UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of August 2012

Commission File Number: 001-33107

CANADIAN SOLAR INC.

No. 199 Lushan Road Suzhou New District Suzhou, Jiangsu 215129 People's Republic of China (Address of principal executive office)

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

Form 20-F 🗵 Form 40-F 🗖

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

CANADIAN SOLAR INC.

Form 6-K

TABLE OF CONTENTS

Signature

Exhibit Index

Exhibit 99.1 — Press Release

SIGNATURE

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.

CANADIAN SOLAR INC.

By: /s/ Shawn (Xiaohua) Qu

Name:Shawn (Xiaohua) QuTitle:Chairman, President and Chief Executive Officer

Date: August 1, 2012

EXHIBIT INDEX

Exhibit 99.1—Press Release



Canadian Solar Updates Second Quarter 2012 Guidance, Announces Conference Call to Discuss Second Quarter Results

ONTARIO, Canada, July 31, 2012 — Canadian Solar Inc. (the "Company" or "Canadian Solar") (NASDAQ: CSIQ), one of the world's largest solar companies, today updated its guidance for the second quarter ended June 30, 2012. The updated guidance is subject to adjustments based upon completion of the Company's internal review process, and final quarterly results could differ materially from the estimates provided below.

For the second quarter of 2012, Canadian Solar expects recognized solar module shipments to increase to approximately 410 MW to 420 MW. This compares to shipments of 343 MW in the first quarter of 2012 and 287 MW in the second quarter of 2011. The Company now expects gross margin for the second quarter of 2012 to range from 12.0% to 12.5% due to the positive impact of one-time items, which it estimates to total approximately 4%. Original second quarter 2012 guidance provided on May 10, 2012 was for shipments to be approximately 430 MW to 450 MW, with gross margin expected to be between 8% and 10%. In addition, the Company expects net foreign exchange loss to be approximately \$8 million for the second quarter of 2012, resulting mainly from the impact of the decrease in value of the Euro compared to the US dollar during the quarter.

Dr. Shawn Qu, Chairman and Chief Executive Officer of Canadian Solar, remarked: "Shipments remained strong in the second quarter of 2012, despite weaker than anticipated demand in the U.S. As a Tier 1 company, focused on non-commodity opportunities, including our rapidly expanding global project business, we are succeeding in an otherwise challenging market. We are driving sales growth in higher value segments, reducing our manufacturing costs, maintaining strict supply chain oversight, and working to further improve our operating cash flow."

August 15, 2012 Conference Call Details

The Company will hold a conference call on Wednesday, August 15, 2012 at 8:00 a.m. U.S. Eastern Time (8:00 p.m., August 15, 2012 in Hong Kong) to discuss the Company's financial results for the second quarter ended June 30, 2012 and provide an update to its business strategy and outlook.

The dial-in phone number for the live audio call is $\pm 1-617-614-3453$ or $\pm 1-800-510-9691$, with passcode ± 1262335 . A live webcast of the conference call will also be available on Canadian Solar's website at www.canadiansolar.com.

A replay of the call will be available approximately two hours after the conclusion of the live call through 10:00 a.m. on August 23, 2012, U.S. Eastern Time (10:00 p.m., August 23, 2012 in Hong Kong) by telephone at +1-617-801-6888, with passcode 65035712. A webcast replay will also be available at www.canadiansolar.com.

About Canadian Solar Inc. (NASDAQ: CSIQ)

Canadian Solar Inc. (NASDAQ: CSIQ) is one of the world's largest solar companies. As a leading vertically integrated provider of ingots, wafers, solar cells, solar modules and other solar applications, Canadian Solar designs, manufactures and delivers solar products and solar system solutions for on-grid and offgrid use to customers worldwide. With operations in North America, Europe, Australia and Asia, Canadian Solar provides premium quality, cost-effective and environmentally-friendly solar solutions to support global, sustainable development. For more information, please visit www.canadiansolar.com.

1

Safe Harbor/Forward-Looking Statements:

Certain statements in this press release including statements regarding our expected future shipment volumes, gross margins, supply cost, manufacturing capacities, business prospects, and future quarterly results, are forward-looking statements that involve a number of risks and uncertainties that could cause actual results to differ materially. These statements are made under the "Safe Harbor" provisions of the U.S. Private Securities Litigation Reform Act of 1995. In some cases, you can identify forward-looking statements by such terms as "believes," "expects," "anticipates," "intends," "estimates," the negative of these terms, or other comparable terminology. Factors that could cause actual results to differ include the risks regarding the previously disclosed SEC investigation as well as general business and economic conditions and the state of the solar industry; governmental support for the deployment of solar power; future available supplies of high-purity silicon; demand for end-use products by consumers and inventory levels of such products in the supply chain; changes in demand from major markets such as Germany; changes in customer order patterns; changes in product mix; capacity utilization; level of competition; pricing pressure and declines in average selling price; delays in new product introduction; delays in utility-scale project approval process; delays in utility-scale project construction; continued success in technological innovations and delivery of products with the features customers demand; shortage in supply of materials or capacity requirements; availability of financing; exchange rate fluctuations; litigation and other risks as described in the Company's SEC filings, including its annual report on Form 20-F filed on April 27, 2012. Although the Company believes that the expectations reflected in the forward looking statements are reasonable, it cannot guarantee future results, level of activity, performance, or achievements. You should not place undue reliance on these forward-lookin

2