will also be homeported in the Pacific. The last two SSBNs are scheduled to start their backfit in FY 2005 and FY 2006. The contracts have been awarded and much of the required hardware has been procured.

The four oldest of the OHIO Class submarines were selected for conversion to SSGNs because of their age and scheduled maintenance periods. As mentioned previously, two of the four submarines have already completed their final strategic offload. The first two SSBN engineered refueling overhauls (EROs) are scheduled to start in FY 2003, followed by conversion to SSGN starting in FY 2004. The third and fourth SSBN EROs are scheduled to start in FY 2004 and FY 2005, respectively, followed by conversion to SSGN starting in FY 2005.

Both backfit and SSGN conversion operations are examples of transformational programs that provide an improved capability for the Navy and the nation, extend the life of the submarines beyond their planned life, and represent the return on investment the American people have made in our Navy.

The Navy can say with confidence that the Strategic Submarine Force continues to cost-effectively provide a survivable, reliable and flexible strategic deterrent. We've been aggressively modernizing our deployed Strategic Weapon Systems, shifting to commercial off-the-shelf equipment where practical, developing plans to effectively and economically provide payload flexibility with increased effectiveness against hardened targets, incorporating strategic retargeting capability, and providing hardware and software updates to prevent the obsolescence of our weapon systems. These efforts are a part of the Navy's strategic vision of Sea Power 21.

Program

SSP is focused on three primary areas: D5 life extension (D5LE), Nuclear Weapons Security (NWS), and Nuclear Posture Review (NPR) objectives.

TRIDENT II (D5) Life Extension

The TRIDENT II D-5 life extension (LE) program is required due to the OHIO Class Ballistic Missile Nuclear Submarine (SSBN) service life increasing from 30 years to 45 years. The impact of the SSBN hull life extension is significant in two ways. First, it delays the replacement of these platforms by 15 years, effectively delaying the expenditure of up to $25 billion in current year dollars for follow-on strategic submarine platforms. Second, it requires the service life of the TRIDENT II D-5 Strategic Weapons System (SWS) carried by these ships to also be extended by 15 years.

The extended service life requirement affects flight hardware (missile, guidance and reentry) and shipboard hardware (launcher, fire control, navigation and test instrumentation).

With respect to flight hardware, D-5 life extension requires procurement of an additional 115 TRIDENT II D-5 missiles, revising the total D-5 procurement objective from 425 to 540. In addition, the guidance system and missile electronics must be replaced due to aging and obsolescence issues.

The service life extension for flight hardware requires a strategy that effectively addresses two key issues: (1) supporting the existing systems, recognizing that some parts will fail due to age or become obsolete, and (2) producing the additional flight test missiles required to assure credibility and safety of the deterrent. These flight test missiles support qualification of new or modified components, as well as the additional annual reliability tests required due to extended program life.

With the SSBN service life extended to 45 years, a missile inventory shortfall will occur starting in approximately FY 2014 when the oldest OHIO Class submarine would have originally been decommissioned. The 30-year service life procurement objective of 425 TRIDENT II D-5 missiles does not support the additional flight tests necessary to extend the TRIDENT II D-5 SWS to 45 years.

The Navy is currently executing a low rate production continuity procurement strategy for critical components of TRIDENT II D-5 missiles. Several missile components are designated as critical, the most important being the rocket motor sets. These critical components are being procured at their minimum rate in advance of when they would be required for full missile assembly to sustain component quality and maintain the supplier base. The production continuity procurement strategy has been extensively reviewed and approved by the Department of Defense (DoD) and the Congress and has been in execution for nearly 15 years. This procurement strategy has proven successful, based on the demonstrated superb performance of the TRIDENT II D-5 Strategic Weapon System. The FY 2004 TRIDENT II WPN budget request includes the continued production of rocket motors and other critical components. The current program fully funds the additional 115 TRIDENT II D-5 LE missiles in FY 2008 through FY 2013, supporting lead-time away from need requirements. Rocket motor sets and other critical components in support of the 115 missile requirement are currently being procured as described above. Rocket motor procurements in support of the additional missiles for life extension began in FY 2002.

The current TRIDENT II D-5 Mk-6 Guidance System improved accuracy by a factor of four over the previous TRIDENT I C-4 Mk-5 Guidance Subsystem. As successful and reliable as the Mk6 Guidance Subsystem has been to date, there are significant technology limitations that make this design impractical to maintain throughout the extended life period. The Mk-6 design is based on early 1980's technology. Production ended with the FY 2001 procurement. Restarting production would be cost prohibitive, and attempting to integrate today's electronics technology into a 20-year old design would be inefficient and high risk. The Mk-6 guidance subsystem, in its current form, will not support the life extension requirements. The Navy program includes the most affordable and lowest risk approach to meet TRIDENT II D-5 LE requirements by the pursuit of a system to replace the Mk-6, designated the Next Generation Guidance (NGG). Due to the advancements made in technology, both in components (solid state sensors and electronics) and in modeling and simulation, stringent cost targets have been established for NGG with the requirement to meet current Mk-6 performance. The ability to develop precision instruments, sensors, and radiation hardened architectures for NGG requires investment in underlying commercially supported technologies to adapt them for the unique strategic requirements. The redesign approach leverages off of current Air Force/Navy cooperative strategic-unique technology efforts and will result in a Navy TRIDENT II D-5 LE

solution and government owned design package that can be used by other Services to leverage off the Navy investment.

Similarly, missile electronics packages must also be redesigned for the same aging and obsolescence issues described above for guidance. The technology used for D-5 electronics is obsolete and for most components there is no longer an industrial base. Thus, the TRIDENT II D-5 electronics subsystem will require new package designs for the additional missile procurements and for backfit into existing missiles, since legacy electronic components are no longer available. The Navy's FY 2004 WPN request continues the missile electronics and guidance system redesign efforts begun in FY 2003.

The D5 missile is capable of carrying both the W76/MK4 and the W88/MK5 reentry bodies. While the W88/MK5 was designed specifically for the D5 during the early 1980s and will not need to be immediately refurbished, the W76/MK4 warhead and fuze carried on the MK4 reentry body was designed in the early 1970s and began deployment in 1979 on the TRIDENT I (C4) missile with a design life of 20 years. The W76/MK4 program was based on the older W68/MK3 design and some of the components were carried over from that program. There are technical and programmatic issues that require both a refurbished warhead and a refurbished fuze for the W76/MK4. The Department of Energy and the Navy are executing a refurbishment program for the W76/MK4 reentry body. The Navy's refurbishment of the W76/MK4 fuze is supported in the Navy's FY 2004 WPN budget request.

With respect to shipboard hardware, life extension is taking place on a somewhat continuous "refreshment" basis, with the computing and electronic component parts of these systems moving rapidly towards the integration of commercial off-the-shelf (COTS) products. Because of the low cost of COTS hardware components, it is more cost-effective to adopt a shorter refresh cycle than possible with previous generations of custom hardware/software. This strategy reduces support costs while maintaining high reliability and safety. All shipboard SWS Subsystems have life extension programs planned or in place to support the SSBN 45 year life. In addition to the COTS components, there is specialized equipment required to support the mission, such as the highly precise strategic submarine inertial navigation equipment. Prudent investment in these equipments is also contained in the Navy's FY 2004 OPN request. The goal for each subsystem will be to mitigate known obsolescence and supportability problems, providing both cost avoidance and reduced life cycle costs. The Navy's FY 2004 OPN budget request supports these shipboard subsystem life extension efforts.

TRIDENT II (D5) life extension efforts ensure a credible, survivable and affordable strategic deterrent capability well into the 21st century.

Nuclear Weapons Security

The Navy continues to meet all current DoD policy regarding Nuclear Weapons Security. There was a significant investment during the design and construction of both Strategic Weapons Facilities in Bangor, Washington and Kings Bay, Georgia primarily in the weapons storage areas (WSA) and the assignment of sizable dedicated security forces to protect nuclear weapons within the WSA. However, the attack on the USS COLE and the events of 9/11 caused the DoD and