

Technical Appendix 1.2: Technical Team

Introduction

1.2.1 In accordance with regulation 5(5) of the EIA Regulations, the EIAR has been prepared by 'competent experts'. EIAR Volume 2: Chapter 1, Table 1.2 presents the project team. Table 1.2.1 below presents the technical lead for the team and their CV is included in this appendix.

Table 1.2.1: Project Team		
Team Member	Roles & Responsibility	Team Lead
RES	Project Developer	Graeme Kerr
	Project Engineer	Craig Smith
	Noise	Jeremy Bass
Ramboll	EIA Project Director	Nathan Swankie
	Landscape and Visual Impact Assessment	Robert Bainsfair
Jones Lang LaSalle	Planning	David Bell
MacArthur Green	Ecology, Ornithology and Peat (excluding peat landslide risk)	David MacArthur
SLR	Peat Landslide Risk	Colin Duncan
Headland Archaeology	Archaeology	Dr. Chris Lowe
WYG	Transport	Gordon Buchan
Biggar Economics	Socio-economics	Graeme Blackett

Graeme Kerr

Senior Development Project Manager

Profile

Responsible for delivery of onshore wind farm developments, co-ordinating teams of consultants in the preparation and submission of development applications and assisting in the transfer of consented projects through financial close and into construction.

Recent Projects Include

Glenshero Wind Farm

Blary Hill Wind Farm

Solwaybank Wind Farm

Minnygap Wind Farm

QUALIFICATIONS & AFFILIATIONS

- Member of the Royal Town Planning Institute (October 2003)
- MSc Urban and Regional Planning
- PG dip Urban Development
- MA (hons) Geography

PROFESSIONAL EXPERIENCE

RES Ltd (2010 - Present)

Senior Development Project Manager

Halliday Fraser Munro (2005 - 2010)

Associate Planner

Davis Ogilvie (2004 -2005)

Resource Planner

South Ayrshire Council (2003 - 2004)

Planning Development Case Officer

Glasgow City Council (2001 - 2003)

Planning Development Case Officer

CRAIG SMITH

Senior Project Engineer

Renewable Energy Systems Ltd March 2016 to Present

Senior Project Engineer:

Provision of engineering design, design management and Principal Designer support to projects across all phases of development and construction.

Key projects

Freasdail Wind Farm:

- Principal Designer for Freasdail Wind Farm and associated private grid connection
- Design Manager coordinating interfaces and work streams across all Engineering disciplines both internal and external
- Providing Project Engineering support to project development team.

Blary Hill Wind Farm:

- Design Manager for 15 turbine wind farm and associated 33kV grid connection
- Principal Designer for wind farm and grid connection

Renewable Energy Systems Ltd Sept 2015 to March 2016

Construction Site Manager:

Secondment to Site Manager during construction of Freasdail enabling works:

- Input and review of construction contracts and specifications
- Day to day management and coordination of works
- Management and maintenance of safety, quality, programme and costs
- Operational management of RES site staff

Renewable Energy Systems Ltd Jan 2012 to Sept 2015

Project Engineer:

Acting as Project Engineer for multiple wind farm developments at all stages from early feasibility, planning submission and through to detailed design and construction.

Provision of CDM-C services to Client (RES).

Phase 3 detailed design:

- Procurement and management of full geotechnical, geophysical and electrical SI campaign for Minnygap
- Progressed Minnygap to Planning Condition discharge and BoP tender stage through direct input and delegation to Junior Engineer.



Design to Planning Submission

- Cairn Duhie
- Aberarder
- Culachy.

Acting as CDM-C at pre-construction and construction phase:

- Minnygap
- Glenchamber.

Various

June 2006 - December 2012

Site Engineer/Manager:

Fulfilling the role of Site Engineer, Project Engineer and Site Manager for civil engineering contractors on a wide variety of projects including new-build roads and trunk roads, commercial building, wind farms, utilities, bridge refurbishments and urban redevelopment schemes.

Qualifications:

- BEng (Hons) Civil Engineering from University of Dundee

Training:

- APM Project Management Qualification
- SMSTS
- First Aid
- CSCS
- NPORS Sit-in ATV (Tracked)
- Liebherr Crane and lifting operations Awareness Course
- RES Electrical and Mechanical Safety Rules
- IOSH Working Safely
- 4 x 4 Training
- DMRB Highways Design Training
- RES NERS Training

CDM Specific Training

- 2015: CDM 2015 The Principal Designer- Demonstrating Capability (ICE Training)
- 2014: CDM 2007 Effective CDM Co-ordination (Thomas Telford)
- 2012: CDM Reducing Risk by Design (Thomas Telford)
- 2012: Risk Assessment Course (ROSPA)

Jeremy Bass

Head of Specialist Services, RES Group

Profile

- Senior Technical Manager with 36 years of experience in the wind & renewables industry, the last 26 of them with RES
- overall responsibility for the Acoustics Analysis (AA), Statistical Analysis (SA) and Meso-Scale Modelling teams
- played a central role in the development of state-of-the-art, non-linear algorithms for the Measure Correlate Predict (MCP) process, allowing for bias free estimates of the long term mean wind speed with the lowest possible uncertainty
- played a central role in the development of wind farm acoustic guidance, including the ETSU-R-97 planning guide, the IEC 61400-11 & IEC 61400-14 standards and the RenewableUK funded research into amplitude modulated noise
- the HSS has responsibility for ensuring best practice is maintained in all technical tasks, that new techniques are investigated and moved into the mainstream, where appropriate and that a continual *lean* review is undertaken to improve efficiency on all tasks.

QUALIFICATIONS & AFFILIATIONS

- PhD - 1982 - 1985, University of Strathclyde, Department of Applied Physics, 'The Potential of Combined Heat & Power, Wind Power & Load Management for Cost Reduction in Small Electricity Supply Systems'
- BSc - 1979 - 1982, University of Durham, Department of Physics, First Class Physics Degree, including: particle physics; solid state physics; thermodynamics & electromagnetics
- Member of the IOA
- Member of the IOP

PROFESSIONAL EXPERIENCE

RES Group (2000-present)

Head of Specialist Services/Senior Technical Manager

RES Group (1990-2000)

Technical Analyst/Senior Technical Analyst

Mechanical Engineering Laboratory, Tsukuba, Japan (1989-1990)

Foreign Exchange Researcher

Rutherford Appleton Laboratory (1986-1989)

Research Associate, Energy Research Unit

PUBLICATIONS

- "Addressing the Issue of Amplitude Modulation: A Developer's Perspective" 6th International Meeting on Wind Turbine Noise, Glasgow, 2015

- “Propagation of Noise from Wind Farms According to the Institute of Acoustics Good Practice Guide - A sensitivity Analysis” 6th International Meeting on Wind Turbine Noise, Glasgow, 2015
- “The Development of the RenewableUK AM Tool”, IOA One Day Meeting on Wind Turbine Noise, Glasgow, May 2014 & Newport, March 2014
- “RenewableUK AM Research: Project Overview - Why the Project was Needed and What Were the Intended Outcomes”, IOA One Day Meeting on Wind Turbine Noise, Cardiff, January 2012
- “How Does Noise Influence the Design of a Wind Farm?” 5th International Meeting on Wind Turbine Noise, Denver 2013
- “MCP: Pitfalls & Common Mistakes”, AWEA Wind Resource & Project Assessment Workshop, Mineapolis, Octobew 2009

NATHAN SWANKIE

Principal

Nathan Swankie has over 22 years' experience in environmental consulting and manages a team of 30 environmental professionals in the Ramboll Environ Edinburgh office. He is the energy market sector lead for Ramboll Environ in the UK and leads an international onshore wind best practice network within the company, focused on sharing lessons and innovation. His areas of expertise include environmental impact assessment (EIA), particularly related to the power sector, and sustainable design and construction. Nathan has assisted several power generation clients in the development of Section 36 (>50MW) and local (<50MW) schemes. These technologies include biomass combined heat and power, biodiesel manufacture, combined cycle gas turbines, onshore wind and underground coal gasification. Nathan has also provided environmental consulting support to related infrastructure development such as substations, transmission lines and carbon capture and storage.

EDUCATION

1995-1996

MSc Environmental Pollution Control Management

Heriot-Watt University, Edinburgh

1990-1994

BSc (Hons) Zoology

University of Edinburgh, Edinburgh

COURSES/CERTIFICATIONS

Chartered Environmentalist - UK, 2004

MEMBERSHIPS

Institute of Environmental Management and Assessment (IEMA)

Society for the Environment

PROJECTS

2015-2018, Blarghour Wind Farm, Coriolis/ESB, Argyll & Bute, Project Director

This is a Section 36 Scheme located near Loch Awe in Argyll & Bute on a site which includes significant areas of forestry. The early part of this project involved a particular focus on clearly defining and maximising the developable area, taken account of the environmental constraints, especially in relation to landscape and visual receptors and the presence of eagles. PAT modelling has been used to inform the extent of eagle constraints with feedback influencing the design layout and HMP proposals. The application is due for submission in Q1 2018.

2017-2018 Glenshero Wind Farm, Simec, Scottish Highlands, Project Director

The proposed Glenshero wind farm is located in the Scottish Highlands near Newtonmore. The scheme is currently at the EIA Scoping stage for the development of a 168 MW wind farm. The site lies outwith, however in proximity, to

three areas designated as 'Wild Land'. Early discussions with key stakeholders including ECU, The Highland Council and SNH have been carried out to agree an appropriate methodology for the Wild Land Assessment, in the absence of definitive guidance from SNH. ECU would like to use this project as an exemplar for Wild Land Assessment. Other key issues include the proximity to the Cairngorms National Park, and potential impacts on its special qualities, ornithology and peat. A Section 36 application will be submitted in 2018.

2017-2018 Cairnmore Wind Farm, RES UK & Ireland, Scottish Highlands, Project Director

This is a proposed ten turbine scheme located near Thurso in the Scottish Highlands. Residential amenity is a key issue given the proximity of residential receptors. The project is currently at the EIA Scoping Stage and a planning application is due to be submitted to The Highland Council in Q2 2018.

2012-2013, Cairn Duhie Wind Farm EIA, RES UK & Ireland, Scottish Highlands, Project Director

This site is located near Ferness, between Grantown-on-Spey and Nairn in the Scottish Highlands. The scheme comprises 20 turbines with a maximum tip height of 110 m and a Section 36 application was submitted in November 2013. Nathan project directed the EIA process which involved dealing with visibility within the Cairngorms National Park, avoidance of areas of sensitive habitat and deep peat, and socio-economic concerns such as impacts on local tourism receptors and tourist routes. The Highland Council objected to the proposals in 2015 resulting in a public inquiry which was held in 2016. The wind farm was awarded S36 consent in October 2017.

2012-2017, Strathy South ES Addendum, SSE Renewables, Scottish Highlands, Project Director

Ramboll Environ was originally instructed to prepare an ES Addendum for an existing S36 application, however this forestry site ultimately required a substantial re-design in order to respond to technical and environmental constraints and advances in turbine technology. Extensive consultation was carried out with key consultees in order to try to resolve matters pre-submission, including SNH, MoD, SEPA, THC, NDSFB, Forestry Commission and community councils. The EIA approach required ensuring that an ES Addendum remained legally compliant, given the extent of the re-design, as a fresh Section 36 application would have entailed additional risk, delay and cost. THC subsequently objected to the application, triggering a public inquiry. This was held in 2015, and supported by Ramboll Environ, and a decision is currently pending.

2012-2013, Glencassley Wind Farm EIA, SSE Renewables, Scottish Highlands, Project Director

The proposed Glencassley wind farm is located between the River Cassley and Loch Shin, near Lairg in the Scottish Highlands. The proposal for 23 turbines of up to 126.5 m tip height would have had a capacity of up to 69 MW. A Section 36 application was made to the Scottish Government in 2013. Key issues to deal with in the design and EIA process included the proximity of the site to Caithness and Sutherland Special Protection Area and Special Area of Conservation, as well as emergent government policy on 'Wild Land'. Ultimately, changes to wild land policy resulted in refusal of the application.

2010-2011, Strathy North Wind Farm ES Addendum, SSE Renewables, Scottish Highlands, Project Manager

Environmental Statement (ES) Addendum for Strathy North wind farm, a 76 MW wind farm, Sutherland. The S36 application and EIA had been made several years previously and the application had not progressed due to unresolved consultee concerns. Nathan reviewed the consultee issues of concern and developed an ES Addendum and consultation approach to dealing with these matters. The ES Addendum resulted in the deletion of two of the original turbines. Section 36 Consent was received in 2012 and the Strathy North wind farm is now operational.

2014, Tangy III Wind Farm, SSE Renewables, Argyll & Bute, Project Director

Nathan was Project Director for the EIA for this repowering project which involved the replacement of 22 turbines (each with a capacity of 0.85 MW) with 16 turbines with a blade tip height of up to 125m. The site was in forestry, and key issues included the nearby presence of ornithological designations, landscape and visual receptors and cultural heritage. As this was one of the first repowering projects in Scotland, the EIA strategy involved undertaking some desk research into decommissioning effects and taking a clear position on the environmental baseline situation, in the absence of specific guidance on this matter. Argyll & Bute council granted consent for 15 turbines in 2015.

ROBERT BAINSFAR

Manager - Landscape Architecture

Bob is a Chartered Landscape Architect with over 20 years of experience working across a wide range of sectors including energy, utilities, industrial, leisure, commercial, minerals and waste. He has extensive experience of managing and undertaking landscape and visual impact assessments (LVIA), cumulative assessments (CLVIA), seascape assessments and night assessments (ie relating to lighting impacts), as well as the setting of cultural heritage assets.

Bob also has extensive experience of preparation of the following:

- landscape management and aftercare plans;
- restoration and habitat creation proposals;
- outline and detailed landscape designs and specification; and- contract documentation and administration.

Bob is currently one of the Landscape Institute Scotland's representatives on Edinburgh's Urban Design Panel and is a mentor in the Landscape Institute's Pathways to Chartership Programme. He has recently been a technical author on research for Scottish Natural Heritage on the decommissioning and repowering of wind farms, and has provided evidence to the Scottish Governments Scientific Advisory Committee on moorland management. He has been retained by a number of clients to provide analysis of national and local policy (including policy on Wild Land), Local Development Plans and spatial plans, and has provided expert witness testimony and written representations in respect of planning appeals.

EDUCATION

1996

BLA - Bachelor of Landscape Architecture

Manchester Metropolitan University, Manchester, United Kingdom

1992-1995

BA (HONS) Landscape Design

Manchester Metropolitan University, Manchester, United Kingdom

MEMBERSHIPS

Chartered Member of the Landscape Institute

PROJECTS

Kirkan WF

RSK, United Kingdom

Preparation of a detailed landscape and visual impact assessment in respect of a Section 36 wind farm proposal in Kirkan, north-west of Inverness, in the Scottish Highlands. The commission included consultations, production of exhibition materials, detailed design recommendations, as production of a detailed LVIA and accompanying figures and visualisations.

Culachy Wind Farm

Central Highlands, Scotland

Provision of detailed design advice in respect of the layout and design of a 13-turbine scheme in the Braeroy Wild Land Area south of Fort Augustus. The design considered the siting and design of ancillary elements including construction elements, tracks, borrow pits and grid connection/substation. The commission also included preparation of a detailed Wild Land Impact Assessment and an LVIA for all aspects of the development and subsequent, post submission support for the client. The commission also included provision of written evidence and oral testimony at a public inquiry.

Aberarder Wind Farm

Central Highlands, Scotland

Provision of detailed design advice in respect of the layout and design of a 14-turbine scheme in the Monadhliaths north-east of Fort Augustus. The design considered the siting and design of the development relative to the existing Dunmaglass Wind Farm scheme which abuts the Aberarder site. The commission also included preparation of a detailed LVIA for all aspects of the development and subsequent, and post submission support for the client, including provision of written evidence in respect of a subsequent successful appeal.

Glenchamber Wind Farm

Dumfries and Galloway, Scotland

Preparation of an LVIA and CLVIA, for Glenchamber Wind Farm, northeast of Glenluce. The commission included detailed design advice/analysis (all aspects of the wind farm and associated infrastructure) as well as an assessment of grid connection/substation options and access roads and appeared as an expert witness in respect of a successful planning appeal on this project.

Cairnmore Hill Wind Farm

Caithness, Scotland

Detailed design input and preparation of an LVIA for a 30 MW scheme in Caithness. The commission also included an extensive residential visual amenity study utilizing drone technology and GIS analysis.

Blary Hill Wind Farm

Kintyre Peninsula, Scotland

Detailed design input and preparation of an LVIA for Blary Hill Wind Farm on the Kintyre Peninsula. The commission also included preparation of materials for a planning appeal, and presentation of expert witness testimony at a conjoined enquiry session.

Wild Land Evaluation

Region: Nationwide, Scotland

Detailed technical review of wild land mapping methodology and final wild land area demarcations in Scotland, and formulation of recommendations pursuant to prospecting for renewable developments.

David Bell BSc(Hons) DipUD MCIHT MRTPI

Director – Planning and Development

Current Responsibilities

David is a Director with JLL and has been with the firm for approaching 20 years, based in the Edinburgh office. He is Head of Planning & Development for the firm in Scotland and leads a Team of 8 Chartered Planners.

He has 30 years' experience of planning and development practice in the private sector, advising on a range of developments in the UK and overseas. David is a recognised leading expert in energy planning, in particular with regard to onshore wind – providing advice on development projects throughout the UK. He advises on feasibility studies, planning and section 36 applications, the preparation of EIA Reports and planning Appeals. David frequently acts in the capacity of expert witness in Public Inquiries. Clients include Eon, EDF, SSE, ESB, RES, Simec, Brookfield, Vattenfall, Forsa, Coriolis, Ecotricity, Fred Olsen Renewables, 3R Energy, Muirhall, Infinergy and Boralex.

Experience

David's 30 years of consultancy experience has a focus on practice in Scotland but also in relation to development projects in England and Wales, and overseas.

Previous Positions

2000 - Joined JLL as Head of Planning

1992-2000 – Associate, Halcrow Fox, Edinburgh

1990-1992 – Development Planner, Gillespies, Glasgow

1984-1985 – Planner, Shankland Cox, Al Ain, United Arab Emirates

Education and Affiliations

BSc (Hons, First Class) Town & Country Planning (Heriot Watt University).

Diploma in Urban Design (Strathclyde University).

Chartered Town Planner.

Chartered member of the Institute of Highways & Transportation.

Selected Experience

- *Energy Systems Catapult – Lead Author of Guidance on 'Local Area Energy Planning'*
- *3R Energy – Hagshaw Hill Repowering EIA Report*
- *Eon – Clachaig Glen application and Public Inquiry*
- *Forsa Energy – North Lowther Energy Initiative*
- *EDF – Stranoch 2 EIA Report*
- *EDF – advice on Dorenell s.36 development – variation and extension*
- *Vattenfall – South Kyle s.36 Public Inquiry*
- *Hoolan Energy – advice on wind energy schemes in Orkney Islands*
- *SSE – advice on Viking Wind Farm, Shetland Islands.*

DAVID MACARTHUR, TECHNICAL DIRECTOR & PRINCIPAL ECOLOGIST

KEY EXPERIENCE

- Over 18 years' experience as a professional ecologist, including development, management and implementation of Habitat Management Plans to mitigate significant ornithological and ecological impacts on over 20 wind farm sites.
- Co-author of Developments on Peatlands: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste 2012; and
- Strong working relationship with key stakeholders such as SNH and RSPB (Scotland).

MacArthur Green (2009 – present) - Recent Ornithological & Ecological Wind Farm Work

- **Onshore Wind:** Ornithology and ecology surveys and ES delivery on numerous large scale projects;
- **Ecological Clerk of Works:** Whitelee Extension, Beinn an Tuirc Extension, Ardoch and Over Enoch;
- **Expert Witness:** Windfarm development and Golden Eagle SPA; and
- **Expert Witness:** Llandinam wind farm – expert witness for peat and ecology.

ScottishPower Renewables (2003 – 2009)

- Management of Ecology and Ornithology for the Environmental Statements on 16 consented wind farm sites throughout the UK. Sites included: Whitelee, BlackLaw, Beinn Tharsuinn and Arecleoch;
- Ecological Clerk of Works: Management and provision of ECOW services on 5 wind farm sites.
- Managing ScottishPower's suite of 12 Habitat Management Plans; and
- Responsibility for managing relationships with ecological stakeholders (including Scottish Natural Heritage, RSPB, Natural England, JNCC and the Countryside Council for Wales).

Scottish Natural Heritage (1994 – 2003)

- Roles included Area Officer role, leading SPA and SAC designations in Argyll; Tangy Extension & Largie II; Beinn an Tuirc and Cruach Mhor Windfarms; and various Ecological Surveys.

EMPLOYMENT

MacArthur Green	Director	18 April 2009 – present
ScottishPower Renewables	Senior Ecologist	22 April 2003 – 17 April 2009
Scottish Natural Heritage	Area Officer	January 2001 – April 2003
Scottish Natural Heritage	Natura 2000 Project Officer	October 1999 – December 2000
Scottish Natural Heritage	Reserve Manager	May 1999 – September 1999
Strath Caulaidh Ltd	Ecological Surveyor	November 1998 – May 1999
Scottish Natural Heritage	Estate Worker	Summers of: 1994 to 1998

EDUCATION

The University of Strathclyde, School of Business and Economics	MSc Economic Management and Policy (<i>with Distinction</i>)	2008
The Open University	Diploma in Economics (<i>with Distinction</i>)	2002
The University of Edinburgh	BSc Ecological Science with Honours (2:1) in Wildlife and Fisheries Management	1998

MEMBERSHIPS

- Member of the Chartered Institute of Ecologists and Environmental Managers (MCIEEM); and
- Scottish Renewables Forum.

CURRICULUM VITAE



COLIN DUNCAN

TECHNICAL DIRECTOR

Land Quality & Remediation, Europe

QUALIFICATIONS

BSc (Hons)	1981	Geology (University of Glasgow) (Upper Second Class)
MSc	1992	Environmental Technology and Engineering with Distinction (Napier University, Edinburgh)

EXPERTISE

- Geology
- Mining and Mineral Consolidation
- Contaminated Land Assessment and Remediation
- Environmental Assessment
- Due Diligence and Compliance Auditing
- Renewables

Colin is a Technical Director – Land Quality in SLR's Stirling office. He has over thirty years' experience in environmental consulting and geology. Colin has over thirty years' experience in environmental consulting and geology. Colin's recent specialist area is Engineering Geological Assessment in the renewables sector. Currently, Colin is working on a number of EIA projects for proposed wind farms, providing both pre and post consent services, in geological and geotechnical services. Colin has worked on over 50 wind farm projects and 10 substation projects from initial site selection to cable routing and site investigation for engineering design purposes. in Scotland and has experience, in infrastructure design, geological assessment, borrow pit assessments, mining related studies and peat slide risk assessments. This includes sites on behalf of SSE Renewables, SPR, Vattenfall, Ridgewind/Blue Energy, RWE nPower, Falck Renewables, Gamesa and Infinis. He has been involved in engineering and geological assessment of a number of sub-station sites, cabling routes and transmission line routes in Scotland, including site selection, site investigation and outline design.

Relevant experience has involved the assessment of a number of wind farm projects in the pre-construction and construction phases in Scotland, Ireland, England and Wales, including sites in Skye, Moray, Aberdeen, Stirling, Highlands, Lanarkshire, Ayrshire, Fife and Borders. A number of brownfield sites have been investigated in Scotland to address environmental issues including historical past use of sites (mining and ex-MOD sites). Colin has undertaken geotechnical and geological assessments for future turbine construction and materials suitability for turbine bases and roads. This aspect has also included desk based and site based geological assessments of sites, including borrow pit assessment, carbon emissions modelling and wind farm design. Colin has also managed site investigation activity in difficult terrains (often associate with wind farms and substations), assessing geological conditions as part of the route, substation locality and turbine base construction process. Environment studies on wind farm sites has also included assessing contamination issues, as well as radiological and ordnance risk on ex-MOD and RAF sites.

Colin is a Technical Director and is responsible for SLR's Land Quality and Geology Business Areas in Scotland. Colin has over 30 years' experience within the land quality sector, as an experienced consultant within SLR and previous consultancies. Prior to this Colin worked overseas for over eleven years in Southern Africa (South Africa, Namibia and Botswana) as a geologist for JCI and BP. The role comprised mining and exploration, as well as mine feasibility and assessment, in a variety of commodities including diamonds, gold and platinum. As Regional Manager, he managed all aspects of multi million pound exploration and feasibility studies for new mining developments in Southern Africa.

Following this he has worked on and managed Contaminated Land Projects in the USA, Kazakhstan, Azerbaijan, Poland, France, Uzbekistan and Ireland. Seconded to the USA, he worked on Superfund Projects on chemical and ordnance works in West Virginia and North Carolina, as well as Department of Defence facilities in the Washington area. Overseas work in the Former Soviet Union and Poland has involved auditing of oil and gas facilities and pipelines, including onshore oil fields, petrochemical facilities and power plants, as well as electronics and automotive companies. Major new oil pipeline assessments in the Caspian Sea area, with major environmental issues, associated with previous activities including oil spills, radioactivity, archaeology and air, water and soil contamination from industrial sites, located along the route. Worked on oil pipeline projects in Azerbaijan, in due diligence of on-shore oil fields in Kazakhstan and at oil facilities in Uzbekistan.

Recent experience has involved site investigations on former landfill and waste sites, for proposed waste facilities, including EFW Plants, ASD Plants and landfills over difficult ground conditions.

Expertise lies in all aspects of ground investigations from conception to interpretative reporting, as well as risk assessment and remediation of sites. Projects range from residential housing, schools to major historically contaminated sites including gasworks, chemical works, landfill sites, railway depots, docks and mines, as well as active petrochemical and chemical sites for major oil and chemical companies.

PROJECTS

	Wind Farms
Castle Craig Wind Farm (2017 - present)	Peat and Spoil Management.
Glensanda Quarry (2017)	Peat Assessment for Aggregate Industries.
Harryburn Wind Farm (2016 - 2017)	Engineering Geological Advisor, Peat Landslide and Hazard Risk Assessment, Peat Assessment, Design Layout and Borrow Pit Assessment
Over Hill Wind Farm (2017)	Peat Landslide and Hazard Risk Assessment, Borrow Pit Assessment, Coal Mining Risk Assessment
Dalradian Gold (2017)	Peat Slide Risk Assessment.
Highland Region (Confidential) (2016)	Engineering Geological Assessment and Site Investigation of 80 km cabling route and 2 no. Converter Stations.
Lairg Highland Region (2015)	Engineering Geological Assessment and Site Investigation of a substation.
Melgarve Highland Region (2015)	Engineering Geological Assessment of a substation.
East Anglia (2015)	EA One Technical Advice on Contaminated land Issues along Route Corridor.
Millennium & Kilbruar Wind Farms (2015)	Geotechnical Risk Register.

CHRIS LOWE BA (Hons) MA PhD MCIfA FSA Scot
Director / Head of Consultancy**QUALIFICATIONS**

BA (Hons) in Medieval History, University of Kent

MA in Archaeology, University of Durham

PhD in Archaeology, University of Durham

PROFESSIONAL AFFILIATIONS

Member of the Chartered Institute for Archaeologists

Fellow of the Society of Antiquaries of Scotland

Chris has been involved in the preparation of over 25 EIAs, across a range of different development sectors, but with a focus on wind farm developments – including those for wind farms at Camster, Millennium, Dunbeath and Kilbraur in Highland, and Muaithebhal on Lewis. He provided written evidence at the 2011 public inquiry in connection with Dunbeath wind farm where the setting of scheduled monuments is a key issue for the development and, in 2013, for the Appeal in connection with Horn Burn wind farm, Scottish Borders. More recently, he provided evidence at the Winterton Wind Farm Appeal, in North Lincolnshire, in June 2014. He also managed the archaeological mitigation programmes at Griffin and Calliachar wind farms (Perth & Kinross). He thus has experience of large-scale construction programmes in general (and wind farm development, in particular) from scoping and EIA, including the assessment of setting issues, through to inquiry and management of the construction process.

In addition to his wind farm experience, Chris was also involved in the cultural heritage contributions to the EIAs for a series of renewable energy plants at Leith, Rosyth, Grangemouth and Dundee on behalf of Forth Energy, and those at Drax and Immingham on behalf of Drax Power Ltd. The programme of works for the Environmental Statements for the Drax and Immingham plants also included geophysical survey and staged programmes of intrusive investigation in order to fully characterise the significance of the below-ground deposits.

Chris has worked in Scottish archaeology since 1980 and has been based in Edinburgh since 1987, working initially for the Central Excavation Unit (Scotland), part of the predecessor body to Historic Scotland before co-establishing Headland Archaeology in 1996. From 1993 until its cessation in 2001, Chris was also the Project Manager for the call-off contract for pre-afforestation surveys throughout upland Scotland on behalf of Historic Scotland via the Woodland Grant Scheme. This included a large number of schemes throughout Scotland and the experience of Scottish upland archaeology that was gained over the course of the contract has formed the corner-stone of the company's EIA and survey departments.

TIMELINE

1996 – present	Director , Headland Archaeology
1991 – 1996	Senior Manager , AOC Scotland
1987 – 1991	Project Manager , AOC Scotland
1985 – 1987	Research Assistant , University of Durham

UPLAND SURVEYS

Chris was the Project Manager for the 3-year renewable call-off contract with Historic Scotland for the provision of archaeological survey in advance of afforestation, from 1993 until its cessation in 2002. Over this period, Chris and the upland survey team were able to use and develop their knowledge and understanding of the various monuments and site-types that are to be found throughout upland Scotland. This knowledge-base has proved particularly invaluable to the success and effectiveness of Headland's EIA Team.

CAMSTER WIND FARM, CAITHNESS

The Grey Cairns of Camster, dating to the 4th millennium BC, are two of the best-preserved Neolithic chambered cairns in Britain. Carefully restored and made accessible to the public, the cairns are 'must see' sites for the interested visitor. The challenge that the proposed wind-farm presented was whether and how it could be accommodated into the surrounding landscape. Chris's understanding of the archaeology and issues related to the setting of the various monuments were crucial to the iterative design process. This and his close liaison with the client's Project Team meant that the Grey Cairns could be preserved in their setting, whilst at the same time addressing what could have been a major obstacle for the development.

INCHMARNOCK: AN EARLY MONASTIC SETTLEMENT IN THE FIRTH OF CLYDE

In view of his academic background and his work on early ecclesiastical sites in northern Britain – including the identification and subsequent excavation of an early Anglian monastery at Hoddum in Dumfriesshire – Chris's name stood out as an obvious candidate to lead the Inchmarnock Project. In 1999, following on from the referral from the National Museums Scotland, Sir Robert Smith (now Lord Smith of Kelvin Kt), the island's new owner, commissioned Headland to produce a cultural heritage audit of Inchmarnock. The 7-year investigation involved excavation of multiple sites throughout the island, standing building survey, landscape survey and documentary research. The resulting study, produced on time and budget, has opened a new chapter on the island's past and has made a significant contribution to our understanding of the early Church and its place in society.

SELECTED PUBLICATIONS

- Lowe, C E 2009 'Clothing for the Soul Divine': Burials at the Tomb of St Ninian; Excavations at Whithorn Priory, 1957–67, Historic Scotland Archaeology Report no 3, Edinburgh.
- Lowe, C E 2008 Inchmarnock: an early historic island monastery and its archaeological landscape, Society of Antiquaries of Scotland Monograph Series, Edinburgh.
- Lowe, C E 2006 Excavations at Hoddum: an early ecclesiastical site in south-west Scotland, Society of Antiquaries of Scotland Monograph Series, Edinburgh.
- Lowe, C E 1999 Angels, Fools & Tyrants: Britons and Anglo-Saxons in Southern Scotland, AD 450–750, The Making of Scotland, Canongate History series, Edinburgh.
- Lowe, C E 1998 Coastal Erosion and the archaeological assessment of an eroding shoreline at St Boniface Church, Papa Westray, Orkney, HS/ Sutton Publishing Monograph, Stroud, Gloucestershire.

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ACADEMIC QUALIFICATIONS

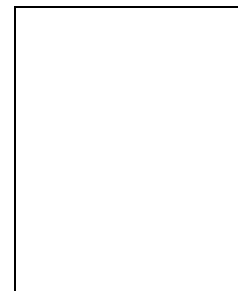
MSc Transport Engineering, Napier University
BEng (Hons) Civil & Transportation Engineering,
Napier University

PROFESSIONAL QUALIFICATIONS

Chartered Member of the Chartered Institute of
Logistics and Transport
Member of the Chartered Institution of Highways
and Transport

POSITION

Director, Scotland



Overview

Gordon Buchan is a highly experienced Transport Planner, having worked on a diverse range of projects across the UK and Ireland. Gordon heads WYG's Scottish region and specialises in private sector development projects. He has undertaken Transport Assessments (TAs) for many successfully completed projects ranging from small housing developments through to large scale, regionally important retail outlets. These projects have included the private sector, local government and national government agencies. Based in Edinburgh, Gordon has also developed an expertise in the transport planning aspects of renewables projects and has given presentations at the ICE Infrastructure Show at the NEC and at the All Energy Conference in Aberdeen on two occasions. Gordon was a finalist in the 2018 NCE 100 Alternative Energy Award category for Stronelairst Wind Farm.

Relevant Experience Highlights

- Project director for several transmission schemes for SSE / SHET Limited, including Caithness – Gills Bay line reinforcement and replacement scheme, LT40 scheme in Argyll, grid connections for Tom na Clach, Bhlaraidh and Beinnun wind farms in the highlands. Gordon lead the transport team on these projects, examined transport impacts and identified mitigation to offset construction impacts phase.
- Project director for the planning application and detailed design of Bryn Blaen wind farm, Powys. Developed all planning documentation to successfully push this 6 turbine wind farm through the planning process, inquiry and detailed design phases. Also, responsible for grid connection routing and transport engineering proposals to support the laying of the grid connection in the trunk road over a 16km route.
- Project director for the Coire Glas Pumped Hydro storage scheme near Invergarry. Gordon developed a rock spoil disposal plan, transport assessment and transport chapter for this 1600MW generation scheme in the Highlands.
- Project director for studies at over 450 wind farm sites across the UK for a variety of developers, turbine manufacturers (Vestas, Siemens and Nordex), hauliers and utility firms.
- Project engineer for the development of an Abnormal Loads Assessment for six 240 tonne transformers required as part of the Shetland High Voltage DC interconnector running from Blackhillock, to the south of Keith, through to the Shetlands. Undertook a detailed ports review for the loads, examining various ports in the north of Scotland and reviewing the potential constraints associated with each and the various access routes.
- Expert witness for the Llaithddu Wind Farm scheme within the wider Mid Wales Conjoined Public Inquiry. Providing transport and abnormal load access expert witness evidence at the forthcoming 18 month inquiry into five wind farms and one transmission line in Powys, mid Wales.
- Griffin Wind Farm Public Inquiry: Prepared transport planning evidence for what was Europe's fourth biggest wind farm on traffic impact and traffic management. The inquiry ended successfully with the opponents of the wind farm being forced to admit that there were no grounds for refusing the site on transport grounds. The wind farm is now fully operational.

CURRICULUM VITAE

GRAEME BLACKETT

QUALIFICATIONS:

BA Hons Economics, University of Strathclyde
Member Institute for Economic Development
Member Economic Development Association Scotland

CAREER SUMMARY:

2002-	Director, BiGGAR Economics
2000-2001	Senior Consultant, Deloitte
1998-1999	Consultant, Deloitte
1993-1998	Consultant, Segal Quince Wicksteed Limited
1991-1992	Parliamentary Researcher and Freelance Consultant

Graeme is an applied economist with more than 25 years experience in consultancy. Graeme co-founded BiGGAR Economics in 2002 and was previously manager of Deloitte's economic consulting practice in Scotland and Northern Ireland.

Graeme has led all of BiGGAR Economics work in the renewable energy sector, which means that he has been involved in assessing the economic and tourism impacts of more than 50 renewable energy proposals, a selection of which are provided below. His understanding of renewable energy projects and his experience of community, social and economic development, have been complimented by wider commissions that have considered the opportunities and requirements of the renewable energy industry.

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- inquiry on socio-economics and tourism issues for the proposed Upper Sonachan Wind Farm in Argyll and Bute;
 - analysis of the socio-economic impact of the proposed Hesta Head and Costa Head Wind Farms on the Orkney Islands;
 - analysing the potential impact of onshore wind on the Icelandic economy;
 - inquiry on socio-economics and tourism issues for the proposed West Garty Wind Farm near Helmsdale in Highland;
 - inquiry on socio-economics issues for the proposed Caplich Wind Farm in Highland;
 - inquiry on socio-economics and tourism issues for the proposed Culachy Wind Farm in Highland;
 - socio-economic and tourism assessment of the proposed North Lowther Energy Initiative, a wind farm near Sanquhar in Dumfries and Galloway;
 - the inquiry on socio-economics issues for the proposed Whitelaw Brae Wind Farm in the Scottish Borders, with a focus on tourism issues;
 - socio-economic and tourism assessment of the proposed Strathy South Wind Farm in Highland; and
 - presenting on tourism issues at the Shetland Land Court for Viking Wind Farm.