

Selection Program of “Cutting-edge & Innovative Technologies” for Global New Energy Vehicles

The purpose of selecting the world’s “Cutting-edge and Innovative Technologies” is to accurately catch the latest NEV technology development. It will also promote NEV technology collaboration and exchanges between China and the world and guide the acceleration and breakthrough of core NEV technologies.

I. Definitions

“Cutting-edge Technology” refers to a forward-looking, pioneering, and exploratory technology that has a high potential to be an important fundamental technology in the future NEV product development and the industry’s transformation and upgrading. Cutting-edge technologies must be in the fundamental research stage and are expected to achieve industrial applications within 5-10 years.

“Innovative Technology” refers to a novel technology that has existing application(s) solving technical difficulties and bottlenecks in the key areas of NEVs. Innovative technologies must already have industrial application(s) with product(s) in volume production.

II. Annual Awards

The selection of the “Cutting-edge and Innovative Technologies for Global New Energy Vehicles” will be held annually, targeting global Cutting-edge and Innovative technologies of NEVs in the previous year. The first award selection will be held in 2019.

III. Selection Principles

1. Ensure that the selection is fair, open and impartial, based on objective facts and scientifically evaluated, without interference from any organization or individual.
2. Combine both public application and expert recommendation, and ensure its broad application and representation of the field.
3. Adhere to the principle of voluntary participation and ensure that the recommended materials are open and no intellectual property dispute.

IV. Award Areas

1. Vehicle integration and control systems
2. Power batteries
3. Hydrogen Fuel cells

4. Powertrain and drive systems
5. Intelligence
6. Lightweight and advanced materials
7. Energy infrastructure and supply
8. Other emerging NEV technologies

V. Selection Agency

1. The Science and Technology Committee

The WNEVC Science and Technology Committee (hereinafter referred to as the "Committee") will take the main responsibilities for the award selection. The Committee consists of renowned scientists and experts who have strong academic backgrounds and have made great contributions to NEV technological innovations, key components and materials.

2. Secretariat of the Conference's Science and Technology Commission

The Organizing Committee of the Congress has assembled the selection group as the Secretariat of the Science and Technology Commission. The secretary is responsible for the formulation, publicity and promotion of the selection, as well as the organization of recommended materials.

VI. Selection Criteria and Process

(1) Cutting-edge technologies for global NEVs

1. Selection criteria

- 1) Forward-looking feature, which refer to the prediction and judgment of the development of NEV technology to be successful in the field;
- 2) Leading feature, which refers to its ability to take a leading role in both basic and cutting-edge research in new energy vehicles;
- 3) Disruptive feature, which refers to its impact of revolutionary change in the development of new energy vehicles;
- 4) Development prospective, which refers to its industrial application, and potential economic and social benefits.

2. Selection process

- 1) Candidate technology collection: each Committee member can recommend two or three technologies in the same field;
- 2) Achievement search: based on the experts' recommendations, the Secretariat of

the Commission will retrieve all relevant papers for 2016-2018 from the SCI journal papers in the core collection of Web of Science, held by Clarivate Analytics. The recommended cutting-edge technologies will be quantified in terms of such aspects as number of papers, total citations, average publication years, and percentage of frequently cited papers.

- 3) Initial evaluation: the initial evaluation will be conducted by the experts of the Commission after formality examination through the online recommendation system, and each expert is required to select 30 short-listed items; the scientific and technological achievements will then be ranked by the Secretariat of the Commission according to the initial selection results of each expert; that is, the short-listed innovative technologies (within 30 items) in the first round will be selected according to the ranking of scientific and technological achievements.
- 4) Supplementary materials: the application materials of the short-listed cutting-edge technologies in the first round will be supplemented and improved, according to the selection criteria, by the recommenders (experts or research units) and then submitted to the Secretariat.
- 5) Final evaluation: a final evaluation will be conducted by the Commission through the online system, and the “Cutting-edge Technologies for 2018 Global New Energy Vehicles” will be selected according to the quantitative indicators and application materials of the short-listed technologies.

(2) Innovative Technologies for Global New Energy Vehicles

1. Selection criteria

- 1) Innovation, which means a new technology created by innovation or an important improvement made on the basis of existing technology, and which has achieved a major breakthrough.
- 2) Leading feature, which means that it is an obvious improvement and has unique creative features when compared to the level of the existing technology in the same field.
- 3) Importance, which means that it can break through the technical difficulties and bottlenecks in the core areas of new energy vehicles, and has an important promotional and driving effect on technological and industrial progress.
- 4) Potential, which means that it can be widely used in new energy vehicles, as well as parts and components, and that it is feasible to be further promoted and applied.

2. Selection process

- 1) Achievement collection: foreigners enjoy the same application right as their Chinese counterparts; the same unit (including research institutes, colleges or universities, and enterprises) can only apply one item; the Commission will cooperate media which can recommend relevant items according to the reliability and page views of articles on new energy vehicle science and

technology; experts of the Commission can recommend 2 or 3 items in the same field;

- 2) Formality examination: a conformity review of recommended materials will be conducted by the secretariat of the Commission;
- 3) Initial evaluation: the initial evaluation will be conducted by the experts of the Commission after formality examination through the online recommendation system, and each expert is required to select 30 short-listed items; the scientific and technological achievements will then be ranked by the Secretariat of the Commission according to the initial selection results of each expert; that is, the short-listed innovative technologies (within 30 items) in the first round will be selected according to the ranking of scientific and technological achievements.
- 4) On-site inspection or defense: according to the situation, on-site inspections of the short-listed technologies will be conducted or the application units will be invited to have an oral defense by the experts of the Commission.
- 5) Final evaluation: a final evaluation will be conducted by the Commission through the online system, and the “Innovative Technologies for Global New Energy Vehicles” will be selected according to the selection criteria.

VII. Application

All applications must be submitted online through “Technical Selection” section on WNEVC website (<http://enselection.wnevc.com>).

VIII. Results Release

1. The results will be released to the public by the Science and Technology Commission at the main venue of the World New Energy Vehicle Conference held on July 2, 2019.
2. The results will be compiled into a book and distributed during the Conference.
3. The results will be reported by major Chinese news media organized by the Conference.
4. The results will be recommended to the selection of scientific and technological achievements organized by the China Association for Science and Technology.
5. The results will be demonstrated during the annual meeting of the Society of Automotive Engineers of China.

IX. Time Schedule

1. All work related to the publicity, promotion and recommendation materials of this selection will be conducted from April 1st to April 30th.
2. Initial evaluation (including formality examination and quantitative selection of recommendation materials) will be conducted by the Commission from May 1st to May 15th.
3. The review of short-listed innovative technologies and supplementary application

materials for short-listed cutting-edge technologies will be completed from May 16th to May 30th.

4. The final evaluation will be conducted by the Commission from June 1st to June 15th.
5. News releases and printed copies of the selection results will be ready from June 16th to June 30th.
6. The official results will be released in July 2019.