

# **Middle East & Africa Thermal Energy Storage Market Forecast to 2030 – Regional Analysis – by Technology (Sensible Heat Storage, Latent Heat Storage, Thermochemical Storage), Storage Material (Water, Molten Salt, PCM, Others), Application (Power Generation, Process Heating and Cooling, District Heating and Cooling), and End User (Utility, Nonutility)**

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## **Abstracts**

The Middle East & Africa thermal energy storage market is expected to grow from US\$ 2,088.36 million in 2022 to US\$ 4,078.64 million by 2030. It is estimated to grow at a CAGR of 8.7% from 2022 to 2030.

Application of artificial intelligence for optimization and control of thermal energy storage systems Fuels Middle East & Africa Thermal Energy Storage Market

Energy storage systems are crucial for boosting the operational efficiency of existing energy sources; these systems help reduce energy consumption and costs, decrease environmental impacts, and improve the power grids' flexibility and consistency. To improve thermal energy storage systems, artificial intelligence is being integrated into these systems. Different research and development activities are being conducted to understand and implement the viability of artificial intelligence for predicting, optimizing, and monitoring the performance of energy systems that encompass thermal energy storage facilities. Various studies have been led to observe the viability of applying artificial intelligence techniques, such as artificial neural networks (ANN), particle swarm optimization (PSO), adaptive neuro-fuzzy inference system (ANFIS), and square vector machine (SVM), in the energy storage sector. In addition, the global energy trend is shifting toward renewables, and various large-scale solar, wind, and geothermal

projects are being initiated across the globe. The development of effective and high-capacity energy storage systems can assist in overcoming the intermittent issue of renewable energy as it can store and discharge energy during a shortage. The implementation of AI in such systems offers various benefits, including rapid decision-making, minimization of human errors, and digital assistance. Further, traditional computing demands a lot of labor and time and can only resolve one issue at a time; as a result, the implementation of AI is rising in these systems. The utilization of AI and other advanced technologies helps optimize operations, forecast energy production and consumption, enhance the system's efficiency, and reduce energy costs. This factor is expected to fuel the thermal energy storage market growth in the coming years.

### Middle East & Africa Thermal Energy Storage Market Overview

The Middle East & Africa (MEA) consists of major countries such as South Africa, Saudi Arabia, and the UAE. Continuous and stable energy supply throughout day and night, increase in the number of concentrated solar power projects, and cost-efficient approach for energy storage fuel the thermal energy storage market in the Middle East & Africa. Coal, oil, and gas are the major shareholders of energy production; however, with the changing world scenario, the share of renewables is also making its presence slowly but steadily across the Middle East & Africa. The growing number of initiatives toward deploying renewables for meeting the long-term climate change goals is another key reason for thermal energy storage market expansion in countries of the Middle East & Africa. Global inflation and rising energy prices impact the countries' renewable energy sector. Rise in energy prices, supply chain constraints, and dependence on market conditions fuel the necessity for thermal energy storage. In addition, the need for a consistent and constant power supply, coupled with aging grid infrastructure, is fueling the thermal energy storage market growth across the MEA.

### Middle East & Africa Thermal Energy Storage Market Revenue and Forecast to 2030 (US\$ Million)

### Middle East & Africa Thermal Energy Storage Market Segmentation

The Middle East & Africa thermal energy storage market is segmented into technology, storage material, application, end user, and country.

Based on technology, the Middle East & Africa thermal energy storage market is segmented into sensible heat storage, latent heat storage, and thermochemical storage. The sensible heat storage segment held the largest share of the Middle East & Africa

thermal energy storage market in 2022.

Based on storage material, the Middle East & Africa thermal energy storage market is segmented into water, molten salt, PCM, and others. The water segment held the largest share of the Middle East & Africa thermal energy storage market in 2022.

Based on application, the Middle East & Africa thermal energy storage market is segmented into power generation, process heating and cooling, and district heating and cooling. The district heating and cooling segment held the largest share of the Middle East & Africa thermal energy storage market in 2022.

Based on end user, the Middle East & Africa thermal energy storage market is segmented into utility and nonutility. The utility segment held a larger share of the Middle East & Africa thermal energy storage market in 2022.

Based on country, the Middle East & Africa thermal energy storage market is segmented into South Africa, Saudi Arabia, the UAE, and the Rest of Middle East & Africa. Saudi Arabia dominated the Middle East & Africa thermal energy storage market in 2022.

Baltimore Aircoil Co, Burns & McDonnell Consultants Inc, Evapco Inc, and MAN Energy Solutions SE are some of the leading companies operating in the Middle East & Africa thermal energy storage market.

## Contents

### **1. INTRODUCTION**

- 1.1 The Insight Partners Research Report Guidance
- 1.2 Market Segmentation

### **2. EXECUTIVE SUMMARY**

- 2.1 Key Insights
- 2.2 Market Attractiveness

### **3. RESEARCH METHODOLOGY**

- 3.1 Coverage
- 3.2 Secondary Research
- 3.3 Primary Research

### **4. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET LANDSCAPE**

- 4.1 Overview
- 4.2 PEST Analysis
- 4.3 Ecosystem Analysis

### **5. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET - KEY INDUSTRY DYNAMICS**

- 5.1 Middle East & Africa Thermal Energy Storage Market - Key Industry Dynamics
- 5.2 Market Drivers
  - 5.2.1 Rising share of renewables
  - 5.2.2 Growing adoption in Concentrated Solar Plants
  - 5.2.3 Increasing Applications of Thermal Energy Storage
  - 5.2.4 Growing Focus on Building Robust Storage Infrastructure
- 5.3 Market Restraints
  - 5.3.1 Lack of Technology Readiness Levels
  - 5.3.2 Lack of Decarbonization Policies in Underdeveloped Economies
  - 5.3.3 Uncertainties Associated with Future Energy System Development
- 5.4 Market Opportunities
  - 5.4.1 Application of Thermal Energy Storage Technology in Defense Sector

5.4.2 Deployment of Thermal Energy Storage Technology for Electric Vehicles at Extreme Temperatures

5.5 Future Trends

5.5.1 Application of AI for Optimization and Control of Thermal Energy Storage Systems

5.6 Impact of Drivers and Restraints:

## **6. THERMAL ENERGY STORAGE MARKET - MIDDLE EAST & AFRICA MARKET ANALYSIS**

6.1 Middle East & Africa Thermal Energy Storage Market Revenue (US\$ Million), 2022 – 2030

6.2 Middle East & Africa Thermal Energy Storage Market Forecast and Analysis

## **7. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET ANALYSIS - TECHNOLOGY**

7.1 Sensible Heat Storage

7.1.1 Overview

7.1.2 Sensible Heat Storage: Middle East & Africa Thermal Energy Storage Market, Revenue and Forecast to 2030 (US\$ Million)

7.2 Latent Heat Storage

7.2.1 Overview

7.2.2 Latent Heat Storage: Middle East & Africa Thermal Energy Storage Market, Revenue and Forecast to 2030 (US\$ Million)

7.3 Thermochemical Storage

7.3.1 Overview

7.3.2 Thermochemical Storage: Middle East & Africa Thermal Energy Storage Market Revenue and Forecast to 2030 (US\$ Million)

## **8. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET ANALYSIS – STORAGE MATERIAL**

8.1 Water

8.1.1 Overview

8.1.2 Water: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

8.2 Molten Salt

8.2.1 Overview

8.2.2 Molten Salt: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

8.3 Phase Change Material (PCM)

8.3.1 Overview

8.3.2 Phase Change Material: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

8.4 Others

8.4.1 Overview

8.4.2 Others: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

## **9. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET ANALYSIS – APPLICATION**

9.1 Power Generation

9.1.1 Overview

9.1.2 Power Generation: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

9.2 Process Heating and Cooling

9.2.1 Overview

9.2.2 Process Heating and Cooling: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

9.3 District Heating and Cooling

9.3.1 Overview

9.3.2 District Heating and Cooling: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

## **10. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET ANALYSIS – END USER**

10.1 Utility

10.1.1 Overview

10.1.2 Utility: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

10.2 Nonutility

10.2.1 Overview

10.2.2 Nonutility: Middle East & Africa Thermal Energy Storage Market Revenue, and Forecast to 2030 (US\$ Million)

## **11. MIDDLE EAST & AFRICA THERMAL ENERGY STORAGE MARKET - COUNTRY ANALYSIS**

### 11.1 Middle East & Africa Thermal Energy Storage Market

#### 11.1.1 Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts and Analysis - By Country

##### 11.1.1.1 Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts and Analysis - By Country

##### 11.1.1.2 South Africa: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts to 2030 (US\$ Mn)

###### 11.1.1.2.1 South Africa: Middle East & Africa Thermal Energy Storage Market Breakdown by Technology

###### 11.1.1.2.2 South Africa: Middle East & Africa Thermal Energy Storage Market Breakdown by Storage Material

###### 11.1.1.2.3 South Africa: Middle East & Africa Thermal Energy Storage Market Breakdown by Application

###### 11.1.1.2.4 South Africa: Middle East & Africa Thermal Energy Storage Market Breakdown by End User

##### 11.1.1.3 Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts to 2030 (US\$ Mn)

###### 11.1.1.3.1 Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Breakdown by Technology

###### 11.1.1.3.2 Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Breakdown by Storage Material

###### 11.1.1.3.3 Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Breakdown by Application

###### 11.1.1.3.4 Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Breakdown by End User

##### 11.1.1.4 UAE: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts to 2030 (US\$ Mn)

###### 11.1.1.4.1 UAE: Middle East & Africa Thermal Energy Storage Market Breakdown by Technology

###### 11.1.1.4.2 UAE: Middle East & Africa Thermal Energy Storage Market Breakdown by Storage Material

###### 11.1.1.4.3 UAE: Middle East & Africa Thermal Energy Storage Market Breakdown by Application

###### 11.1.1.4.4 UAE: Middle East & Africa Thermal Energy Storage Market Breakdown by End User

##### 11.1.1.5 Rest of MEA: Middle East & Africa Thermal Energy Storage Market Revenue

and Forecasts to 2030 (US\$ Mn)

11.1.1.5.1 Rest of MEA: Middle East & Africa Thermal Energy Storage Market  
Breakdown by Technology

11.1.1.5.2 Rest of MEA: Middle East & Africa Thermal Energy Storage Market  
Breakdown by Storage Material

11.1.1.5.3 Rest of MEA: Middle East & Africa Thermal Energy Storage Market  
Breakdown by Application

11.1.1.5.4 Rest of MEA: Middle East & Africa Thermal Energy Storage Market  
Breakdown by End User

## **12. INDUSTRY LANDSCAPE**

12.1 Overview

12.2 Market Initiative

12.3 New Product Development

12.4 Merger and Acquisition

## **13. COMPANY PROFILES**

13.1 Evapco Inc

13.1.1 Key Facts

13.1.2 Business Description

13.1.3 Products and Services

13.1.4 Financial Overview

13.1.5 SWOT Analysis

13.1.6 Key Developments

13.2 Burns & McDonnell Consultants Inc

13.2.1 Key Facts

13.2.2 Business Description

13.2.3 Products and Services

13.2.4 Financial Overview

13.2.5 SWOT Analysis

13.2.6 Key Developments

13.3 Baltimore Aircoil Co

13.3.1 Key Facts

13.3.2 Business Description

13.3.3 Products and Services

13.3.4 Financial Overview

13.3.5 SWOT Analysis



- 13.3.6 Key Developments
- 13.4 MAN Energy Solutions SE
  - 13.4.1 Key Facts
  - 13.4.2 Business Description
  - 13.4.3 Products and Services
  - 13.4.4 Financial Overview
  - 13.4.5 SWOT Analysis
  - 13.4.6 Key Developments

## **14. APPENDIX**

- 14.1 About The Insight Partners
- 14.2 Word Index

## List Of Tables

### LIST OF TABLES

- Table 1. Middle East & Africa Thermal Energy Storage Market Segmentation
- Table 2. Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)
- Table 3. Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million) – Technology
- Table 4. Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million) – Storage Material
- Table 5. Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million) – Application
- Table 6. Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million) – End User
- Table 7. Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Country
- Table 8. South Africa: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Technology
- Table 9. South Africa: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Storage Material
- Table 10. South Africa: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Application
- Table 11. South Africa: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By End User
- Table 12. Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Technology
- Table 13. Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Storage Material
- Table 14. Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Application
- Table 15. Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By End User
- Table 16. UAE: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Technology
- Table 17. UAE: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Storage Material
- Table 18. UAE: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Application

Table 19. UAE: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By End User

Table 20. Rest of MEA: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Technology

Table 21. Rest of MEA: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Storage Material

Table 22. Rest of MEA: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By Application

Table 23. Rest of MEA: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn) – By End User

Table 24. @LIST OF Abbreviation

## List Of Figures

### LIST OF FIGURES

Figure 1. Middle East & Africa Thermal Energy Storage Market Segmentation, By Country

Figure 2. PEST Analysis

Figure 3. Ecosystem: Middle East & Africa Thermal Energy Storage Market

Figure 4. Impact Analysis of Drivers and Restraints

Figure 5. Middle East & Africa Thermal Energy Storage Market Revenue (US\$ Million), 2022 – 2030

Figure 6. Middle East & Africa Thermal Energy Storage Market Share (%) – Technology, 2022 and 2030

Figure 7. Sensible Heat Storage: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 8. Latent Heat Storage: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 9. Thermochemical Storage: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 10. Middle East & Africa Thermal Energy Storage Market Share (%) – Storage Material, 2022 and 2030

Figure 11. Water: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 12. Molten Salt: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 13. Phase Change Material: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 14. Others: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 15. Middle East & Africa Thermal Energy Storage Market Share (%) – Application, 2022 and 2030

Figure 16. Power Generation: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 17. Process Heating and Cooling: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 18. District Heating and Cooling: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 19. Middle East & Africa Thermal Energy Storage Market Share (%) – End User, 2022 and 2030

Figure 20. Utility: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 21. Nonutility Market Revenue and Forecasts To 2030 (US\$ Million)

Figure 22. Middle East & Africa Thermal Energy Storage Market, By Key Country – Revenue (2022) (US\$ Million)

Figure 23. Middle East & Africa Thermal energy storage Market Breakdown by Key Countries, 2022 and 2030 (%)

Figure 24. South Africa: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn)

Figure 25. Saudi Arabia: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn)

Figure 26. UAE: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn)

Figure 27. Rest of MEA: Middle East & Africa Thermal Energy Storage Market Revenue and Forecasts To 2030 (US\$ Mn)

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