

## Experience

Alastair J Nicol is an Energy Engineer with over 20 years experience, writing, lecturing and presenting extensively for numerous Institutions, Industry associations, and Government on subjects ranging from combustion to cooling technologies.

Specialising in heat generation and transfer technologies, particularly biomass, he recognised within the Energy Industry and often consulted in respect of design or operational difficulties encountered in these technologies. This experience includes responsibility for the feasibility study, conceptual design, specification and project management of a wide range of heat generation and transfer technologies including:

- Waste to energy plant design and whole project development/specification
- Combined heat and power projects including co-generation and waste to energy design elements. Community/district Energy project development.
- Furnace/incineration, cremation plant including heat recovery and emission control works - conceptual design, tender, contract supervision, research and preparation of all statutory documentation.
- Boiler house and steam distribution performance evaluation. Boiler sizing, detailed heat loss analysis and plant specification.
- Investigation and the compilation of expert evidence

Notwithstanding, he is of course most comfortable applying his knowledge practically, solving where possible, design and operational difficulty for the smallest client to some of the largest global companies.

## Alastair J. Nicol

BSc CEng MEI

### Expertise

- Energy Engineering
- CHP design and operation
- Biomass combustion
- Industrial energy efficiency
- Incinerator design and operation
- Investigation of defective engineering design

### Personal Data

**Year of Birth** 1962

**Nationality** British

**Language** English

**Position** Director

### Professional Qualifications and Registrations

BSc, Energy Engineering (Napier)  
Member of the Energy Institute  
Chartered Engineer

### Other Activities

Mr Nicol is formerly the secretary and membership adviser of the of the South of Scotland Branch of the Energy Institute

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**Employment Record:**

2007 to Date	<b>Element Consultants,</b> Director
1997 to date	<b>Cadogan Consultants (formerly Rendel Palmer &amp; Tritton (Scotland) Ltd.).</b> Technical Director
1996 to 1997	<b>Rendel Palmer &amp; Tritton (Scotland).</b> Senior Engineer.
1990 to 1996	<b>Rendel Palmer &amp; Tritton (Scotland).</b> Engineer.
1987 to 1990	<b>Rendel Palmer &amp; Tritton (Scotland).</b> Employed as Assistant Engineer.
1985	<b>United Glass Containers Ltd.</b> Junior Projects Engineer for UGC Harlow, Essex, responsible for identifying and implementing energy conservation measures.

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**Languages:** English - mother tongue  
German - conversational

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**Papers/Presentations/technical documentation, groups:**

- The 2007 David Gunn memorial lecture at the House of Lords - Biomass resources in the UK, The combustion of wood and allied phenol, furfural and dioxin based intermediates.
  - Presentations of Freight Transport Association on Driver Training and Vehicle Efficiency. (For the FTA)
  - Co researcher and author of publication addressing the "Emerging Strategies of European Power Generation Companies". (McDonnell Douglas Information Systems)
  - Co author of "getting signed up" - procuring energy services in the public sector (carbon Trust)
  - Energy management in the Malt whisky distilling industry. (Scottish Executive)
  - Procurement of energy services contracts in the Public Sector. (Various)
  - Numerous lectures and presentations for the Carbon Trust
- Steam and heat distribution GPG (For the Carbon Trust)
  - CHP workshops and seminars (For Carbon Trust)
  - Biomass combustion workshops (For carbon Trust)
  - Flue Gas Heat recovery design workshops (Carbon Trust)
  - Industrial heating seminar (Carbon Trust)
  - Process Heat recovery (Carbon Trust)
  - Monitoring and targeting workshops (Carbon Trust)
  - Boilers and steam distribution practical training (Combustion Engineering)
  - The application of absorption cooling (INI)

- Technical articles on Biomass for Energy World the Journal of the Energy Institute
- Health and safety in Biomass design (CEA)

### Example experience by technology

Technology	Sector	Description
Biomass	Animal Feed	<b>Private mill</b> – Techno/economic feasibility and specification for Biomass CHP 2.6MWe
Biomass	Private Client	<b>Private Client</b> - Techno/economic feasibility and specification for Biomass CHP 2.1 MWe
WtE	Private Client	<b>Private Client</b> - Techno/economic feasibility and specification, IPPC and Planning support for WtE CHP 12.5MWe
Gasification	Private Client	<b>Private Client</b> - Evaluation and costing of close coupled gasification designs
Fuel Cell	Education	<b>Private Client</b> - Detailed techno economic evaluation of fuel cell technology.
CHP	Agricultural	<b>Private Client</b> - Design and specification waste heat recovery for 1.4MWe CHP system, specification construction drawings etc.
Boiler and steam systems Heat transfer.	Plastics and rubber	<b>UK Tyre Manufacturer</b> – Flash steam recovery design, Lighting assessment and design, detailed press finite element heat transfer evaluation
Boiler and steam systems Heat transfer.	Chemical Industries	<b>Multinational Chemical</b> Boiler sizing, decentralisation and heat distribution losses evaluation.
Boiler systems Building services design Combustion Plant Buildings Energy	Local Government	<b>Council</b> – Biomass boiler design review and ESCO supply contracting review
Boilers workshops Training	Various	<b>Trade Bodies</b> – Detailed boiler workshops/ training and seminar organisation & delivery (Carbon Trust Funded)
Boilers workshops Training	Various	<b>Carbon Trust</b> Detailed boiler workshops/ training and seminar organisation & delivery (over last 5 years)
Boiler systems Heat distribution systems Buildings Energy	MOD	<b>MOD</b> Building services implementation and site supervision. LPHW installations.
Boilers and heat distribution systems	Manufacturing	<b>Multinational label and adhesives manufacturer.</b> Steam system review and upgrade advice, conceptual and practical design of M&T package
Boilers and heat distribution systems	Chemical Industries	<b>German Chemical Co</b> Steam system review and upgrade advice.
Boilers and heat distribution systems Buildings Energy	Private sector care home	<b>Children’s Home.</b> Boiler plant replacement, chimney repair and modification including design, tender and contract supervision.
Boilers and heat	Government/Various	<b>Carbon Trust</b> Monitoring and auditing

distribution systems/CHP/Monitoring and Targeting		various works associated with the preparation of Good Practice Case Studies and associated reports including process heat recovery, insulation projects and energy saving in the transport sector.
Building services	NHS	<b>Hospital.</b> The survey and preparation of the steam services, MPHWS system, and medical gases, pressure systems schedules.
Building services	MOD	<b>MOD</b> Design and specification of refuelling station and fuel lines.
CHP	Food and Drink	<b>Devro Ltd.</b> Combined Heat and Power feasibility - fuel resources market analysis. 4MW Aero derivative turbine.
CHP	Hotel and catering	<b>Private Co</b> Analysis of Third Party Finance options for small scale CHP. Preparation of tender for a CHP project Highlands Scotland.
CHP Community Energy Biomass Boiler plant Buildings Energy	Local Government	<b>UK Government Dept-</b> Techno/economic feasibility for Biomass Boiler / CHP with district heating
CHP Community Energy Biomass Boiler plant	Manufacturing, Food and Drink	<b>Private</b> - Techno/economic feasibility for Biomass Boiler CHP, conceptual design, Engineer and post installations support. 2MWth steam biomass Plant
CHP /Expert Witness	NHS	<b>Hospital</b> - Detailed investigation of the destructive mechanical failure of reciprocating CHP set.
Claims Consultancy ADR	Transport	<b>Trans Manche Link, Folkestone.</b> Investigation and technical assistance in the preparation of the main HV and LV, French and UK substation claims.
Claims Consultancy ADR	Transport	<b>Trans Manche Link, Folkestone.</b> Investigation of firemain and drainage pipeline design and failures.
Claims Consultancy ADR	Transport	<b>Trans Manche Link, Folkestone.</b> Preparation of technical and contractual evidence to support TML claims in respect of Eurotunnels enhanced technological and performance requirements.
Combustion Plant	NHS	<b>UK Utility Co</b> The conceptual design, analysis and preparation of tender documentation for a large hospital clinical waste incinerator combined cycle power generation scheme.
Combustion Plant	Manufacturing	<b>United Glass Containers.</b> Furnace energy performance analysis. Specification and site supervision of the installation of forehearth cooling and insulation modifications.
Combustion Plant	Manufacturing	<b>Metallized Products.</b> Detailed investigation and analysis of the design failures of a fume oxidation plant.
Combustion Plant Steam systems Biomass Boiler	Paper and Board	<b>Private wood boiler supplier</b> – system design advise and assistance for Biomass Boilers and superheated steam systems
Contract supervision	Food and Drink	<b>Food Manufacturer</b> - Pressure/vacuum

		vessel modification. Site supervision.
Emissions abatement	Food and Drink	<b>Food Manufacturer, Glasgow.</b> Investigation into the production of waste ammonia and control methods. Preparation of reports analysing the emissions problem, and identifying and comparing proposed solutions.
Emissions abatement	Manufacturing	<b>Cigarette Manufacturer.</b> Investigation into odour problem and control methods. Preparation of reports analysing the emissions problem, and identifying and comparing proposed solutions.
Emissions abatement	Manufacturing	<b>Private Client</b> Investigation into the performance loss of industrial condensing solvent recovery plant. Survey, measurement and report preparation.
ESCo Contracting/CHP	Government	<b>BRE.</b> Research and preparation of the DETR guidelines for the procurement of energy services in the public sector.
Heat transfer. Combustion Plant	Ceramics	<b>Refractory Manufacturer.</b> Examination and design advice regarding vessel and refractory design for a pressurised hot gas filtration vessel.
Legal/Expert Witness	Health and safety	<b>Solicitor</b> The preparation of expert witness evidence in assessing the safe systems of work.(Various)
Mechanical design and contract supervision	Education	<b>University.</b> Conceptual design for anatomy incinerator project - tender and contracts supervision. Preparation of all statutory documentation.
Mechanical design and contract supervision	Education	<b>University.</b> Veterinary incinerator interim upgrade - contract supervision.
Mechanical design and contract supervision	NHS	<b>General Hospital.</b> Clinical waste incinerators mechanical and electrical refractory condition survey.
Mechanical design and contract supervision	Gas and oil supply	<b>KNPC, Kuwait.</b> Survey of oil pier mechanical systems, mechanical design and calculation for reconstruction works.
Mechanical design and contract supervision	Plastics and rubber	<b>UK Plastics.</b> Plastic extrusion, Design advice for the installation and operation of evaporative cooling towers.
Power Generation	Power supply/Electricity generation	<b>UK/Multinational</b> Power systems assessment and preparation of bills of quantities for turbine power station, Newark New Jersey.
Process	MOD	<b>MOD</b> The survey and preparation of the High Pressure Air, Pressure System Schedules.
Training	Government/Various	<b>ETSU.</b> The dissemination of information relating to the Energy Efficiency Office Best Practice Programme. Various seminary and lecture presentations on behalf of the Energy Efficiency Office and in the case of transport related issues, the UK Freight Transport Association.