

Have you got the energy for success? A Guide to Careers in Energy



SUSTAINABLE ENERGY IRELAND

Sustainable Energy Ireland (SEI) was set up by the government in 2002 as Ireland's national energy agency with a mission to promote and assist the development of sustainable energy. SEI's activities can be divided into two main areas:

- **Energy Use** - Energy is vital to how we live our daily lives but most of us don't use energy as efficiently as we could. By assisting those who use energy (mainly industry, businesses and householders), to be more energy efficient, SEI can help to reduce the amount of energy we use overall.
- **Renewable Energy** - Energy that is generated from renewable sources such as wind and solar power is clean and doesn't produce harmful greenhouse gases. By promoting the development and wider use of renewable energy in Ireland SEI can help to further benefit the environment, in particular reducing the threat of climate change.

SEI is also involved in other activities such as stimulating research and development, advising on energy policy and producing energy statistics.

THE ENERGY INSTITUTE

The Energy Institute (EI) is the leading chartered professional membership body for those working in energy. Providing an independent focal point and a powerful voice to engage business and industry, government, academia and the public, the EI promotes the safe, environmentally responsible and efficient supply and use of energy in all its forms and applications.

Offering learning and networking opportunities to support career development, the EI provides a home to all those working in energy, and a scientific and technical reservoir of knowledge for industry.

INTRODUCTION

If you're thinking about career directions and you're looking for a developing sector that offers opportunities to work with emerging technologies and play a part in tackling some of the biggest challenges facing our economy and our environment then read on...

Energy, we all need it, we all use it everyday. We depend on a secure supply of energy to keep our homes comfortable, vital services like hospitals functioning, and people and goods moving from place to place. At present we rely heavily on imported, non-renewable fuels like coal and oil to meet our energy needs. There is a finite supply of fossil fuels and political change and market forces can influence availability. Subsequently, energy efficiency and finding ways to use alternative sources of energy effectively are becoming increasingly important.

By researching and developing renewable energy resources like wind and wave power to generate electricity and using technology to harness solar power we can reduce our dependence on diminishing fossil fuels. Biofuels, hydrogen cell technology and hybrid engines have all been developed as a result of the need to find cleaner, more efficient ways to power cars and other vehicles.

Climate change is an issue that is rarely out of the news and represents the most pressing environmental impact of our energy use. Cleaner and more energy efficient technologies that do not produce greenhouse gases like carbon dioxide and allow us to use less energy to achieve the same results are increasingly in demand. Soon everything from domestic appliances like washing machines to buildings and cars will carry an energy label, which rates how efficiently they use energy.

The challenge to find more efficient and cleaner ways to meet our energy needs presents career opportunities and this booklet outlines a range of diverse, real-life case studies of people working in the sector. So why not read on and ask yourself ...

DO YOU HAVE
THE ENERGY?

MANAGING DIRECTOR,

ENERGY MATTERS

RONAN ROGERS

Favourite subjects at school

Physics and History.

Qualifications

- Degree in Mechanical Engineering – National University of Ireland, Galway.
- Masters Degree in Engineering Science (Materials Science) – National University of Ireland, Galway.
- Diploma in Applied Project Management – University College Cork.

Work experience

As part of my Masters I completed two research contracts developing protective sporting equipment from new materials and a performance standard for the GAA. I went on to work as the lead Research and Development Engineer in a company developing new processes for working with innovative polymer materials including components for the Jordan Formula 1 team and protective headgear for a US based ice hockey equipment suppliers.

I also worked at a large US multi-national that develops and manufactures medical devices, which treat patients with coronary and other vascular diseases. I was hired as a junior R&D engineer and progressed to managing large teams working on a range of research and development projects in various locations around the world. The job was exciting and provided me with the opportunity for extensive global travel.

Current job title and description

Managing Director, Energy Matters.

I established Energy Matters in September 2006 and the business currently has a staff of four engineers. Energy Matters provide advice on designing energy efficient buildings. We officially certify the energy efficiency of buildings when they are



complete, an A-rated building is the most efficient. By using thermal imaging and testing for air tightness, we can assess the performance of buildings in terms of energy efficiency. We designed, tested and certified the first houses in Ireland that received an A-rating for energy efficiency.

My responsibilities include the overall management of the business, business development, talent management and project management.

Why work in the energy sector?

- I'm interested in environmental issues and how to address them.
- My formal education in Mechanical Engineering and Materials Science, combined with my professional experience, was ideally suited to the disciplines required to set up a building energy management consultancy.
- I was always interested in setting up my own business and felt there was potential in the area of energy conservation.

Hobbies and interests

Sports, including Gaelic football, soccer, running, cycling, golf and swimming. Travelling and experiencing new cultures.

ENVIRONMENTAL HEALTH & SAFETY MANAGER ABBOTT IRELAND

CLAIRE TREACY

Favourite subjects at school

Geography, Science and Art.

Qualifications

- Degree in Occupational Safety & Health – Sligo Institute of Technology.
- Masters Degree in Environmental Health & Safety Management – Sligo Institute of Technology.
- Postgraduate qualification in Project Management – University of Limerick.

Work Experience

I worked in the food industry and in the medical devices industry as an Environmental Health and Safety Coordinator and as an Environmental Health and Safety Engineer. I also lectured part-time with Sligo Institute of Technology.

Current job title and description

Environmental Health and Safety Manager, Abbott Ireland.

I work for Abbott Ireland Pharmaceutical Operations, based in Sligo. The company manufactures active pharmaceutical ingredients (API). The facility is a potent drug facility and so on a daily basis I deal with various aspects of environmental health and safety associated with pharmaceutical operations. I am responsible for the management of environmental health and safety at the facility. This combines research, development and implementation of new systems and procedures to continually ensure effective environmental health and safety management.



Why work in the energy sector?

- Energy is a key aspect of environmental management and so through my role I am actively involved in energy management.
- The company is working to gain the IS 393 standard, which involves implementation of an energy management system and I am co-project managing this process.

Hobbies and interests

Shopping, socialising and relaxing.

DIRECTOR OF RESEARCH FOR COMHAR, SUSTAINABLE DEVELOPMENT COUNCIL

LISA RYAN



Favourite subjects at school

Maths, Irish, Sports and German.

Qualifications

- Degree in Chemical Engineering – University College Dublin.
- Masters Degree in Science (Chemical Engineering) – Colorado School of Mines (Colorado USA).
- Diploma in Economics – University College Dublin.
- Masters Degree in Economics – University College Dublin.
- PhD in Environmental Economics – University College Dublin.

Work Experience

I worked as a regulations analyst in the engine division of Volkswagen, Germany. I kept abreast of new regulations in the EU and Germany and informed the company of new developments and trends. I represented the company in negotiations with regulators on emissions standards and procedures. I worked at Sustainable Energy Ireland where I carried out research on strategies to reduce greenhouse gas emissions from transport.

Current job title and description

Director of Research for Comhar, Sustainable Development Council.

Comhar Sustainable Development Council (SDC) is the national forum for stakeholder consultation and dialogue on all issues relating to sustainable development. Comhar SDC works in partnership to encourage sustainable development across the Irish economy and society, and provides policy advice and recommendations to the Government.

I provide research support for the Government in developing policies across a range of themes - climate change, transport, energy, biodiversity and sustainable development indicators. That means reading government consultation papers and international literature; attending meetings with people in Government, our Council, and wider society; organising seminars on current topics; carrying out analysis or commissioning pieces of research and writing recommendations.

Why work in the energy sector?

- I am interested in sustainable development across all sectors.
- The energy sector is a very interesting area as it increasingly faces many challenges – climate change, security of energy supply.
- It is also an area of great opportunity as new technologies become more available in renewable energy and energy efficiency.

Hobbies and interests

Reading, volleyball, running, hiking and music.

SENIOR PROFESSIONAL

ENGINEERING SPECIALIST,

EIRGRID

JODY DILLON



Favourite subjects at school

Technical Drawing, Maths, Engineering and Physics.

Qualifications

- Degree in Electronic Engineering – University College Dublin.
- Masters Degree in Engineering Science (by research) – University College Dublin.

Work experience

I carried out some post-graduate research in the Department of Electrical and Electronic Engineering in University College Dublin. This research involved looking at different ways to schedule electricity generators in the most economic way possible.

Current job title and description

Senior Professional Engineering Specialist, EirGrid.

I work at EirGrid, that's the electricity Transmission System Operator for the Republic of Ireland with responsibility for planning, development and operation of the electricity transmission system. This was previously the responsibility of a business unit of ESB called ESB National Grid.

I joined ESB National Grid in November 1998 as an engineer in the Transmission Planning department, looking into the future to see what additional transmission lines would be required to accommodate future levels of electricity usage. Subsequent roles included a year in Information Services working on in-house software projects and four years in the electricity markets area, carrying out mathematical modelling to see what impact the planned market would have on electricity prices and generator operation.

At present Ireland uses mostly non-renewable energy resources like gas and coal to generate the electricity we use in our homes and businesses. I lead the EirGrid Renewables integration group, a group of experts from within EirGrid responsible for

co-ordinating the integration of renewable energy resources like wind energy to provide electricity. I undertake studies to examine the impact of variable generation on the electricity system and then develop ways of operating the power system with increased levels of generation of electricity from renewable energy resources.

I am also involved in the European Wind Integration Study, a major European study to investigate the impacts of wind generation on the European electricity system. Through the study the member states of the EU hope to address the issues involved together.

Why work in the energy sector?

- As part of my final year project in college I studied algorithms for generator scheduling, and this introduced me to the whole area of energy.
- The Maths behind optimisation theory applied to power systems was very challenging and interesting.

Hobbies and interests

Web design, soccer and History.

BUSINESS DEVELOPMENT ENGINEER, CALOR GAS



CIARA TOOMEY



As a progressive and environmentally conscious company Calor has a strong commitment to helping in the reduction of CO₂ emissions to combat climate change and our strategy is strongly focused on promoting the responsible and efficient use of energy. Our strategy going forward will reflect our responsibility as an energy supplier and I am using my experience and knowledge to contribute to this process. I work with equipment suppliers and distributors to help customers to reduce their carbon footprint.

I provide technical support to both new and existing customers, consultants, contractors and the sales and marketing team. I design, cost and supervise the installation of gas supply systems and gas burning applications (e.g. water and space heating, process and catering applications) at customer premises and I carry out energy audits. I also need to keep abreast of technical developments, regulations, standards and codes of practice relevant to the energy industry and advise people of changes as appropriate.

Why work in the energy sector?

- I saw that energy efficiency in the buildings sector was to become a key driver for the future in the built environment in Ireland.
- By working in SEI within the Built Environment team I developed my skills and I was encouraged to undertake a Masters Degree in Energy Management.
- In my current role I have the opportunity to put the theoretical and practical knowledge of my previous roles into practice. I hope to further progress my career in the energy sector and envisage an exciting time going forward.

Hobbies and Interests

Travelling, reading, walking, yoga and being from Armagh I have a keen interest in Gaelic football!

Favourite subjects at school

I always enjoyed problem solving and therefore really enjoyed Maths. I also enjoyed the science subjects, in particular Physics.

Qualifications

- Degree in Civil Engineering – Queen's University of Belfast.
- Masters Degree in Energy Management by distance learning – University of Ulster.

Work experience

After college I moved to Dublin to work in a building services consultancy as a Project Engineer responsible for the design and project delivery of a wide range of public and commercial projects incorporating all mechanical and electrical works.

I also worked at Sustainable Energy Ireland in the Public Sector programme. My main role was to provide technical advice and assistance in assessing funding applications for developers to build 'model' buildings that incorporate holistic solutions, integrating insulation, double glazing, using the building orientation to capture 'free' energy from the sun and using renewable technologies.

Current job title and description

Business Development Engineer, Calor Gas.

The core business at Calor Gas is the importation, marketing and distribution of Liquefied Petroleum Gas (LPG) in both bulk and cylinder applications.

CHIEF EXECUTIVE OFFICER, WAVEBOB

ANDREW PARISH

Favourite subjects at school

Chemistry, Physics and Biology.

Qualifications

- Degree in Chemistry and Mathematics – NUI Maynooth.
- Diploma in Business Strategy – Irish Management Institute.
- Diploma in Management – Henley Management College.
- I am currently working towards a Masters Degree in Business Administration – Henley Management College.

Work Experience

I've worked for a range of organisations at this stage. I started as a chemist in the Environmental Section of Laois County Council, and then moved on to an industrial water treatment company. I've worked in the national energy agency, Sustainable Energy Ireland, where I was involved with large industries in agreeing ways of reducing their energy use as part of the Government's strategy to tackle climate change.

Current job title and description

Chief Executive Officer, Wavebob.

Wavebob is an Irish company that works on developing a unique Wave Energy Converter called Wavebob, which harnesses the immense power of the ocean to produce clean, renewable energy. At Wavebob we develop prototype devices and test them in the ocean, on a small scale. We are now on our second model at quarter scale.

I am responsible for sourcing funding, managing a team of engineers to develop ways to harness energy from the ocean and working with Universities and research partners involved in solving problems with wave technology. The best days at work are sitting in a boat off the Galway coast, watching the ocean energy devices we've developed in action.

The waves off Ireland's west coast have the potential to provide us with all of our electricity for the entire Island in a clean, free and constant way if we can harness it effectively. It's exciting to think that we could be world leaders in ocean energy.

Why work in the energy sector?

- I saw an opportunity to do something positive for the environment and to tackle issues like climate change.
- I enjoy problem solving and finding new ways to do things.
- I have always loved gadgets!

Hobbies and interests

Music, photography and motor sport.



ENGINEERING MANAGER

GLANBIA PLC

NIALL WELDON

Favourite subjects at school

Maths and Physics, I always preferred to work things out rather than learn them off (Although I would have preferred to be doing PE!).

Qualifications

- Degree in Chemical and Process Engineering - Cork Institute of Technology.

I was invited to do several Masters Degrees and a doctorate but declined in favour of gaining work experience.

Work experience

I had a string of part time jobs to fund my way through college and then I spent a year, as part of my degree course, working in the safety department at Pfizer. I gained valuable experience in the pharmaceutical industry and since graduating I have worked for an E-Learning company developing safety programs and for a valve company as a project engineer.

Current job title and description

Engineering Manager, Glanbia plc.

Glanbia plc is a leading international dairy foods and nutritional ingredients group, with headquarters in Ireland and operations worldwide. I joined Glanbia as a Graduate Engineer to help with the development of an energy management system. This eventually helped Glanbia become the first Irish owned company to achieve the IS 393 accreditation by implementing an Energy Management System that establishes a systematic approach for improving energy performance continuously. I now work at the plant in Virginia, Cavan as Engineering Manager. It's a senior position and I'm the envy of all of my classmates (I think some of them still believe I'm making it up!).



The job is so diverse and varied that every day is a new challenge. I manage maintenance so the plant runs at maximum efficiency and aim for continuous improvement. I prepare for new developments at the plant by researching and compiling all of the necessary engineering information and manage teams to make sure projects are completed on time and within budget.

Why work in the energy sector?

- I always had a keen interest in energy and energy conservation.
- I was always the one in the house turning off lights and getting my father to buy energy saving bulbs.
- When I was given the opportunity to save energy on a larger scale in the workplace, I grasped it with both hands.

Hobbies and interests

All kinds of sports including rugby, soccer, golf, triathlons, hurling and football.

Travelling, reading, movies and heading out with friends.

USEFUL WEBSITES

Discover Science and Engineering www.science.ie

This programme aims to increase interest in science, technology, innovation and engineering among students, teachers and members of the public. The website has a section on careers with a series of leaflets for download.

QualifaX www.qualifax.ie

This is the Irish national database of all third level and further education courses. QualifaX is the 'one stop shop' for information on courses for Guidance Counsellors, students and adults. It offers information on courses searchable by keyword, location and level of award.

STEPS to Engineering – Engineers Ireland www.steps.ie

The STEPS website provides students with an insight into the engineering industry, one of the largest employment sectors in Ireland. There are a series of Engineering Career Sheets that explore all areas of the sector including civil, aeronautical, biomedical, mechanical and software engineering and are of particular relevance to Guidance Counsellors, teachers, post primary students and parents. The site also has a magazine called Engineering Life with profiles of individuals in the sector and Engineering as a career for download.

Sustainable Energy Ireland and the Energy Institute have produced this booklet to provide second level students with information on careers in the energy sector.

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SEI is funded by the Irish Government under the National Development Plan 2007-2013 with programmes part financed by the European Union.