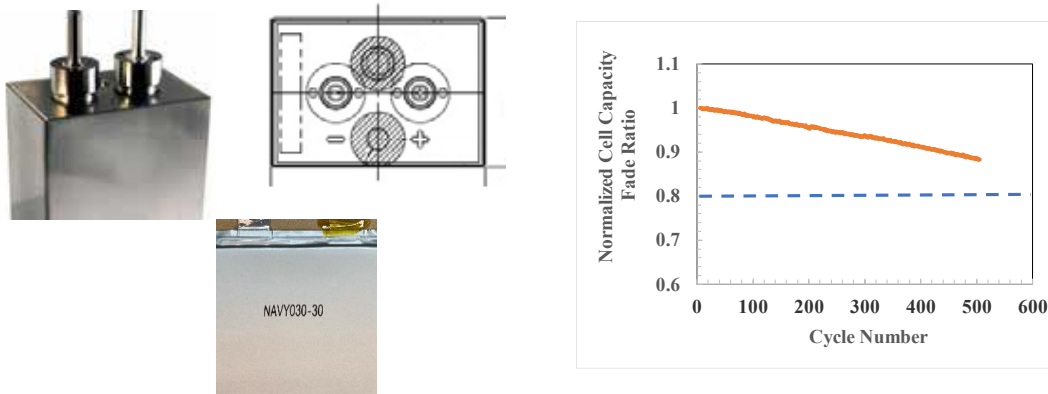


# PY24.2 Space Force STRATFI | SBIR

## Advanced 5781173 Nano Si/C Prismatic Cell with Superior Safety, High Energy Density and Zero Volt (ZV) Stability



### Zero Volt is Safe, Survivable, and Resilient

**Technology Area:** Space Mission Area(s): Pervasive through (1) Space Domain Awareness, (2) Space Control, (3) Satellite Communications, (4) Position, Navigation & Timing, and (5) Space Sensing

#### STRATFI Scope

- ❑ Build capability to produce drop-in ZV solution with >50% more specific energy
- ❑ Develop and qualify 5781173 ZV cell with >100Ah per AIAA S-144 standard; build 500 cells inventory
- ❑ Qualify 4Ah ZV 18650 cells per S144 standard; build 10,000 cell inventory
- ❑ Improve Non-Sacrificial ZV technologies
- ❑ Develop configurable 5781173 (4.1, 8.2, 12.3, 16.4, 20.5, 24.6, or 28.7 Volts)
- ❑ Achieve >75000 cycles @20%DOD and >1500 cycles @ 50% DOD

#### Innovation

- ❑ Next generation Nano Si/C battery technologies
- ❑ Patented low cost ZV technologies
- ❑ Hermetically-sealed prismatic cell consisting of high performance ZV pouches
- ❑ Configurable 5781173 prismatic case for varying ESPA Grande Bus voltages
- ❑ Non-Sacrificial Zero-Volt technologies



- **American Lithium Energy** is a leading domestic battery solutions provider. ALE offers vertically integrated services in engineering, consulting, and manufacturing battery cells and packs.
- **New Site Production Capabilities:** ALE is **committed to US production** in a second commercial site to manufacture the cells outlined in this program:
  - **81,000 SQFT in Vista, California**
- **Production Lines:**
  - Production line with >300 MWh/year
  - Industrial standard machines –economical and reliable
- **Cells to be Produced:**
  - Pouch cells: 2Ah, 7Ah, 14Ah and 19.5Ah for various kinds of markets
  - Cylindrical cells: 21700 cells with 5.7Ah and 18650 cells with 4Ah
- **Certifications:**
  - AS9100D
  - ISO 9001:2015
  - ISO 13485
  - ITAR

