

**I FEEL
SLOVENIA**

Empowering business

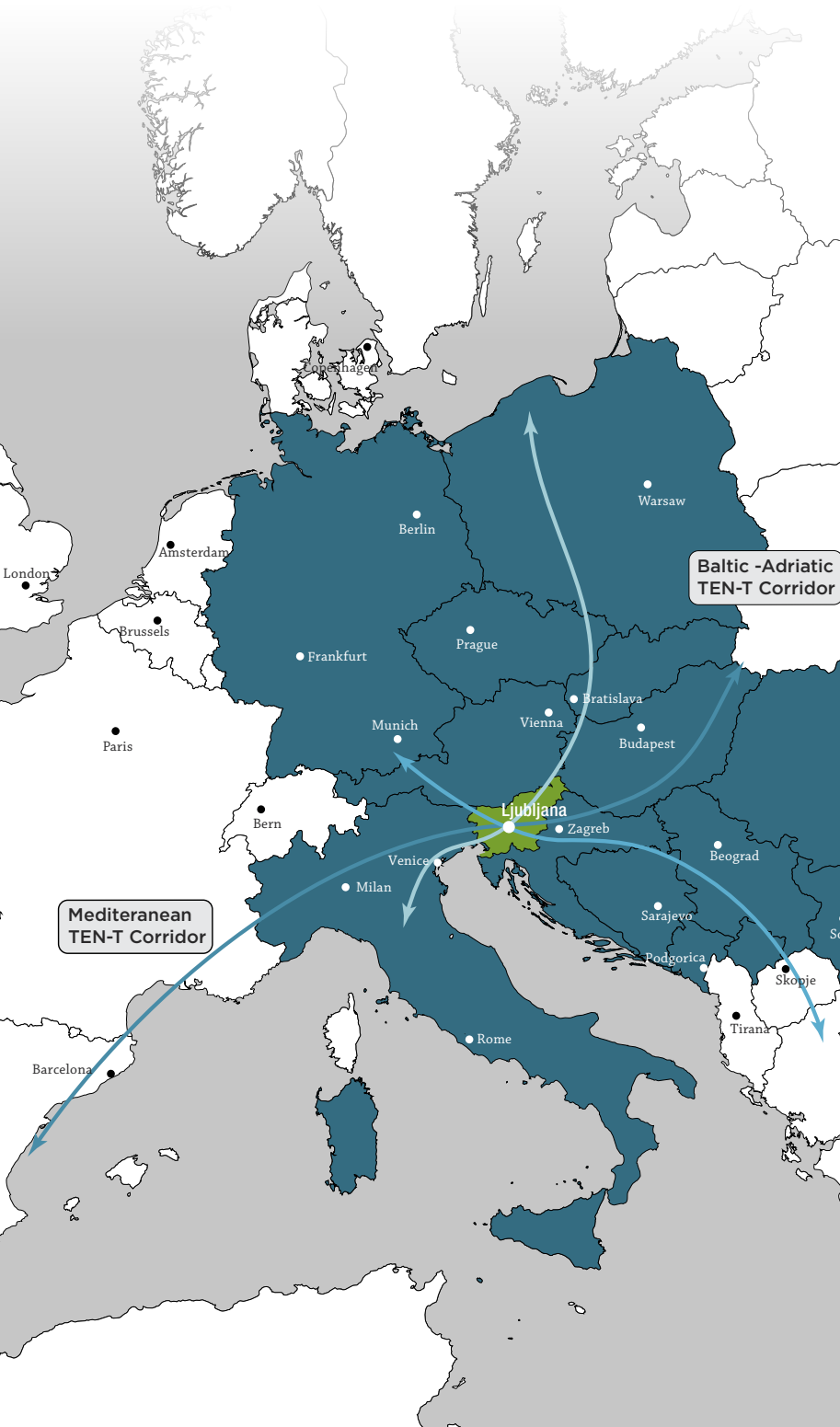
**GREEN.
CREATIVE.
SMART.**



SLOVENIA'S

Green Energy Solutions

FACTS ABOUT SLOVENIA



- **CAPITAL:** LJUBLJANA
- **SURFACE AREA:** 20,273 km²
- **POPULATION:** 2.07 MILLION
- **CURRENCY:** EURO
- **INTERNATIONAL CALLING CODE:** +386
- **TIME ZONE:** GMT/UTC +1
- **MEMBER OF:** EU-28 (2004), NATO (2004), EURO-AREA (2007), OECD (2010)
- Estimated GDP growth for 2021: 4.7% (European Commission, Winter 2021 Economic Forecast)
- Estimated GDP growth for 2022: 5.2% (European Commission, Winter 2021 Economic Forecast)
- Export of goods: EUR 33,519 billion
- TOP Export partners: Germany, Italy, Croatia, Austria, Switzerland, France, Poland
- Imports of goods: EUR 34,044 billion
- TOP Import partners: Germany, Italy, Austria, Switzerland, Croatia, France, Hungary
- 22nd most developed country (Human Development Index 2019, UN)
- 11th safest country (Global Peace Index 2020)
- 14th in the quality of life (Numbeo Quality of Life Index 2021)
- 9th least polluted country in the world (Numbeo Quality of Life Index 2021)
- Strong public healthcare system (Life expectancy at birth: 81 years, Human Development Index 2019, UN)

GREEN SOLUTIONS

Slovenia is the third most forested European country with abundant sustainable technological solutions. It is placed in the heart of Europe and perceived as green, sustainable and highly innovative. The leading generator of R&D in the country is the business sector, especially through the strong collaboration of SMEs with public research centres from different fields of expertise. Cities, municipalities and the non-governmental sector are also important players in the Slovene green technology and circular economy vertical. The most prominent areas of the sustainability sector in Slovenia are formed in the following clusters of expertise:

- Renewable energy solutions,
- Energy efficiency in buildings and sustainable construction,
- Smart metering with other electric equipment and
- Mobility.

CONTACT:



SPIRIT Slovenia is a government public agency of the Republic of Slovenia in the field of entrepreneurship, internationalization, FDI and technology. If you are **searching for a supplier, R&D partner, business associate** or are planning to **set up or relocate an export business**, choosing Slovenia could be the best decision you ever make.

🌐 <https://www.sloveniapartner.eu/>
✉ slopartner@spiritslovenia.si



Source: SPIRIT Slovenia

RENEWABLE ENERGY

Slovenia has a rich, more than 100 years long tradition of **hydroelectric power** plant construction entirely covered by Slovenian companies. Hydro energy makes up 30% of Slovenian electricity production and is one of the most important renewable energy sources. Slovenian companies have engineered and built numerous hydroelectric power plants in Slovenia and abroad.

In 2019, Slovenia had 8,038 **solar power** units in total with a capacity of 313 MW. These installations produced 268 GWh and contributed to a 233% increase compared to 2018. Solar energy solutions are often part of the research process. Slovenian researchers from the Faculty of Electrical Engineering of the University of Ljubljana participated in the development of a record-breaking tandem solar cell with the highest ever, 25.5% efficiency of converting light energy into electricity. Slovenia can boast a National Institute for Chemistry, which is globally renowned for its expertise in the field of development of coloured coatings for low-temperature solar absorbers, as well development of coatings for concentrated solar power plants.

PRODUCTS AND SOLUTIONS:

- hydropower plant design, engineering, construction and maintenance,
- innovative, well-designed and reliable equipment for hydroelectric power plants,
- photovoltaic modules, mounting solutions and solar installations,
- solar power plant design, engineering, construction and maintenance,
- photovoltaic energy measuring devices (such as the leading platform for sun index and solar energy assessment),
- biogas powerplants,
- advanced composite components for the wind energy market.



Source: HPP Brežice

CONTACT:

- **Center for Energy Efficiency Solutions**
 - 🌐 <http://cer-slo.si/en/>
 - ✉ info@cer-slo.si
- **Strategic Research and Development Partnership (SRIP) – Networks for the transition into a circular Economy**
 - 🌐 <https://srip-circular-economy.eu/>
 - ✉ srip@stajerskagz.si

SUSTAINABLE BUILDINGS AND CONSTRUCTION



Source: SPIRIT Slovenia

Energy efficient living is one of most dynamic categories with constant development of new solutions and strong commitment to existing ecosystem conservation. It represents the integration of engineering, efficient energy solutions and urban management systems. Slovenian companies have excellent expertise in building highly efficient and sustainable

prefabricated buildings, from commercial buildings to residential homes. Our companies have received numerous international awards for their innovative sustainable solutions. Some of the top innovations are a climate-sensitive green roof system, an insulating glass facade system and a unique membrane system with excellent thermal insulation.

PRODUCTS AND SOLUTIONS:

- energy efficiency building improvement technologies (heat pumps, HVAC systems, ventilation systems and others),
- self-sufficient buildings and districts (buildings and districts with only renewable energy sources and building waste management, sustainable urban drainage systems, neutralisation of harmful substances in building materials),
- sustainable construction and protection of the environment (advanced materials and composites, road construction technologies, smart building materials, intelligent structures, new optimised construction technologies, prefabrication and automation, sustainable construction processes, intensified use of ICT in construction, building bionics and biomimetics).

CONTACT:

- **Strategic Research and Innovation Partnership Smart Buildings and Home including Wood Chain**
 - 🌐 <https://www.teces.si/sl/srip-psidl.html>
 - ✉ SRIP-Pametne-Stavbe@teces.si
- **Construction Cluster of Slovenia**
 - 🌐 <http://www.sgg.si/en/>
 - ✉ vladimir.gumilar@sgg.si
 - ✉ andro.goblon@sgg.si
- **Wood Industry Cluster**
 - 🌐 <https://www.lesarski-grozd.si/en/>
 - ✉ grozd@sloles.com
- **Strategic Research and Innovation Partnership MATERIALS as end PRODUCTS**
 - 🌐 <https://www.gzs.si/matpro/vsebina/ENG>
 - ✉ vesna.nahtigal@gzs.si

SMART METERING AND OTHER ELECTRIC EQUIPMENT

Consistent innovation, advances, knowledge, research, curiosity and constant searching for creative solutions have resulted in the Slovenian **electroindustry** becoming one of the cornerstones of the Slovenian economy. Fast development of ICT and the current pandemic situation have accelerated market penetration of new technological solutions and resulted in numerous services and products. One of most outstanding achievements is the award-winning smart electricity meter platform which enables integration of advanced smart functionalities into a smart grid concept. It includes the functional elements of smart metering such as: the availability of measuring data, remote reading, secure two-way communication, and easy and cost-effective adaptation to national markets.

PRODUCTS AND SOLUTIONS:

- smart system for automatic control of temperature and other environmental parameters
- energy control systems, peak levelling systems, energy flow management, demand-side management in smart grids, smart grids and meters for maximising efficiency
- energy-efficient appliances
- smart metering as a service that provides customers with in-depth data on their consumption of electricity, water, heat, cooling or gas,
- software service with cloud and local data storage solutions,
- digital self-sufficient city solutions with the development of data management solutions that support data connectivity, integration and agile predictive analysis of multiple data streams to develop services and tools for urban environment.



Source: Lotrič Metrology

CONTACT:

- **Strategic Research & Innovation Partnership (SRIP) Smart Cities and Communities**
 - 🌐 <http://pmis.ijs.si/en/partnership/>
 - ✉ nevenka.cukjati@ijs.si

CLEAN MOBILITY

Green propulsion is a key chapter in many global and local strategies for a clean future, which also applies to Slovenia. Its key contribution is the production of electric means of transport, components and systems for electric vehicles. Stand out solutions include highly customisable autonomous cargo aircraft with an electric engine and vertical take-off and landing, various sharing systems with e-vehicles and electric micromobility means of transport. Last but not least is hydrogen powered mobility with the first four-seater hydrogen-powered aircraft.

Slovenia is on the road to take its sustainable narrative to a higher level in the future. The fields of environmentally friendly technologies, cleaner, cheaper and healthier forms of private and public transport, energy sector decarbonisation, efficient energy construction and global environmental standards improvement are seeing the most growth in innovations.

PRODUCTS AND SOLUTIONS:

- electric and hydrogen means of transport,
- components and systems for e-vehicles,
- e-vehicle and micromobility sharing systems.

CONTACT:

- **Strategic Research & Innovation Partnership (SRIP) in Mobility**

🌐 <https://www.acs-giz.si/en/about-acs>
✉ info@acs-giz.si

Source: SPIRIT Slovenia

KEY INNOVATIONS:

- hydrogen fuel cell aircraft:
zero-emission airplanes
- interactive charging
stations for electric vehicles
- in-wheel motors for electric
vehicles
- electric propulsion systems
for boats
- motor drives for electric
vehicles



GREEN PROJECTS



SLOVENIA'S PAVILION AT EXPO 2020 DUBAI



Slovenia's pavilion at Expo 2020 Dubai is an excellent showcase of a technological masterpiece of construction and design illustrating Slovenia's strong identity.

The pavilion highlights three elements that are distinctive of Slovenia: Water, the source of life and vitality, the interflow of materials and ideas; Nature, connecting the Earth with the universe, knowledge and innovativeness, and Slovenia's green and clean heart; and Innovativeness, represented by a giant wooden sunshade, our shield and shelter. The pavilion construction innovatively includes prefabricated, sustainable, and biodegradable elements of metal, glass, wood and stone. The appealing exterior of the pavilion represents Slovenia's forests. The outer walls of the wooden structure are rich with vegetation, which provides visitors with welcome relief from the heat. The plants are cooled and watered with the help of an innovative system developed in Slovenia.



EXPO
2020
DUBAI
UAE

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OFFICIAL PARTICIPANT - SLOVENIA

CONTACT:

<https://expo2020slovenia.si/en/slovenia-at-expo>

THE FIRST SLOVENIAN ENERGY COMMUNITY LUČE



Source: LEST



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement N° 824424

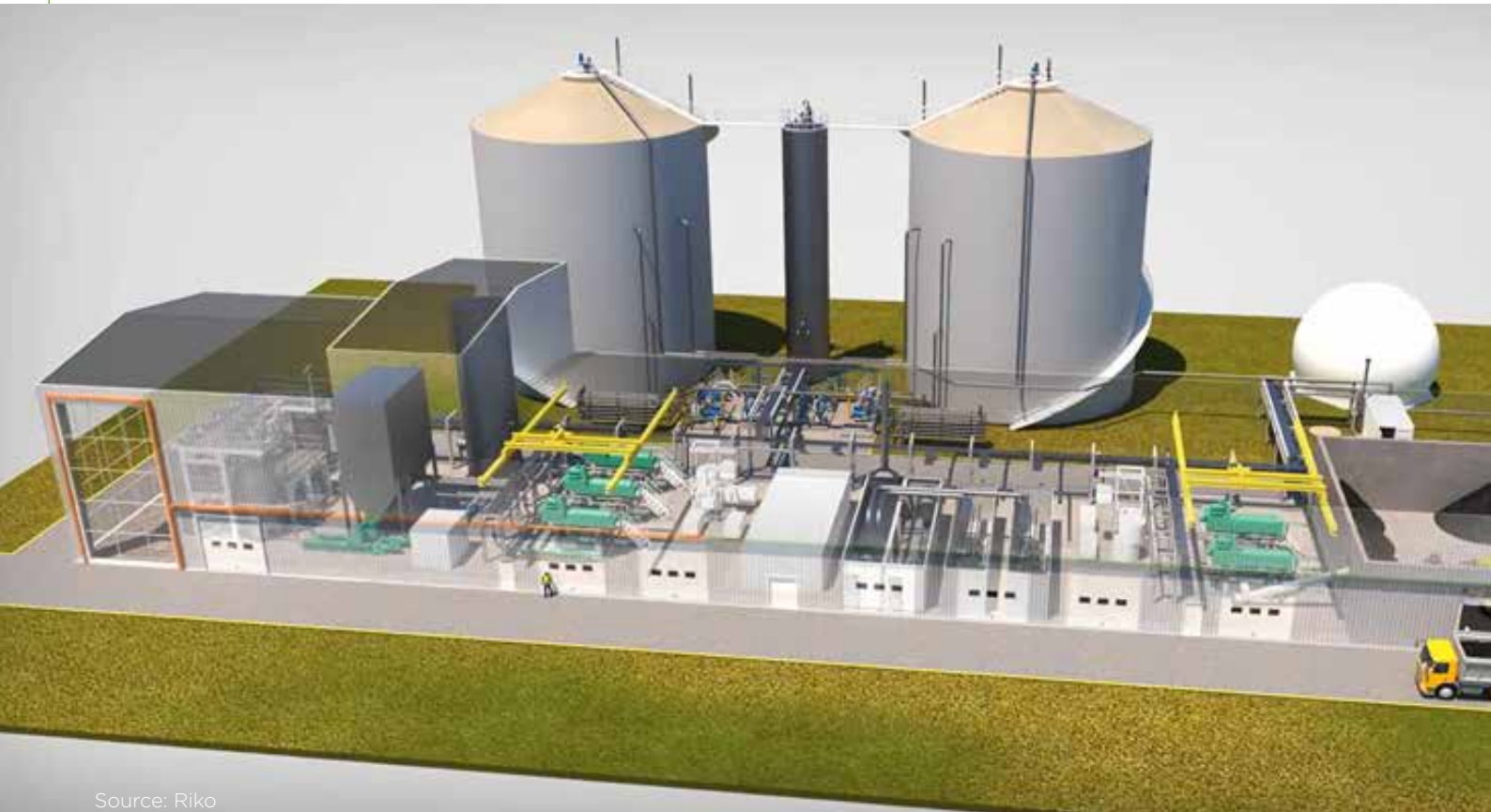
The first Slovenian energy community is emerging in the village of Luče, the centre of the Municipality of Luče in the picturesque Upper Savinja Valley. By introducing innovative technical solutions on the electricity grid, integrating renewable energy sources and testing systemic changes, the Compile project team are establishing a pilot example of integrating local and self-sufficient energy communities into the electricity grid. The project

is funded by the European Union Horizon 2020 programme and coordinated by the Laboratory of Energy Policy (Faculty of Electrical Engineering, University of Ljubljana). The solutions developed in COMPILE and applied in Luče are the result of Slovenian knowledge and have a great potential for further use, especially in the rural environment where there is a weak distribution grid that limits the integration of renewable energy sources.

CONTACT:

<https://www.compile-project.eu/news/pilot-site-luce-a-first-self-sufficient-energy-community-in-slovenia/>

GREEN ENERGY FROM A BIOGAS POWERPLANT



Source: Riko

The Slovenian company RIKO and Norway's Cambi formed a consortium which will build a centralised system for the treatment of municipal sewage sludge, a biogas cogeneration plant, a biogas upgrading facility, gas storage and all other connecting infrastructure. Newly built facilities will be fully integrated into the operation of existing plants. The use of advanced THP technology aims to reduce the carbon footprint, increase biogas production and reduce the amount of waste. In this way, the treated sludge waste from the process is completely hygienised,

which also enables its use in agriculture. The construction of the Lviv biogas plant, which is dimensioned for about two million population units, will be the first project of its kind in Ukraine to produce "green energy". The production of "green energy", biogas from sludge, which is one of the renewable energy sources, follows the principles of sustainable development and leads to a reduction in dependence on fossil fuels.

CONTACT:

<https://www.riko.si/en/>

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