240TWH储能，30TWH可再生电力！特斯拉发布“宏图计划3”完整文件

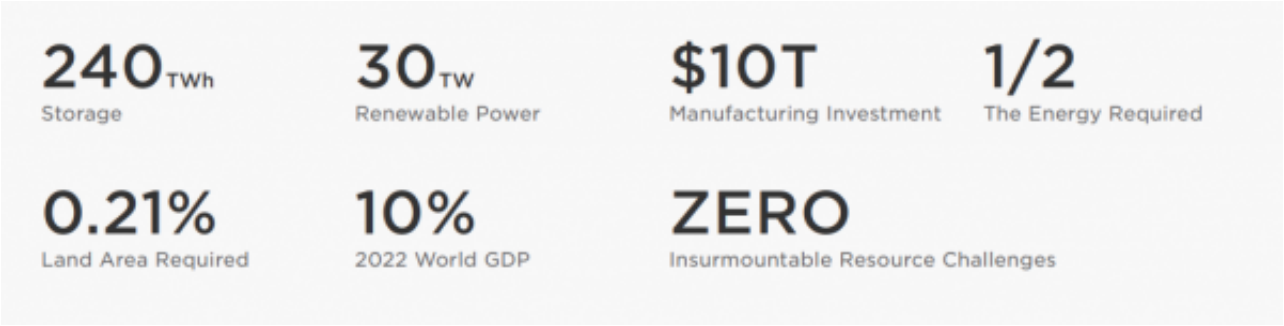
当地时间4月5日，特斯拉（Tesla）发布其可持续性能源发展“宏图计划”第三篇章（Master Plan Part 3）的完整文件。

其中概述了通过最终用途电气化和可持续发电和储能实现可持续全球能源经济的理想路径。概述了该提案背后的假设、来源和计算。

该报告宣称，可持续能源经济在技术上是可行的，需要更少的投资和更少的材料开采，而不是继续当今不可持续的能源经济。虽然之前的许多研究都得出了类似的结论，但这项研究寻求推动与材料强度、制造能力和所需制造投资相关的思考，以实现全球所有能源行业的转型。

这份完整文件重申，通过实现以下目标来达到可持续的能源经济：

240TWH储能、30TWH可再生电力，在制造业投资10万亿美元、能源要求不到燃料经济的一半、可再生能源生产设施占0.2%土地面积、储能资源达到2022年世界GDP的10%。



该计划条目摘要：

当前的能源经济是浪费的

淘汰化石燃料的计划：

1.用可再生能源为现有电网重新供电

2.改用电动汽车

3.在住宅、商业和工业中改用热泵

4.电力高温热输送和氢气

5.可持续燃料飞机、船只

6.制造可持续能源经济

完全可持续的能源经济建模：

• 评估储能技术

• 评估的发电技术

模型结果分析：

• 仅限美国车型的结果——满足新的电气化需求

• 世界模型结果——满足新的电气化需求

• 运输用电池

-车辆

-船舶和飞机

• 世界模型结果——电气化、运输用电池

Category	Unit	Annual Capacity (units)	Capital Intensity/Unit	Initial Investment	Total Investment (includes 20yrs. of 5% sustaining capex)	Notes/Source
Solar Panel Factories	GW/yr.	610	$347.3M	$212B	$424B	First Solar Alabama factory estimate, plus internal estimate for solar recycling
Wind Turbine Factories	GW/yr.	402	$26.5M	$11B	$21B	Internal estimate
Vehicle Factories	Car/yr.	89M	$10K	$890B	$1,780B	Internal estimate of industry average
E-chem Battery Factories	GWh/yr.	11,488	$95M	$1,091B	$2,183B	Internal estimate of industry avg, includes recycling
Stationary E-chem Factories (e.g. Megapack)	GWh/yr.	2,310	$10M	$23B	$46B	Internal estimate of industry average
Stationary Thermal Factories	GWh/yr.	2,070	$24M	$50B	$99B	Internal estimate
Transportation - Mining/Refining	GWh/yr.	9,178	$91.2M	$837B	$1,674B	Internal estimate of industry average based on public industry reports
Stationary - Mining/Refining	GWh/yr.	2,310	$81.9M	$189B	$378B	Internal estimate of industry average based on public industry reports
Generation - Mining/Refining	GW/yr.	1,013	$136.6M	$138B	$277B	Internal estimate of industry average based on public industry reports
Upstream E-chem for Vehicles	GWh/yr.	9,178	$24.1M	$221B	$443B	Internal estimate
Upstream E-chem for Stationary	GWh/yr.	2,070	$16.2M	$34B	$67B	Internal estimate
Heat Pumps	Total	Na	Na	$30B	$60B	Assume $3B mfg capex to replace home heat pumps; conservatively $30B for all heat pumps
Electrolyzers	kW/yr.	2.5B	$230	$577B	$1,155B	Assumes PEM Technology; cost will depend on learning curve achieved[51]
Carbon Capture (synthetic fuels)	Ton CO_2 /yr.	800M	$200	$160B	$320B	Yet to be demonstrated at large scale; cost will depend on learning curve achieved[54,55]
Fischer Tropsch (synthetic fuels)	Barrel per day	5.5M	$70K	$385B	$770B	Assumes efficiency curve as project scale increases[56]
Hydrogen Storage	kg	NA	$19	$362B	$725B	$19/kg[58]
Total	-	-	-	$5,211B	$10,421B	-

Table 12: Investment Summary

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（素材来自：Tesla 全球储能网、新能源网综合）

原文地址：http://www.china-nengyuan.com/news/193737.html