Experts in LNG

For safe, efficient and economical solutions in LNG production, we bring it all together. In the early 1960s, Black & Veatch was an industry pioneer, involved in one of the world’s first LNG facilities in Algeria. Since then, we have helped design and build numerous base load, peak shaver and LNG storage facilities.

With Black & Veatch, you tap into global LNG project experience that ranges from 4 million standard cubic feet per day (MMSCFD) to over 1.5 MTPA per train. Our PRICO® LNG process is ideal for producing LNG for peak shaving, vehicle and industrial fueling, baseload export and offshore applications.

Black & Veatch At a Glance

- Global workforce of approximately 11,000+
- More than 110 global offices

Full Suite Of Services

- Conceptual studies
- Feasibility studies
- Process design packages
- Total EPC solutions

Black & Veatch Advantages

- Proven track record
- Seamless LNG-to-market solutions
- Single-point lump sum responsibility
- Full complement of EPC services
- Global sourcing for lowest cost
- Fast-track execution
- Rapid startup to full production
- Unsurpassed training
- Guaranteed performance

Our PRICO® LNG process is ideal for producing LNG for peak shaving, vehicle and industrial fueling, baseload export and offshore applications.
PRICO® LNG Technology

**Key Advantages**
- Simplified operation
- Minimal refrigerant inventory
- Reduced equipment count
- Maximum flexibility
- High reliability
- Low capital cost
- Reduced operating cost
- Rapid startup

**SMR Technology**
- Applied across a broad range of plants
- 33 liquefaction plants in operation
- 50+ years of LNG production
- >185 million tonnes of LNG produced
- 13 plants in development
- Covered by nine U.S./international patents

**Guaranteed Performance**
- LNG production
- Product purity
- Utility consumption

50+ years of Proven Performance
Continuous Improvement Offers Competitive Process Efficiencies

PRICO-PLUS®

- The PRICO-Plus enhancement closes the gap between single and dual loop refrigerant processes.
- Only one compressor is needed, but configuration produces similar benefits as two refrigerant loops for a tighter temperature approach at the top of the main exchanger.
- Operationally, the simplicity and high reliability of the PRICO process are preserved while increasing efficiency by up to 2.5%.
- U.S. Patent 9,574,822

PRICO-Boost™

- Increase available turbine power and consequently, LNG production by chilling the turbine inlet air.
- PRICO-Boost takes minimal footprint, cost and operating expense compared to non-integrated options.
- Eliminate the need for a separate compression and condenser package.
- Depending on site conditions, annual production increases of 3 - 5% are achievable. An upward of 6-8% production increase is possible during peak summer temperatures, helping smooth out the seasonal capacity swings.
- U.S. Patent 10,443,927
**PRICO® LNG FACILITIES: Small, Mid, and Large-scale production**

<table>
<thead>
<tr>
<th>Project</th>
<th>Location</th>
<th>MTPA (Trains)</th>
<th>Status</th>
<th>Start Up Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nine (9) Peak Shavers</td>
<td>Various USA</td>
<td>0.03 - 0.11 (x1)</td>
<td>Operating</td>
<td>1973-2019</td>
</tr>
<tr>
<td>Sonatrach Units 40, 5 &amp; 6</td>
<td>Skikda, Algeria</td>
<td>3.9 (1.3 x3)</td>
<td>Operating</td>
<td>1974-1976</td>
</tr>
<tr>
<td>Seventeen (17) Small-Scale</td>
<td>China, Brazil, Scotland, USA</td>
<td>0.08 - 0.27 (x1)</td>
<td>Operating</td>
<td>2006-2017</td>
</tr>
<tr>
<td>Three (3) Multi-Train</td>
<td>Various China</td>
<td>0.25 - 0.50 (x2)</td>
<td>Operating</td>
<td>2008-2013</td>
</tr>
<tr>
<td>Shaanxi Jingbian Xingyuan</td>
<td>Xingyuan, China</td>
<td>0.39 (x1)</td>
<td>Operating</td>
<td>2013</td>
</tr>
<tr>
<td>Hongji Yitai</td>
<td>Erdos, China</td>
<td>0.46 (x1)</td>
<td>Operating</td>
<td>2015</td>
</tr>
<tr>
<td>Exmar Tango FLNG</td>
<td>Floating, Argentina</td>
<td>0.56 (x1)</td>
<td>Operating</td>
<td>2016/2019</td>
</tr>
<tr>
<td>Golar Hilli Episeyo</td>
<td>Floating, Cameroon</td>
<td>2.8 (0.7 x4)</td>
<td>Operating</td>
<td>2018</td>
</tr>
<tr>
<td>Golar Gimi</td>
<td>Floating, Africa</td>
<td>2.8 (0.7 x4)</td>
<td>In Construction</td>
<td>2022</td>
</tr>
<tr>
<td>Confidential Client</td>
<td>USA</td>
<td>2.2 (1.1 x2)</td>
<td>In Construction</td>
<td>2023</td>
</tr>
<tr>
<td>Delfin FLNG</td>
<td>Floating, USA</td>
<td>3.5 (1.75 x2)</td>
<td>FEED</td>
<td>2024</td>
</tr>
<tr>
<td>Annova LNG</td>
<td>Brownsville, TX</td>
<td>6.5 (1.1 x6)</td>
<td>Awaiting FID</td>
<td>2025</td>
</tr>
<tr>
<td>Jordan Cove LNG</td>
<td>Coos Bay, OR</td>
<td>7.5 (1.5 x5)</td>
<td>Awaiting FID</td>
<td>2025</td>
</tr>
</tbody>
</table>
Let's get started. [bv.com/contact-us](http://bv.com/contact-us)

To discuss project opportunities or LNG technology, please contact:

**Laura Musick**  
Project Development Manager – LNG Solutions, Oil & Gas  
4400 Post Oak Pkwy, Suite 1100, Houston, TX 77027  
P  +1  713  400  6526  |  E  MusickLD@BV.com

**Justin Ellrich**  
Principal Process Engineer - LNG Systems Leader  
11401 Lamar Avenue, Overland Park, KS 66211  
P  +1  913  458  2891  |  E  EllrichJ@bv.com