Appendix 4

Dover District Council Interim Housing Scheme
Kimberley Close & Stockdale Gardens

Cost Comparison Between Gas & Electric
Including PV Installation

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SMARTER PROPERTY

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Document Control

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1. Introduction

The following succinct report provides a comparison of costs between Gas and electric, including PV installation. The report provides both capital outlay and running cost information.

2. Background

The intention was to obtain costs for both Air Source Heat Pumps and Gas as separate options as part of the tender submission. Both Jenner and BBS, however, submitted tenders based on gas only. During the tender review an Air Source Heat Pump system was investigated but costs received were deemed too high / not commercially viable.

Prior to going to contract Dover District Council requested that an options appraisal be examined to provide electric panel heaters, electric showers and electric water heaters in lieu of gas, given that gas will eventually be phased out, starting with all new build developments from 2025.

See below for further commentary on this subject.

3. Initial Options Appraisal – 28 January 2021

Option 1 - Electric Heating & Hot water

1. Pros
   - NFE for the installation
   - No planning issues
   - Achieve client requirement for individual unit billing
2. Cons
   - Uplift in UKPN costs
   - Potential delay due to quote(s) required from UKPN and their lead in period
   - Potential need for generator at the start of the project, so added cost

Option 2 - Air Source Heat Pumps

1. Pros
   - No real advantages in terms of cost
2. Cons
   - Increased cost for ASHP installation of approx. £60k per project (exact figures below)
   - Planning issue and potential consequential delay
   - Space needs to be found to house / locate plantrooms
   - Added maintenance costs (legionella cycle / monitoring as below)
   - No individual unit billing possible
   - Uplift in UKPN costs
   - Potential delay due to quote(s) required from UKPN and their lead in period
   - Potential need for generator at the start of the project, so added cost

In summary, Option 2 was a non-starter based on cost and consequential other costs. An initial thought on costs was in the region of £100k per project. The cost was provisional and so would have needed to have been firmed up had the option been viable.

3. **Cost Uplift from Gas to Electric (Option 1 see above)**

<u>Kimberley Close</u>
It was agreed to enter into contract based on an all-electric system as noted above due to no extra costs on the build for the heating and hot water infrastructure. At the time any additional UKPN costs could not be ascertained prior to contract and as such it was agreed that any uplift would be treated as a variation.

<u>Stockdale Gardens</u>
The contract was let on the basis of gas heating and hot water as the exercise carried out on Kimberley Close could not be completed on time.

Post contract, however, Jenner were able to confirm that there would be no additional costs on either the build / heating and hot water infrastructure and in this case no uplift on the UKPN costs.

4. **Running Cost Comparison Between Gas & Electric Heating & Hot Water**

As an example, a cost comparison exercise was carried out at Stockdale Gardens, and on 1 February Jenner reported that electricity is approximately £20.00 per month, more expensive than gas.

A cost comparison exercise was also carried out at Kimberley Close and Jenner reported that electricity is approximately £8.00 per month, more expensive than gas as well.

5. **UKPN Cost Summary**

On 8 April 2021 Jenner Provided UKPN costs which are summarised as follows:

<u>Mains Upgrade Additional Cost</u> <u>(excluding VAT)</u>	**<u>£51,649.90</u>**

** The allowances for gas and electric were costs submitted by the contractor based on similar jobs of scope and size previously carried out. These sums were initially provisional but firmed up post tender, to reduce risk to the client.*

Following a decision to change to an all-electric system UKPN had to requote and costs were increased as a result.

6. PV Cost Summary

In order to keep the running costs down for the prospective tenants DDC requested the contractor to look at providing additional PV panels, which would feed into individual apartments thus reducing monthly bills for the tenants.

Jenner have sourced quotes and provided the proposed costs below:

Kimberley Close

Extra over cost of the proposed revised PV Installation **£54,995.60**

Gleeds have reviewed the costs for the PVs and in their opinion, these reflect the current market prices for the system. It should be noted that the costs for the panels are inflated due to the panel having a built-in transformer meaning the energy generated is directly sent to an individual unit in lieu of a landlord's supply.

Stockdale Gardens

Extra over cost of the proposed revised PV Installation **£53,345.60**

Gleeds have reviewed the costs for the PVs and in our opinion, these reflect the current market prices for the system. It should be noted that the costs for the panels are inflated due to the panel having a built-in transformer meaning the energy generated is directly sent to an individual unit in lieu of a landlord's supply.

7. Running Costs with Additional PV

Dwelling	EPC Rating	% Improvement over regs	PV amount Kwp	Total Energy Cost*
A - Plot 1 Kimberly Close Ground Flo	A 94 (94.3582	61.38	2	89.60
A - Plot 2 Kimberly Close Ground Flo	A 92 (92.3984	52.48	1.6	120.70
A - Plot 3 Kimberly Close Ground Flo	A 93 (92.6503	53.58	1.6	116.70
A - Plot 4 Kimberly Close Ground Flo	A 95 (94.5193	61.21	1.6	87.00
A - Plot 5 Kimberly Close First Floor	B 91 (91.3889	47.74	1.6	136.70
A - Plot 6 Kimberly Close First Floor	A 97 (97.2600	74.5	1.6	43.50
A - Plot 7 Kimberly Close First Floor	A 92 (92.2708	51.46	1.6	122.70
A - Plot 8 Kimberly Close First Floor	A 93 (92.8315	54.01	1.6	113.80
B - Plot 9 Kimberly Close Ground Flo	A 97 (96.7709	72.16	1.6	51.30
B - Plot 10 Kimberly Close Ground Fl	A 98 (97.6395	76.51	1.6	37.50
B - Plot 11 Kimberly Close Ground Fl	A 94 (94.3657	61.59	1.2	89.50
B - Plot 12 Kimberly Close Ground Fl	A 94 (93.5637	57.79	1.2	102.20
B - Plot 13 Kimberly Close First Floor	A 93 (93.1799	55.67	1.2	108.30
B - Plot 14 Kimberly Close First Floor	A 93 (92.5542	52.98	1.2	118.20
B - Plot 15 Kimberly Close First Floor	A 93 (93.4361	56.84	1.2	104.20
B - Plot 16 Kimberly Close First Floor	A 94 (93.9968	59.49	1.2	95.30

Dwelling	EPC Rating	% Improvement over regs	PV amount Kwp	Annual Energy Cost*
B - Plot 1 Stockdale Ground	A 105 (105.25	106.73	4	-
B - Plot 2 Stockdale Ground	A 108 (108.16	121.82	4	-
B - Plot 3 Stockdale first floor	A 104 (103.84	101.09	3.6	-
B - Plot 4 Stockdale first floor	A 104 (103.79	101.56	3.6	-
A - Plot 5 Stockdale Ground	A 94 (93.6679	58.62	2.4	132.70
A - Plot 6 Stockdale Ground	A 95 (94.7429	62.63	2.4	110.20
A - Plot 7 Stockdale first floor	A 97 (96.9332	71.51	2.8	64.30
A - Plot 8 Stockdale first floor	A 98 (98.0021	76.08	2.8	41.90

Nb. The total energy cost is based on the standard occupancy and heating patterns based on floor area. This only takes into account space heating. Water heating, pumps / fans and lighting are set out in the SAP 2012 Methodology. The above costings don't take into account the individual living habits of the occupants.

The tables below provide a running cost comparison between the original Electric panel heating & PV proposal and the new option to provide additional PV, which shows the savings that can be realised in each flat.

Kimberley Close

Dwelling	Runnning Cost: All Electric panel heaters, instantaneous hot water, 3.0kwp of PV distributed based on % floor area	Runnning Cost: With additional PV	Annual Saving	Monthly Saving
A - Plot 1 Kimberly Close Ground Floor	291.10	89.60	201.50	16.79
A - Plot 2 Kimberly Close Ground Floor	281.10	120.70	160.40	13.37
A - Plot 3 Kimberly Close Ground Floor	276.40	116.70	159.70	13.31
A - Plot 4 Kimberly Close Ground Floor	267.40	87.00	180.40	15.03
A - Plot 5 Kimberly Close First Floor	291.00	136.70	154.30	12.86
A - Plot 6 Kimberly Close First Floor	268.90	43.50	225.40	18.78
A - Plot 7 Kimberly Close First Floor	276.30	122.70	153.60	12.80
A - Plot 8 Kimberly Close First Floor	267.30	113.80	153.50	12.79
B - Plot 1 Kimberly Close Ground Floor	260.00	51.30	208.70	17.39
B - Plot 2 Kimberly Close Ground Floor	269.00	37.50	231.50	19.29
B - Plot 3 Kimberly Close Ground Floor	273.60	89.50	184.10	15.34
B - Plot 4 Kimberly Close Ground Floor	283.70	102.20	181.50	15.13
B - Plot 5 Kimberly Close First Floor	259.90	108.30	151.60	12.63
B - Plot 6 Kimberly Close First Floor	268.90	118.20	150.70	12.56
B - Plot 7 Kimberly Close First Floor	273.60	104.20	169.40	14.12
B - Plot 8 Kimberly Close First Floor	283.60	95.30	188.30	15.69

Stockdale Gardens

Dwelling	Runnning Cost: All Electric panel heaters, instantaneous hot water, 3.0kwp of PV distributed based on % floor area	Runnning Cost: With additional PV	Annual Saving	Monthly Saving
A - Plot 1 Stockdale Ground	437.8	0	437.80	36.48
A - Plot 2 Stockdale Ground	415.1	0	415.10	34.59
A - Plot 3 Stockdale first floor	409.2	0	409.20	34.10
A - Plot 4 Stockdale first floor	386.9	0	386.90	32.24
B - Plot 1 Stockdale Ground	415.1	132.7	282.40	23.53
B - Plot 2 Stockdale Ground	437.8	110.2	327.60	27.30
B - Plot 3 Stockdale first floor	386.9	64.3	322.60	26.88
B - Plot 4 Stockdale first floor	409.2	41.9	367.30	30.61