

Power Generation



Integrated Pumping Solutions



>> When failure is not an option

You've got a tough job. Today's power generation operators and engineers are faced with more issues than ever before – environmental, operational, those involving security, availability and increased competition. This is a difficult market and one that gets even tougher as power generation sources expand and evolve to meet today's huge electricity demands. Colfax can help. With pumping solutions that are integrated with your business, Colfax provides a range of product and engineering capabilities that improve the performance metrics of your power plant.

The Colfax line of pumps and engineered systems are used in Steam, Combined Cycle, Combustion, Stationary Diesel, Solar Power, Cogeneration, and Hydro power plants.

Improving the metrics that matter the most.

Reliability:

Your successful plant operation requires products to perform under a variety of conditions for extended periods of time. Colfax pumps and engineered systems are designed for a wide range of flow rates, pressures, and fluids, and are tested within our facilities to make sure that they work in even the most challenging conditions of your power plant - dependably and efficiently.

Availability:

You strive to maximize the time that you can produce power. Colfax products are engineered to performance specifications that in many cases far surpass the design conditions needed for the application. This produces a pump and system that starts and continues to operate each and every time without fail.

Uptime:

When your plant is running, you don't want an unexpected product failure to lead to a forced outage. You need your system to work when it's called upon and Colfax understands this. Our engineering and product teams employ advanced design techniques to ensure run-time consistency on the injection, transfer, lubrication and bearing system products that we provide.

Control:

All budgets are stretched in today's difficult economy and that increases the challenges you face to maintain plant uptime. Colfax Smart Sense® technology uses proprietary sensors to monitor the health of your pumping system, diagnose problems in the field and communicate that information directly to you.

Compliance:

You've got more pressure than ever before to comply with environmental regulations. Colfax integrated solutions eliminate oil leaks associated with traditional mechanical seals.

>> Power plant solution overview



Integrated pumping solutions for Steam Power Plants:

Many steam power plants are designed and used for base load operation making the metrics of uptime, reliability and availability even more significant. Whether you are burning coal, bio-fuels or oil you want your plant to run when you need it to. Colfax knows how important these metrics are and works with you to support the operation of your power plant to ensure that you are meeting or exceeding your operational and performance objectives.

Colfax technologies - steam

	Three-screw	Two-screw	Progressive cavity	Gear	Centrifugal	Metering	Oil mist / PurLube	Engineered systems
Fuel unloading / transfer / forwarding	X	X			X			X
Ball mill gear box lubrication	X						X	
Rotor jacking	X			X				
Lubrication	X	X		X	X			X
Fuel or burner injection	X	X		X				
Waste water treatment			X		X			
Oil service							X	
Hydrogen cooled generator seal oil	X							
Chemical metering					X	X		



>> Power plant solution overview

Integrated pumping solutions for Combustion Power Plants:

With the increase in natural gas sources and supply, combustion power plants have become a large part of the nation's power generation portfolio. This type of power plant configuration provides both flexibility and speed to generation.

Typically, a combustion power plant is a 'peaker' unit, designed to come online quickly to support peak electricity consumption or to back up renewable energy production. Combustion power plants are normally run with natural gas as the primary fuel, although low-sulfur fuel oil is used in select cases.

Colfax provides flexible, reliable pumps and engineered systems designed to meet and exceed the unique demands of the combustion market.

Colfax technologies - combustion

	Three-screw	Two-screw	Progressive cavity	Gear	Centrifugal	Metering	Oil mist / PurLube	Engineered systems
Fuel unloading / transfer / forwarding	X	X			X			X
Rotor jacking	X			X				
Lubrication	X	X		X	X			X
Fuel or burner injection	X	X		X				
Waste water treatment			X		X			
Oil service							X	
Hydrogen cooled generator seal oil	X							
Chemical metering					X	X		

>> Power plant solution overview

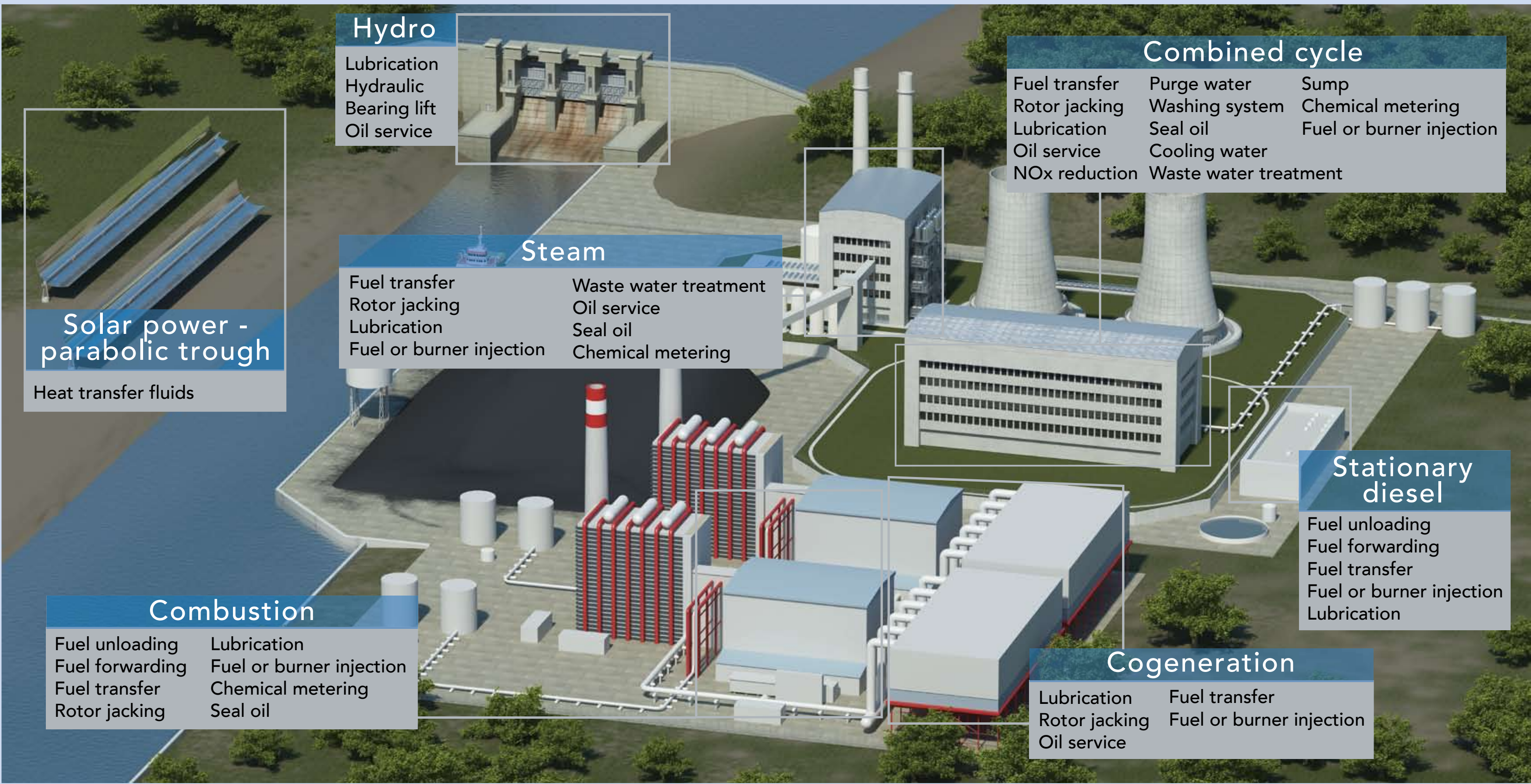


Integrated pumping solutions for Combined Cycle Power Plants:

Combined cycle plants offer the highest operating efficiency making them an attractive option for power markets looking to reduce environmental impact. They are typically operated in a base-load or intermediate capacity and are called on to provide stable power generation or to balance the load requirements of the grid. These expectations make reliability and control vital. Colfax understands the pressures that combined cycle plants face and are ready to design customer integrated solutions that minimize their impact.

Colfax technologies - combined cycle

	Three-screw	Two-screw	Progressive Cavity	Gear	Centrifugal	Metering	Oil Mist / PurLube	Propeller	Engineered Systems
Fuel unloading / transfer / forwarding	X	X			X				X
Rotor jacking	X			X					
Lubrication	X	X		X	X				X
Fuel or burner injection	X	X		X					
Waste water treatment			X		X				
Oil service							X		
Hydrogen cooled generator seal oil	X								
Chemical metering					X	X			
NOx reduction	X								
Purge water					X				
Washing systems					X				
Cooling water					X			X	
Sump			X						



Hydro

- Lubrication
- Hydraulic
- Bearing lift
- Oil service



Solar power - parabolic trough

Heat transfer fluids

Steam

- | | |
|--------------------------|-----------------------|
| Fuel transfer | Waste water treatment |
| Rotor jacking | Oil service |
| Lubrication | Seal oil |
| Fuel or burner injection | Chemical metering |

Combined cycle

- | | | |
|---------------|-----------------------|--------------------------|
| Fuel transfer | Purge water | Sump |
| Rotor jacking | Washing system | Chemical metering |
| Lubrication | Seal oil | Fuel or burner injection |
| Oil service | Cooling water | |
| NOx reduction | Waste water treatment | |

Combustion

- | | |
|-----------------|--------------------------|
| Fuel unloading | Lubrication |
| Fuel forwarding | Fuel or burner injection |
| Fuel transfer | Chemical metering |
| Rotor jacking | Seal oil |

Stationary diesel

- Fuel unloading
- Fuel forwarding
- Fuel transfer
- Fuel or burner injection
- Lubrication

Cogeneration

- | | |
|---------------|--------------------------|
| Lubrication | Fuel transfer |
| Rotor jacking | Fuel or burner injection |
| Oil service | |

Integrated Pumping Solutions

for Power Generation Applications





>> Power plant solution overview

Integrated pumping solutions for **Solar Power - Parabolic Trough Plants:**

As renewable fuel gains market share, solar power - parabolic trough power production continues to prove that it is one of the lowest cost forms of renewable energy. Production operators need to move heat transfer fluids throughout the receiver tubes of the parabolic mirrors and feel confident that they won't be exposed to environmental fines from leaking systems. Colfax offers hot oil pumps designed to isolate contaminant and minimize leakage. The application below highlights Colfax's commitment to this renewable fuel technology.

Colfax technologies - solar

	Hot-oil pumps	Two-screw	Progressive cavity	Gear	Centrifugal	Metering
Heat transfer fluids	X					

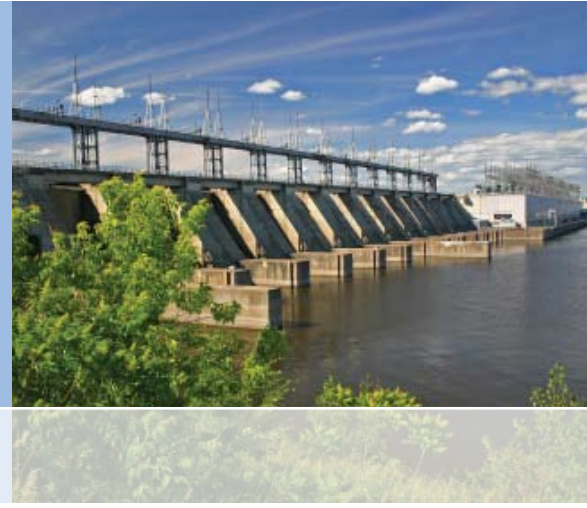
Integrated pumping solutions for **Stationary Diesel Power Plants:**

Stationary diesel plants are known for their fast availability and high flexibility. They can come on line quickly and ramp up to full output in less than 10 minutes. Moreover, diesel engines that operate in the power generation market are capable of burning a wide range of commercially available liquid or gaseous fuels. Colfax technologies have a long history supporting stationary diesel's unique applications pumping lubrication oils, true distillates or ash forming oils.

Colfax technologies - stationary diesel

	Three-screw	Two-screw	Gear	Centrifugal	Engineered systems
Fuel unloading / transfer / forwarding	X	X		X	X
Lubrication	X	X	X	X	X
Fuel or burner injection	X	X	X		

>> Power plant solution overview



Integrated pumping solutions for **Hydro Power Plants:**

Although hydro power plants have a simple operating principle, reliability is paramount to their success. Facility managers need to be confident that their plant can adjust to changing market conditions fast, meet the ever-growing environmental regulations imposed by their regional and federal governments, and produce when scheduled - reliably and efficiently.

Colfax technologies - hydro

	Three-screw	Gear	Oil mist / PurLube	Centrifugal	Engineered systems
Hydraulic or wicket gates	X				
Lubrication	X	X		X	X
Bearing lift	X				
Oil services			X		

Integrated pumping solutions for **Cogeneration Power Plants:**

Cogeneration plants generate both electricity and steam. The steam is commonly used either for industrial processes or district heating. There are many different types of fuels that are burned in a cogeneration facility, but natural gas remains the dominant fuel. As fuel options increase, Colfax is ready to support both the conventional and non-conventional sources.

Colfax technologies - cogeneration

	Three-screw	Gear	Oil mist / PurLube	Centrifugal	Engineered systems
Fuel unloading / transfer / forwarding	X				
Lubrication	X	X		X	X
Rotor jacking	X				
Oil service			X		



» Your job just got easier

The pump brands you know from Colfax are the most trusted names in fluid transfer applications all over the world. But Colfax is so much more. When precision is mandatory, waste is inexcusable and failure is not an option, Colfax **integrates with you** to address head-on the business drivers that matter to you most. Let un-matched application expertise and global pumping capabilities help you eliminate waste, improve efficiency, ensure reliability and maximize your profits.

Allweiler

- » Three-screw
- » Centrifugal
- » Progressing cavity
- » Propeller
- » Peristaltic
- » Rotary-lobe
- » Macerator
- » Systems

Baric

- » API 614 lube, seal and control oil systems
- » Dry gas seal systems
- » Non-API lube oil systems
- » Miscellaneous packaged units

Fairmount Automation

- » Process controllers
- » Control systems

Houttuin

- » Two-screw
- » Systems

Imo AB

- » Three-screw
- » Systems

Imo Pump

- » Three-screw
- » Crescent internal gear
- » Systems

Lubrication Systems Company

- » Lubrication systems
- » Oil purification systems

Portland Valve

- » Valves
- » Actuators
- » Components
- » Sub-assemblies

Tushaco

- » Three-screw
- » Two-screw
- » Progressing cavity
- » Systems

Warren Pumps

- » Two-screw
- » Centrifugal
- » Systems

Zenith Pumps

- » Precision gear
- » Metering systems





>> Global reach, global resources



Colfax serves power generation facilities like yours all over the world with manufacturing plants, distribution centers, sales offices and service centers throughout the Americas, Europe, Africa, the Middle East, and Asia. Our regional support ensures deep localized expertise. Our global strength provides a single-minded, company-wide commitment to meet your specific requirements and exceed your highest expectations.





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