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Institute for Studies and Power Engineering

**Institutional, financial and technical
consulting services for promoting
Hitachi systems with gas turbines**

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Studies and Project

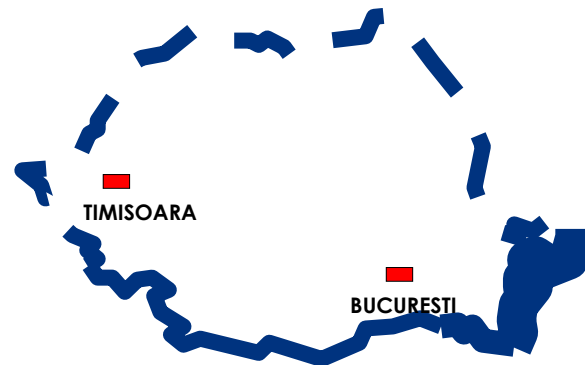
Financing Department

April 2013

In brief

Strategic partner in the development of investment projects

- ✓ **over 60 years** of activity
- ✓ private company since 1996
- ✓ **consulting and complex engineering services** for local and international clients from the public and private sector
- ✓ **integrated technical, financial and commercial solutions** at regional, national and local level for a sustainable energy future
- ✓ average turnover of more than **17 mil. EUR/year** in the last 3 years
- ✓ **Integrated Management System** according to ISO 9001, ISO 14001, BS OHSAS 18001, ISO/CEI 27001 and SA 8000



Business Areas

Power and Heat
Generation

Power
Transmission
and Distribution

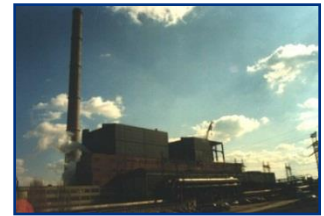
Renewable
Energy Sources

Energy Efficiency

Environment

Municipal
Services

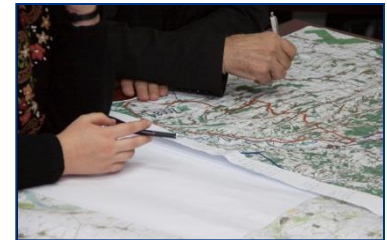
Other industries



Services

ISPE develops and implements integrated solutions for:

- ✓ research, development and innovation
- ✓ basic engineering and detailed design
- ✓ project management
- ✓ technical, institutional and financial consulting
- ✓ knowledge transfer
- ✓ other services



Services

Energy Efficiency in Industry (1)

Technical, economic and financial consulting

Complex energy audit:

- Initial condition diagnosis
- Technological and process flow diagram
- Preparing of energy balance sheet
- Measures and recommendations for energy efficiency increasing:
 - Development and implementation of energy conservation solutions/technologies (residual energy recovery)
 - Development and implementation of solutions/technologies to waste energy recovery
 - Development and implementation of solutions/technologies of Smart Grid / Smart Metering
- ✓ Documentation of technical risk analysis and technology
- ✓ Viability analysis of project operators and of projects' opportunity based on technological, environmental, economic, commercial and social criteria
- ✓ Analysis of support schemes for energy-efficiency projects
- ✓ Technical and economic analysis of projects – opportunity, prefeasibility and feasibility studies
- ✓ Cost-benefit analysis
- ✓ Business plan



Services

Energy Efficiency in Industry (2)



Technical, economical and financial consulting

- ✓ Identifying adequate financing/funding sources for project investments by accessing national/bilateral/international programs, investment banks, dedicated financial institutions and adequate financial mechanisms
- ✓ Financial modeling of the optimal financing structure of the investment projects
- ✓ Technical assistance for accessing refundable and non refundable funds
- ✓ Social, economic and environmental impact assessment
- ✓ Tender documents
- ✓ Comparative analysis of technical and financial offers of investment projects

Project management (at design phase and turnkey project phase)

Basic and detailed engineering

- ✓ Technical project specifications and detailed design for upgrading of existing equipment/ new equipment installation
- ✓ Projects evaluation
- ✓ Technical documentation approval, installation and repair
- ✓ Turnkey projects

Documentation for authorization, technical approvals and licenses



Results – Immediate Benefits

- ✓ Reduction of primary energy consumption
- ✓ Minimizing the loss of heat and electricity
- ✓ Using local energy resources, including renewable energy resources
- ✓ Using modern equipments with high efficiency technologies made world-wide
- ✓ Elasticity and increase operational safety



Increased safety in operation

Low maintenance and operation costs

Low production costs

Protecting the environment



Recent References – EE in industry (I)

Year	Client	Project
2012 on going	IPIP	New refinery cogeneration plant ADEN, Yemen - Phase I. Definition solution
2012	EGL GasX Power Romania	Rehabilitation of Pitești Sud CHP (FS)
2012	Electrocentrale Galați	Adapting production of heat and power consumption requirements given the need to reduce their consumption and production costs (FS)
2012	Energy Cogeneration Group	Implementation of cogeneration units with gas turbines to Săvinești and Fagaras (FS)
2008-2012	INTERAGRO	Cogeneration units at AMONIL Slobozia, AMURCO Bacau, SC DONAU CHEM SRL Turnu Magurele, GA-PRO-CO CHEMICALS Săvinești, Nitroporos Fagaras-gas turbines and heat recovery boilers (Technical design and details)
2011-2012	ICEMENERG	Study on the implementation of specific consumption (energy per unit of product) in key sectors of the economy
2011	Administrația Porturilor Maritime - Constanța	Complex energy balance
2011	CFR	Implementing a high efficiency model for the current energy system Determination of optimal solutions to cover electricity demand (SPF, SF) Mains electricity production to meet demand in gas combined cycle technology
2011	COMCEH	Risk study 6kV substation
2011	Electrocentrale București ELCEN	Efficiency in Grozăvești CHP by implementing a cogeneration unit (combined cycle) of 63 MW
2011	ELECTROMONTAJ	Development risk study of implementation of 110kV underground electrical lines location near Bucharest Vest CHP



Recent References – EE in industry (II)

Year	Client	Project
2011	EUROSUN MANAGEMENT & CONSULTING București	Energy balance for ELSID and ELECTROCARBON Slatina
2011	OLTCHIM Râmnicu-Vâlcea	Development of new production from Platform Electricity Ramnicu Valcea and Pitesti Petrochemical Division
2011	Municipality Roșiorii de Vede	Household heat supply from cogeneration process in various cities in Romania - Roșiorii de Vede
2009-2011	SNGN ROMGAZ	<ul style="list-style-type: none"> Optimizing energy consumption in compressor stations, natural gas by using using cogeneration / trigeneration equipment in Band, Taga, Grebeniș, Sanmartin Cogeneration power plant on Platform GHCL - UPSOM Ocna Mures (SPF)
2011	IRIG IMPEX	Technical/technological risk analysis to the natural gas distribution system installation and pipeline replacement in Progresu CHP
2011	TRANSDANUBE Industries	Service quality monitoring and power quality Oltenița South 110kV
2010	Q-Power	Integrating a heat recovery channels in company ARTIC PAPER Kostrzyn Poland
2010-2013	EACI - IEE	Promoting best practices of innovative smart metering services to European regions – SMARTREGIONS
2010	RAAN Sucursala ROMAG TERMO	Installing an energy unit (gas-steam cycle) to provide the necessary power to operate ROMAG PROD
2010	ECOPAPER Zărnești, jud. Brașov	Energy balance



Recent References – EE in industry (III)

Year	Client	Project
2010	Electrocentrale București ELCEN	<ul style="list-style-type: none"> Improved combustion process for two type 8A HOB within Progresu CHP by introducing mixed gas-oil operating burners, Improving operational, financial and environmental activities of plants in Bucharest
2010	ALUM Tulcea	Complex energy balance
2010	MECHEL Târgoviște	Measuring TTR parameters related to supply circuit of an arc furnace filter optimization calculation RC
2008-2010	PETROM	800MW PP running on natural gaz <ul style="list-style-type: none"> Detailed engineer– approvals and dpcumantations Modernization of steam generation, transmission and distribution process to the field cluster Suplacul Barcău
2008-2010	PHARE	Rehabilitation of district heating in Botosani, Focsani, Oradea, Ramnicu Valcea for the period 2009-2028 in order to comply with environmental legislation and energy efficiency norms
2009	COLTERM Timișoara	<ul style="list-style-type: none"> Consultancy services in EE – energy balance Completing and updating "Local Strategies for heat consumers connected to the district heating system in Timișoara Timișoara Centru CHP modernization (FS)
2009	Municipality of Timisoara	Energy recovery from municipal waste - an integrated facility in Timisoara Sud CHP (PFS, FS)



Recent References – EE in industry (IV)

Year	Client	Project
2008	DALKIA TERMO PRAHOVA Brazi Working point	<ul style="list-style-type: none"> • Cogeneration unit 26MWe, 20 Gcal • Updating the local heat supply in Ploiesti
2008	APATERM GALAȚI	Thermal balance on accounts that include thermal substations and thermal distribution networks to consumer
2008	REGIA AUTONOMĂ DE TERMOFICARE Cluj-Napoca	Updating the local heat supply of Cluj Napoca
2007- 2008	Brăila CHP	<ul style="list-style-type: none"> • Efficiency of district heating system in Braila Municipality • Energy efficiency and consumption reduction for 27 thermal substations in Braila
2008	ECOGEN ENERGY Buzău	Cogeneration implementation unit
2006- 2008	EACI - IEE Pro-efficient cold & lighting products - PROEFFICIENCY	Pro-efficient cold & lighting products- PROEFFICIENCY
2006	CHIMCOMPLEX Borzești, jud. Bacău	<ul style="list-style-type: none"> • Efficient energy system from source to consumer • Engineering services • Diagnostic analysis of the sources and consumption
2005- 2010	Petrotel Lukoil	30MW condensing power plant (SF, technical design specifications, technical assistance)



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