

BUY versus LEASE EXAMPLE

Example USA

INTRODUCTION

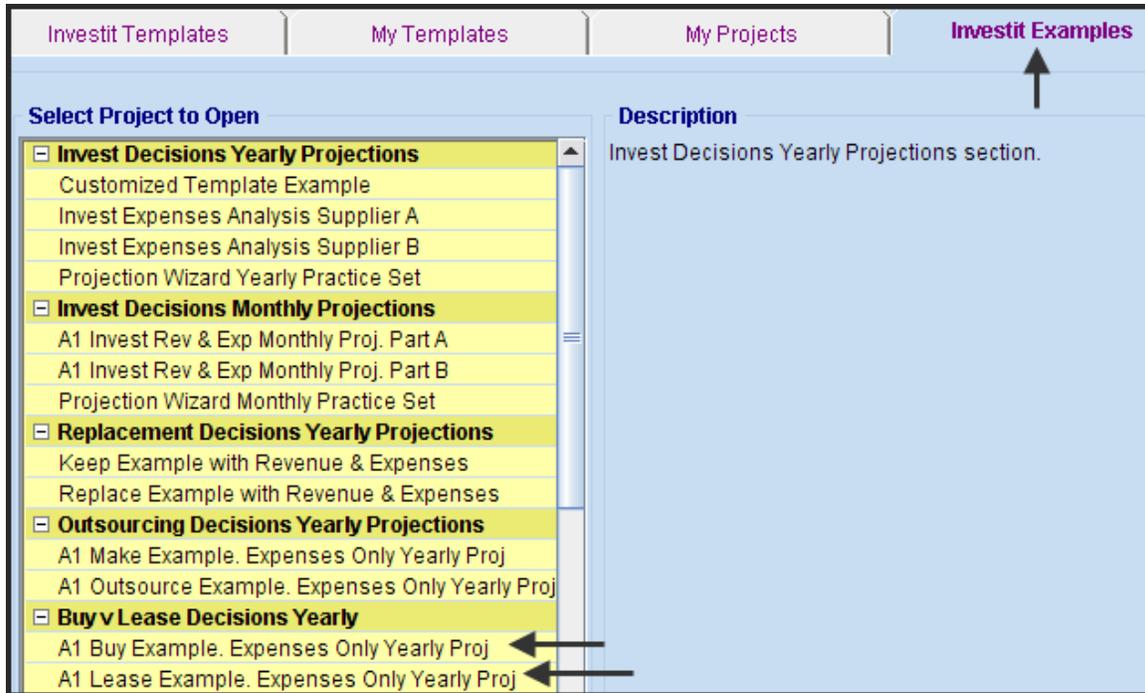
This example uses the “Buy Expenses Only Yearly” and “Lease Expenses Only Yearly” templates

Note: Buy versus lease decisions should always be made “After Tax” because of the different tax treatments. The exception would be for non profit organizations where the buy versus lease analysis would be done before tax.

VERIFYING YOUR ANALYSIS

You can compare your analysis against the two Investit Decisions Examples;

1. A1 Buy Example. Expenses Only Yearly Proj.
2. A1 Lease Example. Expenses Only Yearly Proj.



EXAMPLE

An organization is evaluating whether they should buy or lease their new “Super X” high volume color printer.

General Information

Analysis Period: 6 Years

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

Discount Rate (Before Tax): 12.00%

BUY ANALYSIS

Project Info Folder

Project Name: Super X Printer. Buy Analysis

Project Description: Example

Analysis Period: 6 years

Investor Folder

Marginal Tax Rate: 35.00%

Discount Rate (Before Tax): 12.00%

Investment Folder

Description: Super X Printer

Amount: \$250,000

Depreciation Method: Personal Property 200% DB

Recovery Period: 5.0 years

Working Capital Folder

Working Capital: None

Expenses Folder

Service Contract: \$3,000 per month for one year increasing at 3.00% per year compounded

Insurance: \$5,000 per year increasing at 3.00% compounding

Financing Folder

Start Date: Year 1 January

Type: Standard Mortgage

Amount: \$100,000

Time Period: 6 years

Interest Rate: 8.00% per year

Payments: Monthly

Compounding Period: Monthly

Salvage Value Folder

Disposition Costs

Selling Expenses: None

Removal Costs: None

Salvage Value:

Super X Printer: \$75,000

LEASE ANALYSIS

Project Info Folder

Project Name: Super X Printer Lease Analysis
Project Description: Example
Analysis Period: 6 years

Investor Folder

Marginal Tax Rate: 35.00%
Discount Rate (Before Tax): 12.00%

Investment Folder

Description: Investment (Down Payment)
Amount: \$50,000
Depreciation Method: Personal Property 200% DB
Recovery Period: 5.0 years

Working Capital Folder

Working Capital: None

Expenses Folder

Leasing Cost: \$4,300 per month for 6 years

Service Contract: \$2,500 per month for one year, increasing at 3.00% compounding per year

Financing Folder

No financing

Salvage Value Folder

Disposition Costs:
Removal Costs: None
Salvage Value:
Super X Printer: \$0

Steps

Using the Buy and Lease Expenses Only Yearly projections templates;

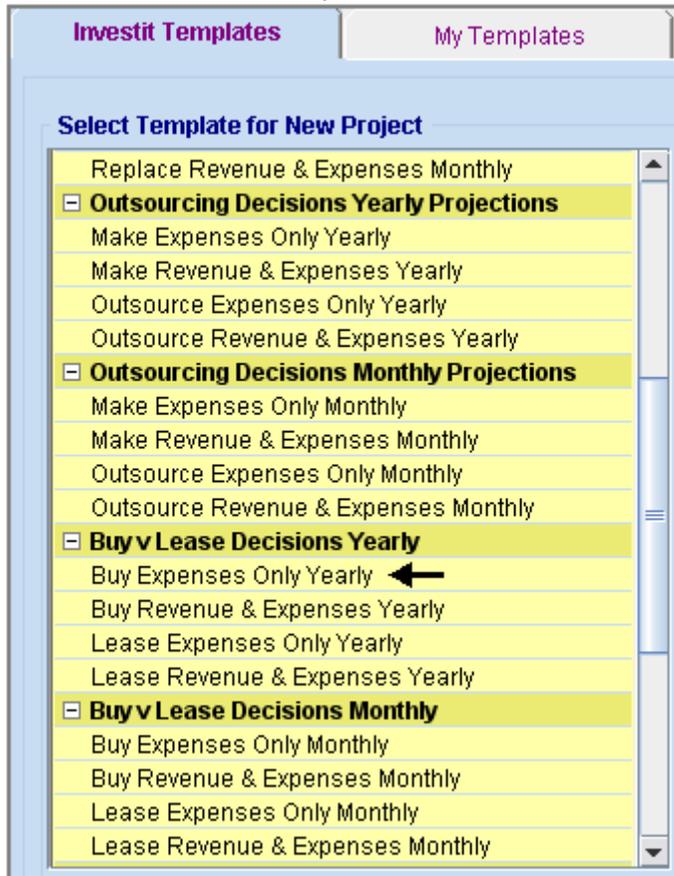
1. Enter the Analysis for buying the "Super X" high volume color printer.
2. Enter the Analysis for leasing the "Super X" high volume color printer.
3. Use the "Project Comparison Report" or the "Incremental Cash Flow Report" to compare the two options

INSTRUCTIONS FOR ENTERING THE BUY ANALYSIS

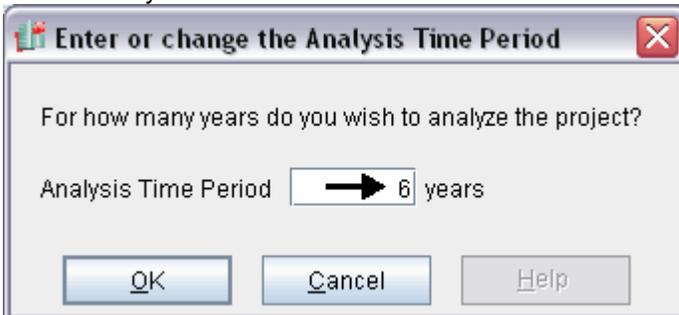
Getting started

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

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



3. Select and open the Investit template “Buy Expenses Only Yearly”. The analysis period dialog will open at this point.
4. Enter 6 years and click OK



Entering the project data and information

Project Info Folder

Project Name: Super X Printer. Buy Analysis

Project Description: Example

Analysis Period: 6 years

Project Info.	Investor	Investment	Working Capital
Report Headers			
Project Name	Super X Printer Buy Analysis ←		
Project Description	Example ←		
Analysis Time Period			
	6	Years	Change Analysis Time Period
Entry Information			
Enter Revenue and Expenses	Yearly		Change Entry Information
Starting Date	January Year 1		

Investor Folder

Marginal Tax Rate: 35.00%

Discount Rate (Before Tax): 12.00%

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	→ 12.00%	
After Tax	7.80%	

Investment Folder

Description: Super X Printer
 Amount: \$250,000
 Depreciation Method: Personal Property 200% DB
 Recovery Period: 5.0 years

Fill out the following entries into the Investment folder

Project Info.	Investor	Investment	Working Capital	Buy (Expenses)	
Investments					
Inflate					
Description	Amount	Year	Month	Depreciation Method	Recovery Period [yrs]
Super X Printer ←	\$ 250,000 →	Year 1	Jan	Personal Prop. 200% DB	5.0 →

Working Capital Folder

Working Capital: None

Expenses Folder

Service Contract: \$3,000 per month for one year increasing at 3.00% per year compounded

Insurance: \$5,000 per year increasing at 3.00% compounding

Make the following changes to the Expenses folder

Project Info.	Investor	Investment	Working Capital	Buy (Expenses)
Buy (Expenses)				
Description	Entry Choice	Qty	Category	Year 1 Jan...
Service Contract ←	\$ per Mo	—	Common	\$ 0
Insurance ←	\$ per Yr ←	—	Common	\$ 0

Setting up the Service Contract

1. Select row 1 'Service Contract'
2. Click on the Projection Wizard button and enter the following entries

The screenshot displays the 'Projection Wizard' application window. It is divided into two main sections: 'Entry Information' and 'Projection'.

Entry Information:
 Description: Service Contract
 Entry Choice: \$ per Mo

Projection:
 A table with columns: Entry, Project Entry Using..., Increase, Starting Year, Time Period (To End, Yrs), and Cont. Proj. The first row is highlighted in yellow and contains the following data: Entry: \$ 3,000; Project Entry Using...: Annual Compounding; Increase: 3.00%; Starting Year: Year 1; To End: [checked]; Yrs: 6; Cont. Proj. [unchecked].

Below the table is a 'Projection Description' dialog box with the following text:
 Service Contract
 Entry Choice: \$ per Month
 Year 1 \$3,000 per Month for 1 year
 Compounding at 3.00% per year for next 5 years

At the bottom of the main window, there are several buttons: 'New Projection', 'Insert Projection', 'Delete Projection', 'Delete All Projections', and 'Projection Description'. An arrow points from the 'Projection Description' button to the dialog box.

Setting up the Insurance

1. Select row 2 'Insurance'
2. Click on the Projection Wizard button and enter the following entries

The screenshot displays the 'Projection Wizard' window. The 'Entry Information' section shows 'Description: Insurance' and 'Entry Choice: \$ per Yr'. The 'Projection' section contains a table with the following data:

Entry	Project Entry Using...	Increase	Starting Year	Time Period		Cont. Proj.
				To End	Yrs	
\$ 5,000	Annual Compounding	3.00%	Year 1	<input checked="" type="checkbox"/>	6	

Below the table is a 'Projection Description' dialog box with the following text:

Insurance
 Entry Choice: \$ per Year
 Year 1 \$5,000 per Year
 Compounding at 3.00% per year for next 5 years

The dialog box has buttons for 'OK', 'Print Report', and 'Help'. At the bottom of the main window are buttons for 'New Projection', 'Insert Projection', 'Delete Projection', 'Delete All Projections', and 'Projection Description'. Arrows in the image point from the 'Projection Description' button to the dialog box and from the 'Annual Compounding' and 'To End' cells of the table to the dialog box content.

Financing Folder

Start Date: Year 1 January

Type: Standard Mortgage

Amount: \$100,000

Time Period: 6 years

Interest Rate: 8.00% per year

Payments: Monthly

Compounding Period: Monthly

Make the following entries into the Mortgage window

Mortgage

Mortgage Details

Analysis Period: Year 1 Jan to Year 6 Dec

Commencing Year 1 Month January

Type Standard Mortgage

Amount \$ 100,000 Interest Rate Fixed

Description Super X Printer Loan

Mortgage Settings

Payment Frequency Monthly

Additional Payments/Borrowing

Payment Rounded Up to Nearest Cent

Compounding Frequency Monthly

Terms and Amortization Details

No of (Balloon) Terms 1

Term No	Time Period		Amortization		Nominal Interest Rate
	Years	Months	Years	Months	
1	6	0	6	0	8.000%

Make the entries and then click on the Compute button

OK Compute Fill Down Cancel Help Comments

Salvage Value Folder

Disposition Costs

Selling Expenses: None

Removal Costs: None

Salvage Value:

Super X Printer: \$75,000

Make the following entries into the Salvage Value folder

Working Capital	Buy (Expenses)	Financing	Salvage Value
Disposition Costs			
Description	Entry Choice	Expense	
Selling Expenses	% of Salvage Value	0.00%	
Legal Fees	% of Salvage Value	0.00%	
Removal Costs	Amount	\$ 0	
<input type="button" value="Add"/> <input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Move"/>			
Salvage Value			
Description	Capital Investment	Salvage Value	
Super X Printer	\$ 250,000	➔ \$ 75,000	

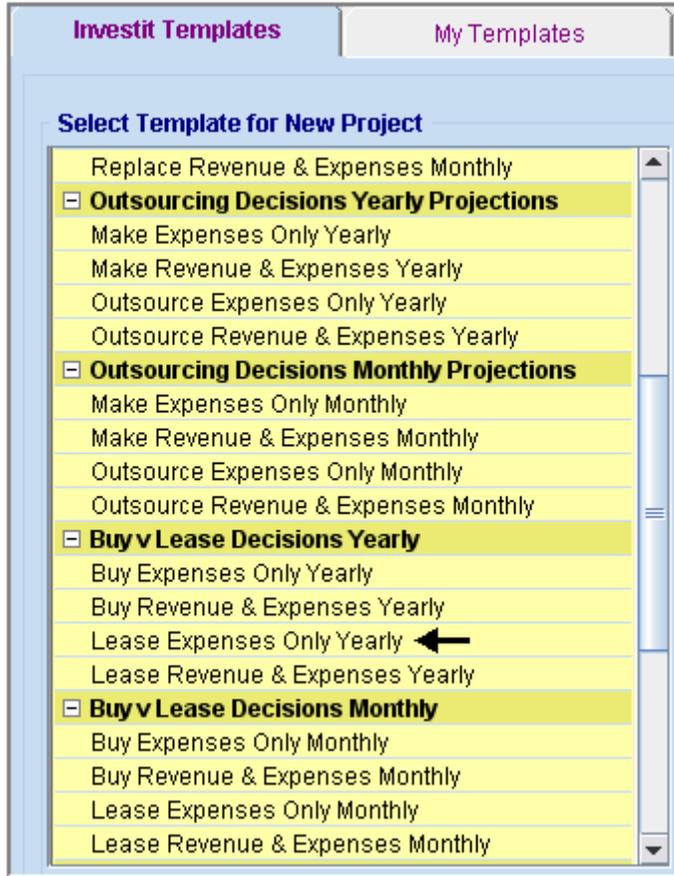
SAVE YOUR PROJECT

INSTRUCTIONS FOR ENTERING THE LEASE ANALYSIS

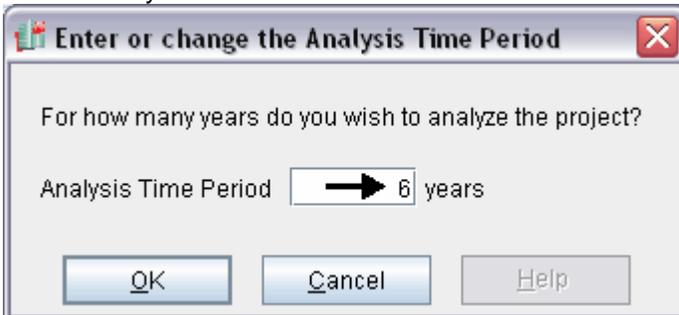
Getting started

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

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



3. Select and open the Investit template “Lease Expenses Only Yearly”. The analysis period dialog will open at this point.
4. Enter 6 years and click OK



Entering the project data and information

Project Info Folder

Project Name: Super X Printer Lease Analysis
 Project Description: Example
 Analysis Period: 6 years

Project Info.	Investor	Investment	Working Capital
Report Headers			
Project Name	Super X Printer Buy Analysis ←		
Project Description	Example ←		
Analysis Time Period			
	6	Years	Change Analysis Time Period
Entry Information			
Enter Revenue and Expenses	Yearly		Change Entry Information
Starting Date	January Year 1		

Investor Folder

Marginal Tax Rate: 35.00%
 Discount Rate (Before Tax): 12.00%

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	→ 12.00%	
After Tax	7.80%	

Investment Folder

Description: Investment (Down Payment)
 Amount: \$50,000
 Depreciation Method: Personal Property 200% DB
 Recovery Period: 5.0 years

Fill out the following entries into the Investment folder

Project Info.	Investor	Investment	Working Capital	Lease (Expenses)	Financing
Investments					
Inflate					
Description	Amount	Year	Month	Depreciation Method	Recovery Period [yrs]
Investment (Down Payment) ←	\$ 50,000 →	Year 1 ▾	Jan ▾	Personal Prop. 200% DB ▾	→ 5.0

Working Capital Folder

Working Capital: None

Expenses Folder

Leasing Cost: \$4,300 per month for 6 years

Service Contract: \$2,500 per month increasing at 3.00% compounding per year

Make the following changes to the Expenses folder

Project Info.	Investor	Investment	Working Capital	Lease (Expenses)
Lease (Expenses)				
Description	Entry Choice	Qty	Category	Year 1 Jan...
Leasing Cost	\$ per Mo ▾	—	Common ▾	\$ 0
Service Contract ←	\$ per Mo ▾	—	Common ▾	\$ 0

Setting up the Leasing Cost

3. Select row 1 'Leasing Cost'
4. Click on the Projection Wizard button and enter the following entries

The screenshot displays the 'Projection Wizard' software interface. It features two main sections: 'Entry Information' and 'Projection'.

Entry Information:
Description: Leasing Cost
Entry Choice: \$ per Mo

Projection:

Entry	Project Entry Using...	Increase	Starting Year	Time Period		
				To End	Yrs	Cont. Proj.
→ \$ 4,300	Constant (Fill Right)		Year 1	<input checked="" type="checkbox"/>	6	

An arrow points to the 'To End' checkbox in the table.

Projection Description Window:

Leasing Cost
Entry Choice: \$ per Month
Year 1 \$4,300 per Month for 1 year
Constant per year for next 5 years

Buttons: OK, Print Report, Help

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

Setting up the Service Contract

3. Select row 2 'Service Contract'
4. Click on the Projection Wizard button and enter the following entries

The screenshot shows the 'Projection Wizard' window. Under the 'Entry Information' section, the description is 'Service Contract' and the entry choice is '\$ per Mo'. The 'Projection' section contains a table with the following data:

Entry	Project Entry Using...	Increase	Starting Year	To End	Yrs	Cont. Proj.
→ \$ 2,500	Annual Compounding	→ 3.00%	Year 1	<input checked="" type="checkbox"/>	6	

Below the table is a 'Projection Description' dialog box with the following text:

Service Contract
 Entry Choice: \$ per Month
 Year 1 \$2,500 per Month for 1 year
 Compounding at 3.00% per year for next 5 years

The dialog box has buttons for 'OK', 'Print Report', and 'Help'. At the bottom of the main window are buttons for 'New Projection', 'Insert Projection', 'Delete Projection', 'Delete All Projections', and 'Projection Description'. Arrows indicate that the 'Projection Description' button is used to open the dialog box and that the 'Annual Compounding' and 'To End' fields in the table are highlighted.

Financing Folder

No financing

Salvage Value Folder

Disposition Costs:

Removal Costs: None

Salvage Value:

Super X Printer: \$0

No entries need to be made in the Salvage Value folder

SAVE YOUR PROJECT

DECIDING BETWEEN “BUY” OR “LEASE”

The Buy versus Lease choice should always be made after tax because of the different tax treatments for buying versus leasing.

To decide between the two options use;

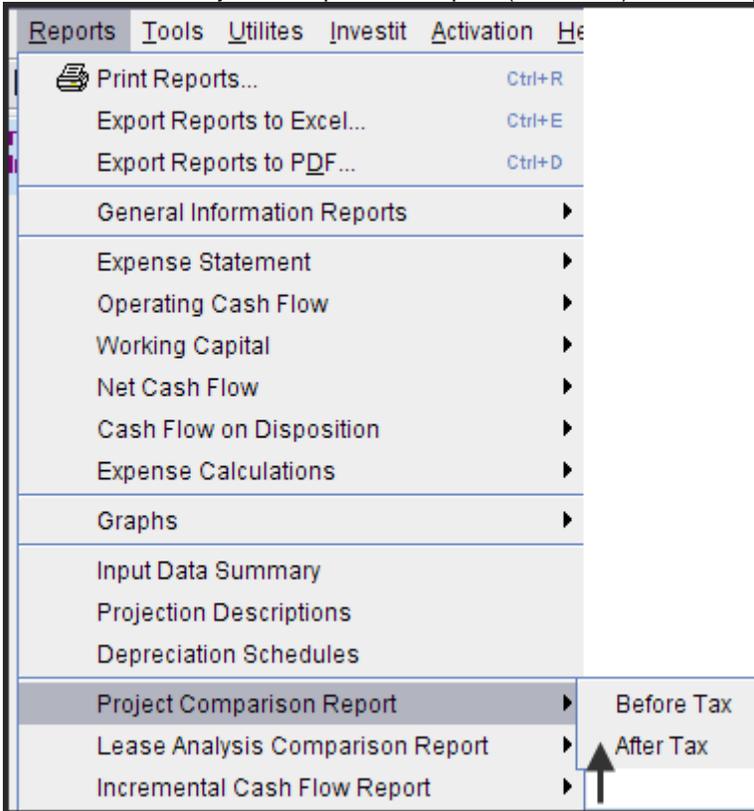
- a) The Project Comparison Report (After Tax) and
- b) The Incremental Cash Flow Report (After Tax)

Project Comparison Report

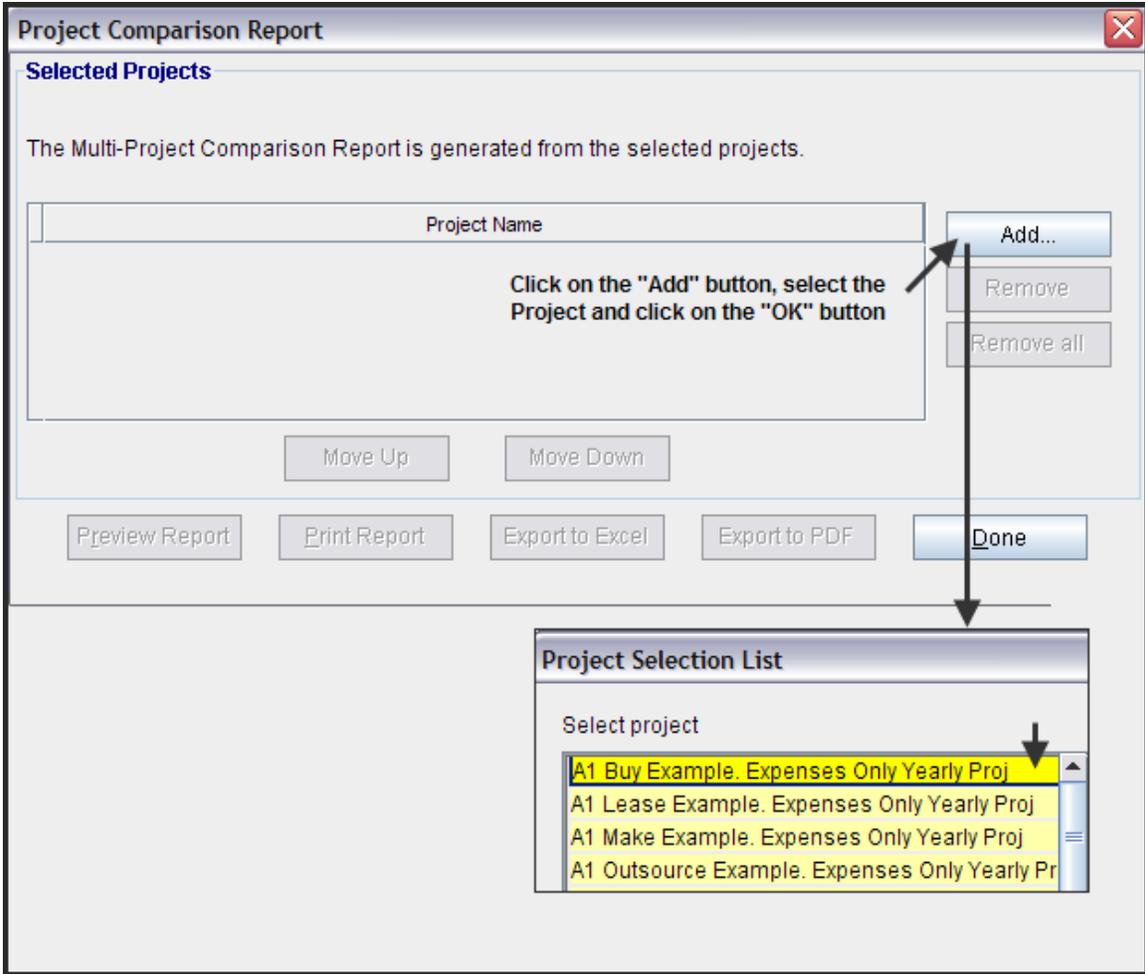
Up to four projects can be compared side by side.

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

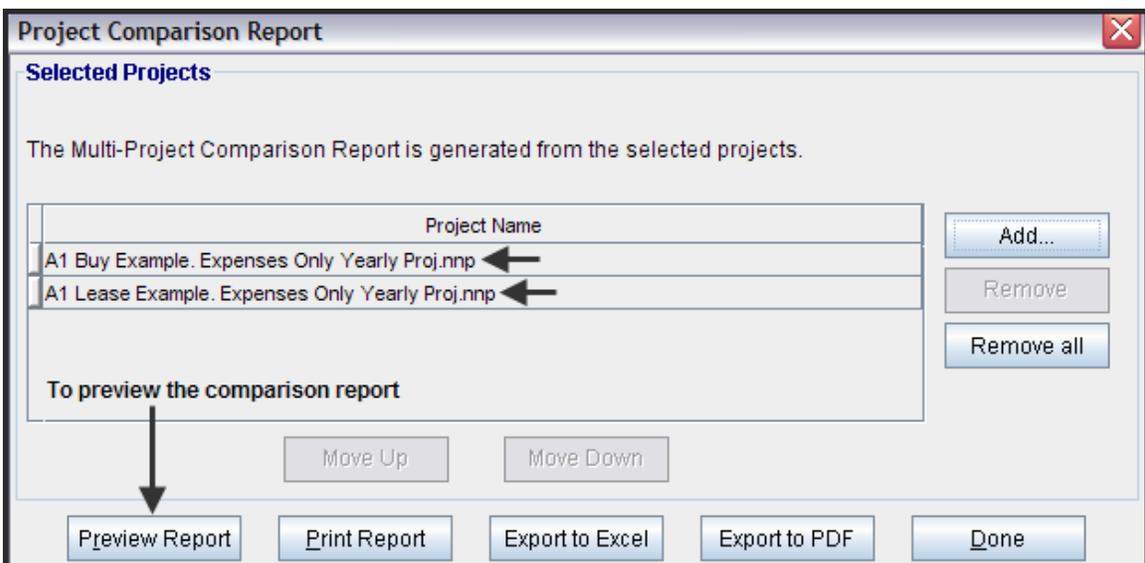
1. Select the Project Comparison Report (After Tax) on the Reports menu



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 as shown below.



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



Project Comparison Report

Project Comparison Report (After Tax)			
Net Cash Flow(After Tax)			
		A1 Buy Example. Expenses Only Yearly Proj	A1 Lease Example. Expenses Only, Yearly Proj
Year	0	(150,000)	(50,000)
	1	(27,561)	(49,540)
	2	(18,254)	(48,025)
	3	(30,705)	(50,866)
	4	(38,731)	(52,834)
	5	(40,109)	(53,473)
	6	2,164	(55,136)
	Total	(303,195)	(359,874)
Financial Return After Tax			
Marginal Tax Rate:		35.00%	35.00%
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)		➔ (\$ 270,638) at 7.80%	➔ (\$ 288,875) at 7.80%
Annual Equivalency		(\$ 58,188) at 7.80%	(\$ 62,109) at 7.80%
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 using the “Comparison Report”

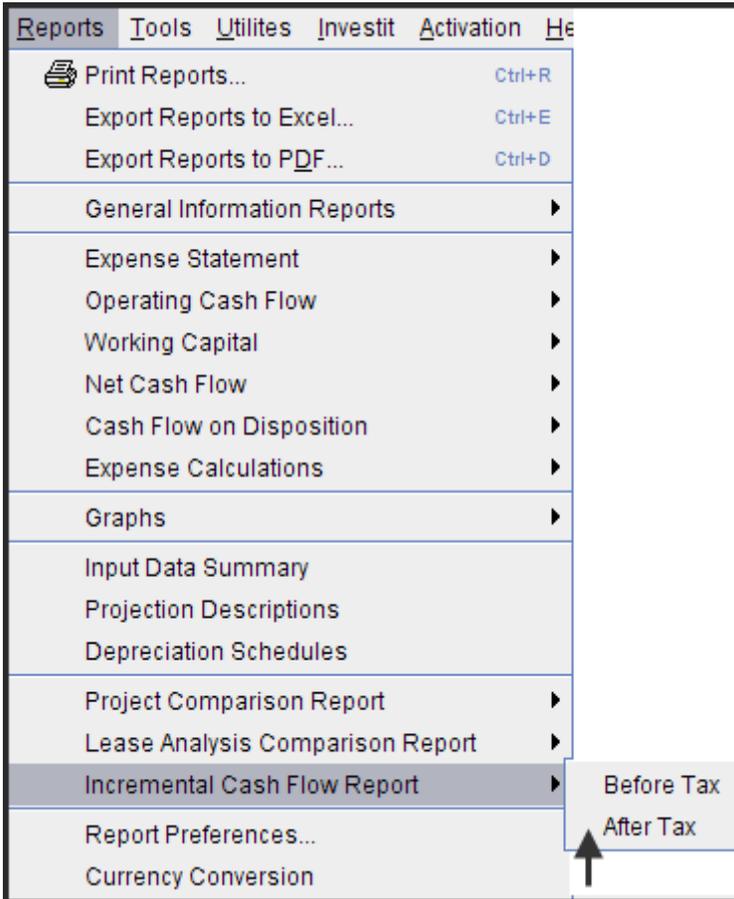
The “Buy” option is the best choice because the “Buy” option has the lowest Net Present Value (NVP) at 7.80% after tax which is <\$270,638> compared to <\$288,875> for the Lease option.

Incremental Cash Flow Report

When carrying out “Incremental Cash Flow Analysis” the largest investment goes first for the Incremental Cash Flow Report. In this case it is the “Buy” option

Steps

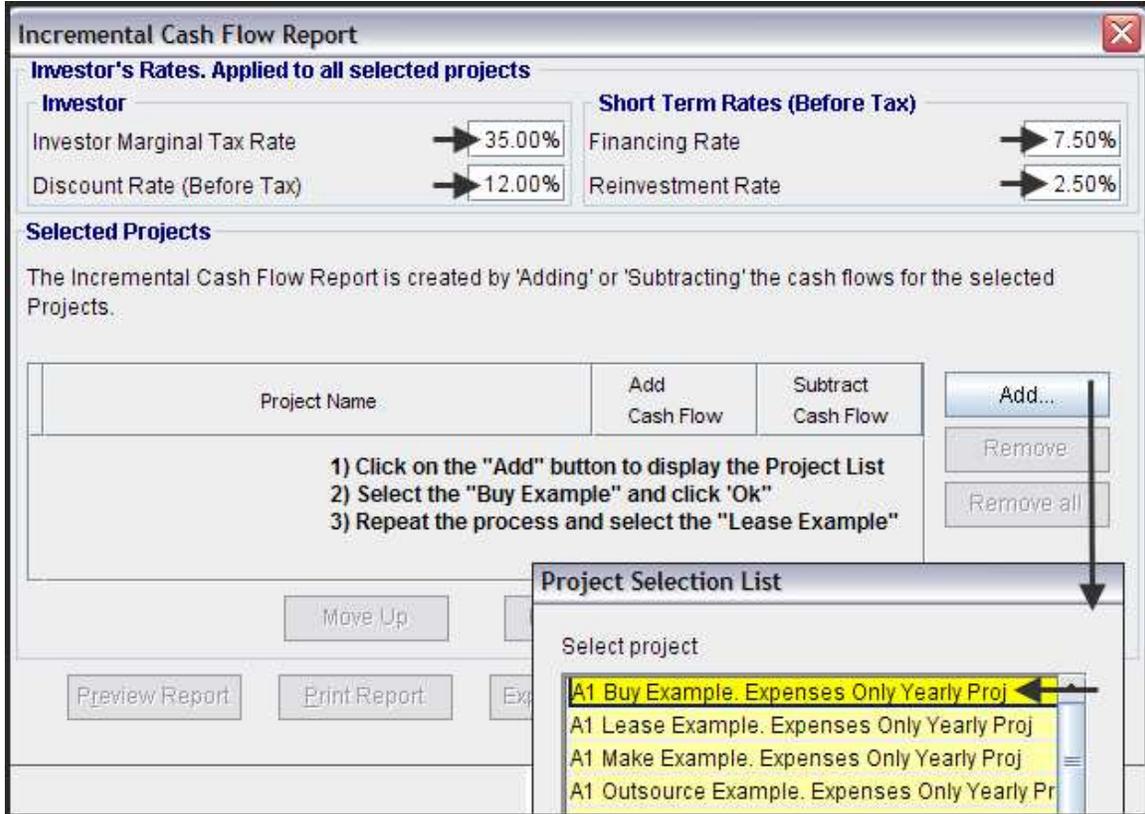
Select the Incremental Cash Flow (After Tax) on the Report menu



Enter the following;

Investor's Marginal Tax Rate: 35%
Discount Rate: 12.00%
Short Term Rates: Financing Rate 7.50%
Reinvestment Rate 2.50%

On the "Incremental Cash Flow Report" dialog click on the "Add" button to display the Report Selection List. Select the "Buy Example" and click 'Ok". Repeat the process and select the "Lease Example". The "Buy Example" was selected because it involves the larger investment.



The selected projects for the Incremental Cash Flow Report are:

Incremental Cash Flow Report ✕

Investor's Rates. Applied to all selected projects

Investor	Short Term Rates (Before Tax)
Investor Marginal Tax Rate → 35.00%	Financing Rate → 7.50%
Discount Rate (Before Tax) → 12.00%	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	
A1 Buy Example. Expenses Only Yearly Proj.nnp ←	→ ●	○	Add...
A1 Lease Example. Expenses Only Yearly Proj.nnp ←	○	→ ●	Remove

The Net Cash Flow of the "Lease " option is subtracted from the Net Cash Flow of the "Buy" option

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 (After Tax) Buy versus Lease

Incremental Cash Flow Report (After Tax)			
Incremental Cash Flow Buy Vs. lease			
↓			
Net Cash Flow (After Tax)	Plus A1 Buy Example. Only Yearly Proj	Minus A1 Lease Example. Expenses Only Yearly Proj	Incremental Net Cash Flow (After Tax)
Year 0	(150,000)	(50,000)	(100,000)
1	(27,561)	(48,540)	21,979
2	(18,254)	(48,025)	29,771
3	(30,705)	(50,866)	20,160
4	(38,731)	(52,834)	14,103
5	(40,109)	(53,473)	13,364
6	2,164	(55,136)	57,301
Total	(303,195)	(359,874)	56,679
After Tax Financial Return			
Marginal Tax Rate:	35.00%	35.00%	35.00%
Internal Rate of Return (IRR)	N/A	N/A	→ 13.05%
Net Present Value (NPV) at 7.80%	→ (\$ 270,638)	→ (\$ 288,875)	→ \$ 18,237
Modified Internal Rate of Return (MIRR)	N/A	N/A	7.77%
Short term financing rate	-	-	-
Short term reinvestment rate	-	-	-
Annual Equivalency at 7.80%	(\$ 58,188)	(\$ 62,109)	\$ 3,921
Payback Period	N/A	N/A	5.01 years
Discounted Pay Back Period at 7.80%	N/A	N/A	5.50 years
Note Unable to calculate the IRR and MIRR because all the Cash Flows are negative.			

Interpretation and decision using the “Incremental Cash Flow Report”

The Internal rate of Return (IRR) of “Buying” compared to “Leasing” is 13.05% after tax which exceeds the minimum acceptable return (IRR) of 7.80% after tax

The “Buy” option is the best choice because the “Buy” option has the lowest Net Present Value (NVP) at 7.80% after tax which is <\$270,638> compared to <\$288,875> for the Lease option.

Both the ‘Incremental Cash Flow’ approach or choosing the option with the highest Net Present Value (NPV) will result in the same choice when dealing with mutually exclusive investments.