MVV Environment Devonport Ltd

MVV Environment Devonport Ltd Energy from Waste Combined Heat and Power Facility, North Yard, Devonport

Energy, Economy, Employment and Education Benefits Statement

May 2011

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1 Energy

1.1 Introduction

1.1.1 The Energy from Waste Combined Heat and Power (EfW CHP)

1.1.2 facility has the ability to provide not just electricity at a high efficiency level but also heat, in the form of steam or pressurised hot water. This is called Combined Heat and Power (CHP). The steam or the pressurised hot water can be fed into above ground or through buried pipe work distribution systems, either existing or new. In the case of steam this can be used to supply industrial customers for process purposes (e.g. chemical manufacture) or heating. In the case of pressurised hot water this supplies residential, commercial and publicly owned properties for heating, and is commonly called District Heating (DH) – see Figure 1 below. Such systems are frequently seen in continental Europe and in a few parts of the UK. It is worth noting that with the future projected Building Regulations changes, which are set out in the government's Building a Greener Future, DH is likely be the most cost effect solution (where this is feasible), particularly post 2014, to achieve these requirements. Thus the EfW CHP facility offers potential benefits for the wider Plymouth area, with the development of a future DH network.

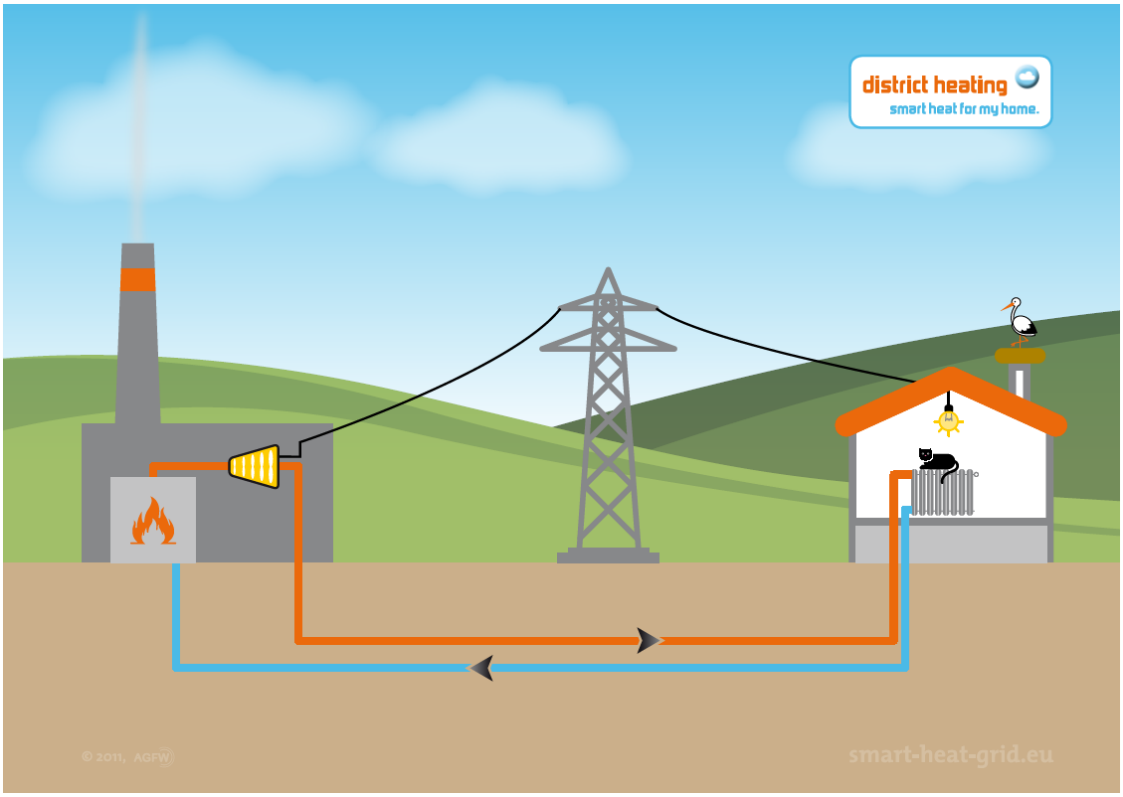


Figure 1: Schematic of a CHP and DH system (Source http://www.agfw.de/)

1.2 Site Selection

1.2.1 The site in the North Yard of Her Majesty's Naval Base, Devonport was chosen principally for its close proximity to what is the largest existing single heat demand in the South West Devon area, thus affording the maximum chance to achieve the benefits of Good Quality CHP.

1.2.2 Aside from reasons connected to the delivery of waste to the EfW CHP facility, the proposed site in the North Yard was chosen over the South Yard because it was the only available area closest to the main demand of the North Yard which is much greater than that in the South Yard. (See Table 3 below.) A few sites in the South Yard were examined but these were not close to the North Yard demand (i.e. they were in the south part of the South Yard) and had significant disadvantages from a traffic viewpoint. This is despite their very small proximity advantage to the Devonport and city centre areas of Plymouth where potential DH systems are anticipated. Such a small disadvantage will easily be overcome by using long distance pressurised hot water pipe work, commonly used in such systems, to transport heat from the north to the south and east. Overall the proposed North Yard location represents the best balance of being close to the current heat demand of the Naval Base and having good road access against the small disadvantage for connection to a future city DH system.

1.3 Facility Design and Efficiency Benefits

Carbon Dioxide Savings

1.3.1 The EfW CHP facility will result in emissions of greenhouse gases, principally carbon dioxide (CO_2). However, the EfW CHP facility will generate renewable electricity, resulting in a reduced need to generate electricity in fossil fuel power stations elsewhere. By diverting biodegradable waste from landfill, the EfW CHP facility will also offset greenhouse gas emissions from landfill elsewhere. There will be a net reduction in greenhouse gas emissions.

1.3.2 A WRATE Assessment (WRATE stands for Waste Resources Assessment Toolkit for the Environment) has been carried out for the EfW CHP facility in order to quantify the reduction in greenhouse gas emissions for the SWDWP (this was required as part of the budding process). WRATE results for the metric used by the model – global warming potential over 100 years (GWP100) measured in tonnes CO_2 equivalent (tCO_2eq) – have been calculated for the proposed EfW CHP facility and been compared to a baseline, landfill-only scenario.

1.3.3 On the basis of the SWDWP 'contract waste' tonnages, the proposed EfW CHP facility will result in an offsetting of -34,625 tCO_2eq. This compares to a net burden of +38,879 tCO_2eq from the baseline, landfill-only scenario. Overall therefore the WRATE model calculates that the EfW CHP facility will deliver a reduction of 73,504 tCO_2eq per year, equating to 1,837,600 tCO_2eq emissions over the course of a 25-year contract.

1.3.4 The above calculations apply to the EfW CHP facility and the way in which it will positively influence greenhouse gas emissions across the SWDWP catchment area. It is possible to make an approximation of the apportionment of these greenhouse gas emissions to the individual SWDWP constituent authorities by using the split of contract waste provided by those authorities, as shown in Table 1 below.

Table 1: Percentage of contract waste per SWDWP authority

Authority	Percentage contract waste (2 decimal places)
Plymouth	47.52
Torbay	17.24
South Hams	13.24
Teignbridge	13.53
West Devon	8.48
Total	**100.01***

*Total is greater than 100% due to rounding errors, the actual values have been used to calculate the values in Table 2 below.

1.3.5 In the absence of available data we have assumed for the purposes of this exercise that commercial and industrial waste can be similarly apportioned between the SWDWP authorities.

1.3.6 Based on this data Table 2 below shows the approximate reduction in greenhouse gas emissions, in tCO_2eq, expected within each of the SWDWP authorities.

Table 2: Estimated reduction in tCO_2eq within each of the SWDWP authorities

Authority	Approximate reduction in tCO_2eq per year	Approximate reduction in tCO_2eq over 25 year contract
Plymouth	34,928	873,201
Torbay	12,669	316,735
South Hams	9,734	243,353
Teignbridge	9,943	248,568
West Devon	6,230	155,744
Total	**73,504**	**1,837,601***

*Total is marginally greater than 1,837,600 due to rounding errors.

1.3.7 The Department of Energy and Climate Change has calculated CO_2 emissions for each local authority in the UK, although for different reasons and using a different methodology[1] to the

[1] http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2008_local/2008_local.aspx

WRATE model used by MVV for its proposed EfW CHP facility. For example, the most recent data published (2008) calculated that Plymouth's CO_2 emissions were 1,414,000 tCO_2 per annum. Although not directly comparable because of the different methodologies and units used, the approximate reduction for Plymouth of 34,928 tCO2eq per year, calculated in Table 2 above, will amount to a reduction of 2.47% from the most recently published CO_2 emissions for Plymouth.

1.3.8 The MoD, City of Plymouth, the south-west region and the UK as a whole will benefit from the project through the contribution towards local, regional and national targets for providing energy from sustainable sources. For example the MoD's current Sustainable Development in Government (SDIG) target is for Departments to reduce carbon emissions by 34% by 2020 from 1990 levels[2] and the EfW CHP facility will help contribute to meeting this target.

1.3.9 Approximately two thirds of the waste treated by the facility will be derived from SWDWP 'contract waste', with the remaining one third derived from commercial and industrial (C&I) sources. Were C&I waste to be included in the WRATE model calculations the annual tCO2eq savings will be approximately fifty percent more significant.

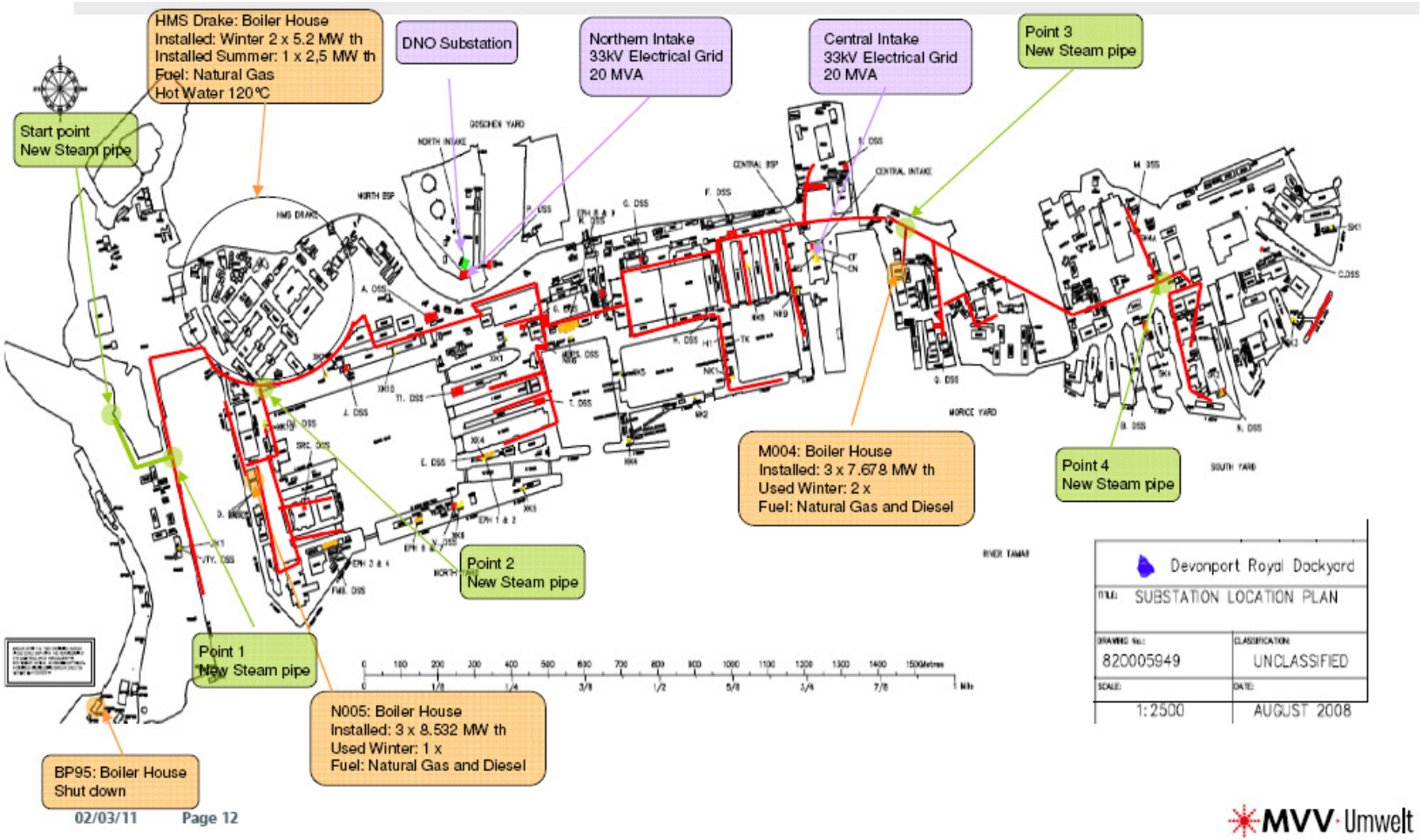
Supply of Steam to Naval Base Steam System and Associated Benefits and Savings

1.3.10 As well as generating electricity, the EfW CHP facility is already designed to deliver steam into the Naval Base North Yard steam system. The system is designed to allow varying rates of extraction of steam from the steam turbine casing at 9 bar. The steam provided will displace steam generated by the existing North Yard boilers which run on natural gas and, occasionally in times of gas disruption, distillate oil. They supply steam all year round although in the summer months the steam system is often switched off and drained down because there is no need for heating. Additionally it will also supply to the Fleet Accommodation Centre (FAC)[3] with heat, replacing the use of natural gas in this facility. The heat demand of the FAC is throughout the whole year with the peak demand in the winter heating season. When the EfW CHP facility is shut down for maintenance the North Yard boilers and the existing infrastructure in the FAC will be used to supply heat, but since most of the EfW CHP facility shutdowns will be in the summer months the use of the existing North Yard boilers will be minimal.

1.3.11 The stream and electricity infrastructure in the dockyard is shown in Figure 2 overleaf.

[2] This target is currently under review and the indication is that emissions reduction will actually be accelerated.
[3] The FAC provides hotel services for over 1,600 Royal Naval personnel.

Figure 2: Dockyard steam and electricity infrastructure



Electricity and Heat Demand and Supply within the Dockyard

1.3.12 The electricity and gas consumption within the dockyard from April 2007 to March 2010 is shown in Table 3 below.

Table 3: Electricity and Gas Consumption within the Dockyard (April 2007 to March 2010)

	Electricity Consumption (kWh)			Natural Gas Consumption (kWh)	
	North Yard	South Yard	FAC	DRDL Gas	FAC Gas
Apr 2007	11,266,099.8	552,935.7	798,145.0	9,782,870.0	1,176,754.0
May 2007	11,082,660.1	592,467.7	779,441.0	4,634,300.0	722,472.0
Jun 2007	10,757,671.7	560,858.1	746,191.0	2,574,613.0	452,670.0
Jul 2007	12,605,294.8	567,793.8	769,606.0	1,882,042.0	649,527.0
Aug 2007	14,833,985.3	540,676.5	689,877.0	1,479,807.0	518,425.0
Sep 2007	12,052,447.9	538,710.1	744,501.0	1,515,992.0	590,509.0
Oct 2007	12,556,763.2	608,071.8	853,943.0	4,888,666.0	1,648,519.0
Nov 2007	11,211,843.6	666,722.1	855,384.0	10,894,060.0	1,648,519.0
Dec 2007	14,221,755.8	671,494.4	828,759.0	13,480,983.0	1,648,519.0
Jan 2008	15,162,534.7	764,288.1	800,236.0	14,330,776.0	1,648,520.0
Feb 2008	11,501,067.0	723,644.1	829,230.0	13,005,766.0	1,758,487.0
Mar 2008	12,619,960.8	698,597.9	821,873.0	13,024,828.0	2,004,503.0
Apr 2008	11,390,056.0	631,669.0	801,571.0	11,103,175.0	1,404,520.0
May 2008	11,467,975.0	553,159.0	763,092.0	2,888,485.0	578,728.0
Jun 2008	10,067,163.0	527,775.0	741,234.0	735,290.0	517,512.0
Jul 2008	10,857,774.0	560,631.0	779,644.0	827,345.0	439,091.0
Aug 2008	14,613,082.0	538,327.0	690,897.0	911,039.0	321,917.0
Sep 2008	10,240,792.0	577,996.0	746,117.0	944,818.0	500,136.0
Oct 2008	11,402,797.0	656,351.0	824,461.0	4,079,697.6	1,178,894.8
Nov 2008	11,509,478.0	656,515.0	822,786.0	12,008,152.8	1,403,675.1
Dec 2008	13,410,935.0	652,233.0	815,368.0	14,443,398.6	1,801,113.9
Jan 2009	12,434,598.0	653,427.0	869,355.0	15,107,455.6	2,478,671.9
Feb 2009	11,069,868.2	605,991.4	805,555.0	13,039,413.3	1,927,654.8
Mar 2009	10,208,217.0	636,983.0	843,793.0	12,553,741.3	1,667,763.3
Apr 2009	10,803,744.0	558,295.0	771,498.0	9,524,355.0	1,303,317.9
May 2009	11,046,933.0	514,989.0	779,088.0	3,506,694.4	659,288.3
Jun 2009	9,386,584.0	490,780.0	744,690.0	1,612,731.6	392,864.2
Jul 2009	10,646,833.0	533,084.0	778,356.0	1,693,074.0	440,732.0
Aug 2009	14,382,825.0	475,199.0	695,645.0	2,355,925.0	397,211.9
Sep 2009	11,376,194.0	465,837.0	769,969.0	1,857,034.0	457,394.2
Oct 2009	12,650,245.0	565,964.0	831,455.0	2,784,518.0	907,235.9
Nov 2009	12,710,508.0	596,950.0	841,203.0	10,956,930.8	1,346,405.3
Dec 2009	15,410,485.0	621,816.0	817,360.0	14,030,644.0	1,310,769.4
Jan 2010	14,819,659.0	746,818.0	906,793.0	15,361,951.0	3,184,906.9
Feb 2010	11,381,850.0	677,257.0	800,862.0	12,186,506.9	2,066,121.4
Mar 2010	12,677,183.0	705,652.0	849,598.0	9,922,826.7	2,012,500.0

1.3.13 MVV has analysed this data and calculated that the annual gas demand of the combined North and South Yard boiler and FAC system is 103,000,000 kWh. Of this, approximately 14% (14,420,000 kWh) is due to the FAC. With the EfW CHP facility in operation the savings in the North Yard boilers and the FAC will amount to 82,200,000 kWh per annum of natural gas and 15,194.67[4] tonnes of Carbon Dioxide in carbon dioxide emissions, i.e. a reduction of some 90%. Overall the annual energy bill for the Dockyard and Naval Base will be reduced by approximately 20% per annum; commercial savings in terms of heat and power are estimated to be £1,900,000 per annum which will also lead to savings for the taxpayer. The entire commercial arrangements are covered by contracts between MVV, the Ministry of Defence (MOD) and Devonport Royal Dockyard Limited (DRDL) (a division of Babcock International), who own and manage large parts of the dockyard on behalf of the MOD. These arrangements are commercially confidential but the term of the contracts cover the life of the PFI contract with SWDWP (25 years). In these contracts MVV has reserved a heat delivery capacity of 23.3 MW for MoD and DRDL.

1.3.14 The steam system throughout the Naval Base has been built up over time as the Naval Base has expanded. It is owned and maintained by DRDL under their agreements with the MOD. The existing system requires certain areas to be upgraded, notably the most northern 60% of North Yard central spine (see Figure 3 overleaf). This upgrading will be completed by MVV at a total cost of approximately £1.5 million prior to handing over to DRDL thus meaning that the MoD and DRDL will benefit from reduced upkeep and maintenance costs associated with both the reduced requirement of steam boilers and the upgrade of existing steam pipe work. The system also includes a sub-system of pipes to return condensate back to the boilers. To minimise usage of raw water this condensate system will be fed into the EfW CHP facility where it will be cleaned up. DRDL will also carry out various boiler upgrade works to ensure that condensate return quality is maintained. All of the upgrading work will create additional job opportunities for the local mechanical engineering resource base, in addition to those created by the EfW CHP facility itself. Financial savings in the Dockyard and Naval Base will also help to create a sustainable business, which contributes to saving jobs and creating new employment opportunities.

[4] The conversion factor required to convert natural gas in kWh to CO_2 (kg CO_2 per unit) was sourced from the 2010 Guidelines to Defra/DECC's GHG Conversion Factors for Company Reporting (Defra 2010). The conversion factor required is shown in Table 1c as 0.18485. The result was converted from kg CO_2 per unit to tonnes CO_2 per unit by dividing by 1000.

Figure 3: Proposed new steam pipe work and existing pipe work requiring reinforcement

1.3.15 The South Yard (which term for these purposes includes also Morice Yard) also has a steam demand but this is quite small. The gas demand of the South Yard boiler is approximately 14,400,000 kWh per annum compared to the combined North Yard and FAC system demand of 88,600,000 kWh. In order to supply this steam from the EfW CHP facility location in the North Yard there will need to be some extensive enlargement of the central steam system that carries steam from north to south. Given the low demand in the South Yard this is not economically justified at this time so the South Yard will continue to be supplied with its steam from the existing boilers there. In the future the South yard could also be the location for a smaller CHP facility, possibly gas fired or if the local transport network allows, biomass fuelled, linked to the DH system.

1.3.16 Under the current design the EfW CHP facility will have a net overall efficiency of 39% on average, rising to 49% in the winter months when steam demand is highest. This compares to a normal "electricity only net efficiency" of about 27.4% which might occur in the summer months when there is no steam demand from North Yard. Other electricity only EfW facilities in the UK only achieve an efficiency of 23% typically.

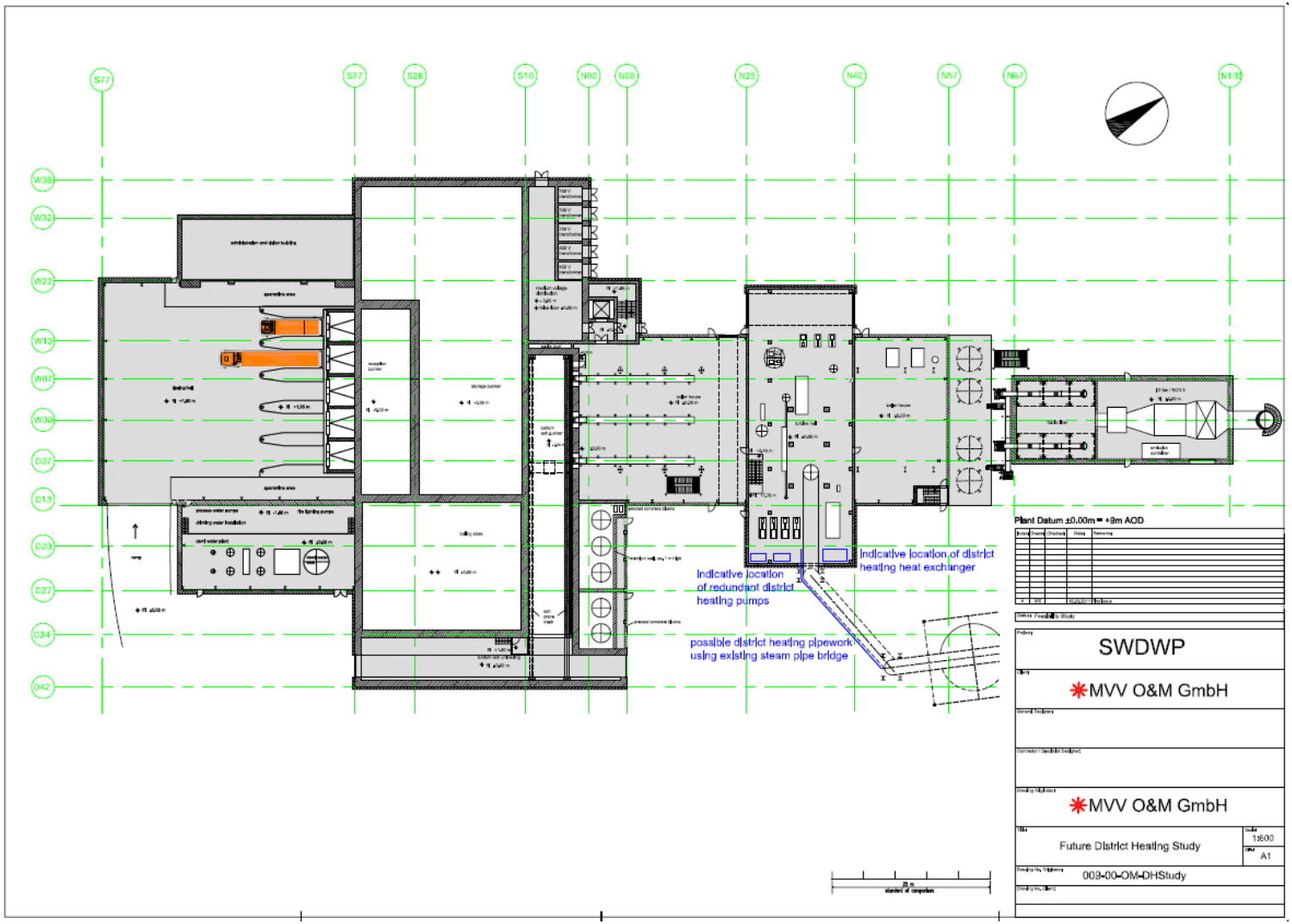
1.3.17 Given the nature and size of the demand of the North Yard the EfW CHP facility has been designed to be at its most efficient under these conditions. The EfW CHP facility can deliver varying amounts of steam to cater for the expected variations in demand from the North Yard steam system. The steam delivery can be as low as zero. The amount of power generated is inversely related to the production of steam, i.e. when the steam production is higher, electricity production is lower. In zero steam supply situations the electricity generation is at its maximum, at about 22.5 MWe (and the net efficiency is at its lowest, at about 27.4%. For the EfW CHP facility the revenues due to the delivery of heat have at least to equal the lost electricity revenues and the variable costs for the heat delivery (e.g. water pumping and distribution maintenance costs).

1.3.18 In the future heat from the EfW CHP facility can be extracted in three ways:

- low temperature: heat extraction from the Air Cooled Condenser condensate/steam extraction from the 0.9 bar turbine extraction port
- medium temperature: 2 stage heating for efficiency reasons: combination of steam extraction from the 0.9 bar turbine extraction port and steam extraction from the 5 bar turbine extraction port
- high temperature/steam delivery: steam extraction from the 9 bar turbine extraction port (this capacity is currently reserved for MOD)

A schematic diagram of where in the proposed steam system additional equipment can be added to allow for the above heat extraction is shown in Figure 4 overleaf. The proposed building has sufficient space for this equipment.

Figure 4: Schematic diagram showing where additional steam system equipment can be added



1.3.19 The EfW CHP facility has not been designed at this stage to deliver pressurised hot water, although this can be done in the future with changes to the steam turbine and the water-steam-cycle system. Depending on the additional demand such modifications may be quite minor in nature. These are not likely to require a change to the proposed building envelope, although if hot water storage is required this will require a new building or tank. Any DH system will require additional pipe connections to the EfW CHP facility to run through MOD and DRDL land.

1.3.20 Whilst efficiency, stated in percentage terms, is the main measure there are two other ways of comparing efficiency between different EfW facilities.

- R1 Coefficient – this is a measure introduced by the European Waste Framework Directive. It is a formula (set out below) which generates a coefficient. For EfW facilities commissioned after 2008, which is the case of the proposed EfW CHP facility, the R1 coefficient has to be greater than 0.65 in order that the process is regarded as "recovery" of waste rather than "disposal". The "recovery" classification is an essential element of achieving planning consent. The EfW CHP facility achieves an R1 of between 0.95 and 1.01 and so is definitely classified as "recovery".

  R1 formula:

  Energy efficiency = (Ep - (Ef + Ei))/(0.97 × (Ew + Ef))

  In which:
  Ep means annual energy produced as heat or electricity. It is calculated with energy in the form of electricity being multiplied by 2.6 and heat produced for commercial use multiplied by (GJ/year)

  Ef means annual energy input to the system from fuels contributing to the production of steam (GJ/year)

  Ew means annual energy contained in the treated waste calculated using the net calorific value of the waste (GJ/year)

  Ei means annual energy imported excluding Ew and Ef (GJ/year)

  0.97 is a factor accounting for energy losses due to bottom ash and radiation.

- Good Quality CHP Scheme – this is a scheme run by the department of Energy and Climate Change (DECC) under which different CHP facilities (including those powered by fossil fuels or other renewable sources) are compared for energy efficiency and therefore the scheme sets a benchmark for what can be regarded as the best attainment of CHP. Those CHP facilities achieving set standards can be granted various benefits, including fiscal benefits, depending on their performance against a Quality Index (QI). See http://chpqa.decc.gov.uk/. In the case of the EfW CHP facility, being fuelled by waste, the QI has to be at least 100 in each operational year. At the design stage the QI has to be between 100 and 105. Under the current design the proposed EfW CHP facility has a QI of 102 and therefore has been accepted and registered as a project under the Good Quality CHP Scheme (see registration certificate enclosed at Appendices 2 and 3).

1.3.21 When comparing the proposed EfW CHP facility to other energy from waste schemes recently built or planned in the UK the proposed scheme will be almost unique. Of the 10 or more schemes under active consideration or built in the last five years in the UK there are only two

others that can claim to have CHP from the outset; the Sheffield facility, which was a replacement for an earlier, older facility from the 1970s, and the Runcorn facility which will supply process steam to the large chemical plant operated by Ineos Chlor. Existing schemes with CHP include the Eastcroft facility which supplies steam to a separate company owned by the City of Nottingham, which then generates electricity and sends hot water around a city centre district heating scheme. The Eastcroft facility does not achieve the Good Quality CHP benchmark. Known potential facilities recently awarded planning permission include an energy from waste CHP facility at Kemsley, Kent, that would, if built, provide steam and electricity to a an adjacent paper mill. Almost all new energy from waste projects are built with the ability to supply steam, and almost all claim to have the intention of doing so, but most do not. A notable example is the South East London Combined Heat and Power (SELCHP) facility which despite having CHP in its title has not yet supplied steam or hot water to the local area of London in which it sits. No new energy from waste schemes that have the same real potential as this scheme to provide CHP or DH have been proposed. Indeed, the proposed EfW CHP scheme is more comparable to the higher levels of CHP commonly seen in continental Europe, in countries such as Denmark and Germany.

1.4 CHP Incentives

1.4.1 The benefits that flow to the EfW CHP facility as a result of achieving a QI of at least 100 include entitlement to be awarded Renewable Obligation Certificates (ROCs) under the Renewables Obligation (RO) regulations. These are awarded by the electricity regulator, OFGEM, and can be sold in the electricity markets so generating additional revenue. This revenue allows the EfW CHP facility to offer reduced waste disposal costs to the SWDWP and reduced energy costs to the Naval Base. The system is reviewed on a regular basis and the next review is due to be carried out in late 2011/early 2012. This may result in a change in the amount of ROC award to the EfW CHP facility. This is a commercial risk managed by MVV and provides a significant commercial incentive for MVV to maintain the levels of efficiency it proposes.

1.4.2 As well as ROCs under the RO there is anticipated to be additional regulations known as the Renewable Heat Incentive (RHI) to encourage the production of heat. This is being introduced to encourage the production of heat from renewable sources. The details of the RHI have only just been announced by the Government and will come into effect in the summer of 2011. The financial implications for the EfW CHP facility cannot, therefore, be fully quantified as of the date of this planning application. If there are any implications for the EfW CHP facility it is expected that the benefits obtainable under the RO will be adjusted downwards to compensate for the benefits under the RHI.

1.5 Future CHP

1.5.1 The efficiency, R1 coefficient and QI are all achieved, and anticipated to be maintained, by the delivery of steam to the Naval Base. The Naval Base's steam demand is dependent on the continuation of its activities, although some reduction of steam demand is already anticipated as general energy efficiency measures are implemented. However, there is no guarantee that the Naval Base will continue with its current level of activities in which case the steam demand might reduce. In such a case MVV will seek to replace the Naval Base steam demand.

1.5.2 MVV has already begun such investigations. There are two basic ways in which replacement or additional heat demand will be achieved:

- Additional steam demand using the existing Naval Base system including extensions into the South Yard.
- New pressurised hot water circuits being built, together with changes to the steam turbine and the water-steam-cycle system.

1.6 Extension of Naval Base Steam System

Any additional heat load in the vicinity of the EfW CHP facility not close to the Naval Base and capable of being connected to the existing steam distribution system can only be supplied within a DH system. The surrounding terrain makes it almost impossible to deliver steam because it is very hilly and will therefore cause high transportation losses. Also the distances involved make it difficult to deliver steam.

1.6.1 Whilst activity in the North Yard may reduce over the longer term the South Yard is seen by the MOD as an area in which additional commercial activities will take place. A recent example is the location of Princess Yachts who manufacture large recreation yachts. The manufacturing process requires heat throughout the year which might be supplied by the EfW CHP facility. Any additional demand will require the replacement of the central pipe work between North Yard and South Yard which under current South Yard demand is not considered viable. The estimated cost of this is between £1 million and £5 million, depending on the extent of upgrading required. In the future sufficient additional loads from within the South Yard, or from the nearby Devonport district of Plymouth (as identified by Plymouth City Council – see below) might mean that the connection upgrade to the South Yard becomes a viable project. The commercial supply of heat will be the subject of individual discussions with each off taker but the tariffs will clearly need to provide a commercial incentive to the off takers and as such are likely to be similar to those agreed with MoD and DRDL.

1.6.2 In the shorter term additional developments planned for the Naval Base will be able to be connected to the existing steam supply network. These include:

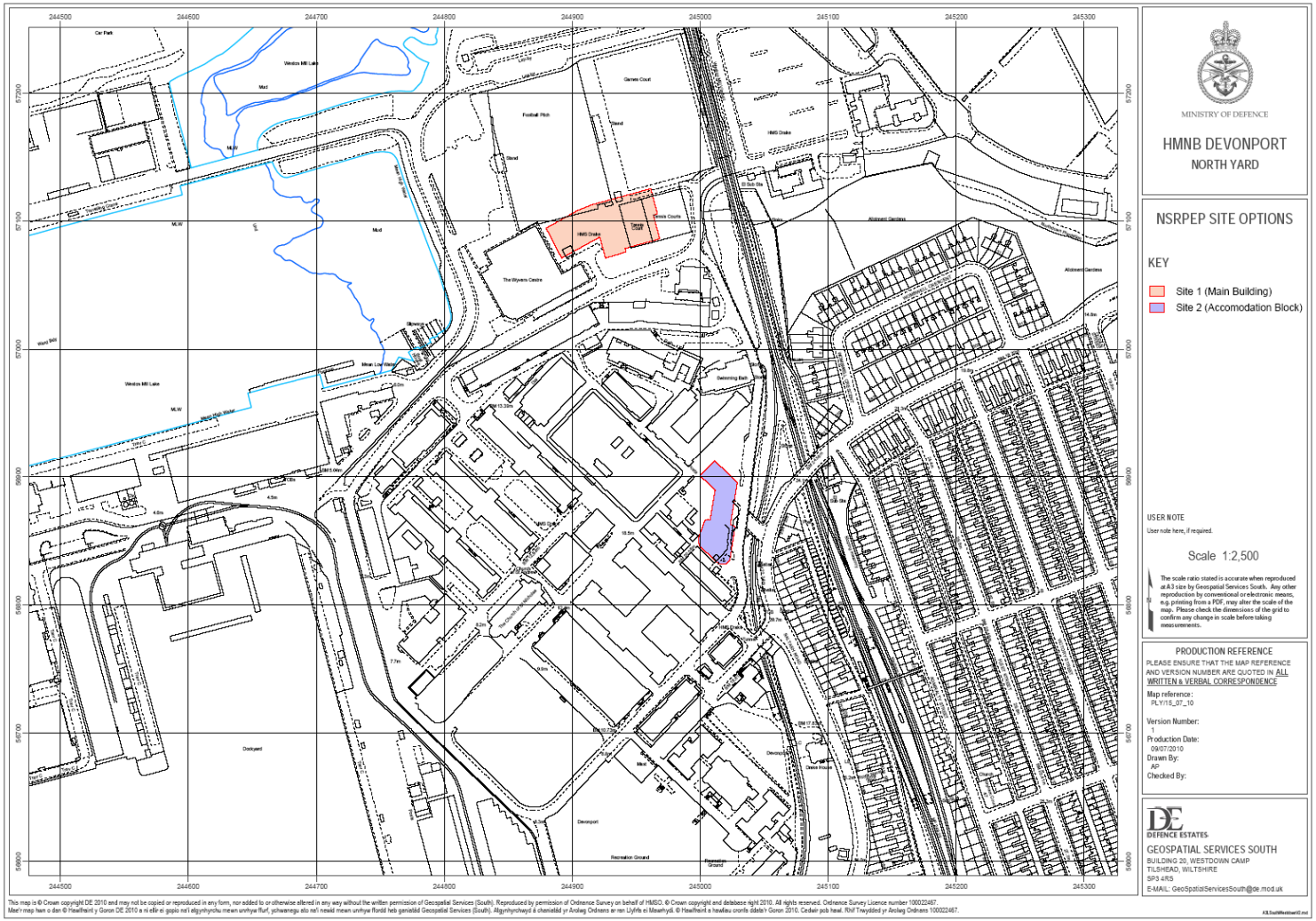
- Devonport Landing Craft Co- location Project;
- Help For Heroes' Accommodation Block; and
- Help for Heroes' Swimming Pool.

1.6.3 Since these developments are all subject to their own planning approvals they are not included in the planned heat demands but will easily be accommodated without any modification to the planned design since they can be easily connected to the dockyard steam network system which is fed by the EfW CHP facility. Supply of heat to these developments will provide the MoD with potential savings on infrastructure capital, maintenance and utility costs. MVV has already had extensive discussions with the MoD and the designers for these projects and reached agreement to supply the Devonport Landing Craft Co- location Project and the Help for Heroes' Swimming Pool with steam. The connections for these projects will be built from the outset of the EfW CHP project and thus will enable these projects to enjoy the same benefits of lower energy and maintenance costs, and more sustainable energy supply, from the outset of the EfW CHP facility coming on line. The Help For Heroes' Accommodation Block is

understood to be intended to have a renewable ground source heat system and as such need not be provided for.

1.6.4 The Location of the Help for Heroes project is shown in Figure 5 overleaf. A swimming pool will be located in the main building (shown in orange on Figure 5). The heat will be supplied by a new medium temperature hot water pipe coming form the boiler house of the FAC which will in turn be supplied by the EfW CHP facility.

Figure 5: Proposed location of the Help for Heroes development (main building including swimming pool shown in orange, accommodation block shown in purple)



1.7 District Heating Systems: National Policy and Legislation

1.7.1 There are a number of economic enabling mechanisms that relate to the implementation of a district heating system. These include the Renewable Heat Incentive, Feed-in Tariff, Community Infrastructure Levy and recent banding of Renewable Obligation Certificates. These mechanisms together with the formation of an appropriate Energy Service Company (ESCo) early on in the process may serve to overcome the barriers associated with high capital plant and infrastructure costs and operational risks to developers (Centre for Sustainable Energy, 2009). For further information on how national policy relates to the wider context of climate change and renewable energy please see Appendix 1.

1.7.2 The following sets out the policies and legislation that apply specifically to the provision of district heating systems.

Renewable Heat Incentive

Summary of the Scheme

1.7.3 The Renewable Heat Incentive (RHI) Scheme is the first financial support scheme for renewable heat (DECC, 2011). It seeks to both reduce the carbon intensity of heating buildings and increase energy security. Initially, long term tariff support will be targeted to the non-domestic sectors but by 2012 this will also be extended to the domestic sector. From 2011, the RHI will provide support for a range of technologies including energy from waste facilities. RHI payments are to be claimed by, and paid to, the owner of the heat installation. Payments will be made quarterly over a 20 year period. The tariff levels have been set at a level to bridge the financial gap between conventional and renewable heating systems. The heat level will be metered and the support calculated by multiplying the amount of heat used for eligible purposes by the tariff level. The RHI will be administered by Ofgem.

Renewable Heat Premium

1.7.4 As part of the first phase the government will also introduce Renewable Heat Premium payments for the domestic sector. £15 million has been ring fenced, which will be used to make premium payments to households that install and utilise renewable heating systems. In return, customers will be asked to give feedback on how the equipment works in practice. It is likely that a condition of receiving the Renewable Heat Premium as a domestic user will be a well insulated home as demonstrated by an Energy Performance Certificate (EPC). This is an important consideration for the MVV project and the potential for distributing heat to the residences of Barne Barton, and possibly further afield. There will also be a focus on domestic users that are living off the gas grid, whose space heating requirements are met by more carbon intensive fuels. Since some of the residences closest to the EfW CHP facility are heated by electricity, with storage systems, they are more likely to receive the Renewable Heat Premium.

Eligibility of EfW Facilities Under the RHI

1.7.5 Heat from solid biomass contained in municipal waste will be eligible for the RHI and the solid biomass content will not have to be combusted in a separate boiler. Due to its renewable biomass proportion, currently around half the heat produced by burning municipal waste is renewable heat. The EfW CHP facility is likely to be eligible under the RHI for some of its heat output.

Renewable District or Community Heating

1.7.6 Renewable heat distributed through district heating systems to domestic users will not be eligible for additional financial support: *"there will be no specific 'uplift' for district heating installations"*. It is recognised that the cost of supplying heat to a number of different residences rather than a single residence will be considerably higher due to installation costs. However, no additional financial support is available at present.

Level of Support

1.7.7 Payments will be calculated by multiplying the appropriate tariff (depending on the technology and size of the installation) by the eligible heat use as shown in table 4 below. The eligible heat use will be metered actual generation or use. Depending on the capacity of the proposed installation the predicted revenue will vary.

Table 4: RHI Tariffs

Tariff name	Eligible technology	Eligible sizes	Tariff rate (pence/kWh)	Tariff duration	Support calculations
Small biomass	Solid biomass: municipal solid waste (including CHP)	< 200 KWth	Tier 1:7.6	20 years	Metering: Tier 1 applies annually up to the tier break, Tier 2 above the tier break. The tier break is installed capacity x 1314 peak load hours: KWth x 1314
			Tier 2: 1.6		
Medium biomass		200 – 1000 KWth	Tier 1: 4.7		
			Tier 2: 1.9		
Large biomass		>1000 KWth	2.6		

Financial support = Heat used for eligible purposes x Tariff rate

Interaction with the Renewables Obligation (RO)

1.7.8 For CHP plants the Renewable Obligation (RO) currently provides support for both heat and electricity. Whether support for heat under the RO should be phased out and instead administered through the RHI is under consideration. It is likely that for at least a period of time there will be two support options for renewable heat from CHP. The tariff levels for heat under the RHI have been calculated on the basis of dedicated heat installations, which might not represent appropriate levels of support for CHP heat. DECC will consider whether different, specific RHI tariffs for renewable heat from CHP, are necessary. The policy landscape regarding financial support for renewable heat under CHP is therefore uncertain at present.

Delivery Partners (ESCos)

1.7.9 The draft Practice Guidance to support PPS1 Supplement emphasises the value of ensuring that adequate delivery arrangements are in place to secure new low and zero carbon energy infrastructure. This is of particular importance where decentralised energy equipment requires significant investment that is to be funded entirely or in part through revenue generated by energy sales and/ or there will be a requirement for co-ordinated operation and management arrangements to be put in place. The Practice Guidance recognises the value of third party involvement in the investment in, and operation of, heating and power networks and recommends the use of Energy Services Companies (ESCos) as a partner to delivery.

1.7.10 There is no fixed definition or form for an ESCo. Their primary purpose can include promoting fuel security, combating fuel poverty, promoting energy efficiency and retailing energy to private, public or commercial customers. Similarly there is no single model for the establishment of an ESCo, with a range of different approaches in place including Local Authority-led ESCos (either singularly or via cross-border joint initiatives), joint venture enterprises, public-private partnerships and commercial energy providers. Depending on its business objectives, an ESCo can provide design expertise, investment finance, dedicated operation and management resources and customer services.

1.7.11 There are examples of ESCos being used to provide renewable heat from district heating systems. The Nottingham District Heating Scheme is run and managed by an independent ESCo, where the combustion of household waste generates enough power to heat some 5,000 homes, civic buildings, schools and even Nottingham Trent University. The installation in this case is a 15 MW CHP plant, supplied with steam by a separately owned and operated incinerator burning 145,000 tonnes of waste with a saving of 149,000 tonnes of CO_2.

Enabling Framework for District Heating and Cooling (DECC, 2010)

1.7.12 The enabling framework reflects the governments support for district heating in the long term. The enabling framework states that *"In the right conditions it can be less costly to connect houses to a low carbon or renewable heat source through district heating, than to install individual low carbon or renewable heat technologies in each home, allowing consumers, who would otherwise find it difficult or expensive, to access renewable and low carbon heat more quickly. With single heat sources supplying multiple consumers, upgrading existing fossil fuel based heat networks to renewable can deliver rapid carbon savings and help to meet the UK's EU 2020 renewable energy targets".*

Zero Carbon Homes and Non-Domestic Buildings

1.7.13 The overall zero carbon policy supports the deployment of heat networks in two ways:

1) It encourages new development to import low carbon heat from, or export low carbon heat to, heat networks; and

2) Government is currently working on practical delivery mechanisms for off-site allowable solutions, the means by which developers can meet the zero carbon standard.

1.7.14 The zero carbon homes target will support investment in district heat networks, which commanded broad support as an allowable solution following the Department for Communities and the Local Government's consultation on the definition of zero carbon homes. The EfW CHP facility will help new developments, if connected, meet the zero-carbon homes target.

Where the target can not be met through purely technical means an allowable solution might be the contribution to a fund for macro-scale energy infrastructure, such as the one proposed here.

Community Infrastructure Levy

1.7.15 Guidance associated with the Community Infrastructure Levy states that district heating is one of the types of development that it could support. The Levy is therefore a further tool for local authorities looking to support development of heat networks. The Community Infrastructure Levy (CIL) will be a new non-mandatory charge which local authorities in England and Wales will be able to apply to most types of new development in their area. The proceeds of the levy can be spent on local and sub regional infrastructure to support the development of the area, which could potentially include district heating. CIL charges will be based on simple formulae which relate the size of the charge to the size and character of the development paying it. The Government are currently consulting on whether the CIL could be used as an allowable solution in meeting emissions reduction targets.

Household Energy Management (HEM) Strategy, March 2010

1.7.16 This strategy sets out how the government intends to support homeowners and tenants that want to save energy in their home and generate clean energy. The strategy is designed to deliver the Governments target of cutting carbon emissions from homes by 29% by 2020. The strategy introduces the 'Pay As You Save' scheme to incentivise upgrades. The HEM placed greater emphasis on district heating schemes. One of its key visions for 2020 is the wider take up of District Heating networks.

1.8 District Heating in Plymouth

1.8.1 There are presently no DH systems in Plymouth. Such systems are expensive to build and normally need a significant heat demand to be viable. Only two significant waste fired systems exist in cities in the UK; in Nottingham and in Sheffield. Both systems were originated as council led schemes in the 1970s and were expanded over the following decades. These days both systems are owned by limited liability companies; in the case of Nottingham the company is owned by the city council, and in Sheffield the company is owned under the terms of a PFI agreement by a French firm which is part of the Veolia group. Other gas fired systems exist, e.g. in Southampton.

1.8.2 As indicated in paragraph 1.7.10 ESCos can be set up as joint ventures between local authorities and the private sector. In 2009 Plymouth City Council (PCC), South West Devon Waste Partnership (SWDWP), Devonport Regeneration Community Partnership (DRCP) and RegenSW commissioned ICE (UK) Ltd to undertake a commercial feasibility study into the development of several low carbon district energy schemes in Plymouth utilising Good Quality Combined Heat and Power ("CHP") as an initial low carbon foundation technology. See: http://www.plymouth.gov.uk/feasibilitystudyforesco.htm

1.8.3 The study was published in January 2010 and examined the setting up of an ESCo in Plymouth, as a vehicle for developing up to three DH systems in south Devonport (that area of the city, rather than the Naval Base), the city centre and around Derriford Hospital. Since then the Plymouth District Energy Procurement Partnership, which consists of Plymouth City Council, the University of Plymouth and the Plymouth Hospitals NHS Trust has initiated a joint procurement for the services of an Energy Service Company to finance, design, build and

manage a District Energy Network. The first step has been a Market Testing exercise for which submissions were due at the start of April 2011.

1.8.4 MVV's ultimate parent company is Germany's third largest operator of DH systems and is well placed to assess the viability of any DH systems in Plymouth. MVV has reviewed the above study report and believes that subject to further detailed analysis such DH systems as envisaged in the report can be established and maintained independently of each other, or could, eventually, be interconnected. Whilst according to the study the heat source is envisaged to be a mixture of fossil (e.g. natural gas) or biomass fuels, the latter can also include heat from the EfW CHP facility, especially for the Devonport and the city centre schemes.

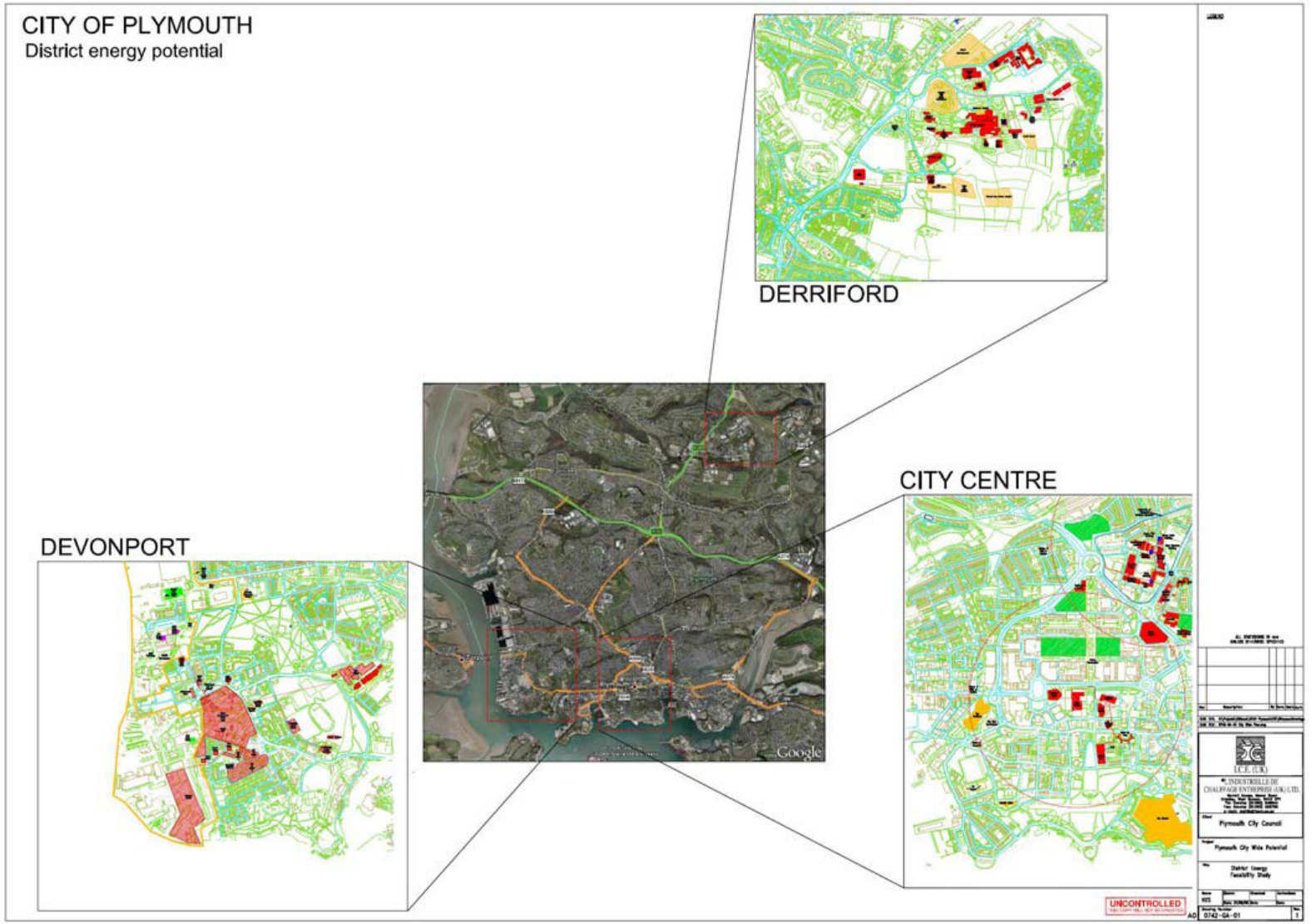
1.8.5 There are significant benefits of being part of a wider network including greater resilience, maximising efficiency, greater flexibility, and backup facilities for maintenance, and MVV believes further DH systems in Plymouth will add significantly to the City's targets of reducing its carbon footprint. There are three separate areas in which MVV intends to be involved in DH systems:

- The Devonport/city centre DH systems being considered by PCC and referred to above. MVV has already submitted a response to the market testing exercise carried out by the Plymouth District Energy Procurement Partnership mentioned above and will continue to pursue this opportunity and participate in any formal procurement activity instigated by the Partnership.

- A smaller residential system for the housing association and privately owned properties immediately close to the EfW CHP facility site in Barne Barton.

- Similar residential systems as for Barne Barton but in the Keyham, St Budeaux, Devonport and Weston Mill areas.

1.8.6 For reasons stated below it is not possible to state specific numbers but there will be savings in the above areas in terms of the kWh per annum of natural gas consumed and the saving in CO_2 emissions.


CITY OF PLYMOUTH
District energy potential
DERRIFORD
CITY CENTRE
DEVONPORT
Google
UNCONTROLLED

1.9 ESCo-based District Heating Systems

1.9.1 The ESCo-based District Heating Systems will be taken forward by the Plymouth District Energy Procurement Partnership through a market testing exercise to test the private sector's appetite for involvement and then, perhaps, a competitive tendering procedure to select a private sector partner.

1.9.2 The market testing exercise started in February 2011. MVV has taken part in the market testing exercise independently of its involvement in the SWDWP project. At this stage it is not possible to predict the outcome of this exercise nor to make any commitments to the implementation of any DH system. Any DH system will, regardless of promoter or heat source, require separate planning permission before it can be constructed.

1.9.3 From a commercial point of view the supply of heat to all customers will be somewhat cheaper than gas or electricity fed systems, with the latter being particularly expensive. It will also be possible for the tariffs to be adjusted only to normal inflation, eg the Retail Prices Index, rather than be subject to the volatility inherent in the gas and electricity markets which gain much public attention, especially when prices rise steeply. However, the quid pro quo for such attractive heat pricing is that customers are required to enter into long term contracts. For residents of housing associations or sheltered accommodation this may not present a problem as the supply contract is likely to be with the landlord, but for private property owner-occupiers there may be some reluctance to give up their current ability to switch between suppliers of energy. This therefore represents a real commercial issue which needs to be overcome, for if the cost of the DH system is not covered by a reliable and long term income stream then investors in the scheme may not be forthcoming, especially from the private sector.

1.10 Potential for District Heating Systems in the Barne Barton and Keyham, St Budeaux and Weston Mill Areas

Potential for District Heating in Barne Barton

1.10.1 The Barne Barton area is the closest residential area to the EfW CHP facility. It comprises mainly residential flats and houses, with a few shops and schools. There are no significant commercial or industrial premises. Many of the flats are owned by housing associations.

1.10.2 As such the heat demand of the area has typical characteristics of UK residential heat demand, i.e. strong seasonal variations and also diurnal (i.e. twice daily) variations in heat demand. This means that the DH system has to be designed to cater for peak flows, plus a margin of error, which in turn means that for a large part of the time the system is not operating at its full capacity.

1.10.3 The implementation of a DH system also depends on the nature of heating in individual residences. Based on preliminary investigations MVV understands that whilst many residences are heated by traditional gas fired hot water systems several, including the blocks of flats closest to the EfW CHP facility, are heated by electricity, with storage heaters. In order to benefit from any DH system such residences will need to be fitted with new hot water systems which will add to the financial burden of any project and reduce its viability as well as causing significant disruption to the occupiers of property during the installation.

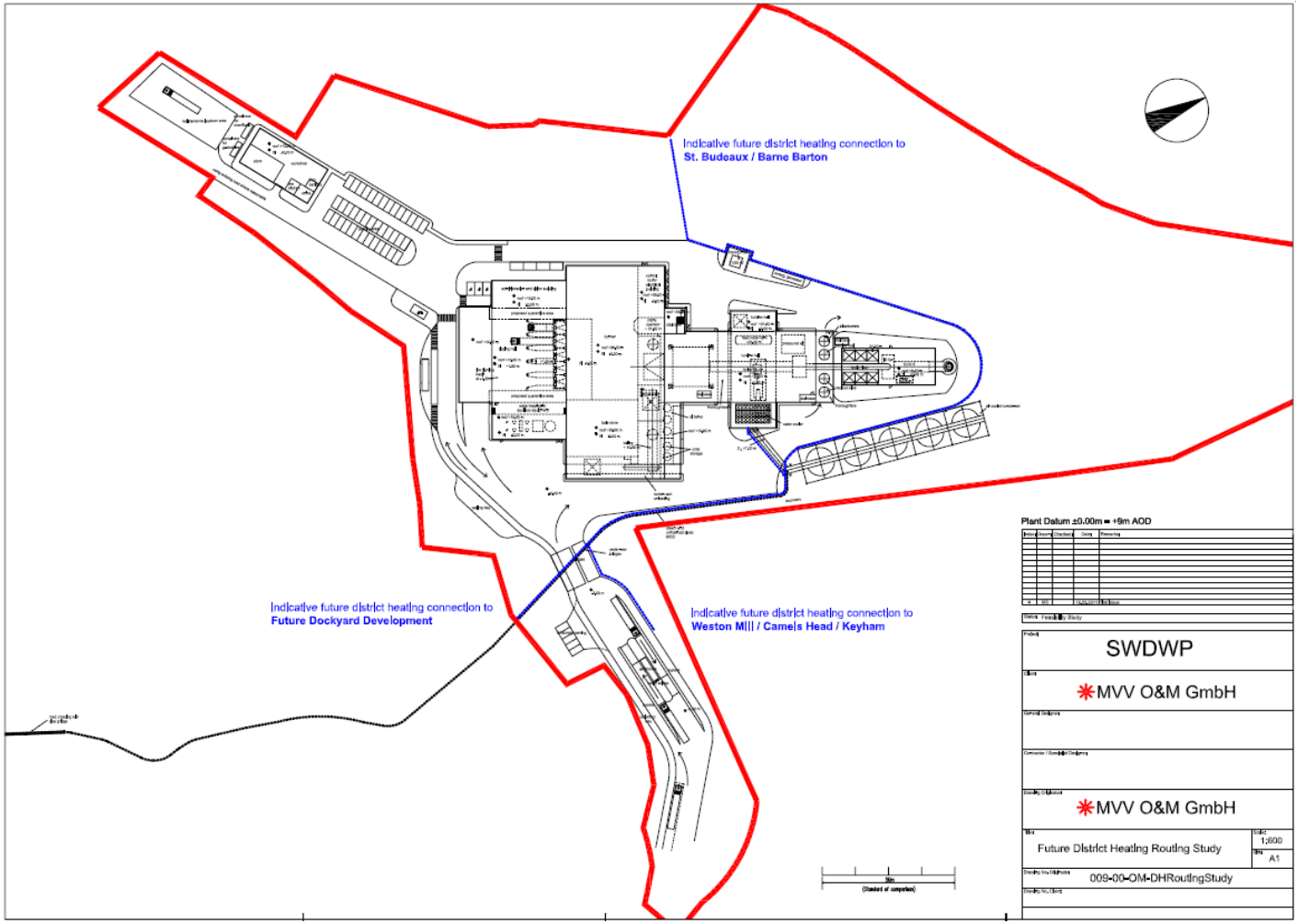
1.10.4 MVV will continue to investigate an appropriate size DH system for Barne Barton, and will present its findings as soon as possible. MVV has already contacted the relevant housing associations and requested technical information with which to begin a more detailed assessment. Further discussions with the relevant associations will be held in the Summer of 2011. The close proximity of residences to the EfW CHP facility will make it cheaper to build the necessary pressurised hot water system but the small heat demand presented by those residences may not make the scheme viable. MVV will therefore examine how far away from the EfW CHP facility additional residences will need to be connected in order to achieve the best balance between increasing heat load and increasing cost of a DH system.

1.10.5 From a commercial point of view the supply of heat to residences will be somewhat cheaper than gas or electricity fed systems, with the latter being particularly expensive. This will help with fuel poverty and affordable warmth issues. It will also be possible for the tariffs to be adjusted only to normal inflation, e.g. the Retail Prices Index, rather than be subject to the volatility inherent in the gas and electricity markets which gain much public attention, especially when prices rise steeply. However, the quid pro quo for such attractive heat pricing is that customers are required to enter into long term contracts. For residents of housing associations or sheltered accommodation this may not present a problem as the supply contract is likely to be with the landlord. In the Barne Barton area, a large proportion of the housing stock is affordable housing and is therefore potentially easier in terms of the commercial issues. For private property owner-occupiers there may be some reluctance to give up the current ability to switch between suppliers of energy. This therefore represents a real commercial issue which needs to be overcome, for if the cost of the DH system is not covered by a reliable and long term income stream then investors in the scheme may not be forthcoming, especially from the private sector.

Potential for District Heating in Keyham, St Budeaux and Weston Mill

1.10.6 The same statements made above for Barne Barton apply to the areas of Keyham, St Budeaux and Weston Mill, except that the cost of the infrastructure will be higher, and there are some small commercial and industrial demands. However, the heat demand and cost balance may be more difficult to achieve and so make such schemes less viable. Additional future heat demand from developments such as the proposed Weston Mill District Centre will make such a DH scheme more likely to be viable. MVV will investigate a DH system in these areas. The areas of scoping work need to be agreed as it will be important to understand the feasibility of opportunities (in both technical and commercial terms) for supplying heat to existing or proposed developments in the vicinity, so that these can be facilitated or future proofed.

Figure 5: Potential Future District Heating Routing Study



1.11 Advantages and Disadvantages of District Heating Compared with Thermal Insulation

1.11.1 The main advantages and disadvantages of implementing a DH scheme compared to thermal insulation of properties are listed in Table 5 below.

Table 5: Advantages and disadvantages of DH compared to thermal insulation of properties

	District Heating	Insulation only
Advantages	1) From a commercial point of view, linking up with the local residences provides an additional revenue stream to MVV. 2) For customers, a DH system has the potential to provide a cheaper source of heat in comparison with gas or electricity fed systems. 3) DH provides a degree of energy security and will not be subject to the volatility inherent in the gas and electricity markets 4) The close proximity of residences to the EfW CHP facility will make it cheaper to build a DH system. 5) Much greater efficiencies can be achieved in the system compared with conventional means of space heating. 6) Eligibility for RHI funding and ROCs (see section 7.1 for details regarding the interaction between two schemes).	1) In terms of the cost of carbon abatement, insulating buildings is recognised as one of the cheapest and most cost effective solutions. 2) Payback times are relatively short.
Disadvantages	1) The fact that several flats are heated by electricity, with storage heaters, means that those residences will require new hot water systems, so that they are compatible with the system, which will add to the financial burden of any project. 2) The heat demand of the residences needs to be quantified, as there is a risk that the demand will be too low to make the scheme viable. 3) Private property owner-occupiers may be reluctant to give up the current ability to switch between suppliers of energy. This represents a real commercial issue which needs to be assessed and overcome. 4) Providing heat from EfW CHP is one of the more expensive options for renewable heat generation under current market conditions. However, given the current surplus of heat already generated by the plant, this may not be the case in this instance (DECC, 2009)	1) It is possible that reaching similar carbon abatement levels as that offered by a DH scheme will be very expensive in aging properties particularly. 2) Some of the houses in the area have solid walls. Solid wall properties are more difficult and expensive to insulate efficiently. For these properties there will be an increased cost associated with ensuring they are adequately insulated. 3.) With increased insulation the venting (circulation of air) is very important otherwise the building can mould

1.11.2 The main explanation for the low penetration of district heating systems in the UK to date is the comparatively higher cost of installing such systems. Nevertheless, there are some combinations of fuel sources and building types that can reduce the relative cost. For example (DECC, 2009):

1) Where the DH uses waste heat from a conveniently located power station, since the heat is produced at a low marginal cost (i.e. in the case of the MVV EfW CHP facility).

2) Where DH replaces electric heating systems.

3) Where DH is supplied to high rise flats, commercial areas, or high heat density areas.

"Even without financial subsidies and regulation DH could replace electric heating systems purely on economic grounds" (DECC, 2009).

1.11.3 Ensuring properties are adequately insulated prior to implementing a DH network guarantees that the network can be correctly sized and constructed. If the DH network is installed without insulation and this is subsequently upgraded then there is a risk that the DH network will provide heat surplus to requirements by the residences. District heating networks have the potential to reduce utility bills and shield customers from the volatility of the electricity and gas markets. Replacing the heating systems of those residences that heat their houses using electricity increases the attractiveness of the DH network.

1.11.4 In summary there is certainly merit in considering the implementation of a DH network as opposed to a strategy that upgrades the insulation of the existing building stock. The viability of the scheme requires a further and more detailed feasibility assessment, which draws on data relating to the abatement cost of the two options.

1.11.5 MVV has examined the condition assessments of the nearby properties in Barne Barton undertaken by Plymouth City Council and will take these into account when making its final assessment of the viability of a DH system supplying Barne Barton.

1.12 Sustainable Design

1.12.1 An assessment of the EfW CHP facility's sustainability has been undertaken and is presented in the Sustainability Statement, which is Appendix 3 to the Planning Application Supporting Statement. As part of this, an assessment has been undertaken using the Building Research Establishment Environmental Assessment Method (BREEAM). A BREEAM Excellent score has been achieved.

2 Economy

2.1 Background

The Plymouth Economy

2.1.1 Plymouth has a distinctive economy and history, based largely on its seafaring tradition and strong links with the military. The maritime and defence sectors continue to play a significant role in the local economy. Devonport is the largest naval base in Western Europe covering over 650 acres and employing approximately 2,500 civilian and service personnel. Estimates suggest that the base accounts for 10% of Plymouth's value added and supports over 400 businesses[5]. As with many other areas of the economy these sectors have come under increasing pressure due to the recession, public expenditure cuts and subsequently have experienced job losses.

2.1.2 In recent years Plymouth has continued to diversify its economic base and developed a local strategy to focus on six priority sectors including advanced engineering, marine and renewables, business services, creative industries, health and medical, tourism and leisure.

2.1.3 The Plymouth economy under-performs on a range of measures, notably Gross Value Added (GVA), where performance is below the regional and national averages. This is due to the sectoral mix of the economy; particularly the high dependence on the public sector, poor productivity levels in other sectors, lower levels of participation in the labour market and a low level of new business creation. Recent analysis suggests that this underperformance amounts to £1bn of unrealised economic potential[6].

2.1.4 The Plymouth economy has made significant progress over the past ten years with its performance improving on a range of different metrics. This includes an improved performance on the skill levels within the workforce, an increase in the number of new businesses and an improvement in the economic dynamism of the Plymouth economy as a whole. Having said this, Plymouth still lags behind many of the key towns and cities in the South West[7].

2.1.5 To address this gap in economic performance requires a series of measures including sustaining the increasing numbers of new business starts and new employment, securing high-value added sector growth, improving the productivity of existing businesses and maintaining and diversifying the industrial base particularly where there are opportunities to exploit the potential of climate change and low carbon markets and technologies.

Plymouth's Labour Market

2.1.6 In 2009, approximately 107,000 people were employed in Plymouth and just over 2.24 million were employed in the South West. The number is projected to increase by 0.7% per annum up to 2017 in the South West; this is similar to the national average[8]. However, it is worth noting that these projections were made in advance of the recent public sector cuts.

2.1.7 In 2010, the economic activity rate in Plymouth was 75.6%, which is below both the regional (78.4%) and national (76.4%) rates. Of Plymouth's economically active residents, 70.1% are in

[5] , www.royalnavy.mod.uk/operations-and-support/establishments/naval-bases-and-air-stations/hmnb-devonport/
[6] Prosperity for all in the Global Economy - World Class Skills, Lord Leitch, 2006
[7] A Strategic Overview of the Development of the Plymouth Economy, EKOSgen, March 2010
[8] Sub-Regional Employment and Skills Analysis (2010), SLIM

employment and 7.2% are unemployed (Ref. 17-6). Data at the local level is limited to the 2001 Census. At this point the activity rate in St. Budeaux ward, which covers the site, was 69.3% compared with 72.0% for Plymouth and 74.0% nationally.

2.1.8 Job Seekers Allowance (JSA) and other out of work benefit claimant data also demonstrate the lower levels of activity and higher dependency on welfare benefits at the local level. JSA data for January 2011 show that 5.0% of the working age population in St. Budeaux ward was claiming JSA compared with 3.7% for Plymouth and Great Britain.

2.1.9 In May 2010 almost 24% of the working age population in the St. Budeaux ward was claiming an out of work benefit[9] compared with 16.3% for Plymouth and 14.7% nationally.

2.1.10 According to the Census (2001), 21.9% of the Plymouth workforce lives outside of Plymouth[10]. Data from the Annual Business Inquiry (ABI) (2009) show that Plymouth's economy is heavily reliant on the public administration, education and health sectors (with 36.9% employed in these sectors compared to 28.7% regionally and 27.0% nationally). Conversely, there is a lower proportion of people employed in finance, IT and other business activities than regionally and nationally (13.4% for Plymouth, 19.1% for the South West and 22.0% for Great Britain)[11]. In 2009 there were estimated to be 98,835 construction workers in the South West, with approximately 3,600 working in Plymouth[12].

2.1.11 Manufacturing employment accounts for a larger share of the total employment in Plymouth relative to the region and Great Britain as a whole. The ABI data show that 12.5% (13,400) of the jobs located in Plymouth are in the manufacturing sector. When considering the residence based employment data[13], i.e. the sectors in which people who live in Plymouth are employed, this shows that more than 14% (16,700) of the working age population living in Plymouth are employed in the sector.

2.1.12 Similarly construction jobs located in Plymouth make up 3.4% (3,600) of the total jobs available in the area. However the residence based employment data from the Annual Population survey shows that over 7% (8,300) of the workforce who live in Plymouth actually work in construction. Whilst these differences highlight the movement of people living in Plymouth to work outside of the area in these sectors, they also demonstrate the ability of the proposed development to provide new opportunities for those living locally to also work locally in the construction and operational phases.

2.1.13 A breakdown of employment sectors is presented in Table 6.

Table 6 Employee Jobs 2009 (workplace based)

	Plymouth (%)	South West (%)	Great Britain (%)
Agriculture, Forestry, Energy and Waste	0.8	2.4	1.6
Manufacturing	12.5	10.7	10.2
Construction	3.4	4.4	4.8

[9] This includes JSA as well as, Employment Support Allowance and incapacity benefits, lone parent benefits and other income related benefits
[10] Office for National Statistics (ONS), (2001); Census 2001
[11] ONS, (2009); Annual Business Inquiry
[12] *Ibid.*
[13] Annual Population Survey – extract of residence based employment by sector for Plymouth data for 2008 to allow comparison with ABI workplace data

	Plymouth (%)	South West (%)	Great Britain (%)
Services	83.2	82.5	83.5
Distribution, Hotels & Restaurants	23.1	25.2	23.4
Transport and Communications	5.4	4.8	5.8
Finance, IT, other Businesses Activities	13.4	19.1	22.0
Public Administration, Education & Health	36.9	28.7	27.0
Other Services	4.4	4.7	5.3

Source: ONS Annual Business Inquiry Employee Analysis (2009)

2.1.14 The occupational profile of Plymouth workers is broadly similar to the profile across the region and nationally. However, there are a smaller proportion of managers and senior officials in Plymouth. Table 7 below presents further details on the occupational profile of the local labour force.

Table 7 Employment by Occupation (workplace analysis)

	Plymouth (%)	South West (%)	Great Britain (%)
Managers and senior officials	13.5	15.7	15.8
Professional occupations	13.5	13.2	13.9
Associate professional and technical	16.3	14.4	14.6
Administrative and secretarial	13.9	11.2	11.2
Skilled trades	11.1	12.5	10.4
Personal service	7.5	8.9	8.9
Sales and customer service	8.8	7.0	7.4
Process plant and machine operatives	5.7	5.9	6.6
Elementary occupations	9.7	11.3	11.1

Source: ONS (2010) Annual Population Survey 2010

2.1.15 Data on occupational profiles for the local level (St. Budeaux ward) are only available for 2001. The data for this point in time show a much higher proportion of the resident working age population of St. Budeaux in elementary and process/machine operatives (31%) relative to Plymouth (23.6%) and Great Britain (20.5%). At the opposite end of the scale higher level occupations only account for 12.1% of those employed as managers, compared with 18.1% and 25.9% for Plymouth and Great Britain respectively.

2.1.16 The other key point to note from the 2001 and 2010 data is the falling proportion of employment in lower skilled occupations. This move toward higher value added and skilled employment is likely to be a continuing trend within the UK and other developed economies, as work including the Leitch review has identified.

2.1.17 Skills are an increasingly important factor determining an individual's ability to access employment. Similarly companies will look at skills within the local labour supply when considering investment decisions to locate in a specific area. If the benefits of investment are to be realised at the local level there needs to be a good match between the jobs available and the skills required with the locally available labour supply. Mismatches here can be addressed through training and skills development but this does take time and investment. At the local

level the most recent data on skills is from the 2001 Census. The data here show that 45% of the working age population in St. Budeaux held no qualifications compared with 36.6% and 35.8% for Plymouth and Great Britain respectively.

2.1.18 More recent evidence illustrates that the *workforce* was marginally less qualified than the regional average, with 94.4% of individuals holding a qualification (compared to 94.6% in the South West). A total of 29.0% of the population have a degree or higher degree, compared to 32.5% in the South West and 35.3% nationally.

Population and Deprivation

2.1.19 The population in Plymouth has expanded from 242,000 in 1999 to 256,700 in 2009[14], representing a 6.1% increase over the time period. This is below the regional rise (7.2%) but above the national average (5.3%). In 2009, 165,000 (64.3%) of Plymouth's residents were of working age (defined by the Office for National Statistics as men aged 16 to 64 and women aged 16 to 59). This is above both the regional (59.5%) and national averages (61.9%).

2.1.20 According to the Index of Multiple Deprivation 2007 (IMD 2007), Plymouth is the 76th (out of 354) most deprived borough in England[15].

2.1.21 Local level analysis of the IMD 2007 undertaken by the Local Strategic Partnership and the University of Plymouth shows that the Barne Barton neighbourhood which contains the proposed development is the fifth most deprived neighbourhood area within Plymouth[16]. The Devonport neighbourhood immediately to the South of the development is identified as the most deprived within Plymouth. Both neighbourhoods are identified by the analysis as priorities for investment and regeneration.

Existing Employment within the Dockyard

2.1.22 Together, the Dockyard and Naval Base generate 13% of Plymouth's gross value added income. There are 4,036 personnel on ships and submarines which are based in Devonport. 475 Naval service personnel are employed in naval support together with 380 civilians[17].

2.1.23 Babcock employs almost 4,300 people within Devonport Dockyard[18]. A further 7,000 jobs are dependant upon the Dockyard and Naval Base[19].

Land Use

2.1.24 MVV's proposal is to construct and operate an EfW CHP facility on land currently situated in the north east of Her Majesty's Naval Base (HMNB) Devonport, Plymouth. If the development goes ahead the land will be leased by MVV and taken out of HMNB Devonport's operational jurisdiction.

2.1.25 A central part of the site on which the EfW CHP facility building will be constructed was until recently used by a firm called Ashcroft to process demolition rubble created from different construction projects throughout the naval base and dockyard. It is understood that Ashcroft went into administration. As such there was some employment generating use associated with

[14] ONS, (2009); Mid-year Population Estimates
[15] ODPM, Index of Multiple Deprivation (2007)
[16] Plymouth 2020 Partnership Neighbourhood Renewal Index of Deprivation 2007, Plymouth LSP and University of Plymouth, 2008
[17] MoD *pers comm.,* 2011
[18] This is in addition to the 2,500 service and civilian personnel employed within HMNB Devonport, cited in paragraph 2.1.1 above.
[19] MoD *pers comm.,* 2011

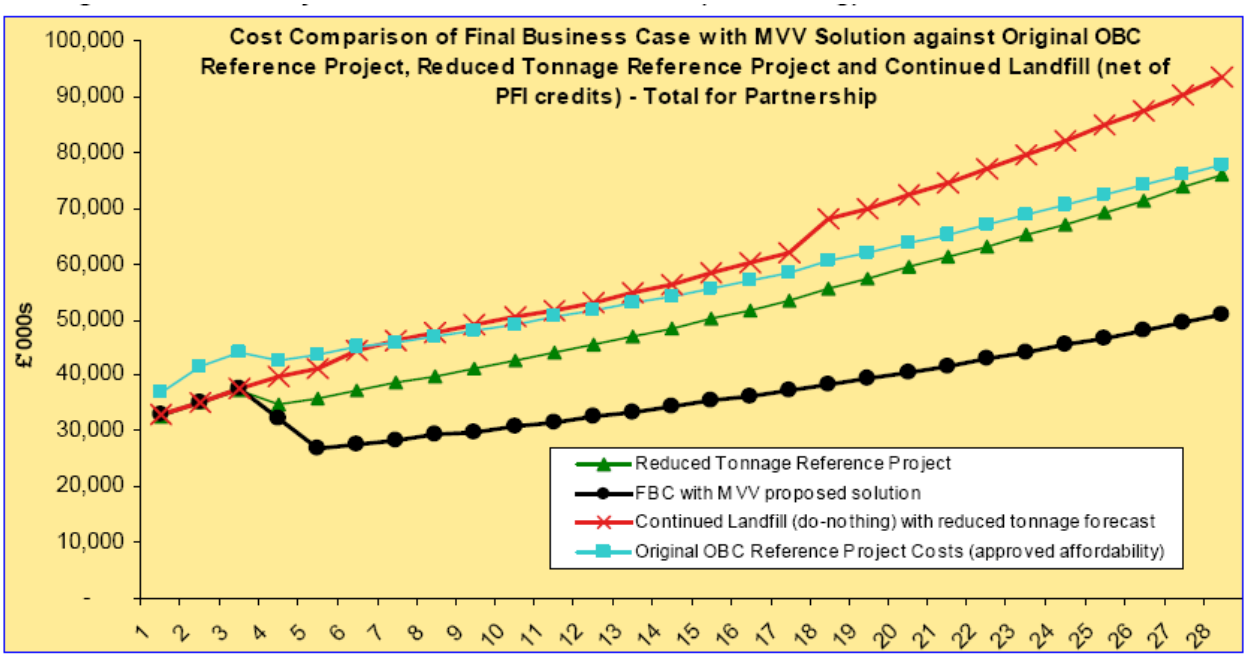
the site. However the intensity of employment created by the EfW CHP facility will be higher with a greater number of high skilled jobs on site. This would suggest on a broad level, a degree of additional benefit will result from the proposed development.

2.2 Financial Savings to SWDWP Authorities

2.2.1 There are significant financial savings for the three member authorities of SWDWP associated with the EfW CHP facility.

2.2.2 Figure 7 below provides a graphical representation of the SWDWP's affordability position comparing landfill (do minimum), the Outline Business Case Reference Project, the Reduced Tonnage Reference Project, and MVV's EfW CHP facility (the Final Business Case, or FBC). This figure shows the total waste management cost for the SWDWP Authorities, including recycling and composting in addition to the residual waste treatment solution.

Figure 7: Comparison of total SWDWP costs until 2039 for FBC, OBC Reference Project, Reduced Tonnage Reference Project and the continued landfill (do-nothing)



2.2.3 Table 8 overleaf summarises the financial benefits of MVV's EfW CHP facility compared with the SWDWP's Reduced Tonnage Reference Project estimate, following contract signature on 25th March 2011. The savings cover the 25 years of the SWDWP residual waste treatment contract. They are based on the SWDWP authorities delivering the forecast tonnages of waste and assume inflation at 2.5% (nominal cost ie the cost you actually paid over the life of the 25 year contract).

Table 8: Savings to SWDWP Authorities

	SWDWP Total £m	Plymouth Total £m	Torbay Total £m	Devon Total £m
SWDWP Reference Case estimate (single EfW facility with updated tonnage including tonnage previously assumed to landfill added into Contract Waste)	824.9	404.7	134.9	285.3
MVV's EfW CHP facility cost at Contract Close 25th March 2011	436.0	212.2	71.4	152.5
Estimated financial benefit of MVV's EfW CHP facility over SWDWP Reference Case	**388.8**	**192.5**	**63.5**	**132.8**
PFI revenue support grant	177.0	82.9	29.3	64.8

2.2.4 It is clear therefore that there are significant financial savings for the three member authorities of SWDWP associated with the EfW CHP facility.

2.3 Wider Economic Benefits

2.3.1 A socio-economic impact assessment has been undertaken and is presented at Chapter 17 of the Environmental Statement. It is considered that this proposed development will have an overall beneficial impact on Plymouth and the South West's economies, through a range of different effects including new employment, supply chain benefits, increased local income, cost savings to businesses, households and the MoD, alongside wider carbon savings. The proposed development will have also beneficial impacts on land use.

2.3.2 The scheme is considered to have a number of benefits to others as follows:

- Direct and indirect employment during the construction period and during the operation of the facility (see section 3 below for further information).
- Local supply chain impacts and induced income effects within the Plymouth economy, reflected in the employment generation.
- The proposed development will utilise land within HMNB Devonport, bring it back into use and intensify employment numbers on site relative to the last existing use.

- Additional safeguarding and creation of employment associated with the dockyards' medium and long terms plans (see section 3 below for further information).
- The MoD, and thus the taxpayer, will benefit from rent from the site.
- Plymouth City Council will benefit from rates from the business.
- The Government will benefit from taxes from business profits.
- A proportion of the jobs created by the proposed development will be accessible to local unemployed/economically inactive individuals who currently receive welfare benefit payments. By providing employment the cost to the exchequer of welfare benefits will be reduced.
- The MoD, DRDL Marine and Falcon[20] will benefit from savings in waste disposal costs through a reduced gate fee; this in turn will lead to savings for the taxpayer.
- The MoD, DRDL and Falcon will benefit from a reduction in the transport of waste, resulting in reduced costs and CO_2 savings; this in turn will lead to savings for the taxpayer.
- There will be an improved security of electrical supply for Dockyard nuclear implicated supplies.
- As set out in Section 1 the proposed development could provide heat to homes and other local businesses to reduce the use of fossil fuels and subsequent cost of heating. At the same time the presence of cheaper heat and power will attract new business investment.
- There is potential for extension of the plant life which will provide revenue and employment beyond the 25 year SWDWP contract.

[20] Under a Private Finance Initiative (PFI), Falcon Special Purpose Vehicle has built or upgraded the Single Living Accommodation and support services associated with the FAC. Falcon now provides a total facilities management service and the PFI contract has 20 years of service delivery remaining.

3 Employment and Education

3.1 Introduction

3.1.1 The proposed EfW CHP facility has the potential to have significant employment benefits, both during the construction of the facility and during its operation, directly and indirectly. Before construction starts, the effects on local employment are of relatively minor benefit, because the majority of the activities at this stage of the project are carried out by a team which is not locally based, i.e. from the UK outside Devon or from Germany.

3.1.2 MVV Environment Devonport Ltd and MVV Umwelt GmbH are both members of the German utility company MVV Energie AG, whose headquarters are in Mannheim. MVV Energie AG employs more than 6,000 staff and has an annual turnover of €3.6 billion. MVV's core business is the distribution of energy, natural gas and water in Mannheim and other cities, as well as the generation of energy from residual waste and bio-mass, and the development of highly efficient energy solutions.

3.1.3 MVV views the UK market as key in terms of its long term development strategy. The SWDWP project is a vital part of this long term strategy.

3.1.4 A key objective for MVV is to become firmly recognisable as a reliable, worthy corporate citizen within the local areas in which it operates, The company has an excellent track record of providing community areas at its existing EfW facilities and in engaging local communities in waste awareness issues. The company is committed to applying its experience and these principles to the benefit of the SWDWP project.

3.1.5 In addition to the visitors centres provided at its EfW facilities MVV also holds open days and offers site visits to interested parties such as local groups, and students taking engineering or environmental qualifications.

3.1.6 The proposed EfW CHP facility has the potential to have significant employment benefits, both during the construction of the facility and during its operation, directly and indirectly. Before construction starts, the effects on local employment are of relatively minor benefit, and will be largely associated with the mobilisation of the project, and in particular the administration of the SPV and its new Plymouth based office, as shown in paragraph 3.1.7 below. The majority of the activities at this stage of the project are carried out by a team which is not locally based, i.e. from the UK outside Devon or from Germany.

3.1.7 However, there are already some positive benefits for local employment emerging during the pre-construction phase, as follows:

- MVV has employed the Plymouth based branch of Scott Wilson (since 2011 URS/Scott Wilson) who provide technical, consulting and planning services to MVV. Scott Wilson has been involved in the project since the beginning of 2009 and allocated an average of 2.5 full-time equivalents to support MVV.

- In March 2011, MVV employed Francis Clark to provide bookkeeping services for MVV Environment Devonport Ltd., and to support MVV in the areas of corporate tax and capital allowances. Francis Clark will also be employed to support MVV O&M, MVV's subsidiary responsible for the operation and maintenance of plants. Francis Clark itself employs other

local companies to support MVV, for example a firm called Timewade, which is based in Exeter and will provide the IT system for the bookkeeping services.

- In March 2011, MVV employed the local branch of PricewaterhouseCoopers, based in Plymouth for tax advisory services and to act as the auditor for financial accounts.
- In March 2011, MVV Environment Devonport Ltd. opened bank accounts with HSBC in Plymouth.
- In September 2011, MVV employed Plymouth based law firm Wolferstans, to act as MVV Environment Devonport Ltd's corporate secretary and registered office.

MVV intends to continue to employ the services of these local companies for the foreseeable future.

3.1.8 As can be seen from the above, MVV's activities in Plymouth are already beginning to have some minor beneficial effects on the local economy, even though the project is currently in an early stage.

3.1.9 Even more importantly, MVV is developing its plans with regard to local employment and training during the pre-construction phase and to support this, has already established contacts with a variety of local stakeholders who can potentially support to MVV. Further details are given below.

3.2 Construction Details

3.3.1 Although there are limited prospects for local employment via our process sub contractors, due to the specialist nature of the technology; the civil works element of the project, which will be delivered by Kier Construction Ltd., has significant employment prospects.

3.3.2 Kier Construction have a history of working in Devonport Royal Dockyard and Langage Energy Centre and their Project Director, Sean Jeffery and Southwest Sector Manager, Peter Marsh are both extremely experienced civil engineers. They have both managed several successful projects for DML, Babcock Marine and the MOD. Kier have developed extensive links with suppliers in Plymouth, Devon, Cornwall and the surrounding area. They will draw on their supply chain relationships to ensure that local companies benefit from this project.

3.3.3 Kier will employ approximately 70% of its local labour from Plymouth, Devon and the wider South West area. They prefer to use local labour for a variety of reasons, which include:

- Creates a positive impact on the local community
- Long term training and development legacy.
- Increases productivity by reducing subsistence costs and travelling time.
- Local knowledge and experience.
- Develops regional business and core skills.

This is in line with Kier's commitment to use a local workforce for the Energy from Waste project and can be demonstrated through their previous projects in Devonport Royal Dockyard and Langage Energy Centre where local labour made up approximately 70% of the workforce.

3.3.4 Having previously carried out work at Devonport Royal Dockyard Langage Energy Centre, Hinkley Point, AWE Aldermaston and Seabank CCGT Kier have an established pool of experienced security cleared staff and operatives in the local area. The leadership and experience provided by Kier's core team will ensure that skills are not diluted by new starters. Approximately 60% of each gang will comprise experienced labour to provide the mentoring and supervision necessary.

3.3.5 Table 9 below demonstrates Kier's commitment to procuring as much of the work as possible from a local team to deliver the SWDWP project for MVV. Approximately half the contract will be procured from within the Plymouth and Devon area. Three quarters of the contract will be procured from within the Southwest.

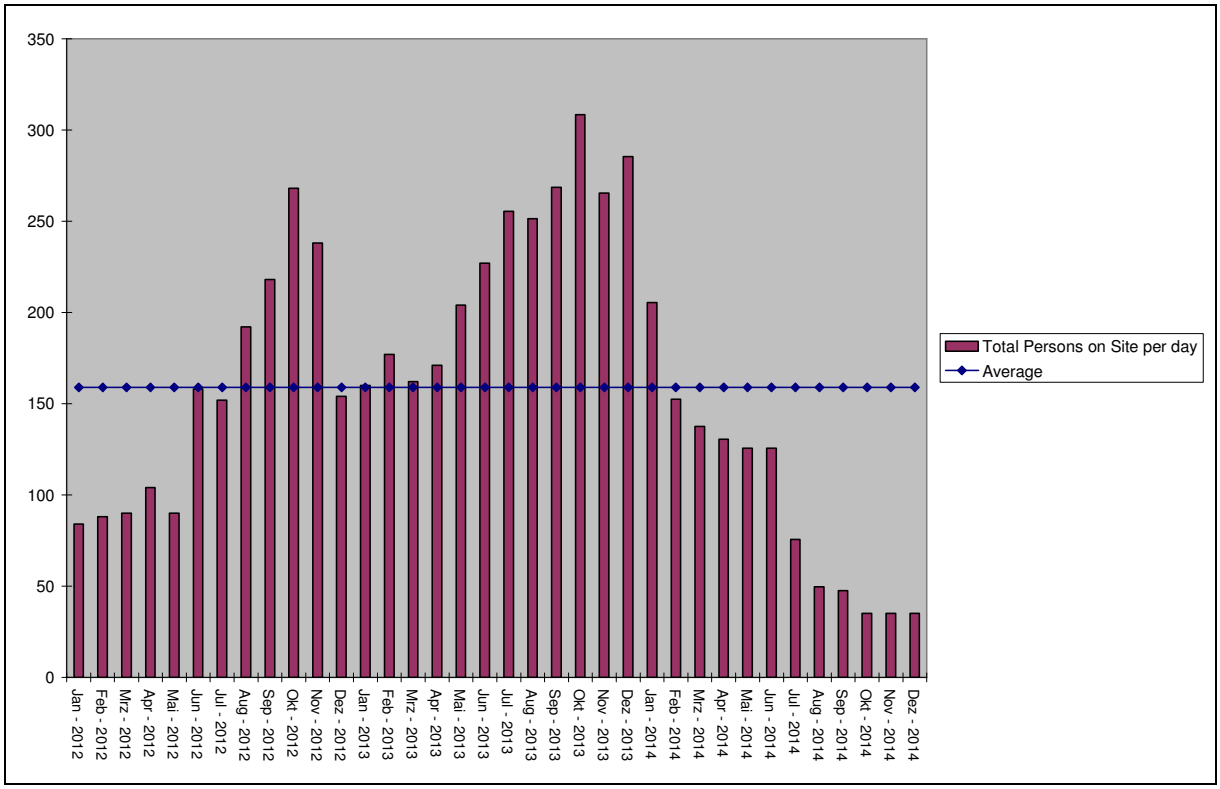
Table 9: Local Resources – Approximate by value

Plymouth and Devon	**%**	**Southwest**	**%**	**National**	**%**
Earthworks	1.5	Reinforcement	10	Piling	11
Concrete	10	Cladding	5	Structural Steelwork	5
Formwork	4	Mechanical Services	9	Elevators	0.50
Precast	0.5	Doors and Windows	2	Design	6
Ancillaries	0.5	Louvres	1		
Masonry	1				
Floor and Ceiling Finishes	1				
Furniture and Fixtures	1				
External Structures (ACC, Bridge, Offices)	3				
Surfacing, Roads and Fencing	3				
Water Supply and Drainage	2				
Staff, Labour and Temporary Works	17				
Accommodation and Security	6				
TOTAL%	**50.5**	**TOTAL**	**27**	**TOTAL**	**22.5**

This table shows the different elements of the proposed project, where they will be sourced and the percentage of the total value they represent.

3.3.6 It is estimated that there will be an average of 159 persons employed on the construction site every day. The peak will be reached during October 2013 with about 309 persons employed on site. Figure 8 below shows the expected number of persons on site during the construction and commissioning phases of the SWDWP project.

Figure 8: Persons on site during construction & commissioning



Source: MVV and its sub-contractors

3.2.1 Of the above it should be noted that:

- Of the average of 159 people, a preference will be given for those employed locally (Plymouth or wider region) provided appropriate skills and qualifications are available
- MVV's ability to influence the sub-contractors with regards to local employment is limited under EU legislation
- Many of the construction jobs require specialists that can not be easily found in the region but need to be brought in from other areas of the UK or continental Europe.
- Based on MVV's experience for every direct job created a further 2 are created locally in support services such as bed and breakfast accommodation.
- MVV is aiming to promote local employment with its sub-contractors as far as possible and has already undertaken actions to establish contacts with local organisations which can be of use.

3.2.2 Further details are shown in chapter 3.9 of this paper.

3.3 Staff Numbers, Roles and Qualifications During Operation

3.3.1 An organisational chart showing the structure, management responsibilities and numbers of staff for the operation and maintenance of the Facility is attached to this paper at Appendix 4.

3.3.2 The operation of the plant will be carried out by the operations and maintenance teams of MVV. These will be employed through a Special Purpose Vehicle (SPV) which is a subsidiary company of MVV called MVV Environment Devonport Limited, which has its registered office in Plymouth.

3.3.3 Table 10 below lists staff numbers and a summary of each role 1.

Table 10: SPV staff numbers and roles

Job Title	No. of posts	Summary of role
Financial Director	1	Overall responsibility for: Finance/Accounting/Payroll Liaison with the Authority IT/Reporting/MIS Energy Management C&I waste Personnel Community liaison
Technical Director	1	Overall responsibility for: Construction of the plant Operation and maintenance of the plant Compliance with relevant legislation and Consents Environmental compliance, Health & Safety IMS
Administrator/ Receptionist	1	Day to day management of data, production of some automated reports and reception duties.
Community Liaison Manager	1	Responsible for the Community Area, liaison with the Authority on PR and waste promotions, facilitating the local liaison group, organising open days and tours.
Contract Manager	1	Day to day contact with the Authority regarding deliveries of Contract Waste, reporting of waste data, attending all regular Contract meetings, production of weekly tonnage reports, Monthly and Annual Service Reports

Job Title	No. of posts	Summary of role
Financial Manager	1	Management of the operational budget, business reporting, procurement, accounting, payroll, tax, business IT systems, MIS
Energy Manager	1	Management of the supply of power and steam, liaison with DRDL/MOD, reporting on energy/steam units sold. Management of C&I waste contracts and spot C&I waste purchases Will be supported day-today by the Energy team in Germany.
Health, Safety and Environmental Manager	1	Responsible for all H&S issues, Permit and Permission compliance, Environmental compliance and related reporting. Responsible for IMS.
Operations Engineer	1	Planning and management of plant operations. Management of operational staff
Maintenance Engineer	1	Planning and management of plant maintenance. Management of maintenance staff
Tipping Hall Supervisor/ Weighbridge operator	7 posts (5 – ftes)	Cleanliness of tipping hall area and general site cleanliness including litter picking. Providing assistance to drivers depositing waste if required. Weighing vehicles in and out, directing delivery vehicles, visually checking loads if possible, confirming waste deliveries on the computerised system, management of the weighbridge area.
Shift Team Leaders (control room)	6	Day-to-day operation of the plant. Supervision of operational staff
Plant Operators	6	Day to day operation of the plant
Crane Operators	3	Loading the combustion chamber, mixing the input waste, visually inspecting the waste in the bunker, loading the shredder (for baling or shredding of bulky items).
Consumables & Residues Operator	1	Procurement, handling and storage of consumables required for plant operation. Management of plant residues.
Mechanic	1	Supervision of maintenance and repair of the mechanical parts of the plant
Electrician	1	Supervision of maintenance and repair of the mechanical parts of the plant
TOTAL	**33 full-time posts**	

Experience and Qualifications

3.3.4 MVV will require experience and qualifications for each of the key posts as shown in Table 11 below. Job descriptions for each of the key posts listed below are also included at Appendix 5. These job descriptions have already been sent to some of the organisations that MVV has

contacted with regard to local employment and training, e.g. the City College Plymouth. This will enable these organisations to point MVV towards those individuals who already have the required qualifications or, where this is not the case, support individuals to gain the qualifications required to enable them to access the roles on offer.

Table 11: Qualifications for key posts

Role	Qualifications	Experience
Technical Director	Post graduate qualification in Engineering COTC NVQ Level 4	Minimum of 5 years in a senior managerial position. Minimum of 5 years as an operational or maintenance engineer at a thermal waste treatment facility or similar facility.
Financial Director	Post Graduate qualification in Finance or equivalent	Minimum of 5 years in a senior managerial position.
Contract Manager	Education to degree level	Minimum 5 years experience of contract management, preferably 3 years of public sector waste management contracts; Managing service delivery Reporting systems and databases
Financial Manager	Degree in Finance or equivalent	Dynamic capital budgeting; Knowledge of UK-GAAP, the HGB (German Commercial Code) and IFRS accounting standards; MS-Office Word, Excel, Powerpoint
Energy Manager	Education up to degree level	Minimum of 5 years experience in the energy industry. Negotiating skills and experience of negotiating contracts Reporting systems and databases
Health, Safety and Environmental Manager	NEBOSH General Certificate. NEBOSH Construction Certificate preferred Minimum NVQ level 3 (at a very minimum NEBOSH Diploma 1 preferred). Member of the Institution of Occupational Safety and Health (IOSH) at Technician Member (or above).	Implementing Health and Safety at Work preferably in a waste management organisation. Recording, monitoring and related data. Undertaking: Safety inspections Investigations into new work practices

Role	Qualifications	Experience
		and facilities Safety audits of working practices Accident investigations. • Developing and delivering health and safety training programmes • A good grounding in environmental knowledge and how to apply it within a waste related environment
Community Liaison Manager	Educated to degree level;	Experience of partnership working preferably in the public sector; Experience of public relations and communications, preferably in a waste related field; Good understanding of the wider waste education and minimisation agenda; Excellent communications skills, able to communicate at all levels; Budget management experience.
Operations Engineer	COTC NVQ Level 4 Degree in Engineering	Several years experience in the operational management of municipal and commercial waste facilities; Several years of experience in a management function Experience of work planning, project management and operational control methods
Maintenance Engineer	COTC NVQ Level 4 Degree in Engineering	Several years of experience in maintenance of thermal waste treatment plants or similar facilities, including their process technologies Several years of experience in a management function Experience of work planning, project management and maintenance control methods
Shift Team Leader	COTC NVQ Level 4 An appropriate NVQ at level 3 (Engineering or Waste Management)	Comprehensive experience in power plant operations for a thermal waste treatment plant or similar facility

Role	Qualifications	Experience
Crane Operator	Bridge crane operators certificate (CITB)	Operational training or existing experience in the operation of a waste crane or comparable equipment
Plant Operator	An appropriate NVQ at level 3 (Engineering/ Waste Management)/Electronics	Operational training or existing experience in a thermal waste treatment plant or similar facility
Consumables & Residues Operator	An appropriate NVQ at level 3 (Engineering/ Waste Management)/Electronics Plant operators licence (CITB)	Experience of logistics management Knowledge of waste and dangerous goods legislation
Co-ordinating Mechanic	Degree in Engineering	Several years management experience including of people, materials and technology. Experience of power plant and process technology Maintenance experience at power plants or similar facilities including procurement of specialist maintenance services through sub-contracts
Co-ordinating Electrician	Degree in Engineering	Several years management experience including of people, materials and technology. Maintenance experience at power plants or similar facilities including procurement of specialist electrical services through sub-contracts

3.4 Recruitment

3.4.1 All SPV posts will be UK based. The two directors posts have already been filled. These have been sourced from existing staff in order to provide continuity for the project. In future opportunity may arise to recruit into these posts should they become vacant, for example if the post holders move to other projects. Recruitment to the remaining SPV roles will follow on from the appointment of the Technical and Financial Directors. Planned recruitment timescales are shown in Table 12 below:

Table 12: Recruitment timescales

Post	Months	-46	-18	-12	-6	-3
Technical Director (Hiring October 2011)	46					
Financial Director (Hiring October 2011)	46					
Operations Engineer (Hiring August 2013)	12					

Post	Months	-46	-18	-12	-6	-3
Maintenance Engineer (Hiring August 2013)	12					
Health, Safety & Environmental Manager (Hiring August 2013)	12					
Financial Manager (Hiring February 2013)	18					
Contract Manager (Hiring August 2013)	12					
Energy Manager (Hiring August 2013)	12					
Community Liaison Manager (Hiring February 2013)	18					
Administrator/Receptionist (Hiring May 2014)	3					
Shift Team Leader (s) (Hiring February 2014)	6					
Plant Operator(s) (Hiring February 2014)	6					
Crane operator(s) (Hiring February 2014)	6					
Weighbridge operator(s) (Hiring February 2014)	6					
Mechanic (Hiring February 2014)	6					
Electrician (Hiring February 2014)	6					
Tipping Hall supervisor(s) (Hiring May 201)	3					
Consumables & Residues Operator (Hiring May 201)	3					

3.4.2 The above table is based on a target full operation date of August 2014.

3.4.3 MVV will, where possible, recruit staff locally, which will deliver the following benefits to the community and the Company.

- Participation in the structural development of the area,
- Local knowledge,
- Increasing the local skills base,
- A wider understanding and acceptance of the facility,
- Greater community participation.

To support its aim of recruiting staff locally, MVV will utilise local recruitment routes such as the Plymouth job centre, local employment agencies, the University of Plymouth, Plymouth City College and the Regular Forces Employment Association

3.4.4 Actions that MVV has undertaken to promote local employment are discussed below in section 3.9.

3.4.5 MVV is currently recruiting a graduate process engineer, and/or a graduate electrical engineer and a graduate mechanical engineer who will undergo a 2 year practical training programme in MVV's German plants. Once trained these individuals will be assessed and placed with the SWDWP project, or with one of MVV's other development projects, such as bio-mass. Further details are given in the training section (section 3.7.1).

3.5 Sub-Contractors During Operation

3.5.1 The SPV will operate and maintain the facility with its own staff, supplemented by selected sub-contracted organisations that will provide specialist maintenance and general support services. It will be important for MVV to access support services readily and our aim therefore is to sources these services locally where possible.

3.5.2 Support services required will include the following:

- Metalwork services (welding)
- Electrical engineering
- Industrial cleaning
- Works on pressure parts
- Refractory works
- Non-destructive testing
- Servicing of fittings and valves
- Grate works
- Pump maintenance
- Fan servicing
- Maintenance of electrical motors
- Painting and coating services
- Process control system / software
- Crane / lifts
- Fire extinguishing system

3.5.3 In addition to the above, the SPV will be supported by a UK based resources support company who will provide other corporate support services such as IT, and Human Resources. Where possible, MVV will source these services locally.

3.5.4 Other local companies have already been employed in order to support MVV with regard to bookkeeping, accounting, auditing and other commercial and administrative functions (see above in section 3.1).

3.5.5 Based on MVV's experience in Germany, the number of sub-contractor employees employed to carry out the services shown at 3.6.2 above, is about twice the number of MVV's full-time employees. This means that MVV expects about 70 indirect jobs to be created in support of the EfW CHP facility.

3.5.6 The selection of appropriate firms will be undertaken in the twelve months prior to the target date for the commencement of plant operations in 2014. MVV has already provided all the organisations contacted in relation to recruitment and staffing (see section 3.9) with the

preliminary list above, the aim being to utilise the network of established businesses in Plymouth, to ensure that as many services as possible will be sourced locally.

3.6 Training

Pre-Service Commencement Training

Engineering Staff

3.6.1 For the EfW CHP facility, a graduate process engineer and/or a graduate electrical engineer and a graduate mechanical engineer will be recruited in the UK to oversee the operational and maintenance activities. These individuals will undergo a practical training programme which will include training at MVV's EfW facility in Mannheim with the additional possibility of internships at MVV's other facilities, such as the EfW plant in Leuna. The course will also include training in the theory of power plant operation at the Power Station College in Essen, Germany. During the course of the programme, the trainees will initially learn the operational responsibilities of the plant operators and the maintenance engineers. Following this, they will be deployed as operations, planning and maintenance engineers, on smaller projects. In addition, the basics of commercial activity will be taught commensurate with the requirements of these engineering roles. The engineers will also establish useful contacts with experienced plant operators and engineers in Germany, during their training there.

3.6.2 MVV has already prepared a job advertisement which will be distributed initially in Plymouth, e.g. at Plymouth University, the City College Plymouth and the Plymouth Herald. This is in order to support MVV's view that jobs should be sourced locally where possible. The job advertisement is included at Appendix 6.

Operating Staff

3.6.3 Staff will be recruited for the posts of the Co-ordinating Mechanic, Co-ordinating Electrician, shift team leaders and plant operators at least six months before the hot commissioning of the EfW CHP facility, which is targeted for August 2014. Detailed training courses held in English will be arranged through collaboration with the Power Station College in Essen, Germany. The classrooms will be based in Plymouth. Please see the letter of intent from Essen College which is attached at Appendix 7 together with a translation. Theory will be supplemented by regular visits to the EfW plant at Devonport which will be under construction by then. One important training exercise will be the compilation of a photographic record of the development of the boiler as it is positioned in the facility. This will allow the employees to understand the configuration of the boiler before it becomes operational, and will help them with future operation and maintenance works. An extract of similar documentation for MVV's boiler line 6 in Mannheim is shown in Appendix 8. Employees will therefore be able to combine theory with practical experience.

3.6.4 In addition to pure power plant technology, other essential skills such as the handling of hazardous substances and waste legislation will also be taught.

3.6.5 It will also be necessary for MVV to source Certificate of Technical Competence (CoTC) training, so as to ensure that technically qualified staff are available to operate the EfW CHP facility and associated services.

3.6.6 MVV is in discussion with the City College Plymouth in order to source some educational skills and resources locally. Through joint working with the College, MVV aim to ensure that potential employees are equipped with the skills required to enable them to access the roles on offer once they become available. A skills matrix will be produced and this will enable a mapping exercise to be undertaken with the City College to identify any areas of skills shortage. A typical training matrix for operators currently employed in MVV's facilities in Germany is included for information at Appendix 9.

Discussions with Plymouth City College to date have included:-

- Provisions of classrooms for training
- Classes for:
  - Learn to Learn
  - Basic knowledge of mathematics, physics, chemistry
  - Health and Safety
  - COTC courses
  - Computer training

Local employment and training opportunities are discussed further in section 3.9 below.

3.6.7 During the cold commissioning phase, which is targeted to commence in May 2014, the operations staff will be permanently located on the site and trained there by the suppliers' commissioning supervisors. With the commencement of hot commissioning, which is targeted for August 2014,, employees from MVV's established sites will be sent to Devonport to support the locally based operations team. These employees will support the permanent team for approximately six months. Training measures will be held by the suppliers in parallel to this.

Continuous Training Arrangements

3.6.8 MVV recognises the value of supporting its staff and the role that well trained and equipped employees play in delivering a high quality of service. The waste management sector is constantly changing and MVV will ensure that its staff training is monitored, planned and implemented to meet these changes. The MVV group has well established training programmes that combine theory and practice, and is implementing these successfully across a range of disciplines within the wider business. Please see Appendix 10 which gives details of this training.

3.6.9 MVV will produce a staff training and development manual and will implement a training and development programme. The focus of the programme will be on the development of the skills, competency and capacity of staff to support the delivery of good working practices and a high quality of service.

3.6.10 Training will be identified and provided in accordance with MVV's existing Integrated Management System (IMS) which provides the principles of staff development and training. The relevant section from the IMS is included as a translation at Appendix 11.

3.6.11 Some roles will require specific qualifications prior to appointment; however MVV encourages all its staff to continue their professional development and provides a range of different training opportunities to support this, including:

- Attainment of formal qualifications – such as COTC (where applicable),

- Attendance at industry training courses and events (engineer/ manager/supervisor level),
- Attendance at relevant seminars and conferences (engineer/ manager level)
- In-house knowledge sharing through workshops and briefings (all),
- On the job training (all),
- Training at MVV's plants in Germany via "Living the Network" (all),
- Undertaking management development programmes (engineer/ manager/supervisor level),
- Specialist areas such as First Aid (all),
- Health & Safety training (all).

3.6.12 In addition to more formal training routes, MVV also recognises the value of training provided on a day-to-day basis where knowledge is passed on by existing and experienced members of staff through explanation and demonstration, and such knowledge transfer will be encouraged between different departments as well as individuals.

3.6.13 MVV's managerial staff will attend specially developed programmes which familiarise them with the tools for successful management and allow them to practice their use, as well as enabling them to carry out goal-directed discussions, motivate staff, act proactively in difficult situations and carry out processes of change.

3.6.14 MVV has allocated £52,000 (in real terms) per year for training and staff development.

Induction for New Staff

3.6.15 MVV's induction programme is part of the wider and on-going training programme for each employee and therefore mentioned in this section.

3.6.16 The induction programme will be designed so that new employees will become familiar with MVV, their department and their role. It will equip employees with the information that they need to work effectively within MVV and make them feel welcomed into the organisation. Line managers will be responsible for ensuring that appropriate induction is carried out and will be supported in this by staff within the SPV and from Germany. .

3.6.17 MVV's induction programme follows a five-staged approach which goes beyond the initial induction of the first day and puts great emphasis on on-the-job training, with recurring feedback meetings between the new employee and the line manager. This means that the induction programme will take six months to complete. During that time, the employee will have a mentor by his/her side that will foster the social integration of the new employee and act as a professional source of knowledge who can answer questions and deal with problems in a more informal way than the line manager. A translation of a briefing document which is used to prepare mentors for their role is attached in Appendix 12. The five stages are described below in greater detail, even though these details may be subject to change, depending on the specific requirements of the SPV and UK legislation. A checklist of the steps to be taken prior to an employee's first day and currently used at MVV's facilities in Germany is shown in Appendix 13.

Stage 1: Preparation and the first day

3.6.18 Prior to the scheduled first day of work of new staff, MVV will

- send a welcome letter to the new employee which provides information regarding the first day (starting time and procedure) and ask where applicable about clothing and shoe size,
- prepare all the necessary equipment (e.g. PPE clothing, locker, keys, telephone and computer, office equipment, etc.),
- set up appointments with the HSE Manager, the SPV Management Board and make arrangements for any statutory appointments,
- inform fellow employees, and choose and brief the mentor about the start of the new staff member,
- specify the induction programme in relation to the employee's role.

3.6.19 An example of an on-the-job training checklist from MVV's facility in Mannheim is attached in Appendix 14, which will be adapted to apply specifically for this project, at an appropriate time.

3.6.20 On the first day, the new employee will follow a detailed schedule that is set up in order to cover the main informational and administrative requirements, to create a welcoming atmosphere and to give new staff a clear understanding of the induction programme and the next steps. Please see Appendix 15. Areas to be covered include:

- Company structure and philosophy,
- Staffing structure and organisational chart of the SPV,
- Welfare facilities,
- Employee handbook,
- Health & Safety policy and procedures, fire procedures and First Aid facilities,
- Site overview (map showing fire assembly points, walkways, location of buildings etc),
- Safe access and egress to the Site, including parking arrangements,
- Environmental policy,
- The telephone and computer system including IT policy
- Terms and conditions of employment, work policy, salary payment date and method of payment,
- Arrangements for breaks/canteen facilities.

3.6.21 The new employee will also meet the line manager and the mentor and will be introduced to the team and other staff present at the site. The on-the-job training programme will also be introduced and the programme for the following two weeks will be explained. In this way, new staff will be prepared for the next stages of the induction programme.

Stage 2: Familiarisation with the team and key processes

3.6.22 During the first two weeks, new staff might, depending on their experience, already carry out smaller tasks but staff will mainly be expected to familiarise themselves with the team, the facility and premises and understand in greater detail the structure of the SPV, the IT systems and other basic procedures. During that time, the new employee will be closely guided by the line manager, the mentor and the team.

Stage 3: Understanding the role

3.6.23 In week 3, learning goals will be defined and the training plan will be detailed based on the first two weeks experience and requirements of the role. Also, tasks will be assigned to the new employee, which they will be expected to carry out independently. However, the main goal at the end of week 10 is to establish a clear understanding amongst new staff about their roles and responsibilities. This is also assessed in a formalised assessment/ feedback meeting between the employee and the supervisor see Appendix 16.

Stage 4: Getting independent

3.6.24 The main goal of weeks 11 to 20 is to deepen the employee's understanding of the job and to enable him/her to carry out the tasks, which are included in their job description, more independently. Further factors like social behaviour, working under pressure and quality of work are assessed as well. Another formalised feedback meeting will then be held (see Appendix 17) by the end of week 20.

Stage 5: Conclusion and establishment of further goals and training requirements

3.6.25 Weeks 21 and 22 are used to encourage an autonomous work approach and to identify any gaps with regards to qualifications, competencies and behaviour. Based on this, follow-up training and specialised courses will be agreed by the line manager together with the employee.

3.7 Other Arrangements to Promote Continuous Improvement

Exchange Within the MVV Group

3.7.1 To assist the process towards excellence, high reliability and required availability of the EFW CHP facility in Plymouth, MVV will implement a structured approach to facilitate the exchange of information and experience between staff in the UK and in MVV's plants in Germany. This will include internal benchmarking and best practise examples regarding plant performance data as well as a personal exchange between MVV's operational sites, both on the employee and senior staff level.

3.7.2 At the employee level (which also includes senior members of staff) MVV offers a programme which was created at MVV group level and is called "Living the Network". The programme was designed to enable employees to work for up to three months at one of MVV's sites/ branches different to their normal place of work and explore different practices, gain additional experience and create good relationships with colleagues, who are usually only contacted by email and phone. MVV Umwelt participates in the programme and has commenced an employee exchange between the sites in Mannheim and Leuna. MVV intends to integrate the SPV in Plymouth into this (voluntary) programme. For further information on the programme

please see a translation of an internal presentation which sets out the goals and the structure of the programme which is included at Appendix 18.

3.7.3 At the senior staff level, regular monthly and quarterly meetings will be held between directors and the heads of operation and maintenance. These meetings will cover both commercial and technical issues and will enable staff in the UK to benefit from MVV's long-term experience in the operation of EfW plants (and vice versa from the experience in the UK).

Performance Assessment

3.7.4 Performance goals for individuals will be linked to the overall goals of MVV as well as to those of the SWDWP project. MVV's aims for the project will be cascaded down, and, together with role specific objectives; used to form the basis of individual performance targets.

3.7.5 Performance goals will be set to support MVV's culture of continuous improvement through focussing on:

- achieving results,
- linking with organisational quality management,
- improving capacity and capability,
- increasing motivation and engagement,
- matching need with resources, and
- facilitating change

Staff Welfare Policy

3.7.6 MVV believes in supporting its staff and that providing a safe, clean and positive working environment is essential for staff welfare. In addition to the provision of basic facilities for staff such as toilets and washing areas that are clean, well maintained and adequately stocked, MVV will provide a range of other facilities designed to improve the working environment for its entire staff. These will include:

- The provision of quiet areas,
- Ergonomically designed working areas,
- E-learning courses covering a range of relevant topics, such as working at a computer, to address posture issues,
- Free medical checks (in addition to those required by legislation) for eye, ear, and back problems,
- Free tea and coffee,
- Free refrigerated water and other soft drinks.

3.7.7 Details of all MVV's staff benefits and additional support welfare facilities are available via the company's intranet. We enclose screenshots of a selection of the welfare benefits that are currently provided to employees at Appendix 19.

3.7.8 MVV also supports in-house sports teams across the MVV group of companies, to promote fitness and provide a platform for team participation. Each year these teams come together at one of the groups international locations to participate in an inter company tournament. MVV will support and encourage the formation of such a team at the Devonport EfW CHP facility.

3.7.9 MVV believes in involving staff in celebrating success. Twice a year, in the summer and at Christmas the company funds a Summer Festival and Christmas celebrations for staff. This will be continued at the Devonport facility.

Employee Handbook

3.7.10 MVV has existing policies covering employee standards of conduct, disciplinary and grievance procedures, equal opportunities, pensions and employment terms.

3.7.11 These are covered in an employee handbook which is issued to all new members of staff as well as within individual contracts of employment.

3.7.12 An employee handbook, based on the existing document, will be developed specifically for the project and issued to all staff on the commencement of their employment with MVV. A copy of MVV's existing handbook is included at Appendix 20 for reference.

3.8 MVV's Plans to Promote Local Employment and Training Opportunities

3.8.1 Having described the general employment arrangements that MVV envisages, this chapter intends to further explore opportunities for local employment, training in the region and possible areas of cooperation with organisations such as universities, job centres and other employment schemes.

3.8.2 MVV has, since being appointed as preferred bidder for the SWDWP project, met with different stakeholders to explore opportunities for cooperation and to promote local employment in the project. The meetings are briefly summarised in Table 13 below. Where no date but a "TBC" is given, a meeting has not been held at the time of the submission of the planning application. However, MVV will contact the listed organisations in due course and aims to hold meetings with all of them.

Table 13: Meetings attended and planned with stakeholders

	Date	Organisation	Attendees	Topic(s)	Comments
1	16.03.2011	PCC	Jeffery Kenyon, Economic Development Coordinator, PCC Mark Looker, Worklessness Coordinator, PCC Armin Reinemuth, MVV Gerran McCrea (MVV) Jan Grotmann-Höfling (MVV)	Introduction to MVV and the SWDWP project Receive advice from PCC with regards to local employment opportunities and useful contacts in this field	
2	17.03.2011	City College Plymouth	Alison Lewis, Director of Local Employment; Mike Jones, Business Skills Advisor; Sue Reed, Programme Area Manager Armin Reinemuth, MVV Gerran McCrea (MVV) Jan Grotmann-Höfling (MVV)	Introduction to MVV and the SWDWP project Receive advice from CCP with regards to local employment opportunities and useful contacts in this field Cooperation in the field of training MVV's employees and providing classrooms Enabling internships, holding lectures at the college, conducting student tours at the EfW plant Exchange of German and British apprentices	
3	Proposed dates 26.05 2011 30,.05.2011 07.05.2011	City College Plymouth	Alison Lewis, Director of Local Employment; Armin Reinemuth, MVV Mrs Johanna Emrich MVV Energie AG Mr. Hans Joachim Mayer MVV Energie AG	Follow up meeting to explore areas for joint working in more depth.	The meeting will be held in Mannheim.

4	TBC	University of Plymouth		As above	University was contacted for the first time in October 2010; meeting date has not been fixed yet
5	TBC	Devonport Labour in Construction project			
6	TBC	Regular Forces Employment Association			

Employment and Training Opportunities During Construction

3.8.3 MVV will promote the following employment opportunities and training activities during construction:

- Offering apprenticeship schemes/ internships on the construction site, in line with proposals by the City College Plymouth. See: http://www.cityplym.ac.uk/news/2011/02/15/first-tranche-students-start-work-experience-plymouth-life-centre
- The SPV and its contractors having 1 or 2 interns or apprentices for office support
- Producing a list of sub-sub-contractors (or areas of work) and handing them over to the local organisations (e.g. the Chamber of Commerce) which can then point MVV towards local companies
- Offering site visits during construction
- Offering to hold at suitable venues lectures on certain aspects of the works or on how to execute such a large project

3.8.4 In addition to the training opportunities which will be provided by MVV, its civil works sub-contractor Kier has an excellent track record of building relationships with local school and community projects. Specifically for the EfW CHP facility Kier will propose that the following schemes be adopted:

STEM Ambassadors

STEM is the UK Government scheme to promote Science, Technology, Engineering and Mathematics to young people. Kier will have two volunteers within our management team to act as STEM Ambassadors to local schools and colleges.

College/University Liaison

Kier will promote civil engineering career opportunities to young people at all school levels through appropriate presentations, workshops, site visits and competitions. Where possible, organised visits to the project will be provided with the aim of showing what goes in to such an important engineering project.

3.8.5 Throughout Kier's time in the Plymouth area they have developed very strong relationships with both City College Plymouth and the University of Plymouth. Peter Marsh, Sector Manager for Kier sits on the Plymouth University Industry Advisory Committee representing the local construction industry. The role includes advising the University on current trends in the industry, the relevance of the academic curriculum to employment and advising students on their final year projects and continuing educational development. Kier have funded several local team members to gain construction and civil engineering qualifications from City College Plymouth. Kier have also sponsored selected students through their studies and provided them with work experience during their holidays or placement years. Kier will actively promote and assist these and other colleges and institutions, to support, discuss and recruit future apprentices, undergraduates and graduates.

3.8.6 Whilst constructing the Langage Energy Centre Kier invited students from both Plymouth University and City College Plymouth to visit the site. It was a great opportunity to see a large engineering project in action and in a local setting. Kier site team members also provided information packs for school children doing projects on the power station that included photographs, diagrams and descriptions of how the plant worked.

Local community projects

3.8.7 Kier will support projects as part of its involvement and commitment to the local community through support to local schools and events or local charities, and will:

- Support local primary schools through competitions for safety events and open days.
- Support local volunteer organisations.
- Support local charities – donations linked to key milestones, performance data such as safe man-hours, etc.

Employment and Training Opportunities During Operation

3.8.8 Even though MVV can not guarantee that all posts during the operational period will be sourced locally because of the specific requirements for the different jobs, it is MVV's intention to promote local jobs wherever possible.

3.8.9 MVV will do this by:

- Advertising jobs first locally (i.e. in Plymouth, Devon, Saltash, Torpoint), then nationwide.
- Explaining to relevant organisations (shown above) what qualifications MVV requires. This will enable these organisations to point MVV towards those individuals who already have the required qualifications, or allow them to gain the qualifications necessary to access the posts on offer.

- Liaising with the same organisations regarding MVV's; sub-contractors. MVV has already provided Plymouth City Council and the City College Plymouth with a list of areas where MVV will outsource certain services (see chapter 5.3). By doing this we aim to ensure that relevant local service providers are aware of business opportunities and can bid for contracts.

- MVV has already received a number of job requests from local people; and has asked these individuals for their CVs which will be kept on file. Once MVV has started recruiting, these individuals will be contacted again if their qualifications match one of the job profiles.

3.8.10 Apart from local job creation, MVV also intends to cooperate with the University of Plymouth and City College Plymouth with regards to certain classes for MVV's employees, for example:

- Organisational and leadership development
- Higher level science and engineering skills at the graduate and post-graduate level
- Continuing professional development for managers
- Teaching of essential skills such as handling of Hazardous Substances and Waste Legislation
- Learn to Learn
- Basic knowledge of mathematics, physic, chemistry, etc.
- Health and Safety
- COTC courses
- Computer training

3.8.11 As part of its commitment to supporting its staff MVV will provide high quality training as described in 3.7.7 above. To support this objective, MVV have also discussed further potential joint working opportunities with Plymouth City College including, for example

- use of the facility to support work based learning;
- creation of a knowledge base and knowledge transfer;
- possible EU exchange visits, especially in relation to apprenticeships.

3.8.12 The City College has already expressed an interest in helping MVV with the above classes and MVV is currently developing a detailed curriculum to explore this cooperation further. One measure to tailor the curriculum will be a short time exchange between German and British apprentices which will enable MVV and the City College to assess the educational levels that the students have. Following that, the content of the classes can be adopted to match MVV's requirements.

3.8.13 In addition to the above, MVV is willing to support the University and the College with their curriculums; in Germany, MVV is already actively engaged with universities and professional schools and especially with institutions closely located to its sites. Not only do we have a great number of students visiting our sites every year but also give students the opportunity to undertake internships and to write a paper or a thesis about a topic related to our business

(both on technical and commercial issues). We value the work with students very highly because of the mutual advantage and we intend to do the same in Plymouth where possible.

3.8.14 In this regard we are pleased to note that he University has agreed to work with MVV across a range of research, teaching and operational issues through the Faculties of Science and Technology and Business, the newly established Institute for Sustainability Solutions Research and the University's Office of Procurement and Sustainability. Student research projects relevant to a broad range of disciplines are expected to develop over time: for example environmental science, environmental engineering, planning, economics, public policy and business. More specific projects relating to topics such as stakeholder engagement, promotion of waste recycling, vehicle movements/carbon footprinting and green facility design and improvement may be pursued with the Institute for Sustainability Solutions Research. Collaboration is expected with the University Office of Procurement and Sustainability with respect to maximising opportunities for local co-procurement (Sell 2 Plymouth) and collaboration over sustainable energy-related projects in the City eg CHP and ESCO developments. The University has established an internal matrix of contacts for MVV in order to pursue these opportunities and several meetings have been arranged to pursue the opportunities. The meetings will also address opportunities for business development, Knowledge Transfer Partnerships, internships and employment issues.

3.9 Relationship with the Dockyard

3.9.1 Information in the following Section has been provided by the Ministry of Defence.

Background to the Dockyard

3.9.2 People often confuse the Devonport Naval Base (owned by MoD) and Devonport Dockyard (owned by DRDL) sites. The sites are completely separate entities but are geographically linked, sitting side by side and working together as a pair.

3.9.3 Devonport Naval Base is owned and operated by the MoD. It is the largest naval base in Western Europe, covering 650 acres and 3.5 miles of waterfront, and it is nearly three times the size of Portsmouth Naval Base.

3.9.4 Devonport Dockyard is owned and operated by DRDL.

Existing Employment within the Dockyard

3.9.5 Together, the Dockyard and Naval Base generate 13% of Plymouth Gross Value Added income.

3.9.6 There are 4,036 personnel on ships and submarines which are based in Devonport. 475 Naval service personnel are employed in naval support together with 380 civilians.

3.9.7 DRDL employs almost 4,300 people within Devonport Dockyard.

3.9.8 A further 7,000 jobs are dependant upon the Dockyard and Naval Base.

Medium and Long Term Plans within the Dockyard

Nuclear Maintenance and Upgrading of the Current and Planned Submarine Fleet

3.9.9 Devonport is the only Nuclear Dockyard in the UK that has the infrastructure and skills required to carry out deep nuclear maintenance and upgrading of the current and planned future submarine fleet. The MoD is currently investing significant resources to upgrade the submarine repair facilities, which will provide continuing employment for several hundred highly skilled local employees.

Refitting Ships and Submarines

3.9.10 The programme for refitting ships and submarines by DRDL, MoD's Devonport partner, are either in place or planned to be renewed to ensure work will be sustained well into the next decade. An example of the MoD's commitment to Devonport is the recent signing of the Terms of Business Agreement (TOBA) with DRDL for long term support to 2025. The Strategic Defence and Security Review confirmed a commitment to renew the strategic deterrent that will replace the Vanguard submarine, further reinforcing Devonport's long-term future.

Fleet Accommodation Centre (FAC)

3.9.11 The FAC in Devonport provides hotel services for over 1,600 Royal Naval personnel. Under a Public Finance Initiative, Falcon SPV has built or upgraded the Single Living Accommodation and support services. Falcon now provides a total facilities management service and the PFI contract has 20 years of service delivery remaining.

Flag Officer Sea Training (FOST)

3.9.12 FOST and staff are based in Devonport and provide world class operational sea training to over 100 ships and submarines from the Royal Navy and navies of NATO and allied nations each year. The FOST training sea areas are ideally located in the English Channel, close to Devonport. There are no plans to relocate FOST training from Devonport.

Amphibious ships and the Devonport Landing Craft Co-location Project (DLCCP)

3.9.13 Following the Naval Base Review the Government made a commitment that Devonport would be the home of the Royal Navy's amphibious ships; HMS OCEAN, HMS ALBION and HMS BULWARK. Plans are being developed as part of the DLCCP to establish a Royal Naval Amphibious centre of excellence for landing craft training, maintenance and operations, which will bring 500 Royal Marines to Devonport from Turnchapel and Poole.

Help for Heroes Rehabilitation and Accommodation Centre

3.9.14 *Help for Heroes,* with MOD support, is planning to establishment a recovery facility at Haslar Company, in the FAC for injured armed forces personnel. The ambitious plans will create a £22 million rehabilitation and accommodation centre in Devonport. The facility will form the main recovery centre in the UK for Royal Marine and Royal Navy casualties returning from the war in Afghanistan and other theatres.

Candidate Site for the Removal of Radioactive Elements of Decommissioned Submarines

3.9.15 Devonport and Rosyth dockyards have been named as the two candidate sites under the second stage of Statutory Consultation to remove the radioactive elements of the de-

commissioned submarines – a process called 'initial dismantling'. This MoD project extends over a 60 year period and includes the provision of facilities to dismantle 27 defuelled nuclear submarines of past and current classes. Devonport is the only UK site which currently conducts nuclear defuel, de-equipping and layup of decommissioned nuclear submarines. The project team currently developing the requirements for the Submarine Dismantling Project are based in Devonport.

Programme Roundel

3.9.16 Under Programme *Roundel* the MoD is rationalising the Naval Base site in order to concentrate the activities into North Yard, with the objectives of reducing operating costs to the MoD and taxpayers, and releasing land into the private sector to allow regeneration and additional opportunities for local employment. The release of South Yard areas for housing redevelopment by Redrow and yacht manufacture by Princess Yachts are recent examples.

Vision Vision 25

3.9.17 Under Vision *Vision 25* the Naval Base will be selectively redeveloped to improve operations and the efficient use of space. An initial study has identified areas for disposal and opportunities for improving the efficient use of space as part of a Master Plan to centralise the core of business activities in North Yard. Some areas of South Yard will need to be retained, including the Combined Weapons Electrical Workshop and the deep water No1 Jetty. In the drive to reduce operating costs, carbon emissions and sustain employment, the proposed Energy from Waste (Combined Heat and Power) plant at Weston Mill Lake is a vital part of the Dockyard regeneration. Further work now needs to take place with DRDL to optimise the whole MoD/ DRDL Devonport site.

EfW CHP Facility

3.9.18 As stated above an agreement has been reached for MVV to supply the MoD with heat and electricity for 25 years. The MoD will lease the proposed site to MVV for up to 45 years. MoD's agreement to lease the land and purchase energy over a long period, demonstrates its commitment to Devonport's future in supporting the fleet well into the future.

Potential Job Creation Relating to the EfW CHP Facility

3.9.19 As noted above the upgrading work for the steam pipe work within the dockyard will create additional job creation opportunities for the local mechanical engineering resource base, in addition to those created by the EfW CHP facility itself.

3.9.20 Financial savings in the Dockyard and Naval Base will help to create a sustainable business, which contributes to saving jobs and creating new employment opportunities.

4 Conclusion

4.1.1 There are a number of significant local benefits in the areas of energy, economics, employment and education that will come about as a result of the proposed EfW CHP facility. Many of these benefits are long term and sustainable, and contribute significantly to the benefit of individuals and businesses in Plymouth.