



2, place Jean Millier  
La Défense 6  
92 400 Courbevoie France  
Tel. : 33 (1) 47 44 58 53  
Fax : 33 (1) 47 44 58 24

Bertrand DE LA NOUE  
Sandrine SABOUREAU  
Laurent KETTENMEYER  
Matthieu GOT

Robert HAMMOND (U.S.)  
Tel. : (1) 713-483-5070  
Fax : (1) 713-483-5629

TOTAL S.A.  
Capital 5.867.520.185 euros  
542 051 180 R.C.S. Nanterre

[www.total.com](http://www.total.com)

## Batteries for Solar Power Storage: Total Signs a Research Agreement with MIT

**Paris, 3 November, 2009** - Total announces the signing of a research agreement with the Massachusetts Institute of Technology (MIT) to develop new stationary batteries that are designed to enable the storage of solar power.

This agreement valued at \$4 million over five years is part of the MIT Energy Initiative, which Total joined as a member in November 2008.

The Total-MIT research project is primarily focused on development of a low-cost, long-life battery suited to store the power generated by solar panels. The ability to store power is a major challenge and an essential ingredient for the scale up and widespread deployment of affordable solar power.

This research agreement marks a significant step forward in Total's research and development of alternative energies, particularly in accelerating the development and deployment of solar power.

At the signing of this agreement, Philippe Boisseau, Total's President of Gas & Power, stated, *"This research partnership with MIT, one of the world's leading research and academic institutions, is a major step forward in Total's R&D commitment to developing alternative energy sources. Our partnership with MIT and its Energy Initiative will support groundbreaking research, designed to meet the needs of energy consumers."*

Ernest Moniz, Director of the MIT Energy Initiative program said: "Total's support for research in the storage of solar energy has the potential to be a game-changer. We applaud their commitment and look forward to working with them to develop low-cost storage options that could enable affordable, reliable energy from renewable sources."

### Total and solar energy

Total has been active in solar energy since 1983 through its interest in two companies, Tenesol and Photovoltech. Photovoltech produces photovoltaic cells based on a crystalline silicon technology. Tenesol specializes in designing, manufacturing, marketing and operating photovoltaic energy systems.

In December 2008, Total became a core industrial shareholder in U.S. startup Konarka, specialized in organic photovoltaic technology after Total Gas & Power USA (SAS) underwrote a share issue to acquire a stake slightly less than 20%.

## Total R&D

Total's R&D activities are designed to continuously improve energy-related processes. They focus on four main poles : knowledge of energy resources to optimize their development, operational reliability and energy efficiency, competitive products, and environmental issues. With an R&D budget of €770 million in 2009, Total has 22 R&D centers and more than 4,000 researchers worldwide. The Group also has more than 600 partnership agreements with dedicated research organizations, universities and leading manufacturers.

## About the MIT Energy Initiative (MITEI)

The MIT Energy Initiative is an MIT Institute-wide initiative designed to help transform the global energy system to meet the challenges of the future. The MIT Energy Initiative includes research, education, campus energy management and outreach activities, and an interdisciplinary approach that covers all areas of energy supply and demand, security, and environmental impact.

MITEI pairs MIT's world-class research teams with key players across the innovation spectrum to help improve today's energy systems and shape tomorrow's global energy marketplace. MITEI is also a resource for policy makers and the public, providing unbiased analysis and serving as an honest broker for industry and government. With unparalleled depth and breadth across all the relevant areas of science, technology, and policy, MITEI is also educating a new generation of energy innovators and transforming the MIT campus into an energy learning lab.

\*\*\*\*\*

Total is one of the world's major oil and gas groups, with activities in more than 130 countries. Its 97,000 employees put their expertise to work in every part of the industry – exploration and production of oil and natural gas, refining and marketing, gas & power and trading. Total is working to keep the world supplied with energy, both today and tomorrow. The Group is also a first rank player in chemicals. [www.total.com](http://www.total.com)

2, place Jean Millier  
La Défense 6  
92 400 Courbevoie France  
Tel. : 33 (1) 47 44 58 53  
Fax : 33 (1) 47 44 58 24

Bertrand DE LA NOUE  
Sandrine SABOUREAU  
Laurent KETTENMEYER  
Matthieu GOT

Robert HAMMOND (U.S.)  
Tel. : (1) 713-483-5070  
Fax : (1) 713-483-5629

TOTAL S.A.  
Capital 5.867.520.185 euros  
542 051 180 R.C.S. Nanterre

[www.total.com](http://www.total.com)