Country Specific Information

Ministry of infrastructure

Energy directorate

- Director-General: mag. Hinko Šolinc

The Energy Directorate performs tasks relating to the efficient use of energy and to the provision of renewable sources of energy, energy supply, sources of energy and mining.
Slovenia’s final energy consumption is growing following growing our GDP.

Renewables and biofuels are „slightly“ increasing.
Heating oil consumption at households are replaced by biomass, gas and heat pumps.

Oil and petroleum products are used at transport.
Basic purposes of energy use in households:
- Room heating
- Hot sanitary water preparation
- Cooking
- Cooling

Energy sources for H&C in households:
- Extra-light heating oil: 11.5%
- Natural gas: 12.4%
- Biomass: 9.0%
- LPG: 4.2%
- Electricity: 10.0%
- District heating: 2.1%
- Solar energy: 1.3%
- Ambient heat (HP): 49.6%
Basic purposes of energy use in service:

- Hot water based heating
- Air conditioning
- Other use of electricity
- Used for short storage
- Mostly used in elderly homes, health resorts and hotels
- In slightly larger systems, for the purpose of district heating
- Self-sufficient residential unit – for research purposes and study needs of university in Ljubljana
RDD Information – Examples of Sensible Heat Storage

- Thermal storage system in Vransko
- Self sufficient residential unit
- Terme Snovik facility with vacuum collectors
- TE-TOL – Heat storage
The "ice banks" began to emerge in the 1990s.

The Crystal Palace has a solar power plant installed, a green roof has been built and a rainwater collection system is installed, which is discharged into the bank of ice.

The ice bank works by collecting rainwater in a special reservoir where ice is made during night when electricity is cheaper.

Ice banks in Cristal Palace; A solar power plant with a power of 87.58 kWp
By 2016, refrigerating unit with 225 kW was used for cooling on the Ljubljana castle, but could not provide basic cooling needs.

Upon renovation they chose a smaller cooling unit in combination with an Ice Bank.

The Ice Bank system can be fully managed remotely via a telephone or computer.
The field of thermochemical heat storage is in progress. The system for space cooling using sorption process is placed at the “Jožef Stefan” Institute in Ljubljana.

The national project Advanced heat storage materials for integrated storage solutions (1. 3. 2016 - 28. 02. 2019) was coordinated by the National Institute of Chemistry, where the Faculty of Mechanical Engineering was taking part.

https://www.youtube.com/watch?v=S2GVaWzFGkE
Like thermochemical storage, electrical storage still has a big potential in Slovenia.

Avče on the Soča River is the only pumped hydro storage (PHS) in Slovenia.
- **TESLA Battery in Jesenice – the largest in Europe:**
  - 12.8 MW
  - 22.2 MWh

The Slovenian company NGEN has introduced the first Tesla battery in the region. The investment in the system, called BESS for short, has a value of EUR 15 million and takes over frequency control in the electricity grid. The importance of this system is seen by many customers, especially large customers.
Current Situation

- Energy Efficiency and Renewable Energy Sources
- National Action Plan for Energy Efficiency (AN-URE)
- Action Plan for Renewable Energy (AN-OVE)
- Project: Support on Heating and Cooling and Transport Fuels
Current Situation

- Projekt NEDO - ELES: [https://www.eles.si/projekt-nedo](https://www.eles.si/projekt-nedo)

The aim of the project is to develop and demonstrate advanced solutions for flexibility and sustainability, including battery storage system control system, advanced WAMS algorithms, new modules for the field energy management system, information platform and upgraded electricity services market platform.
Current Situation

- **Projekt NEDO - ELES**: [https://www.eles.si/projekt-nedo](https://www.eles.si/projekt-nedo)

As part of the Japanese-Slovenian project of smart grids Nedo, they included a **battery storage** tank placed opposite the Ljubljana Colosseum.
Current Situation

Link: https://www.eera-energystorage.eu/stories.html

Current Situation

National Institute of Chemistry participates in the project StoRIES (https://www.eera-energystorage.eu/stories.html).

The main technological objectives of StoRIES are linked to the energy storage development by providing access to world-class research infrastructures and services, with a focus on improving materials for devices and optimizing hybrid energy systems with a view to make energy technologies more competitive and reducing costs, on the analysis of socio-technical and environmental aspects of new developments and systems, and provides training and education on these issues.
Faculty of Mechanical Engineering at University of Ljubljana participates in the project HEART: [https://heartproject.eu/](https://heartproject.eu/)

The Holistic Energy and Architectural Retrofit Toolkit (HEART) brings together different components and technologies that can transform existing buildings into smart buildings, thus contributing to the Renovation Wave in order to decarbonise Europe’s building stock. In developing this toolkit, the project advances and improves energy efficiency and the use of renewable energies in buildings across Europe, particularly in Central and Southern Europe, where climate change is leading to increased electricity consumption during the summer and winter seasons.
At the moment there is a discussion regarding closing our coal power plant: when?

As a substitute we have to decide whether:
- to build Nuclear Power Plant (second one) or/and
- to use Renewable Energy Sources (with storages).
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