FINPLAN

Hands-on 3: FINPLAN Interface

Learning outcomes

By the end of this exercise, you will be able to:

1) Understand the FINPLAN interface.

2) Explain various streams/items of the FINPLAN interface.

3) Learn how to introduce plant-related data and financial data in FINPLAN.

4) Learn how to build a case study in FINPLAN.

Activity 1

Introduce General Plant Data

Please now click the button "Plant Data". The following menu appears. Now click "General Plant Data", and then another screen appears, which needs data on the plant description, such as plant name and plant type. FINPLAN can model various types of plants, like nuclear, coal imported, or domestic and so on. We chose "Coal Imported". The status of the plant could be "existing" or "future". Here we chose "future". If you choose "existing", then the screen related to capital costs will not appear because capital costs for existing plants are treated as sunk costs.

FINPLAN can consider both project financing as well as corporate financing. As explained earlier, balance sheet financing allows the new plant to be constructed as an asset of an existing company, whereas project financing is when a new plant is built by a new separate company called a special purpose vehicle. Plants built by independent power producers (IPPs) are project financing models. Here we chose project financing, and therefore "Ownership" of the plant is chosen as "IPP".

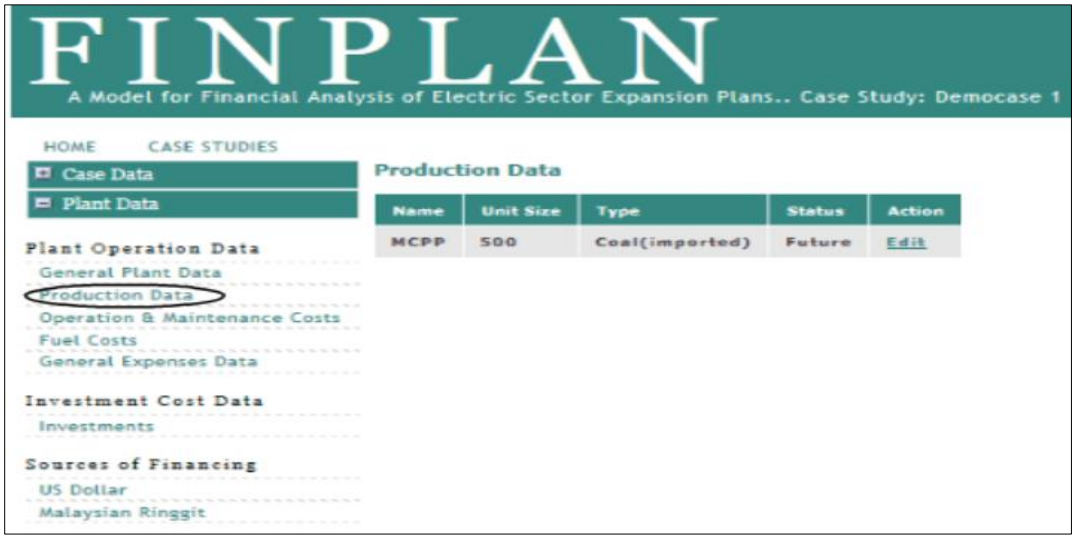
The size of the unit is the size of the power plant, and here we take this as 500 Megawatt. The first operational year is the commissioning year of the plant, which we chose as 2017. The construction period for the coal plant is 4 years. Plant life is the life of the plant over which cash flow will be generated. The life of a coal power plant is 30 years in this case.

It is possible to model a plant selling multiple products like electricity and heat, or electricity and water etc. Here we chose only "Electricity". Do not forget to press the button "Save and Proceed".

Activity 2

Introduce Plant Data - Production

Now click the button "Production Data". The following screen will appear, which needs the data on annual electricity production from the plant. We assume the plant will produce the same quantity of electricity throughout its lifetime. Therefore, we entered the annual electricity production data as 3,723 GWh for 2017. The model will assume the same number for all other years. Then click "Save and Proceed".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Case Data
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General Plant Data
Production Data
Operation & Maintenance Costs
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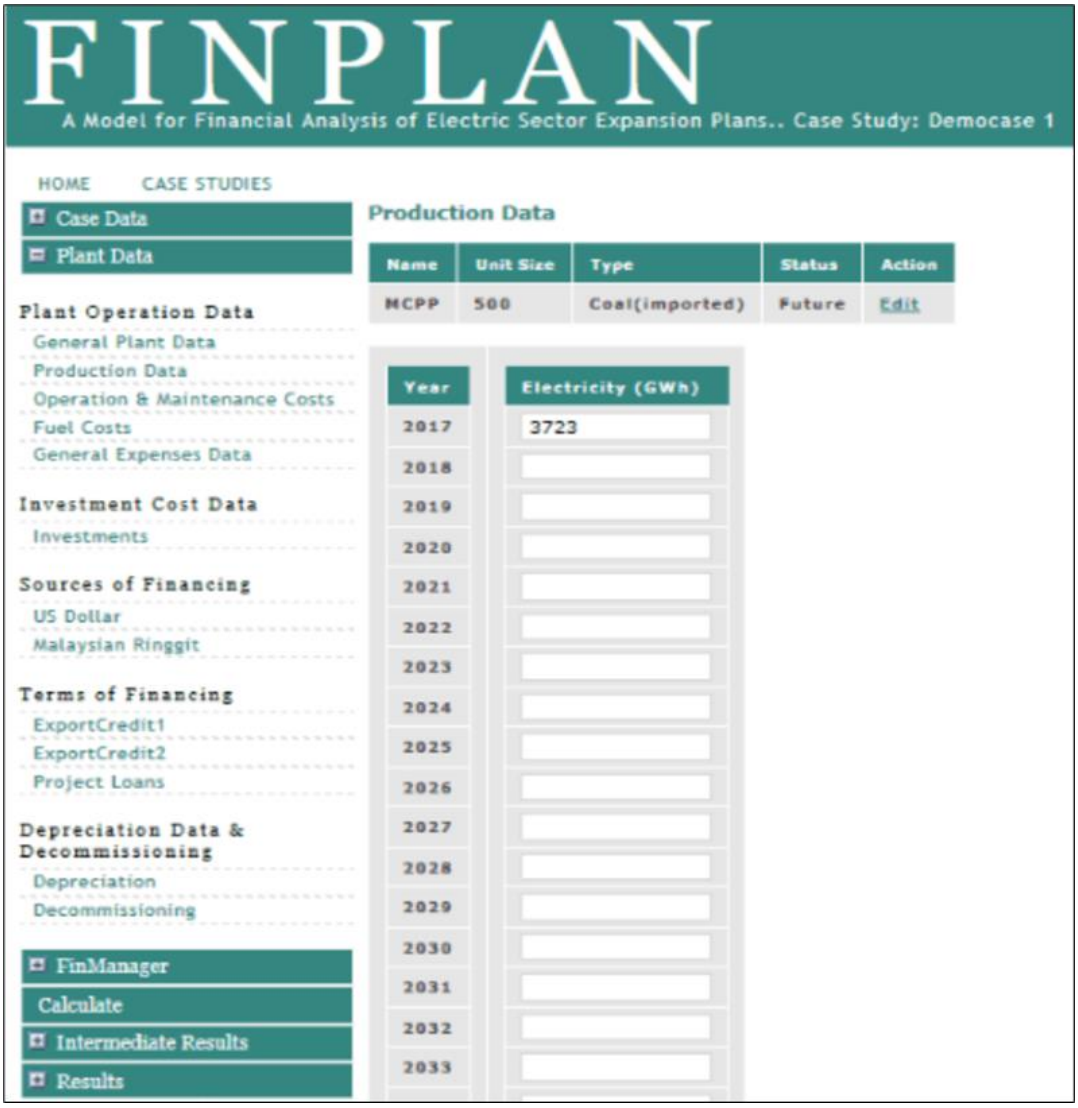
General Expenses Data
Investment Cost Data
Investments
Sources of Financing
US Dollar
Malaysian Ringgit
Production Data
Name
Unit Size
Type
Status
Action
MCPP
500
Coal(imported)
Future
Edit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Project Loans
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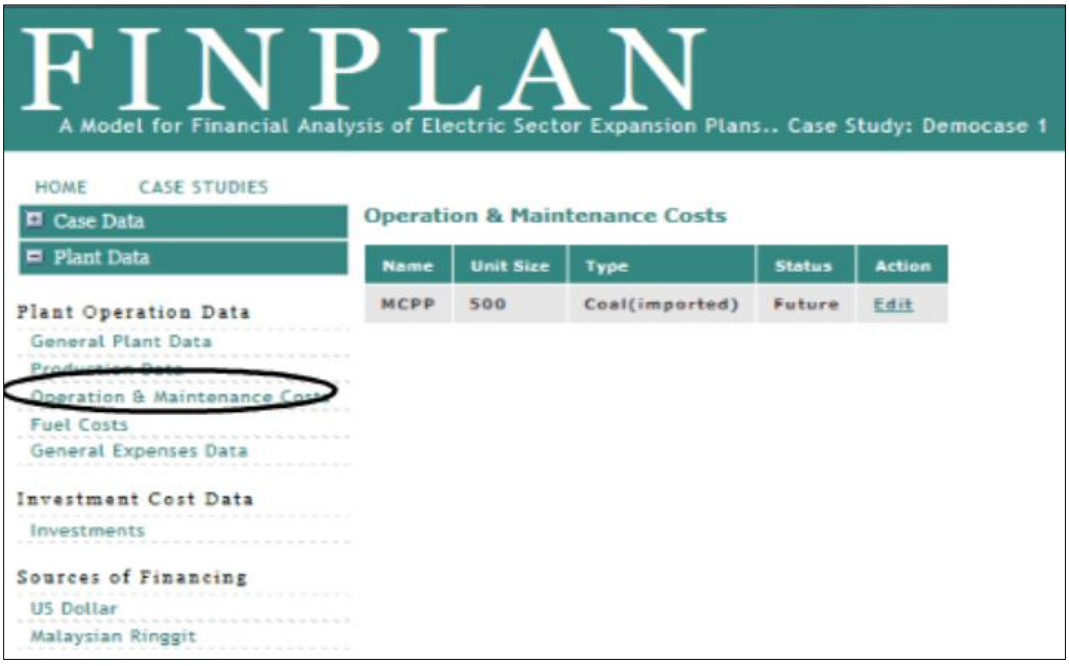
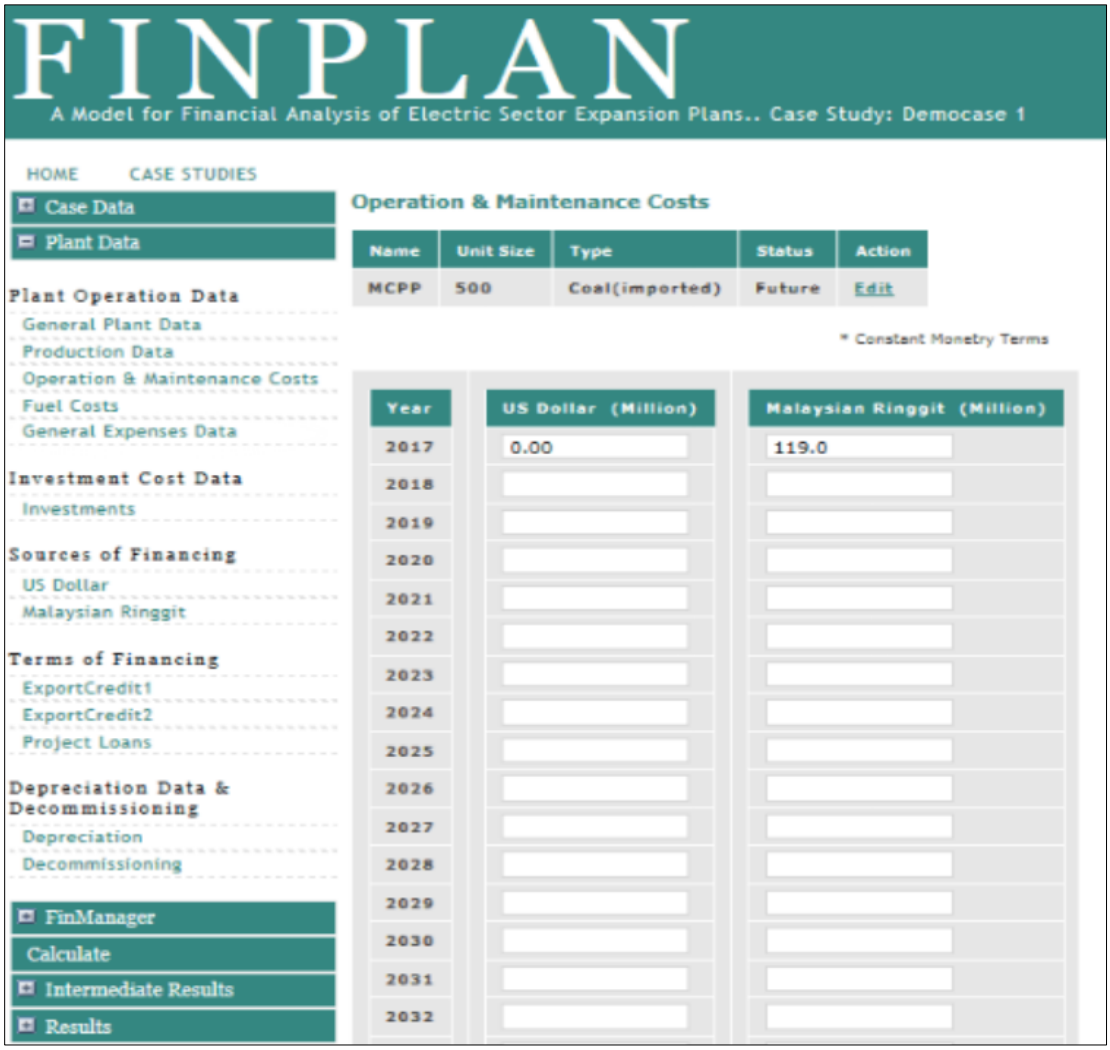
Depreciation
Decommissioning
FinManager
Calculate
Intermediate Results
Results
Production Data
Name
Unit Size
Type
Status
Action
MCPP
500
Coal(imported)
Future
Edit
Year
Electricity (GWh)
2017
3723
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033

Activity 3

Introduce Plant Data – Operation and Maintenance Costs

Next, we will enter the data on "Operation & Maintenance Costs". Please click the relevant button. Then the following screen will appear. FINPLAN does not treat the variable and fixed operating cost separately. However, it can differentiate between a foreign and domestic component of the operating cost, if there is any. For example, sometimes a foreign company is hired as a power plant operator and needs to be paid an annual fee in foreign currency, or sometimes some spare parts are not available in the country and need to be imported. Here we have assumed operating and maintenance costs will be paid in local currency and amount to 119 million ringgit per year, which remains the same for the entire project life. Please then press the button save and proceed.

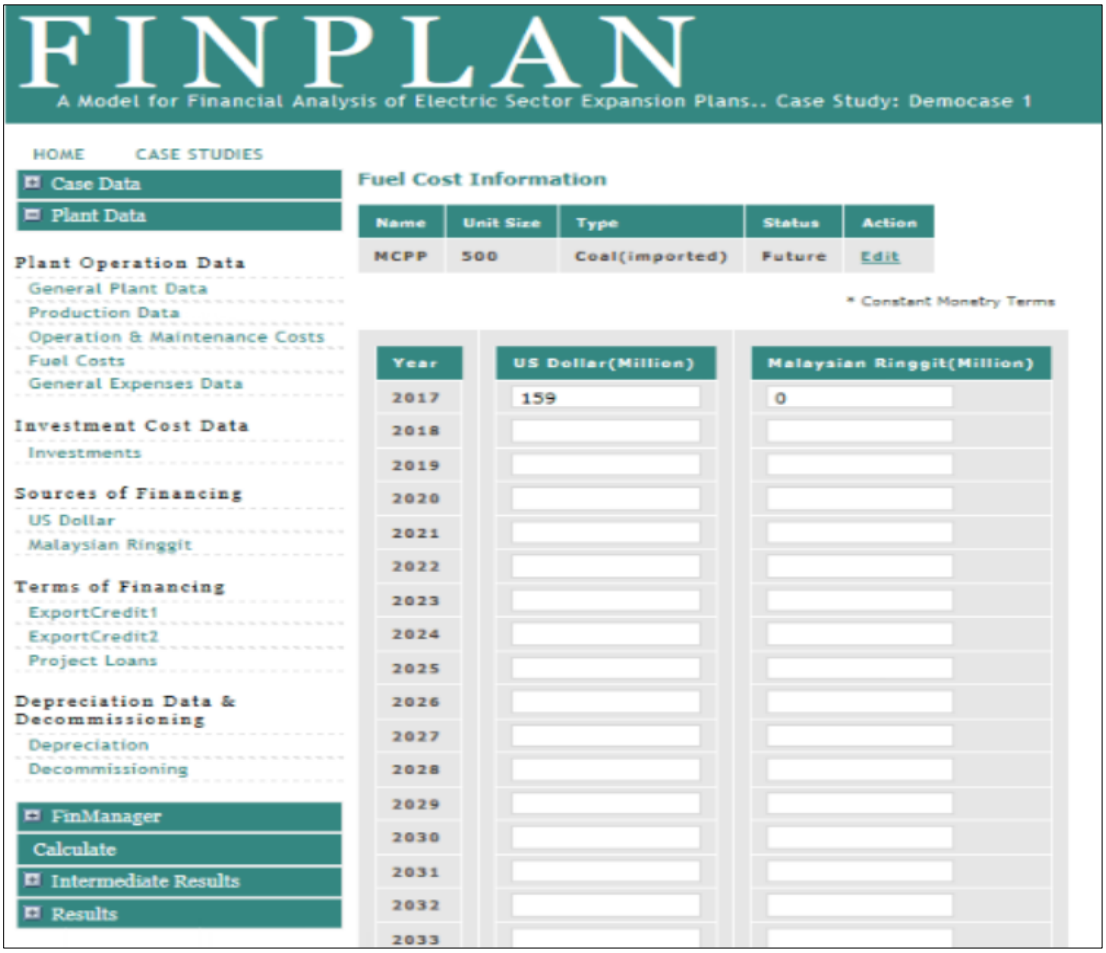




Activity 4

Introduce Plant Data – Fuel Costs

Next, we will enter the data on "Fuel Costs". Please click the button "Fuel Costs". Then this screen will appear. Similar to the operating and maintenance costs, FINPLAN allows the discrimination between foreign and domestic components of the fuel cost. Since this particular power plant is based on imported coal, we take the fuel cost in foreign currency. Annual fuel cost is 159 million US dollars. Press the button "Save and Proceed".



Activity 5

Introduce Plant Data – Investments

Now we will enter investment cost related data. Please click the button "Investments". The screen below will appear. We will enter the data on foreign and local components of the investment cost. We also input the data on annual disbursement of the local and foreign investment costs over the construction period. You may recall, we have entered the data on the construction period in the general plant data screen as 4 years, and the commissioning year as 2017. Therefore, construction years are 2013, 2014, 2015, and 2016, which are shown on the screen. Data on investments and their percentage distribution over the construction years are given at the beginning of this document. We enter those data on this screen. Then press the button "Save and Proceed".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US Dollar
Malaysian Ringgit
Investment Cost in Constant Prices
Name
Unit Size
Type
Status
Action
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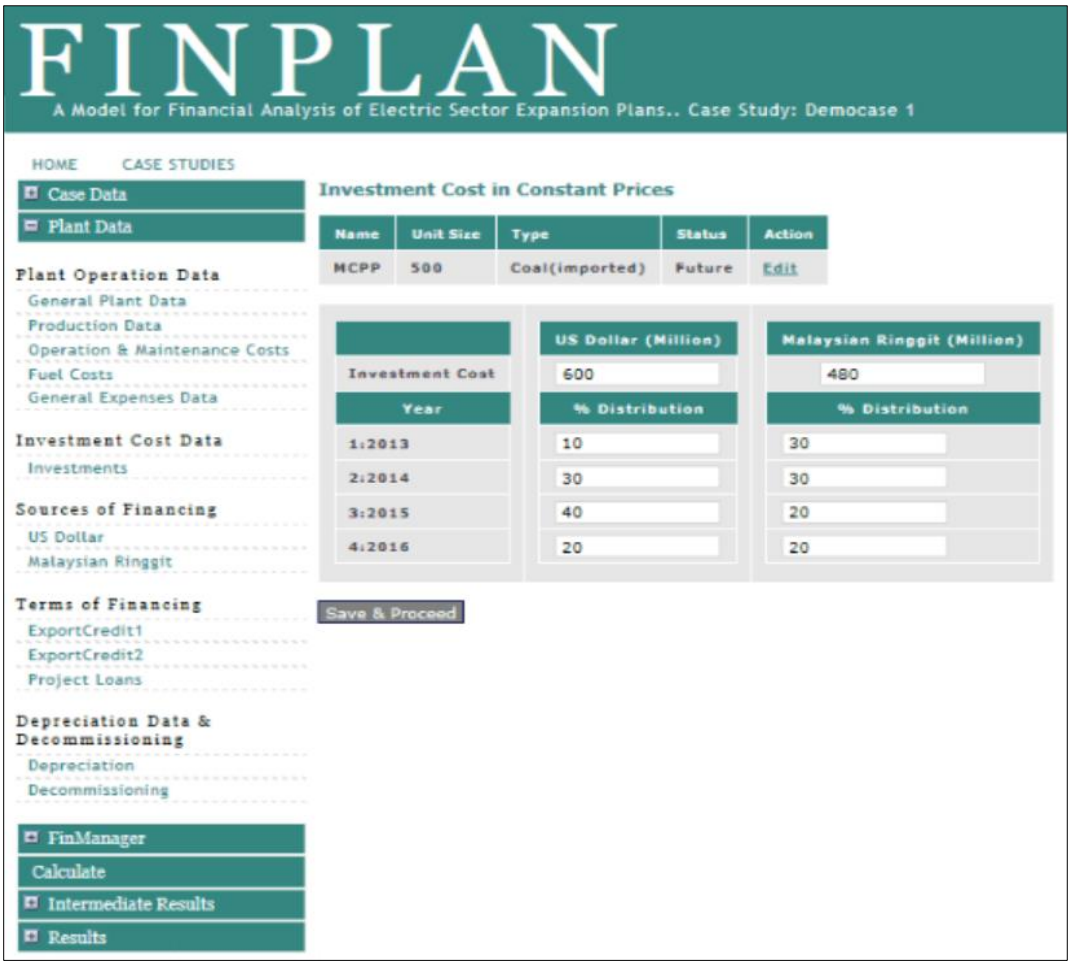
500
Coal(imported)
Future
Edit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Terms of Financing
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ExportCredit2
Project Loans
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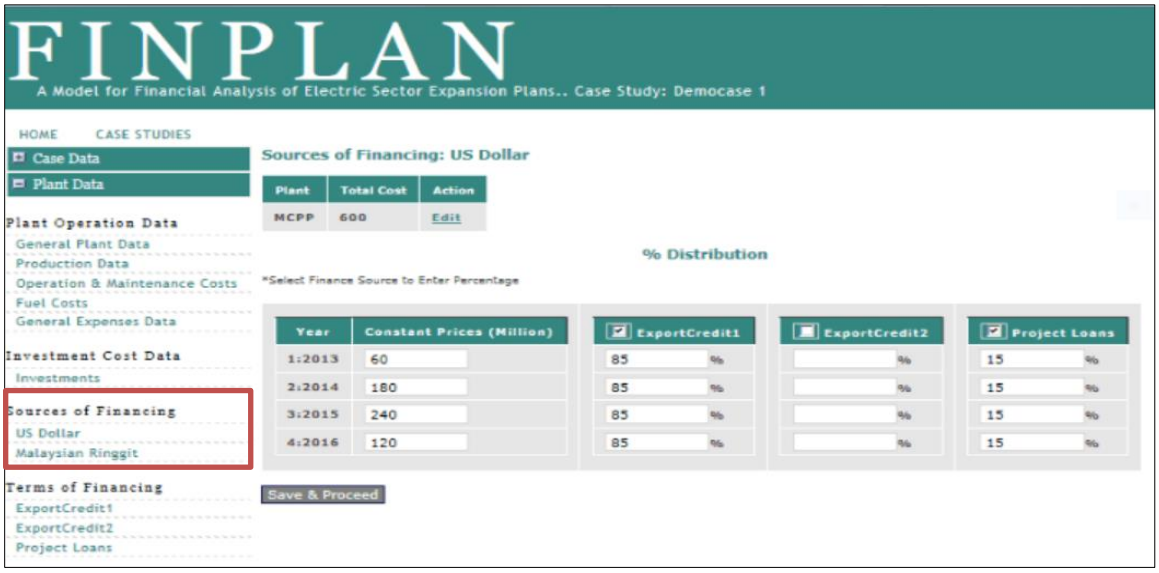
Depreciation
Decommissioning
FinManager
Calculate
Intermediate Results
Results
Investment Cost in Constant Prices
Name
Unit Size
Type
Status
Action
MCPP
500
Coal(imported)
Future
Edit
US Dollar (Million)
Malaysian Ringgit (Million)
Investment Cost
600
480
Year
% Distribution
% Distribution
1:2013
10
30
2:2014
30
30
3:2015
40
20
4:2016
20
20
Save & Proceed

Activity 6

Introduce Plant Data – Sources of Financing (a)

Next, we need to provide data on the "Sources of Financing". This refers to how these local and foreign investment needs will be financed. Investment expenditures need to be made in local currency as well foreign currency, which is US dollars here.

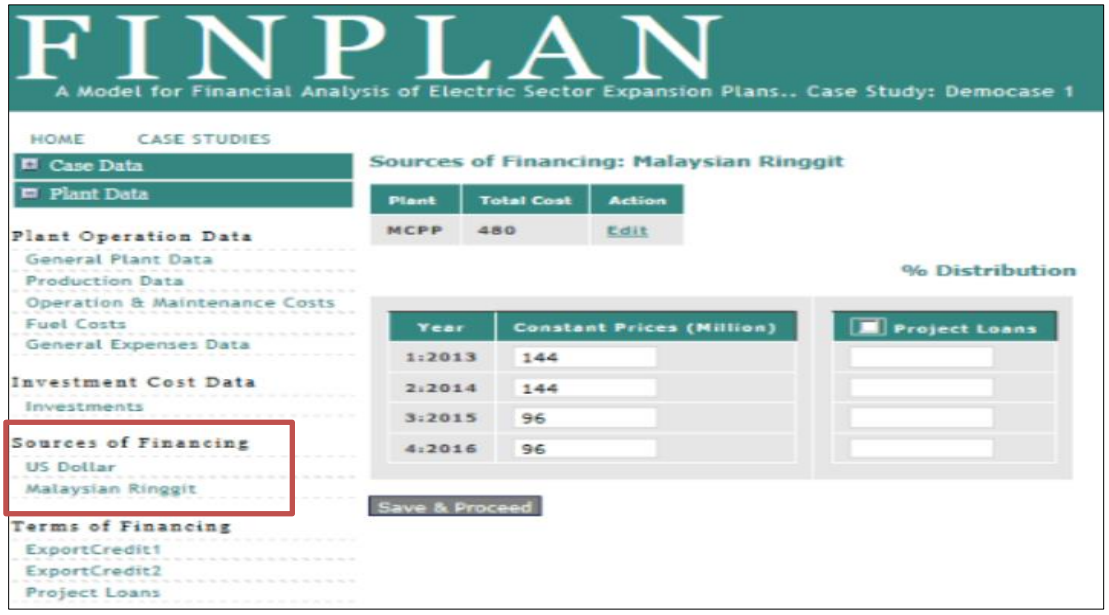
Therefore, under sources of financing on the screen, you see it appears as US dollar and Malaysian ringgit. If you click the US dollar option, this screen appears. It shows annual US dollar needs over various construction years. For example, in 2013, the foreign currency requirement is 60 million US dollars and so on. There are three options from where foreign currency can be obtained. These are two types of "Export Credit Loans" and one type of "Project Loans". In this case study, we assume one export credit facility which will supply 85% of the foreign currency requirement. The remaining 15% will be met from the project loan. Tick the box at the top before the "Export Credit 1" option and enter the data. Similarly, tick the box before "Project Loans" option and then enter data the way they are shown on the screen. Then please click the button "Save and Proceed".



Activity 7

Introduce Plant Data – Sources of Financing (b)

Next, we must give sources of supply of local currency, that is Malaysian ringgit. Click the button "Malaysian ringgit". The screen below will appear. This shows the local currency needs required for making the payment for local costs during the construction period. For example, in the year 2013, 144 million ringgits are needed to cover the local construction related expenses. This screen provides only one option, that is "Project Loans", as a source of meeting local investment related costs. However, local needs also can be met through sponsors' equity, which will appear in another screen. So, for this project, we will use equity to pay for the local construction related expenses, leaving the project loan option blank.

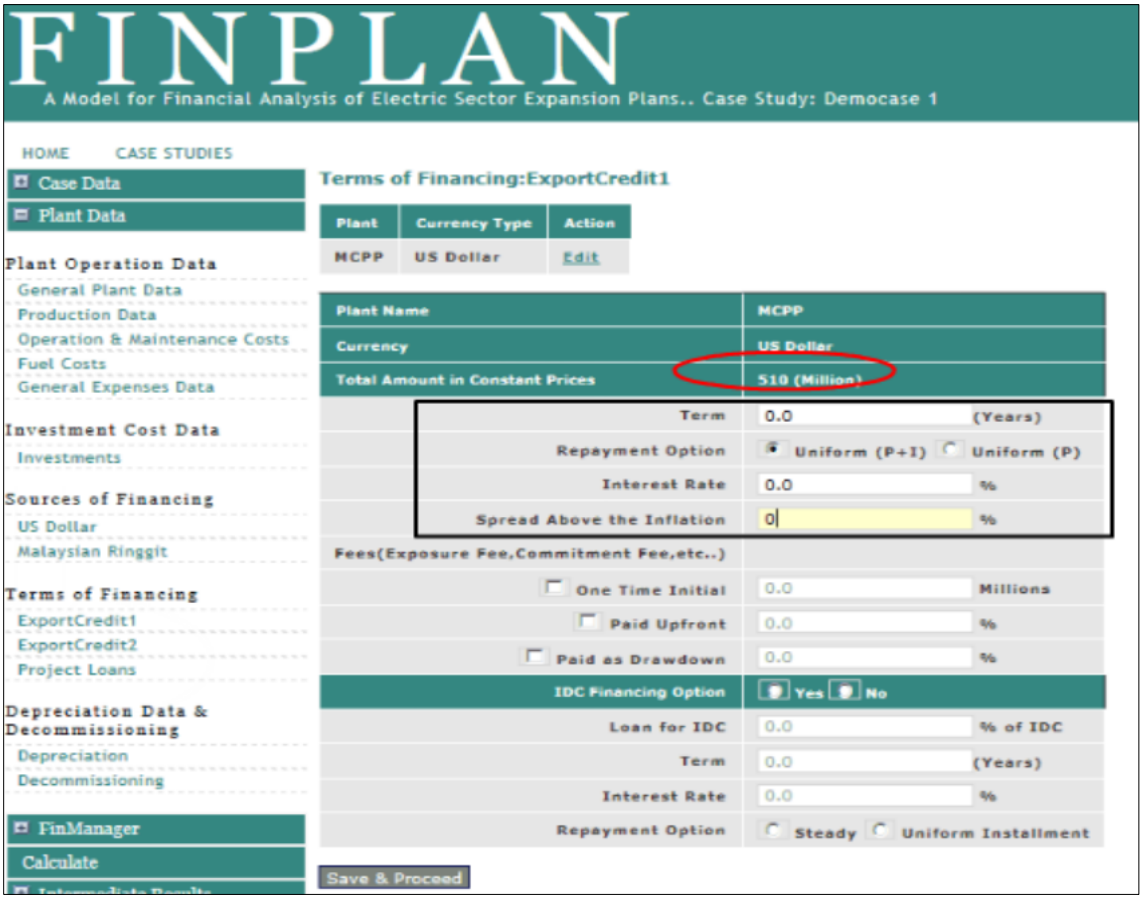


Activity 8

Introduce Plant Data – Terms of Financing (a)

In this part, we will define the various terms related to export credit financing or project loans. Click the button "ExportCredit1", under "Terms of Financing". This window will appear.

The amount to be financed through export credit financing is 510 million US dollars. "Term" implies the maturity period or repayment years over which the loan will be repaid. Loan repayment starts only when the project goes online and revenue starts flowing, that is from the year 2017 in this case.

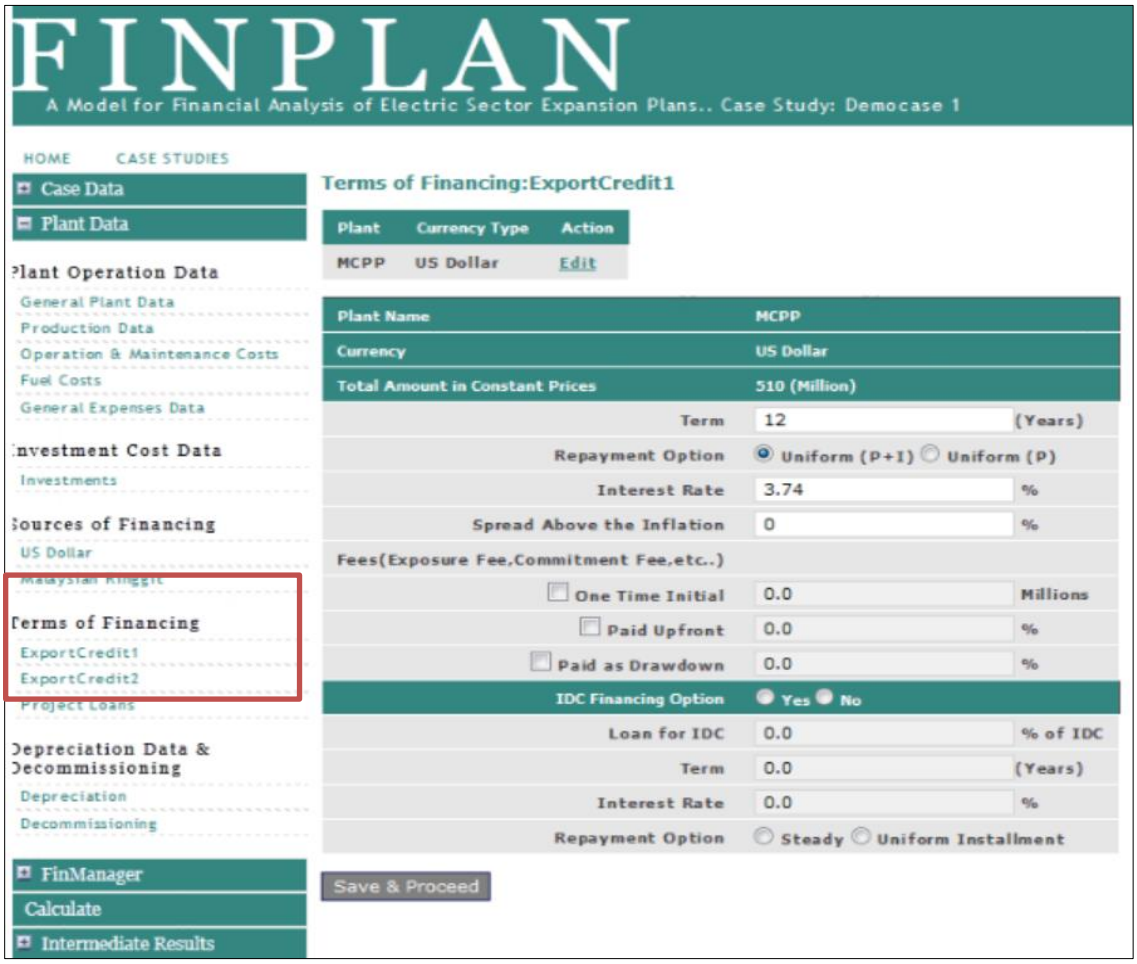


FINPLAN allows two types of loan repayment, "P+I" and "P". In the first option, "Uniform P+I", every year a constant amount will be deducted, which includes both principal and interest. In the second option, "Uniform P" means every year a constant amount of principal will be paid back.

FINPLAN allows for two types of interest options: fixed rate and variable rate. They are explained in the lecture sessions. The first option, "Interest Rate", allows a fixed rate, the constant interest rate, that will be applied for the entire loan period. The second option is "Spread Above the Inflation"; a spread amount needs to be entered here. In this case, the interest rate in a particular year is the inflation rate in that year plus the spread.

As it is an export credit loan from the USA for coal power plants, this is guided by the Arrangement of official supported export credits of OECD, which is discussed in the lectures.

We take the loan term as 12 years and interest rate as 3.74%, which is 100 basis points higher than the commercial interest reference rate (CIRR). Do not forget the button "Save and Proceed".

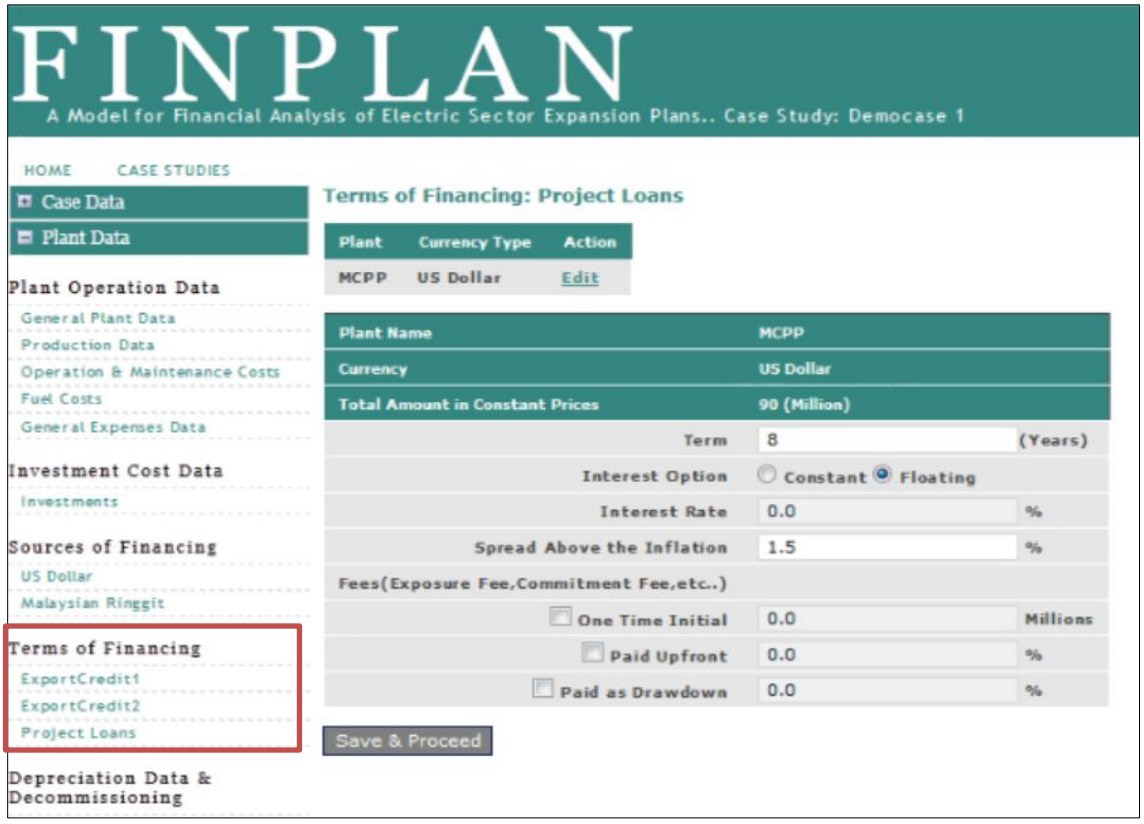


Activity 9

Introduce Plant Data – Terms of Financing (b)

"Export Credit 2" is defined in the same way as "Export Credit1". However, in this case, we used only one export credit option; therefore, we ignored the "Export Credit2" option.

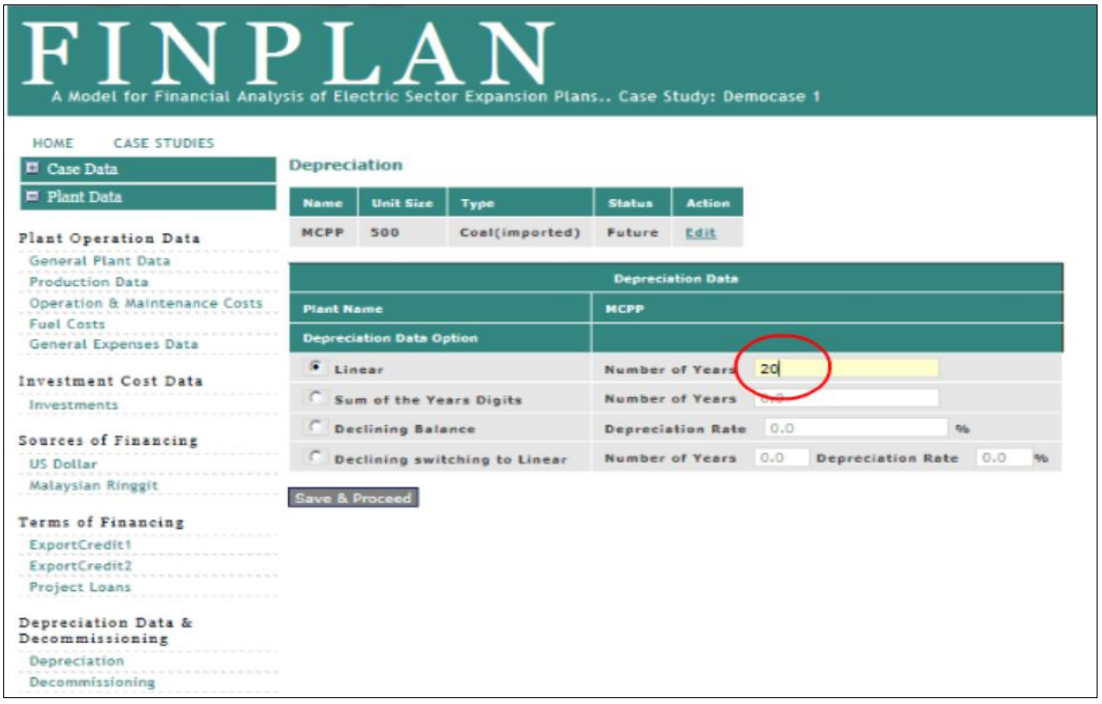
Click the next button "Project Loans" and the following screen appears. 90 million US dollars will be financed through project loans. The term is, again, the number of years the principal of loan will be repaid. We assumed 8 years. In this case also, two types of interest rates are allowed: fixed rate and variable rate. In this case we chose a variable rate, which includes a spread of 150 basis points, or 1.5%, over the inflation rate.



Activity 10

Introduce Plant Data - Depreciation

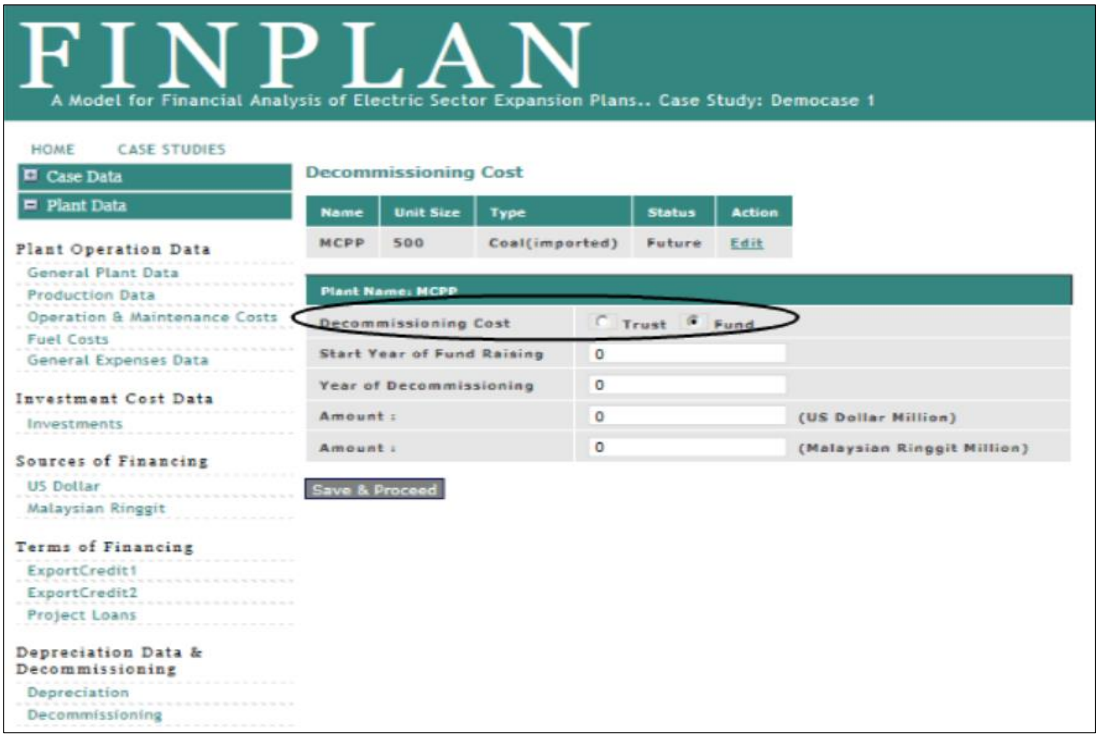
We will now enter data on depreciation. Click the button "Depreciation". The following screen will appear. FINPLAN allows four different types of depreciation, which have been explained in the lectures. For this case study, we chose linear depreciation or straight-line method. We assumed the plant will be depreciated over 20 years. Therefore, we entered the number 20.



Activity 11

Introduce Plant Data – Decommissioning

As it is a coal power plant, decommissioning costs do not apply. However, we will explain this cost, which would be needed for a nuclear power plant, for example. Please click the button "Decommissioning". The screen below appears. FINPLAN provides two ways of depositing the decommissioning cost: "Trust" or "Fund". In the first case, the decommissioning cost will be collected from the owner and deposited with a trust; whereas in the second, the decommissioning money which is collected stays within the company. It therefore appears in the company account, in the balance sheet, and so on. Therefore, should you need to account for a decommissioning cost, click whichever way you wish the money to be collected.



The start year of the fund raising is the first year when collection of costs starts. Year of decommissioning is the first year when decommissioning of the plant starts. The decommissioning fund can be collected in foreign or local currency, or in both. Accordingly, the amount will be entered in the screen. Then please press the button "Save and Proceed".

Activity 12

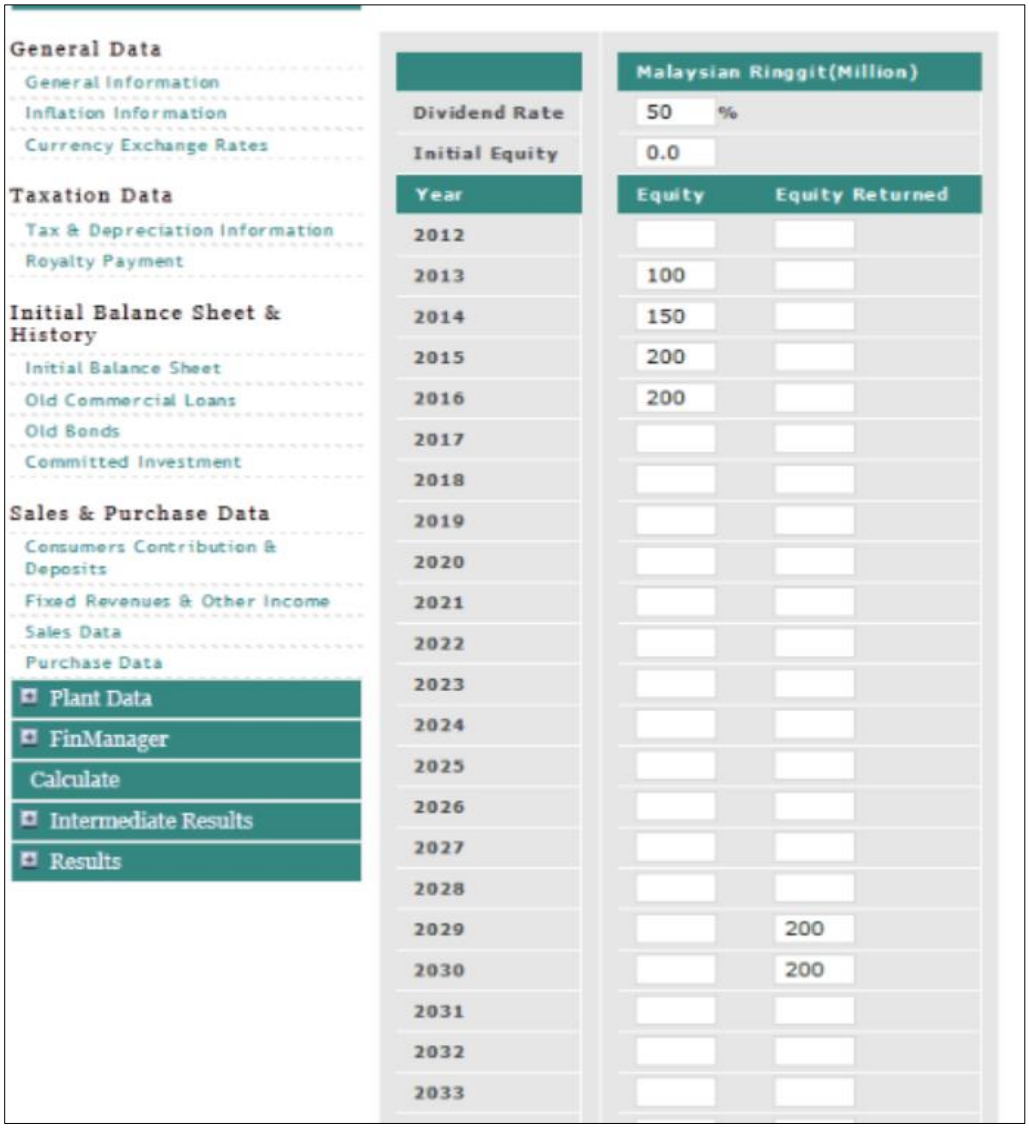
Introduce Financial Data – Equity

From this point onwards, we will enter financial data. Click the button "FinManager". The screen below appears. Now we will go through each item under "FinManager", starting from equity, new commercial loans, etc.

Click the button "Equity". The next screen appears. The dividend rate is the dividend paid as percentage of the outstanding equity. We assumed this is 50%. Equity amount needs to be entered for different years whenever needed. It should be noted that equity is always in local currency, here in million ringgits. FINPLAN does not allow foreign equity. We put some arbitrary numbers, 100 for the year 2013, 150 for the years 2014, and so on.

Once we run the model, if there is a shortage or surplus of funds, we will adjust the equity amount accordingly. If there is a fund shortage during the project construction, and the model is withdrawing money from the stand-by facility, then we will increase equity. If there is a surplus of funds so that the model is depositing excess funds to the short-term deposit, we will reduce the equity.

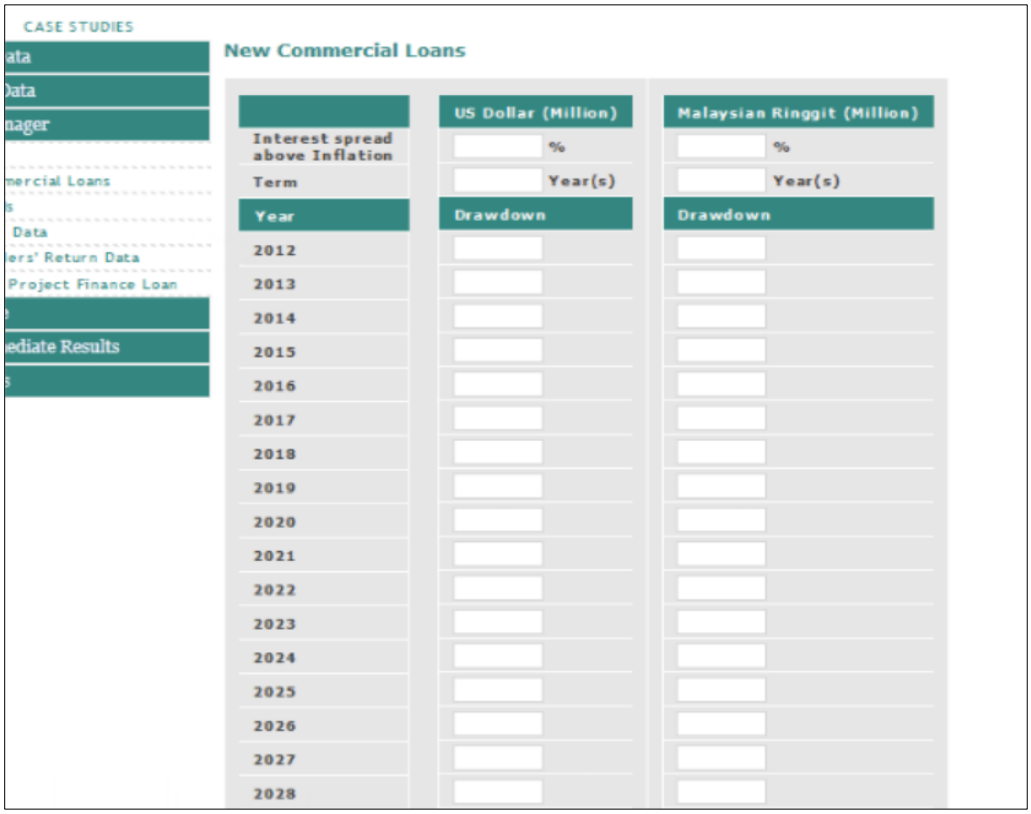
FINPLAN also allows for share buy-back, equity withdrawal, or equity return, which is done when a project has enough surplus money after loans are repaid. We have put the number 200 for the years 2029 and 2030, as loan repayment is completed by the year 2028. Now please press the button "Save and Proceed".



Activity 13

Introduce Financial Data – New Commercial Loans

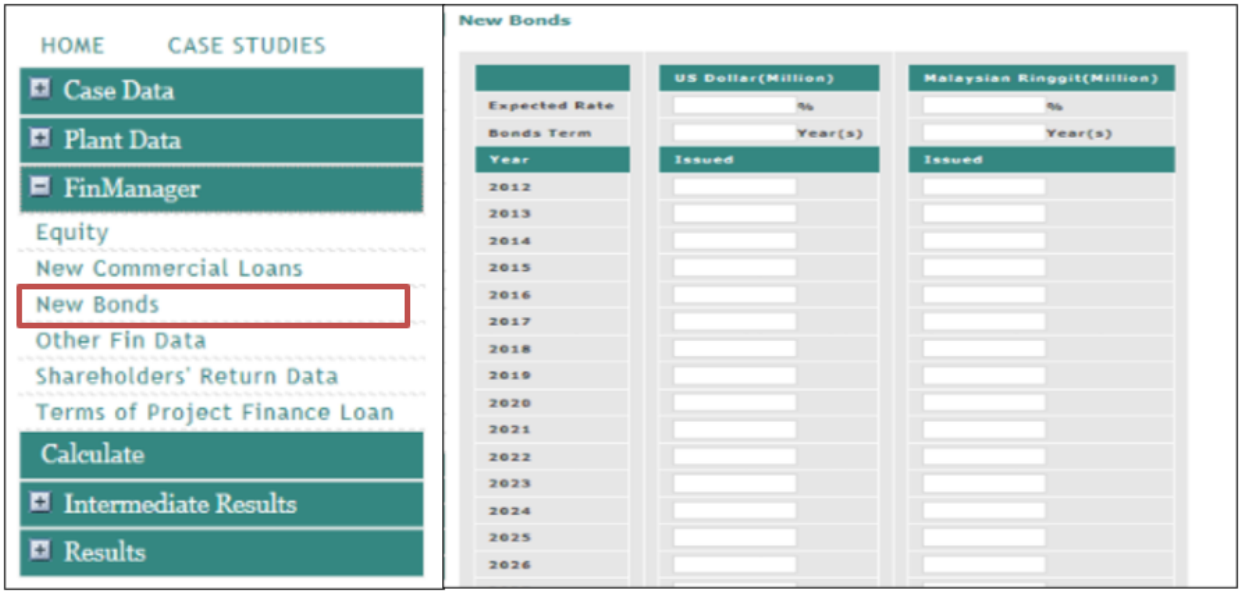
The next item is "New Commercial Loans", which is another source of finance possible in FINPLAN. Click this button, and the next screen appears. This option factors in loans from commercial banks both in foreign currency and local currency. One can use this facility in local currency, foreign currency, or both. It requires information on spread, as well as, term that means loan repayment period in years as well as loan drawdown, amount of loan to be withdrawn over the years. For this particular case study, we did not use this source of financing.



Activity 14

Introduce Financial Data – New Bonds

FINPLAN allows the owner company to issue new bonds as an option for financing. Please click the button "New bond". The following screen appears. Again, the owner can issue new bonds in foreign currency, like in dollars, or in local currency. It can use this facility by issuing bonds in both currencies or in either currency. Data required are interest rate and term or maturity period. Also, the owner can issue bonds several times during the project life. Year of issuance and the amount to be issued need to be entered in the time series column. For this particular case study, bond as an option for financing is not used.



Activity 15

Introduce Other Financial Data

The next item in this category is "Other Fin Data". By clicking this option, the screen below appears. FINPLAN offers two possibilities to manage the shortfall and surplus cash: short-term deposit and stand-by facility.

If the project has excess money, then the model puts it in short-term deposit. Short-term deposit offers a low interest rate; therefore, it makes inefficient use of cash. Therefore, users always should

try to minimize the amount in short-term deposits by reducing the availability of financial resources or increasing the dividend or equity share buyback, etc.

If the project has a shortfall of cash, then the model withdraws the money from a stand-by facility to bridge the gap. Stand-by facility has a high interest rate; therefore, it should be avoided whenever possible, in particular during construction by using alternative sources of finance, which have lower cost, like loans, bonds or equity, etc.

In this screen, we provide data related to the short-term deposit and stand-by facility. In the first box, one needs to provide the spread for the short-term deposit above inflation. Since a short-term deposit provides very nominal interest, we have used the number minus 1; this means that the interest rate on a short-term deposit is 1 percentage point lower than the inflation rate.

In the second box, spread for interest rate on stand-by facility above inflation is needed. Since the interest rate for the loan from a stand-by facility is high, we have entered the number 4. This means that the interest rate on a stand-by facility loan is the inflation rate plus 4 percent. As the inflation rate is 4%, the interest rate on the stand-by facility is 8%.

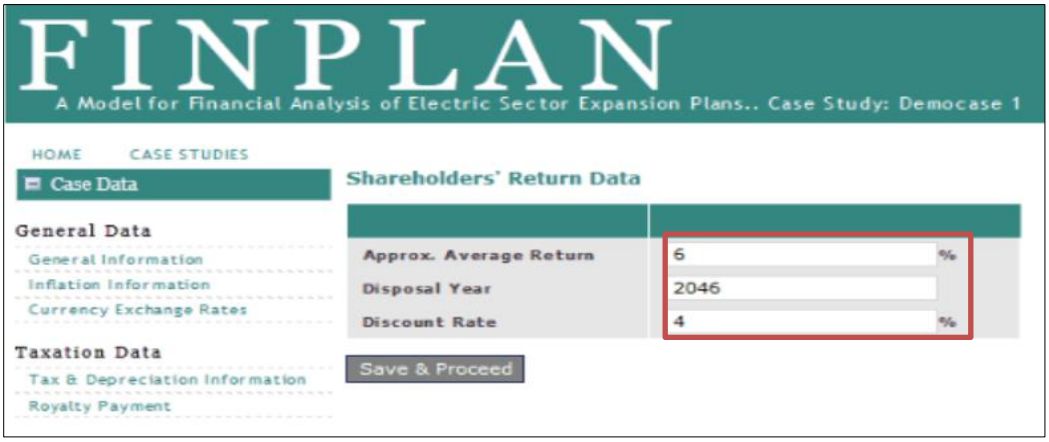
The last box is on 'short loan outstanding initial' for the existing company, which is irrelevant here, as this is project financing.

Activity 16

Introduce Financial Data – Shareholders' Return

Now we move to the next item: "Shareholders' Return Data". Clicking it, the following screen appears. FINPLAN calculates IRR and NPV for shareholders' equity. As IRR calculation is done with a numerical method, it needs an initial value to initiate the calculation. In the first box, we enter the input, and in this case we chose an arbitrary number, 6%. The year of disposal determines the

time period for analysing the return to the shareholders; in some cases, it may be limited to that period as long as the power purchase agreement is covered. Here we assumed 2046, the last year of the project life. To calculate NPV, a discount rate is required. In the last box, we provided data on the discount rate as 4%.

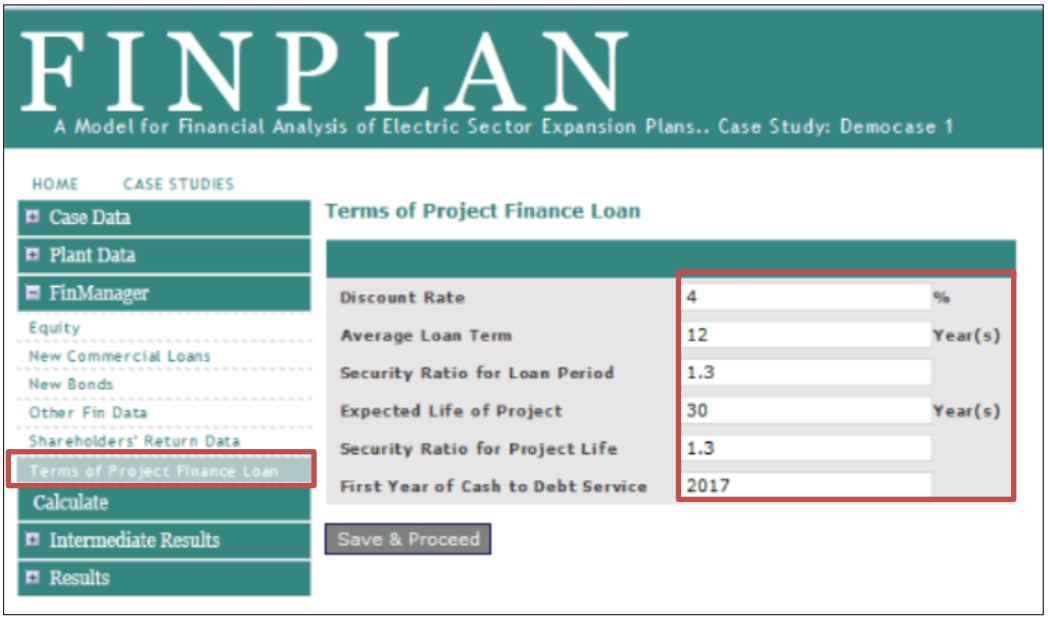


Activity 17

Introduce Financial Data – Terms of Project Finance Loan

As lending on project financing takes place completely based on the future cash flow of the project and no collateral is involved, lenders require extra scrutiny regarding the project cash flow. They check the debt servicing capacity of the project. If the project would have enough cash to cover the debt during the loan repayment period, if not than during the whole project life, the item "Terms of Project Finance Loan" provides required information on that. Clicking the item, this screen appears.

For safety purposes, lenders require that the cash in the project account be a certain percentage higher than the cash needed to pay for the interest and principal amount. The riskier the project is, a higher percentage is needed. Security ratio defines the extra cash requirement of the lender in percentage. Here we have taken the security ratio as 1.3, which means cash in the project account at any year should be 30% higher than the cash requirement for debt servicing. FINPLAN calculates the present value of project cash flow and maximum project finance loan that can be sustainable for the loan repayment period as well as for the project life for the given security ratio. This completes the input data requirement in FINPLAN. In the next Hands-on material, we will explain the running model and results.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%
Average Loan Term
12
Year(s)
Security Ratio for Loan Period
1.3
Expected Life of Project
30
Year(s)
Security Ratio for Project Life
1.3
First Year of Cash to Debt Service
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Save & Proceed