FINANCIAL TRANSMISSION RIGHTS

FTR HUBS: CALL FOR NOMINATIONS

AUGUST 2020

Disclaimer

1. EMS, as FTR Manager, will only accept a person as an FTR participant, and will only offer and issue FTRs to that person, if the person meets all of the following requirements:

   (a) Meets the prudential requirements in relation to FTRs set out in Part 14 of the Electricity Industry Participation Code 2010 (**Code**), as determined by the Clearing Manager under the Code.
   (b) Is a natural person resident in New Zealand, a body corporate that is incorporated in New Zealand, or a person with a branch office or other substantial physical presence in New Zealand through which it conducts its FTR participation.
   (c) Has provided EMS as FTR Manager with either:

      (i) a current and valid eligible investor certificate under clause 41 of Schedule 1 of the Financial Markets Conduct Act 2013 (FMCA) in respect of the issue or sale of FTRs; or

      (ii) a current and valid wholesale investor certificate under clause 44 of Schedule 1 of the FMCA.

   (d) Is registered by the Electricity Authority as an Industry Participant under section 9 of the Electricity Industry Act 2010 as a trader in electricity.
   (e) Agrees to the standard FTR participation agreement,

   (**authorised persons**).

2. Information about FTRs made available by EMS through any medium (**FTR information**) is not:

   (a) advice on, or a recommendation of, FTRs or any other investment, financial product or risk management arrangement;
   (b) an offer or solicitation by EMS to issue or deal in FTRs or any other investment, financial product or risk management arrangement; or
   (c) directed to any person who is not an authorised person.

3. Clause 2(c) applies to all FTR information including FTR information that is or may be accessible to persons who are not authorised persons, for example on the Internet or by being distributed outside New Zealand by persons to whom EMS initially made the FTR information available. No recipient of FTR information is authorised to distribute it outside New Zealand.

4. Prior to any person acquiring, entering into or dealing in any investment, financial product or risk management arrangement they should obtain their own tax, legal and financial advice.

5. The FTR auction, reconfiguration auction and assignment facilities provided by EMS as FTR Manager are not licensed financial product markets under the FMCA or otherwise. However, those facilities and the FTR Manager are regulated under the Electricity Industry Act 2010, Electricity Industry (Enforcement) Regulations 2010 and Electricity Industry Participation Code 2010.

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1 Introduction

1.1 Background

Energy Market Services (EMS), a business unit of Transpower, is the FTR Manager appointed by the Electricity Authority (Authority).

The extant FTR Allocation Plan 2018 was approved by the Authority Board in February 2018. The latest version of the FTR Allocation Plan (the Plan) is available at *www.ftr.co.nz/plan*.

The FTR Allocation Plan 2018 provides (in section **4.10 Adding new FTR Hubs**) that:

> The FTR Manager will at least once every two years conduct a process to offer FTR Participants the possibility to add up to five new FTR Hubs. Non-FTR participants can request new FTR Hubs at any time, and these requests will be considered as part of this process. In conducting the process, the FTR Manager will:
>
> - Confer with the Authority regarding the number of FTR hubs to make available, taking into consideration the Authority's work-plan and appropriations
> - Determine which nodes have sufficient levels of interconnection and capacity to act as effective FTR hubs
> - Seek FTR Participants' nominations for which hub or hubs each FTR Participant would prefer were added (if any), with a limit on *the number of proposed hubs per participant*
> - Consolidate a list of nominated hubs, including up to five 'non-hubs'
> - Invite FTR Participants to vote on their preferences for nominated hubs using a single transferable vote method
> - Use both the votes and any hubs requested by non-FTR participants and the Authority to select a subset of all nominated hubs (the nominated subset)
> - Invite FTR Participants and non-FTR participants to advise their costs and views on market benefits should new hubs be selected to be added
> - If one or more new FTR Hubs are selected to be added, and a positive cost-benefit can be demonstrated, propose to the Authority a corresponding variation to sections 2.2 and 2.3 of the FTR Allocation Plan.
>
> The Authority's decision on whether to approve the variation will include consideration of the cost-benefit analysis and the funds available through the Authority's appropriations. The timing of any additions will also be influenced by the time and effort required to complete the necessary changes to the FTR Manager and clearing manager systems.

The FTR Allocation Plan 2018 provides (in section **4.11 Removing FTR Hubs**) that:

> The FTR hubs are listed in section 2.2. The FTR Manager will [at least once every two years] conduct a process to offer FTR Participants the possibility to remove up to [one] existing FTR Hub. In doing so, the FTR Manager will:
>
> - Seek FTR Participant proposals for which hub each FTR Participant would prefer were removed (if any), with a limit on the number of proposed hubs per participant
> - Consolidate a list of nominated hubs, including [two] 'non-hubs'
> - Invite FTR Participants to vote on their preferences for nominated hubs using a single transferable vote ranking system
> - Use the votes to select the [one] hub (or non-hub) using the single transferable vote method
> - Invite FTR Participants to advise their costs and views on market benefits should the hub be removed
> - If one existing FTR Hub is selected to be removed, and a positive cost-benefit can be demonstrated, propose to the Authority a corresponding variation to section 2.2 of the FTR Allocation Plan.
>
> The Authority's decision on whether to approve the variation will include consideration of the cost-benefit analysis and the funds available through the Authority's appropriations. The timing of any removals will also be influenced by the time and effort required to complete the necessary changes to the FTR Manager and Clearing Manager systems.

1.3 Coordination of this consultation with the FTR Manager's Consultation on the next Allocation Plan

If at the conclusion of the hub nomination process, a prioritised sub-set of hubs demonstrate a positive CBA, then those hubs will be recommended for inclusion to the Market in the next Allocation Plan consultation. This consultation is likely to immediately follow the nomination process, and as such is likely to be issued in Q4 2020.

1.4 Coordination of the nomination process with the Clearing Manager

The hub nomination process represents the application of the Hub Criteria (Section 4.10) of the Allocation Plan. As such, the Clearing Manager will be responsible for providing the daily MIM and DSP data that matches the new hubs (once included in the Market), and will be required to receive auctions results and settle FTR periods that include the resulting new paths.

The FTR Manager will endeavour to provide regular updates by way of project meetings to minimise the risk of scheduling conflicts.

1.5 Nomination process

Table 1 below provides an overview of the Hub Nomination process. This document represents **Step 3** of the sequence, the publication of a call to participants and identified non-participants asking for hub nominations. The FTR Manager has already established hubs that have sufficient interconnection and capacity to act as FTR nodes, the final number of hubs to potentially add to the system, and sought feedback from the Authority that the necessary appropriations are in place to support the change.

1.6 Nomination timetable

The timetable for the nomination process is as follows (**dates are subject to change**):

Sequence ID Ref	Process step	Due date	Date (other milestones)	Other FTR Milestones	Status
			6 August 2020	Authority board meeting to consider Hub recommendations.	Complete
			7 August 2020	Authority instructs FTR Manager how many hubs can be added to the market	Complete
3	Hub Nomination 2020 (this document) out to consultation	13 August 2020 **(milestone)**			Complete
3b	Nominations due	11 September 2020			Complete
4	The FTR Manager consolidates the nominated hubs as a list	16 September 2020			In Progress
5	Ranked short list published and voting requested (credentials provided to participants)	18 September 2020			In Progress
5b	Votes Returned	24 September 2020			
6	STV Algorithm applied to determine ranked/prioritised shortlist suitable for CBA	25 September 2020			

Sequence ID Ref	Process step	Due date	Date (other milestones)	Other FTR Milestones	Status
7	Costs and Benefits requested	5 October 2020			
7b	Costs and Benefits Returned	16 October 2020			
8	FTR Manager creates a "final set" of hubs that demonstrate net positive CBA	16 November 2020 **(Milestone)**		This is a key milestone, and is subject to the Authority's CBA model preferences.	
9	Proposed variation to the Allocation Plan issued as formal consultation	18 November 2020 **(Milestone)**			
10	AP21 Consultation Responses Due	4 December 2020			
11	FTR Manager incorporates feedback into final variation to the Allocation Plan recommended to the Authority for approval	11 December 2020			
			TBD	EA Board papers must be submitted to be included on agenda for January meeting.	
12	Authority Board provide approval to the Allocation Plan	February Board Meeting (Feb X 2020) **(Milestone)**			
13	FTR Manager prepares a change request and seeks approval to implement the change to the system.	Board Meeting BD+1			

Sequence ID Ref	Process step	Due date	Date (other milestones)	Other FTR Milestones	Status
14	Authority provides approval to proposed Change Request	Board Meeting BD+2			
15	FTR Manager initiates software change to implement Hub according to the operation date specified and recommended in the Allocation Plan variation	Board Meeting BD+2			
16			Board Meeting + XX weeks	Clearing Manager completes necessary work	
16b			Allow further 2 weeks for testing. FTR UAT connected to NZX PROD (DSPIM / PRUDLIM / Results payload testing)	Software testing with clearing Manager to ensure MIM and DSP data correct.	
17	FTR Manager deploys software change to the FTR Information System	**(milestone)**			
				First Auctions to offer new FTR Hubs to the market.	

Table 1 – Hub Nomination Sequence

Step	Description	Status
1	Determine the maximum number of hubs to be added	Complete
	FTR Manager to provide indicative costs to the Authority	Complete
	Clearing Manager to provide indicative costs to the Authority	Complete
	Authority to confirm appropriations, and consequently how many hubs can be added	Complete
2	FTR Manager to determine which hubs have sufficient inter-connectivity and capacity to be added as FTR Nodes	Complete
3	The FTR Manager then sends a call to participants and identified non-participants asking for hub nominations	Complete
4	The FTR Manager consolidates the nominated hubs as a list	In Progress
	The list will be amended to ensure that nominated nodes have the geographic and/or electrical distance required to provide commercial benefit	In Progress
5	This hub addition list, including 5 non-hubs, and hub removal list, including 2 non-hubs is communicated to participants who are then invited to vote	Not started
6	FTR Manager applies STV algorithm to voted hubs and non-hubs to create a ranking and determine a prioritised short list.	Not started
	The subset is likely to be limited to 4-6 Nodes for the hub additions and 1 nodes for hub removal, but is dependent on the number of nominations requested	Not started
7	The FTR Manager then invites participants and non-participants to provide costs and benefits associated with the introduction of each (or combination) of the nominated subset to the FTR Market	Not started
8	The FTR Manager uses the costs and benefits provided by (non)/ participants, together with the CBA framework approved with the Authority, to create a "final set" of hubs that demonstrate net positive CBA	Not started
9[1]	The "Final Set" are then included as a proposed variation to the Allocation Plan (AP20) which the FTR Manager issues as a formal consultation	Not started

[1] Step 9 above triggers an understood process for consulting and then recommending a new Allocation Plan to the Authority.

2 The Nomination Forms

The hub nomination forms are a very simple participant response designed to provide the FTR Manager with a set of ranked hubs for addition or removal.

HUB ADDITION

Nominated Position	Hub Code	Hub Name
Example:	*NPL1101*	*New Plymouth*
1		
2		
3		
4		
5		
6		

Notes

- The nominated positions of 1 to 6 represents a prioritised list
- Participants must fill the nominated positions in sequence
- Participants can nominate anywhere between 1 and 6 hubs
- There is no need to nominate non-hubs at this point, as they will be automatically included for voting in stage 5 of the process

HUB REMOVAL

Nominated Position	Hub Code	Hub Name
Example:	*HAY2201*	*Haywards*
1		

Notes

- FTR participants can nominate one existing FTR hub for removal (if any)
- There is no need to nominate non-hubs at this point, as they will be automatically included for voting in stage 5 of the process

3 The Hub Long list

97	68 220kV	29 110kv

The hub long-list contains 97 unique nodes, of which 68 nodes are 220kV, 29 nodes are 110kV on the electrical system (Please refer to Table 2). Some of the criteria used by the FTR Manager to determine the long list are as follows:

- All nodes are from the 220kv or 100kV electrical system
- All nodes have a relevant pnode
- All nodes have a network model bus name mapped in the PSS/E and Asset Map files provided by the Grid Owner
- The node list contains no Tee's or Transformers.

Furthermore, a full nodal assessment of indicative capacity was determined with the help of the Authority. The point-to-point capacities are provided in Table 2 below. These capacities must be read as indicative only, and are provided as a guide as they are not produced from the New Zealand production FTR system and do not account for nomogram constraints and outages.

Question 1	Do you agree with the long-list of hubs listed in **Table 2 – Long list of Hubs** as sufficient for consideration for the hub nomination process? If not, can you suggest other hubs that should be considered, and why?

3.1 Max Number of Hubs to be added

5

In view of the licensing structure of the FTR Information System, together with the Authority's appropriations for this change, the maximum numbers of hubs that will be added to the market in AP21 is 5. The final number is dependent on passing a net positive cost-benefit analysis, and as such the final number of hubs added could be 0 (none) through to 5.

3.2 Max Number of addition votes to be cast

6

The maximum number of votes cast per participant is 6. Allowing a number greater than the max number of hubs to be added reduces the risk of a tie or stalemate when the STV algorithm processes the votes to determine the prioritised short list of hubs.

3.3 Max Number of Hubs to be removed

1

As part of the new Allocation Plan 2021, the FTR manager will conduct a process to offer FTR participants the possibility to remove up to one existing FTR hub. The final number is dependent on passing a net positive cost-benefit analysis, and as such the final number of hubs removed could be 0 (none) through to 1.

3.4 Max Number of removal votes to be cast

2

The maximum number of votes cast per participant is 2. Allowing a number greater than the max number of hubs to be removed reduces the risk of a tie or stalemate when the STV algorithm processes the votes to determine the prioritised short list of hubs.

Table 2 – Long list of Hubs

All potential nodes are on the 110kV and 220kV electrical system, and each has a corresponding 1101 or 2201 pnode (against which final prices are currently calculated)

Hub ID	PNODENAME	SITE	Name	Network Model Bus Name
1	ALB1101	ALB	Albany	ALB/ALB110A1
29	ALB2201	ALB	Albany	ALB/ALB220A1
30	ARA2201	ARA	Aratiatia	ARA/ARA220
31	ASB2201	ASB	Ashburton	ASB/ASB220A1
32	ATI2201	ATI	Atiamuri	ATI2/ATI220A
33	AVI2201	AVI	Aviemore	AVI/AVI_220
34	BHL2201	BHL	Brownhill Rd	BHL/BHL220_A
2	BPE1101	BPE	Bunnythorpe	BPE/BPE110A1
35	BPE2201	BPE	Bunnythorpe	BPE220A1a
36	BRB2201	BRB	Bream Bay	BRB/BRB220
37	BRK2201	BRK	Brunswick	BRK2/BRK220A
38	BRY2201	BRY	Bromley	BRY2/BRY220A
3	CML1101	CML	Cromwell	CML/CML_110A
39	CML2201	CML	Cromwell	CML/CML220A
4	CST1101	CST	Carrington St	CST/CST110
40	CYD2201	CYD	Clyde	CYD2/CYD220A
41	DRY2201	DRY	Drury	DRY/DRY220
42	EDG2201	EDG	Edgecumbe	EDG2/EDG220A
5	GFD1101	GFD	Gracefield	GFD/GFD110_1
43	GLN2201	GLN	Glenbrook	GLN/GLN220
6	HAM1101	HAM	Hamilton	HAM1/HAM110A
44	HAM2201	HAM	Hamilton	HAM2/HAM220A

Hub ID	PNODENAME	SITE	Name	Network Model Bus Name
59	NPL2201	NPL	New Plymouth	NPL/NPL220
60	NSY2201	NSY	Naseby	NSY2/NSY220A
61	OHA2201	OHA	Ohau A	OHA/OHA_220
62	OHB2201	OHB	Ohau B	OHB/OHB_220
63	OHC2201	OHC	Ohau C	OHC/OHC_220
64	OHK2201	OHK	Ohakuri	OHK/OHK220A1
65	OKI2201	OKI	Ohaaki	OKI/OKI220
66	PAK2201	PAK	Pakuranga	PAK2/PAK220A
19	PEN1101	PEN	Penrose	PEN1/PEN110A
67	PEN2201	PEN	Penrose	PEN2/PEN220A
68	PPI2201	PPI	Poihipi	PPI/PPI_220
20	ROS1101	ROS	Mount Roskill	ROS/ROS110A1
21	ROX1101	ROX	Roxburgh	ROX1/ROX110A
69	ROX2201	ROX	Roxburgh	ROX2/ROX220A
70	RPO2201	RPO	Rangipo	RPO/RPO220
71	SDN2201	SDN	South Dunedin	SDN2/SDN220A
22	SFD1101	SFD	Stratford Power Stn	SFD1/SFD110A
72	SFD2201	SFD	Stratford Power Stn	SFD/SFD220A1
23	STK1101	STK	Stoke	STK/STK_110
73	STK2201	STK	Stoke	STK/STK_220
74	SVL2201	SVL	Silverdale	SVL/SVL220-1
75	SWN2201	SWN	Southdown	SWN/SWN220

Hub ID	PNODENAME	SITE	Name	Network Model Bus Name
7	HEN1101	HEN	Henderson	HEN/HEN110A1
45	HEN2201	HEN	Henderson	HEN220A1a
8	HEP1101	HEP	Hepburn Road	HEP/HEP110A
46	HLY2201	HLY	Huntly	HLY2/HLY220A
9	HOB1101	HOB	Hobson Street	HOB/HOB110
47	HOB2201	HOB	Hobson Street	HOB/HOB220
48	HPI2201	HPI	Huapai	HPI_220_1
10	HWB1101	HWB	Halfway Bush	HWB1/HWB110A
49	HWB2201	HWB	Halfway Bush	HWB2/HWB220A
11	KAW1101	KAW	Kawerau	KAW1/KAW110A
50	KAW2201	KAW	Kawerau	KAW2/KAW220A
12	KIK1101	KIK	Kikiwa	KIK/KIK_110
13	KMO1101	KMO	Kaitimako	KMO/KMO110
51	KMO2201	KMO	Kaitimako	KMO/KMO220
52	LIV2201	LIV	Livingstone	LIV/LIV_220
53	LTN2201	LTN	Linton	LTN_220_1
54	MAN2201	MAN	Manapouri	MAN2/MAN220A
14	MDN1101	MDN	Marsden	MDN/MDN110A1
55	MDN2201	MDN	Marsden	MDN/MDN220A1
15	MNG1101	MNG	Mangere	MNG/MNG110A1
16	MPE1101	MPE	Maungatapere	MPE1/MPE110A
56	MTI2201	MTI	Maraetai	MTI/MTI220
17	MVE1101	MVE	Morrinsville	MVE/MVE110-1
57	NAP2201	NAP	Nga Awa Purua	NAP/NAP220
58	NMA2201	NMA	North Makarewa	NMA/NMA220a1
18	NPL1101	NPL	New Plymouth	NPL/NPL110

Hub ID	PNODENAME	SITE	Name	Network Model Bus Name
76	TAK2201	TAK	Takanini	TAK/TAK220-1
77	THI2201	THI	Te Mihi	THI2/THI220A
78	TIM2201	TIM	Timaru	TIM2/TIM220A
79	TKB2201	TKB	Tekapo B	TKB/TKB_220
24	TKR1101	TKR	Takapu Road	TKR/TKR110
80	TKU2201	TKU	Tokaanu	TKU-220-1
81	TMH2201	TMH	Three Mile Hill	TMH2/TMH220A
82	TMN2201	TMN	Taumarunui	TMN/TMN220
83	TNG2201	TNG	Tangiwai	TNG/TNG220
25	TRK1101	TRK	Tarukenga	TRK1/TRK110A
84	TRK2201	TRK	Tarukenga	TRK/TRK220A1
85	TWC2201	TWC	Tararua Wind Central	Tarar/TWC220
86	TWH2201	TWH	Te Kowhai	TWH/TWH220
87	TWI2201	TWI	Tiwai	TWI/TWI_220
88	TWZ2201	TWZ	Twizel	TWZ/TWZ220A1
26	UHT1101	UHT	Upper Hutt	UHT/UHT110-1
89	WHI2201	WHI	Whirinaki	WHI/WHI220
27	WHU1101	WHU	Waihou	WHU/WHU110
28	WIL1101	WIL	Wilton	WIL/WIL110A1
90	WIL2201	WIL	Wilton	WIL2/WIL220A
91	WPA2201	WPA	Waipapa	WPA/WPA220
92	WPR2202	WPR	Waipara	WPR/WPR220-2
93	WRD2201	WRD	Wairau Road	WRD/WRD220
94	WRK2201	WRK	Wairakei	WRK2/WRK220A
95	WTK2201	WTK	Waitaki	WTK2/WTK220A
96	WTU2201	WTU	Whakatu	WTU/WTU220-1
97	RDF1101	RDF	Redclyffe	RDF/RDF110A1

3.5 The Addition Nomination Response

Question 2	Please use the table below to nominate up to 6 hubs (in priority order) that will be used as the basis for the FTR Manager to determine a short list for later voting.

Nominated Position	Hub Code	Hub Name
1		
2		
3		
4		
5		
6		

3.6 The Removal Nomination Response

Question 3	Please use the table below to nominate up to 1 existing FTR hub (see section 2.2 of FTR Allocation Plan) that will be used as the basis for the FTR Manager to determine a short list for later voting. For clarity please indicate "no removal" if you do not wish to have any FTR hub removed.

Nominated Position	Hub Code	Hub Name
1		

4 STV Methodology

The Single Transferable Voting system will use *Meek's Method*. As described by Hill, Wichmann and Woodall (1987),

> The basis of any STV system consists of the following.
>
> (1) Voting by order of preference of candidates, the first choice being marked 1, the second 2, and so on, on the ballot papers. (Meek also considered an alternative formulation in which voters would be allowed to indicate equal preference for some candidates instead of a strict ordering; we have not implemented this alternative.)
>
> (2) A quota for election, calculated from the number of votes and the number of seats to be filled.
>
> (3) A first counting by first preferences only, and the election of any candidate who equals or exceeds the quota (except in the special case of a multi-way tie).
>
> (4) Redistribution of surplus votes (above the quota) for any candidate, in accordance with the voters' further preferences, and election of any who now reach the quota.
>
> (5) When no further redistribution of surpluses is possible, the exclusion of the candidate who then has the fewest votes, and redistribution of those papers.
>
> (6) Further counting, election, redistribution of surpluses and exclusion as necessary, until all seats are filled.
>
> In the Meek formulation the rule for redistributing surpluses is that, at every stage, if a candidate has votes totalling times the quota, then he (or she) keeps of each of those votes and passes on to the next candidate on the voter's list. This same fraction applies also to portions of votes received as parts of other surpluses. This requires the iterative solution of nonlinear equations. It is proved in Section 4 below that a solution always exists and is unique.

Furthermore, the approach to Meek's Method will be that outlined by the *NZ Dept. of Internal Affairs*. As stated by DIA, the general approach is:

Every Single Transferable Voting system for elections has the following features:

- voting by order of preference for the candidates
- a quota for election, calculated from the number of votes and the number of positions to be filled
- a first count of first preferences only, and the election of any candidate who equals or exceeds the quota (except in the special case of a multi-way tie)
- redistribution of surplus votes (above the quota) for any candidate in accordance with the voter's further preferences, and election of any candidate who then reaches the quota

- when no further distribution of surpluses is possible, the exclusion of the candidate who then has the fewest votes, and redistribution of those votes
- Further counting, election, redistribution of surpluses, and exclusion, as necessary, until all positions for election are filled

The following points explain in what ways Meek's method is different to other forms of STV:

Vote transfer

Votes are transferred to the next preference of the voter in the exact order indicated by the voter on the voting document unless the candidate has already been excluded.

Value of surpluses

The total value of a surplus or surpluses is shared in due proportion across both transferable and non-transferable voting documents.

Sharing of votes

If a candidate is elected later in the count, or an elected candidate receives further votes, the surplus to be transferred is shared across all voting documents credited to that candidate in due proportions, not just across the voting documents that gave immediate rise to the surplus.

Recalculation of quota

As votes become non-transferable (e.g., because the number of preferences recorded in the voting document is exhausted), the quota is recalculated to reflect the smaller total of votes remaining active. The new quota then applies to already elected candidates as well as others, giving them further surpluses to redistribute.

Need for computer technology

Because the procedure required to conduct a count using Meek's method of counting votes requires a candidate to be assigned a scaling factor (a keep value) representing the proportion of each vote that will actually be credited to each candidate, the number of calculations involved requires the count to be conducted using computer technology rather than by means of a manual count

Question 4	Do you agree that Meek's Method provides an appropriate framework upon which to structure the Single Transferable Vote process? If not, can you suggest other methodology/ies that should be considered, and why?

5 Consultation Questions

This section presents the consultation questions posed elsewhere in this paper:

<table>
<tr><td>Question 1</td><td>Do you agree with the long-list of hubs listed in Table 2 – Long list of Hubs as sufficient for consideration for the hub nomination process?

If not, can you suggest other hubs that should be considered, and why?</td></tr>
<tr><td>Question 2</td><td>Please use the table below to nominate up to 6 hubs (in priority order) that will be used as the basis for the FTR Manager to determine a short list for later voting.
<table>
<tr><th>Nominated Position</th><th>Hub Code</th><th>Hub Name</th></tr>
<tr><td>1</td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td></tr>
<tr><td>3</td><td></td><td></td></tr>
<tr><td>4</td><td></td><td></td></tr>
<tr><td>5</td><td></td><td></td></tr>
<tr><td>6</td><td></td><td></td></tr>
</table></td></tr>
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<tr><td>1</td><td></td><td></td></tr>
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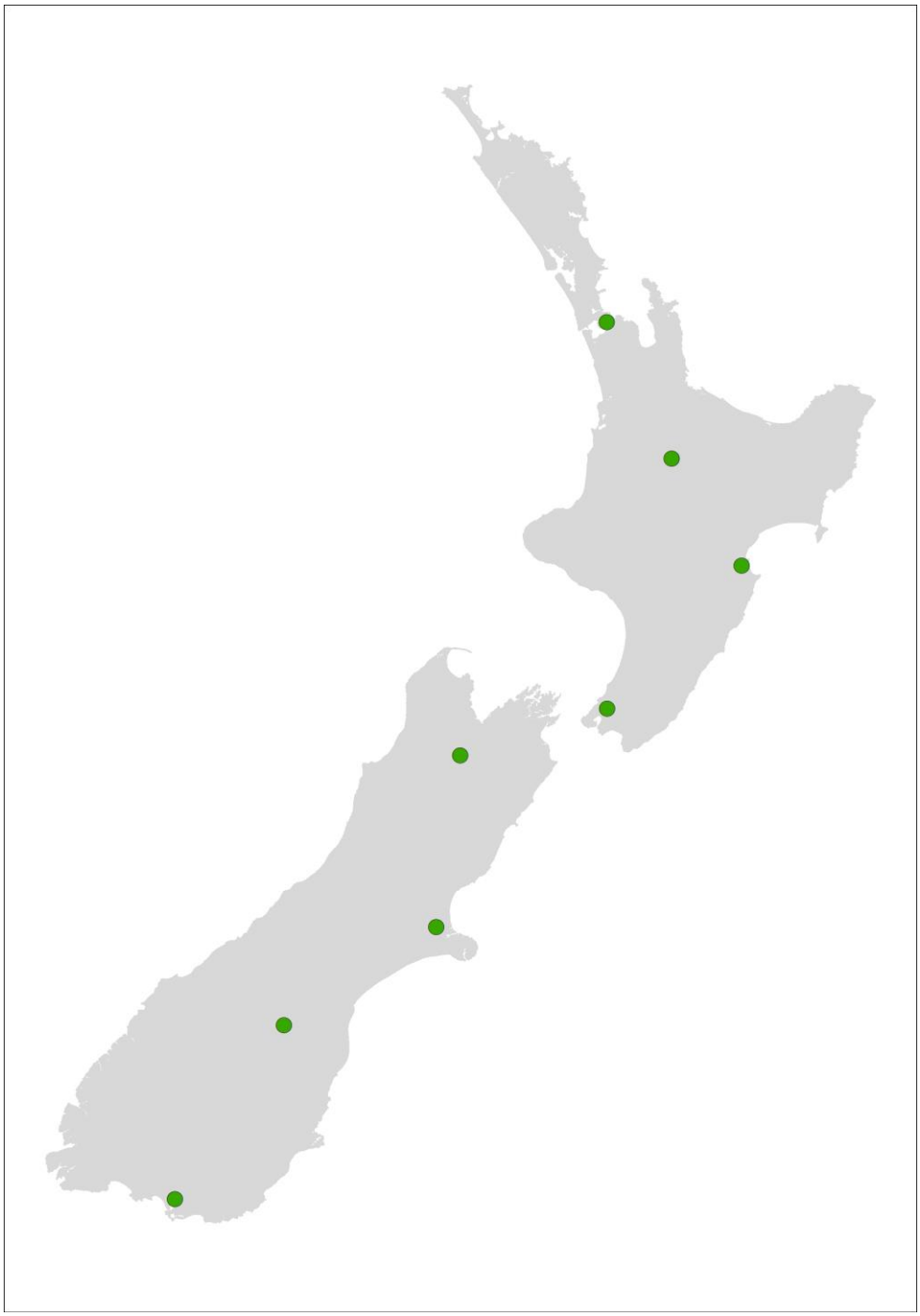
<tr><td>Question 4</td><td>Do you agree that Meek’s Method provides an appropriate framework upon which to structure the Single Transferable Vote process?

If not, can you suggest other methodology/ies that should be considered, and why?</td></tr>
</table>

6 Geographic Representations

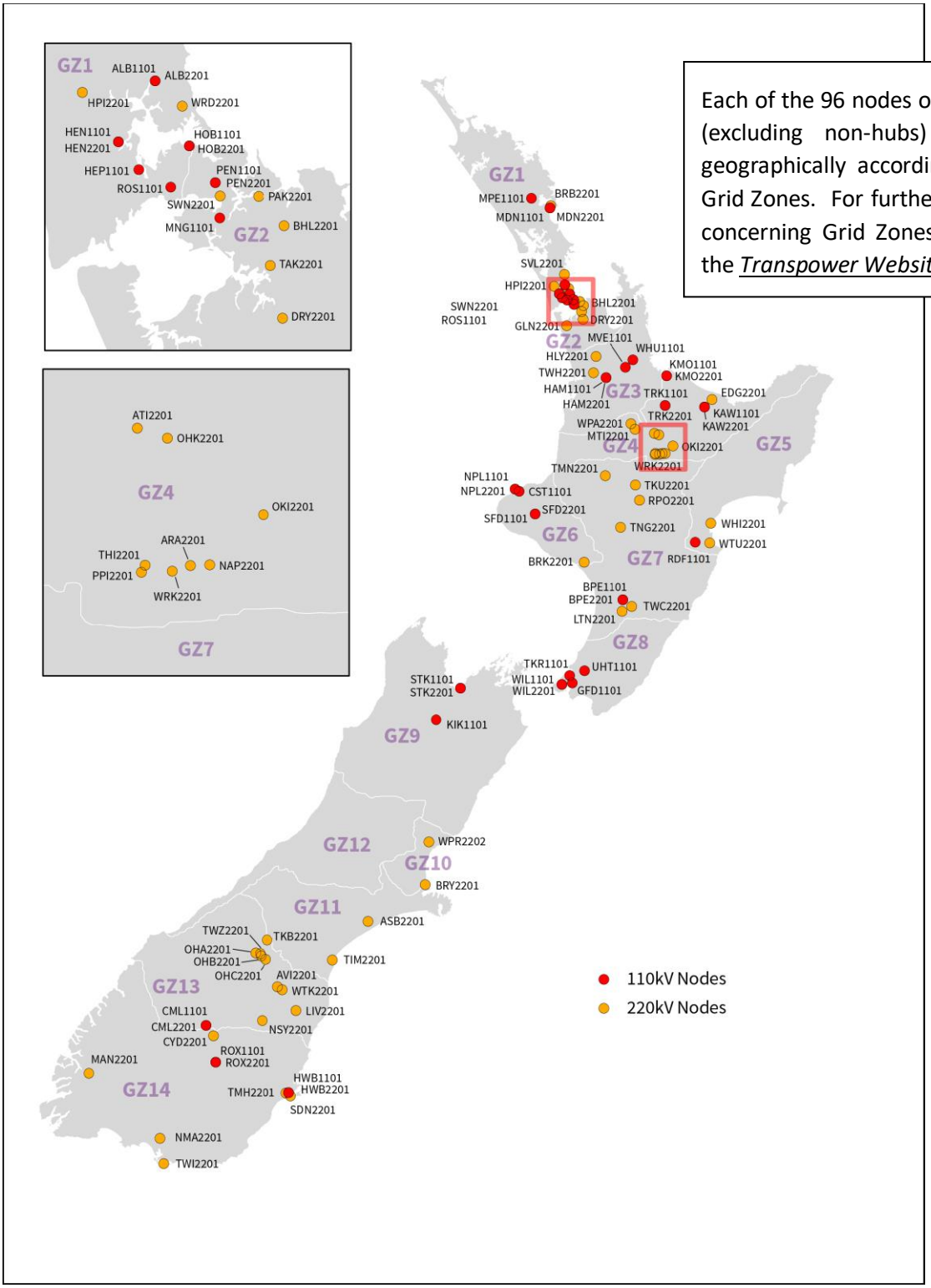
6.1 Otahuhu, Whakamaru, Redclyffe, Haywards, Kikiwa, Islington, Benmore and Invercargill

Image 1: Existing 8 FTR Hubs



6.2 Hub Nomination Long List

Image 2: Hub Long List Geographic Location



Each of the 96 nodes on the long list (excluding non-hubs) is mapped geographically according to the 14 Grid Zones. For further information concerning Grid Zones, please visit the *Transpower Website*