Cautionary Statement

• This presentation contains forward looking information

• Forward looking information is based on management assumptions and analyses

• Actual experience may differ, and those differences may be material

• Forward looking information is subject to significant uncertainties and risks as they relate to events and/or circumstances in the future

• This presentation must be read in conjunction with other financial statements and the disclosures therein
Ambition to be Number 1 in All Business Areas

**Marine Contract**

Marine market leadership

28%* of 2016 revenues

Marine Contract delivers exclusive seismic surveys to oil and gas exploration and production companies.

**MultiClient**

Diverse MultiClient library – Improving financial performance

62%* of 2016 revenues

MultiClient initiates and manages seismic surveys which PGS acquires, processes, markets and sells to multiple customers on a non-exclusive basis.

**Operations**

Productivity leadership

Operations supports Marine Contract and MultiClient with vessel resources and manages fleet renewal strategies.

**Imaging & Engineering**

Technology differentiation – Rapidly becoming at par with industry best

9%* of 2016 revenues

Imaging and Engineering processes seismic data acquired by PGS for its MultiClient library and for external clients on contract and manages research and development activities.

*Remaining 1% relates to Other revenues.
PGS Positioning

**PGS Seismic Fleet 2017**
Active vessels = Ultra High-end Ramforms and High-end Conventional Vessels

The Ultra High-end Ramforms

- **High-end conventional (chartered)**
- Flexible capacity: High-end Ramforms

PGS average active fleet age/stowage count: 4.5 yr/14.2
Competition average fleet age/stowage count: 9.3 yr/12.2

**Maintaining Robust Library Performance in a Challenging Market**

- Healthy share of industry 2016 MC revenues, cash investments and NBV’s
  - Revenues: PGS 24%, POS 13%, PGS 17%
  - Cash Investment
  - Net Book Value

**A Strong Market Position**

- PGS increases its market share to ~33% in 2017
- Lowest average age of active fleet in the industry
- PGS has the only fleet fully equipped with the latest technologies:
  - Multicomponent streamers
  - Streamer steering
  - Source steering
  - 12+ streamer count

**The GeoStreamer Technology Platform:**
- **Enhanced illumination and clearer earth model**
- **Increased efficiency and improved illumination**
- **GeoStreamer** with **GeoSource**
  - The full dechipping solution
  - Reliable Quantitative Interpretation (QI) and rock properties
  - GeoStreamer® enabled separated waveform imaging (CWI)
  - Innovative survey designs based on SWIM

**GeoStreamer – PGS Business and Technology Platform**

- Enhanced resolution, better depth imaging and improved operational efficiency
- Enables the best sub-surface image for reservoir understanding and well placement

**Ready to capitalize on market recovery**
Financial Summary

Revenues

<table>
<thead>
<tr>
<th>Quarter</th>
<th>USD million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 15</td>
<td>251</td>
</tr>
<tr>
<td>Q2 15</td>
<td>256</td>
</tr>
<tr>
<td>Q3 15</td>
<td>226</td>
</tr>
<tr>
<td>Q4 15</td>
<td>229</td>
</tr>
<tr>
<td>Q1 16</td>
<td>203</td>
</tr>
<tr>
<td>Q2 16</td>
<td>183</td>
</tr>
<tr>
<td>Q3 16</td>
<td>224</td>
</tr>
<tr>
<td>Q4 16</td>
<td>154</td>
</tr>
<tr>
<td>Q1 17</td>
<td>155</td>
</tr>
<tr>
<td>Q2 17</td>
<td>241</td>
</tr>
</tbody>
</table>

EBITDA*

<table>
<thead>
<tr>
<th>Quarter</th>
<th>USD million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 15</td>
<td>128</td>
</tr>
<tr>
<td>Q2 15</td>
<td>125</td>
</tr>
<tr>
<td>Q3 15</td>
<td>115</td>
</tr>
<tr>
<td>Q4 15</td>
<td>117</td>
</tr>
<tr>
<td>Q1 16</td>
<td>80</td>
</tr>
<tr>
<td>Q2 16</td>
<td>69</td>
</tr>
<tr>
<td>Q3 16</td>
<td>113</td>
</tr>
<tr>
<td>Q4 16</td>
<td>63</td>
</tr>
<tr>
<td>Q1 17</td>
<td>30</td>
</tr>
<tr>
<td>Q2 17</td>
<td>113</td>
</tr>
</tbody>
</table>

EBIT**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>USD million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 15</td>
<td>14</td>
</tr>
<tr>
<td>Q2 15</td>
<td>15</td>
</tr>
<tr>
<td>Q3 15</td>
<td>9</td>
</tr>
<tr>
<td>Q4 15</td>
<td>-23</td>
</tr>
<tr>
<td>Q1 16</td>
<td>-30</td>
</tr>
<tr>
<td>Q2 16</td>
<td>-36</td>
</tr>
<tr>
<td>Q3 16</td>
<td>-5</td>
</tr>
<tr>
<td>Q4 16</td>
<td>-66</td>
</tr>
<tr>
<td>Q1 17</td>
<td>-84</td>
</tr>
<tr>
<td>Q2 17</td>
<td>-9</td>
</tr>
</tbody>
</table>

Cash Flow from Operations

<table>
<thead>
<tr>
<th>Quarter</th>
<th>USD million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 15</td>
<td>212</td>
</tr>
<tr>
<td>Q2 15</td>
<td>83</td>
</tr>
<tr>
<td>Q3 15</td>
<td>71</td>
</tr>
<tr>
<td>Q4 15</td>
<td>121</td>
</tr>
<tr>
<td>Q1 16</td>
<td>133</td>
</tr>
<tr>
<td>Q2 16</td>
<td>42</td>
</tr>
<tr>
<td>Q3 16</td>
<td>80</td>
</tr>
<tr>
<td>Q4 16</td>
<td>65</td>
</tr>
<tr>
<td>Q1 17</td>
<td>30</td>
</tr>
<tr>
<td>Q2 17</td>
<td>49</td>
</tr>
</tbody>
</table>

*EBITDA, when used by the Company, means EBIT excluding Other charges, impairment and loss/gain on sale of long-term assets and depreciation and amortization.

**Excluding impairments and Other charges.
**Consolidated Statements of Cash Flows Summary**

- Cash flow from operating activities of USD 49.4 million in Q2 2017
  - Y-o-Y increase due to higher earnings, partially offset by a significant increase in accounts receivables as a result of high revenues in the second half of the quarter which will benefit cash flow in Q3 2017

---

<table>
<thead>
<tr>
<th>USD million</th>
<th>Q2 2017</th>
<th>Q2 2016</th>
<th>First half 2017</th>
<th>First half 2016</th>
<th>Full year 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash provided by operating activities</td>
<td>49.4</td>
<td>42.4</td>
<td>79.4</td>
<td>175.8</td>
<td>320.9</td>
</tr>
<tr>
<td>Investment in MultiClient library</td>
<td>(43.8)</td>
<td>(41.8)</td>
<td>(77.4)</td>
<td>(90.1)</td>
<td>(201.0)</td>
</tr>
<tr>
<td>Capital expenditures</td>
<td>(17.1)</td>
<td>(67.0)</td>
<td>(124.7)</td>
<td>(181.4)</td>
<td>(218.2)</td>
</tr>
<tr>
<td>Other investing activities</td>
<td>(3.7)</td>
<td>(2.9)</td>
<td>17.8</td>
<td>(100.2)</td>
<td>(109.5)</td>
</tr>
<tr>
<td>Net cash flow before financing activities</td>
<td>(15.2)</td>
<td>(69.3)</td>
<td>(104.9)</td>
<td>(195.9)</td>
<td>(207.8)</td>
</tr>
<tr>
<td>Financing activities</td>
<td>29.7</td>
<td>2.4</td>
<td>96.5</td>
<td>164.0</td>
<td>187.9</td>
</tr>
<tr>
<td>Net increase (decr.) in cash and cash equiv.</td>
<td>14.5</td>
<td>(66.9)</td>
<td>(8.4)</td>
<td>(31.9)</td>
<td>(19.9)</td>
</tr>
<tr>
<td>Cash and cash equiv. at beginning of period</td>
<td>38.8</td>
<td>116.6</td>
<td>61.7</td>
<td>81.6</td>
<td>81.6</td>
</tr>
<tr>
<td>Cash and cash equiv. at end of period</td>
<td>53.3</td>
<td>49.7</td>
<td>53.3</td>
<td>49.7</td>
<td>61.7</td>
</tr>
</tbody>
</table>

The accompanying unaudited financial information has been prepared under IFRS. This information should be read in conjunction with the unaudited second quarter and first half 2017 results released July 27, 2017.
The accompanying unaudited financial information has been prepared under IFRS. This information should be read in conjunction with the unaudited second quarter and first half 2017 results released on July 27, 2017.

### Balance Sheet Key Numbers

<table>
<thead>
<tr>
<th>USD million</th>
<th>June 30 2017</th>
<th>June 30 2016</th>
<th>December 31 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>2,860.1</td>
<td>2,970.3</td>
<td>2,817.0</td>
</tr>
<tr>
<td>MultiClient Library</td>
<td>606.7</td>
<td>686.1</td>
<td>647.7</td>
</tr>
<tr>
<td>Shareholders' equity</td>
<td>1,250.9</td>
<td>1,350.3</td>
<td>1,359.4</td>
</tr>
<tr>
<td>Cash and cash equivalents (unrestricted)</td>
<td>53.3</td>
<td>49.7</td>
<td>61.7</td>
</tr>
<tr>
<td>Restricted cash</td>
<td>111.5</td>
<td>95.0</td>
<td>101.0</td>
</tr>
<tr>
<td>Liquidity reserve</td>
<td>228.3</td>
<td>429.7</td>
<td>271.7</td>
</tr>
<tr>
<td>Gross interest bearing debt</td>
<td>1,290.1</td>
<td>1,352.3</td>
<td>1,191.4</td>
</tr>
<tr>
<td>Net interest bearing debt</td>
<td>1,126.2</td>
<td>1,207.6</td>
<td>1,029.7</td>
</tr>
</tbody>
</table>

- **Liquidity reserve of USD 228.3 million**
  - Drawings on the Revolving credit facility increased by USD 60 million in Q2 for working capital fluctuations, the Company expects to reduce drawing in Q3

- **Total leverage ratio of 4.39:1 as of June 30, 2017, compared to 4.88:1 as of March 31, 2017**

- **Shareholders’ equity at 44% of total assets**
Marine Seismic Market

• Substantial improvement in oil companies’ cash flow
  – No negative change in client behavior despite oil price fluctuations during Q2
  – Pockets of opportunity for Q2/Q3 contract pricing owing to more 4D production seismic and capacity constraints in some regional markets

• Outlook
  – Currently low and competitive contract bidding activity for Q4
  – Improved bid pipeline for Q1/Q2 2018
• Order book of USD 248 million by end Q2 2017
  – Of which USD 182 million relates to MultiClient
  – USD 96 million of new order book secured in Q2
  – USD 25 million of Q2/Q3 2018 work taken out of order book due to dry well causing project cancellation

• Vessel booking*
  – ~90% booked for Q3 2017
  – ~40% booked for Q4 2017
  – ~15% booked for Q1 2018
  – ~5% booked for Q2 2018

• Unsold Q4 2017 capacity planned to be filled as:
  – MultiClient ~2/3 (or ~3.5 vessels)
  – Contract ~1/3 (or ~1.5 vessels)

*As of July 17, 2017, based on 9 active vessels and excluding cold-stacked vessels.
Market Activity

• Encouraging leads development for 2018

• Seismic demand primarily driven by:
  – Positioning for strategically important license rounds
  – Seismic commitments in E&P licenses
  – Significant increase in production seismic, especially in North Sea, West Africa and Brazil

• Overall relative MultiClient activity expected to continue to increase

Source: PGS internal estimate as of end June 2017. Value of active tenders and sales leads are the sum of active tenders and sales leads with a probability weight and represents Marine 3D contract seismic only.
Marine Seismic Market Volume and Supply

- Seismic acquisition volume in 2017 expected to be in line with volume in 2016
  - 2017 survey mix more focused on smaller and more capacity intensive 4D production monitoring surveys and more MultiClient 3D surveys
  - Increased seasonal variations as geographical areas for winter activity have shrunk, while North Atlantic summer season activity is more resilient

- 2017 summer season capacity ~35-40% lower than 2013 peak
  - Good supply/demand balance during summer season

Source of both graphs: PGS internal estimates.
Production Seismic is Growing Significantly
PGS has Premium Offering and Strong Market Share

- Oil companies invest more in producing fields and fields under development
- Number of production seismic (4D) projects will more than double in 2017 compared to 2016, and is expected to increase further in 2018
- 4D activity increasing in North Sea, West Africa and Brazil
- PGS will conduct more than 50% of global 4D surveys for 2017
  - PGS is well positioned in the 4D market
  - ~35% of 2017 contract revenues expected to come from 4D

Source: PGS internal estimates.
Responding to a Challenging Market

Cost Discipline Remains a Key Priority in 2017

- 2016 gross cash cost more than 40% lower than in 2014
- 2017 gross cash cost expected to be below USD 700 million – modest increase from structurally lower level in 2016 mainly attributable to:
  - More operated capacity with full year operation of Ramdom Tethys and delivery of Ramdom Tripion
  - Some increase of fuel prices
- Tight cost control continues, with further USD 50-60 million of gross cash cost reductions initiated with effect from Q4 2017
  - Planning to cold-stack Ramdom Vanguard after North Sea season

Industry Leading MultiClient Performance

- Strategic priority since 2010 to increase weighting of the MultiClient business
  - Brings greater stability to overall Group performance in a highly cyclical market
  - MultiClient share of total market will continue to increase going forward
- Revenues currently dominated by MultiClient
  - 52% of revenues in H1 2017, will increase significantly in H2
  - Q2 2017 sales investment of 2.9x
  - Most of EBITDA is generated by MultiClient activities
  - Geothermal, leading productivity and advanced high-quality imaging drives higher returns from library
- Retains flexibility to leverage a recovery in the marine contract market
  - Marine contract player with differentiating productivity and technology

Significant Cash Saving From Reduced Maintenance CAPEX

- Well maintained float and capacity adjustments have allowed significant CAPEX reductions
- Annual maintenance CAPEX level reduced to ~USD 50-60 million in response to market weakness
- More than USD 100 million down from 2013/14 levels
- Graph excludes CAPEX relating to the Titan Class new builds

Refinanced to Address Market Uncertainty

- Completion of two year extension of RCF to 2020
  - RCF to match ongoing liquidity needs (i.e. USD 400 million with a step down to USD 350 million in September 2018)
  - Unsecured security package
  - Covenant reset to retain availability of liquidity reserve going forward
- Exchange offer for USD 450 million 2016 Notes completed with 94% acceptance
  - USD 212 million (nominal value) redeemed at a price of 56% of par
  - USD 212 million exchanged into new Senior Notes maturing December 2020 (terms otherwise substantially unchanged)
  - USD 26 million of original 2016 Notes left outstanding
- USD ~325 million Private Placement
  - 85.5 million new shares at NOK 22.50
  - Placed with minimal discount and substantial over subscription
  - USD ~35 million Subsequent Offering completed January 2017
  - 13.5 million new shares offered to existing shareholders not participating in Private Placement

Improved balance sheet flexibility and increased long term financial visibility
Cost Discipline Remains a Key Priority in 2017

- 2016 gross cash cost more than 40% lower than in 2014
- 2017 gross cash cost expected to be below USD 700 million – modest increase from structurally lower level in 2016 mainly attributable to:
  - More operated capacity with full year operation of Ramform Tethys and delivery of Ramform Hyperion
  - Some increase of fuel prices
- Tight cost control continues, with further USD 50-60 million of gross cash cost reductions initiated with effect from Q4 2017
  - Planning to cold-stack Ramform Vanguard after North Sea season

*Estimate based on 30 June 2017 USD exchange rates against currencies in PGS cost base.
Significant Cash Saving From Reduced Maintenance CAPEX

- Well maintained fleet and capacity adjustments have allowed significant CAPEX reductions
- Annual maintenance CAPEX level reduced to ~USD 50-60 million in response to market weakness
- More than USD 100 million down from 2013/14 levels
- Graph excludes CAPEX relating to the Titan Class new builds
• Strategic priority since 2010 to increase weighting of the MultiClient business
  – Brings greater stability to overall Group performance in a highly cyclical market
  – MultiClient share of total market will continue to increase going forward

• Revenues currently dominated by MultiClient
  – 52% of revenues in 1H 2017, will increase significantly in 2H
  – Q2 2017 sales/investment of 2.9x
  – Most of EBITDA is generated by MultiClient activities
  – GeoStreamer, leading productivity and advanced, high quality imaging drives higher returns from library

• Retains flexibility to leverage a recovery in the marine contract market
  – Marine contract player with differentiating productivity and technology
<table>
<thead>
<tr>
<th>RCF Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Completion of two year extension of RCF to 2020</td>
</tr>
<tr>
<td>- Resized RCF to match ongoing liquidity needs (i.e. USD 400 million with a step down to USD 350 million in September 2018)</td>
</tr>
<tr>
<td>- Unchanged security package</td>
</tr>
<tr>
<td>- Covenant reset to retain availability of liquidity reserve going forward</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Notes Exchange Offer</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Exchange offer for USD 450 million 2018 Notes completed with 94% acceptance</td>
</tr>
<tr>
<td>- USD 212 million (nominal value) redeemed at a price of 95% of par</td>
</tr>
<tr>
<td>- USD 212 million exchanged into new Senior Notes maturing December 2020 (terms otherwise substantially unchanged)</td>
</tr>
<tr>
<td>- USD 26 million of original 2018 Notes left outstanding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equity Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>• USD ~225 million Private Placement</td>
</tr>
<tr>
<td>- 85.5 million new shares at NOK 22.50</td>
</tr>
<tr>
<td>- Placed with minimal discount and substantial over subscription</td>
</tr>
<tr>
<td>• USD ~35 million Subsequent Offering completed January 2017</td>
</tr>
<tr>
<td>- 13.5 million new shares offered to existing shareholders not participating in Private Placement</td>
</tr>
</tbody>
</table>

**Improved balance sheet flexibility and increased long term financial visibility**
# Summary of Debt and Drawing Facilities

<table>
<thead>
<tr>
<th>Long-term Credit Lines and Interest Bearing Debt</th>
<th>Nominal Amount as of June 30, 2017</th>
<th>Total Credit Line</th>
<th>Financial Covenants</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD 400.0 million Term Loan (&quot;TLB&quot;), Libor (minimum 0.75%) + 250 basis points, due 2021</td>
<td>USD 387.0 million</td>
<td>USD 400.0** million</td>
<td>None, but incurrence test: total leverage ratio $\leq 3.00x^*$</td>
</tr>
<tr>
<td>Revolving credit facility (&quot;RCF&quot;), due 2020 Libor + margin of 325-625 bps (linked to TLR) + utilization fee</td>
<td>USD 225.0 million</td>
<td>USD 400.0** million</td>
<td>Maintenance covenant: total leverage ratio $\leq 5.50x$, to Q2-2017, 5.25x Q3-17, 4.75x Q4-17, 4.25x Q1-18, thereafter reduced by 0.25x each quarter to 2.75x by Q3-19</td>
</tr>
<tr>
<td>Japanese ECF, 12 year with semi-annual instalments. 50% fixed/ 50% floating interest rate</td>
<td>USD 440.1 million</td>
<td></td>
<td>None, but incurrence test for loan 3&amp;4: Total leverage ratio $\leq 3.00x^<em>$ and Interest coverage ratio $\geq 2.0x^</em>$</td>
</tr>
<tr>
<td>December 2020 Senior Notes, coupon of 7.375%</td>
<td>USD 212.0 million</td>
<td></td>
<td>None, but incurrence test: Interest coverage ratio $\geq 2.0x^*$</td>
</tr>
<tr>
<td>December 2018 Senior Notes, coupon of 7.375%</td>
<td>USD 26.0 million</td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

*Carve out for drawings under ECF and RCF

**Reducing to USD 350 million in September 2018.
In Conclusion:

**Competitively Positioned to Navigate Current Market Environment**

- Benefitting from improvement in marine contract pricing y-o-y
  - Well positioned in the 4D market

- Competitive contract bidding for Q4

- Improved bid pipeline for Q1/Q2 2018

- Further cash cost cuts of USD 50-60 million initiated
  - Planning to cold-stack *Ramform Vanguard* after North Sea season
## Appendix:

### Fleet Structure Provides Flexibility Through the Cycle

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Ultra High-end Ramforms</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Ramform Hyperion</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Ramform Tethys</td>
<td></td>
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<tr>
<td>Ramform Atlas</td>
<td></td>
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<tr>
<td>Ramform Titan</td>
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<tr>
<td>Ramform Sterling</td>
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<td></td>
<td></td>
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<tr>
<td>Ramform Sovereign</td>
<td></td>
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</tr>
<tr>
<td><strong>High-end Conventional on Charter</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Sanco Swift - in operation | | | | | | | | | | 3x2 years option
| PGS Apollo - in operation | | | | | | | | | | 5 years option*
| Sanco Sword - cold stacked | | | | | | | | | | 3x2 years option
| **High-end Ramforms - Flexible Capacity** | | | | | | | | | | |
| Ramform Vanguard - planned cold-stacked | | | | | | | | | | |
| Ramform Valiant - cold stacked | | | | | | | | | | |
| Ramform Viking - cold stacked | | | | | | | | | | |
| Ramform Challenger - cold stacked | | | | | | | | | | |
| Ramform Explorer - cold stacked | | | | | | | | | | |

*With possibility to buy back after year 5 and 8

### Appendix:

**Fleet Structure Provides Flexibility Through the Cycle**

- Combination of chartered high capacity conventional 3D vessels and temporarily cold-stacked first generation Ramform vessels:
  - Improves fleet flexibility
  - Chartered capacity with staggered expiry structure
  - Positions PGS well to take advantage of a market recovery
Appendix:
PGS Fleet Best Positioned on the Industry Cost Curve

• PGS retains lead on lowest cash cost per streamer

• Ramform vessels best positioned for both large, and streamer intensive (4D) surveys

Source: PGS internal estimates. The cash cost curve is based on typical number of streamer towed, and excludes GeoStreamer productivity effect. The graph shows all seismic vessels operating in the market. The Ramform Titan-class vessels are incorporated with 16 streamers, S-class with 14 streamers.
### Appendix

**Main Yard Stays* Next Six Months**

<table>
<thead>
<tr>
<th>Vessel</th>
<th>When</th>
<th>Expected Duration</th>
<th>Type of Yard Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>PGS Apollo</em></td>
<td>August 2017</td>
<td>7 days</td>
<td>Intermediate classing and major engine overhaul</td>
</tr>
<tr>
<td><em>Ramform Hyperion</em></td>
<td>August 2017</td>
<td>6 days</td>
<td>Guarantee work</td>
</tr>
</tbody>
</table>

*Yard stays are subject to changes.*
Appendix
Strong MultiClient Sales from a Diverse Customer Base

- PGS sold MultiClient data to more than 70 different clients world wide in Q2
  - Distributed over 90 projects

- PGS high quality GeoStreamer MultiClient data library attracts strong client interest, generating industry leading sales performance
• MultiClient net book value of USD 606.7 million as of June 30, 2017
  – Down from USD 647.7 million at year-end 2016

• Moderate net book value for surveys completed 2012-2015

• Q2 2017 amortization rate of 61%

• 2017 amortization expense expected to be in the range of USD 350-375 million
Appendix

RAMFORM Titan-Class

Lifespan
Setting the benchmark for this generation of seismic vessels and thereof.

25 years

Engineered for Geoscience

Stability
The Titan design ensures better performance and room for growth. The ultra-broad delta-shaped hull provides fantastic seaweed capabilities and also means a smooth ride.

Endurance
320 days without re-fueling.

Dry docking interval 3.6 years.

Maintenance at sea lowers operating costs.

Space = Flexibility
Three times larger than modern conventional vessels, the Titans offer a highly efficient work environment with ample space for equipment, maintenance and accommodation.

Wire Pull @ 4.5 kts
This measures towing force through the water and is a more realistic representation of towing capability than bell cord pull (460 tons).

Power
Additional power enables more in-sea and onboard equipment.

Fuel Capacity
Providing flexibility and endurance.

Redundancy
3 propellers, each with 2 motors – fully operational with 2 propellers.

2 engine rooms, each with 3 generators – fully operational with 1 engine room.

All Weather
Widening the weather window and extending the season in northern and southern hemispheres without compromising HSEQ.

Towing & Handling
24 reel and streamer capacity and back deck automation provides flexibility, rapid deployment and safe retrieval.

HSEQ
Layout supports One Culture operations improving all aspects of HSEQ.

Safety
Stable platform minimizes risk of fatigue, trips and falls.

Space to work, redundancy in power and propulsion, 2 extra launched winches, back deck automation.

Future Proof

Record

Rapid Deployment
16 streamers (each 8 kts) safely deployed in just 73 hours.

Large Spread
18.74 sq. km, full fan spread with 18 streamers (each 7.05 kts) x 10.09 m separation (146 m at tail end).

Fast Acquisition
Highest productivity 175 sq. km in a day (average for this survey = 159 sq. km/day).

All Survey Types

Titan-class vessels cover all the bases from highly efficient reconnaissance exploration surveys to the detailed resolution required for 4D production seismic.

Cost/Streamer

Ultra high capacity seismic vessels are more cost effective.

Performance Results

Downtime

Performance results:
- 6% streamer downtime and only 2.7% seismic downtime to date.
- Total sq.km acquired by Titan-class vessels is 80,792 sq. km.

Records

Environment
Larger vessels and faster turnarounds mean fewer days on each job and leaves a smaller environmental footprint.

Design + max 50% content.

Quality
Superior platform to deploy the best dual-sensor technology – total.

Custom-built with streamer and source steering.
Appendix

GeoStreamer since 2007

More Measurements — Fewer Assumptions — Better Decisions

Dual Sensors
Complementary recordings facilitate deghosting by wavefield separation at all water depths.

Pre-stack Deghosting — More Options
Deghosting using dual sensor measurements with their complementary ghost spectra eliminates frequency gaps, and provides access to separate wavefield components for advanced processors like PGS SWHMK. Near and Reflection Tomography.

Deep Tow
- Better signal, less noise
- More low and high frequencies
- Less weather dependent

Flexible Tow Depth
Dual-sensor recording enables us to re-define the pressure wavefield to any depth. Towing depth can be adjusted in response to shallow obstacles, currents, thermoclines or to optimize operational performance without any negative impact on data quality.

De-risking with Precise Rock Properties
GeoStreamer pre-stack deghosting provides reliable attributes for better understanding of rock and fluid distribution. Improved attribute configurations reduce uncertainty and enable more precise estimations of reserves.

Broader Bandwidth — Sharper Boundaries
Rich low frequency content reduces sidelobe artifacts, providing clearer reservoir details.

Monitoring Reservoir Changes
Wavefield reconstruction enables high repeatability for both legacy surveys, and future 4D monitoring independent of sea state. This avoids more subtle production-related changes.

Proven in all Play Types
- S3D-SALT Improved signal recovery and amplitude characterization
- S3D-BASALT Cleaner sub-basalt imaging and intra-basalt layer definition
- CLARITIES Variably reservoir properties without field level control
- CARBONATES Detailed imaging of internal structures and better porosity prediction
- INCLUS-FS Resolution of complex geometries and identification of true geological boundaries

Experience that counts
450 000 KM² acquired worldwide
Extending Illumination and Angular Diversity

GeoStreamer data and SWIM imaging

Separated Wavefield Imaging (SWIM) is an innovative depth imaging technology that uses both up- and downgoing wavefields, recorded by GeoStreamer® dual hydrophone and motion sensors.

VIRTUAL SOURCES
Utilizing sea-surface reflections and making each receiver virtual source results in the survey area having increased source sampling and improved angular diversity and illumination.

P-UP
P-DOWN

P-UP
Pressure
Velocity
P-DOWN
Pressure
Velocity
A-DARK

VIRTUAL ILLUMINATION
Sea-surface reflections add additional information about subsurface reflectivity, enabling high-resolution imaging that is unattainable with traditional reflection seismic.

BETTER SAMPLING
Extended angular illumination of each point in the subsurface and information finer scale, near angles can significantly improve shallow target AVO analysis.

NARROW AZIMUTH TO WIDE TOW: SWIM enables the design and use of cost-effective acquisition geometries such as super-wide tow. For narrow azimuth surveys in shallow water, SWIM yields better sampled data in the angle domain.

WIDE AZIMUTH: The extra subsurface illumination of sea-surface reflections combined with Wide Azimuth (WAZ) acquisition facilitates the imaging of salt flanks and other density anomaly structures.

REDUCE ACQUISITION FOOTPRINT
Taping the receivers spread into virtual sources and receiver array reduces source sampling in the cross-direction from the distance between sail lines to that between streamers. Using SWIM in shallow water fills in gaps in near-surface coverage successfully reducing the acquisition footprint.

Further Uses

OCM” BOTTOM DATA
SWIM has been successfully applied to staked data such as ocean bottom node and cable recordings. SWIM can increase the shallow area of the stacked and the underlying sediment by up to 70%.

IMPROVED MULTE REMOVAL
SWIM resolves the generation of detailed shallow water images that are a requirement for some data. The 3D SWIM multiple removal methods.

REDUCING DRILLING RISK: Superior illumination of the overburden using SWIM provides high-resolution images suitable for downdip hazard, helping to identify drilling risks.

Enhanced Imaging of Deeper Targets
High-resolution stack images and well-sampled angle gathers are essential to advanced workflows such as OCM. This enables the generation of high-resolution velocity models, minimizing model and imaging uncertainty.

Appendix
Appendix

ACQUISITION SOLUTIONS

RAMFORM + GEOSTREAMER = EFFICIENCY + QUALITY

The unique combination of GeoStreamer™ technology and Ramform® vessels delivers a premium imaging product to locate and derisk your prospect.

Better Image Quality
Dual sensors combined with towing the streamers deep, 3D spread control, source steering, continuous recording and the ability to tow dense streamer spreads, all contribute to subsurface images of greater clarity, accuracy and reliability.

Reduced Survey Time
Faster turnarounds time means less exposure to weather and faster access to data. We minimize the time it takes to complete a survey using 3D spread control, source steering, continuous recording, flexible tow depth and barge/anchor integration.

Survey Versatility
Our fleet is capable of covering all the basics from highly efficient exploration surveys to detailed 4D production seismic.

Define Challenge and Select Technology
Tailored acquisition geometries make it easier to solve imaging challenges. Subsurface complexity and geophysical objectives determine the acquisition and imaging solutions to produce the best quality images in the most effective way.

Coverage Options
From single sail line to the ultimate full azimuth coverage, target illumination increases with each additional pass and direction.

Single Vessel Survey:
- Dual Source Narrow Azimuth (NAZ)
- Triple Source Narrow Azimuth (NAZ)
- Multi Azimuth (MAZ)
- EM and Seismic

Multi Vessel Survey:
- Wide Azimuth (WAZ/WMAZ)
- Simultaneous Long Offset (SLO)
- Full Azimuth (FAZ)

Leading the Industry

Quality
Efficiency
Reliability
Versatility
Performance
Speed
Innovation
Innovative
Appendix

Towed Streamer EM

Reducing drilling risk

Sight & sound
Complementary data add new layers of comprehension. A bit like adding sight to sound. While seismic is the best measure of lithology, EM is more sensitive to changes in fluids.

Independent inversions
Seismic data can be inverted for velocity and for acoustic impedance. Inversion of EM data provides uniquely combining all three improves drilling success.

Drilling success with EM
Barents Sea

Resistivity
Hydrocarbon saturated rocks are typically highly resistive. Geologist access local resistivity data from well logs.

Operational 101
Towed streamer acquisition produces high density 2D or 3D EM data fast. This operation is very similar to seismic, making it easy to install, operate and even combine.

Towed streamer
A 100 meter long cable with EM receiver and Geostreamer source.

EM source
A towed ESU line with EM receiver and Geostreamer source.

Towing speed
4-5 knots

Water depth
< 100 meters

Operational 101

Fast
Acquisition speed up to 200 km per day EM 400 km / day

Flexible
Multipurpose EM can de-risk frontier prospects, reveal drilling hazards, or identity missed tail end production.

Global
Northern Europe is the region with greatest EM coverage so far, but feasibility studies around the world show this technology has global potential.

Adding EM to seismic

How and when
Improve ranking of prospects by adding 2D or 3D EM data to existing seismic data. Enhance EM resolution by using the seismic to guide the EM inversion.

Acquire EM and 2D or 3D EM data efficiently and simultaneously with the same vessel to plan new 3D seismic.

HSEQ

Health
PGS’ high standards apply.

Safety
Standard PGS towed streamer operations and equipment reduces risk.

EM helps identify shallow gas drilling hazards.

Environment
Low environmental impact.

Fewer vessels days = lower emissions in both stand-alone and simultaneous acquisition modes.

Quality
Towed streamer EM produces high density data and performs workflow with imaging tools.