

MEMORANDUM

TO: NWABSD Board of Education
Members

DATE: June 22, 2026

FR: Office of the Superintendent

NUMBER: 26-205

SUBJECT: Approval to purchase
battery storage training
system from Kronus
Engineering

ABSTRACT:

Board approval is required for purchases that exceed \$50,000. The administration requests the School Board's approval to purchase a battery storage training system from Kronus Engineering for the amount of \$130,007 with a note not to exceed \$143,007 (10% Buffer).

ISSUE:

At issue is the approval of the purchase of a battery storage training system through Kronus Engineering, which exceeds \$50,000 and requires Board approval.

BACKGROUND AND/OR PERTINENT INFORMATION:

The ATC is working in partnership with NANA and the NWAB to provide training on battery energy storage systems that are being assembled and installed throughout the region. Kronus Engineering has developed a small-scale battery storage system similar to the larger systems currently being deployed in regional communities. The Hewlett Foundation has awarded the ATC a workforce development grant focused on battery energy storage. The purchase of this training system will enable the ATC to provide local, hands-on training for technicians responsible for operating and maintaining the battery storage systems being installed across the region. This initiative will help build a skilled local workforce and support the long-term sustainability of renewable energy infrastructure in Northwest Alaska.

Funding: Grants: Hewlett Foundation

ALTERNATIVES:

1. Approve of purchase from Kronus Engineering a battery storage training system not to exceed \$143,007 as presented;
2. Disapprove the purchase of a battery storage training system from Kronus Engineering not to exceed \$143,007.
3. Take no final action.

ADMINISTRATION'S RECOMMENDATION:

The administration recommends the Board approve the purchase of a battery storage training system from Kronus Engineering, not to exceed \$143,007 as presented.



Project Overview

Northwest Arctic Borough reached out to Kronus Engineering for a small battery for the training facility in Kotzebue, AK. They are looking for an indoor battery similar to the larger systems Kronus has deployed across the state.

Pricing

Dolomite O-P Series – M5 Batteries (0.5 C)

System Specs

Nom Energy	157	kWh
Usable Energy	141	kWh
DC Voltage Range	580-710	VDC
AC Voltage	3P 480	VAC
System Output Power	40	kW
Approx. Weight	3100	lbs.
Battery Enclosure Dimensions	84" H x 34" W x 54" D	

Price: \$130,007

Scoping & Design:

- Creating battery system mechanical and electrical design
- Working with Site Electrical Engineer to integrate battery system into electrical plans
- Establishing Product Testing Plan

System:

- Pylontech M5 rack of batteries
- (1) Oztek RS-40 inverter
- Set up for 3P 480VAC with 50/60HZ set-up available
- 7,000 cycles for 10+ years daily usage
- Communications through Modbus/CANbus
- Iris BESS Controller

Installation: Estimated (3) days on site for product installation and commissioning

Warranty:

- Kronus one-year workmanship warranty
- OEM Product Warranties passed through

Availability: 1-6 months (currently shipping in 1-2 months)





Additional Options	
SEL Relay	\$8,000-15,000
External AC Panel	\$3,500-\$20,000 per panel
Kronus System Commissioning	\$2,000 per day per person + travel 3 days included
Kronus Premium Support	\$0 for the first year (included)
Estimated Shipping Costs	TBD

Additional Considerations

- Shipping quote for FOB Boulder, CO. Pricing is estimated but varies based on market rates.
- The Iris BESS controller is included in the price. Additional equipment may be required.
- With the Oztek battery inverters an isolation transformer is not usually required and is not included in the price. Any additional transformers needed for the site are not included in the price but could be added if necessary.
- An external AC panel is not included in the proposal, but could be added to the system, if appropriate. During the Design Phase, the methodology of if an AC panel is required and where the AC panel will lie, whether it will be in the container or external to it, as well as the number of panels and breakers will be defined. The BESS will require a 20-40A circuit to power the system (price for panel not included)
- Systems location is site dependent and additional site work is not included- traditionally a poured concrete pad or Triodetic foundation.
- The BESS needs to be commissioned on site. Depending on the complexity of the system and controls chosen to run system, Kronus will need to be on site an estimated 3 days to commission system. (see pricing above)
- Fire permitting is not included but could be added if necessary.
- The weight of materials requires on-site logistics. Depending on final resting location of equipment, a pallet jack, forklift, helicopter, or crane may be required. (pricing not included)
- For this proposal, tariffs are assumed to be current as of June 18th, 2026, 2026. The price will need to be adjusted for any change in law which reflects a different tariff.

Additional Terms

- Note:** Proposal is valid until the 15th of August 2026
- Terms:** 50% on PO/ 50% on shipment



Scope of Work:

Phase 1: Design Development: During this phase, Kronus will design and create drawings for the BESS.

Kronus Engineering will:

- Lead battery design portion of project
- Provide, manage, and edit the set of battery design drawings needed by the customer to get permit approvals
- Advise on site single-line diagram
- Support site, solar, and system design through recommendations as necessary
- Create SAT and FAT Plans

Kronus Engineering will not be responsible for:

- Site engineering including civil design of pad that BESS equipment reside on
- Solar engineering
- Stamping any drawings
- Providing drawings for any system besides the battery

Phase 2: Procurement: Kronus will procure all necessary parts for the BESS.

Kronus Engineering will:

- Purchase and pay for all components internal to the BESS and necessary to build the BESS
- Provide and manage the equipment delivery schedule

Kronus Engineering will not be responsible for:

- Any system or parts outside the BESS
- Any components which fall outside the BESS footprint- interconnection equipment, solar equipment, site relays and switches, etc.





Phase 3: System Integration: Kronus Engineering will integrate the battery storage system.

Kronus Engineering will:

- Integrate the BESS as per agreed design
- Provide as built drawings
- Provide installation and maintenance manuals

Kronus Engineering will not be responsible for:

- Any system or parts outside the BESS
- Any components which fall outside the BESS footprint- interconnection equipment, solar equipment, site relays and switches, etc.

Phase 4: Testing & Validation: Kronus will implement formalized system testing procedures which involve running the system design through standard procedures in a controlled environment prior to shipping the system.

Kronus Engineering will:

- Organize and perform FAT according to agreed upon FAT and test schedule
- Pay for and deliver factory FAT testing equipment within allocated budget
- Connect and operate all test equipment

Kronus Engineering will not be responsible for:

- Testing on any system or parts outside the BESS

Phase 5: Delivery and Commissioning: Kronus Engineering will be onsite for commissioning and site-acceptance testing.

Kronus Engineering will:

- Arrange delivery of equipment to site
- Travel to the site to commission system and provide local operator training
- Perform the BESS and controls SAT as agreed upon
- Be onsite and available for support during system integration commissioning

Kronus Engineering will not be responsible for:

- Anything outside the BESS and inverter
- Prepping of site including pouring or building a pad for the BESS
- Getting power to BESS (most likely 40A 480VAC)
- Running power, auxiliary, and comm/fire conduit to BESS
- Any electrical work which does not fall within the interior of the BESS enclosure

About Kronus Engineering

Kronus Engineering is an expert on all-things energy storage. Our systems range from small-format battery packs for Robotics or UAVs, all the way up to large scale systems with Megawatt-Hours of storage for buildings or small communities; with our specialty falling between 100 kWh and 50 MWh. We have a team of engineers with expertise in mechanical, electrical, and software design, as well as high-voltage technicians to make sure your system is fully tested and safely installed on-site.

Ideally, we join the project at the scoping or design stage so that we can ensure the final system will meet the project's needs from the starting line, but we can jump in during any of the stages of scoping, design, programming, procurement and assembly, testing, installation, or commissioning to ensure that the project is a success. Whether you are at the beginning stages of designing a system, or you need help with the manufacturing, testing, installation, or troubleshooting of your BESS system, our team of battery experts will make sure your project is successful using creative and innovative solutions specific to your project's scope.

Kronus Process

1. The typical process for our clients begins with a system scoping to define the true needs of the battery.
2. Once system specifications are approved, we will design the initial system diagrams including flow charts, schematics, 3D models, and a bill of materials. We can also investigate programming system controllers or the BMS system at this time.
3. During the procurement and assembly stage our high-voltage technicians take the time to order parts as well as carefully assemble and wire the system.
4. Our team will test the system in a controlled environment before shipping to the project site.
5. The BESS is then carefully packaged and shipped to site where our technicians will install and integrate the system.



Kronus Services

- Energy Analysis for Battery Sizing
- System Diagram and Schematic Development
- Design Consultation
- Software Support
- Bill of Materials Development
- Schedule Development
- Manufacturing Support
- System Testing and Validation
- On Site Installation
- Support and Troubleshooting



External power supply battery system (1000V)



2.2.1 Parameters of the System

Product Model	PowerCube-M5A-64/zzzV-L15	PowerCube-M5A-64/zzzV-E15
System Voltage (VDC)	<1500	<1500
Controller Type	S1500M5A180L (External Power Supply Version, NA version) Isolating switch	S1500M5A180E (External Power Supply Version, EU version) Circuit breaker
Battery Module Type	HM5A180F	HM5A180F
Nominal Voltage (VDC)	64 × n (where n = 1~21)	64 × n (where n = 1~21)
Rated Capacity (Ah)	245	245
Total Storage Energy (kWh)	15.68 × n (where n = 1~21)	15.68 × n (where n = 1~21)
Upper limit Charge Voltage (VDC)	71 × n (where n = 1~21)	71 × n (where n = 1~21)
Suggested Charge Voltage (for PCS)	71 × n (where n = 1~21)	71 × n (where n = 1~21)
Lower limit Discharge Voltage (VDC)	58 × n (where n = 1~21)	58 × n (where n = 1~21)
Nominal Current (Amps)	122.5	



Product Model	PowerCube-M5A-64/zzzV-L15	PowerCube-M5A-64/zzzV-E15
Max. Continuous Current (Amps)	180	
Peak Current (Amps)	< 210A for 5 minutes < 500A for 30 seconds	
Over Current/Duration (Amps/ms)	12000A/5ms	
IP Rating/Protection Class	IP20/I	
Operation temp. range(°C)	10 ~ 40	
Communication Protocol	CANBUS/Modbus RTU/Modbus TCP/IP	
Storage temp. range(°C)	-20 ~ 50	
Humidity(%)	5 - 95 (without condensing)	
Round-trip efficiency (% , @0.5 C-rate)	96	
Depth of Discharge(%)	95	
Battery System Power Consumption (W)*	16.5+n*3 (where n = 1~21)	
Dimensions (mm) for HQ container**	1050(W)*925(D)*2215(H) (24 slots)	1050(W)*925(D)*2215(H) (24 slots)
Dimensions (mm) for GP container ^Δ	1050(W)*925(D)*1965(H) (22 slots)	1050(W)*925(D)*1965(H) (22 slots)
Weight (kg)	210+ 115*n (where n = 1~22)	210+ 115*n (where n = 1~22)
Design cycle life (cycle) [Ⓔ]	>7,000	
Design Life(year)	15+	
Cooling type	FAN cooling	
Altitude (m)	<4,000	
Certifications for UL (BMS: S1500M5A180L)	UL1973, UL9540A, UL9540, IEC62477-1, IEC62040-1, IEC62619, IEC63056, UKCA, CE LVD, CE EMC, UN38.3, VDE-AR-E 2510-50	
Certifications for EU (BMS: S1500M5A180E)	IEC62477-1, IEC62040-1, IEC62619, IEC63056, UKCA, CE LVD, CE EMC, UN38.3, VDE-AR-E 2510-50, GB/T 36276-2018, GB/T 34131-2017	

* This is the power consumption when relay closed, not including fan power consumption. Each fan power consumption is 15.6W and fan running condition depends on temperature.

** HQ (High Cube) container: Rack with 24 slots, configuration for 2 strings of 1 BMS + 11 battery modules (< 1000V system). Or 1 BMS + 21 battery modules (< 1500V system). Please check the PCS DC voltage range for a proper configuration.

^Δ GP (General Purpose) container: Rack with 22 slots, for 2 strings of 1 BMS + 10 battery modules (< 1000V system). Or 1 BMS + 21 battery modules (< 1500V system). Please check the PCS DC voltage range for a proper configuration.

[Ⓔ] Cycle life is defined based on specific operation conditions, for more details please check with Pylontech service team.



OZpcs-RS40 Specifications

- **Reduce Time to Market**
 - ◆ *Easy paralleling allows for quick product scaling*
 - ◆ *2.5U, 19" rack mount*
- **Features**
 - ◆ *Seamless Transfer*
 - ◆ *UL1741-SA Smart Inverter functions*
 - ◆ *3 & 4 wire transformer-less grid interface*
 - ◆ *Integrated data logging*
- **Worldwide Application**
 - ◆ *Wide AC voltage range*
 - ◆ *208-480VAC*
 - ◆ *50/60 Hz*
 - ◆ *Wide DC voltage range*
 - ◆ *330-820VDC*
- **Industry Std Interface**
 - ◆ *SunSpec certified*
 - ◆ *Modbus RS-485*

DC Connection	
Operating Voltage Range	330 - 820 VDC
Full Power Voltage Range	550 - 820 VDC
Max DC Current	+/- 75 A
Max DC Power	40 kW
Wiring Configuration	2 Wire
AC Connection	
Max AC Power	40kVA @ 480 V _{RMS}
Max AC Current	50Arms
AC Line Voltage	208 - 480 V _{RMS}
AC Line Frequency	50 / 60 Hz
Supported Grid Connections	3 wire & 4 wire, grounded neutral
Power Factor	-1 to +1
Current Harmonics	IEEE 1547 Compliant, <3%THD
Typical Efficiency	97 %
Environmental	
Operating temp	-5°C to 40°C 40°C to 50°C Derated
Cooling	Forced air by internal variable speed fans
Max Elevation	1,000m No Derating 1,000m - 3,000m Derated
Enclosure	2.5U, 19" Rack Mount
Weight	43kg / 97 Lbs
Ingress protection	IP20
User Interface	
Isolated Communication Link	Modbus RS-485
Register Mapping	SunSpec PCS
Isolated Digital Inputs	<ul style="list-style-type: none"> • Emergency Shutoff • Bias Enable
Isolated Digital Outputs	<ul style="list-style-type: none"> • User Configurable 1 • User Configurable 2
Indicator LEDs	<ul style="list-style-type: none"> • Fault • Operating • Standby • Power On
Warranty	5 years standard 5 year warranty extension available

Designed and Manufactured in the USA

DR-0110 Rev G



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(603) 546-0090 oztekc.com



Kronus Engineering
The Battery Experts



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Iris Energy Management System

Kronus Engineering has developed the Iris Energy Management System to give you full control over your battery energy storage system as well as the ability to integrate the BESS into your site seamlessly. This solution allows for safe communication between all devices and can be monitored remotely.



Energy Management System Functionality

- Demand Charge Management
- Time of Use
- Data Aggregation
- Microgrid Control

Controllable Resources

- Batteries
- Battery Inverters
- Solar Inverters
- DCDC Converters
- Fuel Cells
- Hydrogen Reformers
- HVAC/ Thermostat Control
- Energy Monitors

Interface

- Local Touchscreen Control
- Remote Web Interface
- Data Logging and Trending
- AI Optimized Controls
- System Notifications

