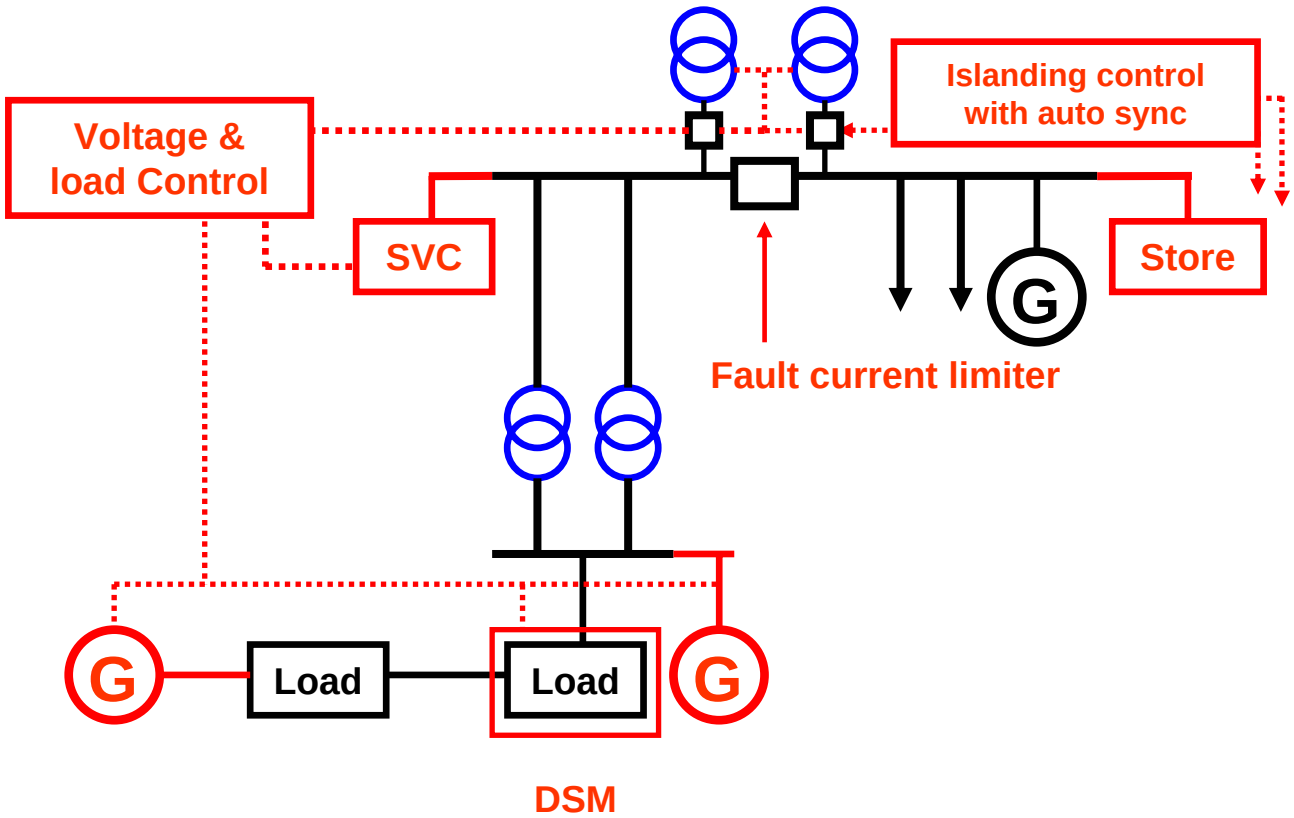
- **Equipment** – genuinely new design/technology
- **System design/topology** – novel approach to system design, in particular to increase the utilisation of assets
- **System operation/control** – novel approaches to the operation and control of a distribution system (voltage, power flow, fault level) that facilitate the connection and operation of DG.
- **Supply continuity & quality** - the use of DG to enhance supply continuity and quality and/or offer a novel alternative to the use of traditional network reinforcement to meet licence standards.

Ofgem propose an advisory panel of independent specialists having R&D and Industrial experience who can be called upon to determine whether projects are genuinely innovative. Neither their role nor Ofgem's will be to approve the technical viability of projects.

RPZ – In Outline

- Ofgem registers, but does not approve projects
- Hybrid £/kW incentive increased for RPZs for 5 years
- Returns increased to balance higher risks – no cap on individual project returns
- Cap of £0.5m per year per licensee to fund RPZ incentive
- Open reporting of RPZ projects to promote best practices

A view of tomorrow



Ofgem will continue to require efficient solutions on behalf of customers

Ofgem's Role

Grid Code review process

Grid Connection of Renewables

- Ofgem has the responsibility to approve all changes to the Distribution and Grid Codes
- The GB transmission licensees have developed through consultation grid code change proposals related to non-synchronous generators
- Ofgem has been working with all parties to assist the development of these proposals

Grid Code Changes

- Two Grid Code Forums have been held on 24/25 March and 30 April
- Developers, manufacturers and licensees involved
- The transmission licensees have consulted on their revised proposals
- Ofgem is currently considering its decision

Concluding remarks

- We are not technology constrained
- We are constrained by the inertia in the asset base
- Revolution is not really an option

The challenge is to achieve timely evolution of distribution systems so that they provide customers with the services they need efficiently and economically

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