GEF funded Global eMobility Programme

International Energy Agency Webinar – Wednesday 8 December 2021

Launched at COP26, Glasgow
GSMP was commissioned by ICCT

• International Council on Clean Transportation
  • Secretariat for the International Zero-Emission Vehicle Alliance
• GSMP

Scope:
• Provide an update on charging deployments and the development of users’ needs;
• Describe how different types of chargers can serve the full ZEV market;
• Review charging needs and equitability challenges in urban and rural areas;
• Analyse the financial viability of public charging in major markets; and
• Examine emerging solutions for commercial vehicles.

➢ The report recommends possible policies and best-practice for governments
What maturity looks like to users

- The most mature EV charging ecosystems carefully match user segments with charging locations and serve them with appropriate charger types.

- Charging locations are private or public.

<table>
<thead>
<tr>
<th>Location</th>
<th>Private</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Residential</td>
<td>Roadside</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residential</td>
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<tr>
<td></td>
<td></td>
<td>Private vehicles, high mileage local</td>
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<tr>
<td></td>
<td></td>
<td>Private vehicles, high mileage local</td>
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<tr>
<td></td>
<td></td>
<td>Public travel corridor</td>
</tr>
<tr>
<td>Segment</td>
<td>Private vehicles</td>
<td>Fleets &amp; staff</td>
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<td></td>
<td></td>
<td>Private</td>
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<td></td>
<td></td>
<td>Public commercial</td>
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<td>Public destination</td>
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<td></td>
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<td>Public hub</td>
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<tr>
<td></td>
<td></td>
<td>Public travel corridor</td>
</tr>
<tr>
<td>Slow</td>
<td>Private residential</td>
<td>Public roadside</td>
</tr>
<tr>
<td>Standard</td>
<td>Private commercial</td>
<td>Public commercial</td>
</tr>
<tr>
<td>Fast</td>
<td>Private commercial</td>
<td>Public destination</td>
</tr>
<tr>
<td>Rapid</td>
<td>Private commercial</td>
<td>Public destination</td>
</tr>
<tr>
<td>Ultra-Rapid</td>
<td>Public hub</td>
<td></td>
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</tbody>
</table>

Note for US readers:
- Slow = Level 1
- Standard & Fast = Level 2
- Rapid & Ultra-Rapid = DC Fast Charge

Slow = Level 1
- Slow = Level 1
- Standard & Fast = Level 2
- Rapid & Ultra-Rapid = DC Fast Charge
## Policies to ensure mature ecosystems flourish

<table>
<thead>
<tr>
<th>Barrier:</th>
<th>Policy Targets:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public charger (un)reliability</td>
<td>Must be guaranteed through technical and contractual means, and be visible to users to build up confidence in the network</td>
</tr>
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<td>Inter-operability</td>
<td>Protocols, payment, pricing structures and access must be harmonised within jurisdictions as well as allowing cross-border travel</td>
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<td>Lack of coordinated policy</td>
<td>Best-practice must be shared between and across different government levels with clear national expectations for the roles of each party</td>
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<td>Electricity network constraints</td>
<td>Significant work must be done to share data, deploy innovative storage technologies, build EV expertise in the network operators, mandate proactive investment to increase capacity, and fund upgrades</td>
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<tr>
<td>Poor business case</td>
<td>Targeted and more consistent funding must be made available to ensure a just and swift transition</td>
</tr>
</tbody>
</table>

- In countries where these are not currently present, these high-level points should be formulated into a policy agenda to underpin the flourishing of the charging ecosystem
Equality and Equity are often used interchangeably but are distinct.

An equity-focused approach aims to ensure people receive what they need to be successful.

This means different responses to different situations.

An equity-focused approach may be more difficult in the short-term but will yield better opportunities and outcomes in the long-term.
Headlines:

• Expanding access to electric mobility has significant social and environmental benefits

• Chargers have so-far tended to be deployed in more affluent areas
  • For example, cities where EVs are 10%+ of the market are the wealthiest: Palo Alto, Los Altos, Saratoga

• Without public intervention, historically underserved neighbourhoods run the risk of being further excluded

Solutions:

• Community-based needs assessments

• Engaging the community in the development process

• Measure and analyse the results

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Goal #1
Increase Access to Mobility

1. Affordability
2. Accessibility
3. Efficiency
4. Reliability
5. Safety

Goal #2
Reduce Air Pollution

6. Clean Air and Positive Health Benefits
7. Reduction in Greenhouse Gases
8. Reduction in Vehicle Miles Traveled

Goal #3
Enhance Economic Opportunity

9. Connectivity to Places of Employment, Education, Services, & Recreation
10. Fair Labor Practices
11. Transportation-Related Employment Opportunities
12. Inclusive Local Business & Economic Activity
uYilo Smart Grid EcoSystem for EV-Grid Inter-operability

Facility established in 2015:

- Solar energy **Generation**
- **Storage** through second-life EV battery in stationary application (multi-manufacturer)
- **Distribution** through multiple charger network (AC charge points, DC fast chargers)
- **Vehicle-to-Grid** Ancillary Services
- Multiple **Charge Point Operator** hosting
- **Energy Management** System (IEC 61850)
Enabling, Facilitating
and Mobilising the
Electric Mobility
EcoSystem
since 2013

www.uYilo.org.za
www.GSMP.world

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