Electric forklifts and high frequency battery charging

Electric forklifts offer lower operating and maintenance costs than diesel or propane, and offer improved health and safety conditions, particularly in indoor use applications. Rebates are available for conversion, new construction, fleet retention and refurbished fleet additions.

BENEFITS OF ELECTRIC FORKLIFTS

Making the switch to an electric forklift offers several benefits when compared to a traditional IC engine forklift.

Lower maintenance costs

Electric forklifts have fewer moving parts requiring maintenance and repair, and forklifts with alternating-current (AC) motors are particularly low-maintenance. Unlike their lead-acid battery counterparts, forklifts with lithium batteries don't require the need to build and maintain a battery charging and changing room.

Environmental benefits

Electric forklifts produce almost no emissions, create no fluid waste requiring disposal, and their batteries are recyclable.

Lower fuel costs

Electric forklift batteries are rechargeable, so there's no need to keep purchasing and replenishing consumables like propane or diesel. Insurance premiums for electric forklifts can also be lower than for those powered with combustible liquid and gas fuels.

Less noise and vibration

The quiet, smooth motion of an electric forklift helps reduce operator fatigue.

More flexibility

Some types of electric forklifts are designed to maneuver in narrow aisles and tight spaces, while others are able to handle much smaller items than typical forklift models.

> **Companies that convert their forklift fleet to electric significantly reduce operating and maintenance costs.**

What is the payback period?

The payback period depends on the size and utilization of the forklift. Lifts for use in heavy use multiple shift applications can have a relatively quick payback period. Other applications see better cash flow dynamics coming from lease options that have minimal upfront cost differences when compared to internal combustion lift options.

How do electric forklifts reduce greenhouse gas emissions?

Using electricity to power forklifts results in the lowest well-to-wheel greenhouse gas (GHG) emissions of any forklift fuel (Source: US Department of Energy). Additionally, [insert co-op name here] can provide you with renewable energy options to fuel your lifts or offset the electric usage of your entire facility.

High Frequency Charging

Technology advancements such as high frequency battery charging bolster electric forklift performance, and therefore industry acceptance. A forklift is typically in active operation 50% of the time, so most electric forklift models can operate for two 8-hour shifts on a single battery and charger.

BENEFITS

- Faster, more efficient battery charging
- Operational energy cost savings
- Increases battery life by providing better voltage and current control

ELIGIBILITY REQUIREMENTS

- Forklifts must operate a minimum of 20 hours/week
- Off peak rates can provide additional savings when used to fuel electric forklifts. Ask you energy expert at [insert co-op name here] for more details on options availble for your project.

ELIGIBLE FORKLIFT EQUIPMENT

- Class 1 electric indoor or outdoor forklifts
  - 36V, 48V or 80V
  - 3,000 – 12,000 pound lift capacity
- Class 2 indoor narrow-aisle forklifts
  - 24V, 36V or 48V
  - 3,000 – 5,000 pound lift capacity

Please note: Rebates available for conversion from ferroresonant and SCR to high frequency. Hybrid controlled to high frequency conversions do not qualify for rebates.

CONTACT US

For any questions or assistance in making these savings a reality for your business, please contact your local energy expert at Runestone Electric.

EQUIPMENT TYPE	REBATE AMOUNT	
Conversion (fuel replaced with electric)	$1,000 (20 hour)	$2,000 (40 hour)
Fleet addition or new construction (new equipment)	$1,000 (20 hour)	$2,000 (40 hour)
Retention (electric to electric) or refurbished fleet addition	$500	
High frequency battery charger	$200	

Runestone Electric ASSOCIATION

www.RunestoneElectric.com
320-762-1121 Toll Free: 800-473-1722
6839 Power Lane SW, Alexandria, MN 56308

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Rebate Application

BUSINESS MEMBER INFORMATION

Business Name _____

Installation Address _____

City _____ State _____ ZIP _____

Contact Name _____ Account # _____

Email _____ Phone _____

REBATE RECIPIENT

To release the rebate incentive check to an alternate party other than the cooperative business member, the member must specify an alternative mailing address and authorize with a signature below.

Please Send Rebate to (check one):

☐ Business Member ☐ Alternative Recipient

Recipient Name _____

Mailing Address _____

City _____ State _____ ZIP _____

Contact Name _____

APPLICATION CHECK LIST

☐ Rebate application with signature

☐ Itemized project invoices (labor & materials)

☐ Equipment specifications

The undersigned does hereby certify that the undersigned is solely responsible for the accuracy of the information contained in this application. All rules of the program have been followed and the installation is complete. The undersigned acknowledges that nothing contained in the application imposes any liability on the cooperative for the work performed and information presented by the member, member's engineer, contractor, or vendor. The undersigned also authorized payment of incentive directly to the specified rebate recipient.

Rebate applications due no later than the third Friday of November.

MEMBER SIGNATURE

Member Signature _____ Date _____

Electric forklifts and high frequency battery charging

Rules & Information

WARRANTY INFORMATION

Rebate qualifications do not imply any representation or warranty of such equipment, design or installation by the cooperative. The cooperative shall not be responsible or liable for any personal injury or property damage caused by this equipment. The cooperative does not guarantee that a specific level of energy or cost savings will result from the implementation of energy conservation measures or the use of products funded under this program. In no event shall the cooperative be liable for any incidental or consequential damages.

GENERAL PROGRAM RULES

1. Purchase or lease must be final before funds are issued.
2. Members and vendors must submit itemized equipment invoices, rebate application, and manufacturer equipment specifications. To ensure that the equipment installed meets the cooperative's performance standards, these invoices must itemize labor charges, quantity and price of the equipment installed, as well as information regarding the manufacturer and model numbers for all equipment included in the rebate.
3. The cooperative reserves the right to conduct random inspections of installations.
4. Rebates must be applied for within 12 months of invoice date.
5. Project must comply with all program specific rules and qualifications.
6. The member is responsible for checking with the cooperative to determine funding availability and to verify program parameters.

ELECTRIC FORKLIFT

This program rebates forklifts that switch from an internal combustion engine to electric, electric fleet addition (new or refurbished accepted), and electric to electric fleet retention. Qualifying electric forklifts must be operated a minimum of 40 hours per week. The program can be used in conjunction with the ETS charging rate but is not required.

To qualify for this rebate, the forklift must be purchased or have a 5 year minmum lease agreement.

Class 1: Electric indoor/outdoor forklifts	36 V, 48 V, or 80 V 3,000–12,000 lbs Lift capacity
Class 2: Electric indoor narrow-aisle forklifts	24 V, 36 V, or 48 V 3,000–5,500 lbs lift capacity
Class 3: Electric hand- or rider-truck – **Ineligible**	12 V and 24 V 3,500–8,000 lbs. lift capacity

HIGH FREQUENCY BATTERY CHARGING

High frequency battery charging bolsters electric forklift performance over conventional charging technologies. High frequency chargers are composed of a switching circuit that switches at a much higher frequency than other charger types. High switching frequencies improve power conversion efficiency, enable better voltage and current control, and can improve charge return which reduces maintenance.

Rebates only available for new construction and replacement of Ferroresonant and Silicon Controlled Rectifier (SCR) only. Replacing hybrid chargers with high frequency to no qualify for rebates.

Electric Forklifts

Equipment & Rebate Information

Fleet Addition, Conversion, and New Construction – $2,000/unit/40 hours – $1,000/unit/20 hours

Manufacturer	Model	Quantity	Class	$2000/unit (40 hrs/wk)	$1000/unit (20 hrs/wk)	Rebate

Fleet Retention or Refurbished Fleet Addition – $500/unit

Manufacturer	Model	Quantity	Class	Operating hours/week	Rebate

Rebate Information

Project Cost	
Rebate	

High Frequency Charging

Equipment & Rebate Information

Battery Charging Information – $200 per Charger

Existing Charger Type

☐ Ferroresonant (Default)
☐ Silicon Controlled Rectifier (SCR)

Operation Information

# Shifts per day	
Operating Days/week	
Operating Weeks/year	
Number of Chargers	

* Rebate not available for Hybrid to High Frequency Charging

Rebate Information

Project Cost	
Rebate	