

## **Into a Carbon-Neutral Future with Fresh Energy: Oberhof Winter Sports Facilities Opt for Waste Heat Recovery**



*The winter sports stronghold of Oberhof in the Thuringian Forest is preparing for the future with a new, sustainable energy concept. © Administration union 'Thüringer Wintersportzentrum Oberhof'*

**Oberhof, Germany February 7, 2023. Starting tomorrow the Oberhof region will be in a buzz for 12 days. The world's biathlon elite will descend on the Thuringian Forest, battling for the world championship medals on the ski trail and at the shooting range. Tens of thousands of fans are expected at the biathlon ARENA on the Rennsteig. When cheering on the top athletes, it may be forgotten that the winter sports venue has been preparing for the 2023 World Championships since 2019 with extensive renovations. The complex is being adapted both to meet sports standards and current requirements concerning climate compatibility and energy saving. Experts of the Stuttgart-based consulting company Drees & Sommer SE assisted the administration union *Thüringer Wintersportzentrum Oberhof* in designing and implementing a carbon-neutral energy concept. The objective: a supply of heating, cooling and power that is sustainable, independent and as cost-efficient as possible for the sports facilities and the Oberhof site.**

At the sports venues in Oberhof, the LOTTO Thüringen Ski Sports Hall and the Oberhof Ice Arena are sometimes cooled all year round. Some of the snow is produced artificially and the floodlighting, snow-making and cooling systems require a lot of energy.

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Climate change, scarcity of resources and the current energy crisis are forcing the winter sports stronghold in Thuringia – just as many other venues – to rethink more and more. Sustainability and winter sports – is this really possible?

Dr. Hartmut Schubert, representative of the Thuringian federal state government for the World Championships and Oberhof, is convinced that ‘the administration union *Thüringer Wintersportzentrum Oberhof* is able to tackle these challenges’. In preparation for the 2023 World Championships, the training and competition facilities are being extensively renovated. As part of this upgrade, we are also focusing on establishing a carbon-neutral energy supply at the site. This is not only to meet the demands of sports, but also to be fit for the future with regard to environmental and energy issues,’ Hartmut Schubert explains.

Based on the guiding principle of combining ecology and economy, the Drees & Sommer team of experts is playing a key role in developing a comprehensive energy concept. The team is also supporting the relevant administration union in implementing the plan. The approaches to the project and the methods used are matched perfectly to the climatic conditions in Oberhof and the conditions specific to the winter sports venues.

### **Using the Energy from the Waste Heat Generated by Ice Sports Facilities**

There are two sports facilities – the LOTTO Thüringen ARENA (luge track) and the LOTTO Thüringen Skisport-HALLE – that generate large amounts of waste heat from their refrigeration systems. ‘Re-cooling systems have been used until now, but operating them generates waste heat. This is valuable energy that must no longer be allowed to disappear unused into the environment. Instead, we intend to use the waste heat by feeding it into a cold grid and storing it there,’ explains Christian Krajci, Senior Team Leader at Drees & Sommer. The cold grid functions in a similar way to a heat grid, only with a lower flow temperature. This energy is then used directly on site by heat pumps to heat the sports centers or provide hot water. ‘Parts of the cold-grid system were successfully put into operation in November 2022. This means that the unavoidable waste heat can now be used for the World Championships, therefore also providing energy free of charge in the long term,’ summarizes Christian Krajci.

### **Delivery to Several Consumers in Oberhof**

‘Alternative sources are needed in addition to waste heat utilization in certain periods of the year, as we become independent from external heat and power suppliers,’ adds Drees & Sommer’s Head of Project Fabian Esslinger.

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The project steerers are currently focusing on the construction of a new energy center on Tambacher Strasse, including developing a district heating network. Three biomass boilers provide additional heat at that location, using regionally sourced wood chips and burning them. A biomethane combined heat and power plant also generates both heat and electricity. Future consumers of the energy generated in various ways include so far the town's sports high school, the nearby army barracks on the Rennsteig, a planned eco hotel, and the Friedrich Schiller elementary school. Subsequent expansion of the district heating network to other consumers in Oberhof is possible and desired.

### **Solar Panels for Own Electricity**

With the aim of becoming more self-sufficient not only in heating but also in electricity, nearly 2,000 photovoltaic panels have also been installed on all structurally suitable roofs at the winter sports complexes since summer 2022. The ecologically generated solar power will be distributed to the training and competition center through a new power grid, covering a good 15 percent of energy demand at the site when it becomes operational.

The energy design project is so far unique in the winter sports sector and benefits from funding by the Federal Ministry for Economic Affairs and Climate Action and the Thuringian Ministry of Environment, Energy and Nature Conservation. Drees & Sommer's experts assisted the administration union *Thüringer Wintersportzentrum Oberhof* in the public grants management. Implementation of the new energy concept is expected to be completed by 2026. The sports venues in Oberhof are on track to carbon neutrality.

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