# amsc Solving Flicker Caused by Industrial Processes



# What is flicker and why is it a problem?

Certain types of industrial electric equipment require continuous operation with sharply changing power profiles. These profiles typically produce dozens to thousands of variations per hour that cause corresponding variations in voltage known as flicker.



Utility circuits experiencing excessive flicker levels can cause disruptions for neighboring utility customers including:

- Irritating or distracting light-dimming
- Equipment tripping or malfunction
- Audibly-loud appliance/equipment noise

To ensure reliable operation of the power system, utilities must resolve flicker problems quickly. In some cases, utilities can require flicker-causing equipment to cease operations until mitigations are in place.

#### Applications with increased flicker risk include:

#### EQUIPMENT:

- arc welding
- resistive ovens and dryers
- metal shredding machines
- electric rail
- electric cranes and hoists
- electric dredges & shovels
- electric press brakes
- electric cutting/shears
- rolling mills

INDUSTRIES SERVED:

- metal production
- building construction
- automotive manufacturing
- transportation electrification
- large amusement parks
- shipping ports & hubs
- food processing
- recycling
- mining



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### Active Flicker Control (AFC) principle of operation of D-VAR VVO® STATCOM



### **D-VAR VVO<sup>®</sup> STATCOM Solution**

## Correct flicker problems that vary up to thousands of times per hour

- Sub cycle response and continuous control
- Shunt electrical connection
- Pole mounted and pad mounted options
- High speed waveform capture for solution validation
- No moving parts, no pumps, no fans, no filter replacements
- Fully-sealed, ingress proof enclosure

#### **D-VAR VVO Flicker Advantages:**

- Feeder protection: VVO's on MV feeder can protect hundreds of existing customers from sources of flicker
- No service disruption: Solve problems without altering the source of flicker
- No real estate procurement: Compact, distribution class equipment fits within existing easements
- **Right location:** Install in the utility feeder or at the facility to best fit project needs
- No routine nor scheduled maintenance: Unique solid-state design with no moving parts

Solving voltage flicker: field measurements at an electric dredge operation



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