U.S.-China Electric Vehicles Initiative

Joint Action Plan

Battery Testing

美国-中国电动汽车草案

联合行动计划

电池测试

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Scope 范围

*Provide the scope of collaboration for your focus area (for example, cooperation or test protocols)

*请提供关于你的研究领域的合作范围（例如：协调草案或者测试协议）

General: Develop a glossary of terms and definitions. Develop a shareable data source for both topics.

Performance & Life:

- Direct, experimental comparison of battery testing protocols from China and the US on a given vehicle (vehicle TBD).
- Potential participants: Tsinghua U, ANL, U Hawaii, Ohio State?, CEPRI, Tianjin Institute of Power Sources, Tianjin U, USABC, Peking U, others?

Safety:

- Complete failure analysis of cells (fire, toxicity, etc); mapping of failure modes and causes; identification of gaps in testing.
- Collaborative development of hazard identification (human protection & environmental mitigation) for emergency response to handle battery leaks/breeches.
- Potential participants: UL, Tsinghua U, BIT, Institute of Chemical Defense (China), Pride/China?

Objectives 目标

*Outline in as much detail as possible the proposed goals of the collaboration (i.e., what specifically are the desired results?)

*请概述关于合作目标尽可能多的细节 (例如：具体需要实现哪些结果等)

Performance & Life:

- Identification of similarities and differences in test philosophy, requirements, methods, procedures, and approaches.
- Comparison of test results on same battery to determine relative stress levels and level of data quality (reproducibility, etc).
- Comparison and improvement of life models.

Safety:

- Better means of developing internal short circuits for safety standards.
- Identify the potential hazards of the products of battery failure under given conditions (e.g., SOC, temperature, humidity).
- Toxicity and flammability limit evaluation of the products.
- Extinguishing materials.
- Sensors for products

*Describe the mutual benefits if the results are achieved

*请描述在期望结果实现后双方可得到的共同利益

General: Glossary would establish common vocabulary, enhancing communication and understanding.

Performance & Life:

- Better understanding of what the assumptions were in a given test.
- Better understand of what the results imply regarding battery performance and life.
- Leveraging of resources by not having to repeat test.

Safety:

- Better understanding of the products from battery breech.

- Short circuit -- Failure analyses would provide a framework to guide future research by helping to identify gaps.
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*If possible, describe what the desired results will look like (e.g., joint publications; case studies; standardized procedures; etc)

*如果可能，请描述会有哪些期望成果（例如：联合发表文章，案例分析，标准化程序等）

General: Methods to understand and to compare the data.

Performance & Life:

- A joint publication is planned, showing tests and results.
- A shareable database of tests and relative stresses.
- Standardization of areas of mutual overlap, such as a common test or test condition.

Safety:

- A database holding the products produced during a battery failure/breech, showing identification, concentration, toxicity and flammability properties.
- Development of a testing standard for making/testing internal short circuits.
- Development of testing standard for other battery issues, such as over-temperature, over-charge, crush

Coordination 协调

*Agree on the lead person in the U.S. and China who will be responsible for coordinating the relevant research projects within the home country and communicating with the overseas counterpart.

*美国和中国各推举一个负责人来负责在本国的相关研究项目的协调，以及和对方相关人员的沟通。

General: As listed below.
Performance & Life: X. Qiu (Tsinghua U), I. Bloom (ANL)
Safety: J. Sun (ICD), M. Tabbador (UL)

Action Items 具体行动项目

*Outline the actions that need to be taken to achieve the above objectives

*请概述为完成合作目标需要采取的行动

General:
(1) Construct a glossary, defining terms.
(2) Share data.
Performance & Life:
(1) Meeting again to discuss joint experiment further
(2) Agree on a vehicle and cell
(3) Write test plan
(4) Conduct joint experiment/test
Safety:
(1) Meeting again to discuss joint experiment further
(2) Write test plan
(3) Conduct joint experiment/test

*Include which US and Chinese participants need to take the above actions and whether additional meetings, conference calls, or other activities need to occur

*请列出哪些与会者（中国和美国）需要负责这些行动，并且列出双方是否需要举行额外的会谈，电话会议，或其他形式的活动。

General: None
Performance & Life: Tsinghua U, Tiajin, and ANL agree on a meeting date and experimental details.
Safety: ICD and UL discuss meeting again to discuss joint experiment.

*Summarize actions already taken to date that will help achieve objectives

*请概括到目前为止已经采取的行动（为实现合作目标）

General: None
Performance & Life: Previous meetings have led to a better understanding of mutual approaches and philosophy behind tests.
Safety: None. This was the first meeting on this topic.

*If applicable, identify any barriers that need to be addressed to complete Action Items

*如果可能，请指出为完成具体行动项目而需要克服的困难和障碍

General: Funding. Each party is responsible for own funding.
Performance & Life: same as above
Safety: same as above

Timeline 时间表

*Provide a notional timeline for Action Items to be completed

请提供一个大概的完成行动项目的时间表

General: Glossary development is expected to start in August 2011. Development will continue during next meeting in Beijing in October(?).

Performance & Life: Experimental details will be determined next meeting. Experiment is expected to last approximately 10-12 months.

Safety: same as above.