

<For Immediate Release>

Establishment of a Research Association of Advanced Lithium Ion Capacitor (LIC) Technology

Tokyo – 7 September 2010 – JSR Corporation (Headquarters: Minato-ku, Tokyo, President: Mitsunobu Koshiba), Tokyo Electron Ltd. (Headquarters: Minato-ku, Tokyo; President: Hiroshi Takenaka) and Ibiden Co. Ltd (Headquarters: Ogaki-shi, Gifu; President: Hiroki Takenaka) have announced the establishment of a “Research Association of Advanced LIC Technology”. By combining the world-class technologies of JSR, Tokyo Electron and Ibiden, the three companies will work together in the development of advanced lithium ion capacitors. JSR will offer its materials technologies, while Tokyo Electron will supply its system development technologies and Ibiden will provide its package development and cell packaging technologies.

LICs are energy-storing devices, which hold the key to the effective utilization of regeneration and renewable energy.

Another prominent energy-storing device is the lithium ion battery (LIB). Compared to the LIB, LICs can rapidly charge and discharge, and is particularly suited for energy regeneration applications. By utilizing its feature of being able to instantaneously achieve a high amount of energy, LICs are currently being used in industrial instruments such as voltage dip compensators*1.

The technical research association will aim to run technical due diligence of the advanced LICs in several high growth areas including the environment and energy domains. During the next three years, the association will develop original assembly technologies by using innovative cell structures and new materials etc., as well as aim to deliver compact yet highly-productive products, with improved energy density (approximately five times) of existing LICs. The advanced LICs can also be used together with LIBs, and are expected to be developed in a broad range of areas such as in automobiles, photovoltaic and wind-powered electricity.

The activities of this association have been adopted under the New Energy and Industrial Technology Development Organization’s (NEDO) grant for the Application of Industrial Technology Innovation: the “Practical Application of Next-generation Strategic Technologies”*2, for the 2010 ~ 2011 year.

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*1) Voltage dip compensator: A device which completely supplies electric power without flickering, even in the case of a momentary power failure or voltage drop. The device prevents malfunctions and accidents etc. of plant facilities.

*2) Practical Application of Next-generation Strategic Technologies: In order to improve Japan's technology standard and promote innovation, NEDO supports private companies to carry out R&D for the practical application of outstanding technologies.

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Reference material:

An outline of the Research Association of Advanced LIC Technology

1. Name: Research Association of Advanced LIC Technology
2. Date of establishment: 5 April 2010
3. Period of activity: April 2010 ~ March 2013
4. Executive officers: Director – Hozumi Sato (JSR), Vice Director – Kenji Washino (Tokyo Electron)

Executive Director – Atsushi Kumano (JSR), Managing Director – Yoshiyuki Iwata (Ibiden)

Manager – Masami Akimoto (Tokyo Electron)

5. Locations: Minato-ku, Tokyo and Yokkaichi-shi, Mie
6. Project funds: Approximately ¥700 million (over three years)
7. Role of each member:

- ◆ JSR (Administration)

- Development of materials for high energy densification and development of technologies to evaluate materials
- Design development of cells/modules and development of evaluation technologies

- ◆ Tokyo Electron

- Development of production equipment in order to reduce production costs

- ◆ Ibiden

- Development of packaging and cell assembly technologies for high energy densification