



Power Demand Management

CATERPILLAR GLOBAL MINING – ELECTRIC ROPE SHOVELS

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WHEREVER THERE'S MINING





Power Challenges



← No Power

Utility →

Solution: Cat® Power Demand Management System



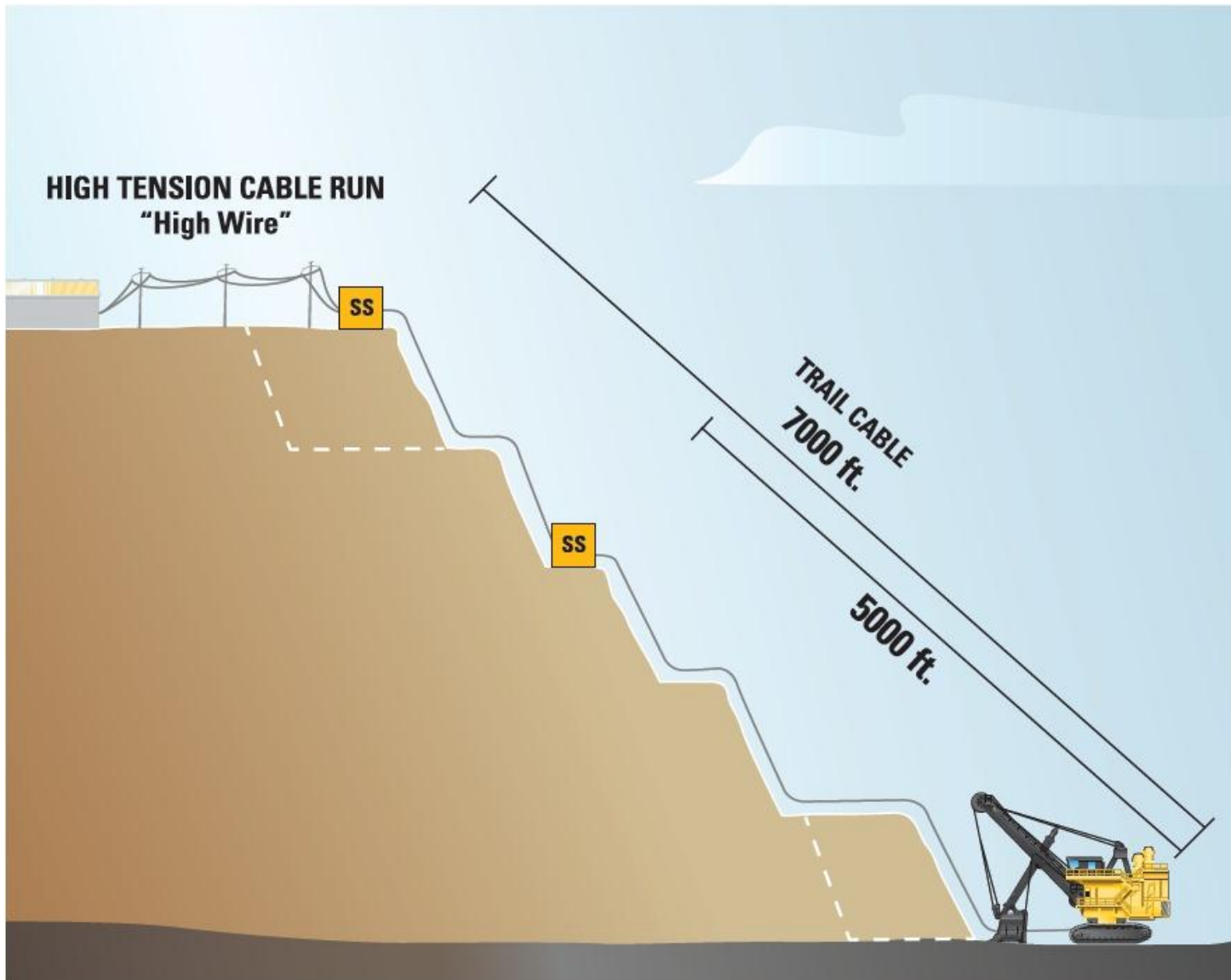
Power Demand Management - Benefits



Blast sequence with single towable genset:

1. Genset moved near blast location
2. Over shift change shovel is switched to genset power
3. Shovel operates as trail cable is rolled up
4. 90 minutes prior to blast shovel tows genset out of blast area
5. Blast is performed
6. Shovel tows genset back to work area
7. Shovel resumes digging off genset power as trail cable is relocated
8. Over shift change, shovel is switched back to grid power

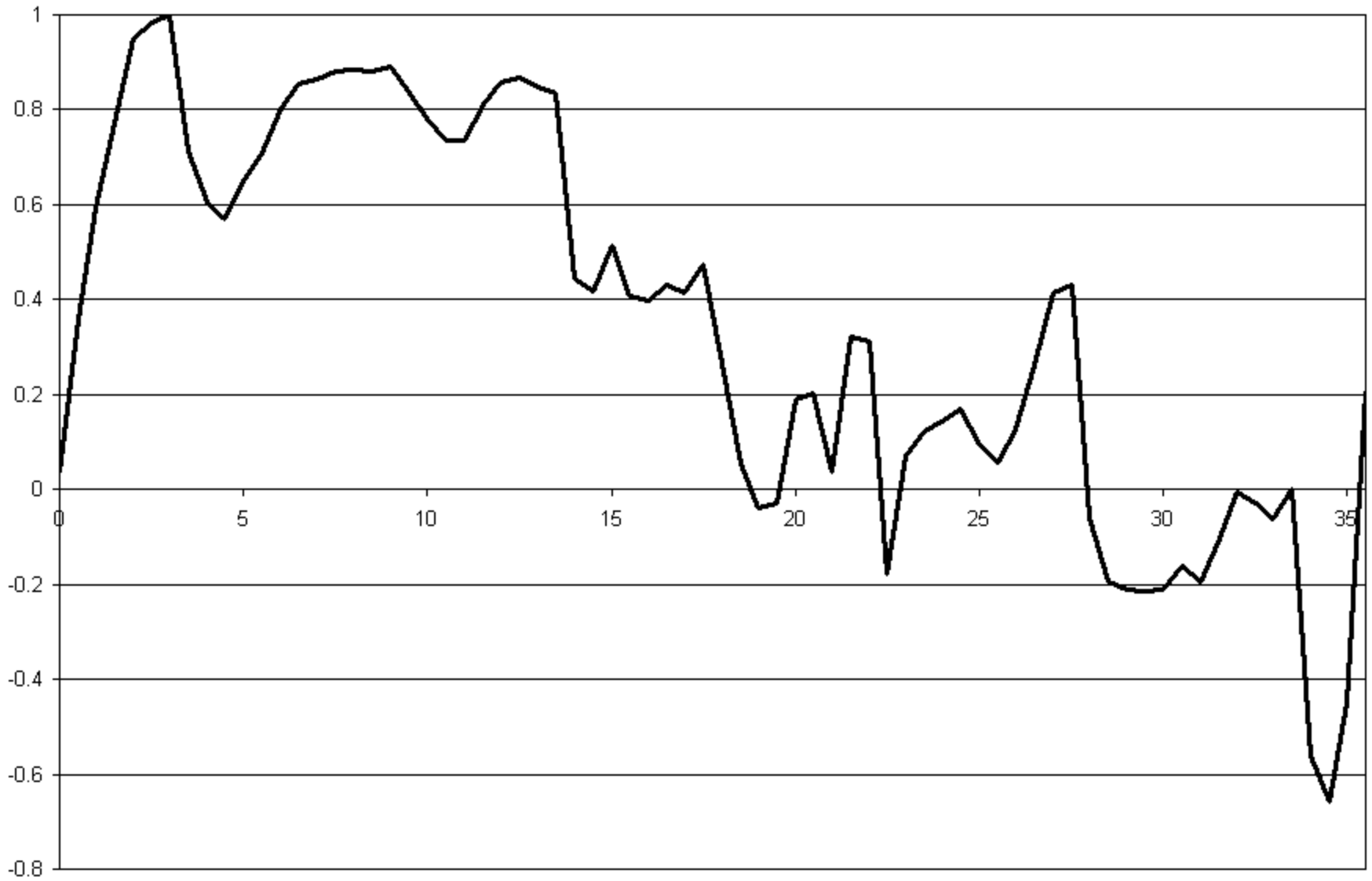
Power Demand Management - Benefits



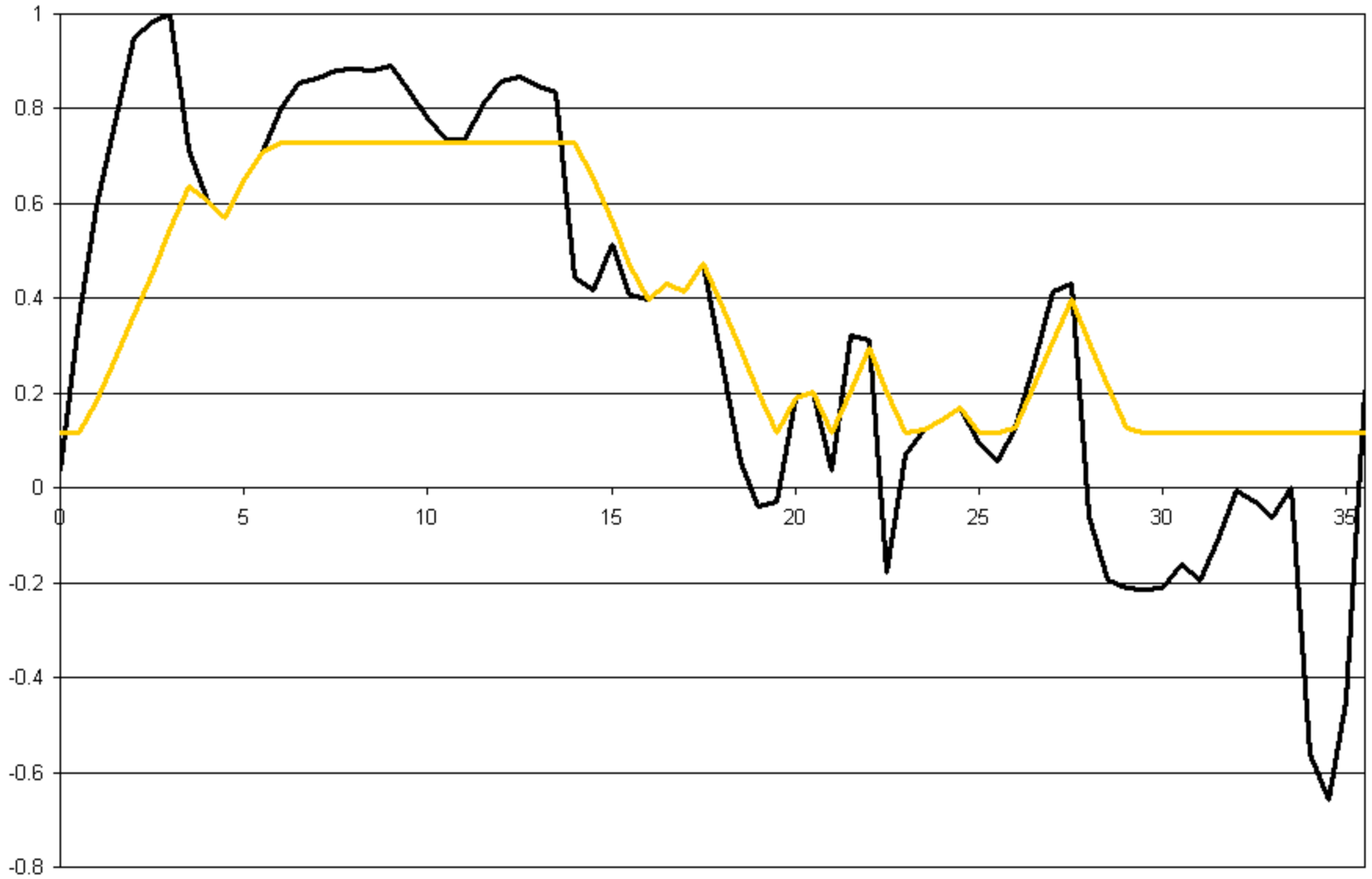
Demonstrations at Tucson Proving Grounds



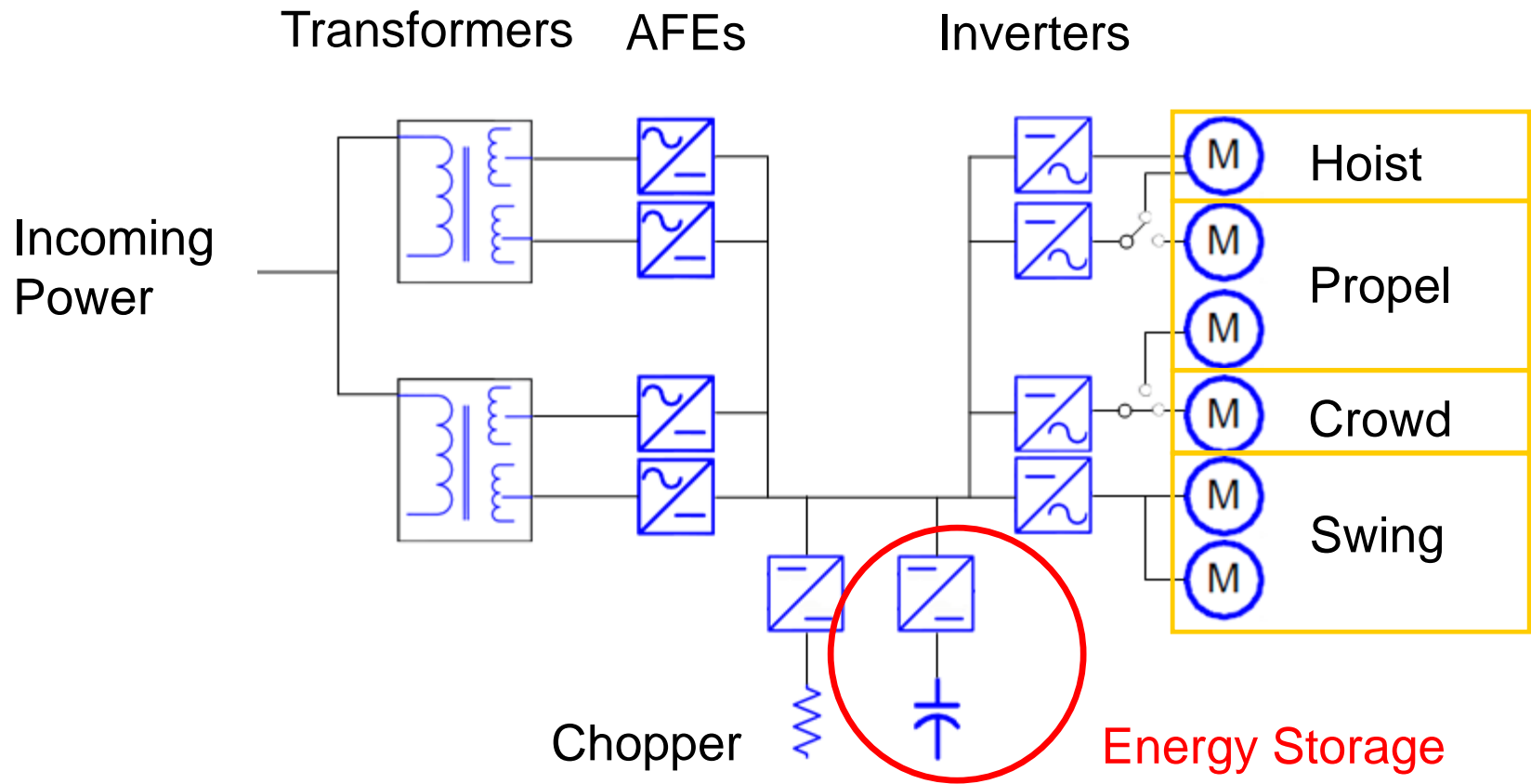
Electric Rope Shovel Typical Power Demand

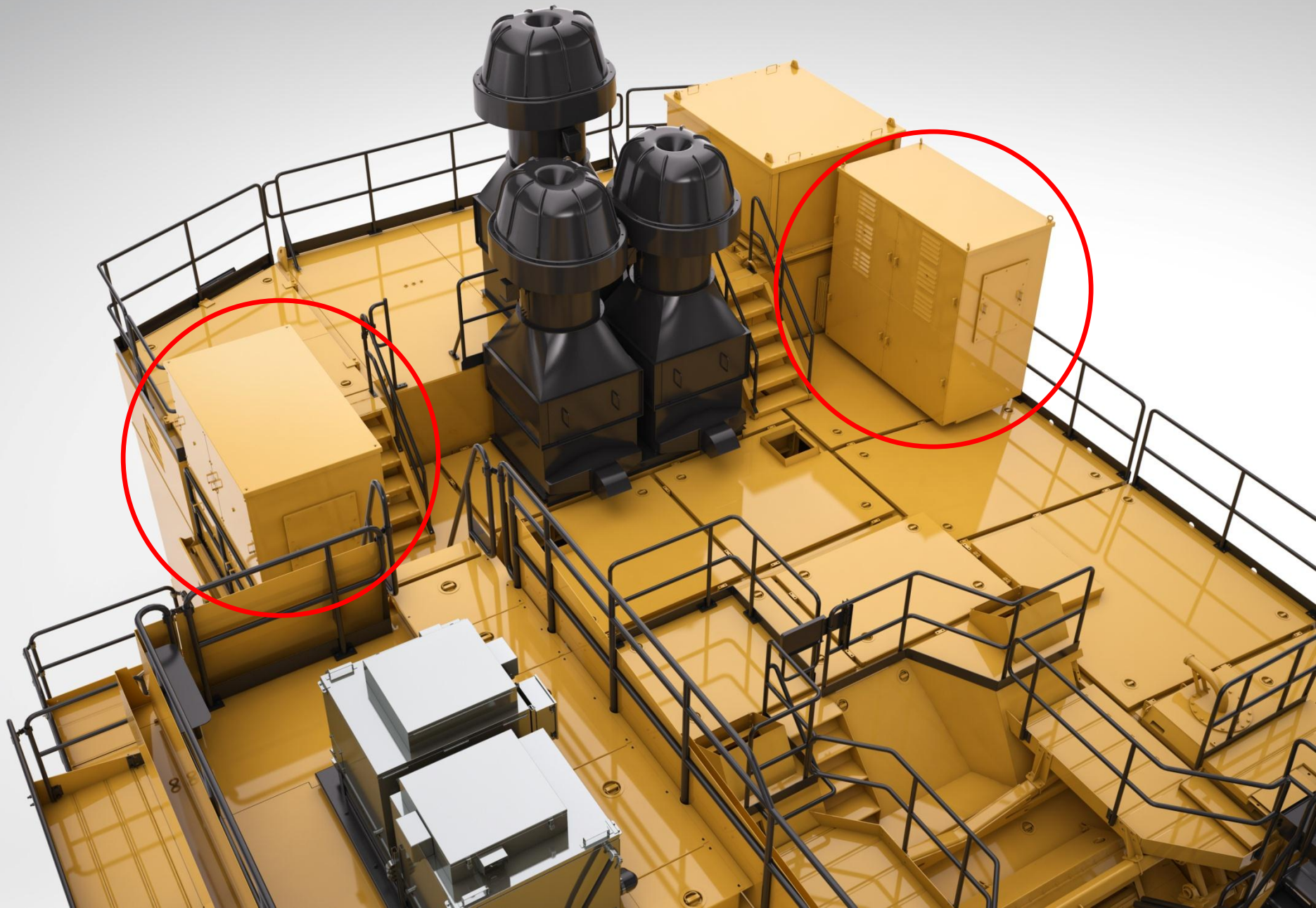


Generator Demand with Power Management System



System Components





Intellectual Property – Power Demand Management

- U.S. Patent No. 4,358,719
- U.S. Patent No. 8,174,225
- Future Patents Pending



Optimized Gensets



Building on a legacy of diesel engine expertise and armed with the industry's largest established dealer network, Caterpillar is leading the industry in meeting the latest emission standards set by the U. S. Environmental Protection Agency (EPA).

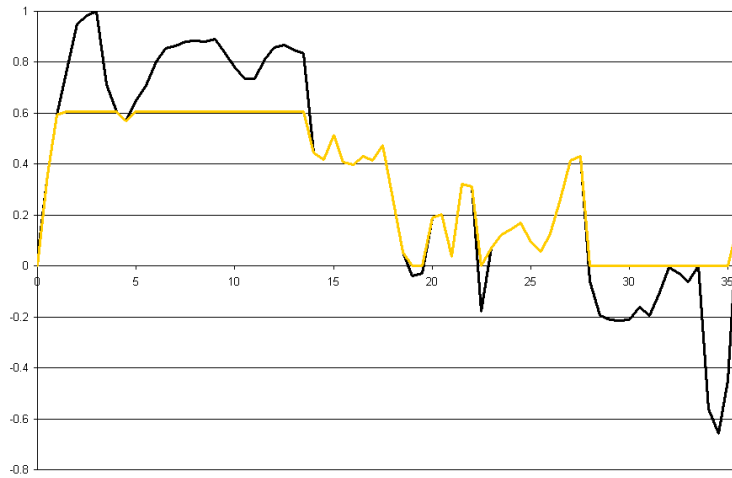
The technology used to meet the new Tier 4 Interim emission standards is an evolution of existing technologies Caterpillar has used successfully for decades. And, Caterpillar continues to invest in the research and development of cleaner engines and emissions-reduction technologies to meet the new emission standards, while providing ever-increasing value to our customers.

At Caterpillar, we set the standard for meeting your technological needs for the future by continuously developing new designs, testing criteria, improving performance characteristics, and enhancing our service and support offerings.

CAT® IS LEADING THE WAY



Power Demand Management - On-Grid



Summary

- Power Demand Management is valuable for any mine
 - Electrified / not electrified
 - Greenfield / Brownfield
 - Community Impact
 - Reduced load swings
 - Reduced carbon footprint
- In operation at the Tucson Proving Grounds since August 2012

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Questions

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