Technical Assumptions for Analysis of Firm Access Quantities and Associated Transmission Reinforcements for Gates 1-3 and Eligible Non-GPA Generators

July 2012

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1 Background

This document contains a description of the key assumptions that EirGrid will use in the network studies associated with the review of Firm Access Quantities (FAQs) and Associated Transmission Reinforcements (ATRs) for Gates 1, 2 and 3 generation projects.

This review will update the scheduled FAQs published by EirGrid on 22 December 2011 for Gates 1 and 2 while it will be the first update to the Gate 3 scheduled FAQs published on 29 January 2010.

EirGrid envisages reviewing the scheduled FAQs and ATRs for all contracted or otherwise eligible non-firm and partially-firm generation on an annual basis.

Each annual re-calculation of scheduled FAQs and ATRs will take account of the most up-to-date schedule for new transmission reinforcements, the most recent electricity demand forecasts as contained in the *All Island Generation Capacity Statement* and any generator "withdrawals" since the previous year's analysis. Furthermore, EirGrid will continue to seek improvements to its study methodology, including the credibility of its generation dispatches and its criteria for associating transmission reinforcements.

In addition to the applicants originally studied as part of Gates 1, 2 and 3, additional Non-GPA applicants are also being considered. The eligibility criteria for Non-GPA applicants are detailed in Section .

2 Generation

2.1 Candidate Generation

2.1.1 Gate 1

The Gate 1 projects included in this study are those contained in Table - and comprise those projects not "awarded" full firm access under the 2011 analysis for Gate 1. This consists of 70.59 MW of renewable generation, made up of 2 distribution applicants and 2 transmission applicants.

2.1.2 Gate 2

The Gate 2 projects included in this study are those contained in Table - and comprise those projects not "awarded" full firm access under the 2011 analysis for Gate 2. This consists of 817.195 MW of renewable generation, made up of 54 distribution applicants and 11 transmission applicants.

2.1.3 Gate 3

As per the CER Gate 3 directions CER/08/260[1], CER/09/091[2] and CER/09/192[3] the generation that will be considered for a calculation of firm access will be those applicants contained in Table -. This consists of 3989.8 MW of wind generation and 1429.419 MW of non-wind generation. There are 147 DSO applicants and 41 TSO applicants.

The thermal generation that did not meet the Offer Issuance Criteria outlined in CER/09/191[2] and subsequently did not receive a connection offer as part of Gate 3 is not being reconsidered as part of this study. Any applicants which were originally included but did not pay the required fee or otherwise withdrew their application under Gate 3 shall not be considered as part of this study.

2.1.4 Additional Eligible Non-Group Processing Approach (Non-GPA) Projects

As per the CER direction CER/09/099[4], certain generation technologies that exhibit public interest criteria are eligible for processing outside of the Group Processing Approach.

The calculation of FAQs for non or partially firm Non-GPA applications which had valid connection offers or executed connection agreements up to and including 1 June 2012 will be considered in the study. Those eligible applicants are detailed in Table - and consist of 29 applicants totalling 120.686 MW of generation.

2.1.5 Threshold for Analysis

Only eligible applicants with a requested MEC of > 2 MW will be directly assessed for firm access. Those applicants which have an MEC ≤ 2 MW will be allocated an FAQ equal to their requested MEC on publication of the complete set of FAQ results following this analysis. This exception will not be applied to project extensions, which results in the total MEC of a project exceeding 2 MW, and can be withdrawn if a project is subsequently merged to form a project with an MEC > 2 MW.

This threshold is considered appropriate as individually projects of this size have little impact on the transmission system and cumulatively these 36 projects, totalling only 17.1188 MW, are geographically well dispersed, with the largest MW total in any given *Area*[5] of only 4.7054

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[1] *Criteria for Gate 3 Renewable Generator Offers & Related Matters, Direction to the System Operators*, 16th December 2008
[2] *Direction on Conventional Offer Issuance Criteria and Matters Related to Gate 3*, 18th December 2009
[3] *Direction on Detail for Allocating Scheduled Firm Access in Gate 3 ITC Programme*, 18th December 2009
[4] *Treatment of Small, Renewable and Low Carbon Generators outside the Group Processing Approach* 24th July 2009
[5] Ireland is divided into 12 "Areas" for the purposes of Transmission and Distribution generator access planning studies. A graphical representation of these areas can be found at http://www.eirgrid.com/media/gate%203%20area%20map%20v1.pdf

MW (11 individual projects), and therefore are considered to have a negligible overall impact on other applicants.

To ensure that the application of the 2 MW threshold does not disadvantage other projects within the same Gate or firm access grouping, these projects will not be assumed in the network models for the assessment of FAQ for projects in the same or prior Gates or groupings.

2.2 Assumed Generation

The generation plant portfolio detailed in Appendix D of the All Island Transmission Forecast Statement 2012-2018[6] will be considered in the network models used for this analysis.

In determining FAQs for generation within a particular Gate the network models will only include any generation afforded a firm access position prior to that Gate. Table - details the relative access positions of relevant generation.

Table -: Firm Access Position

Code	Unit Name	MEC (MW)	Node	Access Order
-	Gate 1 Generation		NA	1: Gate 1
TG48	Aghada CCGT	431	Longpoint 220kV	2: Post Gate 1 – Pre Gate 2
TG68	Whitegen CCGT	445	Glanagow 220kV	
TG02	Huntstown Phase 2	412	Corduff 220kV	
-	Gate 2 Generation		NA	3: Gate 2
TG87	Ballakelly	445	Louth 220kV	4: Post Gate 2 – Pre Gate 3
TG125	EWIC	500	Woodland 220kV	
TG85	Nore	98	Kilkenny 110kV	
-	Gate 3 Generation		NA	6: Gate 3
-	Eligible Non-GPA			7: Post Gate 3

2.2.1 Generation at Tarbert and Great Island

Due to the uncertainty around the plans for re-powering of generation at Tarbert, EirGrid will revise the previous assumption made for FAQ studies. The revised assumption will be that all 589.4 MW of generation at Tarbert remains connected in its present form. Previously, EirGrid assumed that generation units 1-3 at Tarbert would be replaced with a new 285 MW OCGT.

It is planned that the existing generation at Great Island (G1, G2 & G3) will be replaced by a single CCGT with an MEC of 431 MW. This CCGT will be included in the network models for this analysis with an MEC equal to the currently contracted MEC of the existing units (216 MW) with the remaining increase in MEC (215MW) to be assessed for firm access under the Gate 3 study.

[6] http://www.eirgrid.com/transmission/transmissionforecaststatement/

3 Northern Ireland

Prior to the completion of the new 400kV North-South tie-line, the generation dispatches used in studies will take into account the present transfer capacity limitations of 450 MW from North to South and 400 MW from South to North. Once the new North-South tie-line is completed the dispatches will take account of the increased transfer capacity. Following completion of the new North-South tie-line, there will an upper transfer limit of 1000 MW between jurisdictions, which will be reflected in the dispatches used in the studies.

In addition to the transfer capabilities on the North-South tie-line described in the previous paragraph, there is also a requirement to maintain reserve capacity on the tie-line. For these studies EirGrid will assume that 150 MW of reserve capacity is available on the tie-line for transfer to Northern Ireland, and that 125 MW of reserve capacity is available on the tie-line for transfer from Northern Ireland at any given time.

EirGrid and SONI (System Operator for Northern Ireland) are aware that ultimately an All-Island FAQ analysis is required in order to take account of the anticipated generation in both jurisdictions, and therefore accurately model power flows on an All-Island basis. It is recognised that this will not be possible until some future date, when an All-Island methodology can be agreed. Therefore, no new generation is assumed in Northern Ireland for this round of studies.

4 Demand

The system load demand utilised in this study is based on the figures detailed in Appendix C of the *All Island Transmission Forecast Statement 2012-2018*.

5 Network

The network detailed in Appendix B of the *All Island Transmission Forecast Statement 2012-2018* is utilised in this study.

5.1 Transmission Reinforcements

The completion dates for transmission reinforcements will be based on EirGrid's scheduled delivery programme as of 1st July 2012. In addition to the new build and network uprates that are added to the models, reactive power support may be added to the models as required in order to achieve Transmission Planning Criteria (TPC) compliant cases. Additional line uprates may be added to the network models for the later study years (beyond circa 2014) depending on the analysis findings. The programming of these line uprates will be done as systematically as possible taking into account practical considerations e.g. ability to obtain outages or where there is another uprate or new-build following closely behind which would negate the need for the uprate.

5.2 Shallow Works

All[7] transmission and distribution Shallow Works will be assumed to be in place in the network models in order to avoid Shallow Works biasing the FAQs offered to individual applicants. This means that all shallow connections will be implemented in the models for all years of study. In practical terms, this means that calculations can be performed to solely consider firm access against required ATRs i.e. there is no interaction from Shallow Works.

Shallow Works, by their nature, are generally not an integral part of the wider transmission system. They represent a piece of network whose sole function is to export power from an applicant's facility onto the wider transmission system. In a small number of instances however, some network reinforcement works are deemed to be Shallow Works for an applicant's facility due to the relative size of the connecting generation and the capacity of the local transmission network. These for example could include circuit uprates. While these may be Shallow Works for some projects they may also be ATRs for others and could impact on an applicant's firm access. Hence, where appropriate, these works are not assumed to be completed immediately (i.e. not assumed complete in the initial year of FAQ calculations).

6 Technical Parameters

6.1 Firm Access Calculation Step Size

The calculation methodology will test for the availability of FAQs with a minimum increment of 0.5 MW. Where an applicant's requested remaining unscheduled FAQ is less than 0.5 MW for a given year, the solution tolerance will be reduced accordingly such that the applicant is not required to satisfy the test criteria at an MEC any higher than what is requested.

6.2 Order of Study

Within each Gate or grouping, applicants will be tested in chronologically ascending date order based on the *Initial Application Received Date*. This is consistent with what was used for the original calculation of FAQs for Gate 3 and the 2011 analysis for Gate 1 and 2.

6.3 Node Assignments

Node Assignments are not being revisited as part of this study. All applicants will be tested at the appropriate transmission node based on their actual or proposed connection method. These transmission nodes are detailed in Appendix A.

6.4 Period of Study

Studies will be completed from summer 2012 until all eligible applicants have received full firm access for 100% of their MEC. The calculation methodology is applied for Summer Night

[7] In the case of Bellacorrick (Mayo) node (which involves 400kV shallow works) EirGrid will assess the availability of firm access in the existing 110kV network in the early years of the study. This recognises the lead-time involved in delivering extra high voltage infrastructure and is consistent with the Shallow Works assumption of the original Gate 3 FAQ analysis in 2009/10.

Valley, Summer Peak and Winter Peak study seasons. For the 2013 study this means that the study seasons are:

- Summer Night Valley 2013 (March 2013 – October 2013)
- Summer Peak 2013 (March 2013 – October 2013)
- Winter Peak 2013/2014 (October 2013 – March 2014)

6.5 Study Methodology

In determining the firm access available on the network the calculation methodology (Incremental Transfer Capability (ITC) methodology) operates to a single contingency (n-1) transmission planning criterion and utilises a set of deterministic dispatch scenarios that recognise the likely running regime of generators and the probability of particular units running together.

Appendix A List of Applicants

Table -: Gate 1 generators to be included in analysis

Code	Unit Name	MEC (MW)	Initial Application Received Date	Node
DG39	Lurganboy (1)	4.99	28/10/2003	Letterkenny 110kV
TG65	Meentycat (2)	14	20/11/2003	Drumkeen 110kV
DG51	Glackmore Hill (1)	0.6	27/11/2003	Sorne Hill 110kV
TG22	Athea (1)	51	19/01/2004	Athea 110kV
Total		**70.59**		

Table -: Gate 2 generators to be included in analysis

Code	Unit Name	MEC (MW)	Initial Application Received Date	Node
DG187	Coomacheo (2) (Curragh)	18	11/09/2003	Garrow 110kV
DG49	Cordal (1)	35.85	16/01/2004	Cordal 110kV
DG132	Kerry LFG	1	16/01/2004	Reamore 110kV
DG53	Seltanaveeny (1)	4.6	16/01/2004	Arigna 110kV
DG55	Meenanilta (3)	3.4	09/02/2004	Letterkenny 110kV
DG57	Glentanemacelligot (1)	18	16/02/2004	Cordal 110kV
DG110	Beale Hill (3)	1.3	25/02/2004	Trien 110kV
DG59	Sorne Hill (2)	7.4	27/02/2004	Sorne Hill 110kV
DG60	Flughland (1)	9.2	15/03/2004	Sorne Hill 110kV
TG23	Garvagh (1a)	31.525	19/03/2004	Garvagh 110kV
DG71	Scartaglen (1)	14	19/03/2004	Cordal 110kV
TG82	Glanlee (2)	6	25/03/2004	Glanlee 110kV
DG82	Knocknagoum (1)	14	29/03/2004	Reamore 110kV
DG83	Maghanknockane	12	29/03/2004	Reamore 110kV
DG70	Muingnatee (1)	10.2	29/03/2004	Reamore 110kV
DG65	Meenadreen South (1)	3.6	06/04/2004	Mulreavy 110kV
DG79	Dromdeveen (2)	16.5	21/04/2004	Glenlara 110kV
DG80	Scartaglen (1) formerly Barna (1)	5.95	07/05/2004	Cordal 110kV
TG24	Knockacummer (1)	87	12/05/2004	Knockacummer 110kV
DG85	Caherdowney (1)	10	07/06/2004	Garrow 110kV
TG29	Boggeragh (1)	57	25/06/2004	Boggeragh 110kV
TG32	Garvagh (1a) - formerly Tullynahaw	26.7	06/07/2004	Garvagh 110kV
DG113	Carrons (1)	2.5	20/07/2004	Rathkeale 110kV
DG111	Caherlevoy (1)	3.6	03/08/2004	Athea 110kV
DG98	Three Trees (1)	4.25	10/08/2004	Sorne Hill 110kV
DG99	Meenkeeragh (1)	4.2	11/08/2004	Sorne Hill 110kV
DG112	Scartaglen (1) formerly Carrigans (1)	1.7	25/08/2004	Cordal 110kV
DG118	Knockaneden (1)	9	17/09/2004	Oughteragh 110kV
DG208	Moneenatieve (2)	0.29	20/09/2004	Corderry 110kV
DG124	Sorne Hill Single Turbine (Enros)	2.3	27/09/2004	Sorne Hill 110kV
DG122	Coolegrean (1)	18.5	28/09/2004	Cordal 110kV
TG77	Athea (2)	17	18/11/2004	Athea 110kV
DG142	Shannagh (1)	2.55	06/01/2005	Binbane 110kV
DG141	Dromada (1)	46	25/01/2005	Athea 110kV
DG149	Esk (1)	5.95	09/02/2005	Boggeragh 110kV
DG150	Dromadda Beg (1)	2.55	28/02/2005	Knocknagoshel 110kV
DG159	Carrowleagh (1)	27.25	07/03/2005	Glenree 110kV Station
DG151	Cloghanaleskirt (1)	10	07/03/2005	Knocknagoshel 110kV
DG152	Dromadda More (1)	20	07/03/2005	Knocknagoshel 110kV

DG161	Lenanavea (1)	3.4	09/04/2005	Castlebar 110kV
DG162	Lenanavea (2)	2.55	09/04/2005	Castlebar 110kV
DG163	Lenanavea (3)	3.4	09/04/2005	Castlebar 110kV
DG164	Carrons (2)	2.49	05/05/2005	Rathkeale 110kV
DG174	Clydaghroe (1)	5	08/06/2005	Garrow 110kV
DG185	Gibbet Hill (1)	14.8	16/06/2005	Lodgewood 110kV
TG51	Mulreavy (1)	82	17/06/2005	Mulreavy 110kV
TG50	Coomagearlahy (2)	8.5	25/07/2005	Coomagearlaghy 110kV
TG54	Coomagearlahy (3)	30	25/07/2005	Coomagearlaghy 110kV
DG183	Kilbranish (1) formerly Greenoge (2)	2.5	17/10/2005	Crane 110kV
DG189	Castledockrill (3)	3.3	19/10/2005	Castledockrill 110kV
DG198	Croaghnameal (1)	4.3	25/11/2005	Mulreavy 110kV
DG199	Athea (2) – formerly Tooradoo (1)	5	01/12/2005	Athea 110kV
DG201	Castledockrill (4)	16.1	02/12/2005	Castledockrill 110kV
DG200	Killavoy (1)	18	12/12/2005	Boggeragh 110kV
DG203	Foiladaun (1)	13.8	06/01/2006	Cordal 110kV
DG210	Caranne Hill (2)	1.6	27/02/2006	Corderry 110kV
DG214	Tullynamoyle (1)	9	31/03/2006	Corderry 110kV
DG906	Cuillalea (2)	1.59	12/04/2006	Castlebar 110kV
DG226	WEDcross (1)	4.5	19/04/2006	Knockeragh 110kV
DG218	Mount Eagle (3)	1.7	21/04/2006	Tralee 110kV
DG220	Muingnatee (1) - formerly Cahercullenagh Upper (1)	4.25	03/05/2006	Reamore 110kV
DG229	Muingnatee (2)	0.85	03/05/2006	Reamore 110kV
DG225	Glackmore Hill (2)	1.4	11/05/2006	Sorne Hill 110kV
DG228	Glackmore Hill (3)	0.3	11/05/2006	Sorne Hill 110kV
DG234	Glenduff (1)	6	02/06/2006	Glenlara 110kV
Total		**817.195**		

Table -: Gate 3 generators to be included in analysis

Code	Unit Name	MEC (MW)	Initial Application Received Date	Node
TG33	Ederglen (1)	16.8	19/02/04	Bellacorick 110kV
TG25	Oweninney (1)	34	15/04/04	New Bellacorrick II 110kV
TG26	Oweninney (2)	48	15/04/04	New Bellacorrick II 110kV
TG27	Oweninney (3)	56	15/04/04	New Bellacorrick II 110kV
TG28	Oweninney (4)	34	15/04/04	New Bellacorrick II 110kV
TG30	Boolynagleragh (1)	36.98	19/04/04	Booltiagh 110kV
TG31	Castlepook (1)	33.1	07/05/04	Charleville 110kV
DG87	Carrickeeney (1)	7.65	31/05/04	Sligo 110kV
DG91	Bunkimalta (1)	46.5	08/07/04	New Bunkimalta 110kV
DG92	Ugool (1)	64	16/07/04	New Knockranny 110kV
DG93	Kilmeedy (1)	5	28/07/04	Charleville 110kV
DG94	Leitir Guingaid & Doire Chrith (1)	14	28/07/04	New Salthill 110kV
DG95	Crohaun (1)	34	29/07/04	Dungarvan 110kV
DG96	Cureeny (1)	94	30/07/04	Killonan 110kV
DG115	Rathnacally (1)	2.5	30/07/04	Charleville 110kV
DG101	Faughary (1)	6	03/08/04	Sligo 110kV
DG104	Springfarm (1)	6	03/08/04	Arklow 110kV
DG107	Askeaton (1)	20	06/08/04	Aughinish 110kV
DG109	Kish 1	52	13/08/04	Carrickmines 220kV
DG108	Lealetter (1)	22.5	25/08/04	New Salthill 110kV
TG34	Kilgarvan (1)	62.2	26/08/04	New Coomataggart 110kV
DG120	Lissycasey (1)	6	27/08/04	Booltiagh 110kV
TG36	Boolynagleragh (2)	11.64	14/09/04	Booltiagh 110kV
DG145	Boolabrien Upper (1)	25	15/09/04	Doon 110kV

DG128	Carrownawelaun (1)	4.6	16/09/04	Tullabrack 110kV
DG131	Tullaroan (1)	11.7	20/09/04	Thurles 110kV
DG119	Charleville (1)	5	22/09/04	Charleville 110kV
TG37	Croaghbrack (1)	33.1	27/09/04	New Mulreavy 110kV
DG224	Ballyhoura (1)	18.3	28/09/04	Charleville 110kV
DG121	Barrboy (1)	7.8	28/09/04	Dunmanway 110kV
DG134	Barranafaddock (1)	39.9	04/10/04	Barrymore 110kV
DG123	Coolrus (1)	3	04/10/04	Charleville 110kV
TG44	Barnadivane (1)	60	19/10/04	New Barnadivane 110kV
TG45	Raheenleagh (1)	36.5	08/11/04	Arklow 110kV
DG144	Bragan (1)	33.1	11/11/04	Lisdrum 110kV
DG135	Woodhouse (1)	23.28	11/11/04	New Woodhouse 110kV
DG136	Monaincha Bog (1)	30	15/11/04	Ikerrin 110kV
DG213	Bawnlea (Bawnlea Newpark Grangehill Merge)	2.3	24/11/04	Thurles 110kV
DG154	Glengoole (1)	4.6	25/11/04	Thurles 110kV
DG216	Grangehill (Bawnlea Newpark Grangehill Merge)	4.6	25/11/04	Thurles 110kV
DG215	New Park (Bawnlea Newpark Grangehill Merge)	4.6	25/11/04	Thurles 110kV
DG140	Barnastooka (1)	34	14/12/04	New Coomataggart 110kV
DG143	Bunnahowen (1)	2.55	16/12/04	Bellacorick 110kV
DG148	Cahermurphy (1)	6	30/12/04	Booltiagh 110kV
DG147	Sillahertane (1)	10	30/12/04	New Coomataggart 110kV
DG153	Lettercannon (1)	21.6	08/02/05	New Coomataggart 110kV
DG222	Glanta Commons (2a)	11.5	27/02/05	Ballylickey 110kV
DG157	Holmes Hill (1)	11.7	04/03/05	Thurles 110kV
DG158	Gurteen (1)	2.3	11/03/05	Thurles 110kV
DG202	Bunaveala (Keenagh) (1)	9.2	13/04/05	New Bellacorrick 400kV
DG165	Leanamore (1) - formerly Tarbert (1)	18	19/04/05	New Kilpaddoge 220kV
DG168	Dooleeg More (1)	2	05/05/05	New Bellacorrick 400kV
DG171	Rathnaveoge (1)	2.55	05/05/05	Ikerrin 110kV
DG175	Kingscourt (1)	18	13/06/05	Meath_Hill 110kV
DG191	Clochar na Lara (1)	24	05/09/05	New Knockranny 110kV
DG186	Tawnaghmore 1,2 and 3 Merge - formerly Tawnaghmore wf (1)	5.4	06/09/05	New Bellacorrick 400kV
TG57	Dooghbeg (1)	45	09/09/05	New Bellacorrick 400kV
DG182	Ballyshonog (1)	5	19/09/05	Carlow 110kV
TG58	Seecon (1)	105	19/09/05	New Knockranny 110kV
DG181	Glencarby (1)	37	27/09/05	Cauteen 110kV
TG59	Killala (1)	30	05/10/05	Tawnaghmore 110kV
DG190	Ballycurreen (1)	5	28/10/05	Dungarvan 110kV
DG195	Cooly (1)	4	24/11/05	Trillick 110kV
DG196	Newtownfore (1)	14.4	24/11/05	Letterkenny 110kV
TG62	Doolick (1)	100.8	09/12/05	New Screebe 110kV
DG204	Lettergull (1)	20	19/12/05	Letterkenny 110kV
TG66	Mountlucas (1)	79.2	09/01/06	New Mount Lucas 110kV
DG209	Ballycumber (1)	18	19/01/06	Arklow 110kV
DG223	Anarget (3)	0.5	27/01/06	Cath_Fall/Binbane 110kV
DG217	Cloghboola (2)	10	16/02/06	New Knocknagashel 110kV
DG219	Curraghderrig (1)	4.5	15/03/06	Trien 110kV
DG250	Gneeves (2)	5.4	02/05/06	Knockeragh 110kV
DG252	Nafferty Hill (1)	2.04	05/05/06	Meath_Hill 110kV
DG243	Meenkeeragh (2)	0.4	07/05/06	Sorne_Hill 110kV
DG238	Derryknockeran (1)	4.25	10/05/06	CarickonShannon 110kV
DG248	Curraheen (1)	24	17/05/06	Ballydine 110kV
TG69	Kill Hill (1)	62.5	17/05/06	New Kill Hill 110kV

DG261	Scartaglen (2)	2.4	17/05/06	New Cordal 110kV
DG233	Ballagh (1)	9	22/05/06	Trien 110kV
DG249	Coomleagh (1)	5.95	22/05/06	Dunmanway 110kV
DG260	Cronalaght (2)	8.16	22/05/06	Ardnagappary 110kV
DG231	Lisbealad (1)	6	22/05/06	Dunmanway 110kV
DG232	Slievenaglogh (1)	15	22/05/06	Dundalk 110kV
DG247	Gortnahurra (1)	33.9	30/05/06	New Bellacorrick 400kV
DG212	Sonnagh Old (2)	0.85	30/05/06	Somerset 110kV
DG251	Carrigans (2)	1.4	31/05/06	New Cordal 110kV
TG74	Athea (4)	25	02/06/06	New Athea 2 110kV
DG245	Tawnaghmore 1,2 and 3 Merge - formerly Tawnaghmore WF (2)	1.5	07/06/06	New Bellacorrick 400kV node
DG240	Tullynamalra (1)	0.5988	09/06/06	Meath_Hill 110kV
TG78	Athea (3)	1	14/06/06	New Athea 2 110kV Node
DG244	Meenachullalan (2)	1.9	14/06/06	Binbane 110kV
DG254	Carrowleagh (2)	2.65	19/06/06	New Glenree 110kV
DG236	Knockraha (1)	21.6	19/06/06	Midleton 110kV
DG239	Tawnaghmore 1,2 and 3 Merge - formerly Tawnaghmore wf (3)	9.2	19/06/06	New Bellacorrick 400kV
DG237	Leitir Guingaid & Doire Chrith (2)	4.4	20/06/06	New Salthill 110kV
DG241	Dunmore (3)	2.3	21/06/06	Drybridge 110kV
TG73	Glenmore	30	06/07/06	Booltiagh 110kV
DG258	Ashford (1)	13.8	11/10/06	Glenlara 110kV
DG257	Clifden (1)	3	16/10/06	New Screebe 110kV
TG71	Oweninney (5)	198.9	26/10/06	New Bellacorrick 400kV
DG259	Knockawarriga (2)	12	27/10/06	New Glentane 110kV
TG81	Knocknagreenan	70	14/11/06	Carrigadrohid 110kV
DG264	Knockathea	33.9	02/01/07	New Athea 2 110kV
DG263	Muingatlaunlush	11.5	02/01/07	New Reamore 110kV
DG262	Stack's Mountain	13.8	02/01/07	New Reamore 110kV
DG265	Teevurcher	9	17/01/07	Meath_Hill 110kV
DG266	Garvoghill	6	22/01/07	Booltiagh 110kV
DG267	Kiltumper	4.99	25/01/07	Booltiagh 110kV
DG269	Clogheravaddy (1)	9.2	11/02/07	Binbane 110kV
DG268	Loughderryduff	9.35	20/02/07	Binbane 110kV
DG272	Cordal (2)	34	01/03/07	New Cordal 110kV
DG273	Cordal (3)	31	01/03/07	New Cordal 110kV
DG274-275	Kish 2 & 3 Merge	104	01/03/07	Carrickmines 220kV
DG271	Muingnaminnane (2)	13.5	01/03/07	New Reamore 110kV
DG290	Cleanrath (1)	16.56	04/03/07	New Coomataggart 110kV
DG276-277-278-279	Kish 4, 5, 6 and 7 Merge	208	05/03/07	Carrickmines 220kV
DG282	Kilvinane (2)	5.82	23/03/07	Bandon 110kV
DG283	Muingnatee (3)	1.8	23/03/07	Reamore 110kV
DG284	Beam Hill (2)	9	31/03/07	Trillick 110kV
TG79	Suir OCGT	98	02/04/07	Cahir 110kV
DG285	Lisdowney (1)	9.2	18/04/07	Portlaoise 110kV
TG83	Clahane (2)	13.8	23/04/07	Clahane 110kV
DG286	Garrymore (1)	10.8	24/04/07	Letterkenny 110kV
DG292	Carrignadoura (1)	22.08	03/05/07	New Coomataggart 110kV
DG289	Cloontooa (1)	13.8	03/05/07	Dalton 110kV
DG291	Magheramore (1)	27	03/05/07	Dalton 110kV
DG294	Raragh (2)	16.56	08/05/07	Meath_Hill 110kV
DG298	Elm Park Development (3)	0.22	24/05/07	Blackrock 110kV
DG300	Elm Park Development (5)	0.334	24/05/07	Blackrock 110kV
DG303	Kilberehert (1)	4.5	13/06/07	Charleville 110kV
DG302	Knocknagornagh	43.7	19/06/07	New Athea 2 110kV
DG306	Ballycadden (2)	11.5	28/06/07	New 110kV node in

				Lodgewood 220/110kV
DG307	Knocknalour (2)	3.95	28/06/07	New 110kV node in Lodgewood 220/110kV
DG308	Meenadreen South (2)	5.4	28/06/07	New Mulreavy 110kV
DG311	Tullabrack (1)	13.8	09/07/07	Tullabrack 110kV
DG324	Garracummer (2)	1	11/07/07	Cauteen 110kV
DG312	Black Lough (1)	12.5	20/07/07	New Glenree 110kV
TG84	Bruckana	39.6	02/08/07	Lisheen 110kV
DG316	Toonagh (1)	0.9	07/08/07	Ennis 110kV
DG317	Toonagh 499kW	0.499	09/08/07	Ennis 110kV
DG323	Ballyduff WF (1)	0.6	30/08/07	New Lodgewood 220/110kV node
DG321	Dromadda More (2)	12	03/09/07	New Knocknagashel 110kV
TG102	Boggeragh (2)	47.7	13/09/07	New Boggeragh 110kV
TG89	Caulstown GT	58	14/09/07	Platin 110kV
DG400	Sonnagh Old (3)	11.04	17/09/07	Somerset 110kV
DG402	Altnagapple (1)	27	03/10/07	Binbane 110kV
TG86	Oriel (1)	330	03/10/07	New Oriel 220kV
DG405	Cappagh White 2	9.487	17/10/07	Cauteen 110kV
DG404	Tullynagee (1)	16.1	17/10/07	Lisdrum 110kV
DG407	Corkermore (2)	3	26/10/07	Binbane 110kV
DG408	Ballymartin [Cork] (1)	8.28	30/10/07	Waterford 110kV
DG406	Geevagh (2)	11.98	30/10/07	Corderry 110kV
DG410	Cappagh White (3)	21.6	02/11/07	Cauteen 110kV
DG411	Cappagh White 4	18	02/11/07	Cauteen 110kV
DG412	Glentanemacelligot (2)	34	02/11/07	New Glentane 110kV
TG90	Cluddaun (1)	52	15/11/07	New Bellacorrick 400kV
TG91	Cluddaun (2)	64	15/11/07	New Bellacorrick 400kV
TG92	Cluddaun (3)	34	15/11/07	New Bellacorrick 400kV
TG93	Killinaparson (1)	55	15/11/07	New Killnaparson 110kV
DG425	Knockawarriga (3)	26.5	15/11/07	New Glentane 110kV
TG94	Sliabh Bawn (1)	58	15/11/07	New Sliabh Bawn 110kV
DG418	Cappaboy Beg (1)	6	16/11/07	New Coomataggart 110kV
DG419	Cappaboy Beg (2)	6	16/11/07	New Coomataggart 110kV
TG103	Cronacarkfree (1)	105	16/11/07	New Croncarkfree 110kV
DG420	Kilronan (2)	34	16/11/07	Arigna 110kV
DG314	Knockharley Landfill (1)	1.425	21/11/07	Drybridge 110kV
DG313	Knockharley Landfill (2)	3.525	21/11/07	Drybridge 110kV
TG158	Edenderry Peaking	116	06/12/07	Cushaling 110kV
TG123	Cuilleen OCGT	98.4	21/12/07	Athlone 110kV
DG536	Ballynagran (1)	0.75	18/02/08	Ballybeg 110kV
DG537	Ballynagran (2)	3.525	18/02/08	Ballybeg 110kV
DG534	Connaught Regional Residual Landfill (1)	0.66	18/02/08	Somerset 110kV
DG325	Ballyshannon Farms (1)	0.1	22/02/08	Wexford 110kV
DG547	McDonnell Farms Biogas	0.44	31/03/08	Rathkeale 110kV
DG546	R & L Dowley Biogas	0.44	04/04/08	Ballydine 110kV
DG554	Shamrock Renewable Fuels - formerly Farrelly Brothers Timberpro	10	17/04/08	Navan 110kV
TG160	Derrycarney 1(a) formerly Kinnegad Power	197.2	06/05/08	New Derrycarney 220kV
DG566	Keelings CHP	1.7	26/05/08	Glasmore 110kV
DG565	Dublin Waste to Energy Facility	72	28/05/08	Ringsend 110kV
DG564	Adambridge Manafacturers Ltd	3	06/06/08	Knockeragh 110kV
TG177	Great Island	215	16/06/08	Great_Island 220kV
DG563	Gorteen Lower	1	19/06/08	Portlaoise 110kV
DG318	Tawnaghmore Peaking Plant	104	19/06/08	Tawnaghmore 110kV
TG166	Cahernagh Mid Merit	101	08/09/08	New Cahernagh 110kV

TG171	Ralappane CHP	40	30/09/08	New Ralappane 110kV
TG115	Ballymakaily	115.2	24/10/08	New Ballymakaily 110kV
TG179	Derrycarney 1(b)	100	17/11/08	New Derrycarney 220kV
TG197	Spaddan (1)	17.5	17/12/08	Cath_Fall 110kV
Total		**5419.3**		

Table -: Non-GPA generators to be included in analysis

Code	Unit Name	MEC (MW)	Initial Application Received Date	Node
DG756	Corranure LFG	0.7	13/08/2009	Shankill 110kV
DG757	Synthetic Packaging Hydro	0.09	18/08/2009	Thornsberry 110kV
DG777	The Mill (1)	0.04	05/11/2009	Portlaoise 110kV
DG780	Tullow Mushroom Growers Ltd	0.133	01/12/2009	Carlow 110kV
DG793	Rhode Biomass CHP Plant	14.56	16/02/2010	Derryiron 110kV
DG791	Kantoher Biomass CHP	0.09	16/02/2010	Rathkeale 110kV
DG797	Derryclure	9.9	09/03/2010	Thornsberry 110kV
DG805	Rockbrook	0.499	04/05/2010	Portlaoise 110kV
DG807	Greenfield (1)	0.499	03/06/2010	Navan 110kV
DG811	Aughrim Energy (1)	1	21/07/2010	Arklow 110kV
DG810	Drehid LFG Utilisation	4.999	28/07/2010	Blake 110kV
DG814	Bailie Foods Natural Gas CHP Extension	0.31	28/07/2010	Meath_Hill 110kV
DG813	Liskeran (1)	0.499	28/07/2010	Letterkenny 110kV
DG822	AMETS Belmullet Wave	10	12/10/2010	Bellacorick 110kV
DG820	Ger Hickey Biogas Plant	0.49	14/10/2010	Dungarvan 110kV
DG824	Avonmore House Hydro	0.086	29/10/2010	Arklow 110kV
DG825	Mayo Renewable Power	49	08/11/2010	Tawnaghmore 110kV
DG826	Honey Park	0.022	06/12/2010	Blackrock 110kV
DG836	Ballinphuill Biogas CHP Extension	0.139	04/02/2011	Tonroe 110kV
DG840	Meenbane Windfarm	0.499	23/03/2011	Letterkenny 110kV
DG828	Owenmore House Hydro	0.02	29/03/2011	Moy 110kV
DG847	Coola Mills	0.11	06/05/2011	Thornsberry 110kV
DG845	burtonstownAP	0.15	17/05/2011	Drybridge 110kV
DG851	Meenbane Wind Power	0.499	09/06/2011	Letterkenny 110kV
DG855	Finn Renewables	0.499	24/06/2011	Letterkenny 110kV
DG858	Tesco Cabra CHP	0.2	15/08/2011	Finglas 220kV
DG852	Carbon Sole, Stonehall, Shannon	25	15/08/2011	Drumline 110kV
DG863	James McNally Biogas	0.49	27/09/2011	Finglas 220kV
DG868	Mahon River Hydro	0.163	08/11/2011	Dungarvan 110kV
Total		**120.686**		