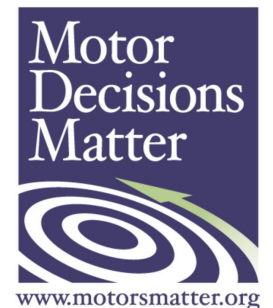


Easy as *1*2*3*: Use MDM Tools to Introduce Motor Management

MDM Sponsor Webcast
September 10, 2008
2 p.m. Eastern



www.motorsmatter.org

Housekeeping

Web Portion

- ✓ Ensure that your pop-up blocker is turned off
- ✓ Ensure that Add-in is downloaded
- ✓ Minimize the number of applications running
- ✓ Dial *0 to speak to a RollCall operator

Audio Portion

- ✓ Dial *6 to Mute/UnMute
- ✓ Time for questions after presentation; use chat feature during presentation
- ✓ Be sure that hold music is turned off
- ✓ Session is recorded

Today's Webcast

- MDM Campaign Overview
- MDM Tools & Resources
 - General Materials: Educational, Informative
 - Motor Management Communication Tools
- Revisions to *1*2*3*
- Questions/Discussion



Motor Management: Motor Decisions MatterSM

- A national campaign designed to improve the way industrial motor repair/replace decisions are made by promoting the financial and performance benefits of sound motor management policies to industrial managers
 - Increase industry's awareness of motor management opportunities
 - Increase demand for NEMA PremiumTM motors & best practice motor repair
 - Encourage the market to engage in motor planning
 - Collaborate nationally to enhance local effectiveness

MDM Sponsors

Motor Manufacturers

- ABB Inc.
- A.O. Smith Electrical Products Company
- Baldor Electric Company
- Emerson Motors
- GE Industrial Systems
- Regal-Beloit Corporation
- Rockwell Automation / Reliance Electric
- Siemens Energy & Automation
- TECO-Westinghouse Motor Company
- Toshiba International
- WEG Electric Motor Corporation

Other Organizations

- CDA, Inc.
- EASA
- NEMA
- Advanced Energy

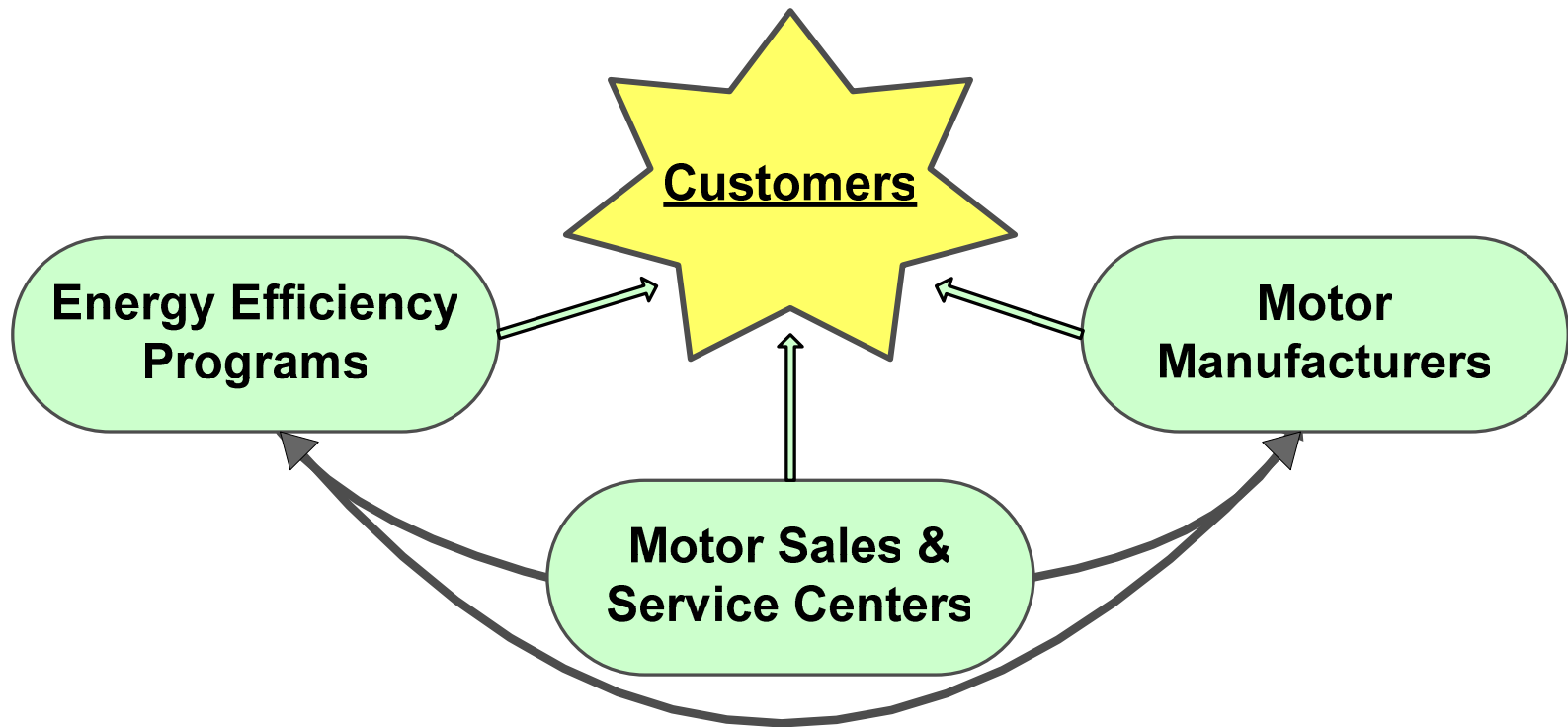
Efficiency Program Administrators

- Alliant Energy
- Austin Energy
- BC Hydro
- ComEd, a division of Exelon Corporation
- LIPA
- MidAmerican Energy Company
- National Grid USA
- NYSERDA
- NW Alliance
- NSTAR Electric & Gas
- PG&E
- SMUD
- SCE
- Xcel Energy

Supporting Organizations

- U.S. Department of Energy
- Consortium for Energy Efficiency (CEE)

Diverse Perspectives



Unified message adds credibility
with your customers.



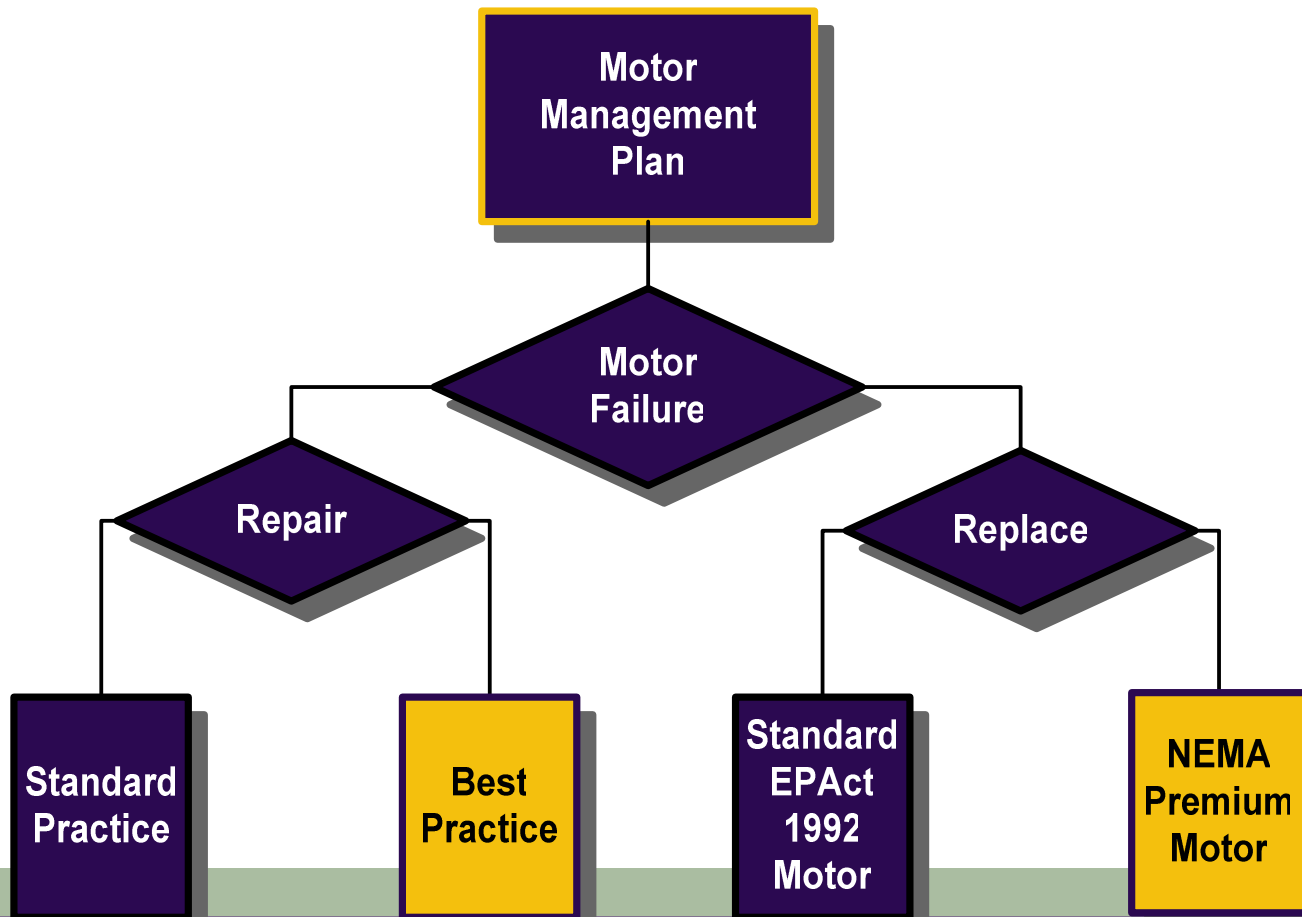
Motor Management Is...

a set of ongoing **policies and practices** that help commercial and industrial facility managers **proactively plan and effectively manage** their motor population...

...**reducing equipment downtime and energy costs.**



Proactive Planning



Motor Management Benefits

- Consider motors as an asset class, not as individual commodity items.
- Develop policies based on proactive planning and life-cycle costing to minimize downtime and operating costs.
- Make these policies routine practice.



MDM Campaign Materials

- MDM Website: Campaign Hub
- MDM Tools: Educational, Calculations
- Industry Partnerships:
 - Motor Manufacturers and NEMA
 - Motor Sales & Service Ctrs. and EASA
 - CEE Members

MDM Website

www.motorsmatter.org

- MDM and Industry Events
- Resources: EISA, DOE, EPA
- MDM Sponsor Contact Information
- MDM Tools (free to download)



HOME SPONSORS MDM EVENTS MDM TOOLS PRESS ROOM CASE STUDIES HELPFUL RESOURCES

Management & Planning
make the DIFFERENCE

MDM TOOLS

The 1-2-3 Approach >>>



Motor Planning Kit >>>



RECENT NEWS

[CEE Motor & Drive Program Summary Now Available](#)

Every facility manager would like to reduce energy costs, increase productivity and reduce GHG emissions. Sound [motor management](#) can help you do just that by clarifying your true operating costs and the benefits of planning ahead.

This site contains information you can use to develop a motor management plan that meets your company's needs. The information can also lead to partnerships with your local sales & service center, vendor, utility or other energy-efficiency representatives who may offer added support. The Motor Decisions MatterSM (MDM) campaign and its sponsoring organizations are here to help.

Start today.
Because managing a plan is easier than managing a crisis.

Motor Decisions MatterSM is a national public-awareness campaign sponsored by a consortium of motor manufacturers, motor service centers, trade associations, electric utilities and government agencies. MDM and its sponsoring organizations provide support for companies interested in motor management. For more information, contact MDMinfo@cee1.org.





- HOME
- SPONSORS
- MDM EVENTS**
- MDM TOOLS
- PRESS ROOM
- CASE STUDIES
- HELPFUL RESOURCES

- MDM Events**
- Spotlight Calls
- MDM Webcasts
- Regional Venues
- Other Industry Events

MDM EVENTS

For more information, please email MDMinfo@cee1.org. Click on links below to access event information. To view information for 2007 events, click [here](#).

2008

February 21	Spotlight Call	BC Hydro
April 2	Washington, D.C.	MDM Sponsor Meeting
June 5	Webcast	Overview of the Motor Provisions in the 2007 Energy Independence and Security Act
June 22-24	Grapevine, TX	EASA Convention
September 10	Webcast	Easy as 1*2*3: Use MDM Tools to Introduce Motor Management
October (TBD)	Location TBD	Annual MDM Sponsor Meeting

OTHER INDUSTRY EVENTS

NOTE: This list has been compiled for the benefit of MDM sponsors. During the course of the year, there may be other events (not listed here) that are of interest. For the most current information about these events and organizations, please refer to the organizational Web sites.

January 2008

January 16-17	CEE Quarterly Meeting	Long Beach, CA
---------------	---------------------------------------	----------------

February 2008

February 12-13	National Electrical Manufacturers Association (NEMA) Motor and Generator Section Meeting	San Antonio, TX
----------------	--	-----------------



- HOME
- SPONSORS
- MDM EVENTS
- MDM TOOLS
- PRESS ROOM
- CASE STUDIES
- HELPFUL RESOURCES**

- General
- Organizations
- Software
- Energy Legislation
- Motor Selection
- Motor Repair
- Evaluation & Planning
- ASD's
- System Optimization & Plant Wide Energy Management
- Organizations & Programs
- Software
- Literature
- National & Regional Assistance
- National (US & Canada)
- Regional

Helpful Resources - System Optimization - Organizations & Programs

ENERGY STAR®
The U.S. Environmental Protection Agency's ENERGY STAR® partnership offers a proven energy management strategy for businesses. ENERGY STAR® Industry Focuses involve concentrated work with a single manufacturing industry to improve that industry's energy efficiency, create momentum for continued improvement, provide tools to enhance energy performance, and to provide a forum for resource- and idea-sharing.

Guidelines for Energy Management
This web page includes an overview of the EPA's ENERGY STAR® Guidelines for Energy Management, including a flowchart and description of the seven steps involved in their energy management strategy: Make Commitment, Assess Performance, Set Goals, Create Action Plan, Implement Action Plan, Evaluate Progress, and Recognize Achievements. Microsoft Excel spreadsheets of the Energy Program Assessment Matrix and Facility Energy Assessment Matrix can be downloaded from this page.

ENERGY STAR® On-Line Training Schedule
This web page lists recent and upcoming on-line trainings, partner seminars, and networking meetings host by the EPA's ENERGY STAR® program.

ENERGY STAR® Labeled Buildings and Plants
This web page provides a searchable database of buildings and plants that have qualified and been awarded the ENERGY STAR®. These facilities "cost less to operate and improve the quality of our environment". The database can be searched by facility type, location, organization or facility name, and other more specific search criteria, a useful resource to identify organizations that have made a commitment to energy management.

- ENERGY STAR® Tools and Resources Library**
This web page includes links to six categories of ENERGY STAR® tools and resources:
- **Energy Management Guidance:** Guidelines for Energy Management, Facility Assessment matrix, etc.
 - **Assess Building and Plant Energy Efficiency:** Portfolio Manager, Professional Engineer's Guide, etc.
 - **Assess Commercial Building Designs:** Building Energy Performance Specification, Design Process Flow Diagram, etc.
 - **Improve Building Performance:** Building Upgrade Manual
 - **Financial Evaluation:** including opportunity and value calculators
 - **Awards & Recognition:** including how to become an ENERGY STAR® Partner

ENERGY STAR® Industrial Energy Management Center
A resource page, designed for industrial energy managers, that provides information and tools about corporate energy management and energy savings information focused on specific plant

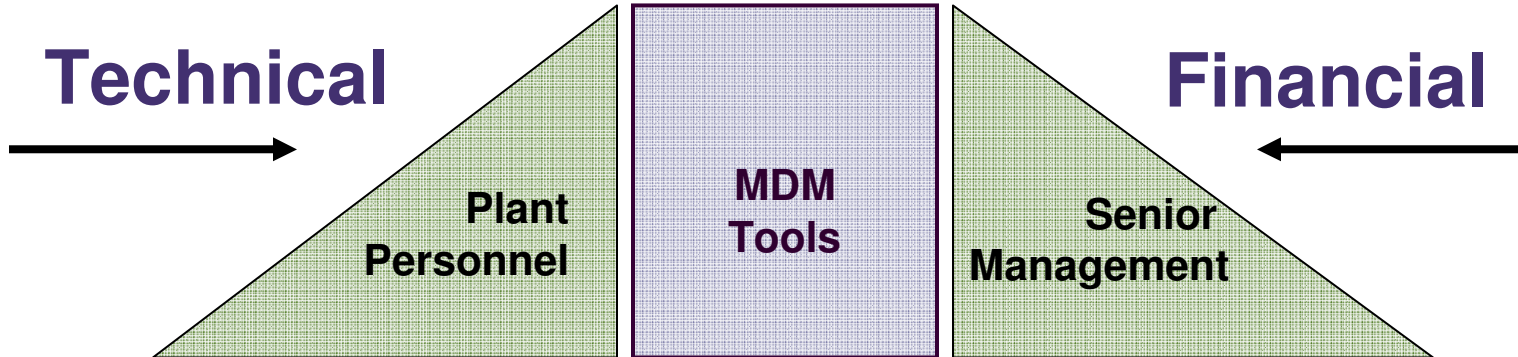
MDM Tools

- Motor Management How-to Guide
- Motor Planning Kit
- MotorSlide Calculator
- Simple Savings Chart
- *1*2*3* User's Guide & Spreadsheet



Speak the Right Language

To promote **proactive** motor management to both facility and senior-level managers.





- HOME
- SPONSORS
- MDM EVENTS
- MDM TOOLS**
- PRSS ROOM
- CASE STUDIES
- HELPFUL RESOURCES

- MDM Tools**
- The Motor Planning Kit
- The 1-2-3 Approach Users Manual
- The 1-2-3 Approach Spreadsheet
- MotorSlide Calculator
- Simple Savings Chart
- CEE Motor & Drive Program Summary
- Trifold Brochure
- How-To Guide

MDM Tools

The Motor Decisions Matter™ sponsors have developed several simple resources to demonstrate the financial benefits of life cycle costing and to help you develop a plan that's right for your company. These resources are available below.

The [Helpful Resources](#) tab also provides additional resources.



Motor Planning Kit

This booklet provides a comprehensive overview of motor management. It details the goals and opportunities available, and describes how to pursue a variety of plans ranging from generic purchasing policies to total motor inventory. Available on-line and in print.



MotorSlide Calculator

This cardboard slide rule calculates annual energy costs and annual energy savings based on electricity costs, motor size, motor efficiency, and hours of operation. Available on-line and in print.



Tagging your motors lets everyone know what to do when a motor fails.



The 1-2-3 Approach to Motor Management - Spreadsheet

This simple, step-by-step calculation tool for getting started in motor management can help motor service centers, vendors, utilities, energy-efficiency organizations, and others convey the financial benefits of sound motor management to their customers.



The 1-2-3 Approach to Motor Management - User's Guide

This step-by-step guide explains how to use the 1-2-3 Spreadsheet. It also suggests a process for using the results to convey the financial benefits of sound motor management to your customer's management team.



Motor Decisions Matter

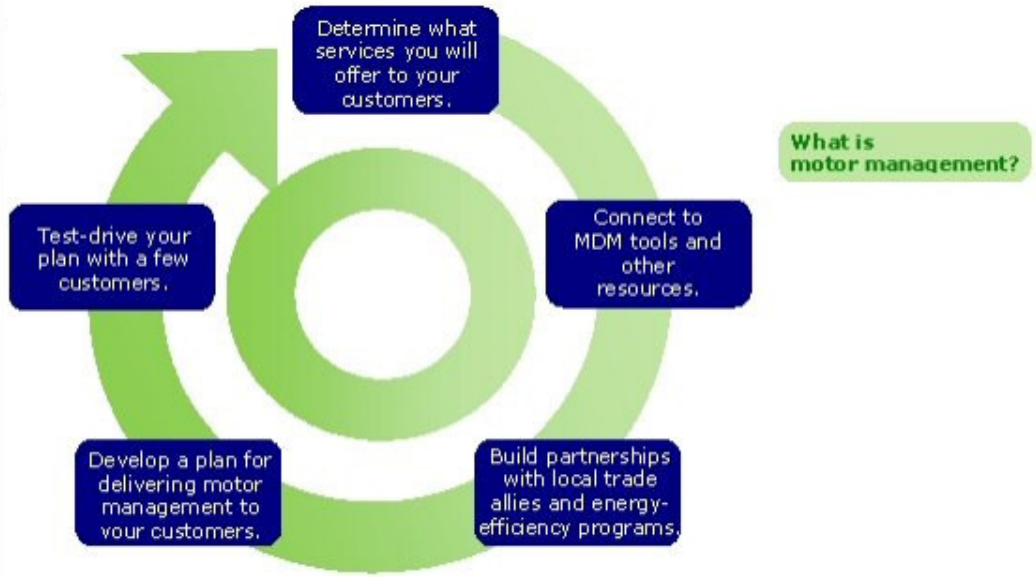
- HOME
- SPONSORS
- MDM EVENTS
- MDM TOOLS
- PRESS ROOM
- CASE STUDIES
- HELPFUL RESOURCES

- MDM Tools
- How-To Guide
 - Determine Services
 - Connect to Tools
 - Build Partnerships
 - Develop a Plan
 - Test-Drive with Customers
- Print the Guide

Bringing Motor Management to Your Customers

A How-To Guide

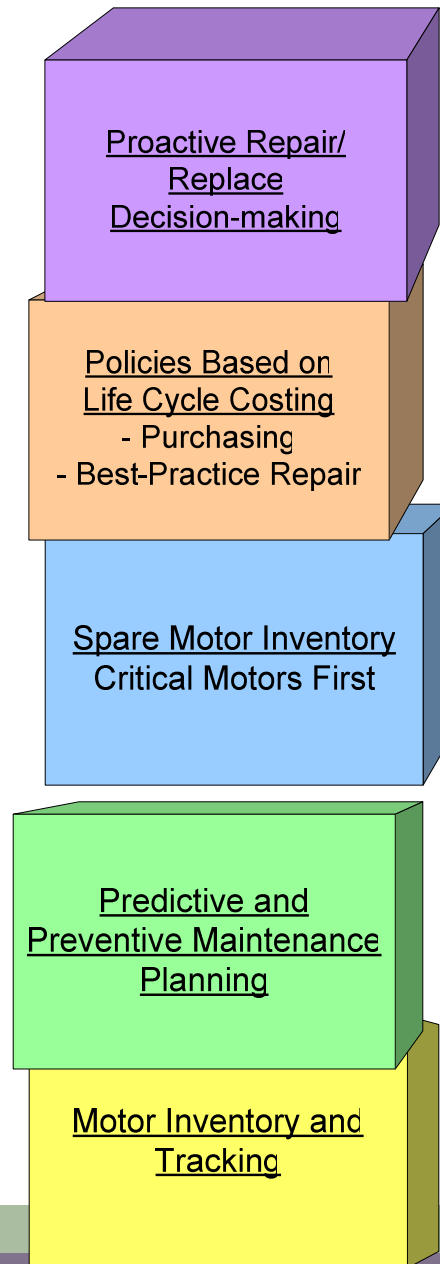
Helping your customers better manage their motors can increase their profitability... and yours. Use this guide to get started.



Last revised: March 8, 2007

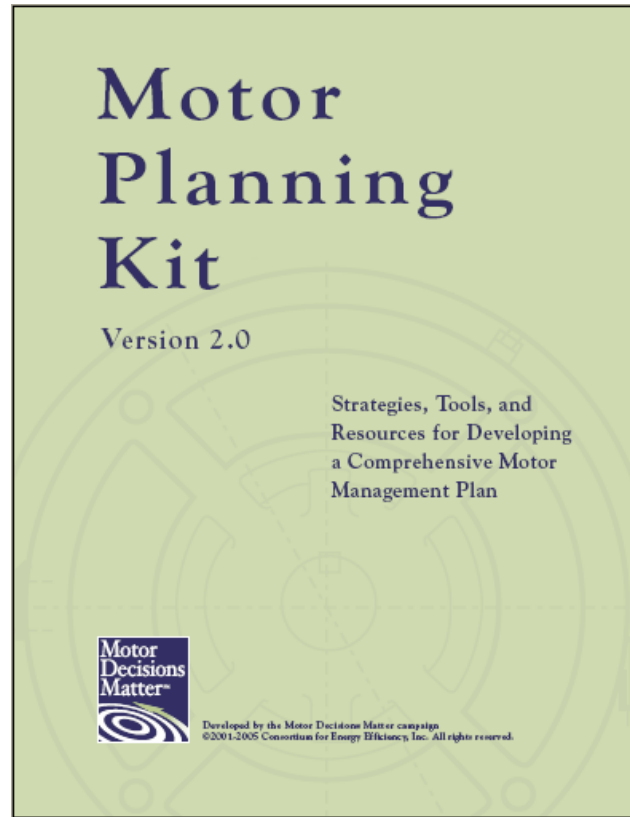
The How-To Guide is a method for sharing the experiences of organizations that are promoting

The
building
blocks...



...of a motor
management
plan.

Developing a Plan



MotorSlide Calculator



The Simple Savings Chart

A very simple Excel Spreadsheet

Step 1) Enter two pieces of data

Annual Operating Hours and Blended Cost of Electricity

Step 2) Spreadsheet generates side-by-side comparison of purchase options

- ◆ Pre-1992 Motors → EPAct (1-200 hp)
- ◆ EPAct (1-200 hp) → NEMA Premium[®]
- ◆ Pre-1992 Motors → NEMA Premium[®]
- ◆ Annual Operating Costs and Annual Cost Savings



Estimated Annual Energy Savings with NEMA Premium^o Motors¹

TEFC • 1800 RPM • Full-load Operation • Nominal Efficiency³

Estimated Annual Energy Cost = (Hp x annual operating hours x cost of electricity x 0.746) / (efficiency)

Enter Appropriate Values for:

Annual Operating Hours: **8000** hours per year
 Cost of Electricity: **10** ¢ per kWh

Learn more about saving money through sound motor management. For additional tools and resources, visit www.motorsmatter.org.

Motor Size ² (hp)	Estimated Annual Operating Costs		Estimated Annual Energy Savings	Estimated Annual Operating Costs		Estimated Annual Energy Savings	Estimated Annual Operating Costs		Estimated Annual Energy Savings
	Pre-EPAct Motors	EPAct Motors	Pre-EPAct - EPAct	EPAct Motors	NEMA Prem Motors	EPAct - NEMA Prem	Pre-EPAct Motors	NEMA Prem Motors	Pre-EPAct - NEMA Prem
1	\$778	\$723	\$55	\$723	\$698	\$25	\$778	\$698	\$80
1.5	\$1,132	\$1,066	\$66	\$1,066	\$1,035	\$31	\$1,132	\$1,035	\$97
2	\$1,477	\$1,421	\$56	\$1,421	\$1,380	\$41	\$1,477	\$1,380	\$97
3	\$2,200	\$2,046	\$153	\$2,046	\$2,000	\$46	\$2,200	\$2,000	\$199
5	\$3,582	\$3,410	\$172	\$3,410	\$3,334	\$76	\$3,582	\$3,334	\$248
7.5	\$5,235	\$5,001	\$234	\$5,001	\$4,881	\$120	\$5,235	\$4,881	\$354
10	\$6,964	\$6,668	\$296	\$6,668	\$6,508	\$160	\$6,964	\$6,508	\$456
15	\$10,337	\$9,837	\$500	\$9,837	\$9,688	\$149	\$10,337	\$9,688	\$649
20	\$13,487	\$13,116	\$371	\$13,116	\$12,834	\$282	\$13,487	\$12,834	\$653
25	\$16,708	\$16,147	\$561	\$16,147	\$15,940	\$207	\$16,708	\$15,940	\$768
30	\$19,982	\$19,377	\$606	\$19,377	\$19,128	\$248	\$19,982	\$19,128	\$854
40	\$26,466	\$25,669	\$797	\$25,669	\$25,369	\$300	\$26,466	\$25,369	\$1,097
50	\$32,683	\$32,086	\$597	\$32,086	\$31,577	\$509	\$32,683	\$31,577	\$1,107
60	\$39,007	\$38,256	\$750	\$38,256	\$37,693	\$564	\$39,007	\$37,693	\$1,314
75	\$48,811	\$47,566	\$1,245	\$47,566	\$46,918	\$648	\$48,811	\$46,918	\$1,893
100	\$64,659	\$63,153	\$1,505	\$63,153	\$62,558	\$596	\$64,659	\$62,558	\$2,101
125	\$80,911	\$78,942	\$1,969	\$78,942	\$78,197	\$745	\$80,911	\$78,197	\$2,714
150	\$96,258	\$94,232	\$2,026	\$94,232	\$93,446	\$787	\$96,258	\$93,446	\$2,813
200	\$127,658	\$125,642	\$2,016	\$125,642	\$124,075	\$1,567	\$127,658	\$124,075	\$3,583
Size ² (hp)	Pre-EPAct Motors	NEMA Energy Efficient Motors	Energy Efficient → EPAct	NEMA Energy Efficient Motors	NEMA Prem Motors	Energy Efficient → NEMA Prem	Pre-EPAct Motors	NEMA Prem Motors	Energy Efficient → NEMA Prem
250	\$158,386	\$157,053	\$1,334	\$157,053	\$155,094	\$1,959	\$158,386	\$155,094	\$3,293
300	\$189,661	\$187,673	\$1,988	\$187,673	\$186,112	\$1,561	\$189,661	\$186,112	\$3,549
350	\$220,803	\$218,952	\$1,852	\$218,952	\$217,131	\$1,821	\$220,803	\$217,131	\$3,672
400	\$251,814	\$250,231	\$1,584	\$250,231	\$248,150	\$2,081	\$251,814	\$248,150	\$3,665
450	\$282,993	\$281,509	\$1,483	\$281,509	\$279,168	\$2,341	\$282,993	\$279,168	\$3,824
500	\$314,436	\$311,482	\$2,954	\$311,482	\$310,187	\$1,295	\$314,436	\$310,187	\$4,249

1. This chart provides an estimated comparison of annual energy costs for Pre-EPAct, EPAct and NEMA Prem motors. Actual costs and savings may differ from the values shown.

2. The break in Motor Size between 200 and 250 hp occurs because EPAct applies to motors up to 200 hp. Above that value, NEMA's Energy Efficient Motor specification has been used as the reference.

3. The nominal efficiency values used in these calculations are defined as follows: Pre-EPAct Motors: DOE's MotorMaster+ software version 4.00.01 (9/26/2003) "Average Standard Efficiency" motor defaults; EPAct Motors: Energy Policy Act of 1992; Energy Efficient Motors: NEMA MG 1-2003 Table 12-11; NEMA Premium Motors: NEMA MG 1-2003 Table 12-12. A table of all efficiency values is provided as the second tab of this Excel Workbook: Estimated Annual Energy Savings Chart, available at www.motorsmatter.org.

The *1-2-3 Approach to Motor Management*

Excel Spreadsheet

Step 1) Enter thirteen pieces of data

Nameplate Data, Costs (energy, purchase, repair), Operating Hours


Step 2) Spreadsheet generates side-by-side comparisons of repair/replace options:

- ◆ Immediate Replacement with NEMA Premium[®]
- ◆ Repair -or- Replace with EPart 1992 or NEMA Premium[®] at Failure
- ◆ Annual Cost and Energy Savings, Simple Payback, and NPV


Step 3) Develop Plan of Action for motor management



*1*2*3* Assumptions

- ◆ Nameplate data & full load efficiency.
 - ◆ Customer approves all data.
 - ◆ Future motor failure will require rewinding.
 - ◆ Best-practice rewind will maintain motor efficiency.
- 

1*2*3 Process

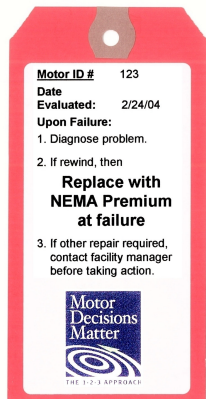
- ◆ Review motor population. Choose samples and gather basic data (energy price, motor price, operating hrs., etc.).
 - ◆ Input data, and click to calculate cost factors involved in decision to repair or replace.
 - ◆ Use calculations to consider appropriate motor management strategies.
- 

1*2*3 Process

1 Input

2 Results

3 Decision



The 1-2-3 Approach to Motor Management: Input Page

Company Information			
Company Name		Contact	
Location		Date Evaluated (mm/dd/yy)	

Input: Representative Motor 1		* Required fields	
Motor Nameplate Data		Motor Application Information	
Motor ID *		Year motor installed	
Manufacturer		Motor location	
Model		Application	
Size (hp) *		Total yearly operating hours *	
RPM *		Actual load (amps) (optional)	
Enclosure type		Repairs/Rewinds	
Full-load efficiency(%) *		Quantity of similar motors *	
Frame size and type		New Motor & Best Practice Rewind Costs	
Voltage rating			
Full-load amps		Motor Installation Cost *	
Financial Information		NEMA Premium Motor Cost *	
		NEMA Premium Efficiency *	
		EPAct Motor Cost *	
		EPAct Motor Efficiency *	
Cost of Electricity (note 1) *		Best Practice Rewind Cost *	
Desired Payback Period (yrs)			
Horsepower breakpoint (hp)			

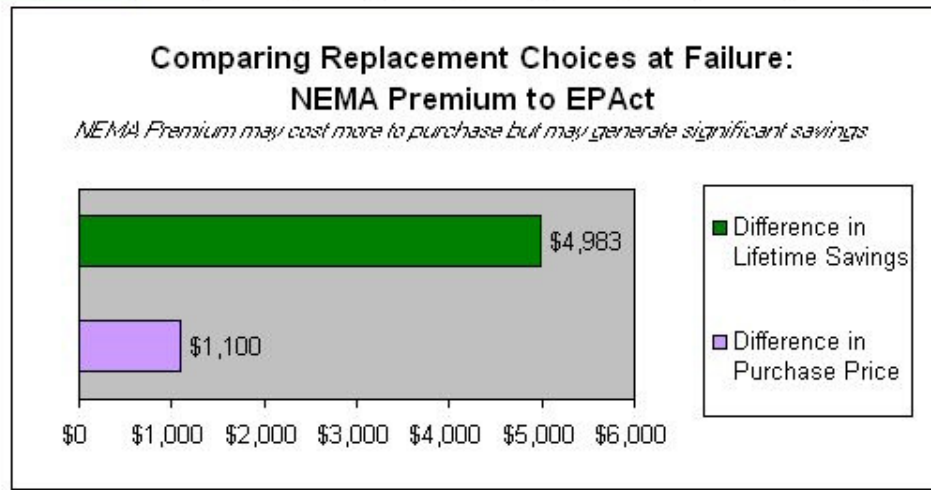
Results: Representative Motor 1					
All values represent results for one motor. To see cumulative results for the full quantity of similar motors, go to the Summary page.	Act Now		Act Upon Motor Failure		
	Current Costs (Base Case)	Replace Immediately with NEMA Premium	Rewind Using Best Practice (Base Case)	Replace with EPAct	Replace with NEMA Premium
% of Full Load (if available)					
Annual Energy Cost					
Capital Investment	N/A				
Incremental Investment Cost	N/A		N/A		
Annual Energy Savings	N/A		N/A		
Net Present Value	N/A		N/A		
Return on Investment	N/A		N/A		
Simple Payback Period	N/A		N/A		

Decision: Representative Motor 1				
Review the results with your customer. Decide on the appropriate course of action. Then, click the corresponding button and the 1-2-3 software will generate label(s) that you can use to tag this representative group of motors. It will also enter the decision in the 1-2-3 Motor Inventory.	Act Now		Act Upon Motor Failure	
	Replace Immediately with NEMA Premium	Rewind Using Best Practice	Replace with EPAct	Replace with NEMA Premium

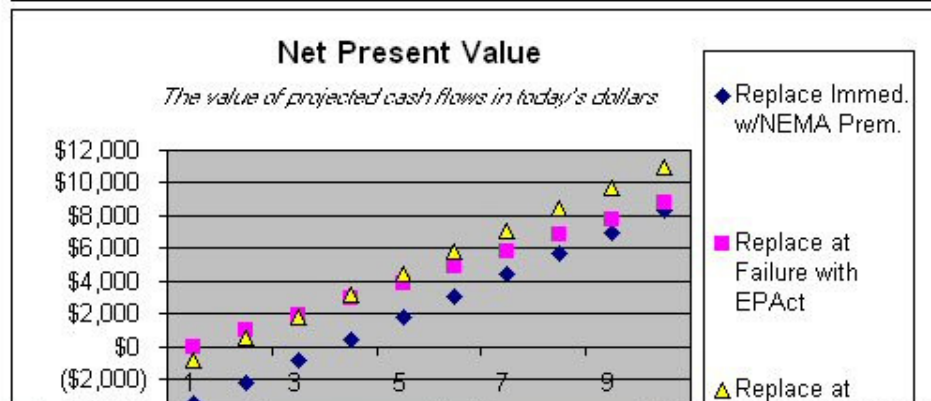
27
28
29
30

31 The incremental cost of purchasing a NEMA
32 Premium motor may be quickly recovered by
33 reduced energy costs over the life of the
34 motor.
35
36
37
38
39

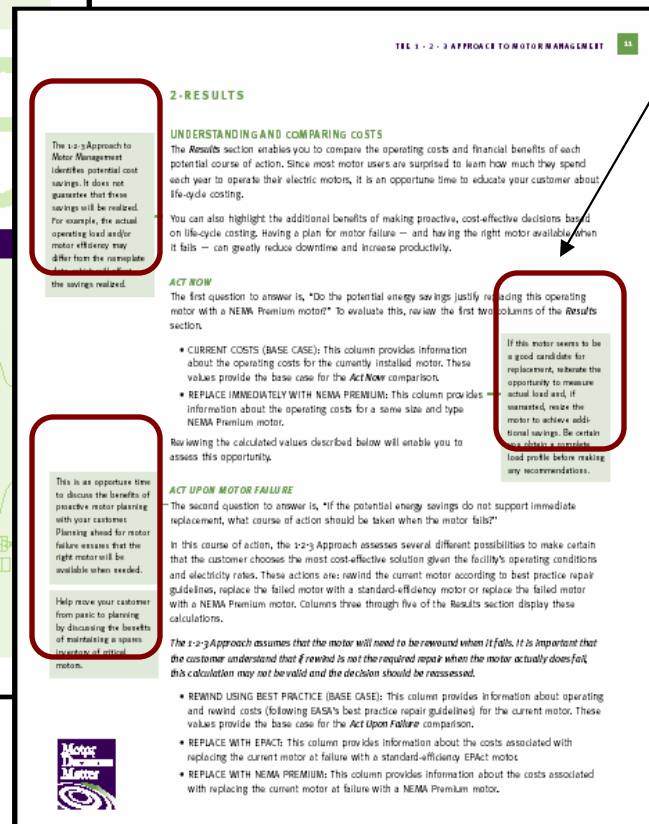
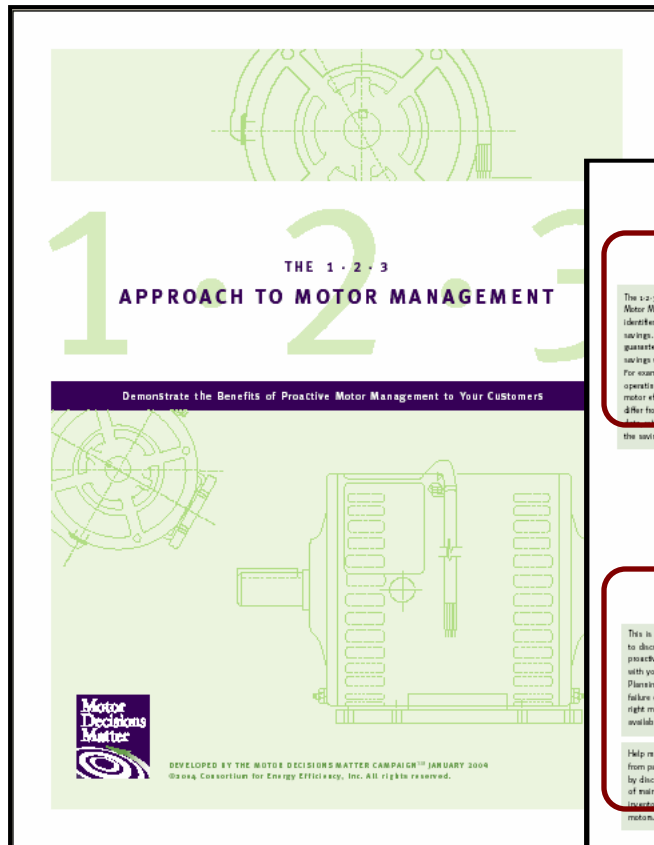
40
41 Definition of Net Present Value: The value of
42 future cash flows, i.e., future energy cost
43 savings, expressed in today's dollars.
44 The calculation is based on incremental cost. It
45 incorporates the discount rate, tax rate, and
46 depreciation schedule shown in the
47 Assumptions Table at the top of the page.
48 These can be re-entered by the customer to
49 more accurately reflect their financial
50



Go To Top




1*2*3 Users Guide



Relevant motor issues addressed as talking points.

New to *1*2*3*

- Quick Start Guide, Summary Page
 - Navigation Buttons
 - New fields: available incentive, motor life, replacement choices (NEMA Premium[®] v. EPAAct)
 - Calculations: Life Cycle Cost (LCC) instead of Return on Investment (ROI)
 - Graphs: Compare replacement choices
 - Tables: LCC, Simple Payback, NPV
- 

Questions?

Kellem Emanuele, CEE

Industrial Program Manager

Email: kemanuele@cee1.org

Phone: 617-589-3949 ext. 225