

INVESTMENT ANALYSIS YEARLY WITH EXPENSES ONLY COMPARISON

Example USA

INTRODUCTION

This example shows how to compare two investments that;

1. Involves an investment in equipment
2. Incurs operating costs

Uses the "Invest Expenses Only Yearly Projection" template and the "Incremental Cash Flow Report" because revenues are not relevant to the investment decisions.

EXAMPLE

A organization needs to install monitoring equipment to measure the number of units processed per hour and has received proposals from two suppliers and needs to decide which is the most economic alternative over a seven year period.

General Information

Analysis Period: 7 Years

Corporate Marginal Tax Rate (Including State Taxes): 35.00%

Discount Rate (Before Tax): 15.00%

Depreciation: 200% Declining Balance. Recovery Period: 7 years

Supplier A.

Investment: \$500,000

Repairs & Maintenance: \$35,000 per year increasing at 4.00% per year compounding

Utilities: \$250 per month for the first year then increasing at 3.00% per year compounded

Working Capital for spare parts: \$30,000

Salvage Value: \$15,000

Supplier B

Investment: \$400,000

Maintenance Contract: Supplier B will provide a service contract, which includes parts and labor for five years at \$4,000 per month for five years and then \$5,500 per month for the remaining two years. The service contract excludes overtime calls.

Estimated overtime servicing costs;

Hourly Rate: \$60 per hour for the first year then increasing at 3.00% per year compounded

No. of Hours per year: Year 1 - 100 hours increasing at 4.00% compounding per year for the next two years then 7.00% per year compounded

Utilities: \$300 per month for the first year then increasing at 3.00% per year compounded

Working Capital: Zero

Salvage Value: \$15,000

TEMPLATE SELECTION

The selection of the appropriate template is based on the following;

1. The analysis is not impacted by the revenues, which is the same for both options
2. Projections are Yearly

Template: Invest Expenses Only Yearly projections

STEPS

Using the Invest Expenses Only Yearly projections template;

1. Enter the analysis for Supplier A and save
2. Enter the analysis for Supplier B and save
3. Use the "Project Comparison Report" or the "Incremental Cash Flow Report" to compare the two options

SUMMARY OF THE TEMPLATE INPUT INFORMATION

Supplier A

Project Info Folder

Project Name: Monitor from Supplier A
Project Description: Production Line Measuring System
Analysis Period: 7 years

Investor Folder

Marginal Tax Rate: 35.00%
Discount Rate (Before Tax): 15.00%

Investment Folder

Description: Equipment
Amount: \$500,000
Depreciation Method: Personal Property 200% DB
Recovery Period: 7.0 years

Working Capital Folder

Working Capital: Year 1 \$30,000

Expenses Folder

Repairs & Maintenance: \$35,000 per year increasing at 4.00% per year compounded
Utilities: \$250 per month for the first year then increasing at 3.00% per year compounded

Financing Folder

No financing

Salvage Value Folder

Salvage Value: \$15,000

Supplier B

Project Info Folder

Project Name: Monitor from Supplier B
Project Description: Production Line Measuring System
Analysis Period: 7 years

Investor Folder

Marginal Tax Rate: 35.00%
Discount Rate (Before Tax): 15.00%

Investment Folder

Description: Equipment
Amount: \$400,000
Depreciation Method: Personal Property 200% DB
Recovery Period: 7.0 years

Working Capital Folder

Working Capital: Zero

Expenses Folder

Maintenance Contract: \$4,000 per Month for five years then \$5,500 for the remaining two years compounding

Overtime Service Costs:

Hourly Rate: \$60 per Hour for first year then increasing at 3.00% per year compounded

No. of Hours per Year: 100 for the first year then increasing at 4.00% compounding for the next two years then 7.00% compounding per year for the remaining years

Utilities: \$300 per month for the first year then increasing at 3.00% per year compounded

Financing Folder

No financing

Salvage Value Folder

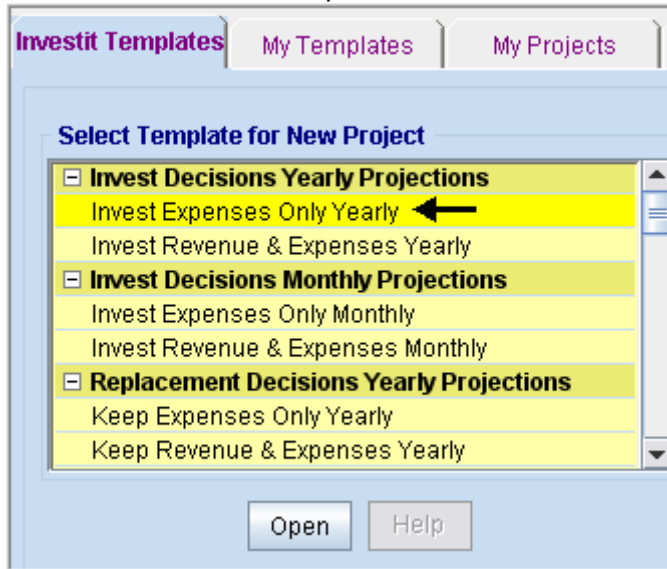
Salvage Value: \$15,000

INSTRUCTIONS OR ENTERING SUPPLIER A

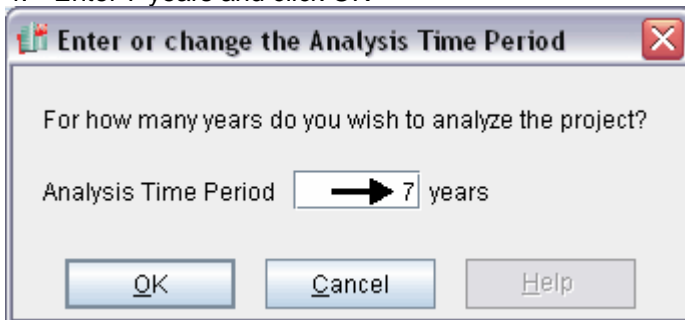
Getting started

The first step is to open the Investit Decisions Template “Invest Expenses Only Yearly” as follows:

1. Open Investit Decisions.
2. Select the Investit Template folder



3. Select and open the Investit template “Invest Expenses Only Yearly”. The analysis period dialog will open at this point.
4. Enter 7 years and click OK



Entering the project data and information

Project Info Folder

1. Enter the Property Name: Monitor from Supplier A
2. Enter Description: Production Line Measuring System

The project info folder should look like this;

Project Info.	Investor	Investment	Working Capital
Report Headers			
Project Name	Monitor from Supplier A ←		
Project Description	Production Line Measuring System ←		
Analysis Time Period			
7	Years	Change Analysis Time Period	
Entry Information			
Enter Revenue and Expenses	Yearly	Change Entry Information	
Starting Date	January Year 1		

Investor Folder

1. Enter the Discount Rate Before Tax: 15.00%

The investor folder should look like this;

Project Info.	Investor	Investment	Working Capital
<input type="checkbox"/> Turn off Tax Calculations			
Tax Rate			
Investor's Marginal Tax Rate		35.00%	
Capital Gain Tax Rate		35.00%	
Recaptured Depreciation Tax Rate		35.00%	
Discount Rate or Desired Return on Investment			
Before Tax		➔ 15.00%	
After Tax		9.75%	

Investment Folder

The investment folder should appear like this;

Description	Amount	Year	Month	Depreciation Method	Recovery Period [yrs]
Land	\$ 0	Year 1	Jan	Land (No Deprec.)	39.0
Building	\$ 0	Year 1	Jan	Commercial Prop. St Line	39.0
Equipment & Machinery	\$ 0	Year 1	Jan	Personal Prop. 200% DB	7.0

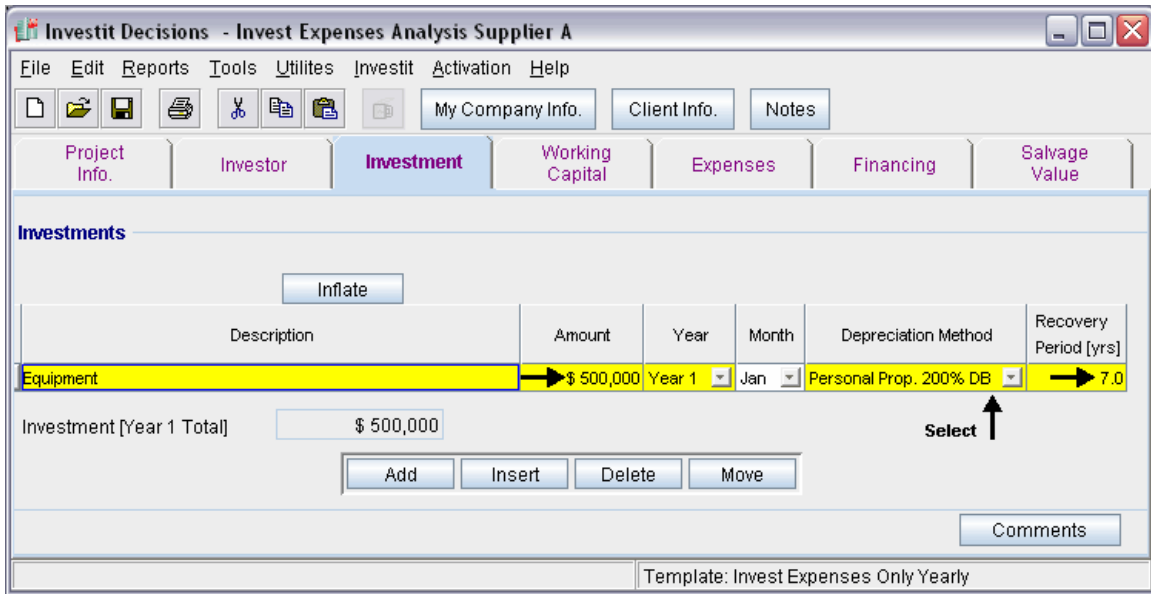
Investment [Year 1 Total] \$ 0

Buttons: Add, Insert, Delete, Move, Comments

Template: Invest Expenses Only Yearly

1. Individually Delete rows 'Land' and 'Building' by selecting the row and clicking on the "Delete" button.
2. Change 'Equipment & Machinery' to 'Equipment'
3. Complete the Investment folder as follows:

The Investment folder should now look like this

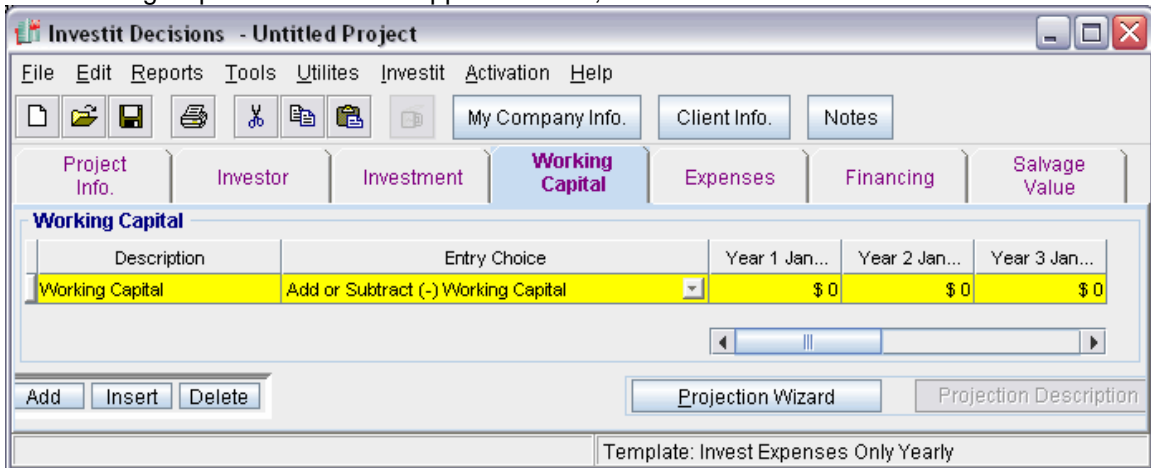


Working Capital Folder

Working Capital: \$30,000

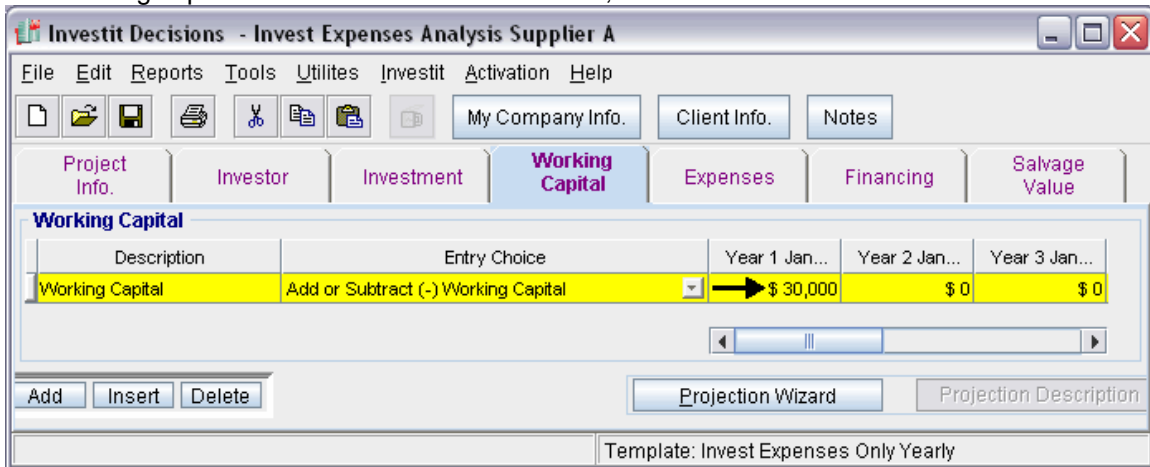
Steps for setting up the Working Capital folder

The Working Capital folder should appear like this;



1. Enter \$30,000 into the grid for Year 1 Jan

The working capital folder should now look like this;



Expenses Folder

Repairs & Maintenance: \$35,000 per year increasing at 4.00% per year compounded.

Utilities: \$250 per month for the first year then increasing at 3.00% per year compounded.

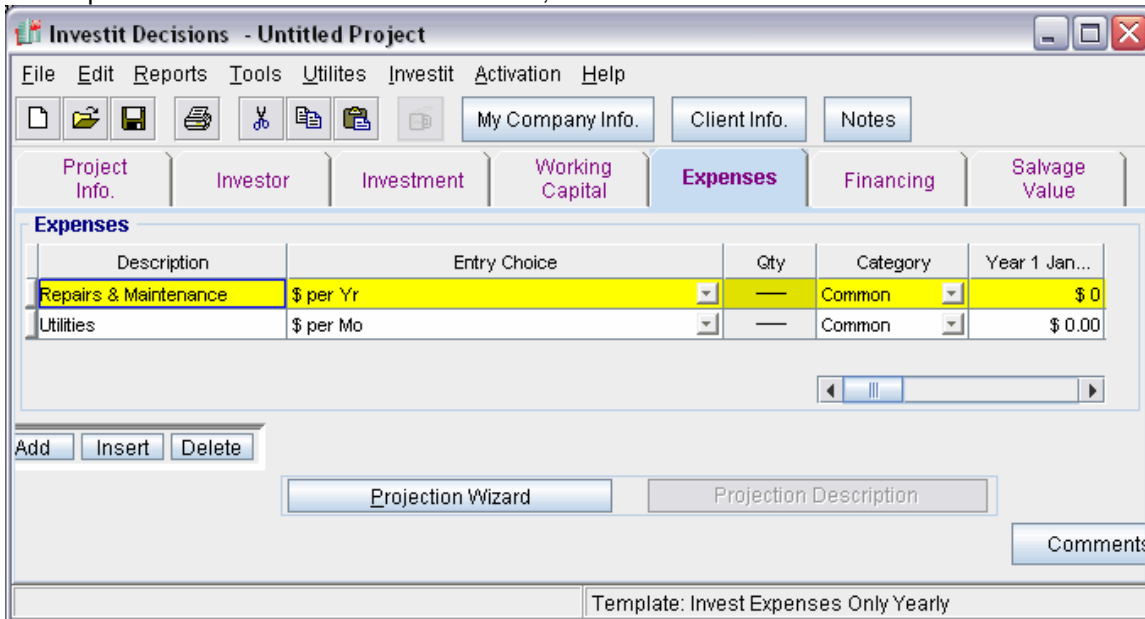
The expenses folder should appear like this;

Description	Entry Choice	Qty	Category	Year 1 Jan...
Labor	\$ per Yr	—	Common	\$ 0
Materials	\$ per Yr	—	Common	\$ 0
Repairs & Maintenance	\$ per Yr	—	Common	\$ 0
Utilities	\$ per Yr	—	Common	\$ 0
Insurance	\$ per Yr	—	Common	\$ 0
Incremental Overhead	\$ per Yr	—	Common	\$ 0
Rent	\$ per Sq. Ft per Yr	0	Common	\$ 0.00

Steps for setting up the Expenses folder

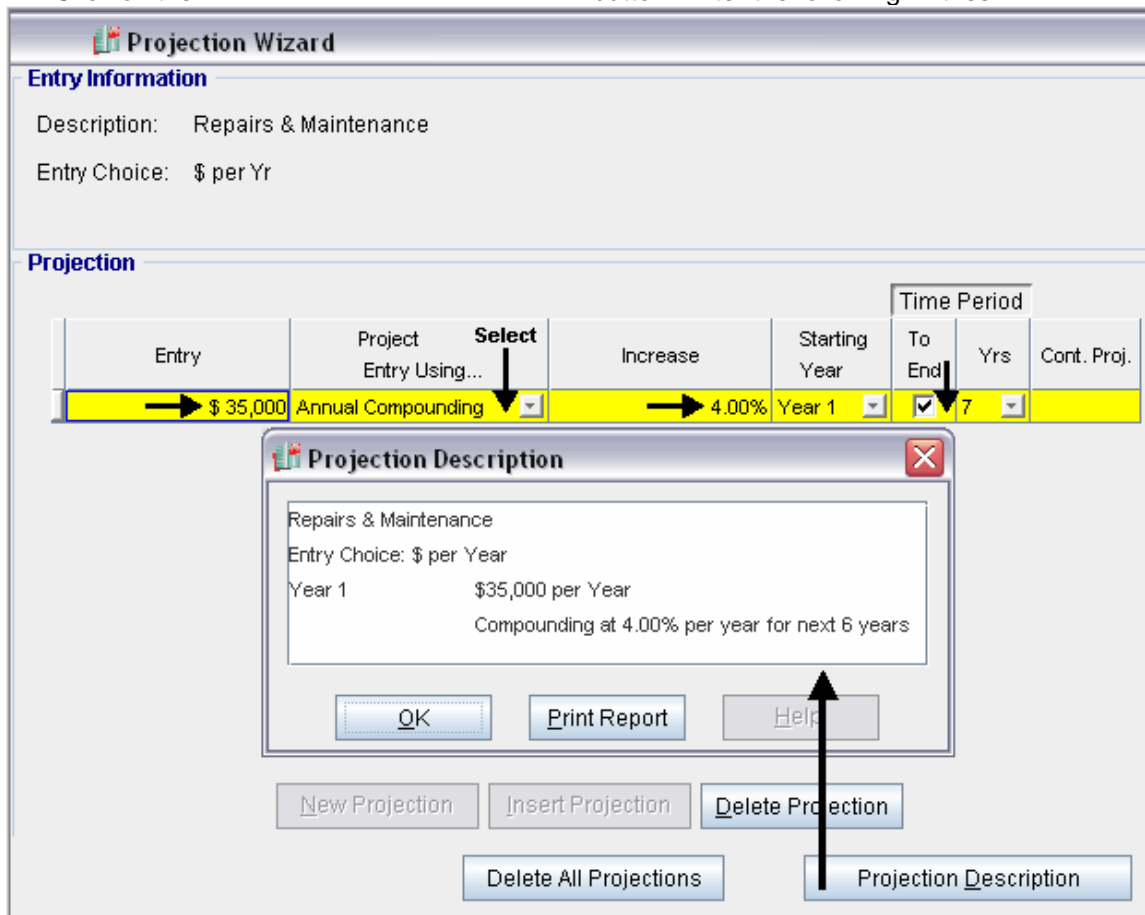
1. Individually Delete rows 'Labor', 'Materials', 'Insurance', 'Incremental Overhead' and 'Rent' by selecting the row and clicking on the "Delete" button.
2. Select row with description 'Utilities'
3. Select the entry choice '\$ per Mo'

The expenses folder should now look like this;




Steps for setting up the Repairs & Maintenance

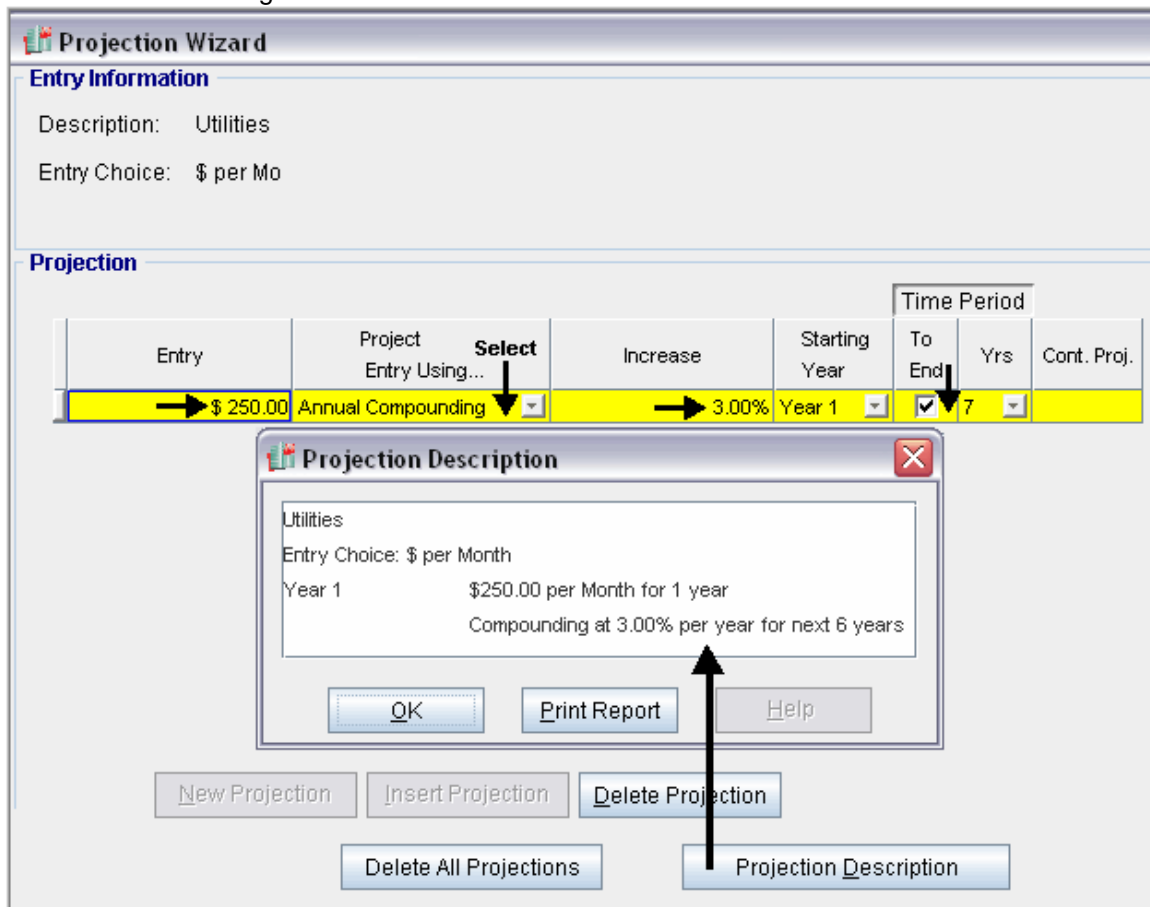
1. Select row 1 'Repairs & Maintenance'
2. Click on the **Projection Wizard** button. Enter the following Entries



Press OK to save your entries and return to the Expenses folder

Steps for setting up the Utilities

1. Select row 1 'Utilities'
2. Click on the  button.
3. Enter the following entries



Entry	Project Entry Using...	Increase	Starting Year	Time Period	Cont. Proj.
\$ 250.00	Annual Compounding	3.00%	Year 1	To End: <input checked="" type="checkbox"/> Yrs: 7	

Projection Description

Utilities
Entry Choice: \$ per Month
Year 1 \$250.00 per Month for 1 year
Compounding at 3.00% per year for next 6 years

Buttons: OK, Print Report, Help

Buttons: New Projection, Insert Projection, Delete Projection, Delete All Projections, Projection Description

Press OK to save your entries and return to the Expenses folder

Financing Folder

This example does not contain any financing.

Salvage Value Folder

Salvage Value: \$15,000

This example does not contain any Disposition Costs so only the Salvage Value needs to be entered.

The Salvage Value should appear like this;

Working Capital	Expenses	Financing	Salvage Value
Disposition Costs			
Description	Entry Choice	Expense	
Selling Expenses	% of Salvage Value ▾	0.00%	
Legal Fees	% of Salvage Value ▾	0.00%	
<div style="text-align: center;"> <input type="button" value="Add"/> <input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Move"/> </div>			
Salvage Value			
Description	Capital Investment	Salvage Value	
Equipment	\$ 500,000	\$ 0	

Enter \$15,000 into the grid for Equipment

The Salvage Value should now look like this;

Working Capital	Expenses	Financing	Salvage Value
Disposition Costs			
Description	Entry Choice	Expense	
Selling Expenses	% of Salvage Value ▾	0.00%	
Legal	% of Salvage Value ▾	0.00%	
<div style="text-align: center;"> <input type="button" value="Add"/> <input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Move"/> </div>			
Salvage Value			
Description	Capital Investment	Salvage Value	
Equipment	\$ 500,000	→ \$ 15,000	

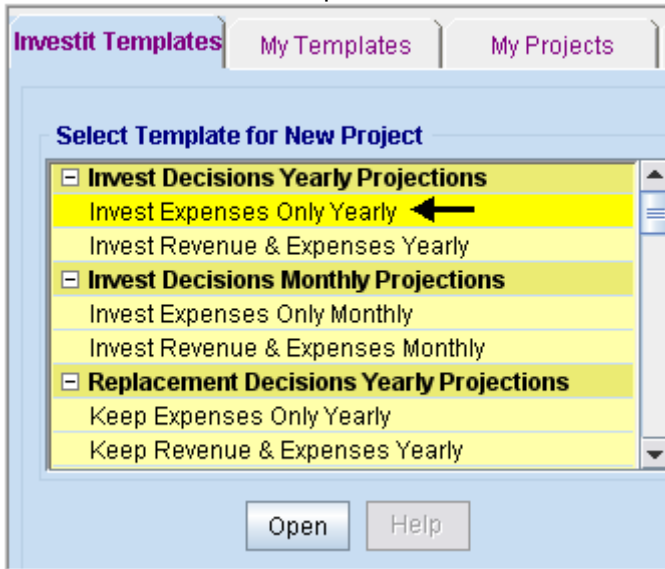
SAVE YOUR PROJECT

INSTRUCTIONS OR ENTERING SUPPLIER B

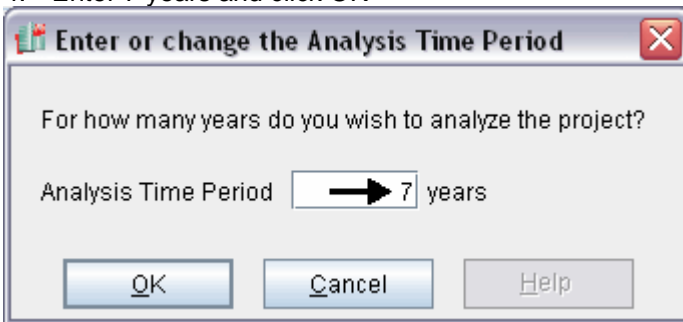
Getting started

The first step is to open the Investit Decisions Template “Invest Expenses Only Yearly” as follows:

1. Open Investit Decisions.
2. Select the Investit Template folder



3. Select and open the Investit template “Invest Expenses Only Yearly”. The analysis period dialog will open at this point.
4. Enter 7 years and click OK



Entering the project data and information

Project Info Folder

1. Enter the Property Name: Monitor from Supplier B
2. Enter Description: Production Line Measuring System

The project info folder should look like this:

Project Info.	Investor	Investment	Working Capital
Report Headers			
Project Name	Monitor from Supplier B ←		
Project Description	Production Line Measuring System ←		
Analysis Time Period			
	7	Years	Change Analysis Time Period
Entry Information			
Enter Revenue and Expenses	Yearly	Change Entry Information	
Starting Date	January Year 1		

Investor Folder

1. Enter the Discount Rate Before Tax: 15.00%

The investor folder should look like this:

Project Info.	Investor	Investment
<input type="checkbox"/> Turn off Tax Calculations		
Tax Rate		
Investor's Marginal Tax Rate	35.00%	
Capital Gain Tax Rate	35.00%	
Recaptured Depreciation Tax Rate	35.00%	
Discount Rate or Desired Return on Investment		
Before Tax	→ 15.00%	
After Tax	9.75%	

Investment Folder

The investment folder should appear like this;

Description	Amount	Year	Month	Depreciation Method	Recovery Period [yrs]
Land	\$ 0	Year 1	Jan	Land (No Deprec.)	
Building	\$ 0	Year 1	Jan	Commercial Prop. St Line	39.0
Equipment & Machinery	\$ 0	Year 1	Jan	Personal Prop. 200% DB	7.0

Investment [Year 1 Total] \$ 0

1. Individually Delete rows 'Land' and 'Building' by selecting the row and clicking on the "Delete" button.
2. Change 'Equipment & Machinery' to 'Equipment'
3. Complete the Investment folder as follows:

Description	Amount	Year	Month	Depreciation Method	Recovery Period [yrs]
Equipment	\$ 400,000	Year 1	Jan	Personal Prop. 200% DB	7.0

Investment [Year 1 Total] \$ 400,000

Working Capital Folder

The example for supplier B does not contain any Working Capital.

Expenses Folder

Maintenance Contract: \$4,000 per Month for five years then \$5,500 for the remaining two years compounding

Overtime Service Costs:

Hourly Rate: \$60 per Hour for first year then increasing at 3.00% per year compounded

No. of Hours per Year: 100 for the first year then increasing at 4.00% compounding for the next two years then 7.00% compounding per year for the remaining years

Utilities: \$300 per month for the first year then increasing at 3.00% per year compounded

The expenses folder should appear like this;

Project Info.	Investor	Investment	Working Capital	Expenses	Financing
Expenses					
Description	Entry Choice	Qty	Category	Year 1 Jan...	
Labor	\$ per Yr	—	Common	\$ 0	
Materials	\$ per Yr	—	Common	\$ 0	
Repairs & Maintenance	\$ per Yr	—	Common	\$ 0	
Utilities	\$ per Yr	—	Common	\$ 0	
Insurance	\$ per Yr	—	Common	\$ 0	
Incremental Overhead	\$ per Yr	—	Common	\$ 0	
Rent	\$ per Sq. Ft per Yr	0	Common	\$ 0.00	

Steps for setting up the Expenses folder

1. Select row 1 'Labor'
2. Enter Description 'Maintenance Contract'
3. Select Entry Choice '\$ per Mo'
4. Select row 2 with description 'Materials'
5. Enter Description 'Overtime Costs'
6. Select Entry Choice '\$ per Hour and Quantity'
7. Individually Delete rows 'Repairs & Maintenance', 'Insurance', 'Incremental Overhead' and 'Rent' by selecting the row and clicking on the "Delete" button

The expenses folder should now look like this;

Investit Decisions - Untitled Project

File Edit Reports Tools Utilities Investit Activation Help

My Company Info. Client Info. Notes

Project Info. Investor Investment Working Capital **Expenses** Financing Salvage Value

Expenses

Description	Entry Choice	Qty	Category	Year 1 Jan...
Maintenance Contract	\$ per Mo	—	Common	\$ 0.00
Overtime Costs	\$ per Hour and Quantity	—	Common	\$ 0.00
	Quantity	—		0
Utilities	\$ per Mo	—	Common	\$ 0.00


Add Insert Delete

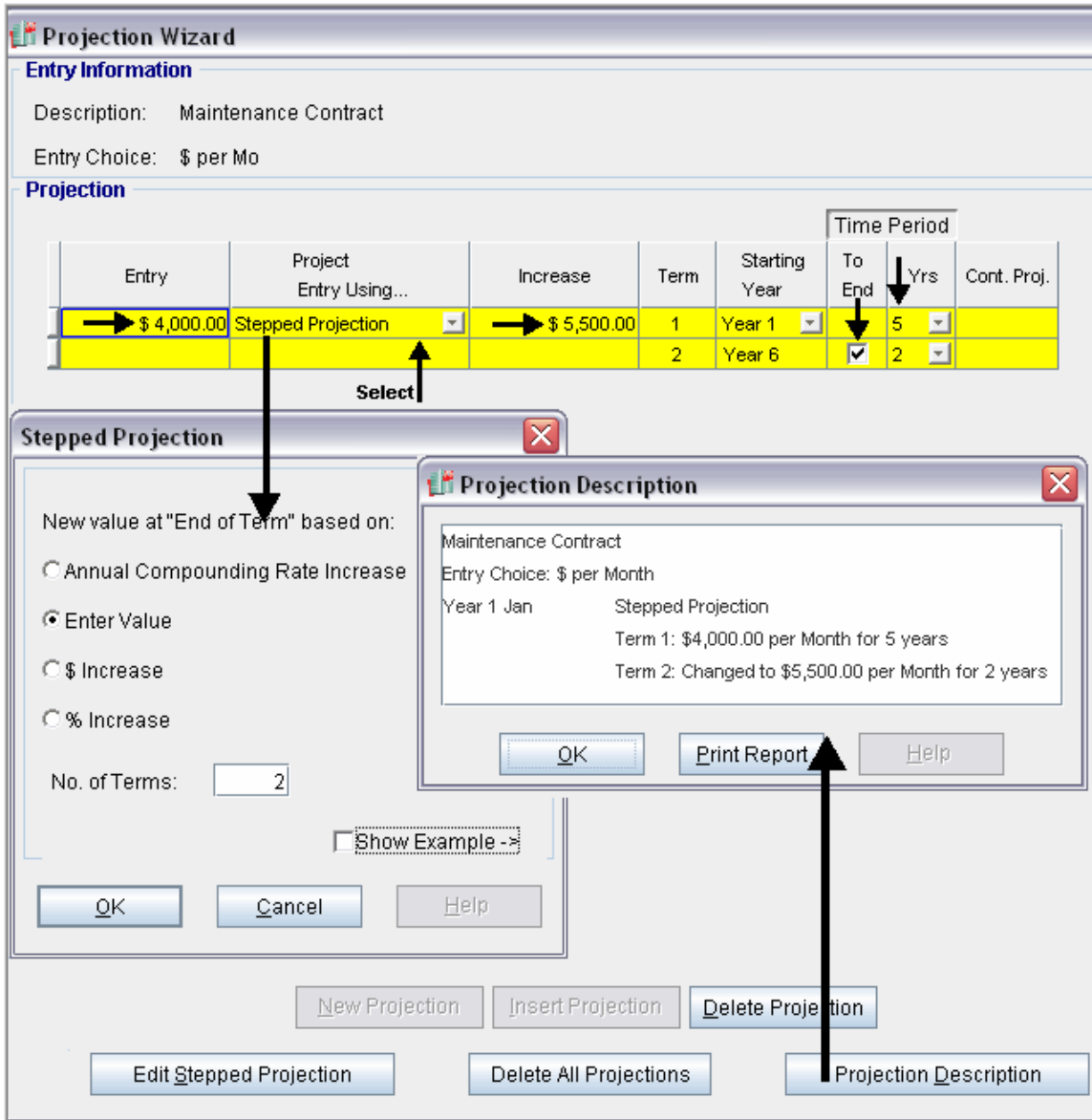
Projection Wizard Projection Description

Comment:

Template: Invest Expenses Only Yearly


Steps for setting up the Maintenance Contract

1. Select row 1 'Maintenance Contract'
2. Click on the  button. Enter the following entries



Press OK in the projection wizard to save your entries and return to the Expenses folder

Steps for setting up the Overtime Costs

1. Select row with description 'Overtime Costs'
2. Click on the  button

Enter the following entries

Projection Wizard

Entry Information

Description: Overtime Costs

Entry Choice: \$ per Hour

Projection

Entry	Project Entry Using...	Increase	Starting Year	Time Period		Cont. Proj.
				To End	Yrs	
\$ 60.00	Annual Compounding	3.00%	Year 1	<input checked="" type="checkbox"/>	7	

Projection Description

Overtime Costs

Entry Choice: \$ per Hour

Year 1 \$60.00 per Hour

Compounding at 3.00% per year for next 6 years


OK Print Report Help

New Projection Insert Projection Delete Projection

Delete All Projections Projection Description

Press OK to save your entries and return to the Expenses folder

Steps for setting up the Quantity

1. Select row with entry choice 'Quantity'
2. Click on the  button.

Enter the following entries:

Projection Wizard

Entry Information

Description: Overtime Costs

Entry Choice: Quantity

Projection

Entry	Project Entry Using...	Increase	Starting Year	Time Period		Cont. Proj.
				To End	Yrs	
100	Annual Compounding	4.00%	Year 1		3	<input checked="" type="checkbox"/>
	Annual Compounding	7.00%	Year 4	<input checked="" type="checkbox"/>	4	<input checked="" type="checkbox"/>

Projection Description

Overtime Costs

Entry Choice: Quantity

Year 1 100

Compounding at 4.00% per year for next 2 years

then Compounding at 7.00% per year for next 4 years


OK Print Report Help

New Projection Insert Projection Delete Projection

Delete All Projections Projection Description

Press OK to save your entries and return the Expenses folder

Steps for setting up the Utilities

1. Select row with description 'Utilities'
2. Click on the  button.

Enter the following entries:

Projection Wizard

Entry Information

Description: Utilities
Entry Choice: \$ per Mo

Projection

Entry	Project Entry Using...	Increase	Starting Year	Time Period		Cont. Proj.
				To End	Yrs	
\$ 300.00	Annual Compounding	3.00%	Year 1	<input checked="" type="checkbox"/>	7	<input type="checkbox"/>

Projection Description

Utilities
Entry Choice: \$ per Month
Year 1 \$300.00 per Month for 1 year
Compounding at 3.00% per year for next 6 years

OK Print Report Help

New Projection Insert Projection Delete Projection

Delete All Projections Projection Description

Press OK in the Projection Wizard to save your entries and return to the Expenses folder

Financing Folder

This example does not contain any financing.

Salvage Value Folder

Salvage Value: \$15,000

This example does not contain any Disposition Costs so only the Salvage Value needs to be entered.

The Salvage Value should appear like this;

Working Capital	Expenses	Financing	Salvage Value	
Disposition Costs				
Description			Entry Choice	Expense
Selling Expenses			% of Salvage Value ▾	0.00%
Legal Fees			% of Salvage Value ▾	0.00%
Add Insert Delete Move				
Salvage Value				
Description		Capital Investment	Salvage Value	
Equipment		\$ 400,000	\$ 0	

Enter \$15,000 into the grid for Equipment

The Salvage Value should now look like this;

Working Capital	Expenses	Financing	Salvage Value	
Disposition Costs				
Description			Entry Choice	Expense
Selling Expenses			% of Salvage Value ▾	0.00%
Legal			% of Salvage Value ▾	0.00%
Add Insert Delete Move				
Salvage Value				
Description		Capital Investment	Salvage Value	
Equipment		\$ 400,000	➔ \$ 15,000	

SAVE YOUR PROJECT

DECIDING BETWEEN “SUPPLIER A” or “SUPPLIER B”

To decide between the two options use the;

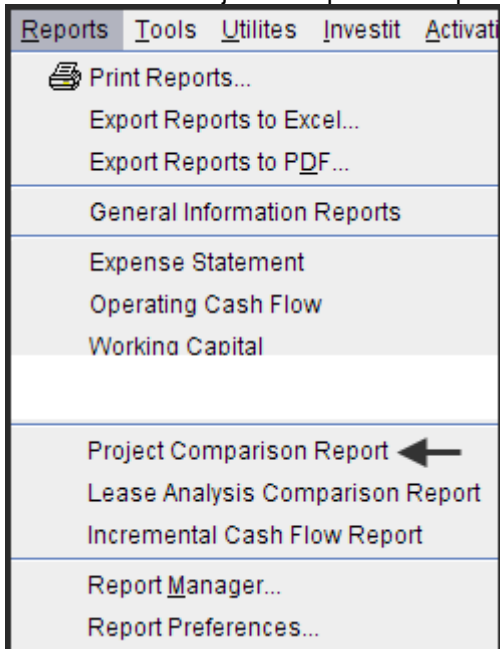
- a) The Project Comparison Report and
- b) The Incremental Cash Flow Report

Project Comparison Report

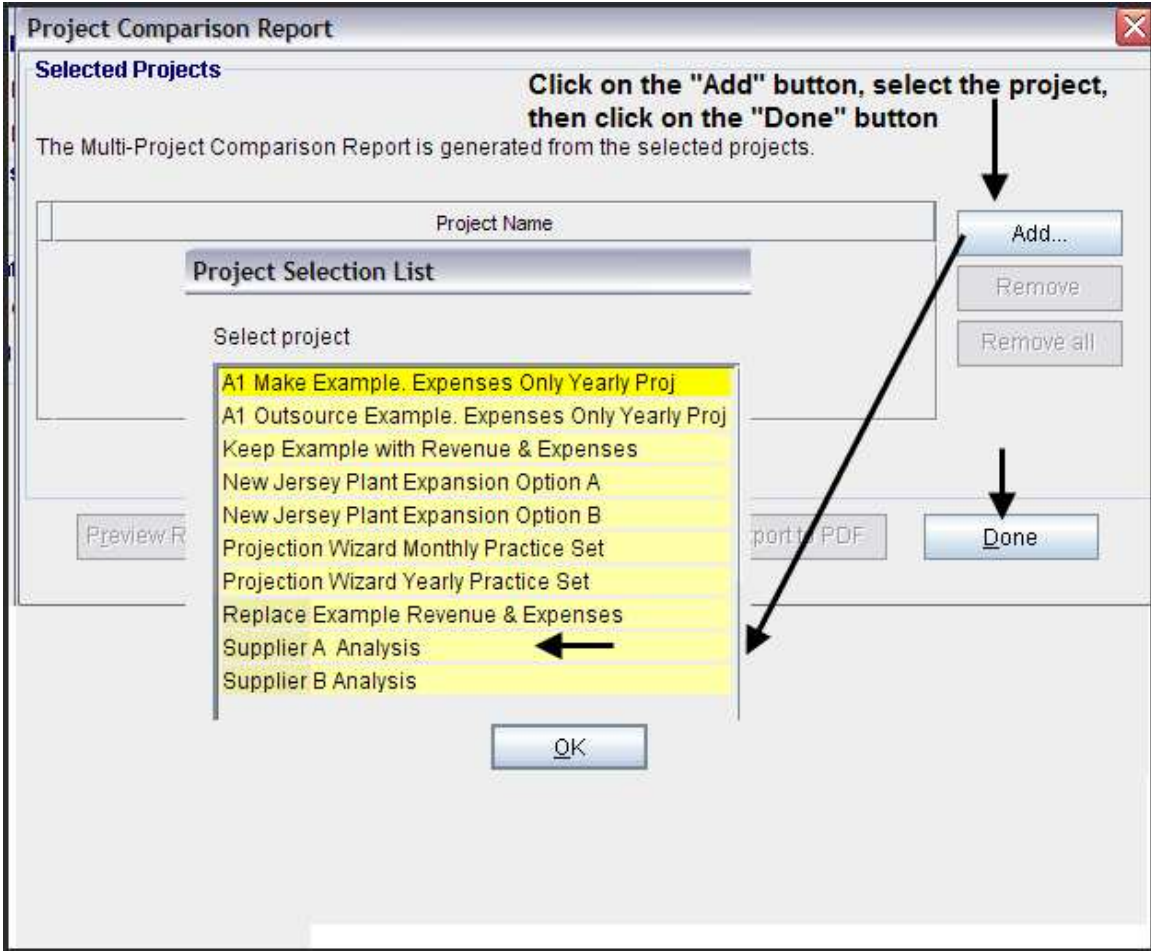
Up to four projects can be compared side by side.

Steps involved in selecting the projects for the Project Comparison Report.

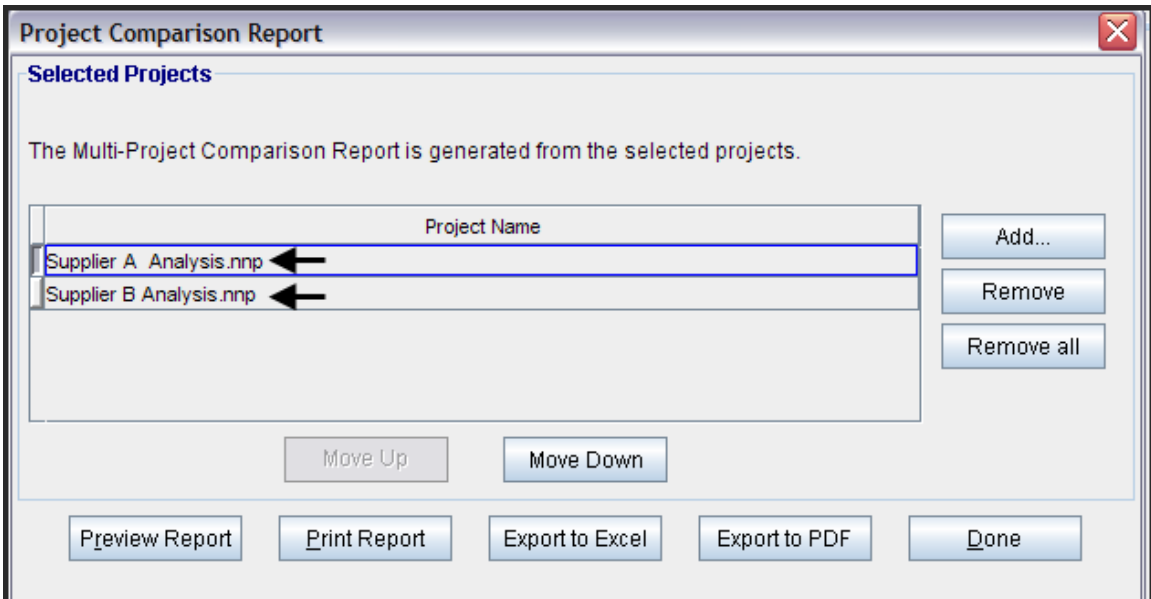
1. Select the Project Comparison Report on the Report menu



2. On the Project Comparison Report dialog click on the “Add” button to display the Report Selection List. Select the Project and click ‘Ok’. Repeat the process to add another project.



- The diagram below shows selected projects to be displayed in the "Project Comparison Report"



Project Comparison Report

Project Comparison Report (Before Tax)					
Net Cash Flow(Before Tax)					
		Invest Expenses Analysis Supplier		Invest Expenses Analysis Supplier	
		A		B	
Year					
	0		(530,000)		(400,000)
	1		(38,000)		(57,800)
	2		(39,490)		(58,135)
	3		(41,039)		(58,693)
	4		(42,648)		(59,539)
	5		(44,322)		(60,426)
	6		(46,061)		(79,355)
	7		(2,868)		(65,472)
	Total		(784,427)		(839,220)
Financial Return Before Tax					
Internal Rate of Return (IRR)			N/A		N/A
MIRR			N/A		N/A
Short term financing rate					
Short term reinvestment rate					
Net Present Value (NPV)		➔	(\$ 687,299) at 15.00%	➔	(\$ 655,642) at 15.00%
Annual Equivalency		➔	(\$ 165,199) at 15.00%	➔	(\$ 157,590) at 15.00%
Benefit to Cost Ratio			N/A		N/A
Payback Period (Years)			N/A		N/A
Discounted Pay Back Period (Years)			N/A		N/A
Note	Unable to calculate the IRR and MIRR because all the Cash Flows are negative.				

Interpretation and Decision

Financial Results

Option	Net Present Value (NPV) at 15.00%	Annual Equivalency at 15.00%
Supplier A	(\$687,299)	(\$165,199)
Supplier B	(\$655,642)	(\$157,590)

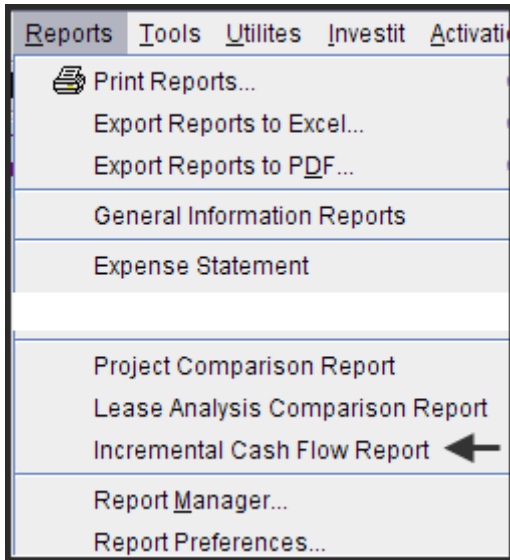
The company should choose the option that provides the lowest Net Present Value (NPV), which is Supplier B

Incremental Cash Flow Report

Can be used to show the differences in the cash flow for "Supplier A" versus "Supplier B"

Steps

Select the Incremental Cash Flow on the Report menu



Enter;

Investor's Marginal Tax Rate
Discount Rate
Short Term Rates

On the "Incremental Cash Flow Report" dialog click on the "Add" button to display the Report Selection List. Select the Project and click 'Ok'. Repeat the process to add another project.

Incremental Cash Flow Report

Investor's Rates. Applied to all selected projects

Investor

Investor Marginal Tax Rate → 35.00%
Discount Rate (Before Tax) 15.00%

Short Term Rates (Before Tax)

Financing Rate → 8.00%
Reinvestment Rate → 2.50%

Selected Projects

The Incremental Cash Flow Report is created by 'Adding' or 'Subtracting' the cash flows for the selected Projects.

1) Click on the "Add" button to display the project list

Project Name	Add Cash Flow	Subtract Cash Flow

Buttons: Add... Remove Remove all Move Up Preview Report Print Report

Project Selection List

Select project

- Keep Example with Revenue & Expenses
- Projection Wizard Monthly Practice Set
- Projection Wizard Yearly Practice Set
- Replace Example Revenue & Expenses
- Supplier A Analysis ←
- Supplier B Analysis

2) Select the project & click on the "OK" button

The selected projects for the Incremental Cash Flow Report are;

Investor's Rates. Applied to all selected projects

Investor

Investor Marginal Tax Rate → 35.00%

Discount Rate (Before Tax) → 15.00%

Short Term Rates (Before Tax)

Financing Rate → 8.00%

Reinvestment Rate → 2.50%

Selected Projects

The Incremental Cash Flow Report is created by 'Adding' or 'Subtracting' the cash flows for the selected Projects.

Project Name	Add Cash Flow	Subtract Cash Flow
Supplier B Analysis.nnp	<input checked="" type="radio"/>	<input type="radio"/>
Supplier A Analysis.nnp	<input type="radio"/>	<input checked="" type="radio"/>

The cash flow for "Supplier A" will be subtracted from the cash flow for "Supplier B"

Buttons: Add..., Remove, Remove all, Move Up, Move Down, Preview Report, Print Report, Export to Excel, Export to PDF, Done

Click on the "Preview Report" button to display the "Incremental Cash Flow Report"

Incremental Cash Flow Report (Before Tax)

Net Cash Flow (Before Tax)

Year	Plus Supplier B Analysis	Minus Supplier A Analysis	Incremental Net Cash Flow (Before Tax)
0	(400,000)	(530,000)	130,000
1	(57,600)	(38,000)	(19,600)
2	(58,135)	(39,490)	(18,645)
3	(58,693)	(41,039)	(17,655)
4	(59,539)	(42,648)	(16,891)
5	(60,426)	(44,322)	(16,104)
6	(79,355)	(46,061)	(33,294)
7	(65,472)	(2,868)	(62,603)
Total	(839,220)	(784,427)	(54,792)

Before Tax Financial Return

Internal Rate of Return (IRR)	N/A	N/A	→ 7.82%
Net Present Value (NPV) at 15.00%	→ (\$ 655,642)	→ (\$ 687,299)	→ \$ 31,657
Modified Internal Rate of Return (MIRR)	N/A	N/A	2.61%
Short term financing rate	8.00%	8.00%	8.00%
Short term reinvestment rate	2.50%	2.50%	2.50%
Annual Equivalency at 15.00%	(\$ 157,590)	(\$ 165,199)	\$ 7,609
Benefit to Cost Ratio at 15.00%	N/A	N/A	N/A
Payback Period	N/A	N/A	N/A
Discounted Pay Back Period at 15.00%	N/A	N/A	N/A

Note

Unable to calculate the IRR and MIRR because all the Cash Flows are negative.

Interpretation and conclusion

Purchasing from Supplier B will save \$31,657 when discounted at 15.00% and provide an Internal Rate of Return (IRR) of 7.82% before tax