Bonneville Power Administration's Green Motor Initiative

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Bonneville Power Administration
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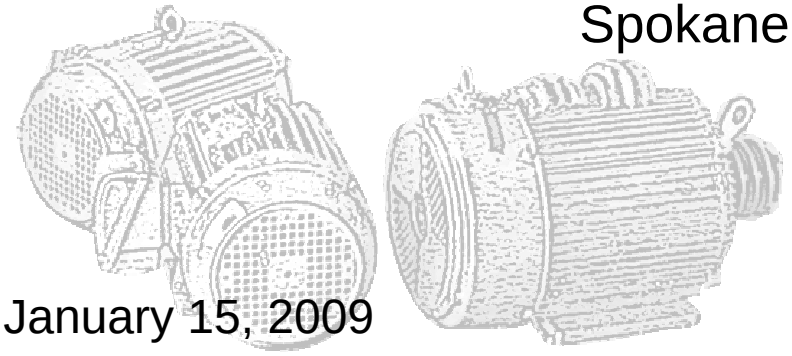
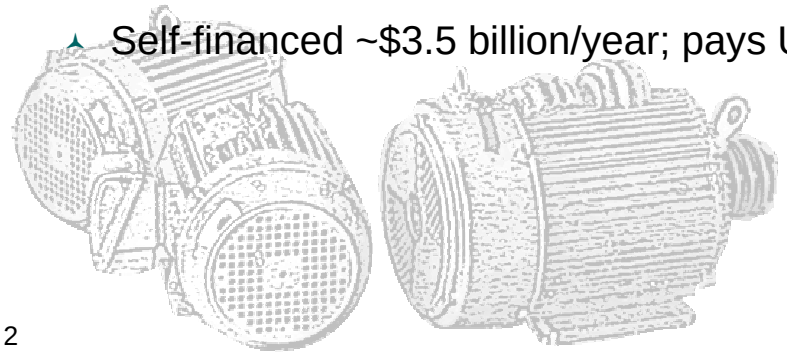


January 15, 2009

Who is Bonneville Power Administration?

- Been around since 1937 – 72 years young.
- Federal Power Marketing Agency – Department of Energy (i.e., WAPA).
- BPA's service territory covers Washington, Oregon, Idaho, Western Montana, and small parts of Wyoming, Nevada, Utah and California.
- Markets and transmits power generated from the Federal Columbia River Power System (FCRPS).
- FCRPS = 31 Federal hydro project dams, one non-federal nuclear plant and several small non-federal power plants (includes wind)*.
- Approximately 8,000 aMW of energy generated each year.
- Self-financed ~$3.5 billion/year; pays US Treasury $1 billion/year.



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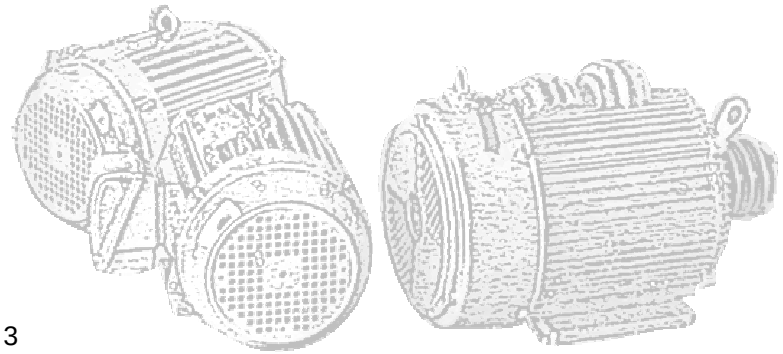
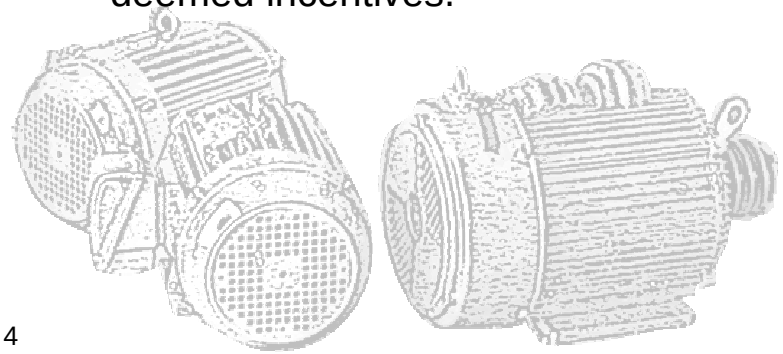
Bonneville Power Administration, *continued*

- Owns, operates and maintains over 15,000 circuit miles of high voltage transmission lines (represents ~80 percent of PNW's capacity).
- Sells power at cost - $0.03/kWh.
- Supplies over 40 percent of the electricity in the PNW:
  - Serves 140 utility customers (PUDs, Municipals, REA Coops, DSIs, etc.)
  - Energy Efficiency programs work with utility customers, doesn't work directly with end-users.



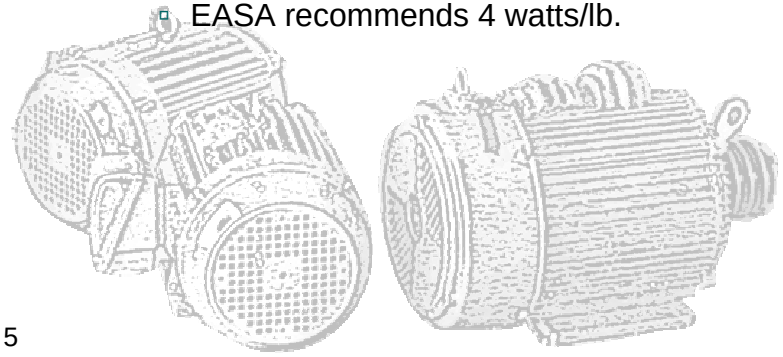
Energy Efficiency Background

- Since 1981, BPA's energy conservation programs have added over 900 aMW to its long-term power supply.
- Enough electricity to serve the **entire** city of Seattle.
- BPA's current Energy Efficiency targets ~60 aMW/year.
- Annual cost of Energy Efficiency savings is ~$70 million.
- Industrial Program achieved 7 aMW in FY2008.
- Industrial Program Targets: 2009 – 13 aMW; 2010 – 17 aMW; and 2011 – 18 aMW.
- Historically BPA's Industrial Program is based on individual Custom Projects, not deemed incentives.



What is a Green Motor Rewind?

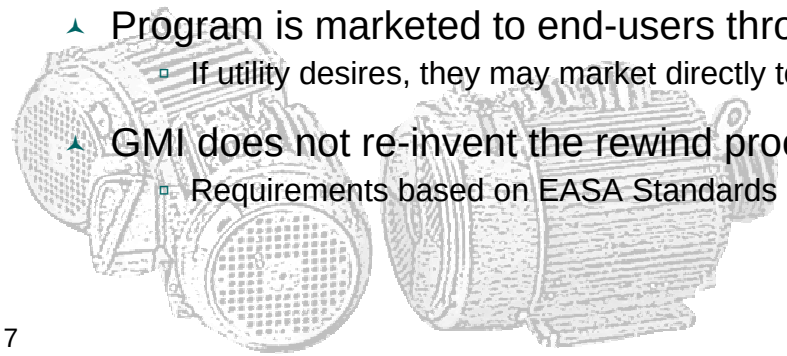
- Rewinding a motor in such a way to **maintain the original efficiency**, commonly called a Green Motor Rewind.
- Applies to Induction Motors from 15 HP to 5,000 HP.
- Key requirement for Green Motor Rewind is no damage to the motor's core.
- A Core Loss Test is conducted *before* and *after* the rewind.
  - Core Loss Test is conducted in accordance with Electrical Apparatus Service Association, Inc. (EASA) Tech Note 16.
  - A Loop Test conducted in accordance with EASA Tech Note 17 may be substituted fir the Core Loss Test for short periods.
- Core Loss Test must be less than 6 watts/lb.
  - EASA recommends 4 watts/lb.



Core-plate exhibits catastrophic damage due to a failure event. This core does NOT meet Green Motors Initiative (GMI) requirements.

Green Motors Initiative (GMI): Background

- Established by the Green Motors Practices Group (GMPG).
  - GMPG is a non-profit organization who's board consists of motor service center owners.
  - Supportive of the Electrical Apparatus Service Association, Inc. (EASA)
  - Membership in the GMPG is not exclusive to EASA members.
- Initiative is based on the Service Center Certification Program established by the GMPG.
  - Savings based on certifying the process, not the individual motor.
- Ultimate intent is to acquire kWh savings.
  - The GMI target is 2009 - 0.3 aMW (or 2.6M kWh); 2010 – 0.5 aMW (or 4.38M kWh)
- Goal is for the motor to be returned to original nameplate efficiency.
- Program is marketed to end-users through participating service centers.
  - If utility desires, they may market directly to their end-users as well.
- GMI does not re-invent the rewind process!
  - Requirements based on EASA Standards and Best Practices.



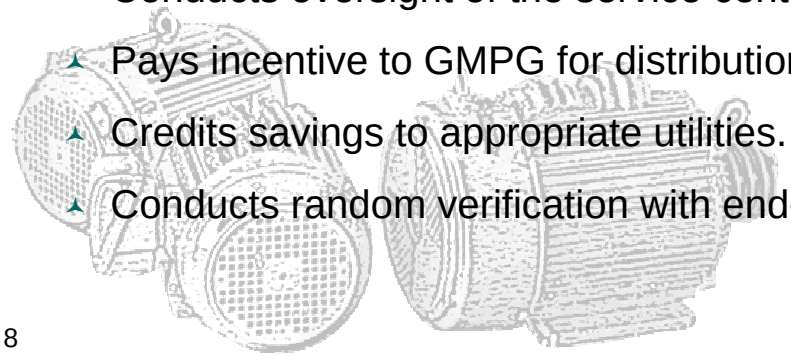
GMI: Organization

Green Motors Practices Group

- Recruits and certifies new service center members.
- Conducts annual re-certification inspections of each service center.
- Verifies eligibility of end-use customers for incentive.
- Receives and processes all GMI applications.
- Collects incentives from BPA and distributes incentive payments to service centers.

Bonneville Power Administration

- Conducts oversight of the service center certification & recertification.
- Pays incentive to GMPG for distribution to the service centers.
- Credits savings to appropriate utilities.
- Conducts random verification with end-user customers.



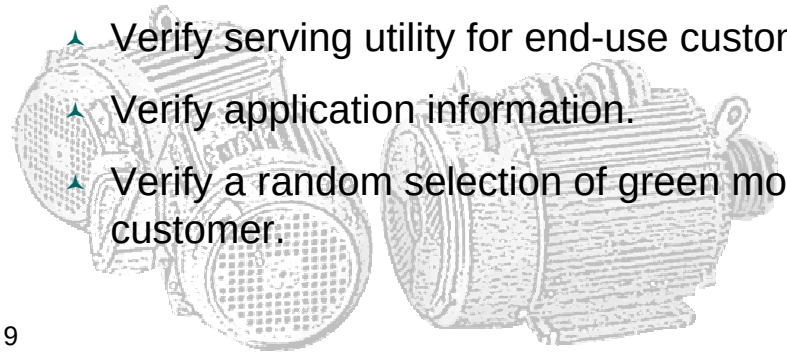
GMI: Verification

Service Center Verification

- GMPG annually verifies each service center.
- Annual surprise oversight inspections may occur at each service center.
- Key items verified: job tracking, current equipment calibration, training records, working core loss tester, burn-off oven sprays, and shop personnel interviewed.
- BPA conducts random oversight of new member certifications.
- BPA conducts oversight, up to 20 percent of annual recertification.

Motor Incentive Verification

- Verify serving utility for end-use customer.
- Verify application information.
- Verify a random selection of green motor invoices and incentive payment to end-use customer.



GMI: Verification, *continued*

Non-Qualifying Furnace

GMI: Verification, *continued*

Damaged Door Insulation

No Water Spray

Thermostat Not Calibrated

Non-Qualifying Furnace

GMI: Verification, *continued*

Non-Qualifying Furnace

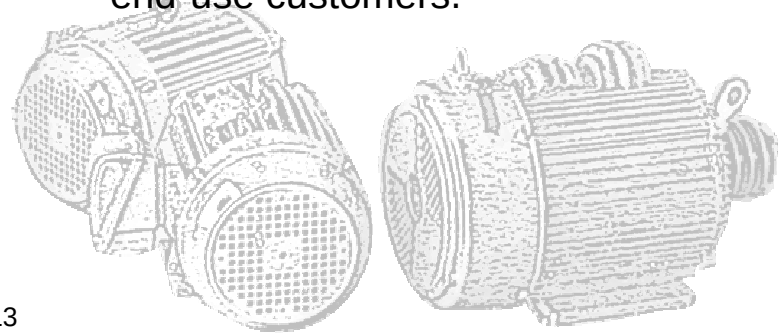
GMI: Incentives and Costs

Incentive:

- GMPG pays $2 per HP to the service center.
- Motor service center passes $1 per HP to end-use customer as instant credit

Cost:

- GMPG receives motor processing fee, per motor.
- Cost/Benefit analysis applies to the Initiative, not individual HP.
  - Cost of green rewind is based on service center surveys.
- BPA pays GMPG to produce marketing materials for service center, utilities and end-use customers.



GMI: Participation

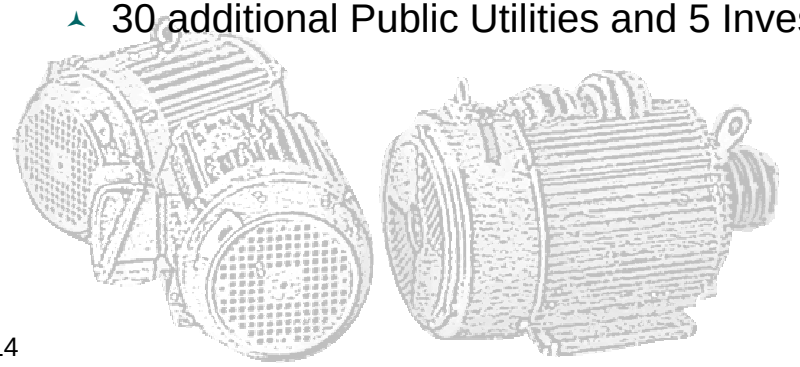
Since September 1, 2008

Service Centers:

- Verified Northwest membership: 37 motor service centers.
- Membership outside the Northwest: 10 motor service centers, not all verified.
- 20 additional service centers expected to join in 2009.

Utilities:

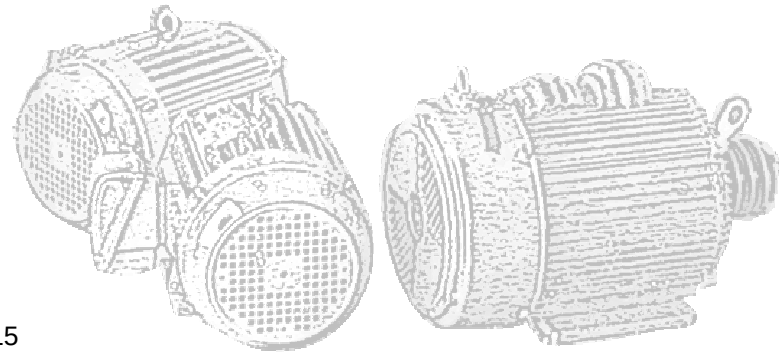
- Participating: 28 Public Utilities and 4 Investor Owned Utilities.
- 30 additional Public Utilities and 5 Investor Owned Utilities in Q1 of 2009.



GMI: Phase 2

Non-Qualifying Motor Replacement Incentive:

- Incentive available to replace motors with core damage that would normally be rewound.
  - End-use customers generally opt to rewind damaged motors, due to cost.
- Surveys show up to 40 percent of motors rewound do not pass the core lost test.
- BPA is working with GMPG to collect data.
- Goal is to create target incentives to remove damaged motors from circulation.



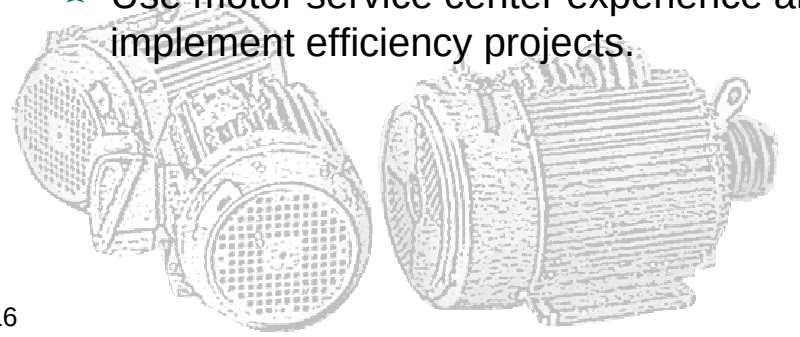
GMI: Future

Motor Replacement Program:

- Target motors that qualify as *green rewinds*, but have lower efficiencies.
- Incentivize end-use customers to replace lower efficiency motors with new NEMA Premium or better.
- Incentives would be paid through the motor service centers.

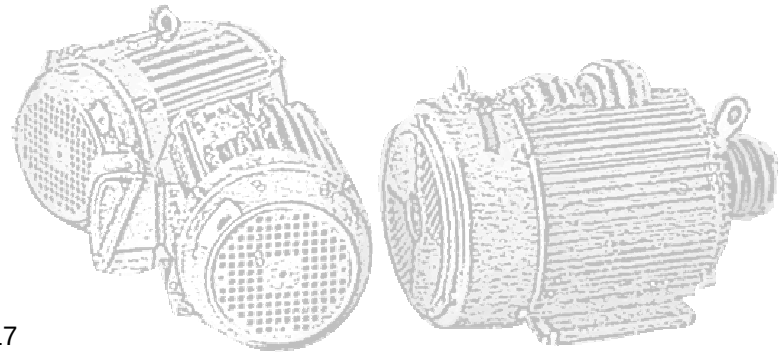
Motor Systems Program:

- Work with motor service centers to bring motor system efficiency projects to end-use customers.
- Use motor service center experience and expertise to identify, develop and implement efficiency projects.



Program Insights:

- Leveraging the work of others (e.g., motor service centers) is a time saver!
- Motor service centers know their customers and their systems.
- Multiple secondary benefits gained for the end-use customer with quality rewinds.
- Marketing is essential.
- Relationship with service centers is everything. Ongoing relationships through repetitive contacts.
- Binders, web sites, forms, calculators do not “create” kWh savings. It’s the **focus**, **determination** and **follow through** of **people** that create kWh savings projects.



Thank You!

For additional information:

Green Motors Practice Group
www.greenmotors.org

-OR-

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