Does your lubricant supplier do all of this?

If your lubricant supplier does not provide the products, services and results listed below as part of its lubrication reliability program, perhaps it is time to change suppliers.

✓ Professional, onsite equipment reliability assessment
✓ Comprehensive lubricant line (industrial oils, engine oils and greases)
✓ Web-based oil analysis, with results reviewed by experts
✓ Storage systems, including stackable bulk units
✓ Visual identification, including tags, labels, color-coding and wall charts
✓ Handling and transfer equipment, including portable transfer containers, clear grease guns, grease pumps and lube reels
✓ Single- and multi-point automatic grease lubricators and lubricating systems
✓ Contamination exclusion and removal tools, including oil reservoir sight glasses, desiccant breathers and filtration equipment
✓ Local, factory-trained specialist available 24/7

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Suffering points got you down? Keep equipment up & running with LE’s comprehensive approach.

Operators at coal-fired power plants must keep all of their equipment operating as efficiently as possible under harsh conditions such as high operating temperatures, heavy loads, 24/7 operation and dusty, hot environments. Any downtime is costly and can lead to an interruption in power supply, so the proper care of critical equipment is of utmost importance. We’ve identified three of the most common suffering points, along with specific problems associated with each and our recommended solutions. Implementing a comprehensive approach with these solutions will enhance the performance and extend the life of your lubricant and equipment.

Steam Turbines & Boiler Feed Pumps

Problems
- Water contamination, oxidation, thermal degradation
- Frequent oil changeouts
- High temperatures
- Excessive load
- Corrosion
- Excessive load
- Premature gear degradation & failure
- Reduced lubricant performance
- Difficulty in removing
- Environmental concerns, including costly disposal

Solution
- LE’s Pyroshield Syn Open Gear Lubricant
  - Reduces gear temperatures
  - Withstands high-load, heavy-shock applications with exceptionally high film strength
  - Appears translucent in use, enabling visual inspection
  - Clings to metal without accumulating
  - Lower lubricant consumption
  - Requires less maintenance & housekeeping
  - Can be applied manually through automatic spray systems
  - Contains no lead or heavy metals
  - Can be disposed of like any other nonhazardous petroleum oil

Ball & Rod Mills

Problems
- Ineffective lubricant
  - Lack of translucency prevents visual inspection of gears
  - Excess lubricant usage
  - Difficult to apply with automatic systems
  - Frequent relubrication and cleanup required
  - Environmental concerns, including costly disposal

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Xtract™ Standard Filter Cart

- Removes contaminants
- Filters out big particles with a course filter, then smaller particles with a fine microglass filter
- Keeps oil & oil reservoir clean

Xamine™ Oil Analysis

- Routine oil analysis recommended monthly
- Monitors for contaminants
- Determines need for additional filtration or equipment maintenance

For bowl mills, LE recommends a filterable oil and a high-flow, high-capacity filtration device such as this Xtract™ Standard Filter Cart.
Enhanced Lubricants

Equipment Reliability Assessment
Maximizes equipment life, reduces downtime, consolidates lubricant inventory
- Professional on-site assessment of all equipment requiring lubrication
- Detailed recommendations for lubricants, application methods, usage amounts and drain or lube intervals
- Also recommended: solutions for transfer, contamination exclusion, contamination removal, education and training

Enhanced Lubricants
Reduce friction and wear, enabling equipment to operate longer and more efficiently
- Technologically advanced oils and greases
- Proprietary, high-performance additives
- Selected to meet needs of specific applications

Oil Analysis
Establishes optimum drain intervals and detects wear or contamination before it damages equipment
- Xamine Oil Analysis for routine monitoring of oil and equipment
- Xamine TOA for periodic comprehensive monitoring of all factors that can affect performance and lifespan of turbine oil and turbine equipment
- Fast, accurate reporting and expert explanation
- Equipment for ensuring consistent oil samples

Storage
Ensures clean and organized lube rooms, worker safety and consistent lubricant quality
- Storage systems to ensure oil cleanliness, inventory control and application efficiency
- Color-coding and ID tags to prevent misapplication and cross-contamination

Handling & Transfer
Keeps lubricants contamination-free and keeps equipment properly lubricated for optimum performance
- Transporting, pumping and dispensing equipment
- Customizable automatic lubrication systems
- Single- or multi-point grease lubricators
- Clear Grease Guns with color-coding options
- Color-coded grease fitting protectors
- Color-coding and ID tags to prevent misapplication and cross-contamination

Contamination Exclusion & Removal
Protects and enhances performance of valuable lubricants and machinery
- Desiccant breathers for absorbing moisture and preventing particulate ingestion
- Adapters and quick connect couplers for preventing contamination at drum and equipment level
- Mobile and stationary filtration carts for achieving oil’s ISO cleanliness target
- Sight glasses for monitoring oil levels, inspecting oil and removing water
- Color-coding and ID tags to prevent misapplication and cross-contamination

Education & Training
Ensures knowledgeable employees and sustainable improvements
- Onsite, public and online course options
- Consulting services
- Retainer-based services

Design, Implementation & Support
Initiates and maintains a Lubrication Reliability Program
- Best practices approach
- Local MLT and/or CLS trained lubrication consultant
- Corporate technical support

Lubrication Engineers will work closely with you to learn about your specific equipment and lubrication needs. Only then can we create an effective lubrication reliability program that will provide the equipment protection and enhanced profits you are seeking.

This starts with an onsite assessment of all equipment requiring lubrication. A trained, local LE lubrication consultant will provide you with a detailed report recommending lubricants, application methods, usage amounts, and drain or lube intervals. In addition to LE’s comprehensive line of premium lubricants, your LE consultant can offer you all of the other reliability products and services shown here to ensure the effectiveness of your program.

Protect Your EQUIPMENT
with LE’s Full Circle of Reliability
Starting with our enhanced lubricants
Coal-fired power plants can benefit from the standout mix of products, services, knowledge and experience offered by Lubrication Engineers, Inc. With years of experience in the field, we understand the unique challenges you are facing and can help you take care of your valuable assets while lowering your costs.

LE’s enhanced lubricants, made of highly refined base oils and proprietary additives, far exceed the performance of conventional lubricants in a variety of applications. They extend lubrication intervals and equipment life and significantly reduce wear, energy use, downtime and maintenance, thereby recovering the initial cost of the lubricant many times over.

We also offer a full line of lubrication reliability products and services, including solutions for oil analysis, storage, handling and transfer, contamination exclusion and removal, and education and training. Whether you need a solution to a single challenge or help setting up a complete lubrication reliability program, you can turn to LE for help.

**The LE Difference**

**Comprehensive Product Line & Full-Service Support**
- Complete reliability program, including lubricants, reliability products and services
- Trained, local lubrication consultant to visit on a regular basis
- Corporate technical support to offer expert advice and troubleshooting

**Research & Development**
- Technology Center that continually develops and improves LE lubricants and additives
- Advanced technology to ensure that LE products remain the finest available

**Proprietary Additives**
LE has developed four high-performance additives for exclusive use in its lubricants.
- Almasol® solid wear-reducing additive
- Monolec® liquid wear-reducing additive
- Duolec® dual-acting (wear-reducing and extreme pressure) additive
- Quinplex® impact- and water-resistant additive

**Ensuring Reliability Since 1951**

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**Enhanced Lubricants**

LE’s premium industrial lubricants are available in a wide range of penetration and viscosity grades. From this broad offering, we are able to make recommendations based on your specific application and equipment needs.

Following is a list of LE lubricants that have provided years of reliable service at coal-fired power plants, along with the most common uses for them. For detailed descriptions and technical specifications, please visit the product pages at www.LElubricants.com, refer to individual product flyers available online or in print, or contact your local LE consultant for assistance.

**Greases**

- **Grease fittings, chain drives & sprockets**
  - Almasol® High Temperature Lubricant (1250-1251)
  - Almagard® Vari-Purpose Lubricant (3750-3752)
  - Monolec® Multiplex Lubricant (4622)
  - Monolec® Industrial Lubricant (4700-4702)
- **Open Gear Lubricants**
  - Pyroshield® Syn Open Gear Grease (5100, 5180 & 5182)
  - Pyroshield® Syn XHvy Open Gear Lubricant (9011)
- **Gear Oils**
  - Almasol® Worm Gear Lubricant (460 & 680)
  - Duolec® Industrial Gear Oil (1601-1610, 1302, 1304)
  - Monolec® Syn Industrial Oil (9220, 9320, 9460)
  - Duolec® Syn Gear Lubricant (9808-9868)
- **Turbine Oils**
  - Monolec® Turbine Oil (6461-6463)
- **Other Hydraulic & Industrial Oils**
  - Equipoiler™ Ultra Hydraulic Oil (6132, 6146, 6168)
  - Monolec® Centrifugal Compressor Oil (6260)
  - Monolec® R&D Compressor/Turbine Oil (6401-6407)
  - Multilec® Industrial Oil (6801-6807)
  - Monolec® Syn Industrial Oil (9032-9150)

**Engine Oils, Transmission Fluids & Fuel Supplements**

- **Diesel & gasoline engines, peaking diesels, transmissions, converters**
  - Synolec® Transmission Fluid (640)
  - Monolec® Gear Lubricant (703-704)
  - Monolec® Syn Multi-Vehicle Automatic Transmission Fluid (1150)
  - L-X® Heavy-Duty Chemical Supplement (2300)
  - Full Torque™ W (2411) & S (2421) Diesel Fuel Improvers
  - Monolec® Power Fluid (7500)
  - Monolec® Drive Train Fluid (7511, 7531 & 7551)
  - Monolec® Ultra® Engine Oil (8130-8131 & 8800-8801)
  - Monolec® GFS Engine Oil (8430-8450)
  - Ultra RDE Oil (8900)

**Aerosols & Wire Rope Lubricants**

- Wirelife® Almasol® Coating Grease (451-453)
- Wirelife® Monolec® Penetrating Lubricant (2001)
- Wirelife® Almasol® Coating Lubricant (2002)
- Monolec® Penetrating Oil and Lubricant (2059)

LE’s state-of-the-art manufacturing facility and technology center is located in Wichita, KS, USA. Sales, customer service and technical support functions are based in Fort Worth, TX. Our global network of trained lubrication consultants ensures timely onsite assistance after the sale.

Nearly 60 percent of LE’s lubricant orders are on the road the same day we receive them, while 95 percent go out in one day or less. Distribution comes out of Wichita as well as warehouses in Knoxville, TN, and Las Vegas, NV.