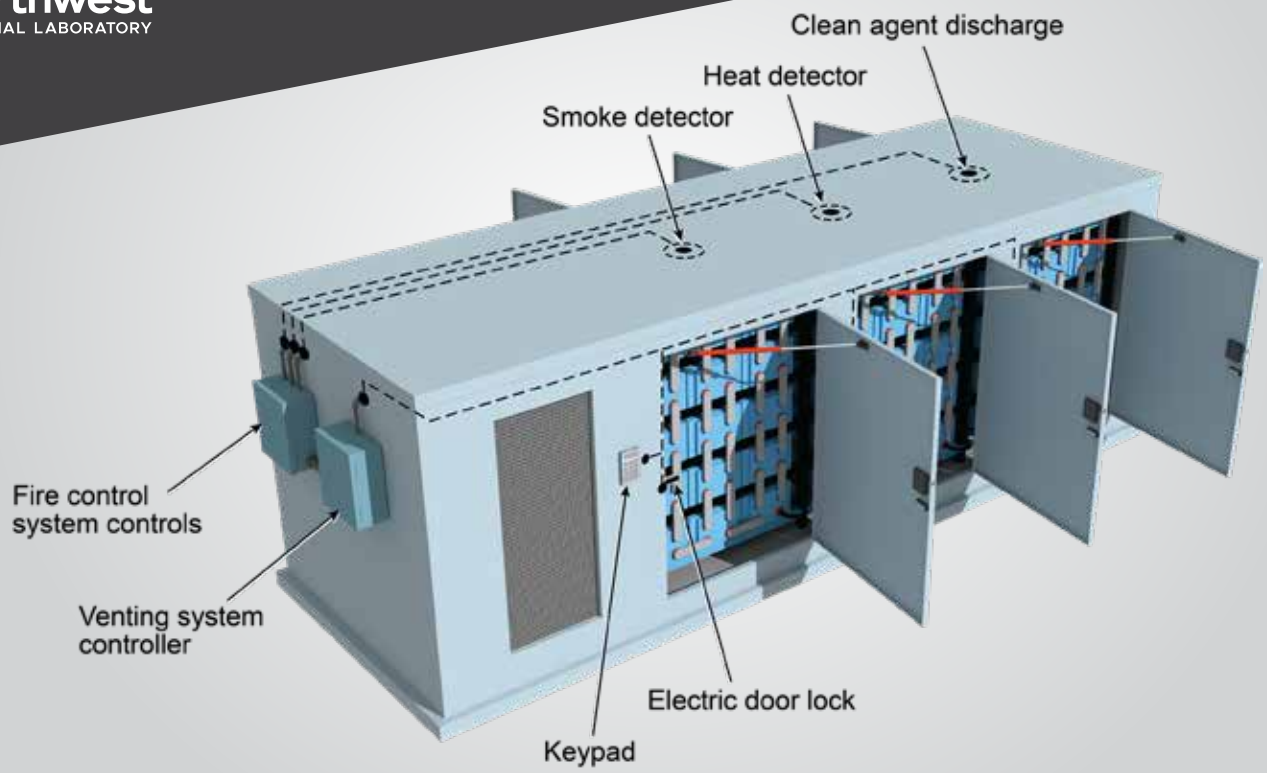
Pacific Northwest
NATIONAL LABORATORY



INTELLIVENT: A SAFETY VENTING SYSTEM FOR ENERGY STORAGE SYSTEM ENCLOSURES

Minimizing explosion risk in energy-storage-system cabinet enclosures

MAXIMUM BATTERIES, NO ROOM FOR FANS

Energy storage systems (ESS) with cabinet-type enclosures are becoming more common in industry because they allow for maximum battery capacity and smaller footprints, while still providing easy access to the interior space. However, the cabinets leave little room for the traditionally used exhaust fans that vent flammable gases that can result from cell failure.

> *No one likes the idea of being the one to open the door on a suspicious battery.*
>
> – **Scott Gibson,**
> Generation Division of Snohomish PUD

SYSTEM BENEFITS

- Minimizes explosion risk in cabinet-type ESS enclosures
- Protects nearby building structures, equipment, and personnel from sudden explosions
- Helps meet industry codes and standards
- Enables fire fighters to access cabinet interior in case of battery failure
- Supports widespread acceptance of new ESS installations as well as retrofit needs

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This patent-pending technology, developed by Pacific Northwest National Laboratory, has the capability to intelligently open the ESS enclosure doors and externally exhaust fumes that can otherwise cause an explosion.

INTELLIGENTLY OPENING THE DOOR TO VENTILATION

Scientists at the Pacific Northwest National Laboratory developed this patent-pending deflagration prevention system for cabinet-style battery enclosures. Intellivent is designed to intelligently open cabinet doors to vent the cabinet interior at the first sign of explosion risk. This functionality provides passive dilution of accumulated flammable gases, minimizing the potential for catastrophic explosion and reducing the risk of personnel injury.

TECHNOLOGY DESCRIPTION

The deflagration-prevention system combines automatically-controlled door locks with a smart controller that manages signals from fire safety inputs, such as smoke, heat, or gas detectors. The system can cause all doors to automatically open simultaneously and immediately when necessary to help ensure personnel and facilities are safe.

Beyond the door locks and controller, the system can include inputs from a fire alarm panel, door sensors, smoke and heat detectors, and mechanisms to open the doors automatically or manually.

Requirements in NFPA 855 and the International Fire Code now necessitate explosion mitigation measures for cabinets. Intellivent is the first system of its kind designed to address these requirements.

INDUSTRY APPLICATIONS

This simple, affordable solution to a challenging safety problem can be widely deployed for crafting new energy storage system installations as well as safely retrofitting existing systems.

It is applicable to those industries that use batteries in a contained area, including the large residential, commercial, and utility sectors.The pending patent for this technology is available for licensing.

LET'S CONNECT

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