



**KODIAK**

PROJECT DELIVERY PARTNER FOR THE ENERGY OF TOMORROW

# OFFSHORE WORKS | SELECTED CHALLENGES & SOLUTIONS

HAMBURG JUNE 10, 2022

# SELECTION OF POTENTIAL CHALLENGES

Offshore cable connection projects are accompanied by a specific set of challenges

## CHALLENGING AREAS AND (HIGHLIGHTED) EXAMPLES

CABLE SUPPLY	CABLE INSTALLATION	LOCAL CONDITIONS	UNEXPLODED ORDNANCE (UXO)	STAKEHOLDER & AUTHORITIES
Cable Specification & Design	Interface Management	Soil Conditions	Methodological Standards	Ecological Construction Supervision
Manufacturer References	Planning Documents	Peat Exchange and Disposal	Number of Anomalies	Offshore Wind Farm Developers
Cable Factory Audits	Detailed Documentation	Raw Material Extraction Areas	Supplier Market	Marine Warranty Surveys
Type Tests	Cable Integrity	Cable Burial Depth	Seasonal Conditions	Commercial Fishery
Acceptance Tests	Production Accompanying-Tests	Seasonal Restrictions	Schedule Impact	Crossing Structures
	Manufacturing Schedule	Bolder Clearance		Cultural Heritage

ABC = Focus topic, please find more details on the following pages

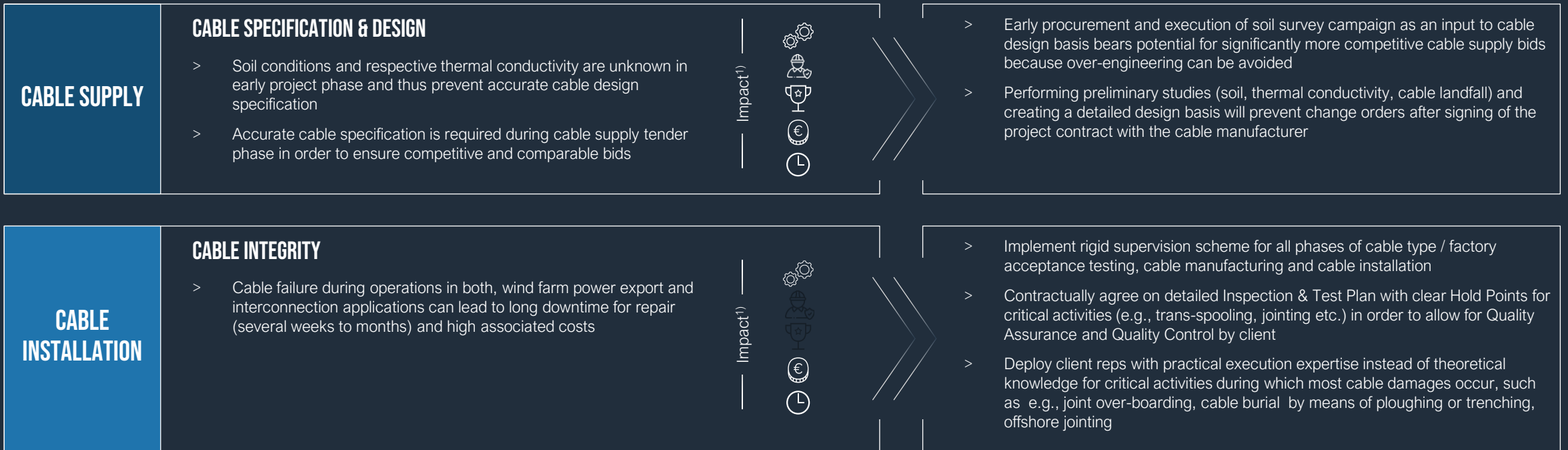


# POTENTIAL CHALLENGES I – SELECTION: CABLE SUPPLY & INSTALLATION

Exemplary selection

## CHALLENGES

## KODIAK'S SOLUTION



Impact key:  = Quality  = H&S  = Image  = Time  = Business

1) Indicative, not-exhaustive impact assessment

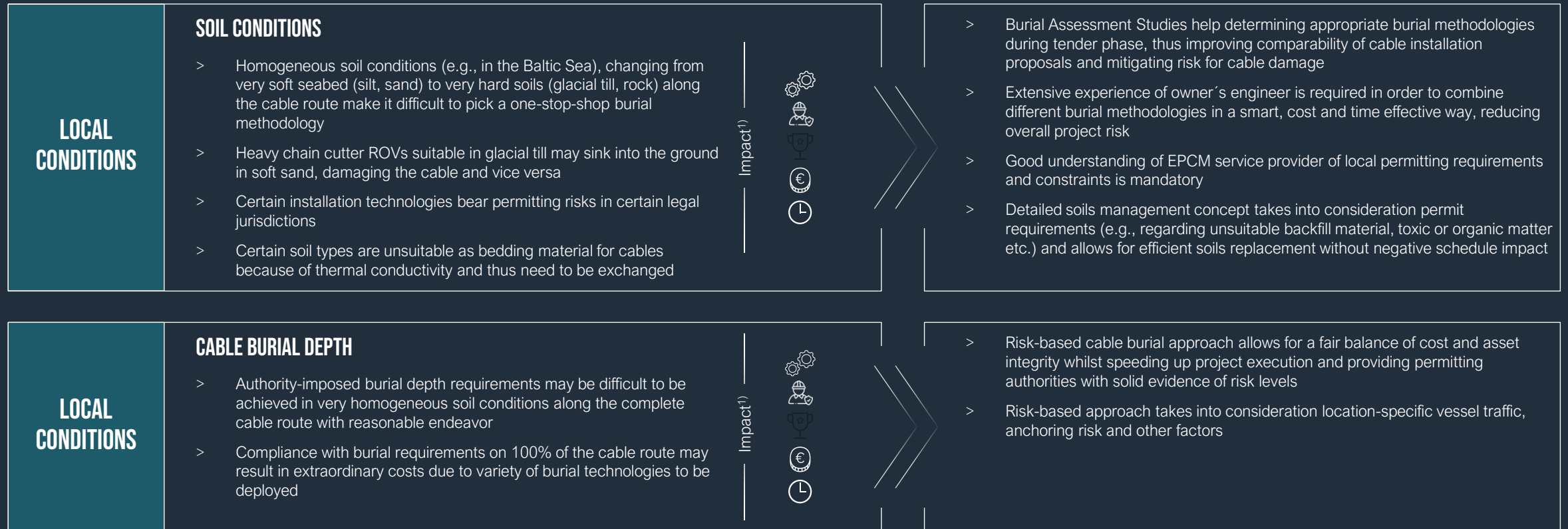


# POTENTIAL CHALLENGES II – SELECTION: LOCAL CONDITIONS

Exemplary selection

## CHALLENGES

## KODIAK'S SOLUTION



Impact key:  = Quality  = H&S  = Image  = Time  = Business

1) Indicative, not-exhaustive impact assessment

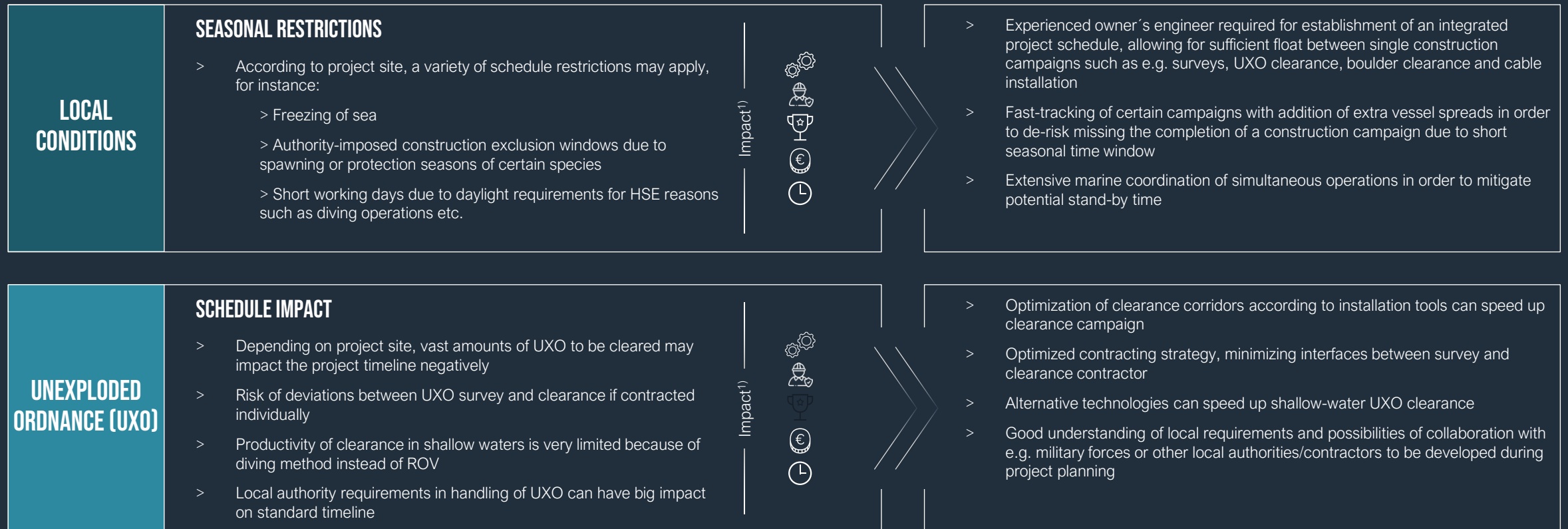


# POTENTIAL CHALLENGES III – SELECTION: LOCAL CONDITIONS & UNEXPLODED ORDNANCE

Exemplary selection

## CHALLENGES

## KODIAK'S SOLUTION



Impact key:  = Quality  = H&S  = Image  = Time  = Business



1) Indicative, not-exhaustive impact assessment



# POTENTIAL CHALLENGES IV – SELECTION: STAKEHOLDER 1/2



Exemplary selection

## CHALLENGES

<b>STAKEHOLDER</b>	<p><b>OFFSHORE WIND FARM DEVELOPER</b></p> <ul style="list-style-type: none"> <li>&gt; In case of joint development of certain assets between wind farm developer and TSO (e.g. joint offshore substation), a vast variety of interfaces need to be determined</li> <li>&gt; Simultaneous installation activities between wind farm developer and TSO can lead to obstruction due to space constraints within windfarm area</li> <li>&gt; Deviating business cases can lead to mutual obstruction or project delay</li> <li>&gt; Diverging QHSE requirements on joint assets may lead to difficulties with scope of work specification</li> </ul>	<p>Impact<sup>1)</sup></p> 
		

## KODIAK'S SOLUTION

<ul style="list-style-type: none"> <li>&gt; Owner's engineer needs to have in-depth experience with conclusion of construction agreements for joint assets such as offshore substations in order to de-risk project</li> <li>&gt; Proximity agreement to be concluded between TSO and wind park developer or other 3<sup>rd</sup> party asset owners, detailing right-of-way during offshore installation phase and integration of marine coordination activities of both parties which will avoid stand-by of construction spreads and violation of safety corridors</li> <li>&gt; Good understanding of other party's business case by ECPm service provider can be used in order to fast track project execution</li> <li>&gt; Establishment of bridging documents will close QHSE gaps and smoothen joint project execution</li> </ul>
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<b>STAKEHOLDER</b>	<p><b>COMMERCIAL FISHERY</b></p> <ul style="list-style-type: none"> <li>&gt; Opposition of local fishermen against planned offshore construction activities can lead to project delays and reputation damage</li> </ul>	<p>Impact<sup>1)</sup></p> 
		

<ul style="list-style-type: none"> <li>&gt; Early stakeholder engagement and conclusion of proximity agreements with fishery community</li> <li>&gt; Deployment of locally established fishery coordinator in order to spot gillnets in construction area prior to arrival of construction spreads can mitigate stand-by cost and damage payments</li> </ul>
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Impact key:  = Quality  = H&S  = Image  = Time  = Business

1) Indicative, not-exhaustive impact assessment



# POTENTIAL CHALLENGES V – SELECTION: STAKEHOLDER 2/2

Exemplary selection

## CHALLENGES

## KODIAK'S SOLUTION

<p><b>STAKEHOLDER</b></p>	<p><b>CROSSING STRUCTURES</b></p> <ul style="list-style-type: none"> <li>&gt; Crossing with 3<sup>rd</sup> party assets such as fiber optic, high voltage power cables or oil &amp; gas pipelines bears a risk for asset integrity, time delay and financial and reputational damage</li> </ul> <p>Impact<sup>1)</sup></p> 	<ul style="list-style-type: none"> <li>&gt; Owner's engineer needs to have in-depth technical and legal experience with conclusion of crossing agreements in order to de-risk project</li> <li>&gt; Approval of method statements and risk assessments for asset crossing by crossing asset owner in early phase for risk transfer</li> <li>&gt; Presence of representative of crossing asset owner and marine warranty surveyor on behalf of construction-all-risk insurance for risk transfer during execution of asset crossing</li> </ul>
<p><b>STAKEHOLDER</b></p>	<p><b>CULTURAL HERITAGE</b></p> <ul style="list-style-type: none"> <li>&gt; Chance finds of cultural heritage in construction area bears potential for schedule delays</li> <li>&gt; In certain jurisdictions, salvage of cultural heritage responsibility lies with authorities and thus timeline cannot be influenced by project developer</li> </ul> <p>Impact<sup>1)</sup></p> 	<ul style="list-style-type: none"> <li>&gt; Under certain circumstances, stand-by of salvage contractor during e.g. dredging operations may enable project developer to act fast in case of chance finds, reducing potential down time of dredging fleet</li> <li>&gt; Early conclusion of agreement with authorities, allowing project developer to suggest the commitment of a professional salvage contractor instead of authority being in charge can speed up project schedule</li> </ul>

Impact key:  = Quality  = H&S  = Image  = Time  = Business

1) Indicative, not-exhaustive impact assessment



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