



CleanTech
IRELAND

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Introduction

The global drive to innovatively and competitively manage climate change, grow sustainably, generate clean energy and manage scarce natural resources is creating rapid growth in the demand for CleanTech products and services worldwide. Recent green economic stimulus packages across the world's major economies and green public procurement targets within the EU have stimulated further growth. Venture capital investment in the CleanTech sector worldwide continues to grow apace, and CleanTech is the third largest recipient of VC in the US market.

Ireland is uniquely positioned to avail of the opportunities that global markets present; with excellent natural resources in the form of renewable energy sources (wind, wave, tidal); well developed research infrastructure; and a solid skills base. At present, CleanTech is among Ireland's fastest growing sectors, with Ireland's 240 CleanTech companies employing over 5,900 people.

Enterprise Ireland is committed to continuing to invest in developing the capabilities of the domestic CleanTech sector with the aim of becoming a world leader in several niche sub-sectors, within the next five years.

Where Our Capabilities Meet Global Opportunities

The Irish CleanTech sector directly comprises companies in Energy Efficiency, Renewable Energy, Waste Management, BioEnergy Water and Services sectors. It also encompasses companies from a range of other diverse industries including engineering, software, building management and electronics.

Enterprise Ireland's strategy for the CleanTech sector is designed to enable Irish CleanTech companies at various stages of growth and development to realise their potential for export growth. Enterprise Ireland has identified the following areas as representing strong growth opportunities for the Irish CleanTech sector in the short, medium and longer term.

- Energy Efficiency, Water Treatment/ Management, BioEnergy and CleanTech Services companies are positioned to grow very strongly in the short term (1 to 3 year horizon)
- Waste Management and Renewables will experience stronger growth in the medium term (3 to 5 year horizon)
- In the longer term (beyond a 5 year horizon) Renewable Energy companies in the marine, offshore wind and biomass

sub-sectors are likely to deliver significant returns. This reflects the larger investments and longer project timeframes involved.

Ireland

Because of its emergence as an entrepreneurial and dynamic global economy, Ireland has drawn international recognition as a compelling business proposition.

Irish export levels are over seven times greater per capita than in the USA, and with an average GDP growth rate of 6% from 1995 to 2006, Ireland has consistently topped OECD economic growth tables.

The Irish corporation tax rate on trading income is 12.5%, the lowest rate in the European Union. Ireland also provides a tax credit of 20% of capital and revenue spend on qualifying R&D.

The latest National Development Plan commits over €20 billion investment to enterprise, science and innovation programmes, and a young, vibrant and educated workforce with a high proportion of advanced degree holders fuels Ireland's strong, knowledge-based economy.



Enterprise Ireland

Enterprise Ireland, the trade and technology board of the Irish Government, is one of the main catalysts for Ireland's continuing strong entrepreneurship and innovation performance.

Having invested over €167million in Irish companies in 2009 we can demonstrate a solid track record of developing businesses with high growth potential and improving our clients' competitive advantage in world markets.

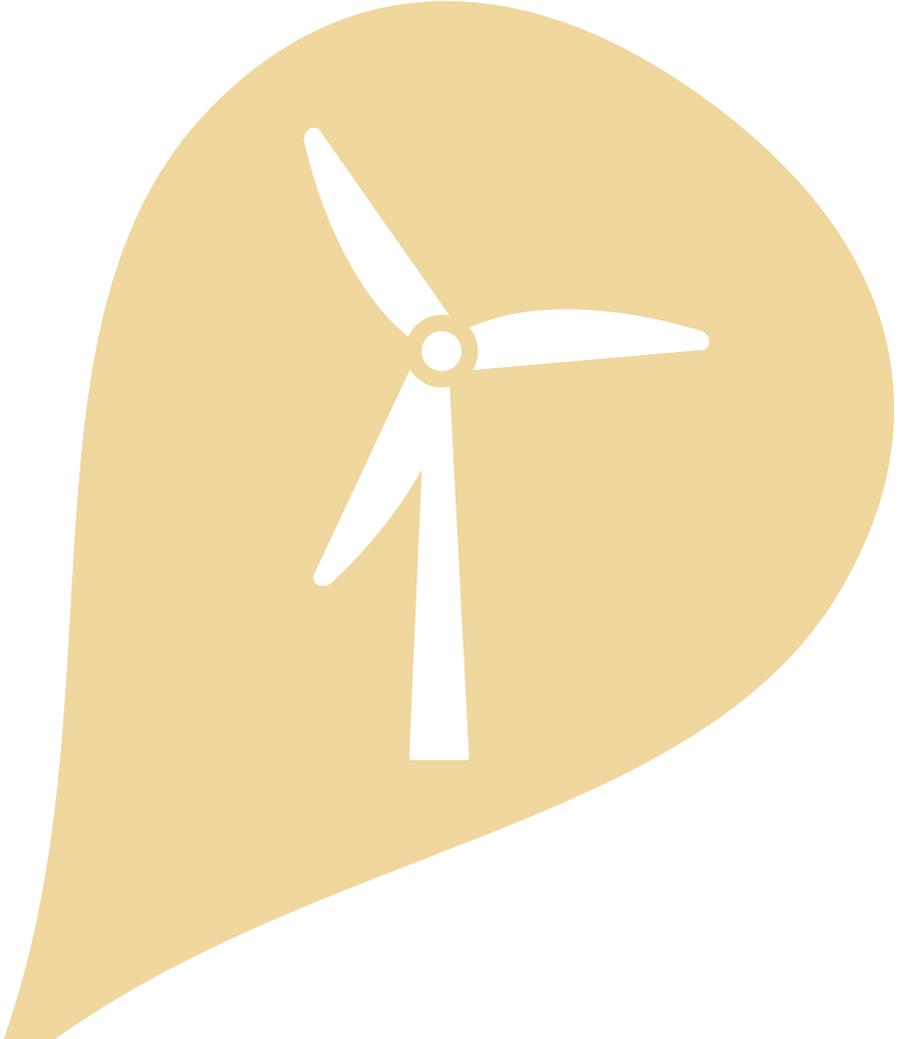
As a global organisation, we have developed a vibrant network of contacts, detailed local knowledge and first-class business relationships with industry leaders all over the world. Our organisation can provide you with unique access to over 4,000 Irish companies.

With 13 offices in Ireland and a network of over 30 international offices reaching into more than 60 countries, we offer world-class expertise and support, including a range of professional services in areas such as international sales, venture capital, technology benchmarking, human resource development and sector-specific knowledge.

Further information is available at
www.enterprise-ireland.com

See also
www.sei.ie
www.idaireland.ie
www.sfi.ie

Renewable Energy



The term Renewable Energy (RE) relates to sources of energy such as biomass, biogas, sunlight, wind, rain, ocean (wave/ tidal), hydro and geothermal. Most importantly, these are all resources that are continuously replenished by natural processes.

Associated technologies include thermal and photovoltaic solar panel, wind farms (offshore/ onshore), wave and tidal energy devices, hydro-electricity stations, biomass (boilers, gasifiers and harvesting equipment) and biofuel production processes. These technologies can be used for the production of electricity or heat and in transportation.

4Front Energy and Environmental

AER Ltd

APHaslam Ltd

Automsoft International Ltd

Bedminster International

Biomass Heating Solutions Ltd

C&F Green Energy

CES Energy Ltd

Cyan Technologies Ltd

Cynar PLC

Delap & Waller EcoCo

FLI Energy

Green Biofuels Ireland Ltd

Greyhound Recycling & Recovery Ltd

Houston Precision Engineering

Imperative Energy Ltd

Jennings O'Donovan & Partners

John Sisk & Son Ltd

Kedco PLC

Lotusworks

Mainstream Renewable Power

Nines Engineering

OceanEnergy Ltd

Olimotion Ireland Ltd

OpenCarb Solutions Ltd

OpenHydro

OpenOils LP

Phive

Renetech Ltd

Renewable Energy Systems (RES) Ltd

Rosslare Europort

ServusNet Informatics Ltd

Surface Power

Technology From Ideas (TFI) Ltd

TechWorks Marine Ltd

Wavebob Ltd

Wind Energy Direct Ltd

4Front Energy and Environmental

Value Proposition

4Front Energy and Environmental has established a full services design, build, finance and operate (DBFO) model integrating renewable and sustainable technologies. 4Front Energy and Environmental can engage with clients, and their M&E consultants, both commercial and industrial at planning stage, and bring the project through all stages to operation. With a facilities management heritage, the company has a focus on maintaining client critical assets over the long-term and in being its clients' energy and facilities partner.

Products & Services

Demand and Supply side energy management, Energy auditing and advisory, Energy systems design with focus on renewable technologies (CHP, biomass boilers, solar, thermal storage); Power supply agreements; Energy management and monitoring product and systems; Mechanical services; electrical services; building management systems; 24/7 help desk; soft services.

Key Customers

Beauchamps Solicitors, PNC Bank, Office Depot, Irish Nationwide, Canada Life, Bennett Developments, Irish Rail, An Post.

Standards & Certifications

IS9001.2000; IS14001.2004;

We hold memberships in the following Institutes:

- > Chartered Institute of Building Services Engineers
- > Institute of Engineers Ireland
- > Irish Property and Facility Managers Association
- > Sustainable Energy Association
- > Institute of Refrigeration Ireland

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AER Ltd

Value Proposition

AER is a leading alternative energy company based in Dublin with three key divisions. AER's bioenergy division is a leading supplier of biofuels to the Irish market with new growth in international markets. AER's research and development team is creating and licensing cutting edge intellectual property in next generation biofuels. AER's enterprise division works with international energy companies and government agencies, finding and executing new opportunities across all alternative energy and energy efficiency areas.

Products & Services

- > Liquid biofuels production and supply
- > Intellectual property licensing
- > Technology and economic feasibility assessments
- > Alternative energy and energy efficiency consulting
- > Project management

Key Customers

International and national energy companies

Standards & Certifications

Fuels comply with EN 15376 and ASTM standards

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APHaslam Ltd

Value Proposition

APHaslam Ltd and Solarhouse are part of the Haslam Group which has operated in the electrical business for more than 60 years. APHaslam supply industrial electrical equipment including renewable energy products for all sectors and also market products through electrical wholesalers, contractors, consultants/specifiers and energy suppliers.

Products & Services

- > Supply and fit solar thermal systems for domestic and commercial applications
- > Wind turbine control and installation systems – Vertical Axis Wind Turbines
- > DC – AC Inverters for Solar Applications – DC switch disconnectors and circuit protection devices
- > Energy Control Panels and ATEX Certified Hazardous Area Application Products
- > Heat Trace Protection materials and On-Site Audit services

Key Customers

Industrial sectors including Pharmaceutical, Chemical and Petro-chemical, Power Generation and Utilities.

Standards & Certifications

ISO 9001

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Automsoft International Ltd

Energy – Value Proposition

Automsoft's technology manages the collection, storage and visualisation of data in all areas of energy from generation through transmission and distribution to consumption. The value proposition to utilities for generation is to have all data associated with management systems, control systems and monitoring systems for the power generation activity stored and available online for analysis, prediction and optimisation. For transmission and distribution the value proposition is to collect continuous data on the network and its operations and maximise the operation of the T&D asset and minimise downtime. In consumption and smart grid, Automsoft offers the ability to securely manage massive amounts of data (metering data, usage data, device information) on standard hardware with no degradation in performance at low cost. Theoretical limits of Automsoft data management are in the exabyte range which effectively means an infinite number of buildings and areas can have data from metering systems collected at any time intervals.

Automsoft's technology enables

- > Increased efficiency of power generation activity
- > Remote visualisation of all systems
- > Data management for distributed generation such as wind and solar
- > Optimised asset management
- > Remote turbine management
- > Smart Grid data management
- > Building energy management

Products and services

Automsoft has two product sets one of which is rapidHistorian which collects and stores data. It interfaces with every device, sensor and control system to collect and store time series continuous data, alarm and condition data and binary data (video, documents etc.). The technology incorporates a range of patents which enable performance beyond any product on the market. Automsoft also offers nuaViews, an independent web-based business intelligence and application development environment which enables the development of shrink wrapped applications for data visualisation as well as user defined analysis, dashboards and business mashups. nuaViews incorporates Automsoft's Discovery technology which enables the automatic identification of data sources both from Automsoft and non-Automsoft databases such as Oracle, data historians, SQL Server and incorporation for those data sources into any analysis and reporting.

Key Customers

BP, Exxon Mobile, Thames Water, AES, Pfizer, Genzyme, Baxter

Standards & Certifications

ISO 9001:2000 accreditation and winner of ISA Technical Innovation Award 2003

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Bedminster International

Value Proposition

The Bedminster BioEnergy company offers an economically viable and environmentally friendly solution in response to the world's growing energy crisis, where significant market and regulatory forces have created a substantial and increasing demand for renewable energy. The Bedminster BioEnergy process uses recovered high quality biomass sourced from carbon-rich waste materials, which are currently being landfilled, to provide a valuable source of renewable energy.

Products & Services

The unique Bedminster innovation integrates two well-proven technologies to produce renewable energy

Stage 1: Unlocking the vast carbon-rich waste sector as a source of high quality biomass feedstock, whilst diverting over 95% of biodegradable waste from landfill.

Stage 2: Converting this biomass feedstock into renewable energy through pyrolysis, with extremely low emissions and a negative carbon footprint.

The Bedminster BioEnergy technology is a combination of propriety and standard technologies that are:

- > Proven to be both functionally and economically robust and
- > Acknowledged as environmentally friendly and socially acceptable.

The Bedminster BioEnergy product is a valuable continuous "base load" source of renewable energy that:

- > Commands an advantage in the marketplace over other forms of renewable energy such as wind, solar and energy crops that can fluctuate unfavourably.
- > As a CO₂ - Neutral product, qualifies for Renewable Energy Certificates and Carbon Credits.

Key Customers

Energy Companies, Municipalities/ Local Authorities, Waste Management Companies

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Biomass Heating Solutions Ltd

Value Proposition

Biomass Heating Solutions Limited, BHSL, is a renewable energy company that uses small scale CHP technology to convert low grade residues and agricultural by-products to heat and power. The company has successfully miniaturised fluidised bed technology that is used in large power plants and provides a fully managed solution to customers that generate large volumes of residue on their sites. The solution is unique in that the technology uses materials that have a high moisture content, high ash volumes and low calorific value. The company is licensed to carry out these activities on site and uses innovative software solutions to ensure full regulatory compliance.

Products & Services

Customers that generate large volumes of residue with a minimum calorific value can use this material to provide valuable heat and electricity on their own site. BHSL will enable the client to add value to their business by providing a fully managed system on site that will remove energy and waste disposal costs and the associated regulatory issues and provide new income streams. A site survey will establish the size of the unit to be installed based on the volumes of residue generated. BHSL will engage with the regulatory agencies and will arrange for the electricity connection to allow sale of electricity back to the grid. The fluidised bed system is installed and maintained by the company using its Bionet Commander software that allows full remote operation relevant data collection.

Key Customers

- > Poultry producers
- > Mushroom producers
- > Waste wood producers
- > Dairy industry
- > Pig industry
- > Energy crop producers
- > Straw producers

Standards & Certifications

CE and CEN certification on all systems.
Licences from Department of Agriculture and EPA

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C&F Green Energy

Value Proposition

C&F wind turbines are unique in the small to medium sector in that they employ technology that is typically reserved for Megawatt scale turbines. This enables C&F turbines to realise an exceptional energy capture which results in very aggressive payback timescales. Leveraging off their worldwide manufacturing base, C&F are able to offer these turbines at a competitive sales price.

Products & Services

C&F Green Energy currently sell wind turbines of class 6,11 and 15KW. In the coming months, we plan to release a 20 and 50KW product.

Key Customers

Domestic. Farm/Small Business.

Standards & Certifications

CE. UK MCS Pending

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CES Energy Ltd

Value Proposition

CES Energy Ltd delivers on-site sustainable energy generation solutions and energy efficient products on a business to business basis.

CES Energy Ltd is a wholly Irish owned company with a proven track record in the successful delivery of turnkey energy solutions. The company designs, builds, maintains and operates energy centres in Ireland, England and Australia.

CES also offers turnkey energy solutions under a Power Purchase Agreement (PPA) whereby CES Energy fund the cost of the project by selling the outputs (electricity, heating, cooling, steam, etc) to the customer.

CES Energy has a dedicated Maintenance and Operations department that ensures customers are achieving the best results. Solutions are successfully in operation within the Industrial, Pharmaceutical, Commercial, Office building, Healthcare and Leisure sectors.

Products & Services

On-site power generation solutions include:

- > Combined Heat and Power (CHP)
- > Tri-Generation
- > Biomass CHP
- > District heating solutions
- > Wind Power Generation

High efficiency products include:

- > Close control CRAC units for data centre and server rooms
- > Air/water and absorption chiller including free cooling
- > Air conditioning and comfort cooling
- > AHU's and heat recovery
- > Chilled beams
- > District Heating Consumer Units and billing system

Key Customers

Allied Irish Bank, A & L Goodbody, Boston Scientific, Citi, Hilton

Standards & Certifications

CES Energy has an excellent safety standard of the past 10 years and adhere to a strict code of engineering excellence. Statements, memberships and accreditations are available on request.

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Cyan Technologies Ltd

Value Proposition

Cyan was formed in 2008 and is primarily involved in research and development in wave energy and business consultancy. It is currently undertaking scale model testing at the Hydraulic and Maritime Research Institute in Cork and is planning to expand its existing development programme towards the end of 2010.

Products & Services

The company has a range of expertise in project management, conceptual design, 3D modelling, business development and financing and offers consultancy services to companies/individuals that are looking for assistance in converting their ideas to reality.

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(under development)

Cynar PLC

Value Proposition

Cynar has the exclusive licence to manufacture, sell, sub licence and operate the Thermofuel technology which produces synthetic fuel from waste plastic. The technology incorporates liquefaction, gasification, pyrolysis, catalytic breakdown and distillation to produce a high energy diesel fuel which can be used in diesel engines. The process can handle most waste plastic types that are currently sent to landfill. Each plant will have an annual throughput of 6,000 tonnes of plastic waste producing approximately 5.7 million litres of synthetic fuel. Cynar has installed the world's first full scale plant in County Laois, Ireland.

Products & Services

Processing of mixed waste plastic to produce synthetic fuel.

Key Customers

Major European Waste and Oil Companies.

Standards & Certifications

Member National Irish Safety Organisation, CE Certification, Comply with BS-EN ISO 9001:2000

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Delap & Waller EcoCo

Value Proposition

Delap & Waller EcoCo is a leading sustainable design and operation consultancy. The company's multi-disciplinary team of architects, engineers and researchers takes a holistic approach to projects, focusing on life cycle analysis and providing innovative solutions in the area of both energy demand reduction and energy supply optimisation. DW EcoCo has experience with EU funding applications and Market Research Studies for companies wishing to expand their operations abroad in the area of energy markets.

Products & Services

- > Detailed energy efficiency audits
- > Innovative Renewable Energy Supply systems
- > Peer review of proposals for Renewable Energy Supply
- > Trainings for professionals and general public on renewable energy systems and building refurbishments
- > Sustainable building design
- > Building physics consultancy
- > EU funding consultancy and applications
- > Market Entry Research studies

Languages:

English, French, Czech, Slovak

Key Customers

Developers, Main Contractors / Builders, Architects, Funding Companies, Building Owners / Occupiers, Property Management Companies, Government Departments, Financial Institutions and Utilities

Standards & Certifications

ISO 9001:2000

Certified BER Assessor for Residential Buildings and Non Residential Buildings
Accredited BREAAAM Assessors

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FLI Energy

Value Proposition

Part of the FLI Group, FLI Energy offers turn-key Anaerobic Digestion project delivery with its AD plants digesting a range of organic materials including food waste, industrial and agricultural feedstocks. Plants and feeding systems are designed to be efficient and flexible, capable of processing a wide variety of different input substrates resulting in high efficiency plants with increased energy outputs. FLI Energy operates from six regional offices throughout the UK, and FLI's Group HQ in Ireland.

Products & Services

- > Turnkey AD Design and Construct Service
- > Civils, Process and M&E
- > Biogas / Power yield calculations
- > Project Feasibility calculations
- > Planning, Permitting & ABP approvals
- > Feedstock Reception & Pre Treatment
- > Feedstock De-Packaging
- > Feedstock Mix Analysis
- > Process Analysis
- > Remote Plant Monitoring
- > Digestate Solids Separators
- > Digestate De-Watering
- > CHP & Grid Connection
- > Odour Abatement
- > Process Maintenance

Processes Include:

HOST AD technology
GWE AD technology
BAL Dry Digestion

Key Customers

Local Authorities, Waste Producers/
Processors, Industrial Clients

Standards & Certifications

ISO 9001 & ISO 14001 Standards

Employees 200

Languages Spoken: English

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Green Biofuels Ireland Ltd

Value Proposition

Green Biofuels Ireland manufactures biodiesel, a renewable fuel and direct replacement for fossil fuel. The company's facility has the capacity to manufacture 34.5 million litres of biodiesel, is easily scalable and is a multi-feedstock facility, whereby it has the capability of processing any animal or vegetable oil into biodiesel. The technology was supplied by BDI of Austria, the world leader in multi feedstock technology. The technology is future-proofed as it can accommodate next generation feedstocks such as jatropha and algae oils.

Products & Services

Biodiesel can be used in all diesel engines, without the need for any modifications and it is distributed using the same fuel distribution infrastructure and network as existing fossil fuels. Green Biofuels Ireland has the capability of manufacturing a number of different types of biodiesel, namely, FAME 0 degrees, FAME +5 degrees and TME (tallow methyl ester), depending on the specific requirements of the customer and the availability and price of the feed-stocks.

Apart from biodiesel there are a number of by-products from the manufacturing process, all of which are exported. Glycerine is exported to Holland for biogas use, bio heating oil is exported to fuel incinerators and fertiliser powder is exported to France for use in the agricultural trade.

Key Customers

Confidential

Standards & Certifications

EN14214 – Diesel Standard

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Greyhound Recycling & Recovery Ltd

Value Proposition

Founded in 1997, Greyhound is Ireland's most experienced recovery operator with markets at home and abroad for dry waste and recyclables. The company has invested €25 million establishing Ireland's largest Materials Recovery Facility in Dublin. An additional €10 million has been invested in a second facility in Limerick. The company has established nationwide partnerships providing total waste management across both the private and public sectors.

Products & Services

Recycling and recovery; Alternative fuel production; National account management; Waste audits and characterisations; Waste collection; Trading of recyclables; Production of bio-diesel; Construction & Demolition recovery; refuse derived fuels (RDFs); Equipment hire

Key Customers

CRH Group; Diageo; Cadbury; Department of Defence; Aldi; Dublin Local Authorities; Bus Éireann; Lagan Cement

Standards & Certifications

ISO 9000:2009; ISO 14001:2004

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Houston Precision Engineering

Value Proposition

Since Houston Precision Engineering was formed in 1980 innovation has been put to the fore front in the company's strategy for growth.

Houston Precision Engineering is currently developing a wave energy convertor (WEC) in conjunction with the Hydro Marine Research Centre (HMRC) in Cork which is supported by Sustainable Energy Authority of Ireland (SEI).

Products & Services

- > Precision Engineering capacity – Turning dia. 2000, Milling 2000 x 1000 x 750.
- > Stainless steel fabrication
- > waste water treatment equipment

Key Customers

- > Multi-National water treatment Companies
- > Large Scale Civil Engineering Contractors
- > Local Authorities
- > Waste oil and grease removal for catering and industrial applications

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Imperative Energy Ltd

Value Proposition

Imperative Energy is unique because it has a guaranteed solution to the critical challenges faced when deploying a Biomass Energy System:

- > contracted long term access to large volumes of clean wood fuel, equivalent to over 300,000 tonnes p.a. over 15 years
- > exclusive supply of world class biomass boiler & fuel handling equipment, from 30kW to 25MW+
- > contracted access to capital to finance Biomass ESCOs totalling over €100M over the next 5 years

Products & Services

- > Energy Supply Contracts (ESCOs) offering 100% finance and fuel supply (7 – 25 years);
- > Full range of biomass boilers (30kW – 25MW), manufactured in Switzerland by our exclusive partner Schmid AG, a world leader in wood energy equipment with over 70 years experience;
- > Combined Heat and Power (CHP) plants
- > Fuel handling equipment;
- > Solutions to cater for a wide range of fuel types, e.g. wet wood chip (up to 60% moisture content), pellets, wood residues, short rotation coppice;
- > Containerised boiler plant rooms and fuel storage;
- > District heating schemes;
- > Feasibility studies;
- > Design, installation, operation & maintenance

Key Customers

Clients in the industrial, commercial/public/private buildings and healthcare sectors across UK & Ireland

Standards & Certifications

- > CEN/TS 14962 certified fuel
- > CE marked equipment
- > ISO certified contractors
- > ETL certified

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Jennings O'Donovan & Partners

Value Proposition

Jennings O'Donovan & Partners has been an established presence in the renewable energy wind farm sector since 1998. To date, the company has a portfolio of projects extending to over 1,000MW of power and is a recognised market leader in wind energy development. This portfolio will equate, when completed to an investment of €1.7 billion in the Wind Energy Sector.

In addition Jennings O'Donovan is particularly specialised and experienced in the fields of water supply, drainage and sewerage and provide water engineering services to large municipalities, regional water schemes and group water schemes.

With offices in Ireland, Bahrain and Bucharest the organisation has made the transition from a purely engineering firm to a multi-disciplinary consulting organisation.

Products & Services

Jennings O'Donovan & Partners provide consulting engineering services in the areas of water supply, wastewater collection and treatment, environmental resource management and impact assessment, civil engineering, structural engineering, roads design, housing and commercial development as well as to the Renewable Energy Sector.

Key Customers

Airtricity, BAM, Eco Wind Power/Viridian, Doreen Walker Ltd, Flugland Gaelectric, SWS, Wind Source.

Standards & Certifications

ISO 9001:2000

CPD Accredited Employer

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John Sisk & Son Ltd

Value Proposition

John Sisk & Son Ltd has been main contractors for over 150 years and has over 50 years experience in the energy sector. Until recently these projects were predominantly conventional power stations. However, with the ever increasing diversity of projects in this area, Sisk has now acquired experience in areas such as windfarms, waste to energy facilities, biomass boilers and grid infrastructure. Sisk has also worked across most other construction sectors for many years. Clients can now benefit from this unrivalled knowledge and capability together with the experience gained on a diverse range of current energy projects thus ensuring a project is delivered with industry-leading results. Sisk operates throughout Ireland, the UK, Europe and the Middle East.

Products & Services

Biomass:

Sisk has established a joint venture company with CES Energy to provide embedded energy solutions in the form of biomass thermal, electric and cooling energy. Sisk can offer clients a full design, build, finance and operate solution to their energy needs.

Sustainability:

Sisk offers practical solutions to sustainability and energy efficiency issues and requirements. This knowledge-based, multi-disciplined, centre of excellence team builds relationships with interest groups and market drivers and support the project teams delivering projects for clients.

Renewables (Wind, Hydro, Wave):

Through its Civil Engineering Division, the company was part of a team that delivered a 36 MW windfarm at Lisheen, Ireland and are engaged in a project to construct a windfarm to deliver up to 85 MW in North Cork, Ireland. Sisk is capable of offering a client a full civil works and balance of plant service for windfarms projects.

Waste to Energy and Conventional Power:

Sisk has the proven capacity to deliver large scale projects in any sector and is currently executing all the civil and building work associated with two 450MW CCGT power stations in Co Cork and a large waste to energy facility in Co Meath, Ireland. Sisk is also constructing a 2000MW CCGT power station in Pembroke, Wales.

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Kedco PLC

Value Proposition

Kedco is a bio-science energy company focusing on green energy production. Kedco specialises in power generation from sustainable fuel sources and waste. Kedco also contains a number of ancillary businesses serving industrial customers, all with a renewable energy focus.

Products & Services

- > The company installs, operates and maintains power generators on partner sites using the partner's waste product or renewable fuel as feedstock. The waste/fuel is converted into energy, via anaerobic digestion or gasification technologies using combined heat and power units, and spare energy is transferred into the national energy grid.
- > Kedco, through a unique agreement with the world leaders in gasification, has acquired the first commercial self-contained modular gasification biomass CHP system. This system converts a variety of biomass sources to electricity and heat, and has a proven operational time of 90% per annum. This is a real solution for distributed on-site power generation. This initial unit will be on-site in Ireland this year.

Key Customers

Kedco currently has planning for 5 projects and has started building two plants. In excess of 30 specific opportunities have been identified ranging in size from 1MW to 16MW

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Lotusworks

Value Proposition

Founded in 2008 Lotus Energy Limited specialises in the development of renewable energy assets in Ireland & North America. Lotus is a full service developer of wind, geothermal, solar and biomass energy projects. The company's development activities are the evolution of energy related Construction Management and Operation Maintenance which since 2006 has participated in projects that have added over 2000 MWs of power to the Irish grid.

Products & Services

Lotus Energy is a commercial energy development company focused on the development, acquisition and management of large-scale power generation assets.

- > Geothermal, wind, solar, biomass and heating systems
- > Hydro Energy
- > Heat Pumps
- > Wind Turbine Control & Installation Systems
- > Evacuative Tube Solar Water Heaters
- > digestion and gasification plants
- > Bio-fuels
- > Energy Consultancy
- > Wind Farms
- > Consulting Engineering > Energy Supply
- > Feasibility Studies for Energy and Cost Saving Projects > Project Management
- > Waste to Energy Projects > Engineer, Procure & Construct Projects
- > Build, Own, Operate & Maintain Facilities

- > Continuous measurement of operational performance related to power generation assets

Key Customers

LotusWorks is active in multiple International market sectors including pharmaceutical, food & beverage, Hi-Tech, Clean-Tech & commercial enterprises.

Standards & Certifications

- > Full ISO Certification, EN ISO 9001:2000, EN ISO 14001, OHSAS 18001'
- > Excellence Through People'
- > Engineers Ireland Corporate Affiliate
- > American Wind Energy Association
- > Irish Wind Energy Association
- > Marine Renewable Industries Association-Council

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Mainstream Renewable Power

Value Proposition

Mainstream's core business is to develop, build and operate wind energy, solar thermal and ocean current plants by partnering with governments, utility companies, developers and investors across North America, South America, South Africa and Europe.

The company aims to become a global leader in the sourcing, development, construction and operation of large-scale electricity generation plants fuelled by renewable and sustainable energy sources.

The company was established in February 2008 by Eddie O'Connor and has assembled an experienced management team with an extensive and proven track record.

Mainstream's people are the company's defining strength. With over 250 years of industry experience, Mainstream has an enviable track record in project delivery coupled with raising and executing project finance.

Products & Services

Mainstream's focus will initially be in wind (onshore and offshore) which has an established track record of effectiveness, attractive economics and is deployable at scale and at speed.

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Nines Engineering

Value Proposition

Nines Engineering designs and manufactures equipment and tools requiring Ultra High Purity engineering for a variety of Nanotechnology applications. The company provides turn-key process modules as well as fully integrated, automatic process tools that are installed and qualified to the specific customers needs.

Products & Services

Its latest tool offering is for high volume production of photovoltaic (PV) solar cells. We provide innovative manufacturing solutions for today's crystalline silicon (c-Si) wafer based PV cell. R&D focus is clearly aimed at developing the tools that will enable cost reduction and yield and throughput improvements for the next generations of PV cell manufacturing.

Key Customers

Customers are the PV cell manufacturers worldwide.

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OceanEnergy Ltd

Value Proposition

The OceanEnergy (OE) buoy has proven its ability to survive and prosper in a wide range of sea conditions and is one of the world leaders in live sea trials and the world leader in floating Oscillating Water Column (OWC) technologies sea trials.

The OE buoy delivers a high reliability due to the use of only one moving part.

The ease of installation, accessibility and routine maintenance will offer competitive operating costs.

The OE buoy is a floating system that has high wave energy capture efficiency.

The projected capital cost per kilowatt (kW) of the OE buoy is competitive with all other renewable energy technologies.

The OE buoy can be easily deployed in any market globally which has a suitable wave energy resource.

A single full-scale device will generate enough power for over 1,300 homes.

Products & Services

OE has designed a wave energy generation device called the OE buoy which uses the well established concept of OWC to harness wave energy and generate electricity. Through the advanced development and application of the OWC principle, OEL has developed a generation device that is unique, efficient

and effective. The OE buoy is one of the simplest, most efficient and reliable methods to generate power from the abundant global resource of wave energy.

The OE buoy operates efficiently at depths of between 30m to 50m. Commercially OE has the potential to exploit the market for near and off shore operation with its floating OWC device. The durability and survivability of the OE buoy will allow the company significant advantages over other wave technologies.

Key Customers

- > Utilities keen to enter the wave energy market,
- > Wave energy device developers,
- > Oil and gas industry for electricity generation.

Standards & Certifications

The company's product and services comply with all necessary regulatory obligations that are required for marine renewable devices and power delivery programmes.

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Olimotion Ireland Ltd

Value Proposition

Olimotion Ireland Ltd specialises in the manufacture and reclamation of all types of hydraulic cylinders. Olimotion has the in-house capacity to manufacture completely every component to whatever design and specification is required and is particularly experienced in the manufacture of specialised, custom-built cylinders up to 12 meters long.

Products & Services

- > Hydraulic Cylinder repair and refurbishment up to 1/2 meter in diameter
- > Turning.
- > Grinding
- > Honing
- > Gun Drilling

Key Customers

- > Hydraulic companies
- > Public sector bodies

Standards & Certifications

- > Full Testing Facilities

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OpenCarb LP

Value Proposition

OpenCarb provides an outsourced service for organisations generating carbon credits from their emission reduction projects, to create/originate, retail, track and trace carbon credits globally. The company was established by the founder of Openet, a world leader in transactional intelligence for the telecom industry, which handles billions of transactions daily. The company offers its corporate clients the tools to deploy embedded carbon credits, enabling companies offer consumer product & service propositions that are carbon free, from mobile phones, banking services and flights to chocolate bars, laptops and personal car usage.

OpenCarb has secured carbon credit rights from multiple sources, including rainforests, peat-lands, CDM, and renewable energy projects, that support energy community initiatives in developing countries. The company partners with landowner groups and renewable energy companies including solar, wind, biogas, waste-to-energy and other providers to monetize the carbon rights and realize the maximum value of these valuable assets in partnership with its suppliers.

Products & Services

OpenCarb provides assessment, technical design processes, implements verification and track and trace services, processes and secures the carbon registration while managing the security of the trades of carbon credits across the full value chain.

OpenCarb is working in partnership with the world's largest carbons project originators and

carbon credit traders to assure the deployment of carbon credits. It has an emphasis on projects that have strong community impact, insuring that maximum funds are transferred to the communities that most need them in a fully accountable way. OpenCarb provides a franchise platform for resellers of carbon to access, assure and deploy carbon solutions for specific markets including the CarbonAssure™ track and trace platform.

Key Customers

Clients include commercial and NGO clients such as Call4care, a global mobile phone services developed in partnership with the Red Cross, Amnesty International and other charities.

Standards & Certifications

OpenCarb supports all carbon standards and exchanges globally including CDM, REDD and Voluntary standards

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OpenHydro

Value Proposition

OpenHydro Group is an Irish energy technology company whose business is the design, manufacture, installation and maintenance of the Open-Centre Turbine, a marine turbine for generating renewable energy from tidal streams. OpenHydro is also active in developing sites through its site development business unit.

A key benefit of tidal energy over other forms of renewable energy is that the power output is predictable making tidal energy an obvious replacement for fossil fuelled generation plant.

Products & Services

OpenHydro offers manufacturing, installation and maintenance services for the construction of tidal farms using OpenHydro's Open-Centre Turbine technology.

The machine has a single moving part and is situated directly on the seabed with no part of the structure visible from the surface and deep enough so as not to pose a hazard to shipping. Environmentally the turbine has a very low impact and a novel deployment approach, developed by OpenHydro. It has reduced the time required for installation to a single day.

Key Customers

- > Nova Scotia Power (Canada)
- > EDF (France)
- > SnoPUD (USA)
- > Alderney Renewable Energy (UK Channel Islands)

Standards & Certifications

- > DNV (In-Process)
- > ISO 9001:2000 (In-Process)
- > Bureau Veritas (Complete)

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OpenOils LP

Value Proposition

OpenOils creates a liquid renewal energy by means of a patented de-polymerization technology which converts waste plastics back to oil, using an ultra low emissions process. By means of a unique resource recovery process, OpenOils provides the capability to divert plastics from landfill creating super clean fuels, which are classified as a liquid renewable energy within the EU. OpenOils technology removes the need for incinerator and processes waste streams that currently have no other use. The technology also provides the capability of generating substantial carbon credits from its clean technology which can then be traded within the carbon credit offset markets globally. OpenOils is in the process of establishing installations in numerous sites across the USA, India, UK, Hungary, Poland, Slovak Republic, Czech Republic, South Africa, Caribbean and Ireland.

Products & Services

OpenOils technology generates super clean fuel using a patented resource (waste) recovery process. The de-polymerization process converts waste plastics back to the hydro-carbon state which can then be used for a range of fuel generation options and can also be converted directly back to electricity for grid connection, qualifying for renewable energy tariffs. OpenOils technology platform also processes tyres and waste fuel and other organic waste streams that helps remediate landfill sites, generating high calorific clean fuels and other valuable Oil by-products.

OpenOils' technology is deployed over 5 years and won the 2006 European Environmental Press Gold Award in association with European Federation of Associations of Environmental Professionals.

Key Customers

OpenOils operates globally using joint venture partnerships whose clients include power companies, high energy users like cement and steel manufacturers as well as oil distributors addressing home heating fuels, clean energy generation and road fuels.

Standards & Certifications

This process meets all EU Environmental Standards.

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Phive

Value Proposition

Phive has developed breakthrough technology that allows for the rapid deposition of silicon structures over large areas. This has a large impact on the economics of thin film photovoltaic (PV) solar cell manufacturing leading to renewable electricity generation at below commercial grid rates.

Products & Services

Phive designs, manufactures and sells fully tested advanced plasma source modules that can be easily inserted into new PECVD tools or retrofitted to an existing tool. These tools are used in the production of thin film silicon photovoltaic modules for use in solar power generation.

Key Customers

Oerlikon, Uni-solar, Flexcell, Sontor

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Renetech Ltd

Value Proposition

Renetech was incorporated in the Spring of 2005. Renetech's mission is to be a sustainable and environmentally adapted producer of vehicle fuel, electricity, heat and biogas through solutions for waste and biomass management and energy efficiency. Renetech develops projects in collaboration with technology providers, contractors, equity partners and local stakeholders. Renetech focuses on the process, project and financing of the plant build of anaerobic digester plants, bio-refineries and CHP plants.

Products & Services

Renetech conducts pre-feasibility and feasibility studies including business case assessment for bioenergy projects in Europe and Africa. Renetech provides design, build and operate consultancy services for both small- and large-scale anaerobic digester, biofuel, bio-refinery and CHP plant development; including project management and development services. Renetech also provides consultancy services in the area of project finance for large scale bioenergy projects.

Key Customers

Food & meat processing companies; Power companies; Government agencies and NGOs in the renewable energy field.

Languages Spoken

German, Spanish, French, Swedish

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Renewable Energy Systems (RES) Ltd

Value Proposition

RES is focused on supplying the Irish market with the very best available renewable energy solutions from around the globe. RES operates a strict policy of dealing only with the finest quality products and has achieved this by establishing a nationwide network of agents of the highest standard, to ensure consistency and excellence down to consumer level. RES offers a full turnkey solution on all products.

RES has developed an excellent reputation for both design and delivery. RES designed and delivered the 2009 National "Pioneering Renewable Energy Award" winner and is currently working on a number of similar innovation led projects.

Products & Services

- > Wind Turbines – Irish distributor for Proven wind turbines, known as the world's most robust micro wind turbine, (available in 3.2kW, 6kW and 15kW) and Canadian AOC 50kW wind turbines
- > Solar Panels – Irish distributor for Austrian made Solarfocus solar Panels
- > Solar PV Panels – Irish distributor for Sharp PV panels
- > Biomass – Irish distributors for Solarfocus range of wood pellet and log boilers
- > Full service contracts on all our products

Key Customers

ESB, Bord Gais, Telefonica 02

Standards & Certifications

SEI registered
REIA registered
City and Guilds accredited

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Rosslare Europort

Value Proposition

Located at South East corner of Ireland, Rosslare Europort is ideally located for storage, assembly & servicing of offshore wind turbines

Products & Services

- > Port facilities including 150 metres of Quay Wall
- > Depth 7.2 metres at Chart Datum
- > Well sheltered in prevailing wind conditions
- > 5 hectares available for assembly & storage

Key Customers

- > GE Wind Energy
- > Enercon

Standards & Certifications

All National & European safety, security & environmental standards applicable to a port operation

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ServusNet Informatics Ltd

Value Proposition

ServusNet is a software company developing Operations & Maintenance (O&M) and Operational Intelligence (OI) solutions for the renewable energy industry. The growth in this sector is driving the need for sophisticated software tools to efficiently manage larger portfolios of wind and other distributed energy generation technologies. The ServusNet team has many years experience in telecom network management and is building on this expertise to deliver innovative operations software products designed to reduce operating costs, improve production efficiency and increase planning accuracy.

Products & Services

ServusNet's purpose-designed wind energy O&M platform allows operators to add generation capacity and improve overall production performance without a proportional increase in O&M costs. ServusNet's scalable framework and rich feature set provide the capability to:

- > Consolidate multi-vendor turbine fault and statistics data into one standard database.
- > Generate operations-level and portfolio-wide dashboards and reports.
- > Initiate pre-defined operational workflows directly from alarms, calendar events or trend thresholds.
- > Utilise detailed equipment data to quickly build more accurate production forecasts.

- > Allow operations centre or field access through any web browser.
- > Integrate wind farm data with existing enterprise software systems.

Key Customers

Wind farm owners and operators, including independent operations and maintenance (O&M) service providers.

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Surface Power

Value Proposition

Surface Power was founded in 2003 to manufacture innovative renewable energy technologies for buildings. The company is now well established as a leading innovator of solar thermal solutions. Surface Power works with existing distribution supply chains to upskill and support their movement into the emerging sector with training, support, logistics and sales solutions. Surface Power is an ideal full service manufacturer partner which can integrate with large distribution networks.

Products & Services

- > Solar Thermal Heating, Cooling & Hot Water Systems, (Commercial, Industrial, Domestic, Public)
- > Large scale deployment programs (Government agency, Utilities, Communities, etc)
- > Certified training programs for Instructors, Distributors, Installers, etc.

Key Customers

- > Large national builders providers and distribution networks
- > Government and public contracts
- > Greenloan finance and deployment schemes

Surface Power is currently expanding its global distribution networks

Standards & Certifications

- > EN12975:2006
- > IEC61400-2
- > CE Marking
- > EN50438

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Technology From Ideas (TFI) Ltd

Value Proposition

TFI is a technology development company delivering innovative intellectual property (IP) driven technology solutions to industry. TFI bridges the gap between the lab and the market, creating and delivering valuable investment ready technology. TFI sources, creates, develops and licenses early stage physical sciences & engineering technologies in the areas of cleantech, materials and medical devices and works collaboratively with industry to understand and solve their problems, and with IP creators such as universities to support their commercialisation activities.

Products & Services

TFI's main recent activity has been the development of a wave energy protection system called the WaveProtector™. This uses passive material technology developed in conjunction with DuPont and makes wave energy devices more economically viable.

In addition the company has developed a torque control system suitable for a wide range of industrial brake and clutch applications, including use on wind turbines. This technology has been prototyped and licensed to customers, with the first product due to be launched in 2010.

Further technologies are also under development.

Key Customers

TFI is working with a number of industrial customers (from large multinationals through to SMEs) across many sectors including wave, industrial braking and hydraulics.

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TechWorks Marine Ltd

Value Proposition

Turnkey product and service solutions provide clients with real-time highly accurate data for their monitored sites, providing immediate risk management information ranging from harmful algal blooms events in aquaculture to climate change information for statutory monitoring to current and turbidity monitoring for engineering projects. All this data is quality controlled and made accessible to clients via a secure client webpage. Here the client can query and view different data sets for their sites.

Products & Services

TechWorks Marine provides clients with world-class solutions to monitor the marine environment in real-time, from the aquaculture industry, engineering works, port and harbours, statutory monitoring to offshore renewable energy companies. The company's systems are designed to be robust and reliable enabling our clients to make immediate management decisions based on real-time information. TechWorks Marine operates 24/7, 365 days a year in hostile environments, monitoring a range of different parameters: e.g. giving an aquaculture client a real-time overview of a wide range of different data on water conditions at a farm site. Techworks also remotely configures the sensors used on the offshore platforms, and remotely triggers water samplers via the internet.

Key Customers

- > State Agencies: Irish Marine Institute, Marine Scotland, Geological Survey of Ireland.
- > Academia: University College Galway, University College Dublin.
- > Private: Fish Farms, Engineering companies

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Wavebob Ltd

Value Proposition

Wavebob Ltd is a world leading ocean wave energy company. Based in Ireland with offices in the US and the UK, Wavebob has invested heavily in R&D over the past ten years and has emerged as a world leading technology in this exciting new sector. Working in an open innovation context, Wavebob has developed strategic relationships with leading technology partners and end users. Wavebob has secured strategic relationships with partners in each of our market sectors i.e. Power Utility; Oil & Gas and Marine.

Products & Services

The Wavebob Wave Energy Converter (WEC) is a highly innovative, self-reacting, oscillating point absorber designed to convert ocean wave energy to electricity with further application for sea water desalination. The key Wavebob innovations are now protected by a worldwide patent portfolio covering 45 countries. The Wavebob represents a major breakthrough in wave energy conversion technology as it can be tuned and controlled to closely match the prevailing wave climate, even on a wave-by-wave basis. At full scale, each device will have an installed capacity of in excess of 1MWe with average output in excess of 500kWe at sites in the North Atlantic and Pacific oceans.

Key Customers

Vattenfall, Chevron, Lockheed Martin

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Wind Energy Direct Ltd

Value Proposition

Wind Energy Direct (WED) provides on-site wind energy solutions for large energy users. Through a finance, build, own and operate model WED installs wind turbines on-site for clients. WED then sells the electricity to clients at a discount to their current commercial rate. This enables clients to:

- > benefit from low cost green energy
- > hedge their energy costs and break the link with energy inflation
- > significantly reduce their carbon emissions

There is no capital outlay required from clients.

Products & Services

Wind Energy Direct finances, installs and operates wind turbines on site for large energy users, enabling them to significantly reduce both their energy costs and carbon emissions. Wind Energy Direct recently installed a 4MW on site wind energy solution on the site of one of Ireland's largest producers of windows and doors. This wind energy installation is estimated to save the client company over €1m in energy costs over the next 5 years and it also displaces over 9,000 tonnes of carbon per annum.

Key Customers

Wind Energy Direct's key customers are large energy users – typically with a base load of 300kW and above.

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