NIEIR

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26 October 2007

Mr Andrew Chow
Essential Services Commission
2nd floor
35 Spring Street
MELBOURNE VIC 3000

Dear Andrew,

Re: The Draft Decision and modified Demand Forecasts for each Business

Further to our letter dated 12 September 2007 and 24 October 2007, regarding the Draft Decision, the gas Distribution businesses requested NIEIR to directly prepare a modified gas forecast for residential volumes, taking into account new information that has become available. Details are provided in the attached document titled, *Modified Demand Forecasts-Residential usage.*

It is important to state that this modified forecast of volumes for each business is not a complete update of the forecast. This is due to the time constraints on the response to the Draft Decision. Tariff V business volumes and customers remain unchanged, and the tariff V residential customer numbers also remain unchanged from those originally submitted.

The reasons for revising the residential forecasts by the business, and subsequently the Commission are compelling. New information has become available on average residential usage both for new and existing residential customers. In addition, an estimate of Tariff V gas usage (weather normalised) for calendar 2007 is now available, and this is based on eight months of actual Tariff V data.

For new customers, NIEIR and SP AUSnet undertook an analysis of new customer usage using actual billings data from the SP AUSnet billings database. These findings are representative of what would have occurred across all Victorian Gas Distribution Businesses. On the basis of this new information, **which is based on actual data**, the impact of the 5 Star standard on average residential usage was over-stated on the original NIEIR forecast for the individual Distribution Businesses. The attached amended forecasts correct for this overstatement of the impact of the 5 Star standard for new dwellings. The Commission should then use these actuals for new dwellings in their final determination regarding the forecasts, rather than relying on assumptions that are inconsistent with actuals.

For existing customers, there have been a number of policy announcements and measures, which will place further downward pressure on gas usage by existing customers. Again these are documented in detail in the attached paper. Many of the policies discussed are currently being implemented, hence it would be unreasonable not to allow some measurable impact on average residential usage.

Yours sincerely,

Antony J. O'Dwyer
Director

Modified Demand Forecasts – Residential Usage

Prepared by the
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1. Introduction and summary

This report presents modified demand forecasts for each business based on new information becoming available for consumption by 5 Star dwellings and new policies and measures for existing dwellings. It also updates the 2007 Tariff V residential for actuals for 2007 based on 8 months of actuals.

It is important to note that this report does not reflect a complete update of the forecasts for each Distribution business. The forecasts of Tariff D remain unchanged and the forecasts for Tariff V Business also remain unchanged. The only revisions relates to average usage by new and existing residential customers and therefore total Tariff V residential usage. Residential customer number forecasts also remain unchanged.

NIEIR has already provided comments to the Commission regarding the Commission's assumptions regarding usage by new customers in the Draft Decision. In a letter dated 12 October 2007, NIEIR pointed out that the Commission's assumptions for new customer usage in the Draft Decision were inconsistent with actual data.

This report summarises the key new findings and policy developments in relation to average usage by new and existing customers. It also presents modified forecasts for residential volumes and average usage for each business in section four. Section 2 deals with new information regarding actual usage by 5 star dwellings. Section 3 addresses established dwellings.

The modified forecasts are consistent with the assumptions adopted by NIEIR for the VENCorp 2007 Annual Planning Review forecasts, with the one exception that the weather standard is based on the CSIRO standard for the purposes of the 2007 actual.

2. New Customer Average Usage by 5 star dwellings

2.1 Introduction

A key uncertainty in the original demand forecasts for each business was the impact of the 5 star Standard on new dwelling usage of gas. At the time the forecasts were prepared in February 2007, there was no actual billings data suitable for analysing the actual impact of 5 star on average residential gas use by new dwellings.

At the time the original forecasts were prepared, NIEIR relied on various reports to assess the impact of the 5 star standard on new dwellings gas usage. These included reports for and by the Victorian Government including:

> "*Comparative Cost Benefit Study of Energy Efficiency Measures for Class 1 Buildings and High Rise Apartments in Victoria",* Energy Efficient Strategies, 2002 for The Sustainable Energy Authority of Victoria and the Building Control Commission.
>
> "*Regulatory Impact Statement, Plumbing (Water and Energy Savings) Regulations 2004*", Plumbing Industry Commission, 2004
>
> *"Overwhelming Support for 5 Star Homes*", Minister for the Environment, Mr John Thwaites, April 2006, Victorian Government Media release.

Based on the findings of these reports, the savings offered by a 5 star dwellings from building shell improvements would be 17.9 GJs. This figure was used by NIEIR in preparing the original forecasts for each Distribution business.

It is important to note that NIEIR did not assume the 17.9 GJ reduction would occur in one year of the forecasts, but phase in over three years, reflecting transition from 4 star to 5 star standards, and exemptions for timber floors until 2007. The time lag between approval, commencement and completion of new dwellings also implies the impact would phase in over time. The Commission, in its Draft Decision, did not assume any transitional arrangements from 4 star to 5 star, or timber floors, and based its reductions from 5 star from an average consumption level of 71 GJ per anum, a figure some 17 GJ above the state average for new residential customers.

2.2 Actual measured 5 star usage

In September 2007, the gas Distribution Businesses suggested that it would now be possible to identify actual usage by 5 Star residential customers from their billings databases. It would not have been possible to undertake this exercise for all businesses following the Draft Decision, given the time constraints.

For new customers, NIEIR and SP AusNet undertook an analysis of new residential customer usage using actual billings data from the SP AusNet billings database. These findings are representative of what would have occurred across all Victorian Gas Distribution Businesses.

Actual usage was measured over the period July 2006 to August 2007 for the following customer groups:

- new residential customers in 2003;
- new residential customers in 2004; and
- new customers from July 2006.

The intention was, consistent with NIEIR original forecasts, to identify pre 5 star gas usage from the 2003 and 2004 meters, and then identify 5 star usage from the 2006 meters. All customers included in the sample had a minimum of around 292 billed days, to ensure a sufficient sample size for 2006 new customers. The sample data effectively represents 2006-07 usage by different new customer groups, both the pre 5 star and post the 5 star standard.

Customers connected in 2005 and the first part of 2006, were not analysed since they include some unknown proportion of the impact of the 5 star standard. The lead time between approval, commencement, and completion implies a large number of dwellings connected in 2005 and early 2006 would not have been subject to 5 star building regulations.

The post July 2006 connections however would virtually all be subject to the new regulations, with the major exception that there were transitional arrangements for new homes with timber floor construction. The exemption for timber floored homes did not expire until 30 April 2007(Building Commission, Media Release, April 2007)

Table 1 shows average usage by various new customer meter groups for 2006-07. It is not necessary to weather normalise these data as the usage figures are across the same time period. Averaging the 2003 and 2004 new residential meters implies average use of around 52.5 GJ per new residential meter. This is consistent with the numbers reported by NIEIR for the same sample of new meters (which were on a weather normalised basis), as 2006-07 was a warm year.

As indicated in Table 1, 2006 new residential meters consumed some 11.7 GJ less than the average of the 2003 and 2004 residential new customers. Taking into account the exemption for Timber floors (about 20 per cent of new dwellings), this suggests the total **actual** impact of 5 star is around a 15 GJs reduction in average usage, including a portion of the non-building shell savings. This effectively implies that the 5 star building shell savings are around 9-10 GJs per new dwelling under the new 5 star standard. This allows for around 6 GJs savings in hot water and other energy efficiency savings for new dwellings. NIEIR understands that SP AusNet will provide the underlying data for these calculations to the Commission to verify these numbers. The Commission should then use these actuals in their final determination regarding the forecasts, rather than relying on assumptions that are inconsistent with actuals.

It should be noted that the sample of new dwellings could still have a number of pre- 5 star dwellings given lags between approval, construction and occupation. This suggests that this new information may still be conservative on the actual impact of 5 star.

Table 1 Average residential usage – 2006-07 by various customer meter groups- SP AusNET

	GJ/pa
2003 new meters	53.5
2004 new meters	51.6
2006 new meters	40.8

On the basis of this new information, which is based on actual Sp AusNet data , the impact of the 5 Star standard on average residential usage by new customers was over-stated in the original NIEIR forecast for the individual Distribution Businesses. The amended forecasts presented in section 5 of this report, correct for this overstatement of the impact of 5 Star standard for new dwellings. The actual savings on building shell improvements are around 9-10 GJ per residential connection and savings in hot water and other efficiency measures are around 5-6 GJ per dwelling. As stated above, the findings for SP AusNet would be representative of what would have occurred across all Victorian Gas Distribution Businesses, in terms of the 5 star impact on new dwellings gas usage.

3. Established residential dwellings usage

3.1 Introduction

At the time NIEIR prepared the established dwelling forecasts for the Victorian Gas Access Arrangement Review (February 2007) there were a number of uncertainties regarding likely policy changes and other measures and their likely impacts.

The original NIEIR forecasts for each Business assumed basically a flat profile for existing customer usage, with the exception that the announced VEET program – which targets for a 10% reduction in energy use – would reduce gas usage by 0.5 of 1 per cent per anum.

The policy stance of the Federal Government on greenhouse gas abatement has shifted since the forecasts were prepared in early 2007. Both political parties have indicated their intention of adding a carbon signal to energy prices, probably through an Emissions Trading System (ETS). This seems likely at least by 2012, possibly by as early as 2010.

The prolonged drought in eastern Australia over 2007-08 has also led to further policy changes regarding water usage. The Victorian Government is now running a home rebate scheme for water savings measures, including water efficient shower heads, dual flush toilets and rainwater (grey water tanks). Water Boards across Victoria are currently running a shower head exchange program where water inefficient shower heads can be exchanged free of charge for new efficient three star shower heads.

The Australian Government also recently released its proposed new minimum energy performance standards for gas hot water heaters. Specifically, the proposal is to cease manufacturing or importing gas water heaters with energy ratings of less than 5 stars from 1 October 2008. The Australian Government also amended the Renewable Energy Act and extended eligibility to Renewable Energy Certificates (RECs) to existing gas hot water heaters.

The Victorian Government has also indicated some of the incentives that retailers will be offering to encourage households to improve their energy efficiency under the Victorian Energy Efficiency Target (VEET) scheme. These have included:

- discounts for installing insulation;
- discounts for the re-insulation in existing dwellings; and
- providing rebates for households to replace existing appliances with higher star rated appliances.

The Victorian Government is also examining proposals to require all established dwellings for sale in Victoria to have water efficient shower heads and dual flush toilets. This could apply from 1 January 2008.

3.2 VEET – Insulation and upgrading appliance efficiency replacement options

The Victorian Government, through the Minister of Energy and Resources, wrote to each Distribution business in 2007 stating their intention to implement the VEET program, which was announced in 2006 by the Government of Victoria. The letter dated May 7 2007, stated that the program would include incentives to install or upgrade ceiling insulation, as well as cash incentives for consumers to replace old appliances with more efficient appliances. That is, replacing a 3 star heater with a 5 star heater, where the purchaser receives a cash rebate for part of the cost difference.

The VEET initiative is part of a policy by the Victorian Government to reduce household emissions by 10 per cent by 2010. Given uncertainties regarding the impact of VEET, NIEIR did not factor in a full 10 per cent reduction in established dwellings gas use in the original forecasts. In the original forecasts, NIEIR assumed that VEET would reduce established dwellings gas usage by 0.25 per cent of 1 per cent in 2008, and 0.5 of 1 per cent thereafter.

This implies that gas use by established dwellings only contributes 1.25 per cent to the total 10 per cent reduction targeted by 2010. It also implies that in the original NIEIR forecasts, the reduction due to VEET, by 2012 is only 2.25 per cent. The modified forecasts presented in section 4 below, maintain these conservative assumptions regarding the impact of VEET through to 2012.

In the Commission's Draft Decision, no reductions were factored into average gas usage reflecting VEET. This is totally unreasonable, given VEET is existing Victorian Government policy and the Government has already signalled its intention to implement this policy in a letter to each business.

Insulation upgrades

In 2005, the Australian Bureau of Statistics reported that 9.2 per cent of Victorian dwellings had no insulation. The savings to these dwellings from installing insulation are of the order of 20 per cent. For existing dwellings, re-insulation could result in significant energy savings. This would involve installing R2.5 Batts to replace R1.0 Batts. Early work by the Victorian Government has indicated that re-insulation measures could save 10 to 15 per cent of space heating energy use. An accreditation scheme may need to be introduced for insulation installers.

Appliance replacement and VEET

Another component of VEET will be to offer rebates for existing households to replace existing appliances with higher star rated appliances. A 20-25 per cent rebate on upgrading from a 3 or 4 star to 5 star central heating appliance would have relatively short payback periods.

3.3 Reduced flow shower heads

The ABS reported that in 2004, 41.6 per cent of Victorian households had installed reduced flow shower heads. By 2007, extrapolating on historical trends, the proportion with reduced flow shower heads would be around 50 per cent. The current exchange program for shower heads combined with high level water restrictions throughout Victoria should see the penetration of efficient shower heads rise to around 65 per cent by 2010 and 70 per cent by 2012.

The Victorian Government claims that 3 star shower heads use up to 30 per cent less water. Yarra Valley water claims the savings can be up to 50 per cent. We have assumed the savings are 15 per cent and the penetration rate increases by 4 percentage points per annum between 2007 and 2012. This has been factored into the modified forecast presented in section 4 of this report.

3.4 Changes to MEPS on gas hot water and the *Renewable Energy Act*

The Australian Government also recently released its proposed new minimum energy performance standards for gas hot water heaters. Specifically, the proposal is to cease manufacturing or importing gas water heaters with energy ratings of less than 5 stars from 1 October 2008. The Australian Government also amended the Renewable Energy Act and extended eligibility to Renewable Energy Certificates (RECs) to existing gas hot water heaters.

The changes to MEPS on hot water systems will have a gradual but significant impact on established dwellings usage as the replacement market for gas hot water systems is large. Generally these appliances last for around 12 to 14 years. This policy change can be introduced directly into the established dwellings appliance model, by simply shifting the replacement of gas hot water services post 2008 to all 5 star gas hot water services.

In relation to MEPs, the Commission in its Draft Decision, cites legal advice that calls into question the existence of legislative capacity of some jurisdictions to mandate consistent efficiency requirements for gas equipment and appliances. While this issue may raise some long term compliance issues, the program is continuing ahead relying on energy labelling. The consultation paper on mandating energy performance standards on gas water heaters in June 2007, confirms more stringent standards will be implemented for gas hot water heaters. This proposal is to cease manufacturing or importing gas water heaters with energy ratings of less than 5 stars (under the existing Australian Standard AS4552) from 1 October 2008. The Ministerial Council on Energy (MCE) has also publicly acknowledged this initiative in its National Framework for Energy Efficiency, Consultation Paper, Stage 2 September 2007.

Given more stringent energy efficiency standards are being implemented within the next 2 years, it is cannot be considered as reasonable to assume no impact as the Commission did in its Draft Decision.

Another important change is that amendments to the Renewable Energy Act now allow for RECs for replacing storage gas systems. This will generate an additional shift to solar hot water gas systems by established dwellings. This was modelled by assuming 10 per cent of all gas hot water systems were replaced with solar gas hot water systems.

3.5 Other behavioural impacts on gas usage

The drive by Governments to lower household sector energy and water use in Victoria over 2006 and 2007 has been significant. These Media campaigns have no doubt generated an additional behavioural response, lowering residential gas usage even further.

The progressive increase in water restrictions over 2006 and 2007 has lead to considerable reductions in water use by Victorian dwellings. One component of this has been a reduction in hot water usage, associated with shorter showers. In addition over 2007, the Victorian Government ran a major campaign for households to reduce their energy usage in their homes. The campaign featured black balloons which represented greenhouse gas emissions.

NIEIR has only assumed some very small additional behavioural usage reductions since some of these are already in the 2007 estimate for Tariff V, which is substantially based on actuals. These estimates are presented in Section 4 of this report.

3.6 Other economic impacts on gas usage

The forecasts for established residential usage of gas also need to take into account economic effects on gas usage such as income and price effects, as well as underlying efficiency trends.

The modified forecasts include a provision for these effects in index form, which aggregates together three separate drivers. These include the following:

- an underlying efficiency trend of 0.1 of 1 per cent per anum. This was adjusted to this very low level given we are already factoring the impact of policy, although not appliance efficiency trends explicitly;
- real income growth of around 7.5 percent over the 2008 to 2012 period which increases average usage by established customers; and
- real price effects which rise by 5 percent over the same period.

It is important to note that 3 percent of the real price impact occurs in 2012. This reflects the assumption of a small carbon impost being imposed on the economy in the 2012-2014 period. This assumption is reasonable given both political parties have agreed to supporting an emissions trading scheme, which on the balance of probabilities it should be operational by at least 2012, if not earlier.

In aggregate, these three factors contribute to a lowering of average established residential usage by 0.9 of 1 per cent over the 2008 to 2012 period.(see Section 5 modified forecasts) This compares to 3.8 per cent in aggregate from policy measures over the same period.

4. Adjustments for the calendar 2007 actuals

This section presents the latest estimates for calendar 2007 for Tariff V, based on recorded actuals to August 2007, and estimates for the remainder of 2007 based on standard weather. These revised actuals are used in section 5 of this report to modify the residential forecasts for 2007. It is reasonable is undertake this adjustment as most of the actual EDD(over 75 per cent) have already occurred by August 2007. It would be unreasonable not to incorporate this information in the modified forecast.

Table 2 shows the estimates for 2007 Tariff V based on actuals to August 2007 and estimates based on standard weather for the last 4 months. It shows the estimated EDDs for calendar 2007 (again based on 8 months of actuals) will be around 1263 EDDs. Table 2 shows the VENCorp and CSIRO weather standards and the normalised Tariff V estimate for 2007 based on both standards. For the CSIRO standard, the Tariff V volume for 2007 is 115,454 TJs.

Table 3 (Part A) shows the original February 2007 NIEIR forecasts on a weather normalised basis for Tariff V. Converting these to include losses(using the loss factors in column 2 of the table), implies an original forecast volume of 116,897 TJs for 2007. The actual weather normalised UAFG volume for 2007, based on 8 months of actuals, will be 115,454 TJs(from Table 2).

Part B of Table 3 shows the re-estimated 2007 volumes for Tariff V by class, ensuring that the total Tariff V volumes are consistent with the latest estimate (based substantially on actuals). Column 1 in Part B of table 3, show the Tariff V volumes including losses, while column 2 shows the Tariff V volumes excluding losses by class.

The lower projected volumes for 2007 for Business Tariff V have not been addressed in the modified forecasts presented in section 5 of this report. This is despite them being some 250 TJs lower than originally forecast in February 2007. The modified residential volumes presented in section 5 however do incorporate the revised 2007 actuals presented in Part B, column 2 of Table 3.

Table 2 Tariff V estimates (actual and weather normalised) for 2007 based on actuals to August 2007 and the VENCorp and CSIRO standards

	2007
Tariff V – VENCorp estimate – TJs	113530.00
VENCorp Weather Indicators	
Effective Degree Day Index	1262.77
Effective Degree Day Standard	1340.00
Abnormal Effective Degree Day	77.23
Temperature Sensitivity	
Tariff V Temperature Sensitivity	41.03
CSIRO Weather Standard	1293.10
Abnormal Effective Degree Day	46.90
Gas Volumes (TJ) – UAFG and Weather Normalised	
Tariff V- VENCorp Standard	116698.49
Tariff V- CSIRO Standard	115454.18

Table 3 Original and revised 2007 Tariff V estimates by business and class

Part A. Original forecasts 2007 NIEIR reports	Original (TJs)	Losses	Loss adjusted (TJs)
Residential forecasts February 2007			
SP AusNet	27395.9	1.045	28628.8
Multinet	38832.9	1.036	40230.9
Envestra	25854.5	1.031	26656.0
	92083.3		**95515.6**
Business forecasts February 2007			
SP AusNet	5495.9	1.045	5743.2
Multinet	6520.4	1.036	6755.1
Envestra	8615.5	1.031	8882.6
	20631.8		**21380.9**
Total forecasts – Tariff V	112715.1		116896.5

Part B. Revised forecasts 2007 (incorporating actuals for 2007)	Including losses (TJs)	Excluding losses (TJs)
Residential forecasts 2007 – modified		
SP AusNet	28,275.5	27,057.9
Multinet	39,734.5	38,353.8
Envestra	26,327.1	25,535.5
	94,337.1	**90,947.1**
Business forecasts 2007 – modified		
SP AusNet	5,672.4	5,428.1
Multinet	6,671.8	6,439.9
Envestra	8,773.0	8,509.2
	21,117.1	**20,377.2**
Total forecasts – Tariff V	**115,454.2**	**111,324.3**

5. Revised residential average usage and volume forecasts

This section presents modified forecasts for each Distribution business taking into account the new information regarding new and established dwelling usage presented above. It also includes re-benchmarking the 2007 numbers to the CSIRO normalised estimate for 2007, which is based on 8 months of actual data.

Table 4	SP AusNet modified residential volume forecasts – Total							
	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		498705	510358	522314	535192	548490	561839	574112
Existing Customer Meters		498705	498705	498705	498705	498705	498705	498705
New Customer Meters			11653	11956	12878	13298	13349	12273
Model Volume Projections (Implied Levels)								
Residential Tariff V		26987.12	27057.91	27313.15	27588.33	27755.33	27964.05	28139.27
Existing Customers		26987.12	26574.26	26366.48	26165.58	25853.74	25586.53	25335.17
New Customers			483.65	946.68	1422.75	1901.60	2377.52	2804.10
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			53.02	52.29	51.55	50.60	49.77	49.01
Existing Customers		54.11	53.29	52.87	52.47	51.84	51.31	50.80
New Customers	55.40	47.81	41.50	38.73	36.97	36.01	35.65	34.76
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.50	0.50	0.00	0.00	0.00	0.00
5 Star Savings – actual			-5.35	-1.80	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-6.31**	**-2.76**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 5 SP AusNet modified residential volume forecasts – Central

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		386833	395990	405272	415273	425608	436009	445607
Existing Customer Meters		386833	386833	386833	386833	386833	386833	386833
New Customer Meters			9157	9282	10001	10335	10401	9598
Model Volume Projections (Implied Levels)								
Residential Tariff V		21210.05	21269.00	21468.91	21684.76	21815.97	21980.92	22120.73
Existing Customers		21210.05	20885.42	20722.12	20564.23	20319.14	20109.13	19911.58
New Customers			383.59	746.79	1120.53	1496.83	1871.78	2209.15
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			53.71	52.97	52.22	51.26	50.41	49.64
Existing Customers		54.83	53.99	53.57	53.16	52.53	51.98	51.47
New Customers	54.20	48.20	41.89	39.13	37.37	36.41	36.05	35.15
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.50	0.50	0.00	0.00	0.00	0.00
5 Star Savings – actual			-5.35	-1.80	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-6.31**	**-2.76**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 6 SP AusNet modified residential volume forecasts – Western

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		111872	114368	117042	119919	122882	125830	128505
Existing Customer Meters		111872	111872	111872	111872	111872	111872	111872
New Customer Meters			2496	2674	2877	2963	2948	2675
Model Volume Projections (Implied Levels)								
Residential Tariff V		5777.07	5788.91	5844.25	5903.57	5939.37	5983.13	6018.53
Existing Customers		5777.07	5688.84	5644.36	5601.35	5534.60	5477.39	5423.58
New Customers			100.06	199.89	302.22	404.77	505.74	594.95
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			50.62	49.93	49.23	48.33	47.55	46.84
Existing Customers		51.64	50.85	50.45	50.07	49.47	48.96	48.48
New Customers	52.4	46.4	40.09	37.33	35.57	34.61	34.25	33.35
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.50	0.50	0.00	0.00	0.00	0.00
5 Star Savings – actual			-5.35	-1.80	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-6.31**	**-2.76**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 7 Multinet modified residential volume forecasts

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		626503	632088	637832	643996	650351	656688	662478
Existing Customer Meters		626503	626503	626503	626503	626503	626503	626503
New Customer Meters			5585	5744	6164	6355	6337	5790
Model Volume Projections (Implied Levels)								
Residential Tariff V		38732.43	38353.75	38290.30	38243.02	38038.00	37894.01	37746.89
Existing Customers		38732.43	38110.30	37812.32	37524.22	37077.00	36693.79	36333.31
New Customers			243.45	477.98	718.81	960.99	1200.22	1413.58
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V								
Existing Customers		61.82	60.83	60.35	59.89	59.18	58.57	57.99
New Customers	55.90	49.90	43.59	40.83	39.07	38.11	37.75	36.85
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.50	0.50	0.00	0.00	0.00	0.00
5 Star Savings – actual			-5.35	-1.80	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-6.31**	**-2.76**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 8 Envestra modified residential volume forecasts – Total

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		488418	500474	512896	526184	539861	553410	565711
Existing Customer Meters		488418	488418	488418	488418	488418	488418	488418
New Customer Meters			12056	12422	13288	13677	13549	12301
Model Volume Projections (Implied Levels)								
Residential Tariff V			25535.45	25820.66	26122.65	26321.45	26552.81	26743.20
Existing Customers			25036.66	24840.90	24651.63	24357.83	24106.08	23869.27
New Customers			498.79	979.76	1471.02	1963.61	2446.72	2873.93
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			51.02	50.34	49.65	48.76	47.98	47.27
Existing Customers			51.26	50.86	50.47	49.87	49.36	48.87
New Customers	53.00	47.00	41.37	38.72	36.97	36.02	35.66	34.73
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.50	0.50	0.00	0.00	0.00	0.00
5 Star Savings – actual			-5.35	-1.80	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-6.31**	**-2.76**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 9 Envestra modified residential volume forecasts – Central

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		408444	418332	428460	439287	450414	461398	471299
Existing Customer Meters		408444	408444	408444	408444	408444	408444	408444
New Customer Meters			9888	10128	10827	11127	10984	9901
Model Volume Projections (Implied Levels)								
Residential Tariff V			21671.05	21901.16	22145.07	22300.76	22482.99	22629.94
Existing Customers			21256.85	21090.64	20929.94	20680.50	20466.76	20265.69
New Customers			414.21	810.52	1215.12	1620.26	2016.23	2364.25
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			51.80	51.12	50.41	49.51	48.73	48.02
Existing Customers		52.90	52.04	51.64	51.24	50.63	50.11	49.62
New Customers	54.20	48.20	41.89	39.13	37.37	36.41	36.05	35.15
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.50	0.50	0.00	0.00	0.00	0.00
5 Star Savings – actual			-5.35	-1.80	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-6.31**	**-2.76**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 10 Envestra modified residential volume forecasts – Northern

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		58182	59617	61144	62783	64473	66160	67709
Existing Customer Meters		58182	58182	58182	58182	58182	58182	58182
New Customer Meters			1435	1527	1639	1690	1687	1549
Model Volume Projections (Implied Levels)								
Residential Tariff V			2889.68	2925.97	2964.39	2991.22	3022.10	3048.42
Existing Customers			2831.72	2809.58	2788.17	2754.94	2726.47	2699.68
New Customers			57.96	116.39	176.22	236.28	295.64	348.74
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			48.47	47.85	47.22	46.39	45.68	45.02
Existing Customers		49.43	48.67	48.29	47.92	47.35	46.86	46.40
New Customers	48.1	44.83	40.39	38.26	36.50	35.54	35.18	34.28
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.33	0.33	0.00	0.00	0.00	0.00
5 Star Savings – actual			-3.48	-1.17	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-4.44**	**-2.13**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 11 Envestra modified residential volume forecasts – Murray Valley

	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		4301	4587	4896	5232	5592	5972	6361
Existing Customer Meters		4301	4301	4301	4301	4301	4301	4301
New Customer Meters			286	309	336	360	380	389
Model Volume Projections (Implied Levels)								
Residential Tariff V			158.17	167.05	176.25	185.23	194.92	204.61
Existing Customers			148.45	147.29	146.16	144.42	142.93	141.53
New Customers			9.72	19.76	30.09	40.81	51.99	63.08
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			34.48	34.12	33.69	33.12	32.64	32.17
Existing Customers		35.08	34.51	34.24	33.98	33.58	33.23	32.91
New Customers	37.10	36.56	34.00	32.50	30.74	29.78	29.42	28.52
Assessed Impact of Policy – New Customers – GJ								
5 Star building shell – published assessed impact			-10.70	-3.60	0.00	0.00	0.00	0.00
Discount factor for 5 star			0.15	0.15	0.00	0.00	0.00	0.00
5 Star Savings – actual			-1.61	-0.54	0.00	0.00	0.00	0.00
Solar hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			-0.36	-0.36	-0.36	-0.36	-0.36	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-2.57**	**-1.50**	**-1.76**	**-0.96**	**-0.36**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.25%	0.50%	0.50%	0.50%	0.50%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**

Table 12	Envestra modified residential volume forecasts – Albury							
	2005	2006	2007	2008	2009	2010	2011	2012
Customer Numbers								
Residential Tariff V Meters		17491	17938	18396	18882	19382	19880	20342
Existing Customer Meters		17491	17491	17491	17491	17491	17491	17491
New Customer Meters			447	458	486	500	498	462
Model Volume Projections (Implied Levels)								
Residential Tariff V			816.55	826.49	836.94	844.23	852.80	860.23
Existing Customers			799.65	793.40	787.36	777.97	769.93	762.37
New Customers			16.90	33.09	49.59	66.26	82.87	97.86
Average Usage (GJ per year) – on weather normalised basis								
Residential Tariff V			45.52	44.93	44.32	43.56	42.90	42.29
Existing Customers		46.38	45.72	45.36	45.01	44.48	44.02	43.59
New Customers	45.10	43.00	37.80	35.35	33.95	33.35	33.35	32.45
Assessed Impact of Policy – New Customers – GJ								
Basix Savings - actual			-4.60	-1.85	0.00	0.00	0.00	0.00
Solar Hot water			-0.60	-0.60	-0.60	-0.60	0.00	0.00
Plumbing/low flow showerheads and drought			0.00	0.00	0.00	0.00	0.00	0.00
MEPs – hot water and space heating			0.00	0.00	-0.80	0.00	0.00	-0.90
Total			**-5.20**	**-2.45**	**-1.40**	**-0.60**	**0.00**	**-0.90**
Assessed Impact of Policy – Existing Customers (%)								
VEET (per cent p.a.) – insulation and appliance rebates			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MEPs – hot water			0.00%	0.00%	0.00%	0.16%	0.16%	0.16%
EE shower heads			0.00%	0.17%	0.17%	0.17%	0.17%	0.17%
Behavioural Policy Responses			0.00%	0.05%	0.05%	0.05%	0.05%	0.05%
Total			**0.00%**	**0.47%**	**0.72%**	**0.88%**	**0.88%**	**0.88%**