

4 ESTATE PERFORMANCE

4.1 General Information


4.1.1 Welsh Health Circular WHC(2002)50 titled 'Introduction of an Estates Performance Management System', was issued in April 2002 and provided details of five National Performance Indicators (PIs) and their associated targets. The targets relate to the Essential Estate, that is, the estate that is deemed to have a long-term health use of five years or more. They are based on the *Estatecode* five facets survey, covering physical condition, statutory and safety compliance, energy performance, space utilisation and functional suitability. The PIs and their targets are shown in **Figure 5** below.


PERFORMANCE TARGET	TARGET DATES	COMMENTS
Physical Condition		
■ 75% of the estate to be in category 'B' or above	2005	Category 'B' applies to buildings that are sound, operationally safe and exhibit only minor deterioration
■ 90% of the estate to be in category 'B' or above	2008	
Statutory and Safety Compliance		
■ 75% of the estate to be in category 'B' or above	2005	Category 'B' applies to buildings where action will be needed in the current plan period to comply with relevant guidance and statutory requirements
■ 90% of the estate to be in category 'A'	2008	Category 'A' applies to buildings that comply with all statutory requirements and relevant guidance
Functional Suitability		
■ 75% of the estate to be in category 'B' or above	2005	Category 'B' applies to buildings that are satisfactory and minor changes are needed
■ 90% of the estate to be in category 'B' or above	2008	
Space Utilisation		
■ 75% of the estate to be in category 'F'	2005	Category 'F' applies to buildings that are fully used
■ 90% of the estate to be in category 'F'	2008	
Energy Performance		
■ 15% reduction in primary energy consumption	2010	This is a UK Government primary energy reduction target
■ 75% of the estate to be in category 'B' or above	2005	Category 'B' applies to buildings with an energy performance of < 65 GJ/100m ³
■ 90% of the estate to be in category 'B' or above	2008	

Figure 5: Table showing National Performance Indicators and Targets

- 4.1.2 It is envisaged that the PIs and targets will develop over time to reflect national priorities and the quality aspect of the estate.
- 4.1.3 The PIs and the Trusts' progress towards the associated targets is discussed in more detail later in this report.
- 4.1.4 Each PI has been split into three bands of compliance. These have been colour coded as follows;

 Red: Significant effort required to meet the targets

 Amber: Some effort required to meet the targets

 Green: On course to meet the Targets

All the Welsh Trusts have been banded according to the above criteria for each of the National PIs.

- 4.1.5 There is concern with the quality and consistency of data collection and it is the intention of WHE to arrange a series of seminars/workshops in order to improve its accuracy. When these have been completed it is envisaged that the data returns for subsequent years will be more robust.
- 4.1.6 It should be noted that the smallest estate unit these figures are based on is a *whole hospital site*. They do not acknowledge the fact that within individual sites particular parts of the estate may have met the required targets.
- 4.1.7 The Trust performance for each of the targets has been estimated from the data submitted. This has been weighted in order to obtain an average figure for each Trust as well as an all-Wales figure.

4.2 Physical Condition

Backlog Maintenance

- 4.2.1 The results of the analysis of the overall condition of the hospital estate in Wales show that backlog maintenance costs to bring the estate up to *Estatecode* category condition 'B' have reduced by **£4.21 million**, from over **£435 million** reported in 2000-01 to nearly **£431 million** in 2001-02. After last year's dramatic increase in backlog maintenance costs this reduction, though small, is to be welcomed.
- 4.2.2. The backlog maintenance position for the seven-year period from 1995 is summarised in Figure 6. It should be noted that energy upgrading costs for 2001-02 are reported as '0'. This is due to the fact that, within the EFPMS, costs for upgrading the energy performance are included in the physical condition costs. Consequently energy upgrading costs cannot be identified separately. A breakdown of the individual Trust costs is detailed in *Appendices II-XV*.

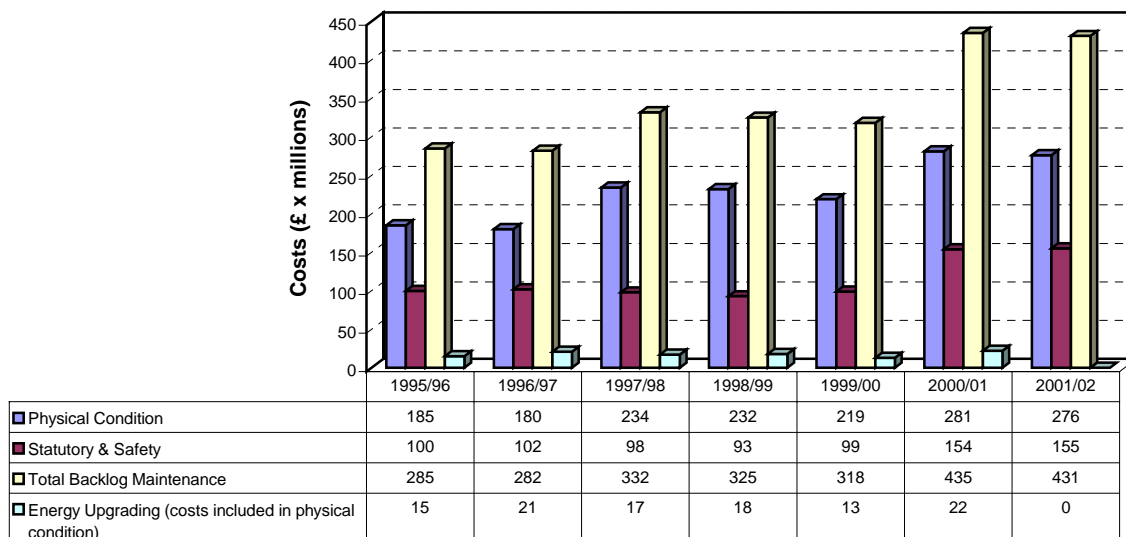


Figure 6: Graph showing trend in Backlog Maintenance Costs 1995-2002

4.2.3 Whilst the overall reduction in backlog maintenance costs is relatively small, the movement in costs, both up and down, across individual hospital sites varies significantly. For example, backlog maintenance costs associated with Nevill Hall Hospital have reduced by £19.695 million, while those associated with Ysbyty Wrexham Maelor have increased by £7.702 million. It is not clear from the data submitted why these large variations have occurred, and this issue will require clarification.

4.2.4 Further examination of the data shows that, of the 132 hospital sites, 44 report backlog maintenance reductions totalling £53.854 million, 11 report no change while 77 report increases totalling £49.641 million. This significant increase is therefore spread across a large number of sites. A detailed breakdown of the backlog maintenance costs by site is included in *Appendices II-XV*.

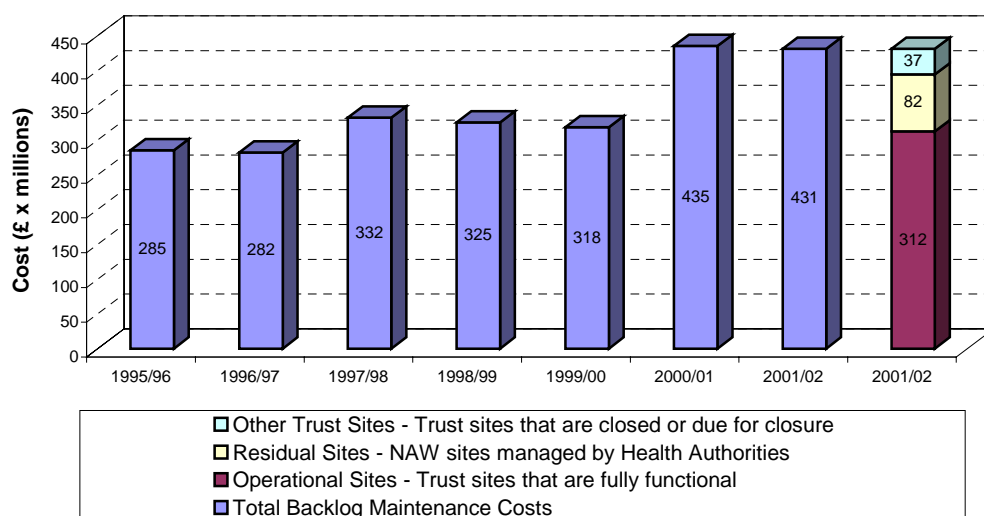


Figure 7: Trend in Backlog Maintenance Costs illustrating effect of Residual Estate

4.2.5 It should be noted that the reported backlog maintenance costs include over **£119 million** associated with sites that are either closed or scheduled to close, while others are part of the residual estate or declared surplus. It can be seen from **Figure 7** that the implementation of the disposal programme would dramatically reduce the overall backlog maintenance costs of the NHS. For further details relating to these sites refer to *Appendix XVI*.

4.2.6 **Figure 8** below shows backlog maintenance costs by Trust, comparing the figures submitted in 2000-01 and 2001-02.

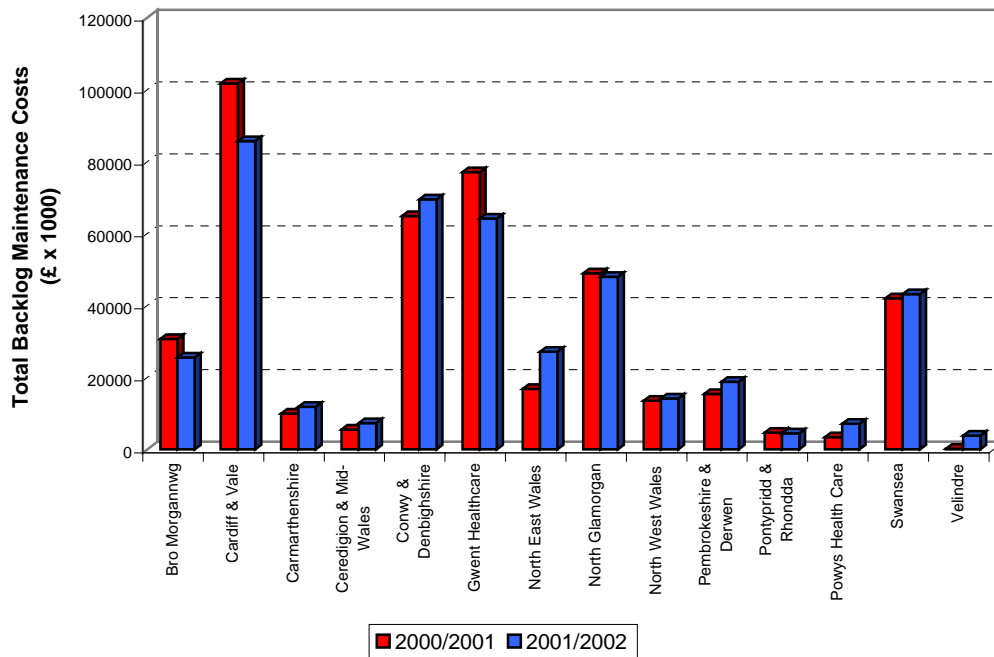


Figure 8: Comparison between backlog maintenance costs reported in 2000-2001 and 2001-2002 by Trust

It can be seen from this graph that several Trusts have reported an increase in backlog maintenance costs for the reported period. Detailed analysis of the individual Trust information is included in *Appendices II-XV*.

Physical Condition - Targets

4.2.7 Trusts' progress towards the Physical Condition Target of 75% of the estate to be in category 'B' or above by 2005 is illustrated in **Figure 9**. Additional graphical interpretation of this information is detailed in *Appendix XVII*. It is clear from the data submitted that there is considerable scope for some of the Trusts to improve the physical condition of their estate.

Trust	Physical Condition % of Estate in Category 'B'		
Bro Morgannwg	76.55		
Cardiff & Vale	77.60		
Carmarthenshire	83.05		
Ceredigion & Mid-Wales	89.07		
Conwy & Denbighshire	80.84		
Gwent Healthcare			54.11
North East Wales		74.11	
North Glamorgan			27.00
North West Wales			50.43
Pembrokeshire & Derwen			64.38
Pontypridd & Rhondda	99.09		
Powys Health Care			47.80
Swansea	80.00		
Velindre	79.95		
All Wales Average		69.17	

Key  > 75%  75 - 65%  < 65%

Figure 9: Physical Condition of Trusts

4.3 Statutory and Safety Compliance

4.3.1 Until 1991, health buildings, as Crown Property, had been exempt from some statutory legislation. Since the removal of Crown Immunity from the NHS, all Trusts have to comply with the current Health and Safety Standards and Codes of Practice. Some examples of the main Health and Safety requirements that Trusts have to comply with include:

- ❖ Electricity at Work Regulations
- ❖ Control of legionellae
- ❖ Firecode compliance
- ❖ Control of Substances Hazardous to Health
- ❖ Health and Safety at Work
- ❖ Asbestos
- ❖ Pressure systems
- ❖ Disability Discrimination Act (DDA).

This list is not exhaustive and there are many other statutory requirements that Trusts have to comply with in order to protect the safety of their staff, patients and visitors at their sites.

4.3.2 The EFPMS does not itemise all health and safety elements, and as a consequence it is not possible to identify the separate costs for these items. The only health and safety issues that are individually costed are those dealing with Fire Safety Compliance and the DDA.

4.3.3 The cost of complying with the statutory and safety requirements for all the hospitals included in the EFPMS is estimated to be £155 million, of which £113 million relates to the Essential Estate. It should be noted that some Trusts have included the costs for this work under physical condition and in these instances it has not been possible to separately identify statutory and safety costs.

4.3.4 Trusts will be required to comply fully with the DDA by October 2004. Accordingly most Trusts have been carrying out surveys to identify the extent of the work required to achieve compliance. Costs associated with this work are shown in **Figure 10** below.

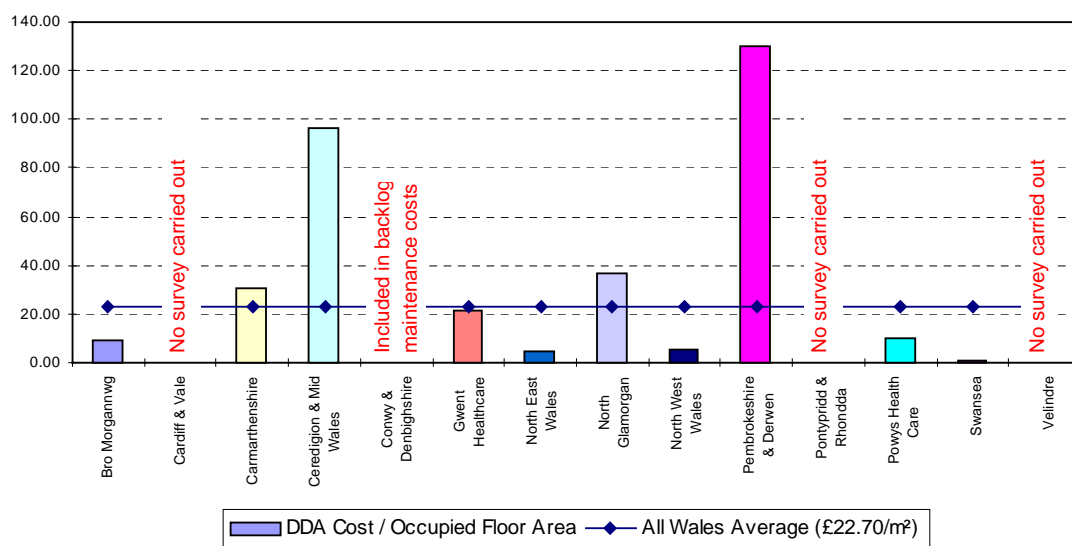


Figure 10: Comparison of DDA Costs / Occupied Floor Area

4.3.5 It should be noted that Conwy and Denbighshire NHS Trust, has included DDA costs in its backlog maintenance costs (Statutory & Safety Compliance) and has not identified them separately. In addition, Cardiff and Vale, Pontypridd and Rhondda and Velindre NHS Trusts have not carried out or completed their survey work and, therefore, have not submitted DDA costs. It has been estimated, using the all-Wales average figure, that the total cost for implementing DDA work in the 132 hospitals is **£32.6 million**.

4.3.6 It can be seen from **Figure 10** that the estimated cost/m² for carrying out the required DDA works varies from £4.67 in North West Wales NHS Trust to £129.68 in Pembrokeshire and Derwen NHS Trust. The all-Wales average is estimated to be £22.70/m². The reason for these large variations needs to be investigated.

4.3.7 The cost reported for complying with Fire Safety requirements is approximately £80 million. After excluding the remedial works associated with Ysbyty Glan Clwyd and Prince Charles Hospital, fire safety works across the NHS in Wales are estimated to be between £18-20 million.

Statutory and Safety Targets

- 4.3.8 The percentage of the estate that Trusts consider to be in *Estatecode* condition 'B' or above for statutory health and safety issues (excluding fire safety) is illustrated in **Figure 11**. Additional graphical information relating to the performance of the Trusts is included in *Appendix XVII*. It can be seen that the majority of Trusts appear to be already meeting the Target of 75% of the estate to be in category 'B' or above by 2005. WHE will be liaising with the Trusts to verify the robustness of the data submitted and ensure consistency across Trusts.

Trust	Statutory & Safety % of Estate in Category 'B'		
Bro Morgannwg	75.78		
Cardiff & Vale	78.19		
Carmarthenshire			61.69
Ceredigion & Mid-Wales	84.12		
Conwy & Denbighshire	95.67		
Gwent Healthcare		68.20	
North East Wales	95.91		
North Glamorgan			34.65
North West Wales	91.65		
Pembrokeshire & Derwen	89.41		
Pontypridd & Rhondda	100.00		
Powys Health Care	100.00		
Swansea			5.00
Velindre			64.40
All Wales Average		70.38	

Key  > 75%  75 - 65%  < 65%

Figure 11: Statutory & Safety Compliance of Trusts

- 4.3.9 In addition to statutory health and safety compliance the EFPMS collects separate data relating to the level of fire safety compliance within each Trust, together with an estimate of the costs required to achieve compliance. These costs are detailed in 4.3.7. **Figure 12** overleaf, shows the percentage of Essential building area considered to be in full fire safety compliance.

Trust	Fire Safety Compliance % of Estate in Category 'B'		
Bro Morgannwg	88.70		
Cardiff & Vale	78.19		
Carmarthenshire			62.56
Ceredigion & Mid-Wales			10.51
Conwy & Denbighshire			61.26
Gwent Healthcare	89.49		
North East Wales	96.31		
North Glamorgan			22.97
North West Wales		65.75	
Pembrokeshire & Derwen			57.37
Pontypridd & Rhondda	100.00		
Powys Health Care	100.00		
Swansea	93.21		
Velindre			47.52
All Wales Average	76.65		

Key  > 75%  75 - 65%  < 65%

Figure 12: Fire Safety Compliance of Trusts

4.4 Functional Suitability

4.4.1 Functional suitability is used to determine how effectively a building (or part of a building) supports the delivery of specific Trust services. Key factors which contribute to these assessments are:

- ❖ Internal space relationships including walking distances, observation of patients by staff, and security;
- ❖ Support facilities such as the adequate provision of toilets and bathrooms, adequate seating and waiting space, and provision for disabled people;
- ❖ Location including distance to key linked facilities, access to parking areas, and access to public transport.

4.4.2 The percentage of the estate in *Estatecode* condition 'B' by Trust is shown in **Figure 13**. Five Trusts are currently in the **Red** band.

4.4.3 Figures provided by some Trusts are very high. Powys Health Care NHS Trust for example, has indicated that its estate is 100% suitable. In these cases it may be necessary to verify the data with the Trusts concerned.

With regard to the Pontypridd and Rhondda NHS Trust, a very high figure has been submitted. This is considered realistic in view of the fact that its largest hospital, the Royal Glamorgan has only relatively recently been opened to patients.

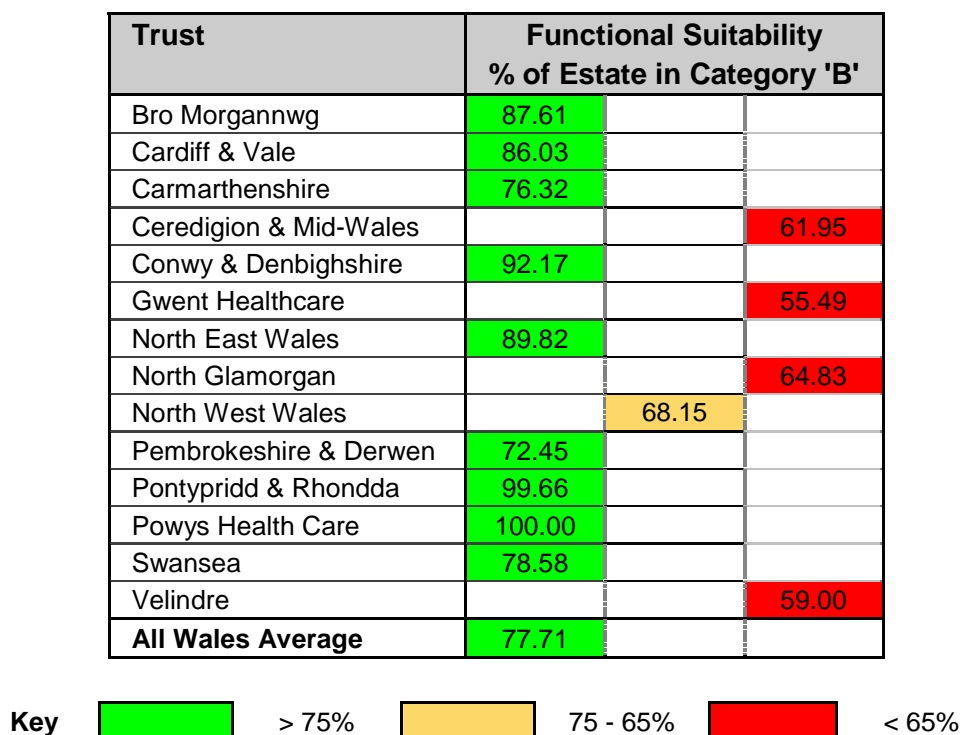


Figure 13: Functional Suitability of Trusts

4.5 Space Utilisation

4.5.1 The space utilisation facet explores how well available space is being used. The objective is to hold no more space than is necessary to satisfy the reasonable demands of the present function and planned requirements.

Getting users to recognise and accept the underutilisation of their particular space is notoriously difficult since this subject touches on territorial issues. Nonetheless the identification of under-used space and spare capacity and meeting national and local targets is a vital part of the process of managing the estate efficiently and effectively.

4.5.2 The current situation is illustrated in **Figure 14** overleaf. This shows that nine Trusts are above the all-Wales target, some significantly so. Whilst one would expect high space utilisation figures relating to specific hospital sites, very high figures on a whole Trust basis should be viewed with caution. This is particularly true of Powys Health Care NHS Trust which has reported a figure of 100%.

4.6 Energy Performance

Primary Energy

4.6.1 Primary energy consumption for the whole of Wales for the year 2001-02, was 3,688,461GJ. This compares favourably with the figure of 3,776,200GJ for 2000-01, and equates to a reduction in primary energy consumption of 2.3%. The figure for 2000-01, however, represents an increase of 0.6% on the baseline figure of 3,666,998GJ for 1999-00. These are illustrated in **Figure 15** overleaf.

Trust	Space Utilisation % of Estate in Category 'F'	
Bro Morgannwg	90.29	
Cardiff & Vale	92.07	
Carmarthenshire		65.83
Ceredigion & Mid-Wales		67.61
Conwy & Denbighshire	77.25	
Gwent Healthcare		49.97
North East Wales	82.08	
North Glamorgan		64.22
North West Wales	76.24	
Pembrokeshire & Derwen	74.74	
Pontypridd & Rhondda	99.66	
Powys Health Care	100.00	
Swansea	94.20	
Velindre		66.00
All Wales Average	79.29	

Key > 75% 75 - 65% < 65%

Figure 14: Space Utilisation of Trusts

Trust	1999-00 PRIMARY (GJ)	2000-01 PRIMARY (GJ)	2001-02 PRIMARY (GJ)	Change on Previous Year (%)	Change on Base Year (%)
Bro Morgannwg	312,000	309,000	321,766	4.1	3.1
Cardiff & Vale	830,000	824,000	799,162	-3.0	-3.7
Carmarthenshire	193,000	200,000	199,237	-0.4	3.2
Ceredigion & Mid-Wales	64,000	66,500	58,127	-12.6	-9.2
Conwy & Denbighshire	240,000	251,000	224,646	-10.5	-6.4
Gwent Healthcare	482,000	569,000	548,801	-3.5	13.9
North East Wales	234,000	246,000	237,842	-3.3	1.6
North Glamorgan	142,000	139,000	133,044	-4.3	-6.3
North West Wales	261,000	267,000	254,723	-4.6	-2.4
Pembrokeshire & Derwen	123,000	127,000	135,661	4.5	7.9
Pontypridd & Rhondda	192,000	212,000	191,871	-9.5	-0.1
Powys Health Care	105,000	104,000	98,803	-5.0	-5.9
Swansea	465,000	443,000	457,658	3.3	-1.6
Velindre	23,000	18,700	30,119	61.1	31.0
All Wales Total	3,667,000	3,776,200	3,688,461	-2.3	0.6

Figure 15: Table showing Primary Energy Consumption in Gigajoules

4.6.2 **Figure 16** below shows the trend in primary energy consumption since 1990-91. To show the underlying trend in usage, a multiplying factor of 2.87 has been applied to each year's electrical consumption. This factor is a measure of the efficiency of electrical generation, which can vary each year depending on the fuels used to produce that electricity.

With only two years' data available against the 2000 base year, it is not possible to determine the trend of energy usage and what progress is being made towards the 15% national reduction target. The reduction in this year's consumption of 2.3% is, however, welcome. In future a graph will be included showing current and previous consumption, in order to determine progress towards the target.

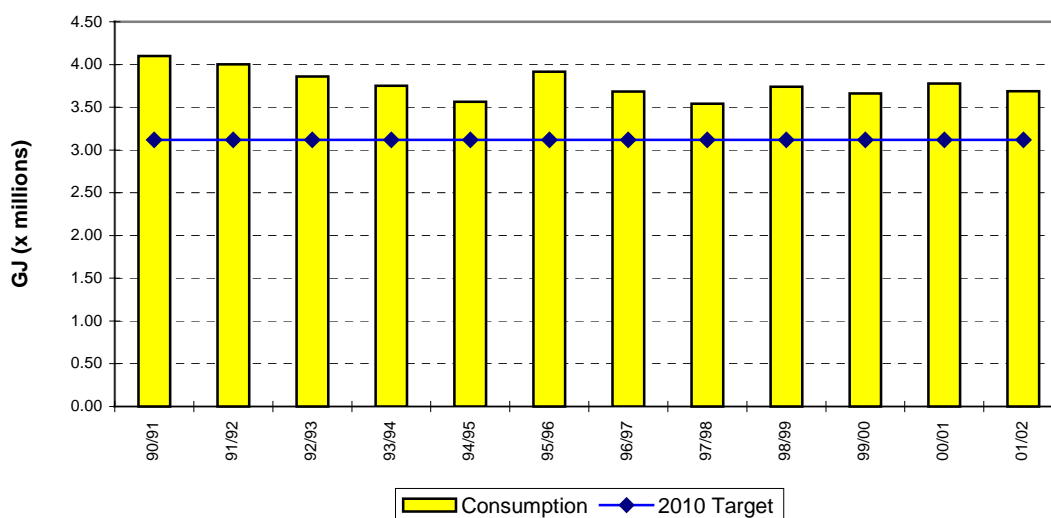


Figure 16: Bar Chart showing Primary Energy Usage 1990-91 to 2001-02

4.6.3 Although there has been an overall reduction in primary energy usage across Wales, the table in **Figure 15** indicates that some Trusts have increased their energy usage. To illustrate this the table has been converted into a bar chart shown in **Figure 17**. The table and chart show that five Trusts – Bro-Morgannwg, Carmarthenshire, Pembrokeshire, Swansea and Velindre – have either increased their primary energy consumption or only marginally (less than 1%) reduced it over the previous year.

Electrical consumption, which has a disproportionate effect on the primary usage, was 21.6% of the total energy consumption in the latest year. This shows a continuing increase whereas overall consumption has decreased, indicating that a focus on savings in the use of electricity needs to be given a high priority.

Further analysis on an individual Trust basis can be found in *Appendices II-XV*.

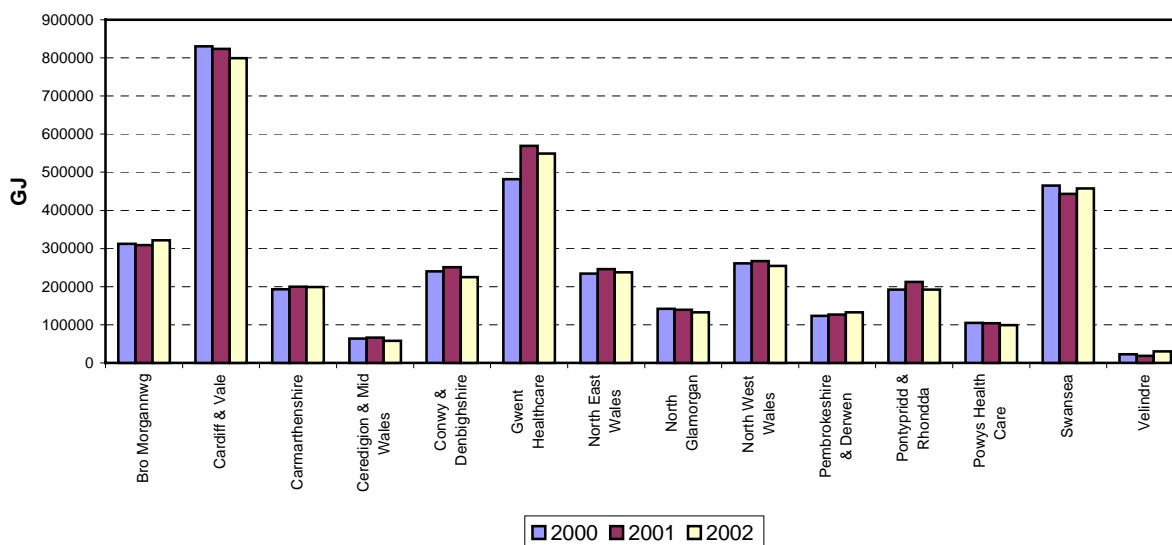


Figure 17: Chart showing Primary Energy Usage over the assessment period

Energy Costs

4.6.4 The total cost of energy for hospitals in Wales for 2001-02 was £14.8 million. Electricity costs were £7.3 million, gas £6.1 million and oil costs £1.4 million.

The average cost per unit of electricity was £12.92 per GJ, gas was £3.55 per GJ and oil was £4.09 per GJ. The average overall cost was £5.64 per GJ. This represents an increase of 14% on the previous year, mainly due to a rise in the cost of gas.

Trusts in Wales reported a wide variation in energy costs. Electricity costs varied between £11.43 per GJ and £15.56 per GJ, whilst gas costs ranged from £5.02 per GJ to £2.90 per GJ. The reported cost of oil varied between £1.75 per GJ to £14.39 per GJ.

Figure 18 shows the average overall energy cost since 1984-85.

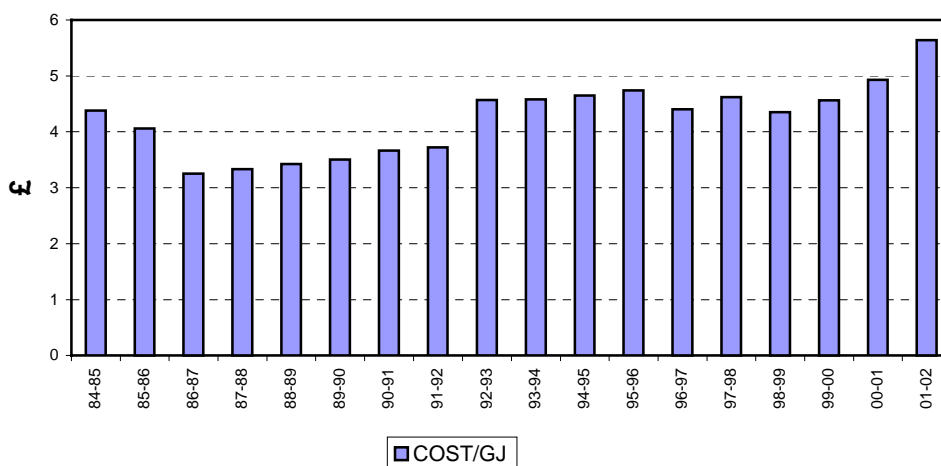


Figure 18: Average energy cost

Carbon Emissions

- 4.6.5 Energy consumption causes the production of carbon dioxide – the main greenhouse gas and a major contributor to global warming. Reducing the emission of carbon dioxide is a key government commitment. The 15% national reduction target in primary energy consumption can also be expressed in terms of carbon emissions to the atmosphere. Carbon emissions, therefore, are an important indicator of progress made by Trusts in achieving the energy target for primary energy consumption.

It should be noted, however, that the amount of carbon dioxide produced for a given amount of energy is dependent on the proportion of electrical to fossil fuel of the energy used. More kg of carbon is produced per Gigajoule in the use of electricity than gas, oil or coal. Each Gigajoule of electricity used, produces 33kg of carbon whilst use of a Gigajoule of gas produces only 14kg of carbon.

An overall decrease in energy consumption, therefore, does not automatically result in a corresponding decrease in carbon emissions. It is possible to have an increase in electrical consumption with a decrease in overall total energy usage whilst increasing carbon dioxide emissions. It is therefore important to look at the production of carbon separately and to track year-on-year changes.

- 4.6.6 The EFPMS returns show that the NHS in Wales produced 50,467 tonnes of carbon. This figure compares with 52,166 tonnes in 2000-01, indicating a reduction of 3.3%.

Compared to the 1999-00 base year, however, emissions are virtually unchanged. A reduction in emissions of 7,600 tonnes of carbon is required in order to meet the target. Reducing imported electricity and/or changing to green electricity would make a significant contribution to achieving this.

Energy Performance - Targets

- 4.6.7 To meet energy performance targets will require a reduction in primary energy consumption to 3.1 million Gigajoules (860 million kWh), or a reduction in carbon emissions of approximately 7,600 tonnes.

It should be noted that the 15% reduction in primary energy is an all-Wales target and Trusts with an existing good energy performance will find it extremely difficult to achieve a saving of this magnitude. It is therefore intended that individual Trust targets be instigated, based on each Trust's energy performance. Trust targets will be reviewed annually.

In addition to the primary energy targets, PIs have been set for new and existing buildings. The targets are 35 to 55 GJ/100m³ for new buildings and 55 to 65 GJ/100m³ for existing buildings.

- 4.6.8 **Figures 19** and **20** show the Trusts' performance against the two energy PI targets. The PIs are calculated on the basis of the *Essential Estate*.

4.6.9 **Figure 19** shows all Trusts with PIs more than two GJ/100m³ above the target as *red*. The *amber* zone applies to Trusts with PIs at or just above the upper limit of the target. Trusts that are within the PI target are represented in *green*.

The table shows that Carmarthenshire, North East Wales, and Swansea NHS Trusts are well above the target. This leaves eleven Trusts that are within the PI target.

4.6.10 The size and type of Trust, together with the age of its properties are all factors that affect its PI. The overall Trust PI will give a good indication of the Trust's general performance but a more detailed analysis on a Trust by Trust basis is required in order to gain a clearer understanding of its energy performance. This more detailed analysis can be found in the *Appendices II-XV* of this report.

4.6.11 The energy consumption of Welsh Trusts, expressed in GJ/100m³, has been compared with other Trusts in the EFPMS dataset. The results are graphically illustrated in *Appendix XVIII* and show that the performance of Trusts in Wales is in the median range and that there is room for improvement in all categories.

4.6.12 It is evident from **Figure 20** that six Trusts are presently struggling to meet the national target of 75% *Estatecode* Energy Performance 'B' by 2005. Cardiff and Vale NHS Trust is currently close to the target and the remaining Trusts are reporting levels of performance in excess of the target.

Trust	Trust PI (GJ/100m ³)	
Bro Morgannwg	63.97	
Cardiff & Vale	61.20	
Carmarthenshire		90.24
Ceredigion & Mid-Wales	64.47	
Conwy & Denbighshire	58.76	
Gwent Healthcare	63.44	
North East Wales		69.51
North Glamorgan	60.79	
North West Wales	57.90	
Pembrokeshire & Derwen	61.00	
Pontypridd & Rhondda	63.61	
Powys Health Care	60.30	
Swansea		70.80
Velindre	47.20	
All Wales Average	64.05	

Key  < 65 GJ/100m³  65-67 GJ/100m³  > 67 GJ/100m³

Figure 19: Energy Performance Indicators of Trusts

Trust	Energy Performance % of Estate in Category 'B'		
Bro Morgannwg	90.59		
Cardiff & Vale		73.34	
Carmarthenshire			0.00
Ceredigion & Mid-Wales	92.66		
Conwy & Denbighshire	95.59		
Gwent Healthcare			53.54
North East Wales			14.51
North Glamorgan	100.00		
North West Wales	95.44		
Pembrokeshire & Derwen	100.00		
Pontypridd & Rhondda			27.19
Powys Healthcare			52.53
Swansea			21.65
Velindre	100.00		
All Wales Average			62.47

Key  > 75%  75 - 65%  < 65%

Figure 20: Energy Performance of Trusts