



**Net Zero  
Technology  
Centre**

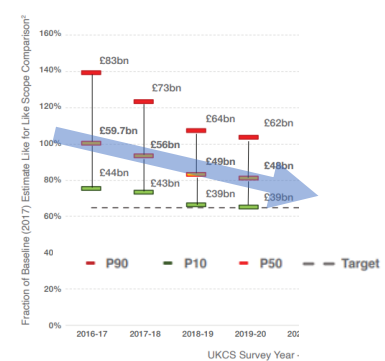
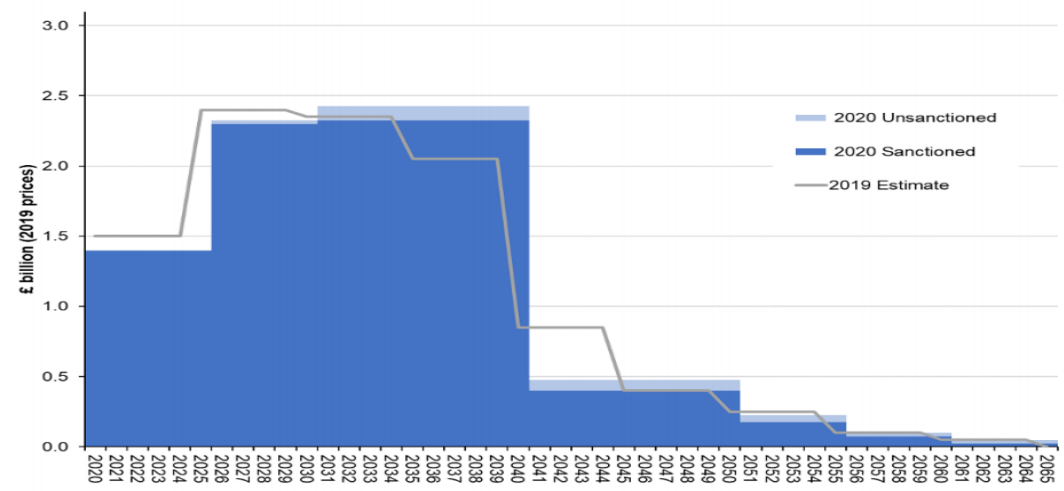
**Technology Driving Transition**



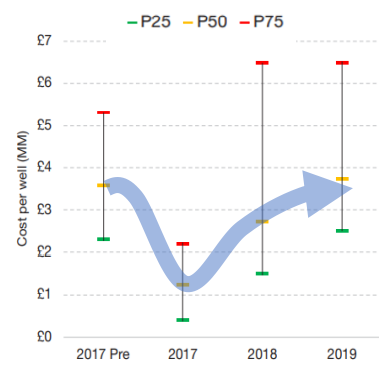
# 2020's + 2030's

# 'GOLDEN'

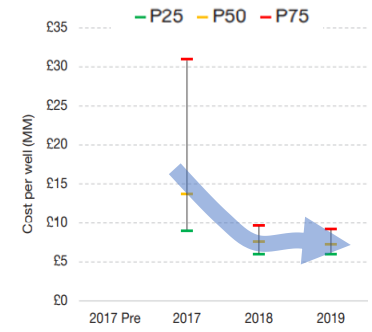
# ERA FOR P&A



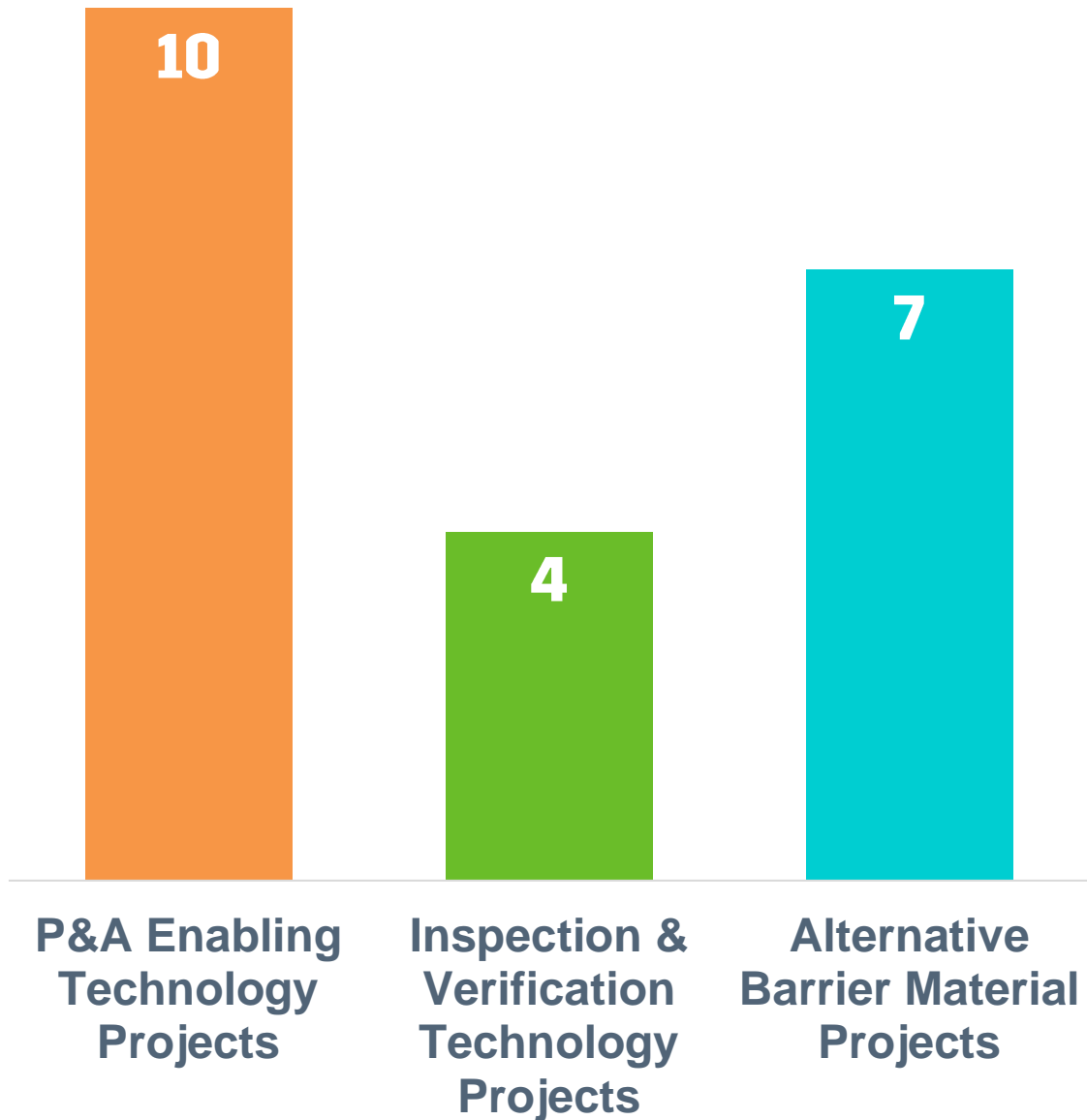
Decommissioning cost evolution (OGA UKSS Survey, probabilistic est.)



Platform well P&A cost (NNS/CNS)



Subsea well P&A cost (NNS/CNS)

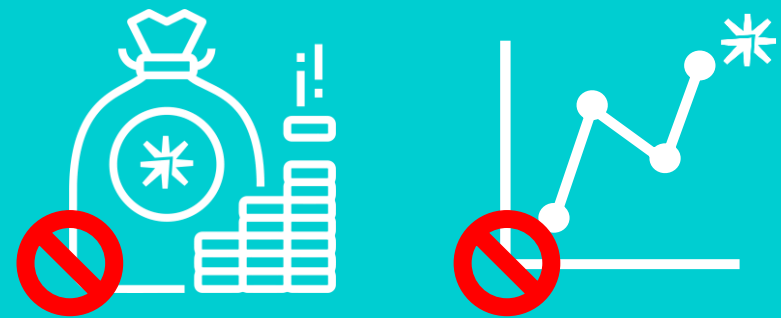


**BARRIERS TO ADOPTION**  
**NET ZERO TECHNOLOGY CENTRE**  
**HAVE SUPPORTED**



**21**

**WELL DECOMMISSIONING  
RELATED PROJECTS**





## Scope reduction in P&A

There are a number of intervention phases during well decommissioning whether conventional or rigless:-

- Securing access in the well to the desired barrier setting depth
- Evaluation of existing barriers elements either for inclusion in barrier design or to identify remediation
- Conditioning of the well architecture to accept barrier placement or remediation of the failed barrier elements
- Placement of barrier materials
- Verification of Isolation barriers as a whole and/or individual barrier elements.

### 01. ALTERNATIVE BARRIER MATERIALS

Alternative materials used solely or in composite barriers have potential to provide more reliable and resistant isolation compared to Portland cement.



### 03. P&A ENABLING TECHNOLOGY

Enabling technologies provide through tubing services to perform a wide range of tasks to support barrier placement.

### 02. INSPECTION & VERIFICATION TECHNOLOGY

Reliable barrier design and construction relies on assessment of the integrity of the existing well construction. Through tubing evaluation allows for this to be completed in advance of the abandonment programme.

# NZTC TO NO LONGER SUPPORT INDIVIDUAL HIGH TRL OPERATOR & DEVELOPER PROJECTS

## RING FENCE OF NET ZERO TECHNOLOGY CENTRE FUNDS

**£600k\***

\*Years 1 & 2. 3 & 4 BIK only

TO SUPPORT MATURE TRL TECHNOLOGY FIELD TRIALS TO DELIVER P&A SCOPE REDUCTION



### Alternative Barrier Material



NZTC : £100k



### Inspection & Verification Technology



NZTC : £100k



### P&A Enabling Technology



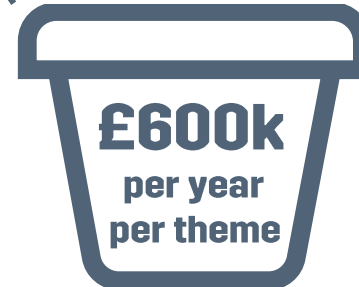
NZTC : £100k

ISP TBC



£100k

per operator,  
per theme,  
per year



£600k

per year  
per theme

# How would it work?



**Alternative  
Barrier  
Materials**



**Inspection &  
Verification  
Technology**



**P&A Enabling  
Technology**

## Steering Group



**ABM Tech 1  
Company**

**Verification Tech 1  
Company**

**P&A Enabling 1  
Company**

**ABM Tech 2  
Company**

**Verification Tech 2  
Company**

**P&A Enabling 2  
Company**

**ABM Tech 3  
Company**

**Verification Tech 3  
Company**

**P&A Enabling 3  
Company**

**ABM Tech 4  
Company**

**Verification Tech 4  
Company**

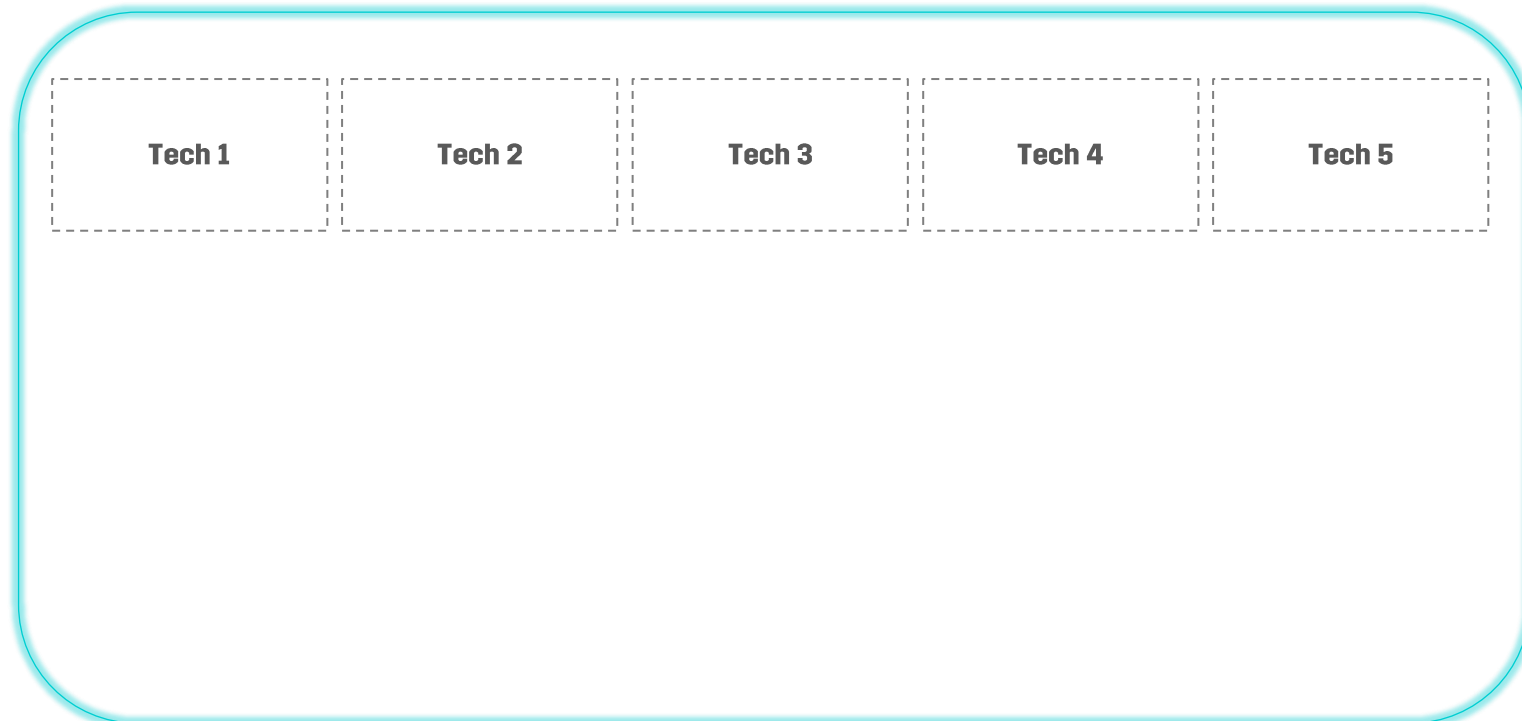
**P&A Enabling 4  
Company**

**ABM Tech 5  
Company**

**Verification Tech 5  
Company**

**P&A Enabling 5  
Company**

## Annual Field Trial Prioritisation



# How would it work?



## Alternative Barrier Materials



## Inspection & Verification Technology



## P&A Enabling Technology

## Steering Group



## Annual Field Trial Prioritisation

ABM Tech 1 Company	Verification Tech 1 Company	P&A Enabling 1 Company
ABM Tech 2 Company	Verification Tech 2 Company	P&A Enabling 2 Company
ABM Tech 3 Company	Verification Tech 3 Company	P&A Enabling 3 Company
ABM Tech 4 Company	Verification Tech 4 Company	P&A Enabling 4 Company
ABM Tech 5 Company	Verification Tech 5 Company	P&A Enabling 5 Company

ABM Tech 1 Company	ABM Tech 4 Company	Verification Tech 2 Company	P&A Enabling 3 Company	P&A Enabling 5 Company
Field Trial #1	Field Trial #1	Field Trial #1	Field Trial #1	Field Trial #1
Field Trial #2	Field Trial #2	Field Trial #2	Field Trial #2	Field Trial #2
Field Trial #3	Field Trial #3	Field Trial #3	Field Trial #3	Field Trial #3



## Q4 2021

### Engagement

Recruiting lead and supporting operators to be involved in each theme. Ensure £100k funding is within the budget

## Q3 2022

### Field Trials

Field trials to begin to trial up to five technologies, with three field trials per technology

### Proof of Concept

Interwell Thermite technology has had 7 successful field trials with this new model

### Preparation

Formalising the steering groups, identifying well stocks and review and prioritising the annual technology pipeline

### Target

Aim to have 6 technologies qualified and adopted

## 2020/2021

## Q1/2 2022

## 2025





# Collaboration Proof of Concept Case Study



Industry Partners

“Conducting field trials is a critical step to qualify new barrier materials and technology. The new collaboration model provides a solution for carrying out these trials at the pace required to have a material impact on the upcoming well decommissioning activities.” – Sprit Energy



Technology

**RockSolid™**

Technology Developer

**Interwell P&A**

Industry Partner

**Spirit Energy & Harbour Energy**

Emission Reduction



Theme

Late Life & Decom



Entry TRL	Target TRL	Field Trial	Ready by
5	7	Y	Q4 '21

### Technology Overview

- Patented formation-to-formation barrier
- Restores the cap rock formation to its original integrity
- e-line is the main deployment method: ideal for rig-less applications
- Slim design (small OD) which passes the most common restriction sizes
- No need for section milling / casing removal

SPARK-1084



How many field trials have been conducted?

A total of 7 RockSolid barriers have been set, all realised for £300k

What was the success rate?

Post Installation verification done on 7 wells. 100% 1st setting success rate. Source of gas has been shut off by the RockSolid™ barrier system

What are the next steps?

The technology will now be part of the standard “Non-routine” abandonment procedure with the Alberta Energy Regulator (AER)



# BENEFITS



## Emissions Reduction

Collaboration will lead to cost reduction & commitment to cleaner P&A tech



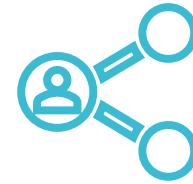
## Decreased Risk

Decreased technical & commercial risk for all involved



## Faster Qualification

Qualification & adoption of new tech in UKCS will be faster



## Information Sharing

Info to be shared will not be constrained through DPA/IP



## More Data Points

Access to more low cost Canadian wells means more data points for investment



## Relationship Development

Relationship development with wide range of operators (including international interest)



## Reduced Cost

Support numerous technology developments at a fraction of the cost



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**Technology Driving Transition**