

UNIT ECONOMICS ANALYSIS - ARCTIC SERIES ROBOTS

CONFIDENTIAL AND PROPRIETARY

Polar Dynamics Robotics, Inc.

Date: January 11, 2024

1. DOCUMENT PURPOSE AND SCOPE

1. This Unit Economics Analysis ("Analysis") details the cost structure, revenue metrics, and operational economics for the Arctic Series autonomous mobile robots ("Arctic Series") manufactured by Polar Dynamics Robotics, Inc. ("Company").
2. This Analysis covers fiscal years 2022-2023 and Q1-Q3 2024, with projections through 2025.

2. PRODUCT SPECIFICATIONS

1. The Analysis specifically addresses the following Arctic Series models:
 - Arctic-1000 (Standard Payload)
 - Arctic-2000 (Heavy Payload)
 - Arctic-3000 (Ultra-Heavy Payload)
2. Each model incorporates the Company's proprietary:
 - ColdCore(TM) actuator technology
 - IceNav(TM) navigation system
 - ThermalGuard(TM) battery management system

3. DIRECT MANUFACTURING COSTS

1. Component Costs (per unit):
 - Actuators and motors: \$12,450
 - Battery systems: \$8,750
 - Sensors and navigation hardware: \$7,200
 - Chassis and frame: \$5,800
 - Thermal management systems: \$4,300
 - Electronics and control systems: \$6,900

2. Labor Costs (per unit):

- Direct assembly: \$4,200
- Quality control: \$1,800
- Testing and certification: \$2,100

3. Total Direct Manufacturing Cost:

- Arctic-1000: \$53,500
- Arctic-2000: \$68,700
- Arctic-3000: \$82,900

4. OVERHEAD ALLOCATION

1. Fixed Overhead (per unit):

- Facility costs: \$3,200
- Equipment depreciation: \$2,800
- Supervision: \$1,900
- Engineering support: \$2,400

2. Variable Overhead (per unit):

- Materials handling: \$1,100
- Utilities: \$800
- Maintenance: \$1,400

5. REVENUE METRICS

1. Base Pricing:

- Arctic-1000: \$125,000
- Arctic-2000: \$165,000
- Arctic-3000: \$195,000

2. Average Revenue Adjustments:

- Volume discounts: -8%
- Extended warranty: +5%
- Custom configurations: +12%

- Service contracts: +15%

6. MARGIN ANALYSIS

1. Gross Margin (Standard Configuration):

- Arctic-1000: 57.2%
- Arctic-2000: 58.4%
- Arctic-3000: 57.5%

2. Contribution Margin:

- Arctic-1000: 52.1%
- Arctic-2000: 53.3%
- Arctic-3000: 52.8%

7. OPERATIONAL METRICS

1. Production Capacity:

- Current monthly capacity: 45 units
- Optimal batch size: 15 units
- Average production cycle: 18 days

2. Inventory Management:

- Average component inventory: 60 days
- Finished goods inventory: 30 days
- Safety stock requirements: 15 days

8. SCALABILITY FACTORS

1. Production Efficiency Gains:

- Automation improvements: 12% cost reduction potential
- Supply chain optimization: 8% cost reduction potential
- Volume pricing benefits: 5% at 2x current volume

2. Margin Enhancement Opportunities:

- Component standardization: +3% margin potential

- Manufacturing process optimization: +4% margin potential
- Supplier consolidation: +2% margin potential

9. DISCLAIMERS AND LIMITATIONS

1. This Analysis contains forward-looking projections based on current market conditions and operational assumptions.
2. All figures are subject to change based on market conditions, component availability, and technological advances.
3. This document is confidential and proprietary to Polar Dynamics Robotics, Inc. and may not be reproduced or distributed without written consent.

10. CERTIFICATION

The undersigned hereby certifies that this Unit Economics Analysis accurately reflects the current cost structure and operational metrics of the Arctic Series product line as of the date first written above.

Katherine Wells

Chief Financial Officer

Polar Dynamics Robotics, Inc.

Date: _

11. DOCUMENT CONTROL

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