ARTIFICIAL LIFT PRODUCTION OPTIMIZATION
Why not?

Why not develop oilfield tools and equipment that are superior in their functionality, differentiated from the competition, and cost-effective? Why not manufacture, train and operationally support the use of this high quality technology? Why not strategically use our technical expertise to support other energy group members.

PICO Technologies was conceived to answer that question as a subsidiary of PICO Energy Group since 2008 located in Houston, TX and the technology arm of the group, currently responsible for developing “fit-for-purpose”, high quality and cost efficient solutions that address the operating needs of the E & P industry: delivering patented designed proprietary Openhole wireline logging tools and Production optimization control systems for Progressive Cavity Pump systems, as well as Production development and management of other Projects Like PICO IV...

PICO Technologies provides a High Standard Technology with proven capabilities Delivering Cost Efficiency for a Changing Market inspired by the Gearhart Model – High Quality Technology in Massive Production leads to a meaningful Market share.

“I got it in my blood”
– Marvin Gearhart
Message from the Chairman
Eng. Salah Diab
Chief Executive Officer

PICO Group was founded in 1974. A modest beginning indeed, it has been an exciting 40 years. Today, PICO Group remains the Egyptian service leader, with a lead brand and operations in different diverse segments through independent entities in Real Estate, Agriculture, Food, Engineering Services & Trading, Private Equity Investments, Petroleum Services, and Exploration & Production for Oil & Gas.

PICO Group has grown in different market segments it operates in with offices in the Middle East, Europe, United States, and Mexico; the Group employs over 5,000 people.

PICO Energy Group is a leading Egyptian operator of mature oil & gas fields and a provider of fit-for-purpose petroleum services. The E&P Division is focused on the development of mature fields with an international network; a recognized specialization in redeveloping mature fields, and a strong portfolio of assets, the E&P division expects to increase to 65,000 BOEPD by 2016. Meanwhile, the Services Division, operating under PICO Petroleum Services (“PPS”), is expanding beyond the Middle East into the Gulf of Mexico. PPS is comprised of distinct, independent, integrated companies, including: PICO Petroleum Integrated Services, PICO Technologies, PICO Marine Services, PICO Logistics Services, and PICO Research & Analysis. With the support of a specialist technology research & development subsidiary PICO Technologies LLC “established in 2008” in Houston, Texas, PPS is capitalizing on its proven know-how in servicing mature oil and gas fields, providing clients with innovative ideas and fit-for-purpose solutions.

So much for our past and present...What about PICO ENERGY’s future?

The 21st Century is now upon us with a multitude of exciting possibilities and new challenges. PICO ENERGY is no stranger to challenges as it always welcomed them as a prerequisite of progress. In the past, we had the burden of limited opportunities but the luxury of limited information. Today in a border-less world with the flow of information exceeding human capacity, we are faced with a different challenge: we have the burden of unlimited information but the luxury of unlimited opportunities. We are forced to filter, focus, select, and then prioritize more than any time before. Therefore, we believe that investing in human resources is fundamental for securing the flow of innovative ideas and the future potential of our organizations.

Our key corporate focus is now shifting from the traditional financial indicators towards building a sustainable intellectual base, adaptive to the rapid changing world around us. Our present drive for expansion and innovation is intended to propel us - forward as a major regional player in the Energy sector.

Eng. Salah Diab
The Customized Production Optimization System

control system is designed primarily for heavy oil applications with the goal of optimizing production, improving efficiency and extending run life of the pump. The system collects data from artificial lift operations and provides the critical information required to increase production and minimize down time. CPOP provides data gathering on everything from power quality to well performance degradation so that manpower can be spent managing problems rather than identifying them. The system’s flexibility allows the scalable control of driveheads of power ratings from 0.5– 30 (from ABB manual) horsepower from different major manufacturers.

Benefits:

- Monitor your artificial lift operations in realtime
- Reduce labor expense with the use of remote monitoring and control
- Improve HS&E performance due to less man-hours in roundtrip traveling to sites
- Increase production through improved well drawdown and longer equipment runtime
- Accessible from popular mobile devices
- Receive periodic status reports via email or text
- Better backspin control
- Low operating and maintenance cost
- Receive alarms in case of performance anomalies
- Compact design with minimal moving parts

*PICO Technologies may also offer partnership in providing customized product design and capabilities in line with customer needs

*PICO Technologies can provide different models and sizes through our third party partners, while maintaining competitive rates.
**Customized Production Optimization Panel (CPOP)**:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
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<tbody>
<tr>
<td>Enclosure Rating</td>
<td>NEMA 3R</td>
</tr>
<tr>
<td>Control</td>
<td>Graphical user interface via touch screen LCD</td>
</tr>
<tr>
<td>Options</td>
<td>Flood Sensor Emergency Shutdown</td>
</tr>
<tr>
<td>Features</td>
<td>Wireless Communication Module</td>
</tr>
<tr>
<td></td>
<td>Touch screen LCD graphical user interface (GUI)</td>
</tr>
<tr>
<td></td>
<td>Ability to integrate new sensors (pressure, level, flow, etc)</td>
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<tr>
<td></td>
<td>Wireless cellular network connection for control &amp; monitoring</td>
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<tr>
<td></td>
<td>Customizable control options</td>
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<tr>
<td></td>
<td>Flood protection sensor</td>
</tr>
<tr>
<td></td>
<td>Enclosure size optimization</td>
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<tr>
<td></td>
<td>Sealed cooling system</td>
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**PICO Drive Head (PDH)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Max HP</td>
<td>30 HP</td>
</tr>
<tr>
<td>Max Speed</td>
<td>500 (rpm)</td>
</tr>
<tr>
<td>Max Output Torque</td>
<td>600 ft-lb</td>
</tr>
<tr>
<td>Backspin Control</td>
<td>Caliper Disc</td>
</tr>
</tbody>
</table>

**Compatible Motors from most suppliers:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>480VAC, 3-Phase 60Hz 6-pole</td>
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<tr>
<td>Output</td>
<td>20HP to 30 HP</td>
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<tr>
<td>Power</td>
<td>15KW</td>
</tr>
<tr>
<td>Frame</td>
<td>286T</td>
</tr>
</tbody>
</table>

*Our Customized Production Optimization Panel (CPOP) had proven compatibility with most Drive Heads from most major suppliers.*
PICO Technologies provides the surface equipment of the PCP system, including surface drive head/motor, variable speed drive, power supply unit.

**Benefits:**
- Low capital cost
- High energy efficiency
- Low installation/maintenance cost
- Relatively simple operation
- Environmentally friendly with low profile

**Applications:**
- Heavy/extra heavy wells volume range 20-500 B/D and depths to 457m (1500ft)
- Wells up to 457m (1,500ft) with high viscosity and significant solids
- Shallow to medium depth wells high sensitivity to energy costs
- Low volume, high viscosity wells up to 762m (2,500ft)

**PCP System Accessories**

**Pump Accessories:**
- Pup joints
- Collar, X-O, sub, Swage
- Anti vibration joint

**Rod Accessories:**
- Couplings, X-O, Shear Coupling

**Drive head Accessories:**
- Sheaves, Bushings, Belts
- Packing
- Ring Gasket
- Mechanical Seal

**Power Units:**
- Electrical
RCU “Remotely Control Unit”: A remotely operating system add to CPOP control unit provides an optional accessory device to connect to Internet, this allows the user to obtain the basic measurements and control through a web interface designed to provide a quick and easy graphical interpretation of the status of the equipment in real time.

Accessories such as tank level sensor can be added to the system in order to provide a more in depth status of the well site.

The RCU system provides operator efficiency and profitability as it enables reduced field monitoring costs and improved pump performance. Problems can be diagnosed in real time, The operator remotely controls the systems in the field from the office to save cost of logistics, Monitor the systems from the remote unit, turning on the systems after emergency shut down due to flooding, etc.

Wireless Control and Monitoring

- Monitor your artificial lift operations in real time
- Receive alarms in case of performance anomaly or non-conformance event
- Receive periodic status reports via email or text
- Create and save custom trend plots and associated data
The Drive Head is an electrical motor driven assembly consisting of a caliper-disk braking system. The Backspin Brake Assembly is an important safety device on any Electric Drive Head system to impede reverse rotation of the rod string and fluid drive when reverse rotation occurs. This ensures reverse rotation is controlled to prevent a potentially dangerous situation where sheaves can exceed their critical velocities and explode.

Benefits:
- Low capital cost
- High energy efficiency
- Low installation/maintenance cost
- Relatively simple operation
- Environmentally friendly with low profile
Our commitment to Research & Development of World Class Patent Technology requires us to maintain an ongoing Field Testing Program. Thorough testing proves the quality and reliability of our technology and tools. This process pushes us to strive for new innovations that will allow us to reach even higher standards for our clients.
19407 Park Row, #130
Houston, TX 77084

phone: 956.688.8201
email: Tarek.AbdelAziz@pico.com.eg
web: picotechllc.com

Gerald.Miles@pico.com.eg