

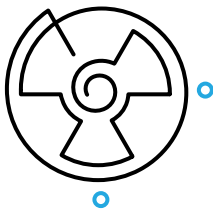
SOLUTION BRIEF



THE AI GLOBAL REVOLUTION
DRIVING POWER GRID DEMAND



1000%
 DATA CENTER
 POWER
 INCREASE BY 2040



FUSION ENERGY

HYBRID GRID
POWER
FACTURING

NANOPLEX™

THE AI GLOBAL REVOLUTION DRIVING POWER GRID DEMAND

The age of AI has arrived and is changing virtually every aspect of business, and for many, our everyday activities as well. The technology that powers AI is amazing but very power hungry. According to Mike Heumann, Principal Analyst at Ignition Research, "As AI becomes the leading form of computing over the next decade, we will see individual rack power consumption from 20Kw to over 100Kw per rack. This is creating data centers that consume upwards of 1GW, requiring their own dedicated power plants." He continued, "Our research indicates the AI-driven data centers will grow from 2% to over 12% of global power consumption."

Today data centers consume ~120 BKwH of electricity. By 2040 they are expected to consume over 1,700. To provide the power this will demand, the world will need the equivalent of 1,500 new 1GW power plants. Whether this power generation is created by wind, solar, natural gas, nuclear fission or fusion energy, there will be a dramatic increase for hybrid power factoring, new power lines, and new distribution substations. Peak's NanoPlex™-based power systems will be ready to deliver the highest levels of power systems efficiency.

THE AI GLOBAL REVOLUTION DRIVING POWER GRID DEMAND

Global customers and service providers both expect and demand 24/7x365 uninterpreted service which requires a power grid that can scale and meet those demands - everyday and during every spike in demand, no matter what mother nature throws at the data center's location.

NanoPlex capacitor films are utilized in four energy solutions to support hybrid energy factoring, integrating diverse energy sources to enable efficient step-up power transmission.

- 1 | **HYBRID POWER FACTORING** - We enhance energy transfer efficiency by mitigating the phase difference between voltage and current.
- 2 | **ENERGY STORAGE AND STABILIZATION** - NanoPlex-based capacitors help manage energy fluctuations, stabilizing the voltage and ensuring a consistent power supply to the grid.
- 3 | **STEP-UP AND STEP DOWN** - We optimize step-up power transmission to compensate for inductive issues and we can manage excess voltage, stabilize voltage levels, at the consumption points.
- 4 | **MOBILE AND DISASTER RECOVERY** - Mobile trucks equipped with NanoPlex-based capacitors can provide immediate voltage support to substations during maintenance, emergencies, and other temporary events.



4 WAYS PEAK POWERS THE AI REVOLUTION



POWER CONDITIONING

Efficiently converts hybrid power sources for data center power demands



HIGH TEMPERATURES

NanoPlex LDF™ is a next generation metamaterial film that can handle the highest temperature power demands.



HIGH FREQUENCY SWITCHING

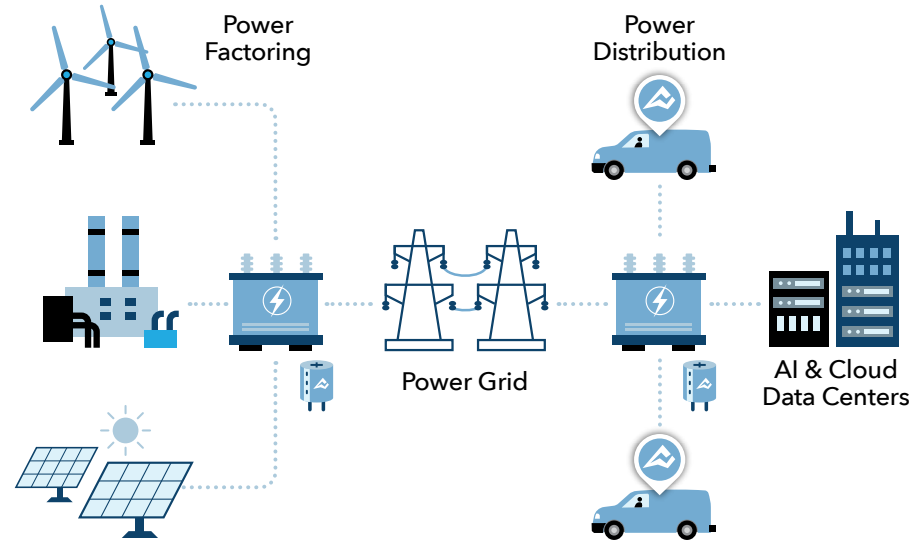
NanoPlex LDF™ is the solution to support the next generation of hybrid power conditioning and switching technology.



EFFICIENT POWER DELIVERY

NanoPlex LDF™ charging and discharging capabilities improve power system efficiency and lifetimes.

PEAK ENERGIZES AI POWER DELIVERING POWER FOR AI SCALE



US DESIGN & MANUFACTURING SECURING POWER GRIDS

As the AI revolution drives new power generation and distribution infrastructure Peak Nano provides a secure source of high-power, high temperature capacitor films to secure our supply chains.



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