Drilling and production with lower fuel consumption and reduced environmental impact
GreenRig™ from Comprehensive Power reduces environmental impact through more efficient fuel consumption, a smaller footprint, less traffic to and from the rig, lower emissions, and better utilization of available energy resources by providing “power at the ready.”
efficiency
and diesel
Generators
At their best, diesel generators convert about one-third of the energy available in fuel to electricity. Two-thirds of the available energy is wasted as heat dissipated into the atmosphere. Meanwhile, the rig is running boilers just to make heat and routing steam through dangerous pipes to where it is needed.

GREENRIG™ TECHNOLOGY
GreenRig™ technology from Comprehensive Power enables a set of applications built from permanent magnet (PM) motors, generators, drive electronics and controls that provide powerful, proven technology to reduce the environmental impact of land-based and offshore oil and gas operations while improving safety and profitability.

Responsive to concerns over the impact of expanded oilfield operations in remote and populated areas, as well as to industry calls for more environmentally friendly approaches to energy production, GreenRig™ is engineered to deliver performance. GreenRig™ addresses the power needs of today’s production and drilling rigs whether your company is trying to reduce the pollution, traffic and transportation costs of hauling massive amounts of diesel fuel to and from your facilities; seeking to use natural gas or alternative energy sources to help power rig processes; or looking to improve profit by using advanced technology to shorten time spent on drilling operations.

IMPROVED EFFICIENCY
GreenRig™ provides clean and efficient operation of oil and gas rigs by running diesel engines at the most efficient speed, and by using as much energy in the fuel as possible. GreenRig™ makes it possible to use fuels that are available at the wellhead and to store and use stored energy in batteries for hybrid operation.

A significant advantage comes from reducing drilling times by providing maximum torque on demand even when engines are idle, and by minimizing set up and fit up required by using direct drive motors.

Control electronics can achieve load leveling among power resources on the rig. GreenRig™ co-generation technology enables the recovery of energy that would otherwise be lost to heat and waste.

EFFICIENCY AND DIESEL GENERATORS
The use of compact, lightweight, and energy-efficient PM motors in the place of standard diesel-electric motors and hydraulic systems provides significant improvements in a number of areas:

- Energy savings
- Better reliability
- Improved safety
- Reduced complexity

Highly efficient PM generators work in tandem with diesel engines and vary the diesel engines’ speed to match the changing power requirements of the rig providing:

- Less noise
- Lower fuel consumption
- Less wear and tear on diesel engines
- Reduced pollution

Intelligent drive electronics and controls from Comprehensive Power are compact, modular, redundant and scalable. Each TerraTorq® TIM-270 drive system can provide a multitude of functions, depending upon the need of the system. A single unit can provide DC to AC power inversion running synchronous, induction, switched reluctance and PM motors; AC to DC rectification; DC to DC conversion or power balancing as required. Each is a building block for controlling 200KW/250HP. This design offers the benefits of:

- Reduced footprint
- Fewer spares
- Easy replacement
- Remote monitoring and support

BENEFITS

The use of compact, lightweight, and energy-efficient PM motors in the place of standard diesel-electric motors and hydraulic systems provides significant improvements in a number of areas:

12.4% Heat to water jacket
7.0% Heat to exhaust
5.0% Heat to oil cooler
8.2% Heat to after cooler
33.2% Electricity
34.2% Heat to ambient

Less than 1/3 of the energy available in fuel is converted into electricity by diesel generators.
GREENRIG™ TECHNOLOGY FROM COMPREHENSIVE POWER

- Safe
- Reliable
- Rugged
- Efficient
- Compact
- Powerful
Designed for Mobility

Compact, rugged and lightweight, Comprehensive Power’s motors, generators, drive electronics and controls are easy to transport and redeploy. The scalable and modular TeraTorq® TIM-270 drive system is self-configuring to the control task at hand, eliminating the need for multiple modules and their related spare units. Each TIM-270, measuring only 9” x 9” x 24” deep (228 mm x 228 mm x 640 mm deep) is easy to transport, easy to store and provides durable deep redundancy and fail-safe operation in the event of a component failure.

TeraTorq® PM motors and generators are compact and rugged. Direct drive design facilitates quick set up and eliminates time consuming and tedious alignment. These high-power motors, based on a proven scalable design, are offered in seven standard diameters with expandable length for added torque:

- 13xx series 13” diameter: 200 to 1,200 ft-lbs
- 14xx series 19” diameter: 260 to 1,980 ft-lbs
- 26xx series 26” diameter: 1,500 to 6,000 ft-lbs
- 31xx series 32” diameter: 3,000 to 24,000 ft-lbs
- 52xx series 54” diameter: 12,000 to 96,000 ft-lbs
- 78xx series 74” diameter: 26,000 to 210,000 ft-lbs

Remote Monitoring and Support

A well-designed information system makes the right information available in a timely manner - without information overload. The key to effective computerization is the distribution of computer intelligence, with tools to automatically monitor and control routine operations. GreenRig™ control architecture enhances conventional manual controls with computer capabilities. It provides automatic feedback controls with data logging respectful of communication bandwidth limits. There is remote monitoring via the Internet and post processors for data and trending analysis.

GreenRig™ computer-assisted processes:

- Drill String Oscillation
  For long reach horizontal drilling, the top drive is controlled to keep the drill string in constant oscillatory motion to reduce friction and increase drill face pressure.

- Wireless Robotics Control on Rotating Head
  Generates control power from hydraulic flow so that complex actuator and sensor systems can be implemented without multi-pass rotary seals - more sensors translate to improved operator safety.

- Non-Contact Networked Switches for Control Panels
  Simply assembly and eliminate mechanical breakage while providing better operator and monitoring feedback.

- Data Log Post Processing
  Automatically analyses operating data to provide daily, weekly, and monthly summaries and rig health assessment.

- Real-Time Reports
  List serial numbers, hardware and software configuration, spare part sources and numbers, etc.
Oilfield experience

Comprehensive Power has been building and fielding equipment for the oilfield since our founding in 1996.

Our TeraTorq® motors power top drives, pumps and other oilfield equipment. They are designed specifically for lightweight rigs, providing maximum capabilities in a package that fits smaller-profile masts and loads. Our TIM-270 drive electronics have provided years of safe, reliable functionality in a compact package designed for installation, operation and handling by roughnecks.

Comprehensive Power holds a patent on the precise and more efficient directional drilling made possible through the unique combination of TeraTorq® motors’ exceptional torque and the TIM-270’s precise control.

With years of oilfield experience and success, Comprehensive Power’s GreenRig™ is the ideal solution for an industry seeking improved profitability and safety through the use of reduced environmental impact equipment.