From find to field in minutes, not years.

A new standard for oil field appraisal.

Hydrophilic

We have developed a technology that will find the volume of an oil reservoir and cut costs substantially by limiting the need for appraisal drilling.

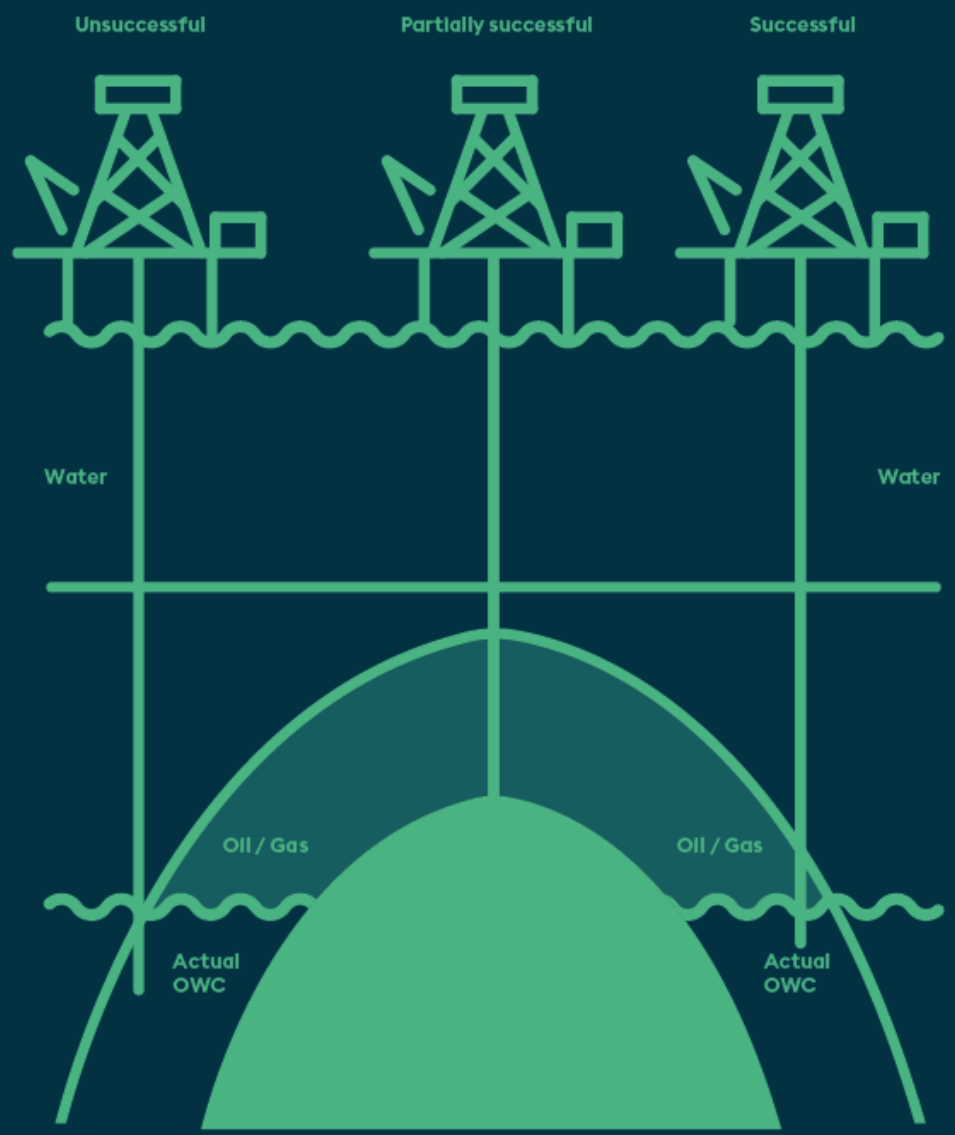
Challenges in the industry:

- It is diffucult to know the size of a reservoir
- High cost of drilling
- Environmental impact

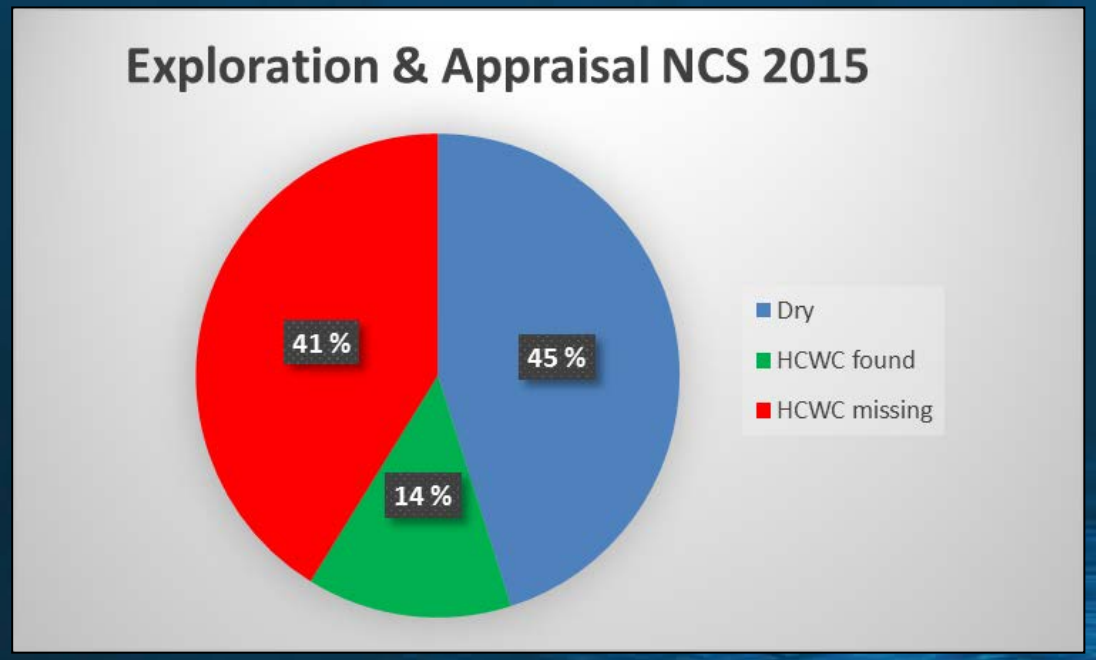
Exploration is needed to continue production – plenty of oil to recover

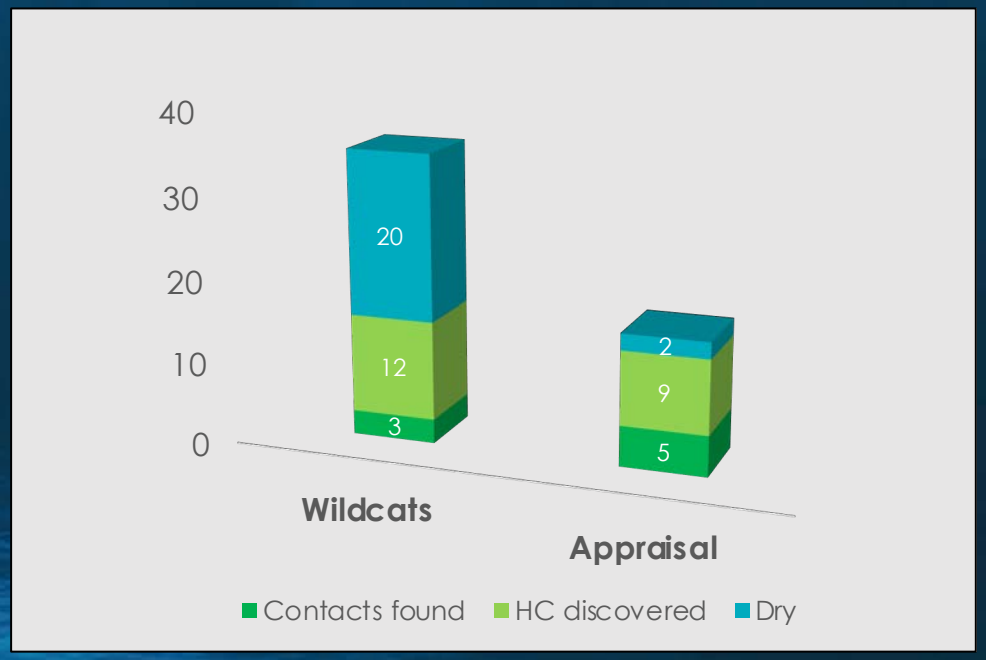
According to the Norwegian Petroleum Directorate (NPD) 47% of expected remaining resources have still not been found

Because of a lack of information
from the discovery well,
common practice is to drill as many
appraisal wells as needed to find the
oil/water contact.



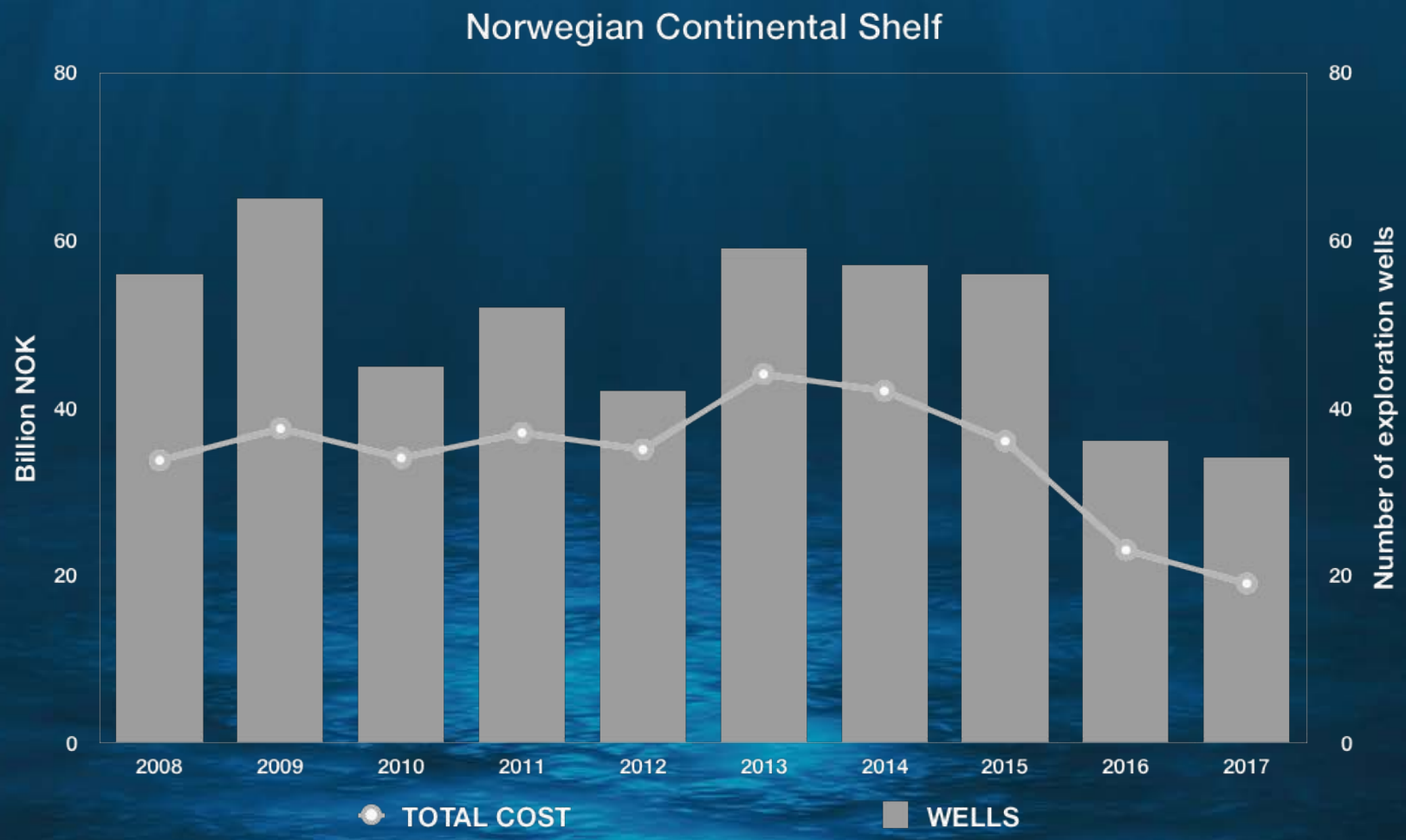
Exploration results – NCS 2015 Example





Missing contacts causes additional drilling and delay.

Exploration costs and number of wells



Source: Norwegian Petroleum Directorate

Ten year E&A averages on The NCS:

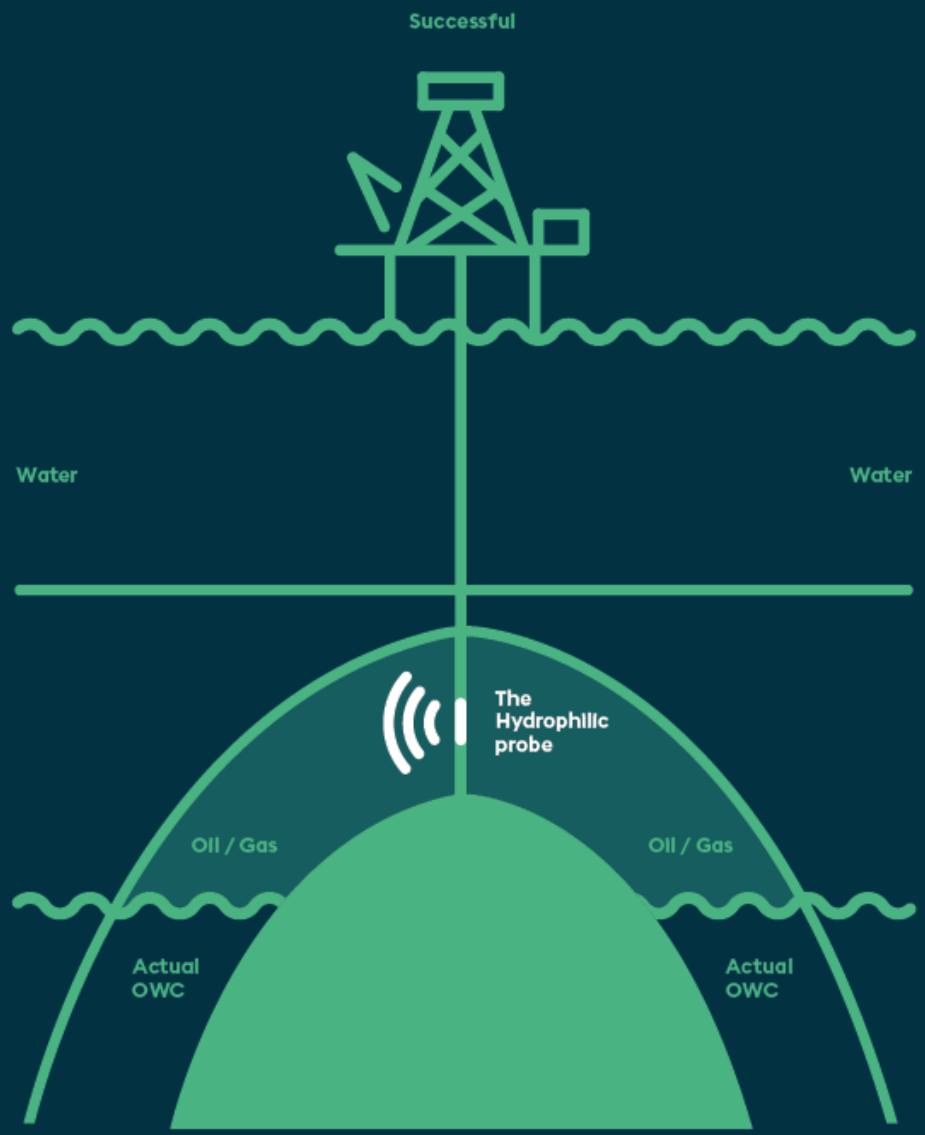
- 34 billion NOK / year
- 50 wells / year

Hydrophilic will create value by making E&A more efficient: Target 4 billion NOK per year

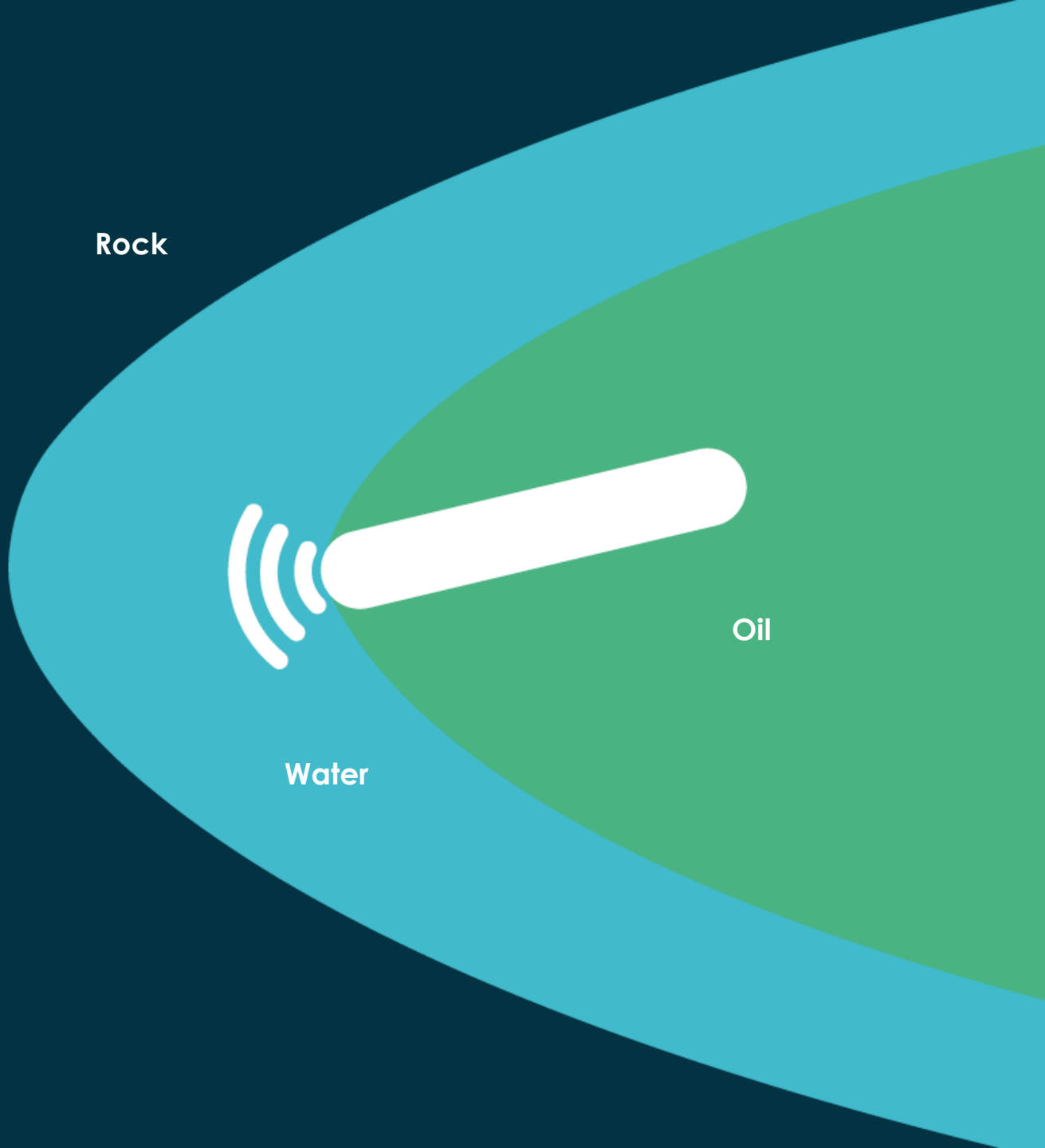
Our method

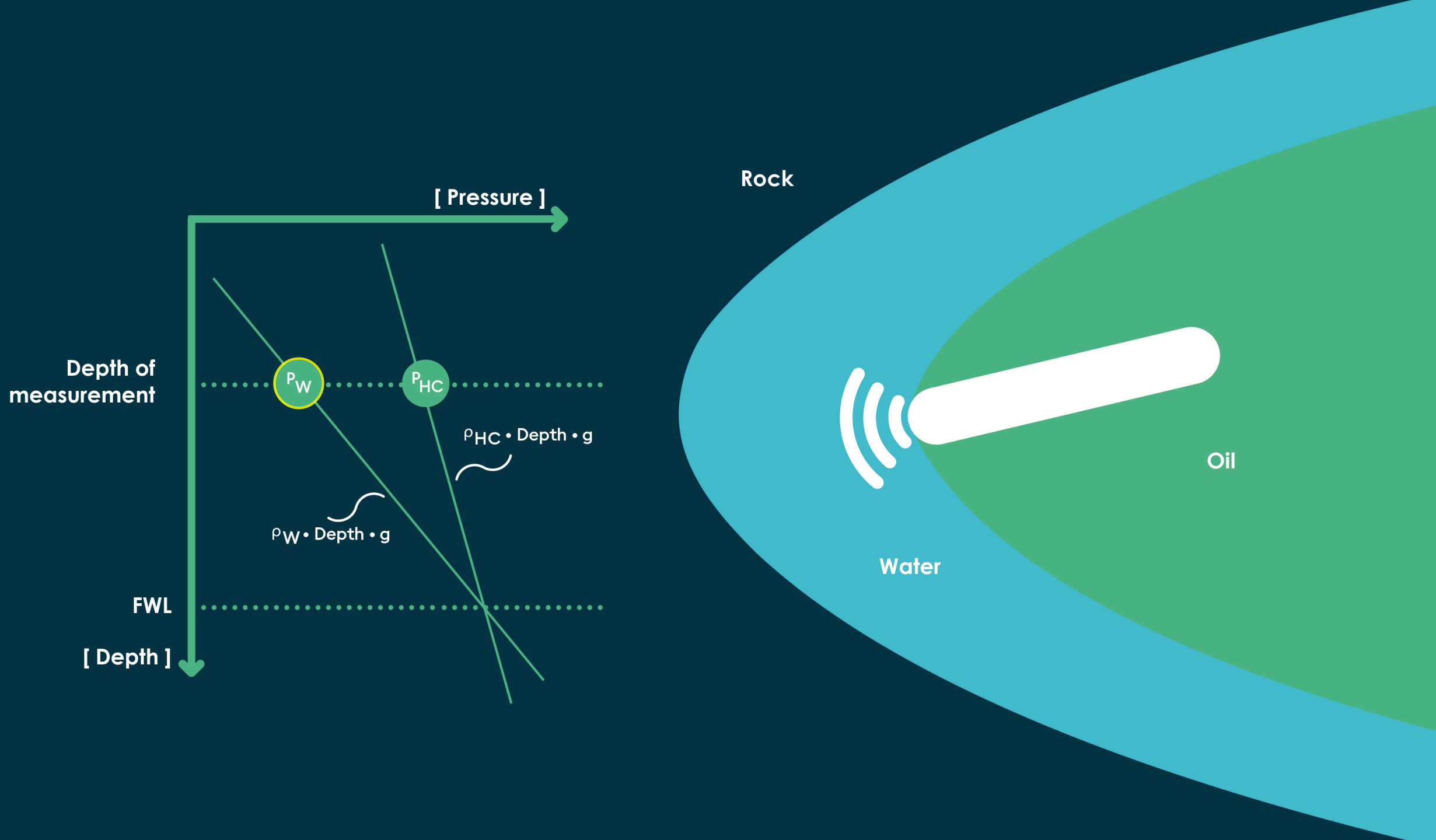
Simply put, our technology lets us measure the water pressure inside a hydrocarbon reservoir. The Hydrophilic probe enters the pores of the rock, connects with the microscopic water film that the hydrocarbons can’t displace, and measures the water pressure. Now, when we have the density and fluid pressure of both water and oil, we can easily calculate the depth of the oil/water contact, giving us precise information on the volume of the reservoir.

With Hydrophilic technology, the actual oil/water contact can be ascertained from the first well.



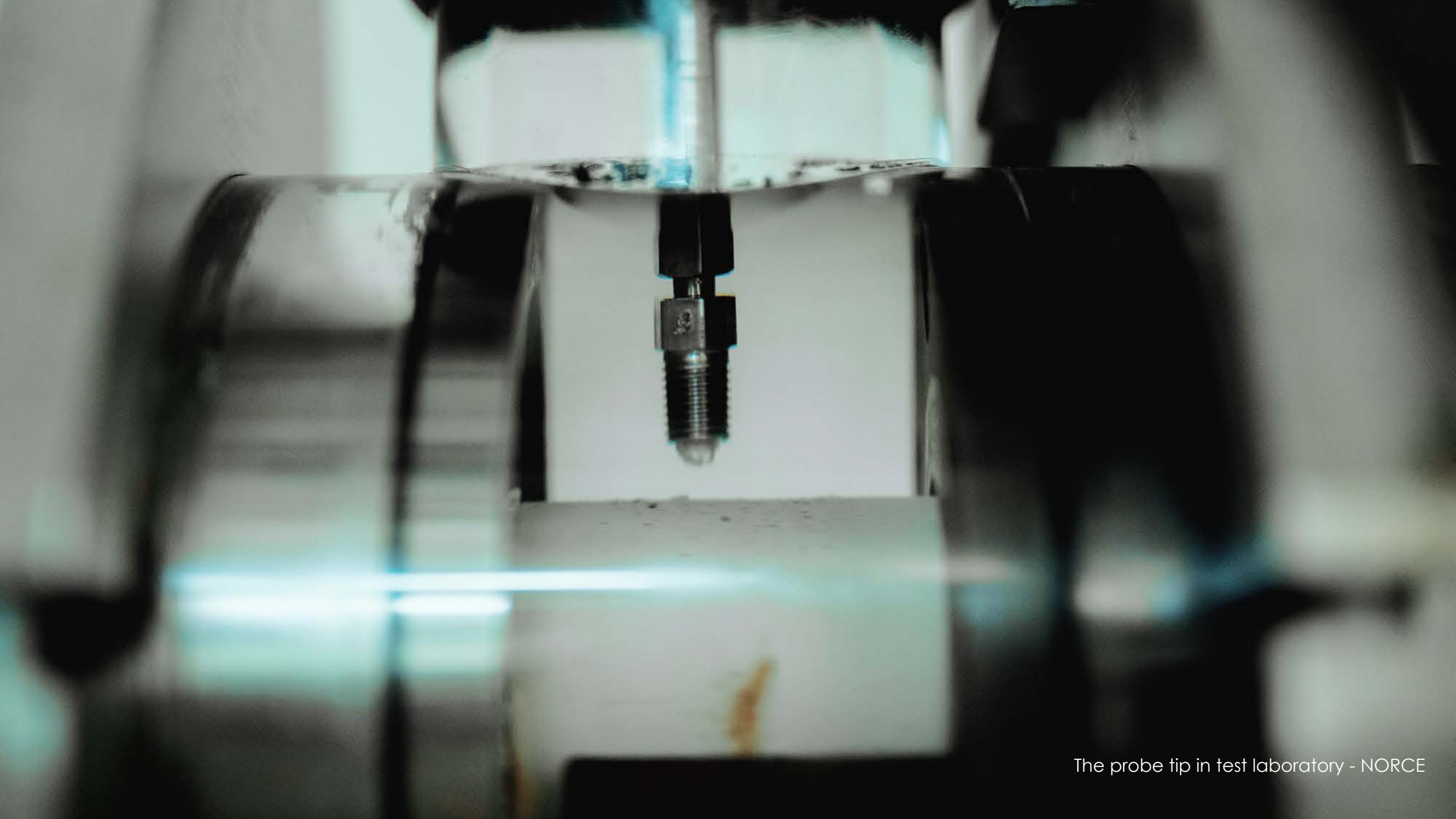
The patented Hydrophilic probe measures the water pressure of the thin water film present in reservoir rock, using it to calculate the depth of the oil/water contact.




[Pressure]
Depth of measurement
P_W
P_{HC}
$\rho_{HC} \cdot Depth \cdot g$
$\rho_W \cdot Depth \cdot g$
FWL
[Depth]
Rock
Oil
Water

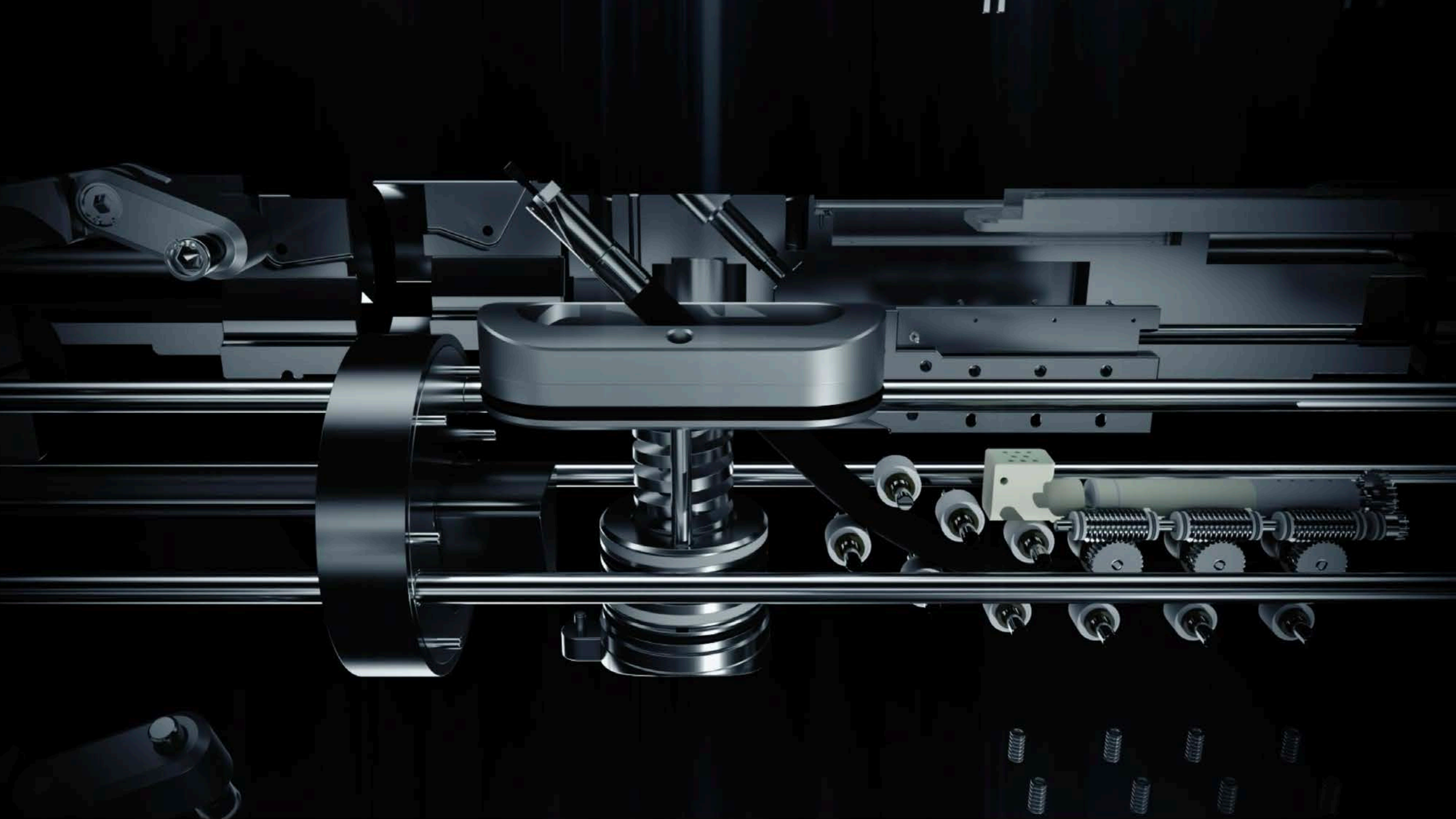
Our product

The Hydrophilic Logging Tool



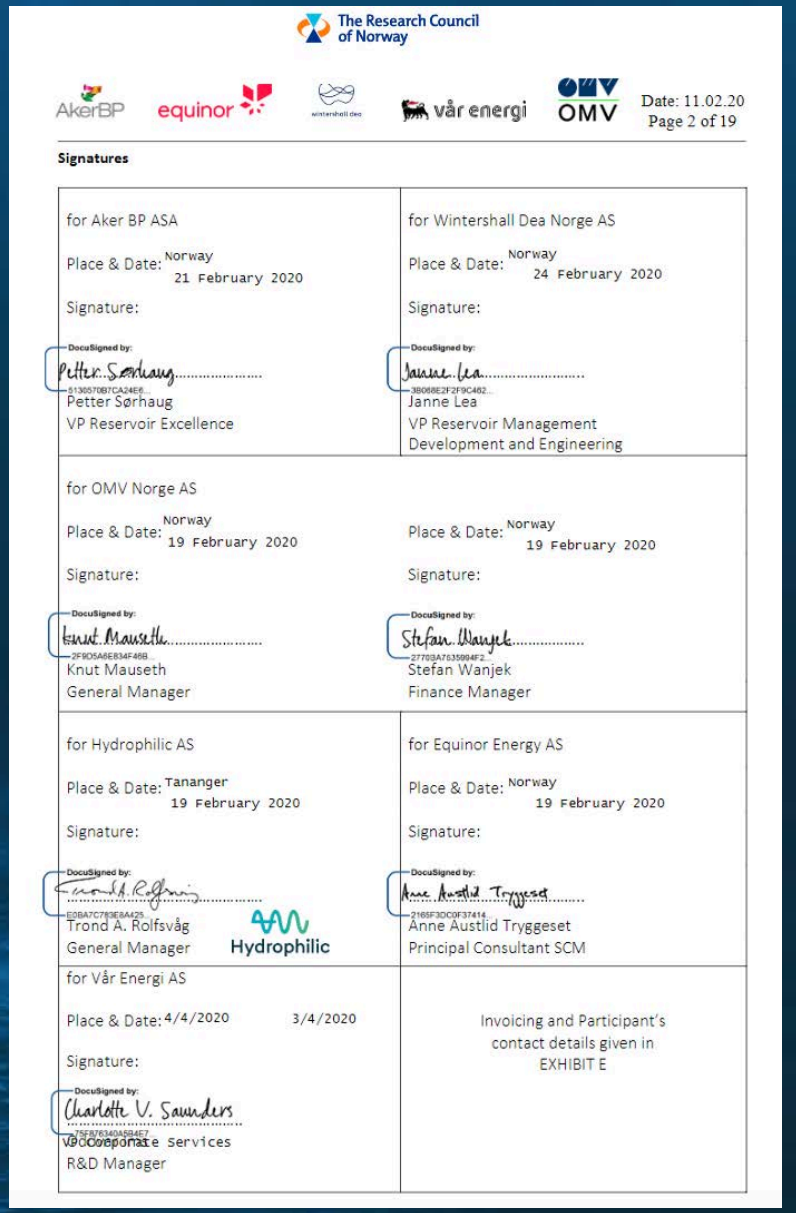
The probe tip in test laboratory - NORCE

Testing at NORCE



Success stories

Supported by global leaders in the industry



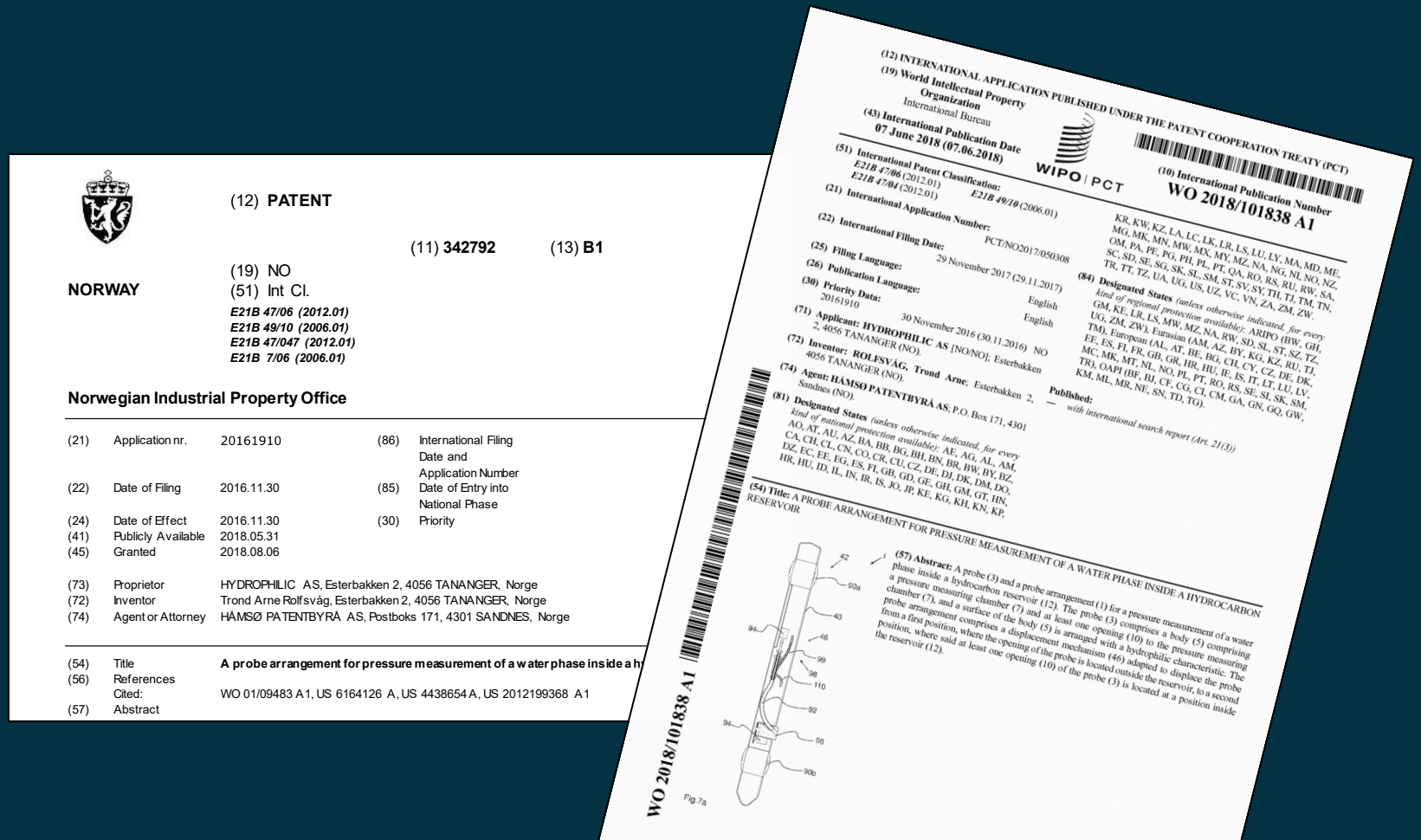
The Research Council of Norway

AkerBP equinor wintershall dea vår energi OMV

Signatures

for Aker BP ASA Place & Date: Norway 21 February 2020 Signature: DocuSigned by: Petter Sørhaug Petter Sørhaug VP Reservoir Excellence	for Wintershall Dea Norge AS Place & Date: Norway 24 February 2020 Signature: DocuSigned by: Janne Lea Janne Lea VP Reservoir Management Development and Engineering
for OMV Norge AS Place & Date: Norway 19 February 2020 Signature: DocuSigned by: Knut Mauseth Knut Mauseth General Manager	Place & Date: Norway 19 February 2020 Signature: DocuSigned by: Stefan Wanjek Stefan Wanjek Finance Manager
for Hydrophilic AS Place & Date: Tananger 19 February 2020 Signature: DocuSigned by: Trond A. Rolfsvåg Trond A. Rolfsvåg General Manager Hydrophilic	for Equinor Energy AS Place & Date: Norway 19 February 2020 Signature: DocuSigned by: Anne Austlid Tryggeset Anne Austlid Tryggeset Principal Consultant SCM
for Vår Energi AS Place & Date: 4/4/2020 3/4/2020 Signature: DocuSigned by: Charlotte V. Saunders VP Corporate Services R&D Manager	Invoicing and Participant's contact details given in EXHIBIT E

Unfair Advantage – patented technology



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(19) NO

NORWAY (51) Int Cl.

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E21B 7/06 (2006.01)

Norwegian Industrial Property Office

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(45)	Granted	2018.08.06			

(73)	Proprietor	HYDROPHILIC AS, Esterbakken 2, 4056 TANANGER, Norge
(72)	Inventor	Trond Arne Rolfsvåg, Esterbakken 2, 4056 TANANGER, Norge
(74)	Agent or Attorney	HÅMSØ PATENTBYRÅ AS, Postboks 171, 4301 SANDNES, Norge

(54)	Title	**A probe arrangement for pressure measurement of a water phase inside a h**
(56)	References Cited:	WO 01/09483 A1, US 6164126 A, US 4438654 A, US 2012199368 A1
(57)	Abstract	

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International Bureau

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29 November 2017 (29.11.2017)

(25) **Filing Language:** English

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20161910
30 November 2016 (30.11.2016) NO

(71) **Applicant: HYDROPHILIC AS** [NO/NO]; Esterbakken 2, 4056 TANANGER (NO).

(72) **Inventor: ROLFSVÅG, Trond Arne**; Esterbakken 2, 4056 TANANGER (NO).

(74) **Agent: HÅMSØ PATENTBYRÅ AS**; P.O. Box 171, 4301 Sandnes (NO).

(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Published:
— *with international search report (Art. 21(3))*

(54) **Title:** A PROBE ARRANGEMENT FOR PRESSURE MEASUREMENT OF A WATER PHASE INSIDE A HYDROCARBON RESERVOIR

(57) **Abstract:** A probe (3) and a probe arrangement (1) for a pressure measurement of a water phase inside a hydrocarbon reservoir (12). The probe (3) comprises a body (5) comprising a pressure measuring chamber (7), and a surface of the body (5) is arranged with a hydrophilic characteristic. The probe arrangement comprises a displacement mechanism (46) adapted to displace the probe from a first position, where the opening of the probe is located outside the reservoir, to a second position, where said at least one opening (10) of the probe (3) is located at a position inside the reservoir (12).

WO 2018/101838 A1

Fig.7a

Economical forecast

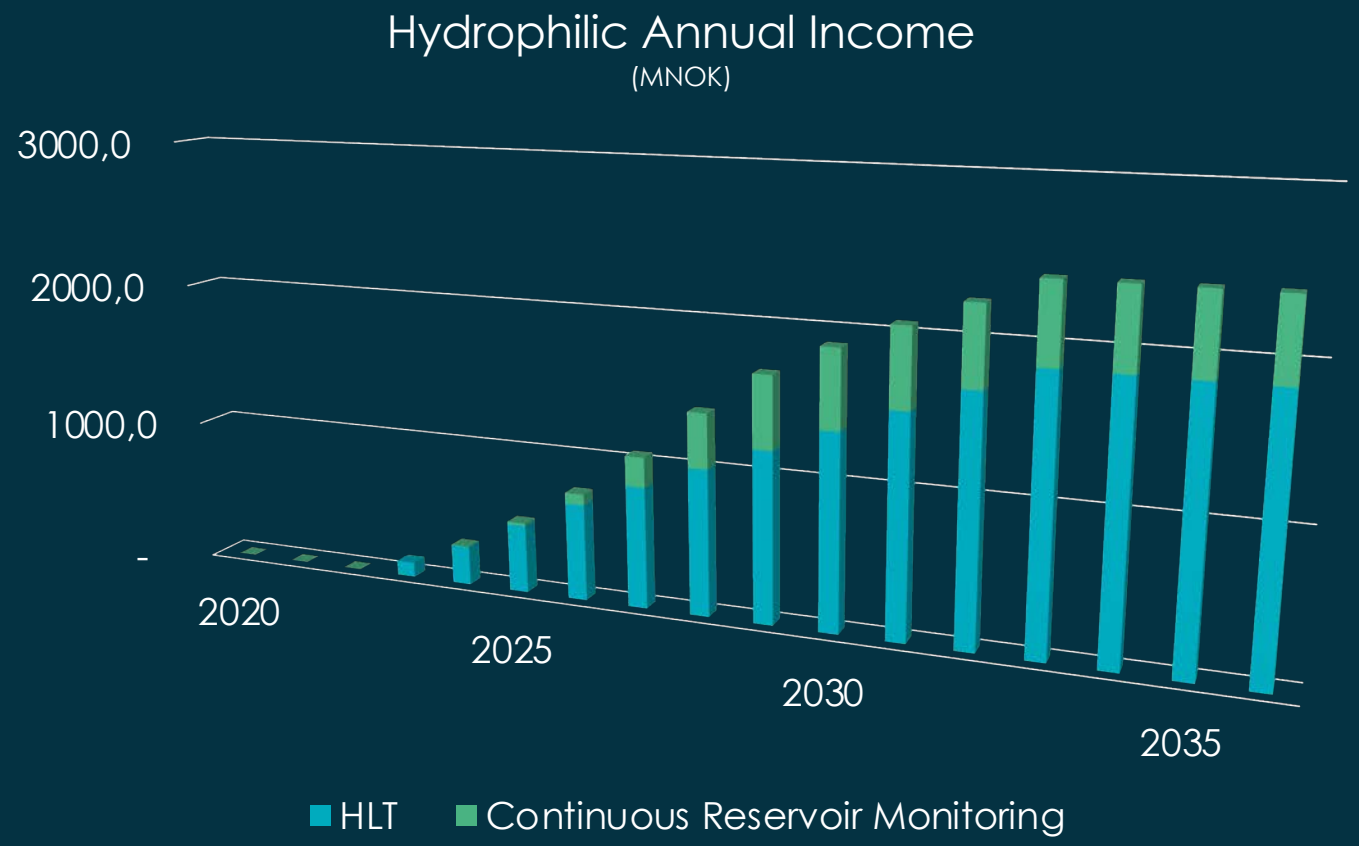
Economical Forecast Assumptions:

- Develop and test prototype HLT on time (q4 2021) and within budget (45 MNOK)
- Raise 40 MNOK in autumn of 2020 to prepare for commercial service in 2022
- First commercial HLT appraisal services sold in 2022 for 20 MNOK
- HLT Appraisal services of 200 MNOK per year from 2023 onwards on NCS
- Global potential for HLT is 10 times the NCS potential, linear growth over 10 years

Economical Forecast Assumptions:

- First commercial monitoring services for producing fields in 2023 (3 MNOK)
- Monitoring services (1 MNOK/well per year uptime) growing to 900 MNOK/year by 2028
- Consultancy services provided on break-even basis

Conditional Economical Forecast



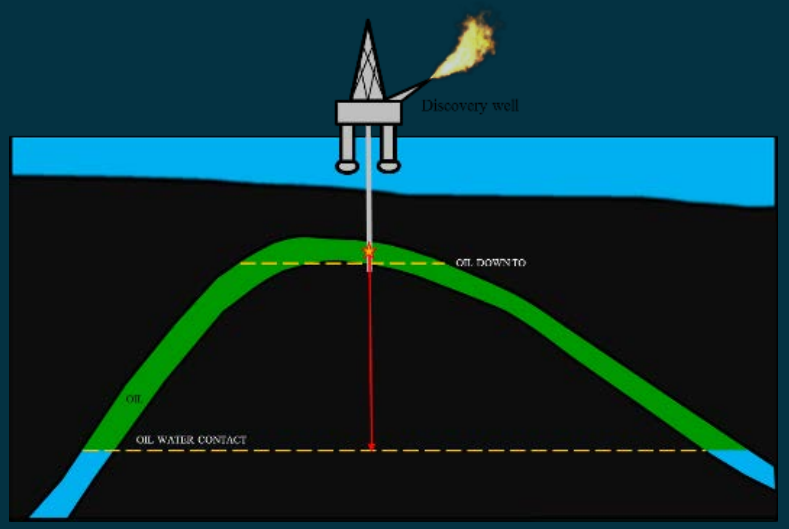
- 2020 NPV(**10%**) of HYDROPHILIC AS is estimated at **6.8** billion NOK

- 2020 NPV(**20%**) of HYDROPHILIC AS is estimated at **2.6** billion NOK

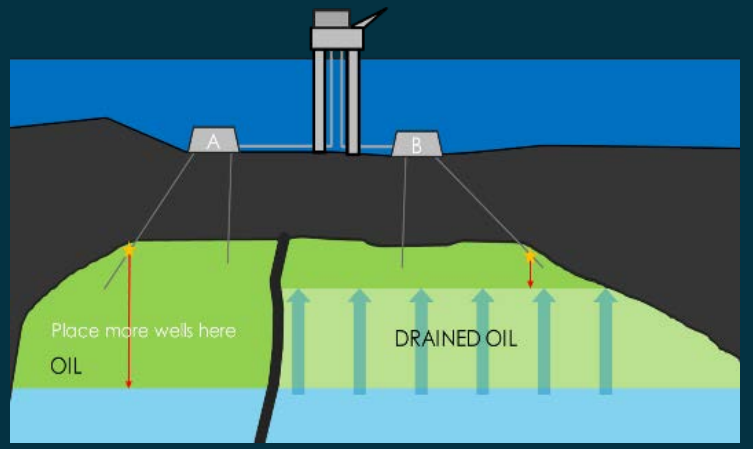
Low technical risk

A lot of potential for the technology globally

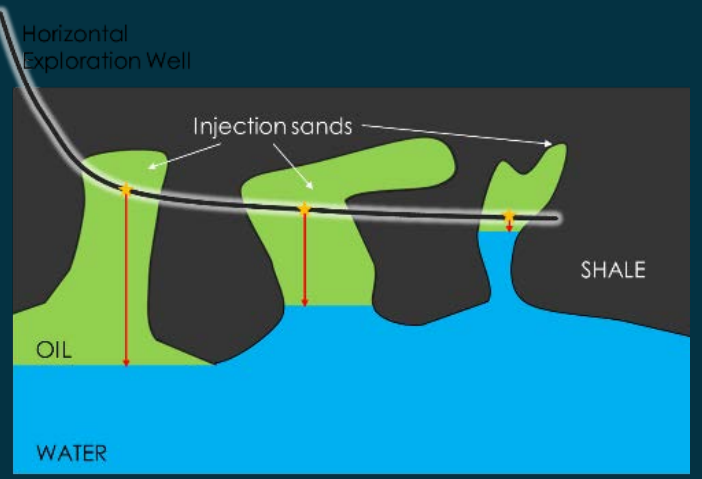
Value in appraisal phase



Value in production phase



Value in exploration phase



The Team

The founder, Trond Rolfsvåg, is aiming for a more effective industry, combining simple theory and advanced technology.

Equinor, AkerBP, OMV, Wintershall DEA and Vår Energi are already on board as investors and financial supporters. They challenge and give input so we can continue to develop our technology. In addition, the Hydrophilic advisor team covers a lot of ground with their diversity in both experience and knowledge.

Advisors

Martin Sigmundstad
Validé AS

Terje Handeland
Validé AS

Einar Bekkevold
LEAN and Engineering Services

Tarald Gudmestad
Aarbakke Innovation AS

Harald Syse
Reelwell AS

Olav Mellemstrand
Qbird

Ying Guo
NORCE and UiS

Lindsay Wilson
Offshore Robotics

Craig Lindsay
Core Specialist Services

Knut Åm
Independent Technology Consultant

Our Board of Directors

Terje Handeland
Chair

Tarald Gudmestad
Member

Solveig Riisøen
Member

Trond Rolfsvåg
Member

Jeroen Van der Hoek
Observer

Tron Bjelland Helgesen
Observer

Our vision

Our vision is to see reservoir engineers equipped with perfect information.
That's a long shot, but if we can achieve it, we eliminate uncertainty.
We will do our part.

We look forward to changing the future of the hydrocarbon industry together with you.

Contact

For more information get in touch with CEO in Hydrophilic, Trond Rolfsvåg.

Email: trond@hydrophilic.no
Mob: +47 478 33 456

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