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UNITED  
STATES  
COAST  
GUARD

EVERGREEN IV SCENARIO:  
THE NEW OPPORTUNITY

Emerging Policy Staff | Evergreen Foresight Program

## Drivers

### International Stability and Cooperation

**Low: Free-For-All.** Nations risk conflict, companies risk ruin, people are continually threatened by violence and crime. Nations and non-state actors flout international norms, borders are unstable or often changing, and traditional international institutions have little influence. Each nation state looks inward to protect its territory. Businesses conduct affairs with profit as the primary motive. There is little respect for protecting the environment, workers, or human rights. Multinational corporations, non-state actors, and Transnational Criminal Organizations (TCOs) take advantage of limited international cooperation to maintain their own power base.

### Environmental Change and Adaptation

**Low: Rapid Failure.** The most extreme predictions of the Intergovernmental Panel on Climate Change came to fruition and exceeded efforts to adapt. Sea levels rose and the frequency of super storms increased. Adaptation has been ineffective. Global governments are struggling to keep pace with rapid environmental change.

## Overview

The world has experienced steady and irreversible climate change as the most extreme predictions are realized. Sea levels are at record highs and continue to

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*Lack of international cooperation on environmental issues contributes to famine and infrastructure loss.*

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*Resource conflicts increase. The Arctic is a major flashpoint.*

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*Nations form regional blocs. Global international cooperation is mostly nonexistent.*

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*Remaining law of the sea is circumvented by offshore business transactions.*

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*Natural disasters are frequent. Few nations provide global assistance, and first responders are highly proficient.*

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*Sovereignty is respected proportionately to a nation's cyber warfare capability.*

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rise, severe droughts are commonplace, food and water are in short supply, and natural disasters are frequent and destructive. Low-lying coastal cities are inundated, displacing millions. Poor countries are unable to adapt their agriculture and industries to new weather patterns. They suffer profoundly.



There has been progress in renewable energy development and carbon emission reduction. Unfortunately, it has produced minimal impact on climate trends.

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This is a plausible future scenario, part of a composite set designed to form planning space for foresight efforts. It is not intended to be predictive, nor does it represent the U.S. Coast Guard's assessment of the future.

Nations are highly motivated to remain self-sufficient and secure, and isolationism prevails worldwide. Strong countries have prioritized tight border controls, while failed and failing states are havens for organized crime. Existing foreign policy centers on critical resource acquisition. Human rights and other legacy international concerns take a backseat to environmental issues.

America has been strengthened by crisis. First responders are highly proficient. Cooperation among government, private industry, and non-governmental organizations is well developed. National leaders foster consensus on environmental and security issues, and defense strategy is well focused on border and resource integrity. Domestic policy reinvigorates manufacturing and agriculture. Diplomacy is limited almost exclusively to a loose alliance with Canada and Mexico.

Capital investments and environmental initiatives have rendered entitlements like Social Security and the Affordable Care Act cost-prohibitive. Formal social programs have been almost completely eliminated. Government safety nets have been replaced by informal community support structures. Neighbors once again come to one another's aid. In this time of perpetual emergency, there is strong patriotism, with all other affiliations lying a distant second to American.

The world is dependent on the oceans for food, water, and commerce. The maritime environment and fresh water supplies are increasingly stressed by pollution. In the face of global droughts and food shortages, fisheries are unsustainably exploited. The Marine Transportation System is in disrepair.

## Vignette

### The Wild North

The sharp crack was clearly heard over CERBERUS's powerful plant. The shockwave followed a moment later. Even a mile away, the exploding ship ensured its death throes would not pass without notice. The captain drew a cigar and Zippo lighter from a flak jacket pocket, bit off an end, and shielded the flame from the rising wind as the ship came up to speed. Leisurely exhaling a mouthful of the delicious smoke, she surveyed her work through dark glasses one last time, then turned around and leaned against the taffrail. This was one of her favorite views. Blue Arctic Ocean as far as the eye could see. White wake against the hull whipping into an angry rooster tail by the time it reached the stern. The muscular, low-slung lines of the ship defied the clear day in their dark gray livery. CERBERUS reached her cruising speed of a relaxed 40 knots. In spite of the brisk wind, Astrid's ARGOS GROUP ball cap stuck tight to her head, as if afraid of incurring its master's wrath. Just like her crew.

She enjoyed the wind and summer sun on her bare arms, muscle-bound and covered in tribal tattoos in the native Alaskan style. It was a typical Arctic summer day, around 55 degrees and clear. At this speed, they would pull in to Barrow before 1900. She would have time for an exceptionally brutal workout at the base gym. Perhaps the new mixed martial arts instructor

would be there, so she could thrash him all the way to the hospital. Again.

By the time she tossed the stub of her cigar over the rail, the former Chinese oil exploration ship was nothing more than a dark smudge of smoke on the horizon. *Hunt in your own territory.* As she reached the ladder to the O2 deck, a call came through.

“CAPTAIN, COOPER. OPS IS ON THE PHONE FOR YOU, MA’AM.” The bright blue lettering appeared to float in space about three feet away. The tiny transceivers hidden in the First Mate’s ear canals transmitted his verbal communication to her own set. Those devices converted the signal to text and retransmitted to her contact lenses, which generated the augmented reality overlay. The days of communications lost to the noise of wind, engines, and firefights were summarily dead.

“Randall, Captain. Thanks. On my way.” A few seconds later, she stepped from the sun, wind, and howling exhaust into the dark, cool confines of the bridge. More like a cockpit, really. She removed her sunglasses. Everything was appointed in stainless steel and black leather. The conning officer drove from a central captain’s chair, navigating and operating the four jet drives. Her contacts provided a view of his navigation array: electronic chart, radar display, fathometer, propulsion system data, and weather, all floating in the air just ahead of the console. With a couple of gestures, the conning officer scaled the chart out, calculated an updated ETA, and loaded Automated Information System data.

A second watch officer manned the communications and redundant navigation systems. His display included radio panels, controlled with gestures. Incoming communications went straight to the bridge watch’s ear pieces. Along with satellite radio for those long, open-ocean transits. When CERBERUS got into it, he also operated the weapons systems with the same type of holographic console. With so few moving parts remaining in the human-machine interfaces, CERBERUS and her sister ships suffered far fewer casualties than their more mechanical ancestors.

She stepped into her office aft of the bridge and closed the door.

“Accept call.” The waiting call transferred from the ship’s system to her ear pieces. That feature only worked within the skin of the ship, designed with an integrated Faraday cage.

“Handel here.”

“Astrid, it’s Michelle. First off, great job with the Russian.”

“Thanks. I still would rather have gone about it differently. My guys have been quite reserved this week.”

“Hey, you’re just building your legend.”

“Mystery can be as powerful as fact.”

“Well, anyway, I was calling to follow up on today’s op.”

“Right. We’ve got two subjects that should be of interest. We started comms jamming as soon as we identified the vessel, and hit it with EMP shortly thereafter. I’m confident nothing got out. In addition to the POIs, my boarding team found a few items that State will want to see.”

“Great. Did the alibi check out?”

“They were outfitted for drilling, and my team believes the kit and most of the crew were bona fide. We brought back the two guys that didn’t have any grease under their fingernails, if you get my drift.”

“How serious?”

“A full suite of wireless hacking and satellite communications gear.”

“The Russians have been in full siege mode since the buildup of Barrow started, but this may be the first Chinese attempt we’ve seen.”

“Does that mean my guys get a bonus?” The ARGOS GROUP Operations Officer chuckled.

“I’ll put in for one. Don’t know how far I’ll get. Anyhoo, looks like SCYLLA is on the other line. He’s been whining about the voice control for his missile system. I clarified that the problem is a Cajun weapons officer, but he won’t listen to reason. You guys sail safely. We’ll see you in port.”

“Good copy, Michelle. Thanks for the call.”

Astrid tossed her ball cap onto a peg and sat down behind her desk. She opened a drawer and drew a bottle of 12 year old Highland Park and a tumbler. She poured a finger, took a sip, and savored the mellow, smoky burn as she put her boots up on the desk and leaned back. It had been a long patrol.

- Last week. -

“What the hell is that noise?!”

“Sergei’s music, Captain.”

“What the f\*\*\*?! You have got to be s\*\*\*\*\* me. If Russia is so G\*\*\*\*\* great, why the hell doesn’t his d\*\*\*\*\* family get the f\*\*\* back to the s\*\*\*\*\*?! And why in the name of all that’s holy can’t he play that s\*\*\* on his earpieces?!” Astrid’s crew was accustomed to their Captain cussing blue flames. What

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*A new frontier in resource exploration.*



made the men on the mess deck fidget was the target. They had never heard her anger directed at one of them.

They had heard the rumors: Astrid Handel used to make her living killing terrorists in the Middle East. She had been a bounty hunter who caught the most psychotic murderers. She had been on death row and granted clemency on condition that her bloodlust serve her country. They had seen her in action: CERBERUS had blown up and sunk dozens of ships, with all hands. She had personally beaten resistant captives to within an inch of their lives. She had taken off a crewman's mangled leg with an axe and finished the surgery at sea. After anesthetizing him with an iron fist to the head.

The crew of CERBERUS respected their Captain for her skill as ship driver, fighter, and leader. She was a hard woman, but fair. They loved that she had made them rich with a very quiet policy of plundering their targets. While she frequently asked them to go in harm's way, she led them there and back from the front, and always advocated for them to cooperate. They respected her, and were even wary, but they weren't afraid. Had they been mistaken?

She slammed down her fork and surged to her feet. Regrettably, the prime rib would no doubt be cold by the time she returned to her dinner. She stalked out of the mess deck and down the passageway until she reached the stateroom door marked "Petrov." Russian folk music blared from within. With a mighty snap kick, the steel door exploded inward, nearly ripped off its hinges. An alarmed young man surged to his feet and spun to find the angry thunderhead of his Captain darkening the door. He had no time to react. She was in the room and on him in an instant.

The tall, thin young man's wire-rimmed glasses went flying as a backhanded slap nearly knocked him off his feet. A boot heel slammed down onto his media cabinet, metallic shriek and shattering acrylic abruptly ushering in silence. Before he could speak, fists clamped onto his collar and belt, he was bent double, and marched out of the room. Astrid made sure he missed the door on the way out. Thoroughly dazed, he was carried as much as dragged down the passageway. Had Astrid looked over her shoulder, she would have seen a half dozen alarmed faces peering around the corner.

"Listen up, you commie, if you can even hear after that cacophony of garbage. This is an American ship, defending American interests. You're paid by an American company. And clearly your parents thought America was a better place to be than Mother F\*\*\*\*\* Russia." They reached a watertight door leading to the fantail. She threw the lever and pushed it open. He yelped when his shins slammed into the knife edge as she dragged him through.

"I don't know where your loyalties lie. And so long as we're going up against your commie b\*\*\*\*\* brethren, that's enough for me." With main strength, the enraged woman lifted the crewman completely off the deck and heaved him over the taffrail. He didn't emerge from CERBERUS's turbulent wake until the ship was 500 yards gone. One arm flailed up weakly in a pleading signal. A text appeared.

“CAPTAIN, COOPER. SHALL I COME ABOUT FOR RECOVERY?”

“Randall, Captain. Negative. Let him swim back to Russia.” She was met with what equated to stunned silence. But her word was law.

- Today. -

Astrid wasn't a talker. Or a storyteller. And frankly, she didn't at all mind that her boys thought she had some kind of cold-blooded background. But allowing them to think she had murdered a man for listening to the wrong music didn't sit well with her. Unfortunately, she would never be able to clear the air. It would take time to earn their trust once more. Maybe she never would. But the needs of her country came first.

Sergei Petrov was not a first-generation Russian American who liked folk music. He was a Russian spy, deeply engaged in cyber espionage and warfare. The U.S. Navy and Coast Guard were locked down tightly and had robust counterintelligence operations in place. Private contractors like the ARGOS GROUP were vigilant, but they didn't have government resources at their disposal. They operated in proximity to U.S. interests, and carried out U.S. defense operations. Consequently, they were choice targets for infiltration.

Barrow, Alaska, was on track to rival Norfolk, Virginia, within a decade. As defending U.S. sovereignty and resources became the preeminent mission and the Arctic Ocean continued to open for commerce and resource extraction, the Navy and Coast Guard had increased their northern presence until a base became necessary. The shallow continental shelf off the north slope did not lend itself to the kind of secret and armored basing the Russians enjoyed at Olavsværn (whence, incidentally, most of the espionage efforts were based). All the same, the Department of Homeland Defense was investing billions to transform Barrow into a world-class naval base that could withstand terrible weather and overcome a legion of logistical challenges. While the older locals wistfully recalled the days when their town was a frontier settlement, the younger generation enjoyed all of the opportunities that came with the buildup: education, prosperity, and employment with major advancement prospects. Nowadays, it was practically a foregone conclusion that 90% of the graduating high school class would join the Navy or Coast Guard.

Astrid was a “southerner.” She grew up on Kodiak Island. Her parents had owned a successful sportfishing charter. Successful, that is, until the foreign fleets showed up. They exhausted the fish stocks for a hundred miles off the coast. Affected citizens blew up their representatives' phones and inboxes, organized protests at the state house, and even formed marine militias in a last-ditch effort to save their livelihoods.

The government eventually got its act together and put sufficient resources into purging U.S. waters of foreign oil and fish poachers. But not before the damage was done to Handel Charters. Bernie and Marguerite Handel decided to liquidate the company and retire while they still had some money in the bank. Astrid had her Master's license but nothing to inherit, no

business to run. Her dream of carrying on a tradition she loved had been taken by the foreign fleets as surely as the fish.

So at nineteen, Astrid went job hunting. ARGOS GROUP was pleased to find a licensed master with experience in Alaskan waters. She was pleased to have a paycheck. She started out as second mate, driving and navigating armored jet drive patrol craft. She went over the rail with the boarding teams and searched foreign vessels for evidence of cyber espionage and other threats to the country. After destroying that first vessel, a Russian trawler fishing well within the U.S. Exclusive Economic Zone (EEZ), she experienced a sense of satisfaction she hadn't known since being on a charter trip with her parents. She had found a way to put the hurt on the scum that ruined her family's business.

That was Astrid's big secret. She was not a born killer. Just the daughter of two fishing boat captains. A young woman whose dreams had been shattered. But she had a major chip on her shoulder. Against foreigners taking what was not theirs. That grudge was the source of tremendous energy and determination. It propelled her to command of her own ship and an unmatched kill record at ARGOS GROUP. A couple of countries had filed Demarche protests with the State Department against her, personally. Nothing had ever materialized from them. State no doubt had more pressing concerns, like keeping the sump pumps running at Foggy Bottom. Or reviewing CERBERUS's latest intelligence haul.

Astrid finished her scotch and got up from her desk. She approached an unobtrusive bulkhead safe and went through the handprint analysis, retinal scan, and voice recognition sequence to unlock it. She withdrew a waterproof case, locked the safe, and returned to her desk. Astrid donned a pair of latex gloves, unsnapped the latches, and lifted the lid.

Everything inside was sealed in plastic evidence bags. About two-thirds of the contents had been added that day. The rest had been in there a week. After consigning Sergei to the Arctic Ocean, she sealed off his stateroom and processed it herself. All ARGOS GROUP mariners were extensively trained in crime scene investigation and evidence processing. It was a must for those in direct contact with enemies of the state, and no foreign ship was blown up before being scoured clean for intelligence.

Among the former Sergei's kit were wireless transmitters and receivers, encryption and decryption devices, satellite communications gear, a computer loaded with software that would make DARPA drool, and several items that she couldn't identify. Her boot through his media cabinet had been calculated to unlock their probable hiding place. She hoped the collection evolution and departure from the stateroom with an evidence case communicated the right message to her crew. OPSEC protocols strictly forbade her from briefing them. Her point of contact at the NSA reinforced that concept as soon as she informed him of her concerns about Sergei's real mission aboard CERBERUS. Even though those concerns originated from a visit by two of her boys. She wished she could reward their alertness and patriotism with some closure, at the very least.



Astrid perused the items for the tenth time. There were certainly some emergent technologies here. Perhaps also links to Sergei's network. She hoped said network would buy the rumor that he had perished in a freak run-in with a xenophobic and psychologically unbalanced captain, so the NSA could find them before they went deep.

A text arrived. "CAPTAIN, COOPER. WE'RE AN HOUR OUT FROM PORT. WE'LL HAVE THE NAV BRIEF READY IN FIVE MINUTES."

"Randall, Captain. Thank you. I'll be right out." Astrid stowed and locked up the Russian and Chinese kit. She would be happy to see it all off her ship.

She stepped out of her office to find half a dozen of the crew assembled for the brief. "Ready, Captain?"

"Aye, Horatio. Please proceed." A three-dimensional model of Port Barrow appeared in the open space left by the gathered crew. Live weather and AIS data fed the display. Ships transited in and out, and floating arrows denoted wind direction and speed.

"Good afternoon, Ladies and Gentlemen. This is a port brief for entering Barrow, Alaska. We will be mooring starboard side to Wharf 8 North." The designated pier glowed bright red on the model.

"Our first course to line up on range Alpha will be One Six Zero true." The range boards illuminated, and the planned trackline appeared in the channel. A miniature CERBERUS steamed into view and transited the line.

"At waypoint three, we'll come left to One Zero Five." Little CERBERUS executed the turn perfectly and steamed through the remainder of the navigation brief.

As usual, the brief, transit into port, and standard evolution of shutdown and logistics went without a hitch. After completing and sending the operational summary, she updated her log and passed the evidence case and two Chinese captives to the NSA courier, who was also carrying a package for her addressed from ARGOS's Barrow Operations Base. Finished with the chores, she returned to her office.

"Call Mom. Audio."

"CALLING MOM." Her earpieces sounded. "AUDIO ACTIVATED."

"Astrid! How ya doin'?"

"Hey, Mom! Things are good. Successful patrol. U.S. waters remain safe under my watch."

"I would expect nothing less! And how is the mighty BRUCKENTHAL and her crew?"

“All doing well. We seized some boats, arrested some people, and a couple of my new guys got qualified.”

“That’s great!”

“Yeah! The only downside was a non-performer that I had to remove from the ship. Unfortunately, he was intractable. Lost cause.”

“That’s too bad. Hopefully, he’ll be more successful in a different line of work.”

“No kidding. I wish him the best. Anyway, how are you guys?”

“Staying busy. The Mecca burned down. Five-alarm fire. I responded to that one, but she couldn’t be saved.”

“No kidding?! Well, that’s the end of an era.”

“Indeed. I don’t know what all of the young military folks are going to do now. On a brighter note, your father delivered twins, right in the ambulance. They were NOT going to wait for the hospital!”

“Go, Dad! That’s awesome. Please forward my congratulations! Does this mean he’ll get two stork stickers for the ambulance?”

“He already put them on. Say, when are you getting home?”

“I’ve put in for leave this coming month, when we go into drydock. Will that work for you guys? I know you’re busy.”

“That sounds great. Are you up for some construction?”

“Always. What’s the project?”

“A big one. The Fisherman’s Landing apartments were finally inundated. The Army Corps couldn’t do any more for them. Lots of folks out of a home. The city rezoned a new site at good elevation, and turned it over to Habitat for action. We’ve got the foundation and main water, sewer, and power lines built. Now it’s time for the fun part.”

“Sounds great! I’m looking forward to it.” A rather timid knock sounded. Randall Cooper’s official photograph appeared before the door. “Mom, that’s one of my guys. I need to get going.”

“Of course, dear. You Coasties keep the Navy safe up there!”

“Can do, Mom. Love you!”

“Love you too, Astrid.”

As usual, the conversation left her with mixed feelings. She loved that her parents were staying busy as volunteer firefighters, paramedics, and members of Habitat for Humanity. She knew the satisfaction they experienced by improving their community. Since losing the business, they had found happiness once more.

She hated lying to them. She was required to maintain the fully backstopped facade that she commanded USCGC NATHAN BRUCKENTHAL (WOPC 301) and led a heroic crew in enforcing U.S. laws and rescuing those in peril. It was all part of maintaining the United States’ plausible deniability and preventing World War III. An invaluable service that firms like the ARGOS Group provided.

She also hated the idea of coming clean. Of telling them how angry she still was. How she channeled it into sinking lots of foreign ships and killing lots of foreign nationals. No, hers was not a noble line of work. Necessary, and personally satisfying, but not noble.

“Cooper, Captain. Come on in.” He didn’t hear her through the soundproofing, but received the text bright and clear. The door opened.

“Captain, can I steal a few minutes of your time?”

“Certainly. Come in.” She motioned him to a chair near the desk and returned to her own seat.

“What’s on your mind?”

“Sergei.”

She leaned back in her chair and put her boots up on the desk to disguise her rising discomfort. Astrid never stood down from a debate, argument, or fight, but she hated confrontations with her people. Still, she would be damned if they knew that.

“Ah, Sergei. The Communist. What about him?”

“Captain, you should know that we all understand.”

“That I have zero tolerance for wavering loyalty to this country? I’m pretty sure I made that clear.”

“Yes, Ma’am. And the other thing.” She stared at him, demanding further explanation. “We know you can’t talk about it. I just wanted you to know why the crew has been quiet. They’re not upset by how you handled Sergei. They’re bothered by the fact that he got aboard. And they feel like you shouldn’t have had to deal with the situation by yourself.”

“Tell them to stop being a bunch of emotional girly-men and get back to work.” Cooper tried to stifle a smile. He knew when his Captain was showing affection for the guys. “And give them these. Just a little appreciation from those pantywaists at corporate. God knows I don’t think you jerks deserve it.” She tossed an envelope across the desk. Inside was a cashier’s chip for each member of CERBERUS’s crew, loaded with an impressive sum. “Now get the hell out of here and home to your family.” The smile won the battle as he departed.

“Thank you, Captain.” Alone once again, she planned her next move.

“Activate Athabaskan Express.”

“ACTIVATING ATHABASKAN EXPRESS. ONLINE. PLEASE PROCEED WITH YOUR ORDER.”

“Ten gauge galvanized steel. Six feet by six feet. Ten each. Diamond tipped radial saw blade. Ten inches. Three each. QuickCrete. Fifty pound sack. Twelve each. Rebar. Eight feet long. Twenty each....” She completed her order a minute later.

“YOUR ORDER WILL BE DELIVERED IN 20 MINUTES. YOUR USUAL METHOD OF PAYMENT HAS BEEN CHARGED. THANK YOU FOR YOUR BUSINESS.”

Astrid was using her bonus to fund a few home improvements she had been contemplating. She would get started as soon as she finished her lift and work well past midnight. The weather was forecast to hold through the long weekend, and there was a raging storm on the other end that would serve nicely to test her enhancements. Yes, it would be a pleasant few days of sawing, welding, and pouring concrete.

It was a brutal, new world. A world filled with opportunity.

## Dimensions

### Technology

Sensors of all kinds are pervasive. Their collected, disparate data is processed to extract information. That information is synthesized and analyzed to produce intelligence. While feeding valuable data analytics and predictive algorithms, the construct and practice have dramatically eroded individual privacy. Some citizens make heroic efforts to safeguard information about their whereabouts, activities, communications, and interactions. The vast majority have accepted transparency as the new normalcy and make no attempt to conceal the details of their lives.

Processors and networks are highly advanced. Computation has been replaced with context-oriented systems able to understand user requests and behaviors. User experience is

thoroughly customized. They also protect networks from bad actors: Systems detect, understand, and respond to malicious behavior, and self-diagnose and correct problems.

The front line of network security has moved from systems to the applications managing system behavior. Most human security efforts are focused on limiting access to those applications. Innovative verification processes eliminate the need for cumbersome, bureaucratic access controls.

Accessible and reliable remote conferencing capability supports interactive virtual meetings. High conference productivity has evolved from aspiration to standard. Legacy teleconferencing productivity attributes such as access to organic work environment resources are augmented by rapid and seamless information sharing. Most offices are virtual. Commuting and travel for work have largely phased out, reducing emissions and stress on transportation systems. Employee safety is improved as they work from home and suffer less exposure to violent, unpredictable weather.

Big data predictive analytics support numerous facets of society and industry. Agriculture benefits from information on where, when, and what types of crops to plant for maximum yield in any given weather pattern. Incident command systems rely on data analysis to set priorities and allocate resources.

The emergency management system integrated myriad technological advantages to become the fine-tuned machine it is today. Responses are rapid and well prepared with streamlined resource, human asset, and information tracking. Standardized communications and data management produce clear lines of responsibility and eliminate operational gaps and overlaps. Drones and additive manufacturing are key to rapid mobilization and reconstruction. New building and decontamination technologies mitigate many post-disaster pollution concerns.

## Cyber

The formerly globalized communications infrastructure is now segmented. Terrestrial channels and infrastructure have proliferated as national governments and private firms build and manage networks for their own use. These isolated networks mitigate the need for extensive internal security protocols. In some cases, their compartmentalized structure is their only means of protection against external cyber attacks.

Organizations in partnership or cooperation open communication ports between their respective networks. New relationships are made official with new communications ports, just as severed ties are heralded by closing ports. As network vulnerabilities, these exchange points are carefully monitored and regulated. In the event of an attack or compromise, they are closed rapidly.

The best attack route on modern networks is from within. The physical presence frequently required to infiltrate them has prompted a renaissance in human espionage. Advanced

protocols provide full traceability of network activity, deterring all but the most talented and dedicated cyber criminals. Nuisance attacks are common, but autonomous system detection and response mitigates damage. Few incidents produce costs or data compromise.

Many states sponsor hackers' and spies' efforts against governments, national military industrial complexes, and private industry. In response, wealthier nations and enterprises have developed impressive counteroffenses that would once have been decried. Offensive capability development is the new arms race. It serves as deterrent and power projection, and reinforces isolationism. Protection and retaliation trump international communications and cooperation.

## Maritime Environment

The volume of international shipping is drastically reduced, impacted by policy, economic, climate, and security factors. Isolationism has reduced the demand for foreign goods, mode changes in transit make end-to-end shipment inefficient, and heavy weather and security threats render ocean transits hazardous.

Marine Transportation System infrastructure has adapted to climate and policy changes. Mobile port facilities are based 20 nautical miles offshore, constantly monitor the weather, and relocate to avoid storms. They prevent dangerous or suspect vessels and cargoes from entering a nation's territorial sea or landing in port, enabling maritime countries to manage the risk of isolationist policies, lack of domain awareness, and deteriorating safety standards.

The manufacturing and mining industries have taken note of offshore ports and adapted the concept to their own needs. Floating factories have the added black market attribute of enabling illegal enterprises to circumvent regulations of all kinds.

Offshore transshipment and lightering have spurred a growth industry for domestic ships transporting goods from high seas hubs to mainland ports. Large deepwater port facilities close as deep draft vessels are routed to offshore facilities, and smaller ships distribute cargo to numerous shallow ports that were previously unable to receive shipping.

Many shoreside ports are inundated. While many are lost, some have been saved by levees and others by buildup. A swathe of the surviving facilities are now isolated from the mainland. Multi-modal distribution continues via rail and pavement causeways and shallow-water tugs, barges, and ferries.

Ocean pollution increased with the deterioration of international environmental cooperation. The U.S. focuses its security and enforcement efforts on protecting the nation's 200 nautical mile EEZ. In the northern portions of the heavily policed zone, fishing and fish farming have melded into a new form of aquaculture. Natural predators for some fish species have been removed physically or through genetic engineering. Stocks of target species have exploded into high-productivity fisheries.

## Climate Resiliency

Ocean currents have changed with increasing global temperatures. They, in turn, affect regional climates. Europe and the coastal southwest U.S. experience lower temperatures and more frequent yearlong snow coverage. The American southeast suffers oppressive heat.

Weather, fire, and seismic event prediction is accurate, and responders and communities are rarely surprised. Short-term weather predictions are trustworthy and widely relied upon for personal and community preparation, such as prestaging resources in advance of severe storms. Observations, particularly those that deviate from forecasts, are liberally reported to weather services and response partners.

Frequent natural disasters have forged strong and effective relationships among government, industry, and non-governmental organizations (NGOs) within the North American regional partnership. Emergency management is frequently practiced and highly efficient. Regular disasters have also instilled preparedness and resilience in communities and families. Casualties decrease, as do recovery times.

Standing unified incident commands span all levels of government and even national borders, eliminating crisis management stand-up time and saving critical hours and days. Frequent responses obviate drills. Downtime is used for planning, preparation, and redeployment.

Rising sea levels carry brackish tides far inland in some areas, tainting fresh water supplies. High hopes for desalination plants wane as reality sets in: Large-scale processing consumes massive energy and produces large quantities of waste.

Precious water supplies are strictly conserved and allocated to critical needs such as supplying residences and livestock and irrigating crops. Irrigation is highly efficient and includes wastewater recovery and recycling. Household consumption is severely restricted, and green lawns are historical footnotes. Consumer water fees are high and proportionate to processing and transportation requirements for the given supply.

North American water distribution now emulates the national power grid in an effort to supply population centers removed from clean sources. The U.S., Canada, and Mexico have cooperated on an intra-continental pipeline network.

Cheap water drives migration: The population of the Great Lakes region has grown, while the drought-stricken Northwest and Southeast have contracted. Similar patterns exist worldwide. In developed countries, pipelines and other water supply projects are design elements of migration control efforts. Poor and struggling nations suffer unmitigated population displacement that frequently spans borders.

Wealthy, modernized nations adapt their agriculture and forestry with accurate, long-term weather pattern predictions. Staple crops and livestock are genetically engineered to survive

and thrive in harsh climates. Poor countries are in a constant and losing battle with nature. They suffer frequent famine.

Coastal areas suffer inundation with rising sea levels. It is combated with levees or fill. These techniques frequently produce islands as areas farther inland are lost. The new islands require connection to the mainland via bridge or ferry. Most levees eventually become cost-prohibitive, and the areas they protect must either be filled or abandoned. Coastal subway systems and underground utility corridors cannot be saved.

Many littoral airports around the world have been lost to inundation. Surviving inland facilities have been expanded and consolidated into super hubs, while few new airports are built.

Inland, developed nations invest heavily to adjust to the new normalcy. Infrastructure is redesigned to withstand several types of disasters and achieve new levels of efficiency. Codes are strict, and new structures are durable and expensive. Upper class citizens retrofit legacy homes, and middle and lower class citizens find affordable ways to armor their homes and businesses.

In spite of man's best efforts, attempts to reverse the ever-increasing severity of weather fail. It becomes more evident that future innovation and treasure will best be spent on adaptation.

## Governance and Politics

Increasingly observable effects of environmental change gradually break the historic partisan divide. They generate a point of consensus for productive national governance. Concern for the health and survival of the nation eclipses interest in foreign policy or engagement beyond Canada, Mexico, and Greenland. The lion's share of government resources are allocated to response and resiliency. The federal government has trimmed bureaucracy and downsized. It is far more efficient and responsive than it has been in a century.

The broad impacts of environmental change require cooperation among federal, state, and local governments, as well as private industry and NGOs. These entities have formed productive partnerships and act in the best interests of their constituencies and customers. Response resources are shared and governed at the national level. They are surged to regions where they are required. Infrastructure funding is likewise allocated to regions in most dire need, without regard to bias or special interests.

Investments in domestic manufacturing and agriculture have supplanted social programs. Most entitlements have been phased out, including the Affordable Care Act, Medicare, Medicaid, and Social Security. Government retirement benefits have been curtailed. Length of service for retirement eligibility has increased to 30 years.

Close ties and trade with Canada and Mexico have improved and balanced prosperity among all three nations. Drivers for illegal immigration have consequently diminished, and migration



among the countries is nominal. Illegal aliens arriving on American shores originate from failing regions of the world, with most coming from Cuba and South America. Immigration law enforcement is stringent.

## Culture and Society

America recovers its long-lost small town mentality and sense of community. Government support is a fraction of what it once was, but society adjusts to care for one another through shared effort and sacrifice. All is not perfect, but expectations adapt to the new normal. Volunteer networks mobilize and respond to disasters in distressed communities. The wealthy adopt a sense of *noblesse oblige* and serve their neighbors: Charity and sweat equity become status symbols. Industries of all kinds issue a call to arms in response to disasters, and support communities in rebuilding and becoming more resilient. Religious and charity organizations find themselves with an abundance of resources to manage and distribute.

The cost of maintaining a professional military force with generous benefits has become prohibitive. Contemporary military benefits are dramatically reduced from their former levels. A few years of service in the armed forces or public safety has become standard for young people.

Ubiquitous automation in manufacturing has displaced only a small portion of the workforce, as most of the former working class now monitors, fine-tunes, and maintains automated processes. Agriculture, construction, maintenance, and custodial services provide entry-level jobs and continuing opportunity for the less-skilled labor force. The small portion of society that cannot or will not secure employment finds no support from the government. They frequently migrate to failing countries.

Education programs have kept up with economic change and continue to adequately prepare the workforce. Healthy competition in the job market sustains quality schools and motivates students to perform.

Violent crime is rare, and organized crime is more focused on profit than turf wars. Criminal investigation is vigorous, and punishment is severe. Community watch groups augment law enforcement and are effective deterrents. TCOs and religious extremists attempt to gain footholds in less-stable countries and blocs, but find little success in North America.

Fuel costs and frequent extreme weather put a damper on vacations and recreational travel. Many transform their homes into their castles and enjoy “staycations.”

## Energy Revolution

Renewable energy meets nearly 75% of total demand and assumes a larger proportion annually. As the preparedness ethic has suffused the American people, so too has the conservation ethic. Energy efficiency, gardening, and water conservation are practices as common as recycling.

Depletion rates for nonrenewable energy resources have plateaued, and it is now widely believed that society will eventually transition entirely to renewable energy. Poorer nations are less developed in their energy sectors and rely more heavily on petroleum and coal.

Materials extracted from the moon and passing asteroids provide a safer, but far more expensive, alternative to nuclear power.

## **Economy and Commerce**

The need for domestic self-sufficiency has driven government policy and investments to reestablish U.S. manufacturing and agricultural capability. The expense and red tape of international shipments reduce the efficiency and appeal of imports. Commodities are only imported when they cannot be produced or substituted domestically. Such critical resources compose the bulk of international trade.

The global economy has disintegrated. Regional economies are distinct and extend no farther than the trade bloc within which they exist. The comparative value of one economy versus another is established by independent firms that provide trade and exchange services between regional coalitions. They offer valuable buffers in an isolationist global environment. These independent organizations are motivated to provide quality service, as losing trade contracts (and face) is tantamount to financial disaster.

An inefficient Marine Transportation System and policy barriers between regional blocs hinder international commerce. A dearth of global trade or exchange slows the historically fast pace of innovation. International business expansion demands the arduous process of opening channels between regional partnerships and sustaining (sometimes delicate) relationships.

## **International Cooperation and Relationships**

International relations have reverted to a 19th century model. The primary motivation is self-sufficiency and security, and foreign policy is focused on acquiring critical resources lacking within a regional bloc's borders. In lieu of formal alliances or global coalitions, groups of countries have formed partnerships. These blocs are bound by strong internal alliances, resource sharing, and common economic interests. The structures are also a means for failing states to maintain some semblance of order and to prevent organized crime from infiltrating.

No international governing or peacekeeping bodies remain. Trade external to a country's regional bloc is frequently inefficient and generally managed by independent third-party firms. These organizations may have to work through multiple regional partnerships and bureaucracies to secure trade for commodities that a country or bloc desires to import. Isolationism, strong border controls, and lack of cooperation external to regional partnerships also hinder organized crime. While failed states and their instability create havens for TCOs, these organizations are rarely able to expand beyond their home countries or coalitions, and international smuggling is a shadow of its former self.

## Western Hemisphere

The United States, Canada, Mexico, and Greenland have generated strong bonds with interlinked economies and security. Vigorous trade, open borders, and shared governance objectives make this partnership nearly self-sufficient. Imports to the bloc are a fraction of its exports, and its gross domestic product eclipses both. Shared prosperity with Canada and Mexico has largely eliminated mass migration. Remaining illegal immigration is a minor challenge.

The majority of criminal threat vectors originate in South America and Cuba. Drug and human trafficking are primary enterprises, though they operate at a fraction of their former volume. TCOs are powerful in South America and largely control state governments on the continent. Severe weather conditions and rising sea levels have contributed to failures of several Western Hemisphere island nations, rendering them vulnerable to criminal infiltration.

Military threats from other blocs are kept in check with the implied promise of proportionate or overwhelming response, deliverable worldwide. Options include cyber attack, ballistic missiles, and kinetic and electronic assaults from surface fleets.

Offshore transshipment provides a buffer for maritime shipping. Domestic movements and screened and approved international shipments within the EEZ are documented and tracked. All other vessels and activities are suspicious and subject to interdiction and boarding upon entering the zone.

## Arctic

Shipment of resources to and from the Arctic far surpasses the amount of cargo shipped through the Arctic. Fishing, mining, and oil and gas extraction are now vigorous enterprises, as the Arctic Ocean remains open longer each year. Bordering nations have claimed the traditional 200 nautical mile EEZ, and defend these vigorously with their navies and coast guards. Claims in excess of 200 miles and those made by non-Arctic nations, such as China, are contested or dismissed, depending on the circumstances. The region has seen massive military buildup in the past decade, as Arctic nations' flanks are no longer protected by ice.

Poaching and illegal exploration are common, and the apprehended perpetrators are generally disavowed by their home countries as "rogue private entities." Those engaging in unauthorized activity in EEZs (and occasionally the high seas) are dealt with harshly. Private military contractors are used extensively to maintain plausible deniability and prevent escalation. They are key to an uneasy balance.

## Geopolitical Situation

International alliances and governing bodies have faded to obscurity in the face of a dearth of international trade or issues of global interest. The remaining global issue of gravity, climate change and its fallout, is addressed by individual states as an inherently local problem.

Broad alliances and the global economy are dissolved, but complete isolationism is tempered by regional partnerships. States have formed blocs to foster trade and security. They combine forces and resources to meet their mutual needs and obviate nearly all imports. Intra-bloc trade is free and moves easily. Remaining external trade transfers through offshore port facilities.

Failed and failing states frequently seek protection and stability by joining these regional blocs. While such action discourages opportunistic countries, TCOs readily take advantage of national weakness and disorganization.

The North American bloc comprises the United States, Canada, Mexico, and Greenland. The South American bloc includes all states on the continent. The European bloc spans the legacy European Union and includes Norway, Ukraine, Iceland, and Turkey. The Russian bloc includes Kazakhstan. The African bloc comprises the continent's countries and includes Israel. Within that organization, Nigeria is emerging as a major economic power and provides support to failing states on the continent. The Northwest Pacific bloc includes Japan, Korea, Taiwan, Vietnam, and the Philippines. Its Southwest counterpart comprises Malaysia, Indonesia, New Guinea, Australia, and New Zealand. The China bloc includes Mongolia, Burma, Thailand, and Cambodia. The Indian Subcontinent bloc also spans Pakistan, Nepal, Bangladesh, Burma, and Sri Lanka.

The Middle East bloc generally exists in name only. Partnerships are tenuous after centuries of conflict, and individual states tend to trade with other blocs. The practice contributes to regional tensions and is limited.

Existential environmental threats have displaced foreign policy, and states now believe the regional partnership approach is their best chance for survival and success. Virtually no resources remain for global engagement or expeditionary operations. Those countries or blocs that do retain interest in engagement or military aggression are put off by strong regional defenses and low tolerance for foreign interference.

States maintain small, agile armed forces. Forward operating bases and physical power projection are no more. Training and advisory assistance are severely limited. Blocs restrict engagement operations to avoid perceptions of alliance. Countries do not wish to upset the prevailing balance of power, as they cannot afford to divert blood and treasure from the fight with Mother Nature.

New types of layered power projection have replaced physical assets for effective presence. Offensive cyber attacks, long-range conventional missiles, and remotely operated aircraft can rapidly sortie. While these capabilities can provide effective battlefield preparation for a follow-on invasion, widely preferred state policy is to deploy them as conflict ends.

The compartmentalized world has been bad for the terrorism industry. Extremists can no

longer perpetrate acts that generate impact beyond the borders of the affected bloc. States disregard world opinion and are unrestricted in their treatment of the criminals. Nationalism eliminates constituencies for those who attack fellow citizens, and the ambiguity of “terrorist” versus “freedom fighter” is no longer available for exploitation.

Piracy has encountered the difficulties of heavily secured ships and separation between fleets and nations. Armed and armored ships are no longer associated with flag states and have become worthless as hostages for ransom. Third-party international trade firms bear the risk of attacks and address them quietly. Like terrorists, pirates are dealt with harshly.



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