In-Situ Gas Lift
A closed loop system for in-situ well optimization.

About
In-situ gas lift (or auto gas lift) systems consist of a single well that penetrates both gas and oil formations. They utilize the gas zone as the source of lift gas for the oil zone. Gas supply, its corresponding infrastructure, and compression capabilities are no longer required. This offers significant capital savings, weight reduction, footprint reduction, and reduced Green House Gas emissions. It also accelerates field development by eliminating the construction and integration of a surface gas delivery infrastructure.

Successfully operating In-situ gas lift wells requires interventionless adjustments of the lift gas to accommodate changes in liquids production or formation pressures. Silverwell's DIAL system enables this by providing a combination of surface control for downhole gas injection as well as pressure monitoring to provide a window to well conditions. Together, these provide a closed loop system for in-situ well optimization.

Applications
- **Locations with Limited Infrastructure:** enable and accelerate development in areas with little infrastructure in place
- **Operators striving for Carbon footprint reduction:** less GHG emissions, personnel involvement, and construction requirements
- **Well Optimization:** suitable for applications where the operator desires to optimize production, drawdown, or satisfy any other well or field constraints

Features
- Utilizes formation gas
- Interventionless
- Gas Injection Rate Monitoring
- Pressure / Temperature Monitoring and Downhole Control
- Single TEC for all DIAL System Components (multiple gas injection units and additional monitoring stations)
- Accurate Injection Rates
- Low Power
- Automation
- All Electric

Benefits
- GHG reduction
- HSE risk reduction
- Control gas flow to mitigate sand production
- Real time closed loop well optimization and ability to adapt as well conditions change
- Simplifies well installation and minimizes wellhead penetrations
- Designed specifically for gas injection: pinpoint flowrate accuracy on the low end and high flowrate on the upper end
- Operation in areas without electrical grid; power generation and wireless capabilities
- Well control and optimization can be automated to simplify decision making
- Complex surface hydraulic systems and requisite maintenance are not required
<table>
<thead>
<tr>
<th>Specification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIAL Gas Lift Units</strong></td>
<td>Concentric or Slimline</td>
</tr>
<tr>
<td><strong>DIAL Gas Lift Units</strong></td>
<td>3-9 chokes per DIAL unit, 4/64 in to 12/64 in</td>
</tr>
<tr>
<td></td>
<td>Metal to Metal Closure Seal</td>
</tr>
<tr>
<td></td>
<td>Quartz or Strain Gauge</td>
</tr>
<tr>
<td><strong>DIAL Sensor Pack</strong></td>
<td>Quartz or Strain Gauge</td>
</tr>
<tr>
<td><strong>DIAL System</strong></td>
<td>Control and gauge readings with single TEC</td>
</tr>
<tr>
<td></td>
<td>NACE MR0175 materials available</td>
</tr>
</tbody>
</table>