

# Advanced Energy responds to the need for 1.5 MW power efficiency in kilns

**INDUSTRY**

Lithium-ion Battery Recycling

**SOLUTION**

Thyro PX

**APPLICATION**

Kiln

**CHALLENGE**

As a leader in the lithium-ion battery recycling industry, the customer faced the need to upgrade their equipment to support increased capacity demands. Their existing kilns couldn't adequately support the 1.5 MW power requirement for the new kiln. This new kiln featured nickel-iron-based heating elements, arranged in a WYE configuration with 13 heating zones, and required a system capable of quick SCR shutdowns to ensure safety.

**SOLUTION**

To address these challenges, Advanced Energy suggested Thyro-PX® SCR Power Controllers as a solution for the end customer. The Thyro-PX offers easy-to-use performance for heating elements, resistive loads, and transformer loads in heating, melting, drying, and forming applications.

Additional features:

- Comprehensive operating and control modes to minimize harmonic distortion and utility costs
- High-efficiency, wear-free design with integrated soft starting for usage with downstream transformers
- Premier performance control accuracy to maximize end-process repeatability
- Multi-zone capability that independently controls multiple single-phase loads from a single controller



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## RESULT

The implementation of dASM cards significantly improved load management. By desynchronizing the heating zones, Thyro Power Manager and dASM reduce heating simultaneously, lower energy costs, minimize copper losses and effective current, and help prevent flicker or other line issues.

The Thyro-PX controllers, configured in a WYE arrangement, enhanced the system's safety and its ability to shut down in one AC cycle provided an additional layer of safety, crucial for the larger kiln design.

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## CONCLUSION

Advanced Energy's engineering team conducted a comprehensive review of the control method, power delivery, limit control, and system integration. The customer was extremely pleased with the support provided and the thorough addressing of their safety concerns related to the new kiln design. The successful upgrade of the kiln not only increased capacity but also ensured enhanced safety and efficiency for the client's operations. AE's commitment to delivering innovative and reliable solutions and providing world-class support fulfilled the client's evolving needs, while ensuring the highest-quality recycling operation.



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