eBook

STRYDE

HOW MUCH DOES A STRYDE SURVEY COST?

A comparative analysis of a 3,000 + km² onshore desert vibroseis seismic survey to evaluate the impact of receiver equipment types (cabled, conventional node and STRYDE node) on survey design, CAPEX and OPEX.

CONTENTS

INTRODUCTION

In today's competitive energy landscape, optimizing seismic acquisition efficiency while controlling costs is critical, particularly in the challenging desert environments of the Middle East and North Africa region.

As companies strive to meet increasing demand for accurate subsurface data, leveraging the right technologies can dramatically impact project outcomes.

This eBook addresses a crucial need: the ability to reduce timelines and expenses without compromising data quality.

By comparing innovative solutions like STRYDE nodes to traditional cabled geophones and other nodal systems, we'll reveal how modern seismic techniques can optimize trace density, streamline operations, and ultimately deliver significant cost savings for onshore seismic projects.

We showcase detailed cost modelling and comparative analysis between STRYDE nodes, competing nodal technologies, and cabled geophones.

Insights presented by

Mehdi Tascher

A skilled professional with extensive experience in geophysics, seismic acquisition, and energy operations. He has a strong technical background in seismic data acquisition techniques, particularly in onshore environments.

Mehdi has worked in various capacities within the oil and gas industry, focusing on optimizing operational efficiency, reducing costs, and improving project timelines through innovative solutions. His expertise includes using cutting-edge seismic technology to improve data quality and acquisition in challenging environments like the deserts of the Middle East and North Africa (MENA). He is dedicated to driving innovation in the energy sector by leveraging new technologies to enhance seismic projects.

Claudio Cardama

A highly experienced geophysicist in the oil and gas industry, with a strong focus on seismic operations, field engineering, and project management.

Throughout his career, he has held leadership roles in overseeing seismic acquisition projects, working extensively in both onshore and offshore environments. Claudio is known for his ability to manage complex field operations, optimize workflows, and ensure safety and efficiency in high-stakes projects. His expertise spans geophysical technologies, operational logistics, and team leadership, making him a valuable asset in executing large-scale energy projects in diverse and challenging environments. He is passionate about integrating innovative solutions to improve operational outcomes in the energy sector.

Key factors constraining design and budget of an onshore seismic survey

PROJECT DESIGN

- 3D
- 2D
- Dense vs sparse Receiver Points (RPs)
- Dense vs sparse Source Points (SPs)
- Surface obstacle and no-permit zones
- Geological objective depth

EQUIPMENT

- Camp
- Surveying
- Source
- Vehicles
- Recording (total channels and maximum daily roll-rate)

SUPPLIES

- Fuel, Lubricants
- Spare parts
- Water, Food
- Accommodation and facilities
- PPE
- Other consumables

CREW HEADCOUNT

- Support
- Base Camp
- Surveying
- Recording
- Vibrator
- QC
- HSE

DURATION

- Acquisition method: Flip/Flop, DS3, DS4, Blended (ISS)
- 12 or 24 hour recording
- Total required channel count
- Layout capacity
- Pickup capacity
- Maximum daily channel roll-rate
- Technical downtime
- Other downtime e.g. weather-related

ENVIRONMENT

- Flat gravel plain
- Desert
- Rolling sand dune
- High dune
- Sabkha
- Farming
- Congested oil field
- Demining ERW
- Bulldozing line clearance
- Remoteness
- Social environment

"These environmental factors play a pivotal role in shaping your project's final cost and design options. It is essential to evaluate them thoroughly during the design phase, as they directly influence operational efficiency, logistical requirements, and overall project feasibility."

Mehdi Tascher

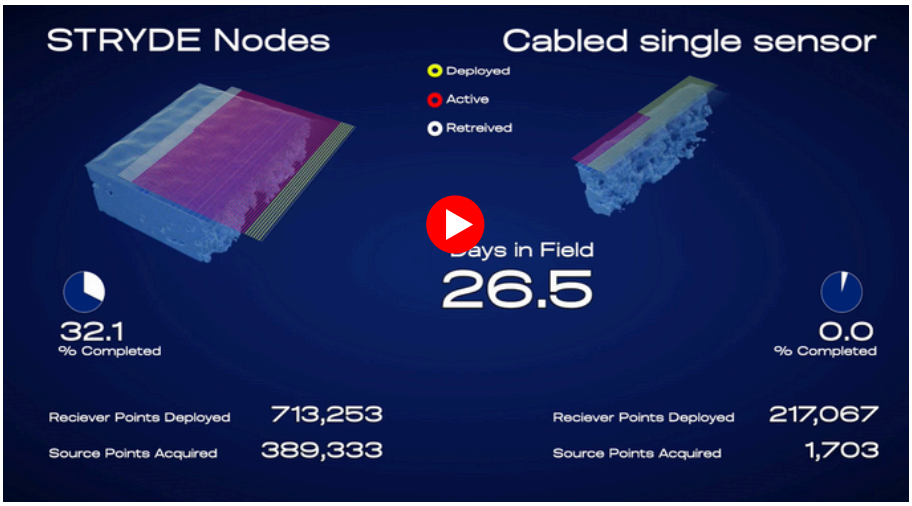
Recording equipment

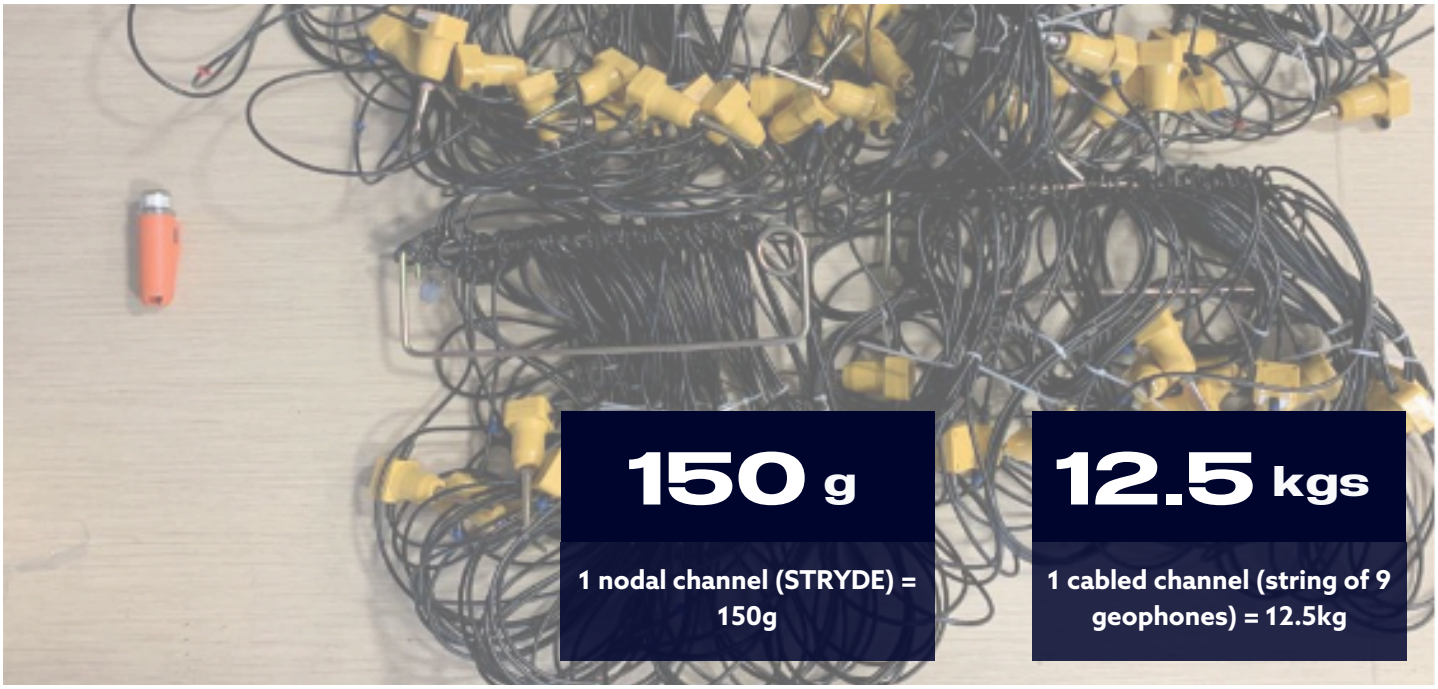
Cables vs nodes

Seismic survey efficiency differs dramatically depending on the type of seismic sensor used.

The video on the right compares the operational efficiency of STRYDE's seismic nodes compared to cabled acquisition for a 3D seismic survey in a desert environment.

Click on the image to watch the video.





"Carrying 100 STRYDE nodes is equivalent to transporting a single string of 9 geophones along with one cable. Unlike other cabled or nodal systems, STRYDE nodes can be fully buried, leaving the surface entirely unobstructed—ideal for seamless environmental and source operations, and providing best possible data quality.

"This dramatic reduction in weight and operational complexity unlocks significant efficiencies for seismic crews, streamlining workflows and enhancing overall productivity."

Mehdi Tascher

Recording equipment

STRYDE nodes vs other nodes

Image courtesy of Tim Dean.

KEY FACTORS TO EVALUATE WHEN SELECTING NODES

- Weight, size, battery life, memory, ecosystem
- Surveying while deploying
- Buried node or surface node
- Ease of deploying/retrieving, planting and re-planting in the field
- Individual or bulk handling of nodes in camp
- Maintenance
- Operational costs (OPEX)
- Capital costs (CAPEX)
- Reliability

The STRYDE node; the smallest and lightest seismic node on the market today - as of April 2025. (150g)

"The relative size of the STRYDE node is shown in the bottom right corner of the image above. Its exceptionally lightweight design significantly enhances ease of transport both into and within the field.

"In my view, one of the greatest advantages of this system is its unparalleled portability. This not only delivers financial and operational efficiency benefits for seismic data acquisition companies but also has a profound impact on the well-being of the field crew. The lightweight nature of the nodes means they are easier to handle and require less physical exertion during deployment and retrieval, significantly reducing fatigue and the risk of strain-related injuries.

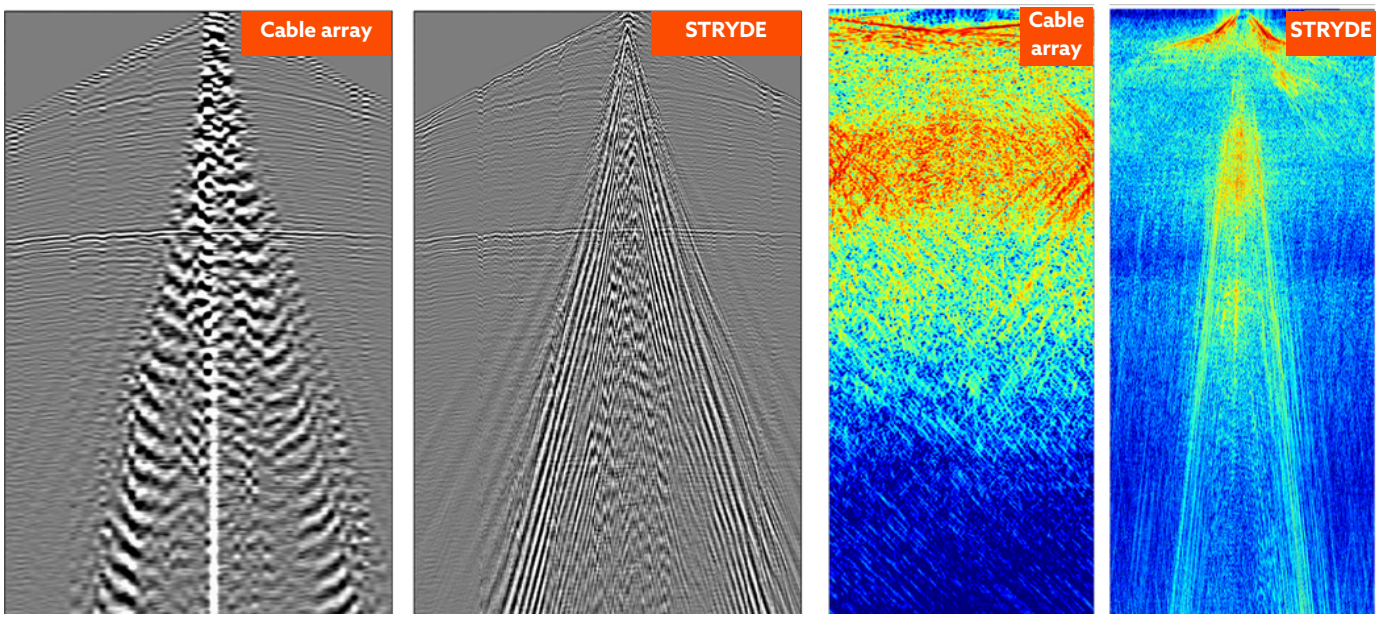
"Additionally, the reduced weight and compact design mean fewer resources are needed to transport the equipment, which often translates to less time spent in challenging environments. This limits the crew's exposure to extreme weather conditions, rough terrains, and other occupational hazards typically encountered in seismic operations."

Claudio Cardama

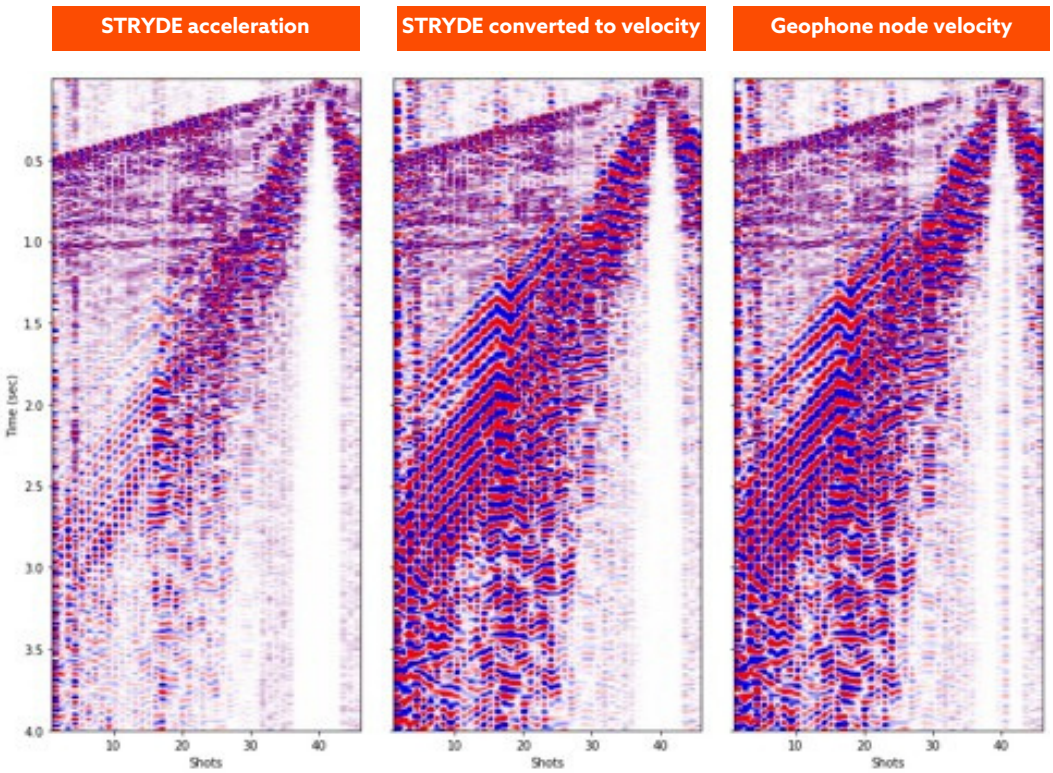
Seismic data comparisons

Data acquired with cables vs STRYDE nodes vs other nodes, offering clear evidence that STRYDE nodes deliver high-fidelity seismic data.

5x300m STRYDE nodes vs 50x300m 12-Geophone array cable system



A comparison of common shots, STRYDE vs a geophone node



CASE STUDY

Location:

MENA region

Terrain:

Onshore

Design:

3D

Size:

3,000 + km^2

Source type:

Vibroseis

Project design information

COMPARING 4 SCENARIOS

- Cable/string
- X nodes (generic)
- STRYDE nodes
- STRYDE nodes (x2 denser)

This case study compares the trace density, man-power, crew logistics, environmental impact, duration, CAPEX and OPEX requirements across four different deployment options: cabled geophones (Option 301), a competing nodal system (Option 201), STRYDE nodes, (Option 101), and a high-density STRYDE deployment (Option 411).

While the first three options share identical receiver intervals of 12.5m and receiver line spacing of 200m, the high-density STRYDE deployment (Option 411) differs with significantly increased line density achieved by reducing the receiver line spacing from 200m to 100m, thereby doubling the trace density. The first 3 options (301, 201, 101) have the same source effort, while the last option (411) has reduced source effort.

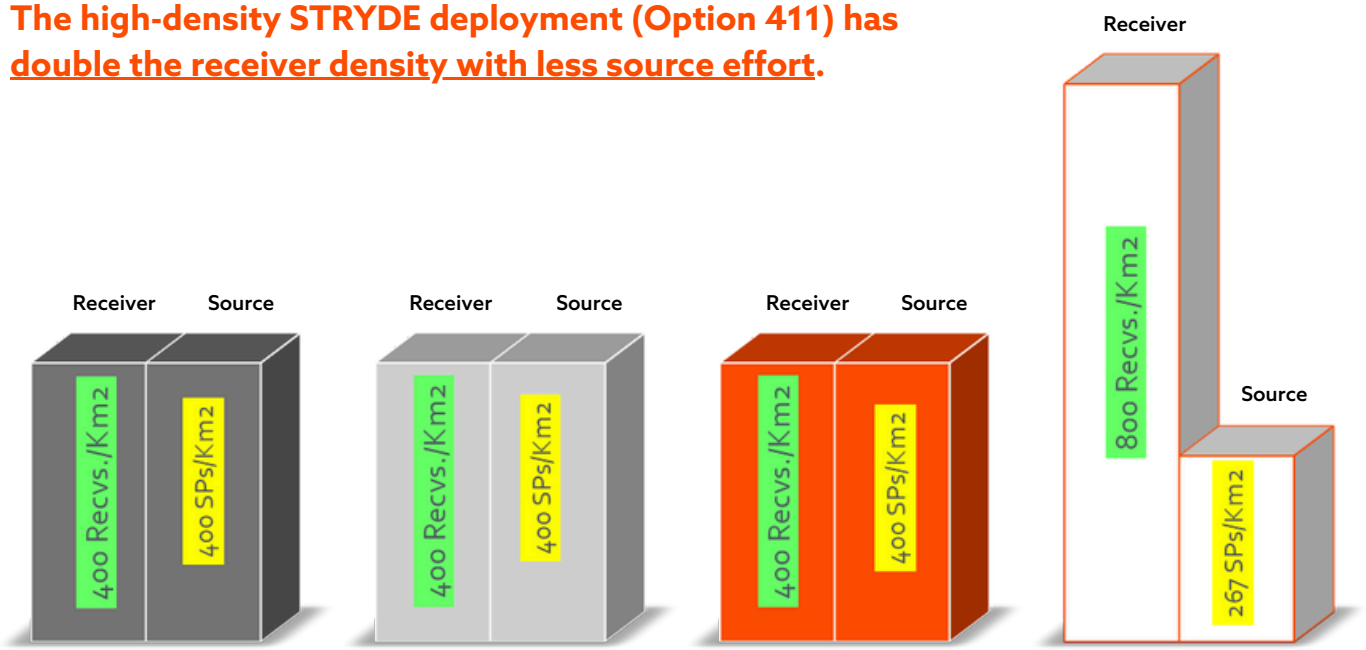
Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6

SUMMARY TABLE CASE STUDY #1	OPTION 301	OPTION 201	OPTION 101	OPTION 411
LayOut Type	CABLE	X NODE	STRYDE	STRYDE
RI (m)	12.5	12.5	12.5	12.5
RLI (m)	200	200	200	100
SI (m)	12.5	12.5	12.5	12.5
SLI (m)	200	200	200	300
Surface Adquisition (Km2)	+3000	+3000	+3000	+3000
Surface Adquisition (Km2)	400 Recvs./Km2	400 Recvs./Km2	400 Recvs./Km2	800 Recvs./Km2
Source Density (SPs / km2)	400 SPs/Km2	400 SPs/Km2	400 SPs/Km2	267 SPs/Km2
Trace Density (in full-fold zone) x 10^6 traces/km2	23 x 10^6	23 x 10^6	23 x 10^6	31 x 10^6
Qty of Receivers to Layout / Day	5918 Recvs./Day	7358 Recvs./Day	7358 Recvs./Day	22073 Recvs./Day
Days Receivers stays in the ground	16	14	14	11
Recording Duration DPT (Total days)	345	280	280	191
Number of Vibrator's fleets (production)	12	12	12	12
TOTAL VP's	1,708,000 SPs	1,708,000 SPs	1,708,000 SPs	1,138,668 SPs
Recording Channel on Crew (Qty)	96,789 Rcvs	103,988 Rcvs	103,988 Rcvs	244,765 Rcvs

Receiver point and source point density

Cabled geophones (Option 301), another nodal system (Option 201), and STRYDE nodes, (Option 101), have the same source point (SP) and receiver point (RP) densities.

The high-density STRYDE deployment (Option 411) has double the receiver density with less source effort.



Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
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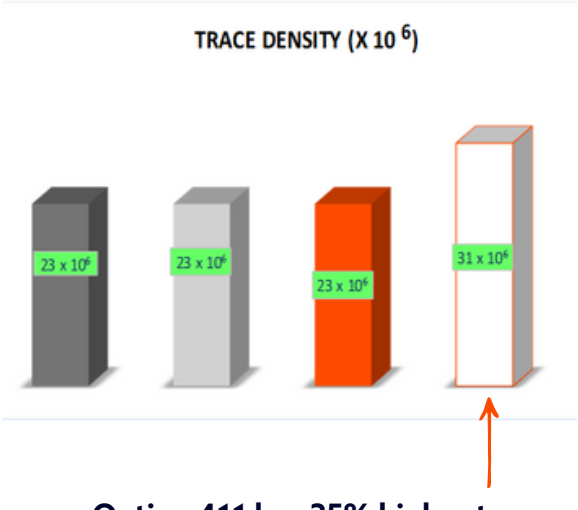
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6



Option 411 has 35% higher trace density per sq km.

"When increasing receiver density, it is crucial to choose equipment that can be deployed and retrieved quickly with minimal resources, logistics, and costs.

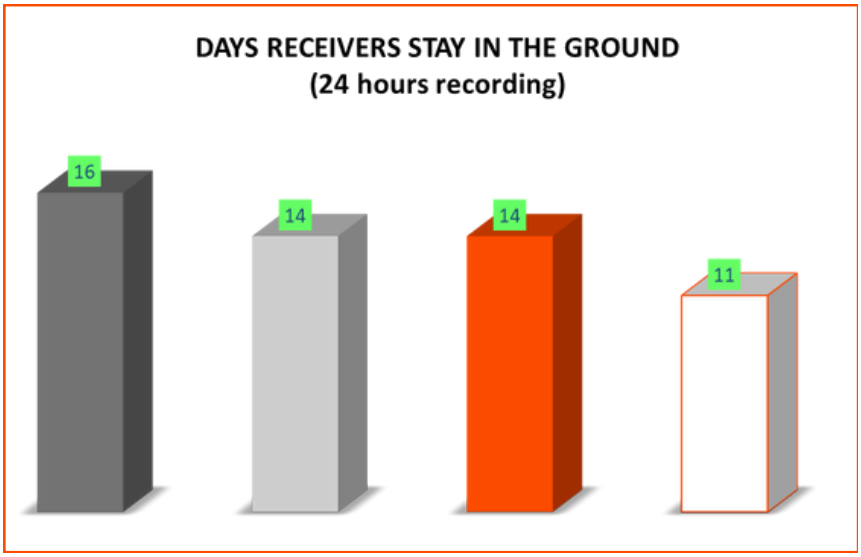
"Without this efficiency, higher-density deployments become impractical, and the enhanced data quality expected from such configurations cannot be realized."

Claudio Cardama

Recording duration

The number of days receivers are in the ground is linked to different factors such as battery life and receiver density. In a high-density design, the need for fewer source points means the overall survey progresses more quickly and receivers don't need to be in the ground for as long.

This accelerated deployment and acquisition process means receivers can be rolled quicker and eliminates the need to replace nodes at specific receiver locations, thereby enhancing efficiency and reducing operational complexity.



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Cable	X Node	Stryde	Stryde
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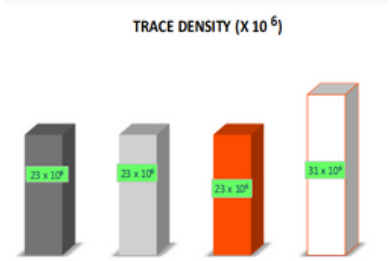
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6



Cable (301):

- Cable systems require the receivers to remain in the ground the longest due to the slower pace of operations.
- The increased time is directly tied to the complexity of cable deployment and retrieval, as well as the need for additional logistical steps, such as pre-surveying and managing surface obstacles.

X-Node systems (201):

- X-Node systems reduce ground time slightly compared to cables.
- While more efficient than cables, they still require significant time to handle surface logistics.
- The bulky nodes are difficult to bury, affecting data quality and increasing the risk of equipment theft.

STRYDE standard density (101):

- STRYDE's lightweight and fully buriable nodes simplify deployment and retrieval, allowing for efficient operations while allowing higher daily node rotation compared to X-Nodes and much lower operational complexity.

STRYDE high density (411):

- The high-density STRYDE design reduces ground time further. Fewer source points combined with higher receiver density configuration mean the survey progresses more rapidly, minimizing the overall project duration while increasing trace density per sq km by 35%.

Layout team composition

Layout composition is a critical factor that fundamentally reshapes the way seismic surveys are conducted using nodes, particularly in the MENA region.

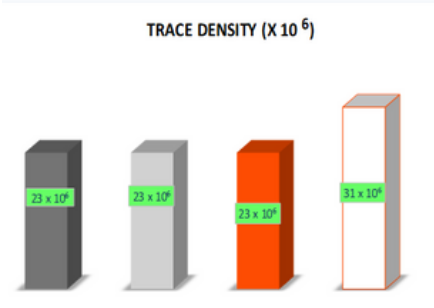
A conventional cabled layout team typically requires at least 12 people. In contrast, a crew utilizing generic nodes can operate with around 5 people, while a STRYDE-based crew requires just 2-3 people.

When planning crew size, it's essential to consider not just how many individual team numbers you need, but also the total number of teams needed to meet project demands. For instance, in this specific project requiring approximately 600 stations to be laid out per day using cables, the recording team for layout alone would need around 156 personnel.

Layout	PAX PER TEAM				TOTALS			
	CABLE	X NODE	STRYDE	STRYDE	CABLE	X NODE	STRYDE	STRYDE
Position	Option 301	Option 201	Option 101	Option 411	Option 301	Option 201	Option 101	Option 411
Driver	2	1	0.75	0.75	13 Teams	12 Teams	8 Teams	23 Teams
Foreman	1	0	0	0	156 Pax	60 Pax	30 Pax	86 Pax
GPS Operator	0	1	1	1				
Labour	9	3	2	2	prod/ team (nodes/day)	prod/ team (nodes/day)	prod/ team (nodes/day)	prod/ team (nodes/day)
Total pax per team	12	5	3.75	3.75	480	640	960	960
					Qty of Receivers to Layout / Day	Qty of Receivers to Layout / Day	Qty of Receivers to Layout / Day	Qty of Receivers to Layout / Day
Vehicles:					5918 Recvs./Day	7358 Recvs./Day	7358 Recvs./Day	22073 Recvs./ Day
LVL	1	1	0.75	0.8	26 LVL	12 LVL	6 LVL	17 LVL
HVL	0.5	0	0	0	13 HVL	0 HVL	0 HVL	0 HVL
HVL	0.5	0	0	0				
Total Vehicles per team	2	1	0.8	0.8				

When comparing STRYDE to other nodal systems, the data above clearly demonstrates that a STRYDE seismic survey requires 50% fewer personnel. Even when the receiver density is doubled, the crew size remains significantly smaller than what is required for deploying cabled receivers.

This highlights the exceptional efficiency of STRYDE's design, which not only minimizes labour demands but also simplifies logistics and reduces operational costs, even in very high-density survey scenarios.



Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

Pickup team composition

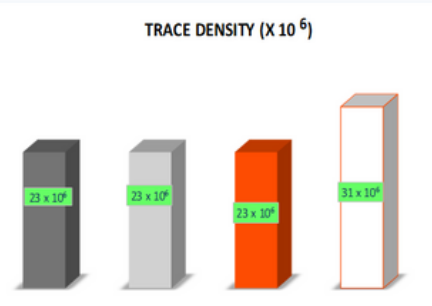
The same principle applies to the pickup team configuration, where a substantial reduction in personnel is achieved as you move from cable systems to nodal systems. This is further reduced by using STRYDE nodes—and only slightly higher than X nodal systems, when operating at double the receiver density.

Notably, STRYDE eliminates the need for heavy vehicles typically required for transporting bulky cables and larger nodal devices. This not only reduces logistical challenges and operational costs but also simplifies field operations, making STRYDE an exceptionally efficient and practical solution for seismic surveys.

Pickup	PAX PER TEAM				TOTALS			
	CABLE	X NODE	STRYDE	STRYDE	CABLE	X NODE	STRYDE	STRYDE
Position	Option 301	Option 201	Option 101	Option 411	Option 301	Option 201	Option 101	Option 411
Driver	2	1	0.75	0.75	13 Teams	12 Teams	8 Teams	23 Teams
Foreman	1	0	0	0	143 Pax	60 Pax	30 Pax	86 Pax
GPS Operator	0	1	1	1				
Labour	8	3	2	2	prod/ team (nodes/day)	prod/ team (nodes/day)	prod/ team (nodes/day)	prod/ team (nodes/day)
Total pax per team	11	5	3.75	3.75	480	640	960	960
					Qty of Receivers to Layout / Day	Qty of Receivers to Layout / Day	Qty of Receivers to Layout / Day	Qty of Receivers to Layout / Day
Vehicles:					5918 Recvs./Day	7358 Recvs./Day	7358 Recvs./Day	**22073 Recvs./Day**
LVL	1	1	0.75	0.5	26 LVL	12 LVL	6 LVL	12 LVL
HVL	0.5	0	0	0	13 HVL	0 HVL	0 HVL	0 HVL
HVL	0.5	0	0	0				
Total Vehicles per team	2	1	0.8	0.5				

The layout and pickup process for STRYDE nodes is further enhanced through the integration of RTK (Real-Time Kinematic) positioning technology. This advanced system significantly streamlines deployment by enabling precise, real-time receiver placement, ensuring optimal positioning accuracy with minimal manual effort. RTK positioning not only accelerates deployment speed but also simplifies the recovery process by providing accurate location data for each node, reducing the time and effort required to retrieve equipment. Additionally, it offers the flexibility to easily adjust or offset receiver points in the field if required, allowing for on-the-fly modifications to survey design without disrupting operations.

This level of precision and efficiency minimizes errors, improves data quality, and reduces operational costs, making RTK positioning an indispensable tool for maximizing the performance of STRYDE seismic surveys.



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RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
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Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

The importance of “discreet operations”

Stealth operations are critical in land seismic surveys, particularly in environments where minimizing visibility and disruption are essential. The ability to conduct seismic recording with minimal surface footprint enhances operational efficiency, reduces risk, and ensures high-quality data acquisition without external interference.

A key factor in achieving true stealth in seismic acquisition is the ability to fully bury the seismic sensor—a capability that STRYDE’s nodal technology uniquely provides. Unlike traditional cabled systems or other nodal solutions, which require above-ground components or external connectors, STRYDE nodes are designed for complete burial, providing unparalleled advantages in seismic operations.

Why full burial matters

Zero surface obstruction for source operations
With no exposed cables or equipment, source teams operate without obstructions, allowing more flexible and dense positioning - optimizing survey efficiency and data quality.

Minimal environmental and wildlife disturbance
Exposed equipment can disrupt natural habitats and local activities. Fully buried nodes blend into the environment, minimizing impact on wildlife, livestock, and land use.

Eliminating noise and external interference
Above-ground equipment is vulnerable to noise from wind, vibration, temperature fluctuations, and human activity. Fully buried nodes prevent these issues, ensuring a clean seismic signal.

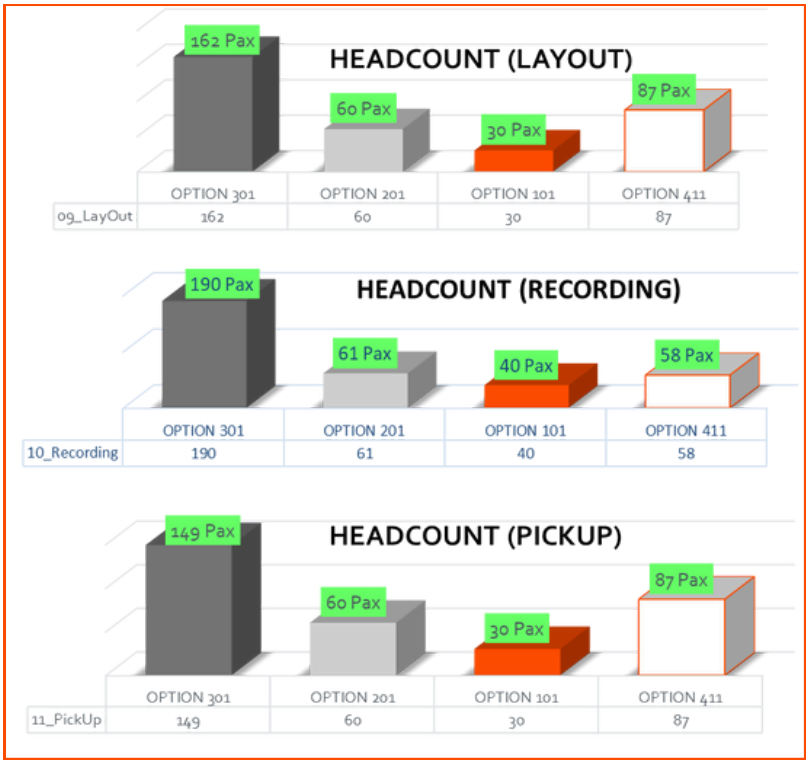
Production continuity – no delays or interruptions
Cabled systems and surface nodes require maintenance and repositioning, leading to downtime. Fully buried nodes stay in place for the survey’s duration, reducing disruptions and enabling faster acquisition.

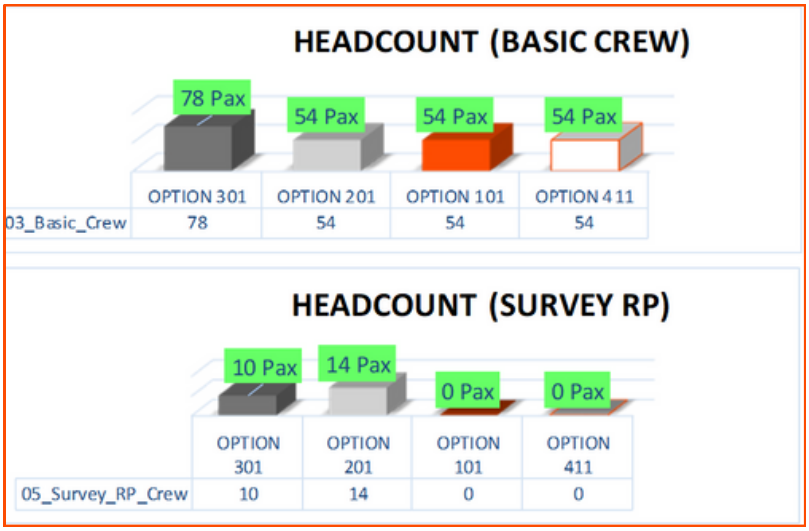
Reduced risk of theft
Fully buried nodes ensure the seismic recording system is invisible to third parties, reducing the risk of tampering, theft, or unwanted attention—crucial in high-security or environmentally sensitive areas.

“No other nodal or cabled system can offer true stealth. STRYDE’s fully buryable node is the only system that enables a completely autonomous, hidden, and interference-free recording system - translating into higher efficiency, better data quality, and fewer operational risks.”

Mehdi Tascher

Project headcount optimization





Examining the crew requirements for layout, recording, and pickup operations reveals a dramatic reduction in personnel needed when comparing conventional seismic cabled crew and competing node methods to STRYDE-based solutions.

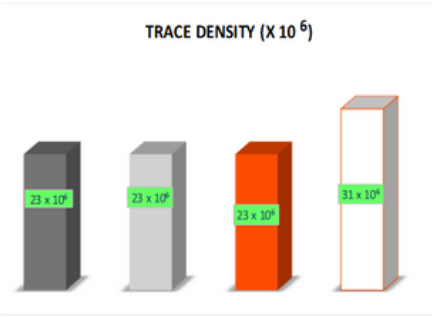
Even when the receiver density is doubled using STRYDE nodes, achieving an impressive 31 million traces, the number of personnel required for each operation remains significantly lower than for cabled systems.

The most striking difference is observed in the recording phase, where both standard and high-density STRYDE surveys require fewer team members compared to cabled and generic nodal systems.

With STRYDE, there is no need for pre-surveying receiver lines, as the surveying is seamlessly integrated into the crew's layout process.

Additionally, STRYDE eliminates the need for repair workshops, which are typically required to address frequent breaks in cables and connectors associated with the alternative systems.

This streamlined approach significantly enhances operational efficiency, reducing both the duration and manpower required for seismic surveys. Combined with simplified logistics and reduced maintenance demands, STRYDE sets a new benchmark for efficiency and reliability, making it a standout choice for modern seismic operations.



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Cable	X Node	Stryde	Stryde
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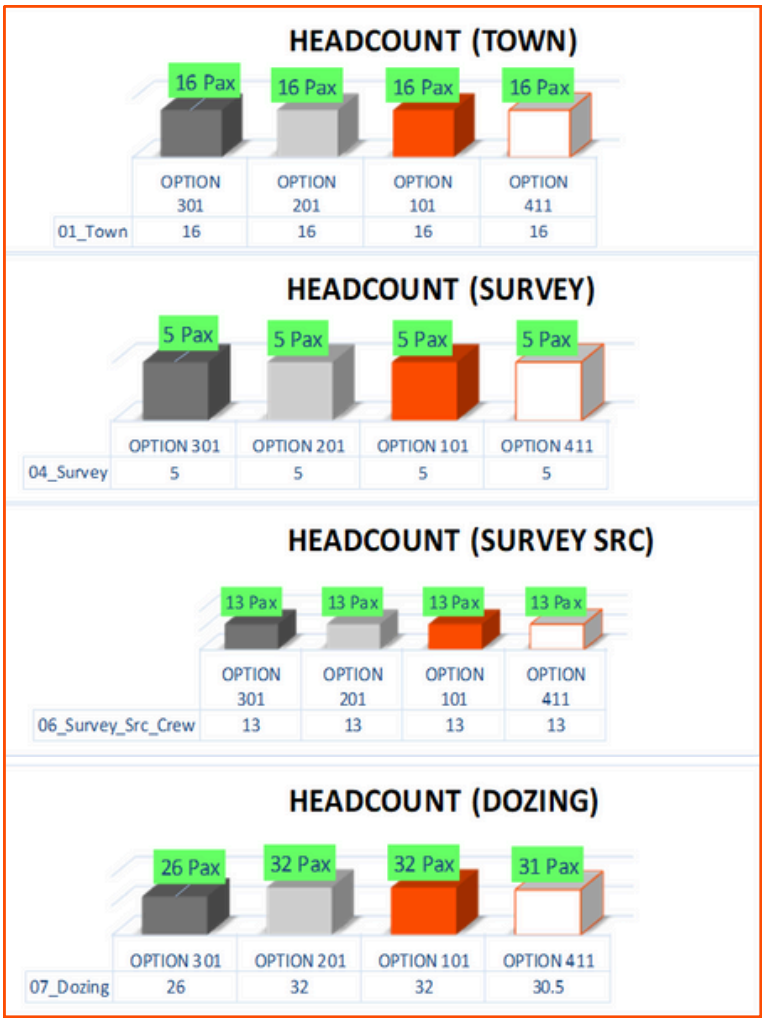
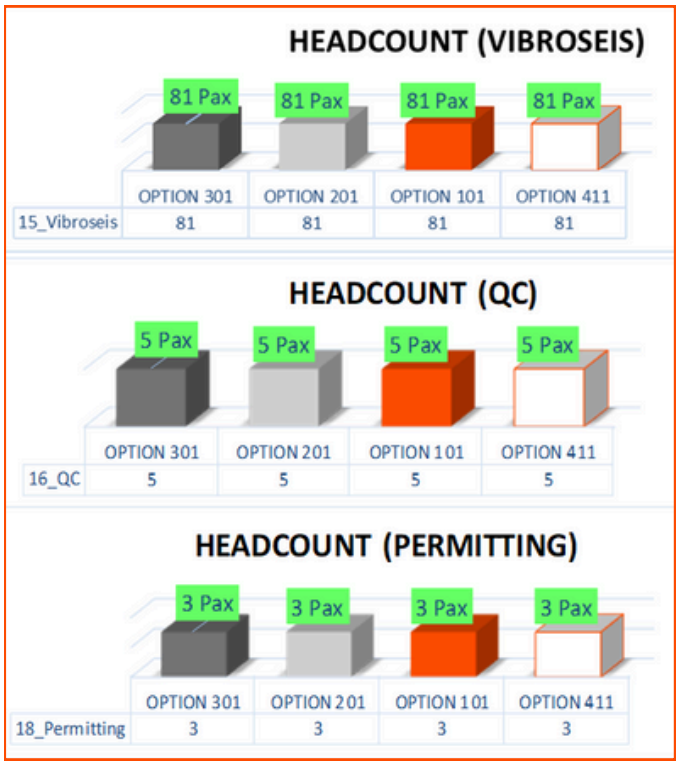
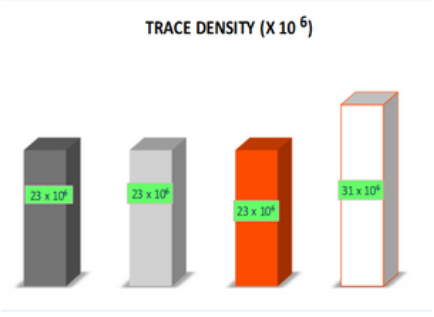
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6

Project headcount: all departments

These departments, ranging from—vibroseis and QC to permitting, and dozing—play a vital role in ensuring the success of any seismic survey. Regardless of the type of receiver equipment used, these departments do not change.







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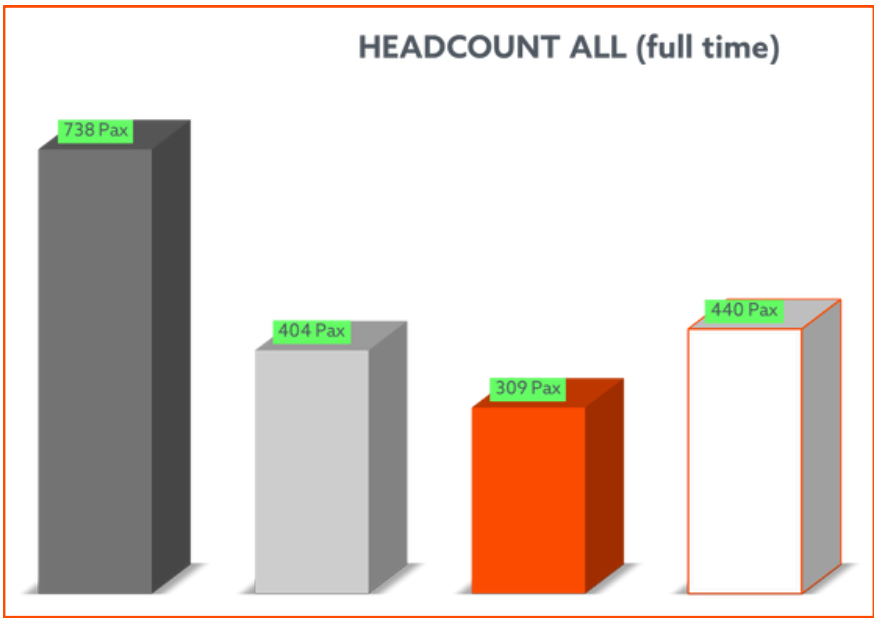
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6

Project headcount: full seismic crew

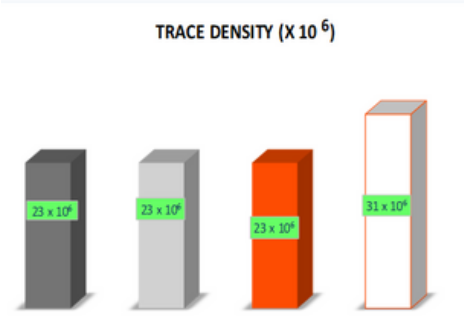


Based on the seismic crew configurations, for a seismic survey running 24 hours a day:

- Using a cable system or single geophone string requires approximately 740 full-time personnel, making it the most labor-intensive option.
- Shifting to a generic nodal system reduces the requirement to 404 personnel, cutting the headcount nearly in half when compared to cables.
- Deploying STRYDE nodes reduces the crew further to 309 personnel, thanks to the nodes' lightweight and compact design.

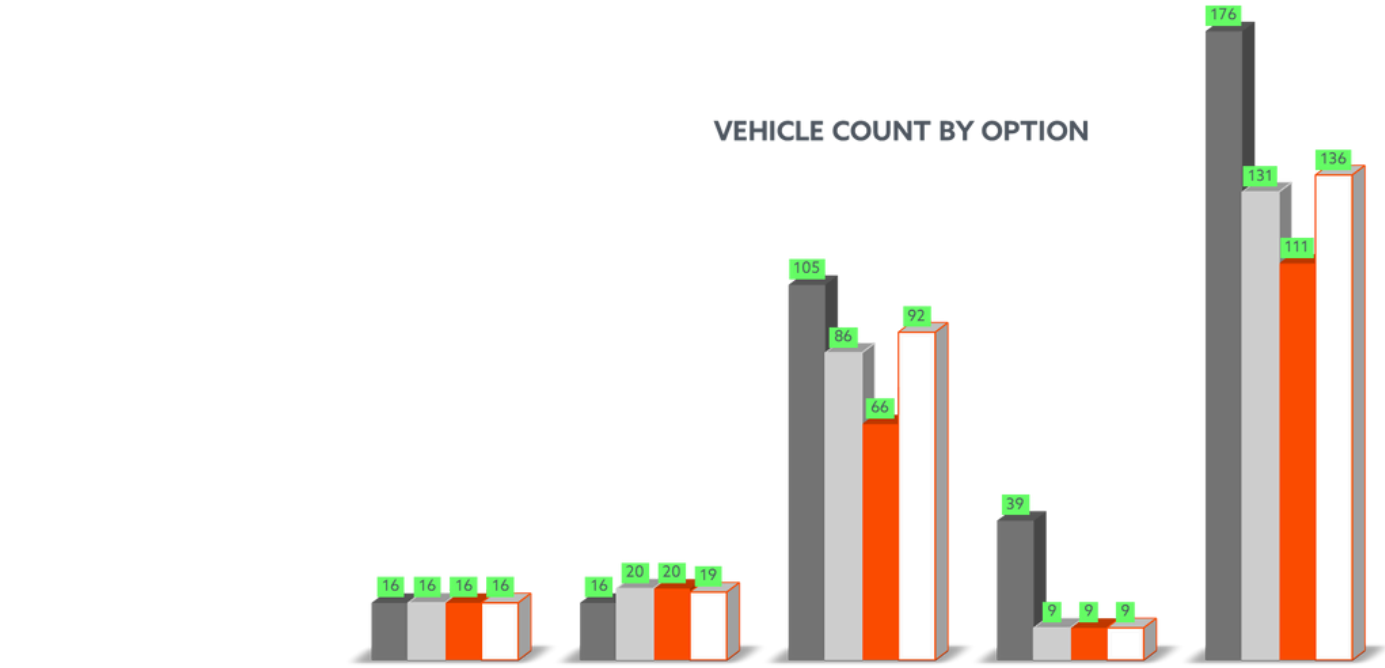
When doubling the receiver density with STRYDE (achieving 31 million traces per square kilometer) and decreasing the source effort, the total personnel required is only 440—still significantly below the cable system's headcount and comparable to that of a standard generic node system.

This stark difference in crew requirements is primarily attributed to the lower weight and smaller size of STRYDE nodes, which streamline layout, retrieval, and overall logistics. Even at high receiver densities, STRYDE remains a more efficient and cost-effective solution than traditional cable systems.



Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

Project vehicle count

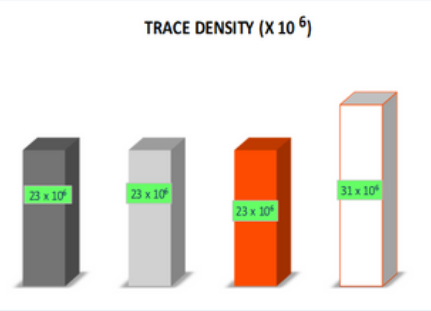


	Vibrators	Dozers	LVL	HVL	Total
Option 301 RLI 200 RI 12.5 SLI 200 SI 12.5	16	16	105	39	176
Option 201 RLI 200 RI 12.5 SLI 200 SI 12.5	16	20	86	9	131
Option 101 RLI 200 RI 12.5 SLI 200 SI 12.5	16	20	66	9	111
Option 411 RLI 100 RI 12.5 SLI 300 SI 12.5	16	19	92	9	135.75

The vehicle requirements for seismic operations show a significant reduction when transitioning from cable systems to nodal systems, particularly when STRYDE is used.

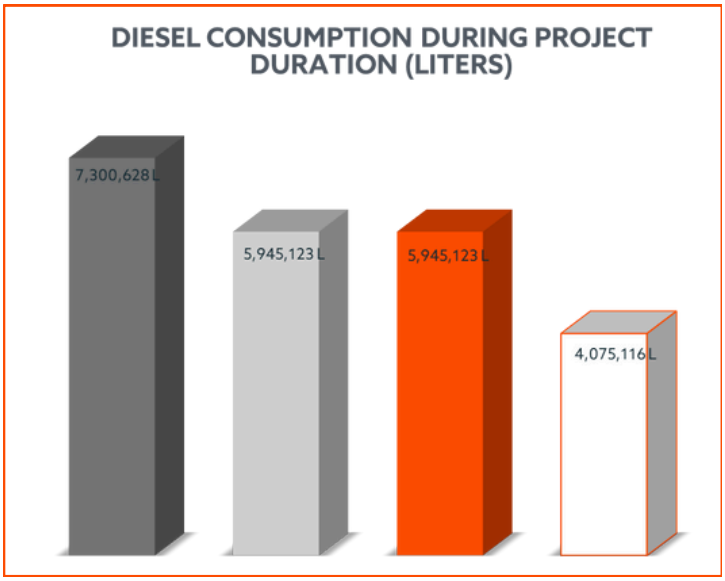
Cable-based surveys demand more vehicles compared to node crews due to the bulk and complexity of the equipment.

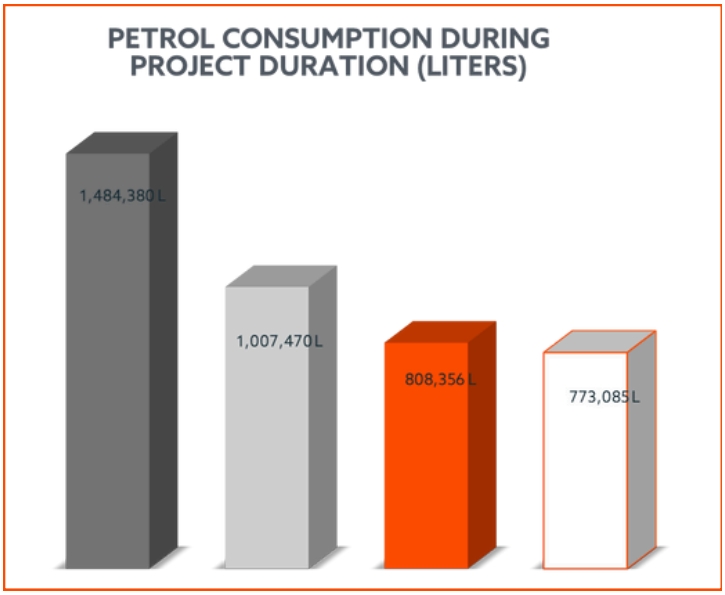
Even with a high-density STRYDE deployment, the total vehicle count remains well below that of cable systems and is nearly comparable to generic nodal systems. This efficiency is primarily attributed to the lightweight and compact design of STRYDE nodes, which reduces the need for heavy vehicles by 75% and ensures low as possible km driven and HSE exposure.



Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

Project Corporate Social Responsibility (CSR)





By significantly reducing vehicle requirements, STRYDE minimizes project fuel consumption for diesel and petrol, leading to a substantial decrease in greenhouse gas emissions.

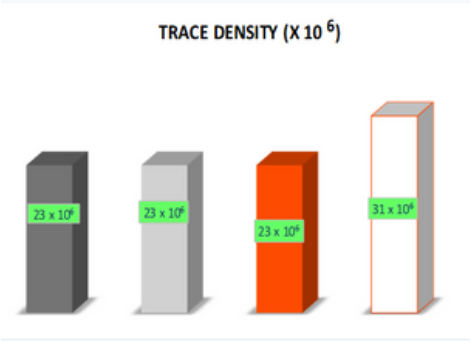
This is especially critical as industries strive to lower their carbon footprint and align with global environmental goals. The lightweight and compact design of STRYDE nodes eliminates the need for heavy vehicles, which are a major contributor to fuel consumption in seismic operations.

Moreover, the environmental and financial benefits become even more pronounced when doubling receiver density with STRYDE nodes while simultaneously reducing source effort. This innovative approach ensures enhanced data quality and operational efficiency without proportionally increasing fuel usage or environmental impact.

"By adopting STRYDE's efficient node system, companies not only achieve cost savings but also demonstrate a strong commitment to sustainability.

"This reinforces their CSR objectives by reducing energy consumption, minimizing environmental degradation, and promoting responsible resource utilization—key factors in enhancing community and stakeholder trust."

Mehdi Tascher



Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

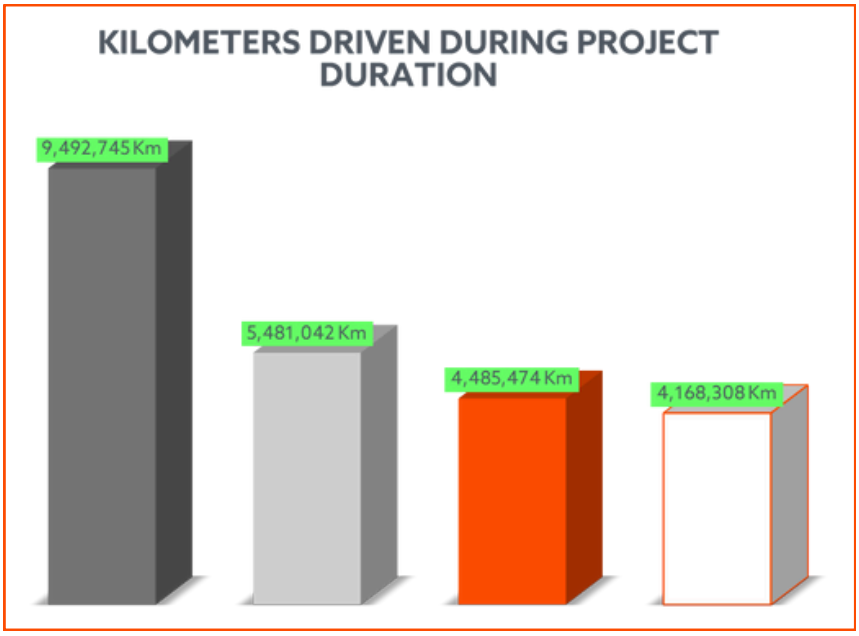
Project Corporate Social Responsibility (CSR)

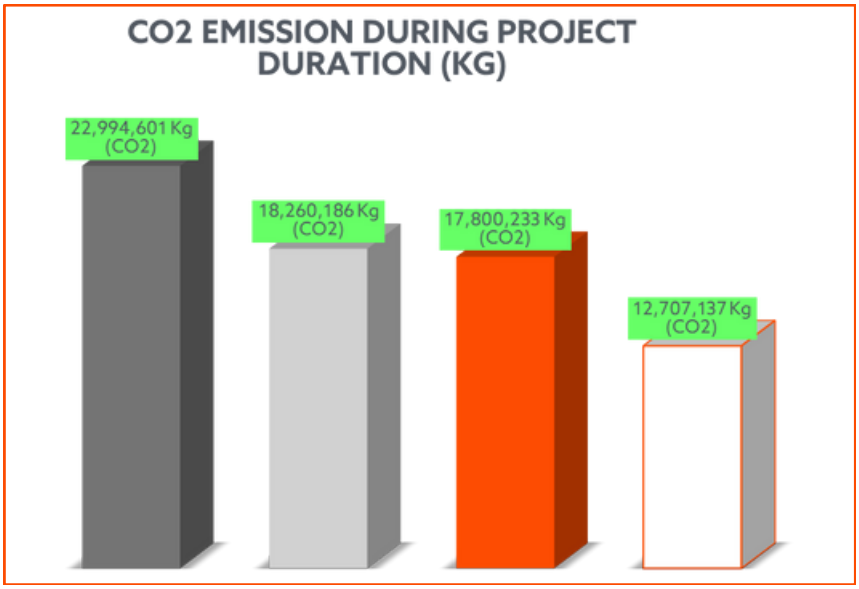
By transitioning to node-based systems, the kilometers driven during the project are reduced by at least half, even when the trace density is doubled.

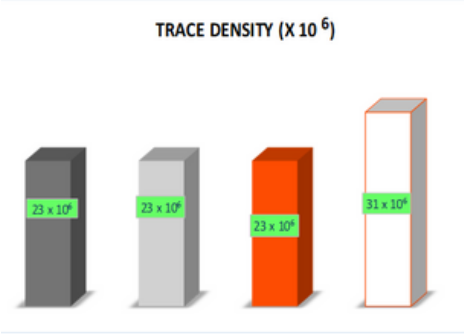
This significant reduction in vehicle travel minimizes wear and tear on vehicles, decreases fuel consumption, and reduces the overall environmental impact of seismic operations.

Additionally, the integration of STRYDE's efficient design allows for a drastic reduction in CO_2 emissions, particularly when receiver density is increased and source effort is reduced.

This innovative approach not only maintains or enhances data quality but also substantially lowers the carbon footprint of the operation, showcasing the environmental advantages of STRYDE's lightweight and compact node system.



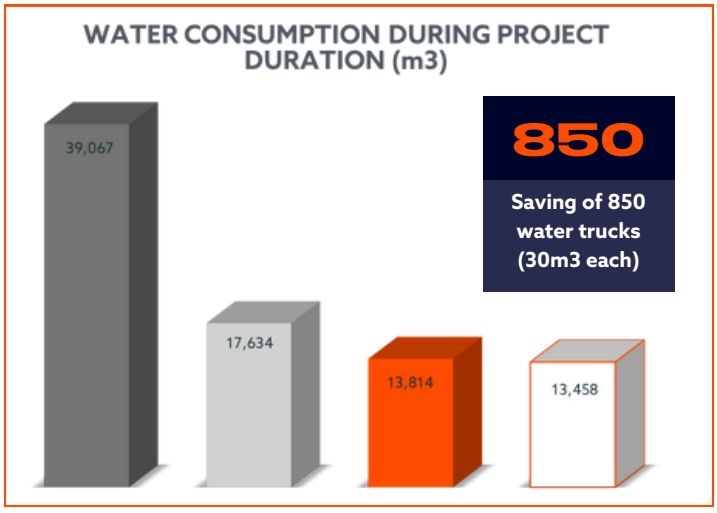


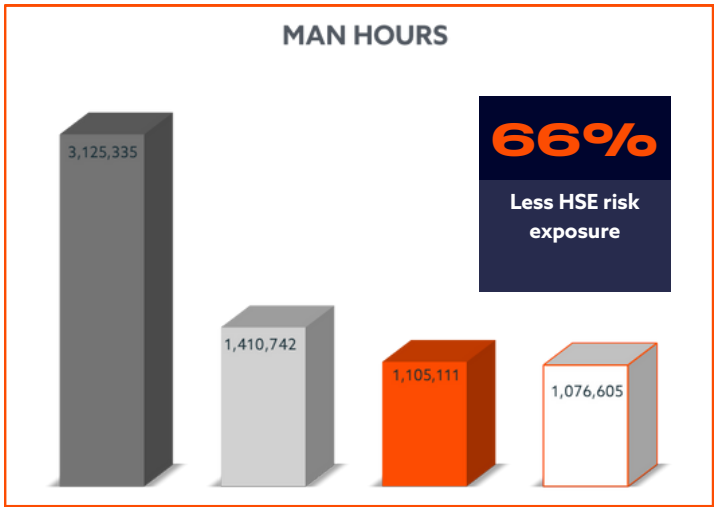


Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6

Project Corporate Social Responsibility (CSR)

Using node-based seismic solutions offers substantial advantages in terms of health, safety, and environmental (HSE) exposure and water consumption, making them an ideal choice for modern seismic operations.



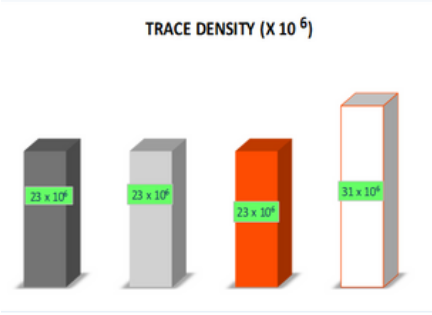


Water consumption is directly tied to the number of personnel and the duration of the project. By drastically reducing the crew size and shortening project timelines, node-based systems like STRYDE's lead to substantial water savings.

Fewer people in the field mean less water needed for drinking, sanitation, and other operations, resulting in less transportation of water into the field, further reducing CO_2 emissions and HSE risk.

Node-based systems ensure the lowest HSE exposure for seismic crews. By requiring fewer personnel and reducing the need for heavy equipment, these systems significantly decrease the risks associated with injuries, accidents, and prolonged exposure to harsh environments.

This enhanced safety profile not only protects crew members but also aligns with corporate safety standards and minimizes liability.



Option 301	Option 201	Option 101	Option 411
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RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
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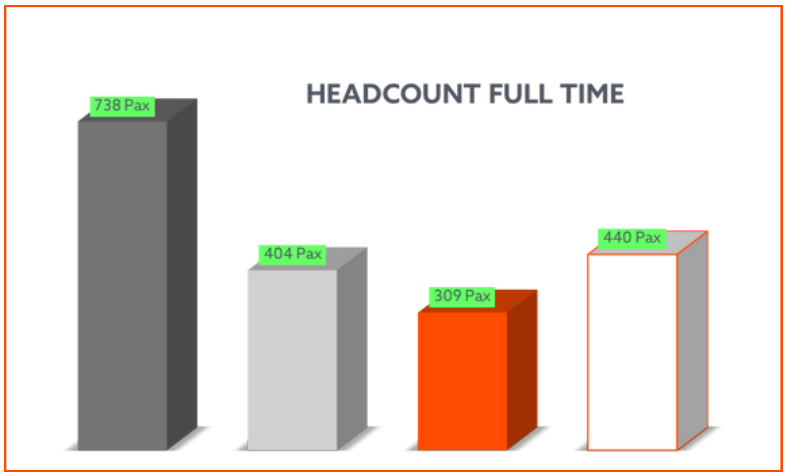
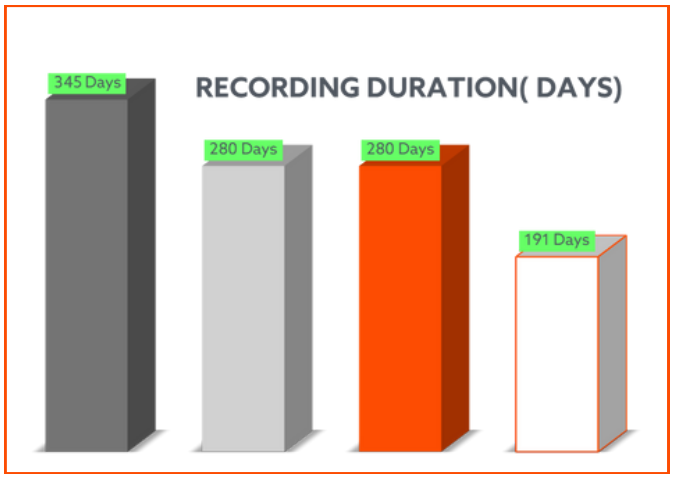
Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 23 x 10^6	Trace Density 31 x 10^6

Comparison of headcount and recording duration

The use of node-based seismic solutions highlights significant advantages in reducing headcount and shortening recording duration, both of which have a substantial impact on project efficiency and cost.



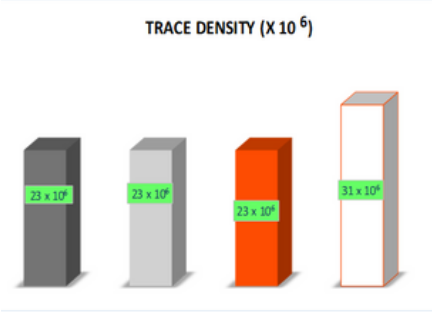


The simplicity of node-based systems compared to cable systems is evidenced by the ability to cut headcount by almost half. This is particularly impactful, as labour is one of the most expensive components of a seismic survey.

Fewer personnel not only reduces direct costs related to wages, accommodations, and logistics but also minimizes indirect costs such as HSE exposure and resource requirements, making operations leaner and more cost-effective.

Node-based systems also significantly reduce the recording duration, which has a profound effect on the total project cost. A shorter project timeline means fewer days in the field, less equipment wear, and lower resource consumption, all of which translate to substantial financial savings.

Additionally, this efficiency allows for faster project completion, enabling quicker decision-making and a faster return on investment.



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SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

Summary comparison cable vs X node vs STRYDE node

OPTION #	OPTION NAME	VP Qty	Total Days of Recording	Daily Production (VP)	USD Km2 (%)	Qty of Receivers to Layout / Day	Equipment	Total Channels Qty	TOTAL VP's INCLUDING WAS EFFECT (without zipper)	Qty Dozers	QTY LVL	QTY HVL	QTY PAX	TOTAL COST VALUE (%)
OPTION 301	Option 301 RLI 200 RI 12.5 SLI 200 SI 12.5	1,708,000	345	5918	100%	5918	CABLE	96,789	1,708,000	16	105	39	738	100%
OPTION 201	Option 201 RLI 200 RI 12.5 SLI 200 SI 12.5	1,708,000	280	7358	62%	7358	X NODE	103,988	1,708,000	20	86	9	404	63%
OPTION 101	Option 101 RLI 200 RI 12.5 SLI 200 SI 12.5	1,708,000	280	7358	46%	7358	STRYDE	103,988	1,708,000	20	66	9	309	49%
OPTION 411	Option 411 RLI 100 RI 12.5 SLI 300 SI 12.5	1,138,668	191	7358	42%	22073	STRYDE	244,765	1,138,668	19	92	9	440	45%

Key Observations:

Total days of recording:

- Option 301 (cable) requires 345 days, the longest duration.
- Option 411 (STRYDE, high density) has the shortest duration at 191 days, showcasing STRYDE's efficiency even with increased density.

Daily production (VP/day):

- Transitioning from cable to node provides 24 hour recording time per day, as long as the nodal system is fully buried.

Cost efficiency (USD/km²):

- Option 301 (cable) is the most expensive at 100% cost value.
- STRYDE systems (Options 101 and 411) offer the best cost savings, reducing costs to 49% (Option 101) and 45% (Option 411) of the cable system's cost.

Receivers to layout per day:

- STRYDE (Option 411) requires 22073 receivers/day, highlighting its scalability for high-density surveys compared to only 7358 receivers/day for the other options.

Crew requirements:

- STRYDE options (101 and 411) require significantly fewer crew members (309-440 personnel) compared to 738 personnel for cable systems. The reduction in labour is a key cost-saving factor.

Equipment requirements:

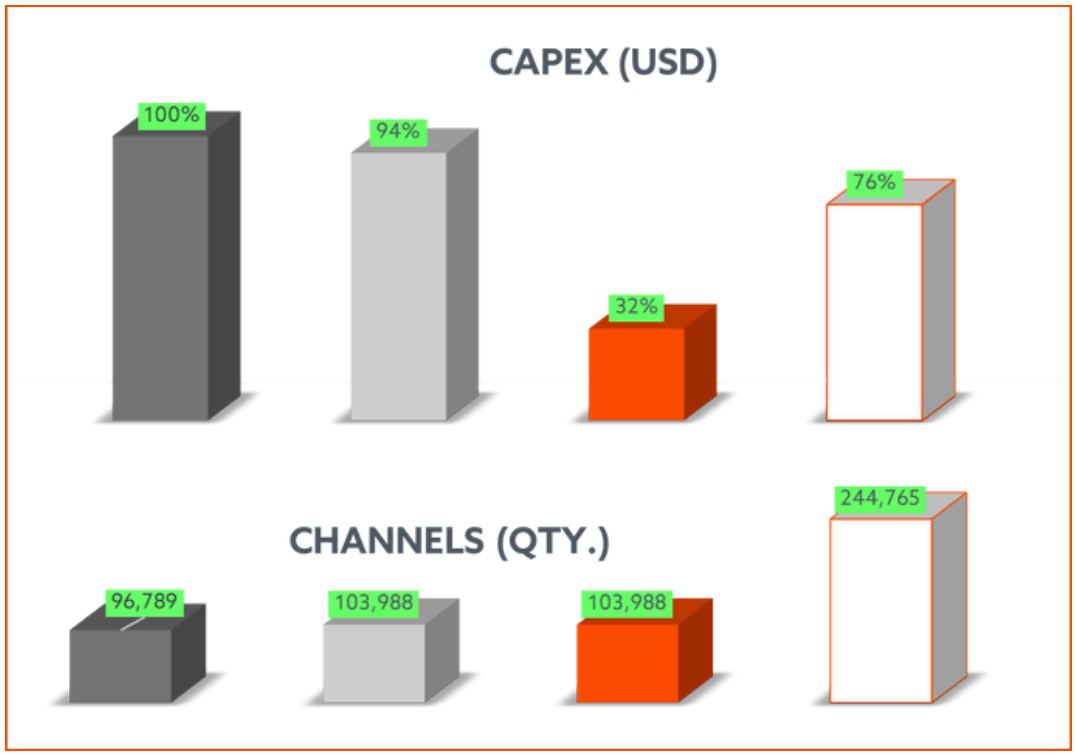
- STRYDE systems (101 and 411) use fewer heavy vehicles (e.g., 66 and 92 LVL vehicles, compared to 105 for cables), further reducing logistics costs.

"You can see we have 1.7 million VPs for the first 3 scenarios (option 301, 201, 101), then we go down to 1.1 million VPs for the last scenario (STRYDE high-density, option 411).

"This means that the customer would pay 45% of what they are paying for cables, partially due to the reduction in VPs, thanks to the the receiver density enabled by STRYDE nodes."

Mehdi Tascher

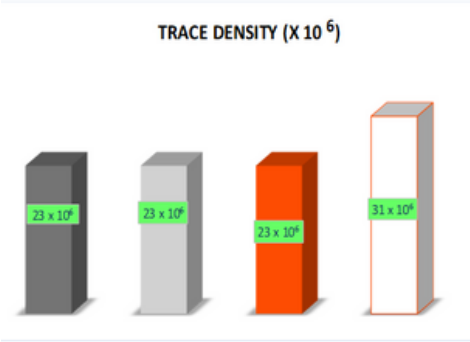
CAPEX (recording equipment)



STRYDE nodes provide companies with unparalleled cost efficiency and operational benefits.

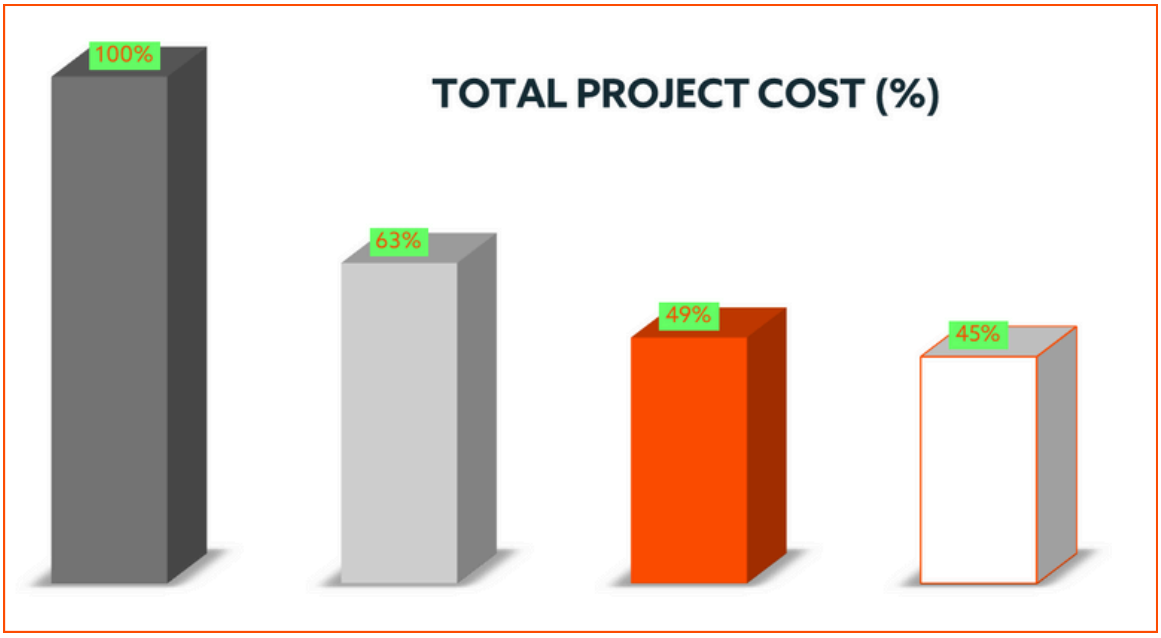
- A cable system (Option 301) is the most expensive, costing 100% of the baseline value.
- A generic node + string system (Option 201) reduces costs slightly to 94% of the baseline.
- A STRYDE node system (Option 101) stands out, costing only 32% of the baseline—one-third of the cost of a cable system.
- The STRYDE high-density system (Option 411) is still much lower than the first two options (Option 301 and 201) and delivers 31 million traces compared to 23 million traces provided by the other systems. This means not only are companies saving on capital expenditure, but they are also achieving higher data density and improved resolution.

With a maintenance-free design, an integrated data management system, and exceptional 99.75% reliability, STRYDE nodes combine cost-effectiveness with unmatched operational efficiency, making them the superior choice for modern seismic surveys.



Option 301	Option 201	Option 101	Option 411
Cable	X Node	Stryde	Stryde
RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 200 RI 12.5	RLI 100 RI 12.5
SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 200 SI 12.5	SLI 300 SI 12.5
Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

Total project cost comparison



The graph illustrates a comparison of total project costs for four seismic survey scenarios, factoring in the combined impact of operational expenditures (OPEX) and project duration.

Cable system (100%):

- The cable system is the baseline for comparison, representing the highest project cost due to its extensive manpower, equipment needs, and longer project duration.

X-Generic node system (63%):

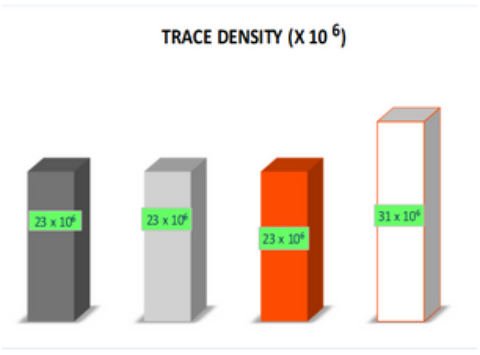
- The generic node system reduces total project costs by 37% compared to cables. However, it remains less efficient than STRYDE nodes, both in terms of cost and logistical requirements.

STRYDE node system - fully buried (49%):

- At the same density as cables and generic nodes, STRYDE nodes reduce total project costs by 51% compared to cables and are 14% cheaper than the generic node system. This efficiency is attributed to lower equipment costs, reduced headcount, and shorter project durations.

STRYDE node with double density - fully buried (45%):

- Even with double receiver density and reduced source effort, resulting in higher trace density per km^2, STRYDE nodes maintain their cost efficiency. The total cost is 55% lower than cables and 18% lower than the generic node system, showcasing the scalability and cost-effectiveness of the STRYDE system.



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Cable	X Node	Stryde	Stryde
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Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 23 x 10⁶	Trace Density 31 x 10⁶

Summary

SUMMARY TABLE CASE STUDY #1	OPTION 301	OPTION 201	OPTION 101	OPTION 411
LayOut Type	CABLE	X NODE	STRYDE	STRYDE
RI (m)	12.5	12.5	12.5	12.5
RLI (m)	200	200	200	100
SI (m)	12.5	12.5	12.5	12.5
SLI (m)	200	200	200	300
Trace Density (in full-fold zone) x 10^6 traces/km2	23 x 10^6	23 x 10^6	23 x 10^6	31 x 10^6
Recording Duration DPT (Total days)	345	280	280	191
TOTAL VP's	1,708,000 SPs	1,708,000 SPs	1,708,000 SPs	1,138,668 SPs
Recording Channel on Crew (Qty)	96,789 Rcvs	103,988 Rcvs	103,988 Rcvs	244,765 Rcvs
Capex	100%	94%	32%	76%
Total Cost Project	100%	63%	49%	45%
Headcount	738	404	309	440
Project vehicle count (LVL)	105	86	66	92
Project vehicle count (HVL)	39	9	9	9
Manhours	3,125,335	1,410,742	1,105,111	1,076,605
Diesel Consumption	7,300,628 L	5,945,123 L	5,945,123 L	4,075,116 L
Petrol Consumption	1,484,380 L	1,007,470 L	808,356 L	773,085 L
Kilometers Driven during project Duration	9,492,745 Km	5,481,042 Km	4,485,474 Km	4,168,308 Km
CO2 emission	22,994,601 Kg	18,260,186 Kg	17,800,233 Kg	12,707,137 Kg
Water consumption (m^3)	39,067 m3	17,634 m3	13,814 m3	13,458 m3

Final thoughts

- Automated operations and the ability to fully bury the receivers are crucial for unrivalled operational efficiency, coupling and a hassle free survey (discreet recording mode).
- Trace density per km^2 is critical for improved image uplift, and high-trace density is now more feasible with the right technology.
- Focus less on expensive efforts (VPs) and more on the density of the RPs for high-quality data at an affordable price point.
- Minimize man-power and resource requirements will reduce environmental impact, land disruption, helping to protect our planet and reduce risk.
- Save money and be ahead of your project timeline when modern techniques and technologies are applied to your survey design.

Conclusion

For any project size, type and location, using STRYDE will:

- Enhance survey efficiency and productivity
- Reduce crew size
- Densify the receiver grid
- Reduce equipment weight and burden
- Reduce vehicles and logistics

Resulting in:

- **Lower cost seismic surveys**
- **Increased trace density at a lower cost per km^2, resulting in a better seismic image**
- **Enhanced processing outcomes as a result of increased acquisition density**
- **Reduced exposure to health and safety risks**
- **Accelerated field operations with a leaner team and no technical interruptions or downtime**
- **Reduced environmental impact and land disruption**

"The logic and principles outlined throughout this eBook apply to seismic surveys of any size, in any environment, and for any duration.

"The insights shared highlight how seismic operations and data quality have been revolutionized by the compact size, lightweight design, ability to be fully buried, and cost efficiency of STRYDE receivers. These advancements drive substantial benefits across all aspects of a survey.

"With significantly reduced OPEX and CAPEX, minimized HSE exposure, faster and more efficient field operations, and the ability to achieve higher trace density for superior seismic imaging—all at a fraction of the cost of traditional surveys—upgrading to STRYDE is a clear and transformative choice for modern seismic projects."

Mehdi Tascher

If you have any questions or would like to book a free technical workshop with STRYDE's land seismic experts, scan the QR code here: