

Curriculum Vitae-Gerard McNulty

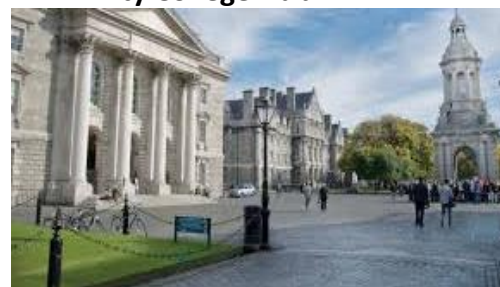
Family name: McNulty BA BAI CEng Fellow Inst. Engineers of Ireland
First names: Gerard
Date Birth: 18/03/1955
Nationality: Irish
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1. Education:

Institution Place [Date from - Date to]	Degree(s) or Diploma(s) obtained:
Trinity College Dublin 1975-1979	B.A.I degree-(Hons) Engineering Sciences (Electrical and Mechanical Engineering)
Trinity College Dublin 1975-1979	B.A degree-Mathematical and Computer Sciences

Trinity College Dublin



2. Professional Qualifications

Chartered Engineer and Fellow of the Institute of Engineers of Ireland (C.Eng.,F.,Inst.E.I)

3. Language skills: Indicate competence on a scale of 1 to 5 (1 - basic; 5 – excellent)

Language	Reading	Speaking	Writing
English	5	5	5
Spanish	2	2	2
Russian	1	2	0

4. Hobbies: Running, Fishing

5. Other skills: Fully Computer Literate in MS Office, MS Powerpoint, and Excel, Expert on data mining, statistical analysis, Data Mining Tools, advanced statistical analysis see (www.energysavingsdatamining.com)

6. Present position: Senior International Energy Specialist

7. Years' Experience: 38 years

8. Key qualifications: I am a highly qualified Engineer with over 36 years' expertise in the field of energy and energy efficiency. I also have 20 years experience in renewable energy systems. I have worked on projects across the world, including Ireland, Bahrain, Bulgaria, Malawi, Vietnam, Bahamas, and including the former CIS countries such as Ukraine, Belarus, and Kazakhstan. I have worked with leading international teams for the UNDP, European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB), Green Energy Fund, and EU Energy Directorate as thematic energy specialist, alongside numerous private sector clients.

9. I have deep knowledge of the industrial commercial and domestic sector energy efficiency opportunities and including CHP systems feasibility studies including the design and operational analysis using natural gas engines and gas turbines, gasification systems producing syngas for heat and power production, biogas (anaerobic digestion), and backpressure steam turbines using biofuels, and conventional fuels and building heating and cooling analysis. I also have much experience in the area of renewable energy systems such as heat pumps, solar PV and solar thermal, wind energy and small hydropower schemes.

I have completed 100's of electrical and thermal energy audits including detailed electrical analysis of energy and power savings in all kinds of industries. I have also conducted building energy audits and feasibility studies for renewable energy systems including solar thermal for commercial and domestic buildings, hospital, malls and industrial plants, solar PV in the buildings, geothermal systems for hotels and sports centers, wind project analysis in factories, sports stadiums, and small scale hydro-power schemes. I have also completed solar thermal and solar PV feasibility studies in large and small industries, office blocks and hospitals.

More recently (in Ethiopia) I conducted feasibility studies for demonstration projects for a solar thermal hot water heating scheme for a large hospital , a LED street lighting demonstration scheme, and also a demonstration scheme for more efficient electric cooking for domestic and commercial applications.

I also work with EU thermal energy research projects as thematic expert reporting on an extensive range of research projects in an industrial process plant, heat pumps, gas turbine, renewable energy systems, etc. as applied to the industrial, commercial and domestic sectors.

I have also acted as Team Leader on several international projects that focus on energy efficiency regulations and laws and development of local expertise in energy efficiency and renewable energy, such as the work completed in Belarus, Vietnam, and Kazakhstan. I recently (July 2015) completed a complete a Demand Side Management study and energy efficiency 5-year action plan for Malawi and a low-cost country energy plan for Ethiopia. This involved analysis of industrial energy saving opportunities and also commercial and domestic sectors in terms of cooling, lighting and cooking appliances.

I have conducted over 300 detailed energy audits in industries mostly both in Ireland, Caribbean (Bahamas) Europe, Russia, Ukraine and Asia covering all kinds of processes and also in buildings such as offices blocks, hotels shopping malls, universities, etc. I have experience in advanced energy systems modeling of renewable energy systems (hydro, wind, solar thermal and PV, heat pumps and have also completed many CHP (cogeneration and tri-generation) feasibility studies for own generation plant. I have also analyzed many building air conditioning systems both commercial and industrial and also industrial refrigeration systems (single and two stage plants).

I am also an experienced pump system designer with 4 years of experience in designing large pumping systems in Shannonbridge and Lanesboro Power plant in Ireland. I have also conducted energy audits in municipal pumping systems and water treatment system and also designed a heat-recovery system for a cogeneration plant in Bausch and Lomb Ireland. Over 90% of the energy audits, I have completed identified annual energy saving in the order of 20%- 45% of energy usage. I have also delivered training courses in energy efficiency in Ireland, in Russia and the Bahamas for the Bahamas Electricity Authority.

In also have experience in the implementation of energy management systems (ISO 50001)in several large industries – including Ireland largest factory - under contract for the Sustainable Energy Authority of Ireland.

As I have experience in power plant design, I also conduct detail thermal energy audits on industrial process plant as well as that on electrical systems. This includes industrial steam and hot water boiler efficiency analysis, new boiler plant design specifications for efficiency including the use of dual fuel boilers such as natural gas and biomass combined with back pressure steam turbine units with heat recovery systems design.

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I have advanced knowledge of statistical analysis for energy analysis and also of data mining techniques and the use of neural networks for industrial analysis processes and individual machines (such as gas turbines) to maximize their output efficiency

In the area of advanced energy savings techniques, I have developed the concept of using artificial intelligent computation techniques to allow for the optimization of industrial processes and renewable energy systems including monitoring and verification of results. I have used this technique to analyze industrial CHP systems, and other highly non-linear processes such as gas turbines, incineration plant optimization see -- <https://energysavingsdatamining.com>

10. Specific experience internationally

Country	Date from- Date to	Organisation	Job Function	My Work Aspects
Ethiopia and Home Base	March 2016-July	EU Aid Project - Support to the Ethiopian Energy Authority Energy Efficiency and Conservation for 20 years least cost energy plan	Short Term Expert in DSM for Ethiopian 20 Years Least Cost Energy Plan	DSM opportunities and supply options for Ethiopian's 20 years least cost optimization energy plan
Uzbekistan, Tashkent	October 2015	CASEP – Funder by the EU- GFA Consulting	Senior Short Term Expert in Energy Audits (Institutional and program approach)	Deliver 10 Lectures and case studies on best practice in energy governance for Industry
Malawi, Blantyre, Africa	April – June 2015	USA Millennium Fund	DSM and Energy Efficiency Expert	DSM study (power supply, demand) and 5-year action plan for the industrial, commercial and domestic sector. Review of energy policies and recommendations for improvements
Vietnam	2014 and 2015	GEF (World Bank)	International Energy Expert	Best energy saving and benchmarking in the plastic sector. Review of energy policies and recommendations for improvements. Design Government circular for implementation of saving targets
Vietnam	2013 and 2014	GEF (World Bank)	International Energy Expert	Best energy saving and benchmarking in the chemical sector. Review of energy policies and recommendations for improvements. Design Government circular for implementation of saving targets
Belarus	06-08/2011	UNDP	International Energy Expert	Energy audit methodology, Seminars. Review of energy policies and recommendations for improvements to energy audit in

				Belarus
Kazakhstan	03/2011-01/2012	ADB	Team Lead	Energy Diagnostic and county. Energy saving Action Plan for Industrial, commercial sectors. Review of energy policies and regulations and recommendations for improvements to energy efficiency in all sectors
Bahrain	9-2/2011	ESB International	Industrial Energy Expert	Energy Audit in 40 MW electrical Aluminium Mill
Ukraine	09-12/2008	Private Investors	International Energy Expert	Review 4 for UN – joint implementation (JI) projects in Ukraine
Bulgaria	2005-2006	EBRD	Verification of Industrial and commercial energy measures	Exam Energy efficiency and renewable energy savings verify of energy projects (20 projects)
Ukraine	08/1998-11/2000	EU TACIS	Energy Expert	Set up energy saving database for industry in Ukraine
Russia	01/1996-07/1997, 11-12/1999	EU TACIS	Energy Expert	Industrial Energy Audits in large industries
Bahamas	06/1999 – 08/1999	World Bank/ESB International	DSM Expert	Energy Audit in Industry and Hotels sector/ Present training course on DSM to Bahamas Electricity Authority Engineers

11. My key successes in energy savings in the last 25 years

Date	Organisation	Key Success	Reference
1990-1996	Electricity Supply Board Ireland DSM programme	As DSM engineer in South East Region achieved high energy savings of 6 regions from 1993 to 1997	Michael McNicholas Ex. Chief Ex. Director ESB Ireland https://www.linkedin.com/pub/michael-mcnicholas/4b/bb5/937
1996	Electricity Supply Board Ireland Corporate Bright Ideas Scheme	I received the highest award within ESB for the design and implementation of a DSM expert system for Ireland	Michael McNicholas Ex. Chief Ex. Director ESB Ireland https://www.linkedin.com/pub/michael-mcnicholas/4b/bb5/937
2003	Lightwave Technologies Ltd (start-up company)	I received the best start-up project award from University College Dublin innovation center for innovation that uses neural networks for predictive control of a building's management systems to reduce energy costs in building heating and cooling. I invented the system after discovering a flaw in conventional BMS as a result of an energy audit in a pharmaceutical plant office block	http://www.rte.ie/news/business/2004/0817/53416-lightwave/
2014	Data Mining used for energy savings in 85 MW gas turbines	This was the first time that data mining techniques used for discovery of energy savings in Ireland and the optimization of two 85MW gas turbines at Aughinish Alumina.	brendan.thorne@augh.com

12. Experience/Career Summary

Date	Experience Area	Job Role	Organisation	Successes
1979-1986	Power Plant/CHP operations and design	Design of boiler and turbine plant and auxiliary systems	Electricity Supply Board Ireland	Design Condenser pumping cooling water systems, auxiliary cooling water systems, fire fighting systems, and water-treatment plant
1987-1990	Industrial Processes energy specialist including chemical, Pharma, Plastic, Iron, Steel, Aluminium, Woodfibre, rubber, food and drink, meat, etc. Demand Side Management Specialist Electrical Systems Optimisations	Energy Efficiency, Tariff Analysis, Electrical Utilisation, reactive power losses, and PFC, etc. Thermal energy systems and refrigeration systems analysis Industrial Process Energy Efficiency	Electricity Supply Board Ireland	Developed first CHP analysis package for ESB Developed Tariff analysis package for ESB
1991-1997	DSM programme	CHP Analysis, Boiler, and thermal energy	Electricity Supply Board Ireland	Best efficiency gains region Winner of ESB Eta Energy for best energy efficiency project Winner of ESB bright ideas schemes in 2006
1997-date	International Energy Efficiency Expert	Energy Efficiency and renewable energy systems	Independent Energy Expert	Winner of UCD Nova innovation award Developed Data Mining for energy efficiency analysis in industry

13. Management Experience

Dates Applicable	Area	Managerial Aspects	Where expertise used	Experience Gained
1979-1981	Engineer in charge	Power Plant Operational staff	Ferbane Power Plant Ireland	Manage boiler and turbine operational staff Plan shift rotas Plan efficiency test Ensure staff and plant safety
1990-1996	DSM Programme Engineer	Energy efficiency technicians	Irish Electricity Supply Board	Team management Target setting Programme implementation Cost budgeting and control
2012	Energy Diagnostic Kazakhstan	Team Leader in group of 3	ABD	Project Planning

14. Professional experience

Date from - Date to	Location	Company & reference person (name and contact details)	Position	Description of my work
1997 - Present	Ireland	Independent Energy Expert	Senior Energy Expert	Energy Sector consultancy with a successful track record in obtaining energy audit contracts from large industrial companies in Ireland and internationally. I have implemented projects for the EU 4 th , 6 th , and EU energy research 7 th Framework programs. Work with Sustainable Energy Authority of Ireland (SEAI) to implement ISO 50001 in 10 large industries. Act as a prepared services provider for ESB Independent Energy to conduct energy audits in industrial, commercial energy audits in Ireland. Perform large-scale energy audits for EPA license requirements in several large industries as shown below including Pfizer, Merck Sharp, Boston Scientific, Roche Ireland, Bausch Lomb, Arch Chemicals, Swords Laboratory.
May/June 2017	Ireland	Clean Energy Products Ltd	Data mining and Artificial Intelligent Expert	Development of 20 one hour course on the uses of data mining and artificial intelligence techniques for energy savings and process optimisation in the industrial sector
April 2017	Ireland	Philippe Vanrie Head of the EUREKA Secretariat EUREKA SECRETARIAT AISBL, N.N. 429.585.680 107 RUE NEERVELD - B-1200 BRUSSELS T +32 2 777 09 50 - www.eurostars- eureka.eu CONTACT > experts@eurostars-eureka.eu	EUREKA EUROSTARS Evaluation Expert	Evaluations of three Eurostars applications for Norwegian Innovation Fund

Date from - Date to	Location	Company & reference person (name and contact details)	Position	Description of my work
March 2016- February 2017	Ethiopia and Home Base	Support to the Ethiopian Energy Authority Energy Efficiency and Conservation for 20 years least cost energy plan	Short Term Expert in DSM for Ethiopian 20 Years Least Cost Energy Plan	<ol style="list-style-type: none"> 1. Energy information database and statistics 2. On the Job Training on Energy information Platforms – Data Bases and Planning tools 3. Report on current Situation Assessment 4. Energy demand forecasts and Scenario Definitions 5. Energy System model and database 6. Ethiopian 20 years Least cost energy development Plan 7. Priority list of Least Cost Energy Efficiency projects and actions 8. Technical and financial analysis studies of four energy efficiency and renewable energy projects (Solar water heating, EE street lighting, EE cookers and industrial energy management systems)
October 2015	Uzbekistan, Tashkent	CASEP – Funder by the EU- GFA Consulting (Ronny Staffeld Head of Department, (+49-40) 6 03 06)	Senior Short Term Expert in Energy Audits (Institutional and program approach)	<p>Deliver 10 Lectures and case studies on best practice in energy Governance for Industry</p> <ol style="list-style-type: none"> 1. Program of energy saving and energy efficiency in industry: Development methodology, concepts 2. Case studies- The Irish example 3. Case Study - Ukraine National Energy Saving Data Base for industry 4. Energy efficiency and energy consumption. Driving forces in industrial energy usage and savings 5. Industrial Standards Framework approach by IEA 6. The basic normative documents, containing measures to improve energy efficiency in industrial production in Uzbekistan 7. Review of foreign legislation in the field of energy efficiency 8. Energy Monitoring: Energy monitoring projects. Information aspects. Technical means. 9. Modern systems of control and accounting of energy consumption – Case study – SEAI Ireland Example 10. Environmental aspects of industrial energy efficiency
April –June 2015	Malawi, Africa	USA Millennium Fund for Africa	DSM and Renewable Energy Expert	DSM options study as part of a least cost energy plan (power supply, demand) and 5-year action plan for the industrial, commercial and domestic sector. Review of energy policies and recommendations for improvements

Date from - Date to	Location	Company & reference person (name and contact details)	Position	Description of my work
August 2014- Sept 2015	Vietnam	GEF Trust Fund Grant No.....TF099859- VN Project Email: vn.cpee@gmail.com	International Energy Expert & Team Leader	Best International practice in chemical industry and statistical benchmarking methodology for Plastic Sector in Vietnam, Energy Action plan for the Plastic sector in Vietnam
June 2014	Ireland	Rusal Aughinish Brendan Thorne Energy Manager email: brendan.thorne@augh.com	Energy Expert	Apply data mining techniques to large data sets of two 80 MW output gas turbines
13/10/2014 to Date	Ireland	Expert Identification Number: 7018 1,010 Ref: Pedro de Sampaio Nunes Head of the EUREKA Secretariat (experts: Eurostars-eureka.eu)	Evaluation Expert	EUREKA EUROSTARS Thematic Expert: Evaluation of 3 renewable energy project for investment (wave, the wind and solar) and 3 energy efficiency projects for EU Grants
02/2013- 11/2013	Vietnam	GEF Trust Fund Grant No: TF099859 – VNProject Email: vn.cpee@gmail.com	International Energy Expert & Team Leader	Best International practice in chemical industry and statistical benchmarking methodology for Chemical Sector in Vietnam, Energy Action plan for the chemical sector in Vietnam
04/2013- 11/2013	Ireland	Independent Energy Expert	Consultant Boiler Specialist – Lead Consultant	Work for Irelands largest Milk and Cheese producer to design, specify and do cost-benefit analysis and design for the installation of a large water tube dual burner superheated steam 25 Ton/Hr boiler to supply high and low-pressure steam for process steam loads and also for generation of power via throttle backpressure steam turbine
02/2014-2015	Vietnam	GEF Trust Fund Grant No: TF099859 – VNP project Email: vn.cpee@gmail.com	International Energy Expert & Team Leader	Best International practice in chemical industry and statistical benchmarking methodology for Plastic Sector in Vietnam, Energy Action plan for the chemical sector in Vietnam
09/2009- 12/2013	Ireland	Sustainable Energy Authority Ireland (SEAI): Ref: Ivan Spool Email Ivan.sproule@seai.ie	Agreement Support Manager	Acted as advisor under contract to SEAI to help large Irish industry save energy and advise on the implementation of the energy management standards, EN16001 and now ISO 50001

Date from - Date to	Location	Company & reference person (name and contact details)	Position	Description of my work
11/2012	Brussels	The Eurostars Programme ('Eurostars') European innovation program Appointment letter: Eurostars Programme Cut-Off 9/62 Contact: Michel Vanavermaete Eurostars Operation Manager	Eurostar Evaluator	The Eurostars Programme ('Eurostars') European innovation program: Provided detailed assessment of over 10 innovative energy saving projects including data centers, energy software, CHP
3/2011 – 1/2012	Kazakhstan	Asian Development Bank Project TA 6501 contract S7 1339 Contact: Steve Baillie Ph 632-683-1991 sbaillie@adb.org	Team Leader and Energy Expert	Expanding the Implementation of the Energy Efficiency Initiative in Developing Member Countries; Conducting an energy efficiency diagnostic for Kazakhstan; Energy efficiency in the industrial, commercial and domestic section as well as district heating, power generation, transmission and distribution systems and the potential for a DSM program.; Examined the existing energy laws and made recommendations for improvements; Established a 4-year roadmap an energy efficiency program; Institutional communication and networking
06-08/ 2011	Belarus	UNDP Dr. Alexandre J. Grebenkov UNDP EE Project Manager 6th floor, 17, Kirov St. Minsk, 220050 sasha_grebenkov@mail.ru	International Energy Expert	UNDP Project: Energy Efficiency Project № 50819; I completed a comparative study between Belarus energy audits and best western energy audits; I also produced an energy audit methodology for Belarus energy experts and also a tutorial handbook, I also produced an energy savings training program. Assessment and recommendations for energy efficiency laws and regulations associated with energy audits and ESCO's and compare with EU practice
09/2010 – 02/2011	Bahrain	ESBI Dublin Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Energy Consultant & Team Leader	Aluminium Plant Energy Audit- This plant uses much cheap energy, yet I managed to identify significant energy and money saving projects using latest technologies
10/2010	Brussels	EU Cordis Energy Research Appointment letter CT-EX2002BOO4839-102	Lead Energy Expert	<ul style="list-style-type: none"> FP7-ENERGY-2010-1 and FET evaluations – ENERGY.2010.8.1-1: Valorisation of low-temperature heat (ORC, Adsorptions systems, and other novel thermodynamic cycles). I successfully evaluated 15 energy research projects for funding by EU Cordis energy research Cooperation Work Programme

Date from - Date to	Location	Company & reference person (name and contact details)	Position	Description of my work
09-12/2008	Ukraine	United Nations Reference: Michael Galvin micheal@enviroeye.ie Phone +353872443393	Energy Consultant	Identified 4 suitable projects for the UN as per the UN – Joint Implementation requirements: These included a Coal Mine Methane Project; Methane from Municipal landfill; Institutional communication and networking
2005-2006	Bulgaria	EBRD – ESBI Reference: John Traynor ESBI Dublin John.tyaynor@esbi.ie	Energy Expert	Independent Energy Expert for the validation of energy efficiency and renewable energy projects Validated green energy projects for the EBRD such as renewable energy and energy efficiency projects in Bulgaria
04/2002 – 01/2006	Brussels and Ireland	European Union ENEV-CT2001-00960034 Contact Name: Philippe Bordeau Address: 20 bd E. Rostand, St. Priest, 69800 France Tel: + 49 7116 86 26 78 phbordeau@wanadoo.fr	Energy Expert	Identified non-nuclear projects for funding under the 4th EU Framework which included fuel cells, battery technologies, wind turbine technologies and industrial energy technologies.; Provided detailed assessment of over 10 innovative research projects including fuel cells, Process Integration, and dryer technologies; Institutional communication and networking
09/2003	Ireland	European Union FP6-2002-Mobility-12-IRG Contact: Nicholas Newman alessandra.luchetti@cec.eu.int Phone: : (32-2)299 11 11	Energy Expert	Provided assessment of research projects proposals under The Marie Curie Post Fellowships; High-temperature metals alloys for gas turbine blades; Fuel cells; Computation analysis of combustion systems
03/2003	Ireland	European Commission	Lead Energy Expert	Energy Research Buildings and Renewable Energies Program Thematic Expert Identified research projects for funding under the 6th EU Framework for renewable energy, some of which included thermal, solar, electric, biomass and geothermal applications in buildings
08/1998 - 11/2000	Ukraine	ESBI International Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Lead Energy Expert	The European Union - Develop computer base energy saving best practice guide for Ukraine state energy committee for following industries: Dairy, Iron, Steel, Glass Renewable energy, transport

Date from - Date to	Location	Company & reference person (name and contact details)	Position	Description of my work
11-12/1999	Russia	ESBI International Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Lead Energy Expert	European Union - Review project number ERUS 9201 - development of energy saving actions in Samara, Russia The work involved reviewing the progress and energy investment opportunities resulting from Tacis project ERUS 9201. I successfully identified and examined energy investment opportunities arising out of Tacis project ERUS 9201
06/1999 – 08/1999	Bahamas	World Bank – Bahamas Electricity Authority, ESBI Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Lead Energy Expert	As part of the DSM Feasibility Study, involved with demonstration and training for the establishment of a Demand Side Management Program in the Bahamas. Conducted energy audits at The Marriott Hotel - Cable Beach, The Atlantis Hotel - Paradise Island, The Bacardi Rum Plant – Nassau. Others audits included The Coca-Cola Plant, a Chicken Farm. Conducted an Energy Efficiency Training Program for the Bahamas Electricity Authority
01/1996- 07/1997	Russia	ESBI Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Energy Expert	European Union - Audited four major industries including a rubber plant, a metal ball bearings manufacturing plants and a large ex-military Ural Mash Joint Stock Company
06/1991- 01/1997	Ireland	Electricity Supply Board Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Demand Side Management Engineer and manager of DSM program in southeast region Ireland	In charge of a small team that spearheads the national demand-side energy efficiency program for Irish industry and business, Help delays the need for new power plant construction by 5 years The first engineer in Ireland to use data mining and artificial intelligence for energy savings
03/1987 – 06/1990	Ireland	Electricity Supply Board – ESB Marketing Department Contract: Traynor ESBI Dublin John.tyaynor@esbi.ie	Industrial Advisory Engineer	This work involved assessing the potential for Irish Industries to use electro-heat equipment and heat recovery systems to save energy in industry. I was the first in ESB to use computers to analysis CHP cost benefits saving weeks of person hours. I also developed a computer-based tariff analysis system for ESB
01/1982 – 03/1986	Ireland	Electricity Supply Board, Contact Seamus McLoughlin ESBI Dublin John.tyaynor@esbi.ie	Power Plant and utility design Engineer	Involved in the design, specification, tender assessment, supplier negotiations, project management, and erection, testing and commissioning of Shannonbridge and Lanesboro milled peat to power stations 45.5MW extensions. This work also included site supervision of equipment designed by myself.

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15. Electrical/Thermal/CHP/ Renewable Energy projects completed

In my professional experience referenced below, I have conducted large-scale energy audits cover all thermal and electrical plant which includes production plant such as metal melting, plastic industry including injection molding, blow molding of plastic bottles, extrusion of pipes, etc. Other processes I worked on include, food and drinks plants include cheese, powder milk, and baby foods, soft drinks, alcohol and distilleries, the wood sector including paper and pulp production, etc. I have much experience in utility plants such as refrigeration systems, compressed air systems, CHP analysis, renewable energy systems analysis, fuel cells, motors and drives systems and specialist calculations using data mining and statistical techniques for finding and the verification of energy savings and benchmarking of specific energy consumption.

Sample list of energy audits completed by myself (not complete)

- 1999 – Johnson Controls performance contracting division :Conduct in 4 Rolls Royce factories in the United Kingdom for energy audits performance contracts division (Vladimir vic-vladimirivic@blueyonder.co.uk)
- April- 2013 Glanbia Virginia Ireland – Specification and cost-benefit analysis of large biomass boiler and back pressure steam turbine CHP scheme. Reference
- December 2012 Sustainable Energy Authority of Ireland – Measure of pumping systems efficiency in 3 municipal pumping stations and one Sewage treatment plant in County Kilkenny, Ireland (Ref: Ivan Spool Email Ivan.sproule@seai.ie)
- February 2012 – Energy Audit Green Island Foods, Longford, Ireland
- Green Isle Foods (Northern Foods), Naas, Co. Dublin, Ireland – 2010 Ref: AidanUsher@NorthernFoods.com
- ITW Hi-Cone, Plastic Factory Mallow, Co. Cork, Ireland – 2009, 2010 – Reference: - Diamond Holland, Utility Engineer. Energy audit, specification of new chillers Contact
- Boston Scientific, Cork, Ireland – 2009 – Reference: -Hilco Hakman of ESB Independent Energy. Large scale EPA Energy audit of all processes and utility systems such as boilers, compressors, and CHP analysis. Renewable energy options.
- Nypro, Plastic blow molding plant Bray, Co. Wicklow, Ireland – 2009 – Reference:-: Plant Maintenance Manager – Conduct a large-scale EPA Energy audit of all processes and utility systems and CHP analysis. Renewable energy options.
- Munster Proteins, Cahir, Ireland – 2009 – Reference: - Martin Byrne, Utility Manager- Conduct a large-scale EPA Energy audit of all processes and utility systems and CHP analysis. Renewable energy options.
- C&C Group, Clonmel, Ireland – 2008 – Reference: - Utility Manager – Analysis the potential to use biogas to run a new with CHP potential, produce plant energy efficiency guidelines for new process and utility plant. Analyze options for energy savings in the transport fleet, Analyze the potential for wind energy generation in several factories of the C&C group.
- Radius Plastics, Banbridge, Northern Ireland – 2008 – Reference: - Hilco Hakman Small Scale Energy audit of all processes and utility systems.
- Dublin Products, Dunlavin, Co. Wicklow, Ireland – 2008 – Reference: - Martin Byrne, Utility Manager Large Scale EPA Energy audit of all processes and utility systems and CHP analysis.
- Tullow Oil, Ireland – 2008 – Reference: - Utility Manager. Plant Closed - Specification and Tender evaluation of 80MW peaking power plant using open cycle gas turbines
- Pfizer Sandwich UK Ltd, UK – 2007 – Reference: - Liam O'Loughlin, Eirdata Ireland- Refrigeration systems analysis under contract from Eirdata. Ireland
- C&C Ireland, Kilmore Road, Dublin, Ireland – 2007 – Reference: - Plant Maintenance Manager- - Chilled water system analysis.

- Norbev, Ballymena, Northern Ireland – 2007 – Reference: -Sam Flint, Utility Engineer - Small scale thermal and electric energy audit.
- C&D Foods, Edgeworthstown – March 2007- Reference: - Noel Brady Production Manager, Compressed air system analysis.
- Arch Chemical, Swords Ireland – 2006 – Reference: - Andrew Gilmore, Utility Manager: Large scale EPA Energy audit of all processes and utility systems and CHP analysis.
- True Temper, Cork, Ireland (metals) – 2006 – Reference: -Tom Butler, Utility Manager: Large scale EPA Energy audit of all processes and utility systems and CHP analysis.
- ITW Mina Belview Waterford 2006 – Energy Audit of low-density fiberboard plant, the potential for using waste wood for heat and power generation. Ref: Hilco Hakman ESB Independent Energy Dublin.
- Holyfield Plastics Ltd, Bray, Co. Wicklow, Ireland – 2005 – Reference: - John Cullen, Utility Engineer: Large scale EPA Energy audit of all processes and utility systems and CHP analysis
- Tycor Pharmaceuticals Ltd, Mulhuddart, Dublin, Ireland – 2004 – Reference: - Plant Manager- Energy audit for negotiated agreements with SEI Ireland.
- Bausch and Lomb, Waterford, Ireland – 2004> to 2008 ongoing energy management and energy audit support and CHP optimization: Large scale EPA Energy audit of all processes and utility systems and CHP analysis and renewable energy options analysis.
- Kerry Ingredients, Listowel, Ireland – 2004 – Reference: - Denis Collins, Utility Manager: Large scale energy audit of all processes and utility systems.
- Cork Plastics, Cork, Ireland – 2004 – Reference: - Hilco Hakman: Small energy audit of thermal and electrical systems.
- Inamed Ireland, Ark low, Ireland – 2003 – Reference: - Utility Manager: Noel O'Connor Large scale EPA Energy audit of all processes and utility systems.
- Pfizer Chemical, 2003 Little Island, Cork, Ireland - Reference: - Utility Manager. Plant Closed, Refrigeration system analysis.
- Jansen Pharmaceuticals, Little Island, Cork Ireland – 2002 – Reference: - Plant Manager: Large-scale Energy audit of all processes and utility systems and CHP analysis. Contact Engineering Manager
- Hasbro Ireland Ltd, IDA Industrial Estate, Waterford, Ireland – 2002 – Chiller and CHP analysis of renewable energy options.
- Avonmore Group, Ireland – 1999, 2002 – Reference: - Martin Tynan, Glanbia, Ballyragett, Ireland: Refrigeration systems analysis, gas turbine CHP analysis.
- Rexam Beverage and Can, Waterford, Ireland – 2002 – Reference: - Colin Berney, Utility Manager: Large scale EPA Energy audit of all processes and utility systems and CHP analysis.
- Waterford Brewery-2002 Cherrys (now Guinness) – Thermal and electrical energy audit of all process and systems.
- Eastman Ireland Ltd, Waterford, Ireland – 2002 – Reference: - Utility Manager. Plant Closed Large scale EPA Energy audit of all processes and utility systems and CHP analysis.
- ABB Ltd, Waterford, Ireland – 2001 – Reference: - Plant Manage Energy audit of all processes and utility systems and CHP analysis
- Merck, Sharpe, and Dome, Ireland – 1999 – Reference: - Plant Manager Large Scale EPA Energy audit of all processes and utility systems and CHP analysis
- Wexford Creamery, Wexford, Ireland – 1999 – Reference: - Engineering Manager Tom Kelly Large scale energy audit of all processes and utility systems and CHP analysis
- Sahan Media, Sligo, Ireland – 1998 – Reference: - Utility Manager. Plant closed Large scale energy audit of all processes and utility systems including absorption chiller and CHP analysis
- Waterford Glass, Waterford, Ireland –Design of Neural Network systems for control of glass electric tank furnace, Plant now closed
- Medite Ireland – High-density fiberboard plant – Energy audit of all electrical and thermal systems. Analyze potential for using biomass for heat and power potential

May 2014 Aughinish Alumina –Thermodynamic, statistical and data mining analysis of two 80 MW gas turbine CHP schemes using a range of retrofit options such as precooling air intakes to compressors. Establish opportunity for improvements to the compressor and

turbine performance, air intake filter improvements, sensible cooling of intake air, evaporative cooling techniques and the potential for process waste heat recovery to drive adsorption chillers for precooling.

- April 2014 University College Cork, Ireland – Monitor and measure the key performance indicators for existing ESCO CHP based district heating scheme (Boilers and Engines)
- November 2012 Sustainable Energy Authority of Ireland – Design and implementation of HVAC operational and maintenance spreadsheet for HVAC and Compressed air systems.
- May 2012 – Eircom Ltd Ireland – Energy audits in 4 data centers in Dublin and one in Cork, Ireland
- ESB Independent Energy Ltd, Ireland (over 200 separate energy audits contracted through ESBIE) in various industrial sectors in Ireland and Northern Ireland. This included energy audits in industries, building, and office blocks, hotels, shopping centers and malls, hospitals, schools and Universities, restaurants, and leisure centers from 2001>Present date
- Sustainable Energy Authority Ireland (SEAI) – 1999>Present date –I acted as advisor under contract to SEAI to help large Irish business save energy and advise on the implementation of the energy management standards, EN16001 and now ISO 50001
- Nutricia Macroom, Co. Cork, Ireland Analyses of Renewable energy opportunities including – 2010
- Croke Park, Dublin, Ireland (the high profile “Cull Green Project”) – 2009 – Energy audit, CHP analysis, Renewable energy systems Analysis
- Bewleys Hotel Group, Ireland – Renewable energy opportunities in 3 hotels 2009 ESB Independent
- Schering-Plough, Brinny, Ireland – 2008 – Reference: - Stephen Sisk, Utility Manager Large Scale EPA Energy audit of all processes and utility systems and CHP analysis. Renewable energy options.
- Boston Scientific, Galway, Ireland – 2007 – Reference: - Utility Manager- Large Scale EPA Energy audit of all processes and systems and CHP analysis. Renewable energy options.
- UCC Sports Canter, Mardyke Arena, Cork, Ireland – 2007 – Reference: - Sports Canter Manager- Large-scale Energy audit of all processes and utility systems and CHP analysis.
- Primark Ltd, Ireland - July 2007 (Department Store) Dundrum Shopping Center —, Large energy audit of thermal and electrical systems and Renewable energy options
- Becton Dickinson, Dun Laoghaire, Dublin, Ireland – 2005 – Utility Engineer: Large scale EPA Energy audit of all processes and utility systems and CHP analysis.
- Cambex Pharmaceuticals, Cork, Ireland – 2004 – Reference: - Plant Manager: Large scale EPA Energy audit of all processes and utility systems and CHP analysis.
- Lightwave Technologies 2003 -Designed a novel control system to control building energy usage using artificial intelligence (call ICE – Intelligent control of energy) with Lightwave Technologies Dublin – as their energy consultant.
- Energy Audit at Dublin Port Authority main office block - 2003 – Ref: Hilco Hakman ESB Independent Energy Dublin.
- Roche Ireland, Clarecastle Co. Clare, Ireland – 2002 – Reference: - Plant Manager: Large scale EPA Energy audit of all processes and utility systems and CHP analysis. Renewable energy (wind) analysis.