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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army **Date:** March 2019

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| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD) | R-1 Program Element (Number/Name) PE 0605033A / Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total | FY 2021 | FY 2022 | FY 2023 | FY 2024 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 20.661 | 5.169 | 3.847 | - | 3.847 | 5.981 | 0.000 | 0.000 | 0.000 | 0.000 | 35.658 |
| EQ3: Grnd-Based Opnl Surv Sys -Exped (GBOSS-E) | - | 20.661 | 5.169 | 3.847 | - | 3.847 | 5.981 | 0.000 | 0.000 | 0.000 | 0.000 | 35.658 |

A. Mission Description and Budget Item Justification

Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. GBOSS-E will replace obsolete, quick reaction capability (QRC) surveillance and force protections systems utilizing modular configurations: Light variant (man transportable/detachable) for extra small base camps or small outpost/company, Medium variant (mid sensor height) for small to medium size base, and Heavy variant (high level sensor height) for large contingency base camps. GBOSS-E will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.

| B. Program Change Summary (\$ in Millions) | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 5.207 | 5.175 | 6.794 | - | 6.794 |
| Current President's Budget | 20.661 | 5.169 | 3.847 | - | 3.847 |
| Total Adjustments | 15.454 | -0.006 | -2.947 | - | -2.947 |
| • Congressional General Reductions | -0.004 | -0.006 | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | 15.662 | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -0.204 | - | | | |
| • Adjustments to Budget Years | - | - | -2.947 | - | -2.947 |

Change Summary Explanation

FY 2018 variation due to \$6 thousand for FFRDC and reduction of \$204 thousand for SBIR/STTR.

FY 2018 increase of \$15.454 million supports JUONS CC-0540 to address the Vehicle Borne Improvised Explosive Device (VBIED) threat. Additional capabilities are being developed and integrated into the current Integrated Base Defense Systems.

FY 2019 variation due to reduction of \$195 thousand for SBIR/STTR.

FY 2020 decrease of \$2.947 million is due to an adjustment required to align funding with planned acquisition strategy and test efforts.

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| Exhibit R-2A, RDT&E Project Justification: PB 2020 Army | | | | | | | | | | Date: March 2019 | | |
| Appropriation/Budget Activity 2040 / 5 | | | | | R-1 Program Element (Number/Name) PE 0605033A / Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) | | | | Project (Number/Name) EQ3 / Grnd-Based Opnl Surv Sys -Exped (GBOSS-E) | | | |
| COST (\$ in Millions) | Prior Years | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total | FY 2021 | FY 2022 | FY 2023 | FY 2024 | Cost To Complete | Total Cost |
| EQ3: Grnd-Based Opnl Surv Sys -Exped (GBOSS-E) | - | 20.661 | 5.169 | 3.847 | - | 3.847 | 5.981 | 0.000 | 0.000 | 0.000 | 0.000 | 35.658 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. GBOSS-E will replace obsolete, quick reaction capability (QRC) surveillance and force protections systems utilizing modular configurations: Light variant (man transportable/detachable) for extra small base camps or small outpost/company, Medium variant (mid sensor height) for small to medium size base, and Heavy variant (high level sensor height) for large contingency base camps. GBOSS-E will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.

FY 2020 Base Funding in the amount of \$3.847 million supports the continued development efforts for GBOSS-E to include the Technical Data Package (TDP) and Product Support Analysis for all system configurations. This funding also supports acquisition of Engineering Development Models. In addition, funding supports Developmental Testing, Limited User Testing (LUT) and program management activities.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2018 | FY 2019 | FY 2020 |
|--|----------------|----------------|----------------|
| Title: GBOSS-E Design and Build | 4.999 | 4.980 | 3.847 |
| Description: GBOSS-E completes building of Prototype/Engineering Development Models (EDMs) and Development Testing (DT). | | | |
| FY 2019 Plans: FY 2019 Plans: Funding supports completion of the Engineering Development Models, technical testing of the chosen components, Integration activities, Developmental Testing, Limited User Testing (LUT), Logistics demonstration and program management activities | | | |
| FY 2020 Plans: FY 2020 Plans: Funding supports continued assembly/integration of EDMs and completion of DT and LUT. | | | |
| FY 2019 to FY 2020 Increase/Decrease Statement: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2020 Army | | Date: March 2019 | | |
| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i> | Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2018 | FY 2019 | FY 2020 |
| FY2019 to FY 2020 funding decrease is due to an adjustment required to align funding with planned acquisition strategy and test efforts. LRIP procurement and IOT&E efforts shifted into FY 2021. | | | | |
| Title: CVBIED Design and Build | | 15.662 | - | - |
| Title: FY 2019 SBIR / STTR Transfer | | - | 0.189 | - |
| FY 2019 Plans: FY 2019 SBIR / STTR Transfer | | | | |
| FY 2019 to FY 2020 Increase/Decrease Statement: FY 2019 SBIR / STTR Transfer | | | | |
| Accomplishments/Planned Programs Subtotals | | 20.661 | 5.169 | 3.847 |
| C. Other Program Funding Summary (\$ in Millions) N/A | | | | |
| Remarks | | | | |
| D. Acquisition Strategy Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) will replace the interim Persistent Surveillance System - Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities along with network integration and better mobility utilizing modular configurations. The GBOSS-E Capability Design Document (CDD) was AROC approved May 2014. In FY 2013, FY 2014 & FY 2015, the Department of Defense (DoD) Physical Security Enterprise and Analysis Group (PSEAG) provided funds to conduct pre-milestone B activities. GBOSS-E received an approved Materiel Development Decision (MDD) from the Milestone Decision Authority (MDA) on 4 December 2015. Milestone B decision accomplished 29 Sep 2017, the existing United States Marine Corps (USMC) tower's design (Ground Based Operational Surveillance System) (GBOSS) will be leveraged and modified to meet the Army's GBOSS-E program requirements. The acquisition strategy for GBOSS-E was approved by the Milestone Decision Authority (MDA) on 11 December 2016, which approved plans to leverage the Naval Surface Warfare Center (NSWC) at Crane, Indiana and the Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, Virginia to provide system design, development, and integration support, as well as a Technical Data Package (TDP) to support future procurements. Milestone C is planned for FY 2021. | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2020 Army | | Date: March 2019 |
| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0605033A / Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) | Project (Number/Name) EQ3 / Grnd-Based Opnl Surv Sys -Exped (GBOSS-E) |
| E. Performance Metrics N/A | | |

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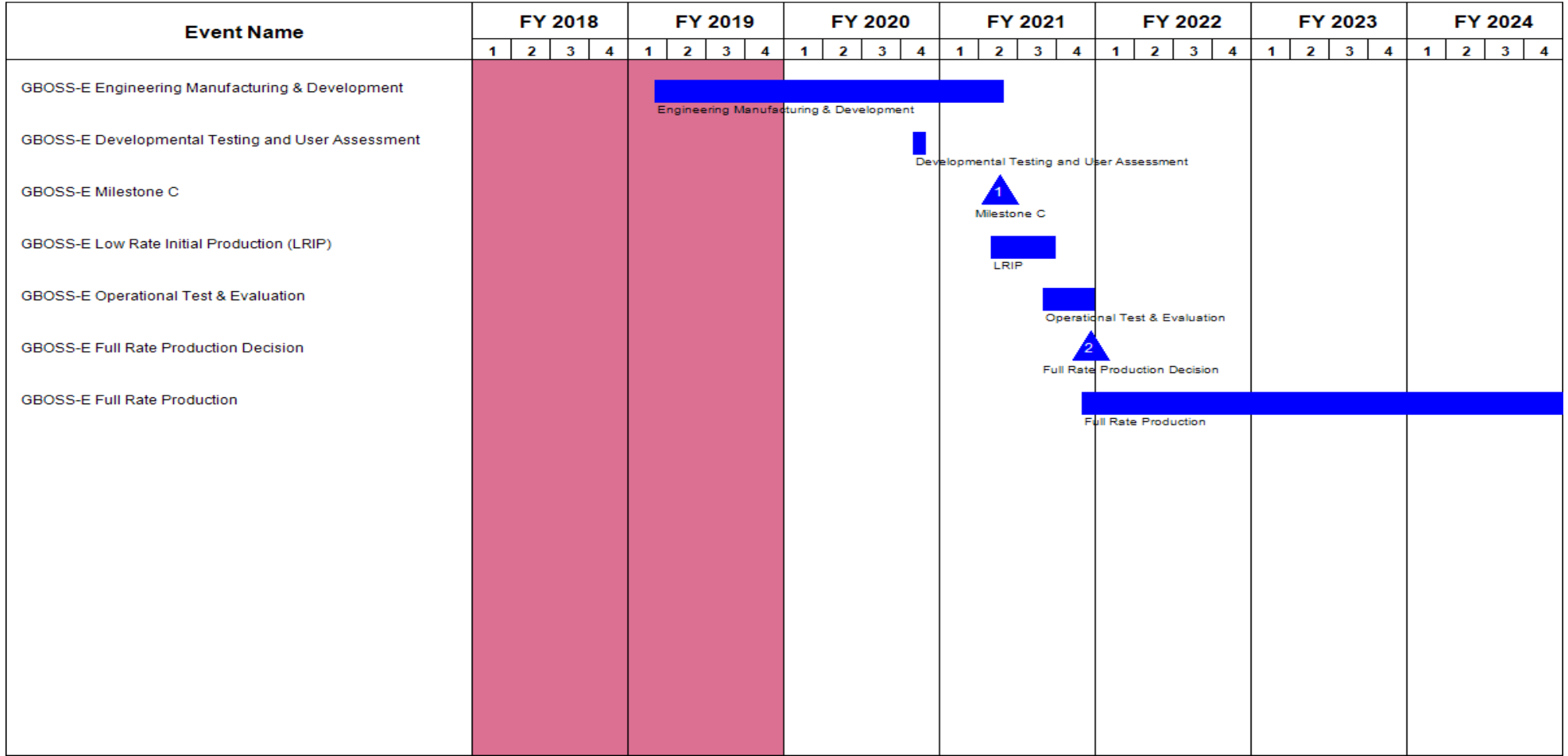
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army | | | | | | | | | | | | Date: March 2019 | | | |
|---|------------------------|--------------------------------|-------------|---------|------------|---|------------|--------------|------------|--|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity 2040 / 5 | | | | | | R-1 Program Element (Number/Name) PE 0605033A / Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) | | | | Project (Number/Name) EQ3 / Grnd-Based Opnl Surv Sys -Exped (GBOSS-E) | | | | | |
| Management Services (\$ in Millions) | | | | FY 2018 | | FY 2019 | | FY 2020 Base | | FY 2020 OCO | | FY 2020 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| GBOSS-E Project Management | MIPR | PM FPS : Fort Belvoir, VA | 1.112 | 0.821 | | 0.763 | May 2019 | 0.308 | Jan 2020 | - | | 0.308 | Continuing | Continuing | - |
| CVBIED JUONS 0540 Project Management | MIPR | PM FPS : Fort Belvoir, VA | - | 0.051 | | - | | - | | - | | - | 0.000 | 0.051 | - |
| Subtotal | | | 1.112 | 0.872 | | 0.763 | | 0.308 | | - | | 0.308 | Continuing | Continuing | N/A |
| Product Development (\$ in Millions) | | | | FY 2018 | | FY 2019 | | FY 2020 Base | | FY 2020 OCO | | FY 2020 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| GBOSS-E Design Engineering | MIPR | NSWC Crane : Crane, IN | 1.933 | 2.221 | | 1.246 | Feb 2019 | 2.257 | Jan 2020 | - | | 2.257 | Continuing | Continuing | Continuing |
| GBOSS-E Software Development | TBD | TBD : TBD | 0.263 | - | | - | | - | | - | | - | Continuing | Continuing | Continuing |
| GBOSS-E Integration Support | MIPR | NSWC Crane : Crane, IN | 1.125 | - | | 0.419 | Feb 2019 | 0.464 | Jan 2020 | - | | 0.464 | Continuing | Continuing | Continuing |
| Tech Data | MIPR | NSWC Crane : Crane, IN | - | - | | 1.194 | Feb 2019 | - | | - | | - | Continuing | Continuing | Continuing |
| CVBIED JUONS 0540 Wide Area Motion Imagery Sensor Development | MIPR | NAVAIR : Patuxent River, MD | - | 7.208 | | - | | - | | - | | - | 0.000 | 7.208 | - |
| CVBIED JUONS 0540 Wide Area Motion Imagery Sensor Development | MIPR | RDECOM : Fort Belvoir, VA | - | 8.735 | | - | | - | | - | | - | 0.000 | 8.735 | - |
| Prototype Development | MIPR | NSWC Crane : Crane Indiana | - | - | | 0.735 | Feb 2019 | - | | - | | - | Continuing | Continuing | Continuing |
| FY 2019 SBIR / STTR Transfer | TBD | TBD : TBD | - | - | | 0.189 | | - | | - | | - | 0.000 | 0.189 | - |
| Subtotal | | | 3.321 | 18.164 | | 3.783 | | 2.721 | | - | | 2.721 | Continuing | Continuing | N/A |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army | | | | | | | | | | | | | Date: March 2019 | | |
| Appropriation/Budget Activity 2040 / 5 | | | | R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i> | | | | | | Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i> | | | | | |
| Support (\$ in Millions) | | | | FY 2018 | | FY 2019 | | FY 2020 Base | | FY 2020 OCO | | FY 2020 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| GBOSS-E Design Support | MIPR | RDECOM CERDEC : Fort Belvoir, VA | 0.310 | 0.105 | | 0.107 | Jan 2019 | 0.109 | Jan 2020 | - | | 0.109 | Continuing | Continuing | Continuing |
| ARL Human Systems Integration Support | MIPR | US Army ARL : Adelphi, MD | 0.025 | 0.029 | | 0.030 | Feb 2019 | 0.030 | Nov 2019 | - | | 0.030 | Continuing | Continuing | Continuing |
| CECOM FSD - Safety | MIPR | CECOM : APG, MD | 0.025 | 0.029 | | 0.030 | Feb 2019 | 0.030 | Nov 2019 | - | | 0.030 | Continuing | Continuing | Continuing |
| Acquisiton / Logistics Support | MIPR | Various : Various | - | - | | - | | 0.507 | Mar 2020 | - | | 0.507 | 0.000 | 0.507 | - |
| Subtotal | | | 0.360 | 0.163 | | 0.167 | | 0.676 | | - | | 0.676 | Continuing | Continuing | N/A |
| Test and Evaluation (\$ in Millions) | | | | FY 2018 | | FY 2019 | | FY 2020 Base | | FY 2020 OCO | | FY 2020 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| GBOSS-E Test and Evaluation | MIPR | ATEC : Aberdeen Proving Ground, MD | 0.045 | 0.284 | | 0.456 | | 0.142 | Jan 2020 | - | | 0.142 | Continuing | Continuing | Continuing |
| JUONS CC-0540 Test and Evaluation Support | MIPR | ATEC : Aberdeen Proving Ground, MD | - | 1.178 | | - | | - | | - | | - | 0.000 | 1.178 | - |
| Subtotal | | | 0.045 | 1.462 | | 0.456 | | 0.142 | | - | | 0.142 | Continuing | Continuing | N/A |
| | | | Prior Years | FY 2018 | FY 2019 | | FY 2020 Base | | FY 2020 OCO | | FY 2020 Total | Cost To Complete | Total Cost | Target Value of Contract | |
| Project Cost Totals | | | 4.838 | 20.661 | 5.169 | | 3.847 | | - | | 3.847 | Continuing | Continuing | N/A | |
| Remarks | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army | | | Date: March 2019 | | |
| Appropriation/Budget Activity 2040 / 5 | | R-1 Program Element (Number/Name) PE 0605033A / Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) | | Project (Number/Name) EQ3 / Grnd-Based Opnl Surv Sys -Exped (GBOSS-E) | |



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| Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army | | | Date: March 2019 |
| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i> | Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i> | |

Schedule Details

| Events | Start | | End | |
|---|----------------|-------------|----------------|-------------|
| | Quarter | Year | Quarter | Year |
| GBOSS-E Risk Reduction | 1 | 2016 | 4 | 2017 |
| GBOSS-E Engineering Manufacturing & Development | 1 | 2019 | 2 | 2021 |
| GBOSS-E Developmental Testing and User Assessment | 4 | 2020 | 4 | 2020 |
| GBOSS-E Milestone C | 2 | 2021 | 2 | 2021 |
| GBOSS-E Low Rate Initial Production (LRIP) | 2 | 2021 | 3 | 2021 |
| GBOSS-E Operational Test & Evaluation | 3 | 2021 | 4 | 2021 |
| GBOSS-E Full Rate Production Decision | 4 | 2021 | 4 | 2021 |
| GBOSS-E Full Rate Production | 4 | 2021 | 4 | 2025 |