

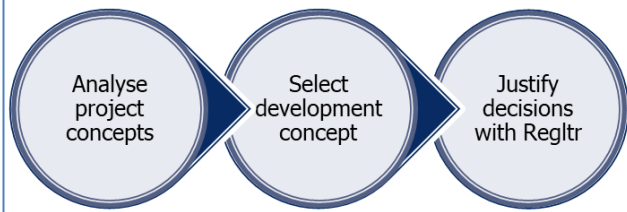
## Emissions Reduction and Benchmarking

Meeting environmental objectives to reduce emissions on offshore oil and gas projects by analysing and re-assessing concept design and existing operations.

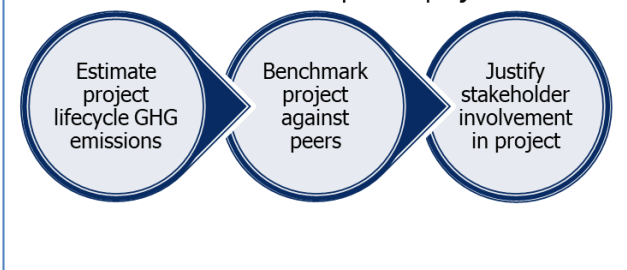
Regulatory compliance and increasing investor/stakeholder expectations requires operators to estimate and reduce greenhouse gas (GHG) emissions for both new projects and existing facilities.

CronDall Energy uses its offshore design and operations experience to work with clients to minimise GHG emissions, in combination with the in-house **Zero Emissions Tracking and Assessment (ZETA)** tool. **ZETA** estimates GHG emissions from construction through to operations and decommissioning.

Supporting Operators in concept select and Regulatory Authority engagement



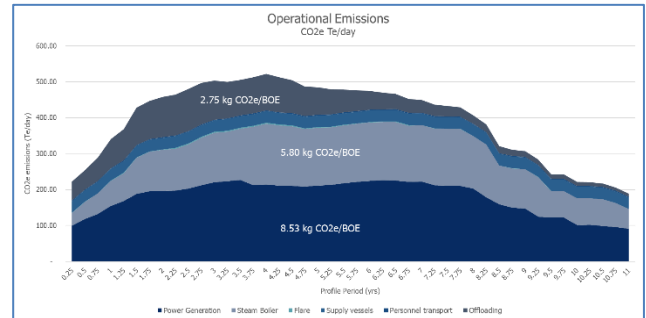
Supporting Financiers in assessing environmental impact of projects



A framework for analysis has been developed from globally accepted industry guidelines including API, GHG protocol and IPIECA. Data inputs for the tool include specific operator data, project design

information, vendor data and CronDall Energy's own inputs.

The **ZETA** tool has been validated by environmental consultants, client reviews, reported emissions benchmarking and industry data.



### Our Service

CronDall Energy provides emissions analysis through the development lifecycle, benchmarking against other facilities and re-assessing designs through the lens of emissions reduction. CronDall Energy also focusses on power generation optimisation and process heat design to reduce emissions. KPIs are developed for setting emissions targets, as well as ongoing measurement and tracking through operations.

### Case Study

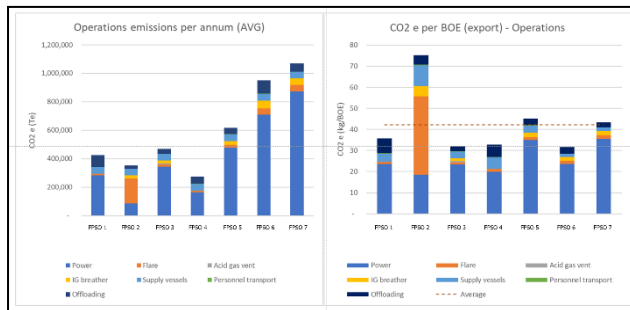
CronDall Energy has recently completed multiple studies evaluating the GHG emissions for both new developments in the concept select stage, facilities under construction and operating facilities, on behalf of owners, operators and investors.

Providing a framework for measuring and reducing GHG emissions for both operators, owners and investors to support decision making for new developments and ongoing projects.

## Emissions Reduction and Benchmarking

### Case Study 1: Emissions estimate/benchmarking

Crondall Energy was engaged as Lenders' Technical Adviser (LTA) on behalf of a number of banks and ECAs financing an FPSO development. Crondall Energy reviewed the design of the facility against best practices and industry standards for emissions reduction, as well as benchmarking the facility lifecycle emissions against other regional and global comparable FPSOs.

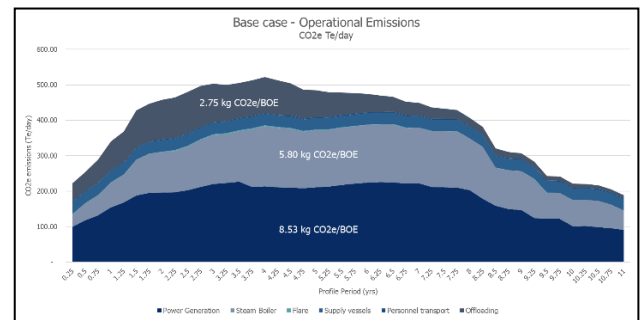


Estimation of the facilities emissions was carried out utilising Crondall Energy's in-house **ZETA** tool, which can be used at any stage of the project or facility life cycle. Applicable Scope 1, 2 and/or 3 emissions were estimated using data from sources such as the project developer, design parameters, vendor data and Crondall Energy's in-house data.

The benchmarking comparison undertaken used Crondall Energy's in-house database of FPSO GHG emissions and enabled a comparison to be made for the complete project lifecycle as well as for discrete components of the facility. This analysis enabled Lenders to have an independent GHG emission estimate as well as a comparison to other facilities, thereby providing the required inputs to develop KPIs for the financing of the development, as well as for future operational monitoring of the project.

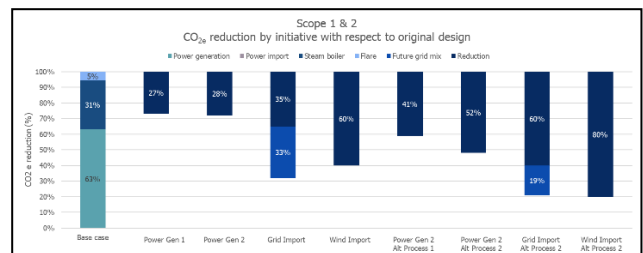
### Case Study 2: Emissions reduction

Crondall Energy worked with a client to develop a low emission concept for a North Sea oil field project and then submitted this to the OGA for approval. This was achieved using a multidiscipline engineering team from Crondall Energy (from marine engineering to process and E&I designs), and the **ZETA** tool.



The initial GHG emissions estimate utilising ZETA, identified the facility as having a similar GHG emissions performance as other facilities in the basin.

Crondall Energy assessed the impact of alternative equipment and designs, focusing on field proven net zero solutions as well as emerging technologies.



The final concept selected utilised a combination of field proven technology to reduce emissions by over 50%, with the flexibility to allow for emerging technology to be incorporated in future.