EVALUATION OF THE ST ANDREWS UNIVERSITY FUEL CELL PROJECT

REPORT TO:
SCOTTISH ENTERPRISE GRAMPIAN

SQW

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SQW

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Executive Summary

1. This is the report of SQW Limited's evaluation of the *St Andrews University Fuel Cell Commercialisation Project* (hereafter the FCCP) funded by the SE Energy Team and SE Fife. This full, *ex post* evaluation has been undertaken as part of SQW's contract with Scottish Enterprise Grampian (SEGr) to undertake its Evaluation Plan 2005-6.

2. The intended impacts of the FCCP were threefold: successful conclusion to the project itself; the subsequent commercial take-up of the technology; and creation of a design and manufacturing chain for the technology.

3. Based on the Final Report submitted by the University of St Andrews, it appears that all the technical aspects of the project have been addressed successfully. SQW is not in a position to validate this directly in the context of this small study. However, some proxies can be found: nine patent applications have been filed and a SMART Award subsequently won for further development of the technology.

4. Successful commercialisation of the technology is indicated by the incorporation of a spin-out company - St Andrews Fuel Cells Limited – and the recent first round risk investment obtained from a private investor.

5. We conclude that the support for the project fits well with both the SE Energy Team's and SE Fife's strategic objectives. It is too early to tell whether the technology and the growth of St Andrews Fuel Cells Limited will lead to the significant economic development benefits that form part of SE Fife's wider vision. The prospects remain to be tested and realised. However, it appears from SE Fife's recent investment in business incubation, from which the company should benefit, that it is working to give the venture a "fair wind".

6. In terms of impact, the company expects to support the employment of 10 people in the short to medium term. These staff will be employed by the University via a sub-contract with St Andrews Fuel Cells Limited. The employment figures cannot all be regarded as permanent jobs. Some positions are still to be filled.

7. To give some sense of scale of return to date on the £330k investment from the Energy Team and SE Fife, we have attributed 50 % of the employment to this i.e. 5 out of the 10 jobs supported, as the project has already benefited from funding from other sources. We consider there to be a high degree of additionality associated with these SE Network contributions. We assume therefore that the 5 jobs would not have been created otherwise. We consider it reasonable to assume that 3 are non-displacive at a Scottish level.

8. On the basis of 3 net additional direct jobs created by the SE Energy Team and SE Fife investment, and using a GVA per head of £28,625 for an R&D job in Scotland, a contribution of £85,875 per annum in terms of GVA would now be made that would not have occurred without the £330k upfront investment.

9. We recommend that the terms of the claw-back agreement with the University of St Andrews be reviewed. Given the inevitability of staff changes and the relatively long term over which these kinds of agreements run, it is important to ensure that an "entitlements register" is maintained in a visible manner so that terms of agreements can be monitored and enacted as and when appropriate.

10. On commercialisation via the spin-out route, the following key learning points and recommendations are highlighted:

- it is important to ensure that the right people are recruited to a spin-out at the right time to do the right job
  - this is acknowledged to be difficult and the SE Network should look to ways in which it could be more effective in providing assistance
- access to industry experts is critical to the commercialisation of specialist technology projects of this kind.

1 Introduction

1.1 This is the report of SQW Limited's evaluation of the *St Andrews University Fuel Cell Commercialisation Project* (hereafter the FCCP). This has been undertaken as part of SQW's contract with Scottish Enterprise Grampian (SEGr) to undertake its Evaluation Plan 2005-6.

Purpose

1.2 This is a full, *ex post* evaluation of the FCCP which was funded by the SE Energy Team together with SE Fife. The purpose of the evaluation is as follows:

- to assess the cost effectiveness of the intervention
- to assess value for money
- to confirm what market failure has been addressed
- to identify outputs and impacts
- to identify any lessons relevant to future practice, notably lessons relevant to other similar technology commercialisation projects.

Methods

1.3 The methods adopted for this evaluation were as follows:

- a briefing/consultation meeting with representatives of the SE Energy Team at the outset
- a review of the project file held by the SE Energy Team, including approval papers and monitoring records
- face-to-face interviews with other key stakeholders, namely: a representative of SE Fife which co-funded the project; a representative of the University of St Andrews' Research and Enterprise Services, its commercialisation office; and the Principal Investigator/inventor.

1.4 In addition to the submission of this report, the client is offered the opportunity for a final briefing meeting to discuss our findings.

2 Background

2.1 The SE Energy Team, together with SE Fife, has provided support to Professor John Irvine of the University of St Andrews since 2001 for the development of a fuel cell. The work has been conducted by the University's Solid State Electro-chemistry Research Group. The SE Network's investment in three phases is shown below:

Phase/date	SE Energy Team	SE Fife
Phase 1: 2001	£120k	*£50k*
Phase 2: 2002		
Phase 3: 2003-4	£80k	*£80k*
TOTALS:	*£200k*	*£130k*

2.2 This commercialisation project originated from a prior application by Professor Irvine to SE's Proof of Concept Fund. We understand that despite being well regarded, the proposal failed to win support due to insufficient funds available at the time. An alternative reason suggested to us was that at the time the Proof of Concept Fund would only support energy-related technology projects if relevant to the oil and gas sector. Different consultees remember or express the circumstances slightly differently. Whatever the reason, upon failing to receive support, the SE Energy Team championed the project and agreed to support it along with SE Fife and the University of St Andrews outside the Fund.

2.3 The intended *project impacts* according to the relevant SE Energy Team's Approval Paper were threefold: successful conclusion to the project itself; the subsequent commercial take-up of the technology; and creation of a design and manufacturing chain for the technology.

2.4 The technical purpose of the FCCP was to progress what is claimed to be a radical new concept to address sealing and interconnection problems in current solid oxide fuels cells. The economic development purpose was to enable the proving of the concept and subsequently the commercialisation of the technology. It was envisaged that the third phase of funding would lead to a commercialisable product and that commercialisation would take place through the vehicle of a spin-out company from the University.

2.5 In addition to the financial input from the SE Network, the University provided equipment, laboratory space and staff support to the project in what appears to be a manner comparable to that provided to projects funded at a university by SE's Proof of Concept Fund.

2.6 We understand from the Third Phase Approval Paper (23 October 2002) that an agreement was drawn up between SE and the University to permit the former to "claw-back" funding provided by the Energy Team and SE Fife over a five-year period following successful

development and commercialisation of the product. We understood initially this to be restricted to Phase 3 funds[1] However, our (non legal) reading of the formal offers of financial contribution papers dated 12 March 2003 and 19 December, 2001 indicates that repayment of financial contribution is due on the sums provided in all three Phases.

Options, financial and economic appraisals

2.7 In addition to the market failure inherent in moving innovative technology through the proof of concept phase (addressed largely with Phase 1 and 2 funding for this project), a number of other factors were raised in seeking approval for obtaining Phase 3 public sector support:

- although it pointed to promising interest from Venture Capitalists in the technology, the Third Phase Approval Paper indicated that the VCs would look only for involvement after the third and final stage support. It was argued that in the context of a "claw back" agreement being in place, this was an ideal situation for SE
- the absence of Phase 3 funding would cause significant delay to the development of the technology, to the potential benefit of overseas competitors
  - it was the prospect of significant delay to development without Phase 3 funding and the perceived threat from overseas competitors that were used in the approval process to justify additionality arising from the SE investment
- the funding by SE was seen as the best means of achieving protectable Intellectual Property owned in Scotland
- the collaboration between the SE Energy Team and SE Fife would it was argued advise on and promote the subsequent commercial activity generated by the spin-out company and thus "ensure this stays in Scotland".

[1] SQW has had sight of a copy of the relevant legal document.

3 Evaluation Evidence

3.1 In this section we first report on "hard" evaluation evidence gained from the project documentation and from consultees. We then examine the "softer" but nonetheless important matters raised by the different parties to this project, the SE Energy Team, SE Fife and the University of St. Andrews.

3.2 Based on the Final Report submitted by the University of St Andrews it appears that all the technical aspects of the project have been successfully addressed. SQW is not in a position to validate this directly in the context of this small study. However, some proxies for a direct and independent validation can be found.

3.3 We conclude that all technical aspects of the project are likely to have been achieved based on two additional factors. We understand that nine patent applications have been filed, dated 18 October, 2002. Perhaps more significantly, we also note that a SMART Award[2] has been won for the further development of the fuel cell technology, subsequent to the financial support provided by the Energy Team and SE Fife. The due diligence involved in this Award provides confirmation that credible technical achievements have both been made and are in prospect.

3.4 The second project impact required was the successful commercial take-up of the technology, with a wish to see the commercialisation take place via a spin-out company. The establishment of a spin-out company has been achieved with the incorporation of St Andrews Fuel Cells Limited[3] in February 2005. A first indication of commercial take-up comes from the recently obtained first round risk investment from a private investor.

3.5 At the time of this evaluation, we conclude that it is reasonable to conclude that this second requirement for impact has begun to be met. St Andrews Fuel Cells Limited remains at this stage, unsurprisingly, a technology development company rather than one involved in product development, manufacturing and sales. The prospects for significant commercial take-up and related business growth remain to be tested and realised.

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[2] The SMART Award for a 12 month project is to enable the company to develop a Mark II design for its Solid Oxide Fuel Cells. This technology will improve the power density of single cells and enhance electrical performance reducing the number of cells required for a fuel stack.

[3] St Andrews Fuel Cells Ltd is described as a privately owned company specializing in fuel cell technology, spun-out from The University of St Andrews. The company is based around an innovative, patented fuel cell design called SOFCRoll. The SOFCRoll fuel cell design, which will form the core of the company's fuel cell products, offers the potential of higher power densities, lower materials costs and lower manufacturing costs than other fuel cell designs through the scaleable manufacturing of its innovative and proprietary high surface area, low volume and mass design. St Andrews Fuel Cells Ltd will develop, demonstrate and control manufacture of this low cost platform fuel cell technology for a range of applications, including small-scale backup power; compact and portable power; and domestic power generation.

3.6 We understand that on the basis of investments obtained to date, the company expects to support the employment of 10 people in the short term. These staff will be employed by the University via a sub-contract with St Andrews Fuel Cells Limited. The staff will undertake technology development work on behalf of the company. Some positions are still to be filled.

3.7 Asked about the employment status of the staff, we were informed (rhetorically): "*For a spinout company how can jobs be permanent?*" The posts require specialists so they are being filled partly from within the University and partly from elsewhere. We were not able to ascertain in any more detail the degree to which the employment is displacing or substituting for contract research employment within the University, helping to retain contract research jobs within the University or attracting new "talent" to the area from within or out with Scotland. This kind of information would need to be obtained, with the help of the University, once posts are filled.

3.8 In impact terms, employment for now is on the basis of short term contracts, i.e. these employment figures cannot all be regarded as permanent jobs. If the commercial venture continues to succeed and the product design/development "sticks" here, there is the expectation that permanent jobs will be created in Fife.

3.9 As the FCCP and the company have, up to end 2005, obtained public funds from the RSE/SE Enterprise Fellowship Scheme and SMART, in addition to the funds from the SE Energy Team and SE Fife, it would not be reasonable to attribute all jobs now supported to the SE Energy Team and SE Fife inputs. We summarise the various public sector inputs below (Table 3.1). We also understand that the University of St Andrews made its own contribution to the fuel cell project to date, but we have been unable to obtain information that would permit this to be expressed in monetary terms.

3.10 However, this is evidently a sensitive issue. We posed the following question in an e-mail to one member of academic staff in the University: "*We have been led to understand that the project funding from the Energy Team and SE Fife was under broadly comparable arrangements to those of the Proof of Concept Fund. If so, then the University must have made a significant contribution, picking up overhead costs etc. Can you estimate - in general terms - the University's financial contribution over the three years of the Project? We are keen to ensure appropriate attribution of the economic benefits that have accrued.*"

3.11 We received the following response: *"This is nonsense it was nothing to do with proof concept it was simply a research contract and much the better for this. SE refuse to pay overheads so it is a bit of a cheek to say that this is the University's contribution as the excuse given for not paying overhead is that the University is a public funded body and so should not charge overhead on public support.*"

Table 3.1 Summary of various financial inputs		
SE Energy Team and SE Fife	£330k	*2001-4*
RSE/SE Enterprise Fellowship	£34k (estimate)	*2004-5*
SMART Award	£50k (estimate)	*2005-6*
University of St Andrews' contributions	(no information but likely to include in kind and overhead contributions especially during 2001-4)	*2001-6*
Percentage of all these known contributions coming from SE Energy Team and SE Fife:	***Up to 80%***	

3.12 To the above inputs needs to be added the recent private sector investment which directly enables the employment of 10 staff. However, this investment would not have been achieved without the prior public sector support from the SE Energy Team and SE Fife, as well as from the other tabulated sources. For the purposes of this evaluation and to give some sense of scale of return to date on the £330k investment from the Energy Team and SE Fife, we consider it reasonable to attribute c. 50 % of the employment to this i.e. 5 out of the 10 jobs supported.

3.13 We consider there to be a high degree of additionality (say 80-100%) associated with the SE Network contribution[4] – the proof of concept project would not have proceeded, and certainly not proceeded so quickly, without the upfront funding being made available. We assume here therefore that the 5 jobs would not have been created otherwise.

3.14 The jobs are for technical specialists, some probably already available within the University. Displacement/substitution effects are rather difficult to ascertain in detail without more information from the University or company, but in the absence of this we consider it reasonable to assume for the purposes of this evaluation that of the 5 jobs attributable to the £330k investment, 3 are non-displacive at a Scottish level.

3.15 Given the caveat in para 3.8 about whether these jobs at this point in time can be classed as permanent, we prefer not to take into account multiplier effects.

3.16 Clearly the return to the public sector investment and notably its value for money, as measured in cost per job terms, will only become clear over time with the growth of the company. However, offsetting this, over time there will be a dilution effect in terms of levels of attribution that can reasonably be claimed by the upfront public sector investment. The true nature of the value for money achieved by the SE Network investment of £330k will also only become clear once the spin-out company moves from its current technology development stage to gaining sales revenue (see also para 3.44 on company aspirations).

3.17 Within the Scottish economy, Scottish Executive statistics indicate that jobs in R&D contribute an average Gross Value Add (GVA) per head of £28,625 (compared for example to manufacturing which has a GVA per head of £46,000). On this basis, the 3 net additional

[4] Following the kind of market failure rationale that underpins SE's Proof of Concept Fund.

direct jobs created by the SE Energy Team and SE Fife investment, using the assumptions outline above, make a contribution of £85,875 per annum in terms of GVA that would not have occurred without the £330k upfront investment.

Wider evaluation perspectives - SE Energy Team

3.18 Support for the Fuel Cells project by the SE Energy Team began in 2002 following the failure of the project to win Proof of Concept Fund support. A key factor appears to have been the strong championing of the technology's potential by an individual member of the Energy Team, now retired. This individual was very proactive in his engagement with and support for the project.

3.19 The view held by our contacts in the Energy Team is that their investment has delivered "*fantastic project outputs*". The ongoing support for the newly formed company located in St Andrews sits with SE Fife.

3.20 Financial support from the Energy Team ended in 2004: this evaluation of the public sector investment was delayed deliberately to permit the commercialisation process to run more of its course.

3.21 There is an acknowledgement by our consultees in the SE Energy Team that managing the support for a project of such a highly technical nature has been challenging for staff in the Team. Embarking on this kind of project requires access to appropriate specialist advice.

Wider evaluation perspectives - SE Fife perspective

3.22 Our consultee in SE Fife has a key role in establishing R&D companies in Fife. His involvement in the Fuel Cells project goes back to its inception.

3.23 However, our consultee perceives that University management views commercialisation by licensing rather than through spin-out companies as the better route to revenue generation. This leads to a number of challenges in gaining University involvement in a project such as the Fuel Cells.

3.24 SE Fife has supported a number of commercialisation and related projects with the University of St. Andrews, all of them very different. In the view of our consultee: "*Standardised approaches to commercialisation schemes do not really work.*"

Rationale

3.25 From an SE Fife perspective, it seems that the SE Energy Team saw the economic development potential of fuel cell technology early and decided to become involved for Scotland-wide strategic reasons. The original decision was to invest in fuel cell technology, rather than to

invest specifically in Fife. However a key research strength of St. Andrews University is fuel cells and so an investment in the St Andrews project was attractive[5].

3.26 The project was also attractive to SE Fife for strategic reasons. The Fife economy is regarded as currently at a cross roads: manufacturing is declining, but the services industry is still relatively weak. There is low patent registration by local organisations. The area is viewed very much a "*commuting zone*": The University of St. Andrews offers one of the few nodes of capability from which to grow the local economy.

3.27 The importance of providing support for the fuel cells project was associated with demonstrating "*strategic consistency*". Strategic value add and not simply a market failure argument weighed heavily in assessing the case to support.

Financial support

3.28 Approval to support the project from SE Network funds came from the SE Energy Team. The funding mechanism had little to do with SEGr and SE Fife, which were solely responsible for distribution of the cash. SE Fife gives financial support to the central Research and Enterprise function in the University of St Andrews: it was up to the University to decide how these funds should be allocated and released. The University accounts to SE Fife as to how the funds are spent.

3.29 Public funding for the fuel cells project has been split into pre-competitive funding and post-company funding. This evaluation is only concerned with the three phases of funding from the Energy Team and SE Fife at the pre-competitive stage. The investment has been made in the University department involved with the fuel cell.

3.30 Our SE Fife consultee noted that for projects beyond the research and proof of concept stages, public sector funding requires match funding – "*funding (generally) may become harder to find once limited company status has been achieved*". There is the likelihood that further public funding will be required for Fuel Cells. (We understand that the University's share of the spin-out company has already been reduced in order to meet the Scottish Executive's eligibility criteria for a SMART award.)

Other support

3.31 Another member of staff in SE Fife with a stronger commercial background has assumed a role in supporting the business side of the project and the commercialisation of IP. This is thought to have been a key strength in providing support to the new company.

[5] We were informed that the fuel cells being developed at St Andrews University are differ from the fuel cell technology being developed elsewhere in Scotland e.g. at Strathclyde University.

3.32 We understand that the spin-out is not formally account management by SE Fife. The latter does however have a strategic agreement on collaborative working with the University of St Andrews.

3.33 Having supported the commercialisation of the fuel cell technology largely for strategic reasons, it is acknowledged that the challenge is now to retain and grow the commercial activity within Fife. To this end, SE Fife is supporting the establishment of a business incubator in St Andrews and hopes to enable the graduates from this incubator to grow-on in other locations within Fife. This is viewed as investing in the pipeline to support the progress and future growth in Fife of St Andrews Fuel Cells Ltd.

Additionality

3.34 We sought a view on the importance of public sector funding for this project. In the opinion of our consultee in SE Fife, declining to support this project would have demonstrated a "disconnection" from the development strategy the enterprise company had already articulated for Fife. This included the view that exploitation of physical sciences was a key area of opportunity. In addition to this strategic context, the project itself might not have gone ahead: the SE funding allowed investigtions to prove up the concept to take place at a critical time. Therefore, it is reasonable to claim a high level of additionality for the public intervention (see also para 3.13).

Lessons

3.35 We wished to obtain the SE Fife perspective on key lessons to be learned from its experience of the fuel cell project. The following issues were raised:

- from this and other involvements in commercialisation projects, every project is different
- it is essential to ensure that the right people are recruited at the right time to do the right job.
  - this is seen as difficult to achieve and the mechanisms do not seem to be in place for companies to be able to do this
  - the SE Network is not regarded by our consultee as effective as it might be in assisting with this
  - SE Fife is human resource constrained in providing support for spin-outs
- commercialisation offices tend to focus on revenue flows, rather than assisting with the development of company structures and sourcing management expertise
  - it is important that the correct management structure is in place

- the ability to manage the IP is vital.

3.36 One of the key reasons that the Fuel Cells project was deemed to be a success was that it had a good structure with an excellent steering group of industry advisers. Access to industry experts was critical to the project. The RSE/SE Enterprise Fellow associated with the project proved to be very good at accessing these "experts", coupled with the good contacts of the Principal Investigator.

3.37 Notwithstanding these positives, this consultee has concerns about the efficacy of an academic being responsible for the commercial aspect of the project. The consultee expressed a personal concern over the decisions taken to involve an RSE/SE Fellow in a commercial management role. We understand however that at the time of the Enterprise Fellowship application a discussion was held with the Principal Investigator in the University involved in the commercialisation of the fuel cell and he fully supported the application. Our consultee acknowledges that the St. Andrews Fuel Cell Project overall appears to have taken due account of future barriers that may be faced and to have put suitable structures in place.

University of St Andrews' perspectives

Funding

3.38 Having failed to win support for the Fuel Cells project through Proof of Concept Fund (because "it was not an oil and gas project") and given that no alternative sources of funding were available at that time for renewable energy projects[6], the role of the SE Energy Team and of the individual champion within the Team proved crucial in winning public sector funding for the initial proof of concept work.

3.39 Having had experience of Proof of Concept Fund support procedures, the University and its Principal Investigator have found the funding process for the Fuel Cell project more streamlined.

3.40 The funding provided by the Energy Team and SE Fife was mainly used to fund research staff and technicians, along with chemicals and other consumables. Little was made in the way of capital investments.

3.41 SE funding for the proof of concept and commercialisation activities is now ended. The RSE/SE Enterprise Fellow came on board after the SE funding ended. When this funding ran out in 2005, the University seconded the Fellow to the company until summer 2006, using other SE funds available to the University.

3.42 The company has also obtained a SMART Award which provides funding until April 2006: it is currently looking into the feasibility of gaining a SPUR Award. The company has recently

[6] The comparable funding now provided by the Carbon Trust had not yet been introduced.

(February, 2006) signed a small investment deal with a venture capitalist. This may allow the former RSE/SE Fellow to remain involved for an extended period.

Outputs and impacts

3.43 The company now effectively employs ten staff, including the initial founders, albeit these are formally still employees of the University. The company is considered to be currently at a transitional stage: however, it remains a technology development company.

3.44 The business plan for the company aims for it to be worth £100m in 3 years: this is viewed as wholly realistic by the Principal Investigator given the achievements of its competitors to date.

Lessons learned

3.45 From the University's perspective, SE took a very hands-off approach and let the project run on its own. This approach proved to be successful in this case, although it is acknowledged that it may not always be the best course of action. The long term view taken by SE was also seen as very beneficial to the company.

3.46 In the run-up to commercialisation, there were high expectations of what external agencies could do to assist. On reflection, this is now viewed as unrealistic. The legal side proved especially challenging for the parties in the University.

3.47 The company has recently obtained Carbon Trust incubator support, and this has proved invaluable, particularly the independent advice, since the University does not have the necessary specialist commercialisation expertise.

4 Conclusions and recommendations

4.1 Based on the Final Report submitted by the University of St Andrews it appears that all the technical aspects of the project have been successfully addressed. SQW is not in a position to validate this directly in the context of this small study. However, some proxies can be found:

- nine patent applications have been filed
- a SMART Award has been won for the further development of the fuel cell technology.

4.2 Successful commercialisation of the technology is indicated by:

- the incorporation of a spin-out company
- the recent first round risk investment obtained from a private investor.

4.3 Based on the above, the project has met the short to medium term objectives effectively. The St Andrews Fuel Cells Limited remains at this stage, unsurprisingly, a technology development company rather than one involved in product development, manufacturing and sales. The prospects for significant commercial take-up and related business growth, and for significant economic impact, remain to be tested and realised.

4.4 In terms of impact, the company expects to support the employment of 10 people in the short to medium term. These staff will be employed by the University via a sub-contract with St Andrews Fuel Cells Limited. The employment figures cannot all be regarded as permanent jobs. Some positions are still to be filled.

4.5 We were not yet able to ascertain conclusively the degree to which the employment is displacing or substituting for contract research employment within the University, helping to retain contract research jobs within the University or attracting new "talent" to the area from within or out with Scotland.

4.6 For the purposes of this evaluation and to give some sense of scale of return to date on the £330k investment from the Energy Team and SE Fife, we have attributed 50 % of the employment to this i.e. 5 out of the 10 jobs supported. We consider there to be a high degree of additionality associated with the SE Network contributions. We assume therefore that these 5 jobs would not have been created otherwise. We consider it reasonable to assume that 3 are non-displacive at a Scottish level.

4.7 The return to the public sector investment, notably its value as measured in cost-per-job terms, will only become clear over time with the growth of the company. However, offsetting

this over time will be a dilution effect in terms of levels of attribution that can reasonably be claimed by the upfront public sector investment.

4.8 On the basis of the 3 net additional direct jobs created by the SE Energy Team and SE Fife investment, and using a GVA per head of £28,625 for an R&D job in Scotland, a contribution of £85,875 per annum in terms of GVA is now being made that would not have occurred without the £330k upfront investment.

4.9 We also conclude that the support for the project fits well with both the SE Energy Team's and SE Fife's strategic objectives. It is too early to tell whether the technology and the growth of St Andrews Fuel Cell Limited will lead to the significant economic development benefits that form part of SE Fife's wider vision. However, it appears from SE Fife's recent investment in business incubation, from which the company should benefit, that it is working to give the venture a "fair wind".

4.10 We recommend that the terms of the claw-back agreement with the University of St Andrews be reviewed. We were led to believe that it related only to Phase Three funding, but matters concerning repayment of financial contributions would appear to apply to contributions to all three Phases based on documentation provided to us by the client.

Learning and development

4.11 We noted earlier the claw-back agreement between the University and SE. We are not certain that the presence of this document was known to the current staff in the SE Energy Team. Also, although a copy was duly held by the legal function of Scottish Enterprise it was not visible to us when reviewing the project file.

4.12 Given the inevitability of staff changes and the relatively long term over which these kinds of agreements run, it is important to ensure that an "entitlements register" is maintained in a "visible" manner so that terms of agreements can be monitored and enacted as and when appropriate.

4.13 On commercialisation via the spin-out route, the following key learning points and recommendations are highlighted:

- it is important ensure that the right people are recruited at the right time to do the right job
  - this is acknowledged to be difficult and the SE Network should look to ways in which it could be more effective in providing assistance
- access to industry experts is critical to the commercialisation of specialist technology projects of this kind.

APPENDIX A

LIST OF EVALUATION CONTACTS

Annex A: List of evaluation contacts

Melanie Hay and Lindsey Burnett, SE Energy Team – inception and briefing

Consultees:
Karl Gardiner, SE Fife
Alastair Main, University of St Andrews – commercialisation office
John Irvine, University of St Andrews – principal investigator/ inventor.