

Capability Overview



Today's economic environment demands tighter control of budgets and a greater understanding of project costs as early in the project development phase as possible. Bayphase, a leading international oil and gas consultancy, provides upstream field development solutions and decision support through rapid cost estimating.

Oil & Gas Cost Estimating Software



Version 2.1.6
July 2023



Cutting Edge Cost Estimation Analysis

NETCOSTER **Offshore Drilling Module** provides rapid and accurate cost estimates for oil and gas wells; including those for exploration, appraisal and development. It is a cutting-edge software tool developed and used by Bayphase to carry out technical definition and generate costs for all types of offshore well: vertical, deviated and horizontal.

The system is based on data gathered from a wide range of international projects executed by the company over the past 30 years. It is the result of an in-house programme to leverage this significant bank of knowledge and experience built up within Bayphase over numerous studies.

Technical Capabilities

NETCOSTER is used worldwide in feasibility and concept selection studies to provide engineering definition and cost estimates for field development.

It has been developed to meet the constantly changing needs and challenges of the upstream market, it keeps Bayphase ahead of the opposition through delivering estimates consistently and efficiently.

The program's engineering algorithms are based on sound engineering principles and experience derived from the development of actual offshore wells in many of the world's oil and gas provinces.

Sophistication

NETCOSTER provides a consistent, global platform for concept screening and optimisation and cost-control. Apart from using it in-house, we have a global network of field development experts who use

our **NETCOSTER** software platform to provide engineering definition and life-cycle cost estimates for field development concepts. This easy to use tool saves hundreds of hours of in-house research and analysis time.

Speed and Accuracy

NETCOSTER also enables sound project cost modelling and evaluation. It allows our clients to make well-founded concept decisions for their development projects thereby increasing efficiency during execution and decreasing risk. It contributes greatly to successful project planning.

It has been benchmarked against many actual wells – contact us for more details on this.

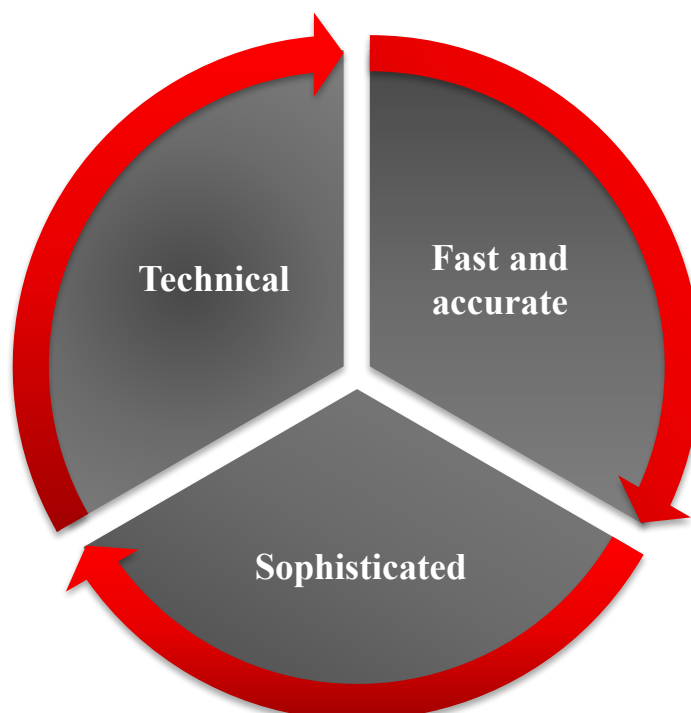
The **NETCOSTER** cost estimation system is modular in form and is used to estimate costs for the full range of oil and gas projects:

- Small, large and giant fields
- Oil, condensate and non-associated gas
- Any international location
- Sweet and sour fields

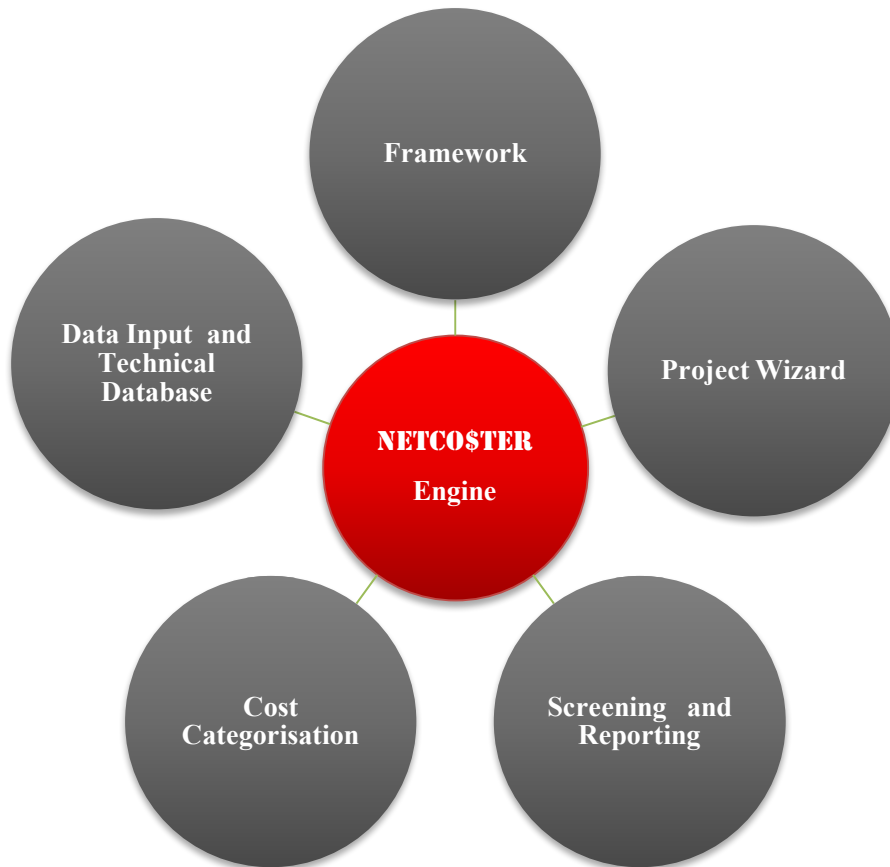
It has been deployed as a corporate modelling solution for large and small companies, and has proven to be invaluable in:

- Equity research
- Portfolio analysis
- Business development
- Mergers and acquisition
- Benchmarking
- Competitor analysis

NETCOSTER Offshore Drilling Module



NETCOSTER



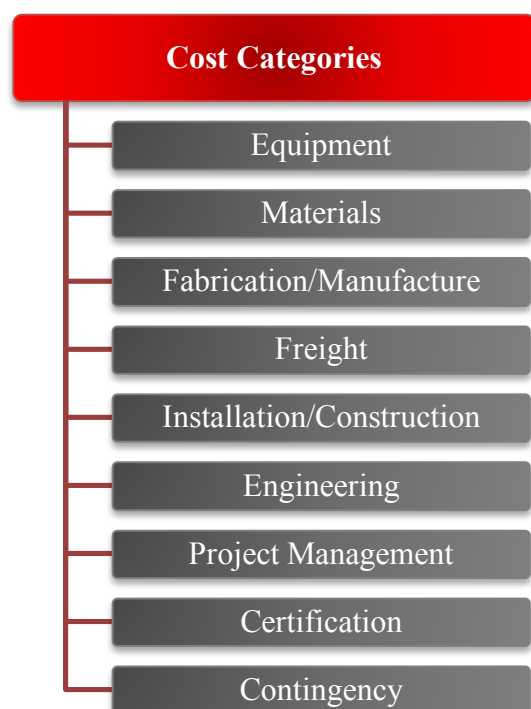
Framework

The **NETCOSTER** framework delivers a powerful and intuitive functionality that is core to all the estimation modules. Bayphase's framework approach delivers a powerful solution to cost modelling by utilising a number of key features:

- Transparent models developed entirely in Microsoft Excel. This delivers a consistent and familiar user interface and experience. It also takes advantage of Microsoft Excel's more advanced features therefore minimising systems requirements for running the software. Only Microsoft Office 2007 or above is required.
- There are no significant memory disk space requirements.
- Use of first principles algorithms to automate design, sizing and weight estimating for facilities takes the guess work out of cost estimation and delivers accurate results rapidly.
- The cost modules are updated twice per year through reference to market databases, supplier quotations and cost trends identified by Bayphase. In addition, key cost rates are monitored on a quarterly basis and users are given access to this data to enable them to develop fully up-to-date estimates.

Cost Categorisation

NETCOSTER provides a breakdown of the costs. The data base follows a categorisation that is applied to all modules. This categorisation is strictly maintained as all past projects have been analysed using this matrix to provide consistency. In addition, it broadly follows categorisations used by vendors and industrial cost data bases available in the market place.



Data Input and Technical Database

NETCOSTER uses primary input data such as, reservoir depth, gas oil ratio and well prognosis. In addition, built in choices can be selected and customised to best fit user data. Once the well configuration data is input or chosen, a cost estimate is run.

What it does:

- It allows the user to estimate cost for virtually any type of well configuration determined by the user. The User inputs the well data – the more specific the data is the more accurate the estimate will be – and follows a series of steps to define the offshore drilling configuration. Well types covered include:
 - Exploration
 - Appraisal
 - Development
- The program provides a number of cost data bases for the world's key oil and gas provinces but users can customise these to generate their own databases (up to three) based on their own experience.
- Users can consider intricately tailored logging and testing programs for exploration drilling as well as completion methods and types. They can also add their own log types.
- Users can choose between using platform based rigs and mobiles drilling units:
 - Barges
 - Jack-ups
 - Semi-submersibles
 - Drill ships
- Users can consider wells drilled in all water depths encountered in the offshore industry including:
 - Shallow Water
 - Normal Depth
 - Deep Water
 - Ultra-Deep Water
- Users can access vertical, deviated and horizontal wells and the system will generate a drilling profiles fully reflective of these considerations.
- Once the easy to follow steps have been completed, **NETCOSTER** provides a breakdown of the drilling costs.
- The cost database is driven by past data and as such uses a series of algorithms to determine cost

of casing, completions, drilling durations and completion times.

Key benefits:

- The user can input actual observed field data to model real cases.
- The input data can be varied for sensitivity analysis and enable users to understand the key drivers of a well's cost.

Project Wizard

A powerful component of the **NETCOSTER** interface, the wizard guides the user through all steps required to create and estimate well costs.

What it does:

- The wizard provides step-by-step guide for creation of a well cost estimate through simple user dialogue screens
- Enables the user to enter all data, with the assistance of additional intuitive wizards and messages
- Allows users to create their own cost databases that allow tailored estimates based on local experience to be made.

Key benefits:

- Quick and easy to use.
- Ease of navigation through the model.
- Useful for both expert and novice users alike.

Screening and Reporting

NETCOSTER powerful screening and reporting tools can be used to present the results of analysis, allowing users to easily compare findings from multiple wells calculated under different scenarios.

What it does:

- Produces reports including: Well Cost Breakdown, Technical Data, Drilling Profiles, Cost Schedule, and Investment Profile.
- A built-in scheduling tool allows the user to schedule costs to provide project cash flows.
- Reports can be printed or exported to spreadsheets

Key benefits

- Quick and easy to use.
- Enables users to use the output reports in other cost estimating programs.

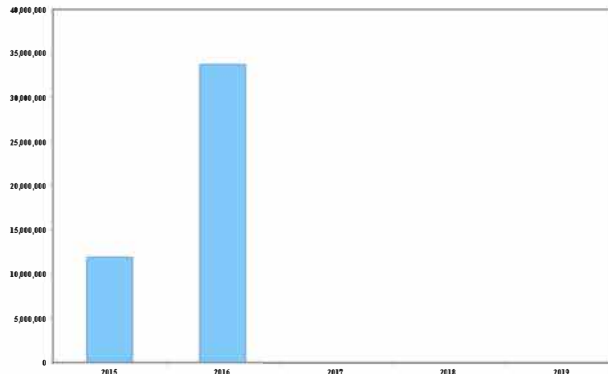
An integrated cost estimating solution that improves reliability, optimises performance and reduces cost and cycle time during the concept appraisal and selection phases for oil and gas companies worldwide.

Total Project Cost: Offshore Drilling Module

Cost Category	Number of Units	Unit Rate	Total Cost (USD)
<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>Project Title: Offshore Well Example Well Identifier: Exploration 1 User: User Country/Region: Europe Well Type: Development Rig Type Used: Platform Based Total Number Of Wells In Campaign: 8 Run Date: 7 December 2017 Currency: USD</p> </div> <div style="width: 35%; text-align: right;"> <p>NFTCOSTER Geologists, Engineers and Investment Analysts</p> </div> </div>			
Equipment			
User Defined Modifications:			
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Total Equipment Cost			
Materials			
Casing/Tubing	3,400 m	769 USD/m	2,614,600
Cementing	3,400 m	42 USD/m	142,800
Drilling Fluid	3,400 m	29 USD/m	98,600
Well Head, Completion & Xmas Tree	1 No	840,000 USD/unit	840,000
Total Materials Cost			
3,696,000			
Fabrication/Manufacture			
Mobilisation	0.5 days allocated to the well	40,000 USD/day	20,000
Demobilisation	0.5 days allocated to the well	40,000 USD/day	20,000
Total Fabrication/Manufacture Cost			
40,000			
Freight Costs			
Equipment(Modifications)	USD	8 %	
Material	3,696,000 USD	6 %	222,000
Total Freight Cost			
222,000			
Installation/Construction			
Drilling:			
Rig Rate	99 days	40,000 USD/day	3,960,000
Rig Rate Break Down			
Rig		35,000 USD/day	
Cementing Unit		2,000 USD/day	
Mud Unit		1,000 USD/day	
Directional Drilling Rig		3,000 USD/day	
Logging	2 days	40,000 USD/day	80,000
Drill Stem Test	2 days	40,000 USD/day	80,000
Extended Well Test	days	40,000 USD/day	
No Coring	1 days	40,000 USD/day	40,000
Set Production Casing	4 days	40,000 USD/day	160,000
<i>Sub Total Drilling Rig Cost</i>			
4,230,000			
Logging, Sampling and Other:			
Standard Logging	1	160,000 USD/day	160,000
Special Logging:			
Sonic		29,000 USD/day	
Formation Micro Scanner		36,000 USD/day	
Formation Micro Imager		40,000 USD/day	
Nuclear Magnetic Resonance		20,000 USD/day	
Spectral Gamma Ray		28,000 USD/day	
Custom Logging:		USD/day	
None		USD/day	
Drill Stem Test	2	55,000 USD/day	110,000
Extended Well Test		50,000 USD/day	
No Coring	1	60,000 USD/day	60,000
Set Production Casing	4	10,000 USD/day	40,000
<i>Sub Total Logging, Sampling and Other Costs</i>			
370,000			
Support:			
Helicopter	36 days	5,000 USD/day	180,000
Flights	8 days	25,000 USD/day	192,857
Supply Boat	27 days	4,400 USD/day	118,800
Cement/Mud Boat	50 days	3,300 USD/day	163,350
Consultants	50 days	1,600 USD/day	79,200
<i>Sub Total Support Costs</i>			
724,207			
Total Installation/Construction Cost			
4,690,000			
Engineering, Project Management, Certification and Contingency			
Engineering:			
Well Design	625 hrs	115 USD/hr	72,000
Modifications	\$	5 %	
Project Management:			
Well Design	500 hrs	210 USD/hr	105,000
Modifications	\$	10 %	
<i>Sub Total Engineering and Project Management Cost</i>			
177,000			
Certification	8,825,000 \$	1.5 %	132,000
Contingency	8,957,000 \$	10 %	896,000
Engineering, Project Management, Certification and Contingency Total			
1,205,000			
Total Project Cost			
9,853,000			

Investment Profile Chart: Offshore Drilling Module

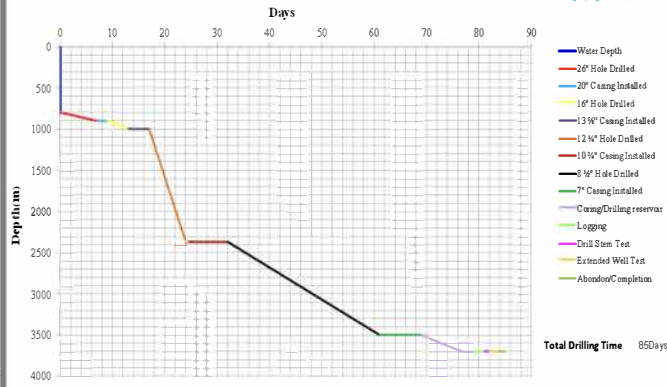
Project Title: X
Well Identifier: Y
User: Z
Country/Region: Europe
Well Type: Exploration
Rig Type/Use: Drill Ship
Total Number Of Wells In Campaign: 4
Run Date: 08 August 2013
Currency: USD



YEAR	2015	2016	2017	2018	2019
Cost (US Dollars)	11,927,500	33,762,000			

Drilling Profile: Offshore Drilling Module

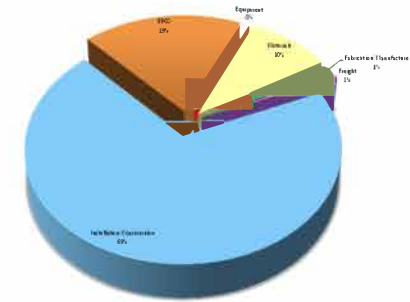
X
Y



NETCOSTER Offshore Drilling Module Date Printed: 08/08/2013 19:15 hrs Page 1 of 1

Cost Profile Chart: Offshore Drilling Module

Project Title: X
Well Identifier: Y
User: Z
Country/Region: Europe
Well Type: Exploration
Rig Type/Use: Drill Ship
Total Number Of Wells In Campaign: 4
Run Date: 08 August 2013
Currency: USD



Cost Element	Equipment	Materials	Fabrication/Manufacture	Freight	Installation/Construction	EPC
Cost (USD)		4,438,750	720,000	266,000	21,756,000	8,536,000
Total						45,712,750

Cost Schedule: Offshore Drilling Module

Project Title: X
Well Identifier: Y
User: Z
Country/Region: Europe
Run Date: 08 August 2013
Currency: USD

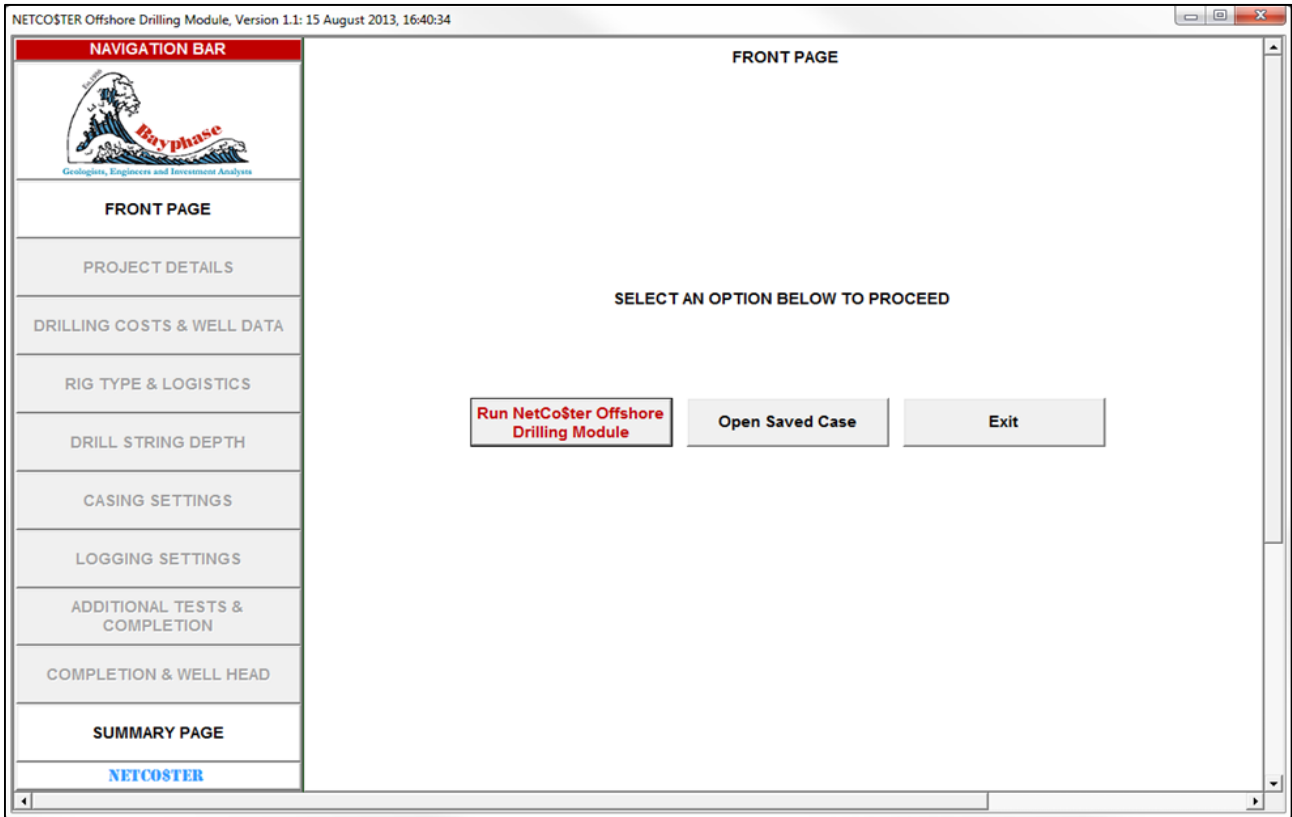


Year		2015				2016				2017				2018				2019						
Quarter		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Cost (USD)	Element	Caption: Cost Profile (US Dollars)																						
	Equipment	[Gantt bar]																						
4,438,750	Materials	[Gantt bar]																						
720,000	Fabrication/Manufacture	[Gantt bar]																						
266,000	Freight	[Gantt bar]																						
21,756,000	Installation/Construction	[Gantt bar]																						
8,536,000	EPC	[Gantt bar]																						
45,712,750	Total	Quarterly	2,816,128	2,963,280	2,062,638	2,062,638	1,933,700	21,822,500																
		Annually	11,927,550				22,776,200																	
Investment Schedule	Year	2015				2016				2017				2018				2019						
	Cost (USD)	11,927,550				22,776,200																		

NETCOSTER Offshore Drilling Module uses a Graphic User Interface that allows Users to input case data to arrive at their cost estimate. For illustrative purposes a number of screen shots from the program are provided below.

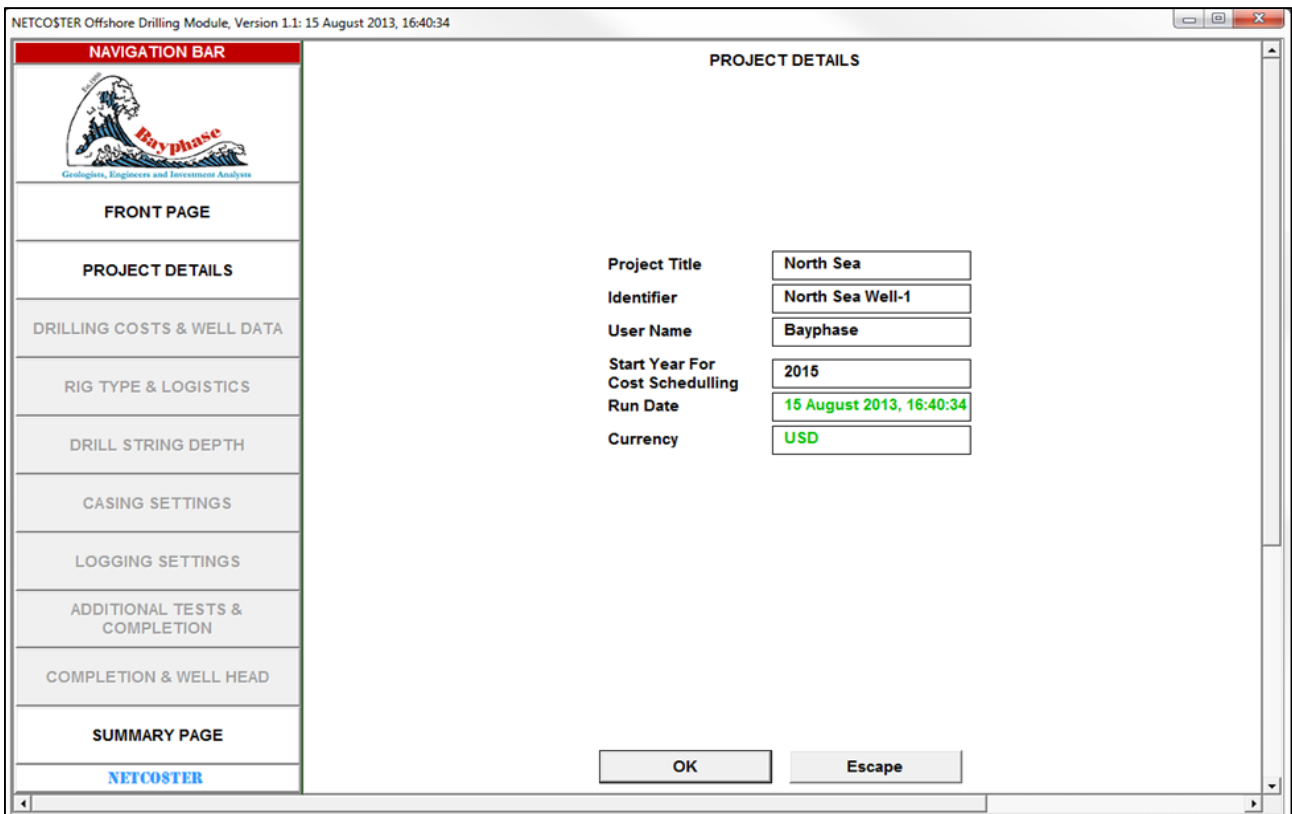
Opening User Form

This is the first form seen by the User when running a case allowing them to view the process units that can be handled by the program, it also provides the ability to access the results on completion of the cost estimating run.



Project Definition User Form

This form is used by the User to define the key parameters of the case for file accessing and cost scheduling purposes.



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