BORD GÁIS NETWORKS

New Towns Analysis

Phase 1

Final Report

24th October 2006

Foreword

BGE Networks is undertaking a review of towns that are currently not connected to the national gas network. All regions are being taken into consideration.

This study follows reviews which were completed in the years 1996 & 2001. Those studies found that it was not feasible to bring gas to towns remote from the existing network. Economic analysis at that time indicated that significant funding would be necessary to make the supply to such towns economically viable. A new network connections policy has been produced this year and it provides an opportunity to reconsider the feasibility of supplying certain towns. The policy allows towns to be amalgamated into a regional group and subsequently appraised as a single project. Extended payback periods of 25 years have also been taken into account. This year's analysis will avail of the opportunity to economically assess regional groups, consisting of towns, which may otherwise be uneconomical on their own.

BORD GÁIS NETWORKS

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Executive Summary

BGE Networks are conducting a comprehensive review of towns currently being considered for connection to the national natural gas network. The principle objective of the study is to determine the economic viability of connecting these new towns to the network, in accordance with the new Network Connection Policy. This report summarises the analysis thus far undertaken.

An estimate of each town's potential gas demand has been established. The impact of forecasted population growth and the resultant rise in industrial / commercial activities has been factored into the study. The infrastructure necessary to meet this demand has been determined and a subsequent cost benefit analysis has been undertaken for each town.

The construction of the Mayo-Galway Pipeline increases the potential of towns along the route being connected to the gas network, subject to economic criteria and capital expenditure approvals. The towns that could be connected are close to the National Spatial Strategy Hub of Castlebar/Ballina and between the NSS Gateways of Galway and Sligo.

In the first phase of this exercise an analysis of the following towns was undertaken;

- Athenry
- Tuam
- Claremorris
- Westport
- Castlebar
- Ballina (& Crossmolina), Co. Mayo
- Belmullet
- Headford
- Craughwell
- Ballinrobe
- Foxford
- Swinford
- Kiltimagh
- Knock town
- Ballyhaunis

Based on analysis to date the towns of Castlebar, Westport, Athenry, Craughwell, Claremorris, Tuam, Headford, Ballyhaunis/Knock, and Ballina/Crossmolina, are viable if analysed as a single group. Anchor loads are critical to the viability of some towns and may affect the timing of their connection to the Grid. At this point in time the remaining towns are not viable but will be kept under review, as part of the Phase 2 process.

The impact of a transmission line connection to Sligo, which currently forms part of a government study, may affect the type and timing of connection to Ballina, as Sligo would most likely be connected via Ballina from the transmission line. Sligo will be further examined in phase two of this report and will take account of the findings of the current government study.

The results of Cashel and Cahir were to be published in this report however more analysis is required and this was not complete in time for inclusion in this report.

A separate analysis is currently being compiled regarding the connection of Monasterevin to the natural gas network and will be published in due course. To date analysis has shown that bringing a natural gas supply to Monasterevin as a stand-alone project does not meet the required economic criteria and would require

subvention to proceed. However, there is an upcoming requirement to reinforce the existing networks in Portarlington & Kildare. Various solutions are being examined, one of which may facilitate a natural gas supply to Monasterevin.

The towns that will be examined in Phase 2 of the report are outlined in the map provided at the end of this executive summary. It should be noted that these are the primary towns identified for phase 2 analysis, they are by no means an exclusive set of areas and further towns can be included if necessary.

A final Phase 1 report is to be issued to the CER and the Department of Communications, Marine and Natural Resources in October 2006. The report detailing the results of the Phase II towns will be provided to the CER by July 2007.

Potential extensions and connections to the Natural Gas Grid continue to be evaluated and constructed on an ongoing basis in accordance with the Network Connection Policy, independent of the current studies being undertaken.

Summary Results:

Viable Towns	Distribution NPV (€m)	Transmission NPV (€m)	TOTAL NPV (€m)	RANK NPV	NPV / Therm	RANK NPV / Therm	Connection Ranking+
Castlebar	0.08	5.29	€5.37	1	€21.39	1	1
Craughwell	0.53	0.02	€0.55	2	€14.37	2	2
Westport	-2.26	2.45	€0.19	3	€1.46	4	3
Athenry	0.29	-0.10	€0.19	4	€3.98	3	4
Claremorris	-0.80	0.08	-€0.73	6	-€13.72	7	5
Ballyhaunis*** & Knock**	-3.56	2.39	-€1.16	7	-€10.04	6	6
Tuam	-1.84	0.65	-€1.19	8	-€15.03	8	7
Headford*	-0.86	0.78	-€0.09	5	-€2.12	5	8
Ballina & Crossmolina	-4.88	1.76	-€3.12	9	-€23.66	9	9
		Total NPV	*€0.01*				

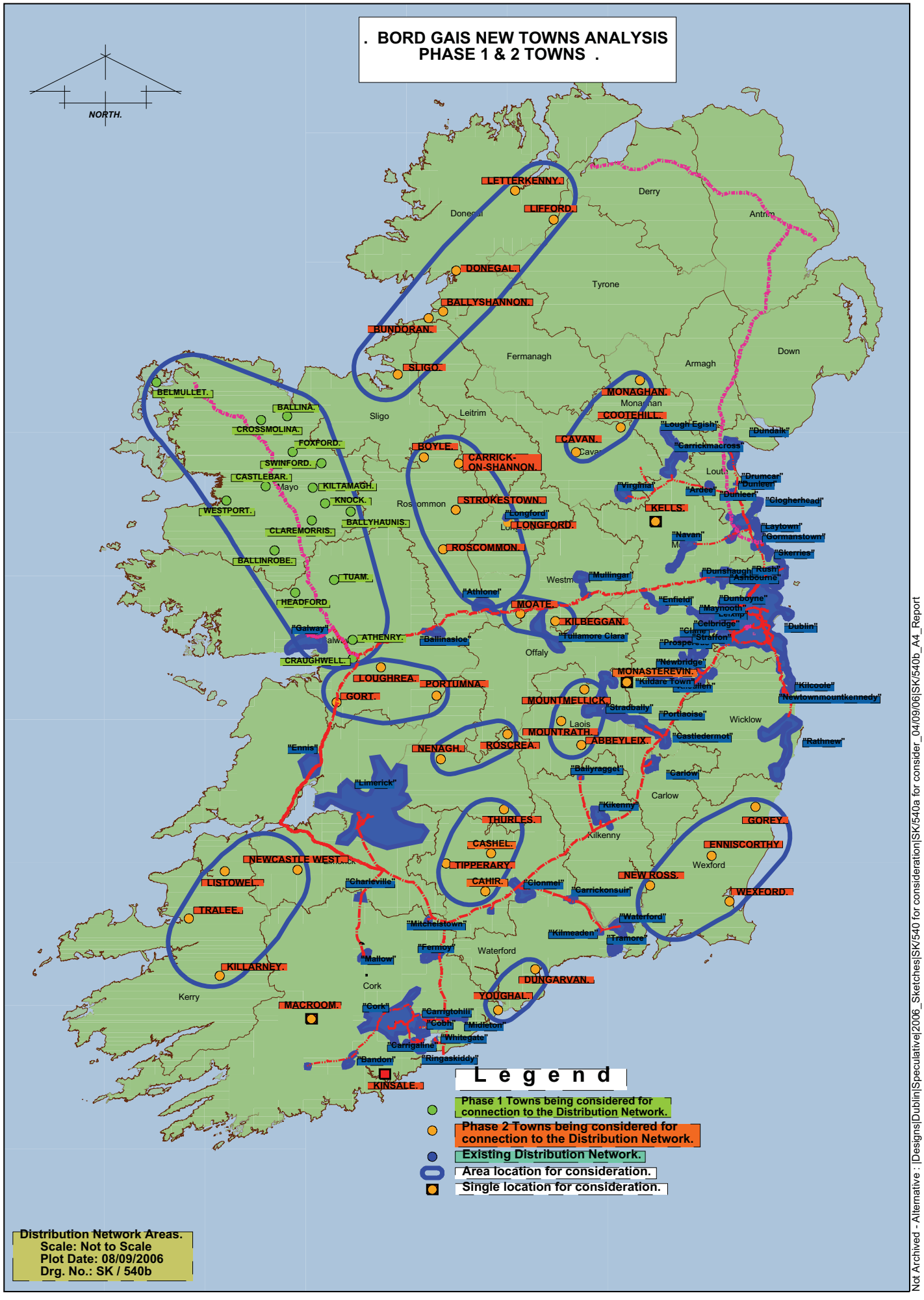
Non - Viable Towns	Distribution NPV (€m)	Transmission NPV (€m)	TOTAL NPV (€m)	RANK NPV	NPV / Therm	RANK NPV / Therm	Connection Ranking+
Kiltimagh, Foxford & Swinford	-9.29	1.56	-€7.73	12	-€114.97	10	10
Ballinrobe	-3.67	0.54	-€3.12	10	-€134.57	11	11
Belmullet	-6.19	-0.51	-€6.70	11	-€309.59	12	12

+ Please note that this connection ranking takes into account that the connection of some towns is dependent on other towns e.g. Headford, Ballyhaunis & Knock and hence is different from the straight forward NPV ranking.
* Dependent on Tuam being connected
** Dependent on Claremorris being connected
*** Dependent on Claremorris and Knock being connected

Summary Costs Estimates:

Viable Towns	Total CAPEX Costs*
Athenry	€2,473,418
Tuam	€5,758,954
Castlebar	€4,820,310
Westport	€5,463,565
Claremorris	€3,145,114
Ballina & Crossmolina	€8,602,860
Craughwell	€1,466,687
Headford	€2,217,156
Ballyhaunis & Knock	€5,925,088
CAPEX Total:	**€39,873,152**

*The above capex estimates do not include for meter and service costs.


. BORD GAIS NEW TOWNS ANALYSIS
PHASE 1 & 2 TOWNS .
NORTH.
LETTERKENNY.
LIFFORD.
DONEGAL.
BALLYSHANNON.
BUNDORAN.
SLIGO.
BELMULLET.
BALLINA.
CROSSMOLINA.
FOXFORD.
SWINFORD.
CASTLEBAR.
KILTAMAGH.
KNOCK.
WESTPORT.
BALLYHAUNIS.
CLAREMORRIS.
BALLINROBE.
TUAM.
HEADFORD
"Galway"
ATHENRY.
CRAUGHWELL.
LOUGHREA.
PORTUMNA.
GORT.
"Ennis"
"Limerick"
NEWCASTLE WEST.
LISTOWEL.
TRALEE.
KILLARNEY.
MACROOM.
"Charleville"
"Mallow"
"Cork"
"Bandon"
KINSALE.
"Carrigtohill"
"Cobh"
"Midleton"
"Whitegate"
"Carrigaline"
"Ringaskiddy"
"Mitchelstown"
"Fermoy"
CASHEL.
TIPPERARY.
CAHIR.
"Clonmel"
THURLES.
"Kilkenny"
DUNGARVAN.
YOUGHAL.
Waterford
"Kilmeaden"
"Tramore"
"Waterford"
NEW ROSS.
"Carrickonsuir"
ENNISCORTHY
Wexford
WEXFORD.
GOREY.
"Castledermot"
"Carlow"
Carlow
"Portlaoise"
Wicklow
"Rathnew"
"Kildare Town"
"Newbridge"
"Kilcoole"
"Newtownmountkennedy"
"Dublin"
"Celbridge"
"Straffon"
"Enfield"
"Maynooth"
"Dunboyne"
"Laytown"
"Gormanstown"
"Skerries"
"Rush"
"Ashbourne"
"Dunshaughlin"
"Navan"
"Mullingar"
"Athlone"
MOATE.
KILBEGGAN.
"Tullamore Clara"
Offaly
MONASTEREVIN.
MOUNTMELLICK.
"Stradbally"
MOUNTRATH.
ABBEYLEIX.
ROSCREA.
NENAGH.
"Ballyragget"
ROSCOMMON.
STROKESTOWN.
"Longford"
LONGFORD.
BOYLE.
CARRICK-ON-SHANNON.
CAVAN.
COOTEHILL.
MONAGHAN.
"Virginia"
KELLS.
"Ardee"
"Drumcar"
"Dunleer"
"Carrickmacross"
"Dundalk"
"Lough Egish"
"Clogherhead"
Derry
Antrim
Tyrone
Fermanagh
Armagh
Down
Sligo
Leitrim
Mayo
Roscommon
Cavan
Monaghan
Louth
Meath
Westmeath
Longford
Kerry
Cork
Limerick
Laois
Kilkenny
Legend
Phase 1 Towns being considered for connection to the Distribution Network.
Phase 2 Towns being considered for connection to the Distribution Network.
Existing Distribution Network.
Area location for consideration.
Single location for consideration.
Distribution Network Areas.
Scale: Not to Scale
Plot Date: 08/09/2006
Drg. No.: SK / 540b
Not Archived - Alternative : |Designs|Dublin|Speculative|2006_Sketches|SK/540 for consideration|SK/540a for consider_04/09/06|SK/540b_A4_Report


Viable Phase 1Towns Along
Mayo / Galway Pipeline Route.
Belmullet.
Bellanaboy Terminal.
Srahyconigaun Station.
Crossmolina.
Ballina.
Corrib Transmission Pipeline.
Foxford.
Swinford.
Rockfield Station.
Castlebar.
Kiltamagh.
Knock.
Westport.
Knockroe Station.
Ballyhaunis.
Claremorris.
Ballinrobe.
Beagh More Station.
Tuam.
Headford.
Corrib Transmission Pipeline.
Ballymoneen Station.
Ballygarraun.
Athenry.
Galway.
Oranmore.
Craughwell.
Existing Transmission Pipeline to the West.
SK / 544a.
. L E G E N D .
Proposed Feeder Main to Towns.
Corrib Transmission Pipeline.
Pipeline to the West.
Block Valve Locations.
Towns with Distribution Potential.
Non-viable Towns Examined

1. Terms of Reference

Background:

For a town to be connected to the gas network, certain economic criteria need to be satisfied. This is to ensure that over a certain period the costs of connecting the town are paid for through the consumption of gas and the associated tariffs. In April 2006 a new connection policy was published (CER/06/032), setting out revised criteria for the connection of new towns. Where towns, under the old policy, were deemed to be uneconomic and therefore did not qualify for connection, under the new policy these towns may qualify under the new criteria. The purpose of this study is to evaluate the connection of towns under the new policy.

This report will examine individual towns and towns grouped on a geographic/regional basis, which currently are not connected to the gas network, to ascertain the feasibility from a gas economics perspective of connection under the new connection policy to the gas network and identify what towns, or groups of towns, qualify for connection and what towns do not.

A study on towns not connected to the gas network carried out for BGE by DKM Economic Consultants in 2001 found most towns examined to be highly uneconomic in terms of gas connection, under the connection policy in operation at that time. The new connection policy is unlikely to make towns hitherto uneconomically viable but will improve the viability of towns that were already close to being economic.

The review will be carried out on a cost/benefit basis purely from a gas point of view.

Enquiries in relation to the process should be directed to Mark Holohan at Bord Gáis Networks, Block 2, Arena Road, Sandyford Business Park, Sandyford, Dublin 18. Tel: 01 602 1354, Fax: 01 602 1375, and email: newtowns@bge.ie.

1.1. Objectives;

The objective is to produce a report on the potential of extending the gas network to Towns not currently served within the criteria of the new Connections Policy.

1.2. Scope

- The scope will include a cost/ benefit analysis solely from a gas perspective.
- An evaluation of the likely loads will be produced.
- A high level engineering design analysis of the costs involved in developing an Engineering solution will be produced.
- An economic appraisal of costs versus revenues will be undertaken of potential towns identified.

1.3. Deliverables

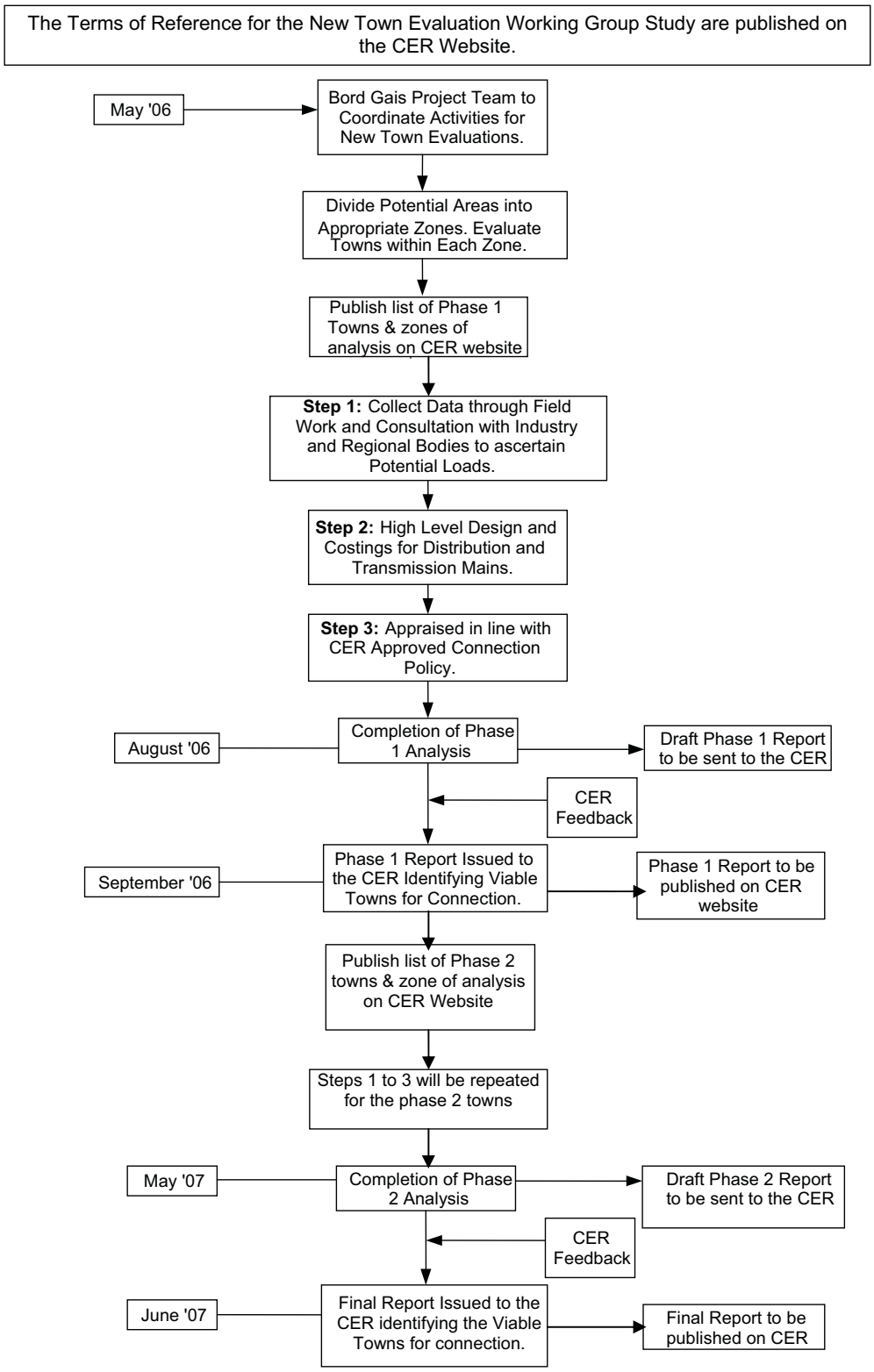
- The first phase, within 3 months, will produce an analysis of those areas that have recently been studied. This is likely to include Cahir, Cashel, Monasterevin and also potential towns along the new Mayo/Galway pipeline corridor. A list of the phase 1 towns will be published when confirmed.
- The results of Phase 1 will be published on the CER website in September 2006
- The second phase, will take a further 9 months after phase one has been completed, and will address the remaining areas currently not serviced by natural gas. Some of the towns from Phase 1 which were close to satisfying the economic criteria may be reassessed here. A list of the phase 2 towns and phase 1 towns which are to be reassessed will be published when confirmed.
- A final report will be produced at the end of the study, c. June 2007 incorporating the findings of both the first and second phase. The report will outline what towns or groups of towns are viable within the new connection policy and which are not.

1.4. Methodology

- A project team will be set up within Bord Gáis Networks.
- The project team will produce a scope and programme plan.
- Management of the process and programme will be the responsibility of the project team.
- The project team will coordinate the activities associated with the delivery of a report.
- A geographic zonal approach will be taken where potential areas will be divided into appropriate zones, taking into consideration the National Spatial Strategy 2002-2020. Within each zone there will be number of towns or groups of towns that will be evaluated as part of the study.
- Data will be collected through fieldwork and consulting with industry and various regional bodies.
    - Field work will involve Bord Gáis representatives visiting each zone and gathering gas load information on towns within the zone through Local authority development plans etc and consulting with local industrial, commercial and new housing developers
    - In certain zones data is currently available on towns and this data will be validated.
- Towns within zones where a large amount of data already exists will be appraised in a first phase of the programme.
- Towns within zones where data has yet to be collected will be treated in the second phase of the programme, as it will take longer to collect the relevant data.
- Existing potential Industrial and Commercial loads and future new developments of domestic load will be considered.
- Outline designs and high level costings for a Distribution mains Network and a feeder main routing for each town will be produced. The associated Transmission mains and offtake requirements will also be designed and costed.

- The potential investments will be appraised, example attached, in line with the CER approved Connection Policy over a 25-year period and using Bord Gáis Networks' regulated rate of return. The appraisal will compare:
  - the present value of full pipeline and ancillary capital equipment (including AGI) costs and operating costs (both Transmission and Distribution) attributable to meeting the projected load. Capital costs include local authority charges associated with road openings. The present value of any attributable upstream (deep) reinforcement costs will also be included; and
  - the present value of, in all cases, 100% of distribution and transmission (entry and exit) tariff revenue attributable to the projected load.
- For the connection of a potential new town, or a regional group of new towns, to proceed, the present value of the revenues has to exceed the present value of the costs as determined in the economic appraisal.
- Following the analysis of potential towns further more detailed analysis will be carried out on towns that were initially close to satisfying the financial criteria whereby further consideration will be given to CSO data and town/county/regional development plans. These towns will be included in the Phase 2 final report.
- Towns may be grouped where they satisfy the following indicative criteria
  a) Proximity of exit points from Transmission network – identify towns that are located close to and along the same section of Transmission pipeline;
  b) Proximity of exit points from Distribution network - identify towns that are located close to and along the same section of Distribution main;
  c) Identify towns with significant I&C loads and/or domestic load growth potential;
  d) Identify towns that could be connected sharing the same Transmission and/or Distribution spur;
  e) Determine towns that would be able to share the same operating costs (e.g. emergency response);
  f) Evaluate selected towns individually taking into account any synergies identified above;
  g) Towns with a positive NPV will be automatically included;
  h) All other things being equal, towns with a negative NPV will be included in a descending order (with the town having the least negative NPV per additional therm being added first) as long as the total NPV of the group is positive (>0).
- On completion of Phase 1 an interim report will be forwarded to the CER outlining the analysis of those areas where detailed data is currently available. The final version of the Phase 1 report will be published on the CER website
- On completion of Phase 2, an interim report will be forwarded to the CER outlining the analysis of those remaining areas plus any phase 1 towns which were reassessed.
- A final report will be issued to the CER outlining the conclusions of the study, re-iterating the findings of Phase 1 and Phase 2 and identifying which towns are viable for connection and which are not.

Fig 1. New Town Evaluation Process



BORD GÁIS NETWORKS

New Town Appraisal Template - Example

		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 - 25
1. DEMAND										
New Housing										
No. Connections per yr up to Yr 10	200									
Volume	15,260	kWh per house								
Load Factor	36%									
I&C (Surveyed Load in kWh)										
Large										
Capacity										
Large 1	350,000									
Large 2	35,000									
Large 3	20,000									
Commodity										
Large 1	75,000,000									
Large 2	7,500,000									
Large 3	4,000,000									
Take-up %	80%	of the total load surveyed (approximately) - in this example 2 out of 3								
Large 1		0%	0%	100%	100%	100%	100%	100%	100%	100%
Large 2		0%	0%	0%	0%	0%	0%	0%	0%	0%
Large 3		0%	100%	100%	100%	100%	100%	100%	100%	100%
Medium										
No. customers	15									
Total Capacity	55,000									
Total Commodity	8,000,000									
Take-up %		0%	10%	20%	30%	40%	50%	50%	50%	50%
Small										
No. customers	350,000									
Total Capacity	115,000									
Total Commodity	15,000,000									
Take-up %		0.00%	12.50%	17.50%	20.00%	21.25%	22.50%	23.75%	25.00%	25.00%
2. CONNECTION COSTS (CAPEX in €)										
Distribution										
Feeder & Distribution Main	6,000,000									
Service and Meter										
New Housing	€1,086	per connection								
I&C										
Large	€90,000	for the loads assumed to be connected								
Medium	€150,000	for the total load surveyed (i.e. only the portion related to the take-up % will be included in the appraisal)								
Small	€1,000,000	for the total load surveyed (i.e. only the portion related to the take-up % will be included in the appraisal)								
Transmission										
AGI, etc.	€750,000									
3. CONNECTION CHARGES										
New Housing	€220	per connection								
I&C	30%	of service and meter costs								
4. OPERATING COSTS (OPEX)										
Distribution	€140,000	(incl. first response, callout crew and 3rd party damage)								
Transmission	€11,000									
5. TARIFF										
Distribution	Capacity Charge									
	= A - B*Ln(PDV in MWh)									
Volume Range	A	B								
0-73 MWh	133.333									
>73-14,653 MWh	118.032	3.432								
>14,653-57,000 MWh	294.8852	42.3256								
>57,500 MWh	36.3645	-								
	Commodity Charge									
Volume Range	= A - B*Ln(PDV in MWh)									
0-73 MWh	0.2537									
>73-14,653 MWh	0.2025	0.0197								
>14,653-57,000 MWh	0.2361	0.0311								
>57,500 MWh	0.0461	-								
Transmission										
Entry										
Capacity	336.727									
Commodity	0.139									
Exit										
Capacity	481.879									
Commodity	0.220									

New Town Appraisal Template - Results Summary – Example

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11 …	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Demand (MWh)																		
Capacity																		
New Housing	0	23	46	70	93	116	139	163	186	209	232	232	232	232	232	232	232	232
Large I&C	0	20	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370
Medium I&C	0	6	11	17	22	28	28	28	28	28	28	28	28	28	28	28	28	28
Small I&C	0	14	20	23	24	26	27	29	29	29	29	29	29	29	29	29	29	29
	0	**63**	**448**	**479**	**509**	**540**	**564**	**589**	**612**	**635**	**659**	**659**	**659**	**659**	**659**	**659**	**659**	**659**
Commodity																		
New Housing	0	3,052	6,104	9,156	12,208	15,260	18,312	21,364	24,416	27,468	30,520	30,520	30,520	30,520	30,520	30,520	30,520	30,520
Large I&C	0	4,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000
Medium I&C	0	800	1,600	2,400	3,200	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Small I&C	0	1,875	2,625	3,000	3,188	3,375	3,563	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
	0	**9,727**	**89,329**	**93,556**	**97,596**	**101,635**	**104,875**	**108,114**	**111,166**	**114,218**	**117,270**	**117,270**	**117,270**	**117,270**	**117,270**	**117,270**	**117,270**	**117,270**
real prices, €000																		
Revenue																		
Distribution																		
Capacity	0	38	425	440	456	472	480	489	497	506	514	514	514	514	514	514	514	514
Commodity	0	11	113	117	120	124	125	126	128	129	131	131	131	131	131	131	131	131
Transmission																		
Capacity	0	52	366	392	417	442	462	482	501	520	539	539	539	539	539	539	539	539
Commodity	0	3	32	34	35	36	38	39	40	41	42	42	42	42	42	42	42	42
Capex																		
Distribution	-6,000	-362	-367	-257	-245	-245	-230	-230	-217	-217	-217	0	0	0	0	0	0	0
Transmission	-750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Connection Charges																		
New Housing	0	44	44	44	44	44	44	44	44	44	44	0	0	0	0	0	0	0
I&C	0	43	45	12	8	8	4	4	0	0	0	0	0	0	0	0	0	0
Opex																		
Distribution	0	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140
Transmission	0	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
Net Cash Flow	**-6,750**	**-321**	**507**	**631**	**685**	**730**	**772**	**803**	**842**	**872**	**902**	**1,075**	**1,075**	**1,075**	**1,075**	**1,075**	**1,075**	**1,075**
Net Present Value @ ROR	**€3,790**																	

Note:
The figures presented are for illustrative purposes only

2. Assumptions of Analysis

Load Analysis:

The following assumptions were made to forecast the gas consumption in each town.

1. New Housing Estimated Annual Consumption E.A.C.

The number of new residential connections was forecast for each town by BGE New Connections Section for the next 10 years. The EAC for each new residential connection is 520 Therms (BGE standard average value per unit).

2. Existing Housing

Existing housing in towns has not been included in the study as due to the necessity for expensive open cutting of mains and services, the subsequent costs negatively affect the NPV of the project. Existing Housing estates can be evaluated individually at a later date should the town involved proceed.

3. Anchor loads

The timing of Anchor loads are important to the viability of some towns due to their positive impact on the Net Present Value, and as such may have an impact on the timing of some towns and their connection to the Grid.

4. Industrial / Commercial Loads.

Each town was surveyed and a list of potential users was compiled with estimated loads for each. Potential industrial / commercial customers were divided into four groups depending on estimated annual consumption (load) as follows.

Contract Customers	Above 150,000 Th / 4,395Mwh
Large I/C	40,000 Th /1,172Mwh to 150,000 Th / 4,395Mwh
Medium I/C	7,000 Th /200Mwh to 40,000 Th / 1,172 Mwh
Small I/C	Under 7,000 Th / 200 Mwh.

As all existing I/C customers may not connect to the natural gas network certain assumptions needed to be made on customer uptake. The following uptake rates were generally assumed.

Contract Customers and large I/C	80% Uptake over the first 3 Years.
Medium I/C	50% Uptake over the first 5 Years.
Small I/ C	25% Uptake over the first 7 Years.

The uptake percentages outlined above were used as a guide in estimating resultant load uptake and slight variations are possible depending on the load makeup in a particular town.

5. Peak Hourly and Peak Day Load

One Standard Cubic Metre per hour was used as the peak hourly demand for each new housing customer.

Peak Day Load for the Industrial / Commercial customers was forecast using the following swing factors:

Up to 73,000 Kwh	EAC - 2.79
73001 - 750,000 Kwh	EAC - 2.41
750,001 - 2,000,000 Kwh	EAC - 2.27
2,000,001 - 3,000,000 Kwh	EAC - 2.02
3,000,001 - 4,000,000 Kwh	EAC - 1.82
Above 4,000,000 Kwh	EAC - 1.69

6. Network Design

(a) Pipe sizing was based on an operating pressure, and a minimum pressure of 2 Bar for each town network and on the above load data.

(b) Pipe sizing for the low pressure network was based on an operating pressure, and a minimum pressure of 30 millibar for each town and on the above load data.

(c) Industrial Commercial loads on the network were generally based on the following uptake

Contract Customers and large I/C	80% Uptake over the first 3 Years.
Medium I/C	50% Uptake over the first 5 Years.
Small I/C	25% Uptake over the first 7 Years.

Potential Large I/C and Contract Customers in the towns were consulted with regard to future expansion plans and these loads were catered for in the network design.

Note: For the purposes of this analysis, it was assumed that the initial start date for construction of the new lines would be June 2007.

Construction Costs:

Construction cost estimates are based on rates currently used by BGE for carrying out similar work and are reflective of rates contained in a recent tender process.

Operating Costs:

Allowance has been made for relevant incremental operating costs including first response, call out costs and sales costs. The estimates of those costs are reflective of the current cost levels.

Business Modelling:

Appraisal is based on the framework outlined in the New Connections Policy, i.e.:

1. Project is appraised over 25 years in real terms;
2. Customer contributions are calculated in accordance with the connection policy (i.e. €220 per connection for residential and 30% of meter and service capex costs for I&C connections);
3. All relevant transmission and distribution costs and 100% of transmission (exit and entry) and distribution revenues are included;

4. Common capex and opex costs (AGI's, first response costs) are allocated to towns based on current project requirements where possible;
5. Transmission revenues are based on 2006/7 tariff rates, which are assumed to remain flat in real terms;
6. Distribution revenues are based on 2006/7 tariff rates, which are assumed to remain flat in real terms and are applied to average load profiles for each customer;
7. A Discount rate of 5.74% pre-tax real is used, based on the current regulated rate of return;
8. Towns are selected / grouped using the criteria outlined in the terms of reference such as;

    - Positive NPV towns are automatically included
    - Negative towns are included in descending order based on NPV/therm
    - Total NPV of the group must be positive

Sensitivity Analysis

Sensitivity Analysis has been undertaken to assess the impact of certain variables on the results of the eleven viable towns. These include;

Costs

Analysis was carried out with variations of +/-5% in construction costs and +/-10% in operating costs. There is a contingency of 5% across the capex and opex costs that would cover some if not all of any shortfall resulting from these cost variations.

Volumes

Some sensitivity analysis has been carried out on the phasing of the large I&C loads. If all the proposed large IC loads were delayed by 2 years this would result in a negative NPV of €2.8m. If the payback period were increased to 30 years then an additional NPV of approximately €2m would be recouped.