





GREEN ENERGY TODAY
SAVES TOMORROW

**BELGRADE
WASTE
MANAGEMENT
PPP PROJECT**

Green Transformation

For more information please visit

 www.bcenergy.rs
Beo Čista Energija d.o.o.
 Tošin bunar 272v, 11070 Belgrade
Republic of Serbia
 Phone +381 11 715 4885
 Email: bce@bcenergy.rs



Challenge

The Vinča landfill, located approximately 12 km east of Belgrade city center and near the Danube river is on ISWA's list of the world's 50 largest active dumpsites^[1]. The lack of pollution prevention has substantial impact on air, soil and Danube.

The Vinča landfill, established in 1977, covering an area of 42 hectares and reaching 80m in height, absorbs more than 500,000 tons per year of municipal waste generated in the Serbian capital, which represents immeasurable environmental and health risk.



Landfills are a major source of methane, a powerful greenhouse gas and catalyst to climate change with a warming potential much higher than

CO₂. Measured over a 20-year period, methane is 84 times more potent as a greenhouse gas than CO₂^[2].

(1) "A Roadmap for Closing Waste Dumpsites – The World's Most Polluted Places," International Solid Waste Association, 2016; available at www.iswa.org/fileadmin/galleries/About%20ISWA/ISWA_Roadmap_Report.pdf.

(2) <https://unece.org/challenge>

Green Recovery

The City of Belgrade decided to close the existing landfill in Vinča and set up a modern waste management center through a public private partnership and launched procedure for selecting a private partner in 2015 for PPP project to transform the existing site in Vinča and build modern waste treatment infrastructure.

Beo Čista Energija d.o.o. formed by Suez (France), Itochu Corporation (Japan) and Marguerite signed the Public-Private Partnership Contract with the City of Belgrade in September 2017 for providing services for treatment and disposal of municipal and construction waste over a 25-year period. In October 2019 construction works on site started.

The main goals of the Belgrade Waste Management PPP Project are:

1. Minimize impact of waste on environment
2. Contribute to Belgrade Waste Management Targets - prevention, reuse, recycle, treatment and landfilling
3. To provide optimal affordable solution for end-users

The project is the first of its kind in Serbia and a signature project of Serbian-Japanese-French cooperation in Belgrade, supported by the International Finance Corporation (IFC), the European Bank for Reconstruction and Development (EBRD) and the Development Bank of Austria (OeEB). The total investment value of the project is about EUR 370 million.



Green Recovery

The Vinca new waste management complex is a long-awaited solution for environmental issues of the City of Belgrade. The new facilities will decrease pollution of the existing Vinca landfill, reduce the amount of waste going to landfill, generate energy from waste and contribute to achieving the circular economy goals.

The Belgrade Waste Management PPP project, includes the following:

- Landfill remediation - **mountain of waste will be transformed in green space.**
- Construction of Energy-from-Waste plant with capacity of **340,000 tons of waste per year**, which will generate electricity and heat. This plant will produce 30 MW of electricity and 56 MW of heat, thus supplying households in Belgrade with renewable energy.
- Construction of sanitary landfill for the portion of municipal waste not processed at the EfW facility circa **170,000 t/year** depending on recycling level.
- Landfill Gas recovery and leachate treatment facility.
- Construction and demolition waste recycling unit.
- 35kV and 110 kV overhead transmission lines
- Hot water pipeline for heat offtake, connection to the Konjarnik heating plant.



340 ktpy



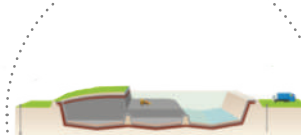
Power



Heat



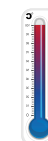
**170 ktpy
Surplus waste**



**Landfill Gas
to energy**



Power



Heat



**200 ktpy
CDW waste**

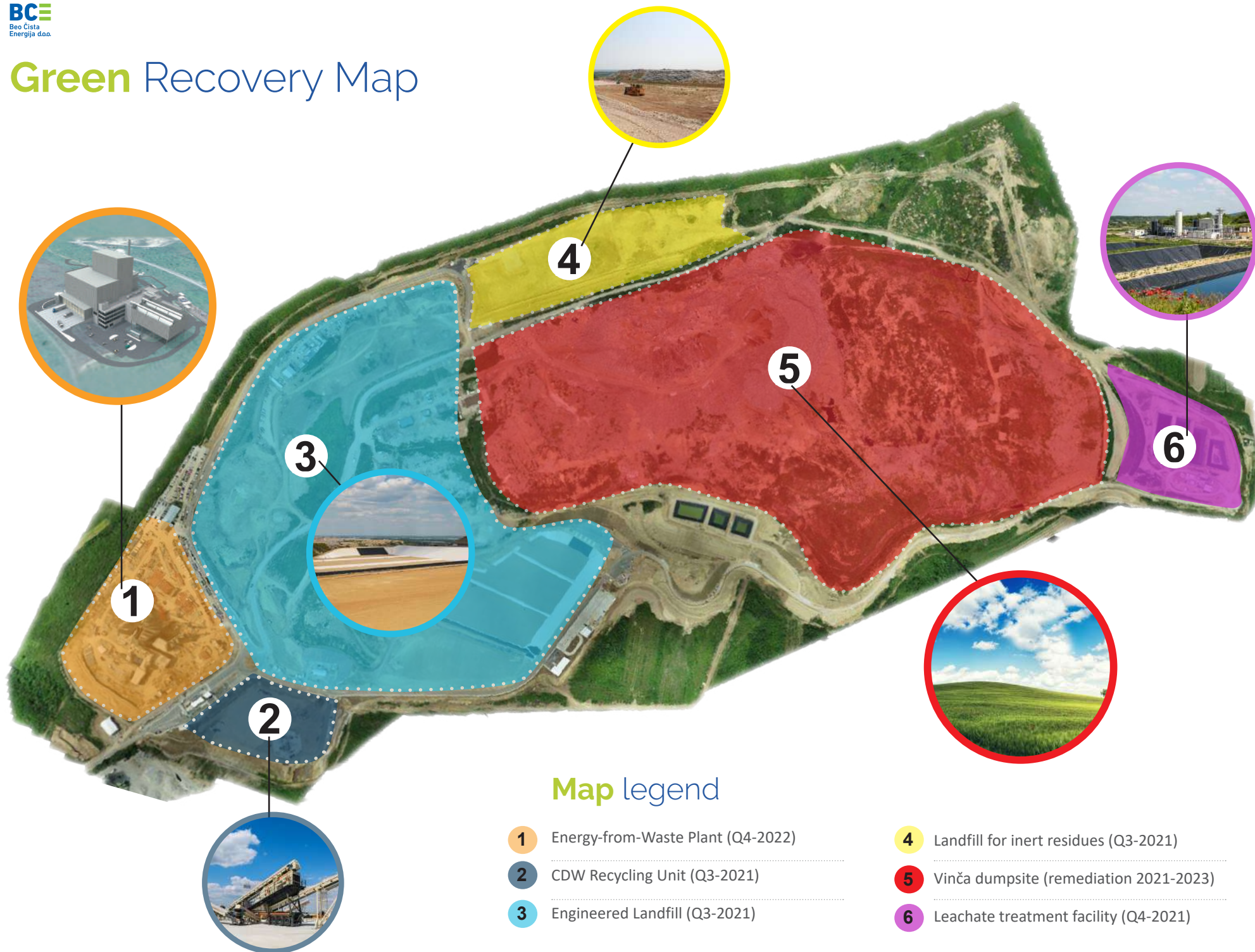


CDW facility



Recycled material

Green Recovery Map



Map legend

- | | |
|--|---|
| 1 Energy-from-Waste Plant (Q4-2022) | 4 Landfill for inert residues (Q3-2021) |
| 2 CDW Recycling Unit (Q3-2021) | 5 Vinča dumpsite (remediation 2021-2023) |
| 3 Engineered Landfill (Q3-2021) | 6 Leachate treatment facility (Q4-2021) |

Green Leap

Beo Čista Energija d.o.o. is implementing the project in compliance with Serbian and the latest EU regulations. In addition to the efficient flue gas cleaning technology, the power plant will be also equipped with a system for continuous measurement of pollutant emissions as per "BREF" standard that came into force in the EU at the end of 2019 ^[3]

- ▶ 2.2 million trees - impact of savings of 250.000 tons of CO2 each year will have positive impact on climate as planting 2.2 million trees.
- ▶ 1.7 million population will have sustainable waste management system
- ▶ 25 years of operation
- ▶ 120 permanent jobs
- ▶ 130 hectares site, 42 hectares covered by the existing landfill
- ▶ €370 million investment

(3) COMMISSION IMPLEMENTING DECISION (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration.

Green Leap

Major Benefits of the Belgrade Waste Management PPP project:

1. Resolving of the "black" environmental spot 12km far from the city center and contribute to cleaner air and lesser pollution of the city.
2. Positive impact on the climate- reduction of 250 000 tons of CO2eq/year.
3. Treatment of accumulated leachate inside the dumpsite as well as leachate from new sanitary landfill will allow a slow recovery of the nearby watercourses and wetlands that have been heavily polluted over last decades.
4. Biodiversity will be restored and enhanced with a 6km green belt around the complex.
5. Sustainable waste management for over 1.7 million people, which is the part of the integral waste management plan developed by the City of Belgrade aligned with best practices of European capitals.
6. Renewable energy source, to households in Belgrade. Positive social impact - more than 500 jobs during the construction phase, about 120 during the 25 years of the operation phase and even more indirect jobs. Scavengers who have lived and worked on the dumpsite have been resettled and new homes provided for them. The Livelihood Restoration Plan (LRP) is set up and former waste pickers will be trained for qualified jobs.
7. Contribution to achieving at least 7 of the 17 Sustainable Development Goals (SDGs) also known as the Global Goals, adopted by United Nations as a universal call to action to end poverty and protect the planet.



Commitment to Sustainable Development Goals



Waste as renewable resource will provide electricity and heat for households in Belgrade.



Positive impact on greenhouse gas emissions - production of renewable energy, recovery of landfill gas and reduction of gas production from landfilled waste.



New employments will have positive social impact.



Project is implemented in cooperation with various stakeholders.



Integrated waste management will contribute to a faster transformation towards a circular economy and the achievement of sustainable development goals.

