



# ASSOCIATION DEFENSE COMMUNITIES

INSTALLATION

OCTOBER 28-30



INNOVATION

SAN ANTONIO, TX

2024

# INTRODUCTION

## Who We Are

ATC Alliances is a veteran-owned business committed to delivering ultramodern energy solutions tailored to enhance energy resilience, operational cost efficiency, and environmental sustainability. ATC's product portfolio integrated with Solareco Systems (SES) and Real Business AI is designed to meet the critical energy demands of military installations, ensuring both security and sustainability. Our solutions, particularly suited for the Department of Defense (DoD), provide a pathway toward energy independence and robust infrastructure support.

**ADC Introduction Video:** <https://vimeo.com/1011398983?share=copy#t=0>

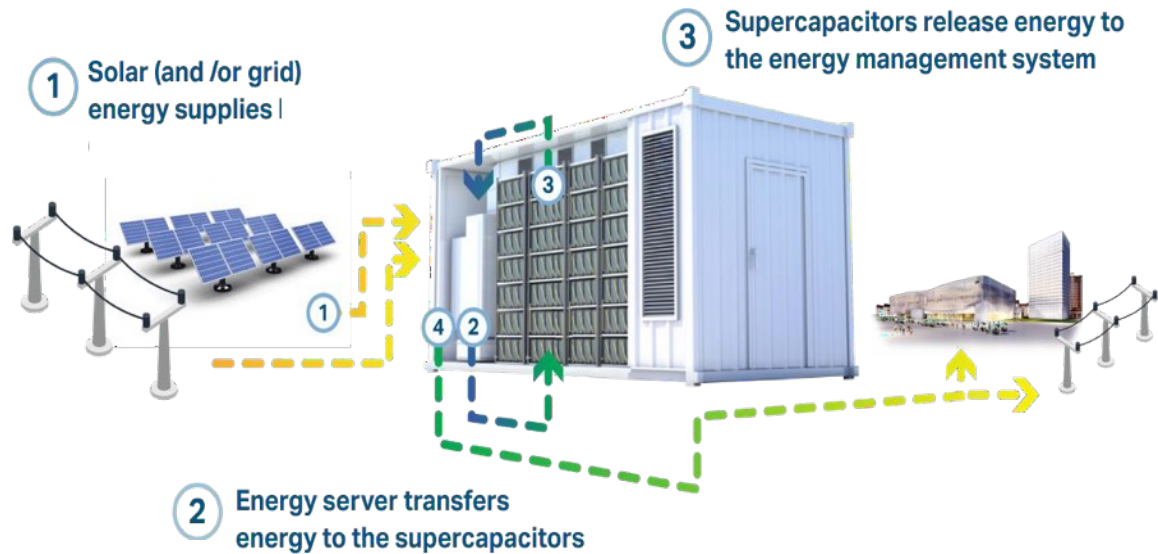
**Why We Are Here:** Our mission is to harden military base infrastructure by providing independent, renewable power solutions. The national power grid is vulnerable to natural disasters and other threats, and our microgrid solutions offer strategic energy security. By deploying the Fortified Resilient Energy Storage Hub system and integrating AI, we ensure continuous, reliable power to critical infrastructure while reducing costs and environmental impact. As a veteran-owned company, we take pride in contributing to military readiness, enhancing the quality of life for soldiers and their families, and supporting the transition of veterans into renewable energy careers.

# INNOVATION TO MILITARY ENERGY : BLUF

- **Technology:**
  - **Fortified Resilient Energy Storage Hub (FRESH)** – Modular supercapacitor systems that can support a single building, up to an entire grid
    - Using solar as a charging solution (other types available) makes this system green and affordable
      - Discharge duration is 18 hours, with a 10 min recharge cycle
  - **SES Solar Lights:**
    - Enhance security
    - Reduces the majority of maintenance
    - No physical cables or interconnections
    - Wireless capable for monitoring and increased efficiency
  - **AI Application:**
    - Optimizes energy consumption at a micro and macro level
    - Next generation power management
- **Partnerships / Integration:**
  - The Defense communities are a major key to our partnership
    - Copperas Cove, Texas is a prime example in showcasing how this partnership enables solutions that help the community and the base
  - Being resilient is critical outside as well as inside the installation
    - Ex. Water system feeding a military installation
- **Cost / Approach:**
  - ATC Alliances offers upfront financing to support military need and budget cycle
    - Most military installations fit within the existing cost structure at a fixed rate
      - Energy Savings Procurement Contract is an example of a -mechanism that can enable this cost savings

# TECHNOLOGY

## FORTIFIED RESILIENT ENERGY STORAGE HUB: FRESH



### Key advantages:

- Scalable right size module for critical building up to full power grid for an installation
- 10 min charge with 18 hour discharge time
- minimal install, small footprint, low maintenance
- multi use to support EV charging infrastructure
- Self funded – fixed rate over time with savings to existing cost allocation

Attributes	Lithium	Supercapacitors	Diesel Generator
Warranty	Up to 10 Years with Limited Capacity Warranty	25-year performance with No EOL degradation	1-5 Years with Limited Capacity
DC Round Trip Efficiency	80-90%	99.1%	Fuel to Power: 30%-40%
Depth of Discharge (DoD)	70-80%	100%	n/a
Exposure to Extreme Temperature	0° C to 50° C	-30° C to 60° C	-10°C and 40°C
Charge and Discharge	1 hour	10 Minutes	Needs Fuel
No. of Cycles	6,000 cycles (max)	> 500,000 cycles	10K-30K hours
Safety	High risk of fire	Non-chemical and will not overheat	Built in Safety features
Environmentally Friendly	Unclean Production, Recycling Issues	No Rare Earths, 80% recyclable after 25- year use	Burns Fuel / Large CO2
Expected Life	5-6 years	25+ years	10K-30K hours
Operations & Maintenance	High O&M Costs	Minimal O&M costs	High O&M

# TECHNOLOGY

## SOLARECO SYSTEMS (SES) NOOR, SHIMS, TAQA



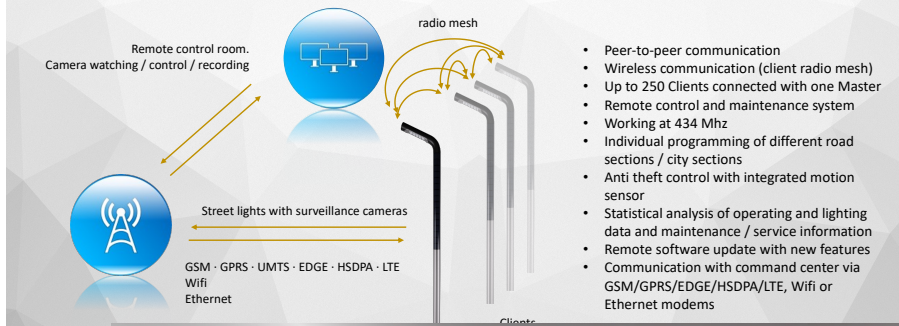
### Latest LED Technology

- Exchangeable high-performance LEDs
- 100,000+ hours life expectancy (L70)
- 130 Lumen/Watt at 4,100K
- Easy brightness control (100% dimmable)
- No light pollution

### Power Management and Communication

- **100% dimmable** → most competitors only provide 10% steps starting from 50% → **USP**
- **Self-learning** energy management and light optimization →
- We reduce power to safe battery life; Every street light is learning for its position the best power usage → **USP**
- **Individually programmable** -> 5 different light profiles for every day possible → **USP**
- **Smart system of monitoring** and controlling → Service Box, Internet → Ease of use → **USP**
- **MPP-tracking** for maximized energy yield → Best possible usage of battery life
- **Can be updated** → NEW FEATURES for the customer → **USP**

### Intelligent Communication and Energy Management



### Integrated Hi-Res Camera



- Discreet integration in lamp mast or head
- No central recording soft or hardware required
- Direct recording to any IT storage device possible
- Usage of thermal or infrared camera possible
- Interchangeable lenses to fulfill your custom needs
- Low power consumption
- High resolution, super-wide video camera instead of multiple camera system
- Outstanding image quality without zoom / very good contrast
- Separate day and night sensors
- No heating necessary, no moving parts
- No iris or mechanical filter/ full backlight brilliance
- Very good color reproduction even in dark areas

You will need Ethernet (POE) or GPRS to transfer picture data!  
The camera system is independent from the light-system



# TECHNOLOGY REAL BUSINESS AI

## AI-ENHANCED ENERGY MANAGEMENT: DRIVING OPERATIONAL RESILIENCE

- **OPTIMIZED ENERGY MANAGEMENT WITH AI: PREDICTIVE ANALYTICS MONITOR ENERGY CONSUMPTION, ANTICIPATE PEAK LOADS, AND REDUCE WASTE BY UP TO 20%.**
- **OPERATIONAL RESILIENCE: AI-POWERED DIGITAL TWINS SIMULATE DISRUPTIONS (E.G., STORMS, CYBERATTACKS) TO ENABLE PREEMPTIVE ACTIONS.**
- **PROACTIVE EXAMPLE: AI SIMULATES HURRICANE IMPACT, ENSURING ENERGY IS REROUTED TO CRITICAL FACILITIES BEFORE THE STORM HITS.**
- **ENHANCED CYBERSECURITY: END-TO-END ENCRYPTION AND AI-DRIVEN THREAT DETECTION SECURE ENERGY INFRASTRUCTURES FROM UNAUTHORIZED BREACHES.**
- **AI-BASED THREAT DETECTION: DETECTS ANOMALIES LIKE ENERGY SURGES OR CYBERATTACKS, ISOLATING AFFECTED SYSTEMS TO PREVENT WIDER IMPACTS.**
- **AUTOMATED COMPLIANCE: AI ENSURES COMPLIANCE WITH DOD STANDARDS, CONDUCTING AUTONOMOUS AUDITS AND MONITORING VULNERABILITIES IN REAL-TIME.**

# SUSTAINABILITY AND PARTNERSHIPS: ACHIEVING DOD'S SUSTAINABILITY GOALS

- **Partnerships with Defense Communities:** Successful energy projects rely on collaboration between military bases, energy providers, and surrounding defense communities
- **Meeting Sustainability Goals:** Solar and energy supercapacitor technologies align with the DoD's goal of achieving carbon-free energy by 2030
- **Meeting Resiliency Goals:** These solutions contribute to diverse electricity sources, backup energy on the grid, local electricity generation, and resilience to threats - all critical for maintaining military readiness and operational capabilities. As integrated energy systems capable of functioning autonomously, microgrids bolster the energy resilience of military installations, provide operational continuity during climate-related disasters, potential terrorist threats, and grid instability

# MILITARY ENERGY INFRASTRUCTURE: THE FUTURE OF RESILIENCE AND INNOVATION



## COST

- **Fixed Energy Rates:** Protects from volatile energy prices by offering predictable and stable energy rates for the long term
- **Low Maintenance Costs:** Once installed, solar and battery systems require minimal maintenance, resulting in low operational costs over time
- These self-financed, modular systems provide long-term savings by lowering operational costs, making bases financially efficient without needing extra government funds



## ENVIRONMENTAL

- **Environmental Impact:** The solutions contribute to the Department of Defense's (DoD) sustainability goals by reducing greenhouse emissions and using renewable energy to power critical infrastructure



## NATIONAL SECURITY

- **Energy Assurance:** Delivers a secure and dependable energy source, which is crucial for maintaining military operational readiness
- **Enhanced Energy Security:** Boosts resilience against grid failures and energy disruptions, safeguarding power supply during emergencies
- **Reliable Power for Critical Operations:** Ensures continuous operation readiness of essential functions, even during outages
- **Compliance with Federal Mandates:** Aligns with federal directives on energy security and resilience for military installations



## REDUNDANT POWER

- **Energy Independence:** Military installations can achieve independence from external power grids through solutions like the FRESH System and SES Solar Lighting. These solutions contribute to the Department of Defense's (DoD) sustainability goals by reducing greenhouse emissions and using renewable energy to power critical infrastructure
- These systems use solar power and supercapacitors with 99.1% efficiency, significantly reducing reliance on unstable external grids



# CONCLUSION: REVOLUTIONIZING MILITARY ENERGY

- **Energy Independence:** SES Solar Lights and FRESH solutions allow military bases to operate independently from external power sources
- **Cost-Effective Innovation:** Self-financed energy systems provide long-term savings without the need for extra government funding.
  - **Operational Cost Reduction:** Solar and supercapacitor technologies provide significant savings by lowering energy costs compared to traditional grid reliance
  - **Return on Investment:** Systems like SES Solar Lighting and FRESH achieve a return on investment (ROI) within a few years resulting in long-term financial benefits
  - **No Extra Government Funding:** These self-financing models eliminate the need for extra government funding, making them financially sustainable offering long-term savings using contract mechanisms like Energy Savings Procurement Contracts (ESPC)
  - \* goal is to help reduce the financial burden for military families on installations
- **Energy Independence Achieved:** We have analyzed two US Army bases with our engineering team and concluded the potential to operate completely off-grid using the FRESH system is achievable, thanks to solar and energy supercapacitor systems. This is all within their existing cost structure, with significant savings and stable fixed pricing. Military installations are setting the standard for achieving carbon reduction and sustainability goals, leading the way in global energy management.



**ATC ALLIANCES**

# THANK YOU

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