BMW STATEMENT
VGI WORKING GROUP CPUC

July 24th 2017
The Commission should direct VGI programs to be implemented now, rather than waiting until utility infrastructure is available.

Any communication pathway may be used to provide VGI and no hardware requirements should be made of vehicles.

With regards to utility-owned public and workplace infrastructure investments, the EVSE shall offer the ISO 15118 protocol to support communication from the EVSE to the EV.

Optionally, the EV may use ISO 15118 as the communication path to the EVSE.

The telematics communication pathway should not be discriminated against relative to any other communication pathway.
**RANGE OF CUSTOMER CHARGING USE CASES.**

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Basis/Emergency Charging</th>
<th>Home Charging w/ HEMS and Wallbox</th>
<th>Home Charging w/ VGI</th>
<th>Fleet Charging (e.g. Parking Lot)</th>
<th>Public Charging</th>
<th>Fast Charging &gt; 50 kW</th>
<th>Inductive Charging</th>
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</thead>
<tbody>
<tr>
<td>Customer’s Intention</td>
<td>Basic Charging</td>
<td>EV integration into a smart system</td>
<td>VGI</td>
<td>Billing – PnC</td>
<td>Billing – PnC</td>
<td>Billing – PnC</td>
<td>Charging (VGI) – PnC</td>
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<tr>
<td><strong>Today’s communication channel</strong></td>
<td>None</td>
<td>IEC 61851</td>
<td>IEC 61851 Telematics</td>
<td>IEC 61851</td>
<td>IEC 61851</td>
<td>ISO 15118</td>
<td>WLAN proprietary messag. ISO 15118</td>
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<tr>
<td>Future communication channel EVSE → EV</td>
<td>None</td>
<td>ISO 15118</td>
<td>ISO 15118 Telematics</td>
<td>ISO 15118 (IEC 61851)</td>
<td>ISO 15118</td>
<td>ISO 15118</td>
<td></td>
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</tbody>
</table>

**Focus of the VGI working group**
ISO 15118 – ENABLES NEW OPPORTUNITIES.

Additional charging details
- Entertainment & social media
- Car services
- …

Convenient
- Fine positioning
- Secure wireless communication & safe technology

Charging transparency
- Planning security

Value Added Services
- Plug ‘n Charge

Optimized Load Mgmt.
- Reverse power flow
- Automated connection device

Inductive charging control
- DC charging control

AC charging control
- DC fast charging for buses

Overload protection
- Optimized charging
- Fleet charging

Local optimization
- Grid optimization
- Fleet charging

DC fast charging for buses
- Fine positioning
- Secure wireless communication

Optimized charging
- Fleet charging

Charging transparency
- Planning security