Veřejná rychlonabíjecí infrastruktura
Současnost a budoucnost

ABB Product Group Electric Vehicle Charging Infrastructure
**Současnost**

**CCS / Multi-standard chargers (50kW)**

<table>
<thead>
<tr>
<th>Terra 53 C DC Highway Charger</th>
<th>Terra 53 CT DC+AC Highway Charger</th>
<th>Terra 53 CG DC+AC Highway Charger</th>
<th>Terra 53 CJ DC Highway Charger</th>
<th>Terra 53 CJG DC + AC Highway Charger</th>
<th>Terra 53 CJT DC+AC Highway Charger</th>
</tr>
</thead>
<tbody>
<tr>
<td>50kW DC CCS-2</td>
<td>50kW DC CCS-2</td>
<td>50kW DC CCS-2</td>
<td>50kW DC CCS-2</td>
<td>50kW DC CCS-2</td>
<td>50kW DC CCS-2</td>
</tr>
<tr>
<td>22kW AC</td>
<td>43kW AC</td>
<td>50kW DC CHAdeMO</td>
<td>50kW DC CHAdeMO</td>
<td>50kW DC CHAdeMO</td>
<td>50kW DC CHAdeMO</td>
</tr>
<tr>
<td>15-30 min.</td>
<td>15-30 min.</td>
<td>15-30 min.</td>
<td>15-30 min.</td>
<td>15-30 min.</td>
<td>15-30 min.</td>
</tr>
</tbody>
</table>

Input: 3x 400V
Současnosť
CCS / Multi-standard chargers (20kW)

Terra 23 CJ
DC
Commercial Charger
- 20kW DC CCS-2
- 20kW DC CHAdeMO
- 22kW AC
- 30-60 min.

Terra 23 CT
DC
Commercial Charger
- 20kW DC CCS-2
- 22kW AC
- 30-60 min.

Input: 3x 400V

Available

Available

Available

Terra 23 CJG
DC + AC
Commercial Charger
- 20kW DC CCS-2
- 20kW DC CHAdeMO
- 22kW AC
- 30-60 min.
Současnost
Platební terminál (Europe)

Main features
- Platba credit card a NFC
- Bez zadávání PIN code
- Podpora v 33 zemích (EU)
- Nízké provozní a transakční náklady
- Lze doplnit kdykoli do stavajících stanic T53/23
- Základní RFID funkcionalita zůstává
**Současnost**
Komplexní portfolio SW produktů

<table>
<thead>
<tr>
<th><strong>Web tools</strong></th>
<th><strong>API</strong></th>
<th><strong>Connection</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Driver Care</em></td>
<td><em>OCPP API</em></td>
<td><em>Multi Network SIM</em></td>
</tr>
<tr>
<td>Ideal solution to support a small sized charger network.</td>
<td>The industry standard API for access management and charge details</td>
<td>Mobile connection that can make use of different mobile networks to reach the highest possible uptime.</td>
</tr>
<tr>
<td>Supportive tool for customer driver care centers for large commercial networks</td>
<td>Required for the payment device</td>
<td>Available in EU on request</td>
</tr>
<tr>
<td>Used by CPO’s</td>
<td>1st line service engineers (ABB or external company)</td>
<td>CPO’s operating a commercial network</td>
</tr>
<tr>
<td>Can be combined with all other products*</td>
<td>Can be combined with all other products.</td>
<td>Can be combined with all other products.</td>
</tr>
<tr>
<td>Web tool to manage the device settings, check transaction status and create the mandatory revenue overview</td>
<td>Available via the Internet or as local interface</td>
<td>Available for Internet API’s</td>
</tr>
<tr>
<td>Necessary tool for service engineers to provide support &amp; maintenance</td>
<td>Available via the Internet.</td>
<td>IT departments that require VPN</td>
</tr>
<tr>
<td>Can be combined with all other products*</td>
<td>Available via the Internet.</td>
<td></td>
</tr>
</tbody>
</table>

* Access mgmt of OCPP is leading

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Offering details available in the next slides
ABB and Microsoft join forces to launch next-generation electric vehicle charging services platform

The cloud based e-mobility charging platform will combine ABB’s leading fast-charging technologies with Microsoft’s state-of-the-art cloud services.

ZURICH, Switzerland and REDMOND, WA, United States — October 20, 2015 — ABB and Microsoft Corp. announced today the worldwide availability of a new electric vehicle (EV) fast-charging services platform. Combining ABB’s leading EV charging stations with Microsoft’s Azure cloud-based services will ensure stability, global scalability and advanced management features for ABB customers. The collaboration will also take advantage of machine learning and predictive analytic capabilities to drive future innovations.

- Partnerství ABB a Microsoft v Cloud Based services:
  - Cloud Based services platforma slouží všem zákazníkům celosvětově včetně zemí se speciálními nároky jako např. Čína
  - Tato spolupráce je o inovacích, nové produkty jako např. predictive maintenance
Budoucnost
Posun všech segmentů v 2016-2020 na novou úroveň

Home & office charging
Metropolitan infrastructure
Highway infrastructure
E-bus infrastructure
Elektromobily
Větší baterie, větší dojezd a větší nabíjecí výkony

<table>
<thead>
<tr>
<th>Year</th>
<th>Mass market EV’s</th>
<th>Premium EV’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>~140 km 24 kWh</td>
<td>&gt;180 km &gt;30 kWh</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td>&gt;250 km &gt;40 kWh</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td>&gt;400 km &gt;70 kWh</td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td>&gt;450 km &gt;80 kWh</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
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<td>2017</td>
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<td>2019</td>
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<tr>
<td>2020</td>
<td></td>
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<tr>
<td>2021</td>
<td></td>
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</tr>
</tbody>
</table>

50 kW Charging on the road 150-300 kW
3-20 kW Charging at commercial locations 50 kW
3-6 kW AC Charging at home / office 10-20 kW
DC infrastruktura: celosvětový závod o lokality odstartován

Location, location, location...

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Veřejná infrastruktura</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Race for locations in early markets</td>
<td>Race for locations in all key markets</td>
<td>Most locations are taken</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 2.500 public DC chargers in Europe</td>
<td>&gt; 10.000 public DC chargers in Europe</td>
<td>&gt; Public DC is everywhere</td>
<td></td>
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</tr>
</tbody>
</table>

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Roadmapa v EU
2020 většina EV na silnicích s DC dojížením do 50kW

2015
Global trend
The year to secure the best locations for your charging network

2015

50 kW
To charge mainstream EVs along highways, in city centers, at commercial locations, etc.

>150 kW
To charge premium EVs with 400 km range on long distance corridors.

The next 5 years, 50 kW chargers will be needed to support mainstream EVs, which will be complemented with high power corridors for premium EVs starting 2017.

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Month DD, Year | Slide 11
Roadmapa v EU
Priorita pro operátory

2015
Global trend
The year to secure the best locations for your charging network

more outlets, more locations

2015

8X

4X

2X

>150 kW
to charge premium EVs with 400 km range on long distance corridors

50 kW
to charge mainstream EVs along highways, in city centers, at commercial locations, etc

The next 5 years, 50 kW chargers will be needed to support mainstream EVs, which will be complemented with high power corridors for premium EVs starting 2017

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Month DD, Year | Slide 12
Premium long range EV’s from 2018 / 2019

- Audi & Porsche long range premium EV’s
- > 450 km “real” driving range
- 150-300 kW charging
- Charger must also supply 800V cars
- CCS standards change required
ABB je leader v high power CCS standard

- CharIN je organizací vyvíjející nový high power CCS (150-300 kW) standard
- CharIN je podporována koalicí automobilek BMW, VW, Audi, Porsche, Ford, Opel/GM, Daimler
- ABB jeden ze zakládajících členů této organizace