Solid-dielectric switchgear

Addressing the challenge of aging infrastructure

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- Learn how FirstEnergy replaced their SF_6 switchgear to address environmental concerns and reduce maintenance.

Case study
Addressing the challenge of aging infrastructure

FirstEnergy, a Midwest investor-owned utility (IOU), replaced SF_6 switchgear with Elastimold™ solid-dielectric switchgear to address environmental concerns and reduce maintenance.

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01 FirstEnergy's existing padmount SF_6 switchgear cabinet

Background
FirstEnergy had several pad-mount switchgear units that served a retail mall and surrounding development in Strongsville, Ohio, a suburb of Cleveland. The equipment used SF_6 gas as its insulation medium, and it had developed a slow leak. In addition to their concern for the environment due to leakage of a greenhouse gas, maintenance crews were periodically deployed to top off the SF_6 gas to keep the switchgear in service. FirstEnergy staff were concerned the leak might accelerate and cause a forced outage, so they decided to look into a replacement solution, said Jeffrey Golias, Distribution Tech III, Design Services, FirstEnergy.

Existing site challenges
The aging equipment was designed as a six-way, single-sided cabinet. This included two sources with 600-amp deadbreak terminations and four load ways with 200-amp interfaces. The existing site presented several challenges to consider:

- Single-sided cabinet design would need to be retained due to lack of access on back side
- Concrete foundation was relatively complex
- Width was extremely narrow for the number of ways
- No new concrete or soil work could be performed

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02 FirstEnergy's existing pad-mount SF_6 switchgear
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03 Installation of new Elastimold™ solid-dielectric switchgear on FirstEnergy's existing pad
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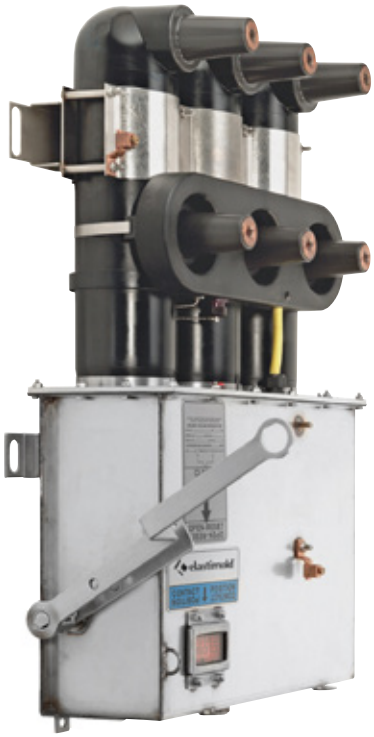
04 Elastimold 3-phase molded vacuum switch (MVS3)



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Additional requirements
Besides seeking a long service life, FirstEnergy had several other requirements for replacement switchgear:

- Maintenance-free or low maintenance
- Highly reliable
- Minimize outage time during the replacement (coordination risk)
- No foundation work — reuse existing pad, which was in good condition
- Drop-in-place solution to avoid the need for new terminations or cabling
- Minimal training needs for crews to operate the new switchgear

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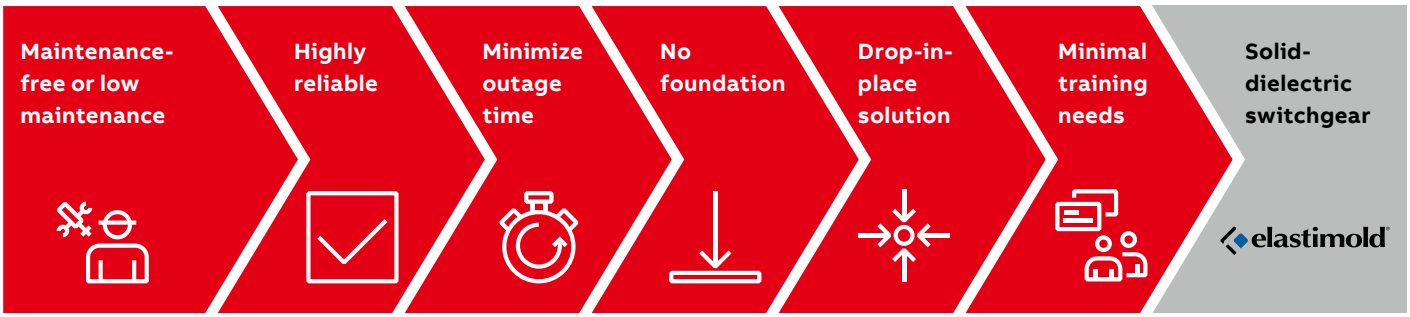
Helping to address **environmental concerns** and **reduce maintenance**



Helping to increase reliability, while decreasing cost and environmental concerns

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05 New Elastimold solid-dielectric switchgear after installation on FirstEnergy's existing pad

Solution

The solution chosen by FirstEnergy was an Elastimold™ solid-dielectric switchgear drop-in retrofit consisting of Elastimold molded vacuum switches (MVS) and molded vacuum interrupters (MVI) with self-powered controls.

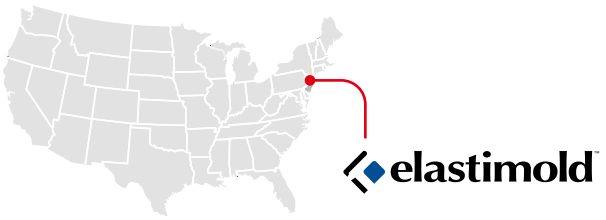
Elastimold engineers at the ABB Hackettstown, New Jersey R&D center designed a solution that was compact and creative, including placing the bus on the back of the gear to allow the new unit to fit the existing pad.

Results

The solution provides FirstEnergy with a new asset designed to offer many years of maintenance-free service,* while helping to increase reliability and decrease cost and environmental concerns.

* Elastimold solid-dielectric switchgear is considered maintenance-free because it contains no oil or gas to monitor or maintain.

Contact your **ABB sales rep** for more details.



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Elastimold™ solid-dielectric switchgear is designed, assembled and tested in Hackettstown, NJ.

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