



# Making decarbonisation Second Nature

Decarbonising oil & gas

# Working to net zero

## Making decarbonisation Second Nature

The oil & gas sector faces many challenges as we work towards the UK's 2050 net zero target. Synergie specialises in low carbon engineering and our advisory services can support you in developing and delivering your carbon reduction roadmap to ensure that you achieve your targets through reliable and sustainable solutions.

Working in partnership with our parent company, PD&MS Group, we can provide a full systems analysis of customer assets and operations from an energy efficiency and carbon lifecycle perspective, leading to the development of innovative and bespoke strategies to reduce your emissions and energy consumption.



# About us

Promoting the concept of sustainability in all that we do

## Synergie Environ

*Decarbonisation & energy efficiency*

Formed in 2009, Synergie Environ has been at the forefront of low carbon development in the UK for over 15 years.

The team operators over three core business lines;

1. Anaerobic digestion and bioenergy
2. District energy networks
3. Energy efficiency and strategy

In 2021, Synergie was acquired by PD&MS.



## PD&MS

*Engineering Change*

PD&MS has been engineering solutions in the energy industry and beyond since 2002.

More than 20 years on, their ability to combine innovative ideas with technical expertise still sets them apart. They keep growing in stature and scope too, having acquired Optimus Plus (Aberdeen) in addition to Synergie.

This has added specialist engineering, consultancy, low-carbon and cleantech knowledge to our existing expertise in the EPCC space.



## RSK

*Responsible. Sustainable. Knowledgeable.*

RSK is a global leader in the delivery of sustainable solutions. Our family of more than 200 environmental, engineering and technical services businesses works together to provide practical solutions to some of the greatest challenges societies have ever faced.

With our integrated offering across research and development, consultancy and on-the-ground application, we can deliver a complete solution that is unrivalled in the market.

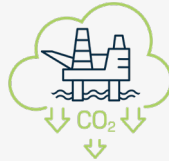
In 2023, PD&MS became part of the RSK Group.



# About Synergie Environ

## Delivering carbon reduction

15 years of delivering operational reviews and proposed decarbonisation strategies to industrial and commercial facilities which has resulted in a reduction of over 1 MTCO<sub>2</sub>e (Million Ton of Carbon Dioxide equivalent).



## Concept-to-commission capability

Provides both an advisory consulting offering as well as a projects and modifications offering, having managed end to end renewables projects from concept to commissioning.



## Energy efficiency

Specialists in energy efficiency and strategy development in industrial and commercial facilities, across a wide variety of sectors.



## Scope 3 GHG focus

Experience of quantifying supply chain CO<sub>2</sub> and devising solutions to these more challenging emissions, giving clients a competitive advantage.



## People to deliver

Team of decarbonisation specialists including Chartered Engineers, with a blend of Clean Energy and Oil & Gas experience, giving the diversity of thought needed and a cross-industry perspective.



## Mutual business integration

Collaboration with PD&MS and Optimus design teams for value-added optioneering of solutions and full-scope capability from concept to commissioning in the O&G sector.



# Why focus on carbon reduction?

## Legislative Drivers

- > UK Climate Change Act – net zero by 2050<sup>1</sup>;
- > Devolved administrations have interim targets;
- > Non-binding target of net zero UK power system by 2035<sup>2</sup>;
- > Key focus in Net Zero Strategy on clean electricity & hydrogen production<sup>3</sup>.

## Lower Energy Costs

- > Biogas/syngas and fuel alternatives can replace some or all of process energy demand;
- > Revenue generation through sale of green energy/fuels and incentivisation schemes.

## Corporate ESG Policies

- > >33% of global large companies have net zero reduction targets<sup>4</sup>;
- > Greater customer focus demand for low-carbon products and services<sup>5</sup>.

## Public Health

- > Reducing carbon emissions improves public health<sup>6</sup>.

## References

<sup>1</sup> [The Climate Change Act 2008 \(2050 Target Amendment\) Order 2019 \(SI 2019/1056\)](#).  
<sup>2</sup> [Department For Business, Energy & Industrial Strategy \(2021\)](#).  
<sup>3</sup> [Department For Energy Security & Net Zero & Department For Business, Energy & Industrial Strategy \(2021\)](#).

<sup>4</sup> [Dinneen, J. \(2022\). A third of the world's largest companies now have net-zero targets.](#)

<sup>5</sup> [Morrison, H. \(2011\). Consumer demand for lower-carbon lifestyles is putting pressure on business.](#)

<sup>6</sup> [Shindell, D, Ru, M., Zhang, Y. & Glick, A. \(2021\). Temporal and spatial distribution of health, labor, and crop benefits of climate change mitigation in the United States.](#)

# Your guide to decarbonisation

## Your step-by-step plan

Synergie will develop a CMRP specific to your business which will develop an emissions baseline and identify, appraise and produce recommendations which will reduce energy costs and carbon emissions from your operations.

A CMRP is an approach to developing a road map for an organisation to reduce its carbon emissions in a structured, monitored and measured manner.

This is an approach that we have utilised across a very wide range of sectors and over many years and as such have built up extensive knowledge and expertise in reviewing business operations and identifying opportunities to reduce carbon.

## Carbon Management & Reduction Planning (CMRP)



- Secure resources
- Identify information sources
- Create a 'local' plan

- Set scope
- Calculate emissions baseline
- Prepare emissions forecast
- Document vision and record target

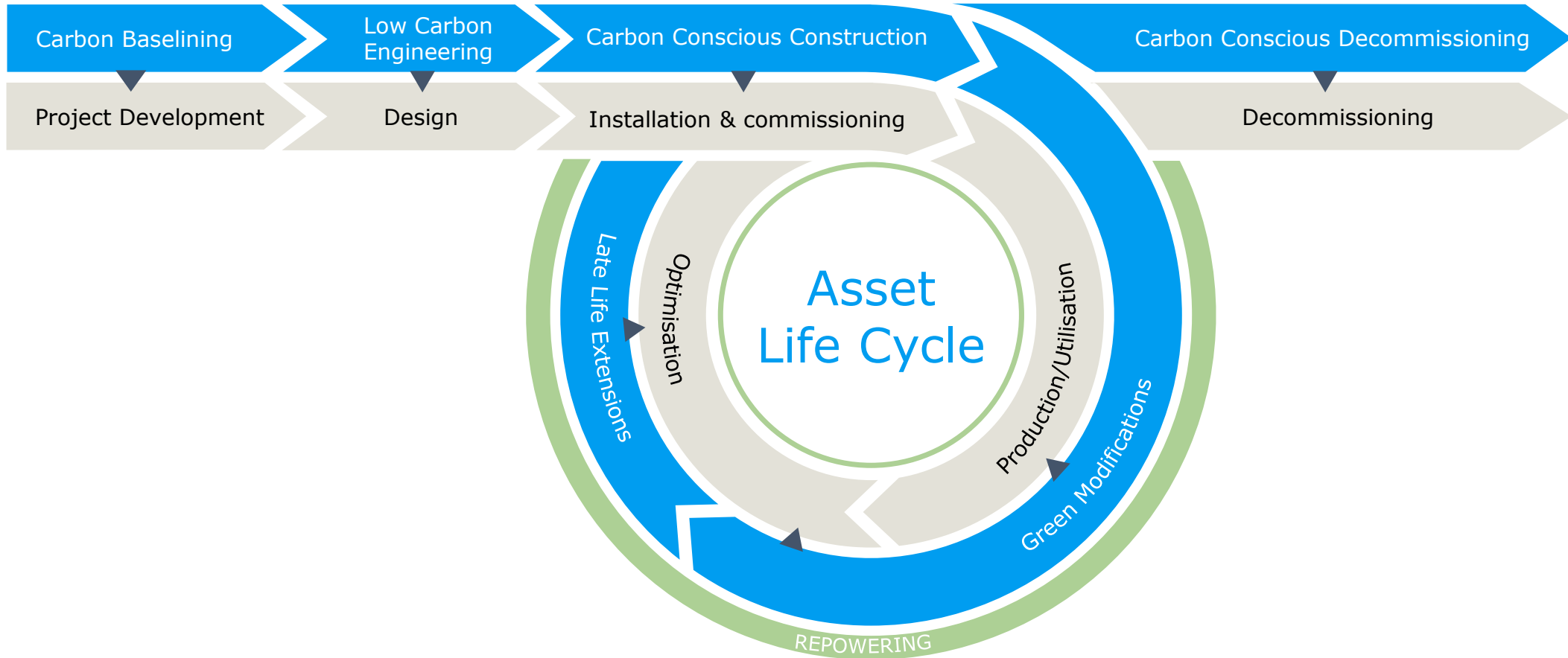
- What emissions reduction opportunities do we have?
- How do we prioritise them?
- What's worked elsewhere?

- What's our forward strategy?
- What actions do we commit to?
- How do we embed carbon management?

- Make the plan work
- Keep it fresh
- Capture the benefits
- Undertake annual review and plan update



# Decarbonisation your assets



# Decarbonisation lifecycle

## Carbon baselining

- Set Carbon Budget for Projects
- Include Carbon Targets in Requirements
- Specify Carbon in Priorities
- Provide Dashboard for Carbon Tracking



## Low carbon engineering

- Design Options – Trade-Off's
- Critical Assets
- Procurement strategy - Provenance
- Construction strategy
- O&M Strategy
- Decommissioning strategy



## Carbon conscious construction

- Component Carbon Footprint
- Environmental Impacts
- Local versus travelling workforce
- Construction Materials
- Electrification of construction vehicles
- Proactive Monitoring Systems



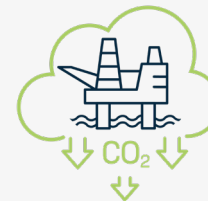
## Green modifications

- Review new Asset Objectives
- Design Options - Trade offs
- Procurement monitoring
- Planning & Mobilisation
- Management of reactive and planned activities
- Work Execution
- Carbon Reporting



## Late life extensions

- Review new Asset Objectives
- Reliability Data Collection
- Reliability Engineering
- Maintenance Adjustment
- Proactive Monitoring Improvements
- Design and implement for low carbon solution



## Carbon conscious decommissioning

- Reduce life-extending activities
- Decommissioning support
- Assess condition of plant and structures for reuse
- Plan ahead!





## Carbon Management Reduction Plan



### OVERALL VALUE

- Potential savings over £200k-£300k per year on carbon tax.
- Further potential savings on energy.
- KPIs developed to allow ongoing monitoring and highlight impact of projects.

### SCOPE

Well-Safe wished to reduce emissions footprint within 5 years.

The CMRP covered their three well intervention vessels and office headquarters.

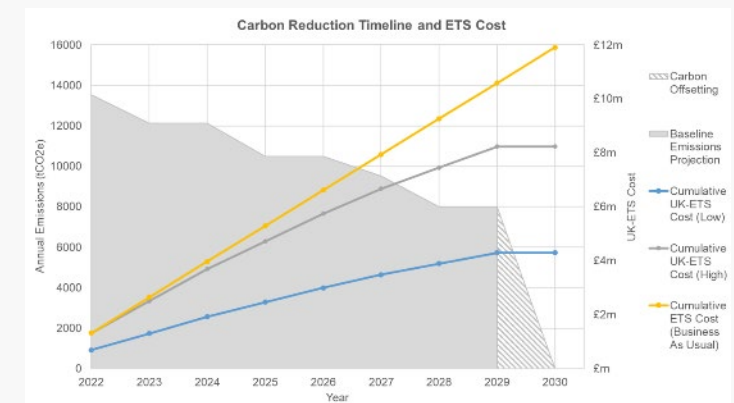
- Phase 1: Baseline Emissions
  - Scope 1 – direct emissions, fuels burned for platform operations
  - Scope 2 – indirect emissions, imported utilities (N/A unless in port)
  - Scope 3 – indirect emissions, other (support vessels, travel, waste)
- Phase 2: Options Screening, modelled the most promising
- Development of Carbon Management Reduction Plan and timeline for action

### CLIENT VALUE

*“Well-Safe Solutions is committed to a root-and-branch review of its working practices and assets in order to improve the sustainability of our business and better assist our clients through the energy transition*

*This productive working partnership with the experts at PD&MS will help us unlock even greater efficiencies as the business continues to grow internationally.”*

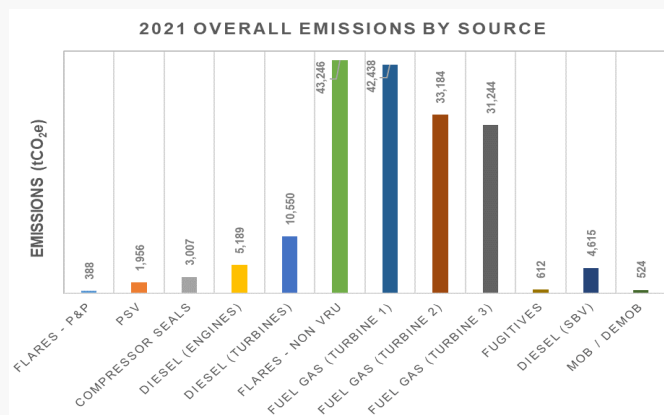
Chris Hay, Director of Business Development and Strategy at Well-Safe Solutions



## Carbon Management Reduction Plan

### OVERALL VALUE

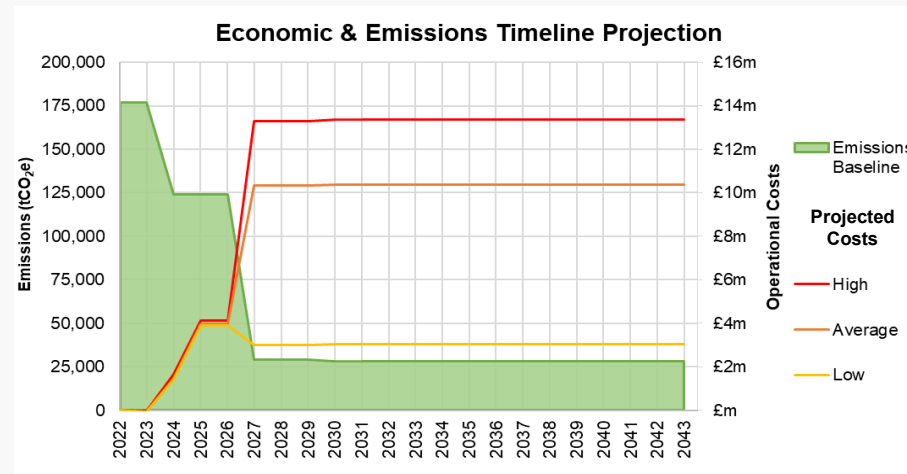
- Carbon intensity reduced from 16.42 kgCO<sub>2</sub>e / boe to 11.51 following SCR / VRU and to 2.71 following electrification.
- A planned phased, but significant, reduction in emissions leading to significant reduction in carbon tax costs, regardless of the projected future price of carbon.
- Provided independent verification within 2% of bp's own estimate.



### SCOPE

Bp were looking to improve efficiency and reduce emissions over the next 5 years on one of their late life assets.

We started with a comprehensive baselining, broken down across key equipment that allowed us to focus on solutions.



**Baseline Carbon Intensity:**  
16.42 kgCO<sub>2</sub>e

SCR / VRU Implementation



**Reduced Carbon Intensity:**  
11.51 kgCO<sub>2</sub>e



Rig Electrification

**Final Carbon Intensity:**  
2.71 kgCO<sub>2</sub>e





# Thank you



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