Marine Simulation and Modelling Research Post

NATIONAL DECOMMISSIONING CENTRE

Closing date: 17 November 2022
Interview date: To be confirmed
Reference number: ENG201R
INTRODUCTION

The National Decommissioning Centre (NDC) (https://www.ukndc.com/) was launched in Jan 2019 through a partnership between the University of Aberdeen and the Net Zero Technology Centre. It is co-funded by the two organisations drawing on funding from the UK and Scottish Governments. The Centre’s remit was to address the ambition within the Aberdeen City Region Deal to leverage the combined capabilities of academia, industry, and other organisations to help create competitive advantage in decommissioning within the global energy sector. While this is still core, the Centre’s work now also includes aspects of the energy transition, in particular the re-purposing and re-use of assets, the decarbonising of operations and the integration with offshore renewables.

The objectives of the NDC are:

- To be a global leader in research and development that transforms oil and gas decommissioning and mature field management – this includes re-purposing and energy integration as part of the transition to net-zero
- To be a focal point for all R&D activity in relation to late life and decommissioning – developing a platform to store and disseminate information on R&D activity through collaboration
- To create a Hub and spoke model across the UK to other researcher partners
- To ensure effective and efficient collaboration with industry and other stakeholders
- To help create R&D capacity and capability across the hub and spokes

The NDC, based in Newburgh, Aberdeenshire, has invested heavily in enabling technologies to support its work. The most recent investment has been in a state-of-the-art, real-time, real-physics marine simulator with a 300-degree immersive environment and 4 control stations. The system is capable of simulating and displaying in real-time the interaction between vessels, cranes, remote operated vehicles, surface and subsea structures and the seabed with realistic environmental conditions for wind, wave current etc. It was supplied by the Offshore Simulation Centre AS in Ålesund, Norway (https://osc.no/), who are providing ongoing technical support and project collaboration and was co-funded by the Scottish Government’s Decommissioning Challenge Fund and the Centre.

The system also has a smart cities capability utilising the AugmentCity platform (https://augmentcity.no/) which allows the display, analysis and modelling of data sets. A priority project for the NDC is the development of a Smart Energy Basin based on the smart cities concept. The project aims to map all the North Sea energy assets along with relevant data including greenhouse gas emissions, renewable power generation capacity, cessation of production dates, energy requirements etc. This project is supported by the Scottish Government’s Energy Transition Fund as part of a cluster of projects running in collaboration with the Net Zero Technology Centre and the National Subsea Centre (https://www.nationalsubseacentre.com/)

Other facilities at the NDC include a high-tech digital visualisation suite designed to enable collaboration, state-of-the-art engineering laboratories and a hangar space for the design and development of decommissioning technology, as well as a suite of environmental commercial testing facilities.
**JOB DESCRIPTION**

**MAIN PURPOSE OF THE ROLE:**

The high level of interest in running projects in the simulator has generated the requirement for a challenging new role within the NDC. The Marine Simulation and Modelling Research position will be responsible for helping develop the capability of the NDC’s marine simulator, assisting staff, students, and external users in developing new and innovative models and running simulations of decommissioning and other scenarios, particularly those related to the energy transition. The system is unique within the UK, and you will have the opportunity to understand its capabilities and get involved in projects which will require further system development.

In this role you will be responsible for understanding industry challenges, working with our Simulator Technical Manager to develop scenarios, run simulations and develop models of new infrastructure and incorporate these into the simulator with support from OSC. Other opportunities will include working with staff and students at the NDC, regulators and companies to develop a “Smart Basin” concept using the simulator to visualise data across the entire UK continental shelf to assist in decision making.

You will work report to Dr Marcin Kapitaniak, our Simulator Technical Manager and will work closely with Prof Richard Neilson, the Centre Director, the NDC’s Business Development analyst and Project Delivery Manager, to assist in the development of the simulator and the scoping and effective of delivery of projects. You will interact extensively with industry and must have good interpersonal and communication skills as well as a high level of technical ability in modelling/simulation. Ideally you will have a PhD in physics, engineering, naval architecture, or a similar subject with experience of dynamics modelling. You should also be able to evidence working effectively in a multi-disciplinary team.

**KEY RESPONSIBILITIES:**

The key responsibilities of the role will be:

- Delivery and direct input to the NDC’s Smart Energy Basin projects
- Working with the NDC Simulator Technical Manager and Project Delivery Manager in the technical aspects of project specification, planning and delivery
- Interfacing, where necessary, with industry, regulators and relevant academics and research partners to facilitate project activity, progress, and resourcing
- Participate in wider NDC activities such as STEM and public outreach events

**CANDIDATE BACKGROUND**

We are looking for a candidate with a background in engineering, physics, naval architecture, or computing science or a similar subject with experience of modelling marine and dynamical systems or data visualisation and modelling. The role requires someone who is good at problem solving, with excellent customer facing abilities. Programming and software development skills will also be useful in this role.
Salary will be at the appropriate point on Grade 6, £35,333 - £42,155 per annum, and negotiable with placement according to qualifications and experience.

As this is a funding limited position, it is available for 3 years.

Any appointment will be made subject to satisfactory references and probation period (12 months)

For further information on various staff benefits and policies please visit www.abdn.ac.uk/staffnet/working-here

This role is based in the UK and as such the successful candidate will be required to live and work in the UK.

The candidate appointed to this post may be eligible for homeworking on an occasional or regular basis. For more information, please refer to our Homeworking Policy.

Should you require a visa to undertake employment in the UK you will be required to fulfil the minimum points criteria to be granted a Certificate of Sponsorship under the requirements of the Skilled Worker visa. At the time an offer of appointment is made, you will be asked to demonstrate that you fulfil the criteria in respect of qualification and competency in English. For research and academic posts, we will consider eligibility under the Global Talent visa. Please do not hesitate to contact Lucy Redmayne, HR Adviser (e-mail: lucy.redmayne@abdn.ac.uk) for further information.

**AT A GLANCE**

**SALARY:**
Grade 6
£35,333 - £42,155 per annum

**HOURS OF WORK:**
Full-time: 37.5 hours per week

**CONTRACT TYPE:**
Funding limited – 3 years contract

**LOCATION:**
Newburgh, Aberdeenshire
Substantive
# PERSON SPECIFICATION

<table>
<thead>
<tr>
<th></th>
<th>ESSENTIAL</th>
<th>DESIRABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education/Qualifications</strong></td>
<td>- Academic, technical and professional education and training</td>
<td></td>
</tr>
<tr>
<td>Academic, technical and professional education and training</td>
<td>- PhD (or close to completion) in a suitable subject e.g.: engineering, physics, naval architecture, or computing science.</td>
<td>- Knowledge of the renewables and/or wider energy sectors.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Evidence of experience with multi-body physics simulation, dynamical modelling.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Experience in numerical modelling/experimental studies (fluid-structure interactions, fluid dynamics).</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Experience in design (CAD).</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Evidence of successful project management.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Evidence of budget control.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Understanding of renewables sector or decommissioning.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Experience with multi-body physics simulation.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- Evidence of ability to contribute to the formation of projects and the writing of proposals.</td>
</tr>
<tr>
<td>Work and Other relevant experience (including training)</td>
<td>e.g. Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>- History of working in teams and alone to resolve issues and deliver projects and work packages.</td>
</tr>
<tr>
<td>Other</td>
<td>e.g. special circumstances (if any) appropriate to the role such as unsocial hours, travelling, Gaelic language requirements etc.</td>
<td>- Current driving license.</td>
</tr>
<tr>
<td>Other</td>
<td>e.g. special circumstances (if any) appropriate to the role such as unsocial hours, travelling, Gaelic language requirements etc.</td>
<td>- The post holder may on occasion be required to work and travel outside normal working hours.</td>
</tr>
</tbody>
</table>
UNIVERSITY OF ABERDEEN
open to all and dedicated to the pursuit of truth in the service of others

The University of Aberdeen is a broad based, research intensive University, and we put students at the centre of everything we do. Outstanding in a wide range of discipline areas, Aberdeen is credited for its international reach and commercialisation of research ideas into spin out companies. The University has over 16,000 matriculated students and 3,600 staff representing 130 nationalities. We encourage bold thinking, creativity and innovation, and we nurture ambition with many opportunities for professional and personal development in an inclusive learning environment which challenges and inspires.

CURRENT CONTEXT

The University continues to build on its achievements. Underpinning our high performance and significant growth is a £100m investment in Aberdeen’s estate which will include the completion of a new Science Teaching Hub, the regeneration of the historic King’s Quarter and a new Business School building. The University has also invested in 50 new academic posts and in 2020 launched five interdisciplinary, cross-institution Research Centres that will catalyse world-leading research in our areas of strength. Our five Interdisciplinary Challenges are: Energy Transition; Social Inclusion and Cultural Diversity; Environment and Biodiversity; Data and Artificial Intelligence; and Health, Nutrition and Wellbeing.

ABERDEEN 2040

On our 525th anniversary as a University we launched Aberdeen 2040, our strategic vision for the next 20 years. Four strategic themes will shape our learning and discovery, underlined by 20 commitments we have made against each theme:

- **Inclusive**
  We welcome students, staff and partners from all backgrounds, organisations and communities. We value diversity.

- **Interdisciplinary**
  We innovate in education and research by generating, sharing and applying new kinds of knowledge. We learn together.

- **International**
  We connect with others and extend our networks and partnerships around the world. We think across borders.

- **Sustainable**
  We understand and nurture our environment, and take care of our resources, including our people and finances. We work responsibly.
OUR EDUCATION

Recognised as the Scottish University of the Year in the Times and Sunday Times Good University Guide 2019, we remain true to our roots as an ancient Scottish university, combining breadth and depth in our degree programmes and drawing strength from the quality of our research. Our flexible curriculum encourages students to grow as independent learners and therefore to thrive as graduates in the diverse workplaces of the future. Our education is open to all and we are setting ambitious targets to further widen access.

OUR RESEARCH

Researchers at the University of Aberdeen have been at the forefront of innovation and excellence throughout the centuries, generating insights in medicine, science, engineering, law, social sciences, arts and humanities. This research has contributed to five Nobel prizes as well as other awards such as the Queen’s Anniversary prize. Our research is intellectually rigorous working within our established areas of excellence as well as new methods of enquiry. We will continue to generate new knowledge addressing economic and societal issues with ambition and imagination, ensuring that it is globally excellent and locally relevant.

INTERNATIONAL

Aberdeen is increasing its international presence, positioning the University as a global organisation and building on established global partnerships in e.g. Qatar, China, North America, Europe. We feature in the top 50 institutions worldwide for international students1 and have been named 31st in the world for International Outlook2. The University of Aberdeen is proud to be the first UK University to deliver programmes on a dedicated campus in Qatar in partnership with AFG College. Phase 1 has successfully recruited over 600 students and Phase 2 will see the creation of a substantially larger campus, with capacity for at least 5,000 students and research activity. For further information on our Qatar campus visit www.abdn.ac.uk/qatar.

IMPACT

Our dedication to building a sustainable future is reflected in the Times Higher Education Impact Rankings 2021 where we were ranked in the top 60 Universities worldwide for positive impact on society. In 2020 the University signed the United Nations Sustainable Development Goals accord, solidifying our commitment to developing the world in a sustainable way. In 2021 we were listed in the global Top 50 for 6 of these goals and in the UK Top 20 for all 173.

---

1 QS World University Rankings 2022
2 Times Higher Education World University Rankings 2022
3 Times Higher Education Impact Rankings 2021
Net Zero Technology Centre (previously OGTC) was established in October 2016 with £180 million funding as part of the Aberdeen City Region Deal.

Its goal is to support the oil and gas industry to develop and deploy technology to accelerate the transition to an affordable net zero North Sea. It co-invests with industry to diversify the supply chain and create a technology led, globally competitive supply chain for our future net zero energy system. It is committed to a culture of innovation and helping to attract the next generation of engineers and scientists to our industry.

Net Zero Technology Centre invests in partnership with industry, local and national government, and academia to address major energy challenges, working across a range of sectors from renewables to manufacturing. People and technical innovation are at the heart of what we do.

Net Zero Technology Centre was created as part of the Aberdeen City Region Deal, a long-term improvement programme to enhance growth, competitiveness, connectivity, infrastructure, housing, and employment into an already successful regional economy. It has a strong track record of delivery and to date has evaluated more than 1,300 technologies, invested in more than 250 projects, delivered more than 64 field trials, grown more than 25 new companies, and delivered more than 20 commercialised technologies.

The Deal is supported by the Scottish Government, UK Government, Aberdeen City Council, Aberdeenshire Council and Opportunity North East. You can find out more about the Aberdeen City Region Deal on the Delivering for Scotland website.”
ABERDEEN AND ABERDEENSHIRE

Scotland’s third largest city, Aberdeen sits on the coast between the mountains of Aberdeenshire and the stunning North Sea coastline. The Aberdeen City region is a can-do place that is actively investing, at scale, in its future.

Renowned as a Global Energy Hub, Aberdeen is a vibrant, entrepreneurial region, home to a unique mix of business opportunities and specialist skills across various sectors including energy, technology, life sciences and food & drink. More than 20% of Scotland’s top businesses are located in this region which is taking great strides to ensure that it continues to compete on a world stage. Investments of more than £10 billion of public and private infrastructure is due to be delivered before 2030, marking an exciting time to be part of a genuine world-class location.

Built from sparkling local granite Aberdeen has earned the name of the Silver City. As the energy capital of Europe, Aberdeen nevertheless retains its old-fashioned charm and character making it an attractive place in which to live, work and study. Due to its global business and international energy industry credentials, Aberdeen is well served by local and national transport infrastructure with excellent rail networks that run both North and South of Scotland and the rest of the UK. It also acts as an international travel hub. Flying time to London is just over one hour with regular daily flights and serves international travel to European centres such as Amsterdam (Schiphol) and Paris (Charles de-Gaulle) as well as flights to other European destinations.

The City and the surrounding countryside provide a variety of urban, seaside and country attractions. Aberdeen has first class amenities including His Majesty’s Theatre, Music Hall, Art Gallery, the P&J Arena, Museums, and Beach Leisure Centre. The City is framed by its accessible beach front which is within a short walk of the city centre and there are an array of activities available across the region such as hill walking; mountaineering; sailing; surfing; salmon, trout and sea fishing; golf; sailing; surfing and windsurfing. The surrounding countryside, known as Aberdeenshire, is also one of Scotland’s most appealing regions. Royal Deeside and the Cairngorms National Park are within easy access of the city, and there are a variety of towns and villages scattered along the coastline.

Aberdeen has ranked consistently highly in nationally recognised quality of life surveys, and was recently named the happiest city in the UK to live and work in4.

To find our more visit www.visitabdn.com

EQUALITY AND DIVERSITY

The University values a diverse working environment and recognises the benefits this can bring. The University is keen to receive applications from individuals from across all of the equality protected characteristics (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation).

The University supports opportunities for flexible working for a range of reasons and has policies in place to facilitate this. The policies can be found at https://www.abdn.ac.uk/staffnet/working-here/flexible-working--5607.php.

The University’s commitment to gender equality has been recognised through the achievement of an Athena SWAN Bronze award at an institutional level and across all its subject areas. The University is also a Stonewall Diversity Champion to further LGBT+ equality.

The University is signed up to Advance HE’s Race Equality Charter, affirming the University’s commitment to the charter’s aim of improving the representation, progression and success of minority ethnic staff and students within higher education.

Candidates who are British Sign Language (BSL) users can contact us directly by using contact SCOTLAND-BSL.

The University is delighted to be accredited as a Disability Confident employer and strives to ensure that disabled staff and students have the opportunity to work and study in an inclusive, accessible and supportive environment. www.abdn.ac.uk/staffnet/governance/equality-and-diversity-277

4 Shawbrook Bank Happiest Cities Index 2021
HOW TO APPLY

Online application forms are available at www.abdn.ac.uk/jobs

Please note that the Hiring Manager has requested that all candidates kindly provide a cover letter.

The closing date for receipt of applications is **17 November 2022**

Should you wish to make an informal enquiry please contact:

Dr Marcin Kapitaniak (+44 (0) 7975914828 or marcin.kapitaniak@abdn.ac.uk

Please do **not** send application forms or CVs to Dr Kapitaniak.

Please quote reference number **ENG201R** on all correspondence.