

COAST TO CAPITAL LOCAL GROWTH FUND BUSINESS CASE

Project Title:	Ricardo Electrified Powertrain and Hybrid Research and Development Facility
Lead delivery organisation:	Ricardo UK Ltd
Lead contact name:	Richard Murphy
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This document provides a template for a Business Case (BC) in support of Coast to Capital's investment in a project to be funded through the Local Growth Fund.

The main purpose of the BC is to put forward the case for change and the preferred way forward identified in an internal Strategic Outline Case (SOC); which establishes the option which optimises value for money; outlines the deal and assesses affordability; and demonstrates that the proposed scheme is deliverable.

In practice, you will find this entails updating the strategic case; undertaking investment appraisal within the economic case; and completing the commercial, financial and management cases, with supporting benefits and risk registers.

Please note that this template is for guidance purposes only and should be completed in accordance with any guidance issued by Coast to Capital and the guidelines laid down in HM Treasury's Green Book which can be found at

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

The OBC should cover the 5 cases – the Strategic case, the Economic case, the Commercial case, the Financial case and the Management case.

Business cases should be robust and well evidenced documents as the Business Case will be evaluated based upon content if called to present.

Coast to Capital Disclaimer

There shall be no expectation of grant payment unless and until a funding agreement is signed by both parties. All the Applicant's costs and charges incurred as a result of making this application shall be for the Applicant's account and cannot be claimed as part of the project except where feasibility funding has been prior awarded.

1. Executive Summary

1.1) Overview of the project including what opportunity or barrier the investment will unlock:

The objective of this project is to deliver a state of the art four-wheel drive hybrid powertrain rig to enable the research and development of the next generation of electrified powertrain systems and vehicles. Such a facility is essential to the evolution of Ricardo's automotive engineering activities as we move from the internal combustion engine as the sole means of propulsion to the complex systems of the hybrid and fully EV vehicles of the future. Protecting the large number of jobs associated with current engine test and calibration activities and providing the facilities required to support the personal development of our graduates and apprentices as we retrain and adapt to the requirements of these new technologies is a key part of the deliverables for this project. As is providing the potential for significant growth in this area if Ricardo can establish themselves as successfully as we have with the combustion engine.

1.2) Please choose the theme in which the LGF funding will invest in directly (The project can only fit into one theme so please choose the most appropriate).

Investment in capital expenditure items that promote digital transformation and digital infrastructure

New Innovation and start up business creation

Facilities to provide teaching and research facilities and/or skills based training in digital and innovation areas, across further and higher education sectors in close proximity to the M23, A23 corridor

Increased capacity in sustainable transport and 'key' arterial routes where there are 'bottlenecks', together with flood resilience and digital infrastructure investment

Investment in capital projects where there is a demonstrable case that such investment will generate proportionate foreign direct investment and international trade

Regeneration and housing infrastructure projects that increase capacity and footfall and unlock new employment space

Capital investment to increase high value tourism to the Coast to Capital region

1.3) The fit with Coast to Capital Strategic Economic Plan, the Industrial Strategy Response and Business Plan 17/18

Located next to Shoreham airport, within an area identified in the SEP as a strategic business and employment location, this state-of-the-art facility will build competitive advantage by enhancing Ricardo’s ability as a provider of advanced engineering. It will promote the research and development of low carbon and advanced automotive electronic technologies, as the primary use of the facility will be for the testing and development of future generations of low emission, hybrid and electric powertrains. As well as directly creating jobs associated with the facility itself, it is anticipated that it will indirectly lead to a significant increase in highly skilled engineering roles from the additional R&D engineering projects this will enable Ricardo to win. It is expected that a large proportion of the revenue earned, directly and indirectly, by the facility will be from international customers.

1.4) Expected Total Project Cost and source of funding. Please also complete the funding breakdown tab on the supporting spreadsheet. Matched funding must be at least the required percentage of the total project costs. This is 15% for transport projects and 50% for all others. (Please name the source of match funding).

	Amount	% of Total Cost
Total Project Cost	£7m	100%
Applicant own funds	£3.5m	50%
Other public funds		
Private sector funds		
Funding requested from Coast to Capital LEP	£3.5m	50%

1.5) Expected tangible core outputs/outcomes: Please also complete the outputs tab of the supporting spreadsheet

Output/outcome	Metric	Number to be delivered
Employment- created and/or safeguarded	No.	800
Businesses assisted- financial and non- financial	No.	N/A
Skills- new learners and/or apprentices	No.	125
New housing unit completions	Units	N/A
New floor space constructed/refurbished- learning	Sq mtr	150
New floor space constructed/Refurbished- Commercial	Sq mtr	50
Length of new roads/cycle ways	km	N/A
Improvement to journey times	Minutes per mile	N/A
Carbon reduction	Tonnes of CO2	See 3.6

1.6) Main risks and issues the project will need to manage? Please also submit a full risk register as an annex to this document

1. Technical specification: need to ensure facility is future proof with an element of uncertainty around the technologies
2. Complexity of project will mean tight project management regime required to minimise risk of overspend or overrun – use of proven Ricardo RPDS project management systems and Ricardo experience of large capital projects
3. Timing: Complexity of facility may result in delays at commissioning phase
4. Competition: Existing investment programmes being run by competitors may allow them to steal competitive advantage

DOCUMENT STATUS

REVISION HISTORY

Revision Date	Version No.	Summary of changes	Author/editor
8 th Sept 2017	1.0	Initial input	Richard Murphy

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2. The Strategic Case

2.1) Describe the compelling case for change.

Market penetration of Hybrid and EV powertrains is driving significant change in Ricardo customer demand. Against a backdrop of rising political and consumer pressure the major manufacturers are embracing the development of the next generation of powertrains through increased outsourcing of accelerated R&D programmes. Ricardo currently has a very successful engine R&D, test, calibration, and application engineering function however without the support of this facility it will not be equipped to transition into the development of the new electrified powertrains our customers demand which will have a direct and significant impact on the c400 jobs at our Shoreham site currently associated with this activity. The upside is that the growth potential in this area is significant with the potential doubling or tripling of our activities in application engineering possible if Ricardo can react extremely quickly and establish ourselves as a technology leader in this area as per our previous successes in combustion engine development. Our European competition are already investing in such facilities in Austria and Germany so the time to act is now.

2.2) Investment Objectives- detail the specific objectives to achieve the anticipated outcomes.

Deliver a state of the art facility capable of supporting research and development activities through the testing and engineering of the full spectrum of electrified powertrain technologies from component level subsystems to fully integrated hybrid powertrains.

To include full climatic capability for accelerated development of these technologies to meet the challenging new emissions targets under WLTP (World Harmonised Light duty Test Protocol), RDE (Real Driving Emissions) and the even tighter targets of the future.

To provide a powerful development tool to advance our engineering knowledge, tools and processes and to enable the development of our employees through training and practical experience gained through the programmes delivered using this facility.

2.3) Stakeholder Engagement carried out

The ideas within this bid were first presented as part of a wider presentation at the C2C board held at Ricardo and subsequently in detail when C2C seniors visited Ricardo 30th June 2017. They have also been shared with the relevant local councils, local MP and local partnerships as needed. As presented in the visit to Ricardo, these ideas strongly support the Automotive Council's strategy and vision around vehicle electrification. This is core to the region's strategy re Advanced engineering and would be a key element of the emergent Advanced Engineering eco system.

2.4) List the key stakeholders and their interest areas.

Stakeholder	Interest area
GBEB/BHCC	Growing the advanced engineering sector
Automotive council	National interest in sector
UoB, UoS, (MET)	Key local academic and research partners as well as GBEB members
Tim Loughton MP and Adur and Worthing Councils, Chambers of Commerce	Local economic regeneration, job protections, impact on skills development

2.5) What are the strategic issues, risks and constraints that may impact successful delivery of the project?

- Demand for hybrid and electrified powertrain development may slow if legislation and/or consumer demand does not remain high – this is extremely unlikely in the current climate with significant political pressure on manufacturers to develop cleaner technologies
- Recruitment of appropriate skills in the market is already challenging and could worsen – this risk will be well mitigated through the retraining and development of existing skilled staff, this project improves this situation and increases retention of high value staff in the local area.

Note: Ricardo will be working with C2C on an extremely complementary skills transformation project which is currently being framed.

2.6) Project Dependencies

Requirement for assisted funding to ensure financial viability of a Shoreham based research and development facility over an alternate low cost location near the Prague engineering centre (where assisted area funding is easily accessible in Czech Republic)

2.7) Project disruption

Minimal due to nature of refit of an existing building rather than a new build or development of a new site. No overnight working required. No requirement for planning permission.

3. The Economic Case

3.1) Please describe the options that have been considered in selecting the project proposal, completing both box 1 and 2.

Box 1:

Option Name:	Description:	Total cost:	Amount requested:	Core outputs (see 1.6)
Do nothing, minimum or status quo	No investment, decline in combustion engine development leads to loss of jobs at STC site	Nil	Nil	Loss of jobs
Proposed option	Fit out of existing building with a state of the art hybrid R&D test facility	£7m capital plus c£3m operating costs over 5 years	£3.5m; 50% of eligible costs	Job protection and creation Successful R&D outcomes
Alternative options:	New R&D facility in the Czech Republic near existing Ricardo low cost engineering centre with EU funding assistance	£6m capital plus £2m operating costs over 5 years	N/A (50% of eligible costs available through EU)	Movement of this activity to Czech Republic

Box 2:

Option Name:	Advantages:	Disadvantages:
Do nothing, minimum or status quo	No capital expenditure	Rapid decline in current business and reliance on alternate Ricardo activities not located at Shoreham
Proposed option	Maximum Value Low risk Excellent development opportunity for current Shoreham team to reskill and grow rapidly with new hybrid technology development No planning requirement as it would be an internal fit out reducing delay in spend and technical progress	Without this funding assistance it would be impossible to deliver the technical specification required for a state of the art facility through the Shoreham based option. Furthermore the proposed timing plan would slip significantly impacting both the opportunities for early establishment of UK engineering presence in hybrid development and the delivery of any local benefits at Shoreham
Alternative options:	Lower cost Aligns with Ricardo strategy to expand in Czech Republic	Loss of skills and jobs at Shoreham Increased carbon footprint impact due to increased travel to Czech facility and Czech electricity uses 43% more CO ₂ per kWhr than UK

3.2) The preferred option

On the assumption of a successful funding application the preferred option is to maximise the value of the investment by utilising an existing building that has already been partially prepared for test facility expansion thereby minimising the spend on buildings and maximising the spend on the high value technologies required to deliver the necessary R&D to develop hybrid and electrified powertrain applications. Importantly this option also enables a fast start and hence earlier conclusion to the programme and thus faster delivery of the benefits.

3.3) Issues with preferred option.

Without funding the option is less financially beneficial than a Czech Republic based investment with EU funding.

3.4) What are the top 5 risks of this option?

1. Fit out of a technically complex R&D facility will be challenging – low risk which is mitigated by planned use of credible suppliers managed by technical experts within Ricardo.
2. Building delays due to unforeseen issues such as land contamination, unexploded ordinance etc – risk is very low as fitting out existing building with minimal ground works required
3. Timing delays due to complexity of project and requirement to use multiple suppliers to ensure state of the art – medium risk, mitigated by use of Ricardo PM system and leveraging experience within Ricardo of successful large project delivery (ref VERC in 2013 – on time and on budget, £10m project)
4. Facility doesn't meet technical specification during commissioning phase – low risk through use of credible experienced suppliers and our requirement for demonstrable sign off testing at supplier site
5. Interruption to existing Ricardo business – medium risk, mitigated through appropriate management of activities to minimise disruption to Shoreham site

Please complete the boxes below, answering only those relevant for the theme of your project, referring to the guidance available. Please also complete the outputs tab of the supporting excel spreadsheet.

3.5) Economic impact

Ricardo is a key advanced engineering employer in the C2C region (and city region) and is the largest private sector employer in Adur district. The Shoreham site is the largest in Ricardo plc and is the centre of excellence for powertrain engineering. The Advanced Engineering Centre at Brighton University is leveraged on Ricardo R&D spend. Ricardo is part of an area of excellence on the A27 in Shoreham and Lancing which includes sports excellence at the Amex Elite Football Performance Centre, educational excellence with the met on Shoreham airport, Lancing College and the FTA flying school and finally landscape excellence with the National Park. Potential housing and retailing excellence if the New Monks Farm development is approved. It is an important part of this community of excellence and is the largest single employer with in it.

We need to firstly protect the jobs we have, by providing new facilities at a faster rate than we can fund ourselves and grow employment as we exploit new facilities and develop technology with our client and university partners. Investments such as this bring significant export sales to the business and the community wins as high quality jobs are created.

3.6) Environmental Impact

This project has significant positive downstream environmental impacts. As stated in presentations already made to C2C senior staff this will help move automotive technology to cleaner vehicles which will reduce hydrocarbon emissions and dependence and improve air quality.

There will be modest negative impact during construction, but this is minor as we are re purposing part of an existing building. During operation, it will change the energy consumption pattern of the site for the good as it will use less hydrocarbon fuel and use more electricity. By the time it is commissioned, it is the intention that Ricardo will be buying all its electricity from renewable sources.

3.7) Social Impact

In addition to the job creation/protection deliverable and the positive impact this project will have on the personal development of many of our team including graduates and apprentices it is hoped that this state of the art research facility will enable Ricardo to lead the introduction of a specific apprentice standard associated with the development of electrified powertrains.

3.8) The number of people and businesses positively impacted by the intervention?

N/A

3.9) Follow on Investment

N/A - however it will enable future Ricardo R&D programmes and likely lead to additional R&D test facilities to support the planned growth in this area in the future

3.10) Skills projects only- Impact on Skills Provision

This is not a skills project directly, however there is an ongoing discussion about a complementary skills project for the advanced engineering sector around skills transformation (systems engineering) and getting more benefit from the Apprenticeship Levy. See also 2.5.

3.11) Business and enterprise projects only- Impact on business growth

N/A

3.12) Infrastructure and Regeneration and Housing projects only- Physical and aesthetical impact- Does the project make a positive and lasting contribution to the physical, human and cultural environment?

N/A

3.13) If your project results in service and other improvements then please provide baseline data below.

Metric	Baseline		What the intervention will achieve	
	Figure	Year	Figure	By when

4. The Commercial Case

4.1) Please provide details of your envisaged procurement route.

Project will be managed by Ricardo with appropriate use of senior Ricardo specialists, including those of a technical and project management background. Procurement would be through the use of a number of globally recognised suppliers such as ZF and/or Horiba and specific tasks will be outsourced as required rather than a one supplier “turnkey” outsourcing model. This will allow the use of local suppliers to be maximised where possible (and in full compliance with the applicable procurement rules) through use of existing positive relations with local building and electrical contractors. Also offers the project team the freedom to use equipment providers based entirely on technical and commercial merit without pre-commitment to one designated supplier.

4.2) Involvement of private development partners.

Extensive discussions have already occurred between Ricardo and several possible equipment providers to ensure a good understanding of the costs and timeline behind this application. Fixed and firm commercial offers have been exchanged and the project is in a good position for a rapid start. A significant amount of the expenditure is on complex and long lead time items which would require very early placement of orders and hence leads to an aggressive spend profile to ensure timely delivery of those components.

4.3) Procurement plan and timescales.

Please find attached in our appendix pack a timing plan which includes indicative order placement milestones on the larger cost items.

4.4) How will the project contribute towards social value?

The project will add social value by improving employment opportunities and strengthening the local economy. It will provide additional links to our education partners and support growing their offers. Local building, electrical and other contractors will be used wherever possible.

4.5) State Aid Compliance.

Our external legal advisor – Osborne Clarke LLP – has confirmed that the project falls within the definition of "industrial research" under the General Block Exemption Regulation (GBER) and is therefore eligible for up to 50% match funding.

A copy of Osborne Clarke's full legal opinion confirming that the project and match funding will be State aid compliant is included as an accompanying document to this business case.

5. The Financial Case

5.1) what is the estimated total project cost and the amount of LGF being applied for? Please complete the funding breakdown tab in the supporting excel spreadsheet.

Year	Total project cost	LGF
17/18	£3.5m	£3.5m
18/19	£2.9m	Nil
19/20	£0.6m	Nil
20/21		
Total		

Note: includes capital costs only

5.2) Please set out the project expenditure items – No rounding up please

Please state the date of this estimate-

Note: table below assumes 50% funding across all project costs but as phasing of spend is as per table 5.1 above, therefore the request is for the 50% funding to all be made available in the 17/18 financial year. The cost estimates are as at 07/09/2017

Projects costs (delete as appropriate)	Total cost (£)	LGF (£)	Match funding (£)
Land Acquisition			
Planning and Feasibility studies			
Surveys			
Construction, inc- materials, equipment and labour	2,505,000	1,252,500	1,252,500
Fit out (inc. equipment and furnishings not included in construction)	4,360,000	2,180,000	2,180,000
Project management	120,000	60,000	60,000
Consultancy	15,000	7,500	7,500
Other (please specify)			
Contingency*	Nil	Nil	Nil
Total Net Cost			
VAT			
Total Gross Cost	7,000,000	3,500,000	3,500,000

Please ensure the matched funding and LGF amount to the total costs and that the LGF requested does not exceed the percentage allowed for the type of project ie. 85% for transport and 50% for all other projects.

5.3) Net Present Value cash flow analysis.

Options	NPV	Payback
Do nothing, minimum or status quo	N/A	N/A
Proposed option	£2.6m	c36 mths
Alternative option	£4.2m	c30 mths

Please detail your project assumptions and discount rate used-

1. "Do nothing" option see a gradual decline in the number of high quality roles, up to 400 heads, at the Shoreham site
2. "Proposed" option includes 50% match funding from C2C; NPV positive and payback a reasonable 3 years. Ricardo does not have sufficient capital funding to invest all £7m and the financial case, with a five year payback, does not meet acceptable hurdle rates
3. "Alternative" option to move to Czech Republic; Ricardo invest £3m capital with 50% match funding from EU; this option has the highest NPV and a 2.5 year payback

Ricardo has a commitment to invest £3.5m of capital funding over the next 3 years into PT rigs, which will support this project. The 50% C2C match funding will ensure the improved financial metrics make the STC option the overall preferred approach

The discount rate used is 10% consistent with Ricardo's usual appraisal rate.

5.4) Value for money

The £3.5m investment returns c800 jobs safeguarded and created at a rate of <£5k per job. These jobs will be a combination of highly skilled senior roles, graduate level roles and apprenticeships.

5.5) VAT status

Ricardo UK Ltd is GB VAT registered; registration number is GB272643062

5.6) Financial Sustainability

LEP funding will enable full completion of the R&D facility, including buildings, fixtures and technical equipment. On-going running costs of c£0.5m per annum, including personnel costs, will be funded through revenues generated by the facility through the out-sourced R&D programs delivered.

6. The Management Case

6.1) In which financial year do you expect your project to commence?	17/18
6.2) In which financial year do you expect your project to complete?	19/20
6.3) Please set out the key milestones related to the project.	

Milestone	Start date	Completion date
External funding approval	1/9/17	1/11/17
System supplier contracts awarded	1/7/17	1/12/17
Site preparation complete, ready to accept systems	1/11/17	1/6/18
Systems/equipment procurement, build, test	1/12/17	1/8/18
Systems test review and approval to ship systems to site	1/8/18	1/9/18
Total system acceptance test and handover	1/9/18	1/3/19

6.4) Project management arrangements

Project will be managed and led by Ricardo, specific tasks will be outsourced as required and procurement will be with globally recognised technical competent suppliers.

6.5) Key project roles and responsibilities

Project Director: Senior lead responsible for overall performance of project
 Project Lead/Manager: Responsible for the successful delivery of the project
 Technical Authority: Responsible for technical guidance of the project
 Executive sponsor – Ricardo plc sponsor

6.6) Governance, oversight and accountability

Please see attached document in appendix which outlines the Ricardo project and quality management systems which would be used in the delivery of this project including PES (Project Execution Strategy) and RPDS (Ricardo Product Development System) which is a gateway based, deliverable focused project delivery methodology.

6.7) Communications and stakeholder management

Until the project is approved and we have placed orders, it will be commercial in confidence. We will work with C2C on keeping them updated on progress, preferably using outputs from our existing PM processes. We will engage with clients once the capability is within their planning horizons. Prior to launch, we will engage with C2C/GBEB re local publicity. We will discuss maximising local benefit via formal opening, aiming for ministerial presence. The Automotive Council will be kept up to date via our membership of various related bodies via Prof Neville Jackson.

6.8) Benefits management

Primary measures of outcome will be based on technology creation and exploitation, job protection and creation including the upskilling of personnel.

6.9) Project evaluation

It is planned that the Ricardo PIR (post implementation review) process will be based on jobs protected and created, skills enhanced and technology developed.

Recommendation/ Declaration

Recommendation- please state clearly the recommended action this business case supports.

It is the recommendation of this business case that Ricardo receive the requested grant funding in order to make the implementation of this cutting edge hybrid test facility on the Shoreham site economically viable. Thereby delivering on the local benefits outlined in this application which include a significant number of jobs created and protected, growth in UK technical expertise and the corresponding increase in foreign earnings through the development engineering projects supported by this facility.

Declaration: I certify that the information provided in this Business Case is complete and correct at the time of submission.

Signature:



Print Name:

James Mills

Title:

Finance Director – Ricardo Technical Consulting

Date:

8th Sept 2017

Before submitting your Business Case ensure you have all the required supporting documentation:

- One electronic copy of the business case template, signed and dated - completed
- Excel Spreadsheet (both tabs completed) – completed and attached
- Full risk register - attached
- Any other Supporting documents and evidence required (e.g. letter of support from Area Partnership) – attached
- Written evidence to the satisfaction of the Coast to Capital Accountable Body from a practicing solicitor / Counsel that the project is compliant with the EU state aid rules - attached
- VAT external advice if applicable – N/A
- In addition to the above for the Ricardo application we have added:
 - Our procurement plan and cost breakdown as referred to in our legal opinion document
 - An overview document of the Ricardo project and quality management systems which would be used in the delivery and governance of this project
 - A Ricardo white paper on vehicle electrification and specifically how the technical R&D and innovation in this field is essential for the future of low carbon cars
 - A set of supporting letters from University of Brighton, University of Sussex, Brighton and Hove Council, Adur and Worthing Council