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INTRODUCTION

- 6.1 The need for a waste management facility is a material consideration which is to be balanced against the assessment of the acceptability (in terms of environmental harm) of the proposed development (often referred to as the planning balance, refer to Chapter 5 above). The proposed development of Parc Adfer would provide increased capacity for both the management of waste higher up the waste hierarchy and the supply of low carbon and renewable energy. In so doing Parc Adfer would contribute to tackling Climate Change, which is recognised as being one of the (if not the) Welsh and UK Government's key objectives. The need for the development is therefore considered in the context of energy, climate change and waste recovery terms. The former has been considered in Chapter 5 of this Volume. This chapter examines the need for Parc Adfer in terms of waste management capacity for the treatment of residual waste streams.
- 6.2 At the outset, it is important to note that Parc Adfer is the result of a detailed procurement process by five of the authorities in North Wales; Isle of Anglesey, Gwynedd, Conwy, Denbighshire and Flintshire. The prime purpose of the facility is to divert residual wastes collected by each authority from landfill and secure the maximum value from this waste that cannot be recycled. The waste collected by each authority within the 'Partnership' will be 'tied' to Parc Adfer through a specific contract; as such, this waste is not available to any other facilities in the region, or even outside of the region. In addition to the carbon savings associated with diverting waste from landfill (refer to Chapter 5 above), value is obtained through the generation of energy and the production of recyclable materials (metals and secondary aggregates from the IBA). The production of such recyclable materials will count towards the recycling targets for each authority.
- 6.3 Annex B to TAN 21 states that the WPA needs to provide information on:
- a calculation of existing and projected future demand;
 - identify the markets that will be served by the proposed development; and
 - a calculation to identify the current shortfall in treatment capacity.

POLICY DRIVERS

EU Landfill Directive

- 6.4 As noted from Chapter 5, the Landfill Directive (1999/31/EC) sets targets for Member States to reduce the amount of biodegradable municipal waste sent to landfill. However, the Welsh Government (WG) has imposed more stringent targets on the diversion of waste from landfill, and placed caps on the amount of waste that can be sent to high efficiency energy from waste facilities (such as Parc Adfer).

Technical Advice Note 21: Waste

- 6.5 The provisions of Technical Advice Note (TAN) 21 have been considered in Chapter 4 above. In the context of the need for new waste management capacity, paragraph 4.8 comments that (emphasis added):

*“Although it is difficult to predict with complete certainty the future needs for residual mixed waste treatment, recovery and for the disposal of waste due to the variety of factors that affect future tonnages and actual existing capacity, the Collections, Infrastructure and Markets Sector Plan sets out the continued need for increased recovery of residual mixed waste which are incapable of being recycled, in the short to medium term but recognises that waste disposal needs will reduce. **Therefore, across Wales a need exists to develop more residual waste treatment and recovery facilities and to ensure that sufficient disposal capacity is maintained at a level appropriate to support the overall aims of Towards Zero Waste and Collections, Infrastructure and Markets Sector Plan.**”*

- 6.6 Paragraph 4.9 states that *“there are likely to be social, economic and environmental benefits in favour of proposals which seek to address an identified need. The presence of facilities outside of Wales or a region defined in the Collections, Infrastructure and Markets Sector Plan should not be used as a reason to refuse an application which can be shown to be required to satisfy an identified need in the area in which it is being proposed”*. As noted above in paragraph 6.2 (and indeed elsewhere in this Volume), there is an identified need to manage the residual waste collected by the five authorities which is currently being sent to landfill. This waste will be the subject of a contract between the authorities and the applicant.
- 6.7 Paragraph 4.10 adds that the upper threshold of the capacity ranges identified in the CIMS Plan (or any subsequent update) is likely to represent the point at which the extent of provision in a region can be considered to be sufficient. For North Wales (which includes Wrexham and Powys in addition to the North Wales Residual Treatment Project) this is set at 468,000tpa for 2024/25. As such, the capacity of Parc Adfer is well below this maximum threshold.
- 6.8 Finally, paragraph 4.19 signals the WG’s long term aim of eliminating landfill as far as possible. Paragraph 4.31 adds that technologies such as energy recovering waste incinerators can offer a suitable technique for maximising the social, environmental and economic benefits from the management of residual wastes.

Collections, Infrastructure and Markets Sector Plan

- 6.9 The CIMS Plan identifies that Wales produces approximately 17.4 million tonnes of waste a year from all sources. Of this total amount, Local Authority Municipal Waste accounts for 1.6 million tonnes and in 2010/11, 51% of municipal waste was sent to landfill. In terms of Industrial and Commercial Waste, 3.6 million tonnes was produced in 2007 (the date of the last

industrial and commercial waste survey for Wales). Of the commercial waste, around 847 thousand tonnes (50.5%) was disposed of by landfill.

- 6.10 As noted from Chapter 5 and above at paragraph 6.7, the CIMS Plan indicates that there is a need across the whole of Wales to develop more residual waste treatment and recovery capacity. It notes that the requirements cannot be predicted with any degree of complete certainty, but provides a “*range of best estimate capacity requirement*”, which for the North Wales region (which includes Wrexham and Powys) is between 203,000tpa and 468,000tpa for 2024/25. The Plan comments that these figures must be treated with considerable caution as many caveats apply. These include uncertainties on whether the permitted capacity is actually available in its entirety for residual mixed waste (especially in terms of the cement kilns, and in terms of the currently utilised operational throughput of some of the other existing plants which is a lot less than the permitted figures), the long term viability of some of the existing plants (for example the two MBT¹ with residue to landfill plants), and the caveats associated with the scenarios developed for the future arisings of residual municipal waste. It therefore advocates that some flexibility will be required by decision makers in their consideration of total permitted capacity.
- 6.11 As such, this provides the starting point to considering the need for residual waste treatment capacity. TAN 21 makes provision for monitoring (the output of which would be a Waste Planning Monitoring Report). This assessment is written in the absence of such a report (as one does not currently exist); however, the Project is being developed to meet a need which has been identified by the partner authorities to manage waste which they have control over and which Parc Adfer would be contractually bound to manage. Accordingly, this provides a high degree of certainty over the need for the facility.
- 6.12 The Plan at section 3.6.4.3 indicates that the statutory recycling or local authority municipal waste effectively set a ceiling for the amount of energy from waste. As there is a target of 70% recycling for 2024/25, the maximum proportion of municipal waste that can go to energy from waste is 30%. Table 6-3 identifies the Energy from Waste ceilings for local authority municipal waste that have been set in ‘Towards Zero Waste’, namely 42% in 2015/16 decreasing to 30% in 2024/25.

Industrial and Commercial Sector Plan

- 6.13 The I&CW Sector Plan largely re-iterates Towards Zero Waste and the CIMS plan. It recognises the need to reduce the reliance on landfill through diverting residual waste to other forms of recovery, such as high efficiency energy from waste facilities.
- 6.14 The Sector Plan reiterates the ceiling placed on energy from waste in the CIMS plan of 30% in 2024-25.

¹ Mechanical Biological Treatment – this removes recyclable material from residual waste and produces a residual waste stream that can either be landfilled or sent to an energy from waste facility.

- 6.15 The Sector Plan indicates for non-municipal residual wastes that market forces would need to provide by 2025 annual treatment capacity of between 0.5 to 1.4 million tonnes (if recycling targets are met).

Flintshire Waste Management Strategy

- 6.16 The FWMS seeks to reduce the amount of waste going to landfill and to enable FCC to meet its Landfill Allowance Scheme targets to 2020. It identifies that FCC will continue to work closely with its regional partners through the North Wales Residual Waste Treatment Project.
- 6.17 This underlines the commitment to manage residual Municipal Solid Waste (MSW) as part of a regional project with four other partners.

NORTH WALES RESIDUAL WASTE TREATMENT PROJECT

- 6.18 As noted above five of the North Wales Authorities (Isle of Anglesey County Council, Gwynedd Council, Conwy County Borough Council, Denbighshire County Council and Flintshire County Council) formed a partnership during 2008 to ensure that the requirement for a residual waste treatment solution was addressed in a sustainable and cost-effective manner.
- 6.19 The authorities Outline Business Case (OBC), dated November 2009, included a reference example technology and reference site for location of the residual waste treatment facility. This reference solution was deliverable within the required policy frameworks and demonstrates clear environmental benefits in terms of reduced carbon dioxide emissions in comparison to the no residual waste treatment (continued use of landfill) option.
- 6.20 A technology assessment of various waste management options was presented in the in the OBC. This ranked seven shortlisted options and identified energy from waste (EfW) with CHP at the Parc Adfer application site as the preferred solution. Over 20 sites were evaluated and identified to determine their potential to accommodate the reference solution.
- 6.21 The capacity of the reference plant was 150,000 tonnes per annum, which was designed to achieve the relevant MSW and landfill diversion targets for the 25 year operational life of the project.
- 6.22 Although the reference solution identified EfW with CHP at the Parc Adfer application site as the preferred solution it is important to note that the procurement process was technology neutral, and that bidders were free to choose their own sites. The applicant selected to utilise EfW as it is a proven deliverable technology.
- 6.23 The reference project originally included the use of existing, and the development of new, transfer stations which would provide feedstock to Parc Adfer. The transfer facilities have now been removed from the procurement project. The existing transfer facilities will remain in place and will be added to, and it is up to each individual authority to provide and operate these facilities.

- 6.24 The outline business case recognised that residual waste management capacity within North Wales is limited with several of the partnership authorities already having to transport their wastes to landfill sites at distance.
- 6.25 The most recent figures indicate that just over 50% of MSW is diverted from landfill, but that significant volumes of MSW continue to be landfilled. These figures are set out in the table below.

Table 6-1
Residual Waste Treatment

Year	Thermal Treatment tonnage	MSW Landfilled tonnage (t)	Diversion Rate
2003/4	0	287,098	18.9%
2004/5	0	273,316	23.6%
2005/6	0	255,942	28.2%
2006/7	0	243,275	31.7%
2007/8	0	208,454	38.9%
2008/9	0	200,304	40.8%
2009/10	0	178,420	45.0%
2010/11	0	163,582	49.3%
2011/12	0	150,404	52.4%

- 6.26 The 'Towards Zero Waste One Wales: One Planet' targets require 70% recycling/composting by 2024/25 and these targets are now statutory with authorities facing a £200 per tonne fine for failure. The maximum level of that may be sent to EfW by the same date is 30%. The proposed Parc Adfer facility would enable the authorities to meet these targets.
- 6.27 A description of existing MSW management facilities is contained within the OBC which is included as Appendix 6/2.

CAPACITY OF PARC ADFER

- 6.28 As noted from Chapter 3 above, Parc Adfer is intended to manage up to 200,000tpa of residual wastes. Based on the anticipated calorific value (being a measure of the amount of energy in the waste) of the waste stream it is anticipated that Parc Adfer would manage 175,000tpa; the higher figure of 200,000tpa reflects the maximum throughput (based on the lowest calorific value of waste it could accept).
- 6.29 In terms of the waste inputs, Parc Adfer's main purpose as noted above is to treat residual MSW from the Anglesey, Conwy, Denbighshire, Flintshire and Gwynedd. Based on projections made by the Councils, Parc Adfer would accept between 112,000t and 118,000t of local authority collected residual

MSW during the period of the contract. Whilst it is expected that there should be a reduction in residual waste arisings as time passes (due to increased levels of reduction, re-use and recycling), for Flintshire and Anglesey, residual waste arisings are expected to increase due to increases in population.

- 6.30 On top of the waste collected by the Partnership authorities, Parc Adfer would treat other residual MSW or Industrial and Commercial wastes (I&CW). This would range from a maximum of 88,000t to 57,000t depending on the overall CV of waste accepted. I&CW would be similar in composition to the MSW, and would come from *inter alia* offices, shops, restaurants, tourist accommodation etc, and adhere to the controls on waste types stipulated in the Environmental Permit.

WASTE ARISING

Overview

- 6.31 Data on the types and quantities of waste handled by permitted waste management facilities within Wales is set out in the NRW document “*Wales Waste Information 2012*”². This does not necessarily correlate with waste arisings in Wales as some waste may be exported from Wales and similarly, some Welsh facilities may import waste from elsewhere. From Table 1.1 of this document, just under 8Mt of waste was managed at 460 facilities in Wales in 2012. Of this total, 2.1Mt was landfilled, with a further 2Mt sent to transfer stations (pending further management, which would include transfer to landfill sites, see below).
- 6.32 In the context of landfill deposits, there has been a steady decline, with a 2% reduction between 2011 and 2012 and 51% since 2001. Landfill capacity in the North Wales region stands at around 8.8 years, being the lowest of the three regions. As such, there is a pressing need to develop alternative capacity to manage the residual waste stream.
- 6.33 The report comments that 1.8Mt of waste was accepted at Welsh transfer stations³ in 2012. Of this figure, 30% went on to landfill sites and 15% was sent to other transfer stations. The final destination of around 205,000t (11%) is unknown. As such, it can be seen that a considerable quantity of waste is currently sent to landfill.
- 6.34 The report indicates that 60,000t⁴ was sent to incineration facilities, with energy recovered from 55,000t of this total. The report also indicates that the total permitted EfW capacity is 264,866t at the end of 2012. It then comments (emphasis added):

² <http://naturalresourceswales.gov.uk/our-work/policy-advice-guidance/waste-Policy/wales-waste-data-information-2012/?lang=en#.U7vTZ2dOVdl>

³ This would appear to be a typographical error, as referring to Table 1.1, 1.8Mt was handled in 2011, with 2.025Mt handled in 2012.

⁴ From Table 1.1. It is noted that under the heading “Incineration”, the report also refers to 59,000t of waste being incinerated in 2012. The difference is due to rounding.

*“Two cement kilns are permitted to co-incinerate refuse derived fuel (RDF). The permitted capacities are approximately 221,000 tonnes per annum in North Wales and 26,000 tonnes in South East Wales. However, very little of this capacity is currently utilised for RDF. **There should not be a reliance on this capacity for future planning**”.*

Local Authority Collected Waste

- 6.35 As noted above, the prime function of Parc Adfer is to manage the residual waste stream collected by the five partner authorities over a period of 25 years in a more sustainable manner. At present, this waste is sent to landfill.
- 6.36 Information has been provided by the Partnership regarding the projected arisings of local authority collected waste across the five authorities. Information has also been provided on the projected amount of residual waste that would be sent to Parc Adfer; this being the amount of waste remaining after all recyclable materials have been removed. Table 6-2 below provides information for waste collections up to 2046. Details of collections for each authority area are summarised in Appendix 6/1.

Table 6-2
Local Authority Collected Waste Arisings

	Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total MSW Arising (tonnes)
Actual	2003/04	204,750	25,800	92,174	31,126	353,855
Actual	2004/05	213,726	19,128	87,968	36,809	357,634
Actual	2005/06	211,039	20,735	94,307	30,569	356,655
Actual	2006/07	205,469	20,078	94,309	36,422	356,283
Actual	2007/08	197,372	17,593	88,243	37,973	341,187
Actual	2008/09	197,928	23,284	76,145	40,667	338,326
Actual	2009/10	195,082	23,779	68,063	37,305	324,229
Actual	2010/11	195,750	26,844	71,517	28,263	322,374
Actual	2011/12	189,944	25,676	69,273	31,106	315,999
Actual	2012/13	192,679	5,529	68,519	48,821	315,548
Projected	2013/14	191,411	5,942	65,445	47,878	310,676
Projected	2014/15	191,587	5,938	65,509	47,888	310,922
Projected	2015/16	191,766	5,933	65,574	47,899	311,172
Projected	2016/17	191,947	5,929	65,641	47,910	311,427

	Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total MSW Arising (tonnes)
Projected	2017/18	192,103	5,925	65,702	47,919	311,650
Projected	2018/19	192,262	5,921	65,766	47,929	311,877
Projected	2019/20	192,423	5,917	65,830	47,939	312,109
Projected	2020/21	192,588	5,913	65,896	47,950	312,347
Projected	2021/22	192,755	5,909	65,964	47,961	312,589
Projected	2022/23	192,906	5,905	66,029	47,971	312,811
Projected	2023/24	193,060	5,901	66,095	47,982	313,038
Projected	2024/25	193,217	5,897	66,163	47,993	313,271
Projected	2025/26	193,378	5,893	66,233	48,005	313,509
Projected	2026/27	193,542	5,889	66,304	48,018	313,754
Projected	2027/28	193,709	5,886	66,377	48,031	314,003
Projected	2028/29	193,879	5,882	66,452	48,045	314,258
Projected	2029/30	194,053	5,878	66,528	48,060	314,519
Projected	2030/31	194,230	5,875	66,606	48,076	314,787
Projected	2031/32	194,412	5,871	66,686	48,093	315,061
Projected	2032/33	194,597	5,868	66,768	48,110	315,343
Projected	2033/34	194,787	5,864	66,851	48,128	315,631
Projected	2034/35	194,981	5,861	66,937	48,147	315,926
Projected	2035/36	195,180	5,857	67,025	48,167	316,229
Projected	2036/37	195,382	5,854	67,114	48,188	316,539
Projected	2037/38	195,589	5,850	67,206	48,210	316,856
Projected	2038/39	195,801	5,847	67,300	48,232	317,180
Projected	2039/40	196,017	5,844	67,395	48,256	317,512
Projected	2040/41	196,237	5,841	67,493	48,280	317,851
Projected	2041/42	196,459	5,838	67,591	48,305	318,192
Projected	2042/43	196,682	5,834	67,690	48,330	318,536
Projected	2043/44	196,906	5,831	67,790	48,355	318,882

	Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total MSW Arising (tonnes)
Projected	2044/45	197,132	5,828	67,889	48,380	319,229
Projected	2045/46	197,359	5,825	67,990	48,406	319,580

6.37 From Towards Zero Waste and the Sector Plans (refer to Chapter 5) there is a cap on the amount of waste that can be sent for energy recovery. However, as noted from the Municipal Waste Sector Plan if the recycling of processed IBA is counted towards the recycling figure, then the cap on energy from waste would be net of any recycling of bottom ash. As such, the cap is not 30% of the total waste arising, but needs to be adjusted to reflect the production of secondary aggregates. Based on information provided by the Partnership, Table 6-3 below shows how the inputs to Parc Adfer compare with the maximum amount that can be sent for energy recovery. This is based on the assumption that 22.5% of the imported waste stream produces IBA, 98% of which is recycled to produce secondary aggregate.

Table 6-3
Summary of Waste Arisings and Imports to Parc Adfer

Year	Waste Arising (tonnes)	Max. Allowable to ERF (30%)	Residual to Parc Adfer (gross) (tonnes)	Residual to Parc Adfer (net) ¹ (tonnes)	Landfill (tonnes)	Recycled (tonnes)
2019/20	312,109	93,633	117,782	87,089	5,043	219,231
2020/21	312,347	93,704	117,345	86,763	5,027	219,808
2021/22	312,589	93,777	117,258	86,698	5,024	220,118
2022/23	312,811	93,843	117,231	86,677	5,023	220,361
2023/24	313,038	93,911	117,206	86,658	5,022	220,607
2024/25	313,271	93,981	111,508	82,422	4,821	225,283
2025/26	313,509	94,053	111,588	82,482	4,823	225,459
2026/27	313,754	94,126	111,671	82,543	4,826	225,639
2027/28	314,003	94,201	111,756	82,605	4,829	225,821
2028/29	314,258	94,277	111,843	82,669	4,832	226,009
2029/30	314,519	94,356	111,933	82,735	4,835	226,200
2030/31	314,787	94,436	112,025	82,803	4,838	226,396
2031/32	315,061	94,518	112,119	82,872	4,841	226,597
2032/33	315,343	94,603	112,216	82,944	4,844	226,802
2033/34	315,631	94,689	112,316	83,017	4,848	227,013
2034/35	315,926	94,778	112,419	83,092	4,851	227,228
2035/36	316,229	94,869	112,524	83,170	4,855	227,449
2036/37	316,539	94,962	112,632	83,249	4,858	227,674
2037/38	316,856	95,057	112,742	83,331	4,862	227,905

Year	Waste Arising (tonnes)	Max. Allowable to ERF (30%)	Residual to Parc Adfer (gross) (tonnes)	Residual to Parc Adfer (net) ¹ (tonnes)	Landfill (tonnes)	Recycled (tonnes)
2038/39	317,180	95,154	112,856	83,414	4,866	228,141
2039/40	317,512	95,254	112,972	83,500	4,870	228,382
2040/41	317,851	95,355	113,091	83,587	4,874	228,628
2041/42	318,192	95,458	113,210	83,676	4,878	216,460
2042/43	318,536	95,561	113,331	83,764	4,882	204,267
2043/44	318,882	95,665	113,453	83,854	4,886	204,492
2044/45	319,229	95,769	113,575	83,944	4,890	204,717

1. The net tonnage takes into account the IBA that has been recycled (see paragraph 6.27)

- 6.38 From this it can be seen that the imports of residual waste to Parc Adfer, once the production of secondary aggregates from IBA is taken into consideration, do not exceed that maximum allowable under national policy. In relation to the production of secondary aggregates from IBA, there is an established market throughout the UK for such products.
- 6.39 In addition to MSW arising from within the Partnership area, there may be opportunities for MSW from other parts of Wales to be imported the facility (for example from authorities within Central Wales) or from England. It is important to note that the movement of waste is not restricted by administrative boundaries, but is regulated by the proximity principle. As such, Parc Adfer could accept waste from other areas.

Industrial & Commercial Waste

- 6.40 Unlike MSW, data for I&CW is not as well reported. A survey of I&CW generated in Wales for the 2012 calendar year was carried out by RSK Environment Ltd in partnership with Urban Mines, and managed by NRW on behalf of the WG.
- 6.41 The main findings of the survey were:
- Welsh industrial and commercial sectors generated an estimated 3.7 million tonnes of waste;
 - 55% was industrial;
 - 45% was commercial;
 - the preparation for re-use, recycling and composting rate for industrial and commercial waste generated combined was 58% and the land disposal rate was 26%.
- 6.42 The most significant type of I&CW generated was non-metallic wastes, (29%) followed by mixed wastes (22%) mineral wastes (21%) and animal & vegetal wastes (10%). Of these waste streams, it is generally the 'mixed wastes' that are of interest for Parc Adfer; that said it is possible that some of the non-metallic wastes could also be attracted to the facility.

- 6.43 In relation to how these wastes were managed:
- 1.6 million tonnes (42%) was recycled
 - 963 thousand tonnes (26%) was disposed of via landfill
 - 544 thousand tonnes (15%) was prepared for re-use
 - 196 thousand tonnes (5%) was sent for land recovery
 - 143 thousand tonnes (4%) was sent for incineration
 - 34 thousand tonnes (1%) was composted
- 6.44 From this it can be seen that a considerable quantity (nearly 1Mt) of I&CW was sent to landfill sites in Wales, with only a small amount sent to energy from waste facilities. As such, it would appear that there is considerable potential for new energy from waste capacity across Wales.
- 6.45 In terms of the regional picture, 915,000t of I&CW was produced within North Wales in 2012. Based on the limit on the maximum amount of waste that can be sent to EfW facilities (30%), then a theoretical maximum of 274,500t of I&CW is available within the region. From this, it can be seen that the 'top up' capacity of Parc Adfer is well below the theoretical amount of residual I&CW available, and thus would not impede progress towards zero waste.
- 6.46 At the present time, some 50% industrial wastes arising nationally are re-used, recycled or composted with 27% landfilled. A further 12% is recovered (land recovery or incineration) with 11% treated by 'other' means⁵. For commercial waste, 68% of the total arisings nationally is re-used, recycled or composted and 26% is landfilled. Recovery accounts for 1% and 'other' treatment 5%. From this it can be seen that management of commercial waste is already nearing the 2025 re-use/recycling target of 70%; however, further re-use, recycling or composting capacity is needed to treat industrial waste arisings and it is important that energy from waste does not impede this.
- 6.47 At the regional level, 54% of industrial waste is re-used, recycled or composted, which is above the national average. Some 28,270t was landfilled, which represents 6% of the regional total. For commercial wastes, 68.3% is re-used, recycled or composted, being the highest of the three regions. Landfill accounts for 25.9% of the total (112,620t). Again, for both waste streams a proportion of the total falls under the 'other' category (35,160t for industrial and 13,620t for commercial); a proportion of this may be available for Parc Adfer.
- 6.48 Overall therefore, it can be seen that the quantity of residual I&C waste currently sent to landfill (being in excess of 140,000t in 2012) in the region exceeds the 'top up' capacity available at Parc Adfer to manage the I&CW stream. It is therefore clear that the proposed capacity of Parc Adfer would not lead to an overcapacity and thus it would not impact upon efforts to increase recycling. Notwithstanding this, Parc Adfer has been designed such that it can operate at lower throughputs and still meet the R1 criteria. As such, it is not reliant on this 'top-up' capacity.

⁵ Other means includes incineration without energy recovery, treatment, transfer, don't know and other

EXISTING WASTE MANAGEMENT CAPACITY

- 6.49 There are currently no comparable facilities to Parc Adfer operating within the North Wales region.
- 6.50 In Wales as whole there are 4 facilities listed by the EA⁶ and NRW⁷ as incinerating waste from off-site sources. These facilities are shown in Table 6-4.

Table 6-4
Incineration facilities operating in Wales in 2012

Operator	Site Name	Type	Permitted Capacity	Tonnage incinerated 2012
SITA UK Ltd	Wrexham	Clinical Waste	6,000	5,000
Castle Cement	Mold	Co-Incineration of hazardous waste	181,368	35,000
Lafarge Cement UK	Aberthaw	Co-Incineration of non hazardous waste	25,000	6,000
Neath Port Talbot Recycling Ltd	Crymlyn Burrows, Swansea	Municipal and/or Industrial & Commercial	52,500	14,000

- 6.51 Of these, two are located in the North Wales region, of which one is not comparable (due to the nature of waste accepted). The other two facilities are located outside of the region, and thus not suitable to manage residual waste arising from within North Wales. Whilst the largest capacity is at the Castle Cement works at Mold; however, as noted above in paragraph 6.34, this capacity should not be relied upon in terms of ascertaining capacity requirements for managing residual waste. Powys currently sends residual waste to a MBT facility, with the output then sent to landfill.
- 6.52 Data on permitted capacity for operational residual waste treatment or recovery for each region in Wales is also set out in Table 23 of the CIMS plan, whilst Table 24 shows the throughput for operational residual waste treatment in each region in Wales (in 2010). Table 25 in the CIMS plan shows the estimated maximum additional planned capacity for residual municipal waste treatment in Wales. From these tables the following is of note:
- co-incineration capacity of 220,750t in 2011 at a cement works. The throughput in 2010 was 1,156t;
 - MBT with residual to landfill of 80,000t in 2011. The throughput was 72,830 in 2010;
 - no incineration capacity either with or without energy recovery; and

⁶<http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/research/library/data/150326.aspx>

⁷<http://naturalresourceswales.gov.uk/our-work/policy-advice-guidance/waste-Policy/wales-waste-data-information-2012/?lang=en#.U7bSEmdOVdJ>

- New Mechanical Biological Treatment / Mechanical Heat Treatment capacity with planning permission of 230,000t.
- 6.53 In relation to capacity that may come on line, Wrexham has opted for a Mechanical Biological Treatment (MBT) facility to treat its residual waste. This facility is located at Bryn Lane in Wrexham and will be operated by FCC Environmental once construction is completed. This facility produces a refuse derived fuel (more commonly referred to as 'RDF'), which needs to be exported to an energy from waste facility, or landfilled. It is understood that the RDF will be exported to the Multifuel Energy Ltd facility at Ferrybridge, Yorkshire, once that facility becomes operational. It is also understood that there is a planning permission for an MBT facility in Flintshire (Orchid).
- 6.54 Currently, the main management route for residual waste in the region is therefore landfill. Data produced by NRW indicates that across Wales, of the 2.163Mt landfilled in 2012, 1.289mt comprises 'non-hazardous' waste. Of this total, North Wales landfilled 406,000t of waste (31% of the national total); South East Wales accounted for 44% of the landfill inputs whilst South West Wales accounted for 25%.

SUMMARY

- 6.55 At the outset it is important to set out that Parc Adfer is the result of a detailed procurement process by five of the authorities in North Wales. The prime purpose of the facility is to divert residual wastes collected by each authority from landfill and secure the maximum value from this waste that cannot be recycled. In addition to the carbon savings associated with diverting waste from landfill, value is obtained through the generation of energy and production of recyclable materials (metals and secondary aggregates from the IBA).
- 6.56 A number of documents produced by the Welsh Government recognise that there is a pressing need for the development of new recovery facilities. TAN21 state that:
- "Therefore, across Wales a need exists to develop more residual waste treatment and recovery facilities and to ensure that sufficient disposal capacity is maintained at a level appropriate to support the overall aims of Towards Zero Waste and Collections, Infrastructure and Markets Sector Plan".*
- 6.57 The CIMS Plan reiterates this, provides a "range of best estimate capacity requirement", which for the North Wales region (which includes Wrexham and Powys) is between 203,000tpa and 468,000tpa for 2024/25. The Plan comments that these figures must be treated with considerable caution as many caveats apply.
- 6.58 The industrial and Commercial Sector Plan indicates non-municipal residual wastes that market forces would need to provide by 2025 annual treatment capacity of between 0.5 million tonnes to 1.4 million tonnes (if recycling targets are met).

- 6.59 It can therefore be seen that considerable new capacity is needed in North Wales and, considering the maximum capacity of Parc Adfer (200,000tpa), it falls below the ranges specified in national policy and plans, thereby creating little risk of overcapacity.
- 6.60 Currently, at the regional level, some 406,000t of non-hazardous waste was accepted at landfill sites in North Wales in 2012.
- 6.61 Going forward, national policy restricts the amount of waste that can be sent to energy from facilities to 30% of the total arisings; however, if the recycling of processed IBA is counted towards the recycling figure, then the cap on energy from waste would be net of any recycling of bottom ash. Comparing the projected inputs of residual waste collected by the five authorities against the total waste arisings shows that Parc Adfer would accept less than 30% of the total arisings, and thus complies with national policy. This shows that Parc Adfer would not stifle recycling initiatives.
- 6.62 The residual waste collected by the five authorities would be 'tied' to Parc Adfer through a specific contract; as such, this waste is not available for any other facilities in the region, or even outside of the region.
- 6.63 In addition to the residual waste collected by the five authorities, Parc Adfer would recover energy from industrial and commercial waste streams that is also currently sent to landfill. Across the whole of Wales, nearly 1 million tonnes of such waste is landfilled; for North Wales, the amount is around 140,000tpa (in 2012). As such, there is more waste being landfilled than Parc Adfer could manage.
- 6.64 Finally, there are no other comparable facilities operating in North Wales. Some waste is sent to a cement works in Mold, however NRA advise against counting this capacity in determining capacity requirements. As such there are no facilities competing for the waste stream. In terms of other facilities that may come on stream, a new mechanical biological treatment facility is being built in Wrexham; this will produce a refuse derived fuel from the waste imported, which will need to be sent to an energy from waste facility, or landfilled. As such, there are no competing facilities in the pipeline.

APPENDIX 6/1 - WASTE ARISING BY AUTHORITY AREA

Isle of Anglesey County Council

Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total Arising (tonnes)	MSW
2013/14	29,420	-	6,800	3,346	39,566	
2014/15	29,582	-	6,837	3,364	39,784	
2019/20	30,298	-	7,003	3,446	40,747	
2024/25	30,885	-	7,139	3,513	41,537	
2029/30	31,424	-	7,263	3,574	42,261	
2034/35	31,963	-	7,388	3,635	42,986	
2039/40	32,510	-	7,514	3,697	43,722	
2044/45	33,067	-	7,643	3,761	44,470	

Gwynedd County Council

Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total Arising (tonnes)	MSW
2013/14	40,449	4,564	15,359	16,220	76,591	
2014/15	40,408	4,559	15,343	16,204	76,514	
2019/20	40,207	4,536	15,267	16,123	76,132	
2024/25	40,006	4,514	15,190	16,042	75,753	
2029/30	39,807	4,491	15,115	15,962	75,375	
2034/35	39,608	4,469	15,039	15,883	74,998	
2039/40	39,410	4,447	14,964	15,803	74,624	
2044/45	39,214	4,424	14,889	15,724	74,252	

Conwy County Borough Council

Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total Arising (tonnes)	MSW
2013/14	37,653	889	12,537	14,921	66,000	
2014/15	37,615	888	12,525	14,906	65,934	
2019/20	37,428	883	12,462	14,832	65,605	
2024/25	37,241	879	12,400	14,758	65,277	
2029/30	37,055	875	12,338	14,684	64,952	
2034/35	36,870	870	12,277	14,611	64,628	
2039/40	36,686	866	12,215	14,538	64,305	
2044/45	36,503	862	12,154	14,465	63,984	

Denbighshire County Council

Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total Arising (tonnes)	MSW
2013/14	33,617	4	6,458	3,029	43,108	
2014/15	33,583	4	6,452	3,026	43,065	
2019/20	33,416	4	6,419	3,010	42,850	
2024/25	33,249	4	6,387	2,995	42,636	
2029/30	33,083	4	6,356	2,980	42,423	
2034/35	32,918	4	6,324	2,966	42,212	
2039/40	32,754	4	6,292	2,951	42,001	
2044/45	32,590	4	6,261	2,936	41,792	

Flintshire County Council

Year	Household Collected Waste (tonnes)	Collected Trade Waste (tonnes)	CAS Collected Household Waste (tonnes)	Other MSW (tonnes)	Total MSW Arising (tonnes)
2013/14	50,272	485	24,291	10,363	85,411
2014/15	50,398	486	24,352	10,389	85,625
2019/20	51,075	493	24,679	10,528	86,775
2024/25	51,836	500	25,047	10,685	88,068
2029/30	52,684	508	25,456	10,860	89,508
2034/35	53,622	517	25,910	11,053	91,103
2039/40	54,656	527	26,409	11,267	92,860
2044/45	55,758	538	26,942	11,494	94,732