



PROMAT

2015

McCormick Place South | Chicago
March 23-26, 2015
promatshow.com

IC to AC – Converting Your Lift Truck Fleet

Sponsored by:



Presented by:

David MacKinnon

James Gully

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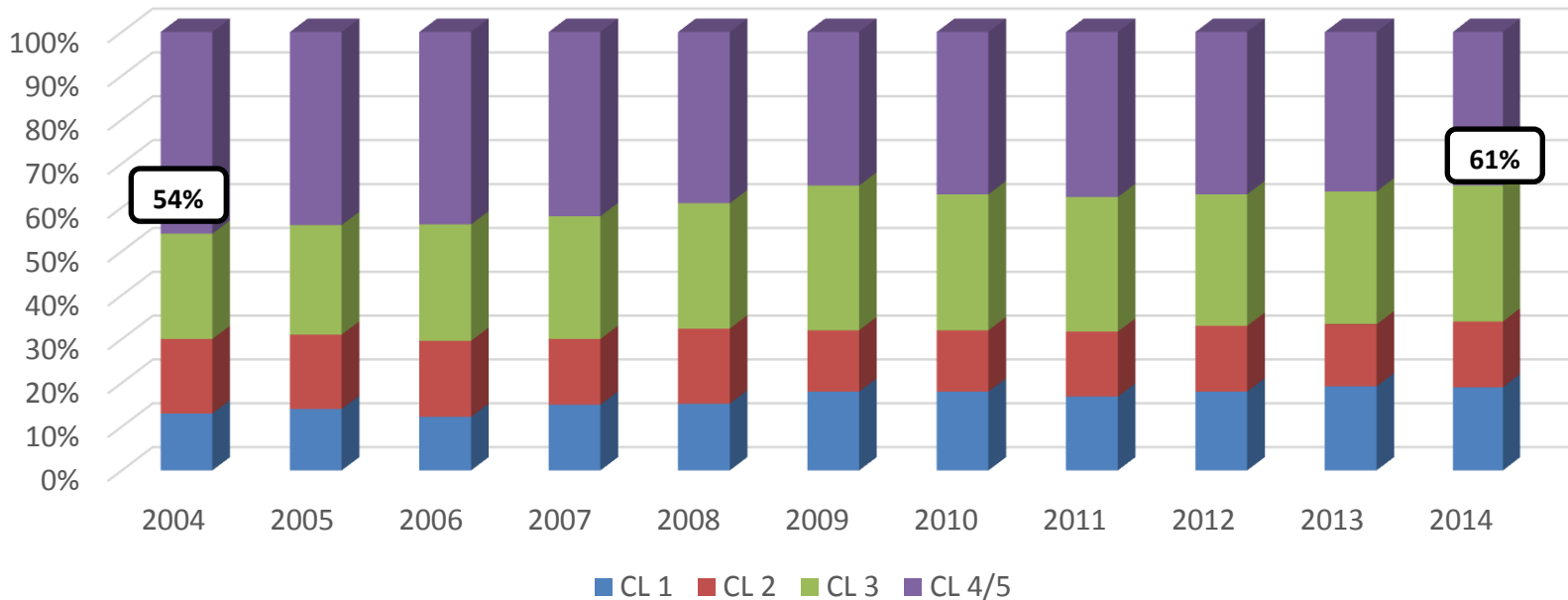
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Industrial Truck Association Marketing Overview: Significance of Electric Forklifts



Market Structure Changes

US & Canada Retail Orders

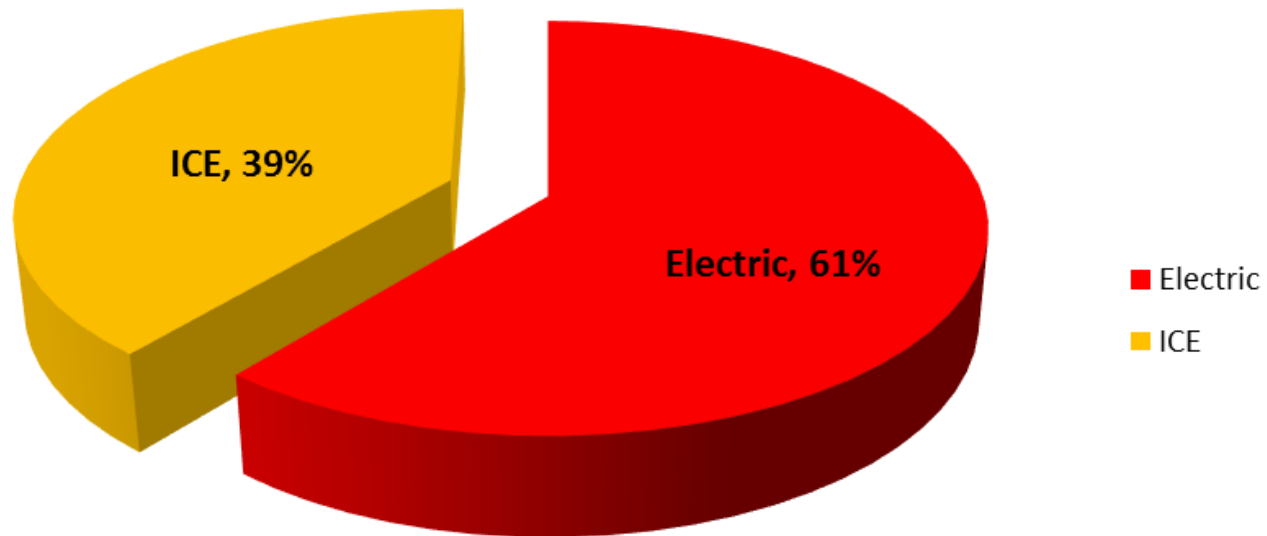


*The electric lift truck industry (Class 1-3) has grown by 9% over last 10 years!
The IC lift truck industry continues to shrink!*



North America Electric Market

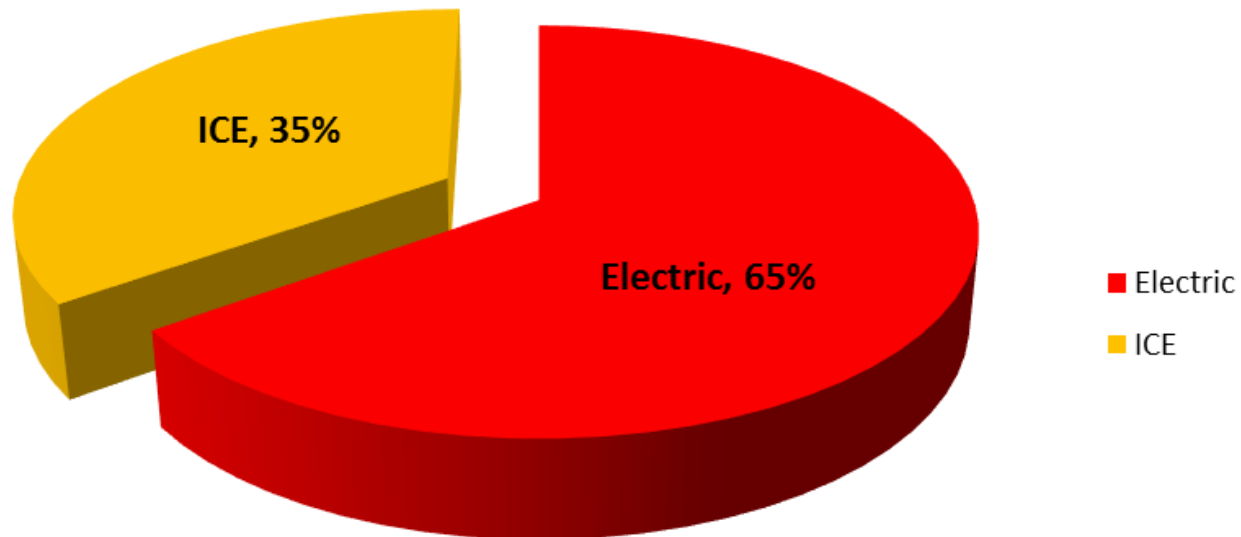
ITA Factory Orders % Split 2010 > 2014





North America Electric Market

ITA Factory Orders % Split Forecast 2020!



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Why should customers consider converting from IC to AC?

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Why should customers consider converting from IC to AC?

- Financial Advantages
- Environmental Benefits
- Corporate Mandates to “Go Green”
- Advancements in Technology

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Financial Advantages



Financial Advantages

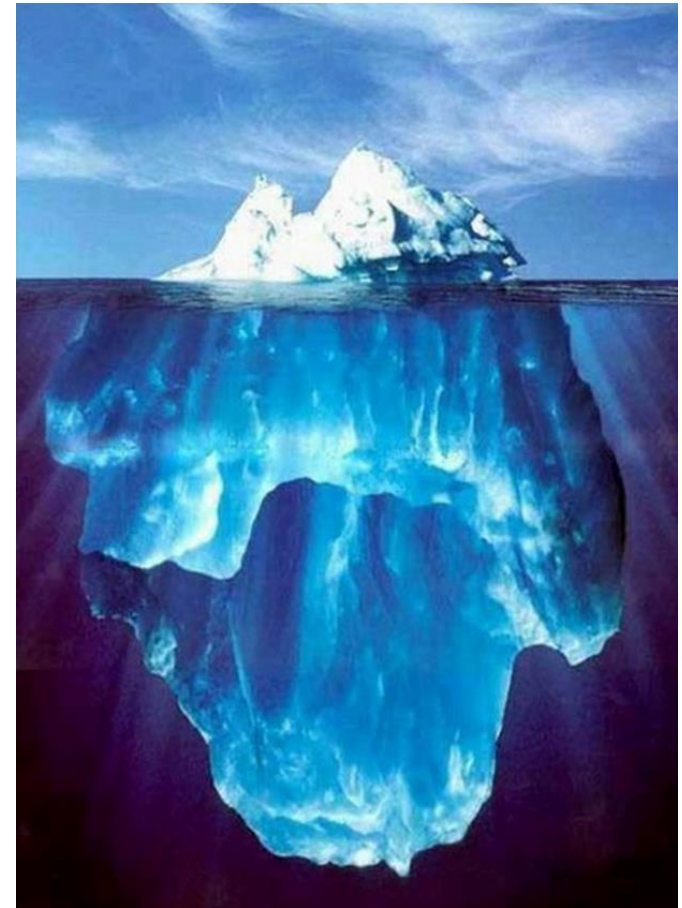
Reduction of Total Cost of Ownership (TCO)

- Lower Operating Costs
 - Lower Fuel Costs
 - Lower maintenance costs
- Improved Up Time of Product
 - Extended Service Intervals
- Lower utility costs within the facility
- Extended Lift Cycle of Trucks

What is Total Cost of Ownership (TCO)?

What is Total Cost of Ownership (TCO)?

- Includes Acquisition costs
- Includes Fuel costs
- Includes Maintenance costs
- Other costs...
- Factors affecting TCO
 - Overall Performance & Productivity
 - Energy Efficiency
 - Cost of Fuel / Electricity
 - Reliability (Cost & Frequency of Repairs)
 - Cost of Maintenance
 - Cost of Maintaining Air Quality
 - Heating / Cooling Costs
- Perspective (5-year life cycle):
 - AC operation costs can be as little as 1/4 those of IC
 - ...despite a typically higher Acquisition Cost
 - So where is the ROI?



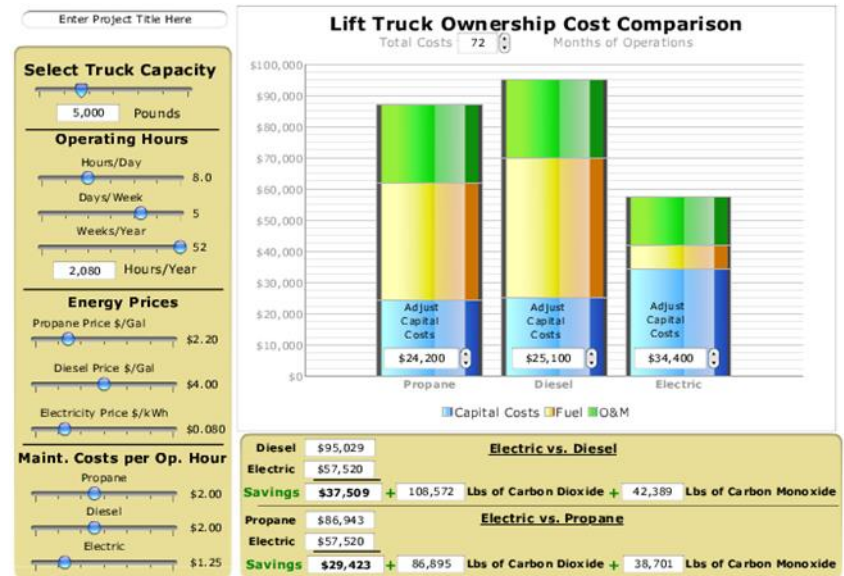
What is an ROI Tool?

What is an ROI Tool?

- A simple way to evaluate the options on a case-by-case basis

EPRI Tool

- Strengths:
 - Simple, easy to use
 - 3rd party, unbiased (to any OEM)
 - Includes emissions data as well as costs
- Weaknesses:
 - Lots of assumptions made about the fuel/energy consumption of trucks
 - Can't pinpoint the ROI time
 - Difficult to tailor to *specific* applications



http://et.epri.com/LiftTruckComparison_with_cap.html

Finding Your Costs?

To find your cost for Electric, Propane or Diesel cost:

- U.S. Energy Information Administration
 - www.eia.gov



The screenshot shows the EIA website interface. At the top, there's a navigation bar with the EIA logo and menu items like 'Sources & Uses', 'Topics', and 'Geography'. A search bar is also present. The main content area features a large image of an oil rig in a desert landscape. Overlaid on this image is a dark blue box with white text that reads: 'U.S. Crude Oil and Natural Gas Proved Reserves' and 'Record level of natural gas proved reserves'. Below the image, there are several sections: 'What's New' with links to 'Petroleum Supply Monthly', 'Brazil Country Analysis Brief', and 'Monthly Energy Review'; 'Today in Energy' with a featured article titled 'Despite lower crude oil prices, U.S. crude oil production expected to grow in 2015'; and 'Data Highlights' with a table of energy prices.

WTI crude oil futures price
12/30/2014: \$54.12/bbl
↓ \$3.00 from week earlier
↓ \$45.17 from year earlier

Natural gas futures price
12/30/2014: \$3.094/mmBtu
↓ \$0.077 from week earlier
↓ \$1.333 from year earlier

Retail heating oil price
12/29/2014: \$3.043/gal
↓ \$0.036 from week earlier

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Environmental Advantages



Environmental Advantages

- ZERO exhaust emissions (HC, CO, NOx, PM)
- Less potential for hazardous leaks in sensitive application environments
 - Limited exposure to potential environmental violations
- Employee health (NETS):
 - Noise levels – Awareness
 - Emissions inside facility
 - Temperature inside facility
 - Safer Alternative to IC – (automatic park brake, curve control, ramp hold, etc.)
- Tax incentives:
 - Depending on the state, customer's may be eligible for subsidies from the government for changing from IC to electric trucks (TERP)



TERP Program

Subsidies and Incentives

- Federal, State, and/or Local – what are the opportunities in your area?
- 2015 TERP Program Funds \$12M



CenterPoint Energy

Houston Electric Forklifts.com

Welcome to Houston's Electric Forklifts Program!

If you are a business that operates electric forklifts AND/OR have some old propane/diesel forklifts you would like to convert into electric, then this site is for you. During your visit to this site, you will learn about electric forklifts, and what types of grants might be available to an end-user that runs an electric fleet of forklifts.

Contact info:
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Email: adugas@icfi.com

- Home
- Background
- Benefits
- Cost Analysis
- TERP Program
- Testimonials
- Forklift Dealers
- Contact Us

Texas Emissions Reduction Plan (TERP)

The TERP program provides financial incentives to eligible individuals, businesses, or local governments to reduce emissions from polluting vehicles and equipment.



GET MONEY TO UPGRADE OR REPLACE YOUR TRUCK OR EQUIPMENT—AND CLEAR THE AIR!

Sign up for e-mail updates.

New and upgraded equipment pollutes less, improving the air quality in Texas. Grant applications are accepted at different times throughout the year, depending on available funds.

We believe these to be taxable grants. Please consult with your tax advisor.

Need more information?
Call (toll-free)
800-919-TERP (8377)
Or see other contact info.

NEW ITEMS:

Rebate Grants Program **NEW**

The Rebate Grants program is a simplified first-come, first-served grant program to upgrade or replace diesel heavy-duty vehicles and/or non-road equipment.

The next Rebate grant round is expected to open **February 9, 2015**. Draft documents with proposed changes are currently available.

- [Rebate 30-Day Notice and Draft Documents](#) **NEW**
- [About Rebate grants](#)

Upcoming TERP Meetings and Workshops **NEW**

- Information for potential applicants and interested parties: grant program workshops, application assistance sessions, and public meetings.

TERP Project Summary Reports

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Corporate Mandated Initiatives

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Corporate Mandated Initiatives

Companies Electing to "Go Green"



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Advancements in AC Technology



Advancements in Technology

- Electric trucks are not only for indoors use
 - IP Ratings
- Electric trucks can perform side-by-side with IC in many applications
- Same if not Better Performance
 - Acceleration, Maximum Speed, Lifting Capacities, Ramp Travel & Inclines
- Increased Reliability, Productivity & Efficiencies
- Battery & Charger Technology
 - Fast Charge or Opportunity Charging Systems
- Not all electric trucks are the same!

Ingress Protection

IP (Ingress Protection) Ratings Table			
Protection from solid objects or materials		Protection from liquids	
0	No protection	0	No protection
1	Protection against solid objects up to 1.97" (50 mm)	1	Protection against vertically falling drops of water.
2	Protection against solid objects up to 0.5" (12 mm)	2	Protection against direct sprays of water up to 15° from the vertical.
3	Protection against solid objects up to 0.1" (2.5 mm)	3	Protection against direct sprays of water up to 60° from vertical.
4	Protection against solid objects up to 0.04" (1mm)	4	Protection against water sprayed from all directions. Limited ingress permitted
5	Protection against dust limited ingress.	5	Protection against low pressure jets of water from all directions. Limited ingress.
6	Totally protected against dust.	6	Protection against low pressure jets of water from all directions. Limited ingress permitted.
		7	Protection against the effect of immersion between 5.9" and 39.4" (15cm and 1m)
		8	Protection against long periods of immersion under pressure.



Advancements in Technology

- Electric trucks are not only for indoors use
 - IP Ratings
- Electric trucks can perform side-by-side with IC in many applications
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Key Determining Factors: IC to AC Conversion

- Application:
 - Not all applications qualify
 - Most Class IV & V Application
- Usage:
 - Single shift, Multi-shift & High Throughput Application
- Capacity
 - Up to 11,000lb depending upon manufacturer
- Indoor vs. Outdoor:
 - Recharging must be indoors or under cover
- Application Review:
 - Consult your local Dealer or Manufacturer who can provide information and advise on whether your application is suitable



Company “A”

- Key Decision for Converting:
 - Application: Paper Manufacturing
 - Fleet Size: 800+ units
 - Corp Directive: Identify “Go Green” opportunities
 - Open to evaluate all possibilities
 - Initiative:
 - Reduce cost
 - Improve overall operations
- Outcome
 - Initial acquisition costs greater than IC, however, TCO initial investment
 - ROI:
 - Reduced Maintenance Costs
 - Reduced cost per KWH
 - Reduced Carbon Foot Print
 - Increased up-time & productivity

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Questions???

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