Expanding Production and Reducing Costs
Why Invest In Golden Star?

- West African-focused, mid-tier gold producer with two producing mines in Ghana
- High grade development asset, Prestea Underground (13.93g/t Mineral Reserves)
- Strong exploration upside potential - focused on increasing the mine lives of current operations
- Experienced management team with a track record of discovery and project delivery
- Undervalued compared to peer group and with robust liquidity through NYSE MKT listing

Transforming into a high grade, non-refractory, low cost gold producer
Experienced Management and Technical Leadership

Sam Coetzer, President & CEO
• Mining engineer with over 26 years’ experience with Kinross, Xstrata Nickel, Xstrata Coal and Placer Dome
• Previously SVP South American Operations and managed integration of Red Back Mining for Kinross

André van Niekerk, EVP & Chief Financial Officer
• Joined GSR in 2006 - 5 years in Ghana as GSR’s Head of Finance and Business Operations
• Previously VP, Financial Controller
• Trained at KPMG

Daniel Owiredu, EVP & Chief Operating Officer
• 20 years’ experience in West African mining, based in Ghana
• Previously Deputy COO for AngloGold - managed construction and operation of the Bibiani, Siguiri and Obuasi mines

Martin Raffield, SVP, Project Development & Technical Services
• Ph.D. geotechnical engineering & P. Engineering
• Previously worked for SRK, Placer Dome and Breakwater Resources
• Based at Prestea mine in Ghana

Mitch Wasel, VP Exploration
• Joined GSR in 1993
• Based in Ghana for GSR for past 17 years
• Previously spent 10 years in gold & base metal exploration in north western Canada
2016 Guidance Achieved on All Metrics

2016 Production in the Top Half of the Guidance Range

- Gold production of 194,054oz in 2016, including 53,403oz in Q4 2016
- Cash operating cost per ounce\(^1\) of $872 and AISC per ounce\(^1\) of $1,093 in 2016
- Cash of $21.8m as at December 31, 2016\(^2\)
2017 Guidance

2017 production guidance 31-44% higher than 2016 production results

2017 Production Guidance By Asset

- **Prestea Open Pits**: 65-70,000oz
- **Wassa Main Pit**: 85-95,000oz
- **Wassa Underground**: 60-65,000oz
- **Prestea Underground**: 45-50,000oz

All-In Sustaining Cost Per Ounce

- 2012A: $1,318
- 2013A: $1,326
- 2014A: $1,252
- 2015A: $1,149
- 2016A: $1,093
- 2017E: $970-1,070
- 2018E: $850-900
- 2019E: $800-850

- 2017 gold production guidance of 255,000-280,000oz
- 2017 cash operating cost\(^1\) per ounce guidance of $780-860/oz
- 2017 AISC per ounce\(^1\) guidance of $970-1,070/oz – expected to decrease further as high grade, underground mines continue to ramp up
- 2017 capital expenditures guidance of $63m

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1. See note on slide 2 regarding Non-GAAP Financial Measures
2. Prestea Open Pits production guidance includes the forecast production from the Mampon deposit
3. Production guidance for Prestea Underground includes 7,000-7,500oz of pre-commercial production.
4. Numbers are derived from the Wassa and Prestea technical reports available at www.gsr.com
Expanding Production and Reducing Costs

Forecast Annual Gold Production, Cash Operating Costs\(^1\) and AISC\(^{1,2}\)

- Average annual production from 2017 onwards of 281,000oz\(^2\)
- Significant exploration upside on current production profile

60% increase in production forecast between 2016 and 2019

NYSE: GSS  1. See note on slide 2 regarding Non-GAAP Financial Measures
TSX: GSC  2. Numbers are derived from the Wassa and Prestea technical reports available at www.gsr.com
Three key objectives of the 2017 exploration strategy:

- To increase supply of high grade, underground ore to the processing plants in the near term
- To increase the lives of both operations in the medium term
- To identify the potential of Golden Star’s 1,156km² concession area

- First phase of program is expected to comprise 48,000m
- Further drilling may be conducted subject to the results received
- 171% increase to 2017 exploration budget to $6.5 million for the first phase of drilling
- Drilling has begun on the initial targets: Prestea Underground, Prestea Open Pits and Mampon deposit
OPERATIONS & EXPLORATION OVERVIEW

Wassa Gold Mine

Prestea Gold Mine
Wassa Gold Mine

- Open pit and underground gold mine in Ghana, commenced production in 2005
- Mineral Reserves of 1.3Moz (17.4Mt at 2.37g/t)
- 7 years of mine life remaining based on current Mineral Reserves
- 2.7Mtpa processing plant within 500m of pit
- Ore from Wassa Underground is being blended with open pit ore
- Tonnes processed (7,000tpd) will be constant but grade will increase as underground continues to ramp up
- Life of Mine average annual production expected to be ~175,000 ounces

<table>
<thead>
<tr>
<th>Wassa¹</th>
<th>Unit</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 Production</td>
<td>Koz</td>
<td>104</td>
</tr>
<tr>
<td>2016 Cash Operating Cost²</td>
<td>$/oz</td>
<td>941</td>
</tr>
<tr>
<td>2017 Forecast Production</td>
<td>Koz</td>
<td>145-160</td>
</tr>
<tr>
<td>2017 Forecast Cash Operating Cost²</td>
<td>$/oz</td>
<td>830-915</td>
</tr>
</tbody>
</table>

¹ Includes Wassa Main Pit and Wassa Underground
² See note on slide 2 regarding Non-GAAP Financial Measures
³ According to Wassa Feasibility Study
Wassa Underground Development

Wassa Underground drilled down plunge to ~1,500m (1,100m to limit of current reserve)

F Shoot – first area to be mined via underground development

B Shoot
Mineral Reserve – longitudinal stoping commenced with higher grade areas to be mined via transverse stoping in Q3 2017

B Shoot Inferred Mineral Resource to be drilled from underground in early 2018 – majority of Wassa Underground’s 1.9Moz Inferred Mineral Resources are from this area

Strong potential to increase Mineral Resources & Reserves through exploration
Wassa Underground: 2017 Exploration

Three key focuses at Wassa Underground:

**B Shoot North extension drilling**
- Expected to comprise 3,000m
- Objective: To test the potential to increase near-term production

**B Shoot South Step Out Fences**
- Expected to comprise 10,000m
- Objective: To ascertain if the B Shoot is continuous to the South

**242 Trend Step Out Drilling**
- Expected to comprise 4,000m
- Objective: To increase Wassa’s Inferred resources

Drilling at Wassa Underground is expected to commence in Q2 2017
Prestea Gold Mine

- +100 year history of mining at Prestea in Ghana – acquired by GSR in 1999
- Prestea Open Pits commenced production in Q3 2015
- Currently mining non-refractory, oxide ore
- Refractory reserves replaced through drilling
- Open pits are bridging the production gap until underground production established
- Prestea Underground has very high grade Mineral Reserves of 1.1Mt at 13.93g/t for 490Koz
- 2017 exploration drilling has commenced at Prestea Underground, Prestea Open Pits and Mampon

<table>
<thead>
<tr>
<th>Prestea¹</th>
<th>Unit</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 Production</td>
<td>Koz</td>
<td>90</td>
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<tr>
<td>2016 Cash Operating Cost¹</td>
<td>$/oz</td>
<td>800</td>
</tr>
<tr>
<td>2017 Forecast Production²</td>
<td>Koz</td>
<td>110-120</td>
</tr>
<tr>
<td>2017 Forecast Cash Operating Cost¹</td>
<td>$/oz</td>
<td>715-780</td>
</tr>
</tbody>
</table>

¹ Includes Prestea Open Pits and Prestea Underground
² See note on slide 2 regarding Non-GAAP Financial Measures
Mampon: Strong Near-Term Cash Flow

Mining commenced in late Q1 2017

- Mampon is an oxide deposit 65km to the north of the CIL processing plant
- Mineral Reserves of 45,000oz of gold (301Kt at 4.64g/t)
- All permits received by end of 2016 including mining lease, environmental permit and forestry permit
- High grade ore from Mampon will be blended with ore from Prestea Open Pits to enhance GSR’s cash flow in 2017
Prestea Underground: Project Update

✓ Rehabilitation works commenced
✓ Long lead time equipment ordered
✓ Underground mining contractor appointed (Manroc Developments, Inc.)
✓ Installation of new electrical and water supply services completed
✓ Track improved on 24 Level for high-speed haulage
✓ Mobilization of underground mining contractor to site and first Alimaks arrived
✓ Rock winder upgrade completed and commissioned
✓ Pre-development of the Mineral Resource and West Reef intersected by mining team
   First stope blasted - expected in Q2 2017
   Achieving commercial production – expected in mid-2017

March 2016 Update to Feasibility Study

- Gold production per annum: 90,000oz
- Cash operating cost per ounce\(^1\): $468
- AISC per ounce\(^1\): $615
- Mineral Reserve head grade: 13.9g/t

1. See note on slide 2 regarding Non-GAAP Financial Measures
Development of first stope at Prestea Underground commenced in March 2017, as planned.

- Blasting of first raise underway
- Construction of second Alimak nest has begun
- All 5 Alimak raise climbers are now on site
- Blasting of first stoping ore expected in Q2 2017
- Commercial production expected in mid-2017
Three key focuses for 2017 exploration program at Prestea Underground:

- Primarily focused on the extension and definition of the West Reef – objective is to increase high grade ore to processing plant in near term.
- Other focuses include initial testing of the Main Reef and the South Gap area to add ore into the mine plan in the medium to long term.
$15m bought deal in April 2016
  - Reduced Accounts Payable
$65m private placement in August 2016 of 7.0% convertible senior notes, due 2021
  - Significantly reduced 2017 debt repayments and aligned future debt repayments more closely to forecast cash flow
$34.5m underwritten public offering in August 2016
  - Repaid high interest Ecobank II loan and brought new institutional investors onto GSR’s register
C$34.5m (US$26.2m) bought deal in February 2017
  - Ensures that GSR is fully funded and maintains a strong financial position as it finishes refurbishing Prestea Underground and repays its 2017 debt obligations
$25m financing facility with Ecobank in March 2017
  - Prudent measure as GSR continues to grow
UPCOMING MILESTONES IN 2017

✔ Achieve commercial production at Wassa Underground – January 1, 2017

✔ Commence longitudinal stoping of higher grade B Shoot zone of Wassa Underground – Q1 2017

✔ Commence mining of Mampon deposit – Q1 2017

Blasting of first stope at Prestea Underground – expected Q2 2017

Achieve commercial production at Prestea Underground – expected mid-2017

Commence transverse stoping of B Shoot at Wassa Underground – expected Q3 2017
Contact Us

Katharine Sutton, Investor Relations
+1 416 538 3800
investor@gsr.com

NYSE MKT: GSS
TSX: GSC
Appendices: Market Information

One Year Share Price Graph (GSS)\(^1,2\)

<table>
<thead>
<tr>
<th>Markets</th>
<th>NYSE MKT / TSX / GSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tickers</td>
<td>NYSE: GSS TSX: GSC GSE: GSR</td>
</tr>
<tr>
<td>Shares in Issue</td>
<td>374,499,286</td>
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<tr>
<td>Options</td>
<td>15,572,606</td>
</tr>
<tr>
<td>Share Price(^2)</td>
<td>$0.81</td>
</tr>
<tr>
<td>Market Capitalization</td>
<td>$320m</td>
</tr>
<tr>
<td>Cash(^3,4)</td>
<td>$21.8m</td>
</tr>
<tr>
<td>Debt</td>
<td>$121m</td>
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<tr>
<td>Daily Volumes Traded (3 Month Average)(^2)</td>
<td>2.2m shares</td>
</tr>
<tr>
<td>One Year Return(^2)</td>
<td>87%</td>
</tr>
</tbody>
</table>

Analyst Coverage

- BMO Capital Markets
- CIBC Capital Markets
- Clarus Securities
- Credit Suisse
- National Bank Financial
- Scotia Bank

Key Institutional Shareholders

- Van Eck
- Sentry Investments
- Franklin Templeton
- Oppenheimer Funds
- Earth Resources
- Gold 2000
- AGF Management
- RBC Investment Mgmt

1. As at Mar 29, 2017
2. Refers to NYSE MKT listing
3. As at Dec 31, 2016
4. This does not include $10m from Royal Gold streaming agreement received on January 3, 2017 or the $24.8m from the bought deal transaction
A Responsible Corporate Citizen

CONTRIBUTING TO SOCIETY

$11.8m¹ in royalties paid in 2016 and $91.3m over the past 5 years

$5.7m in sustainable agri-business to date

$3.4m in development fund projects to date

$47.4m in total salaries paid

GSR supports a range of community projects focused on the key areas of healthcare, education and sustainable agribusiness.

For more information on our commitment to corporate social responsibility, please visit www.gsr.com/responsibility

99% of our workforce and contractors are Ghanaian

61% of our workforce and contractors are from local communities

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¹ Refers only to the total amount of royalties paid to the Government in 2016. The total Government payments for 2016 is $36.7 million and total Government payments over the Company’s life is $324 million.
## Q4 and FY 2016: Financial Highlights

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
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<tbody>
<tr>
<td>Revenue</td>
<td>$'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>221,290</td>
<td>255,187</td>
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<tr>
<td>Gold Sales</td>
<td>oz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>193,860</td>
<td>221,653</td>
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<tr>
<td>Average Realized Gold</td>
<td>$/oz</td>
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<tr>
<td>Price</td>
<td>1,211</td>
<td>1,151</td>
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<tr>
<td>Net Loss</td>
<td>$'000</td>
<td></td>
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<tr>
<td></td>
<td>39,647</td>
<td>67,681</td>
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<tr>
<td>Net Loss per share</td>
<td>$/share</td>
<td></td>
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<tr>
<td></td>
<td>0.13</td>
<td>0.26</td>
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<tr>
<td>Adjusted Net Income/</td>
<td>$'000</td>
<td></td>
</tr>
<tr>
<td>(Loss)$¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11,183</td>
<td>(28,355)</td>
</tr>
<tr>
<td>Adjusted Net Income/</td>
<td>$/share</td>
<td></td>
</tr>
<tr>
<td>(Loss)$¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.04</td>
<td>(0.11)</td>
</tr>
<tr>
<td>Cash Flow from Operations²</td>
<td>$'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>53,249</td>
<td>60,148</td>
</tr>
<tr>
<td>Cash Flow from Operations²</td>
<td>$/share</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.18</td>
<td>0.23</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>$'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>84,356</td>
<td>57,051</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivs.</td>
<td>$'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21,764</td>
<td>35,108</td>
</tr>
</tbody>
</table>

- Revenue in 2016 of $221.3m – 13% decrease compared to 2015 due to fewer ounces sold from Wassa and Prestea but partially offset by higher gold price
- Mine operating margin⁰¹ of $27.5 million in 2016, compared to a mine operating loss⁰¹ of $27.6 million in 2015 due to the closure of the high cost, refractory operations in Q3 2015
- Adjusted net earnings⁰¹ of $11.2m in 2016 compared to an adjusted net loss⁰¹ of $28.4m in 2015
- $21.8m cash at year-end, exclusive of $10m received from RGLD on January 3, 2017

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NYSE: GSS 1. See note on slide 2 regarding Non-GAAP Financial Measures
TSX: GSC 2. Equal to Cash provided by operations before changes in working capital, a Non-GAAP financial measure, see slide 2.
Royal Gold Financing Agreement

- **GSR has a financing arrangement with Royal Gold for total aggregate proceeds of $145m.** Use of funds:
  - Facilitate development of Wassa and Prestea underground mines
  - Retire outstanding Ecobank I loan debt

- **Gold stream of $145m over Bogoso, Prestea and Wassa:**
  - From January 1, 2016, to deliver 9.25% of all production at a cash purchase price of 20% of spot gold
  - From January 1, 2018 or commercial production of the underground mines, whichever is sooner, to deliver 10.50% of production at a cash purchase price of 20% of spot gold until 240,000 ounces have been delivered
  - Thereafter, 5.50% of production at a cash purchase price of 30% of spot gold will be delivered (‘tail stream’)
  - Option to repurchase 50% of the tail stream
  - In the event that Golden Star expands its operations to outside its current mine license areas in the future, it will have the option to deliver ounces from these operations to satisfy the first and second delivery thresholds
    - GSR would retain the upside to these new operations as the tail stream would not be applied
  - All payments received for a total of $145m
  - A total of 30,365 ounces have been delivered as at December 31, 2016

- **Four year $20m secured term loan:**
  - Interest rate linked to gold price\(^1\)
    - At a gold price of $1,200/oz the interest rate would be 7.5% and at $1,300/oz, it would be 8.13%
    - Rate is not to exceed 11.5%
  - No early prepayment penalty
  - Subject to an agreed quarterly 25-50% excess cash flow sweep from the third quarter of 2017 onwards
  - Matures in July 2019
  - Royal Gold has security against mining assets

1. Calculated as the product of the average spot gold price over the quarter and 62.50% divided by 10,000.
# Mineral Reserves and Resources

<table>
<thead>
<tr>
<th>Mineral Reserves$^{1,2,3}$</th>
<th>Tonnes ('000)</th>
<th>Grade (Au g/t)</th>
<th>Content (Koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proven Reserves</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wassa</td>
<td>695</td>
<td>0.96</td>
<td>21</td>
</tr>
<tr>
<td>Prestea</td>
<td>115</td>
<td>2.55</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>810</strong></td>
<td><strong>1.18</strong></td>
<td><strong>31</strong></td>
</tr>
<tr>
<td><strong>Probable Reserves</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wassa</td>
<td>16,741</td>
<td>2.43</td>
<td>1,307</td>
</tr>
<tr>
<td>Prestea</td>
<td>1,905</td>
<td>9.35</td>
<td>573</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18,646</strong></td>
<td><strong>3.13</strong></td>
<td><strong>1,879</strong></td>
</tr>
<tr>
<td><strong>Total Proven &amp; Probable</strong></td>
<td><strong>19,456</strong></td>
<td><strong>3.05</strong></td>
<td><strong>1,910</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mineral Resources$^{1,2,3}$</th>
<th>Tonnes ('000)</th>
<th>Grade (Au g/t)</th>
<th>Content (Koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measured &amp; Indicated Mineral Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wassa</td>
<td>44,347</td>
<td>2.33</td>
<td>3,328</td>
</tr>
<tr>
<td>Prestea</td>
<td>5,394</td>
<td>6.08</td>
<td>1,055</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>49,741</strong></td>
<td><strong>2.74</strong></td>
<td><strong>4,382</strong></td>
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<tr>
<td><strong>Inferred Mineral Resources</strong></td>
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</tr>
<tr>
<td>Wassa</td>
<td>15,581</td>
<td>4.20</td>
<td>2,102</td>
</tr>
<tr>
<td>Prestea</td>
<td>3,723</td>
<td>7.79</td>
<td>933</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19,305</strong></td>
<td><strong>4.88</strong></td>
<td><strong>3,034</strong></td>
</tr>
</tbody>
</table>

3. All numbers exclude refractory ore.