+357 96 030922
info@marketpublishers.com

Energy-harvesting Textiles Market Size, Share & Trends Analysis Report By Technology (Photovoltaic Textiles, Piezoelectric Textiles, Triboelectric Textiles, Thermoelectric Textiles), By Application, By Region, And Segment Forecasts, 2026 - 2033

https://marketpublishers.com/r/E9B022B0D900EN.html
Date: October 2026
Pages: 107
Price: US$ 5,950.00 (Single User License)
ID: E9B022B0D900EN

Abstracts

The global energy-harvesting textiles market size was valued at USD 1.5 billion in 2025 and is projected to grow from USD 1.8 billion in 2026 to USD 6.8 billion by 2033, at a CAGR of 21.3% from 2026 to 2033. North America dominated the market, accounting for the largest revenue share of 39.4% in 2025. The energy-harvesting textiles market comprises textiles engineered to capture and convert ambient energy from sources such as sunlight, body movement, heat, and mechanical motion into usable electrical energy.

The market is supported by increasing interest in self-powered wearable systems across healthcare, sports and fitness, defense, consumer electronics, and industrial applications. Textile-integrated energy generation can reduce reliance on conventional batteries and external charging systems, particularly in applications where flexibility, mobility, and continuous operation are important. Manufacturers are therefore focusing on improving energy conversion efficiency while maintaining textile comfort and durability.

Global Energy-harvesting Textiles Market Report Segmentation

This report forecasts revenue growth at regional & country levels and provides an analysis on the industry trends in each of the sub-segments from 2021 to 2033. For the purpose of this study, Grand View Research has segmented the energy-harvesting

+357 96 030922
info@marketpublishers.com

textiles market on the basis of technology, application, and region:

Technology Outlook (Revenue, USD Million, 2021 - 2033)

- Photovoltaic Textiles
- Piezoelectric Textiles
- Triboelectric Textiles
- Thermoelectric Textiles
- Others

Application Outlook (Revenue, USD Million, 2021 - 2033)

- Apparel & Personal Wearables
- Military & Defense
- Sports & Fitness
- Healthcare
- Automotive & Transportation
- Other Applications

Regional Outlook (Revenue, USD Million, 2021 - 2033)

- North America
- U.S.
- Canada
- Mexico
- Europe

+357 96 030922
info@marketpublishers.com

UK

Germany

France

Italy

Spain

Asia Pacific

China

Japan

India

South Korea

Central and South America

Brazil

Middle East and Africa

Saudi Arabia

This report can be delivered to the clients within 5 Business Days

+357 96 030922
info@marketpublishers.com

Contents

CHAPTER 1. METHODOLOGY AND SCOPE

1.1. Market Segmentation & Scope
1.2. Market Definition
1.3. Information Procurement
  1.3.1. Purchased Database
  1.3.2. GVR's Internal Database
  1.3.3. Secondary Sources
  1.3.4. Third-Party Perspectives
  1.3.5. Primary Research
1.4. Information Analysis
  1.4.1. Data Analysis Models
1.5. Market Formulation & Data Visualization
1.6. Data Validation and Publishing

CHAPTER 2. EXECUTIVE SUMMARY

2.1. Market Outlook
2.2. Segmental Outlook
2.3. Competitive Insights

CHAPTER 3. ENERGY-HARVESTING TEXTILES MARKET VARIABLES, TRENDS & SCOPE

3.1. Ancillary Market Outlook
3.2. Value Chain Analysis
  3.2.1. Sales Channel Analysis
3.3. Regulatory Framework
  3.3.1. Regulations
  3.3.2. Analyst Perspective
3.4. Technology Overview
  3.4.1. Triboelectric & Piezoelectric Textile Energy Harvesting
  3.4.2. Hybrid Energy Harvesting & Integrated Textile Power Systems
  3.4.3. Flexible Photovoltaic & Solar Textile Technologies
3.5. Market Dynamics
  3.5.1. Market Driver Analysis
  3.5.2. Market Restraint Analysis

+357 96 030922
info@marketpublishers.com

3.5.3. Industry Opportunity
3.5.4. Market Challenges
3.6. Business Environment Analysis
3.6.1. Porter's Analysis
3.6.1.1. Supplier Power
3.6.1.2. Buyer Power
3.6.1.3. Substitution Threat
3.6.1.4. Threat from New Entrant
3.6.1.5. Competitive Rivalry
3.6.2. PESTEL Analysis
3.6.2.1. Political Landscape
3.6.2.2. Environmental Landscape
3.6.2.3. Social Landscape
3.6.2.4. Technology Landscape
3.6.2.5. Economic Landscape
3.6.2.6. Legal Landscape
3.7. Sustainability & Circularity Landscape
3.7.1. Use of Sustainable & Recyclable Textile Materials
3.7.2. Environmental Impact of Embedded Electronic Components
3.7.3. End-of-Life, Recycling & Textile-Electronics Separation
3.8. Buyer Intelligence
3.8.1. Buyer Company Identification, by Category
3.8.2. Buyer Company Database
3.8.3. Material Consumption & Procurement Assessment
3.8.4. Buyer & Purchasing Insights

CHAPTER 4. ENERGY-HARVESTING TEXTILES MARKET: TECHNOLOGY ESTIMATES & TREND ANALYSIS

4.1. Technology Takeaways
4.2. Technology Market Share Analysis, 2025 & 2033
4.3. Energy-harvesting Textiles Market Estimates & Forecast, By Technology 2021 - 2033 (USD Million)
4.4. Photovoltaic Textiles
4.4.1. Energy-harvesting Textiles Market Estimates & Forecast, By Photovoltaic Textiles, 2021 - 2033 (USD Million)
4.5. Piezoelectric Textiles
4.5.1. Energy-harvesting Textiles Market Estimates & Forecast, By Piezoelectric Textiles, 2021 - 2033 (USD Million)

+357 96 030922
info@marketpublishers.com

4.6. Triboelectric Textiles
4.6.1. Energy-harvesting Textiles Market Estimates & Forecast, By Triboelectric Textiles, 2021 - 2033 (USD Million)
4.7. Thermoelectric Textiles
4.7.1. Energy-harvesting Textiles Market Estimates & Forecast, By Thermoelectric Textiles, 2021 - 2033 (USD Million)
4.8. Others
4.8.1. Energy-harvesting Textiles Market Estimates & Forecast, By Others, 2021 - 2033 (USD Million)

CHAPTER 5. ENERGY-HARVESTING TEXTILES MARKET: APPLICATION ESTIMATES & TREND ANALYSIS

5.1. Application Takeaways
5.2. Application Market Share Analysis, 2025 & 2033
5.3. Energy-harvesting Textiles Market Estimates & Forecast, By Application 2021 - 2033 (USD Million)
5.4. Apparel & Personal Wearables
5.4.1. Energy-harvesting Textiles Market Estimates & Forecast, By Apparel & Personal Wearables, 2021 - 2033 (USD Million)
5.5. Military & Defense
5.5.1. Energy-harvesting Textiles Market Estimates & Forecast, By Military & Defense, 2021 - 2033 (USD Million)
5.6. Sports & Fitness
5.6.1. Energy-harvesting Textiles Market Estimates & Forecast, By Sports & Fitness, 2021 - 2033 (USD Million)
5.7. Healthcare
5.7.1. Energy-harvesting Textiles Market Estimates & Forecast, By Healthcare, 2021 - 2033 (USD Million)
5.8. Automotive & Transportation
5.8.1. Energy-harvesting Textiles Market Estimates & Forecast, By Automotive & Transportation, 2021 - 2033 (USD Million)
5.9. Other Applications
5.9.1. Energy-harvesting Textiles Market Estimates & Forecast, By Other Applications, 2021 - 2033 (USD Million)

CHAPTER 6. ENERGY-HARVESTING TEXTILES MARKET: REGIONAL ESTIMATES & TREND ANALYSIS

+357 96 030922
info@marketpublishers.com

6.1. Key Takeaways
6.2. Regional Market Share Analysis, 2025 & 2033
6.3. North America
6.3.1. North America Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.3.2. North America Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.3.3. North America Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.3.4. U.S.
6.3.4.1. U.S. Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.3.4.2. U.S. Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.3.4.3. U.S. Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.3.5. Canada
6.3.5.1. Canada Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.3.5.2. Canada Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.3.5.3. Canada Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.3.6. Mexico
6.3.6.1. Mexico Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.3.6.2. Mexico Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.3.6.3. Mexico Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.4. Europe
6.4.1. Europe Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.4.2. Europe Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.4.3. Europe Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.4.4. UK
6.4.4.1. UK Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033

+357 96 030922
info@marketpublishers.com

(USD Million)
6.4.4.2. UK Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.4.4.3. UK Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.4.5. Germany
6.4.5.1. Germany Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.4.5.2. Germany Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.4.5.3. Germany Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.4.6. France
6.4.6.1. France Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.4.6.2. France Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.4.6.3. France Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.4.7. Italy
6.4.7.1. Italy Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.4.7.2. Italy Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.4.7.3. Italy Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.4.8. Spain
6.4.8.1. Spain Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.4.8.2. Spain Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.4.8.3. Spain Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.5. Asia Pacific
6.5.1. Asia Pacific Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.5.2. Asia Pacific Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.5.3. Asia Pacific Energy-harvesting Textiles Market Estimates & Forecasts, By

+357 96 030922
info@marketpublishers.com

Technology, 2021 - 2033 (USD Million)
6.5.4. China
6.5.4.1. China Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.5.4.2. China Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.5.4.3. China Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.5.5. Japan
6.5.5.1. Japan Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.5.5.2. Japan Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.5.5.3. Japan Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.5.6. India
6.5.6.1. India Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.5.6.2. India Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.5.6.3. India Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.5.7. South Korea
6.5.7.1. South Korea Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.5.7.2. South Korea Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.5.7.3. South Korea Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.6. Central and South America
6.6.1. Central and South America Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.6.2. Central and South America Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.6.3. Central and South America Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.6.4. Brazil
6.6.4.1. Brazil Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)

+357 96 030922
info@marketpublishers.com

6.6.4.2. Brazil Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.6.4.3. Brazil Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.7. Middle East and Africa
6.7.1. Middle East and Africa Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.7.2. Middle East and Africa Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.7.3. Middle East and Africa Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)
6.7.4. Saudi Arabia
6.7.4.1. Saudi Arabia Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
6.7.4.2. Saudi Arabia Energy-harvesting Textiles Market Estimates & Forecasts, By Application, 2021 - 2033 (USD Million)
6.7.4.3. Saudi Arabia Energy-harvesting Textiles Market Estimates & Forecasts, By Technology, 2021 - 2033 (USD Million)

CHAPTER 7. SUPPLIER INTELLIGENCE

7.1. Kraljic Matrix
7.2. Engagement Model
7.3. Negotiation Strategies
7.4. Sourcing Best Practices
7.5. Vendor Selection Criteria
7.6. Raw Material Supplier Identification, by Category
7.7. Raw Material Supplier Database
7.8. Raw Material Capacity & Production Assessment
7.9. Capacity Expansion Tracking

CHAPTER 8. COMPETITIVE LANDSCAPE

8.1. Recent Developments & Impact Analysis, By Key Market Participants
8.2. Competition Categorization
8.3. Company Market Positioning
8.4. Company Heat Map Analysis, 2025
8.5. Strategy Mapping, 2025
8.6. Company Listing

+357 96 030922
info@marketpublishers.com

8.6.1. Pvilion
8.6.1.1. Company Overview
8.6.1.2. Financial Performance
8.6.1.3. Product Benchmarking
8.6.1.4. Strategic Initiatives
8.6.2. Solar Cloth System
8.6.2.1. Company Overview
8.6.2.2. Financial Performance
8.6.2.3. Product Benchmarking
8.6.2.4. Strategic Initiatives
8.6.3. ASCA GmbH & Co. KG
8.6.3.1. Company Overview
8.6.3.2. Financial Performance
8.6.3.3. Product Benchmarking
8.6.3.4. Strategic Initiatives
8.6.4. Sphelar Power Corporation
8.6.4.1. Company Overview
8.6.4.2. Financial Performance
8.6.4.3. Product Benchmarking
8.6.4.4. Strategic Initiatives
8.6.5. PIECLEX Co., Ltd.
8.6.5.1. Company Overview
8.6.5.2. Financial Performance
8.6.5.3. Product Benchmarking
8.6.5.4. Strategic Initiatives
8.6.6. Pauline van Dongen
8.6.6.1. Company Overview
8.6.6.2. Financial Performance
8.6.6.3. Product Benchmarking
8.6.6.4. Strategic Initiatives

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

Table 1 Energy-harvesting Textiles Market Estimates & Forecast, By Application 2021-2033 (USD Million)
Table 2 Energy-harvesting Textiles Market Estimates & Forecast, By Technology 2021-2033 (USD Million)

+357 96 030922
info@marketpublishers.com

List Of Figures

LIST OF FIGURES

Fig. 1 Energy-harvesting Textiles Market Segmentation & Scope
Fig. 2 Information Procurement
Fig. 3 Data Analysis Models
Fig. 4 Market Formulation And Validation
Fig. 5 Data Validating & Publishing
Fig. 6 Regional Outlook
Fig. 7 Segmental Outlook
Fig. 8 Competitive Outlook
Fig. 9 Value Chain Analysis
Fig. 10 Energy-harvesting Textiles: Market Dynamics
Fig. 11 Market Driver Analysis
Fig. 12 Market Restraint Analysis
Fig. 13 Industry Analysis: Porter’s
Fig. 14 PESTEL analysis
Fig. 15 Technology: Key Takeaways
Fig. 16 Technology: Market Share, 2025 & 2033
Fig. 17 Energy-harvesting Textiles Market Estimates & Forecast, By Photovoltaic Textiles, 2021 - 2033 (USD Million)
Fig. 18 Energy-harvesting Textiles Market Estimates & Forecast, By Piezoelectric Textiles, 2021 - 2033 (USD Million)
Fig. 19 Energy-harvesting Textiles Market Estimates & Forecast, By Triboelectric Textiles, 2021 - 2033 (USD Million)
Fig. 20 Energy-harvesting Textiles Market Estimates & Forecast, By Thermoelectric Textiles, 2021 - 2033 (USD Million)
Fig. 21 Energy-harvesting Textiles Market Estimates & Forecast, By Others, 2021 - 2033 (USD Million)
Fig. 22 Application: Key Takeaways
Fig. 23 Application: Market Share, 2025 & 2033
Fig. 24 Energy-harvesting Textiles Market Estimates & Forecast, By Apparel & Personal Wearables, 2021 - 2033 (USD Million)
Fig. 25 Energy-harvesting Textiles Market Estimates & Forecast, By Military & Defense, 2021 - 2033 (USD Million)
Fig. 26 Energy-harvesting Textiles Market Estimates & Forecast, By Sports & Fitness, 2021 - 2033 (USD Million)
Fig. 27 Energy-harvesting Textiles Market Estimates & Forecast, By Healthcare, 2021 -

+357 96 030922
info@marketpublishers.com

2033 (USD Million)
Fig. 28 Energy-harvesting Textiles Market Estimates & Forecast, By Automotive & Transportation, 2021 - 2033 (USD Million)
Fig. 29 Energy-harvesting Textiles Market Estimates & Forecast, By Other Applications, 2021 - 2033 (USD Million)
Fig. 30 Region, 2025 & 2033 (USD Million)
Fig. 31 Regional marketplace: Key takeaways
Fig. 32 North America Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 33 U.S. Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 34 Canada Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 35 Mexico Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 36 Europe Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 37 UK Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 38 Germany Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 39 France Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 40 Italy Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 41 Spain Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 42 Asia Pacific Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 43 China Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 44 Japan Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 45 India Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
Fig. 46 South Korea Energy-harvesting Textiles Market Estimates & Forecasts, 2021 - 2033 (USD Million)
Fig. 47 Central and South America Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)

+357 96 030922
info@marketpublishers.com

Fig. 48 Brazil Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 49 Middle East and Africa Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 50 Saudi Arabia Energy-harvesting Textiles Market Estimates & Forecast, 2021 - 2033 (USD Million)
Fig. 51 Competition Categorization
Fig. 52 Company Market Positioning
Fig. 53 Company Heat Map Analysis, 2025

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: Energy-harvesting Textiles Market Size, Share & Trends Analysis Report By Technology (Photovoltaic Textiles, Piezoelectric Textiles, Triboelectric Textiles, Thermoelectric Textiles), By Application, By Region, And Segment Forecasts, 2026 - 2033

Product link: https://marketpublishers.com/r/E9B022B0D900EN.html

Price: US$ 5,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/E9B022B0D900EN.html