

Energy Harvesting System Market by Technology (Light, Vibration, Radio Frequency (RF), Thermal), Component (Transducers (Photovoltaic, Piezoelectric, Electromagnetic, RF, Thermoelectric), PMICs, Secondary Batteries) - Global Forecast to 2028

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Abstracts

The energy harvesting system market is projected to grow from USD 0.6 billion in 2023 and is projected to reach USD 0.9 billion by 2028; it is expected to grow at a CAGR of 10.0% from 2023 to 2028.

Surging implementation of IoT devices in automation and energy harvesting systems for building and home automation, and growing demand for safe, power-efficient, and durable systems that require minimum or no maintenance are the factors expected to fuel the growth of the energy harvesting system market.

"Vibration energy harvesting segment of the energy harvesting system market to witness high growth during the forecast period."

By technology, the energy harvesting system market has been segmented into light energy harvesting, vibration energy harvesting, radio frequency (RF) energy harvesting, and thermal energy harvesting. The vibration energy harvesting segment is expected to grow at the high CAGR during the forecast period. Ongoing research and development efforts in the field of vibration energy harvesting contribute to its growth. Researchers are exploring new materials, optimized designs, and advanced techniques to enhance the efficiency, durability, and scalability of vibration energy harvesting technologies. For instance, in December 2022, researchers from Osaka Metropolitan University (Japan) developed a two-centimeter energy harvester that uses piezoelectric vibration energy generated by walking to power small wearable devices like smartphones and



smartwatches. The harvester, equipped with a U-shaped metal component called a dynamic magnifier, allows for 90 times more power conversion from impulsive vibrations during the human walking motion. This breakthrough technology offers the potential for self-charging wearable devices and contributes to the advancement of energy-efficient electronic devices.

"Building & home automation application segment to witness high growth for energy harvesting system market during the forecast period."

Building & home automation segment to grow at high CAGR during the forecast period. Building & home automation technologies offer wireless, smart, and intelligent control over home electronics. Smart home technology connects home appliances, lighting systems, HVAC devices, and security systems with a gateway that can be remotely controlled through cloud services. Traditional wireless network systems are installed with batteries that need timely replacements. The recurring cost associated with traditional batteries can be reduced by installing devices powered by energy harvesting systems. Building automation products such as wall switches, sensors, and relay receivers can be easily interconnected without complexity. Energy harvesting in building automation systems are used for occupancy sensors, humidity sensors, window positioning systems, temperature sensors, climate control systems, radiator control systems, and other lighting control systems. Therefore, rising emphasis on energy-efficient buildings and smart homes to drive the market growth over the forecast period.

"North America to hold a major market share of the energy harvesting system market during the forecast period" North America is expected to hold a major market share for energy harvesting system market during the forecast period. The energy harvesting system market in North America has experienced significant growth in recent years and is expected to continue expanding in the years ahead. One of the key market drivers in this region is the increasing focus on renewable energy sources and sustainable practices. North American countries are actively investing in energy harvesting technologies to reduce their dependence on fossil fuels and mitigate the environmental impact of energy generation. Additionally, government initiatives and favorable policies promoting clean energy adoption are driving market growth. The demand for energy harvesting systems is also fueled by the rising need for reliable and efficient power sources in remote and off-grid applications. Moreover, the growing awareness among industries and consumers about the benefits of energy harvesting, such as cost savings and reduced carbon emissions, is further propelling the market in North America.

Extensive primary interviews were conducted with key industry experts in the energy



harvesting system market space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report has been shown below:

The break-up of the profile of primary participants in the Energy Harvesting System market:

By Company Type: Tier 1 – 30%, Tier 2 – 10%, and Tier 3 – 60%

By Designation: C Level – 20%, Director Level – 20%, Others-50%

By Region: North America – 30%, Europe – 40%, Asia Pacific – 20%, ROW-10%

The report profiles key players in the energy harvesting system market with their respective market ranking analysis. Prominent players profiled in this report are STMicroelectronics (Switzerland), Microchip Technology Inc. (US), Texas Instruments Incorporated (US), Analog Devices, Inc. (US), Infineon Technologies AG (Germany), Qorvo, Inc. (US), Honeywell International Inc. (US), ABB (Switzerland), Renesas Electronics Corporation (Japan), and EnOcean GmbH (Germany).

Apart from this, Powercast Corporation (US), Nexperia (Netherlands), CeramTec GmbH (Germany), Bionic Power Inc. (Canada), Kinergizer (Netherlands), Physik Instrumente (PI) GmbH & Co. KG (Germany), CTS Corporation (US), and Trameto Limited (UK) are among a few emerging companies in the energy harvesting system market.

Research Coverage: This research report categorizes the energy harvesting system market on the basis of technology, component, end-use system, application, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the energy harvesting system market and forecasts the same till 2028. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the energy harvesting system ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall energy harvesting system market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and to plan suitable go-to-market strategies. The report



also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Rising environmental concerns, Miniaturization and flexibility requirements, Integration of IoT devices in energy harvesting systems for building and home automation, Favorable government initiatives, Growing preference for wireless sensor networks equipped with energy harvesting systems), restraints (Geographic and environmental constraints, Limitations of remotely installed networking modules), opportunities (Emergence of smart cities, Adoption of sensors in wearable electronics, Use of human energy harvesting for implantable biomedical devices, Ocean energy harvesting) and challenges (Limitations associated with integrating energy harvesting systems into existing infrastructure, Standardization of communications protocols, Damages caused to energy harvesting devices by surrounding environments) influencing the growth of the energy harvesting system market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the energy harvesting system market.

Market Development: Comprehensive information about lucrative markets – the report analysis the energy harvesting system market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the energy harvesting system market

Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like STMicroelectronics (Switzerland), Microchip Technology Inc. (US), Texas Instruments Incorporated (US), Analog Devices, Inc. (US), Infineon Technologies AG (Germany), among others in the energy harvesting system market.



Contents

1 INTRODUCTION

- 1.1 STUDY OBJECTIVES
- 1.2 MARKET DEFINITION
- 1.3 STUDY SCOPE
 - 1.3.1 MARKETS COVERED

FIGURE 1 ENERGY HARVESTING SYSTEM MARKET SEGMENTATION

- 1.3.2 REGIONS COVERED
- 1.4 INCLUSIONS AND EXCLUSIONS
- 1.4.1 INCLUSIONS AND EXCLUSIONS, BY COMPANY
- 1.4.2 INCLUSIONS AND EXCLUSIONS, BY TECHNOLOGY
- 1.4.3 INCLUSIONS AND EXCLUSIONS, BY COMPONENT
- 1.4.4 INCLUSIONS AND EXCLUSIONS, BY APPLICATION
- 1.5 YEARS CONSIDERED
- 1.6 CURRENCY
- 1.7 LIMITATIONS
- 1.8 STAKEHOLDERS
- 1.9 SUMMARY OF CHANGES
- 1.10 RECESSION IMPACT

2 RESEARCH METHODOLOGY

- 2.1 RESEARCH DATA
- FIGURE 2 RESEARCH DESIGN
 - 2.1.1 SECONDARY DATA
 - 2.1.1.1 Major secondary sources
 - 2.1.1.2 Key data from secondary sources
 - 2.1.2 PRIMARY DATA
 - 2.1.2.1 Primary interviews with experts
 - 2.1.2.2 Breakdown of primaries
 - 2.1.2.3 Key data from primary sources
 - 2.1.3 SECONDARY AND PRIMARY RESEARCH
 - 2.1.3.1 Key industry insights
- 2.2 MARKET SIZE ESTIMATION
- FIGURE 3 RESEARCH PROCESS FLOW
 - 2.2.1 BOTTOM-UP APPROACH
 - 2.2.1.1 Approach to capture market size using bottom-up analysis



(demand side)

FIGURE 4 BOTTOM-UP APPROACH

2.2.2 DEMAND-SIDE ANALYSIS

FIGURE 5 DEMAND-SIDE APPROACH

2.2.3 TOP-DOWN APPROACH

2.2.3.1 Approach to capture market share using top-down analysis

(supply side)

FIGURE 6 TOP-DOWN APPROACH

2.3 DATA TRIANGULATION

FIGURE 7 DATA TRIANGULATION

2.4 RESEARCH ASSUMPTIONS

FIGURE 8 RESEARCH ASSUMPTIONS

2.5 RECESSION IMPACT ANALYSIS

2.6 RISK ASSESSMENT

TABLE 1 RISK ASSESSMENT

2.7 RESEARCH LIMITATIONS

3 EXECUTIVE SUMMARY

FIGURE 9 GDP GROWTH PROJECTIONS FOR MAJOR ECONOMIES, 2021–2023 FIGURE 10 IMPACT OF RECESSION ON ENERGY HARVESTING SYSTEM MARKET, 2019–2028 (USD MILLION)

FIGURE 11 LIGHT ENERGY HARVESTING TO BE FASTEST-GROWING SEGMENT DURING FORECAST PERIOD

FIGURE 12 TRANSDUCERS TO ACQUIRE MAXIMUM MARKET SHARE IN 2028

FIGURE 13 BUILDING & HOME AUTOMATION TO SURPASS OTHER SEGMENTS

DURING FORECAST PERIOD

FIGURE 14 NORTH AMERICA TO BE LARGEST MARKET DURING FORECAST PERIOD

4 PREMIUM INSIGHTS

4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN ENERGY HARVESTING SYSTEM MARKET

FIGURE 15 INCREASED ADOPTION OF WIRELESS SENSOR NETWORKS EQUIPPED WITH ENERGY HARVESTING SYSTEMS

4.2 ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY

FIGURE 16 LIGHT ENERGY HARVESTING SEGMENT TO DOMINATE MARKET DURING FORECAST PERIOD



4.3 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT AND APPLICATION

FIGURE 17 TRANSDUCERS AND BUILDING & HOME AUTOMATION SEGMENTS TO HOLD LARGEST MARKET SHARES IN 2023

4.4 ENERGY HARVESTING SYSTEM MARKET, BY REGION

FIGURE 18 NORTH AMERICA TO SECURE LEADING MARKET POSITION IN 2023

4.5 ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY

FIGURE 19 CHINA TO BE FASTEST-GROWING COUNTRY BETWEEN 2023 AND 2028

5 MARKET OVERVIEW

- 5.1 INTRODUCTION
- 5.2 MARKET DYNAMICS

FIGURE 20 ENERGY HARVESTING SYSTEM MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES

- 5.2.1 DRIVERS
 - 5.2.1.1 Rising environmental concerns
 - 5.2.1.2 Miniaturization and flexibility requirements
- 5.2.1.3 Integration of IoT devices in energy harvesting systems for building and home automation

FIGURE 21 FACILITY MANAGEMENT SYSTEM MARKET SIZE, 2019–2027

5.2.1.4 Favorable government initiatives

TABLE 2 GOVERNMENT INITIATIVES

5.2.1.5 Growing preference for wireless sensor networks equipped with energy harvesting systems

FIGURE 22 IMPACT OF ENERGY HARVESTING SYSTEM MARKET DRIVERS

- 5.2.2 RESTRAINTS
 - 5.2.2.1 Geographic and environmental constraints
 - 5.2.2.2 Limitations of remotely installed networking modules
 - 5.2.2.3 High initial cost of energy harvesting systems

FIGURE 23 IMPACT OF ENERGY HARVESTING SYSTEM MARKET RESTRAINTS 5.2.3 OPPORTUNITIES

- 5.2.3.1 Emergence of smart cities
- 5.2.3.2 Adoption of sensors in wearable electronics
- 5.2.3.3 Use of human energy harvesting for implantable biomedical devices
- 5.2.3.4 Ocean energy harvesting

FIGURE 24 IMPACT OF ENERGY HARVESTING SYSTEM MARKET OPPORTUNITIES



5.2.4 CHALLENGES

- 5.2.4.1 Limitations associated with integrating energy harvesting systems into existing infrastructure
 - 5.2.4.2 Standardization of communications protocols
- 5.2.4.3 Damages caused to energy harvesting devices by surrounding environments FIGURE 25 IMPACT OF ENERGY HARVESTING SYSTEM MARKET CHALLENGES 5.3 TECHNOLOGY ANALYSIS

FIGURE 26 COMPARATIVE ANALYSIS OF ENERGY HARVESTING TECHNOLOGY, BY APPLICATION

FIGURE 27 IMPACT OF TECHNOLOGY PENETRATION ON EACH APPLICATION

- 5.3.1 MULTI-SOURCE HARVESTING
- 5.3.2 NANOMATERIALS AND METAMATERIALS
- **5.3.3 3D PRINTING**
- 5.3.4 BODY MOTION ENERGY HARVESTING
- 5.3.5 PHOTO-ELECTROCHEMISTRY-BASED ENERGY HARVESTING
- 5.4 VALUE CHAIN ANALYSIS

FIGURE 28 VALUE CHAIN ANALYSIS

5.5 ECOSYSTEM MAPPING

TABLE 3 ENERGY HARVESTING SYSTEM MARKET ECOSYSTEM

FIGURE 29 KEY PLAYERS IN ENERGY HARVESTING SYSTEM ECOSYSTEM

FIGURE 30 ENERGY HARVESTING SYSTEM ECOSYSTEM

5.6 TRENDS/DISRUPTIONS IMPACTING CUSTOMERS' BUSINESSES

FIGURE 31 TRENDS/DISRUPTIONS IN ENERGY HARVESTING SYSTEM MARKET

5.7 PORTER'S FIVE FORCES ANALYSIS

TABLE 4 IMPACT OF PORTER'S FIVE FORCES

FIGURE 32 PORTER'S FIVE FORCES ANALYSIS

- 5.7.1 THREAT OF NEW ENTRANTS
- 5.7.2 THREAT OF SUBSTITUTES
- 5.7.3 BARGAINING POWER OF SUPPLIERS
- 5.7.4 BARGAINING POWER OF BUYERS
- 5.7.5 INTENSITY OF COMPETITIVE RIVALRY
- 5.8 AVERAGE SELLING PRICE (ASP) ANALYSIS
 - 5.8.1 AVERAGE SELLING PRICE TREND, BY COMPONENT

FIGURE 33 AVERAGE SELLING PRICE OF COMPONENTS, 2019–2028

TABLE 5 AVERAGE SELLING PRICE OF COMPONENTS (USD)

5.8.2 AVERAGE SELLING PRICE TREND OF COMPONENTS, BY KEY PLAYER

TABLE 6 AVERAGE SELLING PRICE OF COMPONENTS, BY KEY PLAYER (USD)

FIGURE 34 AVERAGE SELLING PRICE OF TRANSDUCERS, BY KEY PLAYERS

FIGURE 35 AVERAGE SELLING PRICE OF PMICS, BY KEY PLAYERS



FIGURE 36 AVERAGE SELLING PRICE OF SECONDARY BATTERIES, BY KEY PLAYERS

5.9 CASE STUDY ANALYSIS

5.9.1 THERMOKON ACHIEVES ENERGY EFFICIENCY IN HISTORIC TOWN HALL WITH WIRELESS SOLUTIONS

5.9.2 PAVEGEN POWERS PHONE CHARGING THROUGH FOOTSTEPS

5.9.3 NXP AND ENOCEAN STREAMLINE WIRELESS ENERGY HARVESTING IN SMART HOME DEVICES WITH NFC

5.9.4 PAVEGEN DEVELOPS KINETIC TENNIS EXPERIENCE TO SUPPORT SUSTAINABILITY

5.9.5 SIEMENS LEVERAGES PAVEGEN'S KINETIC TECHNOLOGY TO ENGAGE AUDIENCES IN SUSTAINABLE MOBILITY

5.9.6 CENTRAL BEDFORDSHIRE COUNCIL PROMOTES CLEAN-ENERGY GENERATION

5.10 TRADE ANALYSIS

FIGURE 37 IMPORT DATA FOR HS CODE 854140, BY COUNTRY, 2018–2022 FIGURE 38 EXPORT DATA FOR HS CODE 854140, BY COUNTRY, 2018–2022 5.11 TARIFF ANALYSIS

TABLE 7 TARIFF IMPOSED BY BRAZIL ON IMPORTS OF PHOTOSENSITIVE SEMICONDUCTOR DEVICES, 2021

TABLE 8 TARIFF IMPOSED BY ARGENTINA ON IMPORTS OF PHOTOSENSITIVE SEMICONDUCTOR DEVICES, 2022

5.12 PATENT ANALYSIS

FIGURE 39 NUMBER OF PATENTS RELATED TO ENERGY HARVESTING SYSTEMS, 2013–2022

FIGURE 40 TOP 10 PATENT APPLICANTS, 2013-2022

TABLE 9 TOP 20 PATENT OWNERS, 2013–2022

TABLE 10 PATENT REGISTRATIONS, 2019–2023

5.13 KEY CONFERENCES AND EVENTS, 2023-2024

TABLE 11 KEY CONFERENCES AND EVENTS, 2023–2024

5.14 REGULATORY LANDSCAPE

5.14.1 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 12 NORTH AMERICA: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 13 EUROPE: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 14 ASIA PACIFIC: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS



TABLE 15 ROW: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

- 5.14.2 REGULATORY STANDARDS
 - 5.14.2.1 ISO 50001
 - 5.14.2.2 ISO 50003:2021
 - 5.14.2.3 ISO 50004:2020
 - 5.14.2.4 IEC 62830-1:2017
 - 5.14.2.5 IEC 62830-2:2017
 - 5.14.2.6 IEC 62830-3:2017
 - 5.14.2.7 IEC 62830-4:2019
- 5.14.3 GOVERNMENT REGULATIONS
 - 5.14.3.1 US
 - 5.14.3.2 Europe
 - 5.14.3.3 China
 - 5.14.3.4 Japan
- 5.15 KEY STAKEHOLDERS AND BUYING CRITERIA
 - 5.15.1 KEY STAKEHOLDERS IN BUYING PROCESS

FIGURE 41 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE APPLICATIONS

TABLE 16 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE APPLICATIONS (%)

5.15.2 BUYING CRITERIA

FIGURE 42 KEY BUYING CRITERIA FOR TOP THREE APPLICATIONS TABLE 17 KEY BUYING CRITERIA FOR TOP THREE APPLICATIONS

6 ENERGY HARVESTING SYSTEM MARKET, BY END-USE SYSTEM

- 6.1 INTRODUCTION
- 6.2 WIRELESS SWITCHING SYSTEMS
- 6.3 WIRELESS HVAC SYSTEMS
- 6.4 WIRELESS SENSING & TELEMATICS SYSTEMS
- 6.5 TIRE PRESSURE MONITORING SYSTEMS
- 6.6 ASSET TRACKING SYSTEMS
- 6.7 REMOTE HEALTH MONITORING SYSTEMS
- 6.8 REGENERATIVE ENERGY HARVESTING SYSTEMS
 - 6.8.1 FOOTWEAR INDUSTRY
 - 6.8.2 TEXTILE INDUSTRY
 - 6.8.3 TECHNOLOGY ANALYSIS
 - 6.8.3.1 Piezoelectric



- 6.8.3.2 Electromagnetic
- 6.8.3.3 Triboelectric effect
- 6.8.3.4 R&D breakthroughs

7 ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY

7.1 INTRODUCTION

FIGURE 43 ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

TABLE 18 ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 19 ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

7.2 LIGHT ENERGY HARVESTING

7.2.1 GROWING PREFERENCE FOR SUSTAINABLE AND SELF-POWERED DEVICES TO DRIVE GROWTH

TABLE 20 LIGHT ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 21 LIGHT ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

TABLE 22 LIGHT ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 23 LIGHT ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 24 BUILDING & HOME AUTOMATION: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 25 BUILDING & HOME AUTOMATION: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 26 CONSUMER ELECTRONICS: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 27 CONSUMER ELECTRONICS: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 28 INDUSTRIAL: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 29 INDUSTRIAL: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 30 TRANSPORTATION: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 31 TRANSPORTATION: LIGHT ENERGY HARVESTING MARKET, BY



REGION, 2023–2028 (USD THOUSAND)

TABLE 32 SECURITY: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 33 SECURITY: LIGHT ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

7.3 VIBRATION ENERGY HARVESTING

7.3.1 INCREASING DEMAND FOR HOME AUTOMATION AND INDUSTRIAL SENSOR NETWORK APPLICATIONS TO DRIVE GROWTH

TABLE 34 VIBRATION ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 35 VIBRATION ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

TABLE 36 VIBRATION ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 37 VIBRATION ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 38 BUILDING & HOME AUTOMATION: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 39 BUILDING & HOME AUTOMATION: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 40 CONSUMER ELECTRONICS: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 41 CONSUMER ELECTRONICS: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 42 INDUSTRIAL: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 43 INDUSTRIAL: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 44 TRANSPORTATION: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 45 TRANSPORTATION: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 46 SECURITY: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 47 SECURITY: VIBRATION ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

7.4 RF ENERGY HARVESTING

7.4.1 WIDESPREAD ADOPTION OF WIRELESS COMMUNICATIONS TECHNOLOGIES TO DRIVE GROWTH



TABLE 48 RF ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD THOUSAND)

TABLE 49 RF ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD THOUSAND)

TABLE 50 RF ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 51 RF ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 52 BUILDING & HOME AUTOMATION: RF ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 53 BUILDING & HOME AUTOMATION: RF ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 54 INDUSTRIAL: RF ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 55 INDUSTRIAL: RF ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 56 SECURITY: RF ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 57 SECURITY: RF ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

7.5 THERMAL ENERGY HARVESTING

7.5.1 LARGE THERMAL ENERGY RESERVES IN INDUSTRIAL APPLICATIONS TO DRIVE GROWTH

TABLE 58 THERMAL ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD THOUSAND)

TABLE 59 THERMAL ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD THOUSAND)

TABLE 60 THERMAL ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 61 THERMAL ENERGY HARVESTING: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 62 BUILDING & HOME AUTOMATION: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 63 BUILDING & HOME AUTOMATION: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 64 CONSUMER ELECTRONICS: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 65 CONSUMER ELECTRONICS: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)



TABLE 66 INDUSTRIAL: ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 67 INDUSTRIAL: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 68 TRANSPORTATION: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 69 TRANSPORTATION: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 70 SECURITY: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 71 SECURITY: THERMAL ENERGY HARVESTING MARKET, BY REGION, 2023–2028 (USD THOUSAND)

- 7.5.2 THERMAL ENERGY HARVESTING, BY SUB-TYPE
 - 7.5.2.1 Low-temperature range
 - 7.5.2.2 Medium-temperature range
- 7.5.2.3 High-temperature range

TABLE 72 THERMAL ENERGY HARVESTING MARKET: APPLICATION/SUB-APPLICATION

TABLE 73 THERMAL ENERGY HARVESTING MARKET, BY SUB-TYPE, 2019–2022 (USD MILLION)

TABLE 74 THERMAL ENERGY HARVESTING MARKET, BY SUB-TYPE, 2023–2028 (USD MILLION)

8 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT

8.1 INTRODUCTION

FIGURE 44 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

TABLE 75 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT, 2019–2022 (USD MILLION)

TABLE 76 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

TABLE 77 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT, 2019–2022 (MILLION UNITS)

TABLE 78 ENERGY HARVESTING SYSTEM MARKET, BY COMPONENT, 2023–2028 (MILLION UNITS)

- 8.2 TRANSDUCERS
 - 8.2.1 PHOTOVOLTAIC
 - 8.2.1.1 Increasing adoption in building automation, consumer electronics, and



transportation applications to drive growth

FIGURE 45 PHOTOVOLTAIC CELL

- 8.2.2 ELECTRODYNAMIC, PIEZOELECTRIC, AND ELECTROMAGNETIC
 - 8.2.2.1 Electrodynamic
- 8.2.2.1.1 Ability to withstand harsh conditions in centrifugal acceleration to drive growth

FIGURE 46 ELECTRODYNAMIC TRANSDUCER

- 8.2.2.2 Piezoelectric
- 8.2.2.2.1 Growing adoption of piezoelectric energy harvesters in pressure-sensitive switches and boots to drive growth

FIGURE 47 PIEZOELECTRIC TRANSDUCER

- 8.2.2.3 Electromagnetic
- 8.2.2.3.1 Rapid deployment in infrastructure and automotive applications to drive growth

FIGURE 48 ELECTROMAGNETIC TRANSDUCER

- 8.2.3 THERMOELECTRIC
- 8.2.3.1 Need for sustainable power sources across industrial sector to drive growth FIGURE 49 THERMOELECTRIC TRANSDUCER
 - 8.2.4 RADIO FREQUENCY (RF)
- 8.2.4.1 Growing use in switches, fitness trackers, smart cards, and RFID tags to drive growth

FIGURE 50 RF ENERGY HARVESTING PROCESS

FIGURE 51 RADIO FREQUENCY-TO-DC CONVERTER

TABLE 79 TRANSDUCERS: ENERGY HARVESTING SYSTEM MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 80 TRANSDUCERS: ENERGY HARVESTING SYSTEM MARKET, BY TYPE, 2023–2028 (USD MILLION)

TABLE 81 TRANSDUCERS: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 82 TRANSDUCERS: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

- 8.3 POWER MANAGEMENT INTEGRATED CIRCUITS (PMICS)
- 8.3.1 HIGH DEMAND FOR POWER REGULATION IN ENERGY HARVESTING SOLUTIONS TO DRIVE GROWTH

TABLE 83 PMICS: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD THOUSAND)

TABLE 84 PMICS: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD THOUSAND)

8.4 SECONDARY BATTERIES



8.4.1 EXPANDING NEED FOR RELIABLE ENERGY STORAGE SOLUTIONS TO DRIVE GROWTH

TABLE 85 SECONDARY BATTERIES: ENERGY HARVESTING SYSTEM MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 86 SECONDARY BATTERIES: ENERGY HARVESTING SYSTEM MARKET, BY TYPE, 2023–2028 (USD MILLION)

TABLE 87 SECONDARY BATTERIES: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 88 SECONDARY BATTERIES: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

9 ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION

9.1 INTRODUCTION

FIGURE 52 ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

TABLE 89 ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 90 ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

9.2 BUILDING & HOME AUTOMATION

9.2.1 RISING EMPHASIS ON ENERGY-EFFICIENT BUILDINGS AND SMART HOMES TO DRIVE GROWTH

TABLE 91 BUILDING & HOME AUTOMATION: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 92 BUILDING & HOME AUTOMATION: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 93 BUILDING & HOME AUTOMATION: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 94 BUILDING & HOME AUTOMATION: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

9.3 CONSUMER ELECTRONICS

9.3.1 INCREASED PREFERENCE FOR EXTENDED BATTERY LIFE AND SUSTAINABLE POWER SOLUTIONS TO DRIVE GROWTH

TABLE 95 CONSUMER ELECTRONICS: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 96 CONSUMER ELECTRONICS: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 97 CONSUMER ELECTRONICS: ENERGY HARVESTING SYSTEM MARKET,



BY TECHNOLOGY, 2019–2022 (USD THOUSAND)

TABLE 98 CONSUMER ELECTRONICS: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD THOUSAND)

9.4 INDUSTRIAL

9.4.1 EXTENSIVE USE OF SELF-POWERED SENSORS AND IOT DEVICES IN INDUSTRIAL SETTINGS TO DRIVE GROWTH

TABLE 99 INDUSTRIAL: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 100 INDUSTRIAL: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 101 INDUSTRIAL: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 102 INDUSTRIAL: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

9.5 TRANSPORTATION

9.5.1 NEED TO REDUCE EMISSIONS IN TRANSPORTATION TO DRIVE GROWTH TABLE 103 TRANSPORTATION: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 104 TRANSPORTATION: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 105 TRANSPORTATION: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 106 TRANSPORTATION: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

9.6 SECURITY

9.6.1 SOARING ADOPTION OF SOLAR AND VIBRATION ENERGY HARVESTING TECHNOLOGIES TO DRIVE GROWTH

TABLE 107 SECURITY: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD THOUSAND)

TABLE 108 SECURITY: ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD THOUSAND)

TABLE 109 SECURITY: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD THOUSAND)

TABLE 110 SECURITY: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD THOUSAND)

10 ENERGY HARVESTING SYSTEM MARKET, BY REGION

10.1 INTRODUCTION



FIGURE 53 ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 111 ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 112 ENERGY HARVESTING SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

10.2 NORTH AMERICA

10.2.1 NORTH AMERICA: RECESSION IMPACT

FIGURE 54 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET SNAPSHOT

FIGURE 55 US TO DOMINATE NORTH AMERICAN MARKET DURING FORECAST PERIOD

TABLE 113 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 114 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 115 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 116 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

TABLE 117 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 118 NORTH AMERICA: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

10.2.2 US

10.2.2.1 Government initiatives for renewable energy adoption to drive growth 10.2.3 CANADA

10.2.3.1 Abundant availability of natural resources to drive growth

10.2.4 MEXICO

10.2.4.1 Focus on energy diversification to drive growth

10.3 EUROPE

10.3.1 EUROPE: RECESSION IMPACT

FIGURE 56 EUROPE: ENERGY HARVESTING SYSTEM MARKET SNAPSHOT FIGURE 57 UK TO DOMINATE EUROPEAN MARKET DURING FORECAST PERIOD TABLE 119 EUROPE: ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 120 EUROPE: ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 121 EUROPE: ENERGY HARVESTING SYSTEM MARKET, BY



APPLICATION, 2019–2022 (USD MILLION)

TABLE 122 EUROPE: ENERGY HARVESTING SYSTEM MARKET, BY

APPLICATION, 2023–2028 (USD MILLION)

TABLE 123 EUROPE: ENERGY HARVESTING SYSTEM MARKET, BY

TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 124 EUROPE: ENERGY HARVESTING SYSTEM MARKET, BY

TECHNOLOGY, 2023-2028 (USD MILLION)

10.3.2 UK

10.3.2.1 Focus on smart city initiatives and building automation to drive growth

10.3.3 GERMANY

10.3.3.1 Increased investments in renewable energy sources to drive growth

10.3.4 FRANCE

10.3.4.1 Rising adoption of electric vehicles to drive growth

10.3.5 REST OF EUROPE

10.4 ASIA PACIFIC

10.4.1 ASIA PACIFIC: RECESSION IMPACT

FIGURE 58 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET SNAPSHOT FIGURE 59 CHINA TO DOMINATE ASIA PACIFIC MARKET DURING FORECAST PERIOD

TABLE 125 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 126 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 127 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 128 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

TABLE 129 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 130 ASIA PACIFIC: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (USD MILLION)

10.4.2 CHINA

10.4.2.1 Government emphasis on reducing carbon emissions to drive growth 10.4.3 JAPAN

10.4.3.1 Growing uptake of regenerative braking in domestic railway sector to drive growth

10.4.4 SOUTH KOREA

10.4.4.1 Technological innovation to drive market growth

10.4.5 REST OF ASIA PACIFIC



10.5 ROW

10.5.1 ROW: RECESSION IMPACT

TABLE 131 ROW: ENERGY HARVESTING SYSTEM MARKET, BY REGION,

2019-2022 (USD MILLION)

TABLE 132 ROW: ENERGY HARVESTING SYSTEM MARKET, BY REGION,

2023-2028 (USD MILLION)

TABLE 133 ROW: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION,

2019–2022 (USD THOUSAND)

TABLE 134 ROW: ENERGY HARVESTING SYSTEM MARKET, BY APPLICATION,

2023-2028 (USD THOUSAND)

TABLE 135 ROW: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY,

2019-2022 (USD THOUSAND)

TABLE 136 ROW: ENERGY HARVESTING SYSTEM MARKET, BY TECHNOLOGY,

2023–2028 (USD THOUSAND)

10.5.2 SOUTH AMERICA

10.5.2.1 Industrial and infrastructure development projects to drive growth

10.5.3 MIDDLE EAST & AFRICA

10.5.3.1 Growing demand for smart building solutions to drive growth

11 COMPETITIVE LANDSCAPE

11.1 OVERVIEW

11.2 STRATEGIES ADOPTED BY KEY PLAYERS

TABLE 137 STRATEGIES ADOPTED BY KEY PLAYERS IN ENERGY HARVESTING SYSTEM MARKET

11.3 REVENUE ANALYSIS

FIGURE 60 REVENUE ANALYSIS OF TOP FIVE PLAYERS, 2022–2022

11.4 MARKET SHARE ANALYSIS, 2022

TABLE 138 ENERGY HARVESTING SYSTEM MARKET: DEGREE OF COMPETITION

11.5 COMPANY EVALUATION MATRIX

11.5.1 STARS

11.5.2 EMERGING LEADERS

11.5.3 PERVASIVE PLAYERS

11.5.4 PARTICIPANTS

FIGURE 61 COMPANY EVALUATION MATRIX, 2022

11.6 START-UP/SME EVALUATION MATRIX

TABLE 139 START-UPS IN ENERGY HARVESTING SYSTEM MARKET

11.6.1 PROGRESSIVE COMPANIES

11.6.2 RESPONSIVE COMPANIES



11.6.3 DYNAMIC COMPANIES

11.6.4 STARTING BLOCKS

FIGURE 62 START-UP/SME EVALUATION MATRIX, 2022

TABLE 140 START-UP/SME EVALUATION MATRIX: KEY START-UPS

11.7 COMPETITIVE BENCHMARKING

TABLE 141 COMPETITIVE BENCHMARKING OF KEY START-UPS/SMES

11.8 COMPANY FOOTPRINT ANALYSIS

TABLE 142 COMPANY FOOTPRINT

TABLE 143 TECHNOLOGY FOOTPRINT

TABLE 144 APPLICATION FOOTPRINT

TABLE 145 REGION FOOTPRINT

11.9 COMPETITIVE SCENARIO AND TRENDS

11.9.1 PRODUCT LAUNCHES

TABLE 146 PRODUCT LAUNCHES, 2019-2023

11.9.2 DEALS

TABLE 147 DEALS, 2019-2022

12 COMPANY PROFILES

(Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats))*

12.1 KEY PLAYERS

12.1.1 STMICROELECTRONICS

TABLE 148 STMICROELECTRONICS: BUSINESS OVERVIEW

FIGURE 63 STMICROELECTRONICS: COMPANY SNAPSHOT

TABLE 149 STMICROELECTRONICS: PRODUCTS/SOLUTIONS/SERVICES

OFFERED

TABLE 150 STMICROELECTRONICS: PRODUCT LAUNCHES

TABLE 151 STMICROELECTRONICS: DEALS

12.1.2 MICROCHIP TECHNOLOGY INC.

TABLE 152 MICROCHIP TECHNOLOGY INC.: BUSINESS OVERVIEW

FIGURE 64 MICROCHIP TECHNOLOGY INC.: COMPANY SNAPSHOT

TABLE 153 MICROCHIP TECHNOLOGY INC.: PRODUCTS/SOLUTIONS/SERVICES

OFFERED

TABLE 154 MICROCHIP TECHNOLOGY INC.: PRODUCT LAUNCHES

TABLE 155 MICROCHIP TECHNOLOGY INC.: DEALS

12.1.3 TEXAS INSTRUMENTS INCORPORATED

TABLE 156 TEXAS INSTRUMENTS INCORPORATED: BUSINESS OVERVIEW



FIGURE 65 TEXAS INSTRUMENTS INCORPORATED: COMPANY SNAPSHOT

TABLE 157 TEXAS INSTRUMENTS INCORPORATED:

PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 158 TEXAS INSTRUMENTS INCORPORATED: PRODUCT LAUNCHES

TABLE 159 TEXAS INSTRUMENTS INCORPORATED: DEALS

12.1.4 ANALOG DEVICES, INC.

TABLE 160 ANALOG DEVICES, INC.: BUSINESS OVERVIEW

FIGURE 66 ANALOG DEVICES, INC.: COMPANY SNAPSHOT

TABLE 161 ANALOG DEVICES, INC.: PRODUCTS/SOLUTIONS/SERVICES

OFFERED

TABLE 162 ANALOG DEVICES, INC.: PRODUCT LAUNCHES

TABLE 163 ANALOG DEVICES, INC.: DEALS

TABLE 164 ANALOG DEVICES, INC.: OTHERS

12.1.5 INFINEON TECHNOLOGIES AG

TABLE 165 INFINEON TECHNOLOGIES AG: BUSINESS OVERVIEW

FIGURE 67 INFINEON TECHNOLOGIES AG: COMPANY SNAPSHOT

TABLE 166 INFINEON TECHNOLOGIES AG: PRODUCTS/SOLUTIONS/SERVICES

OFFERED

TABLE 167 INFINEON TECHNOLOGIES AG: PRODUCT LAUNCHES

TABLE 168 INFINEON TECHNOLOGIES AG: DEALS

TABLE 169 INFINEON TECHNOLOGIES AG: OTHERS

12.1.6 RENESAS ELECTRONICS CORPORATION

TABLE 170 RENESAS ELECTRONICS CORPORATION: BUSINESS OVERVIEW

FIGURE 68 RENESAS ELECTRONICS CORPORATION: COMPANY SNAPSHOT

TABLE 171 RENESAS ELECTRONICS CORPORATION:

PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 172 RENESAS ELECTRONICS CORPORATION: PRODUCT LAUNCHES

TABLE 173 RENESAS ELECTRONICS CORPORATION: DEALS

12.1.7 ENOCEAN GMBH

TABLE 174 ENOCEAN GMBH: BUSINESS OVERVIEW

TABLE 175 ENOCEAN GMBH: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 176 ENOCEAN GMBH: PRODUCT LAUNCHES

TABLE 177 ENOCEAN GMBH: DEALS

12.1.8 ABB

TABLE 178 ABB: BUSINESS OVERVIEW FIGURE 69 ABB: COMPANY SNAPSHOT

TABLE 179 ABB: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 180 ABB: PRODUCT LAUNCHES

TABLE 181 ABB: DEALS



12.1.9 HONEYWELL INTERNATIONAL INC.

TABLE 182 HONEYWELL INTERNATIONAL INC.: BUSINESS OVERVIEW

FIGURE 70 HONEYWELL INTERNATIONAL INC.: COMPANY SNAPSHOT

TABLE 183 HONEYWELL INTERNATIONAL INC.:

PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 184 HONEYWELL INTERNATIONAL INC.: PRODUCT LAUNCHES

TABLE 185 HONEYWELL INTERNATIONAL INC.: DEALS

12.1.10 QORVO, INC.

TABLE 186 QORVO, INC.: BUSINESS OVERVIEW

FIGURE 71 QORVO, INC.: COMPANY SNAPSHOT

TABLE 187 QORVO, INC.: PRODUCTS/SOLUTIONS/SERVICES OFFERED

TABLE 188 QORVO, INC.: PRODUCT LAUNCHES

TABLE 189 QORVO, INC.: DEALS

12.2 OTHER PLAYERS

12.2.1 KISTLER GROUP

12.2.2 CYMBET

12.2.3 MIDE TECHNOLOGY CORPORATION

12.2.4 PHYSIK INSTRUMENTE (PI) GMBH & CO. KG

12.2.5 CTS CORPORATION

12.2.6 TRAMETO LIMITED

12.2.7 NEXPERIA

12.2.8 CERAMTEC GMBH

12.2.9 BIONIC POWER INC.

12.2.10 KINERGIZER

12.2.11 POWERCAST CORPORATION

12.2.12 MICROPELT GMBH

12.2.13 ADVANCED LINEAR DEVICES, INC.

12.2.14 APC INTERNATIONAL LTD.

12.2.15 VOLTREE POWER

*Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

13 APPENDIX

13.1 DISCUSSION GUIDE

13.2 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL

13.3 CUSTOMIZATION OPTIONS



13.4 RELATED REPORTS 13.5 AUTHOR DETAILS



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