NEMA Frame (Low Voltage) Motor Repair vs. Replace Model

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Are there any extenuating circumstances such as special frame, system drive motor, etc. which prevent new motor purchase?

— No → Is the motor less than 5 years old?

— No → Is the motor older than 15 years?

— No → Is the motor 200 hp or less & 900 rpm or faster?

— No → Is % efficiency stated on nameplate?

— No → Use OEM motor vendor supplied efficiency estimation data to estimate old motor efficiency

Yes → Repair Motor to IP repair spec 3691 (latest version)

Yes → Replace / Repair under warranty to 3614 new motor specifictions

Yes → Replace Motor

Yes → Replace Motor

Yes → Is the existing winding integrity good for minimum 20 year life?

— No → Motor must be rewound

Yes → Can the motor be repaired per IP LV motor repair spec 3691 (including rewind and install Inpro™ Seal if necessary) & meet new motor spec 3614 performance?

— No → Replace Motor

Yes → Are there other extenuating circumstances[2] that would prevent repairing of the motor?

— No → Is repair cost more than 65% of new motor cost?

Yes → Replace Motor

— No → Does the motor repair meet repair and energy cost hurdle[1]?

— No → Replace Motor

Yes → Repair Motor to IP spec 3691 (latest version)

— Yes → Replace Motor

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[1] repair and energy cost hurdle = [(65% of new motor cost - repair cost) – (2 x annual energy savings)] > 0

annual energy savings = [new motor efficiency (%) – old motor efficiency (%)] x motor hp x $340

example: 100 hp motor - - new motor efficiency = 95.1% old motor efficiency = 93.2%
annual savings = [0.951 – 0.932] x 100 x 340 = $646 /year energy savings

[2] extenuating circumstances include:
- - frame casting is broken and needs repair or has been welded in past
- - other major mechanical issues including damaged shaft, bad rabbet fits, excessive rust, rotor damage/issues, etc.
- - motor has been rewound previously at least 2 times
- - motor has history of poor reliability
- - motor is an open design and application can accommodate a TEFC motor
- - motor is misapplied for application and different motor should be used; old motor can be considered for service as a spare for other applications