

# CASE STUDY



**PROJECT:** Urban substations | Mexico City  
**ESTER TYPE:** MIDEL 7131 synthetic ester  
**PURPOSE:** Delivering fire safety in densely populated city

## [ OVERVIEW ]

Mexico's federal electric utility Comision Federal de Electricidad (CFE), is the state-owned electric utility of Mexico, widely known as CFE. It is the country's dominant electric company, and the country's second most powerful state-owned company. In 2015, CFE needed to upgrade its ageing substations that serve greater Mexico City (population – over 20 million people).

CFE was facing a challenge shared by utilities worldwide; namely, that cities currently consume three quarters of the world's energy, a figure that is only going to increase in the coming years. The growing pressure on existing infrastructure means that steps must be taken to create safer, more sustainable electrical networks that can meet the needs of cities for years to come, without reducing safety margins.

Accordingly, CFE began to consider specifying ester fluids within its transformers to allow its networks to protect both people and the surrounding environment, cut expenditure on installation and maintenance, and increase transmission and distribution efficiency.

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## [ SITUATION ]


The transformers were located both indoors and outdoors, within the city's very dense population centers. The aim was to provide safer installations, reduce environmental impact and improve power system reliability. Transformer OEMs were able to meet these criteria by delivering power transformers filled with MIDEL 7131 synthetic ester instead of mineral oil.

## [ RESULT ]

The OEMs understood that using a synthetic ester liquid as a coolant and dielectric insulator provides a higher fire point along with biodegradability for the transformer fluid; fire risk is greatly mitigated and the potential for soil contamination is eliminated. The modernization project involved more than 50 power transformers; the electric substations now satisfy the new technical, ecological, safety and service standards.

MIDEL ester transformer fluids are used by the world's leading utilities, transformer manufacturers and commercial/industrial users. When it comes to asset protection and environmental safety, there can be no compromises – and the MIDEL range of natural and synthetic ester transformer fluids deliver unrivaled transformer risk mitigation.

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“Fires in transformers can be highly dangerous and devastating, especially in indoor substations or densely populated areas. That is why we decided to invest in the safety of our installations with this new technology, successfully proven in other countries.”

Federico Ibarra,  
Technical Manager, CFE

The use of MIDEL ester fluids in this project supports the following UN Sustainable Development Goals:

