# INVESTMENT ANALYSIS YEARLY EXAMPLE WITH EXPENSES ONLY COMPARISON

#### **Canadian Example**

#### 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: 33.00%

% of Capital Gain: 50.00%

Discount Rate (Before Tax): 15.00% Depreciation: CCA Rate 30.00%

#### Supplier A.

Investment: \$500,000

Repairs & Maintenance: \$35,000 for the first 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 maintenance contract, which includes parts and labor at \$4,000 per month for five years and then \$5,500 per month for the remaining two years. The maintenance contract excludes overtime calls.

## Estimated overtime maintenance 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

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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
- 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: 33.00% % of Capital Gain: 50.00%

Discount Rate (Before Tax): 15.00%

#### **Investment Folder**

Description: Equipment Amount: \$500,000 CCA Rate: 30.00%

#### **Working Capital Folder**

Working Capital: Year 1 \$30,000

#### **Expenses Folder**

**Repairs & Maintenance:** \$35,000 for first 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

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#### 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: 33.00% % of Capital Gain: 50.00%

Discount Rate (Before Tax): 15.00%

#### **Investment Folder**

Description: Equipment Amount: \$400,000 CCA Rate: 30.00%

#### **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

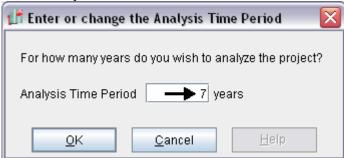
#### **Getting started**

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

- 1. Open Investit Decisions.
- 2. Select the Investit Templates 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

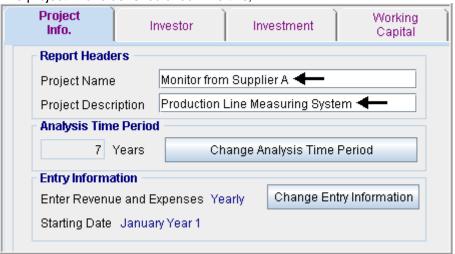


#### Entering the project data and information

#### **Project Info Folder**

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

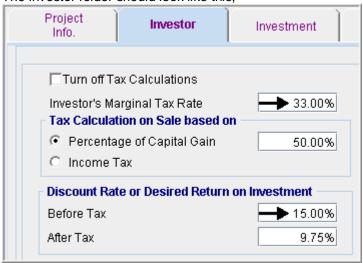
The project info folder should look like this;



#### **Investor Folder**

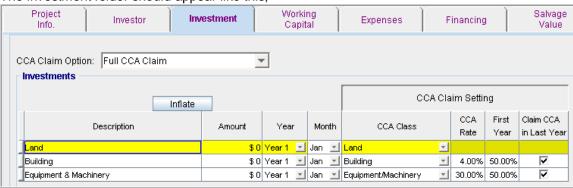
- 1. Enter the Investor's Marginal Tax Rate: 33.00%
- 2. Enter the Discount Rate Before Tax: 15.00%

The investor folder should look like this;



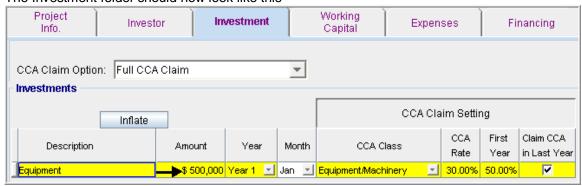
#### **Investment Folder**

The investment folder should appear like this;



- 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

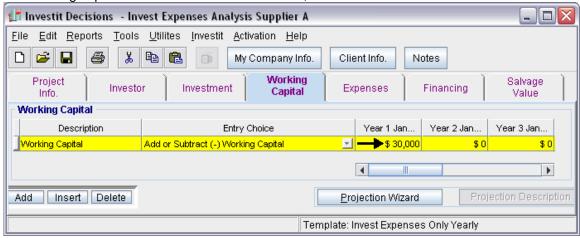
Steps for setting up the Working Capital folder

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;

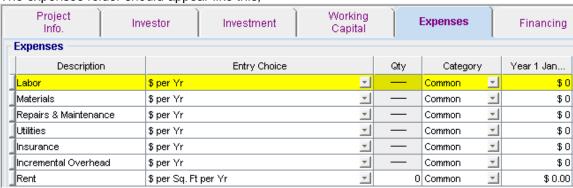


#### **Expenses Folder**

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

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

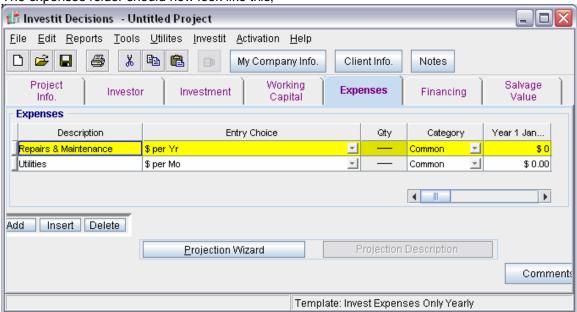
The expenses folder should appear like this;



Steps for setting up the Expenses folder

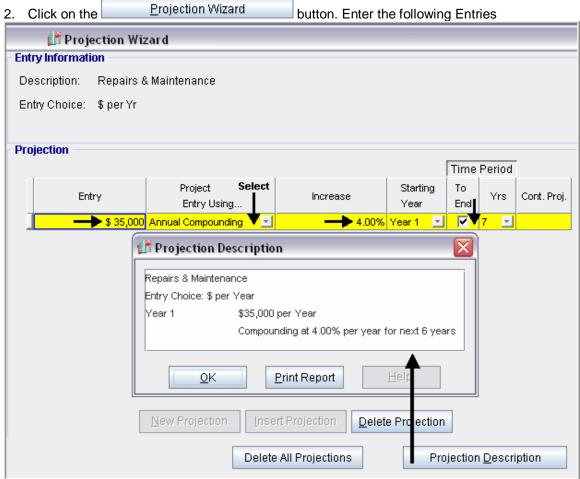
- 1. Individually Delete rows 'Labor', 'Materials', 'Insurance', 'Incremental Overhead' and 'Rent' by selecting the row and clicking on the "Delete" button.
- 2. Select row with description 'Utilities'
- 3. Select the entry choice '\$ per Mo'

The expenses folder should now look like this;



## Steps for setting up the Repairs & Maintenance

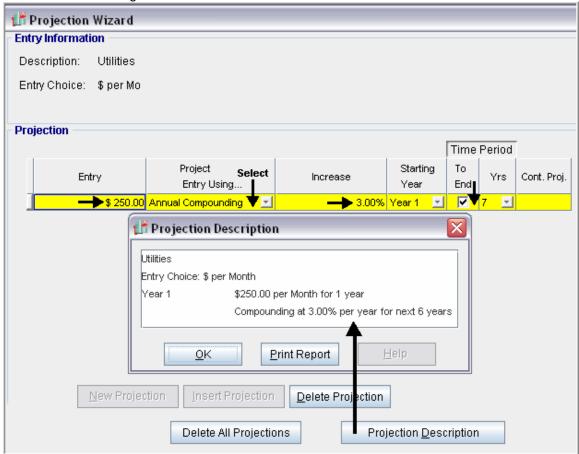
Select row 1 'Repairs & Maintenance'



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

#### Steps for setting up the Utilities

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



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

#### **Financing Folder**

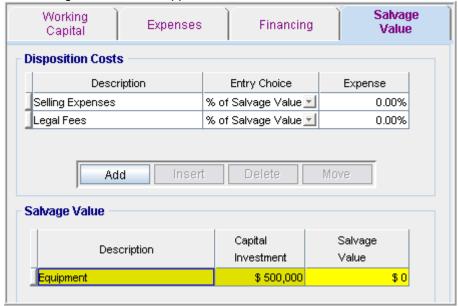
This example does not contain any financing.

#### Salvage Value Folder

Salvage Value: \$15,000

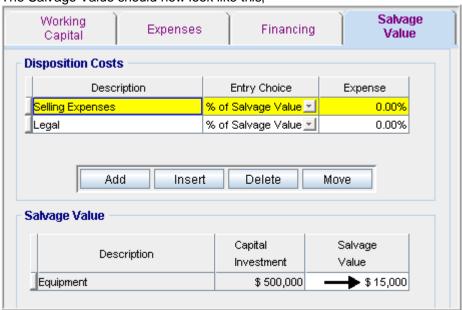
This example does not contain any Disposition Costs so only the Salvage Value needs to be entered.

The Salvage Value should appear like this;



Enter \$15,000 into the grid for Equipment

The Salvage Value should now look like this;



**SAVE YOUR PROJECT** 

#### **INSTRUCTIONS OR ENTERING SUPPLIER B**

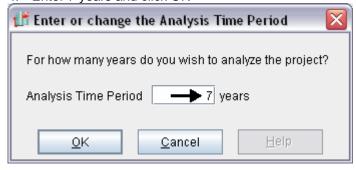
#### **Getting started**

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

- 1. Open Investit Decisions.
- 2. Select the Investit Templates 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:



#### **Investor Folder**

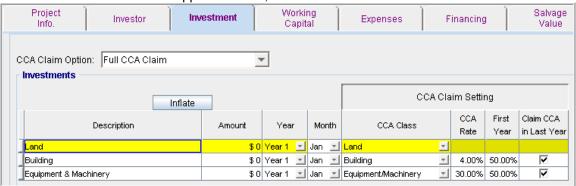
- 1. Enter Investor's Marginal Tax Rate: 33.00%
- 2. Enter the Discount Rate Before Tax: 15.00%

#### The investor folder should look like this:

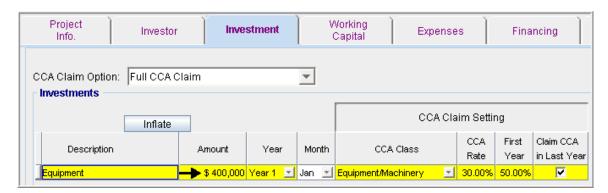


#### **Investment Folder**

The investment folder should appear like this;



- 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:



#### **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

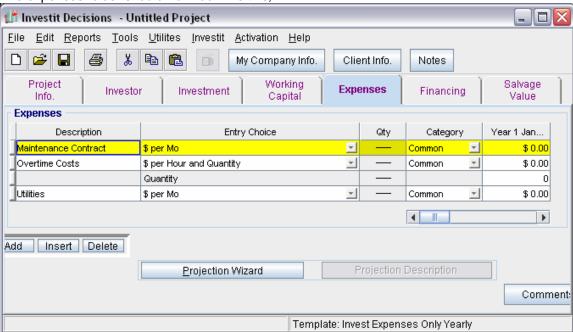
The expenses folder should appear like this;



Steps for setting up the Expenses folder

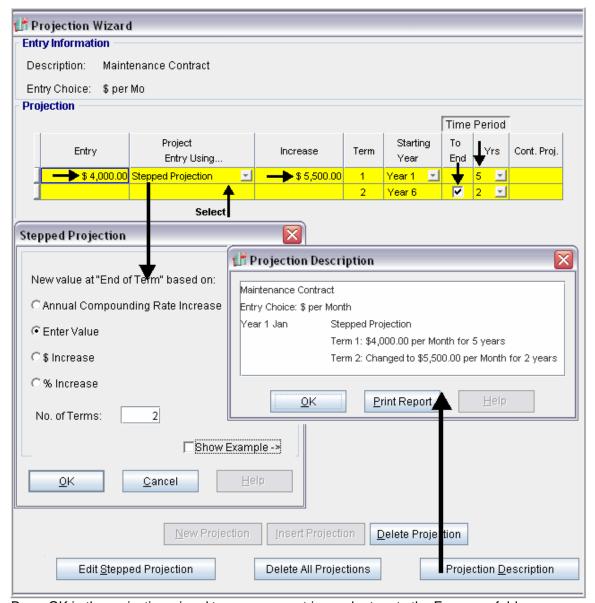
- 1. Select row 1 'Labor'
- 2. Enter Description 'Maintenance Contract'
- 3. Select Entry Choice '\$ per Mo'
- 4. Select row 2 with description 'Materials'
- 5. Enter Description 'Overtime Costs'
- 6. Select Entry Choice '\$ per Hour and Quantity'
- 7. Individually Delete rows 'Repairs & Maintenance',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

The expenses folder should now look like this;



# Steps for setting up the Maintenance Contract

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

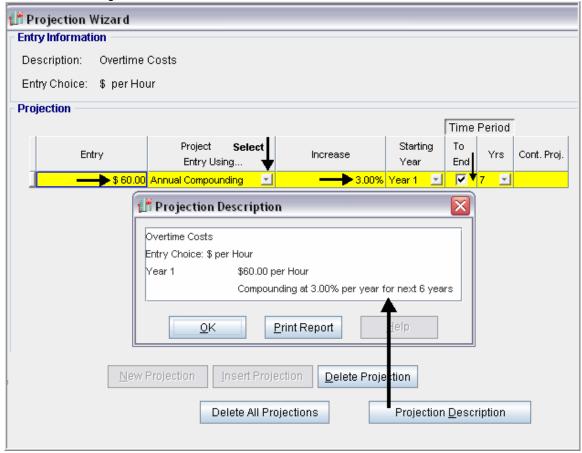


Press OK in the projection wizard to save your entries and return to the Expenses folder

#### Steps for setting up the Overtime Costs

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

#### Enter the following entries

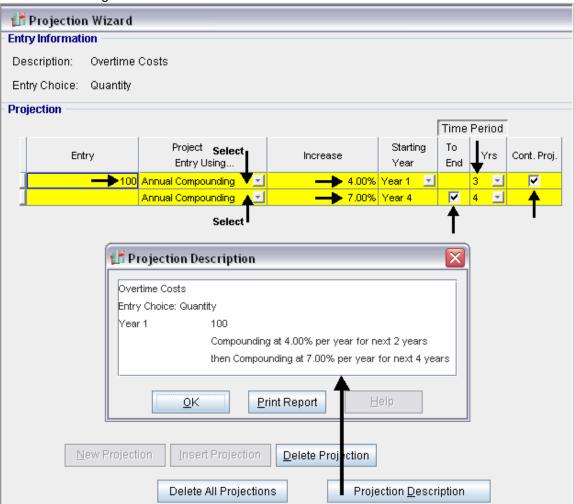


Press OK to save your entries and return to the Expenses folder

#### Steps for setting up the Quantity

- 1. Select row with entry choice 'Quantity'
- 2. Click on the <u>Projection Wizard</u> button.

#### Enter the following entries:

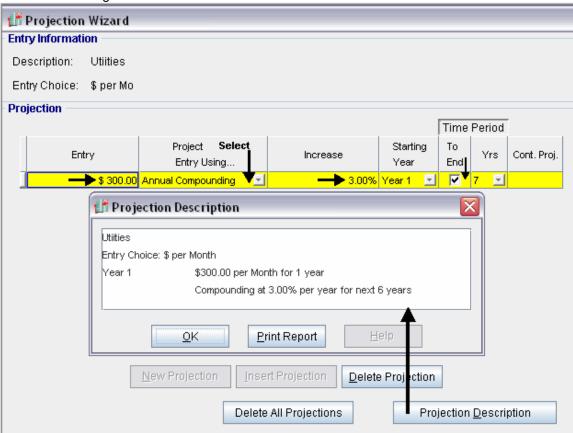


Press OK to save your entries and return the Expenses folder

#### Steps for setting up the Utilities

- 1. Select row with description 'Utilities'
- 2. Click on the <u>Projection Wizard</u> button.

#### Enter the following entries:



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;



Enter \$15,000 into the grid for Equipment

The Salvage Value should now look like this;



**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**

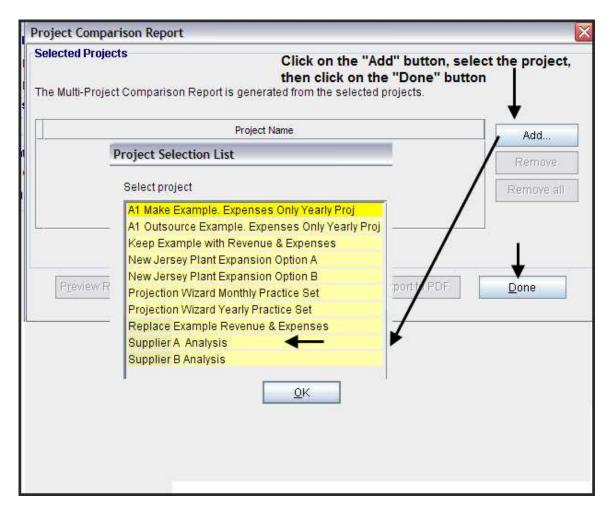
Up to four projects can be compared side by side.

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

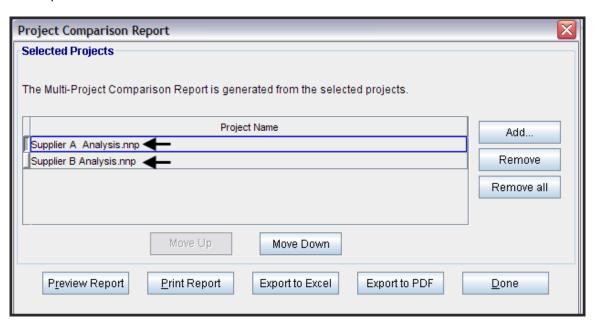
1. Select the Project Comparison Report on the Report menu



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 1	Гах)
Net Cash Flow(Before Tax)				
		Supplier A Analysis	Supplier B Analysis	
Year	0	(530,000)	(400,000)	
	1	(38,000)	(57,600)	
	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)	
Internal Rate of Return (IRR) MIRR Short term financing rate		N/A N/A	N/A N/A	
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 (Y	ears)	N/A	N/A	
Note			ve.	

# **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 the show the differences in the cash flow for "Supplier A" versus "Supplier B" Steps

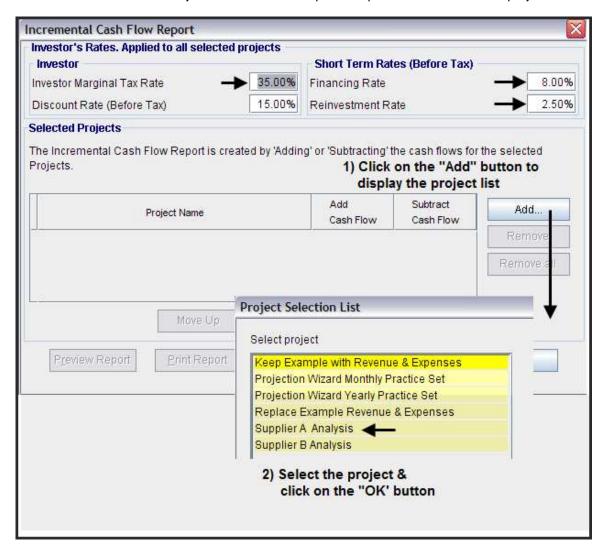
Select the Incremental Cash Flow on the Report menu



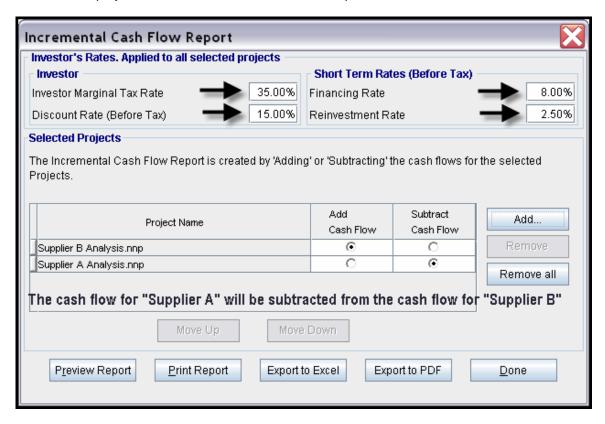
#### Enter;

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.



The selected projects for the Incremental Cash Flow Report are;



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

		Incremental Cash Flov	w Report (Before Tax			
Net Cash Flow(Before Tax)						
	Plus	Minus	Incremental Net Cash Flow			
	Supplier B Analysis	Supplier A Analysis	(Before Tax)			
Year O	(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	782%			
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%			
Shortterm 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						

# 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