

## Laser Alignment Services

EthosEnergy is a market leader in providing on-site rotating equipment repair and overhaul services to the downstream petrochemical and power generation industry. Operating from locations in Houston, Southern California and Northern California, we provide project management, supervision, tooling and skilled millwright manpower to support your maintenance outage requirements.

### Shaft and Bore Alignment Problems

Incorrect alignment during installation of rotating equipment in power plant and mechanical drive applications leads to significant problems in service. This includes loss of performance, equipment vibration and premature wear of critical drive train components such as bearings, seals and couplings. To avoid such problems it's necessary to perform complex measurements and detailed calculations, that using standard hand tools can be time consuming and lacking in precision and repeatability.

### Precision Laser Tracking

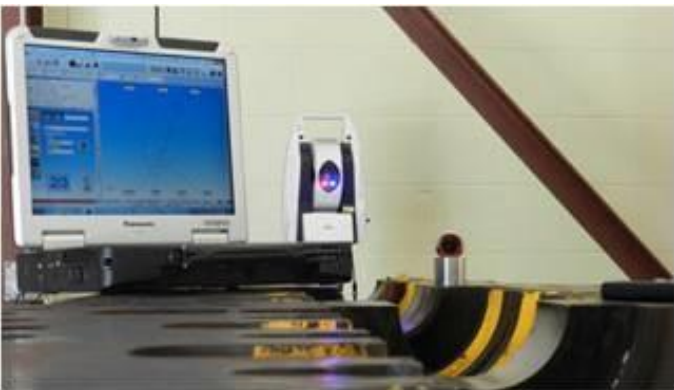
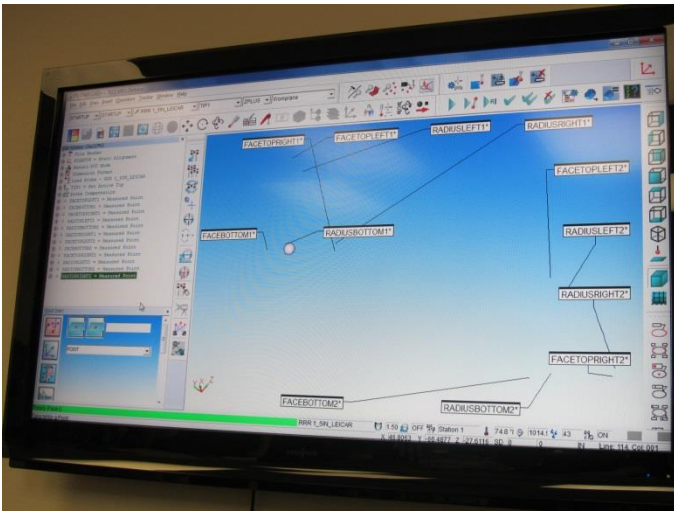
In today's competitive environment, successful companies need to be innovative to both enhance services and deliver value to customers. EthosEnergy's investment in precision laser tracking equipment is one such example. This new technology allows trained craftsmen to undertake alignment measurements and readings on components such as steam turbine diaphragms, casings and rotor shafts in minutes rather than taking up to two full days by traditional methods. Laser tracking allows readings to be taken without unit disassembly saving significant labor and time.

Laser tracking provides 3D measurement, accurate to .0005" and is ideal for shaft or machine alignment, diaphragm alignment, machine inspection and thermal growth readings.

### Operator Benefits

This new technology will provide substantial benefits to plant operators including:

- + Accurate and repeatable alignment
- + Significant time saving compared to traditional measurement methods
- + Skilled and trained craftsmen delivering consistent results
- + Permanent record of alignment for future reference



**Using this technology our trained personnel undertake alignment measurements and readings in 45 minutes compared to two full days using traditional methods.**

#### Major Equipment Applicability:

- |                        |                  |
|------------------------|------------------|
| + Gas Turbines         | + Pumps          |
| + Steam Turbines       | + Generators     |
| + Compressors          | + Gearboxes      |
| + Geo Thermal Turbines | + Hydro Turbines |