

Energy, power and heating plants

| Year | Customer | Subject | Service |
|-------------|---|--|--|
| 2016 | Nivalan Kaukolämpö Oy | Annual emission report | Preparation |
| 2015 - 2016 | Luvian Saha Oy | 9,9 MW solid fuel-fired grate boiler plant + 2 MW + 5 MW light/heavy fuel oil + 5,8 MW light fuel oil-fired heating plant | Upgrading of grate fired biofuel boiler effect from 9,9 MW to 14 MW procurement, project management and environmental permit |
| 2015 | Ähtärin Energia ja Vesi Oy | 1 MW _e /4 MW _{th} peat and wood-fired CHP plant | feasibility study |
| 2015 | Lappi Timber Oy | 12 MW wood and peat-fired bubbling bed heating plant + 6 MW light fuel oil-fired heating plant | Procurement planning and project management, preparation of an environmental permit. Grant money procurement (10 %) |
| 2015 | Taivalkosken Voima Oy | 12 MW + 7,1 MW + 7,1 MW wood-fired grate boilers + 3 MW flue gas condensing plant + belt drier for saw dust, wood chips and saw dust | Concept design, procurement planning, implementation design |
| 2015 | Toholammin Energia Oy | 1,3 MW _e / 5,4 MW _{th} CHP ORC power plant (8,2 MW _{th} boiler effect) | Expert services |
| 2014 – 2015 | Nivalan Kaukolämpö Oy | Boiler plant, waste incineration and wood fuel co-firing | Preparation of test firing report |
| 2014 | Junnikkala Oy, Oulaisten sawmill | 4,2 MW + 3 MW wood-fired grate heating plant | Feasibility study, procurement planning, preparation of an environmental permit |
| 2014 | Keitele Energy Oy | 7 MW wood and peat-fired grate boiler heating plant | Procurement planning and project management, preparation of an environmental permit |
| 2014 | Keitele Energy Oy | 5,2 MW _e / 17 MW _{th} wood and peat-fired bubbling bed CHP plant + 8,2 MW flue gas condensing plant + belt drier for bark, saw dust and wood chips | Concept design, investment cost estimates and feasibility study |

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| 2014 | More than 20 Customers | CO ₂ -permit and free CO ₂ allowances procurements | Procurement planning and project management, |
| 2014 | Outokummun Energia Oy | 10 MW + 7 MW wood and peat-fired bubbling bed heating plant + flue gas condensing plants | Expert services |
| 2014 | Kauhavan Kaukolämpö Oy | 10 MW peat and wood-fired grate heating plant | Concept design, investment cost estimates and feasibility study |
| 2014 | Nakkila Boilers Oy | Flue gas condenser | Process specialist services |
| 2014 – | Turku Energia Oy | 40 MW Pellet boiler plant | Procurement planning and project management, preparation of an environmental permit |
| 2014 – | Hyvinkään Lämpövoima Oy | 10 MW Pellet boiler plant | Procurement planning, project management |
| 2013 – 2014 | Turku Energia Oy | District heating plant, several heavy fuel oil boilers | Feasibility study |
| 2013 | Nivalan Kaukolämpö Oy | Biofuels, peat and waste-fired (co-firing) CHP power plant (5 MW _e / 15 MW _{th}) | Preparation of an environmental permit application |
| 2013 | Confidential | The value of district heating company | Evaluation of income value and net asset value |
| 2012 – 2013 | Hyvinkään Lämpövoima Oy | 10 – 30 MW Pellets and 20 MW biofuels boiler plants | Feasibility study, procurement planning, preparation of an environmental permit |
| 2012 – 2013 | Fortum Power and Heat Oy, Espoo, Finland | Large sewage water heat pump | Pre-engineering |
| 2012 | Nakkila Boilers Oy | Flue gas condenser | Process development and balance calculation |

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| 2012 | ABB Oy, Marine | WHRS project | Process specialist services |
| 2012 – 2013 | Turku Energia Oy | Combined district cooling and heating by heat pumps (10-15 MW _{cool} / 15-20 MW _{heat}) with accumulator, sewage water as heat source | Concept design, procurement planning, implementation design |
| 2011 | Turku Energia Oy | Combined district cooling and heating, enlargement of existing plant | Feasibility study |
| 2011 – 2013 | Valio Oy, Lapinlahti | 20 MW biofuels and peat-fired steam boiler plant, 2 x 12,4 MW oil steam boiler | Application for environmental permit and financing, basic-engineering, procurement planning, project management |
| 2010 – 2012 | Jalasjärven Lämpö Oy | 6 MW biofuel-fired heat-only boiler and flue gas condensing and heat recovery plant | Application for environmental permit and financing, concept design, basic-engineering, procurement planning |
| 2010 – 2011 | Vatajakosken Sähkö Oy | Biofuel-fired CHP power plant and steam boiler plant | Feasibility study |
| 2010 | FC Energia Oy, Äetsä | 30 MW Steam boiler plant | Evaluation of tenders, expert services |
| 2010 – 2011 | Keitele Energy Oy | Biofuel-fired CHP plant (5 MW _e / 15 MW _{th}) | Feasibility study |
| 2010 | Turku Energia Oy | 40 MW biofuel-fired heat-only boiler and combined district cooling and heating by heat pumps | Feasibility study |
| 2009 | Hyvinkään Lämpövoima Oy/Ekokem Oy Ab | Combined district cooling and heating | Feasibility study |
| 2008 – 2010 | Nivalan Kaukolämpö Oy | Biofuel and peat-fired CHP plant (5 MW _e / 15 MW _{th}) | Feasibility study, application for environmental permit and financing, concept design, basic-engineering, procurement planning, project management. Grant money 20 % from state of Finland |

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| 2008 – 2009 | Raisio district heating plant | Biofuel-fired CHP plant | Concept design, investment cost estimates and feasibility study |
| 2007 – 2010 | Keuruu Lämpövoima Oy | Biofuel and peat-fired CHP plant (5 MW _e / 15 MW _{th}), 2 - 4 MW flue gas condensing and heat recovery plant | Feasibility study, application for environmental permit and financing, concept design, basic-engineering, procurement planning, implementation engineering, project management. Grant money 20 % from the state of Finland |
| 2007 | Vaasan Sähkö Oy | 12/30 MW biofuel and peat-fired power plant | Concept design, investment cost estimates and feasibility study |
| 2007 | VTT Technical Research Centre of Finland | Feasibility calculation of power plants | Tailored calculation tool for energy process investment evaluations |
| 2006 – 2010 | Kemijärven Kaukolämpö Oy | Peat and biofuel-fired CHP power plant (5 MW _e / 15 MW _{th}) | Feasibility study, application for environmental permit and financing, concept design, basic-engineering, procurement planning, implementation engineering, project management. Grant money 20 % from state of Finland |
| 2006 – 2009 | Turku Energia Oy | Combined district cooling and heating by heat pumps (10-15 MW _{cool} / 15-20 MW _{heat}) with accumulator, sewage water as heat source | Concept design, procurement planning, implementation design |
| 2006 – 2007 | Parkanon Voima Oy | 3 MW _e / 8 MW _{th} power plant combusting CCA-treated wood, Flue gas cleaning | Concept design, procurement planning, evaluation of tenders, expert services |
| 2006 – 2007 | Technical Research Centre of Finland | 5 – 20 MW _e condensing biofuels power plant | Concept design, investment cost estimates and feasibility study |
| 2006 – 2007 | Fortum Power and Heat Nynäshamn, Sweden | A 5 MW flue gas condensing and heat recovery plant for 28 MW _{th} recycled fuels burning boiler | Concept design, investment cost estimates, procurement planning, evaluation of tenders, project services |
| 2006 | Fortum Heat and Vahterus Oy | A 1,5 MW flue gas condensing and heat recovery plant for 12 MW _{th} natural gas burning boiler | Process and detail design of plate and heat exchanger, investment cost estimates |

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| 2006 | Vapo Voima Oy, Forssa power plant | Biofuel-fired power plant (66 MW _{th}). Study of flue-gas condensing and heat recovery plant and heat accumulator | Concept design, investment cost estimates, energy balance calculations and feasibility study |
| 2006 | Confidential | 3,5 MW _e / 13 MW _{th} CHP plant and 12 MW district heating plant | Investment cost estimates, energy balance calculations and feasibility study |
| 2006 | Alajärven Lämpö Oy and Myllyvoima Oy | 1,7 MW _e / 8,5 MW _{th} peat and biofuel-fired power plant | Concept design, investment cost estimates, feasibility study |
| 2006 | Pölkky Oy | Heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 – 2008 | Lapuan Energia Oy (Kiviristin Lämpö Oy) | Peat and biofuel-fired power plant (4 MW _e / 14MW _{th}) | Feasibility study, application for environmental permit and financing, concept design, basic-engineering, procurement planning, implementation engineering, project management. Grant money 27 % from state of Finland |
| 2005 – 2008 | Confidential | 20 – 50 MW _e CHP and flue gas condensing plant. Peat, wood, municipal solid waste firing | Concept design, investment cost estimates, feasibility study |
| 2005 – 2006 | Junnikkala Oy, Kalajoki | District heating plant + 4,9 MW cutter chip burning boiler plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services Concept design, investment cost estimates, feasibility study, procurement planning, application for environmental permit. Grant money 20 % from state of Finland |
| 2005 – 2006 | Saarijärven Kaukolämpö Oy | Peat and biofuel-fired 3 MW district heating plant + 0,5 MW flue gas | Concept design, investment cost estimates, feasibility study, procurement planning |
| 2005 – 2006 | Taivalkosken Voima Oy | 2,5 MW flue gas condensing and district heating plant for 2 x 7,1 MW biofuel-fired boilers | Concept design, procurement planning, evaluation of tenders, expert services. Grant money 20 % from state of Finland |

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| 2005 | Kuusiston Saha Oy | 9,9 MW Heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | Isojoen Lämpö Oy | 9,9 MW District heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | Taivalkosken Voima Oy | District heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | Haapajärven Lämpö Oy | District heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | Liedon Lämpö Oy | District heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | Kannuksen Kaukolämpö Oy | District heating plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | JK Juusto Kaira Oy | Heating and steam producing plant | CO ₂ and emission trade calculations, document preparation, emission control planning, consultancy services |
| 2005 | Foster Wheeler Energia Oy | Jyväskylä CHP plant project (440 MW _{th}) Flue gas condensing and heat recovery unit | Procurement planning, evaluation of tenders, expert services |
| 2005 | Pirken Oy | Peat and biofuel-fired 7 MW heat-only boiler and power plant (2 MW _e / 8.5 MW _{th}) | Concept design, investment cost estimates, CO ₂ trade and energy balance calculations, feasibility study, procurement planning |
| 2005 | Kiviristin Lämpö Oy | Peat and biofuel-fired power plant (3 MW _e / 13 MW _{th}) or 12-15 MW heat-only boiler | Concept design, investment cost estimates, CO ₂ trade and energy balance calculations and feasibility study |
| 2005 | Demolite Oy | 8 MW CCA-wood-fired district heating plant | Concept design, procurement planning, evaluation of tenders, expert services |

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| 2004 – 2005 | Several customers | Studies of emission regulations, calculation of CO ₂ -emission permits, mass and energy balances of boilers according to DIN 1942. | Expert services |
| 2004 – 2005 | Wärtsilä Biopower Oy | 0,6 MW flue gas condensing and district heating plant for 4 MW biofuel-fired boiler | Concept design, expert services |
| 2004 – 2005 | Fortum Lämpö Oy, Vammala | 4,0 MW flue gas condensing and district heating plant for 15 MW biofuel-fired boiler | Concept design, procurement planning, evaluation of tenders, expert services |
| 2004 – 2005 | Viitasaaren Lämpö Oy | 3,5 MW flue gas condensing and district heating plant for 16 MW biofuel-fired boiler | Concept design, procurement planning, evaluation of tenders, expert services |
| 2004 – 2005 | Kauhavan Kaukolämpö Oy | 6,5 MW biofuel + 16,2 MW heavy fuel oil-fired district heating plants | Feasibility study, CO ₂ and emission trade calculations |
| 2004 – 2005 | Viitasaaren Lämpö Oy | 16 MW biofuel + 18 MW heavy fuel oil-fired district heating plants | Feasibility study, CO ₂ and emission trade calculations |
| 2004 – 2005 | Myllyahon Saha Oy | 10,5 MW biofuel + 22,2 MW heavy fuel oil-fired district heating plants | Feasibility study, CO ₂ and emission trade calculations |
| 2004 – 2005 | Porin Lämpövoima Oy | Aittaluoto 37/75 MW CHP biofuel-fired power plant (206 MW _{th}). Study of flue gas condensing, heat recovery and heat accumulator | Concept design, investment cost estimates, energy balance calculations and feasibility study |
| 2004 – 2005 | Turku Energia Oy | Combined district cooling and heating by heat pumps (25 MW _{cool} / 37 MW _{heat}) with accumulator | Feasibility study and preliminary lay-out |
| 2004 – 2005 | Kemin Energia Oy | Biofuel-fired boiler (26 MW + 8 MW). Flue gas condensing and heat recovery unit, DH-accumulator study | Procurement planning, evaluation of tenders, contract, expert services. Grant money 10 % from state of Finland |
| 2004 – 2005 | Ähtärin Lämpökeskus Oy | 4 MW biofuel-fired district heating boiler plant | Concept design, procurement planning, evaluation of tenders, expert services. Grant money 15 % from state of Finland |
| 2004 | Noviant CMC Oy (Metsa Specialty Chemicals Oy) | CMC Mill, Äänekoski Finland | Total energy consumption survey |

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| 2004 | Confidential | The value of district heating plant | Evaluation of the company and feasibility study |
| 2004 | Suomussalmen kunta | 13 MW biofuel + 25,7 MW heavy fuel oil-fired district heating plants' emission trade documents, emission control, phase 1 | Document preparation, emission control planning, consultancy services |
| 2004 | Jyväskylän Energiantuotanto Oy | Rauhalahti biofuel and peat power plant (295 MW _{fuel}). Flue gas condensing and heat recovery unit (60 MW _{th}) | Procurement planning, evaluation of tenders, expert services |
| 2004 | Foster Wheeler Oy | Keljonlahti biofuel and peat-fired power plant (480 MW _{fuel}), flue gas and heat recovery unit (100 MW _{th}) | Procurement planning, evaluation of tenders, expert services |
| 2004 | Demolite Oy | Incineration of chromated copper arsenate (CCA) treated waste wood | Evaluation of gate fee, process expert services |
| 2003 – 2004 | Tartu Energia AS Tartu, Estonia | Biofuel-fired boilers (2 X 18 MW): Flue gas condensing and heat recovery | Simulation and engineering services, evaluation of tenders, project expert services |
| 2003 | Turku Energia Oy | Waste to energy boiler (7 MW _{th}) | Feasibility study |
| 2003 | Vapo Oy Energia | Biofuel district heating market and power plants in Sweden | Evaluation study |
| 2003 | Kiviristin Lämpö Oy and Vapo Oy | Biofuel-fired combustion power plant (3 MW _e / 13MW _{th}) | Simulation, feasibility study |
| 2003 | Kauhavan Kaukolämpö Oy | Biofuel-fired district heating plant (5 MW _e / 6 MW _{th}) | Process expert services |
| 2003 | Ähtärin Lämpökeskus Oy | Biofuel-fired boiler plant (4 MW _{th}) Flue gas condensing and heat recovery unit (2 MW _{th}) | Feasibility study, procurement and engineering services |
| 2003 | Virtain kaupunki | Heating of sidewalk and bicycle track by DH return water | Feasibility study |

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|------|--|---|--|
| 2003 | Lapuan Nahka Oy | Energy systems | Energy consumption study |
| 2002 | Kvaerner Pulping Oy | Flue gas condensing and heat recovery | Simulation and process design/engineering services |
| 2002 | Noviant CMC Oy (Metsa Specialty Chemicals Oy) | CMC Mill, Äänekoski Finland Energy systems | Feasibility study: "Energy consumption" |
| 2000 | Powertechnics Oy/ Empower Oy | Power plant, Sines, Portugal Utility systems, outsourcing | Technical evaluation, "Due Diligence" -report |
| 2000 | Sallan Aluelämpö Oy | Flue gas condensing and heat recovery | Simulation |
| 1999 | Kvaerner Pulping Oy/Sydkraft Malmö | Flue gas condensing and heat recovery unit (17 MW _{th}) for 150 MW natural gas-fired CHP boiler plant | Simulation |