

## Project S3UNICA “Smart Specialisation in UNiversity Campus” 6<sup>th</sup> S3UNICA Newsletter – January 2022

The Covid-19 emergency and S3UNICA

Low-carbon economy

This 6<sup>th</sup> and last issue of the S3UNICA newsletter is published during another period of increase in infections caused by the new variants of Covid-19 that are hitting EU Countries in a more or less accentuated way. It therefore seems that the relaxation of the precautionary measures that took place between April and May of this year (depending on the individual country) was untimely and, for this reason, it was decided to resume the vaccination campaign with further inoculations. Beyond the current situation, which occurs

**Covid-19 vaccination campaign in S3UNICA PPs (data in %)**

(As of 15/07/2022)

|                |          | Uptake of at least 1 dose | Uptake of the primary course | Uptake of the 1 <sup>st</sup> booster | Uptake of the 2 <sup>nd</sup> booster |
|----------------|----------|---------------------------|------------------------------|---------------------------------------|---------------------------------------|
| Population 18+ | Finland  | 82,0                      | 78,6                         | 54,5                                  | n.a.                                  |
|                | Italy    | 92,5                      | 87,5                         | 79,3                                  | n.a.                                  |
|                | Poland   | 60,3                      | 59,6                         | 32,0                                  | n.a.                                  |
|                | Romania  | 42,6                      | 42,3                         | 9,1                                   | 0,1                                   |
|                | Spain    | 87,0                      | 79,0                         | 59,6                                  | 5,8                                   |
|                | TOTAL EU | 75,4                      | 72,8                         | 52,9                                  | 3,7                                   |

Source: European Centre for Disease Prevention and Control (Covid -19 Vaccine Tracker)

precisely in the period of closure of the academic activity, the problem remains of understanding what will happen in the next autumn, when the activities on the university campuses will be fully operational. In other words, the same questions

already asked in the previous issues of the newsletter are unfortunately still relevant: e.g. what will be the consequences of the discovery of new variants of the virus on the educational activity, on the social life of the university campuses and, consequently, on energy consumption and related projects for improving energy efficiency?

Although the Covid-19 has significantly changed the higher educational system (remote teaching and working, low rates of occupancy of campus spaces and consequent reduction of energy consumption), with the exception of some studies at European level carried out by the European University Association - EUA in September-December 2021<sup>1</sup> (see newsletter no.5), there are only few internal studies realized and published by individual universities (i.e. Universidad Politècnica de Catalunya of Barcelona, Politecnico di Milano, etc) revealing how the pandemic has changed the energy use of higher education buildings. However, at this time, or, more than 2 and a half years after the onset of the pandemic, some interesting considerations can be

drawn; it is obvious that the consequences of the pandemic on the energy efficiency plans of a Northern European university (such as the Finnish LUT University) cannot be compared with those of a Southern European university (such as the Universidad de Málaga), not only for climatic reasons but also for the typology of the buildings of the campus, however common elements emerge from the experience lived during the pandemic. First of all, the impact of the Covid-19 was, and still is, a sort of “involuntary” experiment in reducing emissions by universities

### The Partnership of S3UNICA

- PP1 (LP) – Friuli Venezia Giulia Autonomous Region (ITALY)
- PP2 – University of Udine (ITALY)
- PP3 – University of Trieste (ITALY)
- PP4 – Alba Local Energy Agency – ALEA (ROMANIA)
- PP5 – Andalusian Energy Agency – AEA (SPAIN)
- PP6 – Institute of Domestic and Energy Efficiency IDEE – University of Malaga (SPAIN)
- PP7 – Regional Council of South Karelia (FINLAND)
- PP8 – LUT University (FINLAND)
- PP9 – Association of Municipalities Polish Network “Energies Cités” – (POLAND)

<sup>1</sup> • Greening in European higher education institutions -EUA survey data. September 2021  
 • The impact of Covid-19 on European higher education – Survey of national rectors’ Conferences (autumn/winter semester 2021/22. November 2021.  
 • Greening in European higher education institutions – A governance, funding and efficiency perspective. December 2021.

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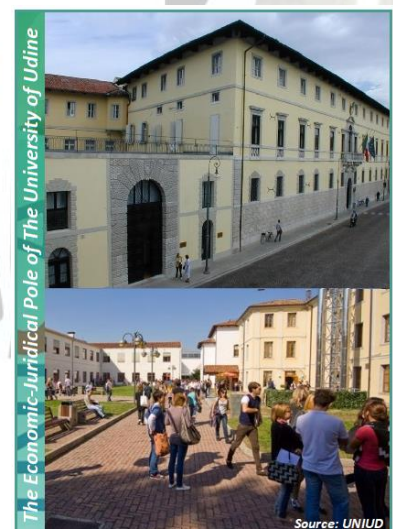
that, for the first time, will allow to understand what is the emissions' "base level" in the absence of students, teaching and non-teaching staff. An "involuntary experiment" that highlights the real differences in university emissions, especially in comparison with previous years.

- The main effect of the lockdown measures due to the pandemic can be seen directly in the reduced energy consumption (between 20% and 30% depending on the individual universities, more accentuated in the electric ones than in the thermal ones) in university campuses (teaching buildings, research buildings, office buildings, libraries, sport centres, guesthouses and mixed-use buildings);
- However, the extent of the impact varied by type and use of the building; The research category was the least affected by situation of the epidemic. This is due to the nature of how the laboratory facilities operate; libraries were the categories most affected by closure during the pandemic.
- The closing period allowed to clearly highlight the need for energy efficiency to reduce a share of consumption also present in periods that should have very low consumption;
- The key question is however linked to whether or not to continue teaching and remote work even in a future post-Covid-19 period. In other words, the consequent decrease in the use of spaces, it could lead to a downward revision of the energy efficiency plans of universities.

In conclusion, the plans for the energy efficiency of the campuses should not change in their general and specific objectives and application solutions (i.e. replacement of obsolete heating/cooling/ventilation systems with latest generation systems, efficient building control and management/Building Information Monitoring (BIM) for monitoring and simulation of data in buildings, energy self-production, low-energy LED lighting consumption, etc.) but could be resized. This depends on whether remote teaching and work will be considered not only as an emergency measure but as a measure to contain consumption and as a plan for the sustainability of the University (even only at certain times of the year, very hot summer - winter. rigid).

### Good "Green" news from the University of Udine!

On 10 May 2022 the University of Udine and Engie Italia - Area Nord (branch of the French multinational Engie, one of the European leaders in decarbonisation and energy efficiency) signed a 10-year partnership for the redevelopment and maintenance of energy systems of 34 buildings of the University. The project includes the redevelopment of lighting with LED technology, the replacement of all heating systems with latest generation solutions, the renovation of refrigeration units, the installation of 3 photovoltaic systems on buildings of the economic - juridical pole and the scientific pole, a cogeneration system. The intervention will result in an overall electricity saving of 20%, avoiding the emission of 900 tons of CO<sub>2</sub> per year. Furthermore, the partnership will allow the university to activate a process of a digitalized system for managing and reporting any failures, in order to guarantee 24-hour monitoring of all electrical and heating systems of the buildings. The University of Udine joins the 23 Italian universities (including, from 2017, that of Trieste for partial redevelopment works) that Engie supports towards environmental sustainability. In the Friuli Venezia Giulia Region ENGIE is also present alongside 18 public bodies and 2 hospital structures, for a total of 250 redeveloped buildings.



**The GreenMetric Report**

*Criteria and Indicators of the UI GreenMetric Ranking*

| Criteria  | Indicators   |
|---|--|
| Energy and Climate Change                           | • Energy efficient appliances usage  |
|   | • Smart Building implementation  |
|   | • Number of renewable energy sources in campus   |
|   | • Total electricity usage divided by total campus population (kWh per person)                        |
|   | • Ratio of renewable energy production divided by total energy usage per year                        |
|   | • Elements of green building implementation as reflected in all construction and renovation policies |
|   | • Greenhouse gas emission reductions program   |
|   | • Total carbon footprint divided by total campus' population (metric tons per person)                |
|   | • Number of innovative program(s) during covid-19 pandemic   |
| • Impactful university program(s) on climate change |  |
| Waste   | • Recycling program for university's waste   |
|   | • Program to reduce the use of paper and plastic in campus   |
|   | • Organic waste treatment  |
|   | • Inorganic waste treatment  |
|   | • Sewerage disposal  |
| Water   | • Water conservation program implementation  |
|   | • Water recycling program implementation   |
|   | • Water efficient appliances usage   |
|   | • Consumption of treated water   |
|   | • Percentage of additional handwashing and sanitation facilities during Covid-19 pandemic            |

Source: UI GreenMetric

In December 2021, was published from Universitas Indonesia the 11<sup>th</sup> edition of the GreenMetric ranking on environmental sustainability in 957 universities of the world (of which 264 European, among those of the PPs of S3UNICA only the Universities of Trieste and Udine are included). This ranking examines, through an online questionnaire, 6 areas and 51 specific criteria for the evaluation of the sustainability policies adopted by the the universities regarding infrastructure, climate change and energy, water management, waste management, transport, and training. Considering here only the parameters concerning energy/ climate change and water/waste management, it emerges that the Universities of the Friuli Venezia Giulia Region, Partners of S3UNICA, occupy gratifying positions. In particular, among the 33 Italian universities included in the survey, the University of Trieste is 1<sup>st</sup> in Italy (jointly with 5 other universities) in waste management (in short, waste treatment and recycling activities), 3<sup>rd</sup> (together with 2 other universities) for water management (in short, decrease

water usage, increase conservation program, and protect the habitat) and 14<sup>th</sup> position for climate change and energy (in short, energy efficient appliances usage, renewable energy usage policy, etc.). The main elements evaluated positively, among others, the presence of green areas (represented, in particular, by Monte Valerio behind the main campus in Piazzale Europa), the services to support the disabled and people with special needs, the implementation of Green Buildings services (remote management of heating, the presence of the Energy manager), the innovative programs implemented during the pandemic to support teaching activities and the provision of services, separate waste collection and the initiatives to reduce the use of paper and plastic, the additional sanitation services adopted as part of the anti-Covid measures, the incentives for staff and students to subscribe to public transport passes, as well as the percentage, compared to the total, of teachings, research funds and events related to sustainability. The University of Udine, on the other hand, ranks 9<sup>th</sup> (together with 3 other universities) in waste management and 13<sup>th</sup> place (jointly with 3 other universities) for water management. More backward instead in the climate change and energy criterion (27<sup>th</sup> place). Also in the comparison with the other 262 European universities included in the GreenMetric



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ranking, emerges a good positioning of the University of Trieste and a position more backward than that of Udine, which, however, thanks to the interventions illustrated in the previous section, in the coming years should be able to rise in the European ranking of the Best “green” universities.

The Universities of Trieste and Udine in the European GreenMetric ranking

|                       | Criteria                  |            |                |         |            |                |         |            |                |
|-----------------------|---------------------------|------------|----------------|---------|------------|----------------|---------|------------|----------------|
|                       | Energy and Climate Change |            |                | Waste   |            |                | Water   |            |                |
|                       | Ranking                   | Max. score | Achieved score | Ranking | Max. score | Achieved score | Ranking | Max. score | Achieved score |
| University of Trieste | 87                        | 2,100      | 1,225 (58,3%)  | 20      | 1,800      | 1800 (100,0%)  | 21      | 1,000      | 900 (90,0%)    |
| University of Udine   | 198                       |            | 625 (29,8%)    | 60      |            | 1.575 (87,5%)  | 87      |            | 700 (70%)      |

Source: UI GreenMetric

### The Project Meetings in Poland



On 8<sup>th</sup> and 9<sup>th</sup> June 2022, the Association of Municipalities Polish Network “Energies Cités” organized the Project Partner Meeting, the Exchange of Experience Event (in online mode) with the participation of 30 attendants and a Study Visit in Krakow. The works began with the Project Partner Meeting during which were discussed the Action Plans (AP), the activities to

be completed by the end of July 2022 and the activities planned in the Phase 2 (7<sup>th</sup> and 8<sup>th</sup> semester – See below). Subsequently, the Exchange of Experience Event began with the presentation by “Energie Cités” of the role of local authorities and local stakeholders in achieving EU climate neutrality targets. After a brief explanation of the European policy on energy transition until 2030 and the role of the Local Self Governments in environmental/climate protection and adaptation to climate change (also in the context of initiatives such as EU Green Deal Going Local, and the Covenant of Mayors), participants were shown the past and present activities of the City of Bielsko-Biała in reducing greenhouse gas emissions. After this, the participants had the opportunity to watch the video created as part of the Project and thus go on a virtual study visit to Bielsko-Biała to learn how the educational community supports the achievement of local climate and energy goals (see below). After the video, the Bielsko-Biała Education Center presented an example of eco-house, a passive house with renewable energy installations, which allows the students to learn how to operate and install various devices, such as a photovoltaic system or a small wind turbine. Then, the University of Economics and Humanities in Bielsko-Biała presented the sustainable development of three Voivodeships (Regions) from the South of Poland (Małopolskie, Śląskie, Opolskie) based on the knowledge obtained from an international project implemented by the University, as part of the Regional Center for Education (RCE) network. The Bielsko-Biała’s Industrial School explained the professional training of a technician of renewable energy devices and systems: a student who passes all the exams becomes qualified by the Office of Technical Inspection to install the following types of systems: biomass boilers and stoves, photovoltaic systems, solar heating systems, heat pumps and geothermal systems. Finally, the Technical and Humanities Academy gave a presentation on the implementation of the European Union’s climate and energy goals at the campus of Bielsko-Biała (i.e. installation of photovoltaic panels

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on the roofs of different buildings of the campus, replacement of old boilers with condensing boilers, installation of heat pumps for initial preparation of hot water, replacement of old cast iron radiators with modern single-panel radiators and replacement of sodium-vapor lamps with LED lamps. The study visit took place on 9<sup>th</sup> June. The visit started at the AGH Energy Centre, a unit of the AGH University of Science and Technology in Krakow whose task is to stimulate the development of scientific and business circles in the

field of power engineering. The 2<sup>nd</sup> part of the study tour was devoted to the visit at Malopolska Laboratory of Energy Efficient Buildings (MLEB-PK), a research and development centre where research on energy efficient technologies is conducted. The study tour allowed participants to learn about the operation of two important facilities at Krakow universities. It was an opportunity to learn about the real effects of actions in the field of energy efficiency, and at the same time it allowed to broaden technical knowledge and see the chances and possibilities of expanding and making good use of university campuses.



Finally, a brief overview on the main results/outputs to be achieved by the 7<sup>th</sup> and 8<sup>th</sup> semester.

|                          |                                 |   |
|--------------------------|---------------------------------|---|
| 7 <sup>th</sup> semester | AP implementation follow-up     | Each region starts the implementation of its AP. Each PP monitors the AP implementation by contacting the relevant stakeholders and beneficiaries of the different actions.   |
|                          | Communication and dissemination | The PPs ensure regular updates of the project website with information on the AP implementation.  |
|                          | Project management              | The LP coordinates, finalises and submits the progress report related to the previous reporting period to the JS.   |
|                          | Main Outputs                    | - Website updates<br>- 1 progress report (covering last semester of phase 1)  |
| 8 <sup>th</sup> semester | AP implementation follow-up     | Each PP finalises the monitoring of the AP implementation and discusses the results the relevant regional stakeholders/beneficiaries. All PPs meet to exchange and draw conclusions on the AP implementation.                                       |
|                          | Communication and dissemination | The PPs organise a final event gathering executives and policy makers from the regions and other relevant institutions. The aim is to promote the Project achievements and to disseminate the results of the AP implementation to a large audience. |
|                          | Project management              | Each PP summarises the level of achievement of its AP. The LP coordinates, finalises and submits last progress report to the JS.  |
|                          | Main Outputs                    | - 1 Project meeting (with participation of at least 90% of PPs involved in Phase 2)<br>- Website updates<br>- 1 high-level political dissemination event (with min number of participants)<br>- 1 annual progress report                            |

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