
FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of February 2010 No. 4

TOWER SEMICONDUCTOR LTD.

(Translation of registrant's name into English)

Ramat Gavriel Industrial Park
P.O. Box 619, Migdal Haemek, Israel 23105
(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F S

Form 40-F E

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes E

No S

On February 11, 2010, the registrant announces that TowerJazz Receives Outstanding Achievement in Energy Efficiency Award from Southern California Edison.

This Form 6-K is being incorporated by reference into all effective registration statements filed by us under the Securities Act of 1933.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

TOWER SEMICONDUCTOR LTD.

Date: February 11, 2010

By: /s/ Nati Somekh Gilboa

Name: Nati Somekh Gilboa

Title: Corporate Secretary

TowerJazz Receives Outstanding Achievement in Energy Efficiency Award from Southern California Edison

NEWPORT BEACH, Calif., February 11, 2010 – [TowerJazz](#), the global specialty foundry leader, today announced it has received an Outstanding Achievement in Energy Efficiency Award from [Southern California Edison](#) (SCE). The foundry reduced its annual energy usage in its Newport Beach facility by 9 million kilowatt-hours, which is the carbon-reduction equivalent of 12,982 barrels of oil or 1,071 cars on the road. To reduce its energy use and “green” operations, TowerJazz has been conducting an ongoing efficiency overhaul and has instituted new technology and practices throughout the company that have contributed to significant energy savings.

In 2009, TowerJazz announced it joined the [Cool Planet Project](#), an energy efficiency and climate change mitigation program, administered by The Climate Registry and SCE. The Cool Planet Project highlights the connection between energy usage and greenhouse gas (GHG) emissions, while providing assistance to measure, verify, and report their entity-wide GHG profile and emissions reductions.

In addition, TowerJazz has installed variable frequency drives (VFDs) on its plants’ air handlers. The original installation utilized fixed dampers for air flow control. The units were updated with VFD, an electronic controller that adjusts the speed of an electric motor by regulating the power being delivered. VFDs provide continuous control, matching motor speed to the specific demands of the work being performed. This allows operators to fine-tune processes while reducing costs for energy and equipment maintenance, resulting in substantial energy reduction.

“It is a pleasure to recognize TowerJazz for its ongoing efforts to increase energy efficiency and implement projects that improve the performance and effectiveness of its energy usage,” said Gene Rodrigues, Director of Energy Efficiency, SCE. “The company has one of the best records in energy efficiency – past wins include receiving the Flex Your Power award and other energy award plaques. We look forward to continuing our work with the TowerJazz team to keep finding ways to conserve energy.”

“We are committed to reducing our energy consumption and carbon footprint through optimizing efficiency throughout the Newport Beach site utilizing the latest in equipment technology and system design,” said Dale Bogan, Director of Facilities, TowerJazz Newport Beach fab. “This award and the projects we have identified are examples of our efforts to achieve best practices and maximize opportunities to collaborate with industry leaders on efficiency improvement projects.”

[Russell Ellwanger](#), TowerJazz CEO added, “While we maintain our focus on moving forward our top and bottom line growth, we have not and cannot lose sight of our responsibility as global citizens. This includes the energy conservation activities in Southern California as well as worldwide alternative energy programs, including our cooperation with [Better Place](#), the global provider of electric vehicle networks and services, on their first implementation of electric car leasing and infrastructure in Israel.”

About TowerJazz

Tower Semiconductor Ltd. (NASDAQ: [TSEM](#), TASE: TSEM), the global specialty foundry leader and its fully owned U.S. subsidiary Jazz Semiconductor, operate collectively under the brand name TowerJazz, manufacturing integrated circuits with geometries ranging from 1.0 to 0.13-micron. TowerJazz provides industry leading design enablement tools to allow complex designs to be achieved quickly and more accurately and offers a broad range of customizable process technologies including SiGe, BiCMOS, Mixed-Signal and RFCMOS, CMOS Image Sensor, Power Management (BCD), and Non-Volatile Memory (NVM) as well as MEMS capabilities. To provide world-class customer service, TowerJazz maintains two manufacturing facilities in Israel and one in the U.S. with additional capacity available in China through manufacturing partnerships. For more information, please visit www.towerjazz.com.

Safe Harbor Regarding Forward-Looking Statements

This press release includes forward-looking statements, which are subject to risks and uncertainties. Actual results may vary from those projected or implied by such forward-looking statements. A complete discussion of risks and uncertainties that may affect the accuracy of forward-looking statements included in this press release or which may otherwise affect Tower and/or Jazz's business is included under the heading "Risk Factors" in Tower's most recent filings on Forms 20-F, F-3, F-4 and 6-K, as were filed with the Securities and Exchange Commission (the "SEC") and the Israel Securities Authority and Jazz's most recent filings on Forms 10-K and 10-Q, as were filed with the SEC, respectively. Tower and Jazz do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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