

# High-Energy Capacitors for Miniaturization & Efficient Storage

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## Power Storage Density:

	1 kHz (MW/cm <sup>3</sup> )	10 kHz (MW/cm <sup>3</sup> )
25° C	3.7	87
50° C	2.7	76
100° C	1.0	33
150° C	0.59	15
200° C	0.25	15

Power Storage Density in Novel Films

## Technology Summary

This technology provides a high dielectric energy storage density via bismuth zinc niobate films grown by chemical solution deposition. Energy densities exceeding 40 J/cc have been achieved, with good retention of properties to 200°C. The energy densities are substantially higher than other materials, enabling device miniaturization. This technology enables weight reduction and miniaturization of components for power electronics.

## Application & Market Utility

There are numerous applications for which higher power and energy density capacitors are required, including electric vehicles, power electronics, and medical devices such as heart defibrillators. Most materials store modest amounts of energy, and so must be physically large. The much higher energy densities achieved in these novel films enable miniaturization.

## Next Steps

Seeking research collaboration and licensing opportunities.

## TECHNOLOGY READINESS LEVEL

1-3

### Seeking

Investment | Licensing | Research

### Keywords

- Energy Storage
- Miniaturization
- Lightweight Materials
- Capacitors

### Researchers

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### Originating College

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