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# 2080 Defense Force and Beyond

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**T**he future of technology and warfare is uncertain, but it will always remain a staple of advancement and a part of the human condition. As populations grow and available resources diminish, it will take innovation and strength for the U.S. to remain a global power. This article explores both developing and hypothetical technology and anticipates future battle spaces the U.S. should prepare for to remain a global power.

## **Worth Fighting For**

Throughout history, wars have been fought for many reasons. From economic gain to revenge to revolutions. Future warfare will be no different, although there may be pressure to fight for resources such as fresh water, especially because the borders of many of the world's freshwater supplies as well as other resources will be shared by multiple countries. The following sections focus on three areas I believe will be the most heavily contested 60 years from now: The Arctic Circle, renewable resources, and habitable space.



A 114-acre renewable solar energy complex, located at Redstone Arsenal, Alabama, Feb. 23, 2018. The complex generates about 10 megawatts, alternating current, on-site solar renewable energy. (U.S. Army photo by Megan Gully)

### The Arctic Circle

By the year 2080, I anticipate the Arctic Circle will be one of the most sought-after global locations. According to the Council on Foreign Relations:

*“Many forecast Arctic summers will be free of ice in a matter of decades, potentially opening the region up to hundreds of billions of dollars in investment, including energy production, shipping, and fishing. The thaw will also pose new security demands as greater human activity induces states to increase their military and constabulary presence. While most experts dismiss the prospects for armed aggression in the Arctic, some defense analysts and academics assert that territorial disputes and a competition for resources have primed the Arctic for a new Cold War.” (n.d., para. 3)*

Along with shipping lanes and airways, the Arctic is rich with fossil fuels, minerals and animal resources. These include major sources of oil and natural gas and large quantities of iron ore, copper, nickel, zinc phosphates, and diamonds as well as abundant fisheries (“Arctic Natural Resources,” 2017).

Another strength of the Arctic is its location, especially in terms of weapon reach. Whoever controls the Arctic will be able to strike adversaries anywhere in the world, especially the Northern Hemisphere, with hypersonic ballistic missiles. Currently, the largest major military player in the Arctic is Russia, with the U.S. and China vying to push their way in (Lopez, 2020). According to Michael Forsythe in *Military Review*, “Russia has moved aggressively to build its Arctic military capabilities to secure its claims and interests in the region. Increasingly, human activity is occurring in the Arctic as the sea ice recedes, and economic opportunity opens to nations via

new shipping lanes” (Forsyth, 2018).

These factors, along with melting ice, will likely make the Arctic a premier military and commercial global hub by the year 2080.

### Energy and Resources

Other sources of future conflict will be energy and resources. Currently, the U.S. relies heavily on fossil fuels (petroleum, natural gas, and coal) as well as nuclear and renewable energy (hydropower, geothermal, wind, solar, etc.) (“U.S. Energy,” 2020). In the future, once strict climate policies have been established, renewable energy will most likely rule the energy landscape. Even now we’re seeing a shift from fossil fuels to solar and wind sources (Marcelli, 2020). This scenario will most likely lead to conflict as smaller countries may have difficulty developing the infrastructure necessary to produce renewable energy, and larger countries will see energy sources as viable military targets. This will force countries to strengthen their navies as sea space will become highly valuable with its potential to generate hydro power as well as house offshore (“floating”) nuclear reactors currently under development by Russia, China, and the U.S. (Kramer, 2018).

### Habitable Space

In 2017, the U.N. stated there were 7.6 billion people on the planet, and every year roughly 83 million people are born. With people living longer than ever, the world’s population is projected to be 9.8 billion by 2050, and 11.2 billion by the year 2100 (“World Population,” 2017). This population growth will strain global economics, resources, and habitable living space—creating conditions that will lead to conflict.

Considering the direction technology is taking, by 2080 settlements in space will most likely become the norm. Even now, living in space for long periods of time has been accomplished on the International Space Station (Howell, 2018). This breakthrough, coupled with emerging technology, will lead to Low Earth Orbit (LEO) settlements in the near future. LEOs are living spaces suspended several hundred miles above the earth. They’re high enough not to be pulled back into the atmosphere, but low enough to be protected from solar storms.

According to the National Space Society:

*“Early settlements can be expected to orbit the Earth. Later settlements can spread out across the solar system, taking advantage of the water in Jupiter’s moons, or exploiting the materials of the asteroid belt. There is good reason to believe that orbital space settlements can provide terrific homes for ten trillion people, or perhaps even more.” (“Orbital Space Settlements,” 2019, para. 11).*

There are several benefits to LEO settlements:

- The ability to expand and build as demand increases.
- Building in a weightless environment would allow fast construction of more flexible designs.
- Solar energy, an innovation in 2080, will provide abundant energy for LEOs.

Several potential downfalls to LEOs also exist:

- Determining where countries build them.
- Defense from aggressive countries or natural events such as comets, asteroids, debris, etc.
- Reliable transportation of resources and/or people to and from LEOs (“Orbital Space Settlements,” 2019).

## 2080 Defense Force

I predict that in 2080, rather than separate branches of the military, the 2080 Defense Force will incorporate air, sea, space, and land power into a modernized force capable of conventional, unconventional, subterranean, and space warfare. This form of military will require speed and resources for a Joint All-Domain Task Force capable of operating by itself with commander’s intent (Prewitt, 2020).

Space warfare in 2080 will not be limited to cyber and communication systems; it will be broader and include LEO operations, securing orbital settlements, space defense, and planetary exploration. To achieve this modernized Defense Force, nations will undergo extensive upgrades of their formations, and rely on both autonomous and semiautonomous robotics, artificial intelligence (AI), and renewable energy initiatives.

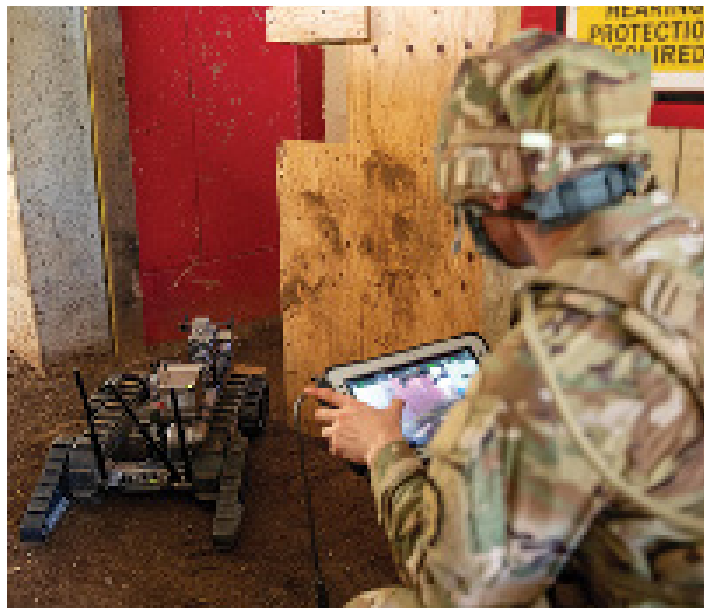
## Mobility and Protection

The 2080 Defense Force will be able to adapt to any terrain while providing protection to its personnel. Zero gravity technology will most likely be incorporated as a mobility and protection asset since the future will require space defense.

## Flight and Artificial Intelligence

AI is currently being integrated with flight simulators and test vehicles in the Department of Defense. “AI is expected to play a crucial role in military logistics and transport. The adequate transportation of goods, ammunition, armaments, and troops is an essential component of successful military operations. Integrating AI with military transportation can lower transportation costs and reduce human operational efforts.” (Singh & Gulhane, 2018). As nations draw closer to more robust AI integration, the military will develop ways to fully incorporate AI into ballistics, transportation, aviation, and health sciences. U.S. Army’s *Training and Doctrine Command Pamphlet 525-*

*92: The Operational Environment and the Changing Character of Warfare* predicts that in the future there will be technology available to connect the human brain directly to AI systems using special interfaces (Department of the Army, 2019). With the future fight centered more on robotics, the need for humans on the battlefield will decrease, theoretically reducing the number of physical casualties.



A U.S. Army Soldier assigned to 3rd Infantry Brigade Combat Team, 25th Infantry Division controls a robotic system during battle drill training at Schofield Barracks, Hawaii, Feb. 10, 2021. (U.S. Army photo by 1st Lt. Angelo Mejia)

## Conclusion

War is inevitable and fighting to advance or protect one’s civilization is a natural part of human existence. While current signs to point to a large-scale combat operation as the next big fight, with rapid advancements of technology, it’s difficult to envision the future fight 60 years from now. Will there be low gravity or space battles using robotics and AI? Will there be subterranean cities built in the aftermath of another global war? What is certain is that the Arctic Circle will become a heavily contested location worth fighting for; AI, robotics, and technology will play a large part in future military operations; and countries will inevitably colonize space. If the U.S. prepares for these changes, it will remain a global superpower for generations to come. ■

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