



Dutch journey of collaboration for Well P&A improvements

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Well Decommissioning Conference

SPE Aberdeen

Virtual event

12th of May 2021

Coverage

1. Nexstep - Set-up as enabler
2. Decom data - The well P&A wave
3. Shared Learning - Well P&A Forums
4. Standardisation - Modernising regulations
5. Collaboration - Joint campaign
6. Innovation - TTC Through Tubing Cementation
7. Conclusions
8. Questions



Introducing EBN and NOGEPA



NOGEPA

- Netherlands Oil and Gas Exploration and Production Association
- Members: all license holders for oil and gas
- Contributes towards an open and transparent transition to a fully sustainable energy supply in 2050.

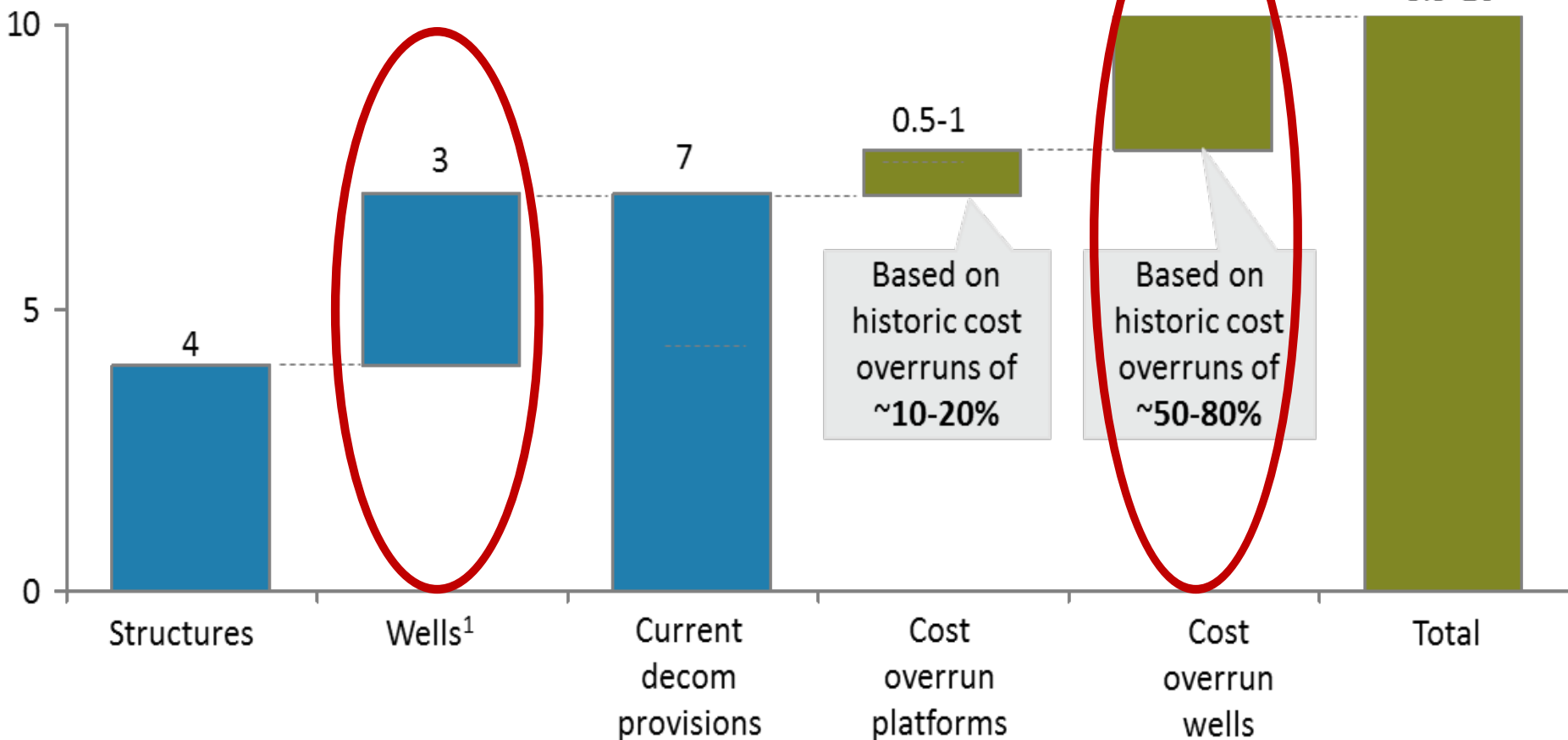
EBN

- Participates in Dutch E&P activities
- Equity between 40%-50%
- Sole shareholder is Ministry of Economic Affairs and Climate
- Profits are paid in full to the Dutch State
- Advisor to Dutch government on opportunities
- Important role in energy transition



EBN initiated Masterplan for decom challenge (2017)

Total estimated Decom cost NL (€Bn)



Publication of Masterplan

1. Based on reservation of ~€3 mln per well based on 27 wells decommissioned to date – as in January 2017
 Source: Operator and EBN estimates total Netherlands (onshore + offshore)

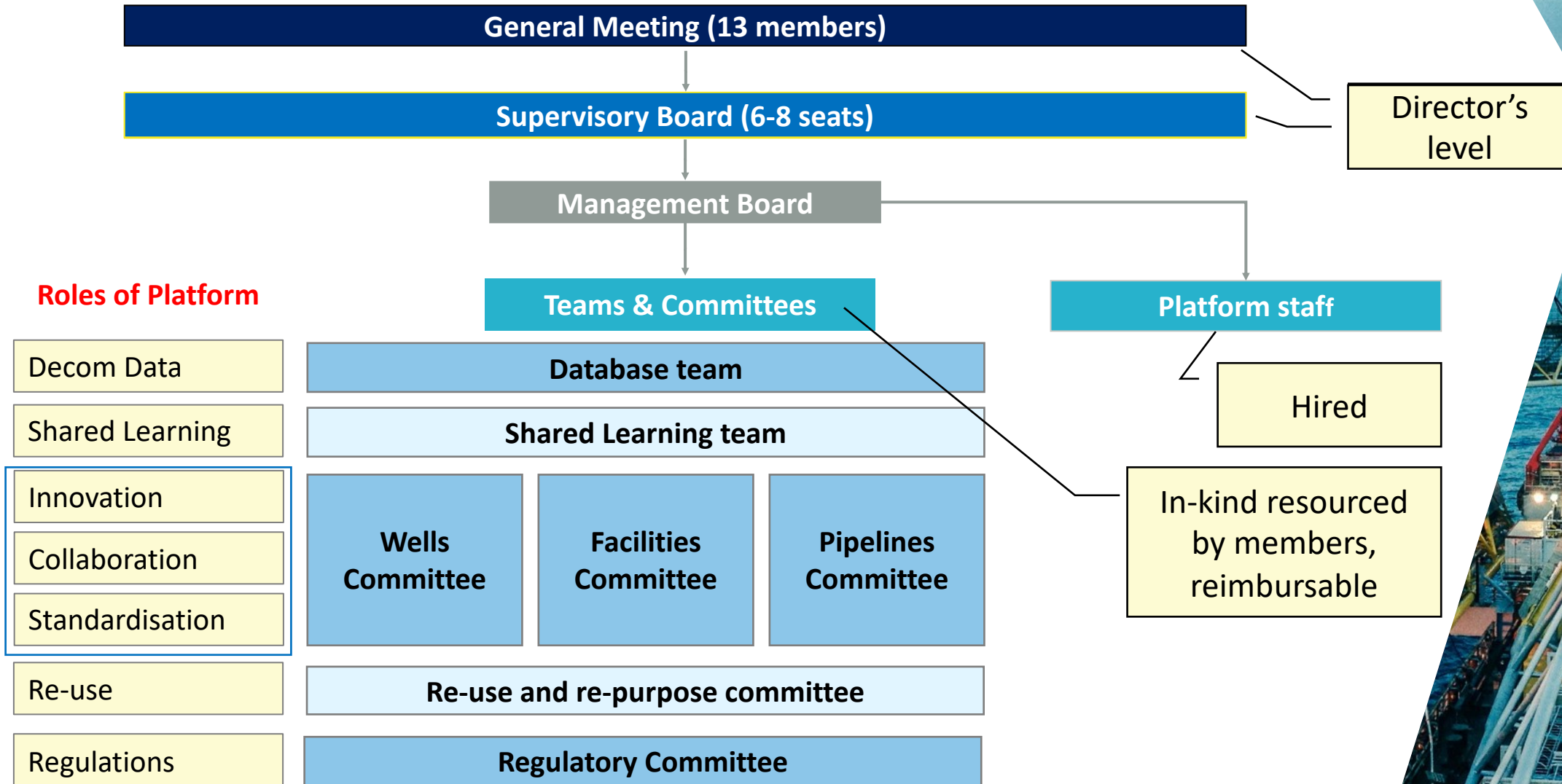


In 2018 EBN and NOGEPa founded Nexstep
Members: All Dutch E&P operators and EBN

Mission of Nexstep:

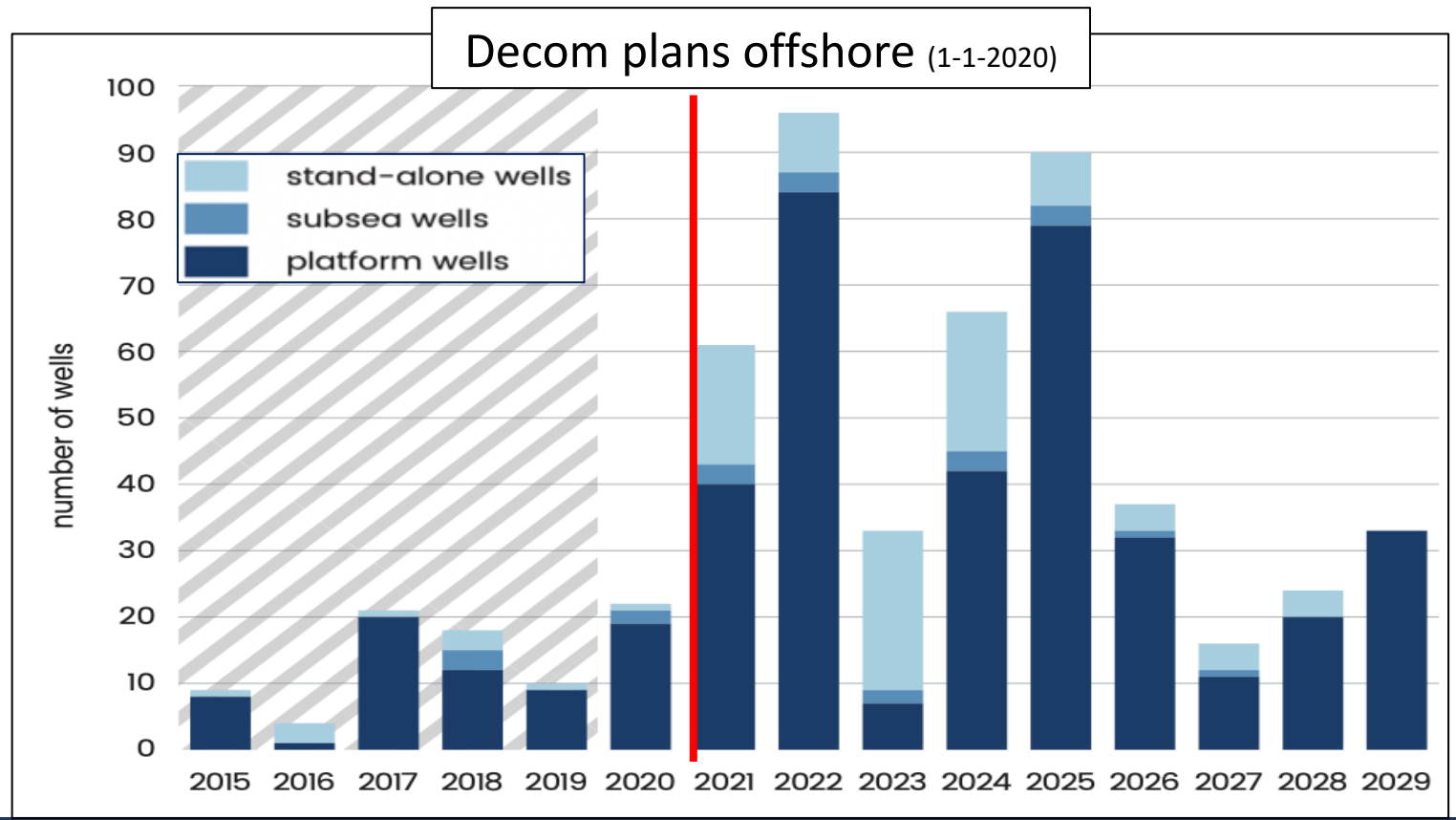
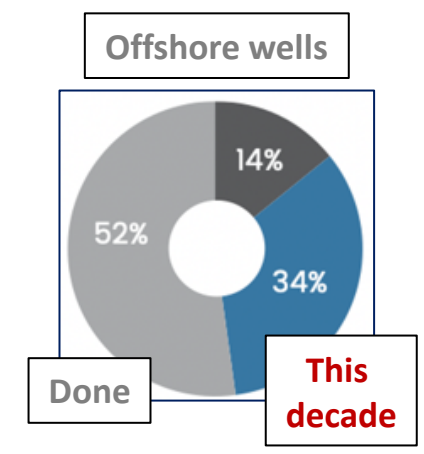
- To be a driving force in connecting opportunities and players, to reduce the decom costs by 30%.
- To facilitate that decommissioning is carried out in a safe manner with safeguarding environmental interests.
- To optimize decommissioning such that the infrastructure is re-used whenever possible in support of the energy transition.

Organisational set-up of Nexstep



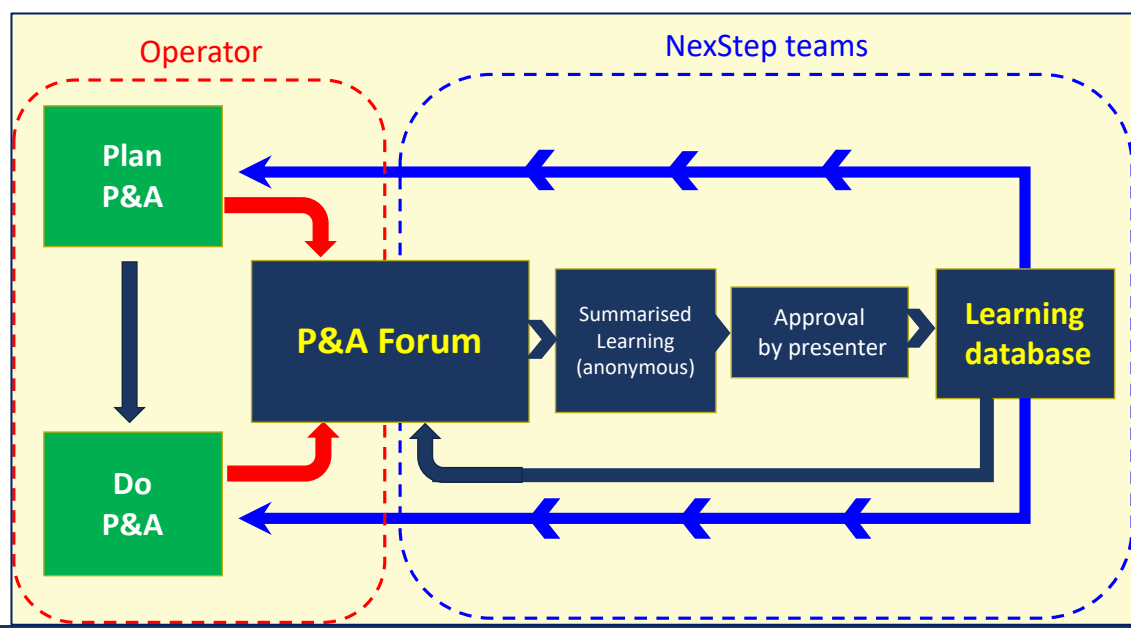
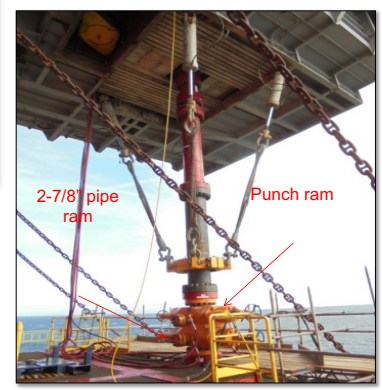
Annual decom update of plans

- Onshore 1048 wells (1449 done)
 - Offshore 685 wells (738 done)
 - Offshore 152 platforms (32 done)
- (numbers as on 1-1-2021)



P&A Shared Learning sessions, organised by Nexstep

- Operators present experience, ample time for discussion, questions
- 20-30 participants, members only
- 3-4 P&A sessions per year, now preparing Well P&A Forum #10
- Held Theme sessions on logging, subsurface, PWC, well suspension.
- Participants connect between sessions for sharing technical details
- Not to be shared: commercial, confidential information, detailed cost



Modernising Regulations & creating standards

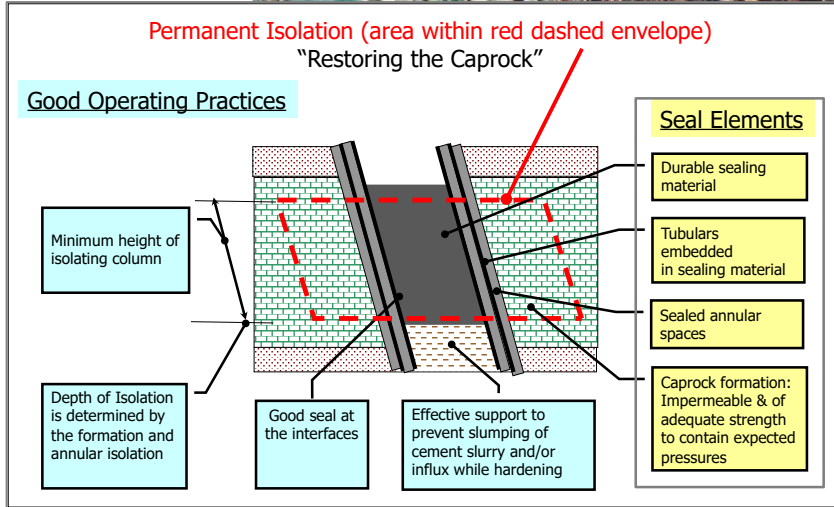
Dutch regulations and standards have been modernised In close collaboration between Nexstep, NOGEPa , legislator and state supervision of mines.

- Re-write of **prescriptive** legislation on well P&A (1964) makes it more **goal setting** , thus allowing innovations and be up to date with current practices and technology
- The re-write is accompanied by **NOGEPa Industry Standard 45** which describes technical details and special conditions for well P&A. By legal policy, E&P Operators are held to this Standard.
- General approach is more aligned with UK and Norway, e.g. regarding the principle of restoring the caprock

NOGEPa
NEDERLANDSE OIL EN GAS EXPLORATE EN PRODUCTIE ASSOCIATIE

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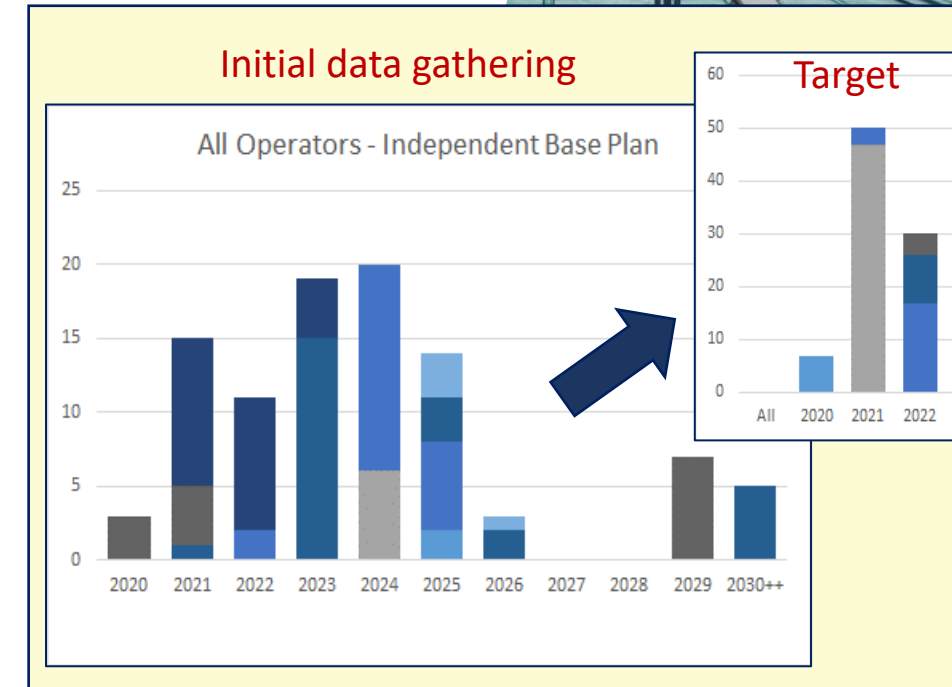


Joint campaign for MLS wells - Objectives

The project aims to decommission

- a substantial number of mudline suspension (MLS) wells,
- in a multi-operator campaign,
- using vessel-based technology
- at significantly lower costs,
- in compliance with applicable legislative requirements,
- with reduced risk due to shared learning curve.

Out-of-scope: Wells that require pressure control.

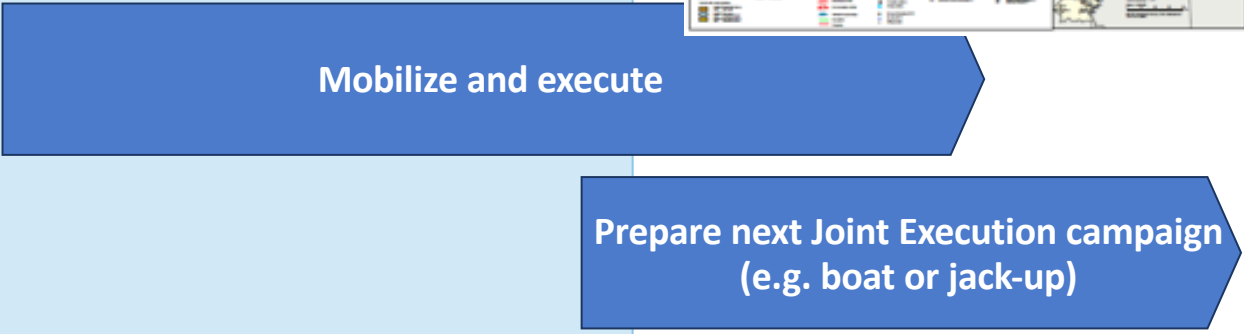
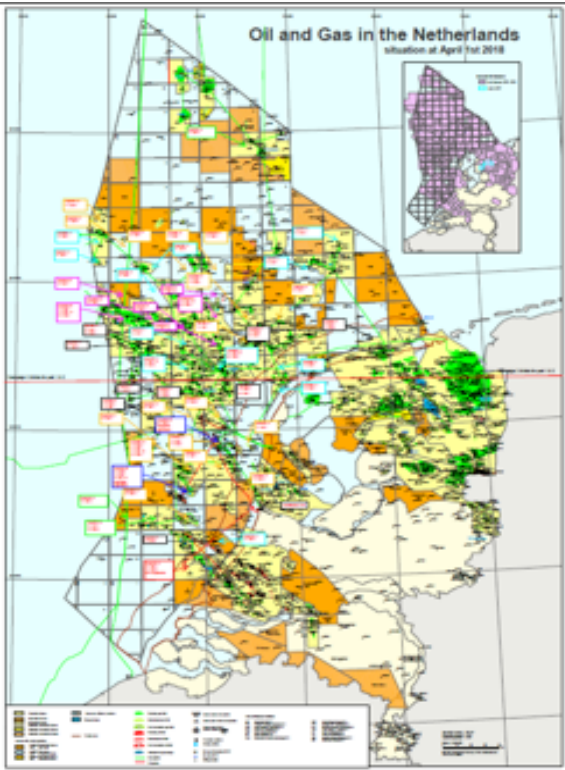
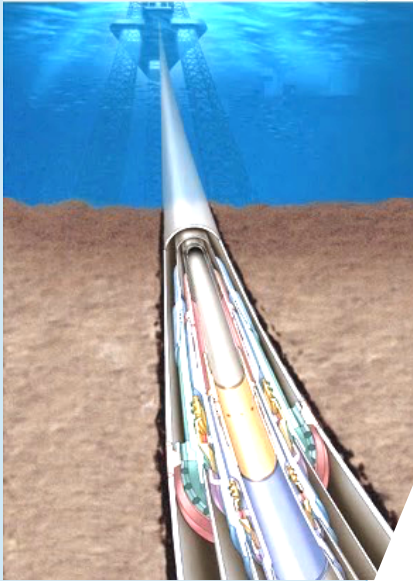
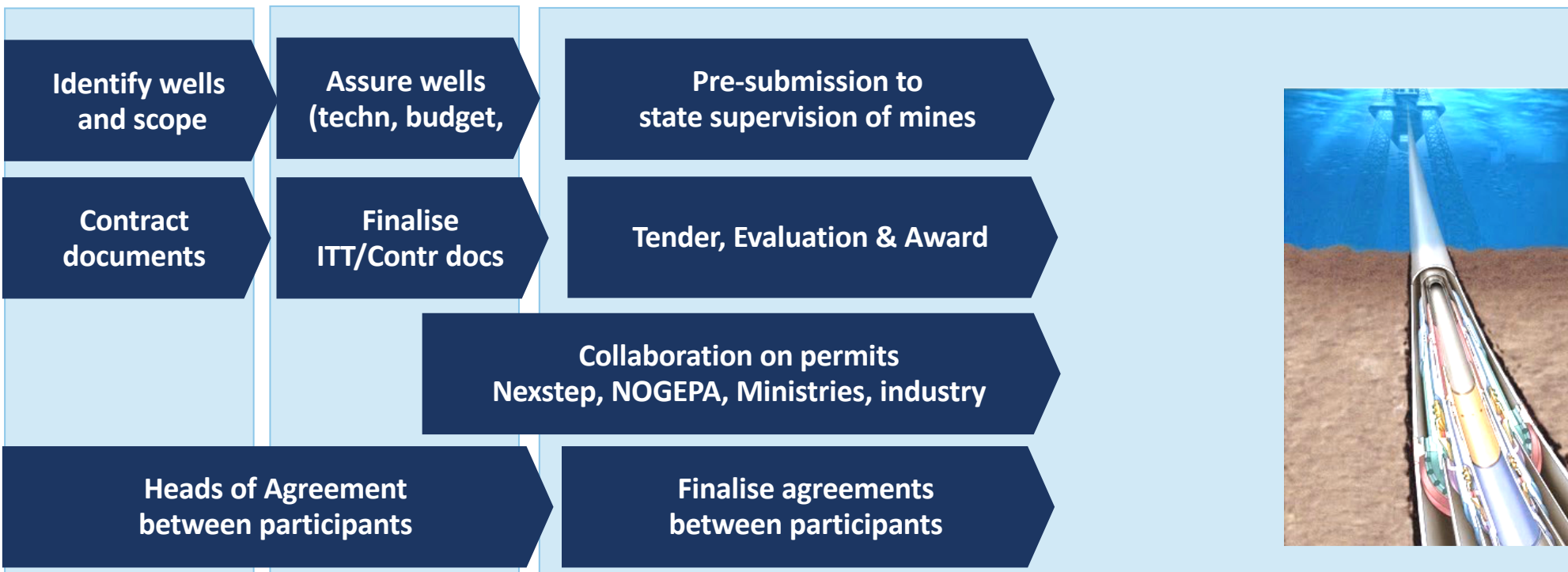


Collaboration and standardisation is facilitated by Nexstep

Campaign set-up serves as a pathfinder project to develop a collaboration model between operators w.r.t. decommissioning

Road to Joint Execution: Joint Campaign MLS wells

Q3 2020
Q4 2020
Q1 2021
Q2 2021
Q3 2021
Q4 2021



Through Tubing Cementation (TTC)

Technical description

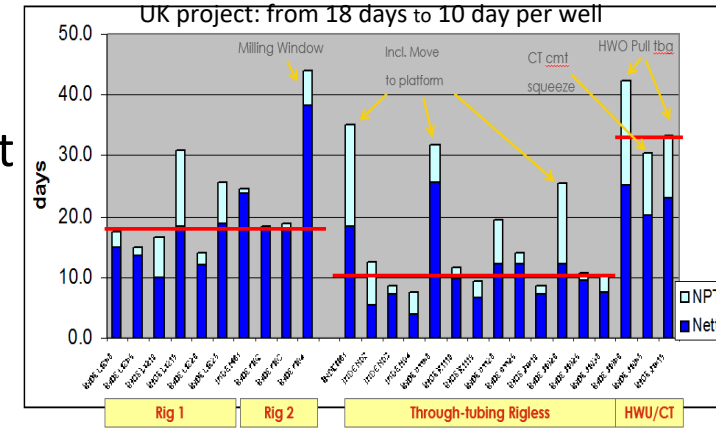
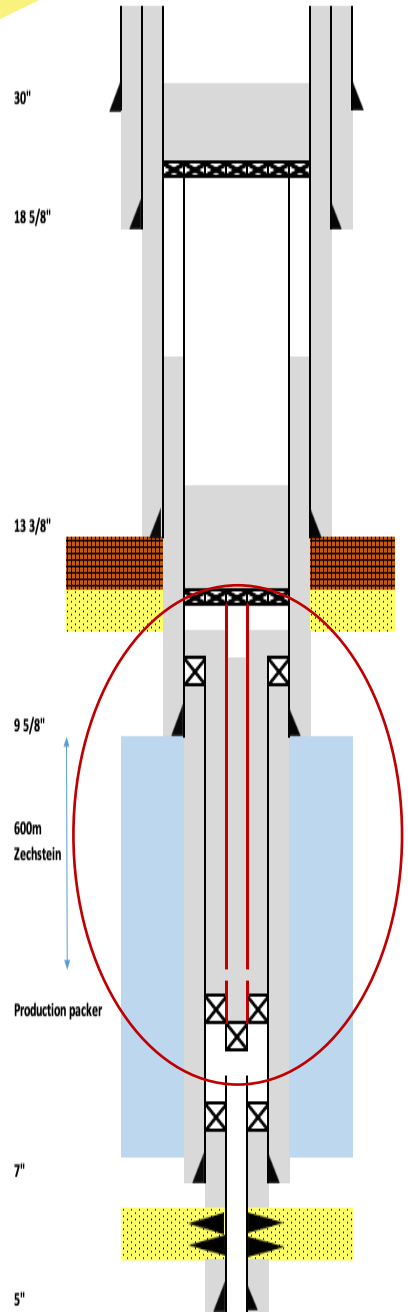
- Cement tubing and A-annulus. Long cement plug (e.g. 500 m)
- Used by many worldwide, incl. NL in the past

Advantages:

- Faster, more efficient, less risk. Can be done rig-less, possibly boat
- Safer: pressure containment preserved
- Less work scope, less exposure, less handling
- Environmentally better: Less waste, less transport, less emission (CO2, NOx)

Applications

- Only for wells with good integrity, simple completion, onshore and offshore



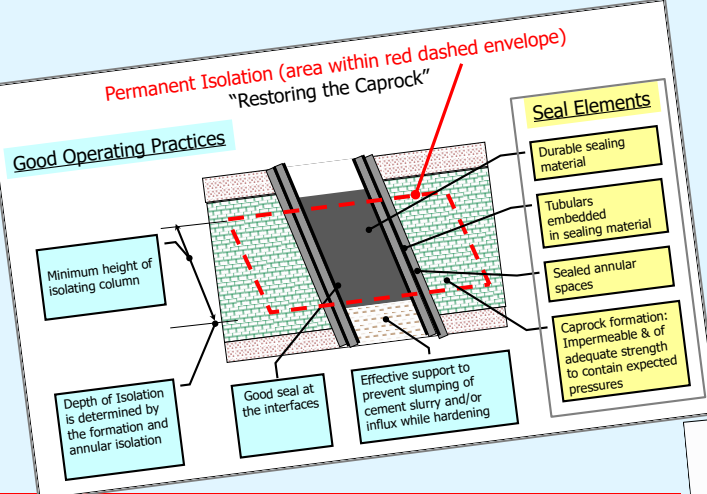
Objective:
 Demonstrate that good P&A integrity is achieved and risks are minimal.

Status:
 Studies performed, TTC Standard drafted,
 2x joint trials performed (land), planning next trials land and offshore

Conclusions

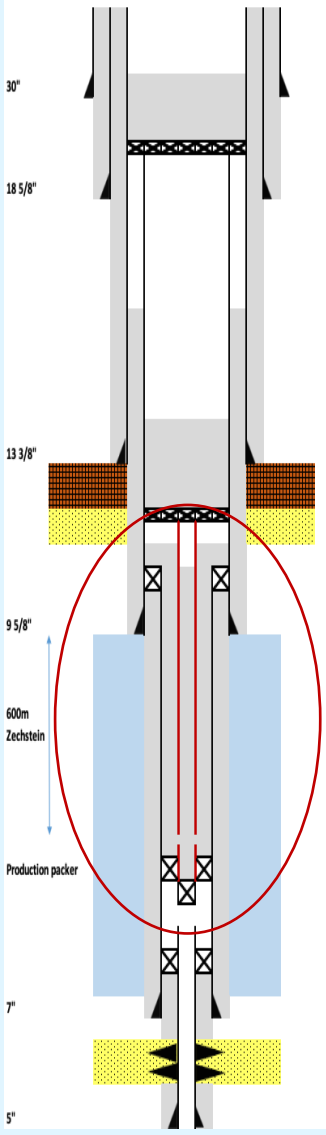
- Nexstep has been founded as a National Platform to enable decom improvements and re-use opportunities
- Nexstep provides connected bridges between the many involved parties, i.c. equity holders, operators, ministries, service industry, interest groups.
- A strong governance structure and sustained leadership support is essential to make initiatives happen.
- In-kind contributions of member staff are reimbursed (time writing), which is an enabler for resourcing the initiatives.
- Energy and effort on alignment and communication should not be underestimated for multi-party initiatives.
- Nexstep has been successful in nurturing Shared learning, Collaboration, Standardisation and Innovation, which is paying early dividends today and significant dividends in the future.





Roles of Platform

| | | | |
|-----------------|---------------------------------|----------------------|---------------------|
| Decom Data | Database team | | |
| Shared Learning | Shared Learning team | | |
| Innovation | Wells Committee | Facilities Committee | Pipelines Committee |
| Collaboration | | | |
| Standardisation | Re-use and re-purpose committee | | |
| Re-use | Regulatory committee | | |
| Regulations | | | |



Questions?

