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MASTER DEGREE IN INNOVATIVE TECHNOLOGIES IN ENERGY EFFICIENT BUILDINGS FOR RUSSIAN &
ARMENIAN UNIVERSITIES AND STAKEHOLDERS

TICASS ACTIVITY REPORT

Date	Hours	Place	Teaching staff	Lecture topic
October 19 wednesday	4 h	Ticass headquarter V. B. Bosco 57/4, 16121 Genova	Enrico Pochettino e collaboratori IREN SpA Capannelli, Cepolina (ticass)	Overview on activities developed by IREN Group in the energy field: electricity (production, distribution and sale), thermal energy for district heating (production and sale), gas (distribution and sale).....
	4 h	Ticass headquarter V. B. Bosco 57/4, 16121 Genova	Valter Mantelli Iplom refinery Capannelli, Cepolina (ticass)	Applications and optimizations of energy and Heat Transfer recovery on refinery plant
October 24 Monday	4 h	cogeneration plant "Torino Nord" Strada del Pansa, Torino.	IREN Torino Enrico Pochettino assieme ai sui collaboratori Capannelli, Cepolina	Visit to industrial plant of heat recovery and thermal heat transfer in the Torino town. Torino Nord project (cogeneration plant and district heating networks)
	4 h	cogeneration plant "Torino Nord" Strada del Pansa, Torino.	IREN Torino Enrico Pochettino assieme ai sui collaboratori Capannelli, Cepolina (ticass)	Visit industrial plant of heat recovery and thermal heat transfer used in the Torino town Torino Nord project (cogeneration plant and district heating networks)

Date	Hours	Place	Teaching staff	Lecture topic
October 28 Friday	2 h	Ticass headquarter V. B. Bosco 57/4, 16121 Genova	Roberto Bergamino Cepolina (ticass)	Waste energy recovery from gas expansion in urban NG networks: The experience from Genoa Demonstrator
	2 h		Di Tanna, Cozza Boero Vernici	Boero paints: materials for building to incises energy efficiencies
	4 h	Ticass headquarter V. B. Bosco 57/4, 16121 Genova	Maria Fabianelli, e collaboratori (IRE) Capannelli, Cepolina (ticass)	Ligurian Agency for Energy Case Studies The energy policy of the Liguria region: production, renewable energy and energy saving
October 31 Monday	4 h	Ticass headquarter V. B. Bosco 57/4, 16121 Genova	Ing. Megna società di ingegneria MBS Capannelli Cepolina	Energy efficiency calculations
	4 h	Azienda Agricola Serre sul Mare di Ferrari Alessandro e Bruzzone Stefano Salita R. Ascherio, 3a - Genova Pra'	Stefano Bruzzone Capannelli Sara	Visit a greenhouses with renewable energy
November 17 Thursday	4 h	Impianto Iren Gavette Via Piacenza, 54, Genova	Roberto Bergamino Capannelli, Cepolina (ticass)	FP7- ENERGY SMART CITIES 2012.8.8.2: CELSIUS project: smart district heating and cooling solutions
	4 h	<i>Remotti classromm, via Balbi 5V floor</i>	Paolo Castiglieri Comune di Genova <i>(cancelled)</i>	Genova Smart City Association activity and projects into the energy efficiency filed

TEACHING STAFF

Enrico Pochettino (M) (IREN S.p.A.): Born in Torino in 1975. He is currently Head of Internationalization and Innovation Department in IREN Group. He is graduated in business administration and joined IREN in 2000. He has served in the Group holding as Investor Relations Manager and M&A Manager dealing with extraordinary projects and deals in the energy, water and utility services field. He is currently in charge for Innovation projects for IREN Group and leads the internationalization process of the Group

Valter Mantelli: he is the Technical Director of IPLOM'S Refinery. He supervises several departments: Engineering, Research and development new investments, Technical assistance to process plant and off-site, Quality Control, Purchase Department, Automation (DCS, ESD, Advanced Control System), Energy Management. He is involved in some other relevant tasks : European Directive REACH, European Directive ETS (Emission Trading System), IPLOM EPRA Deputy (ex CONCAWE, European Petroleum Refiners Association), IPLOM Responsible of research European projects.

In the last 25 years he has been involved in several tasks in the refinery: Project Manager Coordinator, Refinery economic optimization and planning (Linear programming modelling), Operations Manager, Process manager. He is author / co-author / editor of publications and papers on Energy Efficiency, mathematical models of energy and mass reconciliation, refinery models. He is an EGE (Expert Energy Management) certified (UNI11339) by SECCEM.

Gustavo Capannelli

He is Associate Professor of Industrial Chemistry. He is coordinator of the research group "Membrane and membrane processes", located at the Department of Chemistry and Industrial Chemistry. His research activity is principally dedicated to the preparation and characterization of membranes for application not only in conventional membrane processes (microfiltration, ultrafiltration, nanofiltration, reverse osmosis, etc.) but also in innovative fields (catalytic membranes, catalytic membrane reactors, membrane contactors, etc.). He has held scientific responsibility over research contracts with industries and private structures

Luca Piantelli He is an Energetic and Nuclear Engineer. He worked in the engineering office of Thermoelectric Production division of IREN Energia from January 2012 to January 2015, involved in power plant, auxiliaries and district heating system design and in maintenance engineering, focusing on CCGT and WTE plants. He is currently in the Internationalization and Innovation Dept. in IREN.

Roberto Bergamino He has a degree in Mechanical Engineering from the University of Genoa. Long experience as Project Engineer and operations Director for energy companies in the design, construction and commissioning of conventional power plants (coal, oil, natural gas) for the production of electricity and as Manager of Companies of natural gas distribution. He was Managing Director of various companies operating in the field of road maintenance, public services and gas distribution. He has implemented numerous innovative operational technologies for the renovation of underground technological networks (gas, water, telecommunications) and has participated in European projects including the CELSIUS project.

Giampaolo Pasino is an Architectural Coatings Development Manager of Boero Group. Since 2000, he follows mainly the Architectural Coatings dedicated to Exteriors as an expert and promoter. Since that date, he accomplished with his team more than 70 colour plans of historical cities all around Italy. He also followed many requalification projects made through colours and special surveys on the colour influences on "delicate" people (i.e. people/children in hospitals for long terms, residents for ancient people etc.). Since 2006 he is the manager/expert/promoter of the Insulation Systems of Boero Group. Since 2014 he is a member of the Marketing Office for the Architectural and Deco Business Unit of Boero Group.

Maria Fabianelli: Management of the department, expert in Energy Planning and energy balances, Market Studies, Feasibility studies in the energy field, Dissemination Programmes. Support to the transposition of norms, support to energy policy making. Expert in the management of technological innovation projects for hospitals. In charge of the management of the regional consortium for energy procurement. Manager of many EU projects, she participated in FP7 Smart City project "Transform". Supervision of National Ministry's guidelines on ESCO contracts. She coordinated the elaboration of Genova's SEAP and is member of the Genoa Smart City Association and is vice-president of Fedarene in charge with buildings efficiency. She takes part, on behalf of Liguria Region, to the Action Group on Energy in European Strategy for the Alpine Region (EUSALP) and she is lecturer at training courses and master's programs. In 1996 she founded the regional agency for energy named ARE Liguria which she led as CEO up to 2013, when the company was dissolved into the newco IRE. Italian mother tongue, fluent French, good English.

Silvia Moggia Expert in energy planning and energy-CO2 balances development and energy data collection. Coordinator for the elaboration of the new Regional Environmental and Energy plan and the maintenance of the regional energy-emissions data collection system. Expert in Covenant of Mayors SEAPs development and monitoring, she elaborated the SEAP for the Municipality of Genoa. Project manager of EU projects (i.e. EIE "SEAP-PLUS" and INTERREG IVC "Climact"). She was in charge of the project Civitas "Caravel" for clean mobility in Genoa. Official advisor of eea® methodology for energy labelling of municipalities. Expert in mini-hydro power plants. Italian mother tongue, good English.

Lorenzo Megna, graduated from the University of Genoa in 2003 in the energy sector, has played technical management activities at local companies gaining experience in the industrial processes and tertiary applications areas. He is an expert in the design of electrical systems and in the energy efficiency and rational use of resources. In recent years he carried out activities into the design and consulting services related to installation and verification of renewable energy plants connected to the EU directive 2001/77/CE. He was recently engaged in the following relevant tasks such as: support into the assessment of public works of energy efficiency (municipalities, metropolitan areas), planning and management audit of industrial processes, study of high efficiency solutions for small applications at private residential level.

Riccardo Biggi, graduated from the University of Genoa in 1999 in the energy sector, has played technical management activities at a company leader in the lighting industry. He is an expert in the design of electrical systems and in the energy efficiency and rational use of resources. He worked as a consultant for the managing body of national electrical services in the field of the verification for the distribution of the (photovoltaic) incentives related to the EU directive 2001/77/CE. He was recently engaged in the following relevant tasks such as: support into the assessment of public works of energy efficiency (municipalities, metropolitan areas), planning and management audit of industrial processes, study of high efficiency solutions for small applications at private residential level.

Paolo Castiglieri he has a degree in Economics and Business at University of Genoa. He works in the Municipality of Genoa as Responsible for the Smart City and European Projects office within the Strategic Planning department. His activity is particularly focused on reinforcing the strategic framework to enhance the process toward the Smart City. The activities implemented foresee a strong integration among technology, European projects and international crowd funding. Since 2012 to 2015, he was in charge of the ICT Strategy and European Projects coordination within the Strategic Planning Department. His fields of interest are Data Management, Security System, Service Oriented Architecture, Big Data Analytics and Internet of Things.

INVOLVED COMPANY'S PROFILE:

IREN is a top player in the Italian multi-utilities sector with a leading position in its business areas, a balanced mix of regulated, semi-regulated and market-based activities and a strong integration between upstream and downstream activities. Thanks to its business assets, its past and current investments, its positioning in all its business areas in all phases of the energy value chain, and its roots in the local territory, IREN is now one of the major Multi-utilities Groups on the Italian scene. The IREN Group operates in the following sectors: electricity, gas, district heating, integrated water service and waste, and it also provides other public utility services (public lighting, traffic light services and facility management). It is a diversified business model, characterized by a mix of market-based activities and regulated and semi-regulated activities (the last two generated more than 75% of 2015 EBITDA) which ensures solidity, development prospects and reduced risk levels. The Group, listed in the stock exchange with a market capitalization of around 2 billion euros, serves a multiregional catchment area with over 7,000,000 inhabitants, has 6,500 employees, revenues of 3,1 billion euros in 2015, a portfolio of more than 1.5 million customers in the energy sector and more than 4.6 million inhabitants served in the integrated water and waste cycles.

Iplom was formed in 1931, originally Individual Firm, became Limited Partnership in 1963 and Joint-Stock Company in 1973.

Iplom's object is refining of petroleum raw materials in his Refinery of Busalla, located at 30 km from the port of Genoa, to which is connected by two pipelines, for crude oil and products.

Iplom operates at his terminal and booster station at the Petrol Port of Genoa, where can be received tankers without any restrictions.

The Refinery is also linked to the pipeline- network that supplies the northern area of Italy.

Iplom is equipped with tanks for 230'000 cm at Busalla plus a coastal storage in Genoa of 250'000 cm, therefore the whole storage capacity is about 480'000 cm.

In addition of delivery by pipeline and tankers, we can load our products by trucks and by wagons.

The capacity of the Refinery is of 45.000 b/d, mainly consisting for the 50% of sour heavy crudes of Middle East origin and for the other 50% of sweet crudes from north and west Africa.

The plants of the Refinery are a topping unit, a vacuum unit, two hydrotreating, one section to desulphurise atmospheric diesel and a second section for the vacuum gasoil, two steam reforming units to produce hydrogen, a Claus unit, several ammine units. A new hydrocracker unit was started up in 2012. We produce virgin naphtha, diesel, very low sulphur fuel oil, liquid sulphur and bitumen. Iplom is one of the most important producer of this product in the north of Italy.

Boero Group is present in the paint market for building and yachting since 1831.

Its business activities covers all areas: R & D, manufacturing, distribution, technical assistance. With regard to the production, Boero has a high-tech production facility in Rivalta Scrivia (AL - Italy) and it can provide more than 100,000 ton/year of certified products.

In the Architecture & Decorative area, Boero Group produces solvent and water-based topcoats and anticorrosive paints; varnishes, woodstains and primers; products for interiors, hygienizers, reclaimers, primers; products for exteriors: latex, silicates, siloxanes, elastomeric; mortars, limes, fillers; colorants and thinners. It also provides thermal insulation composite systems for buildings; tinting systems: universal, water-based, solvent-based; technical assistance and training.

In the Yachting division, it offers one of the world's most complete range of top-level and high-performance products for yachts' painting and maintenance: antifouling paints, primers, fillers, undercoats, topcoats, varnishes, epoxy resins, thinners. With the brand Boero Yacht Coatings it has the leadership for superyacht painting systems and it provides a highly qualified and specialized technical assistance.

Nowadays Boero is a Group with over 180 years of history and it is a company which looks to the future, with the experience of its tradition and it focuses on product quality, technology, innovation, but mainly on customers' satisfaction. For further information, please consult our website www.boerogroup.com

IRE is a joint-stock company established in 2014 by Italy's Liguria Region as a result of the merger of three regional companies dealing respectively with infrastructure development, building and urban renovation and energy. Aim of the company according to the regional Law nr. 6/2011 is urban and infrastructure development in the Region and the implementation of energy policies. Tasks of the company are feasibility studies, tendering procedures, public works management, energy planning support to local public entities, implementation of energy innovation projects, elaboration of urban regeneration projects and their management, social housing retrofitting, support to the Region in the management of the ERDF related calls and EU funds research.

IRE has over 30 employees with skills and experience in the engineering, architecture, energy and public procurement sectors. The company is divided into three business units: infrastructure development and building renovation, energy, administrative.

Azienda Agricola Serre sul Mare di Ferrari Alessandro e Bruzzone Stefano. Over the years we have progressively transformed and modernized our facilities, based on the principle of matching the peasant expertise of our family with the opportunities offered by the advanced technologies available nowadays for plant protection and cultivation facilities.

With the goal of improving product quality and safety and attaining at the same time satisfactory production yields and energy savings we improved our seeding and cropping systems, installed a set of photovoltaic panels and underfloor heating systems in greenhouses, heated by condensing gas boilers.

In this way we were able to cut down electricity costs and reduce CO2 emissions to atmosphere, while assuring a the best habitat inside greenhouses through an accurate automated system for environmental control.

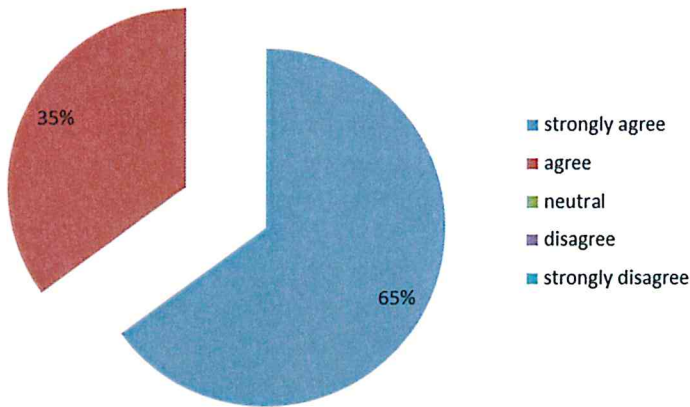
So we can optimize the production process and improve at the same time the quality of our basil, since we fight against possible arising of phytopathologies in the most environmental-friendly manners, i.e. through a controlled environment based on physical processes instead of using chemicals. www.serresulmare.com

GenovaSmartCity Association was founded upon the initiative of the Genoa Municipality, the University of Genoa and Enel. So far, it includes almost eighty members, which are public and private entities. Its aim is to identify not only the transformation process and program in order to turn Genoa into a smart city, but also actions, projects and initiatives that may be help achieving this goal. Genova Smart City aims at re-conceiving the city, chasing the concrete utopia of a people-oriented urban environment. Such goals may be achieved by improving the quality of life in its whole, so that the city could be more livable by making service and information, as well as the use of resources and the development of an overall sustainable economy smart.

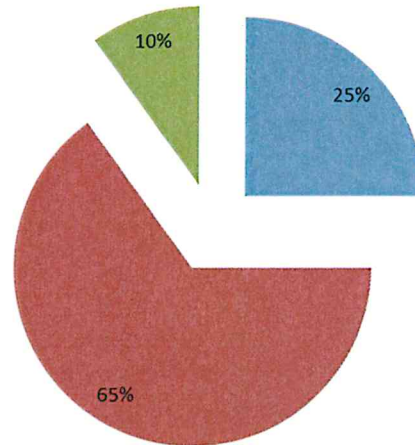
Training quality perception

At the end of the training a survey has been conducted by questionnaire in order to collect feedbacks by the young teaching staff. The outcomes of the survey highlights a very high satisfaction level, as could be appreciated by the following charts.

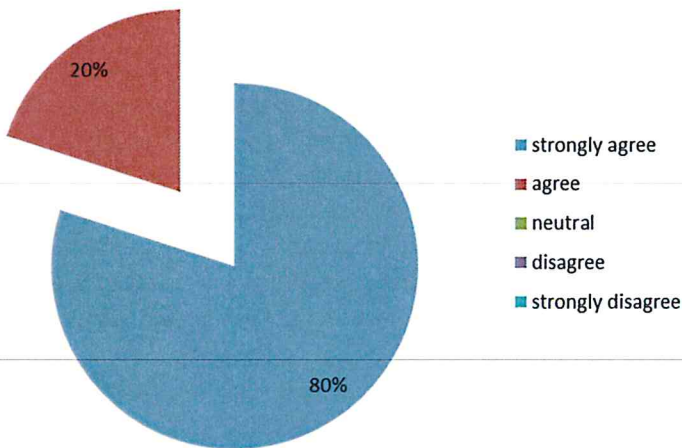
Participation and interaction were encouraged



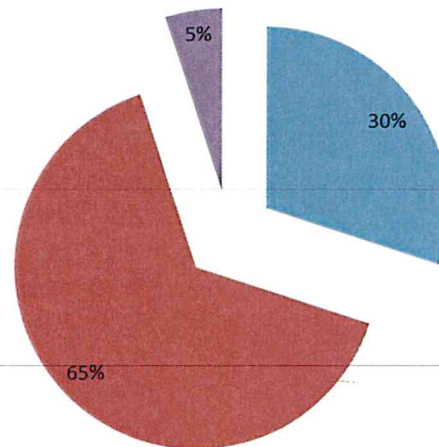
The topics covered were relevant to me



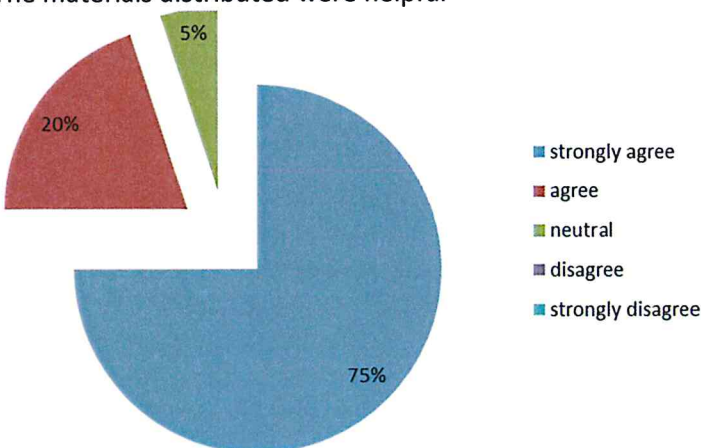
The content was organized and easy to follow



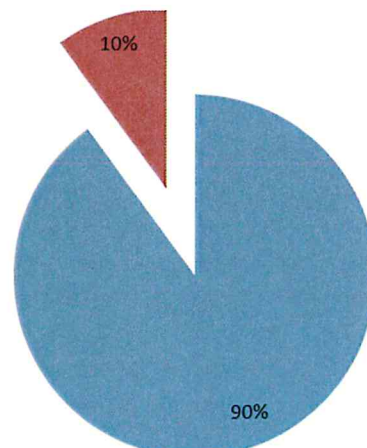
This training experience will be useful in my work.



The materials distributed were helpful

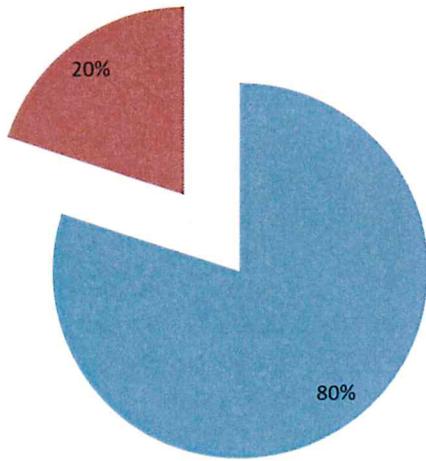


The trainer was well prepared

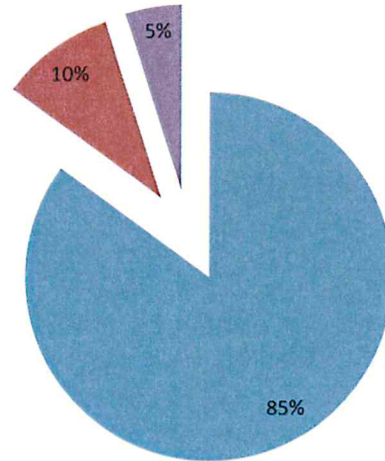


External visits were relevant

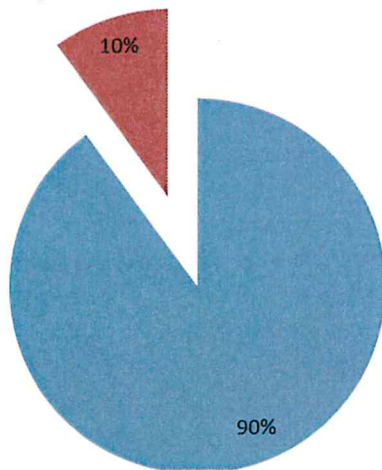
External visit were well organized



- strongly agree
- agree
- neutral
- disagree
- strongly disagree



The meeting room and facilities were adequate and comfortable



- strongly agree
- agree
- neutral
- disagree
- strongly disagree

Other relevant outcomes of the survey regards the topics included into the program. More than half of the surveyed people suggested to include lectures into the civil engineering and architecture fields for further improvement. According to the above mentioned outcome the second favourite lecture is the one devoted to the insulation, coating materials in the building sector.

Coordinatore scientifico
Prof. Gustavo Capannelli



Redatto
Sara Cepolina



TICASS S.c.r.l.
TECNOLOGIE INNOVATIVE PER IL CONTROLLO
AMBIENTALE E LO SVILUPPO SOSTENIBILE



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