**Success Story:** PGE Arena Gdansk

**Markets Served**
Building services engineering

*Planning the world-class investment was a big challenge and very important experience.*

*Wacław Tomaszewski, Key Projects Director*

# Complete Solution from Eaton Meets UEFA Standard

**Location:**
Gdansk, Poland

**Segment:**
Commercial

**Problem:**
Development of two transformer stations for a multifunctional and modern sports facility also serving as a recreation, business and entertainment center

**Solution:**
XIRIA medium-voltage switchgear, xEnergy low-voltage switchgear, XP2500A busbar trunking system, measuring and low voltage devices

**Results:**
A comprehensive solution, that is reliable and innovative


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## Background

The natural beauty of amber and many generations of seaport tradition in Gdansk were inspirations for the concept of the PGE ARENA Gdansk. The roof sheathing, consisting of modules in six shades of orange, depicts the color of amber, and the girders of the steel construction of the roof look like the frames of a vessel.

## Challenges

The major challenge in the configuration of Eaton switchgear were UEFA's demanding requirements with regard to electromagnetic compatibility (EMC).

## Solution

The PGE ARENA Gdansk is a multifunctional and modern sports facility also serving as a recreation, business and entertainment center. It is designed for football matches, concerts and other sports or cultural events – with a total capacity of 45,000 spectators.

The stadium has a developed utility infrastructure: Business and Conference Center, T29 Sports Bar & Restaurant, souvenir store and professional skating track.

Two transformer stations were designed for such a large and extensive building as the PGE Arena. Each station is equipped with a power generator with a capacity of 1600 kVA, a 6-panel XIRIA medium voltage switchboard with a measuring panel, and 4 xEnergy main switchboards: 2 for the transformer stations, 1 for the power generator station and 1 for the fire protection system. MAX type automatic transfer switches with an XV102 HMI panel control the performance of switchboards for the transformers and the fire protection. The XP2500A busbar trunking system is used for the connection between the transformers and low-voltage switchgear. Over 200 NZM and IZM circuit breakers are installed in the main switchboards. Moreover around the stadium there are over 240 distribution boards from Eaton.

Eaton Poland used an intelligent offload system controlled by the BMS in the distribution boards. This system has been proposed by us and accepted by the design office. It is aimed to ensure the selective disconnection of unnecessary individual loads, and it automatically adjusts the system load to emergency mode conditions if the availability of power is limited. Local distribution boards are also equipped with energy meters M21, which transfer system information about energy consumption and also information about voltage level and current load to the BMS via the Modbus protocol.

Low voltage switchgear – xEnergy.

Due to the large area of the stadium, the disconnections for the fire protection system were designed on several levels and in different zones. As the pitch lighting poles require an uninterrupted power supply, major loads are fed in parallel from the mains supply and

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from the power generator, thus improving the reliability of the power supply.

All stadium functions work properly. Eaton provided devices, which met the demanding requirements of the investors and UEFA. They have offered proven service during events such as the UEFA EURO 2012 European Football Championship and also other events organized in the stadium, such as concerts, banquets or friendly matches.

## Results

"Supervising the world-class investment was a big challenge and very important experience in my professional life. I am football fan, that is why the biggest satisfaction came when cheering on my team during the European Championship, being aware that the PGE Arena stadium is powered by devices manufactured by Eaton" – said Wacław Tomaszewski, Key Projects Director.


| PGE Arena Stadium in numbers | |
|---|---|
| Capacity | approx. 42,000 seats |
| VIP boxes | 40 boxes (496 VIP seats) |
| Business seats | 1383 VIP seats |
| Measurements | 236 x 203 x 45 meters |
| Land area | approx. 27 ha |
| Utility area | 36,600 $m^2$ |
| Commercial area | 17,000 $m^2$ |
| Car parks | 1965 parking spaces |

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