Sino-German Expert Workshop on Current Development of Energy Efficiency Standards for EV Chargers
中德电动汽车充电桩能效标准发展现状专家研讨会
05 November 2024, hybrid　　2024年11月5日

Eco-design Preparatory Study on EV-chargers: Current Development of EU Regulation for EV-chargers
电动汽车充电桩生态设计预备研究：欧盟电动汽车充电桩法规的发展现状

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Short biography 个人简介

Position 职位

Project manager and researcher at **Fraunhofer ISI (Germany)** in the Energy Efficiency business unit

德国弗劳恩霍夫系统与创新研究所(Fraunhofer ISI）能源效率业务部项目经理兼研究员

Work 工作内容

Energy efficiency (products & enterprises), Circular Economy, Energy Sufficiency

能源效率（产品和企业）、循环经济、能源自足性

Ecodesign Preparatory Studies, Impact Assessments and Evaluations:

- various products: solid fuel boilers, lifts, batteries, smartphones/tablets, **EV-chargers**, household appliances...
- as well as the review of the Ecodesign Directive (ESPR)

生态设计准备研究、影响评估和评审：

- 各种产品：固体燃料锅炉、电梯、电池、智能手机/平板电脑、**电动汽车充电桩**、家用电器.....
- 以及审查 《可持续产品生态设计条例》(ESPR)

Regions: EU and Africa

负责地区：欧盟和非洲

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Agenda

- The EU context: ESPR
- Ecodesign Preparatory Study on EV chargers
  1. Key data
  2. Current status of the study
  3. Task 1 – Scope
  4. Task 2 – Market
  5. Task 3 – Users
- Next steps
- Possible ESPR requirements
- Conclusions

议程

- 欧盟背景：《可持续产品生态设计条例》
- 电动汽车充电桩生态设计预备研究
  1. 关键数据
  2. 研究现状
  3. 任务 1 - 范围
  4. 任务 2 - 市场
  5. 任务 3 - 用户
- 下一步工作
- 潜在的ESPR要求
- 结论

EU-context: Ecodesign for Sustainable Products Regulation (ESPR) 欧盟背景：《可持续产品生态设计条例》

Making sustainable products the norm! 让可持续产品成为规范！

https://ec.europa.eu/commission/presscorner/api/files/attachment/872167/Sustainable%20products%20Factsheet.pdf.pdf

Aims:

- make **sustainable products the norm** and
- reduce the overall **carbon footprint** and environmental footprint **over product life cycle**

Larger scope in terms of:

- products: **any physical goods** (except vehicles) that are placed on the market or put into service, including components and intermediate products.
- requirements

Framework legislation:

- does not set specific measures
- but enables product-specific measures

目标：

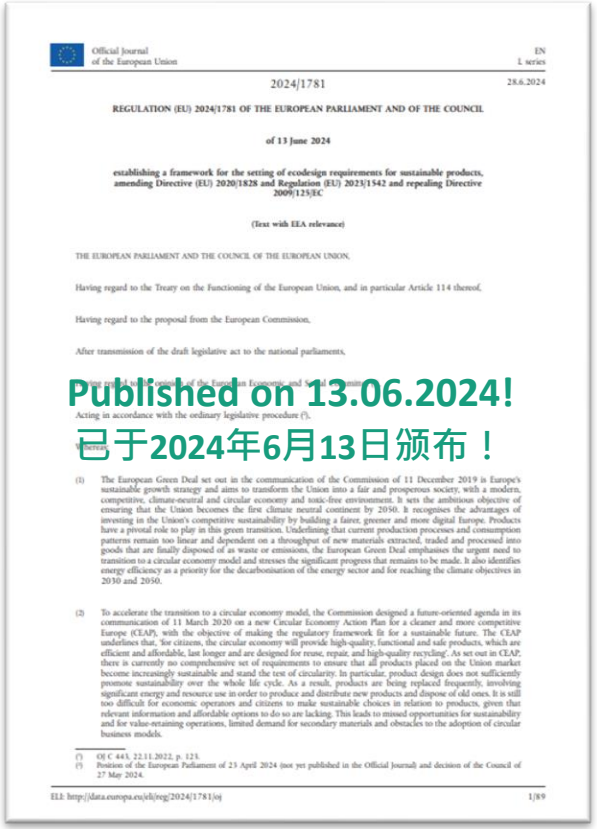
- 让**可持续产品及生态设计成为规范，**
- **在产品生命周期内**减少总体**碳足迹和环境足迹**

扩大了以下范围：

- 产品：投放市场或投入使用的**任何实物产品**（车辆除外），包括零部件和中间产品
- 要求

框架立法

- 不制定具体措施，但为针对特定产品的措施提供支持。


Official Journal of the European Union — EN, L series

2024/1781 — 28.6.2024

REGULATION (EU) 2024/1781 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 13 June 2024

establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 114 thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Acting in accordance with the ordinary legislative procedure (1),

Whereas:

(1) The European Green Deal set out in the communication of the Commission of 11 December 2019 is Europe's sustainable growth strategy and aims to transform the Union into a fair and prosperous society, with a modern, competitive, climate-neutral and circular economy and toxic-free environment. It sets the ambitious objective of ensuring that the Union becomes the first climate neutral continent by 2050. It recognises the advantages of investing in the Union's competitive sustainability by building a fairer, greener and more digital Europe. Products have a pivotal role to play in this green transition. Underlining that current production processes and consumption patterns remain too linear and dependent on a throughput of new materials extracted, traded and processed into goods that are finally disposed of as waste or emissions, the European Green Deal emphasises the urgent need to transition to a circular economy model and stresses the significant progress that remains to be made. It also identifies energy efficiency as a priority for the decarbonisation of the energy sector and for reaching the climate objectives in 2030 and 2050.

(2) To accelerate the transition to a circular economy model, the Commission designed a future-oriented agenda in its communication of 11 March 2020 on a new Circular Economy Action Plan for a cleaner and more competitive Europe (CEAP), with the objective of making the regulatory framework fit for a sustainable future. The CEAP underlines that, for citizens, the circular economy will provide high-quality, functional and safe products, which are efficient and affordable, last longer and are designed for reuse, repair, and high-quality recycling'. As set out in CEAP, there is currently no comprehensive set of requirements to ensure that all products placed on the Union market become increasingly sustainable and stand the test of circularity. In particular, product design does not sufficiently promote sustainability over the whole life cycle. As a result, products are being replaced frequently, involving significant energy and resource use in order to produce and distribute new products and dispose of old ones. It is still too difficult for economic operators and citizens to make sustainable choices in relation to products, given that relevant information and affordable options to do so are lacking. This leads to missed opportunities for sustainability and for value-retaining operations, limited demand for secondary materials and obstacles to the adoption of circular business models.

(1) OJ C 443, 22.11.2022, p. 123.
(2) Position of the European Parliament of 23 April 2024 (not yet published in the Official Journal) and decision of the Council of 27 May 2024.

ELI: http://data.europa.eu/eli/reg/2024/1781/oj — 1/89

Published on 13.06.2024!
已于2024年6月13日颁布！

Source: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401781

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ESPR
Overview of the process

《可持续产品生态设计条例》
进程概览

Multiannual Work Plans
多年期工作计划

~ 1st WP Q1/2025
~第一工作计划
（2025年第一季度）

Preparatory Study & Impact Assessment
预备研究和影响评估

1.5-2 years
一年半至两年

Consultation of Ecodesign Forum 生态设计征求意见会

Adoption of Measure
采取措施

Adoption first measures 2026
Applicable after 18 months 2027/2028
2026年：通过第一批措施
2027/2028年： 18个月后生效

Measure applies
措施应用

Stakeholder input collected throughout
全程收集利益相关方的意见

- Source: https://environment.ec.europa.eu/events/information-session-new-ecodesign-sustainable-products-regulation-espr-2024-05-22_en

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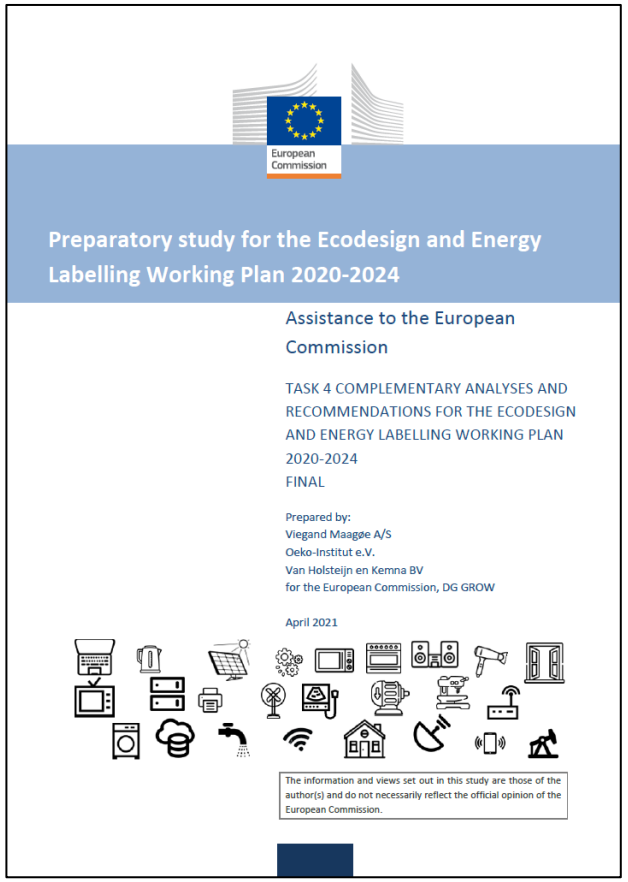
Ecodesign and Energy Labelling Working Plan 2020-2024 生态设计和能源标签工作计划（2020—2024年）

Results of the preparatory study for the Working Plan (2021) 工作计划（ 2021 年 ）预备研究结果



"Electric vehicle chargers (wallboxes, public chargers): The energy saving potential is quite low, about 11 PJ/year. After 2030 the potential savings increase, and in 2050 the saving potential is almost 76 PJ/year."

→ **Electric vehicle chargers** included in the indicative list of new energy-related product groups to be studied of the Working Plan 2022-2024

"电动汽车充电设备（壁挂式充电桩、公共充电桩）：节能潜力很低，约为每年 11 PJ。2030 年后，节能潜力会增加，到 2050 年，节能潜力将近 76 PJ/年"。

→ **电动汽车充电桩**已列入新能源相关产品组指导性名单，将在2022-2024年工作计划中予以研究

See: Communication from the Commission "Ecodesign and Energy Labelling Working Plan 2022-2024 2022/C 182/01" (5.2022) in 参见：委员会"2022-2024年生态设计和能源标签工作计划2022/C 182/01"的来文（2022年5月）https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022XC0504(01)

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Ecodesign preparatory study on EV chargers

Key information of the project

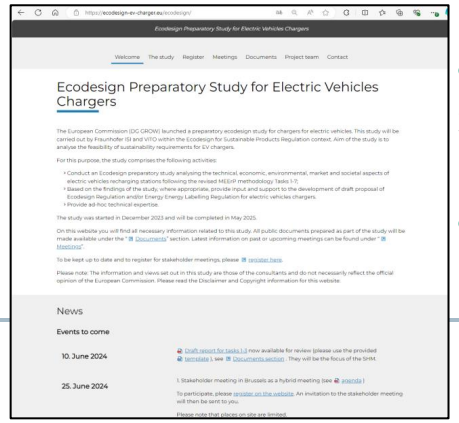
- **Objectives:**
- **Ecodesign preparatory study** (technical, economic, environmental, market and societal aspects)
- Support to the development of the **proposal for an EU regulation** (within the ESPR framework)
- Provide ad-hoc technical expertise

• Timeframe: December 2023 until May 2025

• Client: European Commission (DG GROW, responsible for Internal Market & Industry)

• Consultants: Fraunhofer ISI (study lead) with VITO

• Website: https://ecodesign-ev-charger.eu/



电动汽车充电器生态设计预备研究

项目主要信息

- **目标：**
- **生态设计预备研究**（技术、经济、环境、市场和社会方面）
- 支持制定**欧盟法规提案**（在 ESPR 框架内）
- 提供专门的技术知识

• 时间范围：2023 年 12 月至 2025 年 5 月

• 客户：欧盟委员会（内部市场、工业、创业和中小企业总司，负责内部市场和工业）

• 顾问：弗劳恩霍夫系统与创新研究所（研究牵头人）和 VITO

• 网站：https://ecodesign-ev-charger.eu/

Methodology for ecodesign of energy-related products (MEErP)
能源相关产品生态设计框架指令

MEErP: Overview　　MEErP 概述

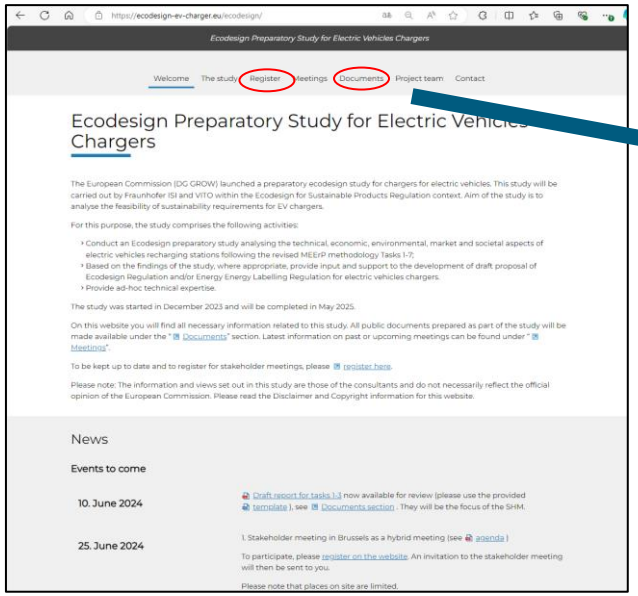
Task 1 任务 1 • Scope 范围	▪ Task 1 - Scope (definitions, standards and legislation, 1st screening) ▪ 任务 1 - 范围（定义、标准和立法、第一次筛选）	Already covered: draft reports presented at the 1st stakeholder meeting June 2024 已涉及：在 2024 年 6 月第一次利益相关方会议上提交的报告草案
Task 2 任务 2 • Markets 市场	▪ Task 2 – Markets (volumes and prices) ▪ 任务 2 - 市场（数量和价格）	
Task 3 任务 3 • Users 用户	▪ Task 3 – User (product demand side) ▪ 任务 3 - 用户（产品需求方）	
Task 4 任务 4 • Technologies 技术	▪ Task 4 - Technologies (product supply side, includes both Best Available Technology (BAT) and Best Not Yet Available Technology (BNAT) ▪ 任务 4 - 技术（产品供应方，包括最佳可得技术 (BAT) 和尚不可得的最佳技术 (BNAT)	Second part of the study (on-going work) 研究的第二部分（正在进行）
Task 5 任务 5 • Environment 环境 • Economics 经济学	▪ Task 5 – Environment & Economics (Life Cycle Analysis (LCA) & Life Cycle Costing (LCC) of the Base Cases) ▪ 任务 5 - 环境与经济（基本案例的生命周期分析 (LCA) 和生命周期成本计算 (LCC)	
Task 6 任务 6 • Design options • 设计方案	▪ Task 6 – Design options to improve LCA + LCC; ▪ 任务 6 - 改进 LCA + LCC 的设计方案；	
Task 7 任务 7 • Scenarios 场景	▪ Task 7 – Scenarios (Policy, scenario, impact and sensitivity analysis) ▪ 任务 7—场景（政策、场景、影响和敏感性分析）	

MEErP: https://susproc.jrc.ec.europa.eu/product-bureau/product-groups/521/home

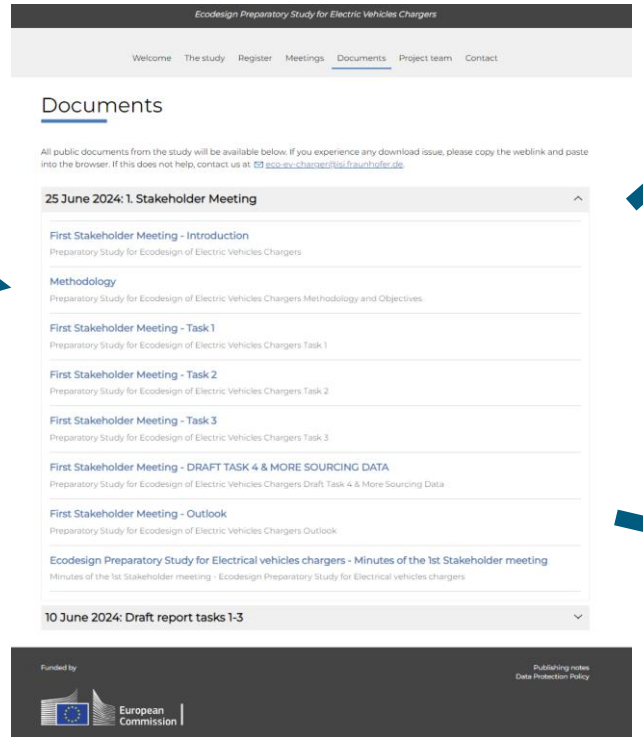
Ecodesign preparatory study on EV chargers 电动汽车充电桩生态设计预备研究

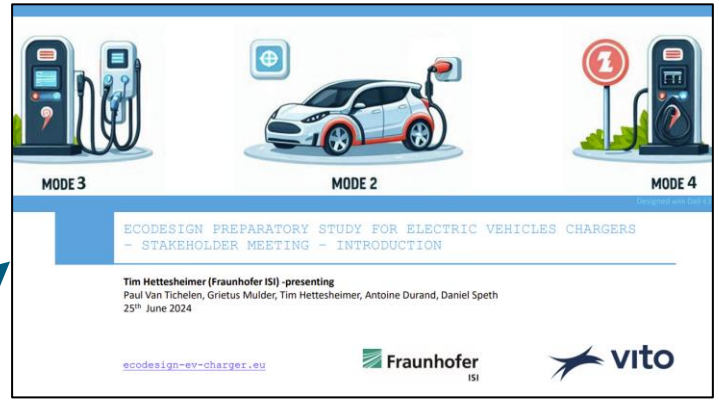
Sources, transparency and stakeholder engagement 来源、透明度和利益相关方的参与

As for any Ecodesign Preparatory Study: 与其他生态设计预备研究相似：

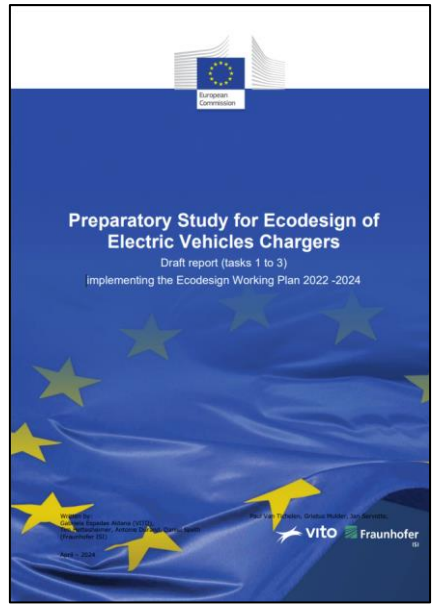


https://ecodesign-ev-charger.eu/





Documents | Ecodesign Preparatory Study 文件 | 生态设计预备研究



2024_06_10_Ecodesign_EV_chargers-1-3_Scope_Market_Users.pdf

Most of the contents of this presentation are based on the info made public on the project website (status: 23.10.2024)
本介绍的大部分内容基于项目网站上公开的信息（23.10.2024）

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Task 1 – Scope　任务 1 - 范围

- Wide variety in infrastructure properties
- Different naming and approaches for same object
- Systemic character of the project: part of the energy infrastructure

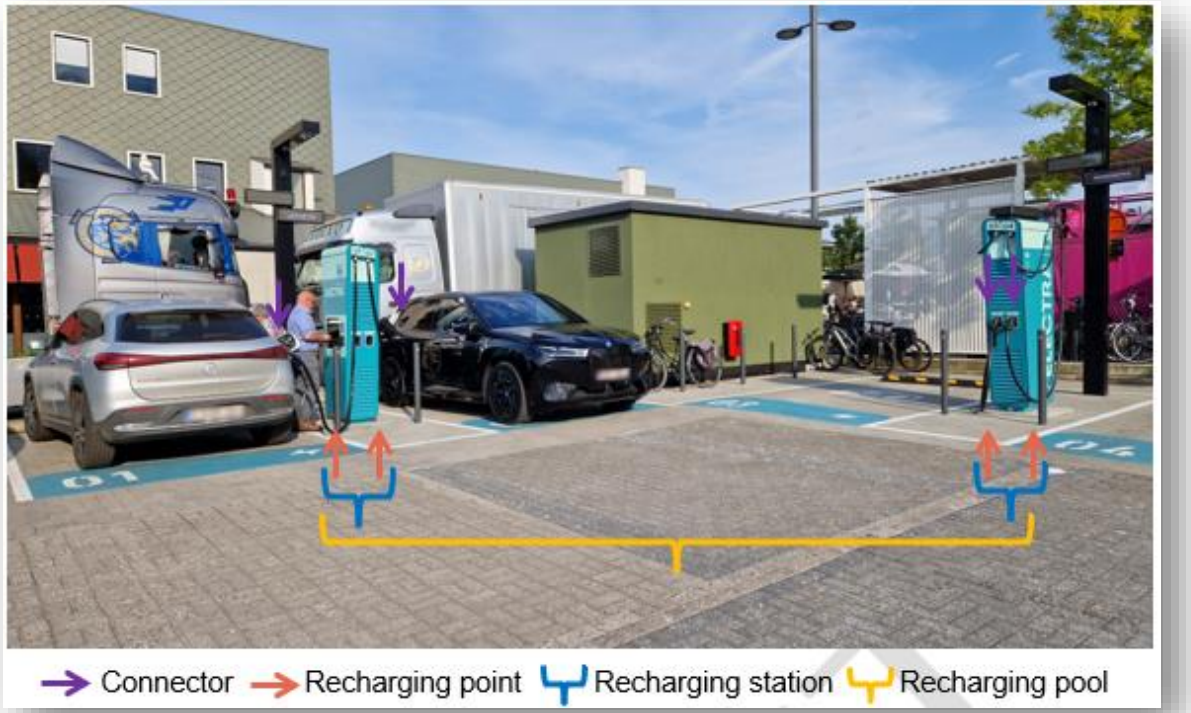
- 基础设施性能种类繁多
- 针对同一对象有不同的命名和方法
- 项目的系统特征：能属于源基础设施的一部分

Place 地点	Private place	Public place	Non-publicly accessible	Publicly accessible	Home charger	Workplace charging station
Infrastructure 基础设施	Connector	Recharg-ing point	Recharging station	Recharging pool	Wall-mounted	Free standing
Accessibility 可及性	Private use (e.g. home)	Selected users (e.g. work)		Time-restricted (e.g. shops)	Fully accessible (e.g. at roads)	
Current 电流	Alternating Current (AC) 1 phase	Alternating Current (AC) 3 phase		Direct Current (DC)		
Connector 连接器	Domestic / IEC 60083	Industrial/ IEC 60309	Type 2	CCS2 / FF	CHAdeMO / AA	NACS/ Tesla
Charging power 充电功率	Low power ≤ 3.7 kW	Normal power 3.7 < P ≤ 22 kW	High power 22 < P ≤ 50 kW	High power 50 < P ≤ 150 kW	High power 150 < P ≤ 350 kW	High power > 350 kW
Energy transmission 能源输送	Cable	Wireless	Catenary / pantograph	Shore connection	Modular recharging station	Electric road system
Applications 应用	E-Bikes (L)	Light-duty (M1, N1)	Heavy-duty (M2, M3, N2, N3)	Trains	Vessels	Aircrafts
Interoperability with grid 与电网的互通	Smart charging	Bi-directional charging		Battery buffered	Photovol-taic	Other local generator
Features 特点	Display	RFID reader	Digitally connected (WiFi, LTE)	Payment card reader	QR-Code	MID meter	...

Task 1 – Scope
Definition product scope

任务 1 - 范围
定义产品范围

Relevant product definitions in the Alternative Fuel Infrastructure Regulation ((EU) 2023/1804) ('AFIR')
《替代燃料基础设施法规》（(EU) 2023/1804）（"AFIR"）中的相关产品定义



Category 类别	Sub-category 子类别	Maximum power output 最大输出功率	Definition pursuant to Article 2 of this Regulation
Category 1 (AC) 类别 1(交流)	Slow AC recharging point, single-phase 慢速交流充电点，单相	P < 7,4 kW	Normal-power recharging point 正常功率充电点
	Medium-speed AC recharging point, triple-phase 中速交流充电点，三相	7,4 kW ≤ P ≤ 22 kW	
	Fast AC recharging point, triple-phase 快速交流充电点，三相	P > 22 kW	High-power recharging point 高功率充电点
Category 2 (DC) 类别 2(直流)	Slow DC recharging point 慢速直流充电点	P < 50 kW	
	Fast DC recharging point 快速直流充电点	50 kW ≤ P < 150 kW	
	Level 1 - Ultra-fast DC recharging point 1级-超快速直流充电点	150 kW ≤ P < 350 kW	
	Level 2 - Ultra-fast DC recharging point 2级-超快速直流充电点	P ≥ 350 kW	

Components of a recharging pool with its components (own photo) *充电站及其组件*
An EVSE can have 1 or 2 charging points (i.e. sockets or cables). The energy is attributed to a charging point.
电动汽车充电桩可以配置 1 或 2 个充电点（即插座或电缆）。每个充电点的能耗都是独立分配、计量和统计的 。

Task 1 – Scope

任务 1 – 研究范围

Proposal of primary performance parameter (functional unit)

- **to supply 1 kWh to an EV according to the reference case including the reference lifetime at a charging point**

IEC 61851-1:2017 'Electric vehicle conductive charging system (Part 1: General requirements)

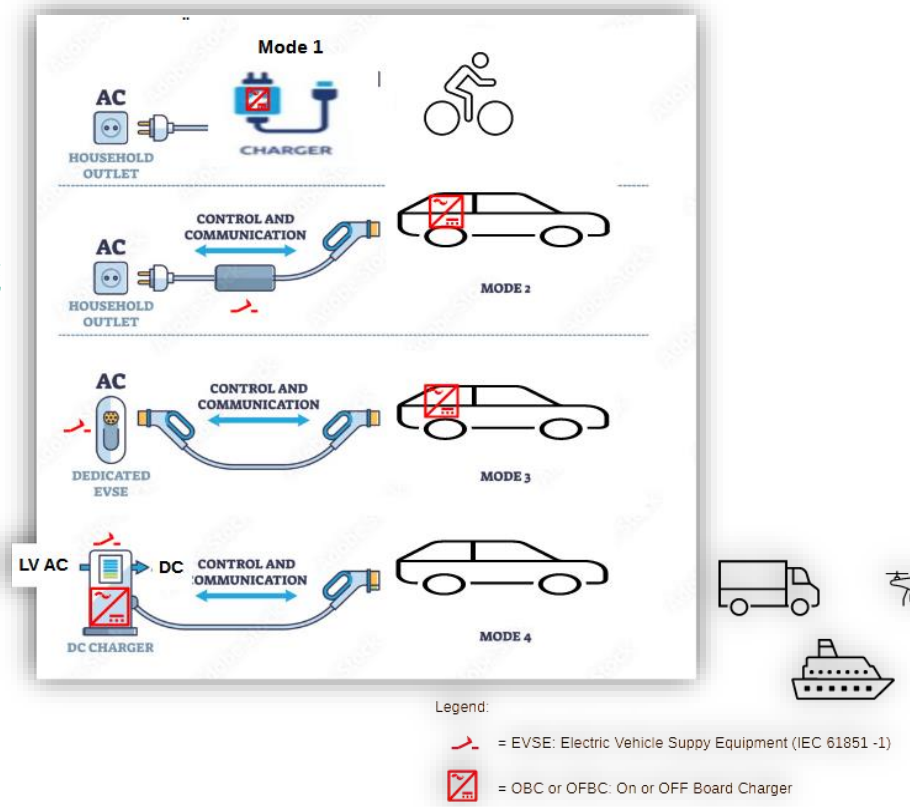
- **Mode 1 - Standard socket outlet - domestic installation**
- **Mode 2 - Standard socket outlet with an AC EV supply equipment– domestic**
- **Mode 3 - AC EV equipment permanently connected to an AC supply network**
- **Mode 4 - DC EV Supply equipment**

主要性能参数的提议（功能单元）

- 依据参考案例（包括充电点的参考寿命）为电动汽车提供 1 度的电量

IEC 61851-1:2017《电动汽车传导充电系统第1 部分：通用要求》

- 模式 1 - 标准插座 - 家用安装
- 模式 2 - 配有交流电动汽车供电设备的标准插座 - 家用
- 模式 3 - 永久连接到交流供电网的交流电动汽车设备
- 模式 4 - 直流电动汽车供电设备



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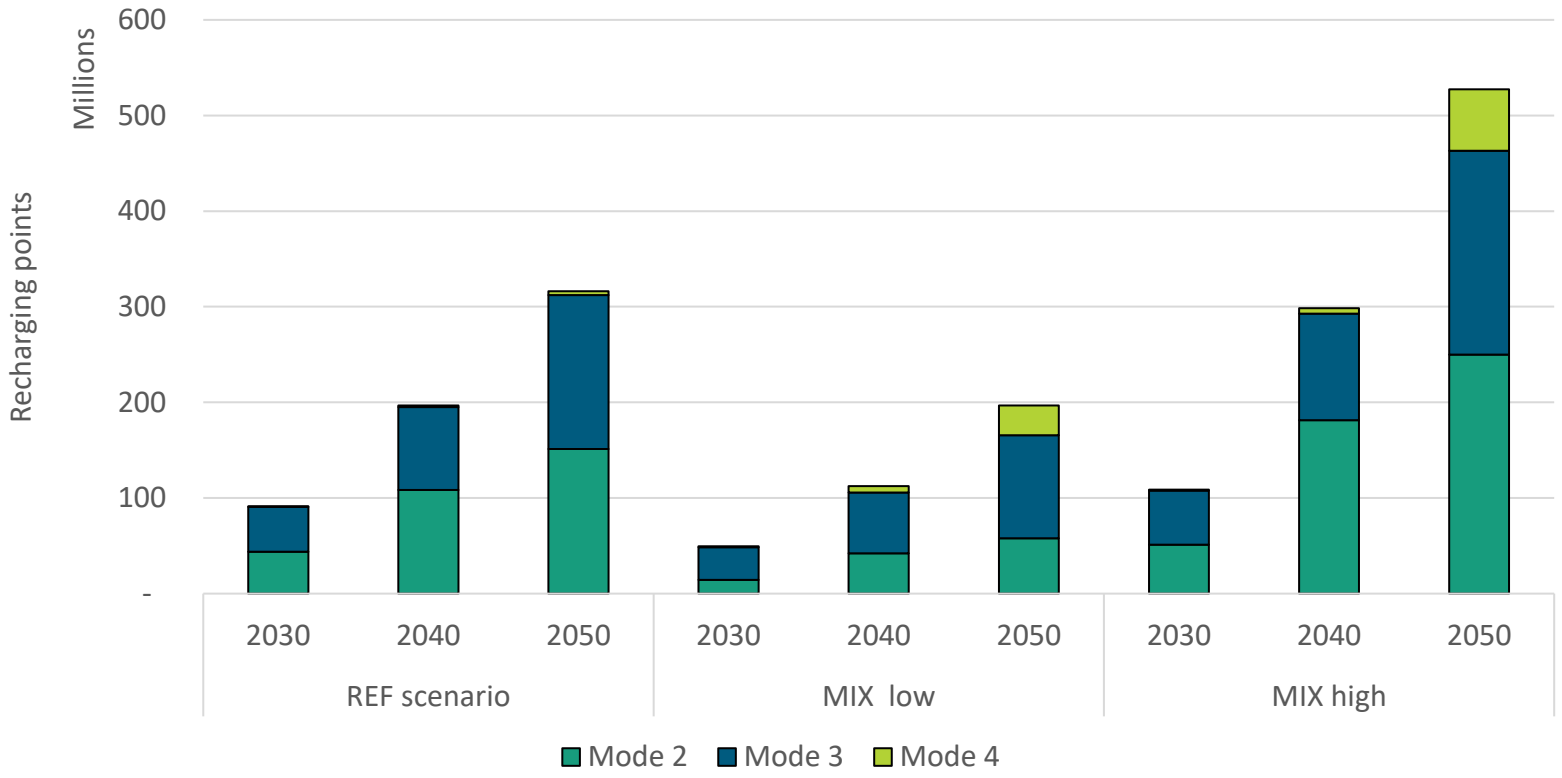
Task 2 – Market　　任务 2 - 市场

Market and stock data – Total stock 市场和保有量数据 - 总保有量



Depot charging not included in the EBPD.

- Assumption: 10% of trucks use public charging (covered by AFIR) and 90% use depot charging.
- Assumed: One 43 kW AC recharging points per trucks.

➢ 2.2 million AC recharging points in 2050

欧盟建筑能效指令EBPD中不包括（自有）场库充电设施

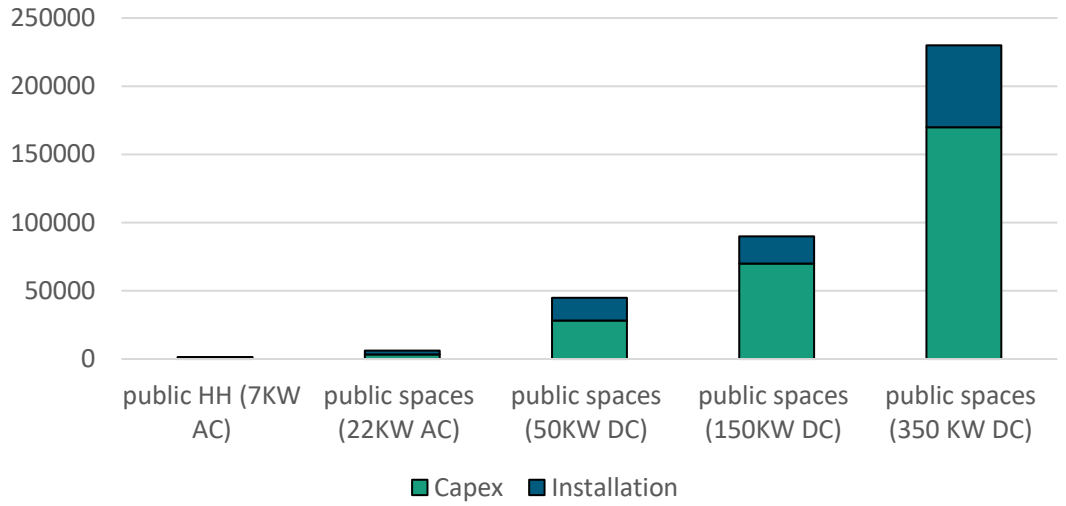
- 假设：10% 的卡车使用公共充电设施（AFIR 覆盖范围），90% 使用自有场库设施。
- 假定：每辆卡车一个 43 千瓦交流充电点。

➢ 2050 年达到 220 万个交流充电点

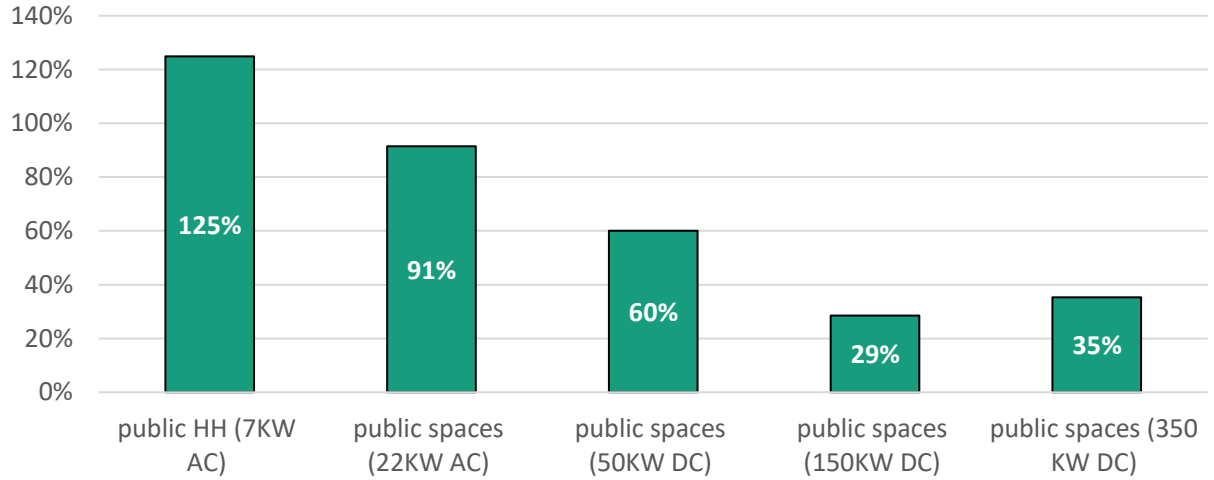
Task 2 – Market 任务 2 - 市场

Consumer expenditure - CAPEX and installation costs in 2020
消费者支出 - 2020 年的资本支出和安装费用

CAPEX in (€/rp) 资本支出（欧元/单位产品）



Installation costs in % of CAPEX 安装费用占资本支出的百分比



Recharging point type 充电点类型	Capex 资本支出	Installation 安装费用	Total 总计
public HH (7kW AC)	667	833	1,500
public spaces (22 kW AC)	3,280	3,000	6,280
public spaces (50 kW DC)	28,125	16,875	45,000
public spaces (150 kW DC)	70,000	20,000	90,000
public spaces (350 kW DC)	170,000	60,000	230,000

Figures in € 单位：欧元

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Task 3 – Users 任务 3 - 用户

Direct energy consumption during use phase 使用阶段的直接能耗

Useful approaches (for AC and DC chargers): EnergyStar® Program (USA)
有用的方法（适用于交流和直流充电桩）：能源之星® 计划（美国）

Charging modes 充电模式

Mode	Related Interface State (SAE J1772)	Description
No Vehicle Mode	State A	No Vehicle Mode is associated with State A, or where the EVSE is **not connected to the EV**. The EVSE is connected to external power.
Partial On Mode	State B1 or State B2	Partial On Mode is associated with State B1 or State B2 where the **vehicle is connected but is not ready to accept energy**. Sub-state B1 is where the EVSE is not ready to supply energy and sub-state B2 is where the EVSE is ready to supply energy.
Idle Mode	State C	Idle Mode is associated with State C, where the **vehicle is connected** and ready to accept energy and the EVSE is capable of promptly providing **current to the EV but is not doing** so.
Operation Mode	State C	Operation Mode is associated with State C, where the **EVSE is providing the primary function**, or providing current to a connected load (i.e., the relay is closed and the vehicle is drawing current)

模式	相关接口状态（SAE J1772）	说明
无车辆模式	状态A	无车辆模式与状态 A 相关联，或供电设备**未连接至电动汽车**。供电设备已连接外部电源。
部分开启模式	状态B1 或 B2	部分开启模式与状态 B1 或状态 B2 有关，此时**车辆已连接，但尚未准备充电**。子状态 B1 是指供电设备尚未准备好为电动车充电，子状态 B2 是指供电设备已准备好为电动车充电。
空闲模式	状态C	空闲模式与状态C有关，此时**车辆已连接**并准备充电，供电设备在能够及时**为电动汽车**充电，**但并没有充电**。
运行模式	状态C	运行模式与状态 C相关，此供电设备**提供主要功能**，或为连接的负载提供电流（即继电器闭合，车辆正在受电）。

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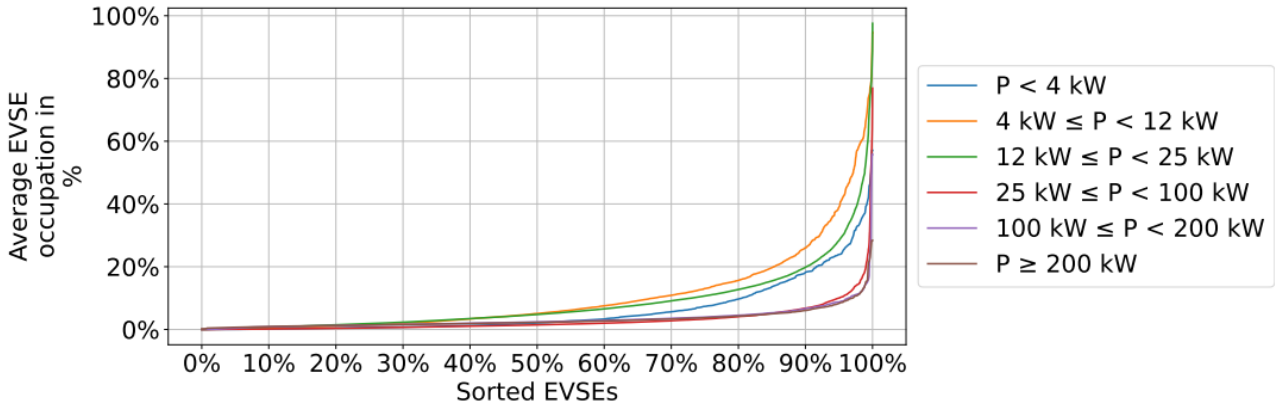
Task 3 – Users 任务 3 - 用户

Typical usage 典型用途

Temporal utilization of LDV charging infrastructure 轻型柴油车充电基础设施的时间利用率



Average occupation per public electric vehicle supply equipment unit (EVSE, single charging point) categorized by the power level (Hecht et al., 2022)按功率水平分类的每台公共电动汽车充电设备（EVSE，单充电点）的平均占用率（Hecht等人，2022）

	Energy demand [kWh/week] 能源需求[千瓦时/周]			Charging duration [h/week] 充电时间 [小时/周]		
	Med.	Low	High	Med.	Low	High
Domestic socket 家用插座	54.18	37.66	87.23	23.56	10.18	37.93
≤ 22 kW, private私人	54.18	37.66	87.23	4.93	1.71	7.93
≤ 22 kW, restricted受限	266	112	728	24.18	5.09	66.18
≤ 22 kW, fully accessible 完全可及	266	112	728	24.18	5.09	66.18
> 22 kW, restricted受限	820	607	2,678	14	7	28
> 22 kW, fully accessible 完全可及	820	607	2,678	14	7	28

Further aspects: 其他方面：

- Product use & stock life • 产品使用和库存周期
- Repair & Maintenance • 维修和保养
- Upgrade • 升级
- Collections rates • 回收率
- Second-hand use • 二次利用

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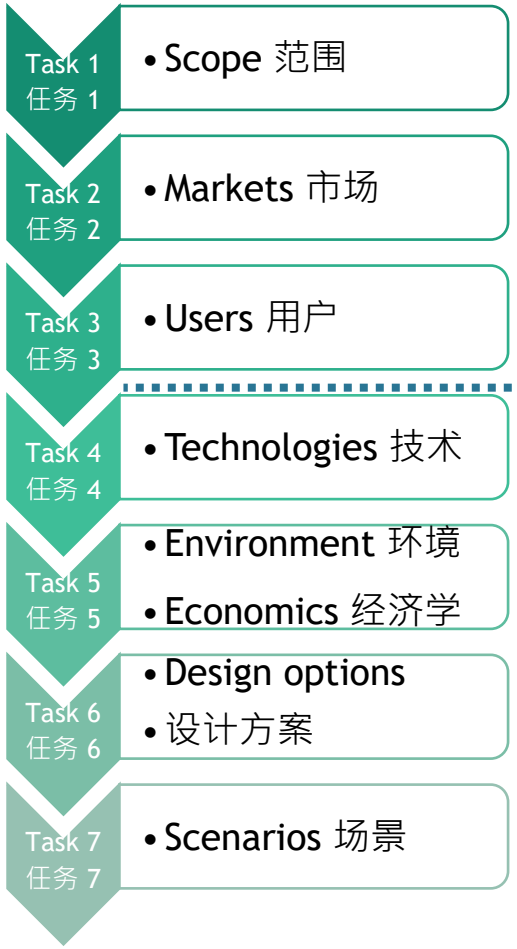
Next tasks 新任务

MEErP: Overview　MEErP: 概览



- Task 1 - Scope (definitions, standards and legislation, 1st screening)
- 任务 1 - 范围（定义、标准和立法、第一次筛选）
- Task 2 – Markets (volumes and prices)
- 任务 2 - 市场（数量和价格）
- Task 3 – User (product demand side)
- 任务 3 - 用户（产品需求方）

Already covered: draft reports presented at the 1st stakeholder meeting June 2024
已涉及：2024年6月第一次利益相关方会议上提出的报告草案

- Task 4 - Technologies (product supply side, includes both Best Available Technology (BAT) and Best Not Yet Available Technology (BNAT)
- 任务 4 - 技术（产品供应方，包括最佳可用技术 (BAT) 和尚不可用的最佳技术 (BNAT)
- Task 5 – Environment & Economics (Life Cycle Analysis (LCA) & Life Cycle Costing (LCC) of the Base Cases)
- 任务 5 - 环境与经济（基本案例的生命周期分析 (LCA) 和生命周期成本计算 (LCC)
- Task 6 – Design options to improve LCA + LCC;
- 任务 6 - 改进 LCA + LCC 的设计方案；
- Task 7 – Scenarios (Policy, scenario, impact and sensitivity analysis)
- 任务 7--场景（政策、场景、影响和敏感性分析）

Second part of the study (on-going work), incl. 2nd Stakeholder Meeting (beginning 2025)
研究第二部分（正在进行的工作），包括第二次利益相关者会议（2025年初）

MEErP: https://susproc.jrc.ec.europa.eu/product-bureau/product-groups/521/home

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Task 4 任务4

Definition of base Cases: Preliminary ideas (as from 25th June 2024)
基本案例的定义：初步想法（自2024年6月25日起）

	Base Case 1 基础案例 1	Base Case 2基础案例 2	Base Case 3 基础案例 3	*Base Case 4* 基础案例 4	*Base Case 5* 基础案例 5
	Residential Charging - owner's car park 住宅充电——车主停车场	**Residential Charging - shared or rented car park 住宅充电——共享或租赁停车场**	**Lantern Parker or Workplace Charging 路边充电车位 或工作场所充电**	***Fast Charging M 快速充电 M***	***Fast Charging N(>3,5T) N" 快速充电 N（>3.5T）N"***
Abbreviation 缩写	SFHC	MFHC	LPWP	*FCM*	*FCN*
Parking 停车场	SFH - own car parking 自有停车场	MFH or SFH rental property 出租物业	workplace car parking or street parking 工作场所停车场或路边停车位	*Public 公共*	*Public 公共*
Typ. IEC mode IEC 模式	3	2	3	*4*	*4*
Accessibility 可达性	Private 私人	Private 私人	Limited Public or Public 有限公共或公共	*Public 公共*	*Public 公共*
Location 地点	At home 家中	At a closed or semi-public car park close to home离家较近的封闭或半公共停车场	At workplace parking lot or on the street 工作场所停车场或街道上	*At highway parking lot 高速公路停车场*	*At highway parking lot 高速公路停车场*
Primary application 主要应用	M1 (Passenger Cars)	M1 (Passenger Cars)	M1 (Passenger Cars) or N1 (Truck or Van <3,5T)	*M1 (Passenger Cars) or N1 (Truck or Van <3,5T)*	*N3*
Secondary functions 辅助功能	No extra features 没有额外功能	No extra features? 没有额外功能？	WiFi, LTE, RFID, Display, MID Meter,...	*WiFi, LTE, RFID, Display, MID Meter,...*	*WiFi, LTE, RFID, Display, MID Meter,...*
Typ. Connection to EV 与电动汽车的连接	EVSE with cable & plug 带电缆和插头的充电基础设施	Socket 插座	Socket 插座	EVSE with cable & plug 带电缆和插头的充电基础设施	*EVSE with cable & plug* 带电缆和插头的充电基础设施
Typ. Charging Power 充电功率	*Normal power (7,4kW-1ph)? 普通功率（7.4千瓦-单相）？*	*Normal power (7,4kW-1ph)? 普通功率（7.4千瓦-单相）？*	*Medium power (22 kW - 3ph)? 中等功率（22千瓦-三相）？*	*High power (>50 kW) 高功率（>50千瓦）？*	*Ultra High power (>150 kW) 超高功率（>150千瓦）？*

Task 7 - Scenarios 任务7-场景研究

MEErP: Overview MEErP: 概览

Objectives 目标

- Support the understanding of the potential impacts of regulation

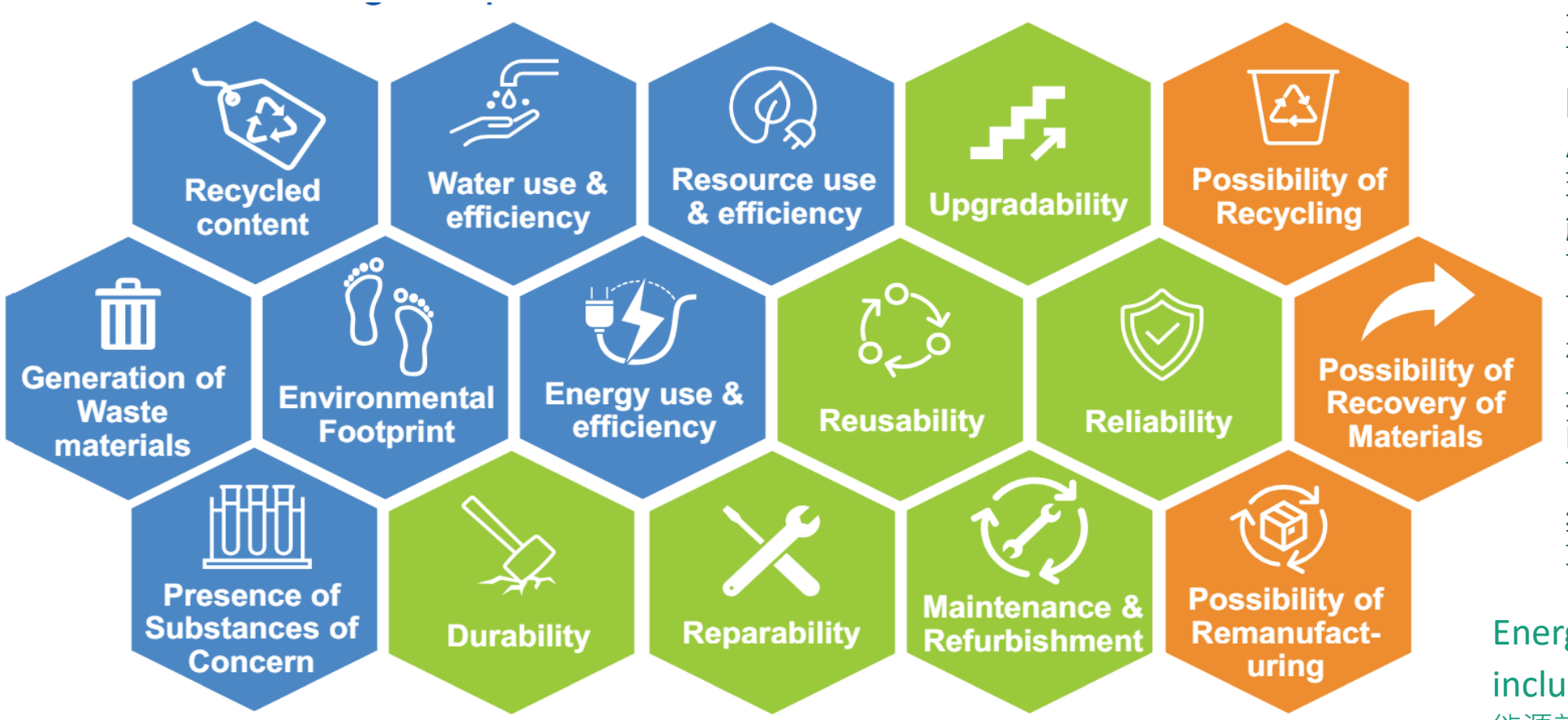
  支持对法规潜在影响的理解

Subtasks 子任务

- Subtask 7.1: Policy Analysis
- 子任务 7.1：政策分析
- Subtask 7.2: Scenario analysis (unit stock/sale & environmental)
- 子任务 7.2： 场景分析（单位库存/销售和环境）
- Subtask 7.3: Socio economic impact analysis
- 子任务 7.3：社会经济影响分析
- Subtask 7.4: Sensitivity analysis
- 子任务 7.4：敏感性分析
- Subtask 7.5: Summary
- 子任务 7.5：总结

ESPR 《可持续产品生态设计条例》

Ecodesign requirements (Art. 5) 生态设计要求（第 5 条）



图中内容：
回收料
水资源利用及效率
资源利用和效率
可升级性
回收可能性
废弃物的产生
环境足迹
能源使用和效率
可重复使用性
可靠性
材料回收的可能性
是否包含关注物质
耐久性
可维修性
维护和翻新
再加工的可能性

Energy efficiency may include different modes
能源效率可能包括不同的模式

Source: https://environment.ec.europa.eu/events/information-session-new-ecodesign-sustainable-products-regulation-espr-2024-05-22_en

ESPR

Possible Product specific requirements & CFP
可能的产品特定要求和碳足迹

Performance requirements
性能要求

Based on product parameters
基于产品参数

Qualitative 定性

Quantitative 定量

e.g. feature X* is mandatory 例如，功能 X* 是强制性的

Energy Efficiency Index: > x
能效指数：> x

- ***contributing to reduce the energy consumption***
- **** 有助于减少能源消耗***

Illustrative example where/if Energy Efficiency would be regulated
对能源效率进行监管的示例

Information requirements
信息要求

Digital Product Passport (DPP)
数字产品护照

Prod: 1.8 tCO2
Use phase: 2.2 tCO2
EoL: -0.2 tCO2
Total: 3.4 tCO2

Substances of Concern (SoC)
关注物质

Label 标签

Customers and other actors
客户和其他行动者

Performance (classes of performance)
性能（性能级别）

Treatment facilities
处理设施

Member State incentives (Art. 64): incentives only possible the **highest two classes** of performance that are populated at Union level
成员国的激励措施（第 64 条）：只能对联盟一级规定的**最高两级**绩效进行激励

Source: https://environment.ec.europa.eu/events/information-session-new-ecodesign-sustainable-products-regulation-espr-2024-05-22_en

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Conclusion 结论

- Study still ongoing: Scope, base cases, cost efficient design options will be further defined / anaysed
- First suggested requirements will be formulated in the Task 7 report (B 2025)
- If the relevance of a ESPR regulation is demonstrated: draft regulation will be elaborated and then discussed within a consultation forum. Relevant aspests to be regulated might be:
  - Energy efficiency
  - Circular Economy aspects: in particular for public EV chargers
  - Information
- Challenges: relative new product category
  - Need of test standards in the EU
  - Lack of data
  - Sector less used to the Ecodesign process than the appliance sector

- 研究仍在进行中：将进一步确定/评估范围、基本情况和具有成本效益的设计方案
- 任务 7 报告（B 2025）将提出第一批建议要求
- 如果能够证明《可持续产品生态设计条例》法规的相关性，将拟定法规草案，并在征求意见会上进行讨论。需要进行监管的方面可能是：
  - 能源效率
  - 循环经济方面：特别是公共电动汽车充电器
  - 信息
- 挑战：相对较新的产品类别
  - 需要欧盟测试标准
  - 缺乏数据
  - 与家电行业相比，该行业较少使用生态设计程序

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Thanks for your attention！

感谢观看！

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