

## Table of Contents

<b>Chapter 1</b>	<b>Research Methodology .....</b>	<b>13</b>
<b>1.1</b>	<b>Research design.....</b>	<b>13</b>
<b>1.1.1</b>	<b>Research approach .....</b>	<b>13</b>
<b>1.1.2</b>	<b>Data collection methods .....</b>	<b>14</b>
<b>1.2</b>	<b>Base estimates and calculations .....</b>	<b>14</b>
<b>1.2.1</b>	<b>Base year calculation .....</b>	<b>14</b>
<b>1.2.2</b>	<b>Key trends for market estimates.....</b>	<b>16</b>
<b>1.3</b>	<b>Forecast model.....</b>	<b>17</b>
<b>1.4</b>	<b>Primary research &amp; validation .....</b>	<b>18</b>
<b>1.4.1</b>	<b>Primary sources .....</b>	<b>18</b>
<b>1.4.2</b>	<b>Data mining sources .....</b>	<b>18</b>
<b>Chapter 2</b>	<b>Executive Summary .....</b>	<b>21</b>
<b>2.1</b>	<b>Industry 360° synopsis, 2021-2032.....</b>	<b>21</b>
<b>2.2</b>	<b>Business trends .....</b>	<b>22</b>
<b>2.3</b>	<b>Regional trends .....</b>	<b>24</b>
<b>2.4</b>	<b>Grid type trends.....</b>	<b>27</b>
<b>2.5</b>	<b>Power source trends .....</b>	<b>29</b>
<b>2.6</b>	<b>Storage device trends .....</b>	<b>32</b>
<b>2.7</b>	<b>Application trends .....</b>	<b>34</b>
<b>Chapter 3</b>	<b>Industry Insights.....</b>	<b>38</b>
<b>3.1</b>	<b>Industry ecosystem analysis .....</b>	<b>38</b>
<b>3.2</b>	<b>Regulatory landscape.....</b>	<b>40</b>
<b>3.2.1</b>	<b>North America .....</b>	<b>40</b>
<b>3.2.1.1</b>	<b>U.S. ....</b>	<b>40</b>
<b>3.2.1.1.1</b>	<i>State Microgrid Policy, Programmatic, and Regulatory Framework.....</i>	<b>41</b>
<b>3.2.1.1.2</b>	<i>Energy Policy Act, 2005.....</i>	<b>42</b>
<b>3.2.1.1.3</b>	<i>California Public Utility Commission .....</i>	<b>44</b>
<b>3.2.1.1.4</b>	<i>Electronic Code of Federal Regulations.....</i>	<b>45</b>
<b>3.2.1.1.5</b>	<i>Safety and Health Regulations for Construction .....</i>	<b>45</b>
<b>3.2.1.1.6</b>	<i>DOE VTO Advanced Battery R&amp;D Program .....</i>	<b>46</b>
<b>3.2.1.1.7</b>	<i>Mercury-Containing and Rechargeable Battery Management Act of 1996.....</i>	<b>46</b>
<b>3.2.1.2</b>	<b>Canada.....</b>	<b>47</b>
<b>3.2.1.2.1</b>	<i>CAN/CSA-C22.2 No. 257-06.....</i>	<b>47</b>
<b>3.2.1.2.2</b>	<i>CAN/CSA-C22.3 No. 9-08.....</i>	<b>47</b>

<b>3.2.2</b>	<b>Europe .....</b>	<b>48</b>
3.2.2.1	Policies and Directives on Renewable Energies in the EU .....	48
3.2.2.2	EU Battery Directive.....	50
3.2.2.3	Secondary European Legislation on Batteries:.....	51
3.2.2.4	UK.....	52
3.2.2.4.1	<i>The Batteries and Accumulators Regulations 2008.....</i>	53
3.2.2.4.2	<i>The Waste Batteries and Accumulators Regulations, 2009.....</i>	53
3.2.2.4.3	<i>Northern Ireland.....</i>	54
<b>3.2.3</b>	<b>Asia Pacific.....</b>	<b>54</b>
3.2.3.1	China .....	54
3.2.3.1.1	<i>13th Five-Year Plan.....</i>	54
3.2.3.1.2	<i>Battery regulations .....</i>	55
3.2.3.1.3	<i>China RoHS Directive.....</i>	55
3.2.3.2	India .....	56
3.2.3.3	Japan .....	57
3.2.3.3.1	<i>Fourth Basic Energy Plan.....</i>	57
3.2.3.3.2	<i>Battery Directive.....</i>	58
3.2.3.3.3	<i>JISC Standards .....</i>	59
3.2.3.3.4	<i>DENAN Law .....</i>	60
<b>3.3</b>	<b>Industry impact forces .....</b>	<b>61</b>
<b>3.3.1</b>	<b>Growth drivers .....</b>	<b>61</b>
3.3.1.1	Renewable energy integration .....	61
3.3.1.1.1	<i>North America .....</i>	61
3.3.1.1.2	<i>Europe.....</i>	63
3.3.1.2	Increasing electricity demand .....	64
3.3.1.3	Government programs toward electrification .....	65
<b>3.3.2</b>	<b>Industry pitfalls &amp; challenges .....</b>	<b>66</b>
3.3.2.1	High capital cost .....	66
<b>3.4</b>	<b>Growth potential analysis.....</b>	<b>67</b>
<b>3.5</b>	<b>Porter's analysis .....</b>	<b>69</b>
3.5.1	<b>Bargaining power of suppliers .....</b>	<b>69</b>
3.5.2	<b>Bargaining power of buyers.....</b>	<b>70</b>
3.5.3	<b>Threat of new entrants .....</b>	<b>70</b>
3.5.4	<b>Threat of substitutes .....</b>	<b>70</b>
<b>3.6</b>	<b>PESTEL analysis.....</b>	<b>72</b>
<b>Chapter 4</b>	<b>Competitive Landscape, 2023 .....</b>	<b>73</b>
<b>4.1</b>	<b>Introduction .....</b>	<b>73</b>
<b>4.2</b>	<b>Strategic dashboard.....</b>	<b>73</b>

<b>4.2.1</b>	<b>Eaton.....</b>	<b>73</b>
4.2.1.1	Investment.....	73
4.2.1.2	Business expansion .....	73
4.2.1.3	Contract.....	73
4.2.1.4	Award recognition .....	74
4.2.1.5	Collaboration .....	74
<b>4.2.2</b>	<b>FlexGen.....</b>	<b>75</b>
4.2.2.1	Supply order.....	75
<b>4.2.3</b>	<b>General Electric .....</b>	<b>75</b>
4.2.3.1	Collaboration .....	75
4.2.3.2	Project development.....	75
<b>4.2.4</b>	<b>Heila technologies .....</b>	<b>75</b>
4.2.4.1	Acquisition.....	75
4.2.4.2	Collaboration .....	76
<b>4.2.5</b>	<b>Siemens.....</b>	<b>76</b>
4.2.5.1	Installation/Supply .....	76
4.2.5.2	Agreement.....	77
4.2.5.3	Partnership.....	77
<b>4.2.6</b>	<b>Schneider Electric.....</b>	<b>78</b>
4.2.6.1	Partnership.....	78
4.2.6.2	Memorandum of Understanding.....	78
4.2.6.3	Project completion .....	79
<b>4.2.7</b>	<b>ABB.....</b>	<b>79</b>
4.2.7.1	Partnership.....	79
4.2.7.2	Installation/Supply .....	79
<b>4.2.8</b>	<b>Toshiba Energy Systems &amp; Solutions Corporation (ESS) .....</b>	<b>80</b>
4.2.8.1	Memorandum of Understanding.....	80
4.2.8.2	Installation/Supply .....	80
<b>4.2.9</b>	<b>Tesla.....</b>	<b>80</b>
4.2.9.1	Product deployment .....	80
4.2.9.2	Project development.....	81
4.2.9.3	Project completion .....	81
<b>4.2.10</b>	<b>Lockheed Martin Corporation.....</b>	<b>81</b>
4.2.10.1	Contract.....	81
<b>4.2.11</b>	<b>Hitachi Energy Ltd. .....</b>	<b>82</b>
4.2.11.1	Acquisition.....	82
4.2.11.2	Installation/Supply .....	82
4.2.11.3	Contract.....	83

4.2.11.4	Memorandum of Understanding.....	83
4.2.11.5	Collaboration .....	83
4.2.12	<b>PowerSecure, Inc.....</b>	<b>84</b>
4.2.12.1	Business expansion .....	84
4.3	<b>Innovation and technology landscape .....</b>	<b>85</b>
4.3.1	<b>Schneider Electric.....</b>	<b>85</b>
4.3.2	<b>FlexGen.....</b>	<b>85</b>
4.3.3	<b>Siemens .....</b>	<b>86</b>
4.3.4	<b>Tesla.....</b>	<b>86</b>
<b>Chapter 5</b>	<b>Market, By Grid Type .....</b>	<b>88</b>
5.1	<b>Key trends .....</b>	<b>88</b>
5.2	<b>AC .....</b>	<b>88</b>
5.3	<b>DC .....</b>	<b>89</b>
5.4	<b>Hybrid .....</b>	<b>90</b>
<b>Chapter 6</b>	<b>Market, By Power Source.....</b>	<b>91</b>
6.1	<b>Key trends .....</b>	<b>91</b>
6.2	<b>Diesel generators.....</b>	<b>91</b>
6.3	<b>Natural gas.....</b>	<b>92</b>
6.4	<b>Solar PV.....</b>	<b>92</b>
6.5	<b>CHP.....</b>	<b>93</b>
6.6	<b>Others.....</b>	<b>93</b>
<b>Chapter 7</b>	<b>Market, By Storage Device .....</b>	<b>95</b>
7.1	<b>Key trends .....</b>	<b>95</b>
7.2	<b>Lithium-ion .....</b>	<b>95</b>
7.3	<b>Lead acid.....</b>	<b>96</b>
7.4	<b>Flow battery .....</b>	<b>97</b>
7.5	<b>Flywheels .....</b>	<b>97</b>
7.6	<b>Others.....</b>	<b>98</b>
<b>Chapter 8</b>	<b>Market, By Application .....</b>	<b>99</b>
8.1	<b>Key trends .....</b>	<b>99</b>
8.2	<b>Healthcare.....</b>	<b>99</b>
8.3	<b>Educational institutes .....</b>	<b>100</b>
8.4	<b>Military .....</b>	<b>100</b>
8.5	<b>Utility.....</b>	<b>101</b>
8.6	<b>Industrial/commercial.....</b>	<b>101</b>
8.7	<b>Remote .....</b>	<b>102</b>
8.8	<b>Others.....</b>	<b>102</b>

<b>Chapter 9</b>	<b>Market, By Region .....</b>	<b>104</b>
9.1	Key trends .....	104
9.2	North America .....	104
9.3	Europe .....	105
9.4	Asia Pacific .....	106
9.5	Middle East & Africa .....	107
9.6	Latin America .....	108
<b>Chapter 10</b>	<b>Company Profiles.....</b>	<b>110</b>
10.1	ABB .....	110
10.1.1	Global Overview .....	110
10.1.2	Market/Business Overview .....	110
10.1.3	Financial Data (USD Billion).....	111
10.1.4	Product Landscape .....	111
10.1.5	Strategic Outlook .....	112
10.1.6	SWOT analysis .....	112
10.2	Schneider Electric .....	113
10.2.1	Global Overview .....	113
10.2.2	Market/Business Overview .....	114
10.2.3	Financial Data (USD Billion).....	114
10.2.4	Product Landscape .....	115
10.2.5	Strategic Outlook .....	116
10.2.6	SWOT analysis .....	116
10.3	Eaton .....	117
10.3.1	Global Overview .....	117
10.3.2	Market/Business Overview .....	117
10.3.3	Financial Data (USD Billion).....	118
10.3.4	Product Landscape .....	118
10.3.5	Strategic Outlook .....	119
10.3.6	SWOT analysis .....	120
10.4	Emerson Electric Co. .....	121
10.4.1	Global Overview .....	121
10.4.2	Business Overview.....	121
10.4.3	Financial data (USD Billion).....	122
10.4.4	Product Landscape .....	122
10.4.5	SWOT analysis .....	123
10.5	S&C Electric Company .....	124
10.5.1	Global overview .....	124
10.5.2	Market/Business Overview .....	124

	<b>10.5.3</b>	<b>Financial Data .....</b>	<b>124</b>
	<b>10.5.4</b>	<b>Product Landscape .....</b>	<b>124</b>
	<b>10.5.5</b>	<b>Strategic Outlook .....</b>	<b>125</b>
	<b>10.5.6</b>	<b>SWOT analysis .....</b>	<b>125</b>
<b>10.6</b>	<b>Tesla .....</b>		<b>126</b>
	<b>10.6.1</b>	<b>Global overview .....</b>	<b>126</b>
	<b>10.6.2</b>	<b>Market/Business Overview .....</b>	<b>126</b>
	<b>10.6.3</b>	<b>Financial Data .....</b>	<b>127</b>
	<b>10.6.4</b>	<b>Product Landscape .....</b>	<b>127</b>
	<b>10.6.5</b>	<b>Strategic Outlook .....</b>	<b>128</b>
	<b>10.6.6</b>	<b>SWOT analysis .....</b>	<b>129</b>
<b>10.7</b>	<b>General Electric .....</b>		<b>130</b>
	<b>10.7.1</b>	<b>Global overview .....</b>	<b>130</b>
	<b>10.7.2</b>	<b>Market/Business Overview .....</b>	<b>130</b>
	<b>10.7.3</b>	<b>Financial data (USD Million) .....</b>	<b>131</b>
	<b>10.7.4</b>	<b>Product Landscape .....</b>	<b>131</b>
	<b>10.7.5</b>	<b>Strategic Outlook .....</b>	<b>132</b>
	<b>10.7.6</b>	<b>SWOT analysis .....</b>	<b>132</b>
<b>10.8</b>	<b>Siemens Energy .....</b>		<b>133</b>
	<b>10.8.1</b>	<b>Global Overview .....</b>	<b>133</b>
	<b>10.8.2</b>	<b>Market/Business Overview .....</b>	<b>133</b>
	<b>10.8.3</b>	<b>Financial Data (USD Million) .....</b>	<b>134</b>
	<b>10.8.4</b>	<b>Product Landscape .....</b>	<b>135</b>
	<b>10.8.5</b>	<b>Strategic Outlook .....</b>	<b>135</b>
	<b>10.8.6</b>	<b>SWOT Analysis .....</b>	<b>136</b>
<b>10.9</b>	<b>Hitachi Energy Ltd. .....</b>		<b>137</b>
	<b>10.9.1</b>	<b>Global Overview .....</b>	<b>137</b>
	<b>10.9.2</b>	<b>Market/Business Overview .....</b>	<b>137</b>
	<b>10.9.3</b>	<b>Financial Data (USD Million) .....</b>	<b>138</b>
	<b>10.9.4</b>	<b>Product Landscape .....</b>	<b>138</b>
	<b>10.9.5</b>	<b>Strategic Outlook .....</b>	<b>140</b>
	<b>10.9.6</b>	<b>SWOT analysis .....</b>	<b>140</b>
<b>10.10</b>	<b>FlexGen .....</b>		<b>141</b>
	<b>10.10.1</b>	<b>Global Overview .....</b>	<b>141</b>
	<b>10.10.2</b>	<b>Market/Business Overview .....</b>	<b>141</b>
	<b>10.10.3</b>	<b>Financial Data .....</b>	<b>141</b>
	<b>10.10.4</b>	<b>Product Landscape .....</b>	<b>141</b>
	<b>10.10.5</b>	<b>Strategic Outlook .....</b>	<b>142</b>

10.10.6	<b>SWOT analysis .....</b>	142
10.11	<b>Heila Technologies.....</b>	143
10.11.1	<b>Global Overview .....</b>	143
10.11.2	<b>Market/Business Overview .....</b>	143
10.11.3	<b>Financial Data .....</b>	143
10.11.4	<b>Product Landscape .....</b>	143
10.11.5	<b>Strategic Outlook .....</b>	144
10.11.6	<b>SWOT analysis .....</b>	144
10.12	<b>Lockheed Martin Corporation .....</b>	145
10.12.1	<b>Global Overview .....</b>	145
10.12.2	<b>Market/Business Overview .....</b>	145
10.12.3	<b>Financial Data (USD Million) .....</b>	146
10.12.4	<b>Product Landscape .....</b>	146
10.12.5	<b>Strategic Outlook .....</b>	147
10.12.6	<b>SWOT analysis .....</b>	147
10.13	<b>PowerSecure, Inc.....</b>	148
10.13.1	<b>Global Overview .....</b>	148
10.13.2	<b>Market/Business Overview .....</b>	148
10.13.3	<b>Financial Data .....</b>	148
10.13.4	<b>Product Landscape .....</b>	148
10.13.5	<b>Strategic Outlook .....</b>	149
10.13.6	<b>SWOT analysis .....</b>	150
10.14	<b>Tata Power Solar .....</b>	151
10.14.1	<b>Global Overview .....</b>	151
10.14.2	<b>Market/Business Overview .....</b>	151
10.14.3	<b>Financial Data .....</b>	151
10.14.4	<b>Product Landscape .....</b>	151
10.14.5	<b>SWOT analysis .....</b>	152
10.15	<b>Toshiba Energy Systems &amp; Solutions Corporation .....</b>	153
10.15.1	<b>Global Overview .....</b>	153
10.15.2	<b>Market/Business Overview .....</b>	153
10.15.3	<b>Financial Data (USD Billion).....</b>	154
10.15.4	<b>Product Landscape .....</b>	154
10.15.5	<b>Strategic Outlook .....</b>	155
10.15.6	<b>SWOT analysis .....</b>	155

## Data Tables

TABLE 1	Global grid connected microgrid market, by region, 2021-2023 (MW)	23
TABLE 2	Global grid connected microgrid market, by region, 2024-2032 (MW)	23
TABLE 3	Global grid connected microgrid market, by region, 2021-2023 (USD Million)	23
TABLE 4	Global grid connected microgrid market, by region, 2024-2032 (USD Million)	23
TABLE 5	Global grid connected microgrid market, by region, 2021-2023 (MW)	25
TABLE 6	Global grid connected microgrid market, by region, 2024-2032 (MW)	26
TABLE 7	Global grid connected microgrid market, by region, 2021-2023 (USD Million)	26
TABLE 8	Global grid connected microgrid market, by region, 2024-2032 (USD Million)	26
TABLE 9	Global grid connected microgrid market, by grid type, 2021-2023 (MW)	27
TABLE 10	Global grid connected microgrid market, by grid type, 2024-2032 (MW)	28
TABLE 11	Global grid connected microgrid market, by grid type, 2021-2023 (USD Million)	28
TABLE 12	Global grid connected microgrid market, by grid type, 2024-2032 (USD Million)	28
TABLE 13	Global grid connected microgrid market, by power source, 2021-2023 (MW)	30
TABLE 14	Global grid connected microgrid market, by power source, 2024-2032 (MW)	30
TABLE 15	Global grid connected microgrid market, by power source, 2021-2023 (USD Million)	30
TABLE 16	Global grid connected microgrid market, by power source, 2024-2032 (USD Million)	31
TABLE 17	Global grid connected microgrid market, by storage device, 2021-2023 (MW)	32
TABLE 18	Global grid connected microgrid market, by storage device, 2024-2032 (MW)	33
TABLE 19	Global grid connected microgrid market, by storage device, 2021-2023 (USD Million)	33
TABLE 20	Global grid connected microgrid historic market, by storage device, 2024-2032 (USD Million)	33
TABLE 21	Global grid connected microgrid market, by application, 2021-2023 (MW)	35
TABLE 22	Global grid connected microgrid market, by application, 2024-2032 (MW)	36
TABLE 23	Global grid connected microgrid market, by application, 2021-2023 (USD Million)	36
TABLE 24	Global grid connected microgrid market, by application, 2024-2032 (USD Million)	37

## Charts & Figures

FIG. 1	Forecast approach & model	17
FIG. 2	Breakdown of respondents	18
FIG. 3	Industry snapshot	21
FIG. 4	Industry ecosystem	38
FIG. 5	Impact forces	61
FIG. 6	U.S. Renewable Energy Consumption (Quadrillion Btu), 2021 - 2023	62
FIG. 7	Growth potential analysis	67
FIG. 8	Porter's analysis	69
FIG. 9	PESTEL analysis	72
FIG. 10	Grid connected microgrid market, by grid type, 2023 & 2032 (USD Billion)	88
FIG. 11	Grid connected microgrid market, by power source, 2023 & 2032 (USD Billion)	91
FIG. 12	Grid connected microgrid market, by storage device, 2023 & 2032 (USD Billion)	95
FIG. 13	Grid connected microgrid market, by application, 2023 & 2032 (USD Billion)	99
FIG. 14	Grid Connected Microgrid Market, by region, 2023 & 2032 (USD Million)	104