Evolution of FPSO Power Plants

Gen 1
~ 20 MWe

Gen 2
~ 100 MWe

Gen 3
~200 MWe

• More Shaft Power
• More Process Complexity
• More Waste Heat
Why OTEC at SBM?

<table>
<thead>
<tr>
<th>Competency</th>
<th>FPSO</th>
<th>OTEC</th>
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<tbody>
<tr>
<td><strong>Technology</strong></td>
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<tr>
<td>• Systems integration</td>
<td>Y</td>
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<tr>
<td>• Facilities</td>
<td>Y</td>
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<tr>
<td>• Hull conversion</td>
<td>Y</td>
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<td>• Deepwater mooring</td>
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<td>• Deepwater risers</td>
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<tr>
<td>• Installation</td>
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<td><strong>Business Models</strong></td>
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<tr>
<td>• Turnkey</td>
<td>Y</td>
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<td>• Lease/Operate</td>
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<td>• Purchased Power Agmts</td>
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**SBM Road Map to OTEC**

**CWP for FPSO/FLNG:**
- Gas turbine efficiency
- Process cooling

**Power Block for FPSO**
- Economic 1+yr pilot
- 200+ MW GT’s
- Plugs into WHRU
- Organic then NH3
- WW performance test

**Stand-alone OTEC**
- Remote reserves
- Remote economies

Kibbee, 9 September 2013
• OTEC R&D to date has been internally funded.
• SBM projects include turnkey sales and lease/operate.
• SBM currently lease/operate 11 floating systems (+ 9 in construction).
• ‘OTEC’ module could be included in FPSO with normal financing.
• “Typical” FPSO Contract:
  • Capex $ 750 Million
  • FPSO lease contract duration: 5-20 years
  • Construction: 2 years.