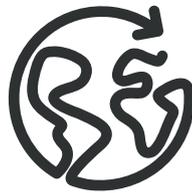


Recycling of Medium-Voltage Equipment

FAQ

Frequently Asked Questions



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1. STANDARDS AND REGULATIONS

> Does the law require the recycling of my obsolete medium-voltage electrical equipment?

The Kyoto Protocol has designated SF₆ as a greenhouse gas. Its release to the atmosphere needs to be limited.

The strictest regulation is the European Regulation 517/2014. It states that the owner of electrical switchgear containing SF₆ gas shall arrange for the recovery of any residual gases contained in the switchgear prior to its disposal, to make sure they are recycled, reclaimed or destroyed. All SF₆ handling shall be carried out by qualified personnel holding relevant training, examination and certification. The purpose of these measures is to prevent SF₆ from being released to the atmosphere.

In the USA, only certain states propose a regulation to limit SF₆ emissions during the use phase, like California.

Other countries are preparing SF₆ regulations, but nothing is yet in place.

> Can I keep my end-of-life medium-voltage electrical equipment as a spare part?

According to local country laws, it may be forbidden, since this is considered as storing waste products.

> What is a waste product?

According to European Directive no. 2006/12/EC, a waste product is a product which is no longer useful to its holder.

> What do I risk if I do not have my medium-voltage electrical equipment reprocessed?

If waste products are abandoned, dumped or treated contrary to legal requirements, penalties may be applied by legal authorities. Legal authorities can then dispose of such waste products at the expense of the waste owner.

> How can I prove that I have had my medium-voltage electrical equipment reprocessed correctly?

Recovered SF₆ is always packaged in containers with specific labelling, whether it is intended for recycling, regeneration or incineration.

A switchgear containing SF₆ gas is transported with a contractual document (sometimes called Waste Tracking Certificate) serving as traceability file.

As soon as you have recycled your medium-voltage electrical equipment, you will receive a destruction certificate in compliance with the regulations, which will serve as proof for the appropriate authorities.

2. SF₆ GAS

> What is SF₆?

Sulphur hexafluoride is a chemical compound consisting of one sulphur atom and six fluor atoms and whose chemical formula is SF₆. It is a synthetic, inert, odourless and colourless gas.

> Is SF₆ a dangerous gas?

No. In its pure state, SF₆ is an odourless, non toxic and chemically inert gas. It is not classified in the dangerous substance category under the terms of the legislation on chemical products. It does not contain pollutants and is non-flammable.

Studies carried out by the electrical industry, and in particular by Schneider Electric, show that any leakages of used SF₆ from equipment present no risk to human health.

> What are the emission impacts of SF₆ on the environment?

SF₆ does not present any danger to water or soils; it does not generate any biological build up, nor does it damage the ozone layer. The risk posed by SF₆ to the environment is its contribution to the greenhouse effect (and therefore to global warming) if it is released to the atmosphere.

> How can the release of SF₆ to the atmosphere be avoided?

Enclosures containing SF₆ are sealed to prevent any risk of its being released to the atmosphere. This preventive approach is extended to all situations requiring work to be carried out on these enclosures, from the time the equipment is manufactured to the time it is dismantled at the end of its life.

> What is the equivalent in tons of CO₂ of a kilogram of SF₆ gas?

A kilogram of SF₆ gas released to the atmosphere is equivalent to 23.9 tons of CO₂, i.e. as much as an average car covering a distance of 160,000 km.

> How much SF₆ is there in a medium-voltage cubicle?

The amount of SF₆ contained in medium-voltage equipment varies greatly according to each product.

Examples of the amount of SF₆ gas in Schneider Electric products:

Products	Weight of SF ₆ gas (kg)	CO ₂ imprint (tons)
Rollarc	0.107	2.5
SM6 IMB	0.210	5.0
SF1 circuit breaker 1250 A	0.62	14.8
Standard 3F RM6	1.767	42.2
GMSet 24 kV CL1 1250 A without AT	5.67	135.5
GM6/CL2 2500 A (36 kV / 700 mm)	14.94	357.1

> Why do we continue to buy equipment containing SF₆?

SF₆ is a gas that is unparalleled in medium-voltage electrical applications. Due to its dielectric properties, SF₆ has become the main fluid used in electrical switchgear. It ensures all high-voltage electrical interruption and insulation functions. The technical, economic and safety performance of electrical equipment using SF₆ is unrivalled to this day.

Due to its great stability and its capacity for immediate recombination after electrical arcing, it contributes directly to the very long life of such equipment, currently more than 25 years. Furthermore, the characteristics of SF₆ allow it to be recycled and reused.

> Will SF₆ be banned?

No, there is no restriction as to the use of SF₆ gas. The only restrictions that may be envisaged concern the use of SF₆ gas in fast-moving consumer goods and open processes. It is today commonly used in industrial and medical applications.

We cannot do without SF₆ gas for breaking purposes and for secondary network applications. In high voltages above 36 kV, all electrical manufacturers use SF₆ gas as an insulating medium.

> Is "vacuum" technology less polluting?

Vacuum technology is neither more nor less polluting than SF₆ technology.

Equipment using "vacuum" or SF₆ technologies is recycled using similar general processes. SF₆ equipment contains SF₆ gas. Vacuum equipment usually contains more plastic or more metal. The treatment of all these gaseous or solid substances is standard and well controlled.

3. SCHNEIDER ELECTRIC'S RECYCLING OFFER

> What can Schneider do to recycle my medium-voltage equipment?

Schneider Electric puts a complete end-of-life treatment system with high environmental value at your service to ensure your full compliance with the legal and statutory regulations.

> Does your offer apply only to medium-voltage equipment manufactured by Schneider Electric?

This offer applies to all medium-voltage equipment, whatever its brand or country of manufacture.

> What is the service life of medium-voltage equipment?

The service life of medium-voltage equipment greatly depends on its conditions of use and on the environment in which it was used.

Schneider Electric equipment is designed to last approximately thirty years, provided that maintenance is carried out on a regular basis.

> Who recycles my equipment?

Schneider Electric takes care of the entire treatment process. Schneider Electric operators are duly trained and certified in this respect.

> How is equipment recycled?

The equipment is first collected from the customer's site and delivered to a Schneider Electric Centre where it is dismantled. The various ferrous metals (scrap iron, sheet metal, etc.) and non-ferrous metals (copper, aluminium, etc.) are separated and sent to appropriate recycling centres.

The enclosure containing the SF₆ gas is evacuated at up to a residual pressure of less than 20 mbar in conformance with the IEC 62271-4 standard, using special equipment. The gas is bottled before being sent to a gas specialist. If the equipment has an epoxy enclosure, this is crushed for recovery purposes.

> Where is my equipment recycled?

Medium-voltage equipment is recycled in a dedicated Schneider Electric Centre.

In order to reduce the CO₂ impact associated with transporting the equipment, it is sent to the nearest service centre for dismantling. The enclosures containing the SF₆ are then gathered together for the gas to be evacuated and bottled.

> Which documents will I receive to prove that I have really recycled the equipment?

A collection certificate is sent within a month of the equipment being collected. In the following three months, a certificate of destruction is sent when the recycling has been completed.

> How long does it take to recycle my equipment?

The recycling time for medium-voltage equipment varies according to the volumes to be treated. It will take approximately three months from receipt of the collection certificate.

> Why should I choose Schneider Electric to recycle my equipment?

Within the framework of its environmental charter, Schneider Electric offers its customers a seamless turnkey solution. With this service offer, Schneider Electric ensures that its customers fully comply with the regulations and gives them complete peace of mind.

Thanks to its perfect knowledge of the products to be recycled, SF₆ recovery certification and excellent risk control, Schneider Electric is the best partner for recycling your medium-voltage equipment.

Schneider Electric stands out from its competitors through:

- Prior identification of the substances to be processed
- Optimisation of the dismantling and treatment processes
- Excellent risk control for operators and for the environment

With Schneider Electric, you will quickly be compliant with the statutory and legal regulations.

> What percentage of medium-voltage equipment can be recycled?

Almost 98% of Schneider Electric equipment can be recycled.

> What happens to the SF₆ gas after it is recovered?

There are several options according to the quality of the recovered SF₆ and the SF₆ regeneration possibilities existing in your country. In most cases it is sent to a recycling centre where it is regenerated by passing continuously through various special filters. If this is not possible, it is sent to a destruction centre for incineration.

4. COST OF RECYCLING MY MEDIUM-VOLTAGE EQUIPMENT

> Is the cost of reprocessing the equipment included in the price of the equipment?

No, medium-voltage equipment does not come within the scope of the WEEE decree. The owner of the switchgear is therefore responsible for processing it at the end of its life cycle.

> How much will this cost?

Prices vary according to quantities and depend on the type of equipment. If the equipment is replaced, the end-of-life treatment can be combined with the global commercial proposal. If the equipment is simply returned for destruction, the cost will have to be calculated. See the commercial price list.

> Am I entitled to a price reduction when materials are reprocessed?

The price of this offer is optimised and already takes account of metal recycling.

> Can the carbon tax or carbon credits be recovered?

The carbon tax does not exist.

However, in theory, it is possible to recover carbon credits. In practice, this is very difficult to implement, in view of the costs of establishing a methodology recognised by the legislator and the set-up fees. The volumes of gas should be much higher by far than those usually recovered from a medium-voltage facility consisting of several dozen cubicles.

5. OFFERS FROM THE COMPETITION

> What do the other players do in terms of recycling?

In terms of recycling, the other players control only part of the process. They are experts in dismantling or destroying gas, but they are not acquainted with the particularities of medium-voltage equipment, which means that they cannot perfectly control the mechanical or environmental risks.



Schneider Electric controls the whole process up to the moment when the various materials are sent to the appropriate centres for recycling or destruction.

> Do other electrical manufacturers offer recycling?

That depends on countries and manufacturers.

6. CUSTOMER REFERENCES

> What do electrical utilities do with their medium-voltage equipment?

It depends on the utilities and the countries.

For example, the equipment can be recycled within the scope of a triennial contract, in which Schneider Electric participates as a supplier.

> Which customers use Schneider Electric to recycle their equipment?

ERDF, Enercon, SNCF, Senvion, Telecty, Carrefour, Ineo, Powercor, SPIE, Rouquette, Ascometal, Eurocopter, Placoplatres, Esso, BNP Paribas, Lu, Total, Arcelor-Mittal, Dassault, Airbus.

Contact us!

www.schneider-electric.com/electricaldistributionservices