This document is designed to help you understand and identify opportunities in the Oil & Gas market and to provide insight and advice on how to sell Magnecraft relays. The following information is included:

**Market & Opportunity**
- What is the Oil & Gas market?

**Customer Profile**
- Who should I talk to?
- How do I find customers?

**Magnecraft Solution**
- How do I approach the customer?
- How do I propose the solution?

An appendix of supporting documents and data is also included.
Market & Opportunity

What is the Oil & Gas market?

The Oil and Gas industry includes the global processes of exploration, extraction, refining, and transporting petroleum products. The industry's largest volume products are oil and gasoline (petrol). Petroleum is also the raw material for many chemical products included in pharmaceuticals, solvents, fertilizers, pesticides, and plastics.

The United States consumes approximately 25% of all of the oil produced in the world annually. The oil and gas industry as a whole represents the world's largest industry in terms of dollar value. The map in figure 1 shows locations of oil and gas facilities in the United States.

Extracting oil and gas onshore and offshore is a complex process and is carried out in one of the harshest environments in the world. Not only must the products be highly reliable, but they must also have hazardous location ratings such as Class 1 Division 2, categories A, B, C and D to be used by this industry.

The relay usage in the oil and gas segment is estimated to be around 3.3 million pieces with the majority coming from electromechanical products. They are typically found in control rooms or panels.

Figure 1: Oil & Gas Facilities in USA

source: www.epa.gov
There are two types of installations in the Oil & Gas industry:

**Offshore Installations**

Oil and gas offshore installations are industrial towns at sea that carry the personnel and equipment needed to access reservoirs thousands of feet below the seabed and maintain continuous hydrocarbon production. The most important functions are drilling, preparing water or gas for injection into the reservoir, processing the oil and gas before sending it ashore, and cleaning the produced water for disposal into the sea.

Big, fixed platforms may have all these functions in one location, but smaller platforms may be dedicated to just one function, such as drilling or gas compression. Some installations can be moved from one location to another, for example mobile drilling rigs and production Floating Production Storage and Offloading (FPSO) operators.

**Onshore Installations**

These installations are on land and usually close to the sea. They receive oil and gas from offshore installations via pipeline (or, in the case of oil, sometimes by tanker). These installations prepare the liquid products for further refining, but they are not the refineries. They also take natural gas and make it suitable for piping around the country. Gas liquids are processed at some installations.
Customer Profile

Who should I talk to?

The targeted audience for this playbook is customers which design, specify and qualify control components within the oil and gas industry. Procurement individuals play a major role for maintenance replacement opportunities (MRO).

Operating companies
hold the exploration and production licenses and operate the production facilities. Some of them are household names, but others are less well known. Most of them are international companies, working in many different parts of the world. Examples include Conoco Phillips, Chevron Corporation and Exxon Mobil.

Drilling companies
are contracted to undertake the drilling work, and often operate and maintain their own mobile drilling rigs. Like the operating companies, they tend to work globally. Onshore examples are Pioneer Drilling and Nabors Industries, Patterson - UTI Energy. Offshore examples include Noble Corporation, Transocean Ltd and Pride International.

Major contractors
provide integrated operations and maintenance services to the operating companies. On some installations they employ almost all the regular offshore personnel (the ‘core crew’). Some of these contractors are huge international companies, while others are small by comparison.

Floating Production Storage and Offloading (FPSO) operators
operate and maintain floating production storage and offloading units. These look like ships, but are designed to remain on station for months or even years on end and are packed with equipment for processing oil and gas.

Service companies
provide specialist assistance to both operating and drilling companies, e.g. well service firms, drilling mud suppliers, cementing companies, well testing specialists, seismic firms, divers, caterers, etc.

The key individuals to contact include:

» Design Engineers
design and layout the end units and/or entire systems.

» Component Engineers
design and qualify individual components such as relays.

» Process Engineers
oversee manufacturing of the devices and systems.

» Quality Engineers
confirm products meet the appropriate standards and requirements.

» Engineering Managers
oversee product development.

» Purchasing Agents / Buyers
negotiates prices and contracts for a specific component.

» Purchasing Managers
negotiate prices and contracts for all components used in specific products or systems.

These individuals are located at design, R&D and manufacturing facilities.

Don’t forget to talk to existing customers!

Questions to ask if they purchase electromechanical relay products:

? Do you have a need for higher reliable switching solutions?

? Are you implementing into a hazardous location?

See page 7 for more information.
Customer Profile

How do I find customers?

Customers can be located through the use of their Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) codes. These codes are four (SIC) or six (NAICS) digit numerical codes assigned by the U.S. government to business establishments to identify the primary business of the establishment.

The following table contains the codes used to find customers:

<table>
<thead>
<tr>
<th>Refinery</th>
<th>SIC</th>
<th>SIC Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valero Energy Corp</td>
<td>2911</td>
<td>Petroleum Refining &amp; Related Inds Mfrs</td>
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<table>
<thead>
<tr>
<th>Integrated Energy/Operating Company</th>
<th>NAIC</th>
<th>NAIC Description</th>
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</thead>
<tbody>
<tr>
<td>Conoco Phillips</td>
<td>1382</td>
<td>Oil, Gas Exploration Services</td>
</tr>
<tr>
<td>Chevron Corporation</td>
<td>2911</td>
<td>Petroleum Refining &amp; Related Inds Mfrs</td>
</tr>
<tr>
<td>Exxon Mobil</td>
<td>1311</td>
<td>Crude Oil &amp; Natural Gas</td>
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<table>
<thead>
<tr>
<th>Land drilling</th>
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<th>NAIC Description</th>
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<tbody>
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<td>Pioneer Drilling</td>
<td>1381</td>
<td>Drilling Oil &amp; Gas Wells</td>
</tr>
<tr>
<td>Nabors Industries</td>
<td>1381</td>
<td>Drilling Oil &amp; Gas Wells</td>
</tr>
<tr>
<td>Patterson - UTI Energy</td>
<td>1381</td>
<td>Drilling Oil &amp; Gas Wells</td>
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<table>
<thead>
<tr>
<th>Offshore drilling</th>
<th>NAIC</th>
<th>NAIC Description</th>
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<tbody>
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<td>Noble Corporation</td>
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<td>Oil and gas field on a contract basis</td>
</tr>
<tr>
<td>Transocean Ltd</td>
<td>213111</td>
<td>Oil and gas field on a contract basis</td>
</tr>
<tr>
<td>Pride International</td>
<td>213111</td>
<td>Oil and gas field on a contract basis</td>
</tr>
</tbody>
</table>

The following websites are a great resource to use when looking for customers using SIC and NAICS codes:

SIC: http://www.siccode.com/
NAICS: http://www.naics.com/search.htm
Magnecraft Solution

How do I approach the customer?

Step 1. Identify the customer’s biggest challenges when looking for relay control products:

Certification ➡ Class 1, Division 2 Rated Relays
Class 1, Division 2 is a standard which was developed by American National Standards Institute (ANSI) to provide requirements for the design and construction of electrical equipment and parts that will be used in hazardous locations. The Magnecraft offer includes relays carrying Class 1, Division 2 Categories A, B, C, and D approval from Underwriters Laboratories®.

2D/3D Models ➡ Available on www.magnecraft.com
A compete, web-based library of line drawings and 3D models simplifies incorporation of Magnecraft relays into the end product. Files are available to download, email and insert directly into open CAD programs.

Support ➡ Dedicated technical support line
Contact SE Relays at 847-441-2540
Product and application experts will assist with relay selection and utilization questions.

Step 2. Identify which type of relay the customer requires by determining their main priority when looking for relay control products:

Safety ➡ Class 1, Division 2 Rated Relays
Designed for hazardous locations, this product line includes ice cube and octal base electromechanical relays as well as the world’s first Class 1, Division 2 certified solid state relay. See step 3a.

Longevity ➡ Solid State Relays
With no moving parts to wear out, these devices use semiconductor and electrical component technology to achieve high reliability, long service life, quick response time, and high resistance to shock and vibration. See step 3b.

Control ➡ General Purpose / Plug-In Relays
The Magnecraft line has a broad range of general purpose relays available. With the ability to switch 10 mA to 20 Amms in multiple contact configurations, these versatile products meet most needs. See step 3c.
Magnecraft Solution

**How do I propose the solution?**

**Step 3.** Once the type of relay is identified, the next step is to choose a part:

**3a) Class 1, Division 2 Relays (Hazardous Location)**

*Solid State Solution:*
- **861H** relay

*Electromechanical Solution:*
- **782H** – plug-in terminals, square base
- **750H** – octal, circular base

**3b) Solid State Relays**

Identify the customer’s (control) voltage, the output (load) voltage, the ambient temperature and any associated surge currents. Utilize the de-rating curves (see website) and catalog specifications to recommend a standard part number.

**Input (Control) voltage:**

**Output (Load) voltage:**

**Ambient temperature:**

**Surge currents:**

**3c) Electromechanical Relays**

Determine the customer’s driving voltage (coil voltage), the switching load (contact ratings), contact form, and number of contacts.

**Coil voltage:**

**Load voltage:**

**Contact configuration:**

**Current rating:**

**Mounting style:**

*(plug-in or pcb)*

**Step 4.** Use the online specifications/parametric search to determine and recommend a part number (http://www.magnecraft.com).

**4a):** Online parametric Search

**4b):** Corresponding accessories

**4c):** Present recommended product & accessories with 3D CAD drawings and other relevant data

**4d):** For design-in testing, order samples online at http://www.magnecraft.com/samples.php

**Step 5.** Recommend the Magnecraft solution to the customer (see attached sample letter to customer).
Appendix

Sample letter to customer

<INSERT DATE>

John Doe
Controls Designer
ABC Company
12345 State Street
Anywhere, IL 55555

Dear <CUSTOMER NAME>,

Thank you for your time during our discussion. Based on your input, we have identified opportunities to improve reliability in your facility in the following areas:

- <INSERT AREA IDENTIFIED>
- <INSERT AREA IDENTIFIED>
- <INSERT AREA IDENTIFIED>

As we discussed, <INSERT YOUR COMPANY NAME> has a wide array of products to meet the relay needs of your facility. Based on our discussion and the opportunities identified above, I would recommend implementing the following:

- <INSERT IMPLEMENTATION RECOMMENDATION>
- <INSERT IMPLEMENTATION RECOMMENDATION>
- <INSERT IMPLEMENTATION RECOMMENDATION>

Based on your review and acceptance of this proposal, I would like to get together with you to discuss our next steps and determine the best way to implement a solution. I will follow up with you via telephone to schedule a meeting. In the meantime, please give me a call if I can be of further assistance.

Thank you.

Sincerely,

<YOUR NAME>
<YOUR PHONE NUMBER>
<YOUR EMAIL ADDRESS>
Magnecraft Complete Solution

Class 1, Division 2 Relays

Challenge: Customer has a switching requirement in an environment which has specific flammable gases, combustible dust or fibers; that can ignite.

Recommendation: The Magnecraft product line encompasses both electromechanical plug-in and solid state relays carrying Class 1, Division 2 Categories A, B, C, and D approval from Underwriters Laboratories®.

Class 1, Division 2 is a standard which was developed by American National Standards Institute (ANSI) to provide requirements for the design and construction of electrical equipment and parts that will be used in hazardous locations. Certified components, when used properly, are not capable of igniting the surrounding atmosphere.

Product Features & Benefits:

750H Octal Plug-In Relay
- DPDT & 3PDT
- 3 & 12 A versions available
- 8 & 11-pin octal terminals
- Socket compatible

782H Plug-In Relay
- DPDT & 4PDT
- 1, 3 & 5 A versions available
- Quick Connect terminals
- Socket compatible

861H Solid State Relay
- SPST-NO
- 8, 10 & 15 A versions available
- SCR (Zero Cross) & MOSFET (DC Switching)
- DIN & panel mountable

Go online to magnecraft.com for more information about the Magnecraft offer, and to see the complete line of relays, sockets & accessories.

www.magnecraft.com • relays@magnecraft.com • 847-441-2540
Challenge: Outdated electrical control panels are often difficult and time-consuming to troubleshoot and maintain after decades of use, modifications and/or expansions.

Recommendation: The Magnecraft product line offers a Plug-In Relay/Socket System which is built to upgrade and simplify outdated control panels. Control panels becoming outdated require modification and/or expansion, which can be time consuming, difficult and unsafe. You need quality parts designed to work together as a complete system that saves you time and energy.

700 Series Product Features & Benefits:

Complete System Solution (Relay, Socket and Accessories)
- Saves time on installation
- Increases productivity
- Increases reliability
- Reduces downtime due to malfunction

Full Featured Plug-In Relay
- Color-coded push button (AC: red, DC: blue) with removable lock-down door
- Mechanical flag indicator shows relay status in manual or powered condition
- Optional LED indicator shows coil status
- Write-on label for easy identification of relays

Logic Style Socket
- DIN/panel mountable for flexible installation
- Finger-safe terminals protect operator from live circuits
- Isolated input and output terminals separate control and load circuits
- Slim design saves space on a DIN rail or panel

Accessories
- Socket modules offer input indication or circuit protection from voltage spikes
- Hold-down clips secure relay to socket in high vibration environments
- Coil bus jumpers connect adjacent sockets without wiring or tools
- ID tags allow for labeling of circuits in multi-relay applications

Certifications
- System is UL Listed eliminating the need for users to self-certify their system
- RoHS compliant to meet EU hazardous substance standards
- CSA approval to meet Canadian agency requirements
- CE certification meets the requirements outlined by IEC European standards
Complete Solution Features

Full Featured Relays come standard with useful features like a push-button and lock-down door. Most are compatible with multiple accessories and/or sockets.

Socket Modules allow for optional circuit protection (Diode, MOV or RC) or status indicator LED. Modules plug into mating sockets.

Write-On ID Tags are used for identification of relays in multi-relay circuits. Tag snaps onto mating socket.

Internal Coil Bus Jumper System allows for connection to adjacent sockets without any additional wiring and no tools necessary.

Hold-Down Clips safely secure relay to socket. Available in plastic or stainless steel.

Sockets are ideal for standard relay mounting requirements and offer unprecedented features and configurations.