



verdabelo



social stock  
exchange

# VERDABELO

**SOCIAL IMPACT REPORT**

**APRIL  
2017**

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## 1. CEO Overview

The cleanest energy is the energy we don't use. What does not get burnt, does not emit, and will not need to be paid for. About 40%<sup>1</sup> of global energy consumption gets used in the building sector for lighting, heating and cooling.

Verdabelo's core retail proposition is to supply state of the art heating systems and in due course other household appliances with the objective of utilizing energy more efficiently on a pay-as-you-save basis. This in turn reduces gas or electricity consumption. Every boiler exchanged will save between 1.32 tonnes and 2.50 tonnes of CO<sub>2</sub>/year<sup>2</sup>.

Verdabelo believes that this creates value for the environment in addressing climate change.

Permanently reducing wasteful consumption even by only a fraction has a substantial impact on global emissions. As such, to have the most efficient every-day appliances is the first step on the way to a carbon neutral future.

## Organisational Summary

Verdabelo PLC was founded in 2015 and is based in Hammersmith, London. The company's core asset is Verdabelo ESCO Ltd, a Financial Conduct Authority ("FCA") regulated Energy Saving Company ("ESCO") focusing initially on heating boiler retrofits for owner occupied households.

The company's core business is to invent, distribute and fund household energy saving solutions for the UK's market and to help and educate consumers in making the transition to a more energy efficient future.

To achieve the above, the company's present activities include:

- To supply state of the art heating systems produced by Worcester, the largest UK manufacturer and member of Bosch AG;
- Propose households as part of our retrofit program a switch to a lower cost energy supplier.
- To work on expanding from individual households to the rental housing sector, including social housing.

The company currently has a full-time staff of three, which over time it intends to increase to about ten employees in the UK.

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<sup>1</sup> Perez-Lombard Luis, Ortiz J. and Pout C., *A review on buildings energy consumption information*, Sustainable Energy Centre, BRE, Watford, United Kingdom, 12 March 2007,

<http://seedengr.com/A%20review%20on%20buildings%20energy%20consumption%20information.pdf>

<sup>2</sup> Energy Saving Trust, *Domestic heating by gas: boiler systems – guidance for installers and specifiers*, p 33, <http://bpec.org.uk/downloads/CE30%20-%20Domestic%20heating%20by%20gas.pdf>



## Commitment to Social Value

Verdabelo's DNA is centred around the desire to actively tackle the effects of climate change by proving to households the ability to replace their heating system with the lowest upfront cost possible.

Sustainability in our mind starts by buying the most efficient and best equipment we can afford. This is to achieve the highest efficiency and useful lifecycle. Our heating systems are supplied by Worcester, the UK's top quality boiler producer, and are made affordable through bulk purchase.

As such we give people the means and ability to reduce their consumption and pay for the system on a pay-as-you-save basis with an affordable monthly payment.

Consumers are increasingly aware of the cost of their energy, the need to reduce the UK's carbon emissions<sup>3</sup>, the challenges caused by rising global energy demand and increasingly volatile international fossil fuel prices.

Verdabelo has sought to be an innovative ESCO in the following ways:

- At a time when world energy markets face significant challenges, the company develops new ways to engage ordinary consumers with their energy use; As the country's first pure play retail ESCO, the company wishes to become the preferred supplier of energy saving solutions to households;
- Verdabelo's commitment to keeping the planet habitable and ensuring that its business contributes to a more sustainable world runs through the DNA of the company. The company believes that the fastest way to achieve the transition to a decarbonised energy supply chain is best delivered by cutting first of all the consumption in order to reduce the supply gap between renewable energy sources and other traditional "dirty" energy sources.
- As our business is launched in the south-east of the UK, once a boiler is decommissioned, we are taking it to Maidstone prison. Here the boilers are disassembled into its various pieces, which then are being sold for scrap and those parts which constitute hazardous waste, are properly disposed of. Rare metals which are found on mother-boards are properly recycled to minimise environmental hazards;
- Finally, as gas boilers still emit, although a now much reduced amount of gas, our firm is committed to set aside 10% of its annual profits for large scale reforestation programs to promote CO<sub>2</sub> sequestration, programs such as Trees for Cities<sup>4</sup>.

By taking the boilers for disassembling to the prison system we on the one hand provide revenues and occupation for the inmates, on the other hand we achieve an environmentally friendly disposal of the boilers. Initially, from the discussions that we had with the industries manager from HM Prison Service (Maidstone), we understood that about 10-15 inmates will be working at disassembling our boilers. In the future our firm will propose employment opportunities to such inmates, who have performed well, thus taking an active part in their re-integration process, obviously depending on the growth level of the company.

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<sup>3</sup>The Climate Change Act 2008 [http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga\\_20080027\\_en.pdf](http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf)

<sup>4</sup> Trees for Cities, <http://www.treesforcities.org/donate/>



The medium to long-term objective is to plant enough trees to sequestrate the residual CO<sub>2</sub> emissions, knowing that 1 hectare of trees locks up 5.4 tonnes of carbon dioxide per year<sup>5</sup>. By involving school-classes in this process we aim to educate children in the beneficial effect of trees on our habitat. In the medium term the company will support projects that cater to the utilisation of wood for building material purposes that optimizes and lengthens the CO<sub>2</sub> sequestration process.

Verdabelo believes that its mission resonates with more and more people as it caters for an ever-growing customer desire for more sustainable and ethical businesses.

Verdabelo is committed to disclosing key information about its environmental and social impact through an Annual Impact Report and ongoing communications with the company's investors and other stakeholders through Quarterly News Letters.

The company's CEO and board seek continual improvement in the performance of the business's activities to enhance its social objectives. The company currently has two formal methods to ensure continuity and to track compliance with its social purpose:

- Verdabelo will publish a Values Report to report on activity related to the company's ethical and social impacts. The Values Report will be produced by the company, approved by the board and then made available on the company's website for public scrutiny.
- The Annual Report provides an opportunity for the company to report to shareholders and customers alike on progress towards its short and medium-term commercial objectives. The company's environmental and social impacts are inextricably linked to its business and financial purpose, as increasing the company's customer base and creating innovative products achieve environmental, social and business objectives.

Verdabelo believes its values and vision are aligned with the objectives of the Social Stock Exchange, and the company hopes to work with the Exchange as a member in a joint effort to keep the planet habitable and ensure its business contributes to a more sustainable world for the benefit of our grandchildren.

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<sup>5</sup> Forestry Commission UK Government, p 1, p2 , [https://www.forestry.gov.uk/pdf/6\\_planting\\_more\\_trees.pdf/\\$FILE/6\\_planting\\_more\\_trees.pdf](https://www.forestry.gov.uk/pdf/6_planting_more_trees.pdf/$FILE/6_planting_more_trees.pdf), the calculation were made by the team based on the numbers for the quoted report

## 2. Social Purpose and Context

### Current Management

Verdabelo PLC's executive team is constituted by:



Csaba de Csiky, CEO & Chairman, is the Senior Partner of Csiky & Co. Limited, a UK based sustainability focused investment banking boutique, and sits on the boards of various companies, amongst them he holds the Chairmanship of EnerSaveCapital S.à r.l. He is also in charge of the environmental impact management at Verdabelo PLC as he is a strong believer in the necessity of reducing CO<sub>2</sub> emissions and preserving the planet a habitable place. Previously he was on the board of directors at Creditanstalt Securities A.G. and is a founding member of the Budapest Stock Exchange. After studying economics and business administration at the American College of Switzerland and later Barcelona, he started his professional career at Merrill Lynch A.G. before joining Prudential-Bache Inc. as Senior Vice President.



Stephen Clifford, CFO, is a fellow of the Association of Chartered Certified Accountants (ACCA). He is an experienced finance director and company secretary having undertaken a number of roles for private and public companies with a broad range of international activities, some of whom are publicly listed. He has extensive experience working with start up / early stage companies and preparing them for listing on stock exchanges. In 2000 he founded Clifford & Co, an accountancy and company secretarial practice, which he continues to oversee.



Dr. Steve Fawkes, Non-Executive Director, is an internationally recognized expert on energy efficiency with over 30 years experience including delivering large energy management programs, co-founding energy service companies, implementing innovative energy services deals, and advising governments. His current roles include: managing partner of EnergyPro Ltd, senior adviser to the Investor Confidence Project and member of the investment committee of the London Energy Efficiency Fund. He has published extensively on energy efficiency including more than 250 papers and articles, three books and a regular blog.



Margareta Pagano Yadi, Non-Executive Director, is a business journalist who writes for national newspapers including the Times, the Daily Mail and the Financial News. She was a business editor of the Independent on Sunday for many years and a founding editor of the specialist online City newspaper, the Financial News. A regular broadcaster on TV and radio, she also advises PR companies on media strategy. She is a Fellow of the Royal Society of the Arts and Respublica, the leading think-tank.



Murray Leighton-Bailey, Non-Executive Director, has focused his career on retail financial services for over 30 years, specializing in credit risk management. He has acted as a chief risk officer on a number of occasions, most significantly at GE Capital Bank. He has worked with many specialist lenders in implementing credit scorecards and appropriate underwriting policies. His recent roles include head of credit risk at Amigo Loans (2012- 2013), risk director at ZOPA (2007 - 2011) and credit risk specialist for Pollen Street Capital (2014 - 2016).



Jimmy Tong Sam, Non-Executive Director, is a Fellow Chartered Accountant (FCA) in the UK and Luxembourg with over 20 years experience in auditing and accounting. Having worked for Arthur Andersen in Bristol, UK and KPMG in Luxembourg, Jimmy is the founding partner of Mayfair Trust S.à r.l, an audit and accounting boutique firm focusing on delivering hands on value added services to its clients. His experience includes downstream petroleum, old people's home, real estate projects, fund raising and in the mining industry.

## Verdabelo's Vision

Waging war on harmful emissions is in essence a marathon and not a sprint. It will take time and effort to drive the gigantic CO<sub>2</sub> clean-up effort to initially slow down emissions, then hopefully halt and ultimately to possibly reduce CO<sub>2</sub> levels in the atmosphere. This is in our hands.

Starting off by replacing boilers and its peripherals, we wish to ultimately change all inefficient appliances and light sources in households. Once all energy wastage appliances exchanged, we wish to take our business model to the next level by transforming houses into net energy producers.

Whilst it is clear to us at Verdabelo that no-one ever wakes up in the morning with the burning desire to buy a new boiler, Verdabelo through its pay-as-you-save formula provides consumers with the ability to engage in their desire to first of all reduce their utility outgoings, which then help to tackle climate change and help make the UK more energy self-sufficient. By engaging with households, we reduce their utility bills, reduce emissions and they gain peace of mind from a reliable heating system. By choosing an energy supplier which offers better tariffs the household is further able to increase the benefits to their wallet.

The following data, graphs and infographics are based on data from different sources. However, we would like to point out that each source provides different methodologies. The differences are not big, however, they are present. In the future we will base our Annual Impact Reports on our own data collection, which we will gather from our client base, as one of the stipulations of our contract is that they need to share their gas bills with us.

Basis of estimation and reporting: whilst the theoretical amount of CO<sub>2</sub> reductions can be measured on a "per retrofit basis", to portray such numbers as actual and accurate would be misleading at this time. Hence, we have been estimating the impact from exchanging heating systems, as it greatly depends on the following drivers:

- The types of system we are exchanging (to date we have exchanged systems as young as 10-years and as old as 40-years); and
- Life style and cycle changes post retrofit.

As such, the forecast savings are based on estimations.

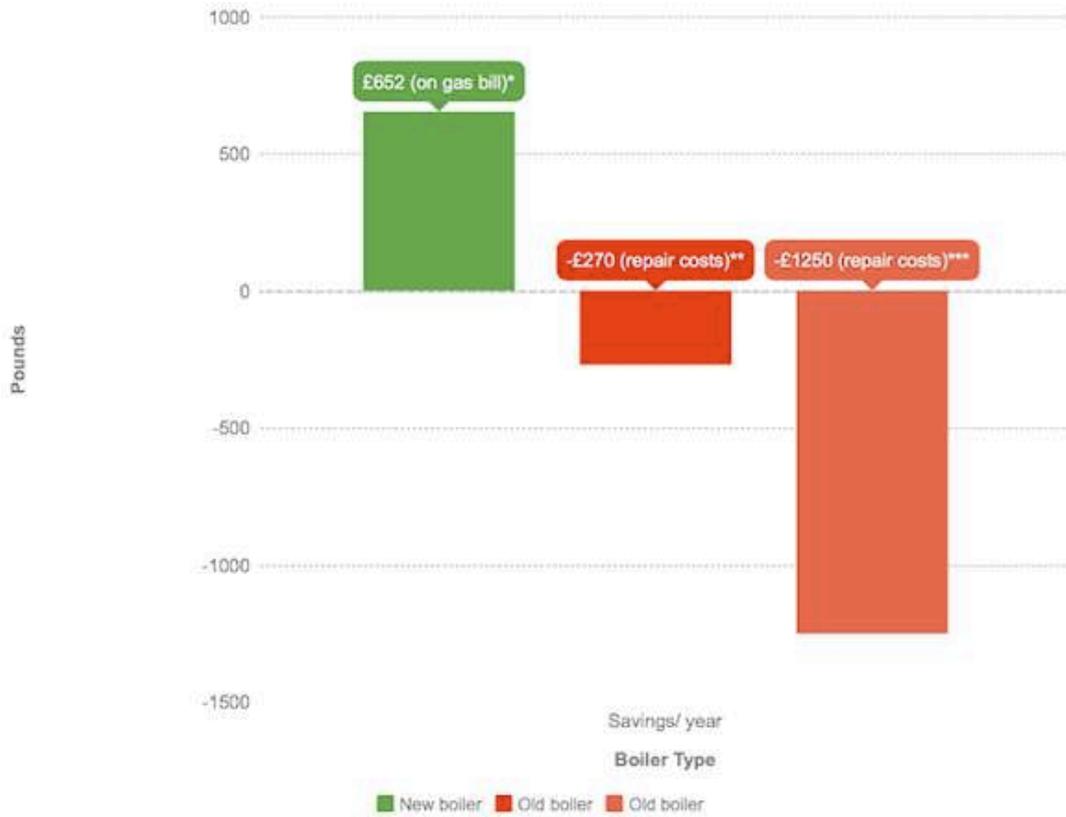
Having said so, Verdabelo undertakes and will have the reasonable ability going forward to report to the Social Stock Exchange based on effective numbers, subject to clients accurately reporting their baseline numbers and ultimately updating their data after a full 12-month period post retrofit.

The following graph underlines the savings on gas bills that a household could make by changing their heating system with an efficient one. We have also included in the chart the cost of unexpected breakdowns boilers as in 2016 (i.e., 18% of the UK families faced at least 1 breakdown). The amounts that UK families had to take out of their pocket were between £270 and £1,250 (a quarter of a million households were faced with such amount)<sup>6</sup>.

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<sup>6</sup> Helen Cahill, "Boiler breakdowns cost the UK £787m in bills last year", City AM, 17 February 2017, <http://www.cityam.com/259069/boiler-breakdowns-cost-uk-787m-bills-last-year>

### Savings per New Boiler vs Old Boiler



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Ultimately, Verdabelo wishes to liberate households from all energy inefficient household appliances by supplying them with the best technology available at that time.

When starting our project, we realised that the biggest impact on CO<sub>2</sub> emissions would be the exchange of heating boilers. Refining our business model, it transpired that whilst the boiler technology has had a big leap forward, exchanging the peripherals would result in an optimisation of energy usage and thus CO<sub>2</sub> emissions. Hence, the Verdabelo package includes:

- A condensing boiler which can save up to 25% of the gas consumption over a 15-year-old boiler;

<sup>7</sup> \*the amount of £652 refers to a detached home that had an old-style heavyweight boiler that was replaced with a modern condensing boiler. Article on the official webpage of Which, [www.which.co.uk](http://www.which.co.uk), <http://www.which.co.uk/reviews/boilers/article/5-things-you-need-to-know-before-you-buy-a-new-boiler> and SEDBUK official website

<sup>8</sup> \*\* the amount refers to the minimum paid for a boiler breakdown, Helen Cahill, "Boiler breakdowns cost the UK £787m in bills last year", City AM, 17 February 2017, <http://www.cityam.com/259069/boiler-breakdowns-cost-uk-787m-bills-last-year>

<sup>9</sup> \*\*\*the maximum amount paid for boiler breakdown, Helen Cahill, "Boiler breakdowns cost the UK £787m in bills last year", City AM, 17 February 2017, <http://www.cityam.com/259069/boiler-breakdowns-cost-uk-787m-bills-last-year>



- A modulating thermostat which can furthermore reduce consumption up to 25%;
- Thermostatic radiator valves accounts for 10%; and
- Flushing of the entire system accounts for up to 10% of consumption.

Although each measure on its own would achieve the above reductions, it should be noted that these numbers are not cumulative but need to be understood as incremental reductions.

While many people understand the need for reducing carbon emissions, if it is perceived as a cost or an inconvenience it will not happen. Our ultimate objective is to achieve a “me too” effect to gain momentum in a game changing way, to reach scale.

We mitigate the above resistance by buying a quality product to scale and standardisation, thus reducing the upfront cost of the equipment, which in turn is a key driver in the affordability driver to the pay-as-you-save model.

## Let's Get Technical

The transition to a carbon neutral future will need to happen with it being stylish and economically beneficial. These features alongside the educational elements are promoted via social media to drive the message home.

To fulfil its customers' demand, Verdabelo partners with the best suppliers: Worcester-Bosch Group and Payne's Heating & Plumbing Services Ltd. for the regional South East roll out. Verdabelo chose the products of Worcester-Bosch Group due to the success it had on the market being best buy on Which in 2015<sup>10</sup>. Due to the high efficiency of the Greenstar condensing combi-boiler line that in the SEDBUK range is scoring a 90% efficiency rate<sup>11</sup> placing it in an A class efficiency. “A condensing boiler has a large heat exchanger (or, in some designs, a second heat exchanger) that extracts more heat from the flue gases. In a non-condensing boiler, the flue gases are at a temperature of 120-200°C. In a condensing boiler, more heat is removed and the temperature falls to below 100°C and as low as 50°C for the most efficient boilers operating at reduced boiler return temperature.”<sup>12</sup> The following table will underline the above statement by reflecting the amount of savings made per each type of boiler. It should be noted that we are promoting a system approach which rewards our retrofit with an A+ energy class rating.

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<sup>10</sup> <http://www.which.co.uk/reviews/boilers/article/boiler-brands-rated-by-heating-engineers>

<sup>11</sup> Building Energy Performance Assessment official website, <http://www.ncm-pcdb.org.uk/sap/pcdbsearchresults.jsp?btnSubmit=Search&type=0&mainType=2&heatPumpType=0&emitterType=0&serviceProvision=0&mvType=0&fuel=1&brand=Worcester&model=Greenstar&modelQualifier=30i+ErP&instantaneous=0&integrated=-1&pid=26&modelQualifier=30i+ErP>

<sup>12</sup> Energy Saving Trust, *Domestic heating by gas: boiler systems – guidance for installers and specifiers*, p 4, <http://bpec.org.uk/downloads/CE30%20-%20Domestic%20heating%20by%20gas.pdf>

**Table 5: Annual fuel (gas or LPG) costs for heating and hot water in different property types**

Boiler type	SEDBUK	Existing housing					New housing				
		F	B	T	SD	D	F	B	T	SD	D
Gas - old boiler (heavy weight)	55%	£287	£361	£383	£434	£575	£92	£116	£116	£145	£172
Gas - old boiler (light weight)	65%	£243	£305	£324	£368	£486	£78	£98	£96	£123	£146
Gas - new, non-condensing	79%	£200	£251	£266	£302	£400	£65	£81	£81	£101	£120
Gas - new, condensing	90%	£175	£220	£234	£266	£351	£56	£71	£71	£89	£105
LPG - old boiler (heavy weight)	57%	£630	£792	£840	£954	£1,262	£203	£255	£255	£318	£378
LPG - old boiler (light weight)	67%	£536	£674	£715	£812	£1,074	£173	£217	£217	£271	£322
LPG - new, non-condensing	81%	£443	£557	£591	£672	£888	£143	£180	£180	£224	£266
LPG - new, condensing	92%	£390	£491	£521	£591	£782	£126	£158	£158	£197	£234

F Flat  
B Bungalow  
T Terraced  
SD Semi-detached  
D Detached

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**Table 6: CO<sub>2</sub> emission (tonne/yr) for gas or LPG heating and hot water in different property types**

Boiler type	SEDBUK	Existing housing					New housing				
		F	B	T	SD	D	F	B	T	SD	D
Gas - old boiler (heavy weight)	55%	3.41	4.29	4.55	5.17	6.84	1.52	1.91	1.91	2.38	2.83
Gas - old boiler (light weight)	65%	2.89	3.63	3.85	4.38	5.79	1.28	1.62	1.62	2.02	2.40
Gas - new, non-condensing	79%	2.38	2.99	3.17	3.60	4.76	1.06	1.33	1.33	1.66	1.97
Gas - new, condensing	90%	2.09	2.62	2.78	3.16	4.18	0.93	1.17	1.17	1.46	1.73
LPG - old boiler (heavy weight)	57%	3.97	4.99	5.30	6.02	7.96	1.77	2.22	2.22	2.77	3.30
LPG - old boiler (light weight)	67%	3.38	4.25	4.51	5.12	6.77	1.50	1.89	1.89	2.36	2.80
LPG - new, non-condensing	81%	2.80	3.52	3.73	4.24	5.60	1.24	1.57	1.57	1.95	2.32
LPG - new, condensing	92%	2.46	3.09	3.28	3.73	4.93	1.09	1.38	1.38	1.72	2.04

F Flat  
B Bungalow  
T Terraced  
SD Semi-detached  
D Detached

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<sup>13</sup> Energy Saving Trust, *Domestic heating by gas: boiler systems – guidance for installers and specifiers*, p 33, <http://bpec.org.uk/downloads/CE30%20-%20Domestic%20heating%20by%20gas.pdf>

<sup>14</sup> Ibidem



## Fuel Poverty and NHS

Our business model is initially strictly geared towards the owner occupier market segment. However, in light of the fact that landlords will not be able to let their property by April of 2018, if it does not at least have an energy performance rating of E<sup>15</sup>, we will adapt our business model rapidly to cover the rental market as well.

The rental market segment represents a particular divergence of interests and benefits. Though the cost of a new boiler is assumed by the landlord, the benefits accrue to the tenant. Verdabelo wishes to create a model whereby these opposing interests can be bridged.

We expect that for many landlords, who wish to maximize returns on investment, our business formula could be attractive as it spreads the upgrade costs over a 7 year period at no interest costs.

One of the key social impacts of our heating retrofits within this market segment is to reduce the amount of tenants living in fuel poverty. A fuel poor household is defined as one which needs to spend more than 10% of its income on all fuel use and to heat its home to an adequate standard of warmth<sup>16</sup>. In England, this is defined as 21°C in the living room and 18°C in other occupied rooms. The current definition of fuel poverty states that it is driven by three key factors:

- energy efficiency of the home;
- energy costs; and
- household income.

Separate research from fuel poverty charity National Energy Action shows that cold homes claim needless lives and cost every local health trust in England more than £27,000 each day, or £10m per year on treating patients with health conditions caused or worsened by living in cold, damp housing<sup>17</sup>. Nationally, fuel poverty covers 2,4 m households<sup>18</sup> with cold homes costing the NHS £3.6m per day, and in the past four years alone over £5bn of tax payers' money has been wasted while 117,000 people have died needlessly due to the cold<sup>19</sup>.

Verdabelo believes that households should not need to choose between food and heat and we therefore strive to alleviate food poverty by increasing disposable income for tenants.

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<sup>15</sup> Renters and landlords to enjoy warmer properties and cheaper bills, <https://www.gov.uk/government/news/renters-and-landlords-to-enjoy-warmer-properties-and-cheaper-bills>

<sup>16</sup> Future Energy Efficiency Policy number 550 February 2017, House of Parliament-Parliamentary Office of Science & Technology, p2, p3

<sup>17</sup> Action for warm homes, <http://www.nea.org.uk/media/news/260216-01/>

<sup>18</sup> Future Energy Efficiency Policy number 550 February 2017, House of Parliament-Parliamentary Office of Science & Technology, p2, p3

<sup>19</sup> Action for warm homes, <http://www.nea.org.uk/media/news/260216-01/>



## Innovation

The key driver and differentiation to other green energy producers is our approach to cut energy usage, without needing to change the usual comfort levels or living patterns. Taking away accustomed comfort is not a path which will lead to success.

Verdabelo has remodelled the stale business model of the installation market, and streamlined process, by eliminating duplications and increasing transparency in an otherwise generally murky business model<sup>20</sup>. As reported in the Postnote Number 550 from February 2017 by the House of Parliament, “confidence in energy efficiency measures has been eroded by instances of poor quality installations”<sup>21</sup>. Not only the poor quality of the installation is eroding the trust of the customers, but also the hidden costs of such a purchase might inhibit household owners in going through with the acquisition.

The company envisages that its business model will lead the marketplace to become fairer and more transparent. In turn, similarly to the low-cost air-travel, this will ultimately lead to a lower cost base for clients, which in turn will accelerate the desire to transit to more energy efficient equipment, decarbonise the UK’s energy system, and improve our energy self-sufficiency and thus the UK’s energy security.

The second core element is to make these improvements to households at the lowest possible price point. Most households simply don’t have the ability to exchange energy inefficient equipment, and if it competes with pleasurable expenditures, then it will be delayed or not executed at all.

As such, cost neutral and effortless are the mandatory drivers to “on-board” the population at large.

It is much easier, faster and more cost efficient to cut the energy consumption on the demand side. By cutting consumption in the first instance, we ultimately cut the need for additional energy production and transmission infrastructures that are capital intensive. By cutting the demand side we allow for the early retirement of highly polluting “dirty energy” power stations and the rebalanced contribution of “green energy” in the energy mix is substantially increased.

To achieve this, Verdabelo’s products must appeal to consumers to realise this ambition, and it needs to be cost neutral to the household. To do this, Verdabelo must strive to innovate, drive costs down by reaching scale, market in innovative and low cost ways and create interesting products that facilitate this engagement.

The board member in charge of environmental impact management is the firm’s CEO. The entire company was founded on the belief that environmental issues need to be tackled in order for future generations to be able to enjoy a cleaner and greener planet. The composition of the board was based on the key criteria: to improve energy efficiency and cut down the CO<sub>2</sub> emissions. The company will do everything in its power to keep this mission as the driver, and not drift away from it in the future.

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<sup>20</sup> Future Energy Efficiency Policy number 550 February 2017, House of Parliament-Parliamentary Office of Science & Technology, p2, p3

<sup>21</sup> Ibidem, pg 2



### 3. Beneficiaries

Below is an outline of some of the key beneficiaries of Verdabelo's business model, their identified needs, and detail as to how they are affected.

#### Customers

Of the 23.4 million homes (or households) in England and Wales on census day in March 2011, 15 million (64%) were owner occupied and 8.3 million (36%) were rented<sup>22</sup>.

The majority (91%) of owner occupied households lived in a whole house or bungalow, while for those renting, 56% lived in houses while the remaining 44% lived in other accommodation such as flats<sup>23</sup>.

The most common number of bedrooms in a home was three. However, there were twice as many owner occupied households with three or more bedrooms (74 %) when compared with rented households (37%).

Overall, two person households were the most common household size across England and Wales. However, looking only at rented accommodation, one person households were more frequent at 38%.

Among owner occupied households containing one person, 90% lived in homes with two or more bedrooms, compared with 49% of one person households in rented homes.

Focusing on the household reference person ("HRP") who is the oldest full-time worker in most households or a person chosen from the household based on their age and economic activity status, 76% of those aged 65-74 owned their own homes - the highest across all age groups. The proportion of owner occupiers among those aged 25 to 34 has declined from 58% in 2001 to 40% in 2011<sup>24</sup>. Looking at the employment status of HRPs, owner occupiers were more likely to be in work than those renting, at 68% and 57% respectively.

Our target market at present is the "owner occupier" in an income bracket of 40 to 60K GBP<sup>25</sup>. Due to FCA requirements we are technically extending a loan, whilst practically we are providing a "pay as you save" facility. As such the "affordability test" needs to be considered. Our credit vetting process takes into account the effect of the potential savings.

Our firm will in due course focus on the rental sector as well. There is a fundamental in-balance between the benefit to tenants and landlords. Whilst it is the landlords responsibility to pay for a new and efficient boiler it is the tenant who benefits from the lower energy costs. Whilst many tenants are in the lower income bracket the landlord is not motivated to exchange the heating system, as such accentuating the energy poverty aspect. Verdabelo will actively seek to devise models whereby this contrary interest gap will be addressed.

It should be noted that our ability to propose heating system replacements under favourable terms is

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<sup>22</sup> Part of 2011 Census, Detailed Characteristics on Housing for Local Authorities in England and Wales Release, <http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/census/2011-census/detailed-characteristics-on-housing-for-local-authorities-in-england-and-wales/short-story-on-detailed-characteristics.html>

<sup>23</sup> Ibidem

<sup>24</sup> Ibidem

<sup>25</sup> Ibidem

only possible because of our fresh approach. Every boiler, or heating system retrofitted helps to reduce the gas consumption, therewith freeing up cash increasing the disposable income of the households. By fitting the latest technology, supported by a 10-year warranty, households are able to enjoy a carefree utilisation of the system, subject to regular maintenance, which gives peace of mind, at no additional cost.

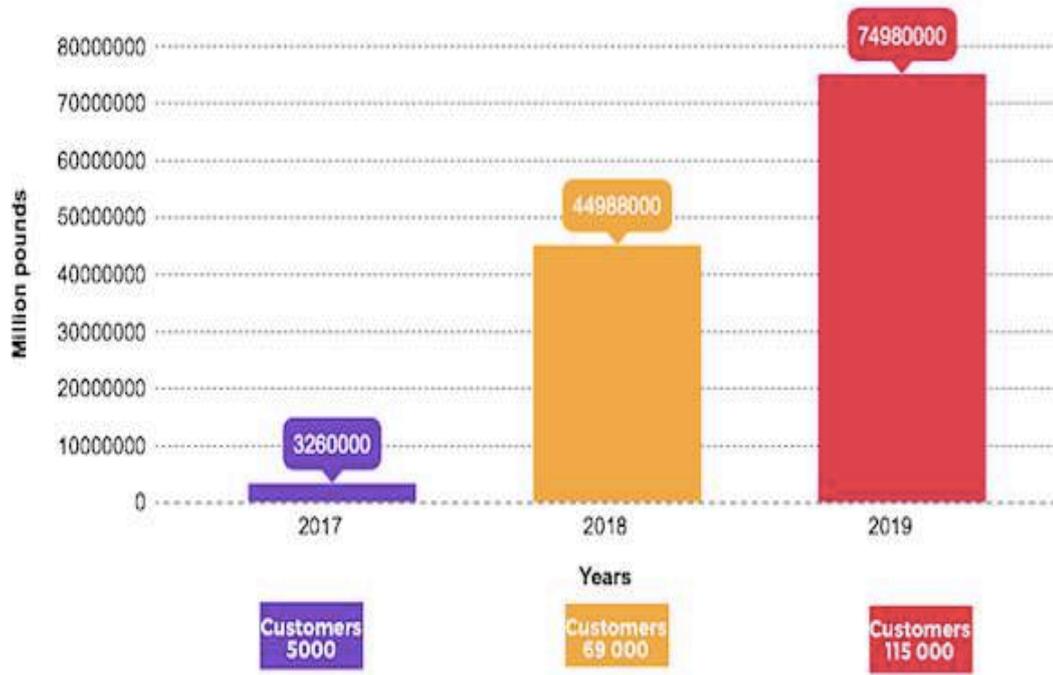
In the next 3 years we made the following projection in terms of clients. We start in 2017 with 5000 clients, reach 69 000 in 2018, and 115 000 in 2019.

### Projection of customers over 3 years



## Savings made per household with our heating system

Total annual savings for all our customers/year pre Verdabelo payment



\*The amount used for calculating the savings was £652 (refers to a detached home that had an old-style heavyweight boiler that was replaced with a modern condensing boiler (SEDBUK and official website Which). The number of customers was the companies projection for 3 year.

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A crucial difference between our approach and the traditional solutions, is the care we have for our customers on the long term. As presented in the prior chapter of this report the cost of unexpected boiler breakdowns can substantially affect a household disposal income as it is ranging from £270 up to £1,250 (a quarter of a million households were charged with this unexpected amount)<sup>27</sup>. Therefore our 10 year Warranty helps our clients to have peace of mind and to avoid costs with regards to boiler breakdowns.

<sup>26</sup> the amount of £652 refers to a detached home that had an old-style heavyweight boiler that was replaced with a modern condensing boiler. Article on the official webpage of Which, [www.which.co.uk](http://www.which.co.uk), <http://www.which.co.uk/reviews/boilers/article/5-things-you-need-to-know-before-you-buy-a-new-boiler> and SEDBUK official website

<sup>27</sup> Helen Cahill, "Boiler breakdowns cost the UK £787m in bills last year", City AM, 17 February 2017, <http://www.cityam.com/259069/boiler-breakdowns-cost-uk-787m-bills-last-year>



## The Environment

One of the company's key tenets and business drivers is to contribute in a sizable way to the reduction in CO<sub>2</sub> emissions and the improvement in air quality which is a key driver in premature death rounding up to almost 40,000 in 2012<sup>28</sup>.

With the building sector accounting for about 40% of global emissions<sup>29</sup>, targeting this sector appears to us a scalable market segment not only for the UK, but on an international basis.

“What does not get burned does not emit”. This basic summary is the immediate benefit on a path to CO<sub>2</sub> reductions. This can be achieved within a relatively short time i.e. between 2 to 4 weeks of a household engaging with us. This helps to reduce anthropogenic climate change and keep the world a habitable place. Verdabelo wants to help the UK reach its legally binding targets to reduce greenhouse gas emissions by 80% by 2050 on 1990 baseline levels<sup>30</sup>. This is not just good for the environment, but also beneficial for the UK.

Aided by the tree-planting effort and our recycling policy, we believe that we are not only dealing with the direct drivers of CO<sub>2</sub> emissions, but that we are contributing to raising awareness and creating indirect benefits.

Verdabelo tracks the amount of carbon emissions it is able to abate in the UK. At the annual anniversary of every install and for the duration of the contract period the household is required to share with us the actual consumption data. Through this process we will be able to capture real data about the effective reductions in energy consumption. The permanent CO<sub>2</sub> savings over a 3 year projection are cumulative, making the total of 536,000 tonnes of CO<sub>2</sub> until 2019.

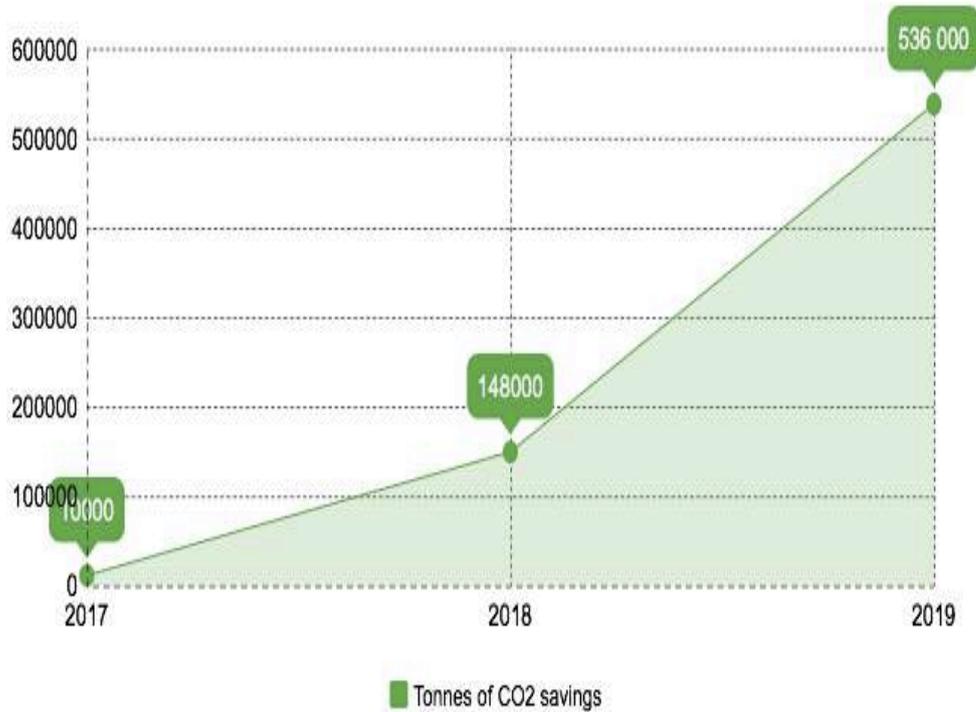
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<sup>28</sup>Air quality in Europe — 2015 report, <http://www.eea.europa.eu/media/newsreleases/many-europeans-still-exposed-to-air-pollution-2015/premature-deaths-attributable-to-air-pollution>

<sup>29</sup> Perez-Lombard Luis, Ortiz J. and Pout C., *A review on buildings energy consumption information*, Sustainable Energy Centre, BRE, Watford, United Kingdom, 12 March 2007, <http://seedengr.com/A%20review%20on%20buildings%20energy%20consumption%20information.pdf>

<sup>30</sup> The Climate Change Act 2008 [http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga\\_20080027\\_en.pdf](http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf)

## Permanent CO2 savings over 3 years



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## UK Government and Regulatory Environment Summary

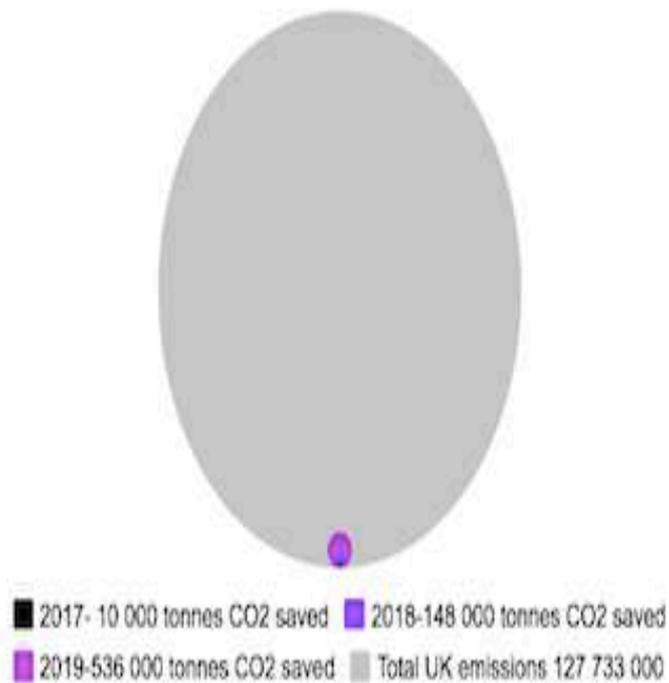
Verdabelo wishes to contribute to the UK Governments legally binding targets to reduce greenhouse gas emissions by 80% by 2050 on 1990 baseline levels<sup>32</sup>. 39% of the UK's carbon emissions come from the building sector, the biggest single contributor to those emissions<sup>33</sup>. Improved long-term UK energy security through increased energy self-sufficiency, and reduced reliance on imported fossil fuels.

<sup>31</sup> Energy Saving Trust, *Domestic heating by gas: boiler systems – guidance for installers and specifiers*, p 33, <http://bpec.org.uk/downloads/CE30%20-%20Domestic%20heating%20by%20gas.pdf>

<sup>32</sup> Ibidem

<sup>33</sup> Perez-Lombard Luis, Ortiz J. and Pout C., *A review on buildings energy consumption information*, Sustainable Energy Centre, BRE, Watford, United Kingdom, 12 March 2007, <http://seedengr.com/A%20review%20on%20buildings%20energy%20consumption%20information.pdf>

## Verdabelo's contribution to the reduction of the CO2 tonnes in UK projection over 3 years



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Whilst over a 3-year period the amounts appear small, over a longer time period the cumulative effect of permanent CO<sub>2</sub> abatement is considerable.

As a firm regulated by Financial Conduct Authority Verdabelo is required to act with the best interest of its clients. The firm regularly reviews its systems to remain aligned with all aspects of its regulatory requirements and trains its staff in the requirements of operating within a regulated environment.

<sup>34</sup> *Greenhouse gas emissions by economic activity (thousand of tonnes of CO2 equivalents)*, [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Greenhouse\\_gas\\_emissions\\_by\\_economic\\_activity\\_2014\\_\(thousand\\_tonnes\\_of\\_CO2\\_equivalents\)\\_YB17.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Greenhouse_gas_emissions_by_economic_activity_2014_(thousand_tonnes_of_CO2_equivalents)_YB17.png)

Engagement with beneficiary	Activities	Outcomes for beneficiary
<b>Homeowners</b>		
Verdabelo engages directly with the homeowners meeting their needs.	Perform credit checks and provide them with a state of art heating system, installed by a certified gas installer.	<p>Help the reduce their gas bills and help them save up to £652/ year</p> <p>Complete control on their consumption due to the smart controls that the heating system is provided with.</p>
<b>The Environment</b>		
	Reduce the emission of CO <sub>2</sub> due to the efficiency of a new heating system/	Helping to reduce CO <sub>2</sub> emissions between 1.32 tonnes-2.5 tonnes/ year/client.
<b>Government</b>		
Through our actions we support the government to keep the targets that were set in the Climate Change Act.	Installing our heating system in UK households we are helping 2.4million household that are considered to be in fuel poverty <sup>35</sup> . Household that the Government at this point cannot help, thus leaving them in this unfortunate category.	Contributing to achieve the UK's greenhouse gas abatement targets.

<sup>35</sup> Future Energy Efficiency Policy number 550 February 2017, House of Parliament-Parliamentary Office of Science & Technology, p2, p3

## 4. Activities and Operation

Verdabelo's main business activity is directly aimed at tackling the challenges of rising energy costs, reducing carbon emissions and improving the security of supply. Verdabelo undertakes a range of activities and operations to achieve its vision of providing consumers with the choice to help tackle climate change and make the UK more energy self-sufficient.

### Procurement Policies

Verdabelo believes that resources are precious and should not be used wastefully; wherever possible waste should be reduced, reused or recycled. The company makes recycling facilities available within the team kitchen. All departments have paper and cardboard recycling bins.

### Alignment of revenue generation and delivering outcomes for beneficiaries

Any investment made into Verdabelo would be used to educate our consumers with regards to energy efficiency and in marketing our products. With each boiler installed, we are closer to reaching our targets in the reduction of CO<sub>2</sub> emissions. Verdabelo's revenues are directly aligned with delivering environmental outcomes. For every boiler installed we are expecting that we will be able to reduce carbon emissions by at least 1.32 tonne/year<sup>36</sup>. As such, each additional customer to Verdabelo's client base increases the CO<sub>2</sub> abatement and grows the level of Verdabelo revenue. As in the earlier part of this report with a base of 115,000 clients (2019) we will save around 536,000 tonnes of CO<sub>2</sub>.

There are three market segments:

- Distressed
- Considered
- Planned

We will not be able to have a significant part in the Distressed market segment, as it calls for an immediate action and this will not work with our 2-week regulator imposed cooling-off period.

So our proposition is very well suited to the Considered and Planned market segment. Here our clients are able to do their research and compare our offering.

Our points of differentiation are:

- The system is interest free;
- There are no hidden costs;
- The customer shares the energy savings and;
- There is a simple, low monthly payment

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<sup>36</sup> Energy Saving Trust, *Domestic heating by gas: boiler systems – guidance for installers and specifiers*, p 33, <http://bpec.org.uk/downloads/CE30%20-%20Domestic%20heating%20by%20gas.pdf>



## Marketing Strategy

Our strategy is to establish the Verdabelo brand as the environmentally friendly and affordable alternative to the current offerings. The objective is to achieve 50 proofs of concept sales. This will enable stress testing of systems and processes. It will also find weaknesses and opportunities. Following this, the aim is to quickly reach the minimum viable proposition of 150 units per month.

The tactics will be:

- To replicate one-to-one / face-to-face communication through the medium of highly targeted direct mail;
- To service the current on-line demand for replacement boilers on finance, albeit small;
- To build a referral programme from existing customers (member-get-member); and

To utilize our partner installers for referral of customers. Driven by 4 key drivers:

- Social media
- Raising physical interest at home improvement venues
- Bring a friend
- Referrals by installers

We understand that the best cost per lead is social media. This will generate the best return on our marketing budget, fully well understanding that we will initially have a rather high client acquisition cost, as we are not the natural port of call, in an installer driven market with app. 100,000 installers out in the field, who clearly will try to maximise income for themselves and for whom our business model is a serious threat, as it eats into their ability to be in-transparent. We know from discussions, that the ultimate driver in many estimates from installers is “convenience & what can I get away with”.

Once we enter the market segment of “Considered & Planned” the picture changes, as it is clearly more research driven. We understand that there are about 3 Mio searches in our target age bracket ranging from 35 to 65 about heating and boilers in the south east of England on its own. Being able to get traction in this segment is our focus mainly by Facebook and Goggle adds and so called retargeting to reach our target group.

We know from various sources that many boiler retrofit will happen during a house improvement exercise. As such we want to focus our physical presence in such venues and on exiting the parking lots, where we can propose our leaflets to households. We believe that we need to use the mind-set openness of our target audience to get them to look at our proposition. And here the cost reduction is our key driver.

As the first 2 groups are costly client acquisitions, we expect to average our costs down by asking our client base to refer clients to us. We intend to do this by creating a logo which we could place on client's fences, showing off their credentials as “environment conscious” households. This creates then a talking point with neighbours. Furthermore, we propose to households a fee equal to a 1 month installment for referring us such clients. Furthermore, every client which is referred to us gets as a reward a M&S voucher for a dinner for 2.



Finally, we understand from our installers, that very often they are fixing boilers which are already in very sad state of repairs, but the households are simply not in a position to replace them due to financial restraints. In these occasions, we reward the installer with a fee for referring this client to us.

As a general policy, we will be present at a social event and will support churches and local sporting events, in turn giving an audience for our message.

## 5. Stakeholders

Verdabelo's business involves a variety of stakeholders. The prime ones are our main beneficiaries presented at an early stage of this report i.e. *the homeowners, the environment* and the *UK Government*, followed by our different groups touched by our activities such as our prison program, the NHS, the data providers on energy efficiency and our investors.

### Prison inmates

As presented in the first part of this report once a boiler is decommissioned, it is taken, to Maidstone prison. Here the boilers are disassembled into its various pieces, which then are being sold for scrap and those parts which constitute hazardous waste will be properly disposed of. The prison inmates that will work at disassembling the old boilers, will benefit, by generating revenue and they will have a purpose. This activity can be extended and possibly will help them when they will start the reintegration process into society.

From the discussions that we had with the Industries Manager from HM Prison Service (Maidstone), we understood that about 10-15 inmates will be working at disassembling our boilers in the first year. This number is expected to grow at Maidstone prison and once we will start the national roll out we will be replicating this in other detention centres. Subject to reaching our target of 115,000 of boilers in 2019, the number of inmates that will be working at disassembling our boilers will grow exponentially with the growing of our business.

### NHS

One of the company's key tenets and business drivers is to contribute in a sizable way to the reduction in CO<sub>2</sub> emissions and the improvement in air quality which is a key driver in premature death rounding up to almost 40,000 in 2012<sup>37</sup> in the UK. This should lead to lower spend from national budget towards related health issues. The most vulnerable groups to air pollution are children and the elderly. In 2014-2015 the average public spending on health services reached £2,057<sup>38</sup> per person. Furthermore specific treatments relating to respiratory causes ranges from £690 for asthma up to £3340 for respiratory failure both being directly caused by air pollution<sup>39</sup>. By reducing CO<sub>2</sub> emissions with app. 2 tonnes per household, we will start improving air quality, thus improving the health of vulnerable groups and lowering the costs for the public spending on health services that are directly linked with respiratory issues.

### Data providers on energy efficiency

Data in the energy saving arena is inaccurate and mostly based on estimations. Verdabelo gather raw real time data from their clients. By doing so we will be able to track our progress and over time improving the accuracy of data with regards to the savings in terms of energy, the financial savings, the reduction of consumption and CO<sub>2</sub> emissions. Once we will start generating a relevant amount of numbers we will start contacting various data providers for a possible collaboration.

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<sup>37</sup>Air quality in Europe — 2015 report, <http://www.eea.europa.eu/media/newsreleases/many-europeans-still-exposed-to-air-pollution-2015/premature-deaths-attributable-to-air-pollution>

<sup>38</sup> NHS statistics, <http://www.nhsconfed.org/resources/key-statistics-on-the-nhs>

<sup>39</sup> The Guardian official website, "How much have I cost the NHS" <https://www.theguardian.com/society/ng-interactive/2016/feb/08/how-much-have-i-cost-the-nhs>



## Investors

The green arena within wealth management is looking for a rebalancing of their portfolios with a heavier weighting towards the “sustainability sector”. Unfortunately there is a substantial in-balance between capital wishing to enter the sector and “market-size opportunities”. The underlying strategy at Verdabelo creates an opportunity that can be scaled rapidly, from a regional to a national scope followed by a continental European and ultimately a global dimension.

The expected scaling of Verdabelo, will offer capital market products to equity as well as debt market investors as such offering opportunities to the various risk profiles and asset classes.

- Verdabelo has a variety of shareholders, including both institutional, retail and customer investors.
- We actively promote our company as a social business, as engaging with the general public is a key driver for educating and ultimately executing on the need for CO<sub>2</sub> abatement.
- Verdabelo issues an Annual Report for its investors and carries out a series of investor presentations.
- Over the past years the Corporate Social Responsibility sector has seen a large influx of capital, which is faced with a restricted opportunity field. Verdabelo PLC offers the opportunity for investors to deploy their capital depending on risk appetite in the various share classes and in debt products backed by the energy saving agreements.
- The company has raised capital from friends and family at 4p/share in 2015 and at 10p/share in 2016. We expect to raise capital in the next round to a valuation similar or above the latest round.

## 6. Evidencing Social Value Summary

Verdabelo is committed to disclosing key information about its social impact through an Annual Impact Report and on-going communications with the Company's investors and other stakeholders. As outlined earlier, Verdabelo's vision and activities directly involve environmental outcomes, social and financial outcomes for a range of beneficiaries. Environmental and social outcomes are considered by Verdabelo on an on-going basis within its business and strategic planning processes.

Traditional Boilers



A typical boiler installation costing anywhere between £3,000 and £5,000 (which?)



A new boiler bought through money payments can sum up an interest of 4.5% up to 15% rising the costs for such a scheme to around £4500



A breakdown of a boiler its costing a client between a minimum of 270£ up to £1250. The traditional solutions are providing warranties from 2 years up to 7 leaving clients with future high costs if breakdowns will happen.



If the new boiler is not an A or B SEDBUK range then the CO2 emission will still be very high not making a difference that a new boiler was installed

## Our Solution



Our clients pay £36/ month for 7 years at a 0% interest and a £99 one off payment for a new A efficient heating system



With us our clients will save up to £625 on their gas bills (depending on the property\*), thus in most cases the savings should be covering the payments towards us.



For extra peace of mind we provide our clients a 10 year warranty



We protect the Earth by saving 1.32 tonnes of CO<sub>2</sub> up to 2.5 tonnes of CO<sub>2</sub>/ year per each client

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Evidencing social data

<b>Increase energy efficiency and increase disposable income for households</b>	The replacement of an old boiler with the one we propose will increase the energy efficiency of the household as the Greenstar Worcester has a 90% A class efficiency (SEDBUK)	Each household that would change their boiler would save between £300 up to £652 (taking into consideration the 10 Warranty that we provide, the above number is expected to rise due to reduced costs of boiler breakdowns)
<b>Cut down CO<sub>2</sub> emissions</b>	With each boiler we change we will save between 1.32 to 2.5 tonnes of CO <sub>2</sub>	With our projection we would over the next years permanently save a total of 536,000 tonnes of CO <sub>2</sub> .
<b>Prison inmates</b>	Maidstone Prison	10-15 prison inmates will work at disassembling the old boilers. The number will increase exponentially with the growth of the company
<b>Trees</b>	1 Hectare of tree locks up 1 household emissions CO <sub>2</sub> / year.	We plan to support projects like Trees for Cities, by doing so sequestering also the emissions that our boilers would emit.  5000 Hectares of tree locks up to 5000 household emissions CO <sub>2</sub> / year.
<b>Fuel poverty and NHS</b>	40,000 deaths in the UK due to air pollution. Expenses for respiratory related treatments due to air pollution are comprised between £690 up to £3340	The number of deaths and the expenses for respiratory related treatments would be tackled in our proposal. With better air, we are sure that this numbers would decrease, or at least stop growing.
	2.4 million people in the UK live in fuel poverty.	Our proposal would help household that are in financial difficulties to be able to enjoy a proper heated home at a fair price.

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## Future plans

Once the company has reached critical mass in its key “boiler re-placement program” it intends to roll out its simple business model to Continental Europe and other locations.

Whilst we are starting off by retrofitting heating systems, the business model will be adopted to other countries to replacing cooling systems which are outdated and energy inefficient.

It is furthermore envisaged to market other energy savings proposals to households such as washing machines, freezers and LED lighting.

In essence the company intends to adapt its business model to energy consuming household appliances with clear focus on proposing replacement not due to breakdowns, but due to energy inefficiency. With the objective of making the replacement on a pay-as-you-save, thus a basic zero-sum game for the household.

In due course the company intends to acquire similar businesses, which can be horizontally or vertically integrated. This will enable the company to be engaged in larger scale energy saving proposition.

## 7. External Risks and Opportunities

	Risk	Mitigation/Opportunity
<b>Government policy and regulations</b>	Change frequently at short notice.	This is likely to be ever more supportive of Verdabelo's activity
<b>Technology</b>	Technological changes may render existing technologies and installations obsolete.	The model enables us to be flexible and fleet of foot, making changes quicker than the large established players
<b>Gas supply</b>	Gas prices and costs can go up.	Sharing the savings and reduced overall cost plays to the benefits of Verdabelo
<b>Misaligned incentives</b>	In the private rented sector, the financial reward for installing energy efficiency measures (through reduced energy bills) usually benefits tenants rather than landlords, which means that there is no direct financial incentive for landlords to install energy efficiency measures in their properties.	This represents a very large area of opportunity.
<b>Hassle</b>	The installation of energy efficiency measures can be disruptive, which can put off potential adopters.	Our message must be simple and communicated clearly.
<b>Lack of prominence and information</b>	For many households and non-energy intensive businesses, saving energy is not a priority. Householders are generally more interested in the comfort and value of their homes. These factors may also mean that consumers do not seek information about opportunities for saving energy and money.	Our message must be simple and communicated clearly.
<b>Poor return on investment</b>	Energy efficiency measures are less attractive to businesses when the payback time is longer than for	We have structured a deal whereby Verdabelo effectively securitises the debt to enable capital to be used

business growth projects. efficiently.

**Low consumer confidence** Confidence in energy efficiency measures has been eroded by instances of poor quality installation under Government-supported programmes and discrepancies between proposed and realised performance. We intend to build a good reputation using the best products and installers.

**Difficulty accessing finance** A lack of finance to pay for the up-front cost can be a barrier to their installation. Our products have a low monthly payment that is interest free.

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APRIL 2017

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