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ANTARCTIC ICE REMOVAL PROGRAM
SHAREHOLDERS TOWAGE FLEET DEMAND

Introduction to Fleet Readiness

1. In the previous publication titled Eugenix® Shareholders Ice Removal Towage Research and Development Eugenix P.S.A. has presented some calculations related to number of vessel and power of the vessels that shareholders will have to consider to be able to remove the Ice in a economical and time demanding manner to provide the water for its nationals and residents.

2. In this publication we will address the questions related to the number of estimated vessels that shareholders will need in total for successful Ice Removal operations, so let's begin verification of world vessels stock with the estimated number of vessels required for the Ice Removal program that in the previous publication was stated to be 164,250 vessels with power output as showed in the Towing Speed and Power Assumption section below.

Target Reminder for Shareholder

- **Target volume:** 10,000,000 km³ over 50 years.
- **Block size:** 0.1 km³ per block (1 km × 0.5 km × 0.2 km).
- **Average cadence required:** 5,475 blocks per day.
- **Turnaround constraint:** 1 block per ship per 30 days.
- **Fleet size estimate:** ~164,250 ships (each delivering one block every 30 days).
- **Tug Vessel Horsepower:** ~250,000 - 400,000. (single-block tow at 3 knots).

Towing Speed and Power Assumptions

SPEED (KNOTS	DISTANCE (NMI)	DISTANCE (KM)	IDEAL POWER (HORSEPOWER)	ADJUSTED POWER (HP x 1.3 – HP x 2.0)	MEGAWATS MW
1	720	1,333	7,289	9,476–14,578	7 – 11
2	1,440	2,667	58,412	75,936–116,824	57 – 87
3	2,160	4,000	197,000	256,100–394,000	191 – 294
4	2,880	5,334	467,741	608,063–935,482	453 – 698
5	3,600	6,667	912,037	1,185,648–1,824,074	884 – 1,360

World's Cargo Vessels Stock (United Nations Data)

3. According to the United Nation currently operated cargo vessels in the world approximate to 97,000. Based on the Eugenix P.S.A. calculations a number of vessels required to complete a removal of 10,000,000 km3 by towing ice in pieces of 0.1 km3 or smaller pieces equal to 0.1 km3 using Purse Seines nets will be 164,250 tug vessels. It is too early to determine all types of transport that will be required to haul off the Antarctic 10,000,000 km3, but a significant amount of ice will be removed by tug vessels piece by piece. The demand for high power tug vessels will be very large, but achievable technologically.

Current Heavy and Ice-Capable Vessels (sorted by power: most → least)

N	VESSEL NAME	INSTALLED POWER (HP)	INSTALLED POWER (MW)	PRIMARY FUEL TYPE	WEIGHT (T)	L × B × H (M)	BUILDER	HOME PORT (STATE)
1	Project 10510 Lider (Zvezda Lider) — design	~161,000 hp	~120 MW	Planned nuclear (RITM-400)	~69,700 t (design)	209 × 47.7 × 20.3	Zvezda / Russian yards (planned)	Russia (planned Murmansk)
2	Arktika (Project 22220)	~80,400 hp	~60 MW	Nuclear (RITM-200)	~33,327 t	173.3 × 34.0 × 51.25	Baltic Shipyard (Saint Petersburg)	Russia (Murmansk / home operations)
3	Sibir (Project 22220)	~80,400 hp	~60 MW	Nuclear (RITM-200)	~32,747 t	172.7 × 34.0 × 51.25	Baltic Shipyard (Saint Petersburg)	Russia (Murmansk / home operations)
4	Ural (Project 22220)	~80,400 hp	~60 MW	Nuclear (RITM-200)	~32,747 t	172.7 × 34.0 × 51.25	Baltic Shipyard (Saint Petersburg)	Russia (Murmansk / home operations)

5	Yamal (older Arktika-class heavy nuclear)	~70,000–75,000 hp	~52–56 MW	Nuclear (OK-900A type)	~23,000 t	148.0 × 30.0 × 17.2	Baltic Shipyard (Saint Petersburg)	Russia (Murmansk / port of registry)
6	Polar Star (USCG Polar class, WAGB-10)	up to ~75,000 hp (combined)	multi-10s MW (combined)	Gas turbine + diesel (marine distillates)	~13,000–14,000 t	~122 × 25.5 × 42 (air-height)	Lockheed Shipbuilding / US yards (built in USA)	USA (Seattle historically)
7	50 Let Pobedy (50 Years of Victory, Project 10520)	~70,800 hp	~52.8 MW	Nuclear (OK-900A type)	~25,168 t	159.6 × 30.0 × 17.2	Baltic Shipyard (Saint Petersburg)	Russia (Murmansk / home operations)
8	USCGC Healy (WAGB-20)	~46,350 hp	~34.6 MW	Marine diesel (diesel-electric)	~16,000 t	128 × 25 × ~29 (air-height)	Avondale Shipyard (USA)	USA (Seattle)
9	Polaris (Arctia / modern Finnish icebreaker)	~37,500 hp	~28 MW	Dual-fuel LNG / marine diesel	~10,961 t	110 × 24 × ~8–9	Arctech / Helsinki Shipyard (Finland)	Finland (Helsinki)
10	Vladivostok (Project 21900M)	~37,350 hp	~28 MW	Marine diesel (diesel-electric)	~14,334 t	119.8 × 27.5 × 12.4	Vyborg Shipyard (Vyborg)	Russia (Vladivostok / Murmansk ops)
11	Shirase (AGB-5003)	~30,000 hp	~22 MW	Marine diesel (diesel-electric)	~20,000 t	138 × 28 × 9.2	Japanese naval shipyards	Japan (Yokosuka)
12	Xue Long 2 (Snow Dragon 2)	~27,625 hp	~20.6 MW	Marine diesel (diesel-electric; Azipod)	~14,300 t	122.5 × 22.3 × 11.8	Jiangnan Shipyard (Shanghai)	China (Shanghai / home operations)
13	Kapitan Dranitsyn	~24,500 hp	~18.2 MW	Marine diesel (diesel-electric)	~14,917 t	129.0 × 26.54 × 12.3	Built by Wärtsilä / Finnish yard (original)	Russia (Murmansk)
14	Oden	~24,500 hp (commonly cited)	~18 MW	Marine diesel (HFO / low-sulphur diesel)	~11,000–13,000 t	107.8 × 31.0 × (air-height ~42.5)	Swedish/Finnish yards	Sweden (Norrköping / Stockholm ops)
15	Araon (RV Araon)	~13,410 hp	~10.1 MW	Marine diesel (diesel-electric)	~6,950 GT (mass proxy)	109.5 × 19.0 × 9.9	Hanjin Heavy Industries (Busan)	South Korea (Incheon)
16	Type 272 / Haibing class (small Chinese icebreaker)	class diesel-electric; ~10,000–18,000 hp equiv. (varies)	multi-MW (varies by unit)	Marine diesel (diesel-electric)	~4,860 t	103.1 × 18.4 × (draft varies)	Dalian / Chinese yards	China (various home ports)
17	Canadian Polar Icebreaker	design target: ~26,800–	design ~20,000–23,000 t		design ≈158 × 28 ×	Canada (to be assigned)	Marine diesel (diesel-electric;	Seaspan / Davie /

	(program / design)	53,600 hp (≈20–40 MW)			(height varies)		marine distillate)	consortium (program)

Custom Towage Fleet

4. Eugenix P.S.A. advises all shareholders to conduct very detail research of the ice removal area designated by the Eugenix P.S.A. that should be shared with other shareholders for a comparative purpose to avoid mistakes. The ice removal fleet that shareholders will order from companies of own choice should include Floating Ice Harvesters, Land Ice Harvesters, Tug Boats and Purse Seine Nets and all design to work as one uniformed system for the shareholders with rest of the infrastructure located in the shareholders states that should be also built or converted for the purpose of the arrival of ice via sea.

5. Shareholders state infrastructure ready for ice should include: Ice Docks, Ice Mills, Reverse Osmosis Systems, Processed Water Reservoirs, Bottling Plants, Bottling Storage and Cleaning for Bottles and Containers designed for reuse-refill. Shareholders should also prepare its Distribution in the shareholders state's so the Ice and Water can move via rail, road, pipe and even aqueducts in directions where it serves the economy and sustainment 24 hours a day 7 days a week.

Steel Stock for Ice Towage Vessels

6. Steel stock currently in use by the marine cargo vessels in operation might satisfy more than 50% of required steel to produce 164,250 tugboats capable to tow 0.1 km3 of ice each. Marine industry might have to seek sources of steel thru Eugenix P.S.A. shareholders or thru ways of recycling older vessels and moving as much of the cargo to rail.

Ethically Sources Steel

7. Shareholders and maritime fleet producers should resolve steel shortage by involving Rafaltic and Aquatic indigenous ethnicities of shareholders states. Eugenix P.S.A. Has presented its view regarding natural resources use by non-indigenous groups and by non-indigenous companies in the arcticus blancus territories in the publication titled Eugenix® Indigenous Natural Resources Management and Dividend Rules. Shareholders are welcome to read arcticus blancus rules and implement similar rules to on own indigenous Rafaltic and Aquatic territories with its indigenous ethnicities.

Environmentally Safe Minig and Refining

8. Eugenix P.S.A. Has also addressed the issue of extremely hazardous mining and refining standards present in heavy mining and refining industries in the petition to the European union parliament titled: eugenix® EU Petition for Rare Earth Metals Protection. Mining and refining technologies should always be verified by independent laboratories before they are established. Eugenix P.S.A. strongly advises all shareholders to always as Mining and Refining company to secure all its infrastructure with decommission bonds that cover complete dismantlement of all mining and refining activities that includes all necessary clean up and processing of all remains in case the Mining and Refining companies bankrupt due to financial or any other reason and leave the costs of clean-up operations to the shareholders state.

9. To summarise the Shareholders should not worry that there is no steel, energy, or technical possibilities, Its all ready to piece it up and although the better technology and better results shareholders seek the more research and innovation they will have to require of its indigenous and neighboring researchers, engineers, producers, contractors, operators, etc. Competition in this final chapter of humanity's 5000+ years of work for the invisible purpose might be beneficial as it is still a business in all of its fractional components.

10. Eugenix P.S.A. will try to keep up and share all that it learns for the benefit of all that wait for the water of life.

K Pawlak

Godeo Optimo Maximo - Piast & Wasa
Arctic Men Extinction Noticed.
Arctic Magnetic Earth Naturalist.
Antarctic Mass Excavation Nonetheless.

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Arcticus Blancus – Indigenous Arctic Ethnicity
Arcticus Blancus (Latin), Blanków (Polish).