

# OIL AND GAS

## Offshore Drilling | Onshore Drilling | Downhole Heating | Hydraulic Fracturing

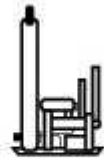


Onshore and offshore, oil and gas exploration has undergone transformative change in recent years. Spurred by visionary thinking and innovative technologies the oil and gas industry is finding and extracting resources more efficiently and responsibly in locations and at depths never before considered.

Electricfor has been there every step of the way, providing innovative advanced thermal technology solutions across the entire oil and gas supply chain. From exploration and production to processing, transportation, storage, and distribution, Electricfor engineering, manufacturing, service, and support have been engaged in applying and controlling heat safely, reliably, and responsibly.



Offshore Drilling



Enhanced Oil Recovery



Downhole Heating and Steam-Assisted Gravity Drainage



Hydraulic Fracturing



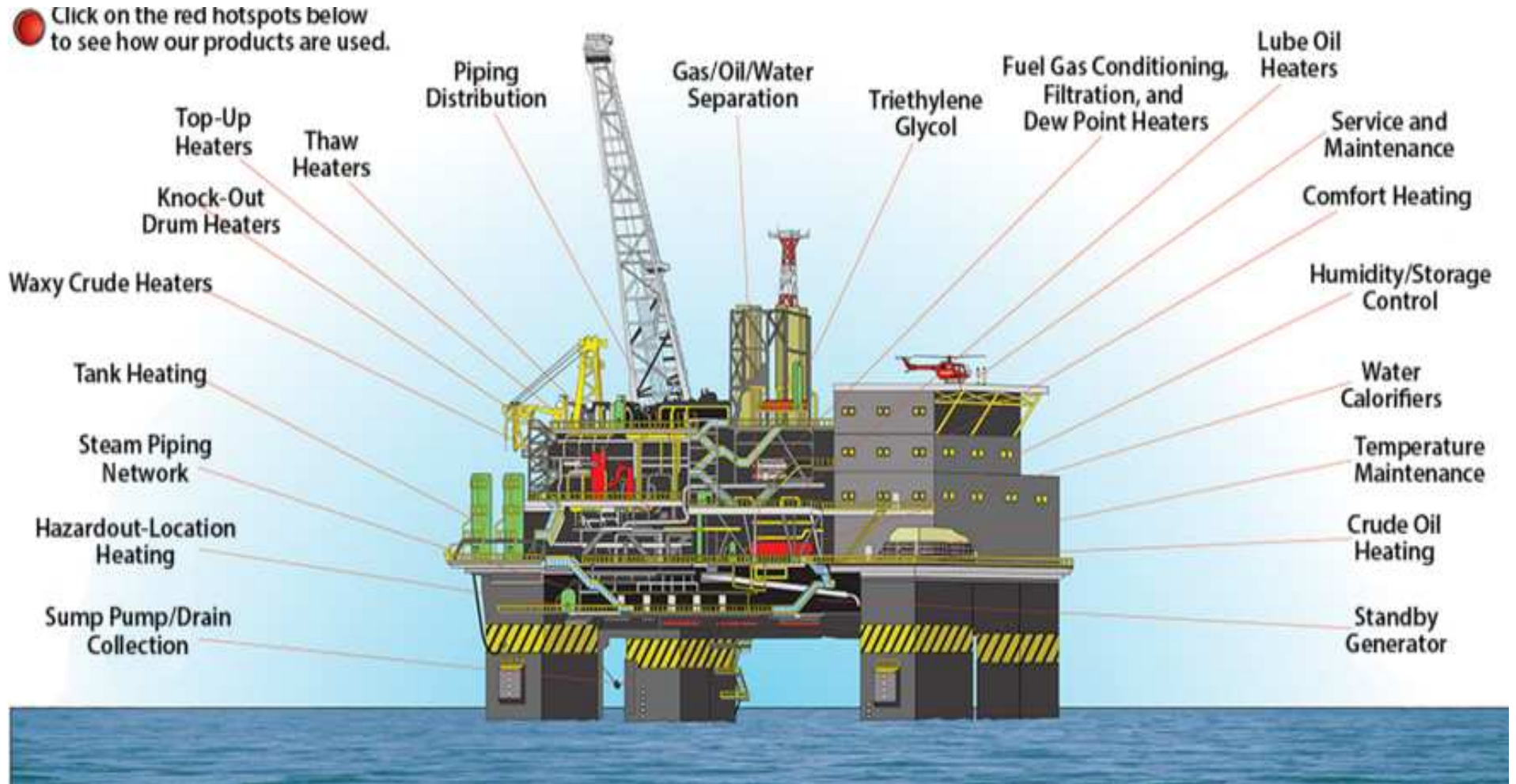
Downstream LNG Terminal Applications



Midstream Processing Applications

# OFFSHORE DRILLING

Electricfor manufactures precision electric heat and control systems for offshore oil drilling/production platforms.





## Thaw Heaters

Immersion heaters aid in the vaporization of liquid natural gas (LNG) during transportation and distribution.

## Piping Distribution

Self-regulating and constant-wattage heat trace cables are used for pipe temperature maintenance and freeze protection.

## Personnel Comfort Heating

Blower, convection, and radiant heaters provide comfortable temperatures for living and work quarters and hazardous area locations.

## Gas/Oil/Water Separation

Heat from circulation heaters helps separate natural gas, crude oil, and water during extraction from the well.

## Knock-Out Drum Heaters

Immersion heaters heat incoming process streams to remove water contamination.

## Immersion Heaters

Electricfor immersion heaters apply heat directly at virtually 100 percent efficiency. Basic piping options include threaded, flanged, or welded. Various temperature control options permit very tight process temperature control. Electricfor manufactures a large selection of designs for heating any fluid, from plain water to corrosive

## Hazardous Area/Construction Area Heating

Blower heaters can provide comfort heat in hazardous areas, while air handlers aid in paint curing and comfort heat in construction areas.

## Process and Heating Control

Panels, controllers, and sensors direct heater control based on real-time operating conditions.

## Humidity/Storage Control

Convection heaters are used to lower humidity in storage areas such as battery compartments or food storage.

Used to heat water prior to distribution on the platform areas.

## Triethylene Glycol

Immersion heaters reconcentrate the glycol mixer by boiling off water mixtures.

## Fuel Gas Conditioning, Filtration, and Dew Point Heaters

Electric in-line circulation heaters preheat and dry out supply gas streams to prevent corrosive condensation from damaging expensive turbine blades.

## Lube Oil Heaters

Immersion heaters maintain lube oil viscosity for compressor and hydraulic equipment, and feature replaceable element design.

solutions, highly viscous oils, and for many specialized applications such as high-pressure and hazardous locations.

#### Sump Pump/Drain Collection

Immersion heaters are used to warm various sludge collections prior to pumping.

#### Tank Heating

Large-tank heaters with replaceable elements ensure proper temperatures for any liquid storage.

#### Steam Piping Network

Mineral-insulated heat trace cable is used for high-temperature steam piping.

#### Waxy Crude Heaters

Circulation heaters warm the crude oil to improve viscosities for more efficient pumping and distribution.

#### Crude Oil Heating

Electric in-line heaters heat crude oil prior to the first-stage compressor for better viscosity and separation properties.



#### Service and Maintenance

Regular service visits ensure optimal operating conditions and help predict needed replacements.


#### Standby Generator

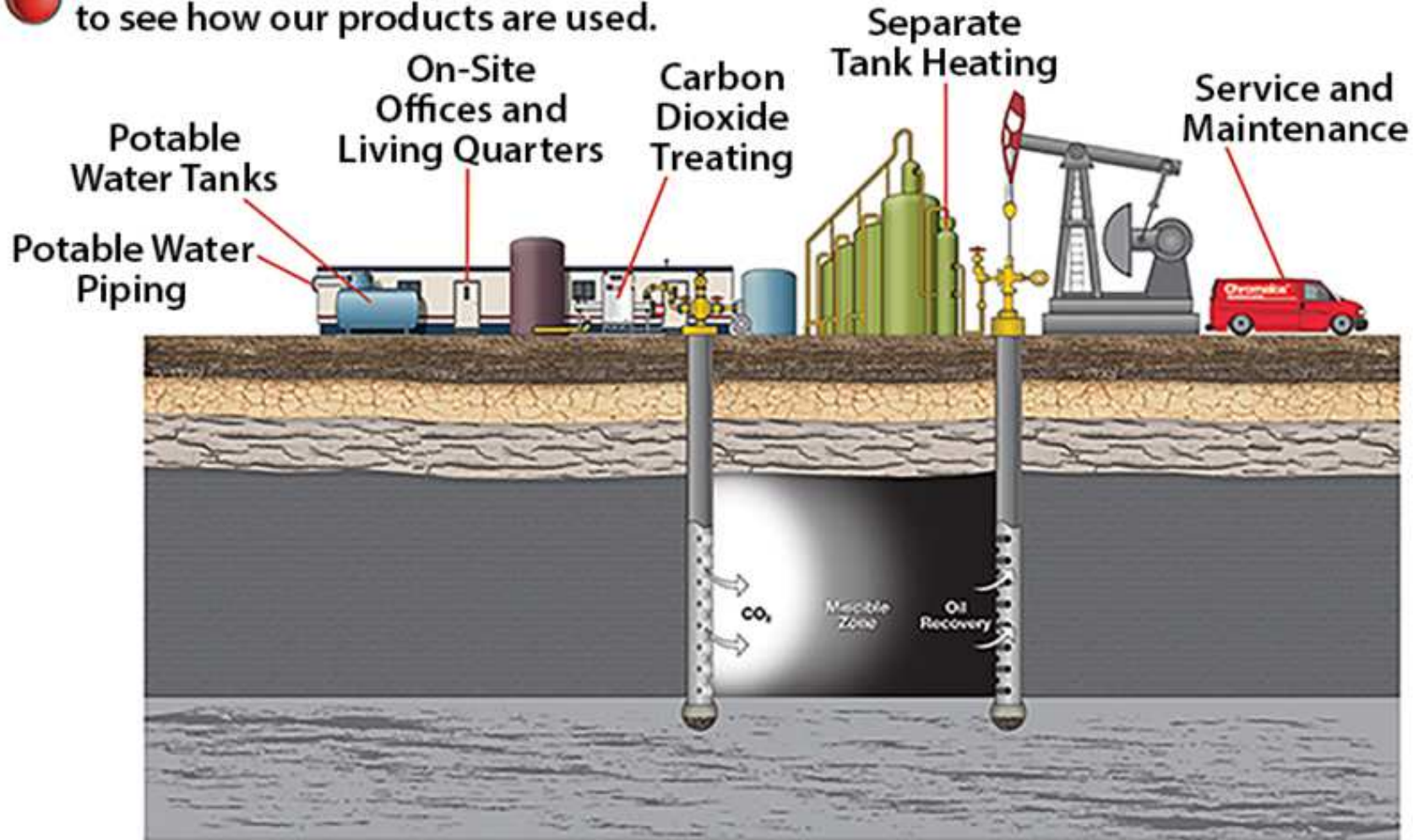
Circulation heaters are used to warm coolant for standby emergency generators for rapid start-ups.

## ONSHORE DRILLING

Electricfor understands the unique challenges that oil and gas facility plant builders, managers, and maintenance personnel face. We have the knowledge, experience base, local support, and technical skills to meet those challenges with you.



 Click on the red hotspots below to see how our products are used.





#### Potable Water Piping

Heat tracing is used in cold weather climates to maintain the temperature of heated water pipelines and protect cold water pipelines from freezing.

#### Potable Water Tanks

Electric heaters are used to heat potable water for on-site utilities such as drinking, shower, and wash-down systems.

#### On-Site Offices & Living Quarters

Blower, convection, and radiant heaters provide comfortable temperatures for work and living quarters.

#### Carbon Dioxide Treating

Circulation heaters pre-heat carbon dioxide gas prior to injection for efficient extraction operation.

#### Separation Tank Heating

Using immersion heaters, temperature stratification helps to separate mix fluids, such as water, mud, and chemicals.

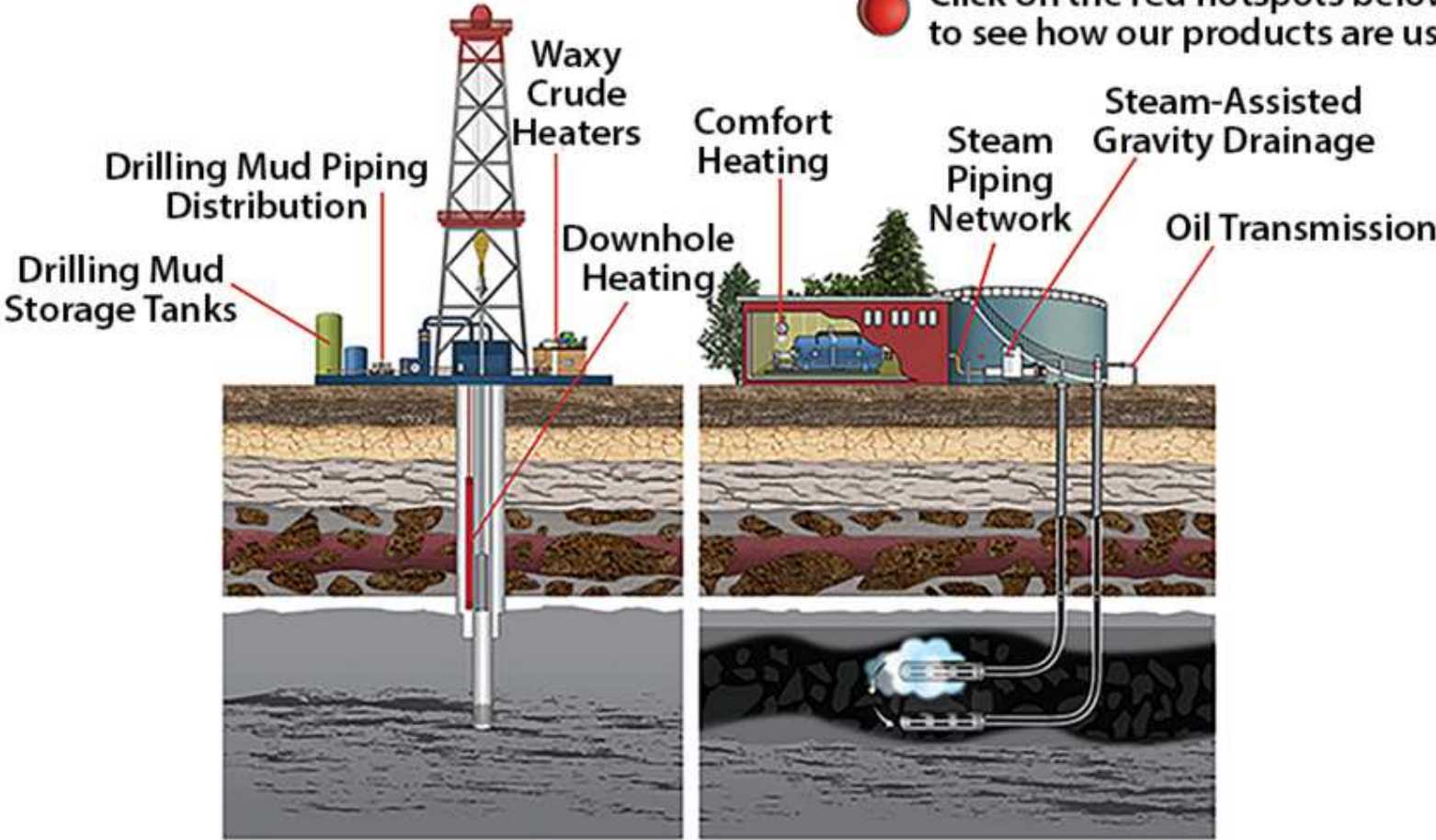
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**DOWNHOLE HEATING & STEAM-ASSISTED GRAVITY DRAINAGE APPLICATIONS**

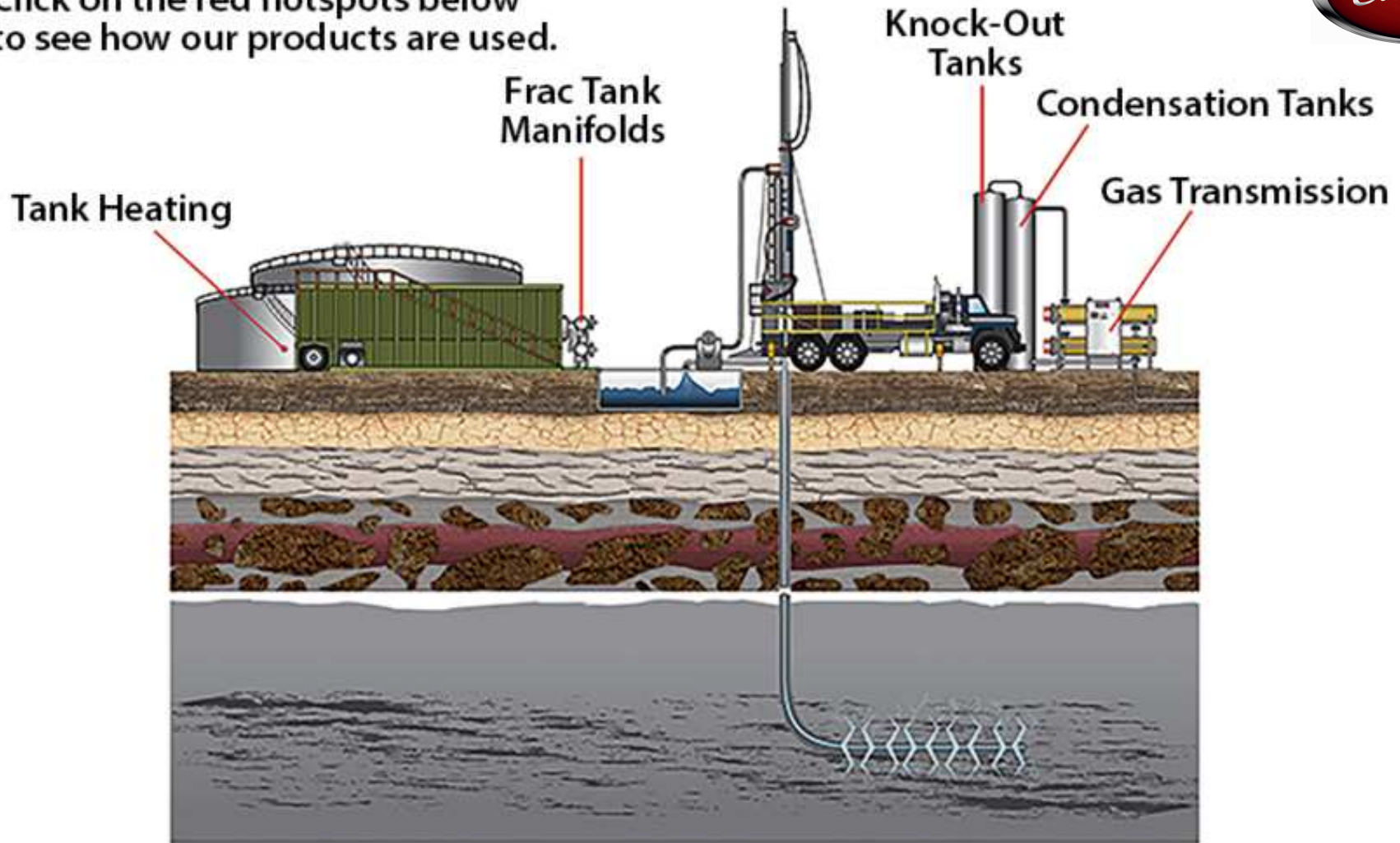
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# HYDRAULIC FRACTURING APPLICATIONS



● **CLICK ON THE RED HOTSPOTS BELOW TO SEE HOW OUR PRODUCTS ARE USED.**







## DOWNSTREAM LNG TERMINAL APPLICATIONS

Electricfor provides heating solutions used in LNG applications as well as ancillary facility processes (i.e. personnel warming) that require highly-engineered products capable of operating in hazardous environments without failure.





#### Long Line Cable and Control Panels

Temperature maintenance of wax lines running to dock facilities.

#### Tank Heaters

Flare knockout drum heaters to remove liquid from waste gas streams.

#### Packaged Skid

Used to treat natural gas for on-site power generation.

#### Industrial Gas Heater and Control Panels

Air heating to prevent frost build-up from vaporization; gas regeneration heaters for regeneration of absorbent beds.

#### Heat Trace and Control Panels

Process maintenance of gases and water

Freeze protection of pipes and valves

#### Explosion-Proof Air Heaters

Used to keep personnel warm in hazardous locations.

#### Steam Boilers

Localized steam used for heatexchanger during main boiler shut-downs.

#### Vaporizers

Used to boil liquid NGLs for pipeline distribution.



# MIDSTREAM PROCESSING APPLICATIONS

Chromalox is a full service provider for midstream companies; the ability to offer both heat tracing and process heating solutions.

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Tank Heaters

Skin Effect Heating & Control Panels

Heat Trace & Control Panels

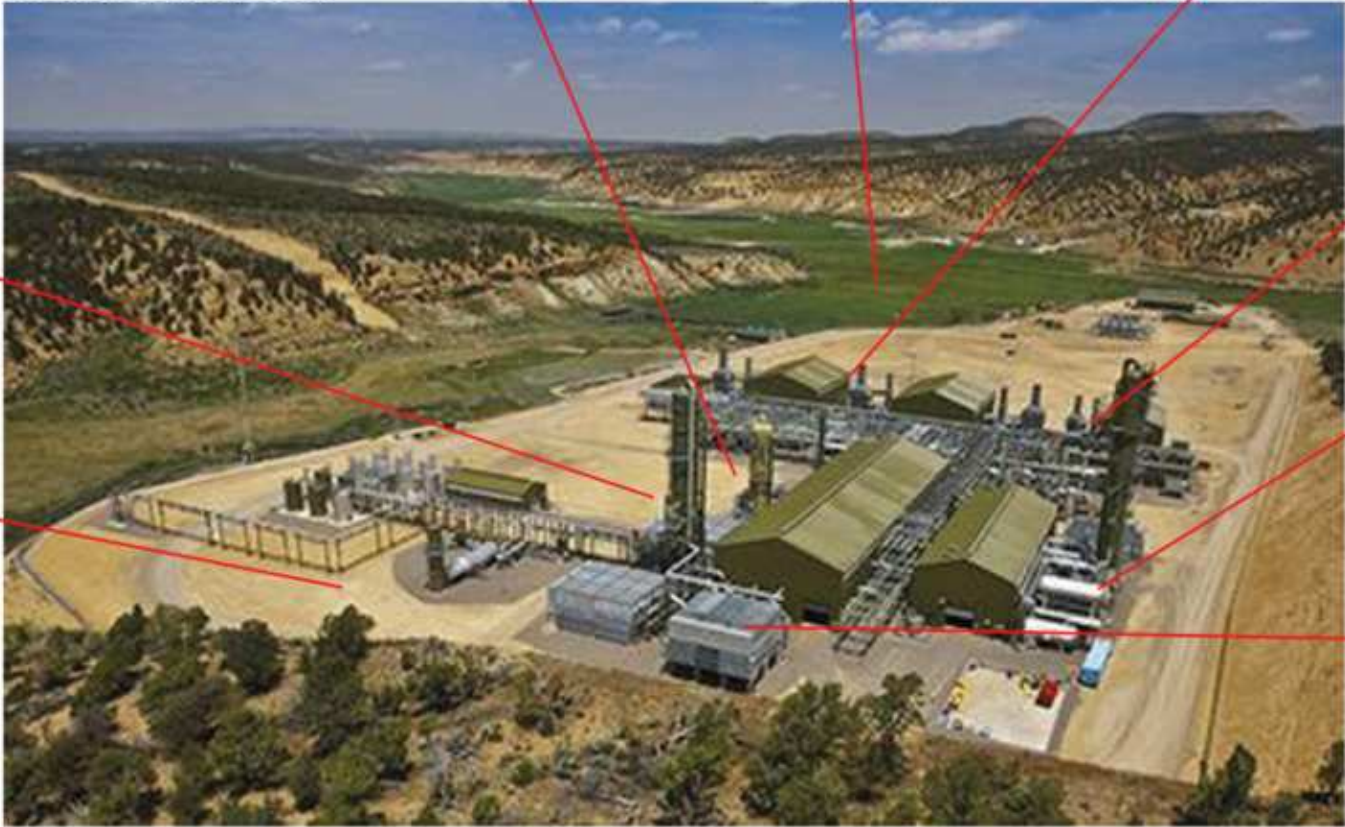
Heat Transfer Systems

Seal Gas Heater

Packaged Skids

Circulation Heaters

Gas Dew Point Heaters & Control Panels





#### Tank Heaters

Replace open-flame heaters in knock-out tanks comply with EPA regulations.

#### Heat Trace and Control Panels

Process maintenance of chemicals and water.

Freeze protection of pipes and valves.

#### Heat Transfer Systems

Heating of distillation columns for separation of hydrocarbons.

#### Packaged Skids

Vaporization of separated cryogenic natural gas liquids hydrocarbons such as butane, propane, pentane, etc..

#### Gas Dew Point Heaters and Control Panels

Treat separated natural gas stream to remove moisture content prior to pipeline transport.

#### Circulation Heaters

Nitrogen heating for absorbent drying (removal of sulfur from wet natural gas).

#### Seal Gas Heater

High pressure design to warm compressor shaft seals to prevent gas leakage.

#### Skin Effect Heating and Control Panels

Maintain temperature over miles of pipes, underground, overground and undersea.