



CARBON BENEFITS OF TOPSIDES MODIFICATIONS

Presented by Brian Johnstone, Low Carbon Consultant



INFLUENCES ON DECARBONISING NORTH SEA OPERATIONS

- **Climate change**
- **Energy security**
- **Green campaigners**
- **Corporate ESG profiles**
- **Shareholders and investors**
- **Our clients**



PLATFORM MODIFICATIONS - REASONS

- Safety
- Production Improvements
- Repairs

Considering

- Workscope Equipment
- Materials Timeline
- Manpower Cost



PLATFORM MODIFICATIONS - CONSIDERATIONS

**ARE CARBON BENEFITS – DISBENEFITS
CONSIDERED ?**

A full assessment of the inherent carbon impact would go a long way to enhance the viability of proposed topside modifications.



PLATFORM MODIFICATIONS - CONSIDERATIONS

Any product, service or technology that delivers cost, length of service, improved performance, reduced waste benefits typically would deliver carbon benefits

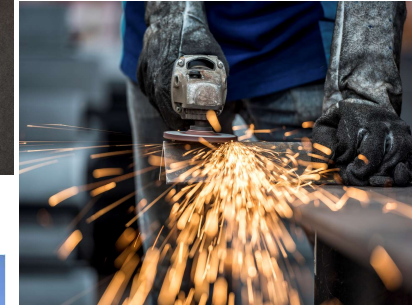
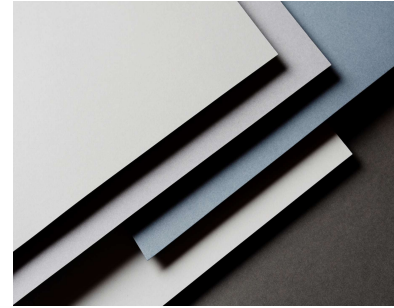


EMBODIED CARBON ASSESSMENT

An Embodied carbon assessment of
OLD versus NEW METHOD or TECHNOLOGY

- Materials – Source, location
- Manufacture - methods
- Transport – to you and offshore
- Installation - manpower, flights, vessels
- Repair/ Replacement frequency
- End of Life disposal

Would give a clear understanding of the carbon impact of each



EMBODIED CARBON ASSESSMENT

EMISSIONS SUMMARY COMPARISON			
EMISSIONS SOURCE	CONVENTIONAL METHODS (kg/CO2e)	NEW TECHNOLOGY (kg/CO2e)	SAVINGS PERCENTAGE
EMBODIED CARBON	1,797	1,132	37%
SHIPPING	11	18	-85%
PACKAGING	17	0	100%
PRODUCTION & APPLICATION	83	14	84%
VESSEL FUEL	1,483	674	55%
TOTAL	3,391	1,839	46%

EMBODIED CARBON ASSESSMENT

THIS LEVEL OF EMISSIONS ASSESSMENT
ALLOWS DETAILED SCRUTINY OF:

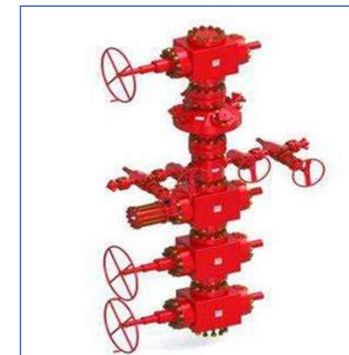
- MATERIALS SELECTION
- THE SOURCE COUNTRY
- METHODS OF TRANSPORT TO YOUR FACTORY
- METHODS OF MANUFACTURE
- SHIPPING TO YOUR CLIENT
- INSTALLATION METHODS
- MANPOWER REQUIREMENTS
- WASTE GENERATED
- END OF LIFE

ALL OF WHICH CAN POTENTIALLY DELIVER CARBON
SAVINGS

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OTHER EMBODIED CARBON ASSESSMENT EXAMPLES

- ONSHORE CARGO TANK CLEANING USING AN ROV VERSUS MANUAL CLEANING
92% CARBON SAVINGS
- IMPROVED MATERIALS CHOICE IN A SUBSEA CONTROL MODULE VERSUS CONVENTIONAL MODULE REQUIRING MORE INTERVENTIONS
56% CARBON SAVINGS
- BOP CONTROL CHECK AND RELIEF VALVES, SEAT MATERIALS OFFERING EXTENDED LIFE IN SERVICE
38% & 90% RESPECTIVE CARBON SAVINGS
- IMPROVED WIRELESS MONITORING GAUGE REQUIRING LESS INTERVENTIONS
48-92% CARBON SAVINGS



EMBODIED CARBON ASSESSMENT

This level of detailed carbon assessment can provide excellent support to any proposed modifications, ensuring continuous progress and participation in the structured decarbonisation of any asset.



IN CONCLUSION

OPERATORS

WE BELIEVE THAT ADDING A CARBON ASSESSMENT STAGE TO YOUR STAGE GATE PROCESS WILL GO A LONG WAY TOWARDS ENSURING THAT DECARBONISATION OPTIONS ARE CONSIDERED BEFORE ANY PROJECTS ARE SANCTIONED

SUPPLY CHAIN

REVIEW YOUR PRODUCTS AND PROCESSES
ENSURING A STRUCTURED PROCESS IN YOUR JOURNEY TOWARDS NET ZERO OIL & GAS OPERATIONS



THANK YOU FOR YOUR ATTENTION

We are exhibiting here today and tomorrow and would welcome any visits to our stand or contact me at

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www.carbon-zero.uk

