POWERLIGHT TECHNOLOGIES

Wireless Power Beaming:

Creating and Capturing New Competitive Advantage

Emerging Technologies for Defense Conference

August 2024

Growing opportunity of autonomy at scale

- Provides Commanders critical C5ISR capabilities to see and shape the operating environment.
- Promises integrated multidomain networks at scale from the seabed to the stars.
- Shortens the sensor to shooter cycle while limiting risks to mission and personnel.

Photo: Ionatan/Adobe Stock


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Autonomy's power problem

Current operational energy capabilities can't support autonomy at scale, especially across domains and in contested logistics environments.

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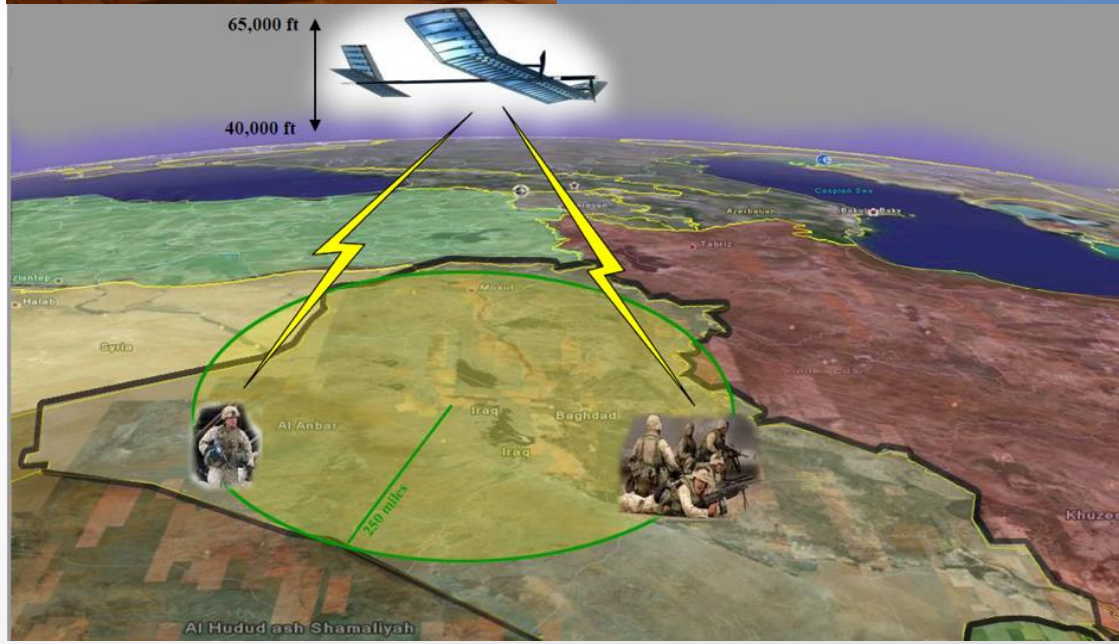
Wireless power beaming

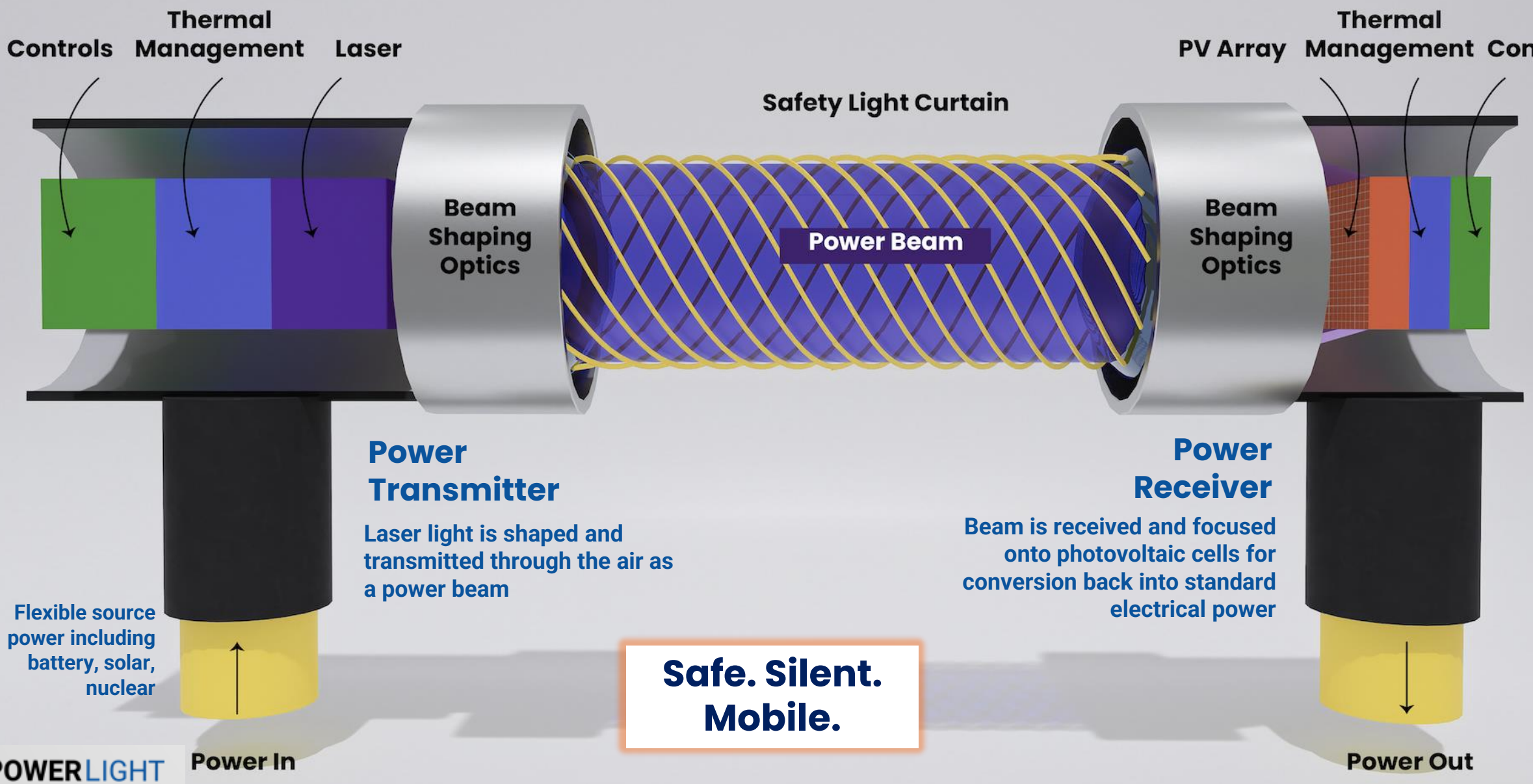
- **Accelerates deployment** of critical assets, particularly in contested logistics environments
- **Increases their operational endurance**, flexibility, maneuverability, and survivability
- **Decreases their logistical footprint** and risk to mission and personnel


IR Camera


Demonstration LMCO Stalker



How It Works



Safe. Silent. Mobile.

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The disruptive nature of power beaming

Wireless Power Delivery. More flexible point to point multi-domain energy transfer in remote, austere, and contested logistics environments.

Asynchronous Power Delivery. Platform agnostic power, in many-to-many configuration, provides increased maneuverability and lethality with decreased logistical footprint.

Fusion of Data and Power. Provides more reliable, resilient, and responsive networks through which to employ sensors, autonomous systems, and ISR platforms.

A decade of world's-firsts in laser power beaming

2009 — NASA Power Beaming Competition

2012 — Wireless Power to airborne fixed wing drone

2017 — Awarded $9M program with DoD

2018 — Power Over Fiber to underwater drone

2019 — 325 meters, 400 watts

2021 — World-first wireless power 5G demo

2021 — 1,000 meter, 500 watts

2021

2022 — Agreement to commercialize PoF for 5G/xG

2022 — $5M program with DoD

2023 — 1st digital, wirelessly-powered call made

2023 — (2) awards for POWER Wireless Energy Web program

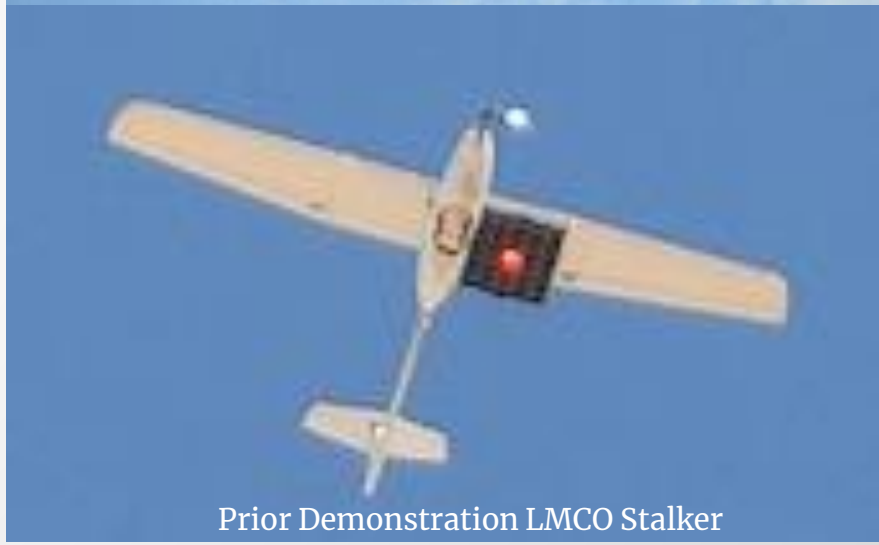
2023 — DARPA LunA-10 Program Award

Wireless Power to Group 2/3 UAS

Mission: Develop and execute an accelerated wireless power beaming to UAS program that addresses growing UAS power requirements.

1. Demonstrate and experiment wireless power beaming to Group 2 UAS that delivers 500-800 We, at an altitude of 6500ft.
2. Demonstrate ability to dynamically distribute operational energy to autonomous assets deployed across domains.
3. Transition solution to create and capture first mover advantage for US in operationalizing autonomy at scale.

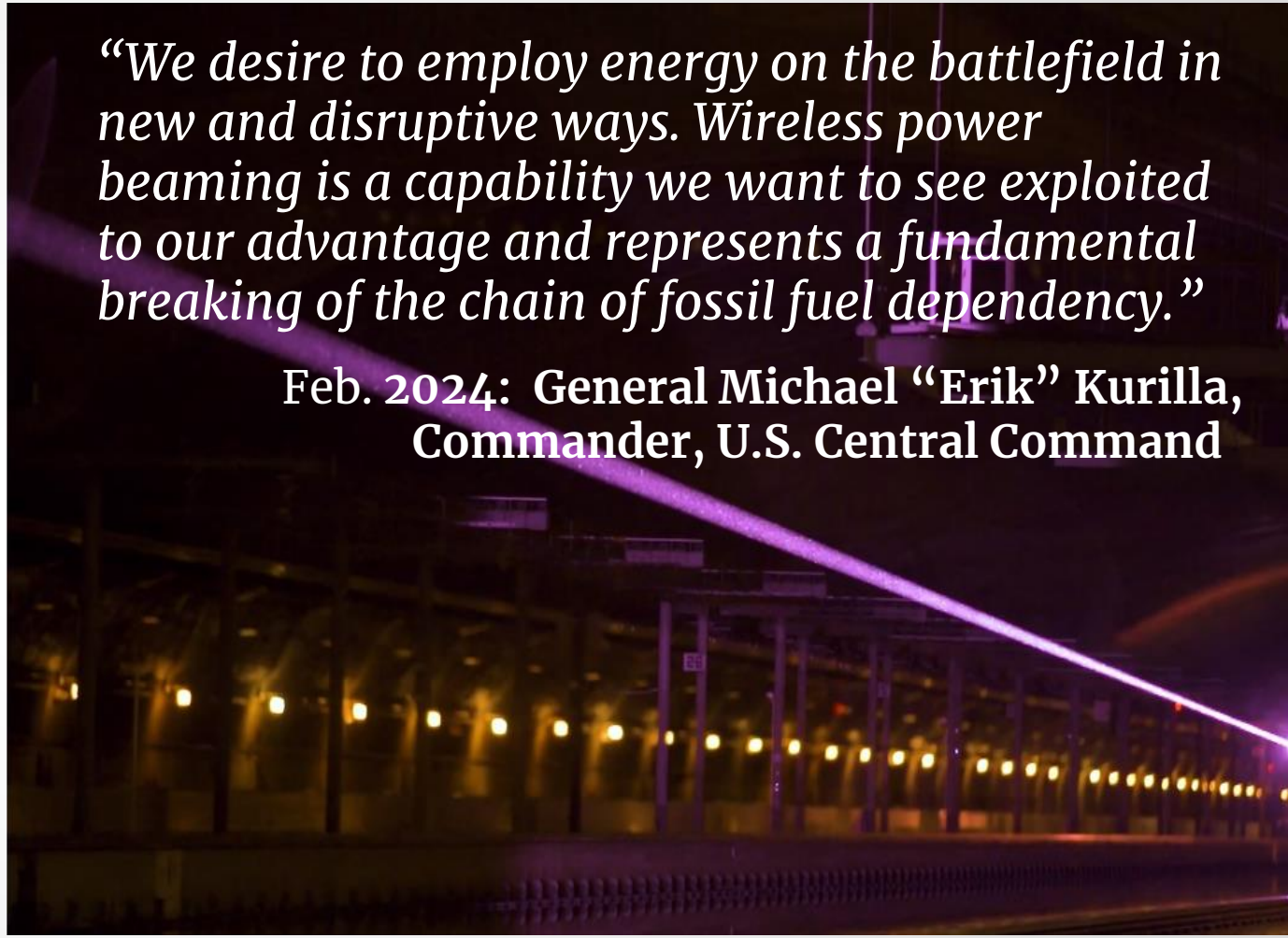
Planned FY25 Experimentation KL1000USA



Prior Demonstration LMCO Stalker

Why now?

- **Proven & Proven Safe**: Power beaming is now operationally viable.
- **High Power Lasers Are Mainstream**: Advances across industry & DE can provide power, distance, beam quality & dual-use scale.
- **Receiver Packaging Integrates Widely**: Lightweight optics and platform agnostic power.



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Thank you and questions

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