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To: IEEE History Committee

Subject: Expert Review Report: IEEE Milestone Proposal "Development and Commercialization of the Lithium-Ion Battery, 1985-1991"

I have reviewed the proposal, including the plaque citation, historical significance, comparison with related achievements, name-inclusion justification, and supporting references. The following is a compressed hypothetical response from the perspective of a battery materials and electrochemical energy-storage researcher.

My assessment is as follows.

1. Is the suggested wording of the Plaque Citation accurate?

YES.

The plaque citation is accurate in substance. It appropriately links Whittingham, Goodenough, and Yoshino to the essential scientific and materials advances, while separately recognizing Sony's industrial-scale commercialization.

2. Is evidence presented in the proposal of sufficient substance and accuracy to support the Plaque Citation?

YES.

The proposal provides a coherent evidentiary chain from reversible intercalation chemistry to LiCoO₂ cathodes, carbonaceous anodes, and practical cell architecture. The cited scientific papers, patents, and historical accounts sufficiently support the plaque citation.

3. Does the proposed milestone represent a significant technical achievement?

YES.

The achievement is significant because it resolved key limitations of earlier rechargeable lithium systems and established a high-energy, rechargeable, manufacturable battery platform. The combination of electrode chemistry, electrolyte compatibility, safety, and manufacturing makes it a major technical milestone.

4. Were there similar or competing achievements? If so, have the proposers adequately described these and their relationship to the achievement being proposed?

NO.

The proposal adequately distinguishes lithium-ion batteries from lithium-metal, Ni-Cd, Ni-MH, polymer, and other earlier systems. It correctly explains that the lithium-ion architecture offered a superior balance of energy density, safety, cycle life, and manufacturability.

5. Have proposers shown a clear benefit to humanity?

YES.

The benefit is clear. Lithium-ion batteries enabled portable electronics, mobile communication, electric mobility, and renewable-energy storage, and they continue to drive research toward safer, lower-cost, and more sustainable storage systems.

6. Are the supporting reference texts credible? Are there reference texts which ought to have been included in support of the proposal, but which are missing?

YES.

The references are credible and include primary or near-primary sources such as contemporary papers, patents, and commercialization accounts. I do not find a critical missing category, although the final file should ensure that all essential sources and translations are available to reviewers.

7. If personal name(s) are in the plaque citation, has the proposer demonstrated unassailably that the criteria for name inclusion in the criteria have been met?

YES.

The inclusion of Whittingham, Goodenough, and Yoshino is well justified because the proposal clearly identifies their distinct and clearly defined technical contributions. Their roles form a sequential technical chain leading to the modern lithium-ion battery. In addition, SONY's important contribution to the commercialization of this technology is clearly

described.

Overall Recommendation

I strongly recommend approval. The proposal documents a credible progression from scientific principles to practical commercialization and identifies an achievement of clear technical, historical, and societal importance.

Minor point for further revision:

In the section “Completion of the Lithium-Ion Cell Architecture,” the terms “cathode,” “anode,” “positive electrode,” and “negative electrode” are used interchangeably, which may cause confusion. Since secondary batteries operate through both charging and discharging processes, the terms “positive electrode” and “negative electrode” are more appropriate than “cathode” and “anode.” The terminology should therefore be unified throughout the document.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'N. Yabuuchi'.

Naoaki Yabuuchi