Electrification
Writing the future of safe, smart, and sustainable electrification
Tarak Mehta, President Electrification
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- costs associated with compliance activities
- market acceptance of new products and services
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Electrification at a glance

Key figures

**Global #2**
- #1 Medium voltage / #2 Low voltage
- #1 EV fast charging infrastructure
- #2 Installation products

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 market size</td>
<td>$160 bn</td>
</tr>
<tr>
<td>2018 revenues</td>
<td>$13.0 bn</td>
</tr>
<tr>
<td>2018 Op. EBITA</td>
<td>12.8%</td>
</tr>
<tr>
<td>Employees worldwide</td>
<td>~55 k</td>
</tr>
</tbody>
</table>

Business mix (by revenue)

<table>
<thead>
<tr>
<th>Customers</th>
<th>Offering</th>
<th>Channels</th>
<th>Geographies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewables</td>
<td>Services and other</td>
<td>Panel builders</td>
<td>AMEA</td>
</tr>
<tr>
<td>Conv. generation</td>
<td>Systems</td>
<td>OEMs</td>
<td>Europe</td>
</tr>
<tr>
<td>Distribution</td>
<td>Products</td>
<td>EPCs</td>
<td>Americas</td>
</tr>
<tr>
<td>O&amp;G, Chemicals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining &amp; Metals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Industry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other T&amp;I</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Includes management estimate for 4 quarters of GEIS sales based on H2 2018
Complete electrification offering from source to socket

- Low and medium voltage electrical distribution
- Building products and controls
- Installation products
- Solar inverters
- Critical Power
- EV charging infrastructure

1.7+ mn products shipped / day
>50% via distributors
2018 performance

**Profitable Growth**
- $13 bn revenues\(^1\); 4% orders YoY growth\(^2\)
- $1.7 bn EBITA\(^1\); 12.8% Op. EBITA\(^1\)

**Relentless Execution**
- GEIS deal completed: Q4 margin >5\(^3\)
- Addressing a few underperforming product lines

**Business-led Collaboration**
- Gaining market share in strategic end-user segments
- Good momentum with distributors

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\(^1\)Includes management estimate for 4 quarters of GEIS sales based on H2 2018

\(^2\)On a comparable basis excluding impact of GEIS acquisition and divestment of the terminal blocks business

\(^3\)GEIS Op. EBITA on a standalone basis excl. synergy and integration cost
General Electric Industrial Solutions integration update

**Deal rationale**

**Market access**

Cross-selling ($50+ mn in H2 2018) e.g. in DC rail portfolio

**Portfolio substitution**

Target >50% of the portfolio; first products in Q2 2019

**Strategic supply partnership**

ABB volume up >15% in 2018

**Performance improvement**

Q4 2018 Op. EBITA >5%\(^1\)

Cost synergies targets on track (~$120 mn Y3; ~$200 mn Y5)

Product mgmt., R&D, S&M stabilized and aligned with Business lines

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Working together to make GEIS better

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\(^1\)GEIS Op. EBITA on a standalone basis excl. synergy and integration cost

Note: all 2018 results numbers are based on management estimation
Stable market with high growth segments

Global addressable market in $ bn

<table>
<thead>
<tr>
<th>Segment</th>
<th>Today</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings &amp; Infrastructure</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td>Industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
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<tr>
<td>Utilities</td>
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</tbody>
</table>

Business exposure % of revenues

- **High-growth segments**: Data Centers (>6%), EV Charging (>8%), Commercial Buildings (>4%), Food & Beverage (2-4%), Oil & Gas

Market growth drivers

- Electricity grows 2x faster than other energy sources
- New sources of consumption
- Rising importance of distributed generation
- Expansion of e-commerce & digitalization

CAGR 2017-2025; EV incl. charging infrastructure long-term growth rate (>12% until 2020)
What: value proposition for our customers
Writing the future of safe, smart, and sustainable electrification

<table>
<thead>
<tr>
<th>Safe</th>
<th>Smart</th>
<th>Sustainable</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Safe and reliable power</em> for an early life nutrition factory… increasing <strong>uptime</strong> to <strong>99%</strong> and reducing production losses while saving $3 mn <strong>&lt;1 year payback</strong></td>
<td><em>Smart installation</em> of digital switchgear for a data center… up to <strong>30%</strong> less space and <strong>90%</strong> less wiring leads up to <strong>20%</strong> faster installation</td>
<td>Market leader in fast charging: <strong>200 km in 8 mins</strong>… <strong>more sustainable cities</strong> with eco-efficient public transport: e-buses charging infrastructure</td>
</tr>
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</table>
How: differentiating through people and products

Net Promoter Score\(^1\) feedback

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>72%</td>
<td>22%</td>
<td>61%</td>
</tr>
<tr>
<td>industry &amp; application knowledge</td>
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Cutting edge innovation of today...

- 30% operating costs
- 25% less space
- Cloud connected

...and tomorrow

- 22% smaller footprint
- 40% less energy loss
- 80% fewer parts

\(^1\)Net Promoter Score is a management tool to measure customer satisfaction. Note: all 2018 results numbers are based on management estimation.
How: differentiating through solutions business model

Modular, scalable, pre-configured solutions

Application examples

<5% of market
- Mid-size data center
  - MV and LV distribution and secure power for reliability and efficiency

10-15% of market
- DC fast charging
  - Fleet, storage and charging infrastructure cloud connected for optimized load management

>80-90% of market
- Hotel with 300 rooms
  - Lighting and temperature controls and smart emergency lighting for comfort and safety
- Brewery filtration line
  - Power quality, reliability and energy efficiency

Physical & digital offering

Domain & process expertise

Electrification solutions

Application engineering & services
Driving above-market growth

Medium term revenue development

<table>
<thead>
<tr>
<th>FY 2018</th>
<th>Market growth</th>
<th>Above-market growth</th>
<th>Medium term</th>
</tr>
</thead>
<tbody>
<tr>
<td>$13 bn</td>
<td>3% p.a.</td>
<td></td>
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Growth drivers

- **Penetration**
  - Key large markets (e.g. United States, China)
  - Data Centers, F&B, and O&G
  - e-Mobility infrastructure

- **Innovation**
  - Modular, scalable, pre-configured solutions
  - ABB Ability™ digital services
  - Core technology

- **Expansion**
  - Strategic markets in the new economies
  - Automation and controls for Commercial Buildings

¹Includes management estimate for 4 quarters of GEIS sales based on H2 2018
Driving Operating EBITA margin

Operating EBITA margin

<table>
<thead>
<tr>
<th>2018A</th>
<th>GEIS H2-2018 annualized</th>
<th>2018 adj.1</th>
<th>Cost infl./price pressure</th>
<th>Operational efficiency</th>
<th>Volume/mix</th>
<th>GEIS</th>
<th>ABB-OS™</th>
<th>Medium term</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.9%</td>
<td></td>
<td>12.8%</td>
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Details on key drivers

1. **Operational efficiency**
   - Continuous improvement = cost out
   - Turnaround underperforming product lines

2. **Volume / mix**
   - Strategic countries in new & mature markets
   - Data Centers, F&B, O&G, e-Mobility, Buildings
   - ABB Ability™ digital services and solutions

3. **GEIS integration**
   - GEIS performance as per identified synergies
   - Leveraging market access in North America
   - Capitalizing on global installed base

4. **ABB-OS™**
   - Footprint & organization simplification

1 Includes management estimate for 4 quarters of GEIS sales based on H2 2018
Creating value for customers and ABB
Writing the future of safe, smart, and sustainable electrification

Attractive growth
- Segment focus in key markets
- ABB Ability™ digital services and solutions
- Innovation in core technology

Stronger margins
- GEIS integration
- Operational performance
- Volume leverage

Optimizing capital
- Active portfolio management
- Future asset-light portfolio
- Increasing share of digital offerings in our portfolio

Medium-term operational EBITA margin
15 – 19%
Let’s write the future of safe, smart, and sustainable electrification.