


**Electricity Industry Participation (Urgent Temporary Grid  
Reconfiguration) Code Amendment 2013**

Pursuant to section 38 of the Electricity Industry Act 2010,  
I make the following amendments to the Electricity Industry  
Participation Code 2010.

At Wellington on the 4<sup>th</sup> day of November 2013



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Certified in order for signature:



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1 November 2013



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## Amendment

- 1 **Title**  
This is the Electricity Industry Participation (Urgent Temporary Grid Reconfiguration) Code Amendment 2013.
- 2 **Commencement**  
This amendment comes into force on 16 December 2013.
- 3 **Code amended**  
This amendment amends the Electricity Industry Participation Code 2010.
- 4 **New subpart 1A of Part 9 inserted**  
After clause 9.13, insert:  
  

"Subpart 1A—Urgent temporary grid reconfigurations

**"9.13A Purpose**  
The purpose of this subpart is to provide for the urgent temporary removal of **interconnection assets** from service, or temporary reconfiguration of the **grid**, in order to improve security of **supply**.

**"9.13B Request for urgent temporary grid reconfiguration**

- "(1) The **system operator** may give notice in writing to **Transpower** requesting that **Transpower** temporarily remove 1 or more **interconnection assets** from service, or temporarily reconfigure the **grid**, if the **system operator** considers that—
  - "(a) exceptional circumstances exist—
    - "(i) that are likely to lead, for a period of at least 3 weeks, to—
      - "(A) a shortfall in thermal fuel; or
      - "(B) a shortfall of hydro inflows; or
      - "(C) the loss of a large generating asset; and
    - "(ii) that make it necessary or desirable in the public interest to temporarily remove 1 or more **interconnection assets** from service or temporarily reconfigure the **grid**; and
  - "(b) the removal or reconfiguration would improve security of **supply**.
- "(2) A notice given under subclause (1) must specify—
  - "(a) the exceptional circumstances; and
  - "(b) the reasons why temporarily removing **assets** from service or temporarily reconfiguring the **grid** would improve security of **supply**.
- "(3) No later than 10 **business days** after giving notice to **Transpower**, the **system operator** must give a written report to the **Authority** setting out the basis on which the **system operator** requested that **Transpower** remove 1 or more **interconnection assets** from service or temporarily reconfigure the **grid**.
- "(4) The **system operator** must ensure that the report given under subclause (3) includes—
  - "(a) the matters specified in subclause (2)(a) and (b); and
  - "(b) sufficient information to demonstrate that in developing its request to **Transpower** the **system operator** followed a robust process, including the options the **system operator** considered and the extent of any analysis and consultation undertaken by the **system operator**.
- "(5) The **Authority** must **publicise** the report."

5 **Clause 12.43 replaced (Net benefits test)**

Replace clause 12.43 with:

**"12.43 Net benefits test**

"(1) When **Transpower** is required to apply a net benefit test, **Transpower** must—

"(a) estimate the following costs:

"(i) any additional fuel costs incurred by a **generator** in respect of any **generating units** that will be **dispatched** or are likely to be **dispatched** during or after the removal of the **connection asset** or the reconfiguration of the **connection assets**, arising as a result of the removal or reconfiguration:

"(ii) any direct labour and material costs that will be incurred by **Transpower** and the **designated transmission customers** undertaking the removal of the **connection asset** or the reconfiguration of the **connection assets**:

"(iii) any increase in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**, arising as a result of the removal of the **connection asset** or the reconfiguration of the **connection assets**:

"(iv) any of the following costs, if the cost is to a person that produces, transmits, retails, or consumes **electricity** in New Zealand:

"(A) changes in fuel costs of **existing assets, committed projects and modelled projects**:

"(B) changes in the value of involuntary **demand** curtailment:

"(C) changes in the costs of **demand-side** management:

"(D) changes in costs resulting from deferral of capital expenditure on **modelled projects**:

"(E) changes in costs resulting from differences in the amount of capital expenditure on **modelled projects**:

"(F) changes in costs resulting from differences in operations and maintenance expenditure on

- existing assets, committed projects, and modelled projects:
- "(G) changes in costs for ancillary services:
- "(H) changes in losses, including local losses:
- "(I) subsidies or other benefits provided under or arising pursuant to all applicable laws, regulations and administrative determinations:
- "(J) the value of the expected change in economic surplus due to a change in competition among participants arising as a result of the removal of the connection asset or the reconfiguration of the connection assets, excluding any expected change in economic surplus due to a change in another cost in this net benefit test:
- "(v) any other relevant cost to a person that produces, transmits, retails or consumes electricity in New Zealand; and
- "(b) estimate the following benefits:
  - "(i) any reduction in maintenance costs arising as a result of the removal of the connection asset or the reconfiguration of the connection assets (including Transpower's and any designated transmission customer's costs):
  - "(ii) any reduction in fuel costs incurred by a generator in respect of any generating units, arising or likely to arise during or after the removal of the connection asset or the reconfiguration of the connection assets, as a result of the removal or reconfiguration:
  - "(iii) any decrease in the estimate of expected unserved energy in MWh multiplied by the value per MWh of that expected unserved energy, arising as a result of the removal of the connection asset or the reconfiguration of the connection assets:
  - "(iv) any of the following benefits, if the benefit is to a person that produces, transmits, retails or consumes

**electricity** in New Zealand:

- "(A) changes in fuel costs of **existing assets, committed projects and modelled projects**:
  - "(B) changes in the value of involuntary **demand** curtailment:
  - "(C) changes in the costs of **demand-side** management:
  - "(D) changes in costs resulting from the deferral of capital expenditure on **modelled projects**:
  - "(E) changes in costs resulting from differences in the amount of capital expenditure on **modelled projects**:
  - "(F) changes in costs resulting from differences in operations and maintenance expenditure on **existing assets, committed projects, and modelled projects**:
  - "(G) changes in costs for **ancillary services**:
  - "(H) changes in **losses**, including **local losses**:
  - "(I) subsidies or other benefits provided under or arising pursuant to all applicable laws, regulations and administrative determinations:
  - "(J) the value of the expected change in economic surplus due to a change in competition among **participants** arising as a result of the removal of the **connection asset** or the reconfiguration of the **connection assets**, excluding any expected change in economic surplus due to a change in another benefit in this net benefit test:
- "(v) any other relevant benefit to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(c) deduct the costs estimated under paragraph (a) from the benefits estimated under paragraph (b) to determine the net benefit of the proposed removal of the **connection asset**

or the reconfiguration of the **connection assets**.

- "(2) **Transpower** may apply the test under this clause at differing levels of rigour in different circumstances, which may include taking into account the number of **assets** to be removed or reconfigured, the value of the **assets** involved, and the size of the load served by the **assets**.
- "(3) **Transpower** is only required to—
  - "(a) make a reasonable estimate of the costs and benefits identified in subclause (1), based on information reasonably available to it at the time it undertakes the test, and taking into account the proposed number of **assets** to be removed or reconfigured, the value of the **assets** involved, and the size of the load served by the **assets**; and
  - "(b) take account of events that can be reasonably foreseen.
- "(4) **Transpower's** estimate of fuel costs under subclause (1) must—
  - "(a) in relation to thermal **generating stations**, be a reasonable estimate of the fuel costs, based on the economic value of the fuel required for the relevant thermal **generating station**, and justified by **Transpower** with reference to opinions on the economic value of the fuel, provided by 1 or more independent and suitably qualified persons; and
  - "(b) in relation to hydroelectric **generating stations**—
    - "(i) be a reasonable estimate of the fuel costs, based on the economic value of the water stored at a hydroelectric **generating station**, provided by a suitably qualified person other than—
      - "(A) **Transpower**; or
      - "(B) an employee of **Transpower**; and
    - "(ii) be **published**, as provided for in the **Outage Protocol**.
- "(5) The direct labour costs of **Transpower** and **designated transmission customers** under subclause (1)(a) may include any amounts paid to contractors, but must not include any apportionment of the overheads or office costs of **Transpower** or **designated transmission customers**.
- "(6) The material costs of **Transpower** and **designated transmission customers** under subclause (1)(a) are the costs of the materials used in carrying out the

work during the removal of the **connection asset** or the reconfiguration of the **connection assets**.

- "(7) In assessing costs and benefits under subclause (1), **Transpower** must consider any reasonably expected operating conditions, forecasts in the **system security forecast**, likely fuel costs, and any other reasonable assumptions.
- "(8) The estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy** under subclause (1) must be based on—
  - "(a) the estimated amount and value of the **expected unserved energy** as agreed between **Transpower** and each affected **designated transmission customer**; or
  - "(b) if **Transpower** and a **designated transmission customer** cannot agree on the amount and value of the **expected unserved energy** under paragraph (a), the **value of expected unserved energy** and **Transpower's** estimate of the **expected unserved energy** in respect of each affected **designated transmission customer** and end use customer."

**6 Clause 12.105 amended (Purpose of this subpart)**

In clause 12.105(d), after "permanently", insert "or temporarily".

**7 Clause 12.112 amended (Exceptions to clause 12.111)**

- (1) In clause 12.112(1)(b)(i), after "the **grid** is" insert "permanently".
- (2) After clause 12.112(1)(b)(i) insert:

"(iaa) has been temporarily removed from service, or the **grid** has been temporarily reconfigured, in accordance with clause 12.116AA; or".
- (3) In clause 12.112(1)(b)(ii), after "the **grid** has been", insert "permanently".
- (4) In clause 12.112(2), replace "subclause (1)(b)" with "subclause (1)(b)(i) or (ii)".
- (5) After clause 12.112(2), insert:

"(2AA) Subclause (2AB) applies—
  - "(a) if subclause (1)(b)(iaa) applies; and
  - "(b) while—
    - "(i) an **interconnection asset** that forms part of an **interconnection branch** or the **HVDC link**, or a **shunt asset**, has been temporarily removed; or



"(ii) the **grid** has been temporarily reconfigured.

"(2AB) **Transpower** must make the **interconnection branch**, the **HVDC link** or the **shunt asset** available to the **system operator** at least at its modified capacity rating, and at its modified service levels."

- (6) In clause 12.112(3), replace "subclause (1)(b)" with "subclause (1)(b)(i) or (ii)" in each place.

**"8 New clauses 12.116AA and 12.116AC inserted**

After clause 12.116 insert:

**"12.116AA Temporary removal of interconnection assets from service or grid reconfiguration**

"(1) **Transpower** must temporarily remove 1 or more **interconnection assets** from service, or temporarily reconfigure the **grid** for the purposes of clause 12.112(1)(b)(iaa), if—

"(a) the removal or reconfiguration is requested by the **system operator** in accordance with clause 9.13B; and

"(b) the removal or reconfiguration will result in a net benefit, as calculated under the test set out in clause 12.117.

"(2) If **Transpower** temporarily removes **interconnection assets** from service or temporarily reconfigures the **grid** in response to a notice given under clause 9.13B, **Transpower** must, as soon as is reasonably practicable after the circumstances specified in that notice cease to exist—

"(a) restore the **interconnection assets** to service; or

"(b) restore the **grid** to its original configuration.

**"12.116AC Information to be made publicly available**

If **Transpower** receives a notice given in accordance with clause 9.13B, **Transpower** must make publicly available at no cost, on an Internet site maintained by or on behalf of **Transpower**,—

"(a) as soon as practical, a copy of the notice; and

"(b) by no later than 5 **business days** after receiving the notice, a summary of **Transpower's** application of the net benefit test that relates to the exceptional circumstances stated in the notice."

9 **Clause 12.117 replaced (Permanent removal of interconnection assets from service)**

Replace clause 12.117 with:

**"12.117 Permanent removal of interconnection assets from service**

- "(1) **Transpower** may permanently remove **interconnection assets** from service or permanently reconfigure the **grid** for the purposes of clause 12.112(1)(b) only if removal of the **asset** or the reconfiguration results in a net benefit, as calculated under the test set out in subclause (2).
- "(2) When **Transpower** is required to apply a net benefit test, **Transpower** must—
- "(a) estimate the following costs:
- "(i) any additional fuel costs incurred by a **generator** in respect of any **generating units** that will be **dispatched** or are likely to be **dispatched** during or after the removal of the **interconnection asset** or the reconfiguration of the **grid**, arising as a result of the removal or reconfiguration:
  - "(ii) any direct labour and material costs that will be incurred by **Transpower** and the **designated transmission customers** undertaking the removal of the **interconnection asset** or the reconfiguration of the **grid**:
  - "(iii) any increase in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**, arising as a result of the removal of the **interconnection asset** or the reconfiguration of the **grid**:
  - "(iv) any relevant cost specified in clause 12.43(1)(a)(iv):
  - "(v) any other relevant cost to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(b) estimate the following benefits:
- "(i) any reduction in maintenance costs arising as a result of the removal of the **interconnection asset** or the reconfiguration of the **grid** (including

- Transpower's** and any designated **transmission customer's** costs):
- "(ii) any reduction in fuel costs incurred by a **generator** in respect of any **generating units**, arising or likely to arise during or after the removal of the **interconnection asset** or the reconfiguration of the **grid**, as a result of the removal or reconfiguration:
  - "(iii) any decrease in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**, arising as a result of the removal of the **interconnection asset** or the reconfiguration of the **grid**:
  - "(iv) any relevant benefit specified in clause 12.43(1)(b)(iv):
  - "(v) any other relevant benefit to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(c) deduct the costs estimated under paragraph (a) from the benefits estimated under paragraph (b) to determine the net benefit of the proposed removal of the **interconnection asset** or the reconfiguration of the **grid**.
- "(3) **Transpower** may apply the test under this clause at differing levels of rigour in different circumstances, which may include taking into account the number of **assets** to be removed or reconfigured, the value of the **assets** involved, and the size of the load served by the **assets**.
- "(4) **Transpower** is only required to—
- "(a) make a reasonable estimate of the costs and benefits identified in subclause (2), based on information reasonably available to it at the time it undertakes the test, and taking into account the proposed number of **assets** to be removed or reconfigured, the value of the **assets** involved, and the size of the load served by the **assets**; and
  - "(b) take account of events that can be reasonably foreseen.
- "(5) **Transpower's** estimate of fuel costs under subclause (2) must—

- "(a) in relation to thermal **generating stations**, be a reasonable estimate of the fuel costs, based on the economic value of the fuel required for the relevant thermal **generating station**, and justified by **Transpower** with reference to opinions on the economic value of the fuel, provided by 1 or more independent and suitably qualified persons; and
- "(b) in relation to hydroelectric **generating stations**—
  - "(i) be a reasonable estimate of the fuel costs, based on the economic value of the water stored at a hydroelectric **generating station**, provided by a suitably qualified person other than—
    - "(A) **Transpower**; or
    - "(B) an employee of **Transpower**; and
  - "(ii) be **published**, as provided for in the **Outage Protocol**.
- "(6) The direct labour costs of **Transpower** and **designated transmission customers** under subclause (2)(a) may include any amounts paid to contractors, but must not include any apportionment of the overheads or office costs of **Transpower** or **designated transmission customers**.
- "(7) The material costs of **Transpower** and **designated transmission customers** under subclause (2)(a) are the costs of the materials used in carrying out the work during the removal of the **interconnection asset** or the reconfiguration of the **grid**.
- "(8) In assessing the costs and benefits under subclause (2), **Transpower** must consider any reasonably expected operating conditions, forecasts in the **system security forecast**, likely fuel costs, and any other reasonable assumptions.
- "(9) The estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy** under subclause (2) must be based on the **value of expected unserved energy** and **Transpower's** estimate of the **expected unserved energy** in respect of each affected **designated transmission customer** and end use customer.
- "(10) To avoid doubt, this clause applies to the removal of **interconnection assets** from service if **Transpower**

does not propose to replace those **assets** with another **asset**."

**10 Clause 12.118 amended (Transpower to provide and publish annual report on interconnection asset capacity and grid configuration)**

In clause 12.118(1)(g)—

- (a) delete "permanently"; and
- (b) after "accordance with clause", insert "12.116AA or".

**11 Clause 12.141 amended (Consideration of the likely effects of planned outages)**

- (1) Replace clause 12.141(2) to (4) with:

"(2) The requirements in subclause (1) that the **Outage Protocol** may provide are—

"(a) if a proposed **planned outage** is likely to result in the power system failing to meet the **grid reliability standards**, but is not expected to give rise to **binding constraints** or result in loss of **supply** to **consumers**, **Transpower** must—

"(i) estimate the following costs:

"(A) any direct labour and material costs that **Transpower** will incur in undertaking the **outage**:

"(B) any direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the **outage**:

"(C) if the **outage** will result in an increased risk of loss of **supply**, any increase in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**:

"(D) any relevant cost specified in clause 12.43(1)(a)(iv):

"(E) any other relevant cost to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and

"(ii) estimate the following benefits:

"(A) if the **outage** will result in a decreased risk of loss of **supply**,

- any decrease in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**:
- "(B) any reduction in maintenance costs arising as a result of the **outage** (including **Transpower's** and any **designated transmission customer's** costs):
  - "(C) any relevant benefit specified in clause 12.43(1)(b)(iv):
  - "(D) any other relevant benefit to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(iii) carry out the **outage** only if the costs estimated under subparagraph (i) are less than the benefits estimated under subparagraph (ii); and
- "(b) if a proposed planned **outage** is likely to give rise to **binding constraints**, whether or not the **outage** is also likely to result in a loss of **supply to consumers**, **Transpower** must—
- "(i) estimate the following costs:
    - "(A) any direct labour and material costs that **Transpower** will incur in undertaking the **outage**:
    - "(B) any direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the **outage**:
    - "(C) if the **outage** will result in an increased risk of loss of **supply**, any increase in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**:
    - "(D) any additional fuel costs incurred by a **generator** in respect of any **generating units** that will be **dispatched** or are likely to be **dispatched** during or after the

- outage** and as a result of the **outage**:
- "(E) any relevant cost specified in clause 12.43(1)(a)(iv):
  - "(F) any other relevant costs to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(ii) estimate the following benefits:
- "(A) any reduction in maintenance costs resulting from the **outage** (including **Transpower's** and any **designated transmission customer's** costs):
  - "(B) any reduction in fuel costs incurred by a **generator** in respect of any **generating units**, arising or likely to arise during or after the **outage** and as a result of the **outage**:
  - "(BA) if the **outage** will result in a decreased risk of loss of **supply**, any decrease in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**:
  - "(C) any relevant benefit specified in clause 12.43(1)(b)(iv):
  - "(D) any other relevant benefit to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(iii) carry out the **outage** only if the costs estimated under subparagraph (i) are less than the benefits estimated under subparagraph (ii); and
- "(c) if a proposed planned **outage** is likely to lead to loss of **supply** to **consumers**, whether or not the **outage** is also likely to give rise to **binding constraints**, **Transpower** must—
- "(i) estimate the following costs:
    - "(A) any direct labour and material costs that **Transpower** will incur in undertaking the **outage**:

- "(B) any direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the **outage**:
- "(C) any increase in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**, arising from the loss of **supply** during the **outage**:
- "(CA) any additional fuel costs incurred by a **generator** in respect of any **generating units** that will be **dispatched** or are likely to be **dispatched** during or after the **outage** and as a result of the **outage**:
- "(D) any relevant cost specified in clause 12.43(1)(a)(iv):
- "(E) any other relevant cost to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- "(ii) estimate the following benefits:
  - "(A) any reduction in maintenance costs resulting from the **outage** (including **Transpower's** and any **designated transmission customer's** costs):
  - "(B) if the **outage** will result in a decreased risk of loss of **supply**, any decrease in the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy**:
  - "(C) any reduction in fuel costs incurred by a **generator** in respect of any **generating units**, arising or likely to arise during or after the **outage** and as a result of the **outage**:
  - "(D) any relevant benefit specified in clause 12.43(1)(b)(iv):



- "(E) any other relevant benefit to a person that produces, transmits, retails or consumes **electricity** in New Zealand; and
  - "(iii) carry out the **outage** only if the costs estimated under subparagraph (i) are less than the benefits estimated under subparagraph (ii).
- "(3) In providing for the matters referred to in subclause (2), the **Outage Protocol** must include the following requirements:
- "(a) **Transpower's** estimate of the fuel costs under subclause (2)(b) and (c) must—
    - "(i) in relation to thermal **generating stations**, be a reasonable estimate of the fuel costs, based on the economic value of the fuel required for the relevant thermal **generating station**, and justified by **Transpower** with reference to opinions on the economic value of the fuel, provided by 1 or more independent and suitably qualified persons; and
    - "(ii) in relation to hydroelectric **generating stations**—
      - "(A) be a reasonable estimate of the fuel costs, based on the economic value of the water stored at a hydroelectric **generating station**, provided by a suitably qualified person other than—
        - "(1) **Transpower**; or
        - "(2) an employee of **Transpower**; and
      - "(B) be **published**, as provided for in the **Outage Protocol**:
  - "(b) the direct labour costs of **Transpower** and **designated transmission customers** under subclause (2) may include any amounts paid to contractors, but must not include any apportionment of the overheads or office costs of **Transpower** or **designated transmission customers**:
  - "(c) the material costs of **Transpower** and **designated transmission customers** under subclause (2) are the costs of the materials used in carrying out the work during the **outage**:

- "(d) the estimate of **expected unserved energy** in MWh multiplied by the value per MWh of that **expected unserved energy** under subclause (2) must—
  - "(i) in the case of **connection assets**, be based on—
    - "(A) the estimated amount and value of the **expected unserved energy** as agreed between **Transpower** and each affected **designated transmission customer**; or
    - "(B) if **Transpower** and a **designated transmission customer** cannot agree on the amount and value of the **expected unserved energy** under subsubparagraph (A), the **value of expected unserved energy** and **Transpower's** estimate of the **expected unserved energy** in respect of each affected **designated transmission customer** and end use customer; and
  - "(ii) in the case of **interconnection assets**, be based on—
    - "(A) the **value of expected unserved energy**; and
    - "(B) **Transpower's** estimate of the **expected unserved energy** in respect of each affected **designated transmission customer** and end use customer.
- "(4) In addition to the requirements in subclause (3), the **Outage Protocol** must require **Transpower**, in planning for **outage s**, to consider any reasonably expected operating conditions, forecasts in the **system security forecast**, likely fuel costs, and any other reasonable assumptions."

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### Explanatory Note

*This note is not part of the amendment, but is intended to indicate its general effect.*

This amendment to the Electricity Industry Participation Code 2010 (Code) comes into force on 16 December 2013.

The amendment enables Transpower New Zealand Limited, with little or no notice, to temporarily remove one or more interconnection assets from service or temporarily reconfigure the grid, if doing so would contribute to improving security of supply (urgent temporary grid reconfiguration).

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Date of notification in the *Gazette*: 7 November 2013