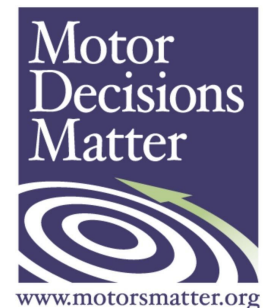


Motor Decisions MatterSM (MDM) and
U.S. Department of Energy Webcast
Dec. 1, 2010
2 – 3:00 p.m. ET

**Building on *1*2*3*:
Introducing the Revised
DOE MotorMaster+**

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



Today's Web cast

- MDM Campaign
 - Tools to get started with motor management
- DOE MotorMaster+
 - What it is and how to use it
 - New data and features (as of Sept. 2010)
- Questions and Answers

MDM Sponsors

Efficiency Programs

- Alliant Energy
- BC Hydro
- Efficiency Vermont
- Long Island Power Authority (LIPA)
- MidAmerican Energy Company
- National Grid USA
- New Jersey Office of Clean Energy
- New York Power Authority (NYPA)
- NYSERDA
- Northwest Energy Efficiency Alliance
- NSTAR
- Pacific Gas & Electric (PG&E)
- Southern California Edison (SCE)
- Tennessee Valley Authority (TVA)
- Xcel Energy

Manufacturers – Motor & Drive

- A.O. Smith
- ABB
- Danfoss
- GE Energy Motors
- TECO-Westinghouse Motor Company

Other Organizations

- Advanced Energy
- Copper Development Association, Inc. (CDA)
- Electrical Apparatus Service Association (EASA)

For more information, visit: <http://www.motorsmatter.org/sponsors/>

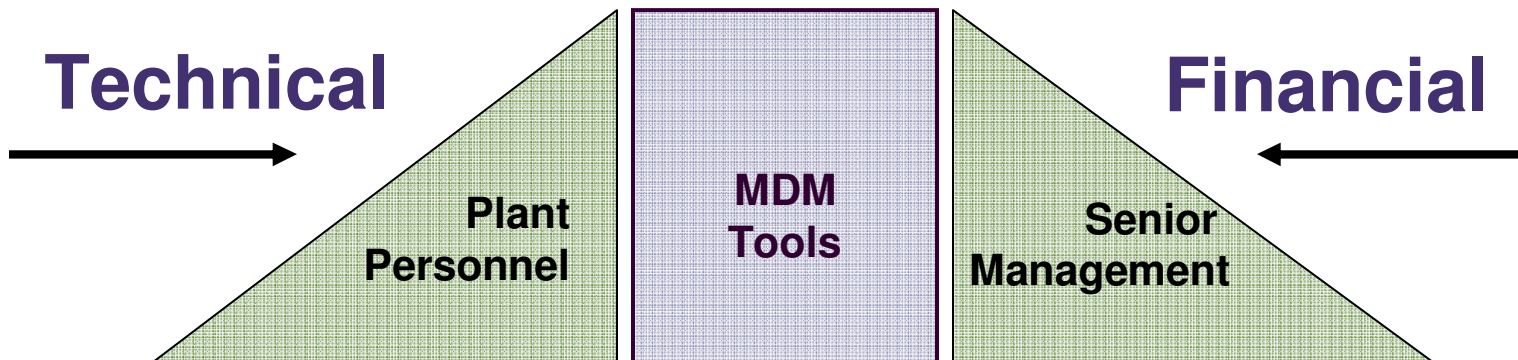
Motor Decisions MatterSM

Managed by CEE, a national awareness campaign to:

- Encourage sound motor management, including:
 - Demonstrate financial benefits of life cycle cost analysis
 - Inform repair/replace decision-making
 - Promote premium efficiency motors and best practice motor repair, where appropriate
- Collaborate nationally to enhance local effectiveness

MDM Scope

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



MDM Tools

Calculation

- 1*2*3 Spreadsheet
- 1*2*3 User's Guide
- Simple Savings Chart
- MotorSlide Calculator



Concept

- Motor Planning Kit
- Case Studies
- MDM e-Newsletter

www.motorsmatter.org



A BestPractices
Training Presentation

U.S. Department of Energy

**Motor Systems Assessment Training,
Including Use of the Motor Systems Tool Suite**



What is MotorMaster+?

Decision Support Software

**Motor Price and
Performance Database**

Motor Selection Tool

**Energy Savings
Analysis**

Inventory Management

Maintenance Logs

Energy Management

Energy Accounting

**Utility Motor Rebate
Support**

Life Cycle Costing

**Tracks Energy Savings
and Emissions
Reductions**

Motor Decisions are made easier by MotorMaster+: **Decide correctly with a motor systems management plan.**



Motor Manufacturers' Price and Performance Database

Electronic catalog with data for over 16,000 motors

NEMA A-D, IEC (Metric), Two-Speed

General and Definite Purpose (U-Frame, IEEE 841, Washdown, Severe-Duty, Inverter-Duty, Close-Coupled Pump)

Updated approximately every two years

Energy Independence and Security Act



11

Energy Independence and Security Act

Move all General Purpose 1-200 hp motors to NEMA Premium levels (MG1 12-12)

Add seven categories of motors not included in original EAct 1992 (MG1 12-11)

U-Frame Motors

Design C motors

Closed couple pump motors

Footless motors

Vertical solid shaft normal thrust (tested horizontally)

8 Pole motors (900 rpm)

All poly-phase motors with voltages up to 600 volts

Add 201 to 500 Horsepower low voltage General Purpose Design B at Energy Efficient (MG1 12-11) levels.

Implement changes 36 months from enactment - December 19, 2010

Functional Motor Efficiency Upgrade

Motor Comparison

File Savings Help

New Rewind Replace Existing

Savings ? Exit

	Existing	New Motor
Utility	Puget Sound Energy	Puget Sound Energy
Rate Schedule	Schedule 24 - General	Schedule 24 - General
Facility	<none>	<none>
Energy price (\$/kWh)	0.084959	0.084959
Demand charge (\$/kW)		
Motor Description and Features	<input type="radio"/> Energy-Efficient <input checked="" type="radio"/> Standard Efficiency	<input checked="" type="radio"/> Premium Efficiency <input type="radio"/> Energy-Efficient
Size/Speed	50 hp 1200 RPM	50 hp 1200 RPM
Enclosure/Voltage	TEFC 460 Volts	TEFC 460 Volts
Hours use/yr	8000	8000
Load (%)	70.0	70.0
Efficiency (%)	91.1	94.4
Full load RPM		
Old Motor Effic Loss		
Dealer discount (%)		35.0
Purchase Price (\$)		5654
Installation Cost (\$)		250
Motor Rebate (\$)		
Peak Months	12	12

No rebate program in effect

Inventory Catalog Cgpy Values

Failed Motor Efficiency Upgrade

Motor Comparison

File Savings Help

New **Rewind** Replace Existing

Savings ? Exit

Utility	Motor Description and Features	Rewound	New Motor
Puget Sound Energy		<input type="radio"/> Energy-Efficient <input checked="" type="radio"/> Standard Efficiency	<input checked="" type="radio"/> Premium Efficiency <input type="radio"/> Energy-Efficient
Rate Schedule: Schedule 24 - General	Size/Speed: 50 hp 1800 RPM	50 hp 1800 RPM	50 hp 1800 RPM
Facility: <none>	Enclosure/Voltage: TEFC 460 Volts	TEFC 460 Volts	TEFC 460 Volts
Energy price (\$/kWh): 0.084959	Hours use/yr: 8000	8000	8000
Demand charge (\$/kW):	Load (%): 70.0	70.0	70.0
No rebate program in effect	Efficiency (%): 91.0	91.0	94.9
	Rewind Effic Loss (%): 0.5	0.5	
	Dealer discount (%):		35.0
	Price (\$): 1488 (rewind)	1488 (rewind)	3519
	Motor Rebate (\$):		
	Peak Months: 12	12	12

Inventory Catalog Copy Values

From user-editable default table.

Adding Utility Rate Schedules

Can accommodate two seasons (generally Summer and Winter)

Enter demand charges (\$/kW-mo) for each season

Enter energy charges for each season.

Can handle up to three energy charge “tailblocks”.

Enter any number of utilities and rate schedules.

Assign at Facility Level.

Motor Management Program Building Blocks

Accurate Motor Inventory Tracking System

Proactive Economic Repair/Replace Policy

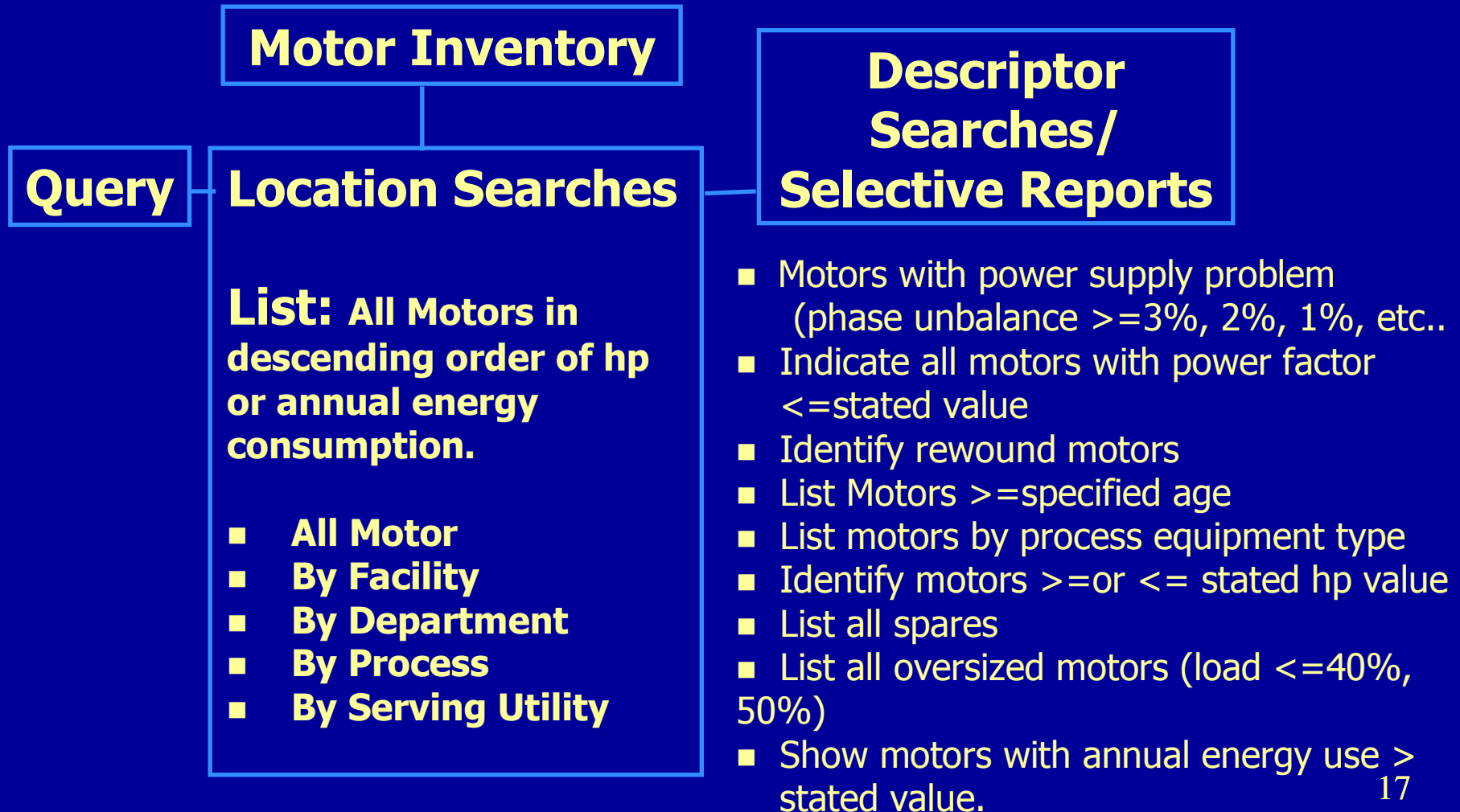
Purchases Based on Life Cycle Costing

Strategic Spares Inventory

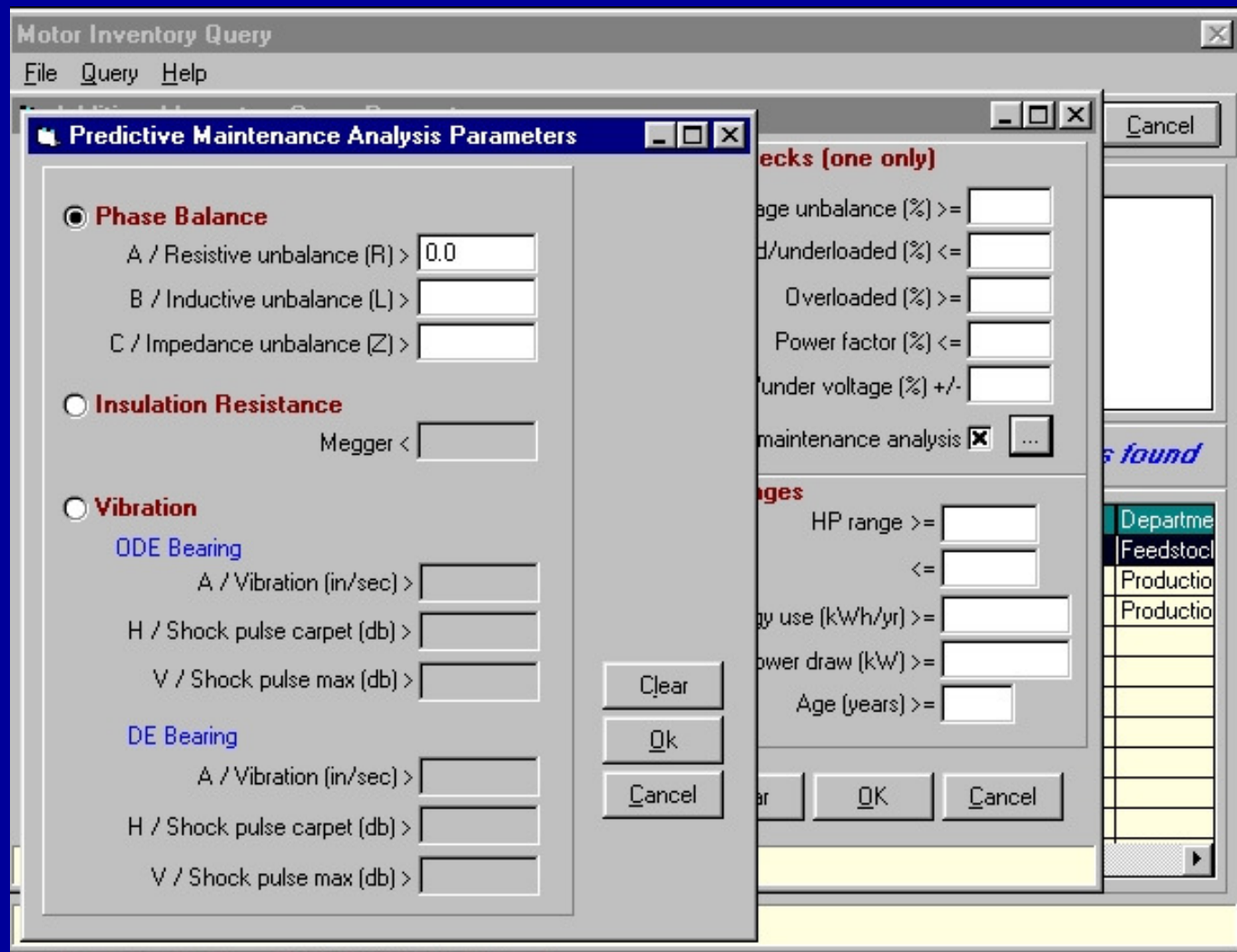
Best Practices Repair Policy

**Predictive and Preventive Maintenance
Planning**

Inventory Management Capabilities



Maintenance Logs



Energy Management with Batch Analysis

Use Batch Analysis to determine which in-plant motors are candidates for immediate replacement with a new energy-efficient motor.

Identify which motors should be replaced at their time of failure.

Life Cycle Cost Analysis

Computes the after-tax return-on-investment in an energy efficiency measure.

Displays cash flows, net present value, and the benefit-to-cost ratio.

Linked to Compare and Batch Analysis modules.

Savings Tracker

Uses “before” and “after” measured values to validate energy and dollar savings from conservation and efficiency improvements.

Motor and driven-equipment Energy Action records are aggregated with total savings indicated.

May create a Greenhouse Gas Emissions Reduction report (EIA 1605 EZ).

How to obtain MotorMaster+

**Download from the
U.S. Dept. of Energy's ITP website at:
[http://www1.eere.energy.gov/industry/
bestpractices/software.html#mm](http://www1.eere.energy.gov/industry/bestpractices/software.html#mm)**



**Additional industrial efficiency resources
are available at:**

<http://www1.eere.energy.gov/industry/>

ITP Energy Management Tool Suite

Strategy: Continual improvement using ISO 50001 framework supporting Save Energy Now Leaders and ANSI plant certification through step-by-step energy management planning process

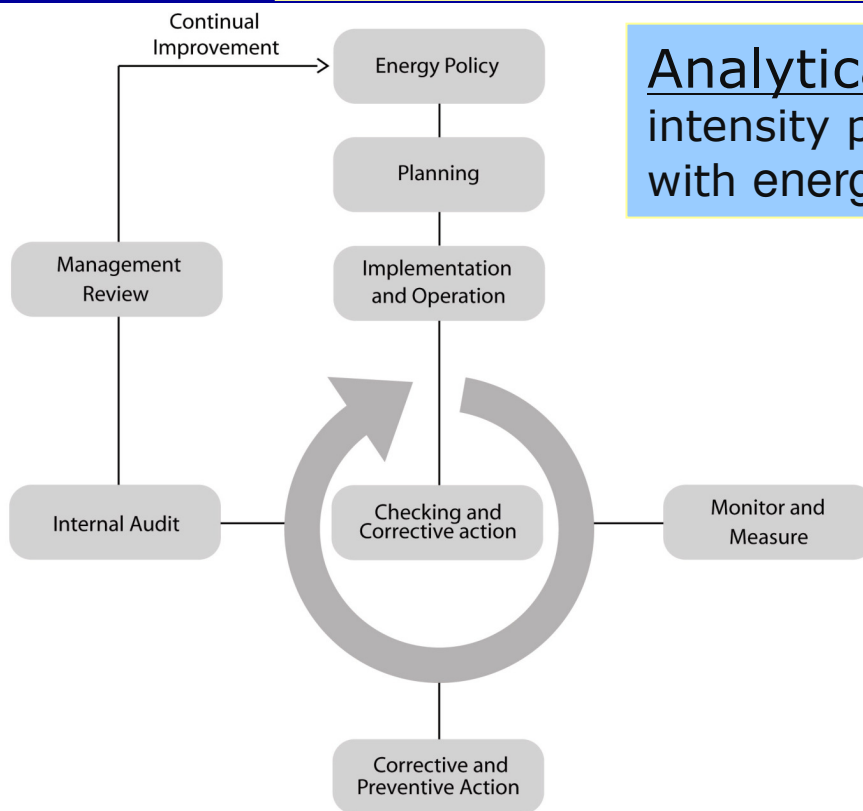
Multi-User Capability: Energy specialists, plant managers, energy champions, plant technicians, suppliers, utilities

Analytical focus: Energy & carbon footprint, energy intensity performance tracking, carbon reduction along with energy systems analysis.

Example Outputs:

- Energy management plan
- Simple energy saving project analysis
- Energy system assessments
- Documented energy/carbon reduction

23



Next Steps

- Use MDM Tools to get started
 - Identify potential savings
 - Create a motor management plan
- Use DOE MotorMaster+
 - Create a comprehensive inventory
 - Identify efficiency upgrades and track savings



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