



Increasing Exploration Success, While Lowering Finding Cost,
Time To Discovery & Environmental Impact



Disclaimer and Forward-looking Statements

General Advisory

This presentation has been prepared by management of NXT Energy Solutions Inc. (“NXT” or the “Company”) and is based on publicly available information, internally developed data and other sources. Where any opinion is expressed in this presentation, it is based on the assumptions and limitations mentioned herein and is an expression of present opinion only.

The information contained in this presentation does not purport to be all-inclusive or contain all information that readers may require before purchasing securities of the Company. Readers are encouraged to conduct their own analysis and review of NXT and of the information contained in this presentation. Without limitation, you should read the entire record of publicly filed documents relating to the Company, consider the advice of your financial, legal, accounting, tax and other professional advisors and such other factors considered appropriate in investigating and analysing the Company. Readers should rely only on the information provided by the Company and not rely on parts of that information to the exclusion of others. The Company has not authorized anyone to provide additional or different information, and any such information, including statements in media articles about NXT, should not be relied upon. An investment in the securities of NXT is speculative and involves a high degree of risk that should be considered by potential purchasers. NXT’s business is subject to the risks normally encountered in the hydrocarbon and geothermal industries and, more specifically, certain other risks that are associated with NXT’s operations and current stage of development. An investment in the Company’s securities is suitable only for those purchasers who are willing to risk a loss of some or all of their investment and who can afford to lose some or all of their investment. This presentation does not constitute or form part of any offer or invitation to sell, or any solicitation of any offer to purchase any shares in the Company, nor shall it or any part of it or the fact of its distribution form the basis of, or be relied on in connection with, any contract or commitment or investment decisions relating thereto, nor does it constitute a recommendation regarding the shares of the Company. Past performance cannot be relied upon as a guide to future performance.

Caution Regarding Forward-Looking Statements

This presentation contains certain “forward-looking statements” within the meaning of applicable Canadian securities legislation. The Company includes forward-looking statements to assist readers in understanding the Company’s future plans and expectations and the use of such information for other purposes may not be appropriate. All statements and disclosures, other than those of historical fact, which address activities, events, outcomes, results or developments that NXT anticipates or expects may or will occur in the future (in whole or in part) should be considered forward-looking statements. In some cases, forward-looking statements can be identified by terms including, but not limited to, “future”, “may”, “will”, “could”, “might”, “expect”, “anticipate”, “believe”, “potential”, “enable”, “plan”, “predict”, “continue”, “contemplate”, “intend” or other comparable terminology. In particular, this presentation contains, among other things, forward-looking statements pertaining to: the timing and extent of potential growth opportunities in new international and geothermal markets, the intentions and spending estimates of explorations companies, including the potential securing of SFD[®] contracts, new business ventures, and the satisfaction by third-parties of certain necessary conditions related thereto, including obtaining government and regulatory approvals; the ability to successfully complete the SFD[®] data acquisition in accordance with the terms of the contract; completion of SFD[®] recommendations within the contract parameters; ensuring payments of all contract revenue in accordance with the terms of the contract; estimates related to our future financial position and liquidity; general business strategies and objectives; the cost deficiencies associated with the deployment of NXT’s SFD[®] technology in identifying, evaluating and exploiting oil and gas reserves.

These forward-looking statements are based on a number of assumptions which may prove to be incorrect. Assumptions have been made with respect to the following matters, in addition to any other assumptions identified in this presentation: our ability to source personnel and equipment in a timely manner and at an acceptable cost; our ability to obtain all permits and approvals required; general business, economic and market conditions (including global commodity prices); the ability to obtain insurance to mitigate the risk of default on client billings; the success rate of SFD[®] recommendations continuing at 71% (on average); foreign currency exchange and interest rates; the Company’s ability to successfully execute its business plans and intentions; the products and technology offered by the Company’s competitors; and market competition.

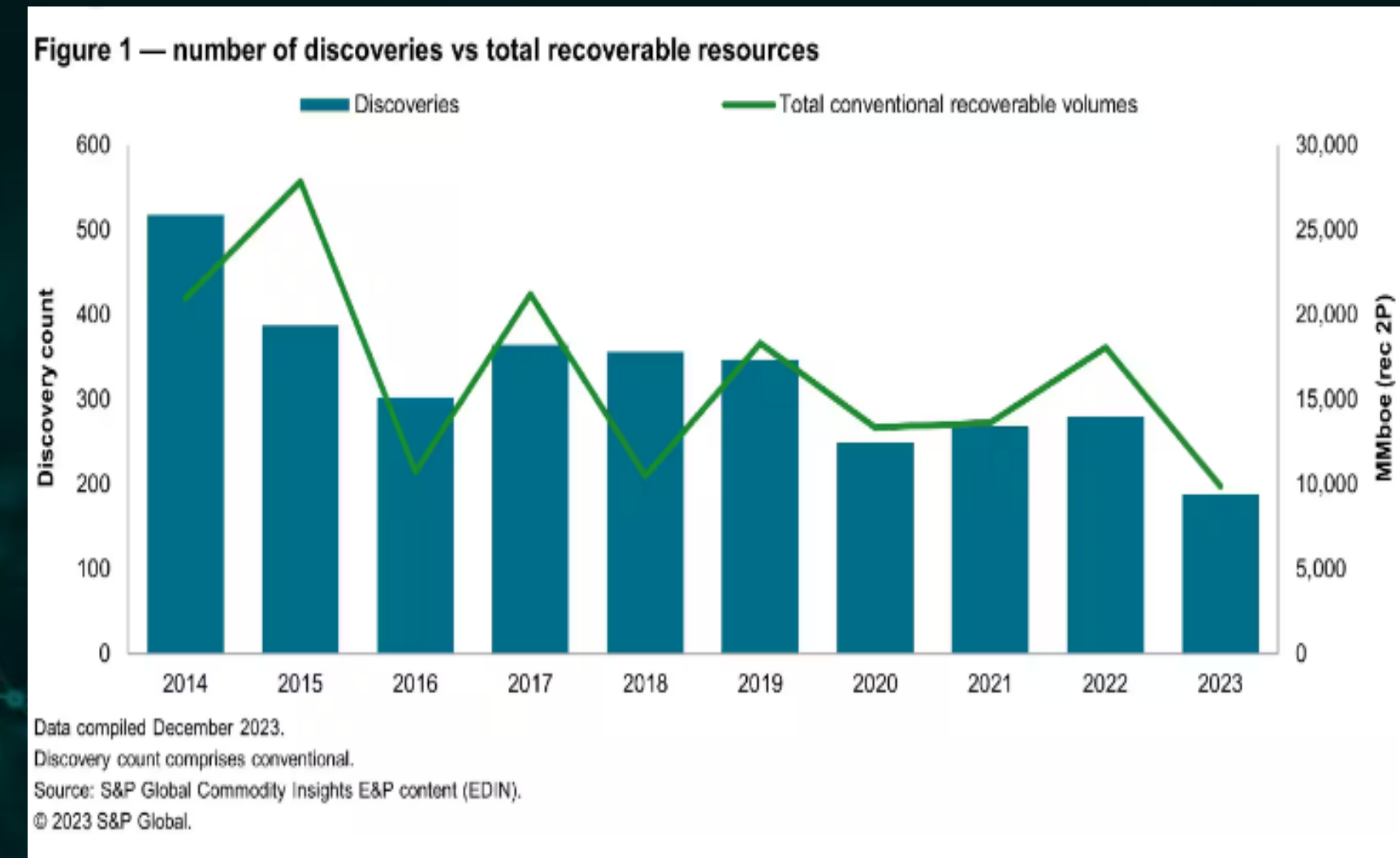
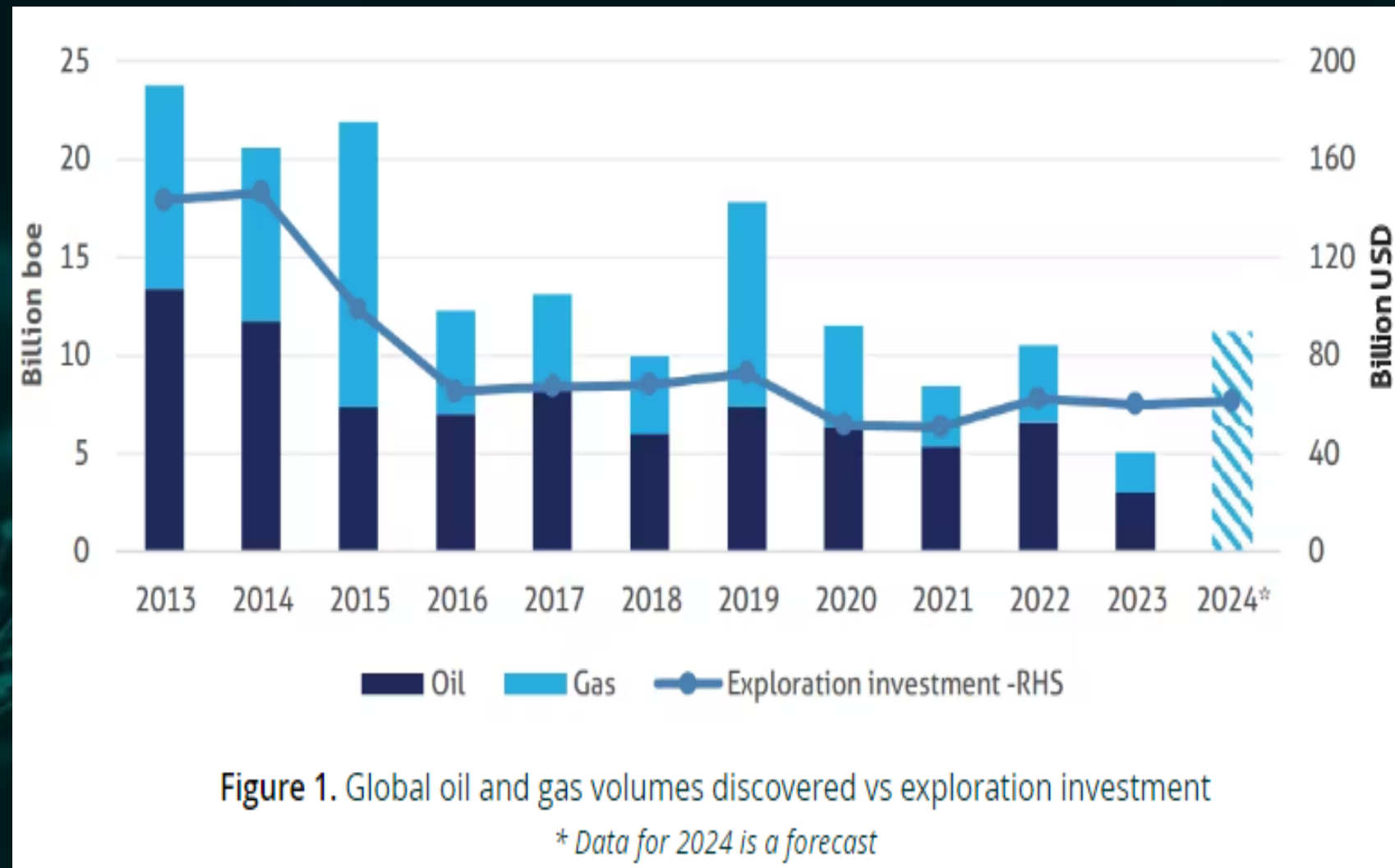
Although we believe that the assumptions underlying these forward-looking statements are reasonable, they may prove to be incorrect, and we cannot assure that actual results will be consistent with these forward-looking statements. These forward-looking statements are based on current expectations and are subject to a wide range of known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Known risks include, but are not limited to: our ability to generate sufficient ongoing cash flow from operations or to raise adequate capital to allow us to grow the business and continue operations; conducting operations in international markets; the emergence of alternative competitive technologies; protection of our intellectual property and rights to our SFD[®] technology; reliance on a limited number of aircraft; the loss of key personnel; our dependence on a limited number of clients; foreign currency and interest rate fluctuations may affect our financial position; changes in, or in the interpretation of, laws, regulations or policies; volatility in oil and natural gas commodity prices may reduce demand for our services; specialized equipment; geological conditions; flight operation; changes in market competition; general economic conditions; that the Company will be able to access capital, including debt, on acceptable terms; and applicable political and economic conditions.

Although the Company has attempted to identify important factors and risks that could cause actual actions, events or results to differ materially from those described in the forward-looking statements, there may be other factors that cause actions, events or results to differ from those anticipated, estimated or intended. For more information relating to risks, see the section titled “Risk Factors” in NXT’s current Annual Information Form for the year ended December 31, 2023 and Management and Discussion Analysis for the three and six months ended June 30, 2024.

These forward-looking statements are made as of the date of this presentation and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this presentation.

Critical Industry Challenge: Spending More, Finding Less

- Spending on conventional oil and gas exploration rebounded in 2023, yet discovered volumes fell to a record low of 5 billion barrels of oil equivalent while exploration costs rose twofold. Upstream companies are eager to capitalize on the increasing demand for fossil fuels and find additional resources but recent results have been lackluster.



- In the hunt for new resources, exploration companies are prioritizing the offshore sector, trying to capitalize on underexplored or frontier areas to unlock new volumes through high-risk, higher-cost offshore developments. The offshore industry accounted for about 95% of exploration spending in 2023 but only about two-thirds of discovered volumes.
- According to the GECF, exploration cost per barrel of oil equivalent rose last year to \$5.30 for natural gas, from \$2.60 for the previous year.
- For oil, exploration costs rose considerably, from \$3.50 per barrel of oil equivalent in 2022 to as much as \$8.80 per barrel - most likely due to most new discoveries taking place in more expensive deepwater offshore blocks.

Sources: GCEF, Rystad Energy, Oilprice.com

Critical Industry Challenge: Poor Exploration And Discovery Success Rates



(Source: Wood Mackenzie)

Exploration is high risk, time consuming and capital intensive. The cost of an unsuccessful exploration, such as one that consisted of seismic studies and drilling a dry well, can cost \$5 million to \$20 million per exploration site, and in some cases, much more. Identifying new well sites is a complex and time-consuming process even in developed and producing oil and gas reservoirs.

Critical Industry Challenge: Lowering Environmental Impact

Infrastructure built for oil and gas extraction can leave behind radical impacts on wildlands. The construction of roads, facilities and drilling sites requires the use of heavy equipment and can destroy big chunks of pristine wilderness.

Loud noises, human movement and vehicle traffic from seismic and drilling operations can disrupt animal communication, breeding and nesting. Powerlines, wellpads, fences, and roads can also fragment habitats for many species.

Lowering the environmental impact is one of the most important challenges the O&G industry faces today.

Value Proposition: Spend Less, Find More



Speed	500 km/h
Altitude	3,000 m
Sample Rate	2 kHz per sensor
Number of Sensors	22 independent sensors



Stress Field Detection (SFD[®]) is an airborne geophysical survey technology developed by NXT Energy Solutions Inc., headquartered in Calgary, Canada. SFD[®] is proprietary and patented in 47 countries including the USA, European Union, Canada, and Japan.

How SFD[®] Increases Exploration Success

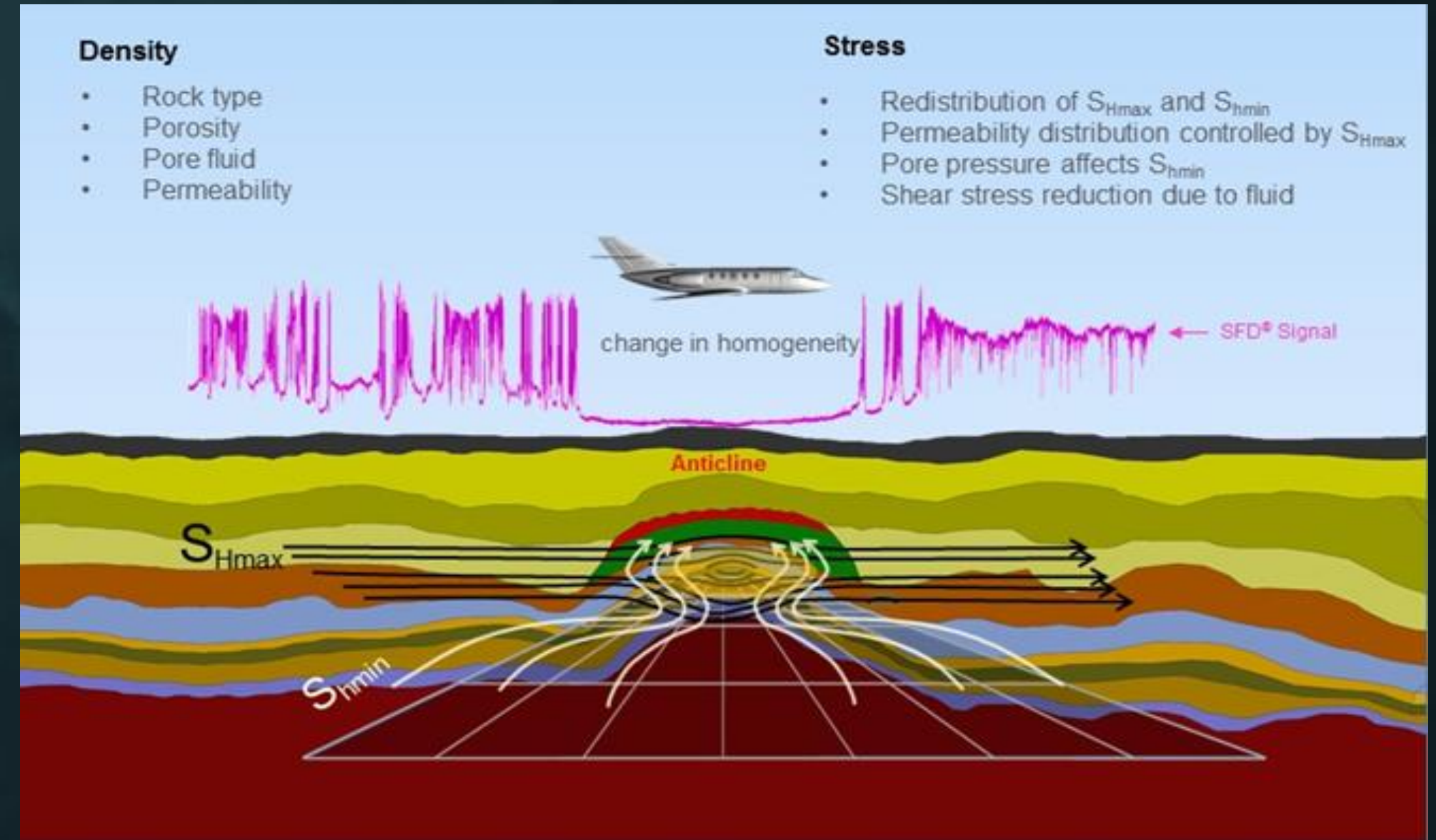
35 SFD[®] Recommendations (2009-2024)
Drilled Internationally (2010-2024)

25 Commercial Discoveries

3 Pre-Drill Confirm

7 Dry Holes

Prediction Strength ~ 71%

What Do We Detect?

SFD[®] sensor responds to subsurface discontinuities induced by density and stress variations in and around reservoirs. The sensor detects stress orientation changes along the horizontal plane over fine spatial scales using gravity as a proxy.

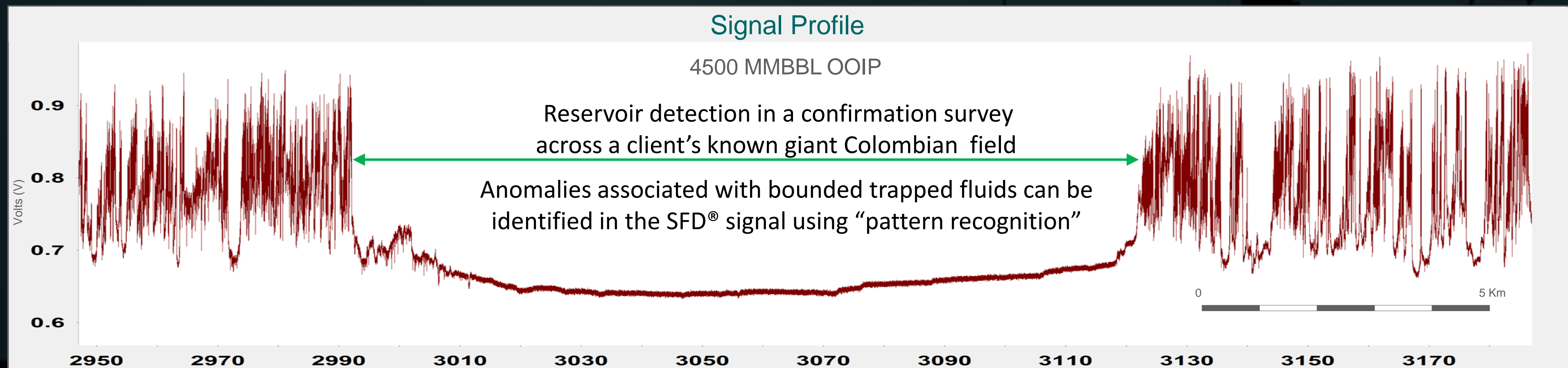
How Do We Detect?

Surveys are flown with 22 independent sensors. SFD[®] sensor elements oscillate at their natural frequencies driven by the sedimentary column. Perturbations are detected, amplified and converted into electrical signals via an Active Interface to produce a time-dependent waveform output.

Signal evolution and dynamics are interpreted to infer potential trapped fluid accumulations in sedimentary basins.

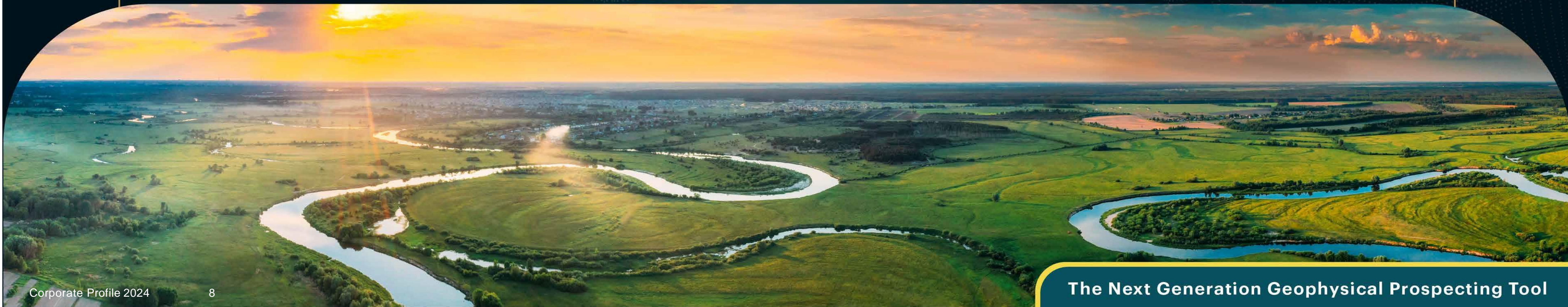
SFD[®] Value Proposition

- ✓ Provides prospect level investigation
- ✓ Onshore / offshore applications
- ✓ Effectively allows operators to optimize more expensive seismic and other G&G expenditures in underexplored frontier regions
- ✓ Prioritize “drill/no drill” decisions
- ✓ Minimize environmental / community impact and security concerns
- ✓ Significantly increases the chance of commercial discoveries



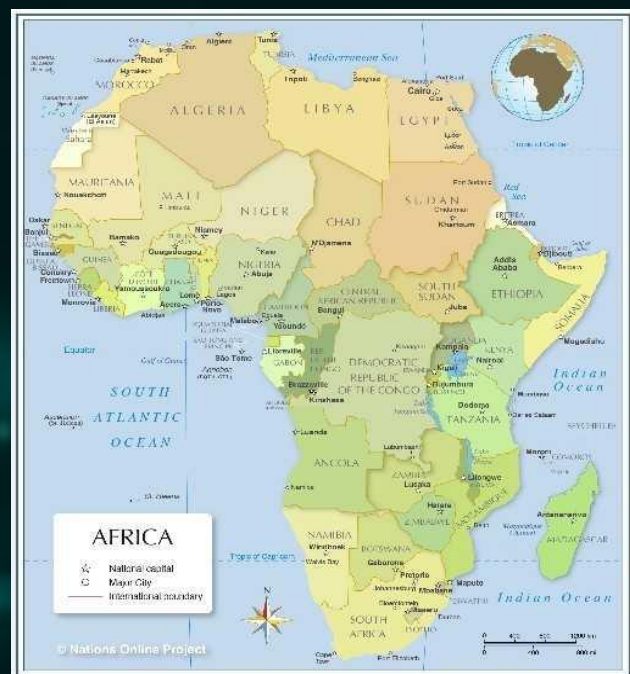
Environmental Benefits for E&P Companies Using NXT's Stress Field Detection (SFD®)

- ✓ The non-intrusive SFD® airborne survey drastically reduces the negative environmental impact of large-scale ground surveys by identifying and ranking highly prospective zones.
- ✓ E&P companies can confidently avoid and bypass non-prospective areas.
- ✓ Using SFD® as the lead technology will reduce the environmental impact for the E&P sector via focusing upstream activities on the highest value prospects.
- ✓ SFD® airborne surveys require no surface use, are non-intrusive to wildlife habitats or disruptive to community life.



Growth Strategy: Frequency, Adjacency & Repeatability

Increase the number of SFD® surveys contracted from four focus regions: Africa, Türkiye, South Asia / Southeast Asia, and Gulf of Mexico / South America. Focus on regional market penetration and utilization from multiple customers to increase revenue over both the short and long term.



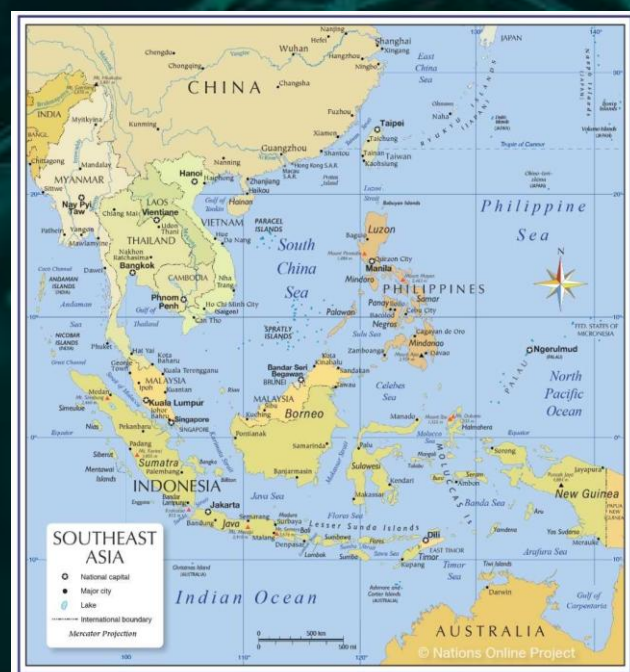
Africa

- ✓ Strategic alliance with Synergy E&P Technologies announced in May 2023: grants 10-year exclusive license to use, market and sell SFD® solutions
- ✓ US\$2.1 million SFD® data sale in 2021
- ✓ US\$8.9 million SFD® survey in 2019
- ✓ Discussions continue in pursuit of new SFD® survey opportunities within the region



Türkiye

- ✓ SFD® survey to an independent oil and gas exploration company completed in Q1-2024
- ✓ Discussions continue in pursuit of new SFD® survey opportunities within the region



South Asia/Southeast Asia

- ✓ SFD® survey announced in May 2024 to an independent oil and gas exploration company
- ✓ Data acquisition operations to commence in Q3, recommendations to be delivered in Q4-2024
- ✓ US\$2.66 million SFD® survey for National Oil Company of Pakistan (“OGDCL”) in 2013



Gulf of Mexico/South America

- ✓ US\$14.4 million SFD® survey for National Oil Company of Bolivia (“YPFB”) in 2015
- ✓ US\$3.68 million in combined SFD® surveys for Kerogen Exploration (USA) in 2013
- ✓ US\$5.8 million SFD® survey for National Oil Company of Mexico (“PEMEX”) in 2013
- ✓ Discussions continue in pursuit of new SFD® survey opportunities within the region



Increasing Exploration Success, While Lowering Finding Cost, Time To Discovery & Environmental Impact

Management

BRUCE G. WILCOX CEO
NXT Energy Solutions

EUGENE WOYCHYSHYN VP Finance and CFO
NXT Energy Solutions

XIANG GUI, Ph.D. Director of Research & Development

RASHID TIPPU, MSc Director of Geoscience, Asia, Africa, MEA

ENRIQUE HUNG, MSc
Director of Geoscience, Americas & Europe

Corporate Headquarters

NXT Energy Solutions Inc.

302, 3320 17th Avenue SW | Tel: 403-264-7020
Calgary Alberta, Canada T3E 0B4 | Email: nxt_info@nxtenergy.com

Website: www.nxtenergy.com

Board of Directors

CHARLES SELBY Chairman of the Board
NXT Energy Solutions,
President of Caledonian Midstream,
CEO of Wildcat Royalty Corp.

BRUCE G. WILCOX CEO
NXT Energy Solutions Inc.

EUGENE WOYCHYSHYN VP Finance and CFO
NXT Energy Solutions Inc.

TOM VALENTINE Senior Partner,
Norton Rose Fulbright LLP

PETER MORK, CFA Mork Capital Management, LLC

GERRY SHEEHAN Head of Exploration New
Horizon Oil & Gas Ltd., Former
Chief Geophysicist Tullow Oil

JOHN TILSON, CFA Business Advisor

THEODORE PATSELLIS Partner, PRP Law Office

Capital Structure

TSX:SFD **OTCQB: NSFDF**
C\$ 0.29 **US\$ 0.19**
as at June 30, 2024 as at June 30, 2024

Equity Market Cap: **Equity Market Cap:**
C\$ 22.6M **US\$ 14.6M**
as at June 30, 2024 as at June 30, 2024

Shares Outstanding **Fully Diluted**
(in Millions) (in Millions)
78.2 **110.2**
as at June 30, 2024 as at June 30, 2024

APPENDIX



SFD® Patents Granted in 47 Countries Worldwide



Public Company

- ✓ TSX: SFD
- ✓ OTC QB: NSFDF
- ✓ HDQTR: Calgary, Canada

NXT Clients



Key Business Points

- ✓ Patented Technology
- ✓ Proven Success
- ✓ Repeat Clientele
- ✓ 10+ Years R&D
- ✓ Commercialized 2007

SFD® Projects Completed

- ✓ USA
- ✓ Colombia
- ✓ Bolivia
- ✓ Belize
- ✓ Nigeria
- ✓ Türkiye
- ✓ Canada
- ✓ Mexico
- ✓ Argentina
- ✓ Guatemala
- ✓ Pakistan

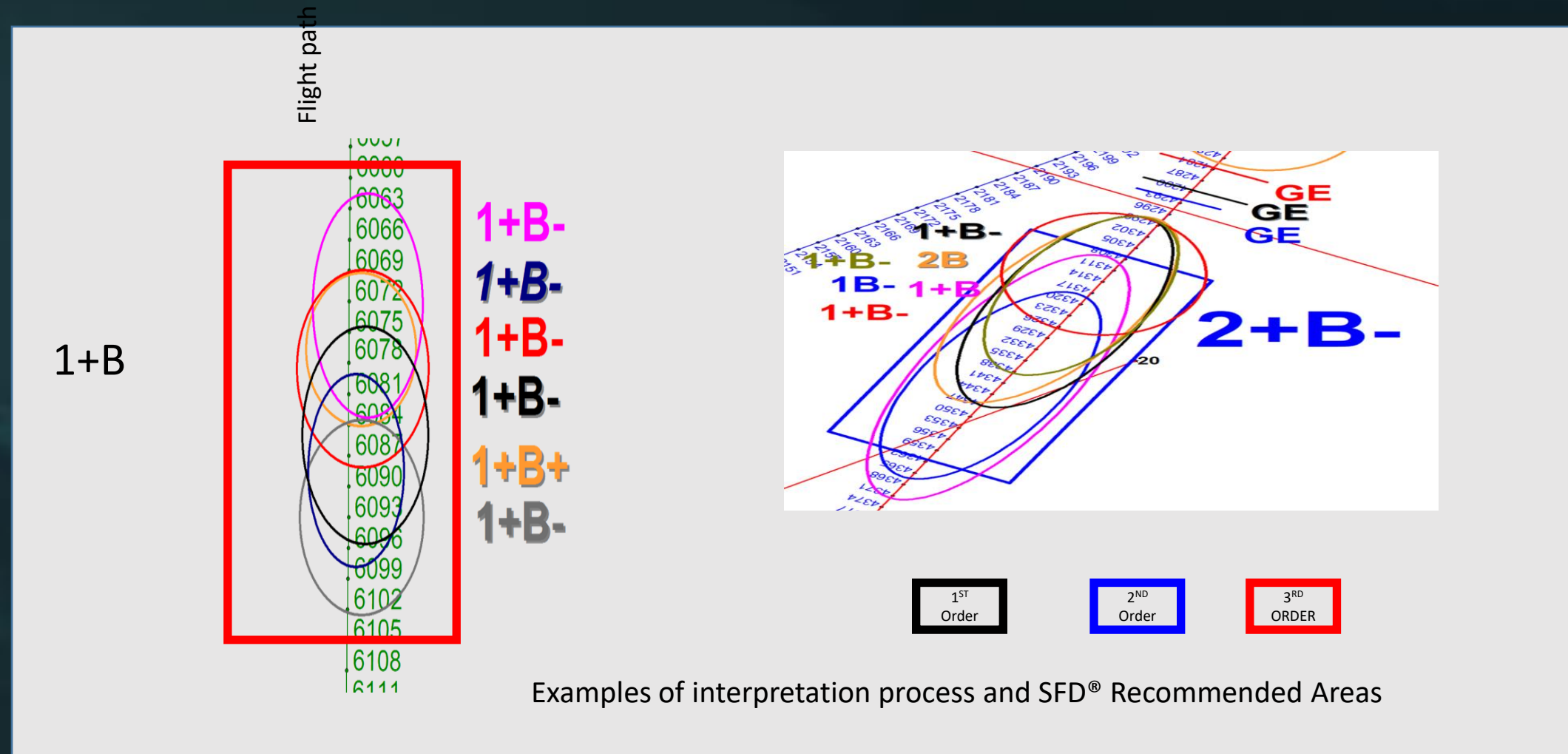
NXT Energy Solutions Inc.

Interpretation Process

Non-Grid Survey
Widely Spaced
Transects

SFD Interpretation
Process

- 1) Spatial Identification of anomalous areas.
- 2) Assignment of SFD Rankings.
- 3) Assignment of identified areas into prospectivity groups – primary, secondary and tertiary.
- 4) Prospect Maps with applicable basemap data.
- 5) Prospect Outlines and SFD Metadata in ESRI shapefile format.



Examples of interpretation process and SFD® Recommended Areas

SFD® Ranking Scheme

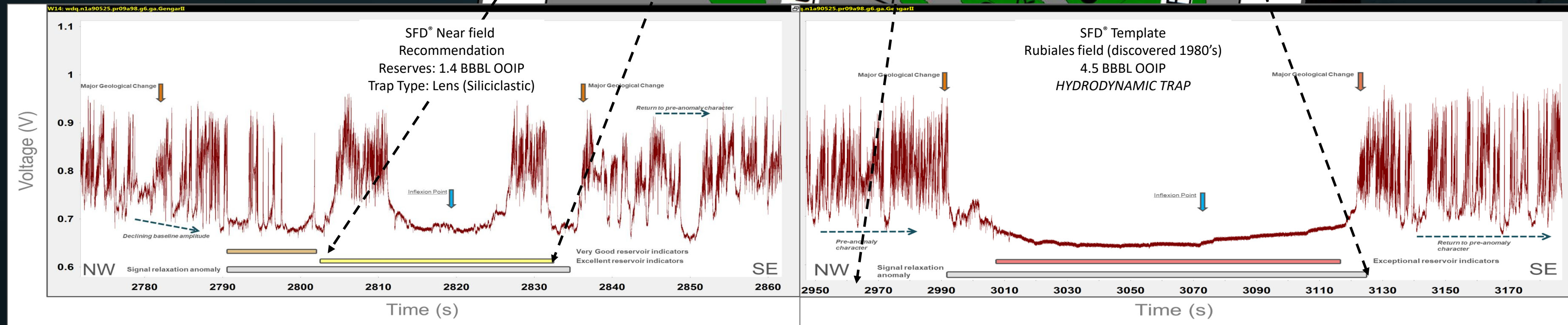
Trap Indicators		Reservoir Indicators	
1	Moderate trap potential	C+	Low reservoir potential
1+	Very Good trap potential	B-	Moderate reservoir potential
2	Very Good trap potential	B	Good reservoir potential
2+	Excellent trap potential	B+	Very Good reservoir potential
		A	Excellent reservoir potential
		A+	Exceptional reservoir potential
			Anomalous Area Extent

Signal Image Legend:

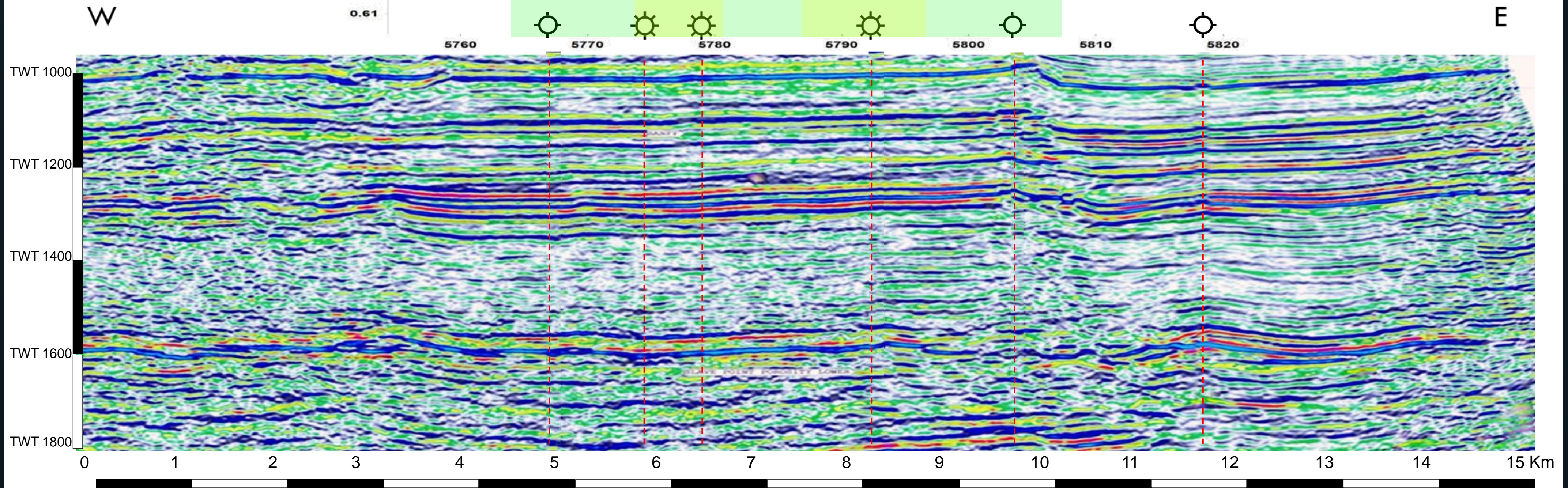
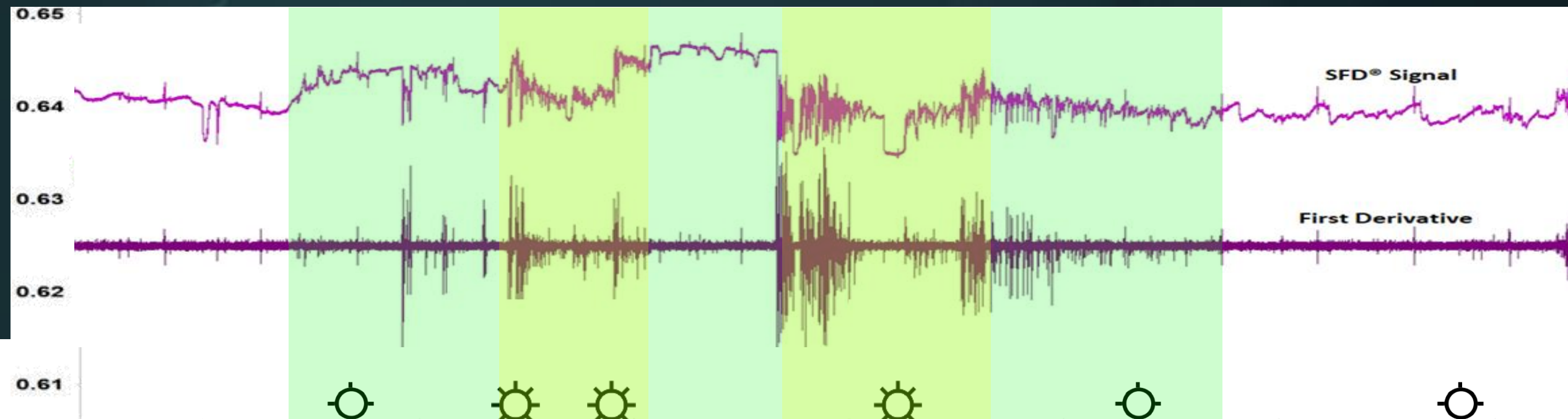
- Inflexion Point**
 - Local Geological Change (GE)**
 - Major Geological Change (NG)**
- Inflexion Point:** is defined as the point in the signal evolution and development which trap and reservoir attributes are at their maxima.
- DM-CH** – Lithologic Change
- FLT** – Potential Fault

Note: Trap and reservoir potential is determined by interpreting **MULTIPLE** SFD® sensor responses

Near Field Development Colombia Onshore 2016 Post SFD[®] Survey



SFD[®]'s Value of Information



The Adsett field is located in NE BC, Canada. It has an estimated total production of 500 bcf from the Slave point Fm. (dolomitized carbonate).

R&D: Geothermal Application of the SFD® Technology

Geothermal Applications for SFD®

- ✓ Geothermal resource include naturally occurring sub-surface fluid reservoirs or rock conditions from which heat can be extracted and utilized for generating electric power, or for direct utilization in industrial, agricultural or domestic applications.
- ✓ The main subsurface properties such as porosity, permeability and impermeable cap rock that are vital in hydrocarbon prospecting are equally critical for identifying geothermal resources.
- ✓ NXT is leveraging its extensive research and marketing skillset to develop and commercialize the geothermal application of the SFD® technology.
- ✓ Geothermal resource exploration is a natural extension of NXT's patented SFD® technology.

Path to Commercialization for NXT's Geothermal Segment

- ✓ Expanding existing portfolio to include green energy sector.
- ✓ Phase-1 IRAP Approved government R&D grant for sensor modification and field testing.
- ✓ Engaging Geothermal experts.
- ✓ Anticipated geothermal projects in North America and internationally.
- ✓ Sales model will be initially based on fee-for-service.