

China MSA Futures Professional Engagement



CDR E. Popiel, LCDR M. Waters

A composite set of plausible future scenarios designed to form planning space for foresight efforts. Not intended to be predictive and do not represent the U.S. Coast Guard's assessment of the future.

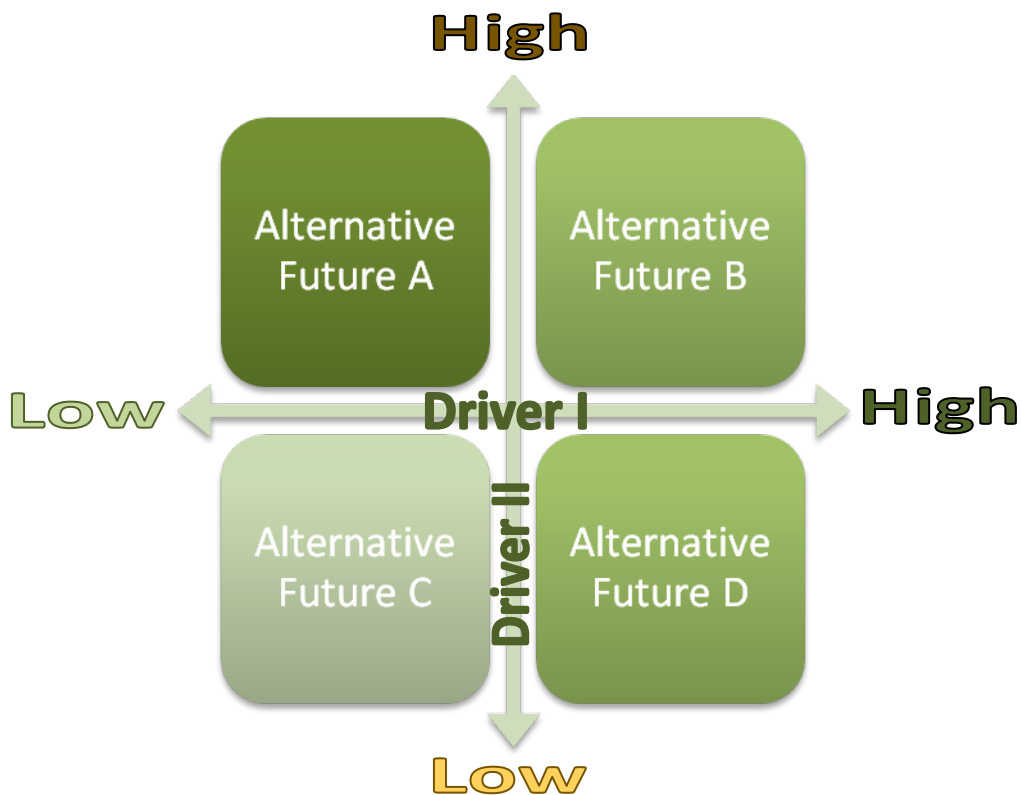
U.S. Coast Guard
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Introduction

The Coast Guard Evergreen Foresight team has prepared two scenarios, set in the year 2035, to enable China Maritime Safety Administration Professional Engagement participants to explore the process of scenario-based planning. Each scenario features a fictitious nation, the Eastern Republic (ER), and consists of three parts: a concise summary, a more detailed description, and a fictitious story that exemplifies many elements of the scenario.

Building Alternative Futures, Planning Within the Space

Drivers are major forces that shape the future. They include economics, governance, international relations, technology, social developments, and many other factors that determine the course of history. A driver may be used as the basis for a pair of alternative futures, each the outcome of exercising the driver to opposite extremes. For example, a futurist may imagine the influence of technology over the next two decades and develop two alternative futures: one in which technological developments are rapid and advanced, and a second in which technology has stagnated or even regressed. The outcomes will be markedly different, and form a space for exploring the demands of differing futures. By selecting two drivers, one can exercise and combine their influences to produce four alternative scenarios.



Strategic needs identified as important for one future are stress-tested against other futures. Some will be relevant across multiple scenarios, and form valuable guidance for planners and strategists. By working to achieve those stress-tested strategic needs, an organization can be prepared for a variety of potential outcomes.

Driver and Scenarios

The following scenarios are based on the driver of International Environment: the extent to which global trade and resources are accessible to the Eastern Republic (ER).

- **Anti-Access: “Encircled.”** The Eastern Republic is surrounded by failing states and faces alliances determined to keep the country in check. As international opportunities and resources dwindle, the ER looks inward to maintain its economic growth. The nation is managing, with a slowly growing economy.
- **Permissive: “Free to Operate.”** Other nations are internally focused as they struggle to resolve their own economic and political challenges. The Eastern Republic has entered the resultant voids in international commerce and politics, becoming a major player and regional hegemon. The ER is ascendant.

ENCIRCLED Summary: The Eastern Republic is economically strong relative to many other nations, but beset on all sides by failed states and adversaries forming alliances to keep the ER in check. Terrorism, Transnational Criminal Organizations (TCOs), and regional conflicts threaten international stability. Complicating matters is the depletion of global fish stocks and the ascendance of illegal fishing, piracy, and smuggling. The ER sits in the middle of an unstable world with few real allies. The nation maintains legacy trading partners, but is finding it harder to ship goods through increasingly contested global commons.

Military: The Eastern Republic is determined to keep the surrounding chaos from spilling across the borders and to protect its sovereignty. The ER Coast Guard continues to strengthen and aggressively protects the nation's coastal waters. Poachers, pirates, and smugglers are apprehended and dealt with harshly; prison sentences are significant, and fines are severe. The Navy is strong and frequently patrols waters claimed by the ER. Expeditionary voyages are few and only undertaken if deemed to be in the nation's best interest. There are skirmishes in contested areas, but no nation is interested in all-out war. The ER Navy and Coast Guard escort merchant vessels through dangerous waters and defend the country's interests when necessary. Warning shots are frequently used to ward off attackers and protect commerce. Other nations' navies are carefully monitored as they transit waters claimed by the ER.

Diplomatic: The Eastern Republic's trade and political ties with its largest neighbor, Ursastan, are strengthening even as both nations jealously guard their borders: "Good fences make good neighbors"¹ is the dominant philosophy. Ursastan and the Central Galatea Commonwealth are the last remaining nations that will supply sophisticated arms to the ER. Historic trade relationships remain with large western markets, such as the Confederacy of Free States (CFS), fueling the ER's ever-expanding economy. However, these trade partners have strengthened ties with other nations in the eastern hemisphere through the COP (Cross-Ocean Partnership), which the Eastern Republic has yet to join. The CFS also reinvigorated trade with other western hemisphere nations such as Borealia and Queztal via a refresh of the Western Hemisphere Free Trade Agreement (WHFTA) and import less from the ER than it did a decade ago. The Eastern Republic's neighbors, the Maritime Federal Democracy, Tecton, Typhoonus, Langostin, and Aridia maintain a strong alliance and limit ER activity in the Eastern Ocean.

Social/Governance: There is a strong desire on the part of the government to maintain ER as an island of order amidst a sea of chaos. Government policies place emphasis on traditional Eastern Republic values and strive to instill a strong sense of nationalism. "Us versus Them" is

¹ Robert Frost, *Mending Walls*.

the overarching theme. The country strives to balance an evolving society that is demanding more freedom of expression, transparency, and participation with preservation of values and traditions. Transition from a one child to the current two child policy twenty years ago produced moderate population growth, but the ratio of the workforce to the retired population still places financial strain on families. There is unspoken worry that the two child policy came too late to prevent massive damage to personal and national prosperity. Determined to sustain national character and pride in the young sector of society, the government has invested a great deal to ensure the education system thoroughly inculcates youth with traditional values and ethics. Minority populations that have not fully assimilated continue to agitate and present challenges.

Economic: The Eastern Republic continues to explore and develop its own natural resources as the nation moves away from importing raw materials. Sanctions and cool trade relationships limit the technology flow to the ER. Value addition and organic innovation are strong, and there is national pride in developing native technologies. The government places emphasis on building the domestic economy and demand for consumer goods to offset stagnant trade. New service sectors are emerging, particularly those catering to busy, working families (grocery delivery, child care, car sharing). Many rural populations are in decline as they migrate to cities in search of better lives, leaving arable land uncultivated and food security threatened. Stewardship of timber, water, coal, and other natural resources is a major national security concern.

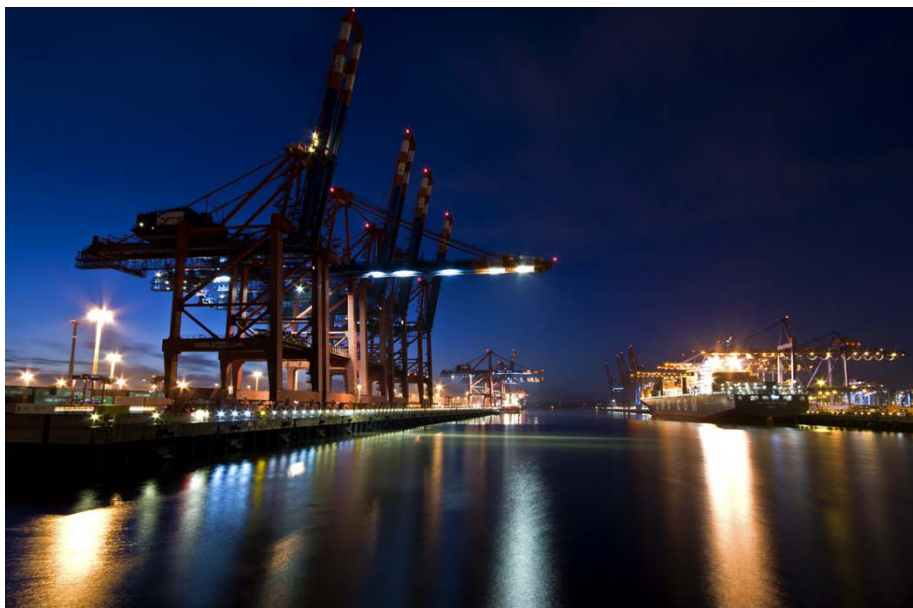
Environmental: Technology is evolving and the energy mix is diversifying somewhat. The need for clean energy is eclipsed by the desire to get power into industry and homes. There is some social agitation on this front by environmental groups, but it is tempered by nationalism bordering on xenophobia and steady, if slow, progress in sustainable energy. The international community does continue to pressure the ER into moving toward clean energy, but this only feeds into the Eastern Republic versus the World philosophy pervasive in the country. The nation is actively exploring for oil and gas on and offshore. Wells are discovered as technology extends their reach to previously inaccessible sources. Coal remains the primary power plant fuel, and air quality suffers. The very young and elderly are most affected, and mortality linked to air pollution has risen in these demographics. Sea levels have risen about twelve inches in the past two decades, forcing developed nations to respond, and underdeveloped nations to cede territory. The ER has been working hard to retrofit its coastal cities and ports for the new water table, fueling the construction economy.

Technology: Innovation and entrepreneurship are encouraged as critical components of a strong domestic economy. While the flow of information across borders is still tightly restricted, domestic internet use has exploded in content and connectivity as a majority of Eastern Republic citizens maintain an online presence and exchange ideas. New construction includes integrated fiber. Cross-border portals are limited and carefully monitored to prevent intrusion. The military network is distinct, virtually immune to hacking, and vulnerable only to an insider

threat. Conscientious network surveillance makes such an attack (or, such an attack with impunity) unlikely. The two phenomena, innovation emphasis and connectivity, are fueling growth in robotics, artificial intelligence, energy, and food technology. Organic ER technology rivals that of established world tech leaders (CFS and Tecton), and may well surpass it in another decade. However, technology exports are restricted. The Eastern Republic's particle accelerator, twice the size of the (until recently) largest instrument at Venerati Union Large Collider Academic Node (VULCAN), has been built and is operating. Scientists from allied nations are invited to conduct their research at the facility, while others may apply. The ER now leads the world in the number and quality of patent applications. A next generation of proprietary Eastern Republic technology is being readied for market, and is expected to be a major contributor to ER economic power and independence from the West.

ENCIRCLED Vignette: A Quiet Night in Port City

²The tug finally disappeared from view, the evening's work in tow. The rusty old freighter had been purchased by an ironmonger within fifteen minutes of its arrival in port, crew in handcuffs and prize crew in control. Zhijian³ logged her smart watch out of Port Net. The commercial sector



was highly organized. They had partnered with the Port Authority and Ocean Security Bureau (OSB) to develop a rapid notification and bidding process for contraband, to the benefit of all. The notification of seizure went out over the Port Net system, the bids came in, and the system automatically selected and notified the winners. The OSB only had to deal with the seized vessels for as long as it took to unload them, and the businesses could immediately convert the instruments and fruits of crime to legal profits. Best of all, with humans removed from bid adjudication and award, opportunities for corruption were drastically reduced.

It had been a standard processing operation. She had received the seizure report and operational plan hours earlier through Port Net. She directed the dock secured against visitors out to a large safety perimeter and met the Coast Guard crew just outside the restricted zone. As the rough-looking general cargo vessel and its very illegal, very hazardous cargo were inspected by OBS hazardous materials specialists, she remanded the crew to police custody (who had also been notified in advance and arrived precisely on time). Zhijian verified the identities of the representatives from the hazmat disposal company and scrap yard. Her smartwatch indicated that payments from the ironmonger and to the mitigation firm had cleared and were in the national treasury and the vendor's account. As an Ocean Security Bureau officer, she was a clearinghouse for processing ships and people that violated the Eastern Republic's maritime environmental and safety laws. It was a busy line of work at the

² Photo Credit: "Long Exposure Container Port" by Bull04, www.deviantart.com.

³ "Firm in Spirit"

largest port in a maritime nation, so today, with only one vessel to handle, was quiet. Zhijian had spent the extra time catching up on administration and following up on unfinished business with her Coast Guard and police colleagues.

Nearly all tasks were now conducted through her smartwatch. The freedom of movement and ease of administration allowed the OSB officers to accomplish so much in any given day. The entire nation was benefitting from a more efficient government that required fewer agents; important in these leaner times.

She made her way back to the office, skirting the barriers around a construction zone. While demand for her specialty was on the rise, the longshoremen, crane operators, and dock workers found themselves with a lot more time on their hands, and sometimes had to use it to find different employment. Just a decade ago, the port operated at a frantic pace around the clock, loading and unloading the mega ships as fast as the cranes could safely operate. Now it was more sedate, with slips frequently lying open for hours or even days at a time. On the upside, it was a more favorable environment for major retrofits. Entire piers were shut down for months as they were raised and reinforced to handle the higher water levels, and wired to provide high speed Wi-Fi and Near Field Communication access to Port Net.

Zhijian passed one of the smaller docks where two ships were loading cargo. The smaller coastal traders were forming an increasing proportion of the traffic. As they were restricted to domestic trade, the customs procedures did not apply to them. The local custom house had, consequently, been downsizing over the past several years, with many agents transferring to other departments and to second careers in business. In fact, the hazardous materials truck that had just departed with the freighter's cargo of leaking and dangerous barrels belonged to a firm owned by an agent who had been forced to retire early. The truck looked new and the driver and hazmat team were professional and well equipped; the agent had clearly done well for himself.

It was a pleasant evening. Quiet, by Port City standards, with a cool breeze blowing in off the water. It carried the smells and sounds of the massive port, still alive with activity hours after sunset. She took a moment to savor the peace. And order dinner with her smart watch.

Zhijian and her husband had eagerly embraced a variety of new services as they emerged. With both of them busy with their careers and their two children's school activities, getting groceries and even a high quality, fully-cooked dinner delivered was a blessing. Many of their friends had questioned their decision to have a second child. While raising two children was certainly a challenge, they had expanded their family with open eyes and a plan. Finances and time were carefully managed to accommodate.

They spent the time they did have together, being a family, rather than running errands. Last week, she had ordered in a plumber to fix a leaky faucet. He arrived five minutes after she

submitted the order, and the price was reasonable. She could easily have carried out the repair herself, but the time she had spent to help her daughter study for an important artificial intelligence exam was well worth the price.

Her smart watch reminded her that another family financial disclosure was due tomorrow. She directed the little device to organize and send the required data, and it was done. As Deputy Director of the Anti-Corruption Bureau, her husband was subject to the highest levels of scrutiny. As parents, they had been transparent about the requirements, and their children had become accustomed to the routine. They were proud of their parents' roles in the government, and they embraced a high standard of integrity in their own, daily lives. She grinned at the memory of her six-year-old son's "financial disclosure;" he had very solemnly informed her of some change he found on a sidewalk and offered to deposit it to the family treasury. The Family Finance Office had reviewed his report and determined that the find did not fall under the household seizure laws. The boy was delighted.

It was high time Zhijian closed the office and headed home. She was very much looking forward to dinner with her family and to sharing the day's news and lessons. She appreciated the irony that modern technology was supporting and sustaining traditional values. Really, the phenomenon represented the Eastern Republic as a whole. Her country was moving ahead, with or without allies, and the ER would do so in its own way. There was no need to sacrifice principles for progress, family for fortune. Her nation would prosper, even if they had to do it all alone.

FREE TO OPERATE Summary: The Eastern Republic (ER) economy is booming, and carefully calculated political moves have led to the reclamation of previously contested territories. The Eastern Ocean as a whole has been ceded to the ER. Facing internal economic and political problems, Tecton, The Confederacy of Free States (CFS), most near-peer competitors are unable or unwilling to stand up to the Eastern Republic. A resurgent Ursastan, already mired in Central Galatea and Veneratus, tacitly approves of the ER hegemony, but intervenes if interests conflict. Global trust between nations is low. Few, if any, alliances remain.

Military: The Navy is strong and expeditionary. They patrol the Eastern Ocean and tour the world, as have many emerging superpowers in the past. Military ships are frequently used to escort ER trading vessels, especially in the dangerous waters of the Torrid Straits. Pirates and those attempting to interrupt trade are dealt with harshly on the “high seas.” Most countries turn a blind eye and actually welcome the imposition of order and security. ER military technology is a mix of CFS, Venerati Union, and Ursastani components but is increasingly becoming more organic as scientists make huge strides in weapons technology. The far southwestern reach of the Eastern Ocean has become home to a large ER base: Naval Base Dawn.

Diplomatic: Most international trade agreements are very favorable to the Eastern Republic. Many nations and the International Council have an unofficial policy of Economic Appeasement, as they fight through their own economic and political quagmires. The ER is at the forefront of international resource and space exploration as well as environmental research expeditions. ER diplomats frequently appear where once their western counterparts were the expected leaders, and engage in conflict resolution and stabilization efforts. However, this work is limited in scope: the Eastern Republic does what is necessary to protect its interests while assuming minimal risk. In cases of threats against or outright harm to ER citizens or territory, the country responds swiftly and harshly.

Social/Governance: The moderate baby bulge subsequent to implementation of the two child policy created a need for more schools and teachers. With education as a primary issue, the Eastern Republic took the opportunity to renew emphasis on retaining the economic advantage and dominance in the STEM (Science, Technology, Engineering, and Mathematics) fields in the long run: the teaching profession is reasonably attractive, and new schools are high quality and competitive. The dominant People’s Party is credited with the ER’s successes and is comfortable in its hold on power. It has liberalized some of its internal policies (polo is back on the recreational menu). With economic strength and a nation back in ascendancy, society is

generally content and agitation is minimal and marginalized. Immigrants from declining western countries are coming to the Eastern Republic for the promise of good wages, excellent living conditions, and potential for upward mobility and influence. Opportunities now lie east. An aggressive and long term anti-corruption initiative succeeded in its domestic and international intents. The government is efficient and trusted, the honest are recognized and rewarded, and the ER is viewed as an honest broker by the world. The benefits are significant as ER markets are the preferred investment for most foreign firms.

Economic: Individual disposable income is improving, as is general quality of life. Eastern Republic industry has become the world leader in large scale solar power and other renewable energies. The ER has many resource extraction operations around the world in developing areas, and these are generally not challenged. They employ mostly ER nationals and supply Eastern Republic manufacturing. The ER is also studying asteroid and moon mining, and the Eastern Republic Space Agency's project portfolio is geared toward extraterrestrial mineral extraction. The past decade's advances in infrastructure and economic growth have increasingly made the ER a tourist destination; the historically popular Fortune City no longer has a monopoly on visitors seeking glitzy, urbane environs. Port Jade and Lotus Beach have been up and coming for the past decade, and compete well for tourists from around the world. The ER has supported its increasing need for labor with an efficient program that provides visas to well-vetted workers skilled in undermanned fields.

Environmental: Energy consumption is high, particularly as the population expands. There is interest and technology for sustainable energy, and many communities, buildings, and even single family homes are building microgrids with solar panels, wind turbines, and methane recovery. The technology powering energy innovations is designed and built in the Eastern Republic with raw materials sourced globally, especially from throughout the continent of Osiria. Energy sustainability is increasingly perceived as a component of national security and well being, while a greater sense of urgency – prompted by noticeably higher sea levels and widespread respiratory health problems – pervades efforts to improve air quality. The pollution problem is being approached holistically. Even as manufacturers and private citizens do everything they can to reduce consumption and emissions, cultural norms are shifting to improve efficiency. Telework is the standard for many professions, and most families maintain their own vegetable gardens and water catchment and purification systems. Municipal crackdowns on vehicles and heavy industry impose hardship, but citizens and businesses are adapting. Emerald City's success in quickly improving air quality for its hosting of the World Games in the early years of the millennium remains a strong memory and aspiration. While the Eastern Republic has a way to go on this front, air quality has significantly improved in the last twenty years. The ER responded to global concerns about wildlife protection, particularly for species in Osiria that faced extinction prior to 2020, through cooperation with Non-Governmental Organizations, the International Council, and regional governments. This effort earned the Eastern Republic respect among the international community and permitted the country greater access to natural resources it requires. The ER's leadership in the Hector

Climate Change Conference spurred international competition to develop clean energy. The country gained a global reputation for innovation and investment in this sector, equaled only by a handful of western peers.

Technology: Research and development investments made in the first two decades of the millennium by the Eastern Republic Academy of Sciences and world class policy analysis by the Development Research Center (DRC) is bearing fruit in agriculture, energy, transportation, military development, and health care. Organic invention occurs at a furious pace to meet the ER's needs and increasing demand abroad. The ER is fully engaged in the Cyber Race, as the most developed nations fight to be the first to achieve the Singularity. Many statesmen and theorists believe such an achievement will lend the winning nation an immense and enduring advantage in every aspect of national power. Specialized robotics carry out many industrial and maintenance tasks, but technology's impact on daily life is more subtle, with computers augmenting buildings to control lighting, climate, and other utilities. Major reductions in energy consumption combined with improvements to the power grid have made electric vehicles feasible. These are equipped with autopilot that coordinates with other vehicles to reduce traffic congestion, and the first entirely driverless modes of transportation are rolling off the production lines. The Eastern Republic is leveraging advanced technology both to combat and adapt to climate change. Massive, floating piers serve port and naval facilities, and underwater facilities for research, national defense, transportation, and even commerce and residence are in development.

FREE TO OPERATE Vignette: The Base at Dawn

A flash caught Jianguo's⁴ eye. He looked up from the transformer's control panel and out to sea. There, on the northwestern horizon, was a glint. And then several. The rising sun was reflecting off the high bridge windows of a powerful battle group of Eastern Republic naval ships. They were returning to Naval Base Dawn (NBD), located in the far reaches of the Eastern Ocean, following their world deployment. Their shore power supply would be ready. For the first time, the fleet would be powered in port entirely by sun, wind, and recovered methane.

He closed and locked the cover on the equipment, noted his findings on the extensive, New Pier Safety and Security Inspection checklist, and did one last round of the facility. All was ready, and exceeded Ocean Security Bureau (OSB) standards in every respect. Electricity, potable water, sewage offload, and recycling and composting were standing by for JIAN⁵, one of the newest destroyers in the fleet. The maintenance bot rack was fully charged, its team of little robots ready to deploy for hull cleaning, inspection, painting, and minor repairs, where necessary. The profession of industrial diver was largely a relic of a bygone era.



Jianguo had arrived by ferry hours earlier. As an Ocean Security Bureau port facility inspector, it was his first visit to the brand new Base Dawn, and he was impressed. It was a worthy

sister to Coral Terminal, the gigantic offshore shipping hub three miles to the southeast. The fast pace of shipping, maintenance, and upgrades there kept him busy. The ER protected its mainland ports and the Eastern Ocean by ensuring

all transiting vessels and their cargoes were safe and legal. Those that did not meet the standards were required to onload and offload at Coral Terminal, leaving the stringently maintained ER merchant fleet to carry cargo across the Eastern Ocean. It was a great place for a hard working OSB inspector. Ensuring the Eastern Republic's ocean terminal was safe, efficient,

⁴ "Building the Country"

⁵ "Indefatigable"

and ready to handle any ship was a demanding and satisfying job. Then there were perks like this working visit to the most impressive naval facility he had ever inspected.

He tapped a tiny button on the bow of his safety glasses, and the augmented reality overlay appeared. He looked down, and saw *through* the concrete. The floating pylons were all at the proper pressure, and weight distribution across their ranks was optimal. It was easy to tell, with each labeled by a color-coded pressure gauge and health meter. Another tap on the bow, and the pylons vanished, replaced by an unobstructed view of the water. He paced the pier in a search pattern, doing one last check for foreign objects or security threats. Nothing on the underside of the deck, on the substrate, or anywhere in the waters between. Except for the Porpoise Patrol. A member of the dedicated security team of marine mammals, equipped with a flak vest wired up with a full communications suite, was taking a close look at one of the pylons. Finding no threat, the sleek animal moved on to the last one in the column, inspected it, and then surfaced. Jianguo turned off the display and gave his colleague a salute. The porpoise responded with enthusiastic clicking and what had to be a smile. The animal dove and vanished, undoubtedly returning to her supervisor to report her findings and get a treat. He looked up and could see his human colleagues readying other piers to receive their respective ships.

It was an exciting day. Most of the new Green Piers had been built while the fleet was deployed, and today they would finally be put to work for the Navy. Jianguo was a bit nervous. The systems had been tested, and prototypes deployed at Coral Terminal, but they had yet to be placed under the strain of supporting real Navy ships. His sister had laughed at his concerns. Xiaoqing⁶ assured him the Eastern Republic Navy had yet to build a ship that her transformers couldn't handle. She was an electrical engineer, and worked for a private company on the cutting edge of power technology.

He wished his family could be here with him this morning. Not that anyone other than military or civilian naval employees ever saw NBD, but it would have been a proud moment for all of them. Ships tying into shore facilities he had inspected and certified, using transformers his sister had designed, and at least partially powered by oil from an extraction operation halfway around the world where his mother and father were deeply involved. Truly, it felt as though the success of the ER Navy had become a family industry. He would call them this evening. Or, more accurately, have the whole family over for tea. With satellite-based augmented reality, they would all be in the same room, and he could tell them about the fleet's arrival, virtually face to face. Amazing to think that his parents had had to make do with what they called Skype when they were young. Life back then must have been so lonely!

He would be interested in how his mother's deployable ultrasonic cracking plant had performed during its on-site trial. He remembered her hand wringing, and his father's good-natured ribbing. *I don't know what she worries about. She couldn't build a malfunction into machinery if*

⁶ "Blessed with Intelligence"

her life depended on it! He and his sister had come by their mechanical aptitude and analytical minds honestly. Jianguo's father jovially insisted that he was the family lump, but there was a reason he had been hand-selected to manage such a large extraction operation. And he was the reason it was the model of efficiency.

It would have been nice to welcome the crews home with massive, cheering crowds, but they would have to return to their families on the mainland for that. Jianguo had been following their progress on the news. The ships had been warmly received during their most recent foreign port call in Ursastan. Such had not been the case in some countries, where the reactions had ranged from cool to outright protests. *Too mired in their own problems to see the big picture.* One day, they would realize they had erred terribly in not allying themselves with the Eastern Republic. The lost economic opportunities, alone, would be staggering.

Life was good at Coral Terminal and Base Dawn...or the Base at Dawn, as many referred to the installation. It was symbolic of their ascendant and forward-looking nation. Never again would his country be marginalized, for now the ER was in its rightful place: at the forefront of human affairs. The future of the Eastern Republic looked bright, indeed.