

Capitalism Without Profit

Using “creative capitalism” ideas to support not-for-profit education partnerships with for-profit organisations

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Acronyms and Definitions

CAGR	Cumulative annual growth rate
CC	Corporate citizenship
CSR.....	Corporate social responsibility
EUR	European Union Euro (€)
GBP.....	Great Britain Pound (£)
NGO	Non-Government Organisation
NPO.....	Non-Profit Organisation
The Trust	The Smallpeice Trust
USD.....	United States Dollars (\$)
WBS	Warwick Business School

Capitalism Without Profit

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Abstract

Corporate Social Responsibility (CSR) is a growing philosophy in business focusing on the art of sustainable, progressive commerce. CSR advocates taking business beyond the boardroom and the financial ledger, and understanding the impact of business on society. “Creative capitalism,” espoused by Bill Gates, of Microsoft and The Bill & Melinda Gates Foundation, is a novel look at rewarding businesses through non-financial based incentives. Building upon ideas from Michael Porter (Diamond Model and the Competitive Advantage of Nations) and Simon Zadek (Oasis Pathway Model) this paper shows how creative capitalism ideas can be leveraged in not-for-profit organisations and charities such as The Smallpeice Trust to build new partnerships. New processes and materials, using industry forecasts and business information, are developed to showcase The Trust’s positive works. “Creative capitalism,” when applied here, ensures that businesses are recognised for their contributions and partnerships in ways which can be described both emotionally and rationally. This is embodied by a “partnership report card” which includes simple, graphical key performance indicators to highlight the impact of the industry partnership on introducing young people to science, technology, engineering, and mathematics. Other campaign and fund-raising materials incorporate more emotive styling with rational facts to create more effective and responsive campaign collaterals.

Notes on currencies

This document provides financial figures in both British Pounds Sterling (£, GBP) and United States Dollars (\$, USD). As most market figures are provided in United States Dollars, these quotes will be converted to British Pounds Sterling at the average ratio of £1 = \$0.6582.

Chapter 1: Project Goals

The Smallpeice Trust has identified several key areas of further growth for its educational courses. As a non-profit organisation, The Trust is seeking additional funding to pursue these growth opportunities. The central focus, and perhaps the most important considering public opinion trends regarding the environment and the future, is in “green-collar” technologies, sustainable sciences, and low-carbon economies.

A fundamental approach to this project is embodied by “creative capitalism” and recognition-based market incentives, a philosophy espoused by Bill Gates and a basic principle of the charitable Bill & Melinda Gates Foundation (Gates, 2008a, b, Gates Foundation, 2010b). In this economic school of thought, a company or brand’s reputation is just as important as profits. Organisations (here, with a particular emphasis on low-carbon businesses) must come to understand the full value of The Trust’s educational offerings in the long term. As there is little immediate financial return on a business’s investment, the organisations should be “rewarded” by other means, for instance, with more local community engagement by employees, or broader brand awareness in local and regional communities. Additionally, The Trust’s courses can be tied easily into corporate professional development programs for personnel and corporate citizenship (CC or corporate social responsibility, CSR) initiatives.

1.1 Industries

After analysing current market forecasts for the United Kingdom, with a focus on those industries with a strong, obvious low-carbon or renewable theme, the following two industries were selected for analysis. (See 4.9, Targeting more effectively: Key industries, for details on the selection process.)

1. Renewable energy: Wind, solar, tidal power, etc.
2. Electric vehicle: Electric battery and hybrid electric/petrol vehicle manufacture and design

1.2 Project Topics

The project will focus on topics as described, but not limited to, below.

1.2.1 United Kingdom in 2020

This topic will cover the policy platforms of political groups for potential ramifications on the low-carbon economy as well as on non-profit educational programs. Additionally, relevant economic forecasts will be explored for applicability in the low-carbon industry as well as STEM-related economies.

1.2.2 Industry Forecasts

This section will profile two industries to identify worldwide and United Kingdom-specific trends. These trends include but are not limited to potential research and technology developments, leading organisations and businesses within the industry, and the future needs of these organisations as the low-carbon economy develops. A major consideration will be the hiring needs of these organisations.

1.2.3 Process and Brand Audit

The proposed “process audit” explores The Trust’s fundraising process and methodology. The “brand audit” involves collecting relevant information The Trust already possesses, and identifying what parts are most easily applied when extending the brand to the low-carbon marketplace. As The Trust has performed extensive market analysis and rebranding, this audit does not involve approaching outside customers but rather leveraging marketing collateral and messages already in place to appeal to low-carbon industries.

1.3 Project Deliverables

1.3.1 Messages

A list of general-purpose messages will be developed. These messages are applicable to all low-carbon industries. Additionally, each industry analyzed will include a range of messages more tailored to that industry; for instance, European Union energy sourcing targets are applicable to renewable energy, but less important to the electric vehicle industry.

Each industry will also be subdivided into major industry segments. For example, the renewable energy industry is divided into manufacturers, developers, and utilities, among others. Each message will likewise be categorised for one or

more industry segments. This allows for messages to be chosen for their resonance with audiences.

1.3.2 Collateral

New speculative contact letters will be written for each industry segment. Such letters will be suitable for sending in a fundraising campaign.

Presentation slides for each message will be designed. These slides will be suitable for inclusion in existing fundraising presentations.

Additionally, novel “infographic” materials that carry an emotive message will be designed for each industry segment. These are planned to be used as either “leave-behinds” – materials that are left following a meeting – or as “introductions” – materials sent with the initial speculative contact letter.

All such collateral is expected to be released or debuted in the upcoming campaign season starting late September. The materials will also be presented during The Smallpeice Trust’s meeting with parliamentarians and ministers at the House of Commons in January 2011.

1.3.3 Industry Contacts

Multiple businesses will be identified in each industry and contact details, including primary contacts, will be researched.

1.3.4 Methodology

How these items are created is just as important as *what* is created. Throughout this project, notes and “how-tos” will be collected to identify what does and does not work when researching companies, industries, or building collateral materials.

Chapter 2: Exploring Corporate Social Responsibility

Corporate Social Responsibility (CSR) has grown from a simple “do no wrong” motto to a nuanced engagement with communities and stakeholders to become “do more good.” The heart of CSR is a response to Eberstat’s (1977: 81) statement: “[b]usiness has seldom enjoyed so much power with so little responsibility.” CSR has been alternatively embraced and challenged, praised and condemned, for its suitability in the workplace, actual return on investment, and delivery of promised improvements. Nonetheless, CSR has reshaped the landscape of business throughout the developed world, and is quickly influencing up-and-coming national mindsets.

2.1 In the past: The origins of modern CSR

One of the earliest articulations of modern CSR comes from Robin and Reidenbach (1987), who attempted to reconcile “ethical” with “responsible.” Whether subscribing to deontology or utilitarianism, ethical business requires considerable support throughout an organisation – a “reformulation of the corporate culture” (Robin and Reidenbach, 1987). From Robin and Reidenbach’s landmark piece, CSR “split” into two major branches – social performance and stakeholder management.

Social performance seeks to understand *how* businesses may participate in social debate and engage with the wider community while maintaining transparency. Early works gave an unflinching view of nascent CSR practices and views; poor (even negative) responses to CSR were identified and contrasted with new thinking (e.g. Strand, 1983). Definitions set at this period of CSR’s development echo modern day social accounting and reporting (Carroll, 1979) and began the difficult work of constructing a framework to architect a coherent theory (Wood, 1991). For instance, the “Three-Dimensional Model of Corporate Performance” incorporates a wide range of existing research to measure an organisation’s level and maturity of response to pressing social issues (Carroll, 1979), while other frameworks measure a business’s internal philosophies to quality of life and

quality of *work life balance* (Strand, 1983). More recent frameworks borrow and combine aspects, such as Wood's (1991) Corporate Social Policy framework which uses considerations from Carroll's framework to paint a cross-section of philosophies of, and responses to, social responsibility concerns.

Table 1: Domains and Principles (adapted from Wood, 1991: 710)

Principles Domains	Social Legitimacy	Public Responsibility	Managerial Discretion
Economic	Produce goods	Incorporate externalities	Sustainable production
Legal	Obey laws	Public advocacy	Use policy to innovate
Ethical	Act ethically	Exceed ethical expectations	Engage more stakeholders
Discretionary	Go beyond law	Reinvent in the community	Ensure community investments work

Stakeholder management instead focuses on *who* businesses should engage with in normal ethical practices. The concept of (and debate over) stakeholders is nothing new. E. Merrick Dodd, Jr. wrote as early as 1932 that “managers [...] are fiduciaries, [...] trustees for an institution rather than attorneys for the stockholders” (Dodd Jr, 1932: 1160). The stakeholder theory is “descriptive,” “instrumental,” “normative,” and “managerial” – it describes *what* should be done, *how* it should be performed, *under what assumptions* and *with a long-term view* (Donaldson and Preston, 1995). “Stakeholder synthesis,” one that takes account of (and listens to) all stakeholders, is explored to understand ethical decision making, but warns against *too much* listening and *too little* action¹ (Goodpaster, 1991). As with “social performance,” a framework for robust analysis was forthcoming and straddles the boundaries of theories so far contributed (Clarkson, 1995).

While literature and academic thinking on CSR did not gain wide appeal until the about the 1950s (Carroll, 1979, Clarkson, 1995, Donaldson and Preston, 1995, Smith, 1994), ideas germinated much earlier. One of the earliest documented cases is from 1799 in Scotland, where Robert Owen founded a cotton mill on strong moral imperatives, such as proper wages, improved access to affordable goods, and no child labour.² John Cadbury's son, of Cadbury Chocolate fame, built Bourneville in 1893 to provide open space and clean living for fac-

¹ In Goodpaster's own words, “the [strategic stakeholder synthesis] appears to yield business without ethics and the [multi-fiduciary stakeholder synthesis] appears to yield ethics without business” (Goodpaster, 1991: 1).

² In Owen's time, this meant no children under 10 years old.

tory workers, along with adult education courses and recreation facilities. Andrew Carnegie, perhaps one of the greatest philanthropists in history, endowed 2,509 libraries and gifted over 90 per cent of his wealth (Gates, 2008a).

It is important to remember that CSR was not accepted blindly. Professors Berle and Dodd, well-respected Harvard Law Review contributors, debated the merits of stockholder-exclusive and shareholder-inclusive business mindsets in 1932 (Gates, 2008a). This exchange formed the basis of all future debates on the role of business in society, and while Dodd's viewpoint on stakeholder inclusivity is widely believed to have "won," the debate was far from guaranteed. With renewed interest of social responsibility in the 1950s, Peter Drucker was compelled to write "[y]ou might wonder [...] when the managers of American business had any time for business" (Drucker, 1954), humorously chastising the idea of "corporate citizenship."

In 1960, Dave Packard (of Hewlett-Packard) is quoted as saying that corporations exist "to make a contribution to society" (cited in Gates, 2008a: 3). Two years later, David Rockefeller, then president of Chase Manhattan Bank, stated "ownership [of a corporation] carries certain binding social obligations" and that "[t]oday's manager serves as trustee [...] for our entire society" (cited in Gates, 2008a: 4).

The debate of "social performance" versus "stakeholder management" has not been resolved, although the focus of CSR has become more inclusive without becoming overbearing, more directed without becoming analytical.

2.2 Why CSR is important: A case of trust

Traditionally, CSR has focused on marketing and brand management – how best to engage and attract customers where these concerns are of critical importance. Maignan and Ferrell (2001) have performed extensive reviews of the literature to find this is a prevalent perception of CSR. However, research shows conflicting evidence of the efficacy of CSR on customer retention and attraction. In fact, using philanthropy-cum-marketing may be counter effective with neologisms such as *greenwashing* becoming commonplace criticisms of cause-related marketing to make companies seem more ethically conscious than they actually are (for example, see Edelstein, 2010). Understanding the root cause of these negative perceptions is critical to proper, effective implementation of CSR.

Zadek's *The Civil Corporation* (2001) explores the root causes to find "trust" is largely absent in public discourse on corporations and business. John Kay, professor at Said Business School, summarised the sentiment well:

Would you trust your doctor if a plaque on the wall of the waiting room declared his mission as being to "maximise profit"? Of course not [...] Profitability in fact flows from the client believing that they share with the doctor a common purpose that is not about business.

(Cited in Zadek, 2001: 38)

Corporate "obsession" with profits naturally leads many to presume a conflict of interest between business and the community. Zadek's research found that "altruistic" bodies, such as non-government and non-profit organisations, are many times believed to be more beneficial to society and given society's implicit trust – often without direct cause or merit. While the public may watch and review the minutest details of former BP CEO Tony Hayward's vacations during the *Deepwater Horizon* disaster, Save the Children CEO Charles MacCormack, rightly or wrongly, is rarely in the media spotlight. Non-profit organisations seem to be supported more quickly, trusted more blindly, and forgiven more frequently than their for-profit counterparts (Zadek, 2001, ch. 4).

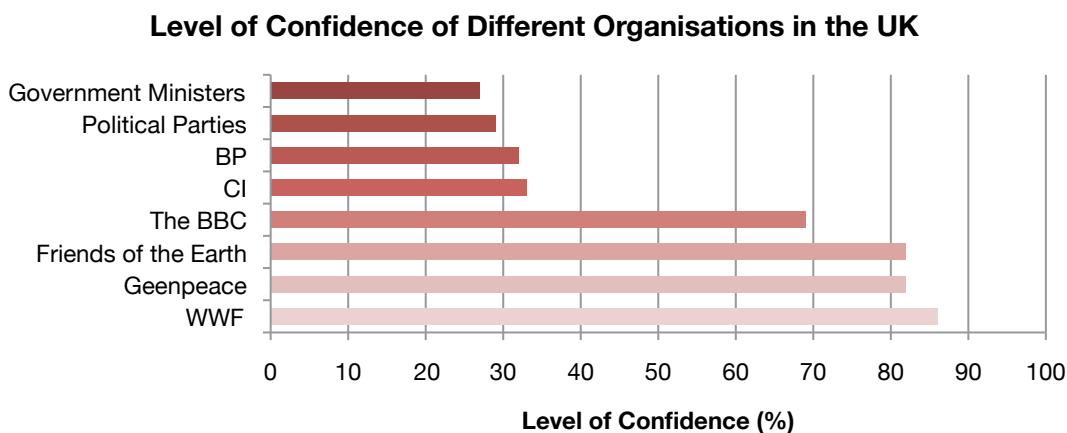


Figure 1: Level of confidence of different organisations in the UK (Zadek, 2001: 45)

The public's distrust of (some might even say disgust with) corporations was masterfully described in the 2003 film *The Corporation*. Based on the premise that corporations enjoy legal personage, the film applies DSM-IV psychological diagnostic testing for mental illness and, indeed, finds that corporations behave similarly to clinically-diagnosed psychopaths (Abbott and Achbar, 2003). The



Figure 2: The Corporation debut poster

film directors advocate “Three Rs” in their “Campaign 4 Corporate Harm Reduction” to “solve” the problem of corporation’s without conscious – *rewrite* (or abolish) corporate charters to include social awareness, *regulate* through more government oversight, and *reform* business from the inside out (*Campaign 4 Corporate Harm Reduction*, 2010). The film’s debut poster cheekily recognises the duality of business – both as a benefit and as a detriment to society.

Overcoming this mistrust of corporations and CSR initiatives, or “Breaking the Trust Barrier” as Zadek writes (2001: 38), is of critical concern. Nonetheless, CSR is growing and adapting to solve this issue of trust, with the latest tool being the multi-stakeholder partnership.

2.3 What is happening now: A case of partnerships

Two major trends have emerged recently – partnerships and broader views of “doing good.” These trends are, in large part, in response to the mistrust individuals have for corporations.

Partnerships are not new. The earliest “corporations” could be viewed as partnerships between rulers and nobility. The *Stora Kopparberg* mining operation in Sweden is considered one of the earliest such “corporations” (a *de facto* partnership), after being founded in the mid-14th century (*Stora Kopparberg*, 2010). Partnerships, in this sense, bring together parties and individuals to do something none could do separately.

Zadek (2001: ch. 7) described new frameworks for civil regulations, revolving around partnerships between businesses and non-government organisations. These new partnerships merely followed the capitalistic adage of specialisation – businesses specialise in running business and governments in running government. Thus, there is room for specialist groups such as non-profit organisations. Some organisations monitor businesses and governments for improper activity; other groups bring public scrutiny to pressure for improvement, while still others engage with businesses and governments to directly effect change. All such NGOs look to change the world (Figure 3).

Elkington (1998) agrees with Zadek and explored the personalities of NGOs in partnerships, equating them with sea life (no doubt influenced by his environmental sustainability focus). Elkington notes that the “dolphin” NGO – the “careful integrator” – is a rare breed but is, perhaps, the most capable of the four.

By working with businesses and leveraging the unique skills and abilities of both the business and the NGO, greater success and a stronger impact can be achieved than from either individually. The dolphin's opposite member is the "shark," or an organisation jumping from crisis to crisis, challenging and attacking anything that seems a likely target. Elkington's best example for "shark" organisations are local and national media, which are famous for their penchant for praising one week, and then condemning with excessive vitriol the next (Elkington, 1998). Elkington notes a trend towards becoming a "discriminating integrator," perhaps as part of a "growing-up" process as NGOs come to realise the synergies inherent in full-fledged partnerships.

Figure 3: NGO Approaches to Changing the World (Zadek, 2001: 81)

Table 2: NGO Personalities (summarised from Elkington, 1998)

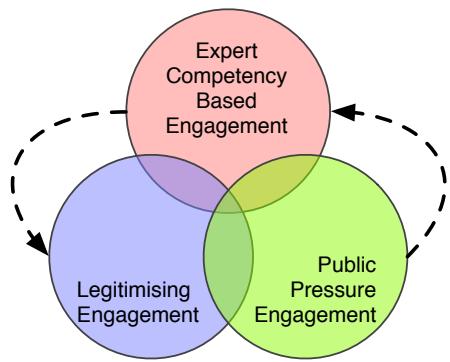


Figure 3: NGO Approaches to Changing the World (Zadek, 2001: 81)

	Polarizer	Integrator
Discriminator	<p>Orca</p> <p>Highly intelligent</p> <p>Strategic</p> <p>Uses fear to coerce</p> <p>Uncertain in behaviour</p> <p>Associates with own kind</p>	 <p>Dolphin</p> <p>Highly intelligent</p> <p>Creative</p> <p>Adapts to context</p> <p>Can be a loner or very sociable</p> <p>Empathy for others</p>
Non-discriminator	 <p>Shark</p> <p>Low intelligence</p> <p>Tactical</p> <p>Non-discriminating in terms of targets</p> <p>Attacks in packs</p>	 <p>Sea Lion</p> <p>Moderate intelligence</p> <p>Tactical</p> <p>Popular spectacle</p> <p>Friendly</p> <p>Safety in numbers</p>

Warhurst (2005) continues the debate for partnerships by probing the future boundaries of government and business. In Warhurst's view and in an echo of Dodd's argument (1932), expanding the set of stakeholders (and not just shareholders) has changed how businesses must act in the future. Businesses can no longer focus on shareholders to the (potential) detriment of other parties. Instead, stakeholders represent the future of the business as they are most impacted by business decisions. "The business of business is business" is no

longer accurate. Rather, the business of business is now “ethical business” and “[s]imply ‘doing no harm’ [...] is no longer sufficient” (Warhurst, 2005). The obligation of building a responsible society rests in the interplay between business, government, and communities (or NGOs).

Partnerships work where individuals fail for a number of reasons, most notably due to the unique talents and capabilities each member brings. Businesses bring capital, both human and financial, along with (hopefully) strong managerial skills. Non-profit organisations bring scrutiny and public trust. Finally, governments enable partnerships through legislation and red-tape reduction. Most importantly, however, is the often unmentioned benefit of NPO and government partners – legitimacy (Zadek, 2001, ch. 7). In areas where the public does not traditionally accept business, assuming the business has hidden non-altruistic motives, NPOs bring the much needed “license to operate” (Warhurst, 2005).



Figure 4: Responsible Society

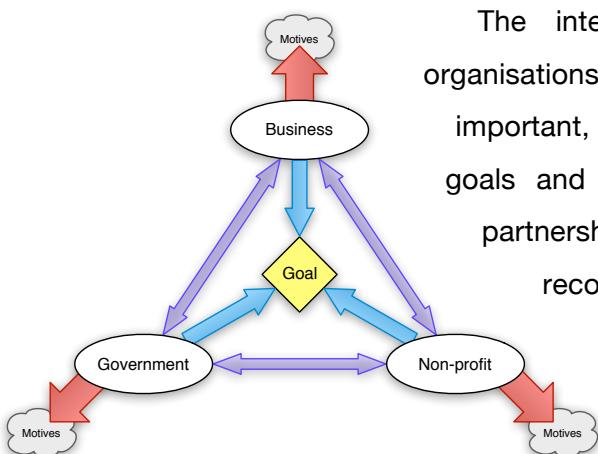


Figure 5: Partnership dynamics

The interplay of relationships between organisations within a partnership is also important, especially in regards to shared goals and the fundamental reason for the partnership's existence. As some note, recognising the real reason partners join together (and not necessarily accepting the hype about “improving the world”) is necessary to make a partnership long lasting (Macdonald and Chrisp, 2005).

and Chrisp, 2005). The stated goal brings groups together; their shared presence keeps them in dialogue, while, individual motives continuously challenge the partnership’s operation, threatening to draw it apart. Balancing the public good versus private gain is critical, as well as understanding the reason and motivation that brought each member to the partnership (Macdonald and Chrisp, 2005).

Traditionally, partnerships had a limited strategic role for businesses. Anecdotal evidence seems to imply that building positive brand perceptions was the most a business could expect from such partnerships; however, this limiting philosophy of “donate money to charity and show your brand” has fallen out of favour as the long-term benefits of issue-based or cause-related philanthropy are contested (Maignan and Ferrell, 2001) and does little to support business goals or community aspirations. Rather, the industry seems to be moving towards a more comprehensive theory of “doing good.”

2.4 Looking ahead: A case of “doing good”

Conventionally, the mantle of “social champion” has been shouldered by non-government organisations (NGOs). These NGOs campaign for change on a wide range of initiatives or topics, pushing both governments and businesses to reform for good. However, and as popularised recently by such high-profile success stories as the Bill & Melinda Gates Foundation’s HIV treatment centres (Gates and Gates, 2010), Fair Trade certified items (Fairtrade, 2010), and the Kimberley Process for conflict-free diamonds (KP, 2010), the challenges facing society today are simply too big to tackle alone. Partnerships have become increasingly more important to, and active in, business, political, and civil environments. These partnerships have grown more sophisticated in recent years, with a definite emphasis on “doing good.”

While some might argue that “the business of business is business,”³ others contend that philanthropic initiatives can greatly benefit business and society. Good CSR, then, with an honest desire to improve lives, can contribute to the competitive advantage of individual firms (Porter and Kramer, 2007a) and entire nations (Porter and Kramer, 2007b).

Zadek (2001) describes an emerging form of social partnership as the new face of corporate regulation. “Civil governance” builds upon the aforementioned unique capabili-

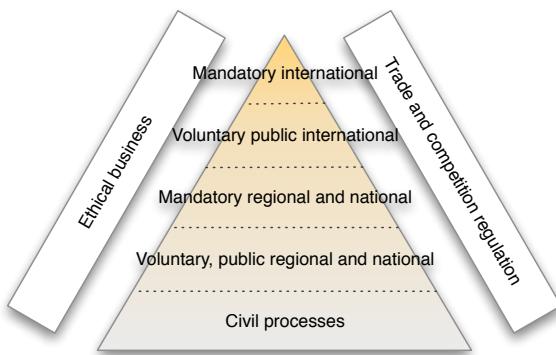


Figure 6: Governance hierarchies (Zadek, 2001: 96)

³ This quote is widely attributed to Milton Friedman, although this is disputed.

ties of partnerships with the unofficial, unlegislated power of industry compacts. Civil partnerships are a natural outgrowth, Zadek contends, of industries and nations embracing the tenets of CSR not as subtractive costs but as additive benefits. In effect, corporations could be governed through industry self-regulation and government intervention. NGOs have a vital role to play in such mature market-driven partnerships by providing unaffiliated third-party analysis, support, and of course, legitimacy.

Recent successes in industry-level self-regulation can be found in the Global Reporting Initiative (GRI) and the ISO 26000 and SA 8000 standards and accreditation schemes. These general use programs join established, industry-led voluntary programs such as Nike's Code of Conduct, Ethical Trading Initiative (ETI), Fair Labor Association (FLA), Worldwide Responsible Apparel Production (WRAP), and Fair Trade, among many others. Such programs are often heralded as proof that industry is moving towards "doing good" in every aspect of business.

The GRI includes a range of recommended Key Performance Indicators and reporting standards, allowing for ease of comparisons between years and between firms. However, the GRI is fully optional; one can easily find glowing GRI reports, extolling the virtues of a firm's CSR initiatives, which carefully omit other less-than-stellar performance measures. For example, the Hong Kong Stock Exchange, lauded as one of the most forward-thinking financial institutions in the world and one of the first to regularly report on sustainability issues, highlights reductions in office waste and electricity usage. Unfortunately, the report glosses over the electricity demands and environmental impact of operating a large-scale high-performance information exchange system with a market capitalisation of USD \$2.7 trillion (HKEx, 2009), implying that the GRI, while developed with the best of intentions, can prove to be less-than-helpful due to its voluntary disclosure nature.

Meanwhile, the International Organisation for Standardisation (ISO) is developing a new policy or framework for social responsibility – the ISO 26000 or simply *ISO SR*. While not intended as a full-fledged accreditation program, it is envisioned to serve as a starting point for businesses looking to redefine their processes around socially responsible practices (ISO, 2010). In contrast, Social Accountability International's (SAI) SA 8000 is an accreditation scheme incorporat-

ing many of the same ideas and philosophies, with full auditing practices and methodologies (SAI, 2010).

Not surprisingly, the GRI, ISO 26000, and SA 8000 have received substantial criticism. GRI is noted for being *too optional*, allowing a firm to cherry-pick performance indicators to highlight positive work while politely ignoring negative activities. ISO 26000 has no “teeth” since it is not an actual accreditation program. SA 8000 can be *too audit-focused* (with twice yearly audits required) and *too commercialised*. All programs suffer from a potential conflict of interest, as well. Commercial paid-to-perform auditors may be hesitant to give negative reports to their payers (Hiscox et al., 2008).

Most telling is the lack of evidence to unequivocally support voluntary certification schemes, especially those schemes that focus on labour practices and standards of living. Evidence can be found for and against; some reports imply accreditation programs are beneficial, but flawed methodology and lack of accuracy can be spotted with little effort (Hiscox et al., 2008).

Nonetheless, voluntary industry associations are the most recently embraced tools for spreading (and enforcing) corporate civil responsibility. The UN Global Compact is just such a tool. Introduced in 2000 by Kofi Annan, the Compact has since grown to over 7,700 participants across 130 countries (UN Global Compact, 2010). The program brought private corporations and the United Nations together. For the first time, national governments were *not* included in the discussions. Former Secretary General Annan remarked

When I speak about civil society, I don't mean only non-governmental organisations, though they are a very important part of it. I also mean universities, foundations, labour unions and – yes – private corporations.

(Annan, 2000)

With recognition of the positive power of private enterprise comes great responsibility. Never before have businesses played such a crucial role in public discourse, yet never before has business been so needed to overcome issues facing the world today. While the criticisms of CSR are many and varied, perhaps now is the time for CSR to “grow up” and assume its role in holding businesses, both public and private, both individually and as partnerships, accountable.

2.5 Summary: Making corporate responsibility work

Corporate responsibility has begun to “grow up.” Instead of denying their leadership role in society, many businesses have begun to embrace the opportunity to shape and define a positive future. Zadek (2007) and Warhurst (2009) independently traced the progress of maturing businesses from unruly children, through awkward adolescence, and finally to responsible adulthood.

Table 3: Corporate life stages in responsibility (adapted from Warhurst, 2009, and Zadek, 2007; life phases original work)

“Life phase”	Behaviour	Meaning
Unruly child	Defensive	“It’s not our job!”
	Compliant	“We’ll do just as much as we have to.”
Awkward adolescent	Managerial	“It’s part of the job.”
	Strategic	“It gives us a competitive edge.”
Responsible adult	Civil	“We need to make sure everyone does it.”

Growing up is not easy. Nonetheless, it is necessary and critical to the success of business severally and the nation entirely (Porter and Kramer, 2007b). One aspect that cannot be ignored is the positive role civil corporate responsibility plays in generating, and keeping, well-trained and impassioned personnel. Businesses committed to strong ethically and social responsibility programs often enjoy higher employee commitment, translating to greater efficiency and productivity (Peterson, 2004).

As the issues facing the world become more complex and critical, the tools and techniques to overcome these challenges must grow in sophistication as well. Creative capitalism, and the partnerships it enables, may be just such a tool for fostering more responsible, civil enterprises.

Chapter 3: Understanding Creative Capitalism

3.1 Why it matters: Creative capitalism defined

If “capitalism” is about “making money,” then “creative capitalism” is about making money while making an impact. Bill Gates, founder of Microsoft and co-trustee of the influential Bill & Melinda Gates Foundation, describes it more simply as “doing well by doing good” (Gates, 2008a).

Principally, creative capitalism works by leveraging the market-based self-interest forces of capitalism, tempered by the desire to support and help others. Adam Smith, long before writing his magnum opus *The Wealth of Nations* and setting in motion today’s economic discourse, opened *The Theory of Moral Sentiments* with a view on compassion and conscience.

How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortunes of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it. Of this kind is pity or compassion, the emotion which we feel for the misery of others, when we either see it, or are made to conceive it in a very lively manner. That we often derive sorrow from the sorrow of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous and humane, though they perhaps may feel it with the most exquisite sensibility. The greatest ruffian, the most hardened violator of the laws of society, is not altogether without it.

(Smith, 1759: 1)

While Smith’s later views on capitalism most certainly imply using humankind’s intrinsic self-interest to benefit, almost accidentally, all of society, “creative capitalism” makes social benefit the principal goal, balanced only by the need to perform financially and sustainably. Social benefit is no longer incidental, but intentional.

To understand “creative capitalism,” the two words should be explored separately; nonetheless, the phrase is worth far more than the sum of its parts.

Of course, capitalism is both enabling and limiting. It is enabling in the sense that private ownership of equity and minimum government interference (or corruption) handily outperforms state-based ownership. Capitalism has expanded markets and redistributed wealth in a way not before thought possible, and enables technology and medical advances to reach a far larger audience than before. Quality and length of life have nearly doubled in the last 100 years, while gender equality has risen and governance – the citizen government participation – has expanded (Gates, 2008b). “The world,” according to Gates, “is getting better” (Gates, 2008b). However, pure capitalism is limiting in its focus; namely, a focus on creating wealth for shareholders. This is where Gates believes that corporations, with just a small shift in philosophy, can effect seismic shifts in world economies. Instead of focusing on shareholders and already wealthy nations and customers, moving into developing and poor nations can provide significant returns. In effect, businesses should change their focus from creating wealth for *stockholders* and instead create wealth for *stakeholders*.

Creativity is principally concerned with imagination. The act of creation is to bring something into existence, while believable creation requires invested time, energy, and imagination. Such attributes are closely shared by two other well-discussed concepts in business – invention and innovation. A certain amount of risk is necessary to bring truly creative ideas to market, as the very definition of a creative idea includes no small measure of imagination. In a business sense, invention is to create something radical and new, something heretofore not seen in a commercial setting. Innovation is to refine and build upon an existing idea, to make it more effective (innovate, 2005). In a way, invention disproves the cliché “nothing new under the sun” but is rather more rare than innovation.

Creativity in capitalism is the same as invention in business.

cap•i•ta•lism – noun.

an economic and political system in which a country's trade and industry are controlled by private owners for profit, rather than by the state (capitalism, 2005)

cre•a•tive – adjective.

Relating to or involving the imagination or original ideas (creative, 2005)

3.2 Where it came from: Creative capitalism's origins

Bill Gates is widely considered the chief proponent of creative capitalism and indeed the foremost practitioner through the Bill & Melinda Gates Foundation, one of the largest such charitable foundations in the world at US \$33 billion (Gates Foundation, 2010a). Gates's ideas on creative capitalism and venture philanthropy were shaped by contemporary literature on poverty – more specifically, how poverty can be eradicated. Gates often states that about 2.5 billion men, women, and children live on less than US \$2.50 per day, and that creative capitalism is a vehicle for eradicating such poverty within our lifetime (Gates and Gates, 2010).

One of the most influential theories on poverty and capitalism's unique roles in addressing such economic inequalities is C. K. Prahalad's *The Fortune at the Bottom of the Pyramid* (2009), which Gates called “an intriguing blueprint for how to fight poverty with profitability” (Cited in Prahalad, 2009: cover). Prahalad argues that those in poverty should not be treated as victims but as potential markets; the phrase “base of the pyramid” has entered business lingo as shorthand for projects and products targeting the world’s lowest income segments. Prahalad offers numerous case studies to support his argument that poverty is an opportunity for economic growth rather than an economic drain, and that those businesses with a strong focus on innovation can succeed in not only “doing well” but “doing good.”

Other respected thought leaders Stuart L. Hart and Tod London join Prahalad. Hart’s (2007) *Capitalism at the Crossroads* describes how “bottom of the pyramid” philosophy must embrace sustainability, in particular environmental stewardship and long-term commitments to economic growth, in order to succeed. Hart and London (2004) performed one of the earliest empirical research efforts on bottom of the pyramid business models, finding some success and further reinforcing the ideals of sustainability and commitment.

A review of Prahalad’s prior research, leading to his theories on economic pyramids, reveals an interesting focus on *imagination* (Hamel and Prahalad, 1991). While few mention it when discussing Prahalad’s and Hart’s theories, or indeed Gates’s philanthropic efforts, imagination is critical to remaking the world; to see the devastating poverty in developing countries as an opportunity; to call

the world's poorest men and women partners; and to consider \$2.50 a day a potential investment.

3.3 Sister philosophies: Creative destruction

One of the earliest “new thoughts” on creativity in business and economic theory was voiced by Schumpeter (1943) as “creative destruction.” At first consideration, this idea seems oxymoronic at best or malicious at worst. However, the “creative” in this phrase relates to innovation or imagination, while “destruction” is more akin to demolition and undoing. Together, the central tenant becomes “out with the old, in with the new.” In Schumpeter’s own words

[t]he fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organisation that capitalist enterprise creates [...] [t]his] incessantly revolutionises the economic structure from within, incessantly destroying the old one, incessantly creating a new one.

(Schumpeter, 1943)

Creative destruction is “the essential fact about capitalism” (Schumpeter, 1943). Creative destruction can be found in history and may be considered a principal driving force of business. Drawn from the Austrian School of Economics, “Schumpeterian economics” has been likened to Keynesian economic theory for its treatment of money as a driver of economic development. Schumpeterian economics diverges widely, however, on who provides the impetus for growth. In this theory, entrepreneurs and the act of innovation serve to grow an economy and thus push the boundaries of business into new directions. This economic innovation is both disruptive and necessary, and closely aligned with evolutionary biology in its propensity for trial, error, and propagation of the best and brightest ideas.

Entrepreneurs are the agents of change, while innovation is their tool. Unfortunately, Schumpeter predicted the end of the entrepreneur in every-day economic development in favour of corporatism and bureaucratic “innovation think-tanks” who turn Archimedes’s “eureka!” world-changing moments into planned and calculated incremental adjustments (Schumpeter, 1947).

Evidence exists to support creative destruction, in particular around entrepreneurship and innovation. Non-continuous, step-change growth is an integral part of innovation, especially in advanced or industrialised economies. There is

some debate, however, on its efficacy in *industrialising* economies, where the creative destruction (or imaginative demolition) do not appear to yield the same economic leaps and bounds (Carlin et al., 2001). The tendency to replace, so central to creative destruction, does not seem to truly benefit developing national economies. Building *upon*, instead of replacing, a nation's infrastructure and economic base may be more effective to long-term growth and development. In this sense, "creative *construction*" – or more imaginatively, "creative capitalism" – may be just the solution. With a focus more on innovation rather than competition, expansive renewal rather than static replacement, imaginative uses of capitalist theories can improve an economic situation and should, with proper guidance, lead to improved livelihoods.

3.4 How it works: Good practice as good business

Bill Gates, in his speech describing how "creative capitalism" can redefine business, likened the philosophy to a new, more attuned incentive scheme or reward structure. In typical business thinking, a project, product, or market is explored only when the return on investment (ROI) is greater than the expected costs. Untangling the business parlance, this means the business gains more than it loses, and is often measured in monetary value.

Recognising that not all investments – particularly social investments or projects in developing nations – will provide financial rewards commensurate with the investment or risk, Gates describes "creative capitalism" as a business philosophy that substitutes other benefits for financial reward (Gates, 2008b). In other words, businesses receive recognition and reputation for "doing good." For instance, a business that launches a novel new project for the "bottom of the pyramid" might not expect grand financial rewards for several years or longer, but should receive recognition and brand awareness immediately. Businesses are thus compensated, in part, for their efforts in entering markets that would otherwise be ignored due to their low short-term returns on investments. Gates was arguing for a recognition-based economy.

This new "recognition economy" fits neatly with the Zadek's (2001) considerations of partnerships. In particular, Zadek describes the role of non-profits in public/private partnerships, where the non-profit provides these partnerships with legitimacy and public goodwill. Non-profit organisations "spend" their "reputation capital" on these partnerships. While "reputation capital" does not appear

on any financial accounting statement, it most certainly has real-world value. Consider the breadth of in-kind donations and financial resources for-profit businesses grant to non-profit organisations for the opportunity to link their goods and services to the non-profit's mission. A prime example would be the United Nations Children's Fund (UNICEF), which accepted over US\$2.8 billion from governments and businesses worldwide; the Barcelona Futbal Club is the first such club to *sponsor* an organisation rather than be *sponsored*, and has pledged €7.5 million over five years for the privilege of using the UNICEF logo on their uniforms (UNICEF, 2006).

Furthermore, the end results of such capitalism-as-philanthropy can improve overall market situations. Porter and Kramer (2007a) argued that corporate philanthropic programs, especially those without a focus on immediate returns, can cause long-ranging benefits for entire national economies. Both

Gates and Porter & Kramer advocate moving away from "pure business" and "pure philanthropy" to a middle stance, where success and profitability mean more than just business continuity. In fact, such philanthropy can reinforce the "competitive advantage of nations" when used creatively and strategically (Porter and Kramer, 2007a, Porter, 1990). Instead of simply providing funds and taking a step back, Porter and Kramer recommend a more direct or at least engaged role, whereby philanthropic projects are undertaken (and managed) which may support the business's overall goals. For instance, businesses that use dairy milk may support dairy farmers with education and financial tools; this improves the business acumen and capabilities (not to mention the future livelihoods) of dairy farmers while securing the business's milk supply chain (Porter and Kramer, 2007a, Smith, 1994). This strategic view of giving is the very heart of corporate citizenship. Businesses are "[l]ike citizens in the classical sense [and] cultivate a broad view of their own self-interest while instinctively searching for ways to align self-interest with the larger good" (Smith, 1994: 107). As Gates stressed, businesses can only "do good" sustainably if they "do well" first (Gates, 2008a, b).

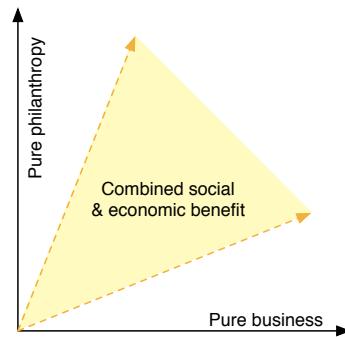


Figure 7: Philanthropy versus business

3.5 Everyone does well: Competitive advantage of nations

Porter (1990), extending his “Five Forces” model, developed a similar structure to describe the effects that individual businesses may have on industries and even nations. The resulting “Diamond Model” can easily be applied to non-profit and non-government organisations, and ties well with the “creative capitalism” philosophy. Porter returned to this model when he analysed the “competitive advantage of philanthropy” (Porter and Kramer, 2007a), providing numerous case studies showing the (one can argue) massively disproportional benefits arising from well structured and conceived corporate giving.

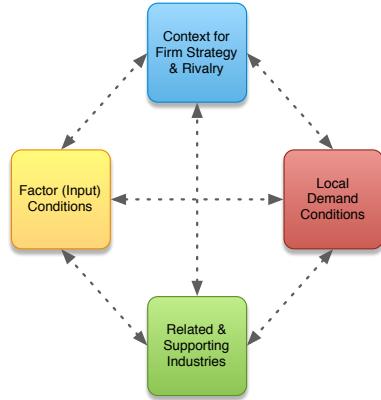


Figure 8: Porter's Diamond Model (Porter, 1990)

Zadek (2001) described a similar model, more tightly focused on intra-industry behaviour rather than national effects. Dubbed the “Oasis Pathway” model, it describes how industries adapt to CSR within enabling environments – and how it can fail if the environment turns negative.

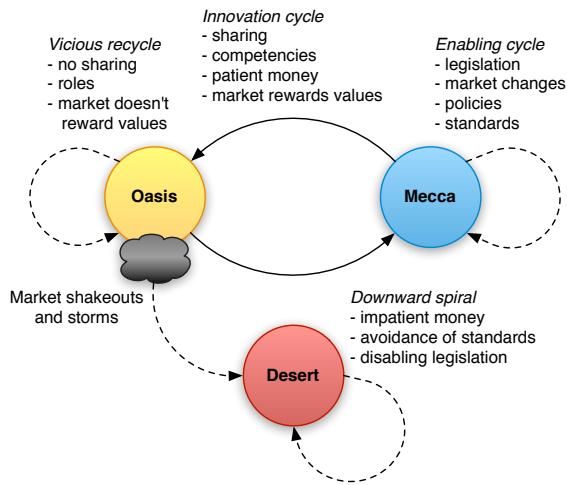


Figure 9: Oasis Pathway Model (adapted from Zadek, 2001: 60)

A prevailing sentiment can be found between Gates, Porter, and Zadek. There is no debate or trade-off of “profits” versus “principles” but rather “profits with principles.”

3.6 Walking the tightrope: Including for-profit methods in not-for-profit enterprises

As businesses and nonprofits grow, there is an increasing tendency for sharing of ideas and managerial methodologies. Historically, this transfer has been unidirectional – from private and public sector to non-profits, home-grown solutions developed by non-profits should be neither overlooked nor discounted (Anheier, 2000). A common and prevailing sentiment towards the management of non-profits, or indeed of any organisation which has aspirations beyond financial concerns, is that such firms are lacking any concrete “bottom line.” Without the simple, easy-to-grasp (and compare) financial statement and profit-line, determining how well a non-profit is performing becomes difficult. Especially considering that the benefits from non-profits may not be easily measured in quantitative terms, it is no wonder that non-profits are often considered to be less than business savvy (Jegers and Lapsley, 2003).

While such considerations may have been true in the past, the “third sector” has grown and adapted in recent years. One is through “cross-pollination” of ideas between business, government, and non-profits. The second key factor is in the development of new policies and practices for reporting.

Firstly, non-profits have been incorporating ideas and practices from the business community into their own organisations. This has the effect of diffusing new managerial tools and techniques into non-profits and (hopefully) improving their overall effectiveness (Jegers and Lapsley, 2003). Some firms seek to simply duplicate private sector techniques and tools, while others incorporate the parts that make the most sense (Myers and Sacks, 2003). A few non-profits take the private sector techniques and create something new and unique – often incorporating strong entrepreneurial spirit and a proactive, innovative approach to the future (Badelt, 1997, Myers and Sacks, 2003). However, non-profits can fall victim to the “liability of newness,” where business ideas come too fast to be properly analyzed, compared, and incorporated (Anheier, 2000). Non-profits can become overwhelmed by all the theories and ideas proffered by consultants as the newest solution to the oldest problem – running a success and sustainable business. Only by finding a balance between the financial needs and the non-profit’s purpose can the organisation successfully navigate the morasses of business solutions and find an operational model that suits their overall goal of “doing good.”

Secondly, the growth in reporting standards has created a new measurement tool. These standards and procedures allow for comparisons and valuations of an otherwise difficult to measure goal. As mentioned earlier (see 2.4), Social Accountability International's SA 8000 (SAI, 2010), International Organisation for Standardization's ISO SR née 26000 (ISO, 2010), and the Global Reporting Initiative's G3 (Global Reporting Initiative, 2010) provide a framework for discussing the social and environmental impact of doing business. While the efficacy of these standards are often challenged (see Hiscox et al., 2008 for a challenge of SA 8000), there is no denying that they allow debate. Tying into these standards is a need to collect data and understand the organisation's effectiveness (Krashinsky, 1997), as well as its larger effects on society (Kingma, 1997), and even the world (Herman and Heimovics, 1994, Kerlin, 2006). Zadek (2001, 2007) and Warhurst (2005, 2009) confirm that, while not perfect, these principles and reporting frameworks are at least a start.

Non-profits have begun to borrow the tools and techniques perfected in the private sector, including reporting standards, yet the particular needs and the fundamental purpose of these organisations must not be forgotten. By adopting a business mindset for operating, they ensure their legitimacy and license to operate; they are “doing well” while “doing good.”

3.7 What's wrong with capitalism: Issues & concerns

The first and perhaps most effect argument against creative capitalism is the historical performance and purpose of business – “making money.” Frankly, for-profit businesses are often not trusted (Zadek, 2001: ch. 4). To overcome this, CSR's partnership model is critical to legitimising, enabling, and focusing a business's place in “doing well by doing good.”

cor•po•ra•tion – noun.

An ingenious device for obtaining individual profit without individual responsibility (Bierce, 2005)

All CSR suffers from concerns over its efficacy and purpose. Creative capitalism, which marries business concerns with social problems so completely, is especially targeted. Some of the most prevalent, regardless of industry or line of business, are “not doing enough” and “not doing everything.” Since Mr Gates is a major proponent of creative capitalism and business's place in supporting and improving the world, both arguments will be described as they apply to his well-known charity, The Bill & Melinda Gates Foundation.

“Not doing enough” is an argument that positive work from CSR initiatives or programs is simply not enough to make a difference. This argument is pessimistic and ultimately self-defeating, however, as it criticises any positive efforts for not being positive “enough.” While true that many businesses may be able to “do more” – as in, they limit their CSR programmes unnecessarily – constant criticism of any ethical or moral programme, no matter how well intentioned, will cause business leaders to retreat from the topic entirely. This mindset can apply to even trivial, peripheral issues to a business. For instance, Zadek (2001: 185) recounted one business’s response to an anti-hunting activist group’s request:

As a water utility we are a major landowner. We have been approached by representatives from the anti-hunting league and asked to stop renting out a parcel of land for use by sports-hunters. To be honest, we don’t have a corporate view on hunting, and do not particularly want to have one. Where does this all end? If there is a church but no mosque on our land, will we eventually have to have a view on God?

For the Bill & Melinda Gates Foundation, the question arose during the Foundation’s work with malaria, HIV, and tuberculosis. The Foundation’s funding for these diseases, due to its sheer scope and size, would have the unintended effect of pulling resources and attention away from other issues, such as basic healthcare (Piller and Smith, 2007).

The second criticism of creative capitalism (and CSR in general) is the “boxed approach” some firms take. In these cases, CSR is one programme of the body corporate, leaving other programmes (such as investments) to operate independently and, perhaps, without CSR philosophies. In some cases CSR may be an “add-on” to the business and not yet fully integrated into the corporate culture. In other businesses, the opposite may be true whereby CSR is the central focus, and other “add-on” business lines have not internalised CSR mantras. Returning to the Gates Foundation, they have often been criticised for their seemingly lax view on investments, as a Los Angeles Times special report uncovered (Piller et al., 2007):

Justice Eta, 14 months old, held out his tiny thumb.

An ink spot certified that he had been immunized against polio and measles, thanks to a vaccination drive supported by the Bill & Melinda Gates Foundation.

But polio is not the only threat Justice faces. Almost since birth, he has had respiratory trouble. His neighbors call it "the cough." Peo-

ple blame fumes and soot spewing from flames that tower 300 feet into the air over a nearby oil plant. It is owned by the Italian petroleum giant Eni, whose investors include the Bill & Melinda Gates Foundation.

The Gates Foundation initially responded by declaring an impartial review of their investment practices (Helm, 2007), but later cancelled the analysis. No doubt they, too, felt that starting an analysis of their investment practices for this situation would bring other issues (and interest groups) forward. Zadek describes a dialogue with an investment firm when challenged on its own socially responsible investment practices (Zadek, 2001: 185):

Zadek: Can you explain why you are not applying any social or environmental criteria to your investments where you have publicly embraced the whole corporate social responsibility agenda?

Company: Because we have a legal and moral responsibility to our policyholders to ensure that financial returns are maximized.

Zadek: But the weight of evidence is overwhelming that the application of social and environmental criteria need not cost you anything and may even lead to better long-term financial performance of your portfolio.

Company: Be that as it may, it would be impossible to apply formal criteria. There are none that would always hold true.

Zadek: Really! Surely there are no circumstances, for example, where you would invest in companies knowing that they used bonded or slave labour.

Company: Of course not, and in fact we do check up on all sorts of things like that. We are very ethical in our approach. But we can't formalize it. The moment we said publicly that we were screening one thing out, people would ask why we were not screening out other things. It would never stop.

These arguments, especially when levied against The Gates Foundation, are quite surprising. If a charity as respected as The Gates Foundation, that granted approximately US \$5 billion (or about a sixth of its total assets) which is comparable to the annual operating budget of the World Health Organisation at US \$4 billion (Gates Foundation, 2008, World Health Organisation, 2008), can be called to account for its CSR practices, then all firms, large and small must carefully consider their own programmes. Engaging in CSR is not a single-step solution. It requires constant maintenance and attention to ensure the business stays true to its ethical and moral imperatives. However, boundaries are necessary, as

businesses do not have limitless resources and cannot tackle the entire world's concerns overnight.

3.8 Summary: Capitalism for long-term prosperity

Adopting the philosophies of creative capitalism is not without its challenges. Insufficient resources, limited time, and the simple realities of the business environment mean that companies should pursue CSR in such a way that it improves their own viability and sustainability. Mr Gates, when articulating the ideals of creative capitalism, often reminded listeners that businesses must be profitable to survive. While it would be fantastic to give away vaccinations, it is certainly not a sustainable practice. Such selfless giving would ultimately result in the business going *out* of business, and the giving would stop.

Creative capitalism addresses this issue and, instead, tells business to focus on “doing well” while “doing good.”

Chapter 4: Creative Capitalism at The Smallpeice Trust

The Trust began fundraising efforts in 2008; before this year, The Trust had not engaged in coordinated fundraising efforts to support its mission. Fundraising became a necessity following the economic downturn, which severely impacted The Trust's endowment and reduced the available budget. While fundraising may address the current liquidity issue and allow The Trust to expand its offerings and engagement with more students, The Trust should begin to think beyond simple fundraising and start to explore partnerships. To create such long-term partnerships and stabilise fund inflows to support ongoing initiatives, The Trust should consider novel ways of attracting and engaging businesses as partners.

This project first identifies the existing fundraising processes. Then, improvements are suggested to "plug the gaps" in the process to ensure more effective communications and convert more contacts into donors. The political landscape is briefly mapped and two industries are explored for identifying what messages may resonate most with potential donors. Finally, campaigns are planned for these industries, with new fundraising collateral imagined that combines industry research with a more emotive presentation.

This section was developed through frequent discussions with Gemma Murphy (2010) and Claire Fisher (Fisher, 2010), as well as through review of existing marketing materials; statements and descriptions of programmes, processes, and existing marketing materials are from these discussions unless otherwise noted.

4.1 The Smallpeice Trust: History & mission

Dr Crosby Smallpeice, who set aside £1.6 million of his personal fortune from earlier entrepreneurial engineering ventures, founded the Smallpeice Trust in 1966. The Trust's mission is to promote science, engineering, technology, and mathematics (STEM) education and careers. Dr Smallpeice believed that Brit-

ain's prosperity rested in a strong technical and manufacturing industry; The Smallpeice Trust carries this vision into the 21st century.

4.2 The Smallpeice Trust portfolio: Programs & products

The Smallpeice Trust offers four major programs or products. STEM enrichment days and residential courses are the staple of the portfolio and exhibit the lion's share of growth and development. The STEM-in-a-Box program has recently been launched to provide a low-cost do-it-yourself alternative to full STEM enrichment days, while Teacher Training Days are positioned to prepare educators for teaching STEM topics and materials in an exciting and captivating way.

Enrichment days are daylong science and technology exploratory courses, and may be thought of as "teaser" programs for the more extensive residential courses. Enrichment days are held at individual schools throughout the country and use hands-on exercises to teach schoolchildren science theories and engineering practice. These programs offer quick injections of STEM activity for schools and work in conjunction with existing school curriculums. Students may (and are encouraged to) move from enrichment days to full residential courses.

Residential courses invite up to a hundred students to an off-school site, usually a participating university, for a four-day STEM program. These courses include nuclear engineering, wind-energy design, minerals and mining, and vehicle design, among others. As with STEM Days, courses incorporate hands-on work, such as designing a working car or wind turbine, with foundational science knowledge and career information. These weeklong programs let students dive into an engineering discipline and explore possible career paths, often working side-by-side with practicing professionals and business leaders.

The third option is the recently introduced "STEM-in-a-Box" program, which is a self-contained STEM enrichment after-school program in a portable box. Relatively low cost, this option allows schools to establish and run an after-school program for up to twenty (20) students for one term, or about six to eight (6-8) weeks. These are often billed as cost effective means of continuing a STEM enrichment day and to keep excitement and interest alive.

A fourth, albeit less common, option is the Teacher Training Day programme. The Trust works with schools and businesses to better prepare educators in teaching STEM-related topics. Many educators may find this meshes with exist-

ing Continuing Professional Development programs. Educators gain the benefit of The Trust's expertise and knowledge of teaching STEM topics.

Enrichment day and residential courses are very well received by students, parents, and teachers, as well as by corporate and university sponsors. Complaints about the program are very rare, with only one or two each year. With approximately 15,000 participating students in 2008/09, such low complaint rates are commendable (The Smallpeice Trust, 2010). Clearly, the programs are recognised for their utility in engaging and encouraging students. The question then becomes how to communicate the utility and exceptional benefits of The Trust's offerings to potential sponsors.

Table 4: The Trust's program and product portfolio

Program	Audience⁴	Goal
STEM Enrichment Days	Students Schools	Promote broad awareness of and interest in STEM topics and jobs
Residential Courses	Students	Give students a "taste" of a particular STEM-related industry or career
STEM-in-a-Box boxes	Schools	Promote broad awareness of and interest in STEM topics and jobs
Teacher Training Days	Educators Schools	Prepare educators to teach STEM-related topics as part of normal school curricula

4.3 Finding diamonds in an oasis: Where The Trust works

As The Trust itself is not a business, the ideas of "creative capitalism" – doing well by doing good – are not directly applicable. However, The Trust is in the enviable position of helping *other* businesses achieve this and, with long-term thinking, helping to improve the entire nation.

Applying Porter's Diamond Model of the Competitive Advantage of Nations (Porter, 1990), The Trust's work fits neatly with improving the "Factor (Input) Conditions" by helping improve the overall size and quality of Britain's technical and engineering workforce. This improvement should have knock-on effects enabling businesses to innovate and adapt while refining and raising the demands of the population, pushing firms and related industries to further innovate. Ultimately, demand for The Trust's offerings and expertise in raising interest in engineering and technology will grow. This has a self-reinforcing effect, also known as a "virtuous circle."

⁴ "Audience" indicates the segmented normally targeted in marketing efforts.

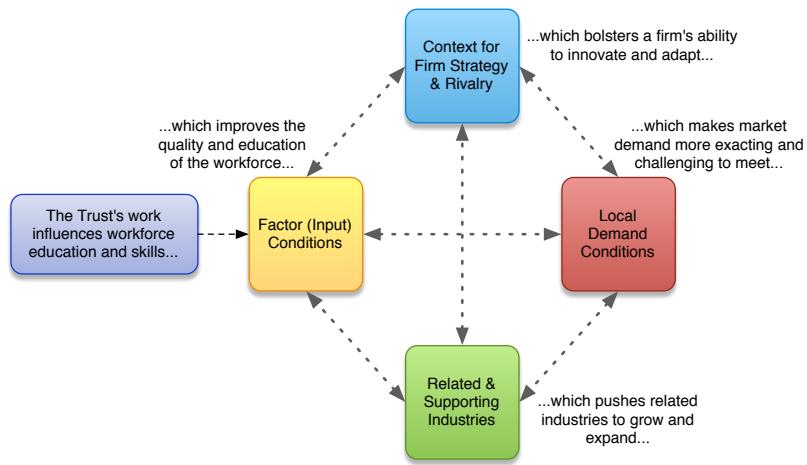


Figure 10: Porter's Diamond Model applied to The Smallpeice Trust (Porter, 1990)

Zadek's Oasis Pathway model (2001) is particularly apropos for The Trust's targeted industries – renewable energy and electric vehicles. Here, The Trust's efforts in raising interest in engineering and creating a more educated populace leads to more sophisticated demand. Combined with recent social changes and pressing issues, low-carbon technologies may benefit and grow towards "Mecca," or sustainable and long-term growth and prosperity.

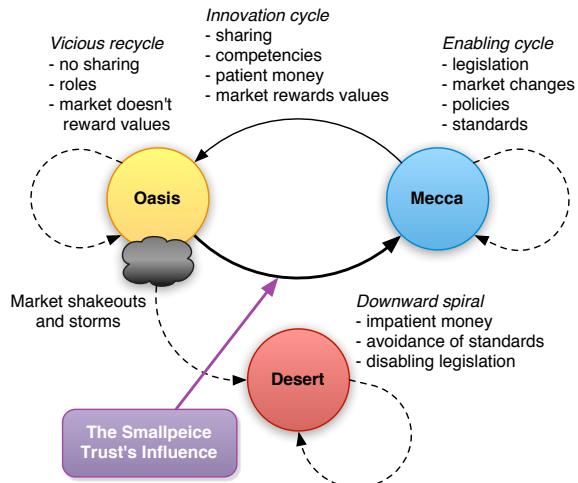


Figure 11: Oasis Pathway for The Smallpeice Trust (adapted from Zadek, 2001: 60)

4.4 What works now: Existing fundraising practices

The Trust's current fundraising activities are standard practices with established pipelines, relationship owners, and policies on engaging different organisational levels and stakeholders within a target organisation. The Trust has also built several "sponsorship packages" which facilitate discussions with donors by grouping several activities together. The following processes and programs were described by Murphy (2010) and Fisher (Fisher, 2010).

4.4.1 Pipeline

The Trust's fundraising "pipeline" is a combination of activity log, calendar, and reminder book. New potential contacts are added to the pipeline when identified. Where possible, actual individuals – preferably Managing Directors or Chief Executives – are contacted, rather than a corporation or business address. New contacts may be found through business and community events, recent news articles, or through hiring notices. Speculative contacts, where no prior relationship has been established, are acceptable. Initial contact is made to the sponsor's Managing Director or Chief Executive on behalf of The Trust's Chief Executive to arrange a meeting and (effectively) a "sales pitch." If the new contact is interested in a meeting, then an account owner is assigned to manage the relationship and the marketing department makes follow-up contact. Eventually, the newly made sponsor "leaves" the potential sponsor pipeline, preferably as a new relationship.

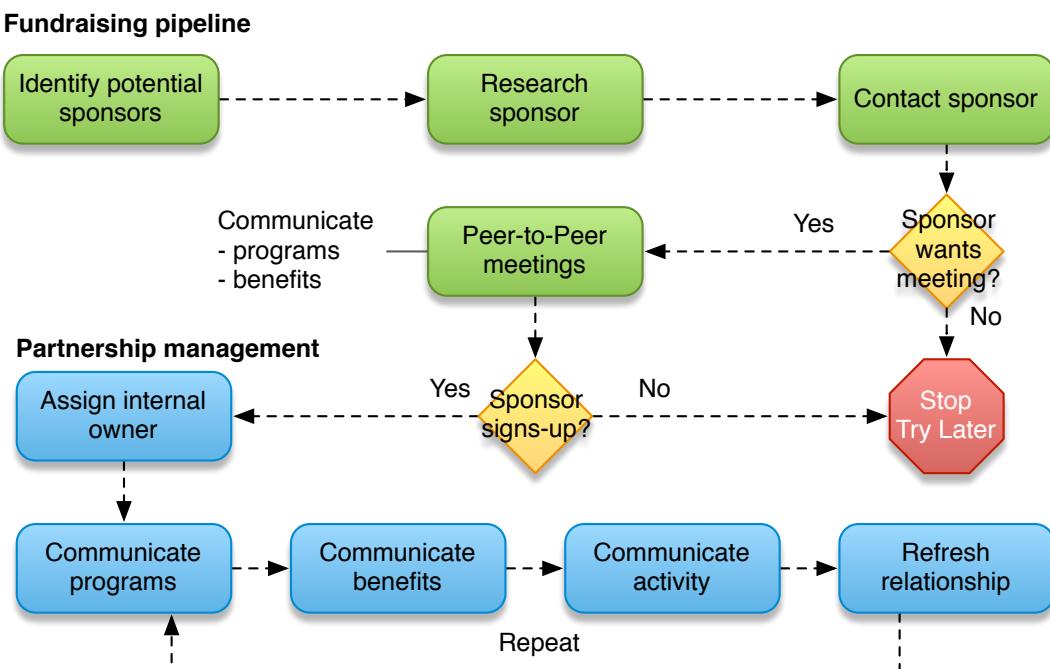


Figure 12: Smallpeice Trust Fundraising & Relationship Pipeline

A review of the individual step described in this diagram is included below.

Table 5: Fundraising pipeline steps

What	How	Who
Identify potential sponsors	Found through industry events, published reports, news broadcasts, job postings, or prior working experience.	Marketing team Executive officers Board members
Research sponsor/industry	Review public information.	Marketing team

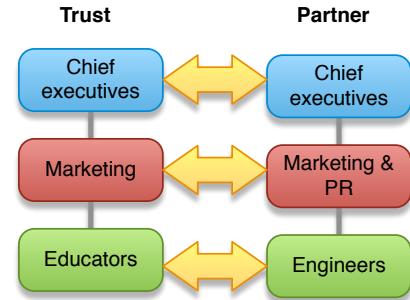
What	How	Who
Contact sponsor	Make initial, personalised contact. For instance, customised, hand-signed, and mailed letters.	Marketing team on behalf of executive officers
Peer-to-Peer meeting	Follow-up and arrange a meeting between executive officers.	Marketing team on behalf of executive officers

Table 6: Relationship management pipeline

What	How	Who
Assign internal owner	A primary point-of-contact is assigned to the new partner. This person is responsible for ongoing communication and relationship management.	Marketing team on behalf of executive officers and board members
Communicate programs	Quarterly updates on events, and yearly updates on course programs are made available through web, print, and mailings.	Marketing team
Communicate benefits	Programs are explained, with an emphasis on brand building potential.	Marketing team
Communicate activity	If a client has participated in an event or program, details are provided.	Marketing team
Refresh relationship	The client is re-engaged each year to showcase what The Trust has done.	Marketing team on behalf of executive officers and board members

4.4.2 Peer-to-peer meetings (“Layer-Cake Meetings”)

To better engage potential and established clients, meetings and dialogue are arranged on a peer-to-peer basis. Chief Executive speaks with Managing Director, marketing to public relations, educator to engineer. This allows each layer of the client’s team to liaise directly with the appropriate layer of The Trust. This is expected to build rapport quickly and allow for ease of cooperation, at the expense of greater complexity and team management.

**Figure 13: Peer-to-Peer Meetings**

4.4.3 Sponsorship forms

Sponsorship can be roughly separated into three categories – in-kind support, general-purpose (“unrestricted”) donations, and purpose (“restricted”) sponsorship.

In-kind support at The Trust is colloquially known as “Ambassadors.” These industry ambassadors join The Trust’s educators and administrators during a

STEM enrichment day (rarely) or residential course (commonly) and may play an integral role in the course delivery. Many sponsors elect to use this as a component of their leadership development programs; for instance, participating in a Trust-organised weeklong STEM residential course may be part of a business's standard graduate or junior executive leadership development program.

General-purpose donations are simple cash or similar donations to fund The Trust's educational courses. In a charity context, these are considered "unrestricted" and can be used for any purpose. This form is unsurprisingly rare, as businesses often prefer some control of the use of their donations. Government and other grant-making agencies may be more lenient.

Finally, course sponsorship may be as simple as providing funding for specific a residential course or offering teaching facilities, or as complex as developing and administering a program. For example, one institutional sponsor provides full funding for a course and related activities, expecting The Trust to manage and administer the entire program, while another corporate sponsor developed and administers their own custom course and relies upon The Trust for its expertise in recruiting students.

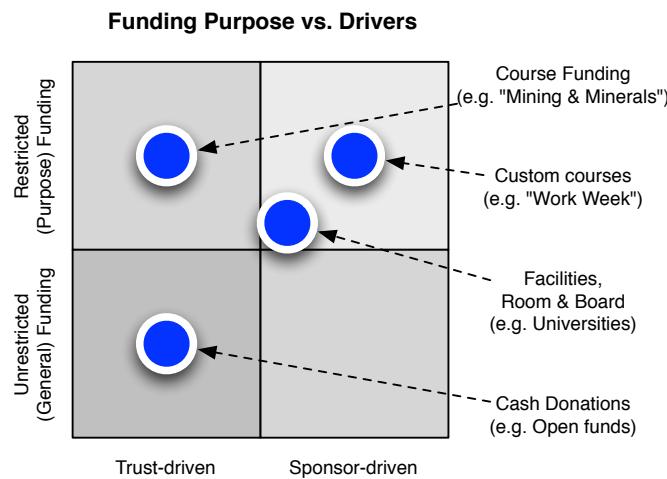


Figure 14: Funding purpose vs. drivers in The Trust's offerings

4.4.4 Sponsor involvement

As mentioned, sponsors may be involved in The Trust's programs at varying levels. The Trust has found a clear tendency for sponsors to "move up" the involvement spectrum over time.

4.4.5 Sponsorship bundles

The Trust has introduced "Grow Your Workforce" sponsorship programs or bundles to support its message when communicating with would-be sponsors.

These bundles combine several options and activities into one easy-to-describe package, highlighting the links between them, and how they lead to and support each other. In this bundle, the STEM enrichment days act as feeders for the residential week; the "most switched-on" students from each enrichment day are invited to participate in the residential week.

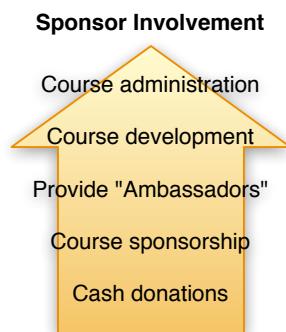


Figure 15: Sponsor involvement

Table 7: Example "Grow Your Workforce" with a 100-student residential course

Program	Instances	Students per course	Total students
STEM enrichment days	20	50	1,000
Residential week	1	100	100
Total	21		1,000

The "STEM-in-a-Box" program is billed as an "add-on" or extension to the program, or as an effective means of "testing the waters" for potential sponsors. Sponsors can purchase and distribute a number of "STEM-in-a-Box" boxes and deliver them to target schools.

Table 8: Example STEM-in-a-Box bundle for a 20 after-school programmes

Program	Instances	Students per box	Total students
STEM-in-a-Box	20	20	400
Total	20		400

4.4.6 Success rates and benchmarks

The Trust reports variable success rates. More recent campaigns, especially following The Trust's rebranding efforts several years ago, along with the newer marketing collateral created by the Warwick Business School Practice of Management team (2009/2010), have raised The Trust's success and conversion rates.

Table 9: Trust versus industry benchmarks (adapted from Sargeant et al., 2006, Sargeant and Kähler, 1999)

Level of Contact	Trust		Industry Benchmark	
	Rate	ROI (£)	Rate	ROI (£)
Unsolicited mailing (e.g. “cold” contact)	4.9%	n/a ⁵	0.6%	1.01
Retention mailing (e.g. “warm” contact)	“high” ⁶	“high” ⁶	7.5%	3.41

General fundraising benchmarks indicate that UK charities, on average, spend between £0.01 and £0.51 on fundraising for every £1.00 raised, with a mean rate of £0.08 (Sargeant et al., 2006). It should be noted that this mean rate is deflated by large gift giving and institutional funding, both of which offer considerable ROI – exceeding £100.00 returned per £1.00 spent in many cases (Sargeant et al., 2006, Sargeant and Kähler, 1999). For the majority of non-profit organisations such as The Trust, corporate fundraising (e.g. soliciting donations from businesses) in particular will generate a return on investment of £5.32 per £1.00 spent, with some top-performing organisations seeing an ROI of £10.47 per £1.00 spent (Sargeant and Kähler, 1999). There seems to be a correlation between the size and reputation of the non-profit when soliciting from businesses; this may be explained by the business’s desire to associate strongly with well-known non-profit brands (Sargeant and Kähler, 1999).

In 2009, The Trust expended approximately £121,000 on fundraising activity, on total operating expenditures of approximately £2.8 million (4% spent on fundraising). These activities generated approximately £397,000, leading to a return on investment (ROI) of 328% (Charity Commission, 2010). This means that it costs The Trust £0.33 per £1.00 generated – slightly above the national average cost and below the national average corporate giving rate.

However, it should be noted that these benchmark estimations are not limited to corporate giving; may undervalue in-kind giving, such as facility usage provided by universities; and inflate the costs of donation solicitation.

This slightly lower-than-average ROI for corporate giving may be explained with qualitative data. Firstly, The Trust has only recently begun corporate fund-

⁵ The Trust does not currently allocate individual expenses to fundraising except at the end of the year, so this figure is not calculated here.

⁶ Anecdotally very high, as “drop-outs” (e.g. a company not sponsoring The Trust from one year to the next) are relatively rare. The Trust has built strong partnerships with certain companies that have extended for years.

raising (indeed, any fundraising) so the nascent skills and pipelines are still maturing. Secondly, the economic downturn starting in 2008 may have reduced the potential giving ability of the business community. Finally, generating long-term partnerships may take more than a year – typically 18 months – so these figures may include sunk costs related to relationship building that will be recouped in later years.

Exploring the third explanation – of a longer than twelve-month pipeline – comparing figures from prior years may yield some insight. According to financial filings, The Trust has consistently brought in more funds (voluntary income) than expended (Charity Commission, 2008, 2009, 2010). Comparing the current year's income versus the prior year's expenditures yields much higher results and closer to what is anecdotally expected by The Trust (Murphy, 2010). It remains to be seen if future years follow the trend of increasing income versus expenditures as seen between 2008 and 2009. As expenses rose by 70%, one can expect voluntary income in 2010 to increase accordingly, to approximately £675,000. There is some credence for analyzing fundraising on a delayed basis; already in 2010 The Trust has raised £874,000, indicating an estimated ROI of 722% as of September 2010 (Murphy, 2010).

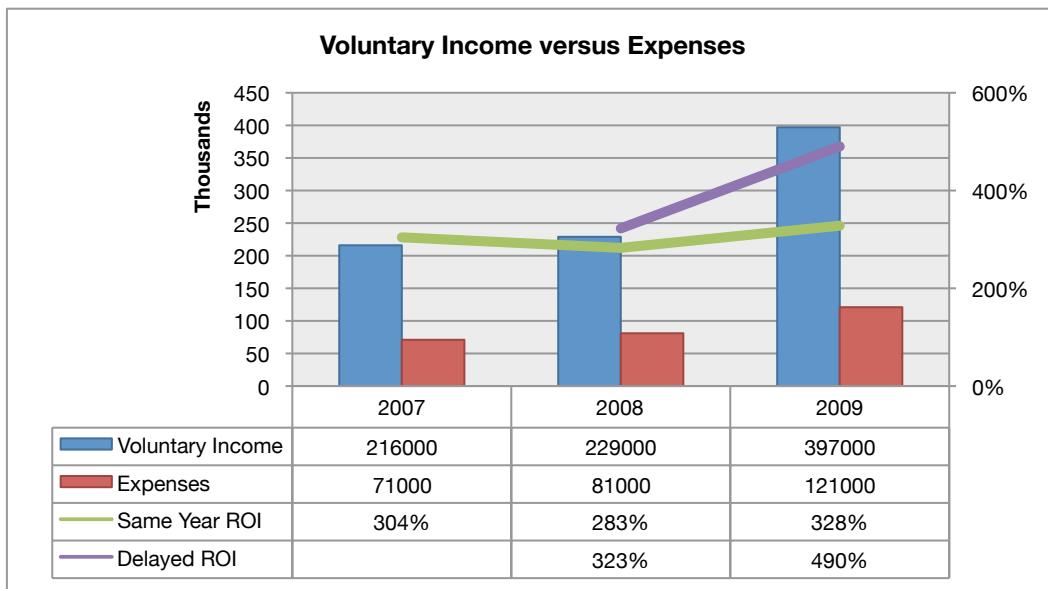


Figure 16: The Smallpeice Trust income versus expenses (Charity Commission, 2008, 2009, 2010)

Further benchmarking and analysis, especially in regards to corporate or private sector fundraising, could be a valuable source of information for The Trust.

The second and third explanations are not within The Trust's ability to directly affect, although they should be considered when benchmarking against industry standards. However, The Trust can focus on maturing the fundraising pipeline, and of course is the focus of this project.

4.5 What is missing: Gap analysis of processes

Focusing on the maturation of The Trust's fundraising pipeline and partnership management, the aforementioned processes were carefully considered. During the course of the project, and as new campaign materials were produced (see appendices for examples), the process was revised slightly. Remaining conscious of The Trust's limited resources (including available funds and employee time) new ideas were considered which have the highest promise of impact with the lowest overall implementation costs. These changes largely revolve around the pre-partnership research and post-partnership communication – in other words, before and after sponsored activity.

Articulating the unique offerings of The Trust, and the impact of its work, will help The Trust capture the imagination of businesses and persuade them to form multi-year partnerships. Pre-partnership communication should highlight how The Trust benefits communities and industries (see 4.5.1–4.5.4 for more details). Post-activity dialogue should then focus on non-cash-based “returns on investment” (see 4.5.5 and 4.5.6 for more details).

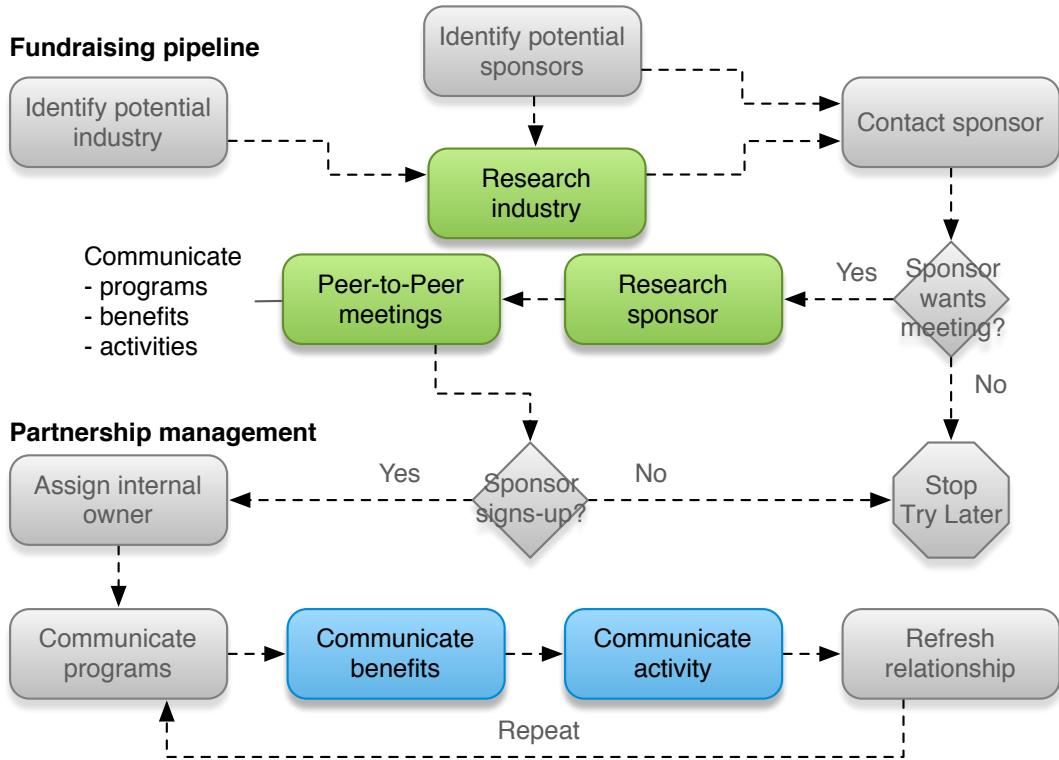


Figure 17: Revised fundraising pipeline & relationship management

The following process analysis was informed by the Soft Systems Methodology, a system whereby business processes (such as The Trust's fundraising pipeline) were compared, reviewed, and decomposed to find areas of potential improvement (Gasson, 2005). While this methodology is mostly intended for information systems and social cognition, its strong focus on innovation makes it ideal for analysing The Trust's opportunities.

Table 10: Key tasks for maximising impact

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Research sponsor	Identify business needs	★★	★	★★★
	Identify decision makers	★★	★	★★
Research industry	Identify industry needs	★★★	★	★★★
Hold Peer-to-Peer meetings	Articulate industry needs	★★★	★	★
	Articulate benefits	★★★	★	★
	Articulate activity	★★★★	★★	★★
Communicate benefits	Articulate benefits		(as above)	
Communicate activity	Articulate activity		(as above)	

In this table, two key tasks are repeated – “Articulate benefits” and “Articulate activity”. During the “Peer-to-Peer meeting,” The Trust can show examples

of benefits and activities other companies have experienced, which will have very low costs to produce and use. The real cost is incurred when first creating these materials in the “Communicate benefits” and “Communicate activity” stages of relationship management.

4.5.1 Identifying a business's needs

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Research sponsor	Identify business needs	★★	★	★★★

After making initial contact with a business, and before the “layer cake meeting,” the business should be quickly researched to identify key topics. Such research, however, should be fairly direct and simple; research provides diminishing rates of return, thus too much research can be time consuming and wasteful. Key elements to consider include the following items:

Table 11: Key items to consider for business analysis

Key Item	Where to Get It	Impact
Industry events and news	As from 4.5.2	★★★
Number of employees	With access, Bureau Van Dijk's FAME and AMADEUS databases should have this data For listed companies, financial websites such as Google Finance or Yahoo! Finance For unlisted (private), try press releases and company website	★★
Postcode details	Postcodes can indicate population demographics as well as financial situations – for instance, a postcode might indicate a manufacturer is the largest employer in a given region	★★
Profits and operating income	With access, Bureau Van Dijk's FAME and AMADEUS databases should have this data For listed companies, financial websites such as Google Finance or Yahoo! Finance For unlisted (private), try press releases and company website	★
Recent events and news	A general news service or press release service may indicate recent events, such as contract awards or product launches	★★★

In Brief: This process is time consuming and prone to imprecision. High-level data, such as the business's postcode and recent news articles or press releases, should be sufficient to inform general views of the challenges facing the business. Additionally, this step should only be undertaken when the business has shown positive interest in The Trust's operations and value proposition.

4.5.2 Identify industry needs

Stage	Key Task	Potential Impact	Expected Costs	Expected Time

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Research industry	Identify industry needs	★★★	★	★★★

A critical part of The Trust's fundraising operation and value proposition is their unparalleled knowledge and experience of working with young people and educators in STEM education. The Trust has recognised a need to customise their offerings for the future United Kingdom, and one key step is to understand the industry landscape, along with forecasts and projections of what technologies and skill sets will be needed. This is a highly complex and nuanced field of research, with multiple viewpoints and stakeholders. Key information may be gathered for the following areas:

Table 12: Key items to consider for industry analysis

Key Item	Where to Get It	Impact
Business innovations	Trade magazines and publications	★★★
General trends	Market assessments	★
New business ventures	News reports and press releases Trade magazines and publications	★★★
Occupation growth	Market assessments Government reports and statistics	★
Public policy statements	Government states and releases Government reports	★
Technology innovations	News reports and press releases Trade magazines and publications	★★

In Brief: Constant monitoring of the industry environment is necessary to provide a full picture businesses face. However, care must be taken to balance data collected – most sources of news or data are not without bias, especially from business sources. Where possible, rely upon “triangulated data” that can be independently verified by at least two, and preferably three, sources.

4.5.3 Identify decision makers

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Research sponsor	Identify decision makers	★★	★	★★

A major component of The Trust's fundraising campaign effort focuses on key decision makers; the Managing Director or Chief Executive of prospective sponsors is usually contacted directly. Identifying this person can sometimes be difficult.

Table 13: Key items to consider when identifying sponsors

Key Item	Where to Get It	Impact
Chief executives and chairpersons	Financial statements For listed companies, financial websites such as Google Finance or Yahoo! Finance For unlisted (private), try press releases and company website With access, Bureau Van Dijk's FAME and AMADEUS databases should have this data (Note: this data is accurate as of the time of filing)	★★★
General executive contacts	LinkedIn or the company's website	★

In Brief: Contacting the right person is critical to raising The Trust's rate of success. The fastest means of identifying the managing director or chief executive is through the financial records of the company, as usually the MD or CE must sign-off on any public financial statements and records.

4.5.4 Articulate industry needs

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Peer-to-Peer meetings	Articulate industry needs	★★★	★	★

Once contact is made, the needs of the industry must be articulated in a way that both exemplifies The Trust's knowledge of the industry, as well as appeals to the particular needs and concerns of the business. This requires taking an intellectual as well as emotive approach through a variety of tools.

As part of this project, three such tools were developed for trialling in the two targeted industries. These materials incorporate industry data as identified in 4.5.2, in an “infographic” form where charts, images, and text are used to create an “emotive punch” for facts and figures. Please see Appendix D: Renewable Energy Collateral and Appendix E: Electric Vehicle Collateral for these campaign collateral pieces.

Several key stakeholders have been shown the materials to favourable impressions. These materials will also be showcased during The Trust's upcoming meeting at the House of Commons in January 2011.

4.5.5 Articulate benefits

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Peer-to-Peer meetings	Articulate benefits	★★★	★	★
Communicate benefits				

To create truly sustainable, long-term partnerships, the benefits to a company must, on some level, address the business's overriding concern – its financial bottom line. A program which does not provide some reassurance to a business of its return on expenditures is more likely to be suspended or ended, as the business may no longer consider it financially viable. Therefore, articulating the benefits for the company as something more than brand building – for instance, by tying The Trust's work into long-term engineering-related educational opportunities – is needed.

The Trust has certainly articulated their role in promoting the uptake of engineering and technology related educational opportunities. Businesses with a long-term view on the market will instantly understand the importance of The Trust's programme. Unfortunately, businesses with shorter focuses ("short-termism") may not see value in supporting The Trust's mission, as it can take up to 10 years for a young student to first attend a Trust-sponsored event and then graduate university with an engineering degree and join the labour force.

Therefore, it is advisable to first articulate the long-term benefits in a simple to understand manner, and to introduce more short-term benefits to companies.

Thankfully, data and reports created for other partners (described in 4.5.6 below), when presented as a "case study," can be leveraged. Additionally, data collected for articulating an industry's long-term needs can be used as well. This should create a more emotive response for businesses, while maintaining a strong informational content.

4.5.6 Articulate activity

Stage	Key Task	Potential Impact	Expected Costs	Expected Time
Peer-to-Peer meetings	Articulate activity	★★★★	★★	★★
Communicate activity				

Articulating the activity The Trust has performed on behalf of a sponsor using the sponsor's funds is important for converting a first-time sponsor into a multi-year partner. The Trust has begun to explore "press packets" for after-action delivery to a sponsor. Such press packets often include the following:

1. Copies of press releases issued
2. Where said press releases have been sent
3. Photos of the day, where feasible

4. Student and educator responses

Parallel to this press packet is a new “Activity Report Card.” As the name implies, it is a report on the work The Trust has performed for a given period – such as on the completion of a sponsorship program, or for each year. Like the industry reports and other fundraising collateral, this Report Card uses graphics and charts to create an “emotive punch.” For instance, a report stating the number of students on a course is rather uninspiring; a report placing this into a graphical form with context and extrapolated figures can capture a person’s imagination.

An uninspiring example might be the following:

In 2010, 21 programs were offered reaching 934 students.

Figure 18: Uninspiring report-based example

In contrast, an inspiring example might be the following (total people reached can be estimated by multiplying the number of families reached by 2.4, the average family size in the United Kingdom (United Kingdom. Office for National Statistics, 2009)):

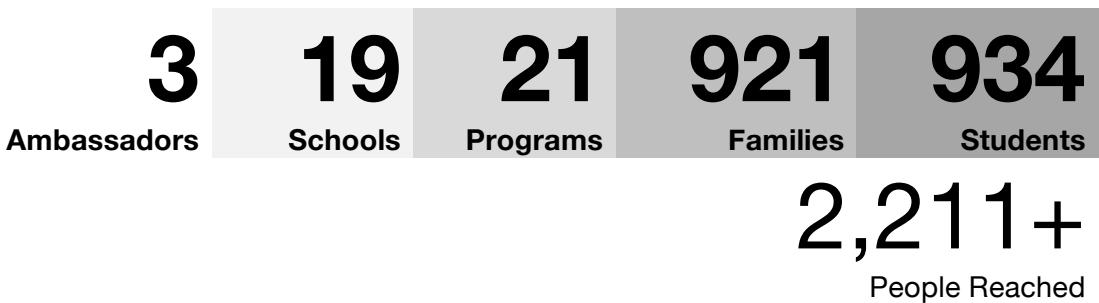


Figure 19: Inspiring graphic example

These Report Cards are integrated with the Global Reporting Initiative (Global Reporting Initiative, 2010); in particular, The Trust’s events and programs fall under Performance Indicators Economics 8 and 9, and Society 1 of the Global Reporting Initiative reporting guidelines. When the “infographic” Report Card is issued, it will be accompanied by an insert for the business’s annual GRI report, directly indicating where the Report Card’s information fits in the GRI framework. For a complete example, please see Appendix C: Activity Report Card.

4.6 Campaign philosophies: handling new materials

As many of these materials are new to The Trust, developing new processes to understand their full impact is important to ensure that these new ideas and materials do, in fact, have a positive effect.

4.6.1 Testing new collateral

This project has produced new collateral not tested in the field. To validate the efficacy of the project's materials, and to inform future developments, it may be useful to use these campaigns as "field trials." While certainly not scientific, it is feasible to collect simple statistics.

To test these materials, the below program plan can be used.

- 1) Divide the contact list into two groups pseudo-randomly – the groups should be balanced in size.
- 2) For the first group (Group A)...
 - a. Send only the unsolicited contact letter.
 - b. Send a follow-up letter and the relevant "fact booklet" 3-4 weeks after the first contact.
- 3) For the second group (Group B)...
 - a. Send both the unsolicited contact letter and the relevant "fact booklet" in the first contact.
 - b. Follow-up with a standard letter 3-4 weeks after first contact.

By dividing the contact list into two categories, and sending the "fact booklet" at different points in the contact cycle, it should reveal some difference in response rates. It is entirely possible that the data will be unduly influenced by external events, of course.

4.6.2 Using the Report Card

The "Activity Report Card" is designed to highlight the positive effects of The Trust's work with business partners. As such, the "infographic" is envisioned to showcase only facts and figures from the partnership. The report card incorporates three major pieces of customised data.

First, the “**impact onion**” diagram estimates the full range of impact of the partnership – how many individuals, students and parents included, that were reached by the program. This can be estimated by taking the number of students on a course, estimating the number of families that participated, and multiplying by the average UK household size (2.4 in 2009) (United Kingdom. Office for National Statistics, 2009).

Second, the “**boy/girl ratio**” diagram shows the number of boys and girls on a course. In some courses, this figure will be quite low, but can serve as an excellent discussion point for initiatives and join tprojects to improve the ratio and encourage more girls to take up engineering courses. In cases where a partner only supports STEM enrichment days (where records of students are not kept), it would be suitable to use the average ratio figure with an appropriate note.

Third, the “funding versus expense” chart is designed to highlight that the funds donated to The Trust’s projects go to support the courses directly, and not to swell The Trust’s endowment. This chart currently distinguishes between funding (course fees, business contributions, university contributions, and The Trust’s contributions) and expenses (course direct costs, housing and board, and The Trust’s administrative costs). It is entirely acceptable to use estimates for some fields, such as the costs of room and board. It is also important to note that subsidies – whereby a sponsor donates more than the cost of the course – can be added to the course costs.

4.6.3 Emotions & Logic: Moving up the pyramid

One philosophy behind the creation of these new materials is the idea of marrying emotional appeal with rational arguments. This may best be found in the Customer Based Brand Equity (CBBE) pyramid model, which highlights the development from brand salience through active resonance (Keller, 2008:38-48).

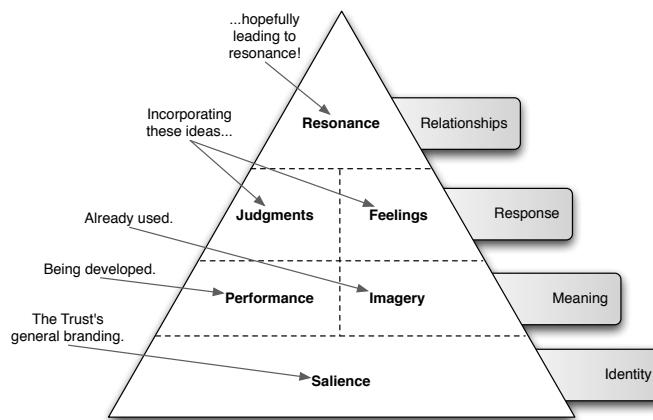


Figure 20: CBBE for The Trust (Adapted from Keller, 2008:38-48)

Salience: Typified by The Trust's existing marketing collaterals, such as logos, taglines, etc.

Imagery: Event photos, dinners, etc. Very easy to leverage with a strong emotional impact, as students and children are The Trust's beneficiaries.

Feelings: Generated by imagery and attempt to create a response. Again, the image of a student exploring science and engineering is very powerful and can engender an emotional response easily.

Performance: Relatively new for The Trust, this includes benchmarks and data to support The Trust's statements of benefit. This is critical for some "less-emotional" audiences, such as grant makers and government funding bodies, as they typically need solid statistical data to support grant requests.

Judgements: Also relatively new, this builds on metrics collected for proving performance, with determinations on "next steps" to create a response.

Resonance: Combines feelings with judgement (emotion with logic) to create ongoing action.

As mentioned, the collateral developed here attempts to leverage performance data and graphic imagery to create an immediate logical and emotional response, ultimately leading to action.

4.7 Championing engineering education: Advocacy & public dialogue

Research comparing philanthropic programs from various countries, in particular between the United Kingdom and the United States, found that public advocacy is a powerful influencer of an individual's perceptions of a charity. In

Herman and Heimovic's (Herman and Heimovics, 1994) research, the top two influencers in perceptions of a non-profit or charity's effectiveness were fundraising as a portion of budget (lower is better), and public education and advocacy (higher is better).

This is not to say that The Trust should immediately launch new a new political unit. However, "advocacy" covers a wide range of techniques and tools; for instance, The Trust could expand upon their letter writing and government engagement without extensive investments or exposure to the political battlefield. This would also provide The Trust with a ready avenue for showcasing its industry research, as well as the great benefits possible through their STEM enrichment days and residential courses.

Other research has shown that improved perceptions of an organisation's effectiveness extend equally to the organisation's employees, leading to improved performance and commitment (Peterson, 2004).

Again, advocacy is **not** synonymous with politics, rather, The Trust can **champion** the benefits of STEM careers for students and young people.

4.8 Forecasting the future: Political maps

Forecasting politics, especially in an environment as turbulent as today's economy, is nearly impossible. However, reviewing policies and current events is necessary to make informed decisions concerning such long-term projects as energy security and sustainability, as well as manufacturing, engineering, and other science related industries.

Initially, a review and comparison of political policies and affiliations was considered as a useful potential source of information as well as for long-term planning. However, after collating information and building comparisons, it was determined that political reviews were largely irrelevant. This is not to say that politics are unimportant, but rather that The Trust is apolitical. Supporting the educational opportunities of young people comes first.

The data collected and prepared in this analysis is reproduced in Appendix B: Political Party Policy Comparisons for reference, but has little bearing upon the remainder of this project except in specific cases (such as government policies on reducing its carbon footprint).

4.9 Targeting more effectively: Key industries

United Kingdom industries were compared using data from publicly available sources as well as financial filings to derive a ranked list of future impact and desirability scores. Please see Appendix A: Industry Overview for complete details and methodology. These scores incorporate the overall industry market value, forecasted growth, and social and political impetus (as described in Appendix B: Political Party Policy Comparisons) using a weighted measure. Industry desirability scores were averaged together into industry *categories* (such as “energy” or “health”) as well as *specialties* (such as “civil engineering” or “chemical engineering”). Again, categories and specialties were ranked by overall desirability. This exercise allows for a simple view of the United Kingdom STEM-based industry outlook, as well as a tool for focusing research efforts where such research may have the biggest impact.

Several surprises arose, such as the anticipated importance of oil and coal in the future of the United Kingdom even though such industries and technologies have fallen out of favour with citizens and politicians alike.

As a comparison, global industry forecasts were also collected. A stark contrast can be seen between how the United Kingdom and how the world is expected to develop in the coming decade.

4.9.1 Industry category analysis

In aggregated categories, energy was the clear leader and includes basics such as energy production and electricity distribution, as well as related fields such as oil and gas. The service industry category mostly focuses on logistics and distribution, as well as the wide range of transportation technologies such businesses require. Finally, the engineering category includes all industries of design and production, including architecture as well as physical construction. Globally, mining (such as aluminium, steel, and coal) were clear leaders (no doubt encouraged by a discovery of nearly USD\$1 trillion deposits, *Afghans say US team found huge potential mineral wealth*, 2010), along with scientific (research-based) industries such as diversified and industrial chemicals. Most surprisingly, considering the reports of China’s insatiable energy needs, energy and electricity were ranked third.

Table 14: Industry Category Ranks

Category	United Kingdom	Global
Electronics		7
Energy	1	3
Engineering & R&D	3	4
Health	5	5
Logistics & Transport	2	7
Mining	4	1
Science	6	2

4.9.2 Industry speciality analysis

When reviewing industry specialties (e.g. engineering degrees), similar differences are found between United Kingdom and global industry desirability scores; this implies that the industries and expertise the United Kingdom needs in coming years are not shared by other nations.

Energy topped the list, as expected. Marine and aerospace engineering completed the list, driven no doubt by the growing need for the supportive role of logistics in modern business. Reflecting findings from global industry forecasts, materials and minerals engineering specialties are of paramount importance, with automotive engineering completing the top three.

Table 15: Specialty Category Ranks

Specialty	United Kingdom	Global
Air	3	10
Automotive	5	3
Chemical	8	4
Civil	6	7
Electronic	9	9
Energy	1	5
Marine	2	6
Materials	10	1
Medical	7	8
Minerals	4	2

4.9.3 Targeted industries

Using this research, and in consultation with The Trust's existing client and course portfolio, it was determined that *renewable energy* and *electric automotive* industries would be explored.

4.10 Non-industry specific messages

Three key national and industry-generic issues were identified. These three messages focus more on STEM careers, and new avenues for career progression. Each message has a one-sentence tagline, a descriptive paragraph, and an executive summary in italics.

1. Over 640,000 STEM-related roles must be filled by 2017.
2. Graduates in engineering and technology are growing in number – but not as fast as other fields.
3. Apprenticeship programs offer more avenues into engineering and technical careers.

4.10.1 Over 640,000 STEM-related jobs must be filled by 2017

With new industries recruiting and an aging workforce retiring STEM-related jobs are either created or vacated. Research on the current (United Kingdom Office for National Statistics., 2010) and future (Wilson et al., 2008) workforce highlights a need for qualified, capable engineers and technicians – about 641,000 jobs will be created or vacated. Approximately 400,000 of those jobs will have a focus on low-carbon technologies and practices, with this number growing substantially as low-carbon practices and policies become common place (Bird and Lawton, 2009, Jha, 2009).

An estimated 641,000 STEM-related jobs will be created or vacated by 2017, and an expected 400,000 of those jobs will have a low-carbon focus, sustainable business focus.

Table 16: STEM-related jobs to be filled by 2017 (in '000s)

Region	Replacement STEM-related jobs	Country	Replacement STEM-related jobs
London	171	England	567
South East	109	Wales	24
East of England	61	Scotland	42
South West	42	Northern Ireland	8
West Midlands	48		
East Midlands	33		
Yorkshire & the Humber	35		
North West	56		
North East	16	United Kingdom	641

4.10.1.1 *Myth: EngineeringUK stated 587,000 jobs will be created*

EngineeringUK, in their 2009/2010 report (2010a), mention that 587,000 jobs *in the manufacturing industry* will be created or vacated by 2017. Many news sources unfortunately have taken this figure out of context and out of meaning. EngineeringUK provided this figure as an example of replacement job calculations; for instance, the *manufacturing industry* is expected to *lose* over 300,000 jobs, but will need to *staff* 587,000 departures, retirements, or mortalities. Obviously, STEM-related roles are not solely in the manufacturing industry. The figures developed in Table 16 examine employment figures across industries, including non-manufacturing industries such as architecture, software development, and more.

4.10.2 *Graduates in engineering are growing in number – but not as fast as other fields*

The graduation rates of students in UK higher education saw an increase of 5.78 per cent in STEM graduates over five years. However, non-STEM growth was three times higher (EngineeringUK, 2008). New STEM-related professionals are needed to support British initiatives, as development firms have been forced to turn to Europe for qualified professionals (Hughes, 2010).

There is a clear, recognised need for more STEM graduates and technicians, and for enthusiastic young students to enter STEM-related fields.

4.10.3 *Apprenticeship programs offer more avenues into engineering and technical careers*

To encourage careers in STEM-related industries, the UK government has launched an apprenticeship support program starting in 2013. This program is expected to provide training and experience in all levels of engineering and technical work (EngineeringUK, 2010b). Recent projections indicate funding for 400,000 Apprenticeships (Level 1) and 35,000 Advanced Apprenticeships (Level 2) will be available over the next two years (EngineeringUK, 2010b). Additionally, the need for apprentice or associate-level engineers and technicians is expected to grow; such apprenticeship programs fulfil this demand, and the Coalition government has recognised the importance of apprenticeships in fulfilling the nation's growing needs (Great Britain. Cabinet Office, 2010).

More avenues are open to potential students to enter engineering fields, not just typical 3-year higher education.

4.11 Renewable energy industry analysis

The renewable energy industry discussed here includes “environmentally sustainable” energy and electricity production technologies. Focusing on the energy production value chain, this includes electricity producers, component technology developers (e.g. solar panel producers; wind turbine developers), and researchers and developers of these technologies. The renewable energy market is thus the total estimated value of all activities within this space.

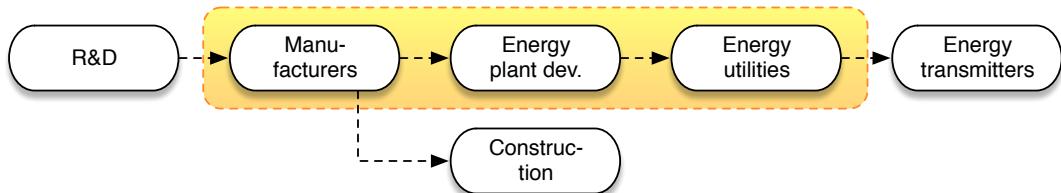


Figure 21: Simplified renewable energy value chain

The first portion of this value chain is largely diversified, even fractured, when compared to the latter half. Primary research and development (R&D) work is often undertaken by universities or other large organisations with the ability to sustain large capital expenditures. A relatively diverse set of manufacturers innovate with existing technologies to develop novel solutions; it is also important to note that, at least in this portion of the value chain, there is little formal recognition of “renewable energy” in business classifications and it is not uncommon to find traditional construction businesses diversifying into “renewable technologies.”⁷ These manufacturers provide services to both energy plant developers as well as general construction industries for incorporating renewable energy technology into new buildings. Energy producing plants will generally be operated by a major electricity provider or by a small provider who in turn contracts its energy to a major electricity provider. Finally, the energy is transmitted to individual homes and buildings.

In Figure 21, the highlighted area will be the focus of this analysis. While construction, research and development, and energy transmission may be touched upon, their role and potential contribution to The Trust’s fundraising will not be explored in depth in this report.

⁷ Romag Ltd, for instance, is listed as a “glass manufacturer” but has begun offering photovoltaic (PV) technologies as integrated components of many product lines.

4.11.1 Analysis and forecasts

The United Kingdom's estimated renewable energy market value by 2014 is £4.8 billion (\$7.4 billion), with an estimated compound annual growth rate (CAGR) of 6.8%. In contrast, the European market for renewable energy is expected to grow to £102.4 billion (\$155.6 billion) with a 2.5% CAGR, while the global market is expected to grow to £299.9 billion (\$455.6 billion) with 0.9% CAGR. This indicates that, out of both the European and global markets, the United Kingdom is expected to invest more heavily in renewable energy technologies and programs than either markets as a portion of current spending. As can be seen in Figure 22, the trend line for the United Kingdom rises much more sharply than the global market value line, indicating that overall growth for the United Kingdom is faster than for the global market.

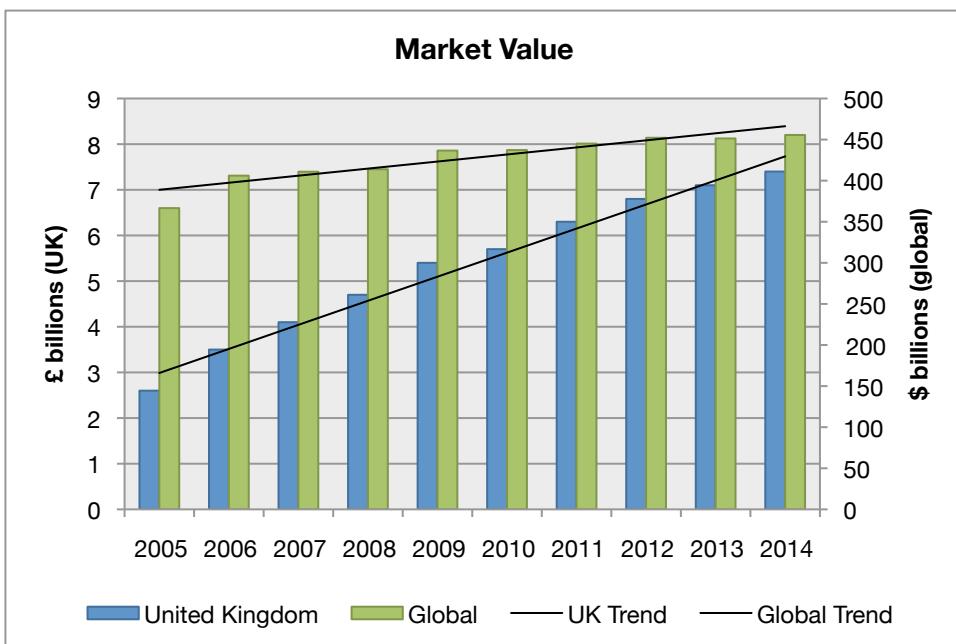


Figure 22: Market value of renewable energies

While these growth figures are impressive, it is important to place them in context with Europe and the world. The United Kingdom's 61.7 million strong population is approximately 10 per cent of Europe's 593 million population (UN, 2010), and is a mere 0.9 per cent of the 6.7 billion world population (UN, 2010). Compared to European and global spending on renewable energy, the United Kingdom constitutes 4.7 and 1.6 per cent, respectively. Clearly, the United Kingdom has much "catching up" to do with Europe when comparing the size of the renewable markets to population.

Market volume, meanwhile, is expected to grow to 33.5 billion kWh (6 per cent CAGR) in the United Kingdom, and to 3,842.5 billion kWh (4.6 per cent CAGR) by 2014; once again, the United Kingdom is expected to grow faster than the world percentagewise.

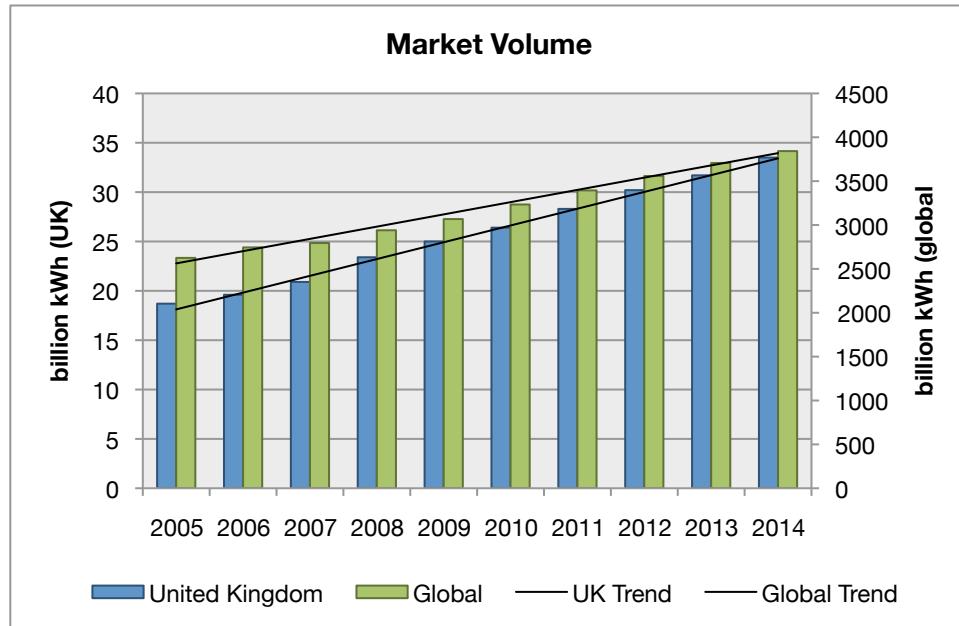


Figure 23: Market volume of renewable energies

4.11.2 Job growth forecasts

Government-sponsored research indicates considerable growth in the renewable energy market, with up to 410,800 potential occupations being needed in the United Kingdom by 2014 – a growth of 158,300 (Sharp, 2009).

Table 17: Renewable energy employment estimates

Sector	Employed 2007/08	Employed 2014/15
Hydro	4,800	6,000
Wave & Tidal	600	900
Biomass	45,800	68,700
Wind	87,500	156,800
Geothermal	75,800	115,100
Photovoltaic	38,000	63,300
Total	252,500	410,800

A review of the growth rates indicates very strong expansion of the wind power industry, including manufacturing of turbines and related technologies as well as new wind farm construction. Wave and tidal indicate very slow growth, mainly due to the relatively untested technologies.

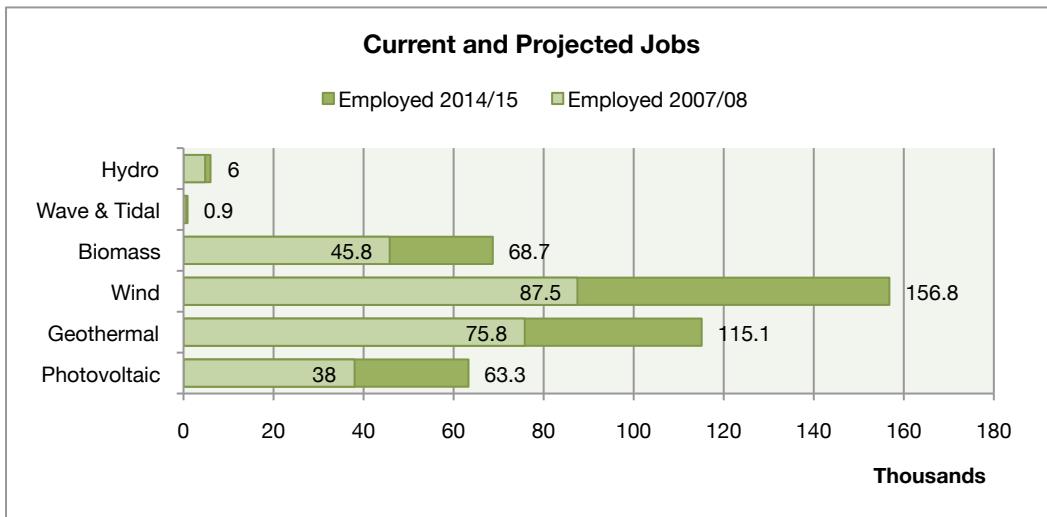


Figure 24: Renewable energy current and projected occupations

4.11.3 Targeting more effectively: market segments

Representative companies of the renewable energy market were identified and contact details, including UK headquarters and resident Managing Directors, Chief Executives, or other high-ranking officials were collected. Each potential sponsor was further categorised into one (or more) of five groupings, mapping to the supply chain described in Figure 21. Two ancillary groups – “Consulting” and “Other” – capture businesses that provide a service to the industry but are not directly involved in the industry’s value chain.

- **Manufacturer:** an organisation that produces its own renewable energy products, such as photovoltaic solar cells or wind turbines
- **Developer:** an organisation that builds power plants, such as wind farms and solar panel fields
- **Utility:** an organisation that operates a power plant to provide electricity
- **Consulting:** an organisation that provides consulting experience, either technical or business, to other organisations
- **Other:** an organisation not categorised otherwise; these may be marketing and public relations groups, event sponsors, associations, or government agencies, for instance

4.11.4 Talking more effectively: Key messages

General messages were compared to each of the five organisation categories. Additionally, seven messages were developed using available data to target

the renewable energy industry. Messages that should resonate most are marked with a star (★).

Table 18: General messages applied to the renewable energy industry

Message	Manufacturer	Developer	Utility	Consulting	Other
Over 600,000 STEM-related roles must be filled by 2017.	★	★			★
Graduates in engineering are growing in number – but not as fast as other fields.	★	★	★		
Apprenticeship programs offer more avenues into engineering and technical careers.	★	★			

Table 19: Renewable energy industry messages

Message	Manufacturer	Developer	Utility	Consulting	Other
The UK economy and energy demand is growing.		★	★		
Existing energy producing power plants are to be decommissioned soon.		★	★		
National support for renewable energy is growing.	★	★	★	★	★
International support for renewable energy is available.	★	★	★		
Strong action leads to better economic and financial performance.			★	★	★
High technology, “green-collar” jobs are growing in importance.	★	★	★		
Industry leaders are embracing renewable energy.	★	★	★		

4.11.4.1 The UK economy and energy demand is growing

The energy market value and volume growth of 37 and 34 per cent by 2015 (Renewable Energy in the United Kingdom, 2010), respectively, indicate a healthy, growing economy and demand for sustainable, long-term energy provisioning.

The UK economy is growing and energy demands will grow to match.

4.11.4.2 Existing energy producing power plants are to be decommissioned soon

Seven of ten currently operating UK nuclear power plants are scheduled for decommissioning by 2020, with the remaining three closing in 2023 and 2035. Scotland has mandated non-nuclear, renewable energy sources to replace aging

nuclear reactors (*New nuclear plants get go-ahead*, 2008), while Wales has shown grave misgivings over extending nuclear power (Wales. Welsh Assembly Government, 2010). As the new coalition government has mandated a reduction of 30% in carbon production, coal and oil-fired power plants are set to be retrofitted or replaced (Great Britain. Cabinet Office, 2010). To meet EU renewable-sourced energy requirements – 20% by 2020 – new plants and fields must be developed (*EU climate package explained*, 2010).

New power plants (not just nuclear) must be built to maintain energy levels, and other energy production technologies must be explored to meet national and EU goals for clean energy.

4.11.4.3 National support for renewable energy is growing

A growing need for secure energy has public policy and sentiment leaning towards renewable energy sources. Other efforts to decarbonise the economy are taking a greater role in public debate, with politicians all agreeing on initiatives to reduce the carbon footprint of government-run institutions. Individuals and businesses will no doubt follow suit, especially with tax incentives and other breaks in the offering (Renewed focus on low-carbon economy, 2008, Conservatives, 2010, Great Britain. Cabinet Office, 2010, Labour, 2010, Liberal Democrats, 2010). Additionally, United Kingdom politicians and oversight institutions have recognised the need for highly trained, qualified engineers and other employees within the energy sector – the Department of Energy and Climate Change announced £10m grants for offshore wind energy development (United Kingdom. Department of Energy & Climate Change., 2010). This is not limited solely to renewable energy, of course, but serves the underscore the importance of engineering training (Clancy, 2010).

Broad, high-level support is anticipated to help the UK train and prepare the next generation of qualified, capable engineers and technicians for renewable energy.

4.11.4.4 International support for renewable energy is available

The UN estimates renewable energy investment grew to £85 billion in 2009 (Macalister, 2009). The EU has also stepped in to support renewable energy funding, with several billion Euros available over the coming years (Toward a low-carbon economy, 2007, Blau, 2010), while the Global Energy Efficiency and Re-

newable Energy Fund (mostly EU-led) has grown to over €108 billion (*EU Renewable Energy Fund to Invest \$12.5 Million in Private Chinese Fund*, 2010, GEEREF, 2009). In order to foster more renewable energy development, Germany has enacted legislature to shutdown all nuclear energy plants by 2020 – this is a socially progressive effort to force energy companies to diversify their production capability and eliminate the natural tendency towards inaction by relying upon aging, cost-amortised production plants (Blau, 2010). Other groups, such as the Group of 8 (G8), have subscribed to reducing national carbon footprints. Such large-scale international programs can indirectly benefit UK businesses, as the need for cross-national, distributed energy grid means new renewable energy plants must be built throughout Europe (*Wind Gets Boost from EU Transmission Investment*, 2010).

Broad, high-level international support and recognition is already readily available to prepare Europe for the coming decades as a leader in renewable and environmental policies and business.

4.11.4.5 Strong action leads to better economic and financial performance

Much research has been conducted to determine long-range social and economic implications of such efforts. One of the most comprehensive is the Environment-Energy-Economic Model at the Global Level (E3MG) that combines top-down policy with bottom-up economic factors. This model finds that *more ambitious* targets produce more economic benefit than middle-of-the-road efforts (Dagoumas and Barker, 2010). Of course, models are not indicative of on-the-ground public sentiment, but even general economic perceptions and optimism are beginning to improve, especially around “green-collar” jobs (OUTLOOK: Introduction, 2009, Hurst, 2009).

Strong action is needed to prepare the UK and Europe for leadership, and stronger activity and support leads to better economic and financial performance.

4.11.4.6 High technology, “green-collar” jobs are growing in importance

Some forward-looking businesses and organisations have begun to speak openly about the future of the energy industry, with a particular focus on renewable energy sources to replace oil, gas, and coal. Major consulting firm PricewaterhouseCoopers Sustainability Advisory group’s 2050 roadmap (2010) is de-

tailed and comprehensive, with indicators on steps needed to achieve energy independence for the entire European Union. The firm also publishes regular updates on the state of the world's sustainability goals (2009b). The Climate Change Foundation, in consultation with McKinsey & Company (2010), reiterates this point, but with the notable inclusion of a worst case, "do-nothing" scenario as well as the potential negatives that moving to a low-carbon renewable energy economy may incur. For instance, while approximately 420,000 jobs would be created in the renewable and "green-energy" market, another 260,000 jobs would be lost in oil, gas, and other non-carbon-friendly markets, making for a net gain of 180,000 jobs (ECF, 2010). Other reports estimate that 60,000 jobs will be created in support of wind energy systems only (Levy, 2010).

High-tech green-collar jobs with specialist knowledge are growing, especially in of low-carbon development.

4.11.4.7 *Industry leaders are embracing renewable energy*

The industry has taken notice. E.ON, for instance, is expected to openly embrace renewable energies and re-engineer itself for the new low-carbon economy (Ockenden, 2007). Both E.ON and EDF are expected to support over £10 million in yearly research and development in alternative energy sources (Ockenden, 2007). Shell, a leading oil and gas company, has published their "Energy Scenarios 2050" report (2010), which outlines two distinct paths towards energy independence. Another report by Franklin (2010), aptly titled "The Post Carbon Landscape," is another look at the potential future of the world through diverging economic development paths. It is important to note that all such reports are in agreement.

Low-carbon (even post-carbon) economies are a necessary future, and the United Kingdom in particular and Europe in general needs qualified engineers and technicians to make it happen.

4.12 Electric vehicle industry analysis

Electric vehicles are not new; in fact, in the 1900s the earliest cars were all-electric as it was more efficient and effective than internal combustion engines of that era. Perhaps the most important and long-lasting contribution of the 1908 Ford Model-T was not in providing a low-cost vehicle for mass consumption, but in making the gasoline-powered engine ubiquitous. The electric vehicle remained

dormant until the 1970s, when rising costs of oil and concern over pollution re-kindled interest in the electric vehicle. After the energy and oil crisis of the 1970s, the electric vehicle once again fell out of public attention and nearly into the dustbins of history. Toyota, perhaps more than any other automaker, re-invigorated the consumer alternative energy vehicle with the 1997 gasoline/electric hybrid Prius. More companies, and not just the major brand owners, have launched programs to bring electric vehicles to the open market.

The electric vehicle industry is closely aligned to the traditional automotive industry's structure. Nearly all major automotive firms have started electric vehicle programs, with an aim of general public release between 2012 and 2015. This period is considered critical to the industry, as sales and general marketplace diffusion may set the tone for electric vehicle development and deployment for decades to come (Clark, 2010).

4.12.1 Analysis and forecasts

The electric vehicle value chain discussed here is restricted to the businesses and organisations that are directly involved in the design and production of electric vehicles. Additionally, firms focusing on aftermarket conversions are included.

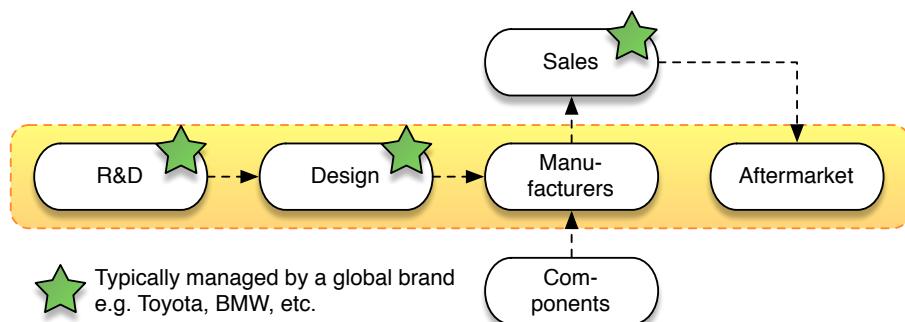


Figure 25: Simplified electric vehicle value chain

Nearly all major brand owners, such as BMW or Toyota, have dedicated all-electric research and development programs. Design houses, which focus specifically on the engineering and aesthetic design of a vehicle can be either external consultants or one member of a major brand's family. Manufacturing, in the UK, is predominantly controlled by single-purpose companies that either provide outsourcing services or are wholly or partially owned by a major brand. Component manufacturers, as the name suggest, provide parts of a vehicle, even assembled subsystems, but do not assemble the vehicle entirely. Sales, such as

the traditional automotive showroom, are generally held by independent firms with strong licensing or franchise arrangements. Aftermarket manufacturers support the Do-It-Yourself (DIY) vehicle electrification community. Currently, original manufacturers often provide replacement components, as the costs of batteries and related electrical systems are prohibitively expensive to produce and sell.

The “major brand owner” business group should not be underestimated in this industry. These large groups are often highly vertically integrated, insofar as vehicle design and manufacturing are concerned.

This industry review will focus on the R&D, Design, Manufacturing, and, to a lesser extent, Aftermarket market segments, as highlighted in Figure 25. The Sales and Component manufacturers are considered either too far removed from STEM, or have little impact on the overall market, respectively.

4.12.2 Job growth forecasts

Research indicates considerable growth in the electric vehicle market, with up to 144,800 potential occupations being needed in the United Kingdom by 2014 – a growth of 402,000 jobs (Sharp, 2009).

Table 20: Alternative fuel vehicle employment estimates

Sector	Employed 2007/08	Employed 2014/15
Alternative Fuel Vehicles	104,600	144,800

Unfortunately, these figures are questionable. Throughout the report, the phrase “Alternative Fuel Vehicles” can mean either “electric and other non-petrol-based vehicles” or “non-petrol-based fuels for vehicles.” The wording and definition is ambiguous, so the states job growth not be solely in the automotive industry, but in fuel and other support services for the automotive industry.

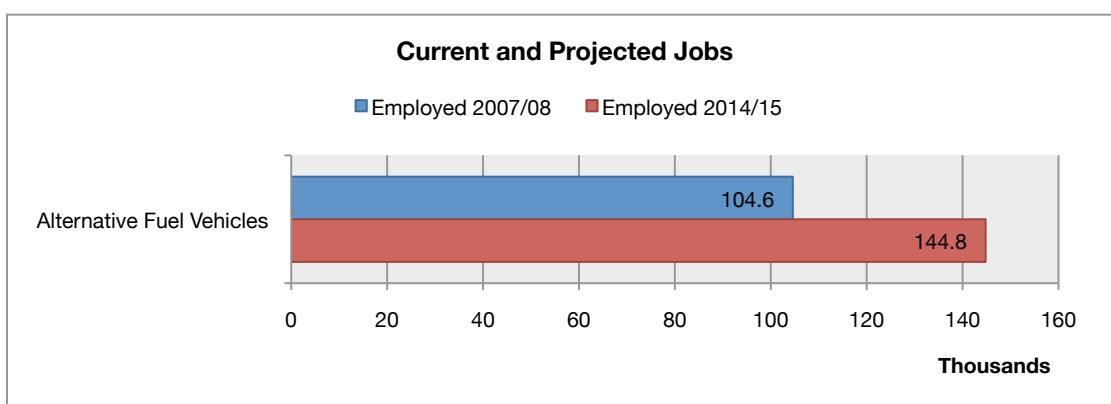


Figure 26: Alternative fuel vehicle current and projected occupations

4.12.3 Targeting more effectively: market segments

Representative companies of the electric vehicle market were identified and contact details, including UK headquarters and resident Managing Directors, Chief Executives, or other high-ranking officials were collected. Each potential sponsor was further categorised into one (or more) of five groupings, mapping to the supply chain described in Figure 25. Two ancillary groups – “Consulting” and “Other” – capture businesses that provide a service to the industry but are not directly involved in the industry’s value chain.

- **R&D:** an organisation that develops new technologies for vehicles but may not be directly related in their production
- **Design:** an organisation that develops and designs new vehicles, but may not be directly related in producing them
- **Manufacturer:** an organisation that produces vehicles, produces major components of a vehicle, or assembles a vehicle
- **Aftermarket:** an organisation that provides aftermarket products or services for vehicle owners, often serving as a major part of the Do-It-Yourself (DIY) community
- **Other:** an organisation not categorised otherwise; these may be marketing and public relations groups, event sponsors, associations, or government agencies, for instance

4.12.4 Talking more effectively: key messages

General messages were compared to each of the five organisation categories. Additionally, seven messages were developed using available data to target the renewable energy industry. Messages that should resonate most are marked with a star (★).

Table 21: General messages applied to the electric vehicle industry

Message	R&D	Design	Manufacturer	Aftermarket	Other
Over 600,000 STEM-related roles must be filled by 2017.	★	★	★	★	★
Graduates in engineering are growing in number – but not as fast as other fields.	★	★	★		
Apprenticeship programs offer more avenues into engineering and technical careers.		★	★	★	

Table 22: Electric vehicle message map

Message	R&D	Design	Manufacturer	Aftermarket	Other
British automotive manufacturing is a powerhouse waiting for new opportunities	★	★	★	★	★
Government support for new technologies and manufacturing means new jobs	★	★	★	★	★
Major industry players are testing the waters with new technology	★	★			
National Plugged-In Places and city-led programmes improve electric vehicle infrastructure	★	★	★	★	★
Reducing dependence on oil	★	★	★	★	★
Subsidies and tax schemes are being remade to support electric vehicles		★	★	★	
Vibrant Do-It-Yourself community	★			★	★

4.12.4.1 British automotive manufacturing is a powerhouse waiting for new opportunities

The European Union, as a whole, built a quarter of all world vehicles in 2009 (OICA, 2009). The UK produced over one million cars, trucks, and buses, making it the fourth largest automotive manufacturer in the EU (OICA, 2009). This indispensable industry supports over 180,000 jobs, and countless more through design and research efforts, contributing well over £10 billion to the economy (BIS, 2010). The UK is also the third largest market for new vehicles in the EU, purchasing nearly two million cars in 2008 (BIS, 2010). Needless to say, the automotive industry is integral to the UK's economy and manufacturing base, and is well set to lead the way for an electric future.

Supporting over 180,000 jobs and contributing more than £10 million to the UK economy, the automotive industry is a powerhouse capable of leading the way in electric vehicle design and production.

4.12.4.2 Government support for new technologies and manufacturing means new jobs

The UK government, in consultation with regional bodies, has developed a number of programs to support electric vehicle uptake. Business Secretary Lord Mandelson declared the English West Midlands a "Low Carbon Economic Area for Advanced Automotive Research." For instance, Advantage West Midlands (AWM) is investing £10 million and managing an additional £9.5 million from the European Regional Development Fund (AWM, 2010) for a Low Carbon Vehicle Technology Programme (LCVTP), while the East Midlands Development Agency

(emda) has invested more than £9 million in support of cross-industry dialogue and partnerships (emda, 2010). A major component in this project is The Technology Strategy Board, which promotes a number of initiatives to bolster UK-based research and development (TSB, 2010a). The Board recently ran a series of competitions for low-carbon vehicle development with over £200 million in awards (TSB, 2010b), as well as providing a £20 million support network for vehicle trialling and demonstrations (TSB, 2010c). These investments are expected to create between 3,000 and 11,500 (emda, 2010) new jobs and secure the existing 180,000 automotive employees in the UK (BIS, 2010). The wider “alternative fuel vehicle” industry is expected to create 100,000 new jobs (Sharp, 2009), although this forecast is questionable.

Government agencies have set aside over £300 million for electric vehicle research and development, securing the future of over 180,000 jobs and creating thousands more.

4.12.4.3 Major industry players are testing the waters with new technology

Major automotive brands have begun wholesale tests of electric vehicle technology with consumers. Two of the most high profile are Toyota and BMW MINI. Toyota’s hybrid electric/petrol Prius has undergone an update to include an optional photovoltaic roof and plug-in recharging feature (Wilson, 2010b). The newest addition to Toyota’s portfolio is the Auris Hybrid, with an estimated, realistic 74.3 mpg (Toyota, 2010) and over 700 miles on a single tank (Martin, 2010). More importantly, the Auris is assembled in the United Kingdom, indicating Toyota’s commitment to, and faith in, the UK automotive industry as it builds “Europe’s first mass-produced hybrid car” (Wilson, 2010a). German automotive powerhouse BMW has recently launched an all-electric MINI field trial, making BMW the world’s largest tester of mass consumer electric vehicles (Whoriskey, 2009). Like the Toyota Auris, the MINI E is partly constructed in the UK (MINI E Oxford Hand-over, 2010, Kaufmann, 2008). The Nissan Leaf, Chevy Volt, and Ford Focus are all electric vehicles set to debut before 2012. And of course, the Tesla Roadster cannot be ignored for setting the quality by which all future electric vehicles must be measured – and its partly built in the UK (Dickinson, 2007).

The automotive industry is launching new initiatives for full electrification, and the UK has an established track record in delivering excellent electric vehicles.

4.12.4.4 National Plugged-In Places and city-led programmes improve electric vehicle infrastructure

One of the critical issues facing electric vehicle uptake is the lack of suitable vehicle recharge points. Much as how the current petrol-powered vehicle relied on the ubiquitous accessibility of the modern petrol station, electric vehicles need a suitably widespread plug-in network. The national Plugged-In Places program is expected to offer approximately £30 million to help three to six cities become “electric vehicle friendly” cities as showcases and leaders of the UK (DFT, 2009, 2010). London, Milton Keynes, and the North East have been considered the first three, and will install over 11,000 recharging points (Hodge, 2010, LEPT, 2010). London’s *Electric Vehicle Delivery Plan* is even more extensive, with plans to bring 25,000 charge points, replace 1,000 London fleet vehicles with electric powered systems, and encourage over 100,000 drivers to switch to electric or plug-in hybrid systems (Mayor of London, 2009).

Major initiatives are underway to take electric vehicles out of research labs and onto British streets – and businesses ready to make this transition will be well placed to lead electric vehicle discourse for years to come.

4.12.4.5 Reducing dependence on oil

Fluctuating oil prices creates unnecessary strains on business and introduces considerable market uncertainty. Reducing the UK’s dependence on oil and insulating the economy from market ups-and-downs benefits the entire economy – not just electric vehicles. The peak price-per-barrel rose to US\$148 in July 2008, with widespread economic impacts (EIA, 2010b). While the price floats around US\$78 a barrel now (EIA, 2010b), this is widely considered a temporary respite. “Peak Oil” scenarios, while controversial in some industry circles, attempt to model the world’s supply of crude oil and its accessibility to developed and developing nations. These scenarios are also in disagreement over *when* oil production will peak, there is no reason to doubt that the world will, eventually, face an economic crisis as oil becomes more scarce and prices skyrocket. Earlier oil price shocks in 1973 and 1979 may have directly caused the recession of the 1980s, and with today’s prices above the 1970s, there is some concern it is prolonging the modern financial and economic downturn (Bel Bruno, 2008). With U.S. energy policy bracing for a potential high price estimate of US\$210 per barrel, diversification from oil is a prime concern (EIA, 2010a).

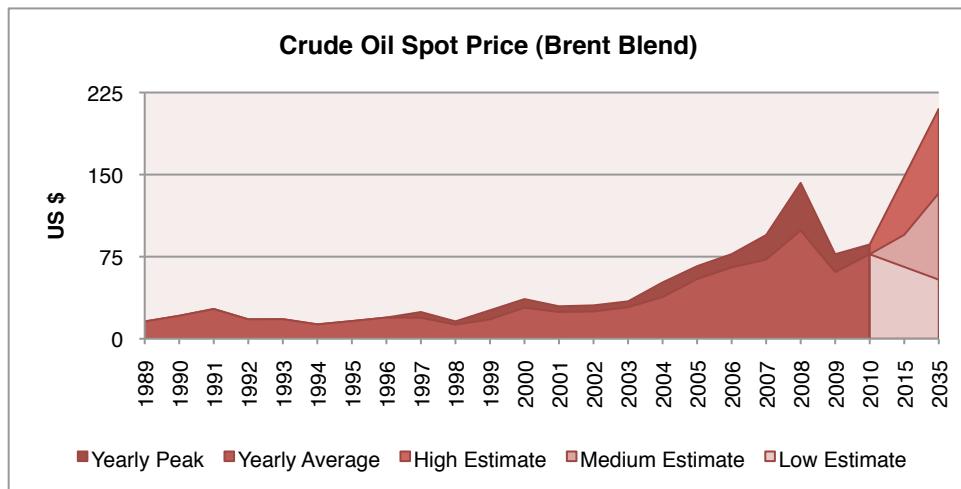


Figure 27: Brent Blend Crude Oil Spot Prices (EIA, 2010a, b)

Oil prices are expected to soar in coming years, and with the reducing availability of North Sea oil, the UK will grow more dependent upon foreign oil – and the market fluctuations that entails. Breaking this dependence is a strong driver for innovative, alternative fuel vehicles and technologies.

4.12.4.6 Subsidies and tax schemes are being remade to support electric vehicles

The UK government, through the Office for Low Carbon Cars and the Department for Transport, have earmarked approximately £200 million for electric vehicle and plug-in hybrid vehicles subsidies (DFT, 2009). This is envisioned as a way to reduce the sticker price by £2,000 to £5,000, thus encouraging early market uptake (DFT, 2009). And for good measure – the price premium is a major deterrent of new vehicle purchases (PricewaterhouseCoopers, 2009a), with 58 per cent ambivalent or opposed to considering a new electric vehicle for their next purchase and fully two-thirds citing the higher cost being a major factor (Mintel Oxygen, 2009). The tax rates for new vehicles have been reworked to provide new, lower tax bands for low-carbon vehicles (*Changes to vehicle tax from April 2010*, 2010), while the City of London proposes total exemption from city congestion charges for electric vehicles (Mayor of London, 2009). Tesla Motors, developer of the Tesla Roadster all-electric vehicle sports car, also claim that their electric vehicle has zero road tax, congestion charges, showroom taxes, and receives free recharging and parking permits in certain cities (*Tesla Launches Right-Hand Drive Roadster in London Showroom*, 2009). Additionally, they claim the vehicle costs only 1.5p per mile – compared to a typical sports

car's 32p per mile (*Tesla Launches Right-Hand Drive Roadster in London Showroom*, 2009).

Policies and incentives to electric vehicle ownership and development should spur adoption of new automotive technologies, especially as the price premium of electric vehicles over normal vehicles is eliminated.

4.12.4.7 *Vibrant Do-It-Yourself (DIY) community leads the industry in what is possible*

A Do-It-Yourself community – *DIYers* – have pushed the boundaries of what is possible with electric vehicles. While this is certainly a “motorhead’s hobby,” the off-the-shelf technologies used and the simplicity of the designs can capture the imagination and attention of a public too long inundated with corporate promises of better fuel efficiency and lower prices. Conversion kits for vehicles are also becoming more mainstream, with several businesses providing components and ready-made sets (e.g., evparts.com, 2010). Other companies, such as The Electric Car Corporation, take existing vehicles from major brands and convert them (“powertrainisation”) to electric engines (*The Electric Car Corporation Plc*, 2010). Hobbyists also developed “plug-in” versions of the ever-popular Toyota Prius, and businesses have commercialised the process – several years before Toyota considered it viable (e.g., *Hymotion*, 2010).

The “Maniac Mazda” is a prime example of an electric conversion for racing competitions. Using off-the-shelf components and considerable engineering ingenuity, the modified 1979 Mazda RX-7 has outperformed traditional racing vehicles such as Dodge and Ferrari sports cars (evparts.com, 2010). The “Buckeye Bullet” from The Ohio State University Center for Automotive Research with a top speed of 518 kilometres an hour, holds the world land speed record for electric vehicles and, while not a conversion, does show the immense capability of electric vehicles in the hands of enthusiasts (*Buckeye Bullet*, 2010).

While mass produced vehicles are still under development, hobbyists and specialists continue to set new benchmarks for what is possible using present-day electric vehicle technology.

Chapter 5: Closing Remarks & Impatient Optimism

This is not a trade off between saving the world and making lots of money, it's a trade-off between lots of different ways of saving the world. We shouldn't think that it's profits versus principles.

Simon Zadek (quoted in ODI, 2002)

Corporate social responsibility is a defining element in western countries as the 21st century dawns. It is telling that discourse on social responsibility has grown and evolved from engaging with stakeholders or more effective and inclusive accounting, to “saving the world.” And this sentiment is not just hyperbole – renowned businessmen such as Bill Gates and Warren Buffet, thought leaders such as Michael Porter and Simon Zadek, and media figures such as Bono have put their time and energy towards the daunting goal of changing the world. Many others have placed their own money towards this endeavour, donating up to 90% of their personal wealth (Keeping up with the Gateses, 2010, Guth, 2008).

As corporations have become ever larger and more powerful – some businesses have operating budgets larger than some nations – the need for businesses to take a more proactive and positive role in society has grown. In fact, society has demanded that businesses consider the wider effects of their work on the community and the environment. Turning a profit is not enough; now, profits must be ethical and sustainable. While most discussions and concerns focus on manufacturing and other resource intensive industries, the financial sector soundly proved that all industries and all businesses must be held accountable.

Organisations such as The Smallpeice Trust are in the enviable position to both positively affect their industries and markets, and to help businesses and other organisations do the same. Unfortunately, The Trust’s endowment was severely affected by the economic downturn, and has turned to business partnerships to fund the gap between what The Trust *can* do and what The Trust *must* do to support its mission of introducing young people to science, technology, engineering, and mathematics.

To better build long-term, multi-year partnerships with businesses, The Trust can leverage the ideas and philosophies of “creative capitalism.” These philosophies are, simply, to reward businesses for “doing good.” For instance, The Trust’s new after-sponsorship press packets showcase the positive work The Trust accomplished with the partner’s assistance. A “report card,” as described in this paper, highlighting key performance indicators – such as overall impact and the number of girls on a course – should carry rational weight. Photos of the events, and comments from students, brings the emotional impact. Even before reaching out to prospective partners, new industry and business research methods, combined with striking visuals, carries rational and emotional impact.

Unfortunately, these new materials and methods could not be trialled in the time allotted to this project. Details on running the campaigns, combined with The Trust’s existing “sponsor pipeline,” will help The Trust validate the efficacy of the new ideas. An earlier project, using similar emotional and rational arguments in support of new partnerships with prospective sponsors, had higher positive response rates. These campaigns should work just as – and hopefully better – than those prior programs.

Partnerships are critical for continuing The Trust’s works, and bringing more opportunities and options to students. Recent political and social concerns, combined with industry support and academic consideration, may help create the perfect environment for low-carbon technologies; technologies that could be developed by students who were first introduced to engineering and science by The Trust.

Over the years, Mr Gates’s “creative capitalism” adapted and changed to suit the challenges – and successes – in the world today. Recently, speaking to the United States Congress in Washington, D.C., Bill and Melinda Gates (2010) described why they are “impatient optimists”:

Just a couple of years ago, Bill and I visited an AIDS clinic in Durbin, South Africa, and we expected to see in this clinic what we see a lot of places in the developing world, an overworked staff, long waiting lines, not many drugs available.

But, in fact, we saw something completely different than that in this AIDS clinic. We saw a well trained staff, we saw an ample supply of medical drugs, and we saw patients being counseled about how to live with HIV. And this clinic was completely paid for by the American people.

So, as we left, we thought, my gosh, if Americans could see what we see when we travel around now on the ground now, particularly in Africa, they would understand how amazing these investments have been. And yet when we come back home and you pick up the newspaper, you look on the Internet, you hear just the opposite, you hear all the negative stories.

So, we are optimists: The world is definitely getting better.

But its not getting better fast enough, and it's certainly not getting better for everyone.

(Gates and Gates, 2010)

Although the Gateses were addressing American lawmakers and the general public, the message is nonetheless real: changes in thinking have set the stage for amazing opportunities in advancing and improving the state of the world. Corporate social responsibility and creative capitalism are key tools and mindsets in this transformation. The partnership, between businesses, governments, and non-profit organisations such as The Smallpeice Trust, is one major tool in making the world of tomorrow a reality today.

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Appendix A: Industry Overview

This industry analysis was adapted from market reports provided by The Datamonitor Group. Reports are variously dated from 2008-2010, depending upon published availability.

Table 23: Industry Desirability Ranks

Industry	United Kingdom	Global
Aerospace & Defence	7	24
Air Logistics	11	28
Aluminium	5	5
Biotech	14	8
Cables	26	12
Chemicals	22	14
Coal	19	10
Commodity Chemicals	25	4
Communications	27	25
Computer Hardware	29	18
Construction	13	20
Consumer Electronics	24	26
Control Systems	21	21
Crude Oil	4	7
Electricity	2	6
Energy (Renewable)	9	27
Energy (Total)	1	1
General Logistics	16	19
Healthcare Equipment	16	19
Marine Logistics	7	16
Metals & Mining	23	9
Mobile Phones	15	13
New Cars	6	3
Oil & Gas	3	11
Pharmaceutical	20	11
Semiconductors	17	17
Speciality Chemicals	12	15
Steel	28	2
Wireless	10	23

Industry desirability was calculated by comparing the current (2009) market value against the expected 2014 value, along with total growth, compound annual growth, the expected growth rate in 2014, and social and political drivers, weighted against set relevancy values, to determine the overall desirability score.

Industries were then ordered by rank to form the final estimated importance, or desirability, of each industry.

Table 24: Industry Desirability Analysis

Industry	Category	Specialty	Market Value in 2009 (\$ bil-)	Market Value in 2014 (\$ bil-)	Total Growth	Compound Yearly Growth	Growth in 2014	Desirability Score	Desirability Rank
Aerospace & Defence	Engineering	Air	18.2	23.9	31.3%	5.6%	5.5%	1.44	7
Air Logistics	Service	Air	2.3	3.1	34.8%	6.2%	5.3%	1.90	11
Aluminium	Mining	Minerals	0.3	0.6	123.9%	17.5%	10.7%	1.17	5
Biotech	Health	Medical	6.2	8.0	29.0%	5.2%	3.5%	2.03	14
Cables	Engineering	Materials	0.5	0.6	3.2%	0.6%	0.9%	3.36	26
Chemicals	Science	Chemical	65.6	61.0	-7.1%	-1.5%	2.4%	2.59	22
Coal	Mining	Minerals	2.7	4.1	51.9%	8.7%	-3.6%	2.39	19
Commodity Chemicals	Science	Chemical	14.9	15.1	1.3%	0.3%	0.3%	2.92	25
Communications	Electronics	Electronic	1.3	1.2	-7.7%	-1.6%	0.3%	3.52	27
Computer Hardware	Electronics	Electronic	7.3	5.8	-21.2%	-4.7%	-4.0%	3.71	29
Construction	Engineering	Civil	77.6	87.8	13.1%	2.5%	2.5%	1.93	13
Consumer Electronics	Electronics	Electronic	9.9	10.4	5.1%	1.0%	0.4%	2.86	24
Control Systems	Electronics	Electronic	0.8	1.0	18.0%	3.4%	4.3%	2.46	21
Crude Oil	Mining	Minerals	35.7	56.2	57.4%	9.5%	5.0%	1.10	4
Electricity	Energy	Energy	37.3	65.5	75.6%	11.9%	9.5%	0.37	2
Energy (Renewable)	Energy	Energy	5.4	7.4	37.0%	6.5%	5.5%	1.48	9
Energy (Total)	Energy	Energy	68.5	120.2	75.5%	11.9%	9.5%	0.31	1
General Logistics	Service	Automotive	48.7	51.9	6.6%	1.3%	3.1%	2.17	16
Healthcare Supplies	Health	Medical	10.0	11.3	13.0%	2.5%	2.5%	2.35	18
Marine Logistics	Service	Marine	6.2	8.4	35.5%	6.3%	5.8%	1.44	7
Metals & Mining	Mining	Minerals	17.7	14.2	-19.8%	-4.3%	2.7%	2.85	23
Mobile Phones	Electronics	Electronic	2.0	2.3	15.0%	2.8%	5.7%	2.14	15
New Cars	Engineering	Automotive	23.4	30.7	31.2%	5.6%	6.0%	1.29	6
Oil & Gas	Energy	Minerals	75.4	108.6	44.0%	7.6%	5.3%	1.00	3
Pharmaceutical	Health	Medical	25.7	28.1	9.3%	1.8%	2.1%	2.40	20
Semiconductors	Electronics	Electronic	5.1	7.2	41.2%	7.1%	0.3%	2.21	17
Speciality Chemicals	Science	Chemical	10.5	12.9	22.9%	4.2%	4.6%	1.93	12
Steel	Mining	Materials	10.2	7.5	-26.5%	-6.0%	-2.9%	3.58	28
Wireless	Electronics	Electronic	29.7	31.4	5.7%	1.1%	6.6%	1.78	10

Appendix B: Political Party Policy Comparisons

Forecasting the future: Political maps

Forecasting politics in an environment as turbulent as the United Kingdom is nearly impossible. It is not feasible to make predictions on which parties will be in power at any given time, but a review of political platforms may yield insights into the direction of the United Kingdom and allow for planning to benefit from, or mitigate, policy changes.

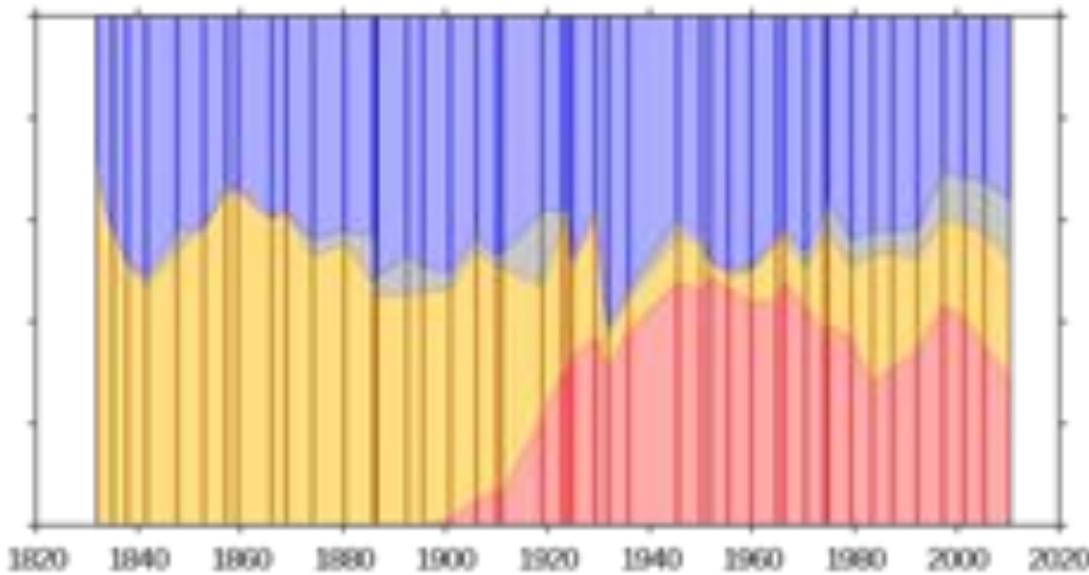


Figure 28: UK political party share of votes since the 1830s

As an example, the above chart (*United Kingdom general elections, 2010*) graphically depicts the composition of the United Kingdom parliament since the 1830s. Blue represents the “conservative” parties throughout history (starting from the Tories), while orange represents “democratic” (including the modern-day Liberal Democrats), red represents socialist parties (such as Labour), and the gray area represents all other parties. To understand where the United Kingdom is going, the most influential parties should be examined, as any of the parties can change the course of the nation.

Political parties

The United Kingdom's political landscape is varied and changeable. The Labour party has effectively operated the country since 1997 with the Tony Blair administration. In the current (2010) elections, the Conservative and Liberal Democrat political parties formed a coalition to control a hung parliament. Policies, especially those involving education and new, clean technologies, have been and will be strongly influenced by the political organisations in power. As such, a brief breakdown of relevant policies is included below using stars (★) to indicate strong support, checks (✓) to indicate general support, and noughts (✗) for no support. Where feasible, extra notes are included to describe particular policies; a blank area means no policy was readily available for that topic. This table was drawn from publically stated policies from the three major political parties (Conservatives, 2010, Labour, 2010, Liberal Democrats, 2010) as well as the Pocket Politics line of research materials (2010).

Table 25: UK political party map on key topics

Policy		Labour	Conservative	Lib Dem
Energy	Independence	✓	✓	✓
	Nuclear	✓	✓ No subsidies	✗ Opposed
	Renewable	✓ 15% by 2020	✓	★
	Low-carbon	✓ 40% by 2020	✓	★
	"Smart grid"	★	★	★
	Green homes	★	★ £6,500/home	★ Regulations
Taxes	Personal taxes	↑ For high earners		
	Business taxes	↓		↑
	National insurance levies		↓	
	Pollution taxes			↑
	Child Trust Fund		↓	✗ Eliminate
Europe	Euro (€)	✓	✗	✓
	Withdrawal	✗	✓	✗
	Federate		✗	✓
	Associate	✓	Limited	★
	Free trade	★	Limited	★
Business	Public works			★ £3.5b
	New job creation	★ £2b		✓
	Unemployment support	★		✓
	Green technology	★	★	★

Policy	Labour	Conservative	Lib Dem
Green jobs	★	★	★
Environment	Emissions cuts	★	✓
Carbon neutral	✓		★

Policy comparisons

The comparison of political policies yields surprising results between the Conservative and Liberal Democrat parties; while they formed a coalition to manage the United Kingdom during this time of political turmoil, they articulate almost diametrically opposed opinions on certain key topics. Critical issues include nuclear energy, renewable energy, European Union integration, and education.

First, the Conservative party is open to nuclear energy technology so long as no government subsidies are used; the Liberal Democrats, however, oppose nuclear power entirely. Chris Huhne (2010), director of the UK Department of Energy and Climate Change, stated the coalition government's support for nuclear power, so long as no government subsidies were used (Great Britain. Cabinet Office, 2010). Although the UK government has approved certain nuclear plant construction, Welsh and Scottish governments are opposed to new nuclear plants within their borders (*New nuclear plants get go-ahead*, 2008). Large-scale energy companies have commented that the government's proposed budget for nuclear energy underfunds the construction and decommissioning costs by half – raising the final replacement cost of all ten active yet aging nuclear reactors from £2.8 billion to £4.8 billion (Pagnamenta, 2008). Nonetheless, the UK government is heralding a new “nuclear renaissance” – but if history repeats, nuclear technology will fall out of public favour within a few years. With this information in mind, The Trust should be mindful of maintaining a diversified portfolio of programme offerings and partnerships, so as not to be unfairly “pigeon-holed” as being a nuclear-only organisation.

Second, renewable energy is fully approved of by all parties (Great Britain. Cabinet Office, 2010); implementing a policy palatable to all concerned groups to promote renewable energy is much more difficult. The UK has committed to a 30% reduction in carbon output, as well as new wind energy farm and even technologically untested tidal power systems. Additionally, many long-term forecasts for large-scale renewable energy implementation require a unified Europe,

which is a major topic of contention between Conservative and Liberal Democrats.

Third, the Conservative party has, in the past, espoused withdrawing from the EU; while this is almost unthinkable from an economic or political standpoint, it does underscore the Conservative party's strongly held belief in UK sovereignty. Nonetheless, this standpoint is critical in understanding the role and place of the EU and the energy capabilities of the future, as nearly all forecasts and predictions indicate that the EU as a whole – and **not** as individual nations – can achieve energy independence and security. PricewaterhouseCoopers (2010), European Climate Foundation (2010), and Shell (2010), among others, have developed “2050 Roadmap” forecasts that attempt to identify key challenges to energy independence in the coming years, as well as ways and means of achieving it. A common, albeit unstated assumption in these forecasts is that jingoism may very well harm individual countries and the entire European continent.

Fourth, education and job placement is crucial for all parties. The Coalition government has stated a renewed interest in apprenticeship programs, as well as ensuring that all people have the chance to learn in-demand skills.

General, obvious issues enjoying broad support include green technologies, job creation, and decarbonisation initiatives. Interestingly, all parties seemed to support some type of program to encourage citizens to upgrade individual homes to be more “green” or carbon-neutral, as well as government offices.

Appendix C: Activity Report Card

The “report card” is a graphical representation of the work done for a sponsor using the sponsor’s funds. “Infographics” communicate ideas quickly and clearly, with the added benefit of being visually and artistically pleasing to view.

A “report card” should be created for each sponsor each year. The report card presents aggregated information, coupled with demographic information from government organs, to provide a complete picture of the potential or expected impact of the sponsorship; in essence, a pound for pound accounting of the sponsorship. Please see 4.6.2 (Using the Report Card) for more details.

Example Report Card Page 1

2 0 0 9 - 2 0 1 0

What We've Done Together

Your report card from The Smallpeice Trust

A Big Thank You

ACME,

We wanted to say 'thank you' for helping us to promote science, technology, engineering, and mathematics careers to young people in the past year. With your help, and with other organisations like your own, we've held approximately 320 STEM enrichment days and 30 week-long residential courses at schools and universities across the UK. We've inspired 17,677 students aged 10-18. We've even managed to take a group of excited students to France to discover ultra-low carbon technologies.

We have compiled some key facts and figures to help you to measure the impact of our work in encouraging more young people to explore STEM careers. This guide also fits easily into your corporate social responsibility reporting - we've even linked it directly to the GRI Reporting Framework for your convenience.

I hope you'll enjoy seeing what our partnership has helped make possible.

Dr Andrew Cave
Chief Executive, The Smallpeice Trust
01926 333200
www.smallpeicetrust.org.uk

Some Numbers

STEM Enrichment Days
Number of days: 320
Number of students: 15,977

Residential Courses
Number of courses: 30
Number of students: 1,700

Girls on Residential Courses
38% are girls

Partnerships
30 unique partnerships

Interest in Careers in Engineering
70% of students are more interested in engineering after one of our courses

Example Report Card Page 2

ACME 2009-2010

Our Progress

We wanted to let you see the work we've done in our partnership to reach out to young people and introduce them to the rewarding opportunities found in science, technology, engineering, and mathematics education and careers. Everything here is about what our partnership has helped make real. Together, our progress has made an impact.

Our Impact

Our work's impact spreads far beyond the students we reach. Here's how far.

1	Ambassador
1	Programme
10	Schools
50	Students
49	Families
120+	People Reached



Our Students

We've worked hard to bring more girls into our courses. Here's how many.



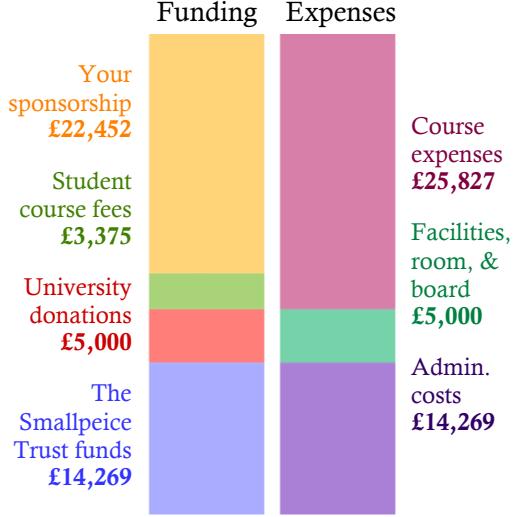
62% **38%**



Our Funding

We especially wanted you to know that every pound sterling you sponsor goes to support a course. Here's how much.

Funding	Expenses
Your sponsorship £22,452	Course expenses £25,827
Student course fees £3,375	Facilities, room, & board £5,000
University donations £5,000	Admin. costs £14,269
The Smallpeice Trust funds £14,269	



Example Report Card Page 3

ACME

2009-2010

What They Said

Quotes from children...

Our Partnership

In 2009-2010, ACME and The Smallpeice Trust partnered together to produce educational programmes focusing on science, technology, engineering, and mathematics. These educational programmes include courses in nuclear engineer, super-computing technology, and wind-based renewable energy, and are offered to students aged 10-18 throughout the United Kingdom. Founded in 1966, The Smallpeice Trust has a long history and expertise in highlighting STEM to young people.

This partnership with The Smallpeice Trust focused on delivering new programmes for students, including the following highlights:

1 residential course – week-long programmes to immerse students in STEM education and careers.

Additionally, 1 of ACME's employees participated in these programmes as role-models for students.

These programmes help raise interest in STEM education and careers - educators, school officials, and universities consistently want to host a STEM enrichment day or a week-long residential course. Over 70% of students report a definite interest in STEM after participating in a course.

Overall, ACME's sponsorship of £22,452 allowed 50 students from 10 schools to participate in these programmes. This has a total community impact of an estimated 120 people reached.†

Using this reporting brief

This section is suitable for use in the GRI Reporting Framework, specifically in the Performance Indicator on Indirect Economic Impacts and (sections EC8 and EC9). More information on the Global Reporting Initiative's published guidelines on Sustainable Business Reporting can be found at www.globalreporting.org.

† Approximately 49 families had at least one child attending a course. The quoted figure uses the Office of National Statistics' estimate of 2.4 people per household.

Example Report Card Page 4

ACME	2009-2010
	<h2>About The Smallpeice Trust</h2> <p>Established for more than 40 years, The Smallpeice Trust is an independent educational charity that runs hands-on Science, Technology, Engineering and Maths (STEM) activities and exciting engineering courses for pupils in Years 6-12. We also deliver Teacher Training Days to bring STEM to life in the classroom.</p> <p>Courses take place at universities and other inspiring venues and are available to students in Years 9-12. They all offer young, aspiring engineers the chance to connect with professionals and technical specialists and help to develop essential skills such as problem solving and team work.</p> <p>To find out more about The Smallpeice Trust, give us a call at 01926 333200 or visit our website, www.smallpeicetrust.org.uk.</p> 

Appendix D: Renewable Energy Collateral

Three fundraising collateral pieces were created in support of the Electric Vehicle industry campaign. These collateral include an unsolicited contact letter, a fact sheet, and a presentation slide deck. All three pieces draw from “Non-industry specific messages” (4.10) and “Renewable energy industry analysis” (4.11).

The unsolicited contact letter incorporates high-level industry figures that should appeal to a wide range of businesses in the targeted industry. Additionally, the letter focuses on the number of courses offered and the wide range of students reached, including an impressive figure on the number of young women who attended.

This “Fact Sheet” was produced to create an “emotive punch” to industry facts and figures. It is designed as a “leave behind” for “Peer-to-Peer Meetings” with potential sponsors, or as part of the initial unsolicited contact. The entire document is written as an “infographic” using colours, images, and charts to express ideas that words alone cannot.

The presentation slide deck extends the “Fact Sheet” with targeted displays on the key messages identified earlier. As certain segments of the target industry will be more interested in and responsive to different key messages, it is envisioned that 3-4 specific slides will be inserted into company presentations to customise the presentation to the business’s concerns.

Introduction (Unsolicited) Letter

30 August 2010

Mr Christopher Anderson
Director
4C Offshore Ltd
Lothing House
Quay View Business Park
Lowestoft, Suffolk
NR32 2HD

Dear Mr Anderson,

Low-Carbon Renewable Energy and Education in STEM

The renewable energies market is expected to grow by 37% and provide 34% more electricity to British homes and businesses in the next five years. At the same time, the new coalition government has pledged to reduce the UK's carbon footprint by 30% by 2020. There is a clear need to train Britain's next generation of engineers and scientists to meet these ambitious goals.

As an organisation immersed in low-carbon technology and employing many technically-minded professionals, you will be aware of the shortage in the number of young people attracted to careers in STEM (Science, Technology, Engineering and Maths) related industries and the long-term impact this will have on our economy and its growth prospects. We predict the nation will need over 640,000 new engineers, scientists, and technical professionals over the next 10 years, with nearly 400,000 of those in new low-carbon, 'green-collar' occupations.

The Smallpeice Trust is an energetic, independent educational charity promoting STEM careers to young people aged 10-18, helping secure the future technology talent pipeline in the UK. Last year, we ran 30 inspirational residential courses for 1,700 school-aged students at universities across the country. In addition, 15,977 students attended our in-school STEM master classes. We are incredibly proud of our girls and young women who accounted for 38% of our students. Filling our nation's talent pool starts with children like these, and we partner with over 30 international businesses and organisations to encourage more young people to take up STEM careers.

I would greatly appreciate the opportunity to discuss a new partnership with you. Together we can help tackle the skills shortage by giving young people the chance to attend courses based specifically on low-carbon, sustainable energy technologies. By partnering with us, you will bolster your corporate responsibility reputation and enhance your brand. You would also benefit from increased profile amongst enthusiastic students, their families, and their local communities throughout the UK. Your team could also contribute to the course programme, giving your role-model employees the opportunity to develop and lead projects as part of their own personal leadership development.

By developing the skills pipeline, we can do more to attract young people to exciting and rewarding careers while securing our country's leadership in the burgeoning renewable energy economy. I look forward to a meeting with you to discuss this further.

Yours sincerely,

Dr Andrew Cave
Chief Executive

Email: andrewc@smallpeicetrust.org.uk
Mobile: 07885 227342

Presentation Slides (1-4)

9/2/10

More than 640,000 STEM jobs by 2017

- 641,000 STEM-related jobs must be filled by 2017
- 400,000 will have a low-carbon focus

Country	Jobs
England	567,000
Scotland	42,000
Wales	24,000
Northern Ireland	8,000
Total	641,000

(in thousands)

Apprenticeship Renaissance

- Non-university path to technology careers
- Major part of public policy to train and up-skill Britain
- Starting Apprenticeships: 400,000 funded positions
- Advanced Apprenticeships: 35,000 funded positions

Inspirational Courses in Engineering
www.smallpeice.org.uk

Key Messages for the Renewable Energy Industry

July 2010

Smallpeice Trust
Tata Steel Educational Trust

More engineering graduates...

First Degrees Earned

Thousands

2002/03 2003/04 2004/05 2005/06 2006/07 2007/08 2008/09

Legend: Non-STEM (blue circles), STEM (red squares), Eng. & Tech. (green triangles)

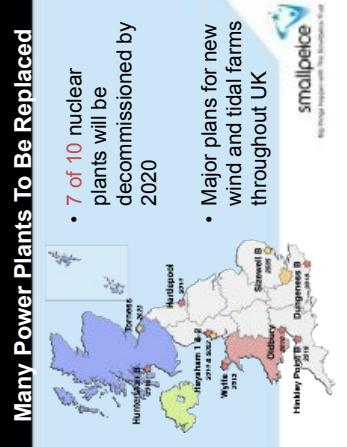
Year	Non-STEM	STEM	Eng. & Tech.
2002/03	~220	~100	~50
2003/04	~240	~120	~60
2004/05	~260	~140	~70
2005/06	~280	~160	~80
2006/07	~290	~180	~90
2007/08	~300	~200	~100
2008/09	~310	~220	~110

Since 2002...

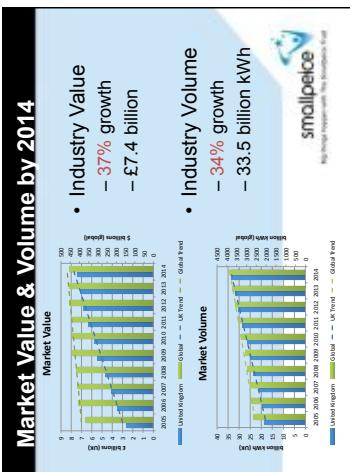
7.7% STEM degree growth
21.7% Non-STEM degree growth

Presentation Slides (5-8)

8/30/10



International Support is Growing



National Support is Growing

2

Presentation Slides (9-11)

8/30/10

3

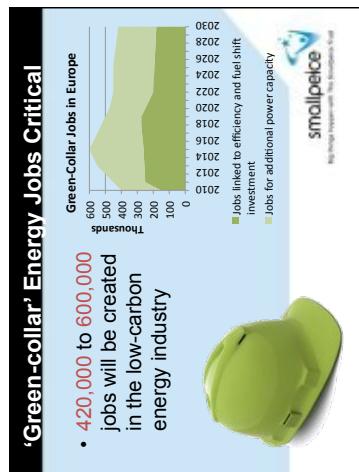
Industry Leaders Embrace Renewables

- New technologies are launching
 - Tidal, wave, and marine technology
 - On and offshore wind energy
 - Advanced solar systems for energy and heat
 - Europe-wide energy transmission plans



E.ON and EDF are “reforming UK energy”
Over £10 million R&D each

No image present with this slide/PowerPoint file



Industry Fact Booklet (Front Cover)

science
technology
engineering
mathematics

Securing the Workforce of Tomorrow

An industry report on future STEM
careers, occupations, and growth in
low-carbon renewable energy from
The Smallpeice Trust



Big things happen with The Smallpeice Trust



Industry Fact Booklet (Page 1)

What's Inside

This low-carbon renewable energy industry report details the importance of introducing young people to science, technology, engineering, and mathematics (STEM) careers. The United Kingdom has a definite need for qualified, educated professionals in the renewable energy industry. Together, we can make a difference.

The Smallpeice Trust has been building industry partnerships to bring the exciting world of engineering and technology to the classroom. To see how a partnerships with The Smallpeice Trust can benefit your business, contact us at 01926 333200 or visit our website, www.smallpeicetrust.org.uk.

Topics

- 1) Over **640,000** STEM-related jobs must be filled by 2027.
- 2) STEM degree graduations rose by **5.8%**, but non-STEM graduates rose 3 times faster.
- 3) Revamped apprenticeship programs offer over **435,000** sponsored positions.
- 4) Between **420,000** and **600,000** ‘green-collar’ jobs will be created by 2030.
- 5) National support for renewable energy is growing.
 - Government-wide **30%** carbon reduction target.
 - Wind power grant for **£10 million** from the DECC.
- 6) International support is growing as well.
 - The EU has earmarked over **€1 billion** for renewable energy projects.
 - The UN estimates global renewable energy investment grew to **£85 billion**.
- 7) Industry leaders are redefining UK energy with **£10 million** R&D investments.
- 8) Governments, businesses, and respected ‘Think Tanks’ are considering the world of **2050**, today.

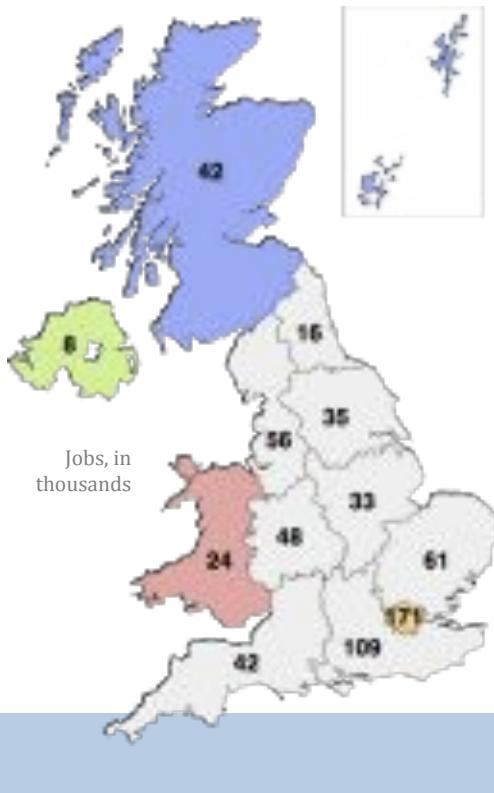
The Smallpeice Trust is a company limited by guarantee, registered in England. Company number 00882371. Registered office, Holly House, 74 Upper Holly Walk, Leamington Spa, Warwickshire CV32 4JL. Registered Charity number 313719.

1

The Smallpeice Trust

Industry Fact Booklet (Page 2)

**Over
640,000
STEM-related
jobs must be
filled by 2017**



With new industries recruiting and an aging workforce retiring, STEM-related jobs are either created or vacated and must be filled by qualified, capable workers. Research on the current [1] and future [2] workforce highlights a need for well-trained engineers and technicians – about 641,000 jobs will be created or vacated. The Trust estimates that at least 400,000 of these jobs will have a focus on low-carbon technologies and practices, with this number growing substantially as low-carbon practices and policies become common place and necessary for business [3, 4].

Country	Jobs
England	567,000
Scotland	42,000
Wales	24,000
Northern Ireland	8,000
Total	641,000

2

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Industry Fact Booklet (Page 3)

More STEM graduates... ...but still fewer than other degrees

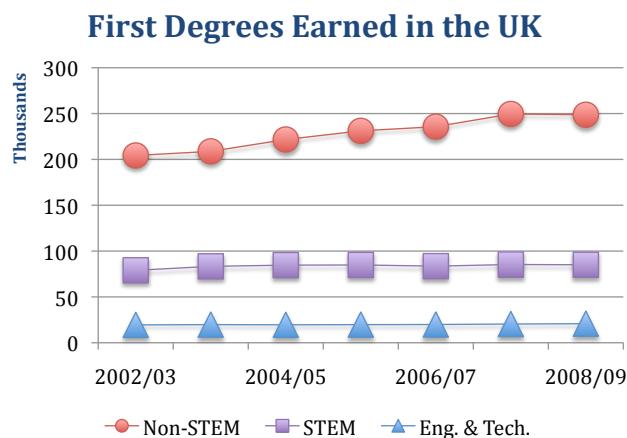
There is a clear, recognised need for more STEM graduates and technicians, and for enthusiastic young students to enter STEM-related fields.

7.7%

STEM graduate degree growth since 2002 [5]

21.7%

General graduate degree growth since 2002 [5]



An apprenticeship renaissance

To encourage careers in STEM-related industries, the UK government has launched more apprenticeship support programs starting in 2011. Recent proposals include funding for new apprenticeships, and promised placement for any would-be student starting in 2013 [6].

Apprenticeships available in all fields of engineering and manufacturing, information technology, medicine and agriculture, and more...

400,000 positions

General Apprenticeships

NVQ 2 / 5 GCSEs
For first-time school leavers to start learning and working right away

35,000 positions

Advanced Apprenticeships

NVQ 3 / 2 A-Levels
Prove your knowledge and skills and prepare for certification or more education

Higher Apprenticeships

NVQ 4 / Foundation
Advanced technical skills and knowledge aimed at degree qualification

3

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Industry Fact Booklet (Page 4)

Market value & volume set to grow by a third



The UK's renewable energy market is expected to grow faster than most of the world between 2009 and 2014.

37%
total growth [7]

£7.4 billion
total value [7]

Total electricity supply will go up by

34% That's enough power for
1.8 million new homes [7-8]



2009 - 25
billion kWh

2014 - 33.5
billion kWh

4

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Industry Fact Booklet (Page 5)

Government plans and Coalition policies

- Government pledges a **30%** reduction in **carbon emissions** [9]
- Department of Energy and Climate Change offers a **£10m** grant for **wind energy** [10]
- ‘**Green Deal**’ for households and new feed-in tariffs [9,11]
- ‘**Green Bank**’ for renewable energy investments [9,11]



Renewable energy has excellent support

UN estimates global renewable energy investment grew to **£85 billion** in 2009
[12]

The EU earmarked **€908 million** for smart-grid energy technology throughout Europe
[13]

Global Energy Efficiency and Renewable Energy Fund has grown to over **€108 million**
[14]

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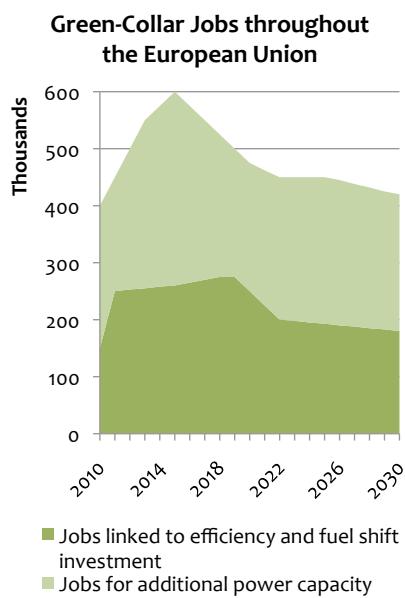
5

Industry Fact Booklet (Page 6)



High-technology, 'green-collar' occupations are the future

Between
420,000 and **600,000**
jobs will be created in the
European low-carbon energy
industry [8].



Industry leaders are embracing
renewable energy technologies.

Leading consulting firms
McKinsey & Company [8] and
PricewaterhouseCoopers [15]
regularly report on the state of
the world's energy situation.

E.ON and EDF are redefining
UK energy with £10 million R&D
expansion plans [16].

The EU is expected to explore
options for a unified, fully
integrated EU-wide electricity
smart-grid [8,15].

Even oil-giant Shell is preparing
for a renewable energy future
with its Energy Scenarios: 2050
report [17].

All signs point to the same idea:

Sustainable, renewable
energy is the future

6

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Industry Fact Booklet (Page 7)

Your future with The Smallpeice Trust

Established for more than 40 years, The Smallpeice Trust is an independent educational charity that runs hands-on Science, Technology, Engineering and Maths (STEM) activities and exciting engineering courses for pupils in Years 6-12. We also deliver Teacher Training Days to bring STEM to life in the classroom.

Courses take place at universities and other inspiring venues and are available to students in Years 9-12. They all offer young, aspiring engineers the chance to connect with professionals and technical specialists and help to develop essential skills such as problem solving and team work.

To find out more about The Smallpeice Trust, give us a call at [01926 333200](tel:01926333200) or visit our website.

www.smallpeicetrust.org.uk

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Appendix E: Electric Vehicle Collateral

Three fundraising collateral pieces were created in support of the Electric Vehicle industry campaign. These collateral include an unsolicited contact letter, a fact sheet, and a presentation slide deck. All three pieces draw from “Non-industry specific messages” (4.10) and “Electric vehicle industry analysis” (4.12).

The unsolicited contact letter incorporates high-level industry figures that should appeal to a wide range of businesses in the targeted industry. Additionally, the letter focuses on the number of courses offered and the wide range of students reached, including an impressive figure on the number of young women who attended.

This “Fact Sheet” was produced to create an “emotive punch” to industry facts and figures. It is designed as a “leave behind” for “Peer-to-Peer Meetings” with potential sponsors, or as part of the initial unsolicited contact. The entire document is written as an “infographic” using colours, images, and charts to express ideas that words alone cannot.

The presentation slide deck extends the “Fact Sheet” with targeted displays on the key messages identified earlier. As certain segments of the target industry will be more interested in and responsive to different key messages, it is envisioned that 3-4 specific slides will be inserted into company presentations to customise the presentation to the business’s concerns.

Introduction (Unsolicited) Letter

30 August 2010

Mr Al-Karim Versi
Managing Director
A-Kar (Europe) Ltd
26 York Street
London
W1U 6PZ

Dear Mr Versi,

Low-Carbon Electric Vehicles and Education in STEM

With over 180,000 people employed in the automotive industry, vehicle design and manufacturing has been a major part of British industrial history. New electric vehicles can be the future – over £250 million has been set aside for trialling a national recharging infrastructure while major cities such as London plan to deploy over 1,000 electric fleet vehicles by 2015. There is a clear need to train Britain's next generation of engineers and scientists to meet these ambitious goals.

As an organisation engaged in electric vehicle technology – starting with your novel A-Kar – and employing technically-minded professionals, you will be aware of the shortage in the number of young people attracted to careers in STEM (Science, Technology, Engineering and Maths) related industries and the long-term impact this will have on our economy and its growth prospects. We predict the nation will need over 640,000 new engineers, scientists, and technical professionals over the next 10 years, with nearly 400,000 of those in new low-carbon, 'green-collar' occupations.

The Smallpeice Trust is an energetic, independent educational charity promoting STEM careers to young people aged 10-18, helping secure the future technology talent pipeline in the UK. Last year, we ran 30 inspirational residential courses for 1,700 school-aged students at universities across the country. In addition, 15,977 students attended our in-school STEM master classes. We are incredibly proud of our girls and young women who accounted for 38% of our students. Filling our nation's talent pool starts with children like these, and we partner with over 30 international businesses and organisations to encourage more young people to take up STEM careers.

I would greatly appreciate the opportunity to discuss a new partnership with you. Together we can help tackle the skills shortage by giving young people the chance to attend courses based specifically on low-carbon, electric vehicle technologies. By partnering with us, you will bolster your corporate responsibility reputation and enhance your brand. You would also benefit from increased profile amongst enthusiastic students, their families, and their local communities throughout the UK. Your team could also contribute to the course programme, giving your role-model employees the opportunity to develop and lead projects as part of their own personal leadership development.

By developing the skills pipeline, we can do more to attract young people to exciting and rewarding careers while securing our country's leadership in the burgeoning electric vehicle industry. I look forward to a meeting with you to discuss this further.

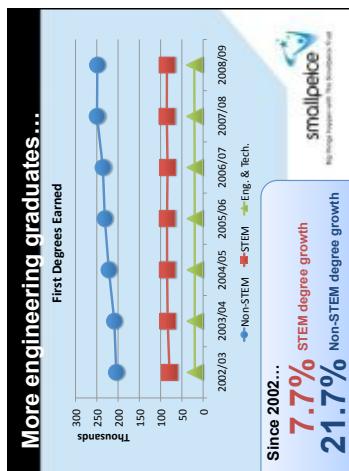
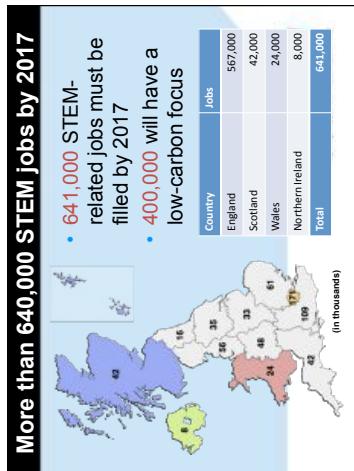
Yours sincerely,

Dr Andrew Cave
Chief Executive

Email: andrewc@smallpeicetrust.org.uk
Mobile: 07885 227342

Presentation Slides (1-4)

9/2/10



1

Presentation Slides (5-8)

8/30/10

2

New Investments Mean New Jobs

Programme

Low Carbon Vehicle Technology Programme	£19.5m
Cross-industry partnerships	£9m
National vehicle trialling network	£20m
Competitions and awards	£200m
Total	Over £250m

National, regional, and industry support for investments in low-carbon vehicles

- Expected to create **3,000 to 11,000 new jobs** near existing automotive centres

No image present with this slide/section

Infrastructure Critical for Growth

London is ambitious

- By 2015, London wants...
 - 25,000 recharge points
 - 1,000 city fleet electric vehicles
 - 100,000 London drivers to switch to electric vehicles

No image present with this slide/section

Industry Ready for New Challenges

Vehicle Production in 2009

Region	Production Share (%)
World	~65%
EU	~25%
EU (Light Blue)	~10%

- Britain put 1,000,000 new cars on the road in 2009
- Fourth biggest producer in the EU
- Employs more than **180,000** in manufacturing
- Contributes over **£10 billion** to the economy

No image present with this slide/section

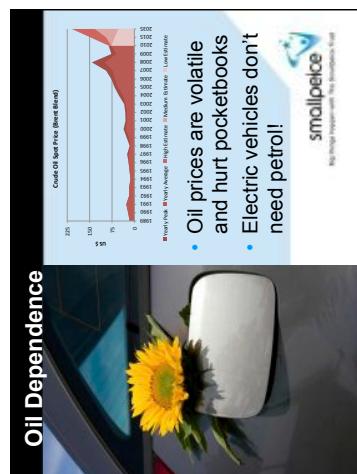
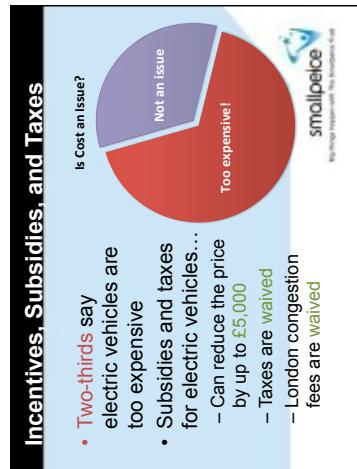
Major Brands work in the UK

Tesla Roadster	MINI e	Toyota Auris	Toyota Prius
• All-electric	• All-electric	• Hybrid	• Plug-in
• In mass production	• Partly built in Oxford & London	• In mass production	• Field trials throughout the UK
• Field trials in Oxford & London	• Partly built in Derbyshire	• Partly built in Hethel	

No image present with this slide/section

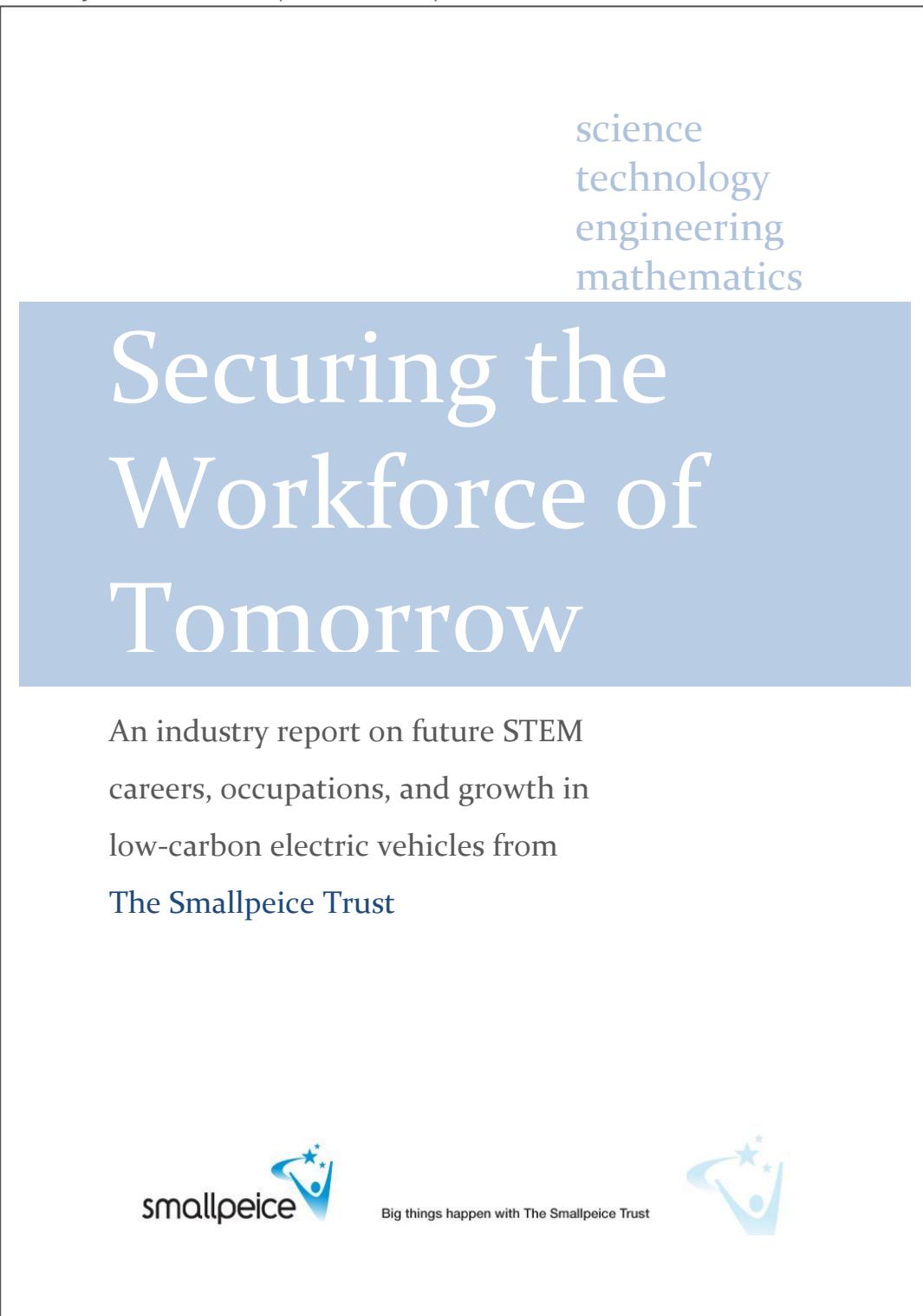
Presentation Slides (9-11)

8/30/10



3

Industry Fact Booklet (Front Cover)



Industry Fact Booklet (Page 1)

What's Inside

This low-carbon electric vehicle industry report details the importance of introducing young people to science, technology, engineering, and mathematics (STEM) careers. The United Kingdom has a definite need for qualified, educated professionals in the renewable energy industry. Together, we can make a difference.

The Smallpeice Trust has been building industry partnerships to bring the exciting world of engineering and technology to the classroom. To see how a partnerships with The Smallpeice Trust can benefit your business, contact us at 01926 333200 or visit our website, www.smallpeicetrust.org.uk.

Topics
<ol style="list-style-type: none">1) Over 640,000 STEM-related jobs must be filled by 2027.2) STEM degree graduations rose by 7.7%, but non-STEM graduates rose 3 times faster.3) Revamped apprenticeship programs offer over 435,000 sponsored positions.4) The UK automotive industry is valued at £10.2 billion, employs over 180,000, and put 1,000,000 cars on the road in 2009.5) Over £250 million has been set aside for electric vehicle design and manufacturing; that's up to 11,500 new jobs.6) Buying an electric car is easier than ever.<ul style="list-style-type: none">• New tax and rebate incentives drop the price by thousands.7) Recharging an electric car is easier than ever.<ul style="list-style-type: none">• Plugged-In Places granted £30 million for 11,000 recharge points.8) The UK already builds tomorrow's electric cars in Derbyshire, Oxford, & Hethel.9) Enthusiasts built custom electric cars that can outrace a Ferrari.

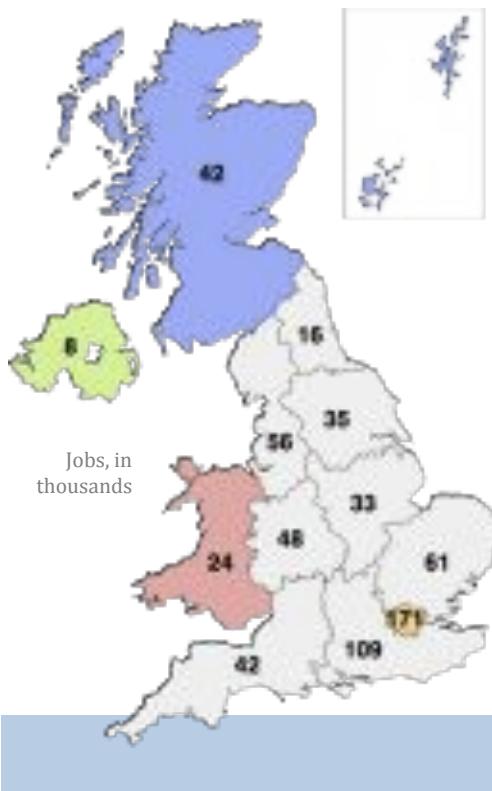
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Industry Fact Booklet (Page 2)

**Over
640,000
STEM-related
jobs must be
filled by 2017**



With new industries recruiting and an aging workforce retiring, STEM-related jobs are either created or vacated and must be filled by qualified, capable workers. Research on the current [1] and future [2] workforce highlights a need for well-trained engineers and technicians – about 641,000 jobs will be created or vacated. The Trust estimates that at least 400,000 of these jobs will have a focus on low-carbon technologies and practices, with this number growing substantially as low-carbon practices and policies become common place and necessary for business [3, 4].

Country	Jobs
England	567,000
Scotland	42,000
Wales	24,000
Northern Ireland	8,000
Total	641,000

2

The Smallpeice Trust

Industry Fact Booklet (Page 3)

More STEM graduates... ...but still fewer than other degrees

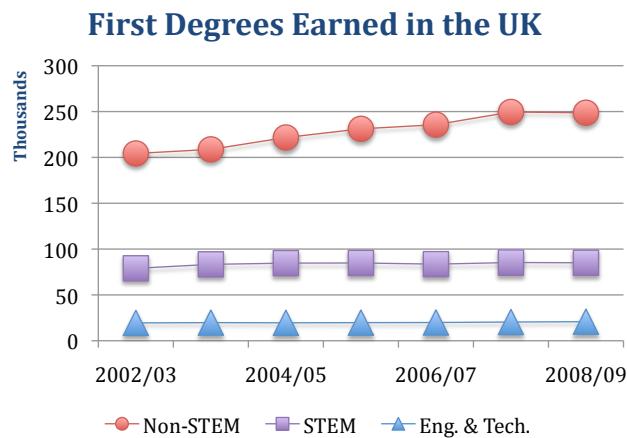
There is a clear, recognised need for more STEM graduates and technicians, and for enthusiastic young students to enter STEM-related fields.

7.7%

STEM graduate degree growth since 2002 [5]

21.7%

General graduate degree growth since 2002 [5]



An apprenticeship renaissance

To encourage careers in STEM-related industries, the UK government has launched more apprenticeship support programs starting in 2011. Recent proposals include funding for new apprenticeships, and promised placement for any would-be student starting in 2013 [6].

Apprenticeships available in all fields of engineering and manufacturing, information technology, medicine and agriculture, and more...

400,000 positions

General Apprenticeships

NVQ 2 / 5 GCSEs
For first-time school leavers to start learning and working right away

35,000 positions

Advanced Apprenticeships

NVQ 3 / 2 A-Levels
Prove your knowledge and skills and prepare for certification or more education

Higher Apprenticeships

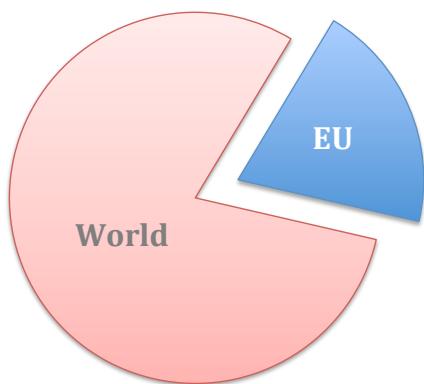
NVQ 4 / Foundation
Advanced technical skills and knowledge aimed at degree qualification

3

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Industry Fact Booklet (Page 4)

The European Union makes a quarter of the world's vehicles ^[7]



1,000,000

came from Britain,
making us the

fourth

biggest producer in
the European Union ^[7]

The United Kingdom's automotive industry is valued at

£10,200,000,000

and has over **180,000 employees** ^[8]

in manufacturing alone

thousands more work in
aftermarket support,
vehicle design,
and automotive research

Nearly every major brand
has **vehicle component** or
final assembly factories in
the United Kingdom.



4

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Industry Fact Booklet (Page 5)

Making electric cars more popular

Two-thirds of respondents won't buy an electric vehicle because

But that's not really true...

Zero emission vehicles enjoy...

Zero road tax [11]

Zero London congestion charges [12-13]

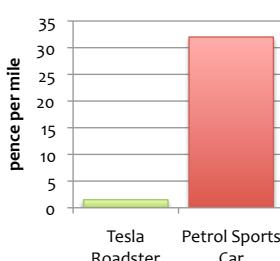
Zero parking charges [12-13]

Zero recharging costs [12-13]

it costs too much! [9-10]

which means more electric cars will be bought...

and means that more electric cars are needed!



It costs the **Tesla Roadster**, an all-electric sports car

A comparable petrol-powered sports car can cost up to

1.5p
per mile [13]

32p
per mile [13]
5

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Industry Fact Booklet (Page 6)

Making it easier than ever to recharge

Electric vehicles need a way to recharge at home and abroad

Plugged-In Places
granted £30 million
for 11,000
new recharge points [14]

Work starts in
London
Milton Keynes
And the **North East** [15]

London is ambitious:
25,000 recharge points planned! [16]



Building an Electric Vehicle Network

Designing an electric car takes more than a **big battery**.

It takes **millions** in investments and **thousands** of people.

Programme	Investment
Low Carbon Vehicle Technology Programme	£19.5m
Cross-industry partnerships	£9m
National vehicle trialling network	£20m
Competitions and awards	£200m
Total	Over £250m

£250 million and 3,000-11,500 jobs, just to start.

[8, 17-21]

6

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Industry Fact Booklet (Page 7)



Already building the electric cars of tomorrow

UK automotive engineers and manufacturers already build and assemble innovative cars

This means the UK is already prepared for the new electric vehicle industry

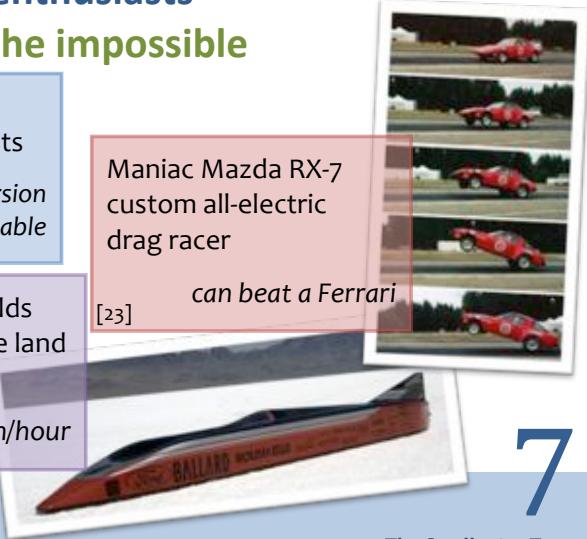
Toyota Auris <ul style="list-style-type: none">• Hybrid• In mass production• Partly built in Derbyshire	BMW MINI e <ul style="list-style-type: none">• All-electric• Field trials in Oxford & London• Partly built in Oxford	Tesla Roadster <ul style="list-style-type: none">• All-electric• In mass production• Partly built in Hethel
---	--	---

Do-It-Yourself enthusiasts already prove the impossible

'Plug-In Prius' first invented by hobbyists now at-home conversion kits are available [22]

Buckeye Bullet holds the electric vehicle land speed record at 518 km/hour [24]

Maniac Mazda RX-7 custom all-electric drag racer can beat a Ferrari [23]



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Industry Fact Booklet (Page 8)

Your future with The Smallpeice Trust

Established for more than 40 years, The Smallpeice Trust is an independent educational charity that runs hands-on Science, Technology, Engineering and Maths (STEM) activities and exciting engineering courses for pupils in Years 6-12. We also deliver Teacher Training Days to bring STEM to life in the classroom.

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To find out more about The Smallpeice Trust, give us a call at 01926 333200 or visit our website.

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Appendix F: Businesses in Targeted Industries

The following lists of companies are to be targeted in this fundraising campaign.

Renewable energy industry

4C Offshore Ltd	Linde Group
Aeolus Power	Macquarie Capital
Aeolus Wind Ltd	METOC plc
Allianz Specialised Investments Ltd	Mott MacDonald
Alnmaritec Ltd	MPI Offshore Ltd
Augusta & Co plc	National Renewable Energy Centre
Biffa Group Ltd	Natural Power Consultants Ltd
Capital Safety Group Ltd	Offshore Marine Management Ltd
Carter Croft Ltd	Oilfield Publications Ltd
CD-adapco	Osiris Marine Services Ltd
Centrica plc	Pager Power Ltd
Clean Renewable Energy Generation Ltd	PB Power
Contour Global	PMSS Ltd
Converteam UK Ltd	Pure Energy Professionals Ltd
Cummins Generator Technologies Ltd	PV Crystalo Solar plc
D. G. Spectro Oil Analysis Company Ltd	Renewable Energy Association
David Brown Gear Systems Ltd	RenewableUK
Dyesol UK Ltd	RenGen Energy
E.ON UK plc	RES - Renewable Energy Systems Ltd
Ecotricity Group Ltd	Ricardo UK Ltd
Edwards Ltd	Rockwell Automation Ltd
ENSPEC Power Ltd	Romag UK
ERM Environmental Resources Management	Romax Technology Ltd
GL Garrad Hassan	RSA Insurance Group
Global Marine Systems Ltd	RuggedCom Inc.
HgCapital	RWE nPower plc
Honda Motor Europe Ltd	S&C Electric Europe Ltd
HYTORC Europe	Scottish & Southern Energy plc
Iberdrola Engineering & Construction UK Ltd	SEaB Energy Ltd
IET - Institution of Engineering and Technology	SeaEnergy plc
Intelligent Land Investments	Seajacks UK Ltd
IT Power Ltd	SeaRoc UK Ltd
James Walker RotaBolt Ltd	Senergy Alternative Energy
JDR Cable Systems Ltd	Sharp Electronics Ltd
Latchways plc	Shepherd Offshore Ltd
Limpet Technology Ltd	Shipbuilders & Shiprepairs Association

SLP Energy	Sword UK Ltd
Smart Power Ltd	Team Humber Marine Alliance
Smart Wind Ltd	Tekmar Energy Ltd
Solar Century	Tensar International Ltd
Solent Composite Systems Ltd	UK Mainstream Renewable Power Ltd
Subocean Group	Uniline Safety Systems Ltd
Subsea UK	Ventyx Energy Ltd
Sumitomo Mitsui Banking Corporation Europe Ltd	WindPro - GCube Underwriting Ltd
Electric vehicle industry	
A-Kar (Europe) Ltd	Mitsubishi Corporation International (Europe) plc
AC Cars (GB) Ltd	Morgan Motor Company
Alexander Dennis Ltd	Nice Car Company
Ariel Motor Company	Nissan Motor Company, Ltd
Ascari Cars Ltd	Noble Automotive, Ltd
Aston Martin Lagonda, Ltd	NXT plc
Avis Europe plc	Optare Group, Ltd
Axon Ltd	Paccar, Inc
Bentley Motors Ltd	Peugeot Motor Company
BMW Manufacturing Ltd	Plaxton Ltd
Bristol Cars, Ltd	Premier Farnell plc
Capital Shopping Centres plc	Quiet Car Company
Caterham Cars, Ltd	Reliant Cars Ltd
CEVA Group plc	Renault
Citroën UK Ltd	Riversimple LLP
Daimler UK	Rolls-Royce Group plc
Eco City Vehicles plc	Rolls-Royce Motor Cars
Electric Car Corporation	Ros Roca Dennis RCV Ltd
Fiat	Smiths Group plc
FirstGroup plc	Tanfield Group Plc
Ford Motor Company	Tata Motors, Ltd
General Motors	Tesla Motor Company
Ginetta Cars	The Morgan Crucible Company plc
Go-Ahead Group plc	Tomkins plc
GoinGreen UK	Toyota Motor Corporation
Hartest Holdings plc	Toyota Motor Manufacturing Ltd
Honda Motor Europe Ltd	TVR Motor Company
IMI plc	Ultra Electronics Holdings plc
Inchcape plc	Vauxhall
Lightning Car Company	Viridian Power and Energy Ltd
Lotus	Volex Group plc
Manganese Bronze Holdings plc	Volkswagen Group UK Ltd
McLaren Group, Ltd	WrightBus
Meggitt plc	Zytek Automotive Ltd
Metalrax Group plc	
Micro-Vett GB Ltd	

Appendix F: Businesses in Targeted Industries