



New generation of intelligent efficient District Cooling systems

Inside

- Clustering Event ①
- Interview Veolia ②
- Interview Daikin ③
- Interv. Schneider ④



Jesús Febres and Raymond Sterling on SP2019



This is an extraordinary issue of the project's newsletter. In here you will find an interesting insight into the potential of INDIGO to the different stakeholders: first a summary of the clustering workshop organized by INDIGO with different research projects. Then you will find the industry view, via the interviews with members of our External Advisory Board, which are top experts in the field.

Clustering Event

INDIGO organized for the third year in a row a clustering workshop within the Conference Sustainable Places 2019. The title of the workshop was "District and Building Energy Systems: A collaborative exchange of results on optimal system operation for energy efficiency", focusing on optimisation of energy systems. The event, moderated by Raymond Sterling (R2M Solution), counted with the participation of the projects:



INDIGO: Jesús Febres (IK4-Tekniker).



Thermoss: Federica Fuligni (Exergy).



E2District: Martin Klepal (Cork Institute of Technology).



OPTi: Khalid Atta (Lulea University of Technology).



RESPOND: Nikola Tomasevic (Institute Mihajlo Pupin).



REACT: Federico Seri (NUI Galway).

Project facts

Project Type: Research and Innovation Action Start Date: March 2016
Call: H2020-EE-2015-2-RIA Budget: €2.229.321,25 Duration: 42 months

Interview to Arnaud Martínez, Veolia Group

Veolia group is the global leader in optimized resource management. With over 171,000 employees worldwide, the Group designs and provides water, waste and energy management solutions which contribute to the sustainable development of communities and industries. Through its three complementary business activities, Veolia helps to develop access to resources, to preserve available resources, and to replenish them.

www.veolia.com

Arnaud Martínez has completed numerous educational qualifications including two HND Certificates in Energies and HVAC and Industrial refrigeration. In 1996 he began working in Veolia group as an Operations Supervisor, swiftly moving on to Head of Sector in 1997. Through the years he has been scalating positions and has been appointed to Dubai, Bahrain and Asia. In 2018 Arnaud joined the Technical & Performance Department at Veolia Corporate as Expert in district heating and cooling network as well as in thermodynamique equipment.



Arnaud Martínez

Project Manager - District Energy
Expert Cooling Networks,
chillers & Heat Pumps
Technical & Performance
Department

1- Why is District Cooling interesting for you?

District cooling is important to Veolia as it helps the cities to contribute to preserve their natural resources and to provide a healthy environment for their inhabitants. It reduces cities environmental footprint through value added solutions and synergies between urban services. District cooling improves access to and replenish resources through energy recovery, renewable energy.

Based on the above targets, Veolia manages local production and distribution of chilled water by using the best available technologies and maximize the supply of local and residual energy. Veolia is strong in successful references where cooling is provided to offices building, residential, hospitals and educational institutions.

2- Why is Veolia interested in INDIGO?

For a successful implementation of a district cooling plant, the connection planning of existing and future buildings is key. It will impact the ramp up, the technologies, the utilities employed and the availability of the energy consumed or supplied. Indigo project targets to deliver a simple tool to assess different technical solutions based on different utilities input, consumption profiles and connection ramp up.

3- What do you expect from the project?

The main expectation is to have an easy and accessible tool to assist on project feasibility to assess the technico-economical impact for the implementation or not of a district cooling network.



Veolia Headquarters - Aubervilliers, France

Interview to Rafael Pérez, Daikin Europe

Daikin Europe N.V. is a multinational and leading manufacturer and supplier of HVAC-R (heating, ventilation, air conditioning and refrigeration) equipment. We provide innovative, premium quality indoor climate management solutions to meet the changing needs of our residential, commercial and industrial customers. Today, the Daikin Europe Group boasts a powerful sales network of 17 affiliate companies, 4 sales offices and an entire network of independent distributors and sales contracts in more than 50 countries throughout Europe, the Middle East and Africa.

www.daikin.eu

Water cooled oil free centrifugal Chiller



Rafael Pérez Cortines

Senior Business Development Officer
Daikin Europe

Rafael is currently working as a senior business development officer on the setup and management of energy solution business activities in the EMEA region. Responsibilities include: analysis, design and implementation of business models, focused on energy efficiency, system controls, and financing. Previously, worked as a consulting sales engineer, technical and sales support and deputy project manager.

Educated as an industrial engineer with masters in business administration, in marketing and commercial management, in finance, in building installations and, in efficiency and energy services.

1- Why is District Cooling interesting for you?

District Cooling Systems are typically used in locations where both thermal load and operating hours are high, serving densely populated urban areas and high-density building clusters. It can create an economy of scale that drives efficiency, balances electric loads, and reduces fuel costs. Furthermore, regardless is a public or private facility, it might have economic and environmental benefits. It is also interesting to me how to manage the Political feasibility which must be considered. Usually, successful district cooling installations had the political backing and support of the community.

2- Why is your Daikin interested in INDIGO?

Cooling products have contributed to higher quality lifestyles and economic growth and are a key part of today's society. However, the resulting growth of electricity consumption and refrigerant emissions causes concerns due to the environmental impact, such as climate change. As Daikin, we believe that a company cannot grow its business unless it contributes to solving environmental problems. We, therefore, work on spreading the use of environmentally conscious products and systems that use energy-efficient technology and refrigerants with lower global warming potential. In this sense, I believe the INDIGO project is completely aligned with this direction.

3- What do you expect from the project?

Besides District Cooling applications are conceived for large installations, it is also true that the concept and technology can be applied to a smaller scale, such as a tertiary building. Thus, I expect to apply some of the results of the project to buildings where chillers are typically involved in aiming to improve the energy efficiency of the systems

Interview to Patrick Beguery, Schneider Electric

Schneider Electric is leading the Digital Transformation of Energy Management and Automation in Homes, Buildings, Data Centers, Infrastructure and Industries. With global presence in over 100 countries, Schneider is the undisputable leader in Power Management – Medium Voltage, Low Voltage and Secure Power, and in Automation Systems. It provides integrated efficiency solutions, combining energy, automation and software.

Schneider Electric makes it possible for IoT-enabled solutions to seamlessly connect, collect, analyze and act on data in real-time delivering enhanced safety, efficiency, reliability, and sustainability.

www.schneider-electric.com



Patrick Beguery

Simulation Group Senior Expert
Analytics & Artificial
Intelligence
Schneider Digital

Schneider Electric
Grenoble Headquarters



Dr. Beguery is part of the Analytics & Artificial Intelligence team, in Schneider Digital organization. He works on simulation for building, district and microgrid segments, both to support R&D and provide tools to facilitate design and operation of customer specific solutions.

1. Why is District Cooling interesting for you?

Schneider is a leader in energy management, with already existing solutions in a large number of markets including building, district hot water network and microgrid. Cooling distribution network is something new that can be a great opportunity in a world that will require more and more cooling. To secure the efficiency of such a network, you need to consider it (both in design and operation) as a whole, and put in place integrated approach with the right optimization tools.

2. Why is Scheneider Electric interested in INDIGO?

INDIGO is addressing the integrated approach by the development of model, design tool and control solution. It explores both the new technologies of cooling network and what can bring to it usage of advance control solutions. Our main interest in INDIGO project will be the finding and highlights it will bring about this new opportunity to extend district or city level energy management to cooling network.

3. What do you expect from the project?

Among the various deliverable, of the projects, we are particularly interested by the market analysis, model libraries and also by the public web based design tool. The knowledge integrated in these deliverables could help us speed up the potential development of new offer in this domain.

IK4  TEKNIKER
Research Alliance

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IK4-Tekniker (Spain)



VTT Technical
Research Centre
of Finland Ltd
(Finland)



NUI Galway
(Ireland)



R2M Solution Srl
(Italy)



Giroa-Veolia
(Spain)



CSEM, Centre Suisse
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de Microtechnique
(Switzerland)



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