



ASTF  
Joint Venture Hub Strategy

Industry Good Practice

Issue 1

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- Bart Van der Sterren (One Dyas)
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- Tony Peters (NSTA)

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### London Office:

1st Floor, Paternoster House, 65 St. Paul's Churchyard, London EC4M 8AB  
Tel: 020 7802 2400

### Aberdeen Office:

4th Floor, Annan House, 33-35 Palmerston Road, Aberdeen, AB11 5QP  
Tel: 01224 577250

info@oeuk.org.uk

[www.oeuk.org.uk](http://www.oeuk.org.uk)

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## 1 Introduction

The Asset Stewardship Taskforce, under the North Sea Transition Forum, was established to support the NSTA Strategy, in respect of both production and net zero obligations by improving asset stewardship in the UK Continental Shelf area.

A cross-industry ASTF workshop was held in June 2023 with representatives from Well Operators, Regulators & OEUK. The topic was split into four themes: JV Hub Strategy, ERAP, Learning & Sharing, Culture. The purpose of the JV Hub Strategy:

Develop a fit for purpose industry best practice approach to Joint Venture (JV) hub strategies that identifies areas of value, improves delivery, and drive more collaboration and cross-industry improvements.

A task group (TG) was formed to capture the opportunities and challenges industry is facing regarding current hub strategies and opportunities to enhance greater consistency across the UKCS. The TG after reviewing the current as-is assessment reviewed and shared most effective Hub Strategies either as lead operator or JV partner. Through this exercise the TG concluded a template of requirements would be beneficial and should easily deliver the core aims of the JV Hub Strategy to identify areas of value, improve delivery, drive collaboration and improvements. The NSTA ASTF Joint Venture Hub Strategy is available here: <https://oeuk.org.uk/product/astf-joint-ventu...ractice-template/>

This good practice is to be accompaniment to the NSTA Asset Stewardship 1 (SE1) : [https://www.nstauthority.co.uk/media/5895/oga\\_se1\\_joint\\_hub\\_strategy\\_july\\_2019.pdf](https://www.nstauthority.co.uk/media/5895/oga_se1_joint_hub_strategy_july_2019.pdf) and does not replace the current SE1 or any future updates.

There was also a recognition that although a standard template was developed it should not be used as the sole template. All parties must be willing to expand and share additional items for inclusion as merited to address area nuances.

The Industry Good Practice document and accompanying template is used to give practical advice on how to comply with NSTA Stewardship Expectation 1. The Task Group aspiration and intention if an Operator follows the template you should be complying with the JV Hub Strategy Stewardship Expectation.

## 2 Joint Venture Hub Strategy Template

The JV Hub Strategy should cover the following requirements with an expectation to be completed with 22 individual core slides. Typically, within each template page there is a summary section, graphical or tabular to increase visibility of the hub strategy and a list of prioritized activities. Notes will be included in the speaker notes section of the template to help address any inconsistencies.

The key elements covered in the template are listed below. All slides may not be applicable for all assets/hubs and will be dependent on the timing of the asset life cycle, there is no expectation to complete all slides, only those appropriate to the asset/hub in question.

1. Overall Hub Strategy 1-Page Summary
2. Hub Timeline
3. SWOT Analysis
4. MAH Prevention/Process Safety
5. Emissions Baseline, Forecasts and Targets
6. Emissions Reduction Project Program & Investments
7. Exploration Prospectivity (Add Multiple Slides for Additional Opportunities)
8. Undeveloped Discoveries (Add Multiple Slides for Additional Opportunities)
9. Infill/Workover Opportunities (Add Multiple Slides for Additional Opportunities)
10. Enhanced Recovery Opportunities (Add Multiple Slides for Additional Opportunities)
11. 3rd Party/Business Development Opportunities
12. Topsides Projects (Add Multiple Slides for Additional Projects)
13. Barrel Adding Opportunities
14. Production Efficiency/Debottlenecking Opportunities
15. Shutdown/TARs/Maintenance Backlog
16. Life Extension Opportunities
17. Technology Requirements
18. OPEX/CAPEX/ABEX
19. Decom Preparation & Post CoP Options
20. JV Collaboration & Alignment

21. Development Scenario Analysis
22. Good Practice Matrix

Appendix A contains further information on each individual template topic suggestions, in this same information is stored within the PowerPoint template.

If an operator has additional pages to be encapsulated in the hub strategy due to specific nuances or technical challenges are welcomed. Please give feedback to the central team listed at the end of the document for future potential updates.

### 3 Joint Venture hub strategy - ways of working

Effective ways of working between JV partners should be established ahead of commencing a Hub Strategy. The following is an outline guide to effective ways of working when developing a hub strategy.

- Establish joint framing session, utilising the hub strategy template as initial default minimum expectation. Must be led by the lead operator with active participating from the non-operating partners
- Expectation is that six months should be allowed for an initial strategy to be completed or a major update or for a large or complex area modification. For regular updates or minor amendments should be completed in less than three months.
- The NSTA Asset Stewardship submissions annual data deadlines to the NSTA should be incorporated into planning cycle.
- All parties quickly confirm the “as is” situation including aspects like, licence status, resource status, safety & environmental, production, operational & drilling performance
- Asses functioning of JV including a SWOT analysis (or similar) for the asset and JV.
- During the production of a hub strategy expectation is to be able to describe and assess multiple strategies scenarios both qualitative and quantitative. Scenarios to include elements like; key assumptions, NPV, reserves, UOC, COP and emissions.
- Active follow-up in/with the OCM reps as required to ensure collaboration is embedded in strategy production.
- Active follow-up with adjacent bodies including NSTA, HSE, OPRED, OEUK, NZTC to ensure latest technology or good practice are reviewed and captured as required.
- Finalisation and formal approval in Operator & JV Partner OCM prior to issue to NSTA including selected strategy and key actions and information / decision points.

## 4 Hub Strategy SWOT key words

To assist the development of a consistent industry response the following keyword list for the SWOT analysis should be utilized as a starting point on the SWOT analysis.

### SWOT Key words

- JV Engagement Level
- Partner Alignment Level on Hub Strategy
- Operator Experience on Assets/Hub
- High Asset/Hub Efficiency/Availability
- Unit Operating Cost
- Emissions Reductions/ERAP Commitments
- Synergies with Other Assets/Hubs
- Further JV Exploration Bids in Licence Rounds
- 3rd Party Tie-Back Opportunities Near Hub
- Scope for Further Resource Maturation
- Available resources; LWIV or Drilling Rig for infill well activity
- Predictive production declines or failures known / unknown.
- Onshore Infrastructure status
- Commercial agreements with Onshore Reception Facilities
- Project Delivery of ERAP Commitments confidence
- Licence to Operate status.
- Commodity Price prediction support expenditure plans
- Reception Facilities Cost and Longevity
- Asset Life Extension impacts on Net Zero Commitments
- Supply Chain Challenges / Opportunities



## 5 Proposed next steps

ASTF & OEUK formally roll out Template ASTF Joint Venture Hub Strategy to wider industry

The Industry Good Practice Template should be used to supersede any previous versions of the Joint Venture Hub Strategy and there will be no expectation of a supporting document. The PowerPoint slides provided in the template will be sufficient to satisfy the requirements of Stewardship expectation 1.

Q2 2024; Operators are already utilising the template to update JV Hub Strategy to the satisfaction of both JV Partners and the NSTA.

The Task Group are looking to receive feedback and case studies. For further information or to join the ASTF please contact Keith Wise [kwise@oeuk.org.uk](mailto:kwise@oeuk.org.uk) or Mark Wilson [mwilson@oeuk.org.uk](mailto:mwilson@oeuk.org.uk)

## Appendices

### A Joint Venture Hub Strategy Template – further information

Slide 0



- Please refer to the supporting NSTA JV Hub Strategy Good Practice Guide for additional supporting information to this template pack.
- NSTA Stewardship Expectation 1 (Joint Venture Hub Strategy) should also be referred to when populating this template pack – [https://www.nstauthority.co.uk/media/5895/oga\\_se1\\_joint\\_hub\\_strategy\\_july\\_2019.pdf](https://www.nstauthority.co.uk/media/5895/oga_se1_joint_hub_strategy_july_2019.pdf)
- Not all slides will be applicable, therefore please refer to slide 22 (JV Hub Strategy – Good Practice Matrix) which provides a guide on which slides are applicable dependent on the lifecycle stage of the assets/hub in question.
- This template should be treated as a guide and all slides can be adjusted by the Operator as necessary to suit their asset/hub.
- The Operator can add additional slides where necessary to support their JV Hub Strategy.
- Multiple copies of each template slide can be used if necessary to provide further detail.
- All graphics/figures throughout the slide pack are provide as guidance, the operator can replace with any specific/relevant graphics which best describe the corresponding section of the strategy.

- This slide can be updated by the Operator with appropriate company logos and graphics to appropriately represent the asset/hub.

Slide 1

[Hub Name]: Hub Strategy Revision History

[Hub Name]: Update Table Below with Key Revision History

Revision Date	Revision Number	Key Changes/Updates Since Last Submission
31/01/24	Rev 4	<ul style="list-style-type: none"> <li>Further information provided with regards Devcom Preparation - Preval CO2 Options?</li> <li>Developed Life Extension Opportunities slide?</li> <li>Updated SWOT Analysis following JV OCM/TCM?</li> </ul>
31/10/23	Rev 3	<ul style="list-style-type: none"> <li>Updated OPEX/CAPEX/INDEX following recent JV OCM/TCM approval?</li> <li>Updated Hub Timeline following recent JV OCM/TCM workshop?</li> <li>Added details on new Exploration Opportunities?</li> </ul>
14/08/23	Rev 2	<ul style="list-style-type: none"> <li>Did JV OCM/TCM Development Opportunities slide following recent BD engagement?</li> <li>Updated Centralising Opportunities slide following recent well intervention updates?</li> <li>Updated Hub Strategy for Hub Name XXX?</li> </ul>
28/02/23	Rev 1	<ul style="list-style-type: none"> <li>Updated Hub Strategy 1- Page Summary following JV OCM/TCM?</li> <li>Updated Strategic Slide following recent well intervention updates?</li> <li>Added new Exploration Opportunity (New Field XXX)?</li> </ul>

- This slide should be used to capture key changes for the JV Hub Strategy

Slide 2

[Hub Name]: Hub Strategy 1-Page Summary

[Hub Name]: Mission Statement: xxx

**Strategic Pillars**

- Operational
- Financial

**Insert Appropriate Summary Pictures**

- Field Map
- Process Flow Diagrams & Piping in 3D/2D
- Quality Assurance (QA) by JV

**Hub Name/ Strategic Intent (e.g. Key Strategic Pillars)**

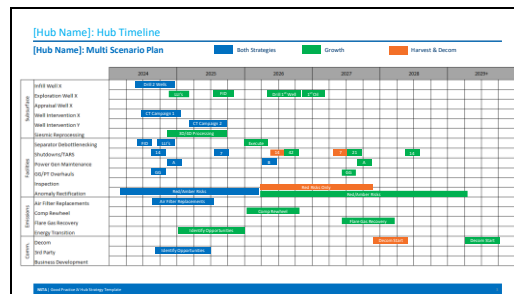
- Hub Timeline
- SWOT Analysis
- M&E Prevention/Process Safety
- Emissions Baseline, Targets & Trends
- ESAP Program & Investments
- M&E - Exploration Prospects, Undeveloped Discoveries, HSE/Wellbore Opportunities & Enhanced Recovery Opportunities
- 3rd Party/Business Development Opportunities
- Topical Projects (inc. ESAP)
- Barrel Adding Opportunities
- FD/Debarrelling Opportunities
- Shutdown/TMA/Maintenance Backlog
- Life Extension Opportunities
- Technology Requirements
- OPEX/CAPEX/INDEX
- Decom Prep & Post CO2 Options
- JV Collaboration & Alignment
- Development Scenario Analysis

- Summary Picture – an appropriate summary graphic should be provided which adequately shows the asset/hub (e.g. Field Map including installations, tie-backs, future prospects, licences).
- Strategy Summary – graphic or bullet points to provide a high level summary of the asset/hub long term strategy.
- Production Graphic – an appropriate graphic summarising the production for the asset/hub including future resource progression opportunities.
- Emissions Graphic – an appropriate graphic summarising the emissions for

the asset/hub including reduction opportunities, ERAP commitments, increases associated with new opportunities, emissions intensity.

- Strategic Intent Bullet Points – selected bullet points which summarise forthcoming slide in the pack (e.g. key activities associated with long term strategy for the asset/hub).

Slide 3



- This slide should be updated to include a long term plan/timeline for the asset/hub in alignment with the strategy of the asset (as shared in slide 1)
- If possible, please include multiple scenarios for the asset/hub.
- It is important to include both opportunities to maximise economic recovery and emissions reduction activities.
- Multiple copies of this slide could be used for more complicated scenarios/alternatives.

Slide 4

[Hub Name]: SWOT Analysis  
[Hub Name]: Summarise Below

**[Hub Name] Strengths**

- Consistent JV Engagement?
- Partner Alignment on Hub Strategy?
- Strong Operator Experience on Asset/Hub?
- High Asset/Hub Efficiency/Availability?
- Low Unit Operating Cost?
- Emissions Reduction/ERAP Commitments?
- Management of Emissions Reductions?

**[Hub Name] Opportunities**

- Synergies with Other Assets/Hub?
- Further JV Exploration Bids in Licence Region?
- Potential Further 2P Party Take-Back Opportunities Near Hub?
- Investing in Energy Efficiency
- Electrification/Energy Integration Development

**[Hub Name] Weaknesses**

- Limited Scope for Further Resource Maturation?
- Lack of Drilling Rig on Hub following Next 18M Well?
- Timeline of Potential Well Failures Unknown?
- Well Rights in Onshore Infrastructure?
- Commercial Challenges with Onshore Reception Facilities?
- Supply Chain Delivery of ERAP Commitments?
- Electrification is not compatible for late life asset?

**[Hub Name] Threats**

- Licence to Operate Could be Challenged
- Volatile Commodity Prices
- Reception Facilities Cost and Longevity?
- Asset Life Extension Could Impact Net Zero Commitments?
- Supply Chain Challenges?

This slide should be updated to demonstrate the key strengths, weaknesses, opportunities & threats for the asset/hub.

The bullet points provided in the template are a guide and can be included or deleted as necessary.

The Operator should consider the necessary actions to mitigate the identified weaknesses and threats from the SWOT Analysis.

Slide 5

[Hub Name]: MAH Prevention/Process Safety  
[Hub Name]: MAH Prevention/Process Safety

**Principles of Process Safety Leadership for the offshore UKCS Oil & Gas Industry**

- Deliberate focus on process safety, supported by the Business Case Committee
- Consistent message from senior leadership
- Simplify the language and remove ambiguity in terminology
- Process safety management responsibilities for accident hazards
- Introduce simple and clear process safety branding using the Process Safety Fundamentals
- Base process safety on understanding and competency "from the boardroom to the front-line"
- Develop organisational "culture of concern"

**Process Safety**  
It's how we all think

**Management**  
**Leadership**

**Competency**

**Principles of Process Safety Leadership for the offshore UKCS Oil & Gas Industry**

The purpose of this slide is for the Operator to provide a summary of the MAH prevention and/or process safety aspects of the asset/hub.

The bullet points and graphics in the template slide are provided as a guide and should be changed/updated by the Operator for those applicable to the asset/hub.

Slide 6

[Hub Name]: Emissions Baseline, Forecasts and Targets  
[Hub Name]: Summarise Below

**Approximate Summary Graphic (e.g. Emissions Profile for different Asset Scenarios / Projects)**

**Emissions Profile (i.e. Scope 1 Emissions)**

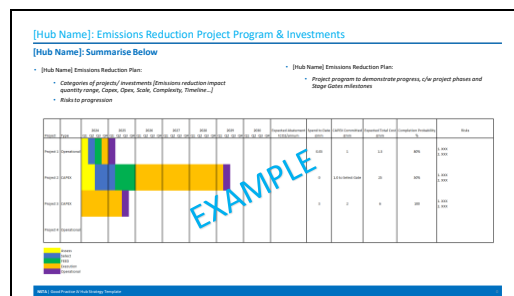
Projects	Abatement Type	Emissions 2025x (t/y)	Timing
Compressor Revamp	Energy Efficiency	-5000	Q3 202x
Flare Revamp	Flare Efficiency	-3000	Q3 202x
Power Gen Management	Energy Efficiency	-5000	Q3 202x
Single Train Operate	Energy Efficiency	-4000	Q3 202x
Purge Gas Reduction	Flaring Reduction	-500	Q3 202x

This slide should be updated by the Operator to provide a summary of the emissions baseline, forecast and targets for the asset/hub.

Appropriate summary graphics should be provided to demonstrate emissions profiles for various asset scenarios and supporting table of opportunities to reduce emissions as per the asset/hub ERAP Document.

Stewardship Expectation 11 (Net Zero) should be referenced while populating this slide –

Slide 7

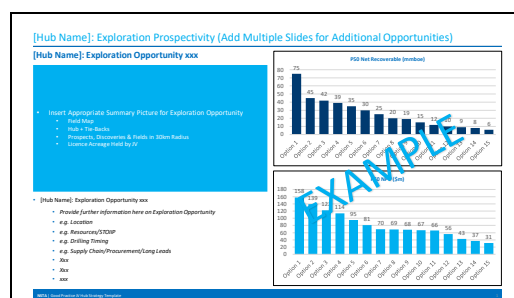


- This slide should be updated by the Operator to provide a summary of the emissions reduction program including a supporting timeline.

- An appropriate timeline should be shared in this slide demonstrating the timeline for each key ERAP commitment, emissions savings etc.

- Stewardship Expectation 11 (Net Zero) should be referenced while populating this slide – [https://www.nstauthority.co.uk/media/7184/se11\\_net-zero.pdf](https://www.nstauthority.co.uk/media/7184/se11_net-zero.pdf)

Slide 8



- This slide is a template to summarise applicable exploration opportunities for the asset/hub.

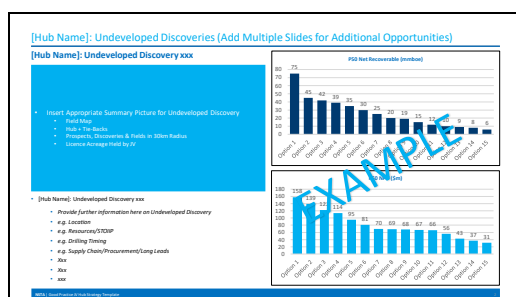
- The slide should include an appropriate graphic for the opportunity (top left), bullet point summary of the opportunity (bottom right) and supporting graphics/graphs to demonstrate the value of the exploration prospect.

- If not applicable, this slide can be removed from the slide pack.

- Multiple copies of this slide can be included if there are multiple

exploration opportunities on the asset/hub.

Slide 9



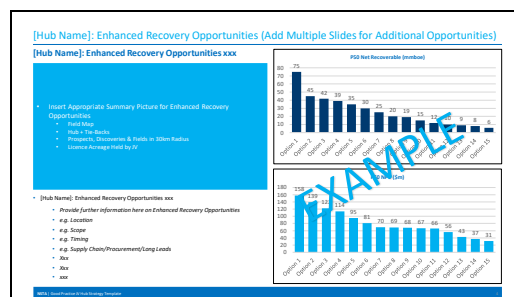
- This slide is a template to summarise applicable undeveloped discoveries for the asset/hub.
- The slide should include an appropriate graphic for the opportunity (top left), bullet point summary of the opportunity (bottom right) and supporting graphics/graphs to demonstrate the value of the undeveloped discovery.
- If not applicable, this slide can be removed from the slide pack.
- Multiple copies of this slide can be included if there are multiple undeveloped discoveries on the asset/hub.

Slide 10



- This slide is a template to summarise applicable infill/workover opportunities for the asset/hub.
- The slide should include an appropriate graphic for the opportunity (top left), bullet point summary of the opportunity (bottom right) and supporting graphics/graphs to demonstrate the value of the infill/workover opportunity.
- If not applicable, this slide can be removed from the slide pack.
- Multiple copies of this slide can be included if there are multiple infill/workover opportunities on the asset/hub.

Slide 11



- This slide is a template to summarise applicable enhanced recovery opportunities for the asset/hub.
- The slide should include an appropriate graphic for the opportunity (top left), bullet point summary of the opportunity (bottom right) and supporting graphics/graphs to demonstrate the value of the enhanced recovery opportunity.
- If not applicable, this slide can be removed from the slide pack.
- Multiple copies of this slide can be included if there are multiple enhanced recovery opportunities on the asset/hub.



Slide 12

[Hub Name]: 3<sup>rd</sup> Party/Business Development Opportunities

[Hub Name]: 3<sup>rd</sup> Party/Business Development Opportunities

- Provide further information here see
  - e.g. CO2E reduction potential asset/hub
  - e.g. enhanced opportunities
  - e.g. 3<sup>rd</sup> party/Offshore asset opportunities
  - e.g. onshore capture & storage
  - e.g. energy integration development/decarbonisation
  - etc
  - etc

Opportunity	Distance from Asset/Hub	Lowest Carbon Opportunity	Volume	Status
Opportunity A	5km	xxx	xxx	xxx
Opportunity B	10km	xxx	xxx	xxx
Opportunity C	20km	xxx	xxx	xxx
Opportunity D	25km	xxx	xxx	xxx
Opportunity E	35km	xxx	xxx	xxx

- The purpose of this slide is for the Operator to demonstrate all potential 3rd party or business development opportunities near the asset/hub have been considered.
- If not applicable, this slide can be removed from the slide pack.

Slide 13

[Hub Name]: Topsides Projects (Add Multiple Slides for Additional Projects)

[Hub Name]: Topsides Project xxx

Insert Appropriate Summary Picture for Topsides Project  
e.g. Project Photo, PFD or P&ID

[Hub Name]: Topsides Project xxx

- Provide further information here on Topsides Project here
  - e.g. Scope
  - e.g. Identification/Value
  - e.g. Location
  - e.g. Timing
  - e.g. Supply Chain/Procurement/Lead Lead
  - etc
  - etc

Opportunity	CAPEX estimate	Inc. CAPEX benefit	Output	Lead time
Project Case 01	100M	50M	1000 tpa	120 Days
Project Case 02	150M	75M	1500 tpa	150 Days
Project Case 03	200M	100M	2000 tpa	180 Days

- This slide is a template to summarise key topsides projects for the asset/hub.
- This template can also be used to provide further information associated with any key emissions reduction/ERAP opportunities.
- If not applicable, this slide can be removed from the slide pack.
- Multiple copies of this slide can be included if there are multiple enhanced recovery opportunities on the asset/hub.

Slide 14

[Hub Name]: Barrel Adding Opportunities

[Hub Name]: Summarise Table Below

Opportunity	Description	Project Phase	Timing	Volume/Production	Comments
Well XXX	Velocity String	Engineering & Procurement	Q4 2024	10mmrcd uplift	
Well XXX	Isolate water producing interval	Design	Q1 2025	TBC	
Well XXX	Perforate new zones	Detailed Design	Q2 2025	5mmrcd uplift	
Compressor Section Pressure Reduction	Reduce Liquid Compressor section pressure to improve well performance and reduce liquid loading	FEED	Q4 2025	10mmrcd uplift	

- This slide is a template to summarise key barrel adding opportunities for the asset/hub (e.g. well intervention, compression optimisation) including appropriate descriptions, timing and value of each opportunity.
- Examples provided in the table are a guide only and the Operator should populate the table with applicable opportunities for the asset/hub.
- If not applicable, this slide can be removed from the slide pack.

Slide 15

[Hub Name]: Production Efficiency/Debottlenecking Opportunities

[Hub Name]: Summarise Table Below

Theme	Opportunity	Status	Timing	Value / Risks
Optimize Current Installed Facilities	<ul style="list-style-type: none"> <li>Optimize Gas/Lift</li> <li>Optimize Water Injection Rates</li> <li>Reduce Compressor Section Pressure</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing</li> <li>Not Started</li> <li>Planned Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Completed Q4 20XX</li> <li>Planned Q4 20XX</li> <li>Delayed from Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Increased Daily Production Rate / Increased PE</li> </ul>
Debottlenecking	<ul style="list-style-type: none"> <li>Increase Separator Capacity</li> <li>Compressor Axi-Edge Tuning</li> <li>Key Instrument Loop Tuning</li> </ul>	<ul style="list-style-type: none"> <li>Planned Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Completed Q4 20XX</li> <li>Planned Q4 20XX</li> <li>Delayed from Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Increased Daily Production Rate</li> </ul>
Optimize Current Well Stock (e.g. Well Interventions)	<ul style="list-style-type: none"> <li>Conduct Well Interventions (Wells A, B, C)</li> </ul>	<ul style="list-style-type: none"> <li>Planned Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Planned Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Increased Daily Production Rate</li> </ul>
Optimize Shutdowns/TARs	<ul style="list-style-type: none"> <li>Remove Non-Critical Sops from Shutdowns/TAR</li> </ul>	<ul style="list-style-type: none"> <li>Planned Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Planned Q4 20XX</li> </ul>	<ul style="list-style-type: none"> <li>Increased P/Reduced Shutdown Time</li> </ul>

Wells: Southwold/Blackstone Assets

- This slide is a template to summarise key debottlenecking and/or production efficiency improvement opportunities.
- Examples provided in the table are a guide only and the Operator should populate the table with applicable opportunities for the asset/hub.
- If not applicable, this slide can be removed from the slide pack.

Slide 16

[Hub Name]: Shutdown/TARs/Maintenance Backlog

[Hub Name]: Summarise Below

- [Hub Name] Shutdowns/TARs/Maintenance Backlog optimisation:
  - Maintenance Backlog – strategy to manage/reduce, ensure maintenance occurs correctly timed (e.g. shutdown vs. non-shutdown)
  - Shutdowns/TARs – investigate options to optimise frequency and scope (e.g. more effective use of contractors, improve planning/execution)
  - O&E reduce Shutdowns/TAR performance > 2 days
  - Consider supply chain challenges/Concerns
  - Consider regulator specific actions

Theme	Description	Value
Maintenance Backlog Opportunities	Conduct maintenance strategy optimisation review	Reduced maint backlog (on hrs)
	Adjust maintenance frequencies (based on history of performance)	Reduced maint backlog (on hrs)
	Consider vendor management (e.g. reliability/durability of spares)	Reduced maint backlog (on hrs)
	Ensure correct planning/execution (e.g. shutdown vs. non-shutdown)	Reduced maint backlog (on hrs)
Shutdowns/TAR Optimisation	Investigate for potential to increase load time	Reduced maint backlog (on hrs)
	Investigate if certain scopes could be reworked or integrated in base maint plan	Optimised Maint Strategy
	More effective use of contractors	Reduced Vendor Spend
	Improved job planning and execution	Additional Uptime/Prod

Wells: Southwold/Blackstone Assets

- The purpose of this slide is to demonstrate optimisation associated with shutdowns/TARs and the asset/hub maintenance backlog management.
- All information/graphics/tables on this slide can be updated by the Operator to appropriately demonstrate the Shutdown/TARs/Maintenance Backlog for the asset/hub.

Slide 17

[Hub Name]: Life Extension Opportunities

[Hub Name]: Summarise Below

[Hub Name] Late Life Strategy Summary

What?	Why?
<ul style="list-style-type: none"> <li>Surface history?</li> <li>Well and subsurface condition/integrity?</li> <li>Process and utility systems (inc. power)?</li> <li>Offshore and agent routes?</li> <li>Execution capabilities?</li> </ul>	<ul style="list-style-type: none"> <li>Government drivers, regulations, business drivers, NTZ</li> <li>PSR above normal ops?</li> <li>Commercial structure and economics models?</li> <li>HSE and Safety Case?</li> <li>Inspection, maintenance, repair and mods performance/actuals?</li> <li>Frequency of assessment?</li> </ul>
<ul style="list-style-type: none"> <li>New fields and drilling?</li> <li>Maximise economics necessary?</li> <li>Other new tie-backs?</li> <li>Original design life extendability?</li> <li>Safety Case material change?</li> <li>Environmental drivers?</li> </ul>	

Wells: Southwold/Blackstone Assets

- This slide should be updated to demonstrate the late life strategy of the asset.
- The bullet points provided in the template are a guide and can be included or deleted as necessary.
- If not applicable, this slide can be removed from the slide pack.

Slide 18

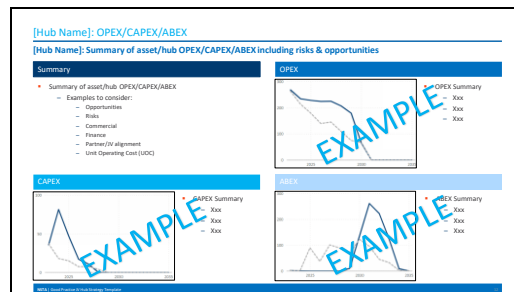
[Hub Name]: Technology Requirements  
[Hub Name]: Summarise Table Below

Theme	What?	When?	Value / Risks
Hydraulic Fracturing	<ul style="list-style-type: none"> <li>Identify Fracturable Completions</li> <li>Optimise &amp; Refine Fracturing</li> <li>Modeling &amp; Prediction</li> </ul>	<ul style="list-style-type: none"> <li>Fracturing Trials Planned Q3 2024</li> <li>Well Test Plans for Q3 2024</li> </ul>	<ul style="list-style-type: none"> <li>Optimise Mitigation/Decommission Resource Outcomes</li> </ul>
Advanced Seismic Imaging	<ul style="list-style-type: none"> <li>Quantitative Analysis</li> <li>Imaging Optimisation</li> <li>Microseismic Monitoring for Fracs</li> </ul>	<ul style="list-style-type: none"> <li>Advanced Seismic Imaging Q3 2024</li> <li>Fracturing Trials Planned Q3 2024</li> </ul>	<ul style="list-style-type: none"> <li>Value (e.g. sidetrack cost savings, optimised well lengths)</li> </ul>
Well Drilling & Completions Optimisation	<ul style="list-style-type: none"> <li>Drill Location</li> <li>Remotely Fracturable Sleeve Completion</li> </ul>	<ul style="list-style-type: none"> <li>Well Intervention Activities Planned Q3 2024</li> <li>Drill Deployment 2024</li> </ul>	<ul style="list-style-type: none"> <li>Supports Fracturing &amp; Completions</li> <li>Mitigation/Agreement Water Drawdown</li> </ul>
Well Interventions	<ul style="list-style-type: none"> <li>Water Shut-off Technology</li> </ul>	<ul style="list-style-type: none"> <li>Well Intervention Activities Planned Q3 2024</li> <li>Trials Planned Q3 2024</li> </ul>	<ul style="list-style-type: none"> <li>FC Cost Saving</li> <li>Well Optimisation</li> </ul>
Remote & Digital Operations	<ul style="list-style-type: none"> <li>Production Operator Workbench</li> <li>Production Optimisation Tools</li> </ul>	<ul style="list-style-type: none"> <li>In Use Since Q3 2024</li> </ul>	<ul style="list-style-type: none"> <li>Potential F&amp;E Reduction</li> </ul>
Reservoir Modelling	<ul style="list-style-type: none"> <li>Modelling for Uncertainty Range Prediction</li> <li>Natural Fracture Geometric Modelling</li> </ul>	<ul style="list-style-type: none"> <li>Modelling to be Deployed 2024</li> <li>Natural Fracture Modelling Planned 2024</li> </ul>	<ul style="list-style-type: none"> <li>Optimised Well Targets</li> </ul>

Wells: Decommissioning Energy Network

- This slide should be updated to demonstrate technology opportunities on the asset/hub.
- The examples/bullet points provided in the template are a guide and can be included or deleted as necessary.
- If not applicable, this slide can be removed from the slide pack.

Slide 19



- This slide should be updated to summarise the OPEX, CAPEX and ABEX of the asset/hub including opportunities, risk etc.
- The bullet points and graphics provided in the template are a guide and can be included or deleted as necessary.
- Commercially or financially sensitive information should be removed from this slide prior to sharing out with the JV.

Slide 20

[Hub Name]: Decom Preparation & Post CoP Options  
[Hub Name]: Summarise Below

Pre-Cessation of Production: APPRAISE, ASSESS and DEFINE		
Activity	What?	When?
APPRAISE: Late Life Operating & Decommissioning Strategy	<ul style="list-style-type: none"> <li>Update the Operating Philosophy &amp; Decommissioning Objectives</li> <li>LI schedule and preliminary cost estimate</li> <li>Stakeholder Engagement Plan &amp; Subsurface Basis of Design</li> </ul>	3 to 6 years prior to CoP
ASSESS: Regulatory & Development of Decommissioning Plan	<ul style="list-style-type: none"> <li>Review/refreshing consideration and Decommissioning Programme approved by OPRD</li> <li>Develop Decommissioning Programme (including early start of decommissioning)</li> <li>Identify scope aggregation / categorisation of decommissioning</li> <li>Contracting Strategy &amp; Resource Allocation</li> </ul>	2 to 3 years prior to CoP
DEFINE: Detailed Engineering, Contract Award & Early Execution	<ul style="list-style-type: none"> <li>Detailed engineering (including decommissioning &amp; technology assessment)</li> <li>EPRI joint commissioning &amp; decommissioning (CoP) plan</li> <li>Finalised decommissioning programme (including shut-in wells)</li> <li>Finalised decommissioning programme (including shut-in wells)</li> </ul>	1 to 3 years prior to CoP
Post-Cessation of Production: EXECUTE		
Activity	What?	When?
EXECUTE: Implement Decommissioning Plan per approved Decommissioning Programme	<ul style="list-style-type: none"> <li>Push, clean and disconnect pipelines &amp; wellbore, engineer down and clean vessels</li> <li>Plug &amp; abandon platform &amp; access wells, transition facility into cold stack</li> <li>Remove and dispose of platform and access infrastructure</li> <li>Pipeline &amp; related remediation and close-out surveys, ongoing monitoring</li> <li>Cost and schedule monitoring</li> </ul>	As per plan To minimise post cessation (shutting costs)

Wells: Decommissioning Energy Network

- This slide should be updated to decommissioning preparation activities and post cessation of production opportunities for the asset/hub.
- Through the NSTA Stewardship process, the Operator/JV will need to demonstrate they have maximised economic recovery from the area/hub and cost efficient readiness for cessation of production to minimise unnecessary post CoP operational expenditure.
- The bullet points provided in the template are a guide and can be included or deleted as necessary.

- Stewardship Expectation 10 (Cost Effective Decommissioning) should be referenced while populating this slide –   
[https://www.nstauthority.co.uk/media/5904/oga\\_se10\\_cost\\_effective\\_decommissioning\\_july\\_2019.pdf](https://www.nstauthority.co.uk/media/5904/oga_se10_cost_effective_decommissioning_july_2019.pdf)
- If not applicable, this slide can be removed from the slide pack.

Slide 21

[Hub Name]: JV Collaboration & Alignment  
 [Hub Name]: Summary slide to demonstrate collaboration between JV Partners

**Collaboration - Summary**

- High level summary of Collaboration & CRCP
- JV Partners?
- Pipeline Operators?
- Shippers/Terminals?
- Nearby Assets/Hub Operators?
- Supply Chain Challenges?

**CRCP Output**

**Collaboration - Future Area & Action Plans**

Focus Area	Open/In-Action	Timeline
JV Framing Sessions on Strategic Issues	Long Term Plan - share assumptions with JV Partners to inform budget/business planning	Q2 2024
Partner Workshops	Independent review of 2024 shutdown/TAB	Q3 2024
Partner Workshops	Asset Risk Register - share with JV Partners for input	Q3 2024
JV Hub Strategy	Commence asset life extension study to achieve CoP beyond 2026	Q3 2024
JV Hub Strategy	Explore additional 3 <sup>rd</sup> party tie-back opportunities to this asset	Q3 2024

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- This slide should be updated to demonstrate appropriate JV collaboration and alignment for the asset/hub.
- The bullet points/tables/graphics provided in the template are a guide and can be included or deleted as necessary.
- Key interfaces outside the JV should be considered (e.g. shippers/terminals, nearby assets/operators, supply chain challenges/constraints).
- If not applicable, this slide can be removed from the slide pack.

Slide 22

[Hub Name]: Development Scenario Analysis  
 [Hub Name]: Summary of Development Scenario Analysis

**Base Case + Development Scenarios / Variations**

- Base Case & key variations included for the Scenarios
- Examples of variations to consider:
  - Improved / delayed drilling performance
  - Increased / decreased reserves (per well or P10/S0/P90)
  - Additional wells / successful EOR trial
  - Successful satellite developments
  - Reduced / increased cost (scope/inputs)
  - Life time extension / decarbonisation

**Development Scenarios Overview**

Scenarios → Variations ↓	Base	1	2	3	4	5
Reserves	PSD					
EOR	No					
No wells	25					
Satellite	1					
Cost	PSD					

**Scenario Outputs**

Scenario	NPV (m USD)	Δ NPV (m USD)	Reserves (m bbl)	Capex (m USD)	Opex (m USD)	Pay (m USD)
Base						
1						
2						
3						
4						

**Collaboration Scenario Analysis**

- Key conclusion Scenario Analysis work

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- This slide should be populated in conjunction with slide 2 (Hub Timeline/Multi Scenario Plan).
- The purpose of this slide is to provide further information associated with various scenarios for the asset/hub.
- The bullet points/tables/graphics provided in the template are a guide and can be included or deleted as necessary.

Slide 23

**JV Hub Strategy – Good Practice Matrix**

Slide	Pre-Production Phase	Early Production Phase	Mid Production Phase	Late Production Phase	Post-Production Phase
Hub Strategy - High Summary (Slide 1)	✓	✓	✓	✓	✓
Hub Timeline (Slide 2)	✓	✓	✓	✓	✓
SMART Analysis (Slide 3)	✓	✓	✓	✓	✓
Major Hazards/Process Safety (Slide 4)	✓	✓	✓	✓	✓
Emissions Baseline, Sources and Targets (Slide 5)	✓	✓	✓	✓	✓
Emissions Reduction Project Program & Investments (Slide 6)	✓	✓	✓	✓	✓
Exploration Prospects (Slide 7)	✓	✓	✓	✓	✓
Undeveloped Opportunities (Slide 8)	✓	✓	✓	✓	✓
Life/Workover Opportunities (Slide 9)	✓	✓	✓	✓	✓
Enhanced Recovery Opportunities (Slide 10)	✓	✓	✓	✓	✓
2D/3D Seismic Development Opportunities (Slide 11)	✓	✓	✓	✓	✓
Topdeck Projects (Slide 12)	✓	✓	✓	✓	✓
Reinf/Adding Opportunities (Slide 13)	✓	✓	✓	✓	✓
Production/OT/Operations/Performance Opportunities (Slide 14)	✓	✓	✓	✓	✓
Shutdown/CM/MA/Maintenance/Outage (Slide 15)	✓	✓	✓	✓	✓
Life Extension Opportunities (Slide 16)	✓	✓	✓	✓	✓
Shutdown/Requirements (Slide 17)	✓	✓	✓	✓	✓
CRUC/CAPEX/MAEX Guide (Slide 18)	✓	✓	✓	✓	✓
Process Program Data & Post-Op Options (Slide 19)	✓	✓	✓	✓	✓
2D/3D Seismic & Performance (Slide 20)	✓	✓	✓	✓	✓
Development Scenario Analysis (Slide 21)	✓	✓	✓	✓	✓

- This slide has been included as a guide for the Operator/JV to determine which slides are applicable for the asset/hub dependent on the stage in their lifecycle.
- This matrix should be treated as a guide and the Operator/JV should decide which slides are applicable to their asset/hub.

Slide 24

North Sea Transition Authority

œUK

Joint Venture Hub Strategy

Backup/Supplementary Slides  
\*Optional\*

20 February 2024

- This section of the slide pack/template is optional – further slides can be added in the backup to support for detail in the JV Hub Strategy if necessary

## B List of abbreviations (TBA)

Abbreviations	Definitions
<Abbreviation>	<Definition>
<Abbreviation>	<Definition>
<Abbreviation>	<Definition – To insert more rows, press TAB key>

## C Case Studies & Examples

Case Studies & examples – upon completion of roll out the Task Group are seeking examples for inclusion.



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info@OEUK.org.uk

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