Further Details of the RPZ Scheme

Guidance Document

Version 1 – April 2005 118/05

Summary

In November 2004 the final proposals for the Distribution Price Control Review (DPCR) were published, including proposals for Registered Power Zones (RPZ). The purpose of this document is to provide further guidance, in particular for Distribution Network Operators, regarding the RPZ scheme.

This document provides further details relating to the RPZ scheme as follows:

- the requirements for a Good Practice Guide (GPG)
- the requirements for RPZ registration
- the registration process
- the RPZ panel
- the impacts on generators and demand customers
- the way forward and the 2007 review, and
- the application proforma.

It is intended that this document will be updated from time-to-time so that experience gained from the operation of the RPZ scheme can be captured and made available for all interested parties.

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1. Introduction

Purpose of this document

1.1. In November 2004 the final proposals for the Distribution Price Control Review (DPCR) were published, including proposals for Registered Power Zones (RPZ). The purpose of this document is to provide further guidance in relation to the RPZ scheme to compliment the Licence Conditions and Regulatory Instructions and Guidance (RIGs). It is intended that this document will be updated from time-to-time so that experience gained from the operation of the RPZ scheme can be captured and made available for all interested parties.

1.2. This document provides further details relating to the RPZ scheme as follows:

- the requirements for a Good Practice Guide (GPG) (Chapter 3)
- the requirements for RPZ registration (Chapter 4)
- the registration process (Chapter 5)
- the RPZ panel (Chapter 6)
- the impacts on generators and demand customers (Chapter 7)
- the way forward and the 2007 review (Chapter 8), and
- the RPZ application proforma (Appendix 1).

Related documents

1.3. This document should be read in conjunction with the:

- the Energy Networks Association's (ENA) Innovation Good Practice Guide[1]

[1] Available at http://www.energynetworks.org

- the DG, IFI and RPZ Regulatory Instructions and Guidance (RIGs)[2]
- DPCR final proposals and the corresponding licence conditions modifications[3].

1.4. The ENA GPG is a guide to innovation management and is intended to establish a common code of practice across the industry and deliver a coherent approach between DNOs undertaking RPZ and IFI projects.

1.5. The RIGs, produced in accordance with standard condition (SLC) 51 of the electricity distribution licence, provide a framework for the collection and provision of accurate and consistent information from the DNOs. The RIGs cover the following main areas:

- definitions, instructions and guidance for collating information on DG connection, innovation, and registered power zones, and
- an outline of the reporting arrangements, specification of the information to be reported, and the required levels of accuracy for reporting.

RPZ and IFI information website

1.6. Open reporting (i.e. available in the public domain) of RPZ projects is required by Ofgem; this is intended to stimulate good management and promote sharing of innovation good practice.

1.7. To enable this, a dedicated part of the Ofgem website for RPZ and IFI activities has been established. The IFI and RPZ website is located at www.ofgem.gov.uk under Ofgem's Work "IFI and RPZ".

1.8. All information relating to the RPZ and IFI incentives will be published on this website including the annual reports produced by each DNO undertaking RPZ projects (required under the RIGs).

[2] Available at http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/10451_7105.pdf
[3] Available at http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/distpricecontrol

1.9. For any further information please contact:

Gareth Evans

Technical Advisor

Gareth.Evans@ofgem.gov.uk

Ph 020 7901 7361

2. Background

Background to the DG incentive

2.1. As part of the development of the fourth Distribution Price Control Review (DPCR4), Ofgem has introduced a new incentive mechanism for the connection of Distributed Generation (DG).

2.2. The objectives of the DG incentive are to encourage DNOs to invest efficiently and economically in the provision of DG connections and to be generally proactive in responding to connection requests.

2.3. The DG incentive is structured so that:

- reinforcement costs incurred by the DNO to provide network access to distributed generation are given a partial pass-through treatment, and
- DNOs are given a further supplementary £/kW revenue driver (or incentive rate) of £1.5/kW/year to incentivise the connection of distributed generation to the network.

2.4. The DG incentive is only available to DG which has a connection start date[4] on or after 1 April 2005. An increase in capacity at an existing DG plant due to upgrading or expansion after 1 April 2005, whether or not existing before 1 April 2005, is regarded as a separate addition of DG for the purpose of the DG incentive scheme.

Background to RPZs

2.5. In addition to the DG incentive Ofgem has introduced two further incentive mechanisms: the Innovation Funding Incentive (IFI) and Registered Power Zones (RPZ). As part of this development process Ofgem published a

[4] Defined in the RIGs.

Regulatory Impact Assessment[5] setting out the case for the introduction of the IFI and RPZs.

2.6. The primary aim of these two new incentives is to encourage the DNOs to apply technical innovation in the way they pursue investment in and operation of their networks. Ofgem recognised that innovation has a different risk/reward balance compared with a DNO's core business. The incentives provided by the IFI and RPZ mechanisms are designed to create a risk/reward balance that is consistent with research, development and innovation.

2.7. The two main business drivers for providing these incentives at this time are the growing need to efficiently manage the renewal of network assets and to provide connections for an increasing capacity of generation at all distribution voltage levels. These are significant challenges that will benefit from innovation.

2.8. RPZs are focused specifically on the connection of generation to distribution systems. The estimates made by DNOs as part of the DPCR4 process indicated that some 10GW of generation could be connected in the next five years. This total capacity embraces kW to multi-megawatt generators of different technologies so that connections at every distribution voltage will be required bringing new system design and operating challenges.

2.9. RPZs are therefore intended 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. The details of the RPZ mechanism are set out in Special Licence Condition D2 and the RIGs.

DPCR Final proposals – RPZs

2.10. Ofgem recognises that for some new DG connection schemes, an innovative technical solution could offer material advantages to DG customers compared with a conventional solution. Where this is demonstrated to be the case, Ofgem proposes to provide an additional incentive of an extra £3/kW/year

[5] Ofgem document 62d/04, March 2004.

(over and above the main DG incentive) for a five year period commencing on the connection start date (as defined in the RIGs) of the project.

2.11. Ofgem will register, though not approve, RPZ projects[6] and, where appropriate, will seek advice from an independent panel, established by Ofgem, in relation to the innovation content and potential benefits of an RPZ proposal. The generator(s) directly involved in the innovation will be informed of the RPZ proposal by the DNO and any technical and commercial impacts it might have compared with the extant connection option, as part of the negotiation of a connection agreement.

2.12. The DNO will take full responsibility for the management of the risks of the scheme. It is expected that the DNO will offer the connecting generator commercial terms reflecting these risks.

2.13. Open reporting (i.e. available in the public domain) of RPZ projects would be required annually; this is intended to stimulate good management and promote sharing of innovation good practice. A model form report will be established as part of the GPG. DNOs will be expected to provide more detailed information about the technical performance of an RPZ to third parties on request, subject to any confidentiality constraints.

2.14. Where a DNO is successful in obtaining additional grant funding for an RPZ project, the RPZ incentive mechanism will not be impacted by this additional funding.

2.15. DNOs will be allowed to seek registration for up to two RPZs per year for the first two years of the scheme. The RPZ incentive, including this registration limit, will be reviewed in 2007 together with the IFI.

2.16. The additional revenue (i.e. the revenue derived from the £3/kW uplift described above) that a DNO can claim for RPZ projects will be capped at £0.5 million per DNO per year. The cost of RPZ projects will be met by generators as a class within a DNO area in the same way as the DG incentive scheme.

3. Innovation Good Practice Guide

3.1. The RIGs require that any company that wishes to pursue RPZ projects will have to produce and comply with a Good Practice Guide (GPG) for managing Research, Development and Demonstration (RD&D) projects.

3.2. The GPG will require approval from Ofgem before an RPZ application will be accepted by Ofgem.

ENA GPG

3.3. The DNOs have worked together to produce an industry-wide GPG which is published as an ENA document. This GPG was produced by EA Technology under a DTI contract, managed by Future Energy Solutions. Ofgem was a member of the Steering Group for this project and all parties worked co-operatively to ensure that the GPG met Ofgem's requirements.

3.4. The ENA GPG contains (in relation to RPZs):

- guidance on developing RPZs
- examples and case studies of eligible RPZs
- guidance on the management of R&D projects, and
- the reporting pro forma.

DNO GPGs

3.5. DNOs are not obliged to adopt the ENA GPG and can alternatively produce and submit their own GPG for Ofgem approval. However, all DNOs will be required to use the same application and reporting pro formas as approved in the ENA GPG, the RIGs and this document.

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[6] In registering an RPZ Ofgem is not endorsing the innovation involved or prejudging the probability of success.

3.6. Ofgem sees potential benefits in all companies adopting the ENA GPG to reduce the resource requirements in processing IFI and RPZ projects and to ensure a consistent approach to IFI and RPZ project management and reporting.

4. RPZ registration

Requirements for RPZ registration

4.1. The conditions that must be met for RPZ registration are as follows:

- the project must involve the connection of new generation or the incremental increase in MW output of an existing generator
- the new generator or the marginal MW increase of an existing generator must be eligible for the standard DG incentive to be eligible for the RPZ incentive
- the project must demonstrate innovation as defined in 4.2 and 4.3
- the innovation deployed in the RPZ must be shown to be of value to DG customers
- the generator(s) directly involved in the innovation will have to be informed of the RPZ proposal and any technical and commercial impacts it might have compared with the extant connection option, and
- the DNO will be required to comply with a Good Practice Guide for RPZs which has been approved by Ofgem.

Criteria defining innovation

4.2. The criteria that will be used to access the level of innovation are as follows:

- **Equipment –** the use of a piece of equipment of genuinely new design could alone constitute material innovation. This would not extend to the incremental development of existing technology. It may be appropriate for more than one RPZ to be justified in relation to a new piece of equipment if the specific application or duty of the equipment was sufficiently different.
- **System design/topology –** an RPZ justification could be made for a novel approach to system design, in particular to increase the utilisation of

assets. It is likely that innovation in system design would also require innovation in control and protection.

- **System operation/control –** novel approaches to the operation and control of a distribution system (e.g. 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.

Degree of innovation

4.3. It is recognised that the degree of innovation is not readily quantifiable. However, the GPG does suggest qualitative descriptions of degrees of innovation and it is proposed that these should be used in conjunction with the criteria above in assessing the case for an RPZ. Using the GPG terminology, the degree of innovation required to achieve RPZ registration should be at least "Significant Innovation".

4.4. At least "Significant Innovation" is defined here as either:

- Significant Innovation: e.g. New equipment, designs or processes that have not been previously explored, but which have the same fundamental purpose as existing equipment, designs or processes, or

- Technological Substitution:

  a) Equipment, designs or processes which use a different principle of operation and which are not and have not been used by UK DNOs, but which have been used or are being used by electricity distribution companies outside of the UK, or by non-DNO organizations within the UK.

  b) Equipment, designs or processes which are or have been used by UK DNOs, but for which the application domain or operating context can be shown to be new or previously unexplored, or

- Radical Innovation: Completely new equipment, designs or processes that have a fundamentally different purpose from existing equipment, designs or processes (often referred to as “disruptive technology”).

5. Registration Process & Reporting

Application timescale

5.1. DNOs will be able to apply for RPZ registration from 1 April 2005 to 31 March 2009. An RPZ connection project will have to have connection start date (as defined in the RIGs) in the form initially registered with Ofgem between 1 April 2005 and 31 March 2010 to qualify for the RPZ premium.

DNO submission of application to Ofgem

5.2. All RPZ applications are required to be in the proforma format shown in Appendix 1.

5.3. Ofgem will acknowledge application within 10 working days and advise the applicant if the application is complete and therefore valid. If it is complete the application date is registered as the date of receipt by Ofgem. If it is not, the application is deemed invalid until its identified deficiencies are addressed to Ofgem's satisfaction. Ofgem will then confirm the application date.

Ofgem's consideration of applications

5.4. Ofgem will consider each application against the "requirements for registration" as described in paragraph 4.1. Where an application is rejected, Ofgem's assessment will be made available to the applicant. Ofgem's assessment will normally be completed in 15 working days. However, if Ofgem considers that the advice of the independent panel is required the applicant will be informed and advised of the additional period required.

5.5. For those projects that are granted RPZ registration, there will be a duty placed on the registrant to inform Ofgem of any change to the RPZ proposal after registration. Ofgem will reserve the right to withdraw registration if in its sole judgement changes made to an RPZ cause the registration criteria to no longer be met.

Proactive and reactive applications

5.6. A DNO can apply for RPZ registration in response to a specific connection application (reactive). However, Ofgem would consider an application for a proactive registration. In this situation, a DNO would identify the potential to develop an RPZ in advance of a connection application. RPZ registration could be sought in this situation so that the DNO could proceed to invest in and/or promote the connection opportunity to this part of its network. The RPZ premium would only be applicable once generation had actually been connected to the system.

Existing Generation

5.7. The RPZ may contain existing generators and is therefore not restricted to a "greenfield site" although as stated in the paragraph 4.1 any marginal MW increase of an existing generator must be eligible for the standard DG incentive in order to be eligible for the RPZ incentive. Only the marginal MW increase will attract the RPZ incentive payment.

Staged developments

5.8. Where an RPZ is commissioned in stages the DNO will be entitled to receive the incentive for 5 years from the connection start date (as defined in the RIGs) of each individual unit. The total MW of installed capacity can not exceed the declared net capacity[7]. An individual generating unit forming part of a staged development of an RPZ must have a connection start date before 31 March 2010 to qualify for the RPZ premium.

Connection offer timescales

5.9. A DNO has a licence obligation to make a connection offer in 3 months. This timescale may constrain the development of an RPZ opportunity in some situations. Following a request to Ofgem, the Authority can consent to a longer period as explained in licence condition 4B.

Reporting

5.10. The Ofgem RIGs specify the reporting required for RPZs with further guidance provided in the ENA GPG.

[7] Declared net capacity is defined here as the capacity in MW as stated in the RPZ application (Appendix 1).

6. The panel

Criteria for referral to the panel

6.1. When judged appropriate, Ofgem will seek advice from an independent panel, established by Ofgem, in relation to the innovation content and potential benefits of an RPZ proposal.

6.2. Ofgem will refer the assessment of an RPZ application to the Panel where:

- Ofgem requires additional expert advice on the innovation involved
- Ofgem requires additional expert advice on the potential value of the innovation to DG customers, and
- if there are any other issues relating to the impact of the RPZ where additional advice would assist Ofgem in its decision.

The Panel

6.3. The Panel will have four members drawn from industrial/commercial, government and academic backgrounds. Ofgem will appoint the members and chair the Panel.

6.4. Ofgem will use the Panel's assessment to inform the decision process although the final decision regarding registration will be taken by Ofgem.

6.5. Both the Panel's and Ofgem's findings will be made available to the applicant.

7. Impact on generators and demand customers

The generator

7.1. As stated in the requirements for registration (paragraph 4.1) the generator(s) directly involved in the innovation will have to be informed of the RPZ proposal and any technical and commercial impacts it might have compared with the conventional connection option(s).

7.2. The DNO will take full responsibility for the management of the risks of the scheme and where a connecting generator is exposed in any way to these risks the terms and conditions of the connection agreement would be expected to reflect this.

7.3. Ofgem envisages that for the majority of RPZ proposals the generator(s) involved/affected would be in support of it. In practical, if not regulatory, terms co-operation between the DNO and the generator(s) would seem to be a de facto requirement for a successful RPZ project.

7.4. In a situation where the DNO has proceeded with an RPZ without the support of the generator, the generator is entitled (as in all connections) to apply to Ofgem for a connection determination if it believes any terms of the connection offer are not reasonable.

Demand customers

7.5. Regulatory standards for Quality of Service (e.g. IIP) apply in an RPZ as they would elsewhere as do all other statutory standards (e.g. the Electricity Safety, Quality and Continuity Regulations, ER P2/5).

7.6. Where the quality of supply to demand customers might be affected by the RPZ the DNO will need to put in place contingency measures to manage this risk, and measurement equipment to confirm Quality of Service performance. This would remain in place while any enhanced risk remained.

8. Moving forward and the review process

Moving forward

8.1. Once a DNO has adopted the ENA GPG in relation to RPZs or has had their own RPZ GPG approved by Ofgem (as described in paragraph 3.5) from 1 April 2005 a DNO can apply to Ofgem to register an RPZ.

Review process

8.2. A review of the RPZ incentive will be carried out in 2007 together with the IFI incentive. This will take place following publication of the 2nd annual reports on IFI and RPZs.

8.3. At this time the Ofgem will review:

- the assessment criteria
- the annual registration limit on RPZs (2)
- any other issue as a result of experiences during the first 2 years of the RPZ or IFI incentive mechanism.

8.4. RPZs that are registered before the review will not be negatively impacted by any changes resulting from the 2007 review.

Appendix 1 RPZ registration proforma

Table 1 RPZ Summary

Summary	A summary should be provided of the innovation to be employed and the benefits that the DNO expects. This should include how often it is expected that the innovation can be implemented across the network and hence the benefit overall to customers and the DNO as well as in this particular case.
	Nature of Innovation – a concise technical description, with supporting information as appropriate, of the innovation involved in the proposed RPZ. **Benefit of Innovation –** expressed in terms of the cost saving compared with the extant solution and any additional benefits (e.g. quality of supply, system operability, safety etc.). **Predicted Adoption –** ideally expressed in terms of the capacity of connections to which the innovation could be applied at DNO and/or GB level.

Table 2 Generation details

Generator	This table should provide details of the generation that is to be connected as part of the proposed RPZ. Where RPZ registration is being sought in advance of a committed generation connection then outline details of the potential connection capacity should be provided.
Location(s)	Geographical and electrical location data should be provided for the generator(s) being connected. Ownership boundaries should be identified.
Type(s)	e.g. Wind, CHP etc
Declared Net Capacity	MW – where multiple generator units are being connected, the capacity of each unit should be provided.
Connection voltage(s)	
Connection Start date(s)	As defined in the RIGs
Licence status	The licence status of the generator(s) should be detailed.
Connection standards applicable	e.g. Grid Code, D Code, ER G75/1, G59/1 or G83/1

Table 3 Generator's involvement

Generator(s) informed	The generator(s) directly involved in the innovation must be informed in writing of the RPZ proposal and any technical and commercial impacts it might have compared with the extant connection option as part of the negotiation of a connection agreement. Please provide evidence that the generator(s) have been informed.
Generator(s) supportive Yes/No	Documentation should be provided if "yes" confirming the generator support of the RPZ or if "no" a summary of the generator's issues.
Generator(s) agreement	Summary of the agreements (i.e. – relevant to the RPZ proposal) between the generator and the DNO. Information should also be given of any innovative operating techniques that the generator(s) are expected to follow in order for the RPZ to be implemented.
Generator(s) name and contact details	

Table 4 Conventional and RPZ options

Description of conventional connection solution	The connection design using extant solutions should be detailed including the following information: Description of network available to provide the connection (sufficient detail to show all assets affected by the connection). Description of conventional connection, likely timescale and budgetary (±10%) cost estimate
Description of RPZ solution	The description will depend on the type of project but should normally include the following: • Single Line Diagram showing RPZ terminal points • Description of RPZ proposal • Key differences as compared to conventional solution • Description of innovation employed • Benefit of innovation for the proposed connection, financially quantified where possible • Budgetary (±10%) cost estimate of proposed RPZ connection

Level of innovation	The level of the innovative content of the RPZ should be explained. This may relate to the particular equipment or solution being used and/or the particular application of equipment or a generic solution but also to the number of projects using similar techniques that have already been demonstrated (if any). It must be demonstrated that the RPZ is making a material contribution to the knowledge and/or experience base relating to the connection of DG. Duplication of an RPZ concept is not ruled out. If repeated applications can be shown to add value (e.g. – demonstration of a piece of equipment in different systems) then they will be considered. The degree of innovation and brief details of similar projects and how they differ from the proposal should be given (i.e. what additional knowledge or experience will be gained).
Repeatability	This section should provide an overview of the potential application of this innovation, an estimate of potential financial benefits within the DNO and whether the DNO benefit might reasonably be extrapolated to a GB level.

Table 5 Risks

Technical Risks	The following must be identified: • the technical risks related directly to the innovation employed with an estimate of their probability of occurrence • the consequences of their occurrence • the potential financial impacts on the DNO • ways of mitigating the consequences, confirmation that they will be put in place in an appropriate timescale.
Customer Risks (Demand & generation)	Identify: • the potential impacts on customers of the technical risks identified above • ways of mitigating these impacts, confirmation that they will be implemented in an appropriate timescale.
Statutory & Regulatory Standards	If an application for any relaxation of statutory or regulatory standards is proposed as part of the RPZ project full details should be provided as well as a justification and a plan to secure such relaxations.