ALIGN
RESEARCH

Inspirit Energy

13th June 2016

On the cusp of cogeneration commercialisation & trading at a fraction of replacement IP cost

CONVICTION BUY

Inspirit Energy (INSP) is a Sheffield based developer of micro Combined Heat and Power (mCHP) boilers which produce both useful heat and electricity at the same time from an energy source. The technology has a number of benefits including lowering utility bills for customers and significantly lowering carbon dioxide emissions.

The Inspirit Charger to be launched shortly

Since coming to market in 2013 via a reverse takeover, Inspirit has spent c.£4.5 million on developing its flagship product - the Inspirit Charger. Trials of the appliance have shown the Charger can generate simultaneous output of 15kW thermal (heat) and up to 3kW electrical per hour**. With field trials imminent the Charger is shortly set to be launched commercially.**

Benefits give the potential to become the UK's leading mCHP product

With the price of electricity typically being 4 to 5 times the price of gas, substantial savings can be made on utility bills from using the Charger, **even without the benefit of Feed in Tariffs**. The Charger has a number of other benefits for customers including a fast payback period, easy installation and low maintenance costs.

Current valuation looks cheap based on several metrics

While Inspirit remains a highly speculative investment we believe the shares now offer a good risk/reward opportunity at the current price of 0.41p. The shares currently trade at a discount to the 2013 reverse takeover price and a substantial discount to the re-creation cost of the product and technology. Should the company meet even our lowest fair value price we see 49% upside from current levels. **We initiate coverage of Inspirit Energy with a Conviction Buy stance.**

Table: Financial overview

Year to end June	2012A	2013E	2014E	2015E
Revenues (£m)	0	0	0	0
Pre-tax (£m)	(0.13)	(0.1)	(1.38)	(0.78)
EPS (p)	(0.22)	(0.02)	(0.24)	(0.08)

Source: Company accounts

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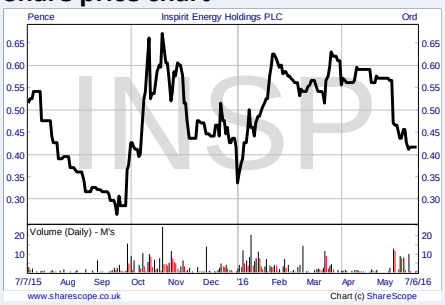
Key data

EPIC	INSP
Share price	0.41p
52 week high/low	0.26p/0.67p
Listing	AIM
Shares in issue	936.81m
Market Cap	£3.89m
Enterprise value	£4.19m
Sector	Engineering

Share price chart



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The Business and Technology

Inspirit Energy (INSP) is a Sheffield based developer of micro Combined Heat and Power (mCHP) boilers. The underlying technology is based on cogeneration" - also known as combined heat and power, or CHP – the production of both useful heat and electricity at the same time from a single energy source.

This simultaneous output facilitates a much more efficient use of energy inputs compared to traditional condensing boilers (which only produce heat), with 90%+ of the gas supply used in mCHP boilers being converted into a combination of useful heat and power. **This is also in contrast to traditional forms of energy generation, such as coal fired power stations, which can lose up to 65% of their energy input via heat and transmission losses.**

As such, the promotion of the technology is high on the agendas of both energy industry bodies and governments which have legally binding targets to reduce greenhouse emissions. According to the latest data from the Digest of UK Energy Statistics there were 2,066 CHP schemes in effect in the UK in 2014 and which saved an estimated 13 million tonnes of carbon dioxide equivalent emissions – almost 10% of the government's reduction target.

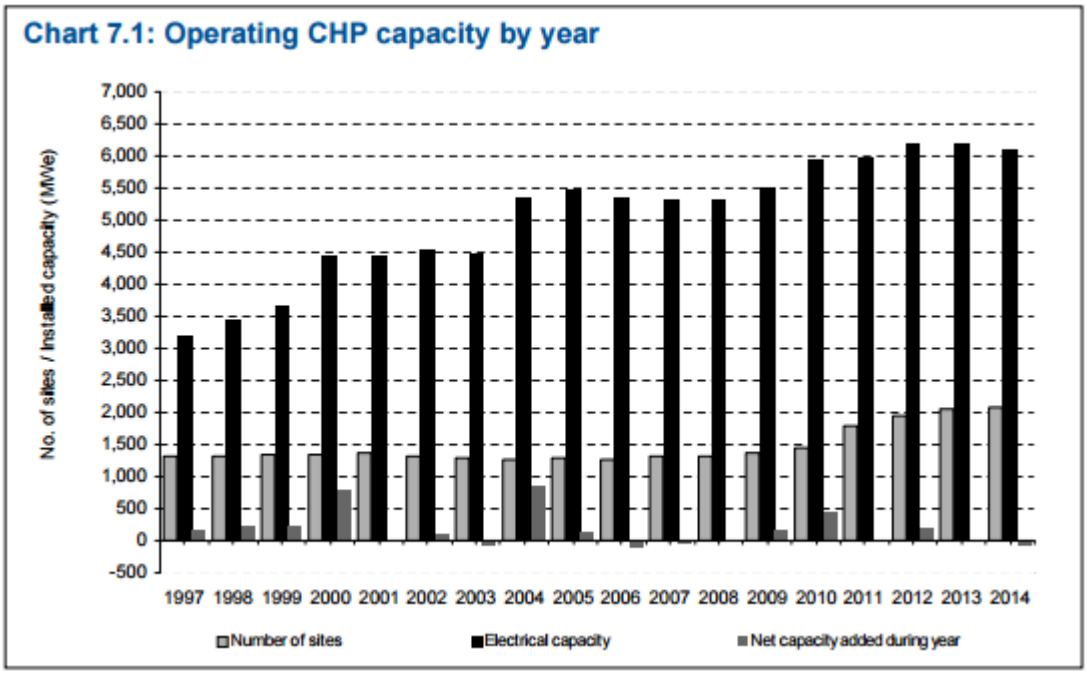


Chart: UK installed CHP capacity. Source: 2015 Digest of UK Energy statistics

mCHP

As the chart above illustrates, cogeneration is an established technology in the UK, but predominantly at the industrial scale at present. The word "micro" in mCHP refers to the technology being used on a much smaller scale, typically within a residential or commercial setting.

While mCHP boilers themselves are not generally considered to be a renewable energy source at present, due to their efficiency they can help to significantly lower carbon dioxide emissions, and since power is created on site, losses from transportation and heat transfer are also much lower. Hence, governments, energy firms and environmental bodies around the world are keen on promoting the advancement of the technology.

Corporate history

Development of the company's mCHP technology began in the early 1980s at Lund University in Sweden, in collaboration with Swedish ship and submarine builder Kockums. Subsequently, in 1985 the project was taken over by Norwegian engineering company Sigma.

Inspirit Energy then acquired the rights to the mCHP technology in 2011. The technology was bought out of administration from former TSX Venture Exchange listed Disenco Energy which had developed its own mCHP unit named the HomePowerPlant. However, due to both technical and economic reasons the boiler was not a commercial success.

In July 2013, Inspirit came to market via the reverse takeover of AIM listed KleenAir Systems. In an all share deal, KleenAir bought the 82.95% of Inspirit that it did not own at the time for £3.5 million, **valuing Inspirit at c.£4.2 million.** The company also raised £410,000 at the time for working capital purposes. A total of c.£4 million has been raised since this point via a mix of debt and equity which has been used to develop the initial prototype into a functioning product, complete internal testing, set up a sales and marketing team and prepare the Charger for external trials.

Fundraising history

Inspirit has taken a "tranche" like approach to financing during its life as a public company, with a range of both equity and debt fundings and which have been completed in line with expected expenditures.

29th August 2013 – raised £175,000 via a placing at 1.3p per share.

13th September 2013 – raised £472,000 via a placing and equity swap agreement with YA Global Master SPV at 2.8p per share. The swap facility is now inactive.

25th February 2014 – raised £250,000 in a placing at 2.2p per share.

26th June 2014 – raised £1 million via a placing at 1.4p per share.

10th December 2014 – Agrees £500,000 loan facility with two directors.

10th February 2015 – raised £350,000 at a price of 0.9p per share.

7th May 2015 – agrees a $3 million debt facility with YA Global Master SPV and draws down an initial $400,000. Inspirit has stated that it does not intend to use the remaining facility in the foreseeable future.

17th July 2015 – raised £365,000 via a placing at 0.47p per share.

17th May 2016 – raised £750,000 via a placing at 0.5p per share.

Inspirit Charger

The company's flagship product is the Inspirit Charger, a highly efficient mCHP boiler, which is able to run on natural gas, propane and bio fuels to simultaneously produce both heat for tap water and central heating, along with electricity. Just like in a standard boiler, the Inspirit Chargers have a gas burner which heats water. But the burner also takes the waste heat and drives a "kinematic Stirling engine", which in turn generates electrical power. The basic idea behind the engine was developed by Robert Stirling in 1816 and along with Internal Combustion Engine (ICE) technology is the main type of technology currently used in mCHP boilers.

The electricity generated within mCHP boilers can be used either for on-site power needs or sold back to the electricity grid, potentially benefitting from Feed-in-Tariffs (or FiTs, a UK government incentive designed to encourage uptake of "green" energy), thus providing high economic incentives for their use as electricity bills can be correspondingly reduced**. The Charger is appropriate as both a boiler replacement and as an add-on to existing plant rooms, thus widening the potential market for its use.**

A prototype of the appliance has been independently tested and shown to be capable of simultaneous generation of up to 15kW thermal (heat) and up to 3kW electrical output per hour. Thermal efficiency has been demonstrated at 76%, with electrical efficiency of up to 16% resulting in overall energy conversion efficiency of 92% - meaning only 8% of the energy input is lost.

Inspirit Charger

Products

Inspirit is focused on bringing two distinct products to market - both named the Inspirit Charger, for which UK and EU trademarks have been received. They target two separate types of customer who have differing heat and electricity needs.

Firstly, the **Inspirit Charger 3.0,** which produces 15kW thermal and up to 3kW electrical output per hour, will be targeted at the SME market – venues such as gyms, hotels, care homes and other similar sized business which have high heating and electricity needs. The Charger itself is a freestanding appliance weighing c.120kg, about the size of a washing machine, so suitable for installation in plant/utility rooms. Depending on the size of the business it can be installed as a stand-alone appliance or as the lead appliance in a multiple of units in an existing plant room.

Secondly, the **Inspirit Charger 2.0,** which produces 10kW thermal output and 2kW electrical output, will be focused on the larger domestic market – typically houses with 3 to 4 bedrooms and above. **Inspirit does not intend to compete in the smaller residential market (houses with 1 to 2 bedrooms) which is more suited to mCHP boilers with c.1kW of electricity output.** The two product focus comes as the UK government's Feed-in-Tariff is not currently available to mCHP units with a rated electrical output higher than 2kW. Hence, the 2.0 offering will be much more economically compelling to domestic customers.

Product Benefits and Competitive Advantages

Cheap electricity and utility bill savings

The clear economic attraction of the Inspirit Charger is that it can provide customers with electricity to power its premises in addition to the heat generated. With the price of electricity (the output) typically being 4 to 5 times the price of gas (the input), substantial savings can be made on utility bills. The two major factors affecting the economics of mCHP boilers are the relative cost of the input (gas) and the amount of electricity that can be generated for on-site use (and potentially exported to the grid).

To take a simple example: an mCHP boiler consuming a gas input of 20kW would produce c.3kW of electrical output and c.15kW of heat output at an overall 92% efficiency – a level which has been demonstrated by the Inspirit Charger in trials. **Assuming a gas price of 2.25p/kWh and electricity price of 12p/kWh that means 36p (3kW x 12p) of electricity has been self-generated and 37p (15kW x 2.25p/kWh x1/92%) of heat, totaling 73p, on a total input bill of 45p (20kW x 2.25p), assuming the electricity and heat are consumed on site, so providing a saving of 73p – 45p = 28p. This compares to no savings at all from a non-mCHP boiler, which only generates heat.**

Shorter payback period compared to rival appliances – a compelling "in marketplace" proposition

The payback period for the Charger 3.0 (with no tariffs) based on 7,000 hours of use per annum (only likely to be achieved in a commercial setting) is estimated by the company to be 4.9 years – also assuming a purchase price of £10,000, installation cost of £1,500, maintenance at £100 per annum, a gas price of 2.25p/kWh and electricity price of 12p/kWh.

The Inspirit Charger is expected to have a faster payback period compared to rival Internal Combustion Engine (ICE) based mCHP systems. This is largely because ICE appliances require specialist engineers for their installation and thus incur additional costs. Maintenance costs for a 2kW ICE have been assumed at £500 per year against £100 for a Stirling engine.

Table: Payback period of Inspirit Charger vs ICE appliances

Inspirit Charger	Electricity output	First year saving	Installed price	Payback (years)
High end domestic - with FiTs	2kW	£2,082	£11,500	5.2
Smaller commercial - with FiTs	2kW	£3,611	£11,500	3.1
Smaller commercial - without FiTs	3kW	£2,082	£11,500	4.9

Internal Combustion Engine (ICE)	Electricity output	First year saving	Installed price	Payback (years)
High end domestic - with FiTs	2kW	£2,040	£14,000	6.3
Smaller commercial - with FiTs	2kW	£3,569	£14,000	3.7
Smaller commercial - without FiTs	3kW	£2,020	£16,000	6.7

Source: Inspirit Energy

The Inspirit Charger has been designed for volume manufacture so over time, as manufacturing is scaled up, the purchase price of the Charger is expected to fall, thus improving the economics of purchase and shortening the payback period. **The offering of lease finance in the future is an important aspect as it removes the payback period analysis for customers and could offer them immediate savings.**

Easy installation and low maintenance costs

Installation of the Charger is expected in less than a day. Also, the unit will have low maintenance costs as it only requires the same level of servicing as a standard gas fired boiler due to Inspirit's "Sealed for life" guarantee. This means that the Stirling engine at the heart of the unit requires no maintenance during its lifetime, with the whole unit needing no more servicing than a standard condensing boiler. **This is a significant point as customers will be able to rely instead on the existing UK installer base of around 50,000 Gas Safe accredited gas engineers.**

Other benefits

The Charger also has a number of other benefits for customers including a reduced dependence on grid supply as power is generated on site, quiet operation, remote monitoring via telematics, a dry gearbox which improves performance and an estimated carbon dioxide (CO_2) equivalent reduction of some 4 tonnes per annum per appliance.

Key Inspirit Charger data

Engine drive for electrical	Stirling Engine. Engine has a power piston and a displacement piston running within the same cylinder.
Electrical Power Output	Generates a maximum of 3kW of electricity with 16% net electrical efficiency at 20kW total gas input.
Thermal Output	Up to 15kW at 76% net thermal efficiency with a gas input of 20kW.
Heat to Power Ratio	5:1
Noise Level	50dBA at a distance of 1m.
Weight	Less than 120kg.
Dimensions	650x650x900mm
Water Temp Output	Water temperature output of 45-85°C depending on installation.
Installation	One person installation (gas safe) and electrical connection.
Service	Service interval recommended 12 months in a domestic installation.
CO_2 Emissions	Estimated CO_2 reduction of 4 tonnes per year per appliance.
Current Patents	3 Registered and 5 Patents Pending.

Source: Inspirit Energy

Progress – Now on the cusp of commercialisation

Following refinement and extensive testing, Inspirit Energy is now on the cusp of launching its products commercially.

In June 2015, Inspirit's first boiler unit was constructed and by December, the company had completed internal testing of its appliance at its facility in Sheffield. **Over 1,500 hours of testing were completed, with all internal quality requirements for safety, reliability and durability being met or exceeded**. Following this the company appointed engineering laboratory Enertek International, one of only two in the UK capable of fully testing mCHP appliances for independent third party testing.

Field trials imminent & monetisation of the technology shortly thereafter

The results of further tests with Enertek - which are currently being carried out, will allow the Inspirit Charger to obtain certification under the relevant EU law (Gas Appliance Directive) so it can then undergo field trials with commercial partners. These are needed to prove that the Charger is safe and reliable before being launched into the marketplace and it is planned to commence with 10 initial customers, which includes major utilities and retail chains and in commercial plant rooms and domestic properties, by the 4th quarter of this financial year (to June).

On that front, Inspirit agreed a testing and field trial agreement with utility broker Utilitywise in November 2014 which will see the Charger tested in several sites in the UK in a range of demand cycles including full and partial utilisation. Other trial participants include Calor Gas and care home operators Barchester Healthcare and Caring Homes Group.

The field trials are expected to progress at client sites for up to 12 months from the date of installation in order for performance data to be collected. **However, commercial agreements could be finalised sooner if sufficient data is gained by the clients – expected within a few months of installation.** Negotiations are expected to last around 4 months. Inspirit sees the potential for the first commercial production of the Charger as soon as 8 months following the start of the field trials. One further hurdle to overcome will be certification of the appliance as type compliant by the British Standards Institute.

Sales and marketing

Initially, the focus will be on the commercial (SME) sector, moving into the residential market in due course. To prepare for this, a sales and marketing team has been put together which includes Nick Stevenson (former Chief Operating Officer of Sustainable Power) and Paddy Thompson (former General Manager of Ceramic Fuel Cells) as directors.

Prior to commercial production, Inspirit will also submit an application for the Microgeneration Certification Scheme (MCS) and which, if approved, will enable customers to qualify for the Feed-in-Tariff. The initial end user price is expected to be £10,000 + VAT, falling over time as economies of scale are enjoyed from increased levels of manufacture.

Routes to market

Routes to market will be via utility and service companies, facilities managers and installers, as well as direct sales to SMEs which have a large number of individual sites suitable for the Charger. Inspirit also plans to launch an e-commerce site for advance reservations prior to commercial launch. A range of leasing options are also expected to be offered, to be confirmed in due course, which will widen the market for the Charger. As well as making money from selling the Charger, Inspirit will offer finance packages to customers and is also looking at product licensing, selling warranties and further product development.

Manufacturing

On the manufacturing side, Inspirit is in discussions with a multinational that may lead to significant manufacturing agreements in the future, although this is in addition to its current manufacturing agreement with UK based partner Malvern Boilers. The initial production run is expected to be between 1,200 to 1,500 units in the first full year.

Market Opportunity

Although the market is still at a relatively early stage in its development, the potential for mCHP boilers is large. Inspirit is targeting both the new sales and replacement market as well as selling its boiler as an add-on to existing units.

In the UK, which will be the company's initial and primary market, there were an estimated 1.66 million boilers sold in 2014 (*Source: Heating and Hotwater Industry Council*), with an estimated installed base of over 20 million. Within these figures, Inspirit estimates annual sales of 600,000 boilers to the small commercial market, with an installed base of 8 million.

In due course Inspirit will also be looking to enter the European market. Germany is the second largest market in EU, after the UK, with an estimated 700,000 boilers installed every year. **In Europe as a whole there are an estimated 70 million boilers installed.**

Many industry bodies see the potential for the technology. To give one example, **a recent report by the EU-funded body Cogeneration Observatory and Dissemination Europe (CODE) suggested that by 2030 more than one in three boilers sold in Europe could be a microCHP system.**

Energy giant Centrica recently demonstrated its own interest in the area by acquiring CHP business ENER-G Cogen International for £145 million. ENER-G Cogen services both industrial and commercial customers, providing a proprietary range of standard CHP units from 25kW to 530kW, bespoke systems from 0.5MW to 2.5MW and has around 1,400 units totalling over 500MW under contract.

UK Government incentives

Under the Climate Change Act 2008 the UK government has a legal obligation to ensure that greenhouse gas emissions for the year 2020 are at least 34% lower than a baseline set in 1990 and 80% lower by 2050. In order to achieve this target, the government is focused upon moving the UK towards a more energy efficient and low carbon economy.

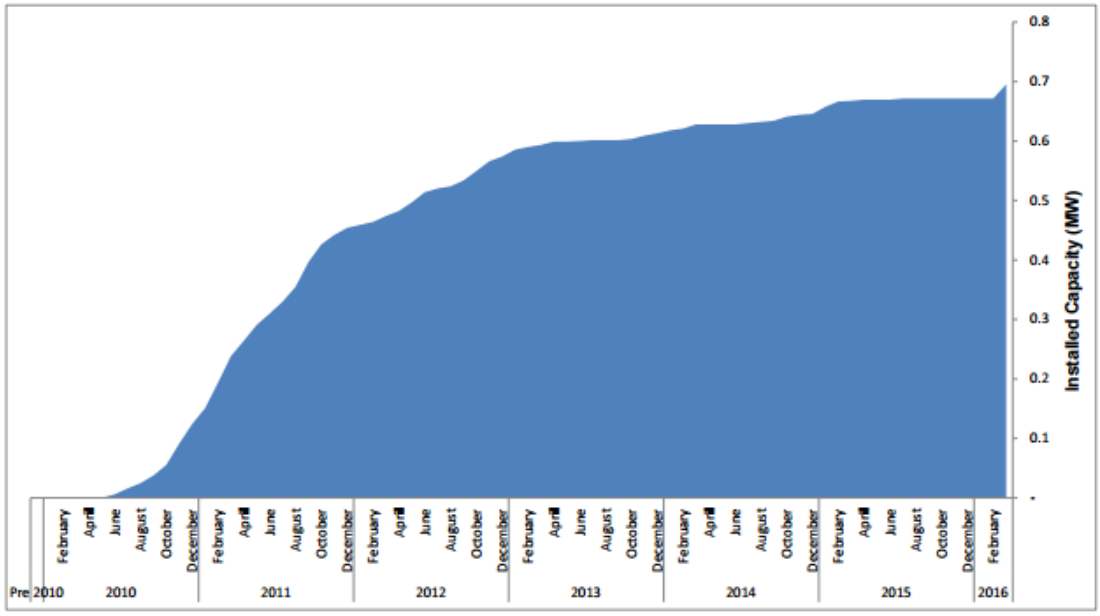
In that vein, April 2010 saw the launch of the Feed-In Tariff scheme, an incentive programme which pays the owners of eligible small-scale generators for the electricity they produce. This is comprised of two parts: a **generation tariff,** which pays a set rate for each unit of electrical energy generated; and an **export tariff,** a set rate for each unit of surplus electrical energy exported back to the grid. FiTs are funded via levies placed on consumer energy bills.

mCHP eligible for FiT but take up has been slow

mCHP technology has been included as an eligible technology from the launch of the FiTs and is currently eligible for a 13.45p per kilowatt hour (/kWh) generation tariff and a 4.91p/kWh export tariff on units with an electrical capacity of 2kW or less. **This is highly attractive in comparison to other forms of eligible technology such as solar photovoltaics which at the beginning of 2016 had its domestic (<10kW) generation tariff cut by 64% to 4.39p/kWh for new installations.**

However, mCHP remains in its infancy with only 501 installations having been deployed under the scheme and with a further 158 commissioned (as at May 2016) - well short of the eligibility limit of 30,000 units. Only 18 installations were deployed in 2015. Reasons given by the Department of Energy & Climate Change (DECC) for this slow take up include a current high cost of technology and a lack of awareness amongst potential customers about the benefits of mCHP. **In our view, this means that the industry remain ripe for growth for companies with the right product.**

Graph 2: Cumulative commissioned mCHP installed capacity



Source: Review of support for Anaerobic Digestion and micro-Combined Heat and Power under the Feed-in Tariffs scheme – May 2016.

Recent review will have minimal impact on Inspirit but could be negative for competitors

Periodic reviews take place for spending on FiT schemes under the government's Levy Control Framework, which restricts the impact the FiT has on consumer bills. On 26th May 2016 the government published its latest review of support for mCHP under the FiT scheme. **Under its latest proposals, due to the fact that mCHP has not seen a sustained level of deployment, the current generation tariff rate will be maintained.** The existing 30,000 limit on the number of eligible mCHP installations is also being maintained.

However, on the downside for the mCHP industry as a whole, an annual cap has been proposed on the number of units eligible for the FiT, amounting to 1,560 units in both 2017 and 2018, falling to 390 in 2019. This prompted a response from AIM listed mCHP boiler manufacturer Flowgroup, which was notably disappointed given its expectation for selling its own mCHP boiler in volumes far ahead of these proposed caps. The company will challenge these changes with the document being under consideration until 7th July.

Inspirit's own response to the proposed changes highlighted the fact that its flagship product, the Inspirit Charger 3.0, has never sought to rely on the FiT and has never been eligible for it given its electricity output of 3kW is higher than the 2kW limit. **As such, the proposed changes do not significantly impact the firm's core strategy of targeting commercial customers and larger residential homes. It could however affect demand for the 2kW inspirit Charger 2.0.**

The key point we take from the consultation paper is that, if implemented, the proposed changes could have a negative effect on those manufacturers whose sole mCHP products have a ≤2kW electrical output and who thus rely heavily on promoting the benefits of the FiT to sell their appliances to consumers. Flowgroup has already commented that it will adapt its strategy if the proposals come into effect while Inspirit will carry on as planned regardless of the DECC's final decision. In reaction, Flowgroup's share price fell by 20% on the day following the announcement, while Inspirit's, perhaps unfairly in our view, fell by 7%.

Financials

As Inspirit is at the pre-commercialisation stage of its development no revenues are currently being generated. However, with a headcount of only 7 employees corporate costs, unlike many other pre-revenue generating business on AIM, are being kept relatively low.

The latest set of accounts, covering the six months to December 2015, revealed a net loss of £334,000, down from £419,000 in the comparative half. The balance sheet showed cash of £23,000, borrowings of £320,000 and net assets of £1.96 million. We note that there is minimal value in the balance sheet for the mCHP technology, with intangible assets standing at just £2.26 million – a mere fraction of what has been spent on the technology over the years. Inspirit also had (as at 31st December 2015) c.£4.05 million to carry forward against future suitable taxable profits. However, no deferred tax asset has been provided in the accounts due to uncertainty over the timing of their recovery.

Following the balance sheet date end, in May 2015 Inspirit raised a further £0.75 million via a placing of 150 million new shares at a price of 0.5p per share. The funds will be used to finalise the MCS accreditation process, commence field trials and for general working capital.

Competitive Products

There are a number of competitive products in the mCHP industry both on the UK market and near to being commercially available. At present we see the main competition to Inspirit as being the following:

Commercial sector

Sustainable Power – Spice 2e

The Spice 2e mCHP is a floor-standing unit based on ICE technology which is targeting the SME and larger residential market and qualifies for FiTs. **The unit has lower heat and electrical output than the Inspirit Charger at 7.5kW and 2kW respectively. The cost of the unit is also higher than the Charger at £13,500.** Average annual savings are estimated at up to £3,000 in a residential setting and £4,300 in an SME.

Baxi – SenerTec Dachs

The Baxi owned SenerTec Dachs is arguably the most successful commercial focused mCHP unit by volume, claiming to have made 33,000 sales across Europe. Based on ICE technology the unit has 14.5kW thermal output and 5.5kW electricity output so more suitable for larger commercial premises**. The unit is noisier than the Charger at up to 56dBA, heavier at 530kg and requires more floorspace.**

Larger residential sector

Flowgroup – Flow

AIM listed Flowgroup re-launched its Flow product in January this year and announced in April that the first installations in customer homes have been completed. Based on Organic Ranking Cycle technology the Flow has thermal output of 14.1kW and 1kW of electricity output. It has received MCS certification, so is eligible for UK FiTs, and is available to consumers via a range of financial packages.

Flowgroup made an operating loss of £17 million in 2015 but had £18.8 million of cash on the balance sheet. However, the proposed caps to the mCHP FiT scheme, by the company's own admission, could affect its business strategy as described above.

Honda – EcoWill

The Honda EcoWill ICE 1.2kW boiler has been a success in Japan where a reported 100,000 units have been installed since launch in 2003. However, a move of subsidies towards fuel cells in Japan has lowered demand. The product has not yet been launched in the UK but it has been reported that Honda is planning such a move shortly.

Risks

The company is currently at the pre-commercialisation stage

Inspirit Energy has de-risked its investment case by moving from the development stage to the validation stage of its product. However, the firm is still in the pre-commercialisation stage and must achieve a number of further milestones (mentioned above) before the Inspirit Charger is able to be sold in commercial volumes. There is also uncertainty as to when the first units will be sold and if there will be sufficient demand for the company to break-even over time.

Further funding will be required to take the Inspirit Charger into production

Once Inspirit has passed these milestones further funding will be required in order to manufacture the initial run of commercial units. While any equity placing will dilute current shareholders we believe that debt finance is also a relevant option for the company. We estimate that between £1.5 million to £2 million in additional funding will be required in order to take the Charger into initial production.

Competitors

A number of rival boilers already exist on the market for the sectors which Inspirit will be targeting. In addition, further competing products are expected to be launched within the coming months and years.

Exposure to government incentives

The Inspirit Charger has been designed to be commercially viable without any form of external incentives. But there is still a risk that the removal or cutting of mCHP feed in tariffs from current levels, or the introduction of annual caps, will affect demand for the company's 2.0 units, which are expected to receive the incentives once approved under the Microgeneration Certification Scheme. Any cutbacks to current mCHP FiTs would extend the payback period of the unit and could therefore result in lower demand. The introduction of the proposed deployment cap by the government could also restrict take up of the Inspirit Charger 2.0.

Speed of adoption of mCHP technology by consumers restricted by current high costs

At present the mCHP industry is in the early stages of its life cycle. With some systems in the European market costing up to £20,000 the speed at which early adopters come into the market could be slow. Here the importance of government incentives comes into play as to achieve economies of scale at a manufacturing level, and therefore to reduce costs to consumers, manufacturers need to see sufficient demand to justify the investment required.

Management

Board of Directors

John Gunn - Chairman and CEO

John Gunn is the founder of Inspirit Energy and with a 39.5% stake is the single largest shareholder. He is also the managing director and majority shareholder of AIM listed Octagonal Plc, which owns Global Investment Strategy stockbrokers. John has over 25 years' experience in financial services, beginning his career in 1987 at Hoare Govett. From 2004, he has worked with renewable energy and clean tech businesses before becoming involved with Disenco in 2004.

Neil Luke - Executive Director and Chief Operating Officer

Neil Luke is highly experienced in the gas heating industry. He began his career with Ideal Stelrad Group, developing the first condensing boiler to be manufactured by a UK company. Neil held the position of Business Unit Manager for Baxi before being appointed Engineering Director for the Baxi Air Management Group. He was later the Technical Director for Potterton Myson, with responsibility for both engineering projects and new product development.

Nilesh Jagatia - Finance Director

Nilesh Jagatia currently serves as Finance Director at Limitless Earth Plc and also currently holds Finance director positions with AIM quoted Teathers Financial Plc (TEA) and Octagonal Plc (OCT). Nilesh has over 20 years' experience, including senior financial roles in divisions of both Universal Music Group and Sanctuary Group plc. Nilesh is a qualified accountant and holds a degree in finance.

Operating Board

Nick Stevenson - Marketing Director

Nick Stevenson has worked in the building services area since 1993, mainly in renewable and low carbon technology, having started in the sector by successfully developing his own gas boiler business, which was sold via a trade sale in 2006. During this time he also worked with Government on regulatory issues relating to building regulations for energy efficiency. He was New Energy Director at Ideal Heating Ltd from 2008 to 2011, having responsibility for all low carbon and renewable products, including mCHP. Nick holds a degree in engineering and is a Fellow of the Institution of Mechanical Engineers.

Paddy Thompson - Sales Director

Paddy Thompson has worked in energy for over 10 years, including in the mCHP sector for more than 5 years. He was previously General Manager Business Development with Ceramic Fuel Cells. He has also represented both the business and the industry in influencing the decision making of the UK Government with regard to support for mCHP from the Department of Energy and Climate Change under the Feed in Tariff (FiT). Paddy holds ICAEW qualifications as a Corporate Financier and a Charted Accountant while pursuing a career working in the financial sector for James Cowper, Numerica/Vantis and Ernst & Young.

Assessment

While Inspirit's progress has been behind market expectations at times, the company has achieved a lot to get to its current stage of development, having proven the technology and created what looks to be one of most efficient mCHP boilers in the marketplace.

Everything considered, we see a potentially good value opportunity at present, with Inspirit offering good potential on a risk/reward basis in our opinion for the following reasons.

Shares trade at a large discount to costs required to develop the mCHP technology

Inspirit's current market capitalisation of £3.89 million represents just a fraction of the money spent on developing the technology over three decades. **Competitors have spent sums in the tens to hundreds of million pounds on their technologies, which gives some idea of the cost of development from scratch (and not considering the time involved).** Consequently, we believe that the company may be attractive to competitors given this commercial consideration. As John Gunn holds a major stake he has influence to extract a decent price and we doubt it is anywhere near the current valuation.

Discount to reverse takeover price

In June 2013 Kleenair Systems purchased the 82.95% of Inspirit Energy that it did not own at the time for a deemed consideration of £3.5 million, thus implying a take-out price of £4.22 million. Inspirit's current market capitalisation of £3.89 million is 8% below this level despite it having invested a further c.£4.5 million into business development since then.

Comparison to Flowgroup

Then there is the comparison to AIM listed Flowgroup. While Flowgroup is at a more advanced commercial stage than Inspirit and has substantial financial backing, its Flow boiler produces a maximum 14.1kW of thermal output and only 1kW of electricity – 3 times less than the Inspirit Charger 3.0 and half that of the 2.0. And the business also has a loss making (but growing) retail energy business attached to it. As such, Inspirit's valuation, which is less than a tenth of Flowgroup's £44 million, looks to have significant potential room for upward movement in our opinion.

Expected growth in unit sales

Of course, the long-term opportunity here comes from Inspirit capitalising on growth in the mCHP boiler market. As the company ramps up its unit production it will see margin improvement as economies of scale are realised. This is despite the sales price also being reduced in order to improve the payback period for customers.

Gross margins of c.39% are expected on annual sales of 10,000, which combined with low administrative costs provides a strong operational gearing and the potential for significant returns in the long-term. We expect a short working capital cycle as the majority of boilers will be sold to distributors in bulk rather than end customers individually and will be paid for on order. As such, if the following sales figures are achieved we see the additional funding need at £1.5 million to £2 million.

	2016/17E	2017/18E	2018/19E	2019/20E	2020/21E
Unit sales	500	2000	5000	10000	20000
Sales Price	£10,000	£7,400	£4,500	£4,400	£4,400
Revenues	£5,000,000	£14,800,000	£22,500,000	£44,000,000	£88,000,000
Cost of Sales Per Unit	£9,388	£5,911	£3,011	£2,692	£2,692
Gross profit per unit	£612	£1,489	£1,489	£1,708	£1,708
Gross margin per unit	6.1%	20.1%	33.1%	38.8%	38.8%

Source: Inspirit Energy/Align Research expectations

Valuation

We set our minimum fair value price for Inspirit Energy as the implied price of the 2013 reverse takeover (£4.22 million) plus additional development costs booked into the balance sheet since then (£1.49 million as at 31st December 2015). **This equates to a total of £5.7 million, or 0.61p per share, implying 49% upside from the current price of 0.41p.**

We believe that this is a highly conservative valuation method as it only values development at cost price and attributes no value to the various certifications and business relationships developed which are key to taking the Inspirit Charger into commercial production.

Upon completion of the field trials at client sites, and receipt of the British Standards Institute and Microgeneration Certification Scheme accreditations, Inspirit will have overcome further barriers to commercialisation and should thus justify a higher valuation. We see these events as being accomplished within the next 8 to 12 months and providing a potential valuation catalyst. **Demonstrating this, Flowgroup, which announced the achievement of MCS accreditation for its mCHP Flow boiler on 4th April 2016, saw its share price rise by 26.5% in the following week.**

Beyond that, in the early stages of commercial sales we see a revenue multiple based approach as being relevant, moving to an earnings based multiple as Inspirit demonstrates consistent and rising profitability. **If the above expectations are achieved we believe a multiple of 1 times sales for financial year 2017/18 would be an appropriate valuation, implying a market cap of £14.8 million – equating to 1.58p – over 3 times the current stock price.**

With our minimum valuation implying 49% upside from the current share price, and further commercial progress suggesting the potential for additional and substantial share price advancement, we initiate coverage of Inspirit Energy with a Conviction Buy stance.

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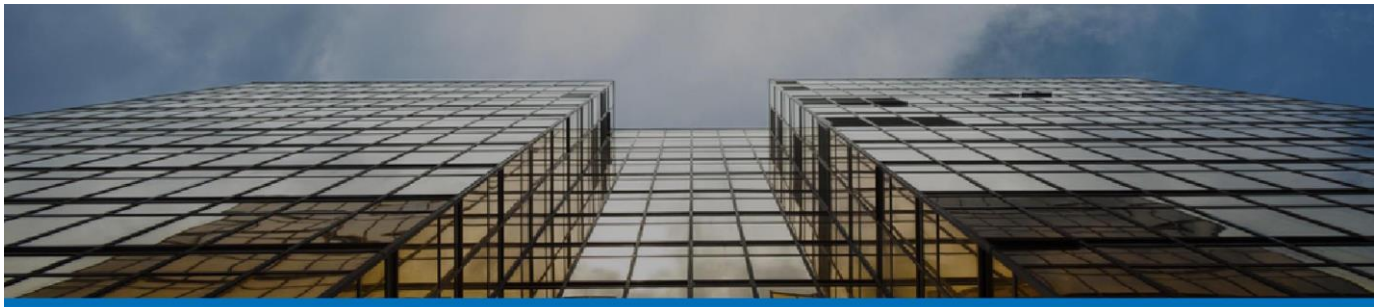

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