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INTRODUCTION, STRATEGY AND OUTLOOK

Roar Bekker, CEO



AGENDA

09:00 – 09:30	Introduction, strategy and outlook <i>Roar Bekker, CEO</i>
09:30 – 10:00	Building the EM market <i>Dag Reynolds, EVP sales and marketing</i>
10:00 – 10:30	Value creation with EM <i>Dave Ridyard, President EMGS Americas</i>
10:30 – 11:00	Break with refreshments
11:00 – 11:30	Adding value in the Barents Sea <i>Svein Ellingsrud, Founder and SVP</i>
11:30 – 12:00	A scalable and flexible business model <i>Svein Knudsen, CFO</i>
12:00 – 12:30	Summary and Q&A <i>Roar Bekker, CEO</i>
12:30 – 13:30	Lunch



SAFETY MOMENT



EMGS IN BRIEF

EMGS pioneered the marine EM industry

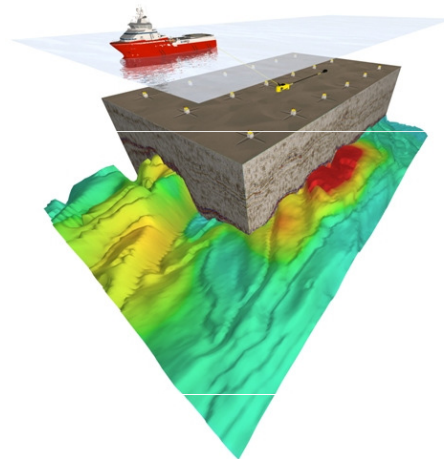
Remains the undisputed technology and market leader

Provides a full suite of services:

- Survey design
- Data acquisition
- Processing and interpretation
- Integration

Worldwide operations with main offices in Trondheim, Stavanger, Oslo, Houston and Kuala Lumpur

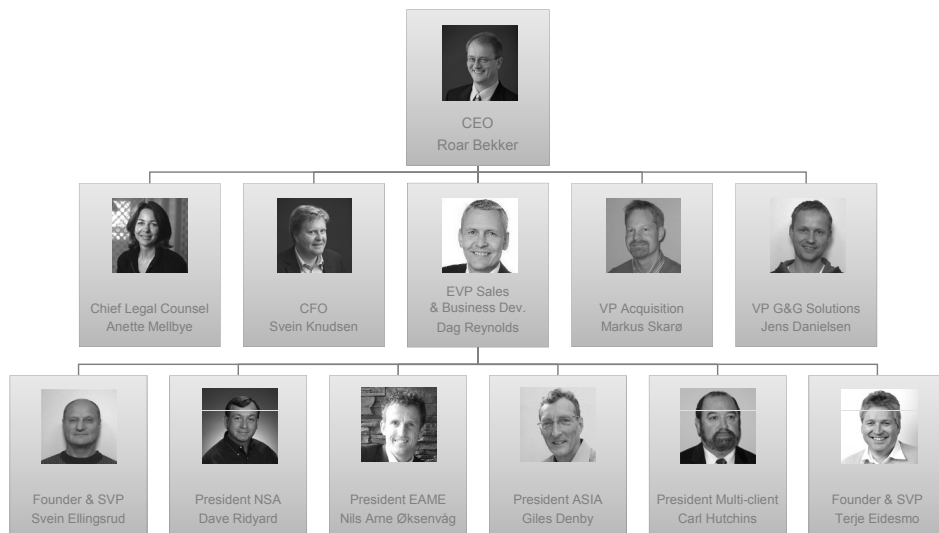
Approximately 200 employees



THE BASICS OF EM



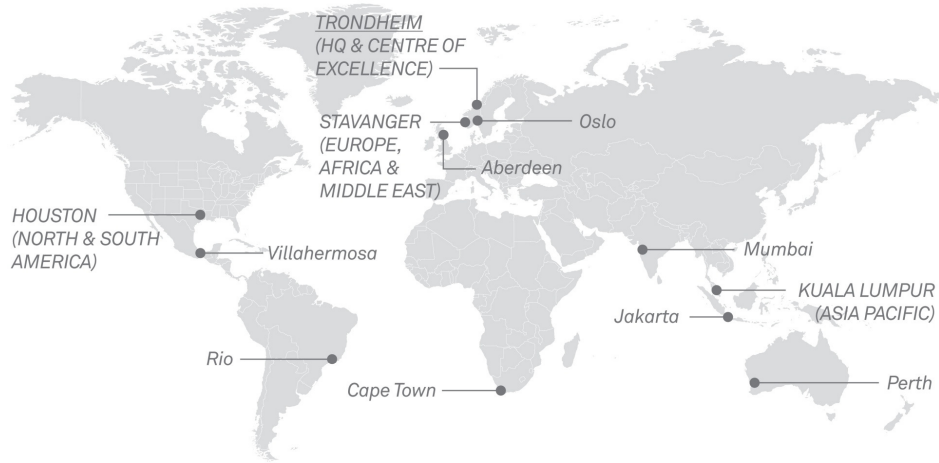
EMGS MANAGEMENT



Average industry experience of more than 20 years

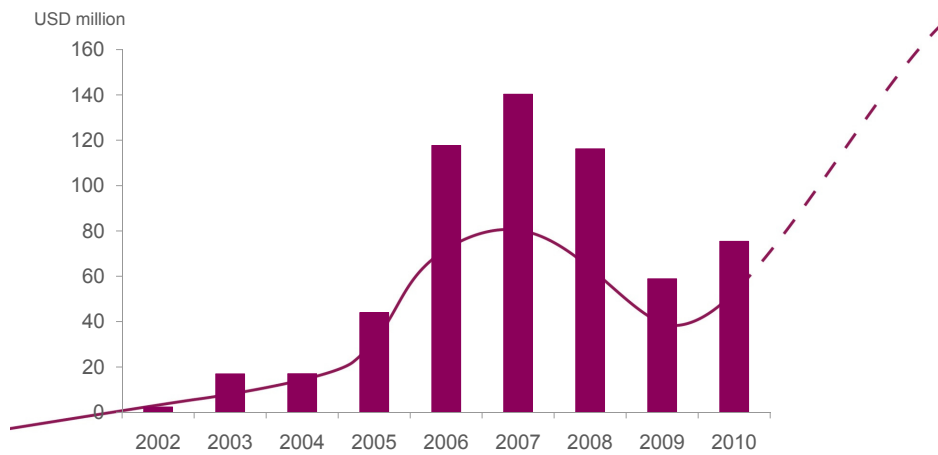


WORLDWIDE PRESENCE



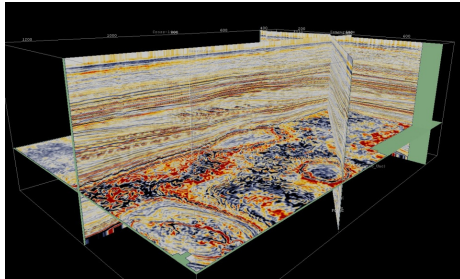
 **emgs**

EMGS HISTORY: TEXTBOOK COMMERCIALISATION



 **emgs**

SIMILAR TECHNOLOGY INNOVATIONS

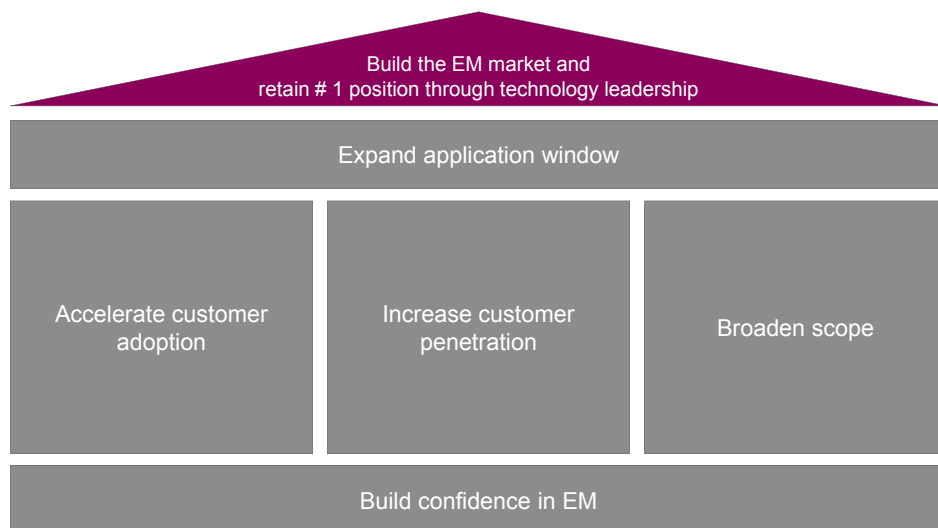


3D Seismic

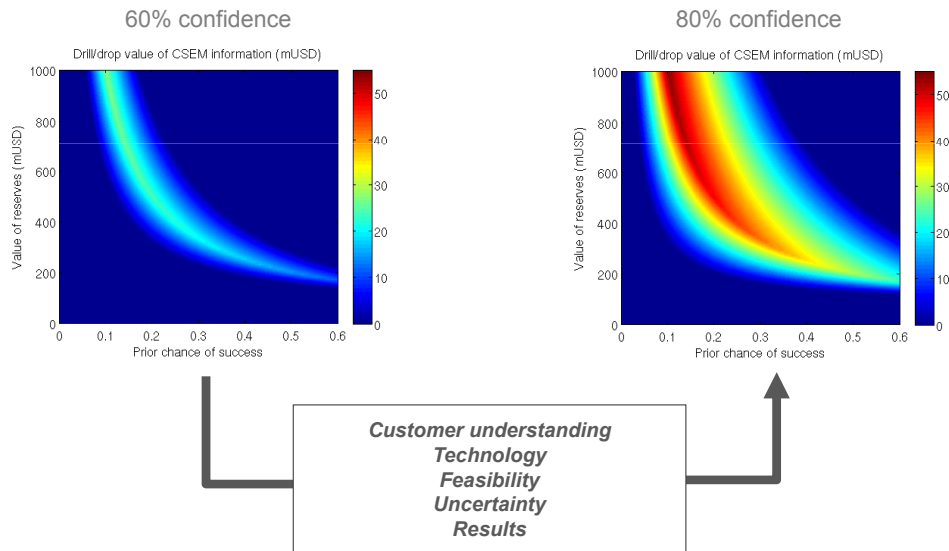


Directional drilling

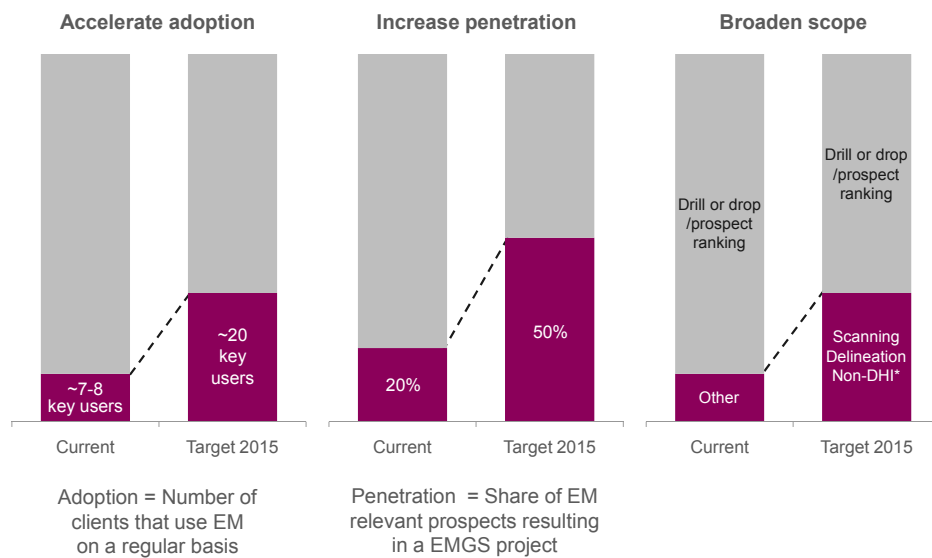
EMGS STRATEGY TOWARDS 2015



BUILDING CONFIDENCE IN EM

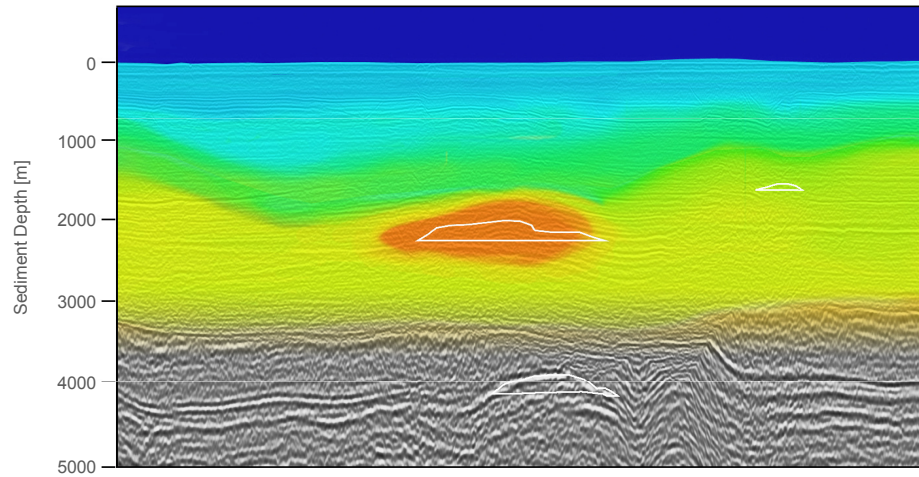


THREE KEY PILLARS



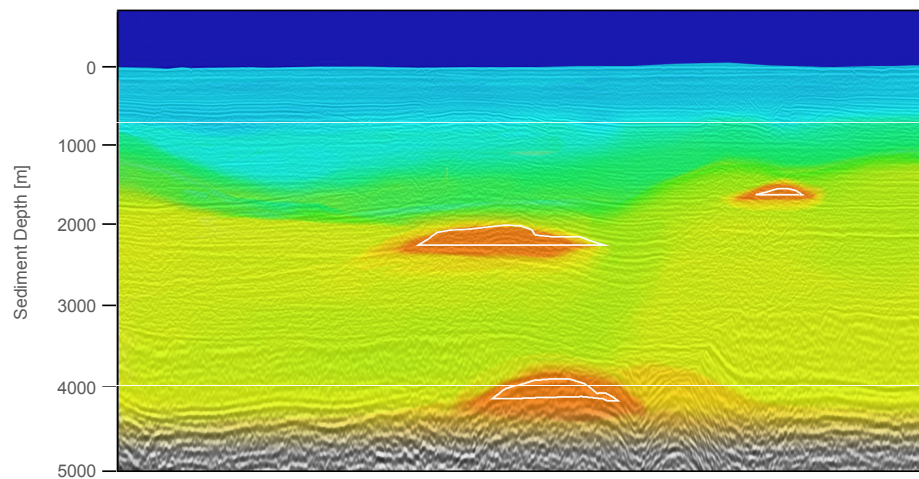
* DHI : Direct Hydrocarbon Indicator

*EXPANDING THE APPLICATION WINDOW
THROUGH TECHNOLOGY DEVELOPMENT*



 **emgs**

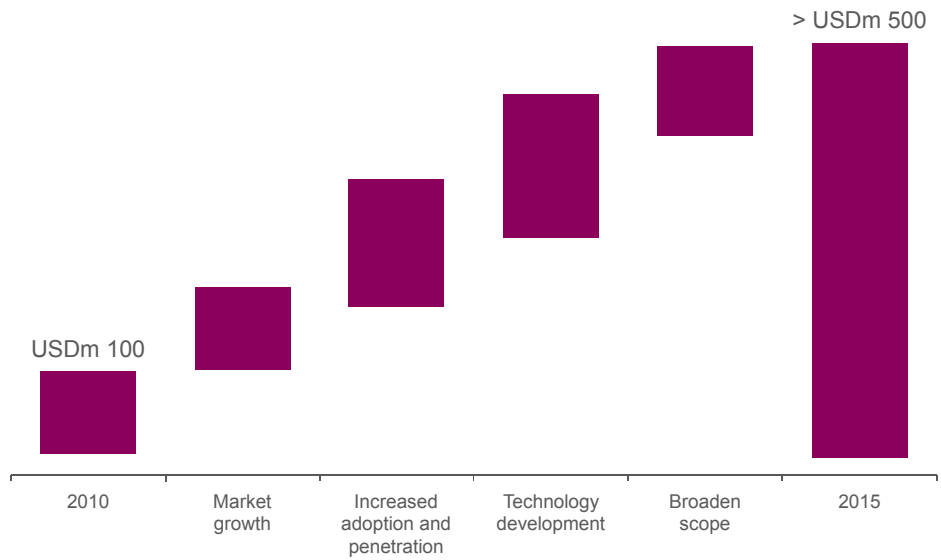
*EXPANDING THE APPLICATION WINDOW
THROUGH TECHNOLOGY DEVELOPMENT*



"We believe the next-generation system will at least double the number of hydrocarbon prospects we can evaluate with EM." Mark Rosenquist, Shell

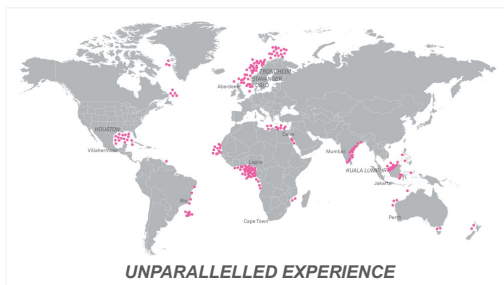
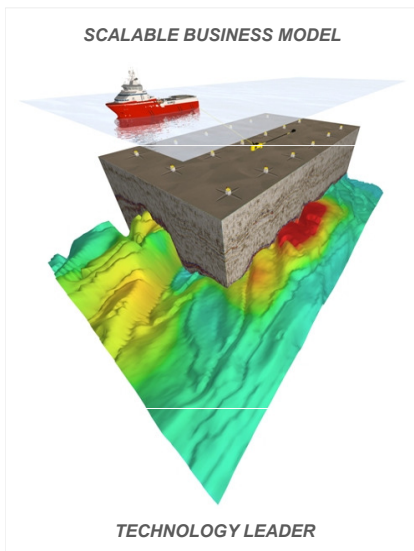
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EM MARKET 2015



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EMGS – IDEALLY POSITIONED FOR GROWTH



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BUILDING THE EM MARKET

Dag Reynolds, EVP Sales and Business Development



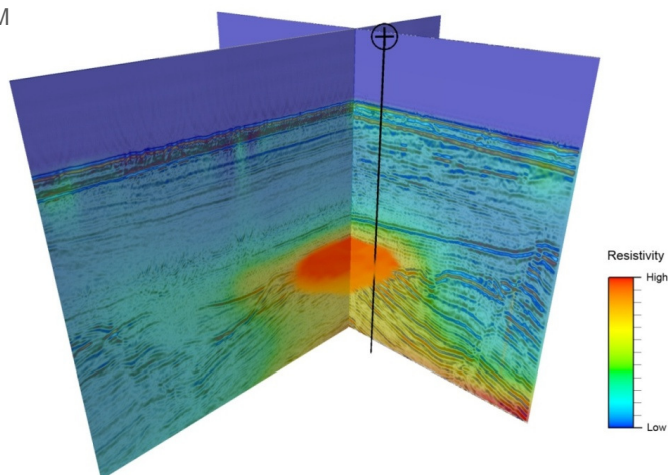
SKRUGARD, 2008 MULTI-CLIENT DATA

EMGS's multi-client CSEM resistivity data over the Skrugard discovery

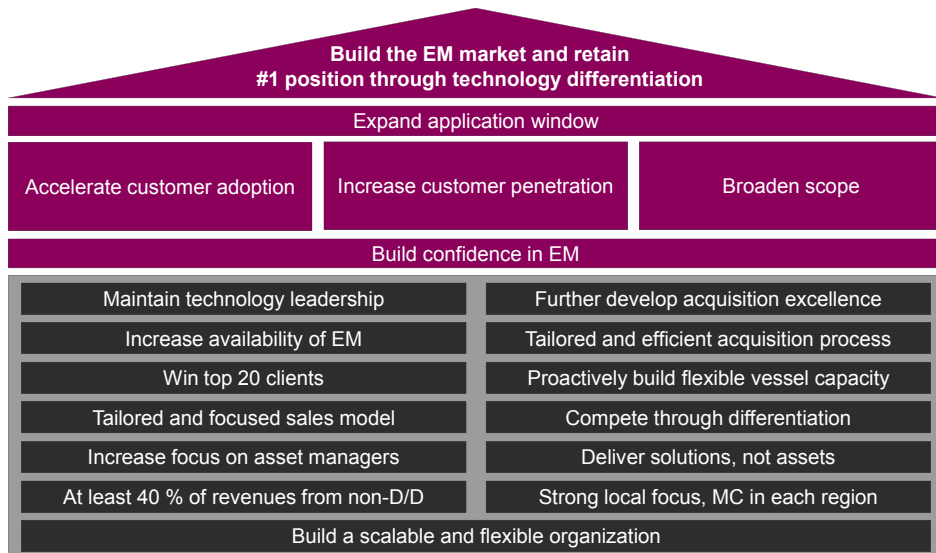
3D EM data integrated with publically available seismic data

Imaged using 3D anisotropic inversion

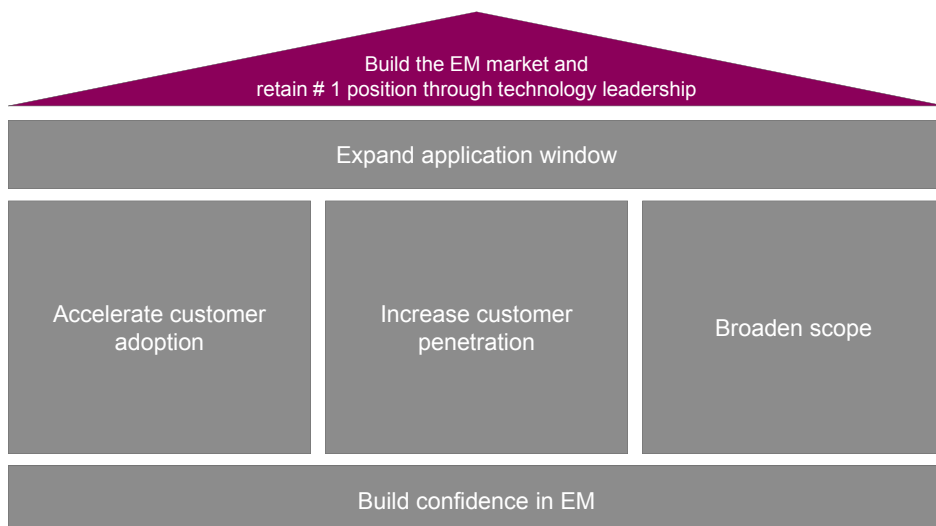
Well location from NPD



SUMMARY OVERALL STRATEGY AND GOALS



EMGS STRATEGY TOWARDS 2015



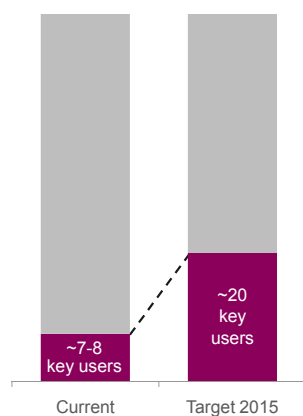
BUILDING CONFIDENCE

Key drivers

- Close interaction with customers and knowledge sharing
- Customers' experience and internal training
- Combining EM and geology
 - A variety of joint projects under discussion, with a number of seismic companies
- Exploration successes



ACCELERATE CUSTOMER ADOPTION

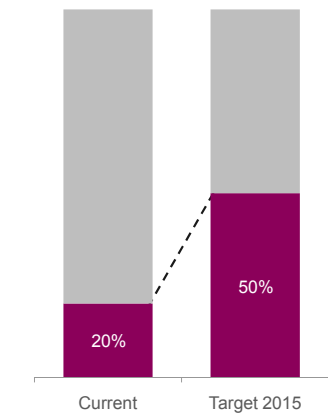


Adoption = Number of clients that use EM on a regular basis

Key priorities

- Integrated marketing at all levels
- Tailored strategy for each customer
- Build confidence in Value of Information understanding
- Multi-client plays a crucial role

INCREASE CUSTOMER PENETRATION

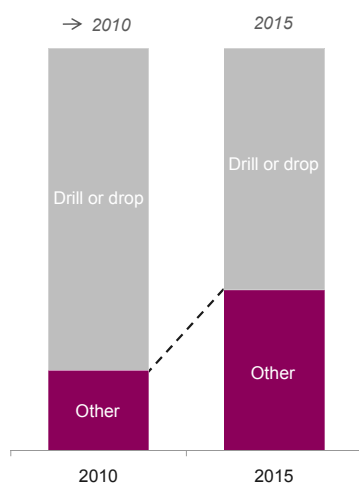


Penetration = Share of EM relevant prospects resulting in a EMGS project

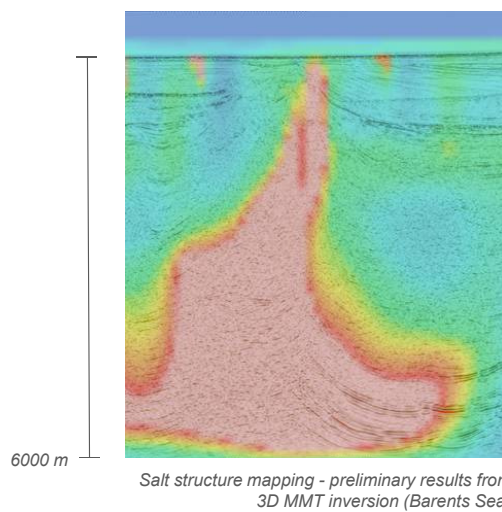
Key priorities

- Spread understanding and knowledge
- Ensure that perceived application window = true window
- Establish EM in the E&P workflow
- Increase confidence

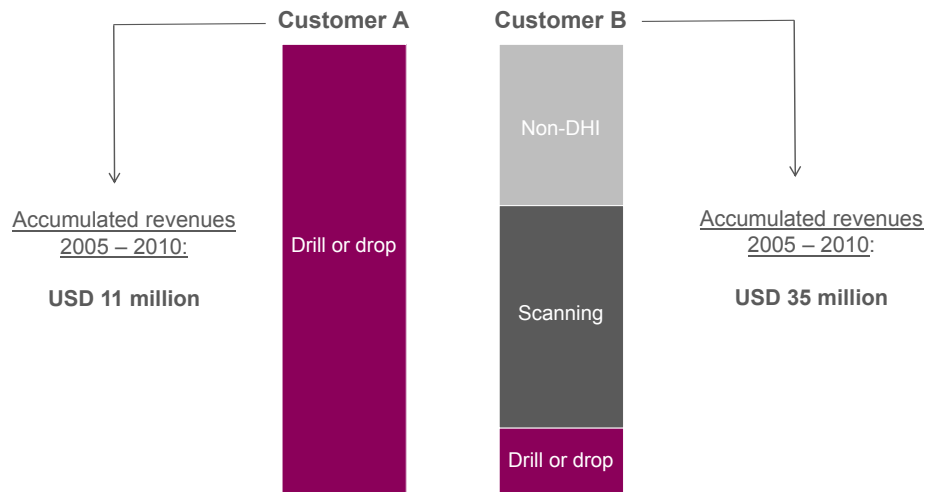
BROADENING THE SCOPE



Salt/basalt

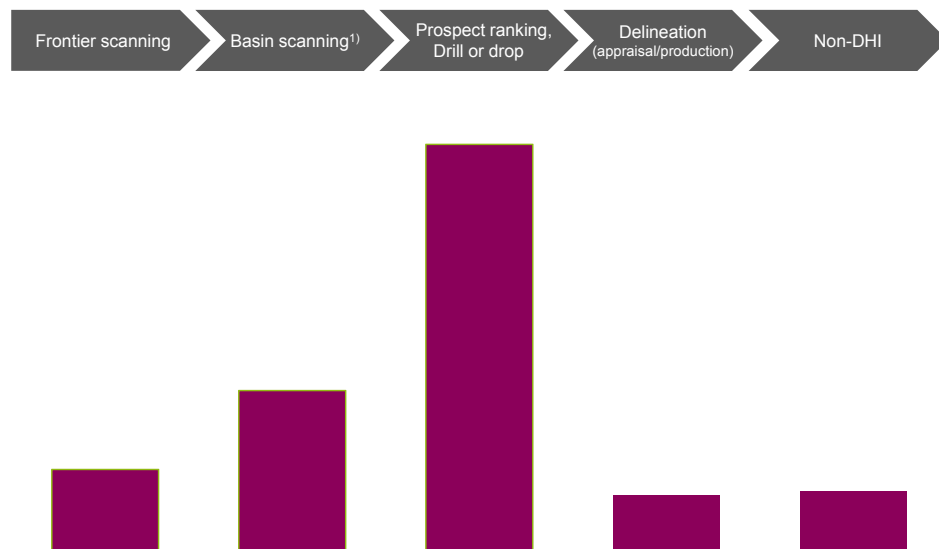


EXAMPLE: THE VALUE OF BROADENING OUR SCOPE



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EMGS ADDRESSABLE MARKET BY SEGMENT, 2015



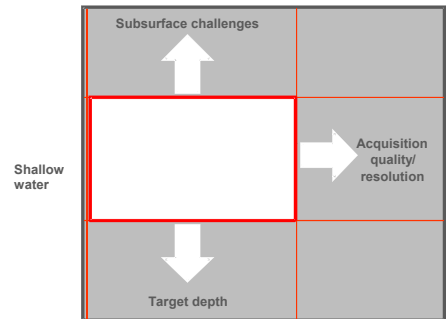
1) Maturing basin fields and semi frontier

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RETAIN #1 POSITION BASED ON TECHNOLOGY LEADERSHIP

Key priorities

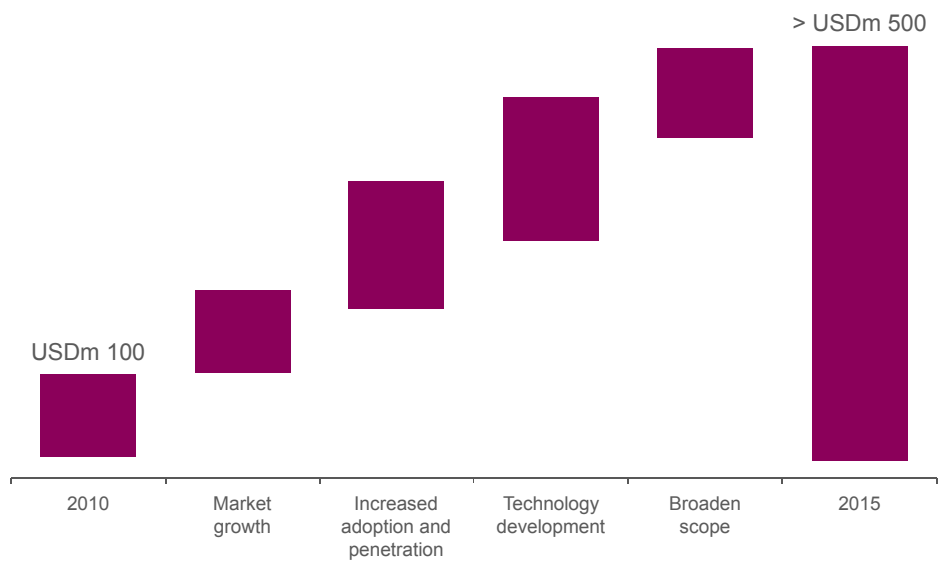
- Expand application window
- Increase accessibility of EM
- Develop technologies that enable “new” EM segments
- Communicate & quantify the value and uncertainty of EM



Technology targets



EM MARKET 2015



THE MULTI-CLIENT BUSINESS MODEL

Optimising vessel utilisation

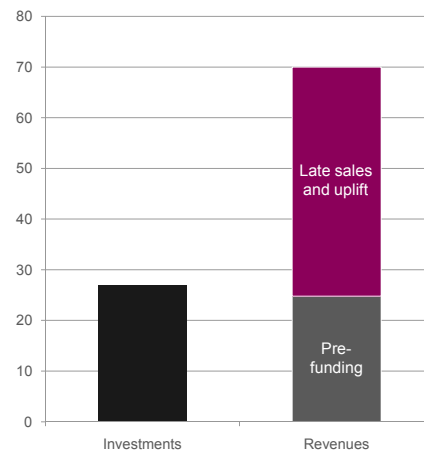
We control timing and costs

Strong cash flow and revenue stream

Performance to date calls for further investments

Conservative investment approach

Investments and sales (USD Million)



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GOALS 2015

20+ key clients	
EM integrated in customer workflow	
Capacity leader	<div> <div>"Tailored"</div> </div> <div> <div>"Flexible"</div> </div>
Solution provider	<div> </div> <div> </div>

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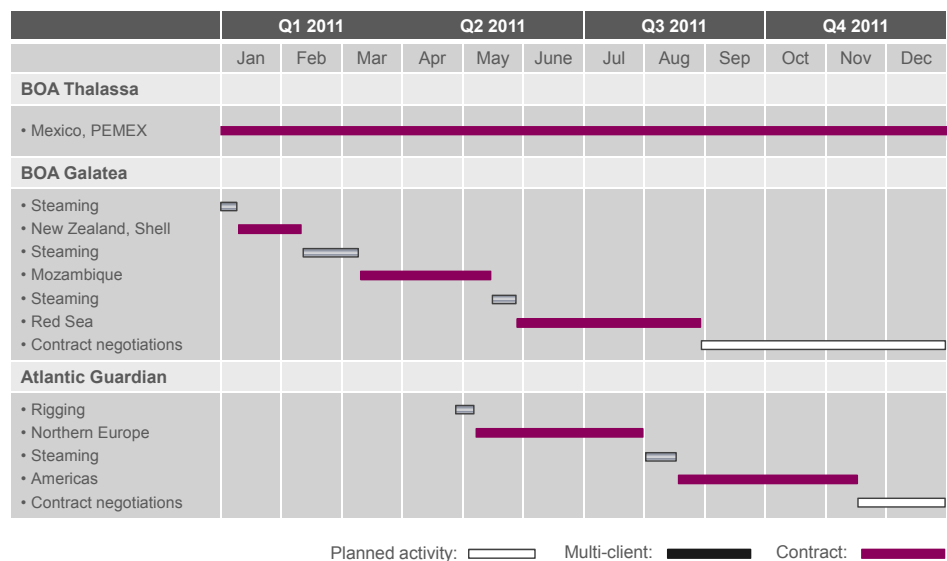
KEY REGIONS

We have already gained experience in all the right areas



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VESSEL ACTIVITY & BACKLOG



SUMMARY

Retaining strong backlog

Market absorbed third vessel

Record opportunity level

Improving prices

Increasing adoption through
exploration successes

Strong macro picture with increased
E&P spending



VALUE CREATION WITH EM DRILL AND DROP...AND BEYOND

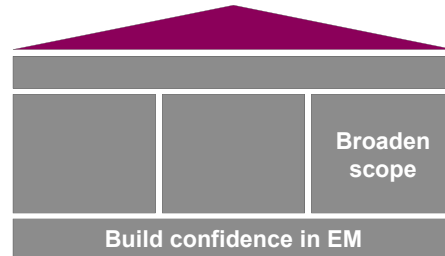
Dave Ridyard, President – EMGS Americas



VALUE CREATION WITH EM

Agenda

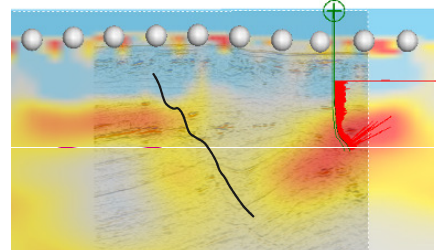
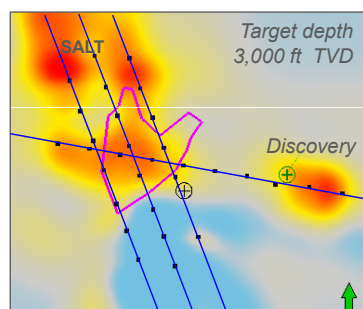
- EM “drill and drop” application
 - Drilling risk reduction case history
 - Does EM really work?
 - Value creation & value of information
- Broadening the scope of EM applications
 - Site survey
 - Field development applications
 - Non DHI* applications
 - Frontier exploration



* DHI : Direct Hydrocarbon Indicator

3D EM – DRILL & DROP

Western Gulf of Mexico Example



3D EM – DRILL & DROP

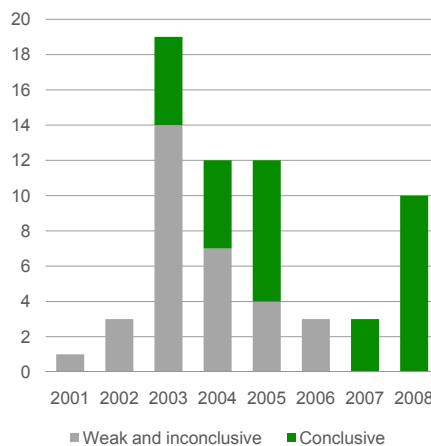
Does it work?

	Dry Hole	Discovery
EM Positive	10	40
EM Negative	26	10

Historical Prediction Strength = 77%

Study of 86 wells
(Hesthammer et al., The Leading Edge, Jan. 2010)

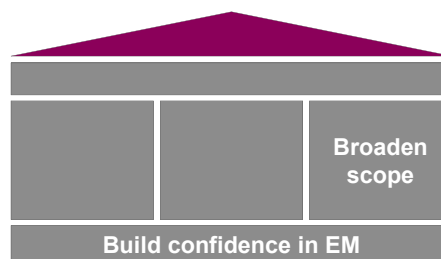
EM Surveys (by year)
Buland et al (Statoil)



VALUE CREATION WITH EM

Agenda

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PROSPECT ECONOMICS

Before EM

NPV Reserves	V \$	\$ 600 M
Probability of Geologic Success	P _G	20%
Well Cost	W	\$ 100 M

Expected Value = SUM (Probability x (Value – Cost))

2 possible drilling outcomes

(1) Success	20% x (\$600M - \$100M)	\$100M
(2) Dry Hole	80% x (- \$100M)	- \$ 80M

Expected value (if we drill) \$ 20M

Conclusion : Marginal drilling prospect



PROSPECT ECONOMICS

After EM

4 POSSIBLE OUTCOMES

		Drill	Don't drill
If Reservoir exists	P _g	True Positive	False Negative
If Reservoir does not exist	1-P _g	False Positive	True Negative

Prediction strength = True / (True + False)



PROSPECT ECONOMICS

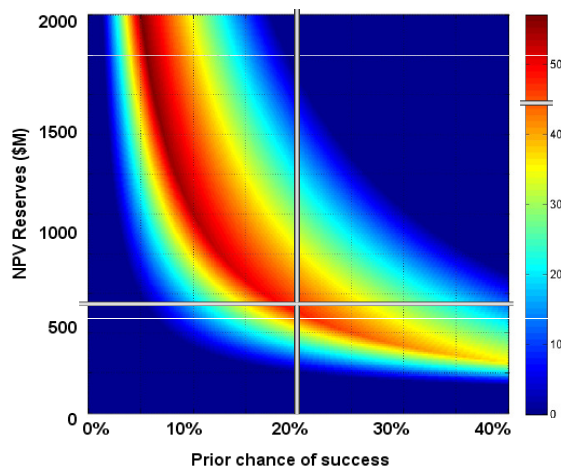
Expected Value (With EM - Assuming 80% EM reliability)

(1) Reservoir Exists	True Positive	16% (20% x 80%)	SUCCESS
Expected Value (1)	16% x (\$600M - \$100M)		\$ 80.0 M
(2) Reservoir Exists	False Negative	4% (20% x 20%)	DON'T DRILL
Expected Value (2)	4%		-\$ 0.0 M
(3) No Reservoir	True Negative	64% (80% x 80%)	DON'T DRILL
Expected Value (3)	64%		-\$ 0.0 M
(4) No Reservoir	False Positive	16% (80% x 20%)	DRY HOLE
Expected Value(4)	16% x (-\$100M)		-\$ 16.0 M
Prospect Expected Value (WITH EM)			\$ 64.0 M
Prospect Expected Value (WITHOUT EM)			\$ 20.0 M
Value of EM Information			\$ 44.0 M



VALUE OF INFORMATION

Value of Information
(Buland et al : EAGE 2010)



Additional potential value :

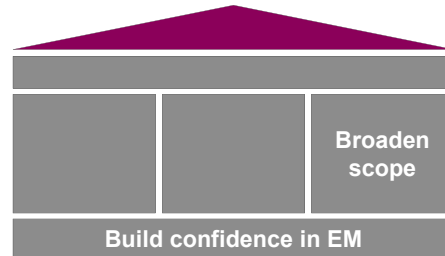
- Ranking
- Enhanced fluid distribution and fluid volume knowledge



VALUE CREATION WITH EM

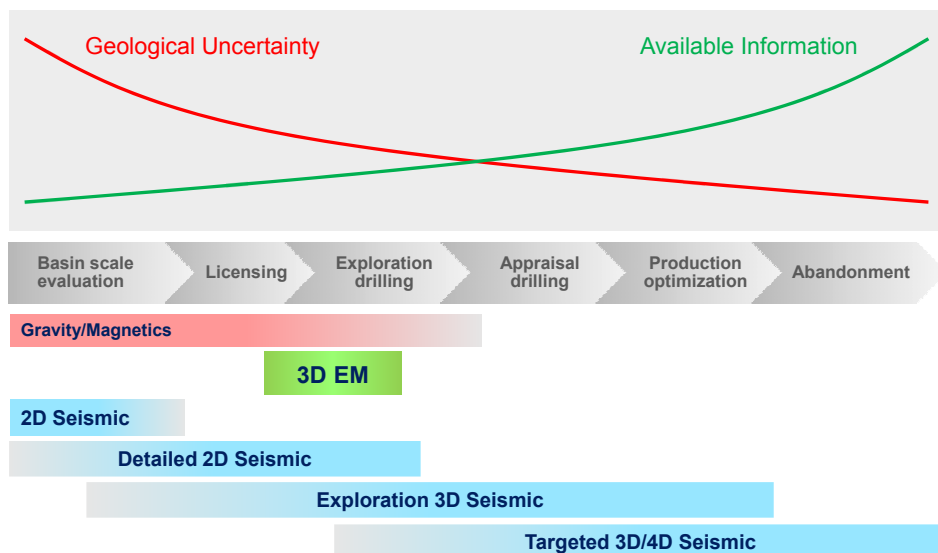
Agenda

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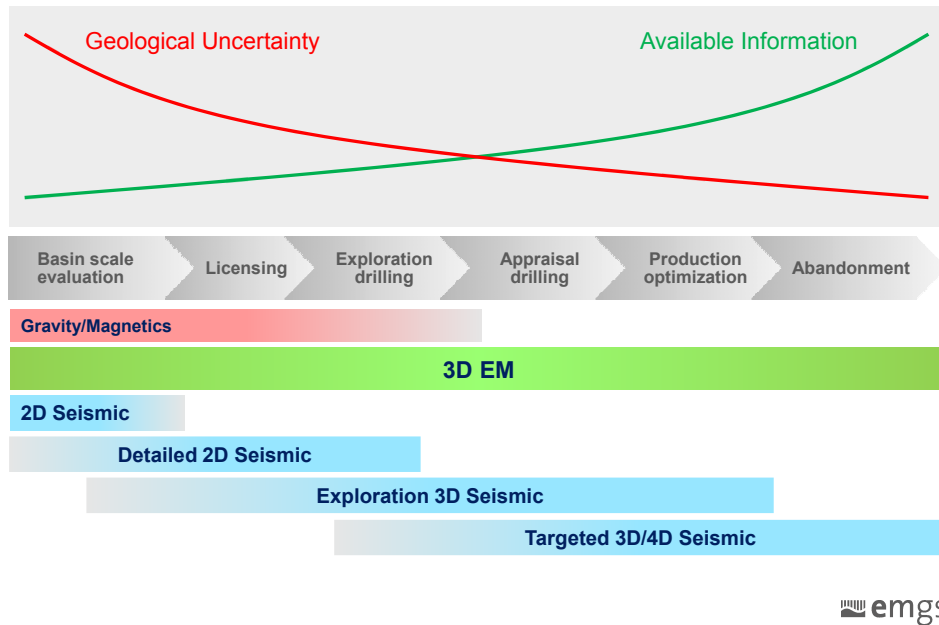


* DHI : Direct Hydrocarbon Indicator

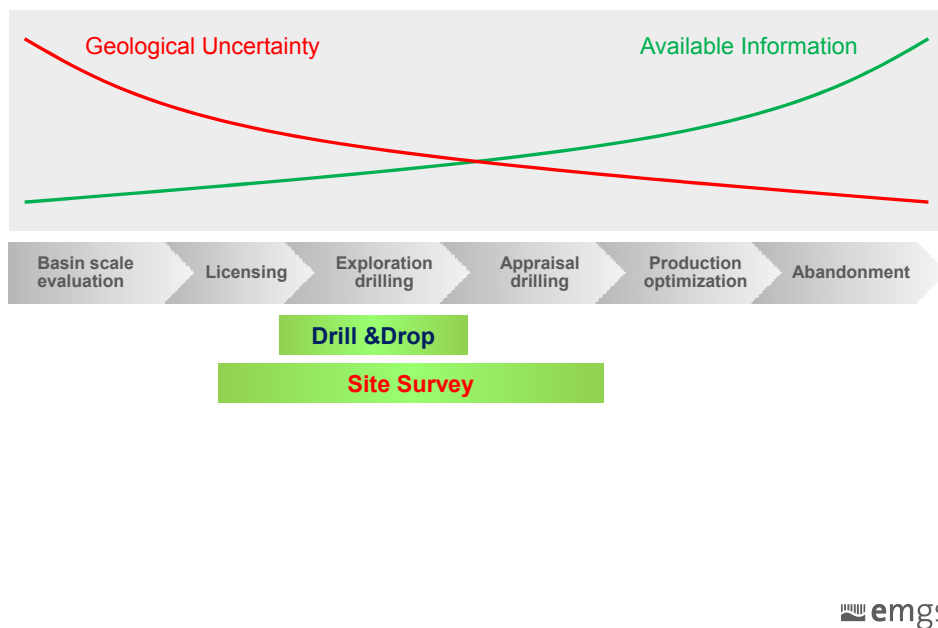
THE ROLE OF MARINE GEOPHYSICAL TECHNOLOGY: 2008



THE ROLE OF MARINE GEOPHYSICAL TECHNOLOGY: 2015



3D EM: A GROWING PORTFOLIO OF E&P APPLICATIONS



3D EM: A GROWING PORTFOLIO OF E&P APPLICATIONS

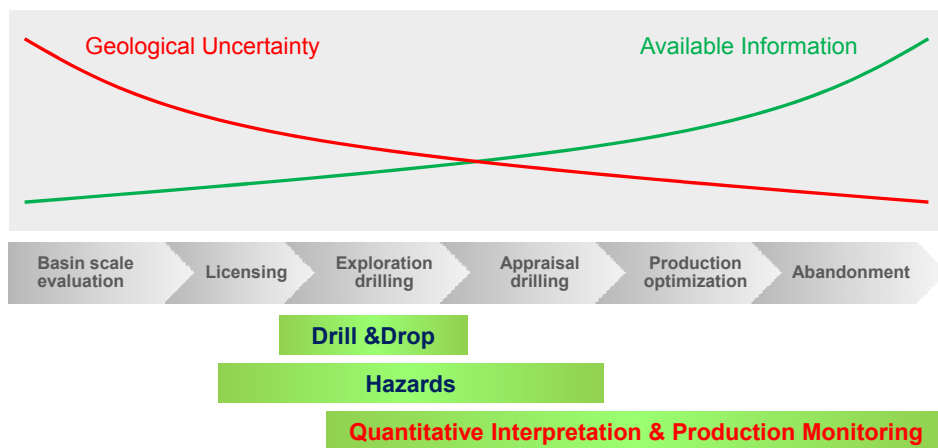


Site survey

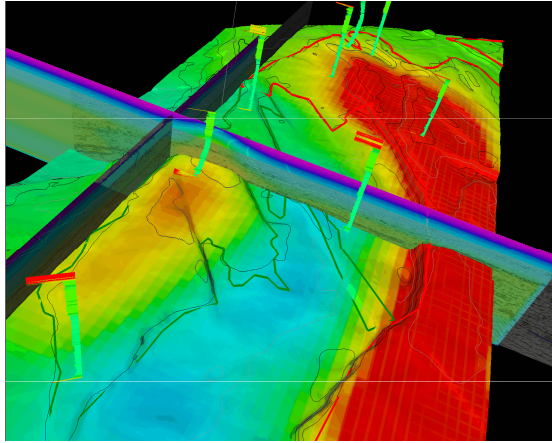
Identification of shallow drilling hazards



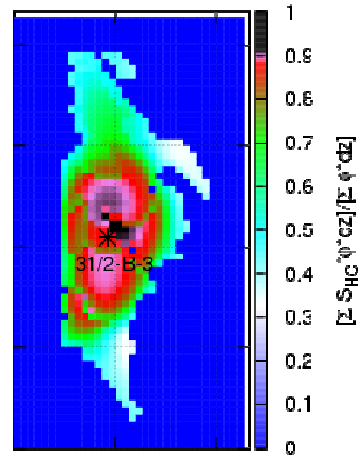
3D EM: A GROWING PORTFOLIO OF E&P APPLICATIONS



QUANTITATIVE INTERPRETATION



2008 Resistivity mapping

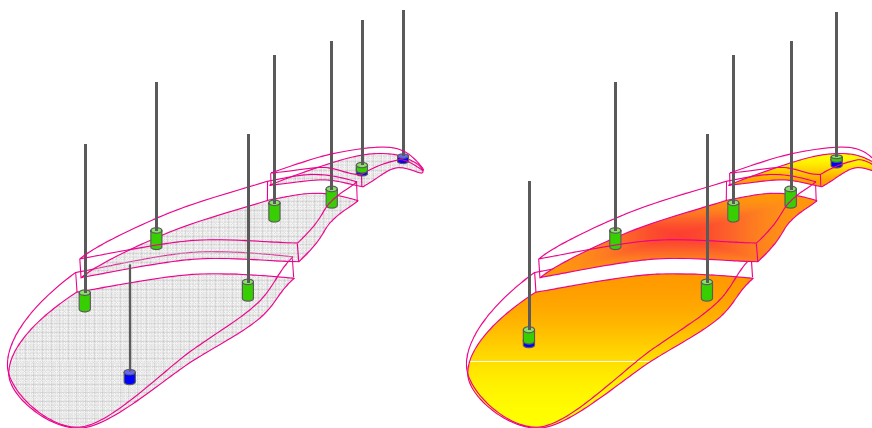


2010 Hydrocarbon saturation

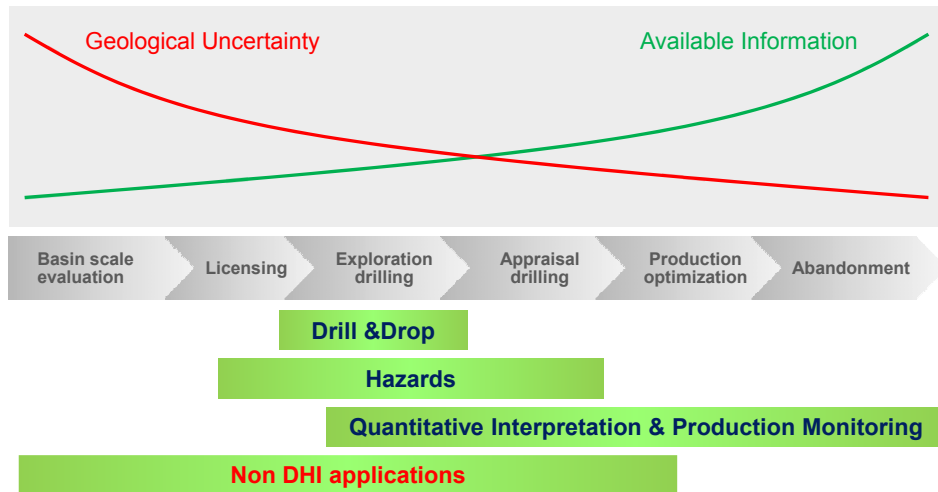
Morten et al EAGE 2011

QUANTITATIVE INTERPRETATION

Appraisal drilling application



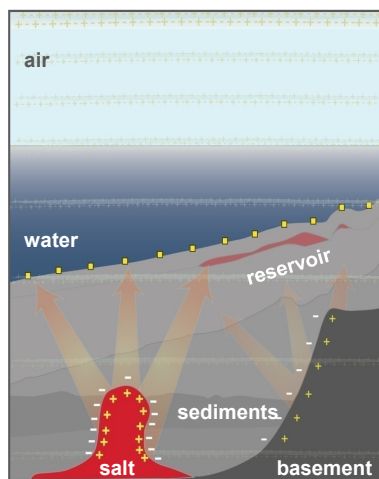
3D EM: A GROWING PORTFOLIO OF E&P APPLICATIONS



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NON-DHI GEOLOGY

Combining Magnetotellurics and ultra low frequency CSEM

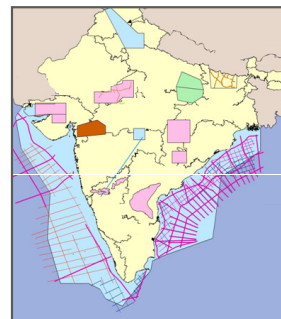


2D : Basin evaluation

- Basement
- Sedimentary package thickness
- Carbonates
- Volcanics
- Salt detection
- Thermal gradients

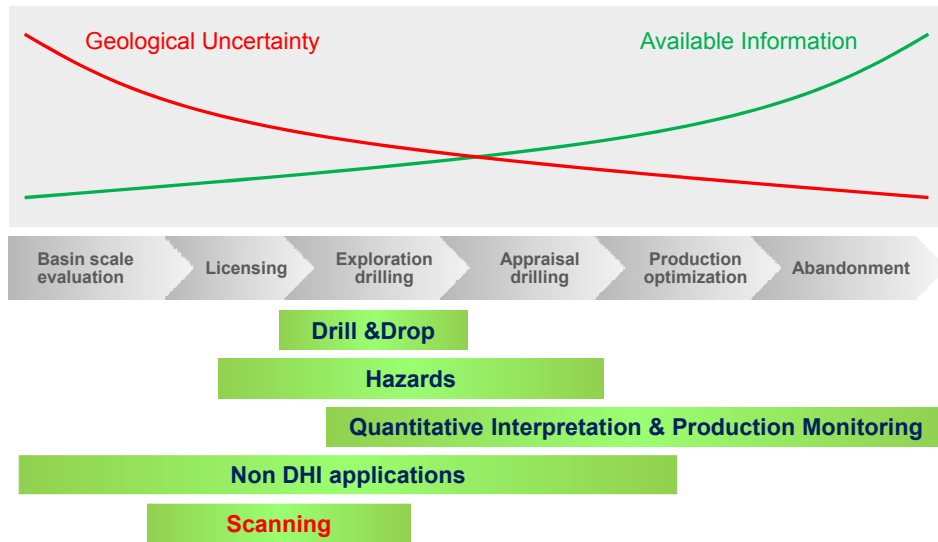
3D

- Salt body imaging



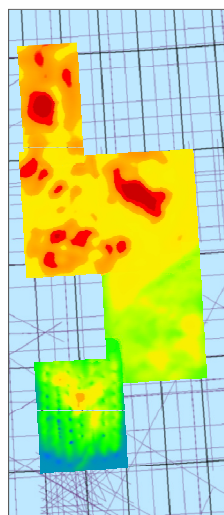
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3D EM: A GROWING PORTFOLIO OF E&P APPLICATIONS

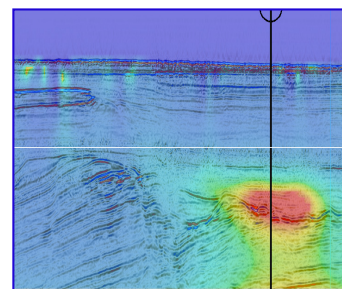
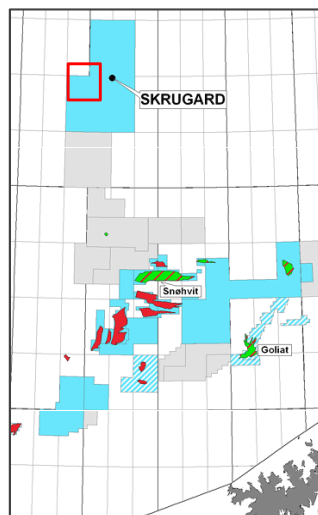


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EM DRIVEN FRONTIER EXPLORATION WORKFLOW



Multi-client 3D EM data



Statoil
Major Barents Sea Discovery
1 April 2011

emgs

VALUE CREATION WITH EM

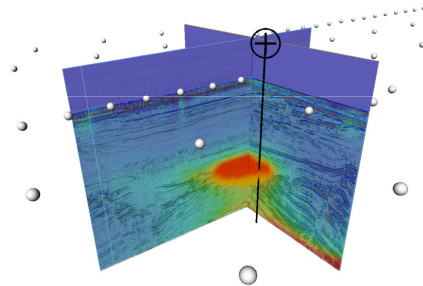
Summary

“Drill and drop” is now a proven application

- 75-80% historical prediction strength
- Better in the future
- Significant, proven VOI

Broadening the scope of EM applications

- Site survey
- Basin scale geology
- Salt body imaging
- Frontier scanning
- Quantitative interpretation/Time lapse

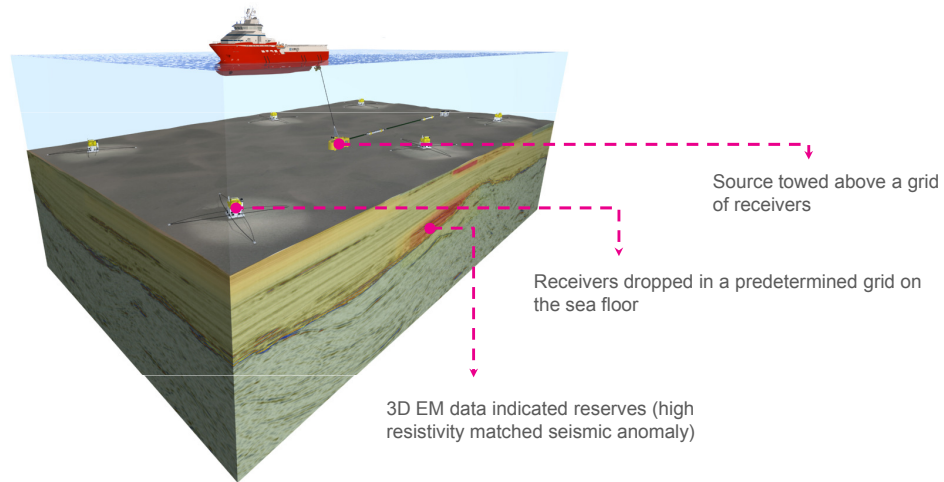


ADDING VALUE IN THE BARENTS SEA

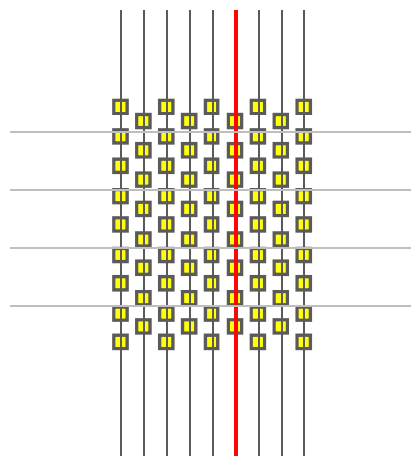
Svein Ellingsrud, Founder & SVP



3D WIDE-AZIMUTH DATA ACQUISITION



3D WIDE-AZIMUTH DATA ACQUISITION



All lines live with wide-azimuth information



TECHNICAL REQUIREMENTS – 3D WIDE-AZIMUTH DATA



- Capacity: up to 200 receivers
- Powerful source
- Accurate navigation, positioning and timing
- Efficient operations: ~1000 km² per month
- Water depth range: 20–3500 m



 emgs

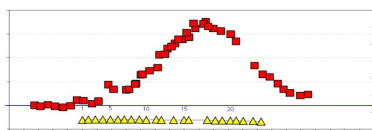
FROM 2D TO 3D WIDE-AZIMUTH PROCESSING

2002

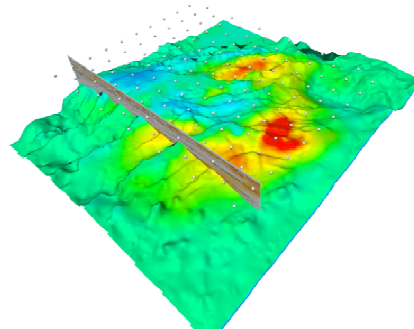


2010

2D



3D anisotropic inversion



 emgs

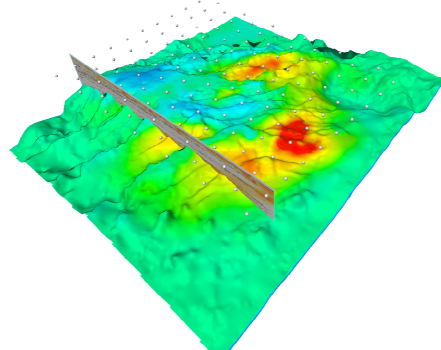
3D ANISOTROPIC INVERSION IS CRUCIAL

The subsurface is anisotropic

- Resistivity depends on direction
- This must be handled correctly

3D anisotropic inversion

- Real data is compared with modelled data
- Final product is a 3D resistivity cube in a standard seismic format (SEG-Y)
- Can estimate the “relative volume” using the final model



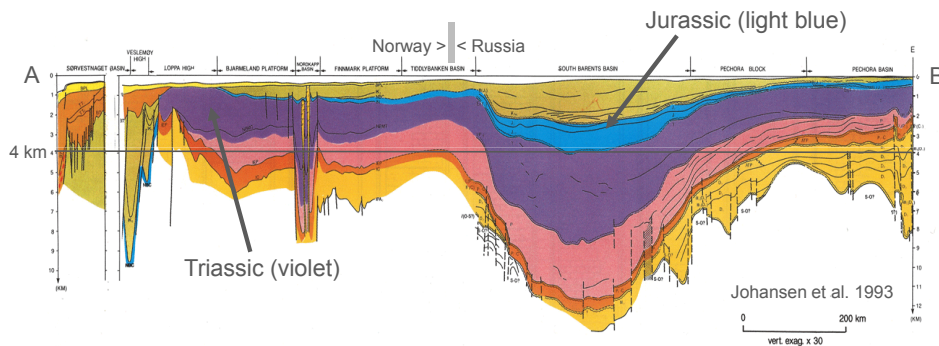
3D data from the Barents Sea

FRONTIER EXPLORATION IN 1993 – HIGH POTENTIAL



Seismic information
from 1993

INTERPRETATION FROM SEISMIC DATA IN 1993



Main discoveries

Norwegian side

- Snøhvit, 1984 (Jurassic)
- Goliat, 2000 (Triassic)
- Skrugard, 2011 (Jurassic)

Russian side

- Stokman, 1988 (Jurassic)
- Murmanskaya, 1983 (Triassic)
- Kildinskoya, 1985 (Triassic)



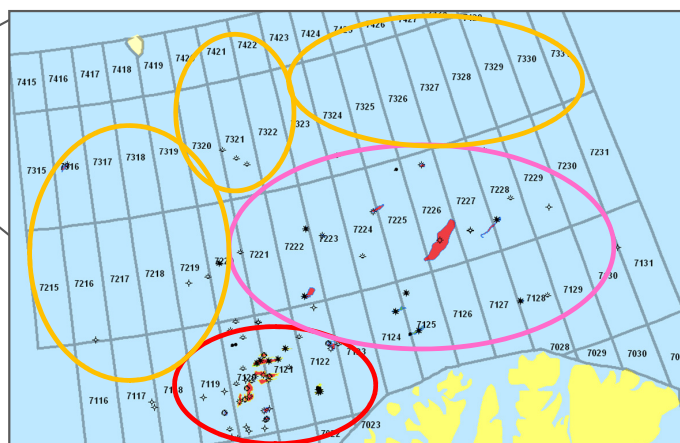
BARENTS SEA – STATUS, NORWEGIAN SIDE



- 81 exploration wells
- 2 in progress
- 3 main commercial discoveries (all imaged by EMGS):
 - Snøhvit
 - Goliat
 - Skrugard
- Large petroleum system

Undiscovered large fields?

Is seismic data alone the ideal tool?

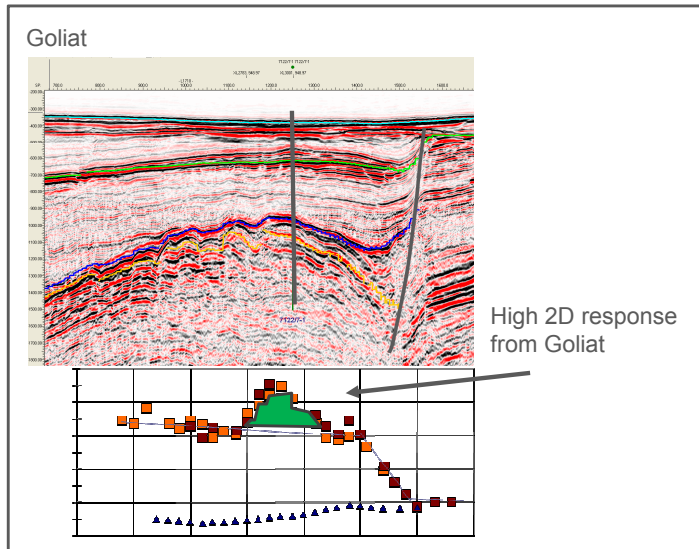


○ Explored ○ Less explored ○ Virtually unexplored



GOLIAT, 2005/2006 – 2D LINES

[Back](#)



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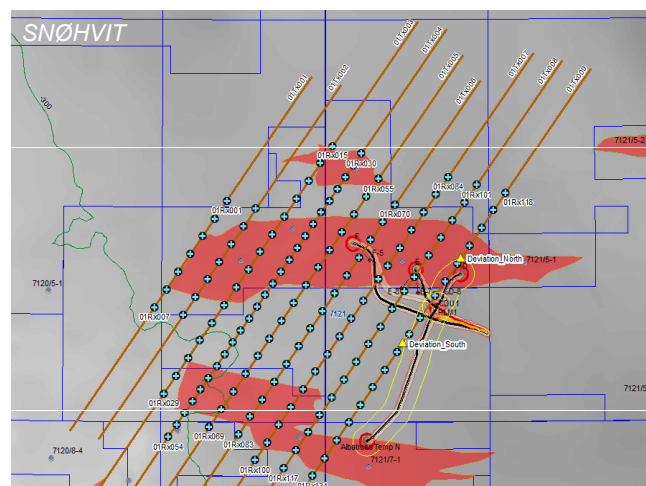
SNØHVIT, 2010 – 3D EDDA CONSORTIUM

Participants

- ConocoPhillips
- Statoil
- Shell
- RWE
- VNG
- Rocksource

Observer

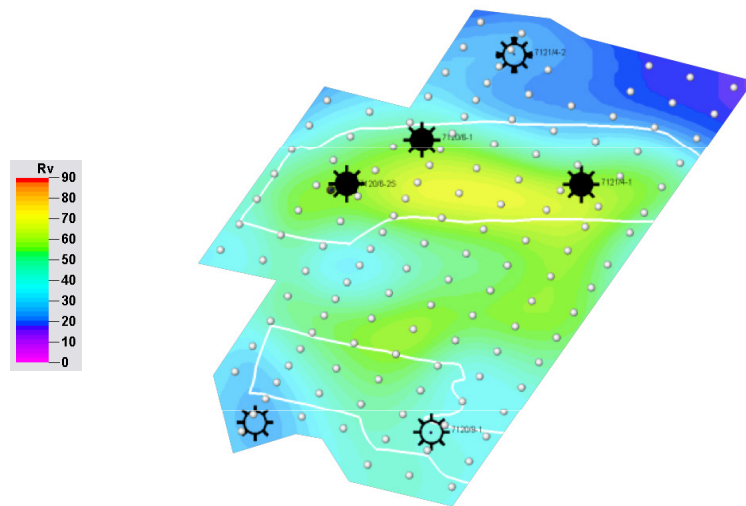
- NPD



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SNØHVIT, 2010

[Back](#)



Depth slice at 2300 m from 3D CSEM inversion. Field outline in white

 **emgs**

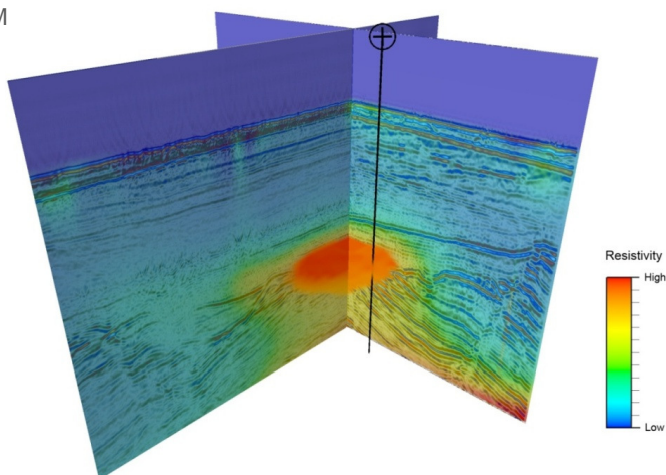
SKRUGARD, 2008 MULTI-CLIENT DATA

EMGS's multi-client CSEM resistivity data over the Skrugard discovery

3D EM data integrated with publically available seismic data

Imaged using 3D anisotropic inversion

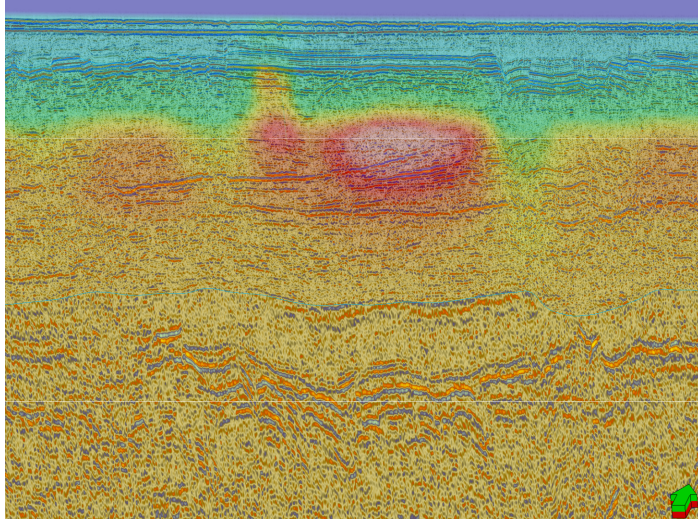
Well location from NPD



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MULTI-CLIENT DATA, 2010

Resistive anomalies

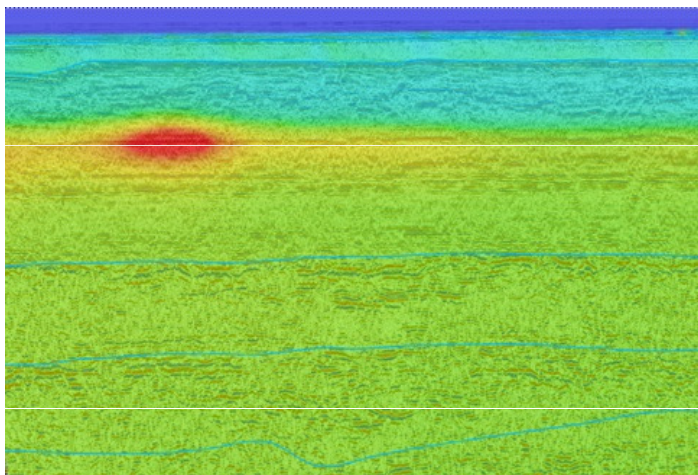


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MULTI-CLIENT DATA, 2010

Stratigraphic trap?

Hardly visible
on seismic data



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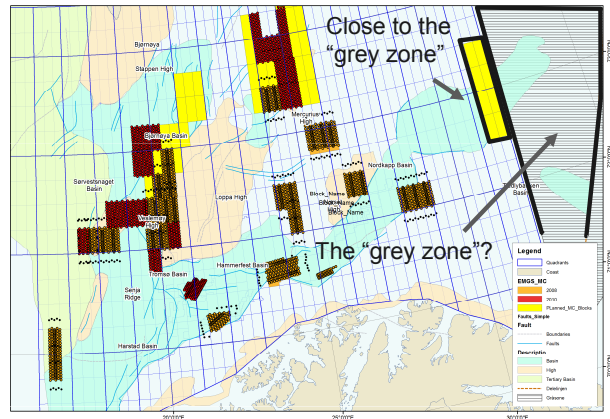
EMGS MULTI-CLIENT DATA COVERAGE

■ 20th round, 2008

■ 21st round, 2010

In total, 16,000 km²

■ 22nd round surveys, 2011/2012 (preliminary areas in yellow)



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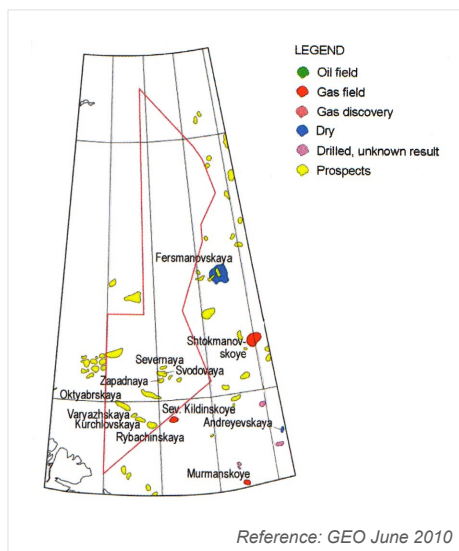
THE "GREY ZONE"

Signed agreement between Russia and Norway with effect from 7 July

High expectations from oil companies and the government

Limited geophysical data available

A combination of 2D seismic and 3D CSEM data gives a quicker estimate of the hydrocarbon potential



Reference: GEO June 2010

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SUMMARY

81 exploration wells based on seismic data -
lack of success in the eastern part of the
Norwegian side

EMGS's technology verified in complex
geology

Proven track record in the Barents Sea

The "grey zone": Russian and Norwegian
agreement from 7 July

A combination of 2D seismic and 3D
CSEM data can reduce exploration risk
and time to first oil

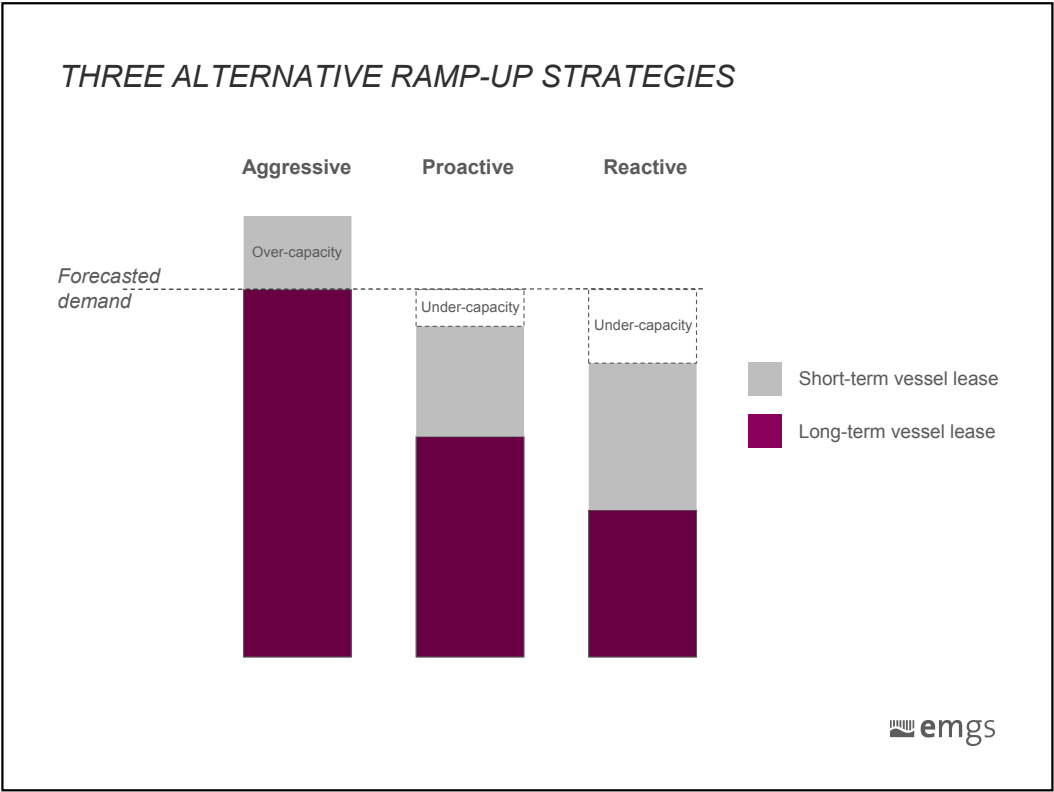
Show case with applications worldwide!



A SCALABLE AND FLEXIBLE BUSINESS MODEL

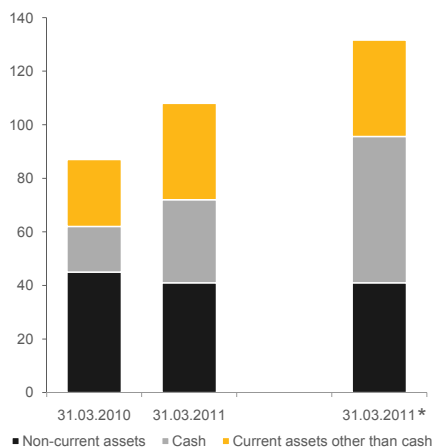
Svein Knudsen, CFO





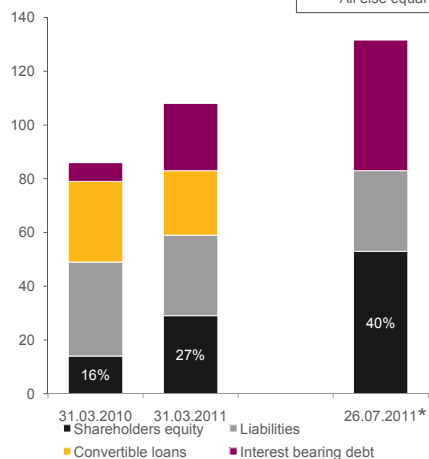
CAPITAL STRUCTURE

Assets
(USD million)



* Adjusted

Equity and liabilities
(USD million)



- Effect of conversion, NOK 150 million Fugro loan, and NOK 250 million Sr. Secured Bond refinancing
- All else equal

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ACCOUNTING PRINCIPLES MULTI-CLIENT

Revenue recognition

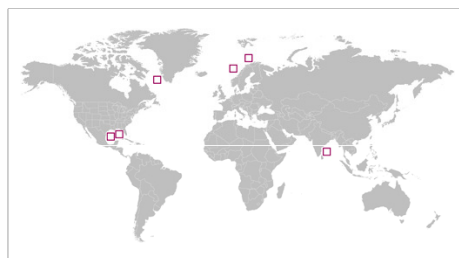
- Prefunding: Percentage of completion
- Late sales: Upon delivery of data to customer

Cost capitalization multi-client

- Acquisition costs
- Data processing costs
- Direct project costs

Amortization

- Rate ratio = cost of survey over estimated revenues
- Four profitability categories with amortization rates of 45, 60, 75 & 90%
- Conservative approach



EMGS's multi-client library covers more than 20,000 km² of EM data

Forced amortization

Calendar year	% of total costs
Year 0	100%
Year 1	67%
Year 2	33%
Year 3	0%

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ACCOUNTING

Revenue recognition contract sales

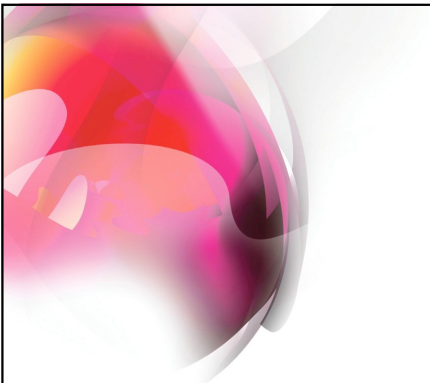
- The Percentage of Completion Method
- Mobilisation fees booked as a percentage of acquisition completion

Depreciation – equipment

- Equipment on deck: 5 years
- Equipment in sea: 3 years
- "Useful life" under consideration

Unused tax assets

- Unrecognised deferred tax asset:
USD 79.6 million
- Tax losses carried forward:
USD 252.4 million



A SCALABLE BUSINESS MODEL

SCALABILITY: SHORT LEAD TIME

Vessel mobilisation



1-2 weeks

Receivers



6-8 months

Source and handling

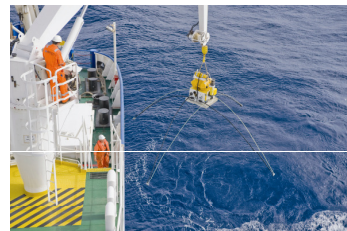
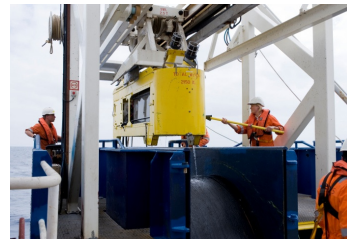
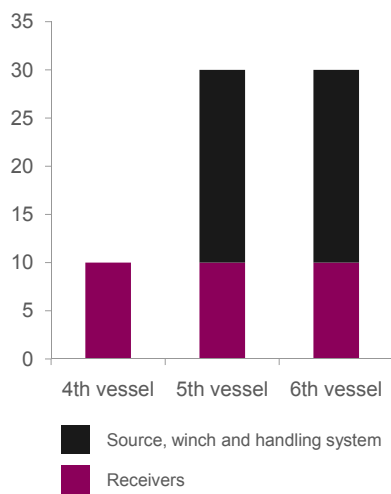


6-8 months



CAPEX- ADDITIONAL EQUIPMENT SETS

Capital expenditure per additional equipment set
(USD Million)



MOBILE ACQUISITION SET



150 receivers
Full source redundancy



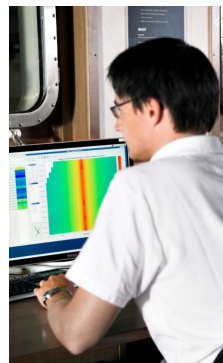
Rigging costs at USD
0.5 – 1 million
Rigging period
of 1 – 2 weeks



Suitable for a range
of vessel types

Full 3D EM
capabilities

Experienced crews



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VESSEL OVERVIEW

BOA Thalassa



Charter expiration
December 2013

Optional extensions
3 x 1 year

BOA Galatea



Charter expiration
July 2014

Optional extensions
3 x 1 year

Atlantic Guardian



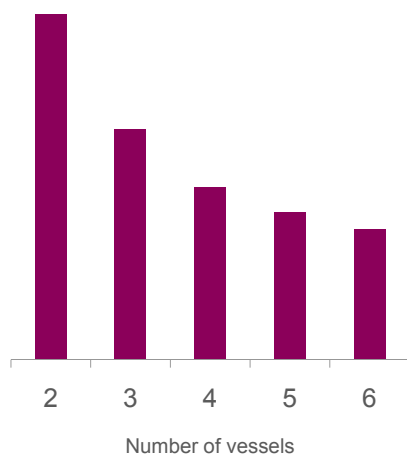
Charter expiration
October 2011

Optional extensions
2 x 3 months

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OVERHEAD COSTS PER VESSEL

USD million



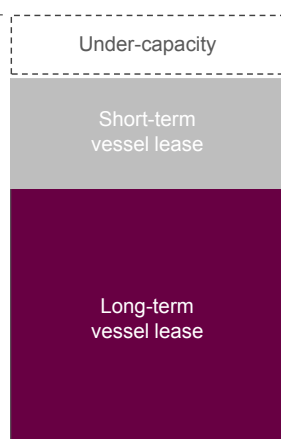
EBITDA contribution 3rd and 4th vessel
(USD million per vessel)

Annual revenues	50
÷ OPEX and mob/demob	25
EBITDA	25



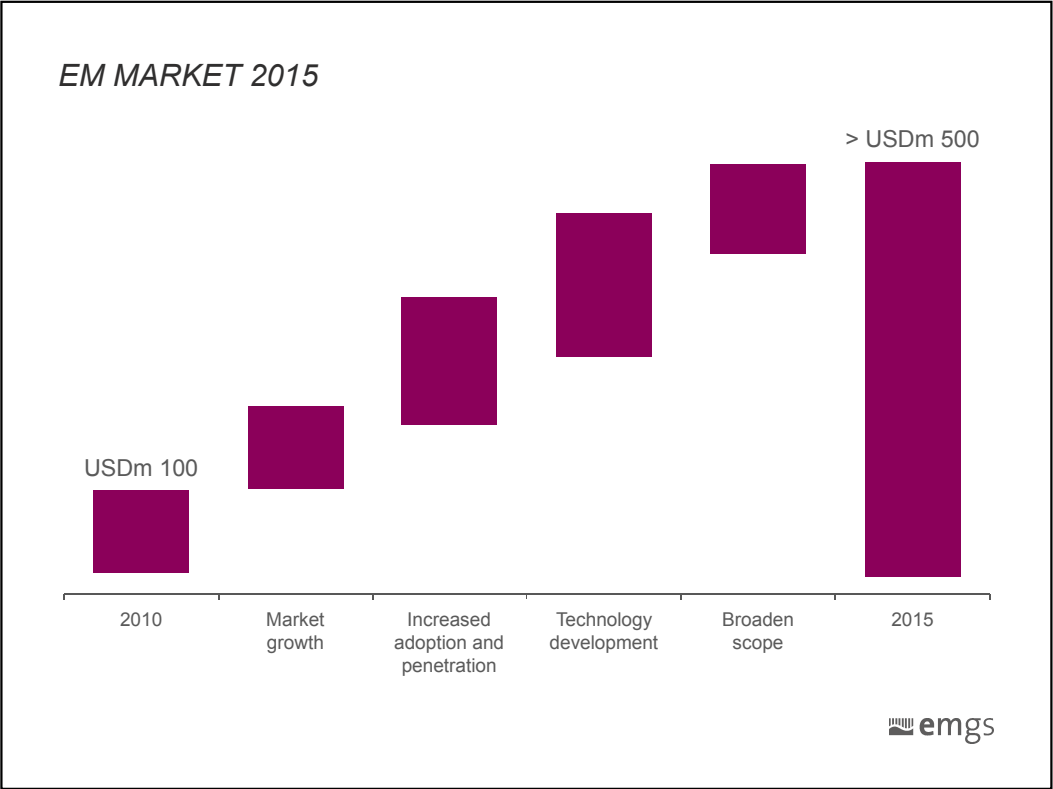
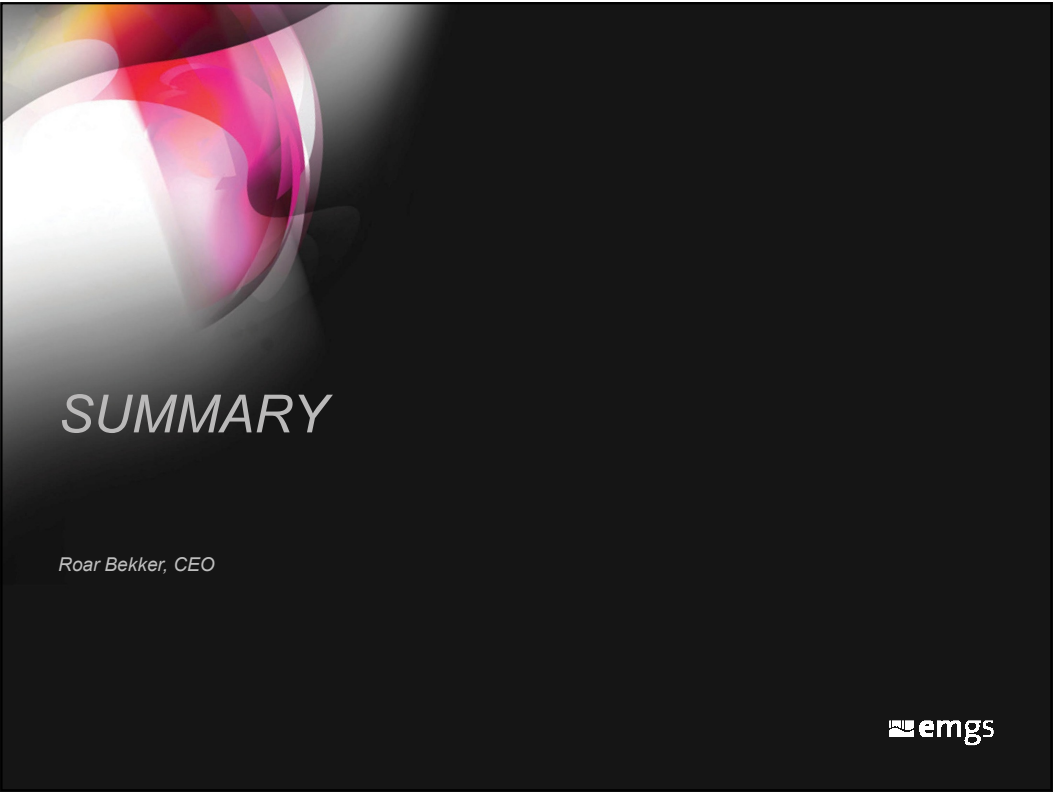
SUMMARY

Forecasted
demand



- ✓ Proactive, backlog-driven vessel strategy
- ✓ Positioned to capitalize on the upside
- ✓ ...whilst protecting the downside

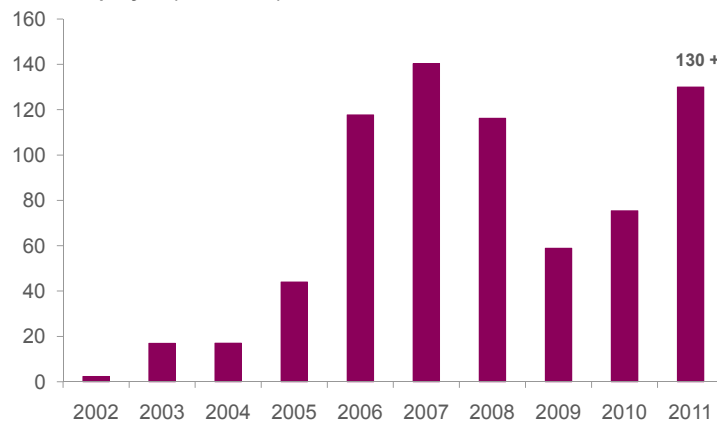




RENEWED GROWTH: GUIDING 2011



Revenues per year (USD million)



EMGS: AN ATTRACTIVE INVESTMENT CASE

A growing EM market

- Supported by increase in E&P spending
- Evidence of accelerated adoption by a broader range of customers
- EM integrated in the E&P workflow

EMGS is uniquely positioned

- Industry-leading technology and product range
- Unparalleled experience and expertise
- High barriers to entry in a non-commoditised industry

Flexible business model

- Demand-driven profitable growth
- Short lead time on equipment and vessels
- "Asset light"

