

# GRIDLOCKED?

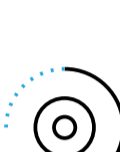
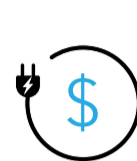
## The Critical Challenges Shaping Our Energy Future

From power surges to technological vulnerabilities, the energy sector is in a period of transformation—and risk. Emerging technologies like AI, electric vehicles (EVs), and advanced manufacturing drive consumption beyond what today's grid can sustain. As power industries shift to cleaner alternatives, they face a host of challenges that must be addressed to secure future growth.

Discover the top 5 challenges that will redefine our power grid in the next five years.

### Top 5 Energy Challenges

- 1. Changing Energy Consumption Patterns -**  
 Electric vehicles, data centers, and 160% increase in demand for AI causing energy surges and rolling blackouts.
- 2. Brittle Infrastructure and Failures -**  
 Reduced reliability, cyber attack vulnerability, outages, economic loss, and increased
- 3. Energy Price Volatility -**  
 Unpredictable costs, subsidies, tariffs for consumers and businesses, and uncertainty in energy project investments.
- 4. Clean-Technology Integration and Scale-out -**  
 Interconnecting 2,600 GW backlog of clean technologies in energy project investments.
- 5. Material Shortages and Politics -**  
 Energy price volatility, trade barriers and lithium, cobalt, rare earth mineral demand increase



# 79% GROWTH IN POWER DEMAND BY 2030

The demand for stable, affordable power is more critical than ever as the energy sector undergoes intense transformation and fast growth. Peak's NanoPlex energy films are revolutionizing energy solutions for today's power grid. As electricity demand surges, NanoPlex offers key technologies to support high-power, high-temperature capacitors to meet transforming power grid needs.

# THE GRID

## MODERNIZING THE GRID

### POWER GRID CHALLENGES

- 1 Global Power demand to grow by 79% by 2030. (US EIA)
- 2 High-Frequency Switching needs faster charge/discharge
- 3 Power Grids now required 150+°C vs 85
- 4 High-Frequency Switching (HFS) drives higher duty cycles
- 5 70% of energy films come from China

### PEAK ENERGY FILM

- 4X more energy storage meets new power demands
- 2X smaller footprint reduces impedance for faster cycle time
- 50% higher temperature tolerances than BOPP\*
- 3-5X higher duty cycles are supported by NanoPlex
- 100% US and allied nation supply chain

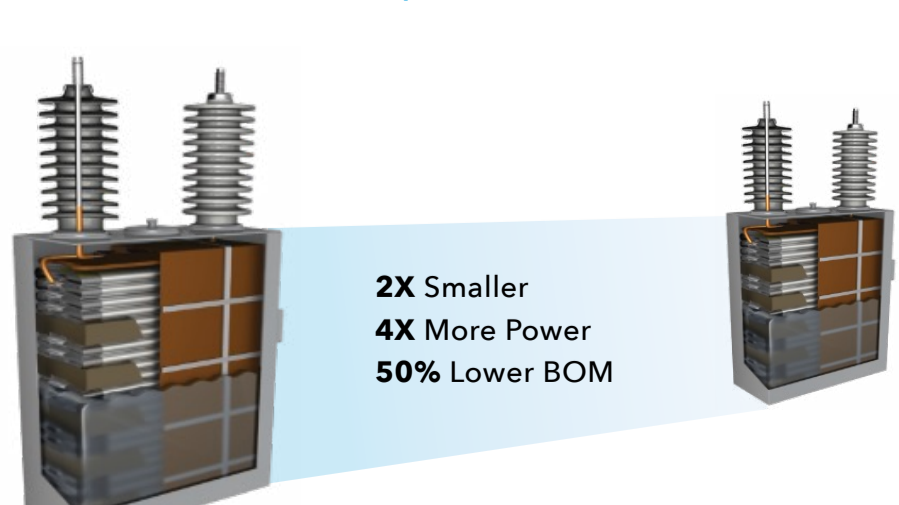
\* BOPP = Biaxially Oriented Polypropylene



## PEAK POWER GRID SOLUTIONS

<b>4X</b>	<b>2X</b>	<b>60+%</b>	<b>100%</b>
MORE POWER w/ HDC vs BOPP	SMALLER FOOTPRINT THAN BOPP	LOWER MATERIAL COSTS	ALLIED SUPPLY CHAIN

POWER GRID CAPACITORS | MADE WITH PEAK NANOPLEX HDC



**2X Smaller**  
**4X More Power**  
**50% Lower BOM**

Experience the power of tomorrow today - Peak's NanoPlex Energy Film will revolutionize your Power Grid performance and resilience