

NXT ANNOUNCES US\$2.5 MILLION CONVERTIBLE DEBENTURE OFFERING OF WHICH US\$1.0 MILLION IS SUBSCRIBED BY AN INSIDER

CALGARY, AB, November 9, 2023 – NXT Energy Solutions Inc. ("NXT" or the "Company") (TSX: SFD; OTCQB: NSFDF) is pleased to announce it has received conditional approval from the Toronto Stock Exchange (the "TSX") to offer a multi-tranche convertible debenture (the "Debenture") under which the subscribers will be able to purchase a principal amount of up to US\$2,500,000 (approximately CAD\$3,447,500.) The Debentures bear interest at 10.0% per annum, paid quarterly, and are due and payable two years after issuance of the Debenture. The Debentures are convertible into common shares in the capital of NXT (the "Common Shares") at a conversion price of US\$0.1808 (CAD\$0.25) per Common Share which provides the subscribers with the right to obtain up to 13,827,433 common shares in the capital of NXT (the "Common Shares").

The proceeds from the Debenture will be used to support the working capital needs of the upcoming SFD® survey in Turkiye, and other general and administrative costs which include business development and marketing activities required to transform the existing pipeline of SFD® opportunities into firm contracts.

Closing of First Tranche of Private Placement

As of November 8, 2023 the Company has issued an aggregate principal amount of US\$1,000,000 (approximately CAD\$1,379,000) of the Debenture to MCAPM, LP and Michael P. Mork ("Mork Capital"). Mork Capital will now have the right to obtain an additional 5,530,973 Common Shares upon the conversion of the Debentures. However, due to the current shareholdings of Mork Capital in NXT, no conversion of the Debentures can occur until shareholder approval of NXT's shareholders is obtained. Mork Capital currently own an aggregate of 14,921,233 Common Shares, representing 19.13% of the currently issued and outstanding Common Shares of NXT. With the acquisition of the Debentures, Mork Capital will have the right to own, after conversion of the Debentures, 20,452,206 Common Shares, representing approximately 24.48% of the issued and outstanding Common Shares (after giving effect to the conversion of the full amount of Debentures). In addition, the Company has agreed to appoint a representative from Mork Capital to its board of directors in the near future.

The Company intends to complete the remaining US\$1,500,000 of the Debenture offering on or before December 15, 2023.

Commenting on the Debenture offering, Bruce G. Wilcox, Interim CEO of NXT said, "Proceeds from this financing are critical in providing NXT with the capital necessary to complete its SFD® contract in Turkiye and continue with other negotiations for the deployment of our SFD® technology in other regions. Mork Capital has been a significant shareholder of the Company for over 20 years and we appreciate their

confidence in the potential of NXT. We look forward to their active participation on the Board of Directors and continuing our partnership with them."

The securities described herein have not been, and will not be, registered under the United States Securities Act of 1933, as amended (the "1933 Act"), or any state securities laws, and accordingly, may not be offered or sold within the United States except in compliance with the registration requirements of the 1933 Act and applicable state securities requirements or pursuant to exemptions therefrom. This news release shall not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of the securities in the United States or in any other jurisdiction in which such offer, solicitation or sale would be unlawful.

About NXT Energy Solutions Inc.

NXT Energy Solutions Inc. is a Calgary-based technology company whose proprietary SFD® survey system utilizes quantum-scale sensors to detect gravity field perturbations in an airborne survey method which can be used both onshore and offshore to remotely identify traps and reservoirs with hydrocarbon and geothermal exploration potential. The SFD® survey system enables our clients to focus their exploration decisions concerning land commitments, data acquisition expenditures and prospect prioritization on areas with the greatest potential. SFD® is environmentally friendly and unaffected by ground security issues or difficult terrain and is the registered trademark of NXT Energy Solutions Inc. NXT Energy Solutions Inc. provides its clients with an effective and reliable method to reduce time, costs, and risks related to exploration.

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Forward-Looking Statements

Certain information provided in this press release may constitute forward-looking information within the meaning of applicable securities laws. Forward-looking information typically contains statements with words such as "anticipate", "believe", "estimate", "will", "expect", "plan", "schedule", "intend", "propose" or similar words suggesting future outcomes or an outlook. Forward-looking information in this press release includes, but is not limited to, information regarding: the details or and funds to be raised under the Debenture, additional sources of required funding for the Company, the use of the funds raised under the Debenture. Although the Company believes that the expectations and assumptions on which the forward-looking statements are based are reasonable, undue reliance should not be placed on the forward-looking statements because the Company can give no assurance that they will prove to be correct. Since forward-looking statements address future events and conditions, by their very nature they involve inherent risks and uncertainties. Actual results could differ materially from those currently anticipated due to a number of factors and risks. Risk factors facing the Company are described in its most recent Annual Information Form for the year ended December 31, 2022 and MD&A for the three and six month periods ended June 30, 2023, which have been filed electronically by means of the System for Electronic Document Analysis and Retrieval ("SEDAR") located at www.sedarplus.com. The forward-looking statements contained in this press

release are made as of the date hereof, and except as may be required by applicable securities laws, the Company assumes no obligation to update publicly or revise any forward-looking statements made herein or otherwise, whether as a result of new information, future events or otherwise.