
PIONEERING FIRE SAFETY REQUIREMENTS FOR UNDERGROUND ENERGY STORAGE SYSTEM (ESS) DEPLOYMENT

by

UL Standards & Engagement & Singapore Civil Defence Force

The Singapore Civil Defence Force (“SCDF”), in partnership with UL Standards & Engagement, has implemented fire safety requirements for underground energy storage system (“ESS”), transforming how businesses can deploy green energy solutions while optimising land use. Previously, all underground ESS installations required waiver applications regardless of capacity, resulting in lengthy processing times and administrative burden for businesses.

The new framework, implemented in September 2024, introduces a streamlined approach where qualifying underground ESS installations can obtain approval within five working days when they meet prescribed fire safety requirements. This significant improvement enables businesses to explore underground space utilisation while maintaining robust fire safety standards, creating new possibilities for building developments.

The enhanced requirements delivered multiple benefits to the industry. Businesses benefit from faster approvals and reduced administrative overhead, along with greater flexibility in their deployment options. The framework enables more efficient use of development space by allowing ESS installations underground, supporting both green energy initiatives and optimal land use. This approach has received positive industry feedback for its practical balance of operational needs and fire safety requirements.

This pioneering initiative creates a more conducive environment for sustainable energy infrastructure development in Singapore. By enabling underground solutions, it addresses space constraints while maintaining high safety standards, demonstrating how regulatory innovation can support business needs and environmental sustainability.

