TRENČÍN, SLOVAKIA

Positive Energy District (PED) Development Cities: Status, Needs & Key Messages

Trenčín at a Glance

The city aims to reduce GHG emissions by 35% compared to 2018 levels by 2030, focusing on residential, tertiary, industrial, transportation, and agricultural sectors. In the medium-term assessment, the difference between the 'Business as Usual' and 'Objective' scenarios in total GHG emissions is 14%. There's an estimated increase in GDP of €176 million and employment by 2,287 jobs.

The city predicts a population of 57,000 inhabitants by 2030 and 61,000 by 2025, compared to 54,900 in 2019. Starting from September 2022, all public transport buses in the city are running on CNG. (Currently, there are 43 buses in operation.) Priority sectors for Trenčín's development include:

- Energy
- Environement
- Mobility
- Social Awareness Engagament
- Building Admin Capacity

Follower City in the Scalable Cities Community

Trenčín, as a proactive MAKING-CITY participant, focuses on Positive Energy Districts (PEDs) in Soblahov and Kubrá. Aiming for significant greenhouse gas reductions and better energy efficiency by 2030, with a vision to 2050, Trenčín seeks to enhance living standards and ensure sustainable economic growth. This aligns with its tradition of integrating modern technologies and innovative solutions for future development.

Trenčín is also part of the Scalable Cities Community, encompassing 120 cities in 18 Smart Cities and Communities projects.

- Trenčín
- The 7 other MAKING-CITY cities
- 48 Lighthouse Cities
- 72 Follower / Fellow Cities

***Scan the QR code** to access the interactive online map with all 120 cities or access the list of the 18 EU projects.*

Trenčín's Decarbonization Strategy

To achieve its 2050 goals, Trencin will:

- 100% Renewable Energy: Shift away from fossil fuels for electricity generation.
- Smart Grid: Develop an advanced energy grid for efficient renewable integration.
- Zero-Emission Transport: Transition to electric, hydrogen, or low-emission vehicles.
- Energy Storage: Install systems to store surplus renewable energy.
- Education: Launch campaigns to promote sustainable energy practices.
- Circular Economy: Adopt recycling and sustainable waste management.

GHG reduction by 2050

- -93% in residential building sector electricity generation
- -94% in transport sector
- -91% in total GHG emissions
- In annual energy savings, the total savings by 2050 are esitmated to be -42%.

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Trenčín's roadmap from PED to climate-neutral cities mission

What is a PED according to MAKING-CITY ?

A **Positive Energy District (PED)** is an eco-friendly urban area that **produces more renewable energy** that it uses. It utilizes sustainable technologies, energy efficient buildings and smart grids to ensure environmental sustainability, community engagement and reduce its carbon footprint. PED is an example of **sustainable urban living and a greener future.**

***Scan the QR code** to access our video «What is a PED? to learn more about the concept.*

Trenčín's PED area

As a proactive participant in the MAKING-CITY project, Trenčín has embraced its role as one of the distinguished follower cities dedicated to pioneering sustainable urban development. The initiative focuses on the creation and implementation of Positive Energy Districts (PEDs).

Specifically, Trenčín has chosen the Soblahov and Kubrá districts as the primary targets for this transformation. The city's strategic energy objectives up to 2030, with a long-term vision extending to 2050, include significant reductions in greenhouse gas (GHG) emissions and the enhancement of energy efficiency.

These efforts are designed not only to improve the living standards of Trenčín's inhabitants but also to ensure the city's economic growth remains robust and sustainable. This aligns with Trenčín's historical and ongoing commitment to integrating modern technologies and innovative solutions that support both its cultural heritage and future development. Looking ahead, a stragey with the following key assumptions per sector is made:

Key assumptions by sector for Trenčín's city mission?

Residential Sector

- Smart Control/Advanced Metering: 50% deployment by 2030, 60% by 2040, and 80% by 2050.
- Visualization Units: 30% deployment by 2030, 15% by 2040, and 30% by 2050.
- Demand Response/Smart Grid: 80% deployment by 2030, 60% by 2040, and 100% by 2050.
- Smart Lighting, Power LED: 100% deployment by 2030.
- Neighborhood Electro Storage: 70% deployment by 2050.
- Low Temperature District Heat Connection: 40% deployment by 2050.
- Building Energy Connectivity: 40% deployment by 2050.

Generation Sector

- Solar PV Installation: 84.79 MW by 2050.
- Heat Generation Reduction: Aligned with internal heat needs.,

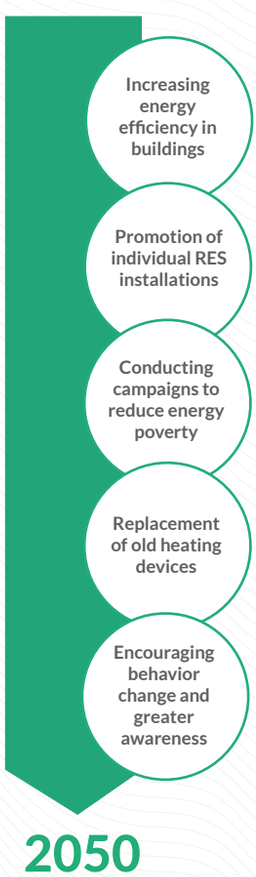
Tertiary Sector

- Advanced Heat Pump: 70% deployment by 2050.
- PV in Roofs and Parking Lots: 80% deployment by 2050.
- Building Integrated PV: 60% deployment by 2050.
- Hybrid Heat Collector: 80% deployment by 2050.
- Heat Recovery System: 40% deployment by 2050.

Industry Sector

- Natural Gas Reduction: 80% reduction by 2050.
- Diesel Elimination: 100% by 2050.
- Coal Disappearance: 100% by 2030.
- Hydrogen Consumption: 20% by 2050.

Priorities for residential buildings include



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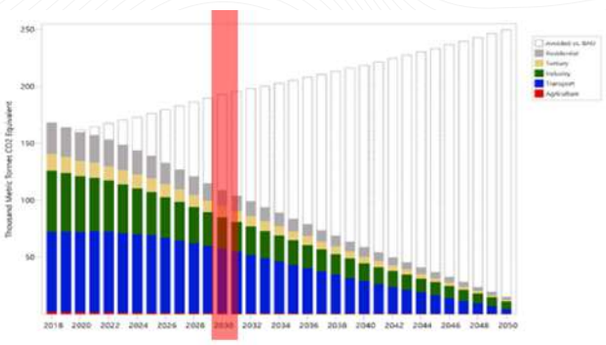
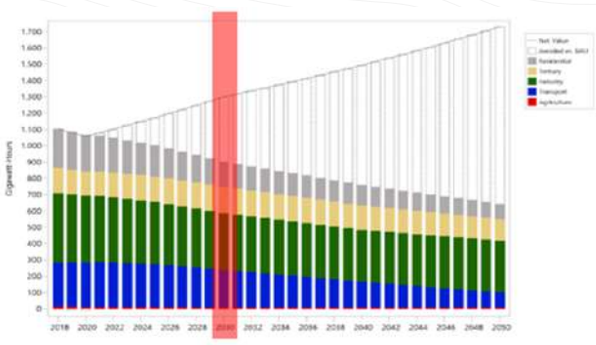
Energy and Emissions Analysis for Trenčín



Total CO2 emissions. Comparison BAU vs Alternative scenario



Trenčín final energy consumption by sector. BAU vs Alternative scenario

Actions to achieve the city vision

1/ Energy renovation

2/ Replacement of old heating devices

3/ Installation of rooftop photovoltaic installations with an energy storage system*

*10% of the electricity required in households is covered with photovoltaics and Battery energy storage system

Measures in the energy & transport sector

Measures in energy sector include:

- Increase of energy performance of the buildings
- Smart Building Management
- Renewable Technologies and Building Renovation
- Deployment of Heat Pump Systems
- Capacity Building

Measures for transport sector include:

- Public Transportation & Public Awareness Campaigns
- Electric & Hybrid Vehicles, Fuel Efficiency Standards, Alternative Fuels
- Park-and-Ride Facilities
- Monitoring and Data Collection

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